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Monitoring and Evaluation Report

Mt. Hood National Forest

Land and Resources Management Plan

FY 2005

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Fiscal Year 2005

Mt. Hood National Forest
Land and Resource Management Plan

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Progress Towards Sustainability on the Mt. Hood National Forest

From 1999 through 2001, the Mt. Hood National Forest, in partnership with Portland State University, participated in the Local Unit Criteria and Indicator Development (LUCID) pilot test to determine whether adopting a program of sustainability monitoring could enhance current monitoring programs at the local scale in the Forest Service. Two key outcomes of the LUCID pilot test were the use of a systems approach to monitoring and development of locally relevant suite of criteria and indicators as the framework for the monitoring process.

Using the tools and lessons learned from the LUCID test, the Mt. Hood National Forest is transitioning into a monitoring program that can answer the key sustainability questions and build a long-term method for looking at the Forest. The purpose of this report is to enhance understanding of the ecological, social, economic, and institutional conditions and trends related to the Mt. Hood National Forest in order to contribute to a continuing dialog on achieving progress in sustainable management.

The term sustainability expresses the human desire for an environment that can provide for our needs now and for future generations. Finding a specific definition of sustainability that is broadly acceptable is difficult because it is about values that vary among groups and over time. It requires decisions about what to sustain, for whom, for how long, at what cost, and how. It is best achieved by optimizing the critical components of social, economic and ecological systems.

Sustainability is the understanding of all the components and their interactions. Over the past several decades, the quest for sustainability has emerged as a central theme of economic development, social policy, and natural resource management at local, regional, national, and international levels.

There are many reasons we should care about sustainability. Some of these include:

- Take actions today that do not compromise the choices of future generations.
- Steer us in the direction of systems thinking in our everyday management of the forests.
- Make better management decisions that would improve sustainable conditions.
- Help focus on the key issues or components helping managers to prioritize management actions and resources.
- Identify areas contributing to sustainability and areas that may be improved through adaptive management.
- Affect ecological carrying capacity to provide goods and services based on changing values and demands on our Forest.
- Engage in a dialogue with our publics about what sustainability means on our Forest to help create a common understanding and vision.
- Emphasize stewardship goals for National Forest Systems as addressed in the 2005 planning rule.

Systems-based Approach

Transitioning the monitoring report to a systems-based framework provides a more holistic view of the conditions and issues on the Forest in a sustainability context. A systems-based framework helps to describe important relationships across social, economic and ecological systems. It provides a logical link between sustainability and monitoring by helping place the monitoring component (the indicator) in the context of larger systems and its interactions with other components of the system. The framework is organized by the structures and functions of the ecological, social and economic systems. This represents the core set of criteria and indicators used to characterize the critical system components of forest sustainability on the Mt. Hood National Forest. The collective information from all indicators is what informs us about the status of forests. See Appendix B for the Mt. Hood National Forest's list of criteria and indicators.

The overview summary of the monitoring report, as well as some of the individual reports in Chapter 2, is presented in the systems-based framework.

An Overview of Current Resource Conditions

Ecological Integrity

The ecological criteria and indicators were based on maintaining integrity of ecological systems to provide sustainable forests.

Landscape Function, Structure and Composition

Ecosystems are dynamic and as such disturbances and stresses are part of them. It is important to note the disturbances and stresses that are either foreign to or outside the range of the disturbances and stresses with which the ecosystem evolved. Such disturbances and stresses pose a serious threat to the sustainability of a given ecosystem because they may exceed the ability of the ecosystem to accommodate them without major changes in the structure, composition, and/or function components. Disturbances impact all aspects of ecosystems at a landscape level including successional pathways, carbon balances, nutrient cycles, water quality and quantity, habitat and forage availability, scenery, availability of products, and economic values of products. The landscape function, structure, and composition criteria and indicators provides us with information about the landscape's ability to increase or decrease the effects of fire and wind on the Forest; to provide habitat for different kinds of wildlife including rare species; to resist and recover from disturbances; to filter and maintain water quality; and to provide information on the diversity and pattern of land cover types. It also helps us to look at the implications of vegetation management actions including road building on attaining landscape-desired conditions. These criteria and indicators focus on the processes, structures and composition that influence landscape patterns and distribution.

Fire Management

Fire is a dominant disturbance process that has influenced vegetation at many spatial scales over the past several centuries. At a broad scale, fires influenced vegetation patterns by affecting the distribution of stand types and seral stages across the landscape. Intensity and frequency of fires can affect composition and structure of plant communities at a finer scale. Current vegetation pattern and plant community dynamics have been altered by fire suppression. This raises sustainability questions about what are the effects of the current fire regimes and management activities towards achieving desired vegetation and landscape patterns.

The overall goal of the fire management program is to provide fire protection capability to support attainment of land and resource objectives. Fire protection and fuel treatment objectives are identified in the Forest Plan for monitoring. It estimates that there should be no increase in the number of wildfires on the Forest based on the standards and guidelines. To date, the number of fires and acres burned are below Plan estimates. Changes in vegetative conditions, however, have altered disturbance regimes, particularly on the drier eastside of the Forest; resulting in the potential for larger, more severe fires that are outside the historic range of variation. Changes in stand structure, species composition, and accumulated fuels have predisposed extensive areas to insect infestations, disease, and high-intensity wildfires that may threaten nearby communities, watersheds and key ecological components. It is expected that resource damage and value lost will increase.

These altered disturbance regime areas are specifically targeted by the 10-Year Cohesive Strategy and the Mt. Hood National Forest 5-year strategy for integrating fuels and vegetation treatments. Specific objectives of these strategies include modifying fire behavior to protect homes, protecting infrastructure and municipal watersheds in the Wildland Urban Interface (WUI), and ecologically restoring stands and landscapes outside of the WUI. In 2005, the Forest completed hazardous fuel treatment of 1,327 acres of which 1,135 acres were in WUI, Fire Regime 1.

The Healthy Forest Restoration Act (HFRA) passed in 2003, the related Healthy Forest Initiative (HFI), and the Tribal Forestry Protection Act of 2004 developed new administrative and legislative tools to help restore healthy ecosystems and assist in executing core components of the National Fire Plan that will accelerate treatments designed to restore healthy ecosystems. In 2004 and 2005, the Forest started planning projects under HFRA and HFI.

The Forest is continuing to seek markets for biomass and small-diameter material. Development of local co-generation facilities and mobile chipping plants are examples of several processes that will help to make biomass utilization a reality.

The Forest has prioritized planning and implementing landscape scale fuels and vegetation management projects entering into cooperative efforts with the State, Tribal governments and local landowners. An effort to update the fire regime condition classes, forest vegetation, and fuels data is continuing and will greatly enhance our ability to quantify and monitor many deteriorating conditions in these ecosystems. The conditions include how current fire regime and management activities are affecting vegetation and landscape patterns, how to incorporate fire back into the ecosystem, and how Forest Service efforts in stewardship, partnerships, education and training are contributing to restoring forest health and safety. This effort should provide fire managers with the landscape-scale information that will help improve strategic decision-making in both the prescribed fire and wildfire arenas.

Noxious Weeds

Noxious weeds or invasive plant species are recognized as a major threat to native plant communities especially on disturbed sites and grasslands. Invasive plants displace native vegetation, alter species composition of forests and rangelands, reduce the productivity of desired commodities, reduce species diversity, and adversely affect recreational quality. The Forest Plan goal is to control noxious weed infestations and prevent their spread. Currently, the total area of inventoried noxious weed infestation on the Mt. Hood National Forest is approximately 3,000 acres. This underestimates actual total infested acres, which have not been inventoried. Currently, only targeted weeds are monitored and resources are lacking for a Forestwide systematic survey. Untreated hawkweeds and Japanese knotweed sites are continuing to spread and new infestation sites are being detected.

The Mt. Hood National Forest cooperates with the Oregon Department of Agriculture, Wasco County and Hood River County Weed Departments, Bonneville Power Administration, and the Confederated Tribes of Warm Springs to conduct inventories and treat noxious weeds. Monitoring is conducted on weed control treatments, known infestations and new infestations. A total of 565 acres of noxious weeds were treated on the Forest in 2005.

Emphasis continues to be placed on the detection of satellite populations of non-native hawkweeds and Japanese knotweed that are continuing to spread on the Forest. Hawkweeds displace native forage species, which has an impact on the health of elk populations. Knapweed is well-entrenched and established across the eastside of the Forest; however, a combination of control efforts and its habitat preferences, it has not become widespread on the westside. Houndstongue continues to spread into new areas on Barlow, but appears to be limited to this portion of the Forest.

The Forest is currently preparing a site-specific invasive plant treatment Environmental Impact Statement to treat 21 invasive plant species on approximately 11,000 gross acres using integrated weed management techniques.

Geology

The Forest Plan direction is to maintain hydrologic and physical balances to prevent reactivation or acceleration of large slow-moving earthflow areas. The desired conditions for these areas are forest stands of varying age classes, mostly greater than 8-inch diameter trees, with management activities designed to maintain long-term stability. Since monitoring began in 1991, no acceleration or initiation of earthflow movement has been measured or suspected as a result of timber harvest or road building activities on earthflow areas.

Vegetation Composition and Pattern

Seral stages (early, mid and late) and their distribution on the landscape provide information on the diversity and pattern of land cover types that provide wildlife habitat, filter and maintain water quality, and provide connectivity. With fire suppression and reduction in timber harvest, there has been a decline in early seral habitat. There is a concern that this will further limit forage availability for deer and elk populations on the Forest. Also, there is a concern that the increase in dense mid-seral stands on the eastside and backlog of stands needing some level of stocking control, such as precommercial thinning, will contribute to the potential for uncharacteristically severe and large disturbances such as wildfire, insects and disease.

This concern extends to the plantations within Late Successional Reserves. It is recommended that a forestwide seral stage analysis and overall assessment of landscape conditions be completed.

Timber Resources

Harvest, another dominant disturbance process, influences vegetation patterns by affecting the distribution of seral stages across the landscape. Harvest also can influence successional processes by alteration of stand structures and composition. Timber and wood fiber production continues to be a principal Forest activity. However, over the last decade, there has been a decline in timber harvest. Less than half of one percent of the land base is being treated by harvest to meet various objectives. Vegetation management is prioritized towards restoration treatments such as reducing fuel hazards, improving wildlife habitat and maintaining forest health. There also has been an overriding shift from regeneration harvest to commercial thinning. This raises sustainability questions about the effects of management activities on achieving desired vegetation and landscape patterns.

Harvesting continues to occur at a rate below the annual probable sale quantity. In 2005, harvest occurred on 2,525 acres, with the majority of the harvest occurring on lands designated as timber emphasis (C1) in the Mt Hood Forest Plan and matrix lands in the Northwest Forest Plan, with a small percent in riparian reserves. Commercial thinning accounted for 91% of the acres treated and shelterwood harvest accounted for 9%. Pre-commercial thinning was accomplished on 2,052 acres on the Forest.

Current and potential future forest health issues continue to be a concern on the Forest. This includes a backlog of 19,000 overly dense, young stands in need of pre-commercial thinning; large acreages of changed ecological conditions on the eastside as a result of fire suppression and increasing levels of insect damage and mortality. Recommendations are for more thinning to improve stand conditions in both the pre-commercial and commercial size classes.

Forest Insects and Diseases

Disturbances related to forest insects and diseases are mapped during the annual Aerial Detection Survey conducted by the Forest Health Protection group. For the last several years, bark beetle outbreaks have caused a significant amount of tree mortality on the Mt Hood National Forest and adjacent lands. Over 86,000 acres on the Forest and 160,000 acres on adjacent lands, namely the Warm Springs Reservation have been affected. The primary species affected have been lodgepole pine and true firs. Beetle activity remains high on the eastside of the Forest and along the high plateau of the Cascade Crest, and is expected to continue for the next few years.

In addition, 40 year old ponderosa pine stands on the eastside are becoming imminently susceptible to bark beetle attack due to high stocking densities. The 1983-1993 western spruce budworm (*Choristoneura occidentalis*) outbreak is now contributing to increased fuel loadings as trees have fallen.

While the beetle killed trees provide a temporary food source for some bird species and homes for small cavity nesting birds, the large scale infestation will likely increase fuel loadings increasing concern over hazardous fuels.

Ecosystem Function, Structure, and Composition

Lincoln, Boxshall and Clark (1982)[1] define an ecosystem as: "A community of organisms and their physical environment interacting as an ecological unit … ." These criteria include physical environmental indicators that are related to soil, air and water characteristics. Physical environmental indicators are essential in tracking sustainable forest management because the maintenance of appropriate levels of soil oxygen, nutrients, moisture, and organic matter is key to the long-term productivity and resilience of forest ecosystems.

Productive Capacity

The objective for timber resources is to produce a continuing supply of wood products at sustainable levels consistent with other resource values and economic efficiency. Overall annual growth is more than 13 times harvest levels and annual mortality exceeds harvest by a factor of 8 to 1. On matrix lands only, growth is almost 3.7 times the rate of harvest. The trend for small diameter, dense stands continues to increase, leading to conditions susceptible to uncharacteristically severe and large disturbances such as wildfire, insect and disease.

[1] Lincoln, R.J., G.A. Boxshall, and P.F. Clark. 1982. A dictionary of ecology, evolution and systematics. Cambridge University Press, Cambridge, UK.

Air Quality

Forest Plan goals for management of air resources are to continue to improve the existing character of air quality from the past; not to degrade Class I or II Wilderness and general forest standards; and to meet the requirements of the State Implementation Plan for the Clean Air Act. Smoke from prescribed fires is the primary air quality concern from management activities. The goal of the Forest Plan is to reduce emissions 63% by the end of the first decade of the Plan, which is being achieved to date. The Mt. Hood National Forest remained in compliance throughout the monitoring period (October 2004 – September 2005).

Lichens are used by managers of the Forest in collaboration with the Pacific Northwest Region Air Program to monitor air pollution. From 1994-1997, botanists surveyed lichens and collected common species for chemical analysis. More than 75% of the Forest's air scores fell within the two best air quality categories. Less than 14% of plots had air scores in the fair range, and 1.4% were rated as degraded with regard to air quality.

Water Quality

The Forest Plan goal is to protect and maintain the character and quality of water, providing for long-term sustained production resulting in favorable flows from the watersheds on the Forest. The purpose of monitoring is to assess Forest Service compliance with the Clean Water Act, to collect data on water quality trends, and to monitor the effectiveness of watershed restoration work. With continued implementation of Best Management Practices, watershed restoration, and the Northwest and Mt. Hood National Forest Plans, water quality and watershed conditions are expected to be maintained and in some areas show an improving trend.

In order to monitor condition and trends in water quality, permanent monitoring stations have been installed on the Clackamas River (Carter Bridge below Fish Creek), Alder Creek (Forest boundary), and Eagle Creek (fish hatchery). The Clackamas and Alder Creek watersheds serve as a municipal water supply. The water monitoring stations continuously monitor turbidity and flow depth.

The evaluation of the water quality data collected in the past several years indicates very good water quality at most of the monitoring sites, with the exception of several streams which do not meet current State water quality standards for temperature. In some cases, the elevated water temperatures are naturally high, while in others a past fire or timber harvest activity may be partially responsible. In 2005, 13 out of 30 streams monitored forestwide did not meet one or more of the recently adopted (March 2, 2004) and more stringent Oregon Department of Environmental Quality (DEQ) water temperature standards. In most cases, these same streams provide very good water quality for fish.

The Federal Clean Water Act requires DEQ to develop a plan with goals and pollution control targets for improving water quality in the watersheds where water quality standards are not met. DEQ is doing this by establishing Total Maximum Daily Loads (TMDLs) for each pollutant entering the water. A TMDL describes the amount (load) of each pollutant a waterway can receive while maintaining compliance with water quality standards. TMDLs for water temperature have been completed by the DEQ and approved by the Environmental Protection Agency for the Sandy (March 14, 2005) and Hood River Basins (January 1, 2002).

The Mt. Hood National Forest will address water temperature TMDLs for any streams listed as "impaired" for water temperature by implementing the Northwest Forest Plan Temperature TMDL Implementation Strategies.

Soil Productivity

The Forest Plan goals are to protect, maintain and restore soil productivity, and to stabilize or restore damaged or disturbed soil areas. On a forestwide basis, monitoring results from the last several years suggest that progress is being made in reducing the number of harvest units where soil damage has exceeded the Plan standards. This trend is likely due to the decline in timber harvest levels over the last decade, efforts of sale administrators and operators to continue to minimize damage, and improved equipment technology. Where stands have been entered for the first time, regardless of the silviculture prescription, designated skid trails have been effective in limiting soil resource impacts. Activities in stands where multiple harvest entries have been made, the cumulative impacts from these prior activities, plus planned treatments, have a much higher likelihood of exceeding the standard for protecting soil productivity.

Ecological Legacies

Ecological legacies, such as remnant snags, large down woody debris and caves are important components of the environment that persist through multiple phases and successional changes in an ecosystem. The Northwest Forest Plan provides standards and guidelines for snags and down woody material to meet wildlife habitat needs and maintenance of organic matter for soil productivity. Current monitoring data indicate that snag retention levels are meeting standards and guidelines and are increasing over time. On harvest units, however, down and woody materials are falling below current guidelines.

Population Function and Structure

Maintaining native species is a fundamental tenant of any conservation effort. These criteria look at maintenance of viable populations of native species, including the processes that define interactions between them and the occurrence of native species.

Population Viability

The National Forest Management Act requires that "…fish and wildlife habitat be managed to maintain viable populations of existing… species in the planning area". To ensure this, the regulations direct that habitat must be provided to support a minimum number of reproductive individuals and habitat must be well-distributed so that those individuals can interact with others within the planning area.

The actual utilization of habitat by various fish species is far below the overall productive capacity of rivers and streams on the Mt. Hood National Forest. The overall abundance of anadromous fish and bull trout are low in those streams and rivers monitored on the Mt. Hood National Forest. Salmon populations continue to show large fluctuations in size. The most extensive and complete data set on the Forest is in the Clackamas River. The ten-year data set has shown general trends of increasing numbers of steelhead smolts and decreasing numbers of Coho smolts. The distribution of bull trout, an Endangered Species Act listed fish, has expanded significantly over the past decade, yet abundance is still quite low. Fisheries biologists have developed a long-term monitoring plan for bull trout, which includes assessing impacts and interactions of small mouth bass and bull trout. Forest Service fish biologists continue to work in partnership with watershed councils across the Forest to assist in all fish recovery aspects at the whole river basin level.

Similar to fish habitat, there are some concerns with wildlife habitat. With reduction in regeneration harvest on the Forest and the suppression of fire, there is a concern that forage habitat for early seral dependent species, such as deer and elk, is declining. Forage is a limiting factor for much the Mt. Hood National Forest especially for winter range areas. It is inevitable that populations of deer and elk will decline. Road densities, especially in key areas like winter range areas, are barriers to connectivity. Other habitat concerns for wildlife include increasing pressure on unique or sensitive habitats from recreation uses, roads and grazing.

Threatened, Endangered and Sensitive (TES) Species

The small populations of bald eagle and peregrine falcon appear to be stable. An interagency demographic study sampling spotted owl populations across it range has replaced monitoring on individual Forests. To date, the demographic study reports a 2.8% decline per year in the northern spotted owl population for Oregon.

Sensitive plant species associated with non-forest habitats such as meadows, grasslands, rock outcrops, and other natural openings continue to be vulnerable to impacts from invasive plant encroachment, livestock grazing, off-road vehicles, and recreational activities. Species that grow in forested habitats appear to be stable at this time and implemented mitigation measures for ground disturbing activities have been effective in maintaining the integrity of sensitive plant sites. From 2000-2005, monitoring efforts were focused on non-forest habitat sensitive plant species. Data collected will be used to develop management recommendations and/or conservation strategies for species that appear to be at risk.

Genetic Function

Genetic diversity is fundamental for populations of forest dwelling organisms to be able to adapt to changing environmental conditions. The Forest Plan direction is to maintain genetic diversity of forest stands and to maintain forest health through genetic resiliency thus reducing impacts of disease, animals, insect, or climatic damage. This criterion can be used to address issues related to effects of forest management on genetic diversity. Current reforestation practices ensure genetic diversity by planting appropriate species and additional species diversity from natural regeneration.

Social Well-Being

Social well-being comprises those aspects of life that we care about as a society. The well-being of forest-based communities is important social values and important aspects of public decision-making and policy regarding forests. Therefore, social sustainability addresses how humans interact with natural systems and how they value ecological systems (Hoekstra et al., 2000)[2]. As communities develop greater capacity and more resources, they can act as stewards of forest resources, maintain and improve their social well-being, and advance sustainable management. Partners, communities, interests, and ecosystems are the strengths and interactions that enable the Forest to fulfill its mission and provide balance between meeting socioeconomic and environmental needs to "sustain the health, diversity and productivity of the nation's forest and grasslands for present and future generations".

Social criteria and indicators are based on the social values, institutions and processes that address social well-being, and hence social sustainability. Collaborative stewardship is an example of a social process that integrates public values into forest management activities and hence, increases the likelihood of sustainability.

Collaborative Stewardship

Collaborative stewardship is the opportunity to have public values and beliefs heard, considered and incorporated into forest management activities, and the ability of publics to participate in management actions. Collaborative stewardship involves citizens in forest management activities, builds community and forest sector capacity, and integrates various kinds of expertise in the decision-making process. Collaboration between local, state, federal agencies, tribes and other organizations continue to provide the necessary foundation for getting work done on the Forest. Watershed councils, Resource Advisory Committees, non-profit organizations, and community work are examples of public involvement in natural resource management and the decision-making process. The Northwest Economic Adjustment Initiative, aimed at helping rural communities and businesses dependent on natural resources become sustainable and self-sufficient, brings the Forest Service together with federal agencies, State and local governments in order to fund projects that are community priorities for building long-term economic and social community capacity. An example is the Rural Community Assistance program on the Mt. Hood National Forest which provides technical and financial assistance to communities to address social, economic and environmental challenges.

The following are examples of collaborative stewardship.

[2] Hoekstra, T.W., Allen, T.F.H., Kay, J.J. & Tainter, J.A. (2000). Criteria and Indicators for Ecological and Social System Sustainability with System Management Objectives. In: S.J. Woodley, G. Alward, L. Iglesias Gutierrez, Hoekstra, T.W., B., Livingston, L., Loo, J., Skibicki, Al, Williams, C. & Wright, P. CIFOR North American test of criteria and indicators of sustainable forestry, Volume 1, USDA-Forest Service. 1.

The Mt Hood Fuel/Vegetation Strategy

The Forest is continuing to assist and support communities in the development of Community Wildfire Protection Plans. Both Clackamas and Wasco counties completed their plans in fall of 2005. These community efforts provide the basis for on-going partnerships and future collaborative efforts to reduce wildland fire risk around homes and property.

The Mt. Hood Strategic Stewardship Plan

Mt. Hood National Forest's Strategic Stewardship Plan establishes direction and context for Forest projects and programs by providing a business framework to use in decision making, and in building, strengthening and delivering relationships, internally and externally. This plan provides the structure for citizen, non-governmental organizations, corporations, state and local governments, and other federal agencies to become engaged in the stewardship of the Forest. This sets the stage for public interest and vision for decisions to be made in the Land and Resource Management Plan.

Community Engagement Action Team

In 2003, the Forest established the Community Engagement Action Team (CEAT) and Board to help place emphasis on partnership development, to engage community resources in Forest stewardship activities, and to move the Forest towards a wider community base of participation.

In 2005, the CEAT organized a session called "*Engaging Citizens in Forest Stewardship through Volunteerism – Creating the Forest Service of the Future"* resulting in the development of a Citizen Stewardship Plan for Action in 2006. The Plan for Action's objectives are to build a collaborative coalition Citizen Stewardship, enhance and improve existing volunteer programs, and develop new tools for volunteer engagement.

Recreation Community of Interest

The Mt. Hood National Forest is continuing to develop new and enhanced relationships, understanding and trust with key recreation stakeholders that represent community of interests in and around Mt. Hood. These relationships will form the basis for forging a common vision and for finding ways to work together on projects of common interest.

In 2005, the final year of this three year initiative, the Mt. Hood National Forest continued to expand collaboration with other recreation services agencies, such as Metro, Oregon Zoo, Bureau of Land Management, and Oregon State Parks and Recreation. Collaboration with local communities resulted in joint sponsorship of three collaborative learning sessions and participation in recreation projects. The Mt. Hood National Forest, the Bureau of Land Management and the Clackamas County Tourism Development Council together developed a "Federal Public Lands in Clackamas County Visitor Destination Strategic Plan" to foster new liaisons with rural communities, recreation providers, and visitors to Oregon's Mt. Hood territory.

River Keeper Program

The Mt. Hood National Forest has been a major catalyst in the River Keeper program that promotes the stewardship of the Upper Sandy River and Fifteenmile River Basins through coordination of federal, state, county, and private restoration efforts.

Stewardship Contracts

In Fiscal Year (FY) 2005, a collaborative group known as the Clackamas Stewardship Partners (CSP) was formed with an interest in utilizing stewardship contracting authorities to implement priority watershed restoration and wildlife projects in the Clackamas watershed. This collaborative group is made up of diverse stakeholders including county government, local environmental organizations, a college professor, and members of a hunting association. Due to their successful collaborative efforts, the Forest received authority for stewardship contracting and successfully advertised two separate stewardship contracts. The restoration work included the commercial thinning of 40 to 50 year old plantations, wildlife enhancement work, and precommercial thinning in Late Successional Reserves.

Sandy River Basin Agreement

The Sandy River Basin Agreement Team is a consortium of state, federal and local government organizations and private conservation groups interested in the long-term ecological health and management of the Sandy River Basin. Their focus is to develop a strategy to maintain and recover salmonids listed under the Endangered Species Act in the Sandy River watershed. In 2002, Portland General Electric and the Sandy River Basin Agreement Team partners signed off on a settlement agreement to decommission Marmot and Little Sandy dams. In 2004, these partners identified geographic areas in the Sandy River Basin important for the persistence and restoration of salmon and steelhead populations, known as the Anchor Habitats.

Social and Cultural Values

These indicators provide an overview of community values and needs, and the extent to which those values are integrated into forest management decisions and policy discussions. Cultural and spiritual connections to forests vary among local communities and are represented by social values that the local communities place on a forest's contribution to providing scenic landscapes, recreational activities, special places, and traditional and religious uses.

Heritage Resources

The Forest Plan goal is to protect and preserve ceded rights and privileges of Native American Indians to access and use the Forest for traditional and religious values, including consultation of projects located on these accustomed areas. Another goal is to protect, maintain and enhance prehistoric and historic sites, buildings objects and antiquities of local, regional or national significance. During 2005, monitoring of heritage resources showed no adverse impacts from project activities. Consultation with the Confederated Tribes of the Warm Springs (CTWS) was completed on all projects located on tribal lands and usual and accustomed areas. The Forest also met with CTWS to discuss consultation protocols for heritage resource inventory projects, to consult on the site-specific invasive plant treatment Environmental Impact Statement and initiated formal consultation on the proposed Bull Run Land Exchange. Historic preservation efforts during 2005 focused on Timberline Lodge and Cooper Spur Warming shelter. The Forest evaluated three archaeological sites to determine National Register eligibility. No new nominations were made for 2005.

Recreation

The Forest Plan goal is to provide year-round dispersed and developed recreation opportunities. Towards those goals, the Mt. Hood National Forest is continuing work on some efforts to define the recreational needs of Forest visitors.

The National Visitor Use Monitoring (NVUM) project, the most thorough and reliable quantitative study in the past two decades about recreation use in the Mt. Hood National Forest was conducted during 2003. The NVUM project was implemented as a response to the need to better understand the use, importance, and satisfaction with National Forest System recreation opportunities. In 2004, the NVUM Round 1 results revealed that the Mt. Hood National Forest ranks seventh in the nation according to the number of National Forest visits (4.076 million visits). For national, regional, and individual forest reports, visit the NVUM web site: http://www.fs.fed.us/recreation/programs/nvum.

In 2005, the Forest presented, in two open houses, eight potential concentrated use areas for off highway vehicle (OHV) recreation for public comment.

Economic Well-Being

The economic criteria and indicators were based on two fundamental principles of sustainable development:

- Maintain sufficient natural, built, and human/social capital through time to provide non-declining flows of the goods and services desired by society from the Forest; and,

- Distribute "the goods" and services so "equitable" access and benefit are achieved for all major stakeholders and for future generations.

Natural, Human and Built Capital

Access and Travel Management

The Mt. Hood National Forest continues to advance toward the goals of the Forest Service Roads Agenda. The size of our transportation system is decreasing. The Forest is maintaining or improving mainline road system while decommissioning or closing unneeded roads. The priority in road decommissioning continues to be decommissioning roads in unstable geological areas or roads with unacceptable environmental impacts. Due to the high cost of road decommissioning, the Forest focused efforts on storm proofing and closing roads, rather than decommissioning a few roads at a high cost.

Campgrounds

Visitation and utilization data were reported by permit holders for concessionaire managed campgrounds in 2005. Occupancy in 2005 was up 6% compared to 2004, mainly in the Highway 26 corridor campgrounds. The Clackamas Complex campgrounds had substantially lower occupancy levels compared to 2004. Concessionaire records indicate the number of campers increased by 8% in 2005, suggesting larger party sizes. In 2005, occupancy data for eastside rustic campgrounds was collected for the first time. Hood River and Barlow Ranger Districts show 18% and 11% occupancy, respectively. Like similar older recreation complexes throughout the National Forest System, the campgrounds on the Mt. Hood National Forest fill a social and economic niche that many long-time visitors appreciate. That user group, however, is not expanding as originally projected, and may be shrinking. Based on current and predicted use patterns and interest, the Forest has more developed camping capacity than demand, and an inventory adjustment will probably be needed in the near future. In 2007, the Forest will develop a recreation site facility master plan (RSFMP) to look at supply, demand, and cost to operate and maintain developed recreation facilities and to determine which sites to eliminate from the Forest inventory.

Trails

The Forest currently has 977 miles of trails compared to the Forest Plan projection of 1,560 miles during the second decade of the Plan. The Forest Plan also projected an average of 74 miles per year of trail construction and reconstruction. With diminished funding, actual accomplishment is less than 10 miles per year. During 2005, the Forest awarded a contract for reconstruction of 3.5 miles of the Pacific Crest Scenic Trail.

Flows of Goods and Services

Range

The Forest Plan goal is to provide quality forage conditions for commercial domestic livestock and to prevent unacceptable damage to other resource values. Approximately 15% of the total acres on the Mt. Hood National Forest are in grazing allotments. Issuing grazing permits to local ranchers adds an element of economic viability to ranch operations, while at the same time, the private ranch lands provides essential big game winter habitat which is in critical short supply. In 2005, actual livestock use was 3,499 head months out of a total of 3,684 head months under permit. Also, an environmental assessment was completed for Long Prairie Allotment. Monitoring of existing vegetation conditions, and long-term trends are in place on all allotments using a photo trend methodology. These measurements indicate that overall range condition is stable or improving and moving towards Forest Plan objectives. Monitoring of riparian areas, however, show impacts from over utilization of forage and heavy recreation use in these areas. There are also concerns of continuing livestock pressure on riparian areas due to loss of transitory range, a result of significant decrease in harvest acres.

Minerals

The Forest Plan goal is to facilitate exploration and development of energy and mineral resources, while maintaining compatibility with other resource values. The Mt. Hood National Forest continues to be able to supply high quality rock products to the general public, other government agencies, and for their own use. The continuing demands for “landscape rock” are depleting sources of easy accessible loose rock material on the Forest. In 2005, there were 10 projects utilizing 21,450 cubic yards of salable (common variety) mineral material by the Forest and other government agencies and 424 projects utilizing 700 cubic yards of salable mineral materials by the public.

Ski Areas

Use of the Forest's five alpine ski areas during the 2004/2005 season was lower than in the previous winter. The snow pack on Mt Hood was only about 30% of normal, one of the lowest measurements in the western United States. The most dramatic effect of these poor snow conditions was a 55% decrease in visitations at Mt. Hood Meadows compared to a 27% decrease for the region.

Timber

Sustaining a predictable supply of forest products to the region's economic system through silvicultural treatments, such as thinning and regeneration harvesting, is interrelated to the ecological system. Thinning operations maintain healthy forests, reduce fire hazard/fuel build up, improve wildlife habitat, and restore riparian habitat. Regeneration harvesting restores forests that have high levels of disease and/or mortality to younger healthy forest, and at the same time provide forage for wildlife species dependant on early successional vegetation. These operations are also interrelated to the social/economic system by providing jobs at both the local and regional scales, and reducing the demand for imported forest products.

In FY05, the budget allocation scheduled the Forest to offer for sale approximately 22.1 million board feet (MMBF) (35% of probable sale quantity [PSQ]). The Forest successfully offered for sale approximately 22.2 MMBF (35% of PSQ). This was accomplished using eight separate timber sales and two stewardship contracts which will generate approximately $311,000 in restoration projects as well as $65,000 of retained receipts for future restoration projects. The Forest also made significant progress on planning projects that accomplish wildfire risk reduction objectives and commercial thinning in overstocked plantations. These planning efforts will result in timber sales and stewardship contracts in FY06.

The Forest is striving to provide a "predictable" level of forest products to the regional economic systems. Nationally and regionally, the Forest Service is addressing planning issues that contribute to an unpredictable supply of forest products. Locally, the Forest is addressing planning issues that affect the economic viability of timber sales, which results in sales with no interested bidders. In FY06 to FY08, the Forest expects to provide a diverse mix of species, sizes and quality. The majority will be from smaller sized trees less than 28 inches in diameter. The Mt. Hood National Forest continues to plan, prepare and administer timber sales using some of the most environmentally restrictive land management guidelines. The Forest is striving to set a global example for sustainable forest management.

Conclusion

In conclusion, based on overall forest condition, review of the monitoring information and ongoing management activities is sufficient to guide management of the Forest over the next year. Minor non-signficant amendments will be made as the need arises. The Mt. Hood Forest Plan is currently scheduled for revision beginning in 2009 following the 2005 Planning Rule.

Key Management Issues

The following represent key management issues of concern for the Mt. Hood National Forest as perceived from the evaluation of the monitoring data. The intention is to elevate these issues to the Forest Leadership Forum in an effort to receive consideration in the budget and program of work processes. These issues highlight priority for sustainability and influences across ecological, economic and social systems that are relevant to the Forest.

Shifts in Land Management and Resource Use on the Mt. Hood National Forest

Increasing population growth and urbanization, as well as changing demographics with new perspectives, lifestyles and values have influenced resource use and impacts. Over the last decade, a shift in resource use and associated impacts has become evident with the growing importance of recreation and decline in timber harvest. Additionally, a growing concern about biodiversity, species management and protection, and municipal water use has surfaced. This affects the Forest's capacity to provide goods and services, and shifts environmental impacts. Examples include:

With the decline of timber harvest, less than 1% of the land base is being treated to meet various objectives. As a result, the Forest is unable to provide a predictable supply of timber or forest products (Christmas trees, firewood, and high quality boughs), and transitory range and forage habitat are becoming limited. Also, funds generated by timber sales for habitat improvement, and road maintenance and construction projects have substantially declined.

- With the increase in recreational demands, the Forest is finding resource and social impacts from dispersed recreational use (such as off-highway vehicles, target shooting, and garbage dumping) particularly on the westside Wildland Urban Interface. This is resulting in wildlife harassment, soil erosion and impacts to water quality. Conflicts and impacts to riparian areas and along lakeshores also are increasing with changing recreation pressures. Also, the current recreational user preferences are not meshing with the distribution and configuration of existing developed recreation facilities.

Such shifts in resource use require the Forest to explore new strategies, opportunities and funding sources to address these changes and to continue to provide for customer needs while maintaining healthy ecological conditions. Management decisions need to incorporate a balance between social, economic and ecological considerations.

Role of the Mt. Hood National Forest on the Larger Landscape

The Mt. Hood National Forest provides unique properties (like the mountain) and contributes to species habitat in the larger landscape which spans multiple ownerships and jurisdictions. Examples include:

- Given the predominance of federal lands in the river basins of the Mt. Hood National Forest, the role of these lands is critical to providing the "anchor" habitat for fish, wildlife and unique plant populations as well as protecting water quality and long-term production and flows from the watersheds. Management focus is shifting towards a larger system assessments.

- Increased urbanization and growing recreational demands on the Mt. Hood National Forest require a new model for collaborative discussions to foster relationships, understanding and trust to help form the basis for addressing recreational conflicts, forge a common vision, and develop partnerships. Mt. Hood National Forest's unique natural properties, landscape, and proximity to the Portland metro area contribute to meeting the regional and local recreational demands.

This requires the Forest to shift into larger system assessments, working partnerships, collaborative approaches, management decisions with long-term perspectives and gathering data to support assessments of ecological conditions.

Fire

The changes in vegetative structure, species composition, and accumulated fuels have predisposed areas, especially on the eastside of the Mt. Hood National Forest, to insect infestation, disease and high intensity wildfires that could threaten nearby communities, watershed values and key ecological components. The key focus must be on reducing wildfire risk, and restoring and maintaining healthy ecological conditions on high priority areas. This includes management of insects, disease, and invasive species, and restoration of biological diversity with a primary focus on fuel reduction. Priority areas for restoration work should include those areas where communities and ecosystems (ecologically sensitive areas) are at risk. This would require the Forest to continue to improve its ability to assess and actively address fuel conditions, fire hazards, potential fire effects, insect and disease risk, and Forest Service's capabilities and resources to implement work.

Invasive Plants

Approximately 3,000 acres have been documented as infested with invasive plants on the Mt. Hood National Forest. This vastly underestimates the total area because only targeted weeds are monitored and the Forest does not have the financial resources to conduct a thorough survey. Invasive (non-native) species are recognized by the Chief of the Forest Service as one of the four threats to National Forest System lands, as well as neighboring private, state and Tribal lands across all ecosystems. Invasives pose unsustainable social, economic, and ecological impacts. Scientists estimate that invasive plants contribute to the decline of up to half of all endangered species and are the single greatest cause of loss of biodiversity in the United States, second only to loss of habitat. To build our understanding and awareness of the extent of this growing threat on the Mt. Hood National Forest would require improving effectiveness through data management capabilities; expanding partnerships; increasing applied technology and research transfer; improving collaboration and coordination both internally and externally; increasing budgets; and emphasizing prevention measures across all agency activities.

Table S-1. Summary Comparison Chart (by Fiscal Year)

Element	FY95	FY96	FY97	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Recommen-dations/ Comments
◆ Fire Management												
Human caused fires	29	43	27	32	45	40	54	41	58	24	35	Continue monitoring, management direction achieved.
Natural occurring	19	2	9	38	22	1	24	14	11	10	9	
Total fires suppressed	48	45	36	70	67	41	78	55	69	34	44	
◆ Air Quality												
Acres treated by prescribed fire	1,962	2,448	1,082	1,643	2,161	2,258	1,563	650	1,574	1,647	1,554	Continue monitoring, management direction achieved.
◆ Geologic Resources												
Created openings on mapped earthflows	7	19	7	0	3	11	8	1	0	0	8	Continue monitoring.
Created openings on mapped landslides	3	2	0	0	1	0	0	2	0	0	0	
◆ Mineral Resources												
Mineral material used by other agencies (cy)	82,000	191,850	25,500	216,700	76,200	85,000	63,500	0	0	0	450	Complete development plan.
Mineral material used by MTH(cy)	12,550	13,300	151,800	52,900	56,800	20,375	17,270	7,400	9,400	13,000	21,000	Find additional source of loose material.
Mineral material sold to public(cy)	1,400	1,600	865	1,160	350	319	248	474	435	774	424	
◆ Transportation/Roads												
Miles constructed/ Forest Plan projection	2.4/ 16.6	0.6/ 16.6	2.3/ 16.6	5/ 16.6	4.6/ 16.5	0/ 16.5	0/ 16.5	1.5/ 16.5	1.5/ 16.5	No report done in 2004	0/ 16.5	Adjust Forest Plan.
Miles reconstructed/ Forest Plan projection	15.4/ 91.5	31.9/ 91.5	111.4/ 91.5	35.7/ 91.5	39.5/ 91.5	28.3/ 91.5	3.4/ 91.5	50/ 91.5	0/ 91.5		0/ 91.5	Adjust Forest Plan.
Road miles obliterated	29.4	38.9	84.2	27	89	18	4	2.8	18		0	
◆ Recreation Resources												
Miles trail constructed/ projections	0/ 6.6	0/ 6.6	0/ 6.6	0/ 6.6	0/ 6.6	0/ 6.6	0/ 6.6	0/ 6.6	0/ 6.6	0/ 6.6	3.5 6.6	Continue monitoring.
Miles trail re-constructed/ projections	14/ 30.5	21/ 30.5	14.8/ 30.5	14.8/ 30.5	63/ 30.5	12.7/ 30.5	0/ 30.5	2.2/ 30.5	0/ 30.5	0/ 30.5	0/ 30.5	Continue monitoring.
◆ Timber Resources												
% timber offered of Forest Plan Allowable Sale Quantity	22	34	39	35	25	0	4.7	15.6	21	3	11.6	Initiate Forest Plan adjustment.
% of PSQ target offered for sale	106/ 41.4 mmbf	122/ 63.6 mmbf	114/ 74.0 mmbf	104/ 66.6 mmbf	73/ 46.5 mmbf	0	13.8/ 8.8 mmbf	46.1/ 29.5 mmbf	40/ 25.4 mmbf	8/ 5.3 mmbf	34.6 22.2 mmbf	
Silviculture acres treated (harvest methods)	2,030	1,685	1,948	3,344	3,044	3,245	808	620	1,029	917	2,526	Continue monitoring.
Silviculture activities (Ac.) (planting, fertilizer, etc.)	12,361	9,852	6,172	7,589	5,282	3,750	7,010	6,659	2,094	1,924	380	Continue monitoring.
◆ Financial Resources												
Full Plan implement budget/actual expense ($)	65.3MM 31.7MM	65.3MM 30.4MM	65.3MM 38.2MM	65.3MM 33.7MM	65.3 MM 39/5 MM	65.3 MM 24.7 MM	63.5 MM 25.6 MM	63.5 MM 23.2 MM	63.5 MM 17.97 MM	65.3 MM 19.4 MM	65.3 MM 16.4 MM	

Chapter 1
Introduction

Chapter 1

Introduction

The Mt. Hood National Forest (the Forest) continues with a strong commitment to the Forest Service motto of "Caring for the Land and Serving People." Inherent in this commitment is monitoring for sustainability of the Forest. The goal is to work with partners in finding an appropriate balance between sustainable social, economic, and ecological systems. The intent is to satisfy the values of the present without compromising the needs of future generations.

The *Land and Resource Management Plan for the Mt. Hood National Forest* (Forest Plan) as amended in 1994 by the *Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl* (Northwest Forest Plan), was approved by Regional Forester John F. Butruille on October 17, 1990, and implementation of the Forest Plan began on February 11, 1991. The Forest is now in its fifteenth year of management under the Forest Plan direction.

The Forest Plan established integrated multiple use goals and objectives; established standards and guidelines for resource activities; identified management areas and set their direction; established the maximum decadal sale quantity; and determined various monitoring and evaluation requirements. The Northwest Forest Plan identifies land allocations and management direction to respond to the underlying needs of managing substantial parts of these forests for late-successional and old-growth conditions, for a predictable and long-term supply of timber.

A part of implementing the Plan involves a commitment to monitor and evaluate how well the Forest is doing. Monitoring provides the decision makers and the public information on the progress and results of implementing the Forest Plan. This document highlights what the Forest is doing now and attempts to describe trends, in key resource areas, that are important to understanding long-term effects which ultimately affect the opportunity to sustain our needs now and in the future.

Monitoring is the gathering of information and observing management activities to provide a basis for periodic evaluation. An objective of monitoring is to ensure that the Forest Plan Standards and Guidelines are being correctly applied, and are achieving the desired results. Based on review of information collected, adjustments in management actions or anticipated results can be identified.

Monitoring is fundamental for the Forest Service to fulfill its responsibilities as stewards of the land. The year's activities are not complete unless the Forest Service monitors the effects of those activities, evaluate the results (i.e., what do the results mean?), and recommend actions or modifications to be made (i.e., what should be done now?). This process allows the Forest Plan to remain an active, usable document.

As the Forest begins to move into the second decade since the adoption of the Forest Plan in 1991, the Forest is beginning to switch the focus from short-term implementation monitoring to long-term outcomes of management with respect to key social, economic and ecological systems. This report begins the attempt to discuss the connection between short-term actions with long-term outcomes.

This report discusses fiscal year 2005 (FY05) from October 1, 2004 to September 30, 2005, and is composed of five chapters:

Chapter 1 – Introduction

Chapter 2 – Accomplishments/Results/ Recommendations

Summarizes individual resource program accomplishments, activities monitored, evaluations, and recommendations.

Chapter 3 – Financial Review

Contains information which describes the Forest in financial terms.

Chapter 4 – Forest Plan

Reviews amendments made to date.

Chapter 5 – Ongoing Planning Actions

Highlights a variety of additional planning and analysis activities, and implementation of the Northwest Forest Plan.

A review of the Plan was made nine years ago in an effort to determine if major changes had taken place to cause a significant amendment or revision to the Forest Plan. It was determined that because the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl had significantly modified the Forest Plan in 1994, no further significant revision was needed at that time. The current schedule calls for revision of the Forest Plan to begin in 2009, under the 2005 Planning Rule.

Chapter 2

Accomplishments/Results/ Recommendations

Chapter 2

Accomplishments/Results/ Recommendations

Fire Management

Goal

The overall goal of fire management is to support land and resource management goals and objectives. This program includes all activities for the protection of resources and other values from wildland fire. Fire and fuels programs are to be implemented consistent with Forest Plan Standards and Guidelines, Management Prescriptions, and the Northwest Forest Plan.

The 2005 Fire Season

The snow pack for the 2004 – 2005 winter was less then 50% of normal. The precipitation summary for the period October 2004 thru May 2005 showed 70 to 89% of average. At the first of May, the Palmer Drought Index indicated near normal conditions in this area. At of the first of September, the Drought Index was still showing normal conditions.

A total of 44 fires were reported in 2005: 9 lightening and 35 human-caused fires. Reported burned acres totaled 18. No industrial operations fires occurred in 2005. The Forest was successful in supporting the National fire fighting and Hurricane relief efforts, dispatching a total of 54 personnel to other Regional and National assignments.

Monitoring Activities and Evaluation

The Forest Plan identified fire protection and fuel treatment objectives to be monitored and evaluated in determination of fire management's capability to attain other land and resource management objectives. For each objective, information is collected annually and results reported annually or every five years.

Fire Protection Objectives Monitored

Two fire protection objectives are monitored in relation to levels considered in the Forest Plan. They relate to number of human-caused wildfires and the number of, size and intensity of wildfires based on 5 years of data.

The threshold of concern is, "no more than 20% departure from the expected number per decade". The Forest Plan anticipated that the human-caused occurrence would average 56 fires per year and an estimated average annual acreage burned by wildfire of 408 acres (Forest Plan, Chapter 4, p. 25) based on 5 years of data. For the period 2001 to 2005, the average was 42 fires per year and 87 acres per year burned. These numbers are for human caused fires only and are below the break points of 56 fires per year and 408 acres established in the Forest Plan. The average number of fires and acres per year for all causes for the last five years are 56 fires per year and 171 acres per year burned. Table 2-1 displays number of fires and acres by cause.

Another area of concern is the number of, size of, and intensity of wildfires and are they within the levels considered in the Plan. Table 2-2 displays acres by size class and Fire Intensity Level. Total acres burned increased by only 5 acres from the previous 5-year period (2000-2004).

Fuel Treatment Objectives Monitored

Two fuel treatment objectives are monitored to see if they meet expected levels identified in the Forest Plan. They are desired residue (fuel) profiles and acres of hazardous fuels treated annually.

As part of the total fire and fuels management program, the Forest also continued to meet the desired fuel residue profiles. All Districts reported that they had met the profiles with less than a 10% deviation from what was stated in the environmental analysis or other Forest Plan standards.

Table 2-1. Fire Causes and Acres 2001-2005

Causes	Number	Percent	Acres	Percent
Lightening	68	24.2	419	49
Equipment Use	3	1.1	8	1
Smoking	21	7.5	5	0.6
Campfire	124	44.1	19	2.2
Debris Burning	3	1.1	0.3	0
Railroad	0	0	0	0
Arson	21	7.5	7	0.8
Children	1	0.4	0.3	0
Unknown	10	14	395	46.2
Total	**281**	**100**	**855**	**100**

Table 2-2. Summary of Wildfires – Acres Burned by Size Class 2001-2005

Size Class Fires (Acres)	Number of Acres Burned by Intensity Level							Total
	1	2	3	4	5	6	7	
E (+200)	1	0	0	0	0	370	0	370
D (100-200)	2	0	0	0	366.1	0	0	366.1
C (10-99)	1	10	0	0	0	0	0	10
B (0.26-9)	65	34.4	49.0	3.3	0	0	0	86.7
A (<0.25)	212	21	0.5	0	0	0	0	22.3
Total	**281**	**66**	**49**	**3**	**366**	**370**	**0**	**855**

The goal for the hazardous fuel program is to coordinate a sound, collaborative approach for reducing wildland fire risk to communities, and to restore and maintain forest health within fire-prone areas. The Forest had projected to treat 800 acres annually of hazardous fuels. The 10-Year Comprehensive Strategy Implementation Plan will provide the appropriate performance measures to determine success of fuel treatments.

For the reporting period, there were 1327 acres planned for hazardous fuels treatment. The Forest accomplished 1327 acres. Of the total acres, 1135 were in the Wildland Urban Interface and Fire Regime 1.

Localized benefits will be realized as treatments are completed. Documentation of changes to broad long-term trends including risks to people and property, native species, watersheds, air quality, and long-term site degradation will take time. Prolonged decline of condition class, especially in short interval Fire Regimes and around Urban Interface areas, will show an increase in size and severity of fires. The resource damage and value lost will be expected to increase as well.

Benefits from treatment of Hazardous Fuels include:

- Improvement in the resiliency and sustainability of wildland components, such as water quality, air quality, wildlife and fisheries habitat, and threatened, endangered, or other special status plant and animal species or habitat.

- Reduction in the amount of lands severely degraded by uncharacteristic wildland fire or by other disruptions to natural fire regimes.

The Forest has placed a priority on planning and implementing landscape scale fuels and vegetation management projects along National Forest boundaries. The Forest has entered into cooperative efforts with State and local landowners to provide for fuels management treatments on both sides of the National Forest boundary. Through collaboration with State, Tribal, and local entities, implementation of these projects will:

- Increase wildland fire safety to the public and firefighters;

- Reduce risk of unwanted wildland fire to communities;

- Reduce risk to recreational opportunities and associated wildland attributes, view-sheds, and cultural and historical resources and landscapes;

- Strengthen rural economic sustainability and increase opportunities to diversify local economies, such as through the use of biomass residues, which also reduce air quality impacts;

- Increase public education and understanding for the importance of implementing hazardous fuel risk reduction activities on both Federal and private lands; and,

- Help local communities with the development of Community Fire Plans.

Recommendations

- Continue to coordinate a sound collaborative approach for reducing the wildland fire risk to communities, and to restore and maintain ecosystem health within fire-prone areas.

- Continue to collect and consolidate data to support the assessment of ecological conditions in the context of the range of natural conditions for fire dependent ecosystems.

- Reduce hazard exposure to firefighters and the Public during fire suppression activities.

- Prioritize hazardous fuels reduction where the negative impacts of wildland fire are greatest.

- Ensure communities most at risk in the wildland-urban interface receive priority of hazardous fuels treatment.

- Continue to focus attention on condition class 2 and 3 in the short interval fire regimes.

Air Quality

Prescribed Fire Emissions

Goal

The overall goal is to manage prescribed fire emissions to meet the requirements of the State Implementation Plan (SIP) for the Clean Air Act. In addition, public health and environmental quality considerations will be incorporated into fire management activities undertaken for the hazardous fuels management program from the planning process forward.

Accomplishment

The management activities that affect air quality by the Forest remained in compliance throughout the monitoring period (10/04 to 9/05). No deviations from the State's Smoke Management Plan occurred and compliance with all Forest Service and State Air Quality Guidelines were maintained. A total 1,554 acres were treated during the course of the period with a total of 2,722 tons being consumed. No intrusion into smoke sensitive areas occurred as a result of Forest management activities. Visibility in the Mt. Hood Wilderness Class I area was not impaired as a result of management activities.

All burning operations were properly recorded and submitted to Salem Smoke Management for approval and record purposes using the FASTRACS system.

Table 2-3 Prescribed Burning - FY05

Burn Type	Acres Treated by Area				Total
	Barlow	Clackamas River	Hood River	Zigzag	
Piles	120	353	61	0	534
Underburn	1,020	0	0	0	1,020
Total Acres	1,140	353	61	0	1,554
Tons Consumed	1,282	260	1,180	0	2,722

Conclusions

The Forest Service continues to reduce emissions from burning activities. The goal of the Forest Plan is to reduce emissions 63% by the end of the first decade of the Plan, and that is being achieved to date.

New direction from the National Fire Plan is to:

- Develop and promote efficient biomass residue uses consistent with management objectives in agency land management plans.

- Strengthen rural economic sustainability and increase opportunities to diversify local economies, such as through removal and use of biomass residues to reduce air quality impacts.

This direction provides an opportunity to further reduce emissions or increase acres treated without increasing emissions.

Air Pollutants

Besides smoke monitoring, managers of the Forest, in collaboration with the Pacific Northwest Region Air Program monitor criteria pollutants (nitrogen oxides, sulfur dioxide, lead, and ammonia), their deposition and effects on visibility, precipitation chemistry, and forest ecosystems. The purpose is to help federal land managers formulate and document evidence for opinions they provide to decision-making processes, such as New Source Review (NSR). Under the NSR provision of the Clean Air Act, state and federal regulators ensure that permits for new sources will not cause significant deterioration of air quality in Class I areas, such as Mt. Hood Wilderness. Nitrogen-containing air pollutants currently pose the greatest threat to the Forest ecosystems. Large additions of nitrogen from vehicle exhaust, industry, and agriculture caused eutrophication of aquatic and terrestrial systems with adverse effects to water quality, fish, aquatic communities, plant-microbe relationships; enhanced growth of some noxious weeds over commercially and ecologically valuable ones; altered soil chemistry; and reduced tree growth rates.

Lichen Biomonitoring

From 1994 to 1997, Forest botanists surveyed lichens and collected common ones for chemical analysis at 138 monitoring sites. Air quality was assessed at each site using the lichen community composition (i.e., the relative proportion and abundance of sensitive vs. tolerant lichens) and pollutants loads of nitrogen, sulfur, lead, and other toxic metals. Monitoring protocols and data are accessible from the USDA Forest Service Pacific Northwest Region Air Resource Management website (http://www.fs.fed.us/r6/aq). The 1994 to 1997 measurements serve as baselines. In 2004 to 2005, Forest botanists revisited half of the baseline sites. Initial analysis of the 2004 data detected no changes with sensitive species still sparse in parts of Bull Run watershed and the Mt. Hood Wilderness (closest to Portland and the Columbia River Gorge National Scenic Area), but plentiful elsewhere. In contrast, nitrogen pollution in the Columbia Gorge worsened by 20 to 40%.

IMPROVE Visibility Monitoring

The Interagency Monitoring of Protected Visual Environments (IMPROVE) program is a cooperative air quality monitoring effort between federal land managers, regional, state and tribal air agencies and the Environmental Protection Agency. The IMPROVE monitoring program helps implement the Clean Air Act to prevent future and remedy existing visibility impairment in 156 Class I national parks, wildernesses and wildlife refuges. The Forest has maintained an IMPROVE sampler (MOHO) for Mt. Hood Wilderness since 2001 to monitor visibility and chemistry of airborne particulates. Data can be accessed at http://vista.cira.colostate.edu/improve and at http://vista.cira.colostate.edu/views. Since 2001, visibility has worsened by about 25% on 20% of the worse days, whereas visibility on the best days and average day is about the same. Most of the increase is due to an increase in ammonium nitrate in the air—an urban and agricultural pollutant.

NADP Deposition Monitoring

The chemistry of rain and snowfall is monitored via the interagency National Trends Network-National Atmospheric Deposition Program (NADP) in cooperation with local Forest Service units and other agencies. Operation of the NADP monitor in Forest at Bull Run watershed was discontinued in 2003 after 20 years and replaced by a monitor in Columbia River Gorge Scenic Area, near Washougal, Skamania County. NADP data are accessible from http://nadp.sws.uiuc.edu. Of the 10 Oregon NADP monitors; Bull Run, < 50 km from Portland, received the most nitrogen (5.5 kg/ha/yr) and ammonia (1.3 kg/ha/yr) in rain and snowfall; both pollutants were about 3-fold higher than state averages of 1.8 and 0.47 kg/ha. Washougal results are similar so far to historic Bull Run watershed values.

Range Management

Goal

On lands determined as suitable and capable of producing range vegetation and within constraints imposed by Forest Plan Standards and Guides, provide forage for use by permitted domestic livestock.

Existing Condition

Approximately 159,877 acres, or 15% of total acres on the Forest, comprise five active grazing allotments. Vegetative composition within these allotments is a mosaic of grass and shrub lands, meadow complexes, timbered areas, and harvested timber lands. Harvested lands in these allotments generally produce forage for about twenty to thirty years before the trees re-grow and again dominate the site. This is called "transitory range".

Economic goods are provided to communities through the issuance of grazing permits to six local ranchers. A stable supply of summer forage on National Forest System lands adds an element of economic viability to these ranch operations. Notably, the ranch lands in private ownership provides essential big game winter habitat for deer and elk, which is in critically short supply.

Monitoring Questions

- *Are AMP's (Allotment Management Plans) being implemented on the ground?*

  AMP's contain several important components, which have been implemented as follows:

  1) Range improvements (fences) were constructed or maintained to gain better livestock control and ensure attainment of Forest Plan Standards and Guidelines related to riparian protection and allowable use of vegetation;

  2) Pertinent Forest Plan Standards and Guides have been incorporated into every livestock grazing permit. Permittees are responsible for meeting the Terms and Conditions specified in these permits; and

  3) If a permittee does not comply with the Terms and Conditions, a "Notice of Non-Compliance (NONC)" may be issued.

  An environmental assessment was completed in 2005 for Long Prairie Allotment. Project Design Features and an adaptive management strategy will be implemented, as funded, under a new allotment management plan.

- *Are Forest Plan objectives for range being met?*

  In the Forest Plan, objectives for range were quantified and expressed as an output called "animal unit months" (p. four-14). The current Forest Service measurement of this output is called "head months". Actual livestock use was 3,499 head months (HM's) out of a total 3,684 HM's under permit.

Monitoring Range Ecosystem Function and Productivity

Long-Term Vegetative Trends

An important aspect of ecosystem function and productivity is related to vegetation. Studies to monitor existing condition and long-term trend in vegetation are in place on all allotments using photo trend methodology. Plots are visited once every 5 to 7 years to record plant species diversity, percent bare soil, plant vigor and other factors, and record changes over time. These measurements, along with other observations made by a professional Range Conservationist, indicate that overall range vegetative condition is stable or improving.

Short-Term – Forage Utilization Studies

Forage utilization Standards and Guidelines were developed to ensure that adequate vegetation is left after grazing. Plant health and vigor can be sustained if grazed properly. Utilization monitoring studies were conducted on all active allotments. These studies are used to monitor the consumption of the current years forage by both permitted livestock and wildlife. Of the twenty-seven established monitoring sites, which are visited annually, eighteen are located within riparian areas. Of those 18 sites, 94% (17) met Forest Plan Standards and Guidelines for forage utilization, while 6% (1 site), did not. The remaining nine sites are located within the uplands, and 100% (9 sites) met Forest Plan Standards and Guidelines.

Recommendations

Monitoring indicates the majority of acres within grazing allotments are meeting or moving toward Forest Plan objectives. While this is a desirable situation, there are interactions and relationships to other resources that merit discussion.

As mentioned above, one of the monitoring sites located within riparian areas indicated forage utilization levels above those established in Forest Plan Standards and Guides. Permit administration and compliance is vital to ensure that instructions given to grazing permittees are carried out on the ground. Funding to accomplish this task is becoming scarcer. Solutions to this problem need to be identified.

As discussed in the Timber section of this monitoring report, numbers of acres harvested have dropped significantly over the past several years. This results in fewer acres of “transitory range” (as mentioned above) and, therefore, less forage. This trend is expected to continue. On allotments where transitory range makes up a substantial portion of the available forage, there is a concern that livestock will rely more heavily on meadows and riparian vegetation. Some of these meadows and riparian areas are also heavily used by recreationists and provide important wildlife habitat. These trends and conflicts should be analyzed through the National Environmental Policy Act (NEPA) process as the Forest Service proceed with updating allotment management plans, in order to allow appropriate resource decisions to be made.

A productive, long-term partnership with a riparian restoration objective has been developed with Catlin-Gable High School. Students and staff work together on ecosystem restoration projects, generally with a fisheries focus, incorporating components of environmental education and monitoring. Many of these restoration projects have been done within grazing allotments, such as fencing riparian areas to control livestock use. The students and Forest Service learn a great deal, accomplish needed restoration work, and most importantly, give the students an understanding of the resource conservation issues they will be managing in the future. This important partnership should receive priority so it will continue.

Noxious Weeds

Noxious weeds or invasive plants are monitored because they displace native vegetation, alter species composition of vegetation on forest and range lands, reduce the productivity of desired commodities on National Forest System lands, reduce species diversity, and adversely affect recreational quality. Monitoring is conducted on weed control treatments, known infestations, and new infestations. Monitoring weed control treatments gives the Forest information used to determine the effectiveness of weed treatments and how best to allocate financial and personnel resources. Monitoring weed infestations provides the Forest with important information on their impact (e.g., location, acres infested, and rate of spread) and makes it possible to target the most important sites to treat. As an example, treating a newly discovered, small infestation of aggressive non-native hawkweed now will prevent a large costly effort in the future.

Goal

To control noxious weed infestations and prevent their spread in accordance with the Mt. Hood National Forest Noxious Weed Plan, the *Final Environmental Impact Statement (FEIS) for Managing Competing and Unwanted Vegetation*, and the Forest Plan.

Existing Program

The Forest cooperates with the Oregon Department of Agriculture, Wasco County and Hood River County Weed Departments, Bonneville Power Administration, and the Confederated Tribes of Warm Springs to conduct inventories and treat noxious weeds.

In 2005, efforts were focused on the control of hound's tongue (*Cynoglossum officinale*), knapweed species (*Centaurea s*pp.), common toadflax (*Linaria vulgare*), and tansy ragwort (*Senecio jacobaea*) east of the crest of the Cascade Range, and knapweed and non-native hawkweeds (*Hieracium aurantiacum* and *H. pratense*) west of the crest.

Table 2-4 Acres of Noxious Weed Treatment in FY05

	Acres Treated by Method
Herbicide	530
Manual & Mechanical	35
Biological	0
Fire	0
Total	**565**

Monitoring Questions

- *Are known untreated weed sites continuing to spread?*

  Yes. Of great concern are non-native hawkweeds. Satellite populations have been detected up to 10 miles from the one main population on Zigzag Ranger District.

  Japanese knotweed (*Polygonum cuspidatum*), giant knotweed (*Polygonum sachalinense*), and hybrid bohemian knotweed (*Polygonum X. bohemicum*) populations in the Sandy, Zigzag, and Clackamas River drainages also appear to be increasing.

  Both hawkweed and knotweed species form dense populations, displacing native plants. There is great concern that if any of the non-native hawkweeds become established in wet meadows they would overwhelm those habitats. Wet meadows are relatively uncommon in the area and are biologically important. They are important foraging and calving habitat for elk. Forage is a significant limiting factor for elk on the Forest. Hawkweeds are unpalatable to elk and, therefore, displacement of native forage species by the invasive non-native hawkweeds could have an adverse effect on the health of elk populations. Current hawkweed populations are mostly within a power line transmission corridor that is managed for low-growing vegetation to provide a safe distance between the wires and vegetation. The corridor provides habitat where hawkweed thrives.

Knotweed forms aggressive, dense stands 6 to 8 feet tall along streams, displacing native vegetation and degrading habitat for riparian-associated birds, mollusks, fish, insects, and mammals. Knotweed has a weak root system and does not bind the soil well like native riparian vegetation, leading to increased erosion during peak stream flows in the spring. Also, there is concern that knotweed can change nutrient input to streams, further affecting aquatic organisms. The result may be degraded fish habitat in important anadromous fish-bearing streams. Currently, known sites for knotweed are at lower elevations along the Salmon River, Still Creek, and Bear Creek as well as at the Timber Lake Job Corps site in the Clackamas River drainage. Knotweed populations are also located around summer homes in the vicinity of the Forest. The only treatment method presently available to the Forest is manual cutting, which has proven to be unsuccessful. Effective control methods using carefully applied herbicide (stem-injected glyphosate) are being used by The Nature Conservancy and others, but this option will not be available to the Forest until a site-specific invasive plant treatment Environmental Impact Statement (EIS), currently in preparation, is completed.

- *Are new infestations occurring?*

  Yes. New populations of knotweed and hawkweed have been detected during FY05.

- *Are biological control agents controlling the spread of noxious weeds?*

  Some widespread weed species that have established biological control agents, such as Scot's (or Scotch) broom (*Cytisus scoparius*), tansy ragwort at lower elevations, and St. John's-wort (*Hypericum perforatum*), are likely being controlled to some degree. Biological controls for the knapweeds, however, have had modest impact thus far. No biological controls have been approved for houndstongue, hawkweed, knotweed, or toadflax.

  Biological controls do not eradicate weeds, but do decrease their vitality and hold them to reduced densities. Part of the reason noxious weeds out compete natives is because the insects and diseases that affected them in their native habitat do not exist here with them. The biological controls for the above weeds are all insects that do not significantly affect native plants.

- *Are mitigation measures to reduce the risk of noxious weed establishment being implemented for all ground-disturbing activities?*

  Most, but not all, ground-disturbing activities have mitigation measures implemented to reduce the risk of noxious weed infestation. Mitigation efforts are effective in preventing the introduction of noxious weeds into areas not yet infested. Greater emphasis has been placed on disposal of weed-contaminated material from roadside clearing and cleaning up active quarries to prevent the contamination of gravel used on roads.

  Mitigation measures are also in place for activities not considered ground-disturbing such as backcountry horse use where weed-free hay and straw are required.

Results

Herbicide control methods were used to treat high-priority houndstongue and tansy ragwort sites east of the crest of the Cascade Range; knapweed sites on Barlow, Clackamas River, and Zigzag Ranger Districts; and hawkweed on Zigzag Ranger District. These treatments have been effective in reducing the number of plants; however, plants germinating from seed already deposited in the soil will necessitate treatment in future years until the seed bank is depleted. The weeds are so widely established east of the crest of the Cascade Range that eradication is not possible. Treatment has been effective in treating satellite populations preventing the establishment of new large entrenched infestations.

Surveys continue to locate satellite populations of hawkweed associated with the primary infestation along the Big Eddy-Ostrander transmission line from Lolo Pass west to the Forest boundary. These populations have been small and can be manually controlled; however, there is a possibility that some small infestations may be overlooked and grow to a size where eradication using manual control is no longer possible.

Rock sources and storage sites on Barlow Ranger District were targeted as a high priority for herbicide treatment due to the possibility that contaminated material could be moved to other sites resulting in establishing a new weed infestation.

A small population of yellow star-thistle (*Centaurea solstitialis*) on Hood River Ranger District is being controlled with hand pulling.

Knotweed sites associated with summer homes on Zigzag Ranger District were hand pulled. The experience of others and the literature suggest that this method will not result in controlling or eradicating knotweed; however, at this time, it is the only control method available to the Forest. The Forest is currently preparing a site-specific invasive plant treatment Environmental Impact Statement (EIS) on manual, mechanical, cultural, and herbicide treatments to eradicate and control noxious weeds.

The population of knapweeds on treated roadsides is considerably reduced. The herbicides used have little effect on grasses, which are replacing knapweed along most of the treated areas.

Recommendations

Continue to cooperate with Bonneville Power Administration to treat the primary hawkweed infestation within the Big Eddy-Ostrander power transmission corridor.

Knotweeds are riparian weed species with the potential to alter habitat for fish and other species that depend on riparian habitats. Manual control has not been effective. Provide information to summer homeowners on how to limit the spread of knotweed and explore methods which may be used to control infestations.

All projects that result in ground disturbance need to have mitigations in place to reduce the risk of noxious weed infestation and spread. These mitigations should be reviewed following a project to determine their effectiveness.

Continue to work with Oregon Department of Agriculture to establish biological controls on the Forest.

Implement new management direction that was issued on October 11, 2005 by the Regional Forester that will guide future invasive plant management on all National Forests in the Region (Pacific Northwest Region Invasive Plant Program: Preventing and Management Invasive Plants – Record of Decision [R6-NR-FHP-PR-02-50]).

Some Further Background on Selected Major Weeds

The greatest area affected by weeds is the drier eastside of the Forest, where diffuse knapweed and other knapweeds are widespread along roadsides. It is beyond the Forest Service's ability to control these species on the eastside except in intensely managed areas and along major roadsides. On the westside, a concerted effort to eradicate every new knapweed site has been effective in keeping it at bay. Knapweeds have little forage value and displace native forbs and grasses. The result is extensive loss of forage for ungulates and cattle. Knapweed colonizes where soil is exposed by disturbance whether as a result of human activity, fire, large animals (e.g., elk, cattle, etc.), or small animals (e.g., gophers). Knapweed colonization is a continuing disturbance process that alters the species composition of herbaceous plants and reduces productivity of forage for wildlife and livestock. The result is an ecological legacy of adverse changes in vegetation that are difficult to reverse. Like cheat grass, knapweed is now an entrenched noxious weed of western North American ecosystems. It is spread by wind and animals over short distances and is readily caught under vehicles and transported long distances.

Houndstongue is also rather pervasive, but over a smaller area (about 1,400 acres reported) on the south end of Barlow Ranger District. There are some small populations on Hood River Ranger District. Unpalatable and toxic when eaten, houndstongue displaces forage plants for cattle, elk and deer. Its seeds are covered with tiny hooked barbs that cling to clothing and fur. Houndstongue varies in density from near 100% cover in highly disturbed open areas to scattered under brush and tree canopy. It has continued to move into recently logged stands. Over time, houndstongue does seem to decline in dense plantations as tree canopy closes. Because its seeds cling to clothing, houndstongue is probably being transported to other recreation sites and to the homes of Forest users. Seeds are certainly carried to other sites by forestry workers (e.g., tree-marking crews, survey crews, logging workers) and recreational users. The total houndstongue population on the Forest is too large and spread out to eradicate. Control efforts with herbicides are concentrated on satellite populations, roadsides, and heavily used areas, such as McCubbins Campground. Prior control efforts using mechanical and hand pulling methods have proved to be ineffective.

Tansy ragwort is common on the westside of the crest of the Cascade Range where the only control is biological. At higher elevations, biological control agents (moths and beetles) have not adapted to the climate and, therefore, are not very effective. On the eastside, populations are smaller and treatment is more effective. The Forest Service actively treats tansy by hand pulling and using herbicides. Tansy is phytotoxic and unpalatable. It competes well when other factors, such as grazing or severe frost, limit the native vegetation.

Scot's (or Scotch) broom is mostly a westside problem where it has invaded large areas after logging and is a robust competitor in young forest plantations. The result is fewer surviving trees that take longer to grow over this shrub. It dies out when overtopped by trees but will persist in openings, along roadsides and particularly in power line clearings. Economical effects are serious. Dense stands also overwhelm native understory vegetation. Scot's broom is generally not treated on the westside because it is beyond the Forest Service's ability to handle with mechanical treatment; herbicides, while effective in treating Scot's broom, are not a viable option. On the eastside, Scot's broom is an occasional weed, probably because it is less vigorous in the drier climate. All eastside sites are treated, so infestation there has been kept at low levels.

Heritage Resources

Goal

The monitoring goal is to ensure that heritage resources are being managed, protected, and interpreted according to the Forest Plan Standards and Guidelines. The Standards and Guidelines are designed to locate, protect, maintain, and/or enhance significant prehistoric and historic sites for scientific study, public enjoyment, education, and interpretation. A second monitoring goal is to ensure that American Indian rights are being protected on National Forest System lands, and that appropriate coordinating activities are occurring.

Monitoring Questions

To accomplish these goals, four monitoring elements were identified in the Forest Plan.

1. Tribal Consultation

The Confederated Tribes of the Warm Springs (CTWS) are consulted in all projects located on tribal lands, and usual and accustomed areas. The Barlow District Ranger is the Tribal contact for the Forest and meets on a regular basis with the CTWS to discuss a variety of resource issues. In addition to the formal NEPA scoping, the Forest has developed and maintains informal contacts with the CTWS. The implementation of the 2003 interagency Memorandum of Understanding between the Forest Service, Bureau of Land Management, Bureau of Indian Affairs and CTWS, which establishes a framework for government-to-government collaboration and consultation on projects, plans, actions and policies continues to be very successful.

Early in 2005, the Forest Archaeologist met with representatives of the CTWS to discuss consultation protocol for heritage resources inventory projects. Project reports involving sites or areas of specific interest were submitted to the CTWS Cultural Resources Program Manager for review throughout the year. A special consultation meeting was also held with CTWS representatives regarding the proposed Site-Specific Invasive Plant Treatment Environmental Impact Statement.

The Forest also initiated formal consultation with CTWS and the Confederated Tribes of the Grand Ronde Community of Oregon regarding the proposed Bull Run Land Exchange with the City of Portland.

2. Historic Preservation Standards

Significant (National Register-eligible) historic buildings and structures within the Forest are maintained, stabilized, and repaired according to federal historic preservation standards and in consultation with the State Historic Preservation Office (SHPO). The following preservation projects were undertaken during Fiscal Year 2005:

Timberline Lodge (National Historic Landmark)

A Historic Building Preservation Plan (HBPP) was completed for Timberline Lodge in 1998. This plan provides managers credible alternatives for routine maintenance, rehabilitation and replacement of historic fabric throughout the building. Table 2-5 lists projects approved under plan stipulations during FY05 in consultation with the State Historic Preservation Office (SHPO).

Table 2-5 Approved Projects at Timberline Lodge

Project No.	Description	Finding
2005-060609-009	Price Wing Closet	Within Timberline Lodge Agreement. No Adverse Effect. Stipulation III.C.3b.
2005-060609-010	Pocket Door	Within Timberline Lodge Agreement. No Adverse Effect. Stipulation III.C.3b.
2005-060609-026	East Wing Roof	Within Timberline Lodge Agreement. No Adverse Effect. Stipulation III.C.3b.
2005-060609-027	Water Tower	Within Timberline Lodge Agreement. No Adverse Effect. Stipulation III.C.3b.
2005-060609-028	Drinking Fountains	Within Timberline Lodge Agreement. No Adverse Effect. Stipulation III.C.3b.
2005-060609-045	Amphitheatre	Within Timberline Lodge Agreement. No Adverse Effect. Stipulation III.C.3b.
2005-060609-070	Amphitheatre Trail	Within Timberline Lodge Agreement. No Adverse Effect. Stipulation III.C.3b.
2005-060609-081	Chute	Within Timberline Lodge Agreement. No Adverse Effect. Stipulation III.C.3b.

Cooper Spur Warming Shelter

Built circa 1933 by the Civilian Conservation Corps, the Cooper Spur Warming Shelter is a log and stone structure associated with the initial phase of winter recreation development on Mt. Hood National Forest. The shelter was determined eligible to the National Register of Historic Places in 1993. In 2004, a preservation plan was developed in conjunction with a local citizens group to repair deterioration. In consultation with SHPO, a "No Effect" ("No Historic Properties Affected") determination was made for proposed replacement of the cedar shake roof, repair of several deteriorated structural elements, and repointing of stone masonry. Roof replacement and the repair of structural features were completed in 2005. Masonry repair is planned for 2006.

3. Nominations to the National Register of Historic Places

There were no new nominations to the National Register of Historic Places in 2005. Three archaeological sites were evaluated to determine National Register eligibility, but did not meet qualification requirements. Efforts continued to assess the significance of historic recreation residence tracts, all of which are located within Zigzag Ranger District. A total of 175 privately-owned recreation residences were inventoried within the Camp Creek, Tollgate, and Old Oregon Trail tracts. While none of the three tracts qualified as National Register Historic Districts, nine of the recreation residences met qualification requirements for National Register listing as individual historic properties.

4. Interpretation and Public Involvement

Three methods are typically used to facilitate public involvement with the Heritage Resource Program: interpretation, education, and volunteerism. The successful interpretive program at Timberline Lodge reaches thousands of visitors every year. Frequent tours are conducted at the Lodge, and Friends of Timberline oversees changing exhibits and demonstrations relating to the history of the Lodge and recreation on Mount Hood.

Public archaeology and restoration activities have been particularly successful ways to involve volunteers in the management and interpretation of heritage resources. A total of 16 Oregon Archaeological Society volunteers participated in archaeological test excavations at the site of an historic ranger station in Wasco County, contributing over 200 volunteer hours. In September, the Barlow Ranger District hosted an on-site interpretive program on emigrant use of the Barlow Road at White River Station Campground, one of the historic sites within the Barlow Road Historic District.

Clackamas River Ranger District hosted a volunteer project under the national Passport in Time program. The project involved initial phase restoration and rehabilitation of the historic World War II vintage Bull of the Woods Fire Lookout. Ten volunteers participated in the project, contributing over 400 volunteer hours.

Conclusions

Avoidance of impacts to heritage resources has been a goal for all projects implemented during FY05. Heritage Program staff routinely monitor the condition of heritage resources during and after project activities to ensure that avoidance procedures and protective measures were effective. No adverse effects were reported.

Recommendations

Heritage Program activities focused on Forest project priorities and general resource protection efforts. A number of specific projects were still in progress at the end of the year, and remain to be completed. The following projects are recommended for addition to the program of work for FY06, depending on staff availability and workload priorities:

- Complete the consultation process for the Peeled Cedar Management Plan and execute a Memorandum of Agreement for this class of historic resources.

- Complete the management plan for Cloud Cap – Tilly Jane Historic District.

- Expand Site Stewardship Program through partnership with Oregon Archaeological Society, including a larger number of sites in the monitoring program.

- Complete evaluations of all remaining unevaluated historic recreation residence (summer home) tracts on the Forest, including the Vine Maple, Flag Mountain, Zigzag, and Zigzag Ski Club tracts.

Geology

Goal

The goal for the geology program is to sustain the productivity of areas susceptible to landslides. Long-term stability of the area is the overall objective.

Existing Conditions

There were two timber harvest units in FY05 on land mapped as high-risk earthflow. The largest unit was 73 acres. There were two timber harvest units in FY05 on land mapped as moderate risk earthflow. The largest unit was 26 acres. Three of the timber harvest units on B8 (earthflow) land were commercial thinnings that temporarily reduced the crown closure to less than 70%. It is estimated that recovery to 70% crown closure will occur in approximately 10 years. One eight acre unit on earthflow (B8) land was harvested after a fire killed the trees. In all cases, the planned harvest units were reviewed by slope stability specialists and determined to have no measurable effect on earthflow stability. No roads were constructed on earthflow (B8) land. There were no timber harvest units on mapped landslides other than earthflow (B8) land in FY05. No roads were constructed on mapped landslides other than earthflows.

No acceleration or initiation of earthflow movement has been measured or suspected as a result of timber harvest or road building activities on earthflow (B8) land since monitoring began in FY91.

Continued measurements during FY05 at established earthflow monitoring stations will provide valuable information to guide future management activities on earthflows. These measurements are primarily for slope movement rates. Measurements have been made annually since 1993 and are showing movement rates ranging from zero to several feet per year. Additional effort is still needed in verifying the scientific validity of the standards and guidelines for earthflows, particularly those covering hydrologic recovery.

Recommendations

Additional efforts in 2006 should be focused on continuing the on-the-ground monitoring of the earthflows to enlarge the Forest Service baseline data in order to enable the evaluation of future changes due to management activities; continuing the review of the risk classification system for earthflows; and continuing the field verification of the earthflow and landslide boundaries.

Minerals

Goal

The goal of the minerals program is to provide a sustainable flow of mineral resource while maintaining compatibility with other resources potentially impacts.

Existing Conditions

There were no commercial leasable or locatable mineral development activities on the Forest in FY05. Locatable mineral activities were limited to minor sampling and exploration on the Forest. Two Notice of Intents were submitted to the Forest. In all cases, the planned activity was limited to mineral exploration. There were 20 inquiries from the public regarding laws and guidelines covering locatable minerals on National Forest System lands. The Forest responded to 100% of these inquiries.

Most of the minerals activity on the Forest was with salable (common variety) mineral resources. These resources were managed using the Mt. Hood National Forest Rock Resource Plan as a guide. There were three projects where 450 cubic yards of mineral materials were used by other government agencies. There were seven projects where a total of 21,000 cubic yards of mineral materials were used by the Forest. All of the major projects had operating plans and were field inspected for compliance with the plans. All (100%) of the transportation plans were reviewed. When necessary, operating plans were modified to adjust to changing conditions. Operators were not allowed to leave the source until all the requirements of the operating plan had been met. During FY05, there were eight operating plans completed for current and future projects.

There were 424 smaller projects where salable mineral materials were used by the public. These projects removed a total of 700 cubic yards. Prices for the various rock products available for sale to the public were adjusted in FY02 following the completion of an appraisal process that examined the prices charged at local commercial rock product businesses.

All the mineral activity took place in currently developed and designated common variety mineral material sources in a manner that did not conflict with other resource objectives. Not all the existing sources have completed formal long-range development plans. No new development plans were completed, although several remain nearly completed.

Recommendations

The Forest continues to be able to supply high quality rock products to the general public, other government agencies, and for Forest Service use. Rock is a non-renewable resource. This Forest, however, has large quantities of high quality rock and, with proper resource management, should be able to satisfy demand for many years. Many of the Forest Service sources are being depleted of the easily accessible loose material by the continuing demand for “landscape rock” by the public. An effort needs to be made to inexpensively create additional loosened material at those sources to meet the public demand for small quantities of salable mineral materials.

Fisheries Program

Goal

The goals of the Fisheries Program are to maintain or increase fish habitat capability and assure long-term aquatic ecosystem health.

Ecological Integrity

Ecosystem Function

Stream Function & Conditions

The Forest is home to several populations of salmon, steelhead, and resident trout. There are over 1,600 miles of fish-bearing streams on the Forest with approximately 300 miles supporting anadromous (i.e., ocean-going) populations of salmon and steelhead. The primary river basins on the Forest include:

- Clackamas River Basin
- Fifteenmile Creek Basin
- Hood River Basin
- Sandy River Basin
- White River Basin (Deschutes River system)

The federal lands, predominately Forest Service, comprising these river basins make up the vast majority of land ownership. Federal lands, on average, comprise from two-thirds to three-quarters of the total land ownership in these river basins, thereby emphasizing the critical importance of the aquatic habitat conditions on the Forest.

Forest Plan Monitoring Goal:

- To determine if Forest Plan standards and guidelines are effective in maintaining or enhancing aquatic habitat complexity and fish habitat capability.

Given the predominance of federal lands in the primary river basins identified above, the role of federal lands is critical in providing "anchor" habitats for rebuilding fish populations to sustainable levels. "Anchor" habitats are considered as those streams or rivers that provide relatively good to excellent aquatic habitat conditions in large watersheds (20-50 mi^2). These areas have the added protective measures afforded to them by statutory federal requirements (e.g., Wild & Scenic Rivers Act, Wilderness Area protection, Roadless Area designation, Northwest Forest Plan Aquatic Conservation Strategy). While the status of fish populations in each of the primary river basins is of particular concern given the number of Endangered Species Act listings across the Forest, the maintenance and enhancement of aquatic habitat on federal lands is crucial for their recovery and long-term sustainability. As habitat managers, Forest Service personnel continue to protect and restore valuable stream habitats and riparian areas.

Forest Plan Standards and Guidelines, as amended by the Northwest Forest Plan, were designed to maintain fish habitat capability. Watershed scale (fourth field, such as the Sandy River Basin; and fifth field, such as the Salmon River) monitoring is completed through two programs; (1) the Mt. Hood Stream Inventory Program, and (2) the Aquatic and Riparian Effectiveness Monitoring Program.

The Mt. Hood Stream Inventory Program (see Table 2-6) collects information on stream conditions, including habitat typing (e.g., pools, riffles, glides), riparian and upland vegetation, management activities near the stream, streambed composition, and fish species presence. Each year, fish biologists on the Forest evaluate monitoring and information needs, such as project level planning or updating a Watershed Analysis document, and choose the streams to be inventoried.

Surveys are then compiled into reports. The reports give fish biologists a current year snapshot of conditions and, over time, a tool to evaluate trends and determine if the Forest is meeting aquatic habitat standards and guidelines.

Table 2-6. 2005 Aquatic Inventory Program

Stream Name	Aquatic Inventory (in Miles)	Aquatic Biota (in miles)
Compass Creek	1.35	0
Lake Branch	12.2	12.2
Henry Creek	3.7	3.7
Zigzag River	7.5	9.0
McGee Creek		3.5
West Fork Hood River		1.75
Red Hill Creek		1.75
Salmon River		14
Squirrel Creek		1.9
Oak Grove Fork		1.0
Totals	**24.75**	**48.8**

The Aquatic and Riparian Effectiveness Monitoring Program (AREMP) is a multi-federal agency program developed to assess the effectiveness of the Aquatic Conservation Strategy (ACS) of the Northwest Forest Plan. The objective of the ACS is to maintain or restore the condition of watersheds in the Northwest Forest Plan area. The AREMP program is sampling 10 sixth field watersheds on the Forest. In 2005, sampling included Cub Creek (HUC # 170900110201) on the Clackamas Ranger District and Upper Badger Creek (HUC # 170703060901) on the Barlow Ranger District. Watersheds are sampled each year over a 5-year rotation. Models evaluating the data are still under refinement. Information regarding the AREMP program is found at: www.reo.gov/monitoring/watershed.

The actual utilization of habitat by various fish species is far below the overall productive capacity of rivers and streams on the Forest. As such, Forest Service fish biologists continue to work in partnership with partners dedicated to fish conservation and restoration and watershed councils across the Forest to assist in all fish recovery aspects at the whole-river basin level.

Special Habitats

Fisheries special habitats are habitats that provide a critical function during a certain life stage or time of the year: for example, off-channel rearing areas for juvenile salmonids during winter storm flows.

In the Sandy River Basin, the Forest has actively pursued restoration of special habitats on both federal and private lands. A few of the more notable examples, with a summary of results, include the following.

Clear Creek Campground Restoration

The former Clear Creek day use and campground was restored to a six-acre wetland and side channel in 2004. In 2005, monitoring was focused on effectiveness of erosion control, bank stabilization, and initial colonization of habitat by target species. Results include:

- Initial restoration of wetland function. Planted native willow and cottonwoods were successfully established in 2004. Growth average 6 to 12 inches the first year;
- No spawning was observed in the outlet channel; and,
- Large schools (estimated in the 100's) of juvenile coho and chinook immigrated into the site to forage and rear.

Future monitoring includes:

- measurement of change of substrate;
- vegetation condition; and,
- use of the area by salmon.

Welches Road Culvert Replacement over Wee Burn Creek

The 2005 Welches Road Bridge Installation was one of a series of projects designed to re-open access to historic salmon habitat in the Salmon River. The Welches Road Bridge replaced a culvert that was a barrier to salmon passage at certain life stages. Now salmon at life stages from juvenile to spawning adult can access the full stream reach of Wee Burn Creek. Adult coho were seen spawning in the fall of 2005 under the newly installed bridge.

Arrah Wanna Homeowners Salmon River Restoration (private)

The Arrah Wanna project is a long-term cooperative restoration program on the Salmon River between private organizations and individuals and government agencies. In 2005, restoration of three hundred feet of a historic side channel was completed. Project results included restoration of habitat components, such as large wood complexes and boulder structures. Biological data continues to be collected.

Descriptions and reports of these and other projects are described in the Annual Fisheries Accomplishment Report and posted on the Forest website: http://www.fs.fed.us/r6/mthood/publications.

Population Function, Structure and Composition

Population Viability

Anadromous fish have a complex life history, which includes freshwater, migration and saltwater phases. Monitoring information is used to better understand life history stages of different fish populations, and focus recovery efforts for Endangered Species Act (ESA) listed fish. Salmon, steelhead, and bull trout production continue to be monitored in the Clackamas, Fifteenmile, Hood River, and Sandy River basins. Forest Service personnel in collaboration with other federal, state and non-governmental partners monitor fish production in each basin. Monitoring of smolt production occurs to the largest extent in the Clackamas River Basin, followed by the Sandy River Basin to a lesser extent. On the Sandy River basin, salmonoid populations and structure has been monitored for the past 13 years. Each year juvenile and ocean going smolt populations are monitored in the Sandy River using smolt traps at the Still Creek site (ongoing since 1992); the Clear Fork of the Sandy River (ongoing since 2002); and the Salmon River (began in 2004).

Table 2-7. 2005 broad scale monitoring programs listed by fourth field watershed which track long-term trends of aquatic species and their habitats on the Mt Hood National Forest.

Fourth Field Basin Name	Project Name	Objective
Clackamas River	Smolt trapping and population estimates of coho and steelhead in Fish Creek, Oak Grove Fork, Roaring River, North Fork Clackamas, Clear Creek and Deep Creek	Long-term population monitoring of out-migrating salmon and steelhead smolts
	Salmon Carcass Nutrient Restoration	Nutrient level and biological response to salmon carcass additions
Hood River	Bull Trout Population Monitoring	Establish and document changes in bull trout populations
Fifteenmile/ White River	Spawning Surveys	Long-term monitoring of spawning success and trends
	Fifteenmile Riverkeeper	Monitor response to large-scale watershed restoration
Sandy River	Spawning Surveys	Long-term monitoring of spawning success and trends
	Smolt trapping and population estimates of coho and steelhead in Still Creek, Clear Fork and Salmon River	Long-term population monitoring of out-migrating salmon and steelhead smolts
	Salmon Carcass Nutrient Restoration	Nutrient level and biological response to salmon carcass additions

The overall abundance of anadromous fish and bull trout continues to be low in those streams and rivers monitored on the Forest. For example, bull trout monitoring in the Hood River system has shown the distribution of bull trout has expanded significantly over the past decade, yet abundance is still quite low. Salmon populations on the Forest continue to show large fluctuations in size. The most extensive and complete data set on the Forest is in the Clackamas River, where up to eight smolt trap sites have been monitored annually. The ten-year data set has shown general trends of increasing numbers of steelhead smolts, and decreasing numbers of coho smolts.

Invasive aquatic species

Non-native, invasive species such as brook trout and small-mouth bass have been documented on the Forest. Fisheries biologists at the Hood River Ranger District have developed a long-term monitoring plan for Endangered Species Act listed bull trout, which includes an assessment of impacts and interactions of small mouth bass and bull trout.

Fish Populations of Concern

In 2005, critical habitat for the Lower Columbia steelhead and Chinook was designated.

Table 2-8. Fish Populations of Concern on the Mt. Hood National Forest.

Species	Evolutionary Significant Unit	Status	Watershed
Steelhead (*Oncorhynchus mykiss)*	Lower Columbia River	Threatened 3/98	Sandy River, Clackamas River, Hood River
Steelhead (*Oncorhynchus mykiss)*	Middle Columbia River	Threatened 3/99	Fifteenmile Creek, Mill Creek
Chinook *(Oncorhynchus tshawytscha)*	Lower Columbia River	Threatened 3/99	Sandy River, Hood River
Chinook *(Oncorhynchus tshawytscha)*	Upper Willamette River	Threatened 3/99	Clackamas River
Coho *(Oncorhynchus kisutch)*	Lower ColumbiaRiver/ Southwest WA	Candidate 7/95	Clackamas River, Sandy River
Bull Trout *(Salvelinus confluentus*)	Columbia River Gorge Ranger District Population Segment	Threatened 5/98	Hood River
Redband trout *(Oncorhynchus mykiss gairdneri)*	N/A	Sensitive	Miles Creeks, Hood River, White River
Cutthroat Trout (*Oncorhynchus clarki)*	N/A	N/A	Clackamas, Sandy, Hood River, Miles Creeks
Rainbow Trout (*Oncorhynchus mykiss irideus)*	N/A	N/A	Clackamas River, Sandy River, Hood River, Miles Creeks

Social Well-Being

Collaborative Stewardship

The Sandy River Basin Agreement Team

The Sandy River Basin Agreement Team is a consortium of state, federal and local government organizations and private conservation groups interested in the long-term ecological health and management of the Sandy River Basin. Their focus to develop a strategy to maintain and recover salmonids listed under the Endangered Species Act (ESA) in the Sandy River watershed. In 2002, Portland General Electric (PGE) and the Sandy River Basin Agreement Team partners signed off on a settlement agreement to decommission Marmot and Little Sandy dams. In 2004, these partners identified geographic areas in the Sandy River Basin important for the persistence and restoration of salmon and steelhead populations. These key areas, known as Anchor Habitats, are the focus of restoration efforts to restore salmon and steelhead habitat. The stakeholders involved are listed below.

- State of Oregon - Department of Fish & Wildlife;
- Clackamas County;
- Association of Northwest Steelheaders;
- Oregon Trout;
- Native Fish Society;
- The Nature Conservancy;
- Sandy River Basin Watershed Council; and,
- Federal – Salem District Bureau of Land Management (BLM), U.S. Fish & Wildlife Service, National Oceanic and Atmospheric Administration (NOAA) Fisheries, Mt Hood National Forest.

Water Resources

Goal

A key goal of the Forest Plan, as amended by the Northwest Forest Plan, is to protect and maintain the character and quality of water, providing for long-term sustained production resulting in favorable flows from the watersheds on the Forest. In addition, the unique and valuable characteristics of floodplains, riparian areas, and associated riparian and aquatic ecosystems are to be protected.

Water quality Best Management Practices (BMPs) and related Forest Plan and Northwest Forest Plan Standards have been developed to achieve compliance with the Clean Water Act and state water quality regulations. The purpose of various water resource-monitoring activities is to assess Forest Service compliance with the Clean Water Act, as outlined in a Memorandum of Understanding with the Oregon Department of Environmental Quality (DEQ). Some of the monitoring activities are designed to collect data on water quality trends and monitor the effectiveness of watershed restoration work, such as road decommissioning.

Existing Situation

The Northwest Forest Plan prescribed various standards and guidelines for resource management activities, many of which are more stringent than those prescribed in the Forest Plan. A good example is the Northwest Forest Plan standard for riparian reserve widths, which are typically one or two site potential tree heights. These widths are more than adequate for protecting practically all stream shading. As a result, water temperature monitoring for the effectiveness of riparian reserves to protect stream temperature at the project level is no longer needed. Monitoring funds for water temperature are now being used for water temperature trend monitoring at about 40 sites across the Forest, to gather data on existing water temperature conditions, water temperature recovery in certain watersheds, and compliance with State water quality standards for temperature.

Implementation Monitoring

Cumulative Watershed Effects Analyses

During 2005, a watershed cumulative effects analysis was completed for the Collawash Thin, South Fork Thin, and Wildcat Thin timber sale Environmental Assessments on the Clackamas River Ranger District using the Aggregate Recovery Percentage (ARP) methodology. On the Eastside of the Forest, the Bear Knoll Environmental Assessment was completed incorporating a cumulative effects analysis using the ARP methodology. A non-ARP cumulative effects analysis was completed for the Long Prairie allotment on the Hood River Ranger District. A cumulative watershed assessment using the ARP methodology was also completed for the Government Camp Trails project on the Zigzag Ranger District.

The watershed cumulative effects analysis for all the above listed projects indicates the post-project ARP would be within the guidelines set forth by Forestwide standard and guidelines FW-063 and FW-064 pertaining to cumulative watershed effects.

Effectiveness Monitoring

Effectiveness Monitoring is undertaken to assess whether applied BMPs and Forest Plan Standards are effective in maintaining water quality. Monitoring techniques, sampling design, and monitoring frequency are varied. Examples of effectiveness monitoring are:

- Observing the effectiveness of waterbar spacing and construction for preventing erosion off a skid trail. During 2005, this type of effectiveness monitoring was primarily done by timber sale administrators and watershed specialists making visual observations during the course of their field visits; and,

- Monitoring turbidity (water clarity) following the removal of a culvert on a decommissioned road in the Bull Run watershed, to determine whether mitigation measures are minimizing sediment inputs to the stream.

Bull Run Road Decommissioning Monitoring

Forest Service monitoring activities within the Bull Run Watershed focused on monitoring the effects of specific projects on water quality. For water years 2004, 2005 and 2006, monitoring projects were implemented for the Bull Run Road Decommissioning Project. The road decommissioning assessed in the 1999 Bull Run Road Decommissioning Project Environmental Assessment has been ongoing, with approximately 7.5 miles decommissioned in 2000; 14.2 miles decommissioned in 2003; and 8.6 miles decommissioned in 2004; for a total of 30.3 miles. The project involved removing 5 third order stream crossings, 19 second order stream crossings, and 52 first order stream crossings during 2000, 2003, and 2004.

The primary objective for this project oriented monitoring program is to assess the level of impacts from road decommissioning activity on water quality for water that eventually serves as raw water for Portland's drinking water supply and provides important aquatic habitat. A secondary objective is to assess levels of compliance with the Bull Run water quality standards and the Clean Water Act for turbidity, suspended solids, and temperature. A third objective is to assess levels of potential cumulative effects to water quality from road decommissioning activities.

Road decommissioning activities included the removal of stream crossing structures, culverts and a bridge, and the fill materials covering pipes and behind abutments. The monitoring program includes several levels of monitoring: procedural, inventory, and water quality sampling. The information obtained from this monitoring program may be used to help evaluate agency annual compliance and reporting with the Bull Run Management Act (PL 95-200), as amended by the Oregon Resources Conservation Act (ORCA), 1996.

Procedural Monitoring

Effectiveness monitoring visits were made to project activities completed in 2004 on the 1015 road and associated spur roads to review how well the applied BMPs functioned. The 1015 road was surveyed in the summer of 2005. Results of this survey indicated that water quality protection measures were functioning as designed for the most part, with minimal surface erosion and bank erosion noted during the field visits. Native vegetation, including forbs and small seedlings, are taking hold on the decommissioned road surface and excavated stream crossings. The area adjacent to the No Name stream crossing is being colonized by scotch broom. Since this is the only area in the project affected by scotch broom, it is assumed that the plants are associated with a local population taking advantage of the optimal growing conditions and not associated with the seed and mulch used on the project.

Inventory Monitoring

Inventory monitoring is a process to evaluate activities that could affect water quality, but cannot be measured through water sampling. An example would be the use of photo points to measure obvious erosion, surface or mass movements, at road crossings and to monitor the rate of re-vegetation.

Stream crossings at No Name Creek, Shady Creek, Falls Creek, and Log Creek were examined in the spring of 2005 when the stream crossings were planted. The crossings were planted at a 10-foot by 10-foot spacing with a combination of red alder and noble fir seedlings, and cottonwood and willow cuttings as prescribed in the 1999 Environmental Assessment. Based on ocular estimates from the fall of 2005, it appears that seedling/cutting survival rate was well above 60%, and these sites are well on the way to meeting the objectives identified in the Environmental Assessment.

Water Quality Sampling

Stream sampling sites above and below road crossings have been established at No Name Creek (at the junction of the 1015 and 1015144 roads), and Falls Creek in order to evaluate water quality effects for turbidity. At the project monitoring sites, a comparison of the turbidity data above and below the project area before, after, and during the project will be used to characterize levels, duration and changes in sediment production from representative project sites. Data from water quality monitoring at these sites during 2005 is not yet available.

Monitoring done in prior years after the road decommissioning was completed showed that after some brief limited increases in turbidity during initial project activities, there were no statistically significant differences during a post activity storm event in turbidity levels between the upstream and downstream sites on Falls Creek. These results appear to indicate that BMPs associated with Bull Run Road Decommissioning are protecting water quality at culvert removal sites.

Trend Monitoring

Trend Monitoring is conducted to monitor water quality (temperature, turbidity, pH, etc.) flowing from larger watershed areas over time. Water quality data collected during trend monitoring is not designed to determine whether BMPs are effective for a specific project, but rather to provide information that may be helpful in assessing whether Forest Plan, as amended by the Northwest Forest Plan, standards and guidelines are protecting water quality in a watershed where various resource management and restoration activities have been conducted over a period of time. Trend monitoring also provides important information to determine whether water quality is being maintained or improving over time.

Water Temperature Monitoring

Water quality standards are regulatory tools used by the Oregon Department of Environmental Quality (DEQ) and the federal Environmental Protection Agency (EPA) to prevent pollution of waters. States are required to adopt water quality standards by the federal Clean Water Act. States submit their standards to EPA for approval. New, more stringent DEQ water temperature standards went into effect on March 2, 2004.

Stream temperature was measured during the summer and in some cases year-round on 40 sites on the Forest. In most cases, water temperature was recorded every hour with an Onset brand data logger. On the Clackamas River Ranger District, 4 out of 6 streams monitored did not meet all the new DEQ stream temperature standards. On the Hood River Ranger District, 4 out of 17 streams did not meet one or more of the standards, while on the Barlow Ranger District 5 out of 17 streams did not meet the standards. No water temperature data was collected on the Zigzag Ranger District due to an error in electronically launching the water temperature data loggers.

As described above, various streams monitored Forestwide do not meet one or more of the DEQ water temperature standards, even though these same streams in most cases provide very good water quality for fish. There is some uncertainty if the streams that do not meet one or more of these standards would have met these standards prior to the onset of various resource management activities.

Where past management activities did result in stream shade removal, these areas are rapidly recovering stream shade, which will eventually result in lower water temperatures. The Northwest Forest Plan riparian area management standards direct that riparian reserves be left along streams and reserves during resource management activities, in order to enable maintaining existing stream shade conditions and current water temperatures.

Table 2-9. 2005 Eagle Creek Monthly Water Quality Parameter Averages.

Month	2005 Water Quality Parameters (monthly averages), Eagle Creek			
	Turbidity (NTU)	Water Temperature (°F)	pH	Conductivity microsiemens (microS)/cm
January	2.3	39.9	7.6	36.4
February	0.5	39.4	7.6	36.6
March	1.3	43.2	7.7	37.5
April	1.1	44.4	7.6	32.9
May	1.6	49.0	7.6	34.3
June	1.5	49.7	7.6	34.2
July	0.7	57.2	7.7	40.2
August	0.2	59.3	7.8	44.9
September	0.5	52.5	7.8	45.6
October	1.2	49.4	7.8	43.7
November	2.2	43.4	7.6	34.7
December	3.5	39.5	7.6	34.4

Continuous Water Monitoring Stations

Eagle Creek

An automated water monitoring station was installed in December 2001 on Eagle Creek, just a short distance upstream of the U.S. Fish and Wildlife Service fish hatchery and approximately 4.0 miles downstream of the National Forest boundary. The monitoring station was located as close to the National Forest boundary as possible, but potential influences on water quality from lands in other ownerships downstream of the National Forest boundary may exist. One of the key objectives of this monitoring station is to quantify water quality downstream of National Forest lands on Eagle Creek, where the Eagle Creek timber sale was partially implemented several years ago. Turbidity, water temperature, pH, conductivity, and flow depth are continuously monitored at 15 minute intervals.

Average monthly water quality data for 2005 are listed in Table 2-9, based on a preliminary analysis of the data. The peak water temperature reached about 66.7 º F on August 5, 2005. The 7 day average maximum water temperature was 65.8 º F, which is above the 60.8 º F State of Oregon standard for core coldwater habitat. The 7 day average maximum water temperature approximately 4.0 miles upstream near the National Forest boundary was 64.4 º F, and 63.1 º F at the boundary of the Salmon Huckleberry Wilderness in 2004. The difference in water temperature between the Eagle Creek fish hatchery and the National Forest boundary is due to natural warming and possibly stream shade removal. The average water temperature during July was 57.2 º F.

Average turbidity at this monitoring site is relatively low throughout the year, with average values of 2.0 NTUs (Nephelometer Turbidity Units) or less from February through November 2005. The maximum recorded turbidity in 2005 was 82.7 NTUs, during a high flow event (approximately 1.5 year flood) on December 30, 2005. In some cases, measured peak turbidity values may be affected by Eagle Creek Fish Hatchery personnel cleaning leaves and other debris off the intake structure a few feet upstream from the monitoring station. During the winter of 2005/2006, fish hatchery personnel were asked to record when they clean the intake structure, so erroneous turbidity measurements can be eliminated from the dataset.

Overall, water quality at this monitoring site was very good for much of the year.

Clackamas River (Carter Bridge)

The Carter Bridge water monitoring station was established in December 1999 to record the water quality of the Clackamas River as water left the Forest, and to provide the downstream water providers an early warning of turbidity problems. The station is located on the Clackamas River at Carter Bridge, one half mile below the confluence of Fish Creek. Data recorded at 15 minute intervals are date and time of collection, turbidity, water temperature, depth, specific conductivity, and pH. Water quality data is available via telephone at various Forest and Clackamas River water providers offices. In March 2005, the U.S. Geological Survey (USGS) began operating this monitoring station with funding provided by the Clackamas River water providers.

Average monthly water quality data, based on a preliminary analysis of the data, through September 2005 (end of USGS water year) are listed in Table 2-10 below. Average turbidity at this monitoring site is relatively low throughout the year, with average values of near or less than 2.0 NTUs from January through September 2005. During non-storm periods, turbidity is normally between 0.2 and 2.0 NTUs. During stormy periods when the river rises, instream turbidities can increase to about 150 NTUs. The maximum recorded turbidity in 2005 was 41.1 NTUs, during a high flow event (< 1.0 year flood) on January 18.

The peak water temperature reached about 63.7º F. on July 28, 2005. The 7 day average maximum water temperature was 63.0º F on July 28, 2005. The average water temperature during July was 58.3º F. Overall, water quality is very good at this particular monitoring site on the Clackamas River.

Table 2-10. 2005 Clackamas River (Carter Bridge) Monthly Water Quality Parameter Averages.

	2005 Water Quality Parameters (monthly averages), Carter Bridge, Clackamas River			
Month	**Turbidity (NTU)**	**Water Temperature (°F)**	**pH**	**Conductivity microS/cm**
January	1.3	39.6	7.9	65.0
February	0.3	39.8	8.0	71.2
March[1]	----	----	----	----
April	2. 3	46.7	7.7	44.9
May	1.8	50.2	7.7	50.6
June	0.9	52.6	7.8	54.7
July	<0.5	58.3	7.9	64.4
August	<0.5	57.0	7.9	68.5
September	<0.5	51.3	7.9	69.1

[1] No water quality data available for March 2005 due to water quality monitoring station operations transfer to the USGS.

Alder Creek

In a cooperative effort between the Forest Service, Bureau of Land Management, and the City of Sandy, turbidity monitoring stations have been installed on Alder Creek and the East Fork of Alder Creek at the Forest Service and Bureau of Land Management boundaries respectively.

These stream gauging stations measure stream stage and turbidity with the data telemetered to the Zigzag Ranger Station. In water year 2005, both sites were out of operation. The equipment at the East Fork Alder Creek site was destroyed when a limb fell out of a tree and destroyed the shelter housing the datalogger and cell phone modem. The in-stream equipment at the Alder Creek site was destroyed by a large streamflow event in January of 2004.

Plans are under way to relocate the in-stream equipment in Alder Creek during summer 2006 because the current location is not suitable due to extreme stream velocities. The East Fork Alder Creek site will be discontinued due to winter access problems.

Other Monitoring

Mt. Hood Meadows Water Quality

Baseline data for the Mt. Hood Meadows Ski Area continues to be collected on the Hood River Ranger District. This effort consists of two monitoring stations owned and operated by the Mt. Hood Meadows ski area, which have been operating for about ten years. Turbidity, water temperature, conductivity, and stage are monitored continuously. The Mt. Hood Meadows staff checks the monitoring equipment periodically, about every two weeks, and reviews the monitoring data for abnormal readings.

Stream Discharge (Outside of Bull Run)

The Forest funded a telemetered USGS stream gage on Fish Creek (Clackamas River Ranger District) and has re-established a discharge measurement gage at a previously decommissioned USGS gauging station on the Upper Clackamas River at Big Bottom. Stream flow information from the Fish Creek gage is useful for characterizing the hydrology of the watershed and also providing real-time flow information to provide an alert for implementing Flood Emergency Road Maintenance (FERM) surveys and patrols. The Forest also has reestablished a previously abandoned USGS gauging station on the Zigzag River. This site will also be used to characterize the hydrology of the watershed, and also as an “early warning” indicator for FERM plan activation on the Zigzag Ranger District.

Recommendations

Best Management Practices

- Continue implementation of the Best Management Practices Evaluation Process (BMPEP).

- Forest Headquarters hydrology staff will assist Districts in accomplishment of BMP monitoring.

Watershed Effects Analyses

Continue the process of providing interpretations and guidelines for implementing Forest Plan standards and reflecting the findings and recommendations of ongoing research efforts. The objective is to develop consistent approaches across the Forest. Additional work is needed to compare the current watershed condition with established thresholds of concern for various watersheds.

Trend Monitoring

Continue both baseline and project-related water temperature monitoring Forestwide. For those streams identified as exceeding state water quality temperature standards, do additional monitoring in 2006 to determine if the water temperatures are naturally elevated. If the elevated water temperatures are a result of management activities or wildfire, evaluate restoration options. Continued water temperature data collection will most likely be required as part of the Implementation Plan for the recently released Total Maximum Daily Loads (TMDL) for the Hood River Basin. Continue implementing the program to monitor turbidity at key locations on the Forest, focusing on streams/watersheds which are source areas for domestic/municipal water supplies.

Road Decommissioning Monitoring

Continue planned implementation, effectiveness and water quality monitoring of road decommissioning activities in the Bull Run watershed.

Transportation/Roads

Goal

Provide safe and efficient access for those who use the transportation system for recreation or management of the National Forest.

Road Management

In spite of continuing reductions in funding for road maintenance, construction, and reconstruction, the Forest continues to advance toward the objectives of the Forest Service Roads Agenda.

Transportation Management Objectives:

- The Forest is decreasing the size of the transportation system.
- The Forest is maintaining or improving 637 miles of mainline road system.
- The Forest is decommissioning, closing or downgrading the maintenance levels on the remainder of the 2,752 mile road system.
- The Forest's priority in road decommissioning continues to be decommissioning roads in unstable geological areas or roads with unacceptable environmental impacts.
- Due to the high cost of road decommissioning, the Forest has focused efforts on storm-proofing and closing roads.

Approximately 50% of the 3,389 mile road system is either closed to public access or classified as "available for closure or decommissioning." Many of these roads are being closed naturally by brush. Gates, barricades and berms are used to close some roads.

Reductions of road densities in the thirteen key watersheds are a primary road objective of the Northwest Forest Plan. Road densities in twelve key watersheds have been significantly reduced since the Northwest Forest Plan was implemented in 1992. Road density in the thirteenth key watershed has remained unchanged since 1992.

Some effects of downsizing the road system are as follows:

- Only one main route will be maintained to access an area or developed campground for passenger car use instead of two or three.
- There will be a decreased amount of miles available for recreation opportunities that accommodate passenger car traffic. Recreation opportunities that accommodate high clearance vehicles would be increased.
- The increasing demand of Forest recreation use along with the decreased amount of miles available for passenger car traffic will result in more vehicle encounters, raising the probability of accidents occurring. Maintenance efforts, however, will be more focused on the mainline access roads.
- There will be less sediment reaching waterways.
- There will be less harassment to wildlife.

2005 Accomplishments

- Miles of Road at End of 2005 ..... 3,389.0 mi
- New Road Construction ..... 0.0 mi.
- Miles of Road Decommissioned ..... 0.0 mi.
- Total Miles of Passenger Car Roads ..... 637 mi.
- Passenger Car Roads Maintained to Standard ..... 368 mi.
- Percent of Passenger Car Roads Maintained to Standard 58%
- Total Miles of High Clearance Roads ..... 2,752 mi.
- High Clearance Roads Maintained to Standard ..... 640 mi.
- Percent of High Clearance Roads Maintained to Standard 23%

Road Maintenance

Funding for road maintenance has decreased in recent years while the aging road system deteriorated at an increasing rate. Most of the road system was constructed 30 to 50 years ago. Maintenance funding has decreased at a time when it should be increasing to keep pace with the road system's increasing rate of deterioration. The trend of the road maintenance budget can be seen in the table below.

Table 2-11. Road Maintenance Budget

	FY89	FY04	FY05
Annual Road Maintenance Needs	$5.2 million	$1.8 million	$2.0 million
Annual Road Maintenance Budget	$3.8 million	$0.5 million	$0.6 million
Percent of Needs Met by Budget	73%	28%	30%

The road maintenance budget has declined because of decreased timber sale road maintenance deposits and declining appropriated funding in the National Forest Service roads budget. The need for road maintenance has declined because of the declining heavy vehicle traffic use (i.e., log trucks), road closures, and a decrease in the prescribed level of maintenance on open roads. As the above table shows, however, the Forest Service has not been able to decrease the needs fast enough to keep pace with the decreasing budget. Out of necessity, the Forest Service has focused the limited road maintenance funds on the highest priority roads, primarily the low clearance passenger car roads that access major recreation destinations. Deferring road maintenance to future years will lead to additional unsafe or unusable roads. Three solutions to this spiraling increase in road maintenance needs are:

- Decrease the standard of the roads. Maintenance of passenger car roads is five times more expensive than maintenance of high clearance roads.

- Close or decommission more roads. Road decommissioning is typically 2-3 times more expensive than road closure when discounted over a ten-year period. For economic reasons, the Forest has been focusing on road closures.

- Seek alternative funding sources for road maintenance.

The Forest roads engineering department has aggressively pursued the first two alternatives listed above. Forest has been less successful at generating additional funds for road maintenance, although partnerships have been helpful.

Partnerships

The Forest encourages partnerships in road maintenance whenever possible. The timber sale program continues to provide funds or work in-kind to maintain a safe, economical timber haul. Oregon Department of Transportation (ODOT) has always been a welcome partner where the two organizations can cooperate on mutually beneficial projects. The City of Portland Water Bureau has taken responsibility for a major share of the road maintenance in the Bull Run Watershed. Local counties have contributed to maintenance of the Forest roads through the Payments to Counties Act. Smaller partnerships have been developed with ski areas, youth conservation corps, and local landowners. The Forest anticipates that partnerships will play an increasingly significant role in Forest road maintenance as appropriated funds continue to decrease.

Recommendations

- Identify Forest priorities in capital investment projects that meet the objectives of reducing road system miles or downgrading road maintenance levels.

- Consider the five transportation management objectives listed at the beginning of this report during the budgeting process.

- Enhance long-term road management objectives and maintenance needs in Forest initiatives, activities, programs and responses to catastrophic events.

Wildlife

Goal

The emphasis continues to be on maintaining persistent and viable populations of native and desirable nonnative wildlife and plant species by:

- Protecting and restoring the biological and physical components, function and interrelationships of forested ecosystems;
- Protecting and restoring rangeland ecosystems;
- Providing quality recreation experiences with minimal impacts to ecosystem stability and condition; and,
- Conserving populations of threatened, endangered and sensitive species through recovery and management efforts.

Threatened, Endangered, and Sensitive Species

Bald Eagle

The bald eagle is listed as threatened by the state of Oregon and the U.S. Fish and Wildlife Service. Bald Eagles are primarily a winter migrant on the Forest and there is evidence of past nesting. The Forest Plan designates areas on the Forest for existing and established winter communal roost areas.

In 2003, a new bald eagle nest was identified located near Rock Creek Reservoir. The site was occupied and with young in 2003, but not in 2004 or 2005. The Clear Lake pair did not nest at Clear Lake in 2004. A new nest at Timothy Lake, however, may be the same pair. They did not fledge young in 2004 or in 2005.

Northern Spotted Owl

The northern spotted owl is listed as threatened by the U.S. Fish and Wildlife Service. Management of spotted owls is outlined in the Northwest Forest Plan Standards and Guidelines and includes designated 100 acre Late Successional Reserves (LSRs) for *known* northern spotted owl sites.

Monitoring needs by the Forest have decreased with the assumption that management activities that maintains required habitat and operates outside of critical periods are sufficient to maintain a persistent and viable population of spotted owls. An interagency demographic study has replaced monitoring on individual Forests. The demographic study is designed to be statistically significant in monitoring the owl population across its range. The demographic study reported a decline in spotted owls of 2.8% per year for Oregon.

Peregrine Falcon

In 1999, the peregrine falcon was delisted and is no longer considered threatened or endangered by the U.S. Fish and Wildlife Service. The Forest Service will continue to manage peregrines as a sensitive species. Potential nesting habitat for the peregrine occurs on all Ranger Districts.

Monitoring for peregrine nesting in 2005 was confined to the two known nest sites. Both of the sites were successful. There were two young fledged from one site and three from the other. One of the peregrine sites has been gated and fenced to protect the site from disturbance. A management plan was completed for one site and is in draft form on the other. There have been no current efforts to establish presence or absence on new sites. In addition, there are insufficient personnel to survey all of the potential sites.

Lynx

Lynx is listed as threatened in Oregon by the U.S. Fish and Wildlife Service. The Forest currently has no mapped lynx habitat. The criteria for identifying Lynx habitat is based on the Lynx Conservation Assessment and Strategy of at least 10 square miles (6400 acres) of primary vegetation (i.e., subapline fir plant associations) should be present within a lynx analysis unit to support survival and reproduction. The Forest has approximately 1270 acres of subalpine fir plant associations. Therefore, the Forest lacks the minimum criteria to identify lynx habitat and develop a lynx analysis unit.

Based on trapping records, the Oregon Department of Fish and Wildlife feels this species has been extirpated from Oregon or never existed in the State. An independent study of snow conditions was initiated on one District, but no evidence of lynx was found. Surveys for lynx were completed in 2001 by the Forest Service in cooperative effort with Cascadia Wild and Teachers in the Woods. No lynx were documented on the Mt. Hood, Gifford Pinchot, Willamette, or Deschutes National Forests. If lynx are present on the Forest, their numbers are extremely limited. Over the past several years, however, there have been about 13 unconfirmed lynx sightings across the Forest. Most, if not all lynx sightings on the Forest were probably bobcats that have been misidentified as lynx or transient individuals that have left good habitat due to population crashes of snowshoe hares.

Sensitive Wildlife Species

Harlequin Duck

Harlequin Ducks were not surveyed in 2005. No incidental sightings of the ducks were reported.

Cope's Giant Salamander

Annual surveys for Cope's giant salamander are conducted on the Forest by volunteers from the Wetland Wildlife Watch. At this time, no report has been produced.

Wolverine

No aerial surveys for wolverine tracks were conducted in 2005 and no individuals were observed. Instead, there was a tracking and hair snag project that was aimed at identifying the presence or forest carnivores on the Forest. The results are pending, but no rare carnivores (e.g., wolverine, lynx, or fishers) were observed.

Common Loon

The common loon was removed from the Regional Forester's Sensitive Species List in FY01. Surveys were conducted by the Wetland Wildlife Watch coordinator and a Forest Service biologist in 2005. Three loons were observed in the Bull Run Watershed. Nest platforms have been installed on Upper and Lower Bull Run Reservoirs, but no nesting has occurred at this time.

Snags and Down Woody Material

The Northwest Forest Plan provides standards for snags and down woody materials. All recent timber harvest units retain quantities of snags throughout to meet the needs of most primary cavity nesters with a few exceptions. Inventories on Clackamas River Ranger District indicate compliance with standards and guidelines and indicate that snags are surviving harvest activities. Surveys appear to indicate that wildlife trees are being used by cavity users, but probably not at the same rate as naturally created snags due to a difference in the way rot occurs in the trees.

Additional snag inventories will be implemented in 2006 to verify snag counts from insect and disease aerial survey estimates.

The results of CVS (current vegetation survey) monitoring plots indicate that snag numbers are increasing over time due to the reduced harvest of insect and disease prone areas and continual outbreaks of insects. These naturally created snags are more desirable from a wildlife perspective than man made snags because they are more prone to heart rot and, therefore, provide more cavities.

Summer and Winter Range

Deer and elk habitat is typically characterized as summer or winter range depending on the season of use. Optimal cover, thermal cover and forage are important habitat components for deer and elk. In the Forest Plan, harvest activities were expected to help maintain stable populations by providing a consistent quantity of foraging areas and early seral plant communities. With a reduction in regeneration harvest, suppression of fire and dense nature of the habitats in the western cascades, less forage is being produced for deer and elk making forage a limiting factor on the Forest. Winter range areas continue to move away from early seral stages and forage opportunities continue to decline. In the interest of ecosystem health, the Forest has reduced the amount of non-native grass and forbs it plants for forage. It is inevitable that populations of deer and elk will decline unless some method of creating or maintaining openings for these species is implemented.

In addition, road densities in winter range in most watersheds are above the standard suggested by the Forest Plan. Efforts are being made to remedy this where possible.

The following are the professional assessment of the current deer and elk situation.

Barlow Ranger District

Summer range forage has been decreasing for the last five years because of reduced regeneration harvest. Winter range is stable to increasing on the eastside of the Forest with the increased use of underburning methods. Deer populations are stable to increasing. Elk populations appear stable. This is based entirely on anecdotal data from biologist field observations.

Clackamas Ranger District

Winter and summer ranges have remained constant. Populations appear to be stable. This is based entirely on anecdotal data from biologist field observations. Video technology has been used to monitor forage projects and permanent openings to determine effectiveness.

Hood River Ranger District

The trend on Hood River is toward more cover and less forage in both summer and winter range. The populations of deer and elk appear stable. This is based entirely on anecdotal data from biologist field observations.

Zigzag Ranger District

There is very little timber harvest on the Zigzag Ranger District as a result of management of the Bull Run Watershed Management Unit. As such, the amount of cover is increasing and forage in decreasing. In the District biologist's opinion, the populations of deer and elk are stable on this District.

Pine Marten and Pileated Woodpecker

Tracking efforts and the cameras surveys were done in partnership with the Portland based Cascadia Wild Tracking Club. The current effort recorded carnivore species occurrence. Three species, wolverine, fisher, and American marten were the primary targets of the survey. Of the three mustelid species, the marten was recorded numerous times. No wolverine or fishers were recorded. Cascadia Wild's efforts were invaluable to the success of this survey, providing valuable data and involving the public in the inventory process. This effort has been continued into FY04. The following table summarizes the results of the survey effort.

Table 2-12. Species Observed from Mt. Hood National Forest Remote Camera Transects

	Sessions		
	I/II	III	IV
Black Bear	11	22	0
American Marten	50	7	0
Bobcat	15	3	41
Flying Squirrel	16	4	0
Pygmy Owl	0	1	0
Turkey Vulture	3	4	0
Fisher	0	0	0
Wolverine	0	0	0
Spotted Skunk	25	0	80
Striped Skunk	0	0	0
Deer	5	0	0
Elk	3	0	0
Chipmunk	25	0	0
Douglas Squirrel	5	0	0
Vole/Mouse	2	0	0
Clark's Nutcracker	3	0	0
Gray Jay	70	0	0
Raven	41	0	0
Red Tailed Hawk	2	0	0
Steller's Jay	32	0	0
Varied Thrush	2	0	0

Late Successional Reserves, Riparian Reserves, and designated Wilderness Areas are providing sufficient habitat and anecdotal evidence indicates the populations appear viable. Remote camera and tracking surveys have shown good populations of marten. Snag monitoring on Clackamas River Ranger District provides anecdotal evidence that populations of pileated woodpeckers seem adequate.

The former B5 pileated woodpecker and pine marten habitat areas on the Forest retained in watersheds with limited habitat appear to be functioning as good habitat for these two species. Very little activity has occurred in these retained habitats. Very little management activity is occurring in the Late Successional Reserves, Riparian Reserves and designated Wilderness Areas.

In the fall of 2005, the remote camera project was dropped and Cascadia Wild implemented snow tracking because of the efficiency of covering more ground. Some hair snag traps were deployed but the results of these traps have yet to be analyzed.

Recommendations

- Continue to monitor peregrine falcon and bald eagle nesting.
- Continue use of prescribed fire to enhance big game forage areas on eastside districts.
- Implement additional surveys for Wolverine and Fisher to verify sighting reports.

Wildlife Sustainability

Wildlife Habitat

Many wildlife species depend on either or both late and early seral habitats. Examples of late seral species are northern spotted owls or red tree voles. Examples of early seral species are elk, blue birds, and Townsend's solitares. The Northwest Forest Plan manages for late seral habitats across the landscape in designated Late Successional Reserves, Congressionally Withdrawn Areas, Riparian Reserves, and designated Wilderness Areas. Most wildlife biologists believe that late seral habitat is sufficiently protected to sustain late seral species. Late seral habitat is difficult to create and it takes many years to produce the size and structure that it takes to sustain late successionally dependent species.

Early seral habitats are much easier to produce and also can be produced by naturally occurring disturbances, such as fire, windstorms, insect outbreaks, and by manmade events, such as timber harvests. A continuous supply of early seral habitat well-distributed across the landscape would be optimum to sustain good populations of early seral obligate species. With the emphasis on protecting late seral habitats, invasion by noxious weeds, normal succession, effective fire suppression, and the changes in timber harvest practices, early seral habitats are becoming increasingly more valuable and in demand by wildlife. To sustain these early seral obligate species, there should be increased awareness and planning to allow naturally and fire created openings to seed in naturally, placing less emphasis on controlling wildlife damage to young trees, and conducting regeneration harvests instead of thinnings. Openings created by timber harvest should be planned to provide a continuous rotation of openings adjacent to mature areas. Given the emphasis on managing the land for late seral habitat, the expected trend is a shift of the federal landscape to mature and late seral habitats. To ignore this early age structure is to ignore the majority of species using the Forest.

Forest fragmentation has been a major concern of ecologists for many years. There are many detrimental effects of forest fragmentation. Increased predation, nest parasitism, microclimate changes, and insufficient habitat to maintain some species populations are all the result of fragmentation. Maintenance of large contiguous blocks on the landscape will ensure fragmentation effects are minimized. This does not mean, however, that every small block of timber should be eliminated or that every stand needs to be pushed into this same prescription. In order to maintain viability of some less mobile species, isolated small blocks can serve as a reserve until adjacent stands can develop sufficient maturity to allow emigration into the stand. At the same time, when these small blocks are no longer needed as reserves they become early seral habitat. These isolated blocks also can serve as dispersal habitat for species as they leap frog from large block to large block.

Riparian Habitat

Riparian habitat has the highest wildlife use of all habitats on the Forest. With the practice of managing for Riparian Reserves, this habitat is well protected and there should be very little concern for sustainability of species requiring this habitat.

Wetlands

Wetlands are very important to the species that use them. Several sensitive species use these habitats on the Forest. Oregon spotted frogs and sandhill cranes (sensitive in Washington only) utilize wet meadows. Many other species also use these wetlands for breeding, foraging, and nesting. In order to sustain populations of these species, efforts should be made to reduce disturbance in these habitats. Major disturbances to the species using these wet meadows include grazing, roads, and campgrounds located adjacent to wetlands. Every effort should be made to reduce cattle grazing in these areas. Also, campgrounds such as the North Arm of Timothy Lake, Little Crater, and Bonney Meadows campgrounds should be moved to a less sensitive sites. The presence of campers adjacent to the meadows reduces the wildlife opportunity and use in the wetland. These areas also should be avoided as fire staging and camp sites. Invasive plant species threaten these sites and increased vehicle and animal use in these meadows increases the opportunity for the introduction of invasive plant seed.

Unique habitats

Unique habitats are a diverse group of habitats. Caves, mines, talus, and cliffs are examples of these habitats and they can be important to bats, raptors, and small mammals, such as pika. Caves and mines are the most sensitive of these habitats because roosting and maternal colonies of bats whose energy requirements are very high and can be affected by human disturbance. Most of these habitats have been protected in one form or another by road closures or bat gates.

High Elevation Species

At one time high elevation species were not threatened by human intrusion. This is habitat that has been used for breeding for species such as gray-crowned rosey finch, horned larks, American pipits, American marten, and wolverine. For some species, such as wolverine, this was a last strong hold for their populations.

Back-country use and high elevation recreation are intruding more and more into these habitats. This is placing an increasing pressure on these high elevation species. It has been estimated that 10,000 people per year climb Mt Hood. This is only part of the recreational use around these high elevation habitats. Some of these species will be affected by the increasing use of their habitat. This creates a concern for the sustainability of some of these species. An increased effort should be made to monitor these populations and to limit the amount of intrusion. At some point, it may be necessary to utilize a back-country permit system to control the amount of disturbance caused by hikers, skiers, and snow mobile users. Fortunately, snow mobile use is not allowed in designated Wilderness Areas so they are not as great a concern at the highest elevations.

Connectivity Issues

Most of the connectivity issues for aquatic species are being resolved by correcting construction errors in fish ladders and replacing culverts with fish and amphibian friendly passage ways. This is a major benefit for both a fish and wildlife sustainability. The two other areas of connectivity that must be addressed is connectivity of habitat and road passage. The Northwest Forest Plan has been designed to provide connectivity of late successional species along the Cascades. This Plan was well thought out and should be adequate to sustain populations and ensure genetic viability across the Cascade Range.

That leaves one area of concern – connectivity across roads. This concern has been addressed in Europe and in Canada with very expensive and elaborate road crossing areas for wildlife. Most of the Forest roads are not a barrier to wildlife passage. Only a few roads can be considered barriers. The roads are barely passable to wildlife due to the large amount of traffic, and will only become less passable in the future. This is only a problem when the species in question has a population that drops below a critical point. At that time, connectivity across the roads can be a major issue.

The Route 26/35 corridor is the road system of highest concern on the Forest. Many species are sensitive to vehicle traffic and just the traffic alone would act as a barrier. Those individuals that try to cross are more than likely to be hit in the road. If the Forest wants to sustain all of the populations then this road system will need to be addressed and wildlife crossings will need to be installed at critical points. This is currently being reviewed.

People's Influences on Populations

People have a substantial impact on the sustainability of wildlife populations through their presence and activities in the Forest. People like to boat, fish, hike, hunt, ski, snowboard, camp, drive, run cattle, use off road vehicles, harvest timber, gather wood, cut Christmas trees, or collect mushrooms, to name a few. All of these things have an influence on wildlife habitat and reproductive success. Due to the proximity of the Forest to the Portland metropolitan area, this Forest gets a higher proportion of use and thus influence on wildlife than other more rural forests.

Recreation and off-highway vehicle (OHV) plans should consider the influence on wildlife populations. Some seasonal restrictions may be need to be incorporated in some sensitive areas. Limiting or reducing campgrounds in unique habitat areas would allow better utilization and, therefore, sustainability of wildlife that depend on them.

Threatened, Endangered and Sensitive (TES) Plants

Sensitive Plant Species – Management Emphasis

The Regional Forester's Sensitive Species List for plants was last revised in 1999. The List includes thirty-four plant species that are documented from, or are suspected to occur on, the Forest. From 2000 to 2005, monitoring has focused on nine non-forest Sensitive species. Included are yellow agoseris (*Agoseris elata),* sickle-pod rock cress *(Arabis sparsiflora var. atrorubens),* goldthread *(Coptis trifolia),* cold water corydalis (*Corydalis aquae-gelidae*), black lily (*Fritillaria camschatcensis*), Watson's lomatium (*Lomatium watsonii*), Adder's-tongue (*Ophioglossum pusillum*), violet Suksdorfia (*Suksdorfia violacea*), and pale blue-eyed grass *(Sisyrinchium sarmentosum).* Recently, several new sites have been found for the Sensitive lichen known as Pacific felt lichen *(Peltigera pacifica*).

Results

Agoseris elata – This species is known to occur at three wet meadow sites on the Forest. A search was conducted to relocate plants at a historic site at Clackamas Meadows. For the third year in a row, none were found and it is now believed that *Agoseris* is likely extirpated from the site.

Arabis sparsiflora var. atrorubens - There are several populations on the Forest; all east of the Cascade Crest. Monitoring was conducted at a site adjacent to The Dalles Watershed/Research Natural Area and at a site on Surveyors Ridge. Invasive plants (knapweed and thistle) have been handpulled annually at both sites. The invasive plant control has been effective and the populations seem stable and may be increasing.

Coptis trifolia – This species is known to occur at two wet fen locations on the Forest as well as one site adjacent to the Forest boundary on Confederated Tribes of the Warm Springs Reservation. Monitoring was conducted at one site where it was found that permitted cattle had caused some damage to plants by trampling and dislodging soil cut-banks adjacent to a stream where plants were growing. Some herbivory of *Coptis* also was observed.

Corydalis aquae-gelidae –This riparian species is confined to the Mt. Hood, Willamette and Gifford Pinchot National Forests. Most Forest populations of Corydalis are located on the Clackamas River Ranger District. Monitoring was completed in 2003 for those populations within the Oak Grove Fork and Stone Creek Hydroelectric Projects. For the Stone Creek Project, monitoring to determine project effects have produced preliminary results that show population numbers to be stable; however, there may have been a reduction in the number of adult plants producing flowers and an increase in non-flowering individuals. Plans for monitoring the Oak Grove Fork as part of Portland General Electric's stewardship are being finalized.

Fritillaria camschatcensis – The single population in a wet meadow on the Forest represents the southern most extension of this species' range. Monitoring of black lily through a Challenge Cost-Share agreement with the Native Plant Society of Oregon has found the population to be stable at this time.

Lomatium watsonii – The single known population of this species on the Forest is located in a "scab flat" habitat on Hood River Ranger District. Knapweed plants have been handpulled annually to reduce competition with the Watson's lomatium and limit the amount of weed seed produced around the habitat. Invasive plant encroachment continues to be a problem; hand pulling invasive plants at the site is a continuing effort. There was also a threat from off-road vehicles, but the placement of boulders as barrier has been successful and the population is stable.

Ophioglossum pusillum – Two sites are known in wet meadow habitat on the Clackamas River Ranger District. Monitoring was conducted at both sites and a complete census taken. Compared to the original habitat notes from 1989, a greater number of plants were found in 2005, indicating that the population is stable. More plants were found at one site than previously observed. An invasive plant, Canada thistle (*Circium arvense*) was found to be encroaching at both sites. Continued encroachment of thistle, an aggressive invader, could negatively affect the adder's-tongue populations in the future. The thistle at the two sites has been identified for herbicide treatment in the Forest's site-specific invasive plant treatment draft EIS, which is expected to be complete in October/November 2006.

Peltigera pacifica – Recently, several new sites for this lichen have been found on the Forest: (1) the summer home tracts near Zigzag-Rhododendron; and (2) two proposed timber sale areas on the Clackamas River Ranger District (No Whiskey and 2007 Plantation Thinning). Although regionally rare, *P. pacifica* may be uncommon to relatively common on the westside of the Forest.

Suksdorfia violacea - One known site is located on the Hood River Ranger District. This site represents one of only a few in Oregon as well as the southern-most edge of its geographical range. The site is a popular recreational rock climbing area. Cooperative management of violet Suksdorfia with a local rock climbing association continued through FY05. Signing and public education have reduced adverse impacts and informal census shows the population at this site is currently stable and has increased in one area of the rock face where public access is restricted from climbing.

Sisyrinchium sarmentosum – This species is known to occur in the Mt. Hood and Gifford Pinchot National Forests. In June to July 2005, the Forest collaborated with Berry Botanic Garden on a study to differentiate *S. sarmentosum* from *S. idahoense* based on morphological characters and DNA analysis by examining both species. The two species appear to hybridize. Berry Botanical Garden plans to publish a report or scientific paper on the differences and hybridization between the two species sometime this year. A botanist on the Gifford Pinchot National Forest recently completed a Conservation Assessment for the species, which is currently being reviewed. Recently, two new populations of *S. sarmentosum* were found on the Forest: one on the Barlow Ranger District and the other in a meadow in the Collawash River drainage on the Clackamas River Ranger District.

Forest Plan Monitoring Guidelines

Sensitive plant inventories have been conducted for all ground disturbing activities and implemented mitigation measures have been effective in maintaining the integrity of sensitive plant sites. Threatened, Endangered and Sensitive plant standards and guidelines are being implemented.

Recommendations for FY06

- *Agoseris elata* - Continue efforts to relocate the Clackamas Meadow population. If no plants are found, assess why the population is likely extirpated and determine if management options exist to bring it back, including reintroduction.

- *Arabis sparsiflora var. atrorubens* – Develop management options for *Arabis* habitat enhancement including the use of prescribed fire.

- *Coptis trifolia* – Work with the grazing permittee to develop methods to avoid impacts to *Coptis* including the use of a rest-rotation system or other means to graze during a less sensitive time of the year to plants. Any developed mitigations should be included in the Allotment Management Plan.

- *Corydalis aquae-gelidae* – A long-term monitoring plan is included in the new Oak Grove Fork Hydroelectric Project license. Continue monitoring potential effects of the Stone Creek Hydroelectric Project.

- *Fritillaria camschatcensis* – Continue to work with the Native Plant Society to monitor black lily.

- *Lomatium watsonii* – Continue to manually remove invasive plants from the Watson's lomatium site and monitor habitat trends. Continue protection for off-highway vehicles (OHVs).

- *Ophioglossum pusillum* – Investigate the herbicide treatment of Canada thistle to help maintain habitat for the known sites for this species.

- *Peltigera pacifica* – Continue surveying for new sites and protect extant sites.

- *Suksdorfia violacea* – Continue to work with the climbing association to eliminate adverse impacts to violet Suksdorfia while allowing for managed recreational rock climbing.

- *Sisyrinchium sarmentosum* – Continue monitoring the effects of grazing and working with the grazing permittee to protect this species. Develop mitigations to be included in the Allotment Management Plan to reduce utilization of vegetation by cattle within the wet meadows that contain *Sisyrinchium* or utilize these areas during a less sensitive time of the year when impacts can be minimized.

Soil Resources

Goal

The primary goal of soil management is to maintain or enhance soil productivity while conducting forest management activities. Standards in the Forest Plan address the physical and biological aspects of soil productivity. Standards, specific to maintaining physical soil quality properties, require that no more than 15% of an activity area is to be in a degraded condition from the *combined* impacts of compaction, displacement, or severe burning.

Organic carbon is an important energy source for the microbiological component of the soil ecosystem. Organic matter as large wood on the forest floor or smaller woody material, including the litter layer, are important sources of organic carbon. Maintenance of carbon cycling through conservation of large wood material is addressed through the standard identified for wildlife habitat needs. The results of monitoring for large wood is presented in the wildlife section.

Accomplishments

The direction for soil monitoring is guided by two needs. The first need is to evaluate existing soil conditions in a planned activity area to establish soil management objectives, to design activities to meet soil quality standards, and to estimate potential impacts including cumulative impacts on the watershed's ecosystem sustainability and hydrologic function. The second need is to continue to monitor and document cumulative effects for harvested areas and to document adjustments to management practices, soil conservation practices or restoration techniques necessary to meet threshold values for the affected soil properties and watershed conditions.

Two harvest units were monitored for detrimental soil impacts from ground based logging systems and fuel treatments. Both were within the standard, even though units had previous harvest activity, as summarized in Table 2-13.

Table 2-13. Measured detrimental impacts by silvicultural treatment and logging system.

Silvicultural Treatment	Logging System	Fuel Treatment	Previous Entries	Percent Soil Impacts
Thinning	Tractor	Landing pile	1	7
Salvage	Tractor	Landing pile	1	4

Recommendations

Monitoring results in 2005 as compared to previous years continues to suggest that progress is being made with regard to the number of harvest units where soil damage exceeds the standard. This trend is likely due to two main factors. First, sale administrators and operators are continuing to do a very good job of minimizing soil damage. And second, equipment technology has reduced compaction impacts. Monitoring to determine cumulative effects should continue in order to find out whether this trend will continue. Also, existing conditions monitoring and documentation needs to continue in order to provide a sound basis for cumulative effects estimation in NEPA documents. Units monitored for existing conditions should also continue to be tracked and monitored as harvest, fuel treatment, and rehabilitation (if needed) occur in order to verify estimates made in NEPA documents.

Recreation

Ecological System – Ecosystem Function

Water Quality

Qualitative monitoring of human use in Mt. Hood Wilderness and Hatfield Wilderness was done at frequently-used campsites. In Mt. Hood Wilderness, Wy'East Basin and Elk Meadows were monitored in 2005. At Wy'East Basin, 12 campsites were monitored. Six of the sites were determined to be beyond limits of acceptable change, and they were dismantled and the area restored. At Elk Meadows, an area where a camper had pitched a tent in the meadow was restored.

Ten campsites at North Lake in the Hatfield Wilderness were monitored. Seven of the sites are unchanged in size from previous monitoring. Three of the sites were determined to be too close to the lake, and they were dismantled and the area restored. At Bear Lake (Hatfield Wilderness), three campsites were monitored. Two of the sites are unchanged from previous monitoring. One of the sites was determined to be too close to the lake, and it was dismantled and the area restored.

Social System – Collaborative Stewardship

In 2003, the Forest began a three year initiative to develop a collaborative recreation community of interest in and around Mt. Hood. The vision is for:

- A future where public agencies work together with citizens, interest groups and businesses to create a commonly shared vision about public and private recreation in and around Mt. Hood; and,

- Partners with common interests together create and collaborate on projects formulated to meet their respective interests and attain shared vision.

A recreation stakeholders assessment was accomplished during the first year, and discussion began to introduce the vision to a broad spectrum of Mt. Hood recreation interests. The second year focused on developing new and enhancing existing relationships, understanding and trust with key Mt. Hood recreation stakeholders.

In the final year, the Forest continued to expand collaboration with other recreation service agencies, such as Metro, Oregon Zoo, BLM, and Oregon State Parks and Recreation Department. Increased collaboration with local communities resulted in joint sponsorship of community conservation education events and participation in recreation projects.

The Forest sponsored three collaborative learning sessions. The first, held in April 2005, brought together a diverse group of people from throughout the northwest Oregon region that had an interest in off-highway vehicle (OHV) recreation. Without the focus on OHV, it would have been difficult to bring this diverse group together to learn about and discuss collaborative processes.

The last two collaborative learning workshops, held in September 2005, were organized within specific geographic areas. The first was held in the community of Estacada and included the Clackamas River collaborative stewardship group. The second was held in Welches and brought together diverse business and recreation interests along the upper Highway 26 corridor. Both sessions provided participants with instruction and take-home collaborative tools. In all sessions, the Forest Service participated as a collaborative member of the recreation community.

Social System – Social & Cultural Values

The Forest is engaged in travel management planning including OHV route designation. During 2005, eight potential concentrated use areas for OHV recreation were identified. Maps of the areas were presented to interested groups at two open houses (Hood River and Sandy) in March 2005. Another presentation was made to a group of Sportsman's Park (Wasco county) homeowners in June 2005. The areas were posted on the Forest website (http://www.fs.fed.us/r6/mthood/projects/ohv-routes/ohv811.pdf).

About 67 electronic responses were received about the potential areas. The responses cannot be statistically analyzed; however, they provide anecdotal information about values and attitudes. Forty-five responses were in favor of expanded OHV trail opportunities in the Forest. Many respondents want more single-track riding opportunities. Most felt that McCubbins Gulch OHV area does not sufficiently accommodate motorized recreation in the Forest.

Twenty-two responses expressed concern about OHV use in the Forest. Many responses felt that OHV recreation should not be allowed at all. Others felt that OHV use should be severely restricted. The Rock Creek OHV study was criticized by several Sportsman's Park homeowners. These responses either suggested that the study area should be dropped or modified to move OHV use much farther from the residential area.

Economic System – Built Capital

Campgrounds

Visitation and utilization data was reported by permit holders for concessionaire-managed campgrounds in 2005 (Table 2-14). Site occupancy in 2005 was up 6% compared to 2004. Almost all of this increase was in the Highway 26 corridor where nearly every campground reported an increase. Clear Lake and Summit Lake were the only two Highway 26 Complex campgrounds with lower occupancy in 2005. Clear Lake had very little water during most of the season, which depressed occupancy at that campground.

The trend at Clackamas Complex campgrounds was just the opposite from Highway 26 Complex campgrounds in 2005. All but five campgrounds had substantially lower occupancy levels. Only Riverford, Rainbow, and Hideaway Lake had notable increases, while usage at Roaring River and Lake Harriet were relative flat compared to 2004.

Concessionaire records indicate that the number of campers actually increased by 8% in 2005 compared to 2004. This is a larger jump than the increase in site occupancy, which suggests that party size increased slightly.

Occupancy data for eastside rustic campgrounds was collected for the first time in 2005. For Hood River Ranger District campgrounds, approximately 816 campsites were occupied during the camping season, which equates to 18% occupancy. For Barlow Ranger District campgrounds, approximately 2,054 sites were occupied, which equates to 11% occupancy.

The *Mt. Hood National Forest Land and Resource Management Plan FEIS (Final Environmental Impact Statement)* projected reaching capacity in Forest Service developed sites in 26 years. Projections of campground occupancy that were made in the early 1990's predicted that additional capacity would be needed during the first decade of the 21st century. Occupancy figures during 2005, as well as those for the past several years, suggest otherwise. Like similar older recreation complexes throughout the National Forest System, the campgrounds on the Forest fill a social and economic niche that many long-time visitors to the Forest appreciate. This user group, however, is not expanding as originally projected and may be shrinking. In general, the Forest has more developed camping capacity than demand on most days during the camping season. Exceptions are weekends during July and August at many of the campgrounds.

In 2007, the Forest will engage in recreation site facility master planning (RSFMP). The planning exercise will examine supply, demand, and cost to operate and maintain developed recreation facilities. Decisions made during RSFMP will determine which sites the Forest will keep and which sites should be eliminated from inventory.

Table 2-14. Mt. Hood National Forest campground use in 2005 by number of campers, number of sites occupied, and percent occupancy.

Campground Complex	No. Campers	No. Sites Occupied	Percent Occupancy
Highway 26	108,081	26,802	32
Clackamas River	36,189	9,713	17
Lost Lake & East Fork	No Report	7,432	26
Olallie	No Report	No Report	No Report

Ski Areas

Use of the Forest's five alpine ski areas during the 2004/2005 season was lower than in the 2003/2004 winter. The snowpack on Mt. Hood was only about 30% of normal for most of the winter, one of the lowest measurements in the western United States. The effects of these poor conditions were most dramatic at Mt. Hood Meadows Ski Area. According to the Pacific Northwest Ski Areas Association 2004/2005 Annual Visitation Report, Mt. Hood Meadows had 190,722 visits; 234,656 visits fewer than the previous year (a 55% decrease). This decline was greater than for the region as a whole which showed a 27% decline from the previous year. Timberline reported 196,856 visits; 69,910 fewer visits than the previous year (a 26% decrease). Cooper Spur was only open for business for a few days and reported 915 visits. Mt. Hood Ski Bowl had the lowest decline in use (3%) with a total of 146,833 visits; 5,130 visits fewer than the previous year. Summit Ski Area did not report.

Trails

The Forest Plan projected that trail construction and reconstruction would average 74 miles per year for each decade. Appropriated trail construction funding has diminished, and the actual average accomplishment for the Forest is less than 10 miles. During 2005, the Forest awarded a contract to reconstruct 3.5 miles of the Pacific Crest National Scenic Trail from Pinhead Butte to Lemiti Creek.

The Forest Plan projected that there would be 1,560 miles of trail during the second decade. Currently, there are 977 miles of trail in the Forest.

Timber Resources

Goal

The goal is to sustain ecological conditions to provide a continuing supply of forest products, and to provide a positive economic return.

Providing a Sustainable and Predictable Supply of Commercial Forest Products

Current Condition

The Forest Plan identified an allowable sale quantity (ASQ) of 189 million board feet per year (MMBF). The Northwest Plan, which amended the Forest Plan, predicted a Probable Sale Quantity (PSQ) of 67 MMBF. In 1995, the PSQ level was adjusted downward to 64 MMBF to reflect the need to protect 100 acre reserve areas around spotted owl activity centers. Sixty-four MMBF is the current PSQ for the Forest.

In FY05, the budget allocation scheduled the Forest to offer for sale approximately 22.1 MMBF (34.5% of PSQ), which was a 3.5% increase over FY04. The Forest successfully offered for sale approximately 22.2 MMBF (34.6% of PSQ). This was accomplished using eight separate timber sales and two stewardship contracts. The two stewardship contracts "best value" bid resulted in the revenue source that will accomplish approximately $311,000 in restoration projects, such as precommercial thinning and wildlife snag creation, as well as $65,000 of retained receipts for future restoration projects. The Forest also made significant progress on planning projects that accomplish wildfire risk reduction objectives and commercial thinning in overstocked plantations. These planning efforts will result in timber sales and stewardship contracts in FY06.

Regional Economic System

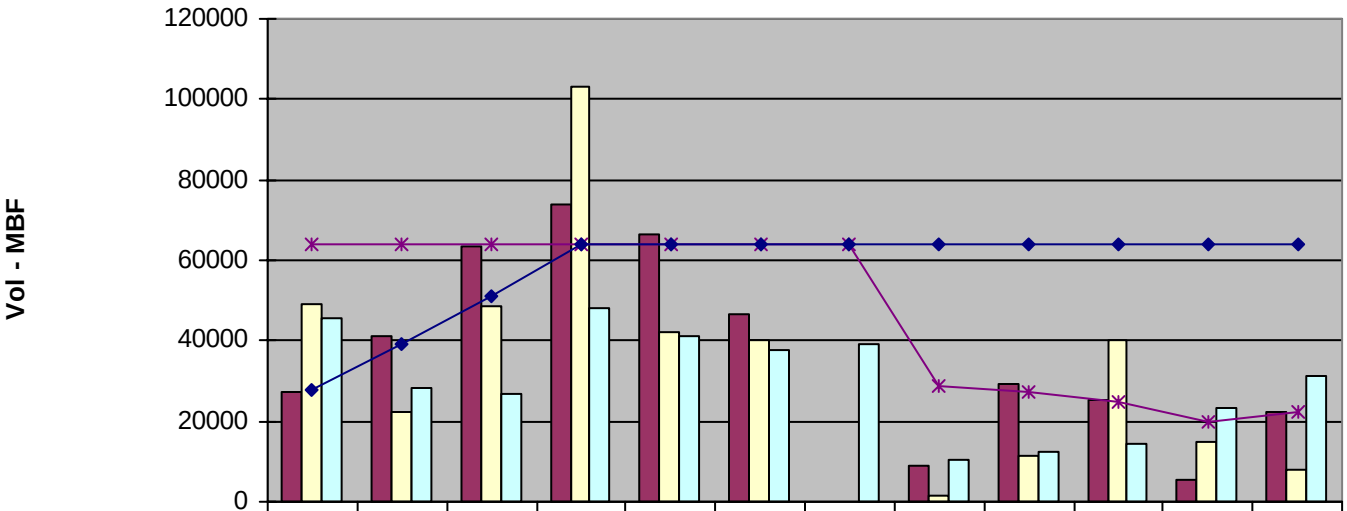
Since the early 1990's and the listing of the spotted owl as a threatened species, harvest levels of commercial forest products from the Forest have dropped significantly. Previously, 9 to 11 local mills bought most of the timber sales. Today, there are approximately five local mills in existence. Potential bidders on today's timber sales come from as far away as Springfield, Oregon to the south; Willamina, Oregon to the west; Vancouver, Washington to the north; and even as far away as John Day, Oregon to the east. In addition, many of the purchasers are log buyers or loggers who do not own mills themselves. In FY05, a large portion of the wood harvested from the Forest ended up in local mills within Hood River and Clackamas County. These mills are efficient at processing the small logs generated from many of the recently sold timber sales.

Timber sales from the Forest have been contributing a wide variety of logs to the region in terms of both diverse species and a variety of sizes and quality. The Forest, however, has not been providing a "predictable" supply of forest products to the region. This has contributed to less milling capacity in the region and a limited number of purchasers willing to buy Forest Service timber sales.

Future Expectations

Sustaining a predictable supply of forest products to the regions economic system through silvicultural treatments such as thinning and regeneration harvesting is interrelated to the ecological system. Thinning operations maintain healthy forest, reduce fire hazard/fuel build up, improve wildlife habitat, and restore riparian habitat. Regeneration harvesting restores forests that have high levels of disease and/or mortality to younger healthy forests and, at the same time, provide forage for wildlife species dependant on early successional vegetation. These operations are also interrelated to the social system. They provide jobs at both the local and regional scales as well as reduce the demand for imported forest products.

Figure 2-1. Mt. Hood National Forest Volume Summary



	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Offered	27300	41400	63600	74000	66592	46500	0	8800	29500	25400	5270	22200
Awarded	48946	22440	48409	102917	42073	40400	0	1540	11500	40130	14960	8120
Harvested	45647	28088	26961	48268	41148	37475	39408	10400	12405	14576	23230	31284
Budget Level	64000	64000	64000	64000	64000	64000	64000	28800	27300	24700	19620	22100
PSQ	28000	39000	51000	64000	64000	64000	64000	64000	64000	64000	64000	64000

The best information at this time projects the Forest to plan and sell approximately 24 MMBF per year for FY06 thru FY08. The Forest is striving to provide a "predictable" level of forest products to the regional economic systems. Nationally and regionally, the Forest Service is addressing planning issues that contribute to an unpredictable supply of forest products. Locally, the Forest is addressing planning issues that affect the economic viability of timber sales, which results in sales with no interested bidders. In FY06 to FY08, the Forest expects to provide a diverse mix of species, sizes and quality, though the majority will be from smaller sized trees (less than 28 inches in diameter).

These products will be sold using the standard timber sale contracts as well as the new Integrated Resource Stewardship contracts. The Forest continues to plan, prepare and administer timber sales and stewardship contracts using some of the most environmentally restrictive land management guidelines in the world. The Forest is striving to set a global example for sustainable forest management.

Providing a Supply of Special Forest Products

Current Condition

Over the past 10 years, the Forest has been able to supply moderate levels of firewood and Christmas trees to the local communities as well as the greater Portland area. The Forest also has been able to supply other special forest products for both commercial and personal use. These have included boughs for holiday wreaths, greenery for floral arrangements, mushrooms and others such as carving stock and transplants. Due to the adjacent large population and the high value products available, such as noble fir boughs, the Forest has one of the largest and most efficient special forest products programs in the Nation. While these products do not contribute relatively large dollar value to the regional economic system, they do provide for a considerable amount of employment for local workers. In addition, the gathering of firewood, Christmas trees, huckleberries and mushrooms for personal use is considered by many to be a recreational opportunity, which does provide regional economic benefits and is interrelated with the local and traditional social values.

Table 2-15. Mt. Hood National Forest Special Forest Products Sold and Harvested in FY05.

	Number Sold and Harvested	Value
Firewood Permits	1,370	$33,620.00
Christmas Trees	6,098	$30,490.00
Bough Permits	19	$1,427.73
Beargrass Permits	744	$23,625.00

Future Expectations

Future budget levels for the special forest product programs are expected to be similar to FY05. Demand for these products, which provide recreational opportunities, are expected to increase as the nearby population grows. The Forest is attempting to increase firewood availability through roadside harvesting of dead and down material. The Forest is looking for ways to continue to provide firewood.

Christmas trees and bough harvesting opportunities are expected to be limited in the future due to less regeneration harvesting. In other words, the trees planted in the clearcuts 10 to 20 years ago are getting too big to be cut for Christmas trees or produce high quality boughs.

The Forest expects to continue looking for opportunities to supply special forest products as the demand arises. Recent indicators suggest that harvesting of plants for bioresearch may expand in the near future. The Forest Service's ability to provide these opportunities, however, is dependent on budget allocations.

Silvicultural Treatments

Affect on Landscape Structure and Vegetative Composition

Timber harvest influences vegetation patterns by affecting the distribution of seral stages across the landscape. In 2005, harvest occurred on a very small portion of the overall landscape. Harvest occurred on 2,525 acres, which equals less than 1/2 of a percent of the total acreage on the Forest; a rate well below the annual probable sale quantity. More than 90 percent of the harvest occurred on lands designated as matrix in the Northwest Forest Plan. Most scheduled timber harvests that contribute to probable sale quantity occur in Matrix land allocation. In addition, harvest occurred on 187 acres within the Riparian Reserves and 15 acres in Late Successional Reserves (LSR).

Monitoring & Evaluation

Harvest Rates by Management Allocation

The Forest Plan monitoring report tracks the amount of acres harvested within each of the management areas to help determine if objectives are being met and to test whether the Forest Plan's modeling assumptions for timber yields are appropriate. As displayed in the following tables, 70 percent of the 2005 harvest occurred in C1 timber emphasis and 25 percent occurred in category B allocations where timber production is a secondary goal. For 2005, these include B2 scenic viewshed, B4 pine oak habitat, B6 special emphasis watershed, B8 earthflow area, B10 winter range, and B11 deer and elk summer range. Five percent of harvest occurred on A9 key site riparian areas in which timber harvest may occur to maintain or enhance riparian values. (See Tables 2-16 and 2-17.)

Table 2-16. Percent of Acres Harvested by Management Area Category

	Mt. Hood National Forest Land Allocations			
Fiscal Year	A	B	C	D
1995	1.0	62.3	36.7	0.0
1996	0.8	68.9	30.3	0.0
1997	4.5	40.9	54.6	0.0
1998	11.0	41.0	48.0	0.0
1999	0.0	33.7	66.3	0.0
2000	2.0	29.0	69.0	0.0
2001	1.0	28.0	71.0	0.0
2002	0.0	60.0	40.0	0.0
2003	13.0	37.0	50.0	0.0
2004	0.0	47.0	53.0	0.0
2005	5.0	25.0	70.0	0.0

Harvest Methods

The Forest Plan also tracks the harvest methods being used to determine if Forest Plan standards and guides are being met which specifies a range of harvest methods should be considered and that resource objectives relating to harvest methods are being met.

Thinning is a cultural treatment made to reduce stand density of trees primarily to improve growth, enhance forest health, or recover potential mortality. The stands are thinned from below which removes trees from the lower crown classes leaving the tallest, largest, and fastest growing trees to meet desired objectives. To enhance biodiversity, the Forest is increasing the use of variable density thinning which includes species and structural diversity. Variable density thinning creates small openings, leaves unthinned patches, and varies the spacing between leave trees. Increased sunlight to the forest floor provides for a greater diversity of understory vegetation. Thinning prescriptions also emphasize retention of minor tree species, including the retention of some trees with elements of wood decay and live trees adjacent to key snags.

Shelterwood harvest is a type of regeneration method in which some overstory trees are retained to provide a moderated environment for regeneration of a new age class. Typically, this method is used on the harsher sites of the Forest along the Cascade Crest, or on the drier sites on the eastside of the Forest. In a shelterwood with reserves, the overstory shelter trees are retained indefinitely to meet the green tree retention standards of the Northwest Forest Plan or to meet other objectives, such as visual quality.

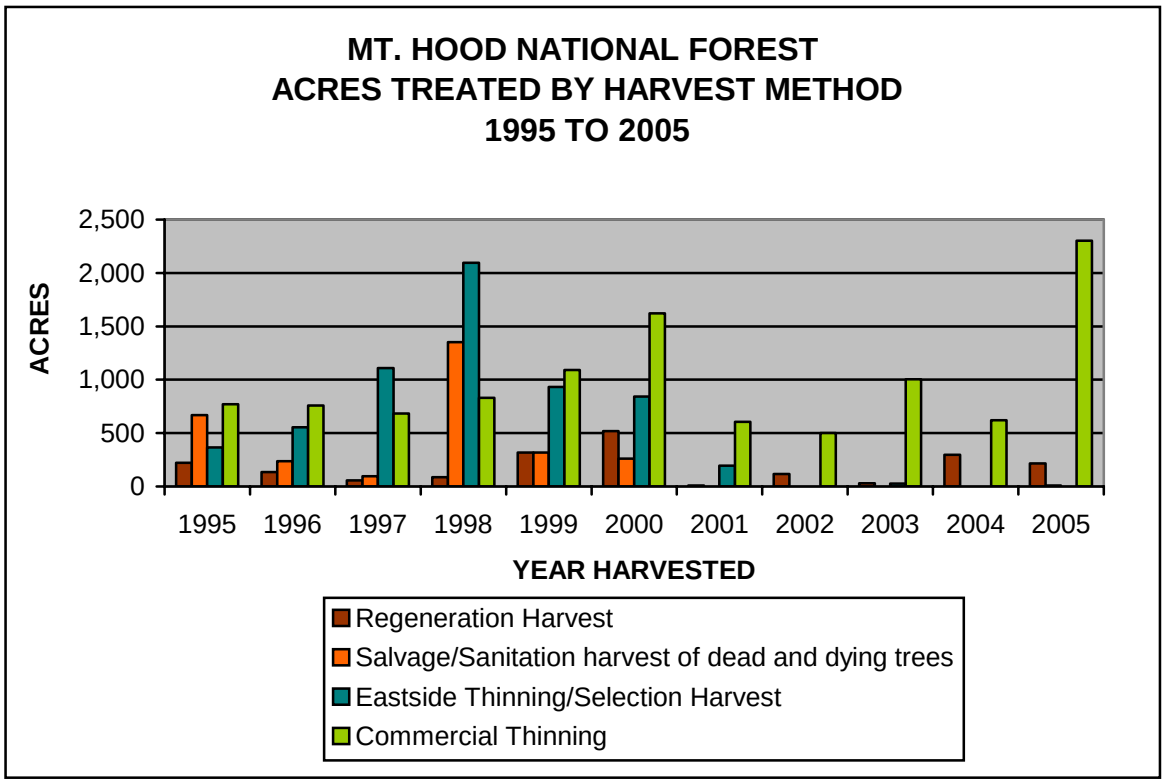
Group selection is another type of regeneration method in which trees are removed and new age classes are established in small groups. This approach is often used in areas that have root disease and a change in host species is needed to reduce the effects and spread of the disease. Also, it is also used for regeneration of shade intolerant species.

In 2005, commercial thinning was the harvest method on 91% of the acres and shelterwood harvest 9%. In the last decade, there has been an overriding shift from regeneration harvest to commercial thinning. Figure 2-2 displays how harvest methods reflect on the ground conditions and objectives over the last ten years. For example, more salvage harvest occurred in the late 1990's due to an increase in Douglas-fir beetle caused mortality that occurred after several wind events. Selection harvest and commercial thinning continue on the eastside of the Forest to lessen the susceptibility to forest insects and to reduce disease and hazardous fuels. On the westside, commercial thinning has increased as stands that were regenerated 30 years ago have grown to plantations of commercial size.

Table 2-17. Acres Harvested by Forest Plan Management Area in FY92-FY03

Management Area		Acres Harvested by Fiscal Year										
		95	**96**	**97**	**98**	**99**	**00**	**01**	**02**	**03**	**04**	**05**
A4	Special Interest Area		14	13	372		19					
A5	Unroaded Recreation	12								149		
A6	Semi-primitive Roaded Recreation											
A7	Special Old Growth				95							
A9	Key Site Riparian			75			15	11				126
A10	Developed Recreation				14							
A11	Winter Recreation Area	9										
A12	Outdoor Education Area											
A13	Bald Eagle Habitat						39					
B1	Designated Wild & Scenic Rivers	30	20	11								
B2	Scenic Viewshed	644	597	197	876	206	80	70	182	280	189	106
B3	Roaded Recreation	4					1					
B4	Pine Oak Habitat Area		98	268	366	282	62					60
B6	Special Emphasis Watershed	306	70	62	169	191	64		95			14
B8	Earthflow Area	125	347	119	191	106	238	74	23		151	123
B9	Wildlife/Visual Area		26	136								
B10	Winter Range	153	3		156	112	163					181
B11	Deer and Elk Summer Range				23		352	79	74	91	82	141
B12	Back Country Lakes			3								
C1	Timber Emphasis Area	744	510	1,064	2,104	1,762	2,257	574	246	509	485	1774
DA1	Bull Run Physical Drainage		0	0								
DA3	Bull Run Research Natural Area											
DB8	Bull Run Earthflow Area											
DC1	Bull Run Timber Emphasis Area											
	Total	**2,027**	**1,685**	**1,948**	**4,366**	**2,659**	**3,299**	**808**	**620**	**1029**	**917**	**2,525**

Figure 2-2. Acres Treated by Harvest Method



Year Harvested	Regeneration Harvest*	Salvage/Sanitation Harvest	Eastside Selection Harvest	Commercial Thinning
1995	223	669	365	770
1996	135	236	556	758
1997	58	97	1,110	683
1998	87	1,353	2,095	829
1999	319	319	931	1,090
2000	519	261	843	1,622
2001	8	0	194	606
2002	118	0	0	502
2003	30	0	26	1,003
2004	297	0	0	620
2005	216	8	0	2302
Total	**2155 (10%)**	**3696 (16%)**	**6120 (27%)**	**10,607 (47%)**

*includes shelterwood harvest & regeneration harvest with reserves

Reforestation – Maintenance of Ecosystem Components

National Forest Management Act Reforestation Requirement

Reforestation practices are monitored to ensure that areas harvested are adequately restocked within five years of a final harvest (36 CFR 219.27). Reforestation practices also are monitored to ensure appropriate species and genetic diversity.

The Forest accomplished 380 acres of reforestation in FY05. Reforestation continues on a downward trend which is directly related to the decreased level of regeneration harvest and the decreased level of timber harvest overall. Some eastside units require a second inter-planting in addition to the initial planting, which is included in the accomplishment.

A diversity of species was planted with additional species diversity expected from natural regeneration of shade tolerant species, such as western hemlock. Species diversity increases resilience to host specific insects and disease and increases the structural diversity within a stand. Six conifer species were planted: Douglas-fir, Ponderosa pine, Lodgepole pine, Western white pine, Noble fir, and Western larch. All of the acres planted were with seedlings from known seed sources and genetically diverse seed lots. The western white pine was planted from stock that is resistant to white pine blister rust, thus enabling restoration of this species.

Based on initial survival and stocking surveys, and with continuing in-growth from natural regeneration, the 5 year regeneration requirement should be met on all units; although, some of the sites on the eastside will need continuing pocket gopher control or additional inter-planting.

Figure 2-3. Reforestation Accomplishments

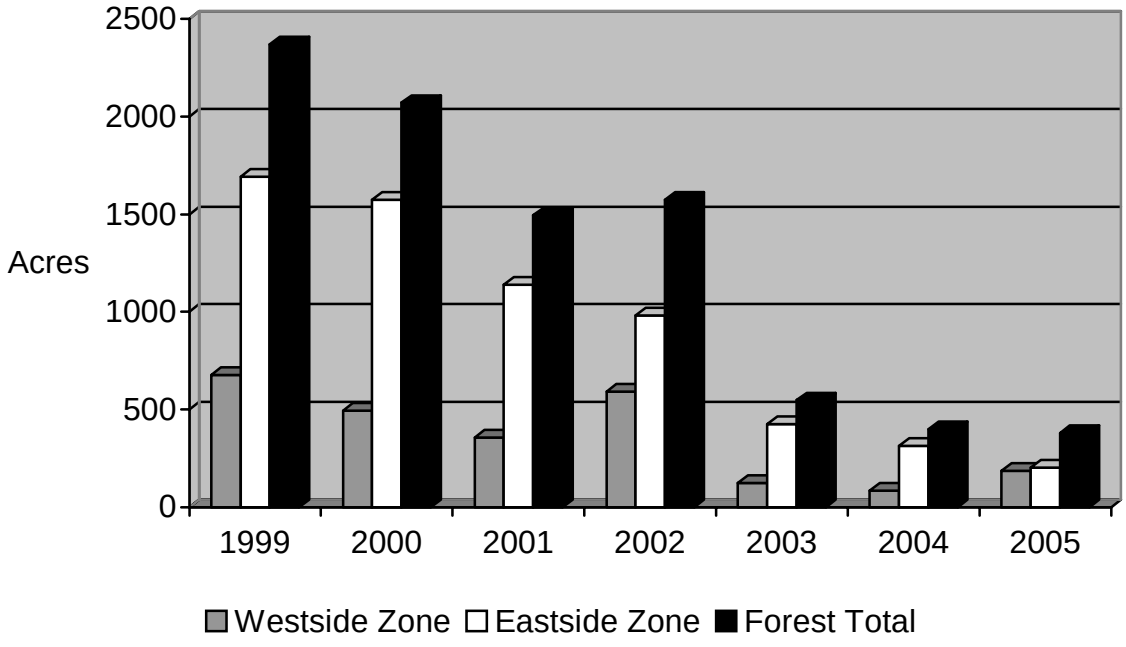
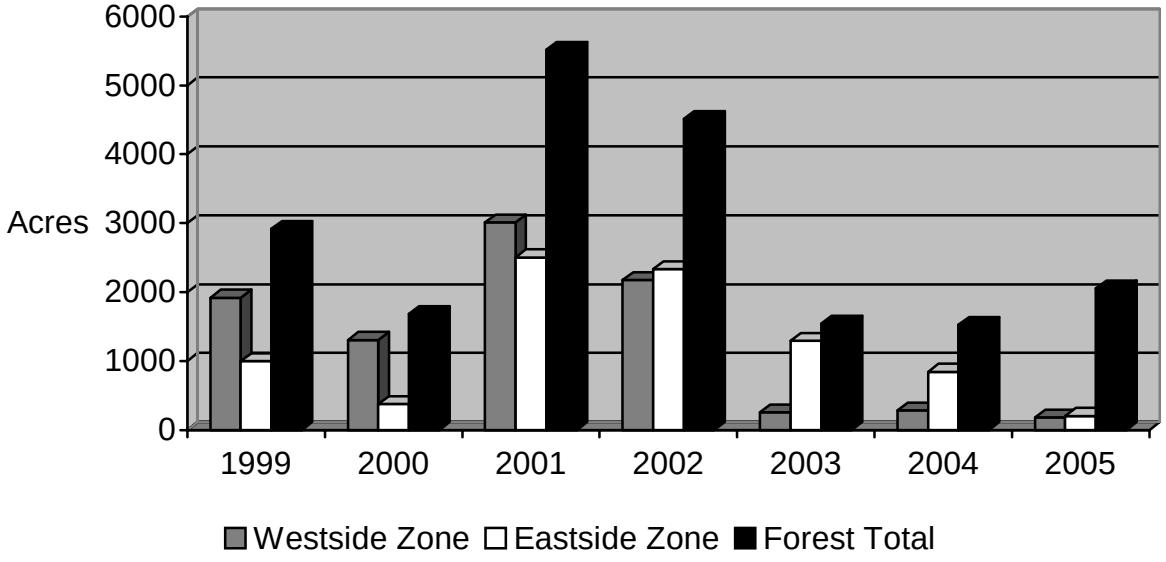


Figure 2-4. Stand Improvement Activities



Stand Improvement Activities

Stand improvement activities are monitored as they contribute to the future allowable sale quantity and increase long-term capacity of forest land by promoting healthy stand conditions and growth. Pre-commercial thinning can greatly influence the future trajectory of the stand in terms of species composition as well as horizontal and vertical arrangement. Prescriptions generally call for retention of minor species and a 25% variance in spacing. This allows for greater species and structural complexity in the stand.

In FY05, the Forest accomplished 2,052 acres of young stand or pre-commercial thinning (PCT), 50 acres of pruning for blister rust prevention in western white pine, and 73 acres of fertilization. Of this, 1,465 acres of PCT was funded through Title II of the Secure Rural Schools and Community Self-Determination Act (Payments to the Counties or PAYCO). Counties included Clackamas, Hood River and Wasco. PAYCO has become a very important funding source for PCT program since appropriated funding for thinning has dropped dramatically. Sources of funding will continue to be necessary to maintain a productive young stand thinning program.

As requested by Congress, each National Forest was requested to review, validate and sign a Certification of Data Accuracy for their young stand improvement and reforestation needs. The results of this review show 18,985 acres of current stand improvement need for the Forest. In general, young stand thinning needs have increased as stands regenerated 10 to 20 years ago have grown to the size where pre-commercial thinning is needed.

Fertilization and pruning needs were decreased to reflect the funding priority to PCT and changes in management emphasis. Fertilization for bough production is included because there is a strong market for boughs as a special forest product.

Ecosystem Function -Forest Productivity

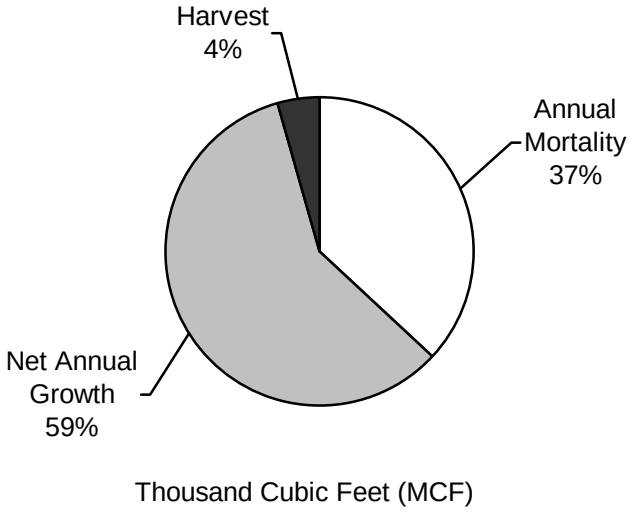
The Pacific Northwest Current Vegetation Survey, along with Forest GIS layers of land allocations, can be used to estimate the current standing inventory of the Forest and annual rates of growth and mortality. Tree growth rates can be used as estimates of productive capacity. Productivity includes storing energy from the sun via photosynthesis in carbon based biomass, and also includes secondary productivity via respiration. In addition, one measure of sustainability is whether the level of timber harvest is considered sustainable in terms of forest growth.

The following pie chart displays the net annual growth, annual mortality and harvest for 2002. Since the inventory plots have not been re-measured since 2002, the chart was not updated for 2005. Percentages are relatively similar.

Overall, annual growth is more than 13 times that of harvest and yearly mortality exceeds harvest by a factor of 8 to 1. On matrix lands only (outside of Riparian Reserves), growth is almost 3.7 times the rate of harvest. This indicates that timber harvest, by removing trees from the Forest, is having a very small effect on net productivity. The lack of harvest, however, may be contributing to increased mortality resulting in both positive and negative ecological benefits. In Oregon, tree growth exceeds harvest rates overall by a wide margin and the Forest is likely to follow a similar trend.

The mortality is comprised mainly of the smaller trees related to suppression. Mortality also includes larger trees that have died as a result of insects, disease, or other factors. Tree mortality contributes to nutrient cycling through decomposition of organic matter. The standing and downed wood is habitat for many species. Some mortality can be viewed as a loss of economic product and industrial based approaches to forestry attempt to capture potential loss of mortality via commercial thinning. Large amounts of mortality can become a hazardous fuels concern.

Figure 2-5. Growth, Mortality and Harvest on Mt. Hood National Forest



Disturbance from Forest Insects and Diseases

Disturbances, either of natural or human origin, impact all aspects of ecosystems at a landscape level, including habitat stages, successional stages, structural differentiation, nutrient cycles, forage availability, water quality/quantity yields, successional pathways, wildlife variety and quantity, carbon balances, scenic variability, availability of products, and economic values of products. Disturbance from fire, timber harvest, and geologic events, such as debris flows, are addressed in other sections of this report. This section focuses primarily on disturbance related to forest insects and diseases and large-scale infestations.

Annual Aerial Detection Survey

Bark beetle outbreaks have caused significant amounts of tree mortality on the Forest and adjacent lands for the last several years. Over 86,000 acres of the Forest have significant levels of dead trees from bark beetle activity. There are more than 160,000 acres of affected lands, including lands immediately adjacent to the Forest, namely the Confederate Tribes of Warm Springs Reservation.

The following map summarizes the cumulative data from the annual aerial survey program to depict levels of insect-caused mortality that has occurred over the last five years.

Most of the mortality is comprised of lodgepole pine (killed by mountain pine beetle, *Dendroctonus ponderosae*) and true firs (killed by fir engraver, *Scolytus ventralis*). Mortality estimates are comprised to a lesser extent of other tree species including ponderosa pine, western white pine, whitebark pine, Douglas-fir, and Engelmann spruce.

The number of acres in each mortality class for the Forest and adjacent lands are in included in Table 2-18. Table 2-19 includes the number of acres in each mortality class for the Forest lands alone.

Table 2-18. Mortality Class for Mt. Hood National Forest and Adjacent Lands

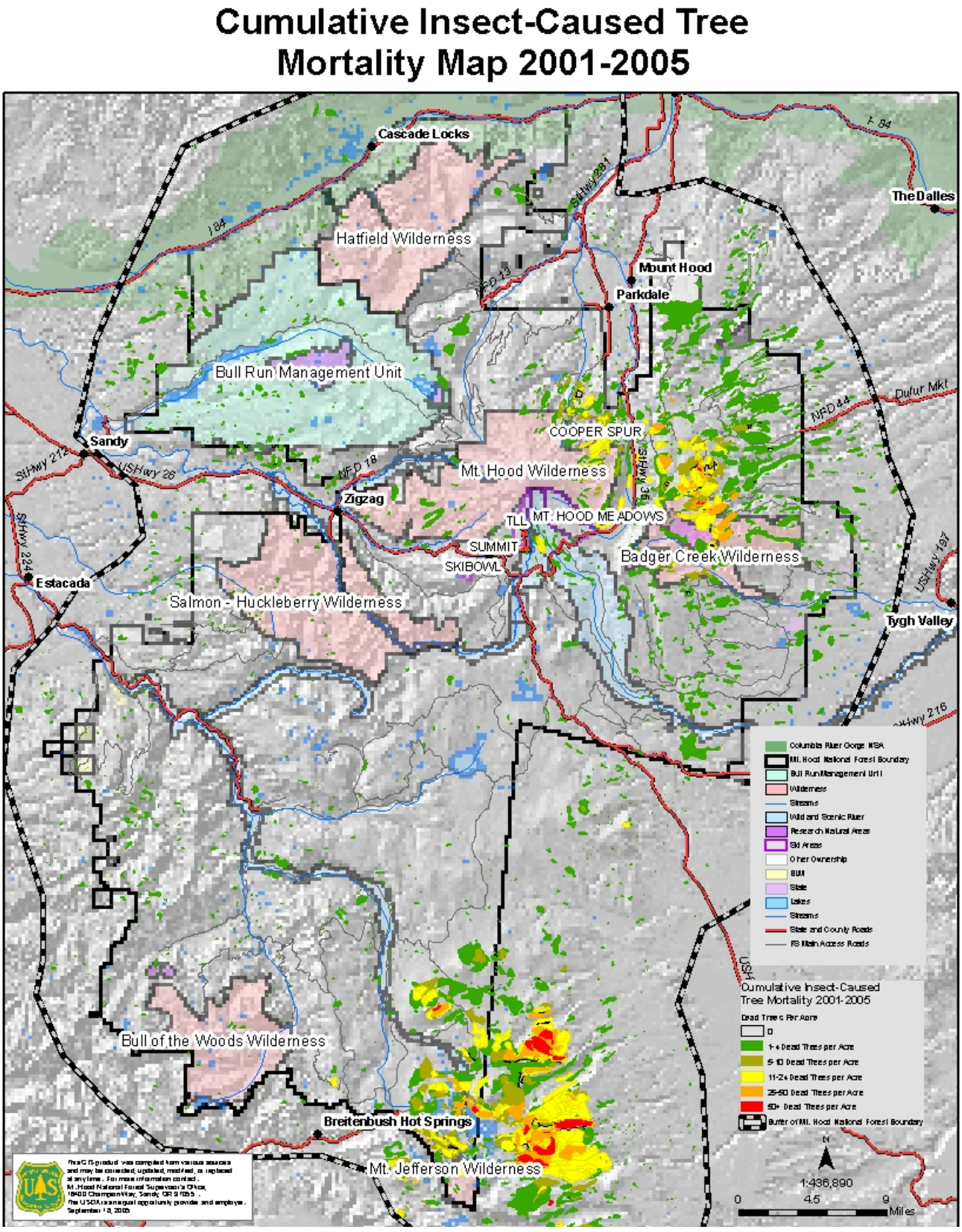
Dead Trees per Acre	Acres
1-4	101,100
5-9	20,000
10-24	27,300
25-49	9,400
+50	3,100

Table 2-19. Mortality Class for Mt. Hood National Forest Lands

Dead Trees per Acre	Acres
1-4	62,800
5-9	10,200
10-24	10,400
25-49	3,300
+50	240

Field checks and a limited number of studies indicate that aerial surveys underestimate actual mortality by approximately one third. Thus, the number of dead trees per acre should be considered a conservative estimate. Additional detailed information, including annual maps, accompanying data, and how the aerial survey is conducted, is located at: www.fs.fed.us/r6/nr/fid/as/.

Map 2-1. Tree Mortality Map 2001-2005



Large-scale Infestations

The Forest has large amounts of susceptible host habitat of lodgepole pine and mixed conifer stands that regenerated after fire at the turn of the century. The following chart shows the progression of the large-scale infestation. Beetle activity on the eastside remains high and is increasing along the western flank and the high plateau of the Cascade crest. Over the next few years, it is likely that additional stands of host trees will be killed by bark beetles until the host habitat is depleted.

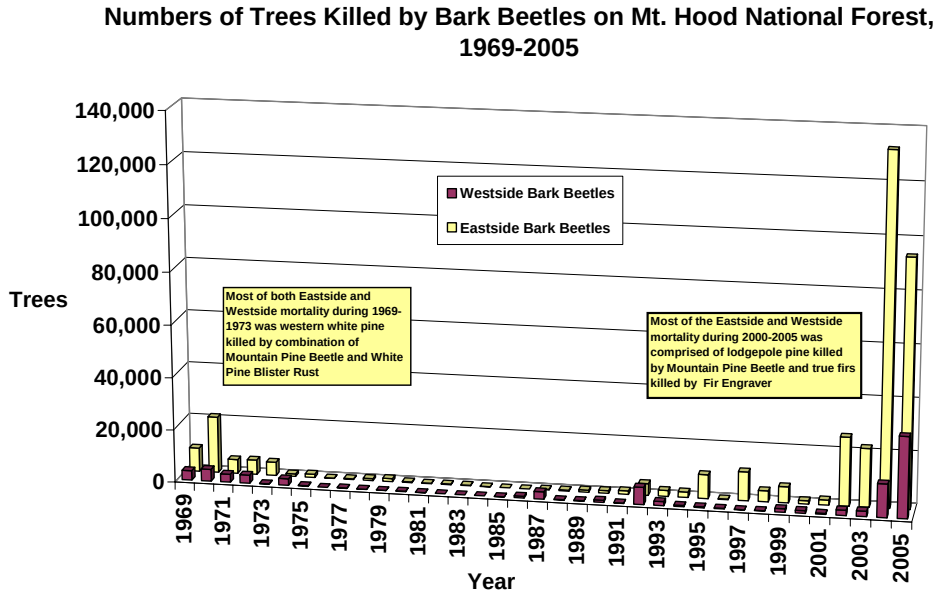
Beetle killed lodgepole can provide a short term food source for species, such as the black-backed woodpecker, which feeds on both the mountain pine beetle larvae and secondary wood borer larvae. The excavations are then used by small, cavity nesting birds. Large-scale infestations can also result in increased fuel loadings and increased concern over hazardous fuels. In appropriate land allocations, the salvage of beetle killed trees can provide wood products, firewood or biomass.

In addition, there are many acres of second growth ponderosa pine stands on the eastside of the Forest, which are at or above maximum stocking densities. These 35 to 40 year old ponderosa pine stands on the eastside are becoming imminently susceptible to bark beetle attack or will become susceptible within the next 5 to 10 years.

The western spruce budworm (*Choristoneura occidentalis*) is a defoliating insect that affected large acreages of Douglas-fir and true firs from approximately 1983 to 1993. Although there is little current budworm activity, the past outbreak caused some tree mortality, especially in the understory. These trees have now fallen and are contributing to increased fuel loadings. In some places, this is occurring where there is overstory mortality from bark beetles. As a result, there are continuous ladders of high fuel loadings from the forest floor to the standing dead fuels.

Defoliation in western larch along Road 44 near Bottle Prairie continues. This defoliation is caused by a combination of an insect, larch casebearer (*Coleophora laricella*), and two needle diseases, larch needle cast (*Meria laricis*) and larch needle blight (*Hypodermella laricis*). The effects of these defoliating agents are highly visible in the spring yet typically do not cause mortality; however, radial growth and resistance to other disturbance agents is reduced.

Figure 2-6. Numbers of Trees Killed by Bark Beetles on Mt. Hood National Forest, 1969 – 2005.



Recommendations

- The vegetation management program should continue planning efforts to meet desired land management objectives and to provide a predictable supply of commercial forest products. This includes salvage harvest of mortality from bark beetles that emphasize eastside stands with insect and disease concerns; thinning of stands in Late Successional Reserves to accelerate development of late successional structure; and thinning commercial size plantations on the westside that both provide forest products and increase the biodiversity and complexity of the stands.

- Continue to assess areas on the eastside where stand conditions have changed over time due to fire suppression. Pursue planning of silvicultural and fuels treatments to reduce hazardous fuels, modify wildland fire behavior, and restore ecological conditions.

- Assess those areas where there are high levels of insect caused tree mortality and pursue salvage sales or fuels reduction activities where appropriate.

- Reduce stocking of ponderosa and lodgepole pine stands imminently susceptible to bark beetles.

- Continue to pursue a mix of funding sources to accomplish the back-log of young stand thinning since appropriated funding region-wide will continue to be prioritized for post fire reforestation.

Chapter 3
Financial Review

Chapter 3

Financial Review

The purpose of this monitoring item is to track funding levels necessary to achieve the outputs predicted in the Forest Plan. The following display compares expenditures proposed in the 1990 Forest Plan with actual expenditures for Fiscal Year 2005 (October 1, 2004 to September 30, 2005). All figures are rounded to the nearest thousand dollars.

The total budget predicted for full Forest Plan Implementation was $65,275,000; actual funds expended in FY05 were $16,370,397. Multiple combinations of funding categories have occurred during the last few years, which makes tracking specific program areas difficult. General trends in major resource areas, however, are evident. The following table identifies the major expenditure groups and does not reflect total cost incurred on the Forest.

Each year, Congressional budgets move the Forest towards the many desired future conditions identified in the Forest Plan. The annual program is an incremental step toward implementation of the goals and objectives set forth in the Plan. Outputs and activities in individual years will vary due to changing conditions and Congressional budget appropriations.

Figures 3-1 and 3-2 show a significant change as related to the total Forest budget and workforce (Full Time Equivalent = FTE) since 1990.

All resource areas are experiencing a funding shortfall from those projected in the Forest Plan. Unit costs are being scrutinized annually to keep costs as low as practical and to provide flexibility for prioritizing and accomplishing as many projects as possible.

The heaviest programs impacted by budgetary shortfalls are in the areas of timber and associated engineering programs. In those cases where a budget shortfall is a material factor causing the Forest Service to move more slowly to meet Forest Plan objectives, it is so noted in the narratives for the specific program.

Table 3-1: Budget Levels Predicted/Actual (Partial List)

Activities	*Forest Plan Predicted (thousands/ yr)	** Actual Expenditures (thousands)									
	1990	**FY96**	**FY97**	**FY98**	**FY99**	**FY00**	**FY01**	**FY02**	**FY03**	**FY04**	**FY05**
Fire											
Brush Disposal	3,056	758	632	426	547	346	402	228	256	273	238
Fire Fighting Fund	2,118	2,145	2,520	2,187	2,173	2,227	2,535	2,949	2,040	2,139	1,888
Engineering											
Timber Roads	2,709	292	518	586	1,015	930					
Facilities Maintenance	478	222	230	264	375	357					
Recreation Roads	1,381	53	103	104							
General Purpose Roads	118	56	151	16							
Recreation Facilities	1,751	293	499	599	152	419					
Trail Construction	1,279	253	534	346	383	174	698	484	424	711	609
Road Maintenance	4,079	1,030	1,139	965	943	747	2,270	1,795	2,613	1,729	1,938
Rec & Eng Facilities							1,042	1,201	1,828	1,117	828
Timber											
Salvage Sale Funds								737	752	789	772
KV Funds		6,647	4,696	2,501	2,950	4,346	3,827	1,268	553	477	612
Forestland Vegetation						1,241	709	756	570	614	
Genetic Tree Improvement	9,602	4,566	4,216	2,925	2,890	1,820					
Restoration/Timber Stand Improvement	2,792	1,969	2,331	1,855	1,481	1,170					
Timber Sale Management	5,270	2,279	2,465	3,798	2,909	2,210	2,071	3,660	1,250	1,110	1,191
Sale Administration											
Sale Preparation											
Silvicultural Exams											
Administration General Administration	3,318	489	1,276	1,479	1,095	898					
Recreation/Lands											
Land Acquisition	50	7	128	23	8						
Cultural Resources	459	55	78	90	83	59					
Land Line Location	10										
Recreation	5,924	2,045	1,692	2,021	1,640	1,983	1,865	2,111	1,508	1,282	1,158
Fish/Wildlife/Range/Soil/Water											
Fish Anadramous	986	644	491	557	584	667	1,412				
Fish-Inland	365	46	92	141	161	110					
Wildlife	809	202	224	256		302	237				
Threatened, Endangered Species	642	224	154		188	155					
Range Betterment	4	4	1		1		1	1			
Soil Inventory	112	60	30		128	69	120				
Range Vegetation Mgmt	73	44	18	23	27	31					
Soil/Water Administration	1,726	266	289	296	271	108					
Ecosystem Management		1,806	999	888	439	846	1,242	1,077	746	1,053	989
Fish/Wildlife/Soil/Water								1,657	1,381	1,049	1,125

* Not adjusted for inflation.
** Additional costs are incurred in a variety of areas including Forest Health, Highway Administration, Quarters Maintenance, Agricultural Research, etc. Total expenditure was 18 million.

Recommendations

- Continue to scrutinize unit costs, staffing levels and charge-as-worked given declining budgets since 1990.

Figure 3-1. Mt. Hood National Forest Budget Trends

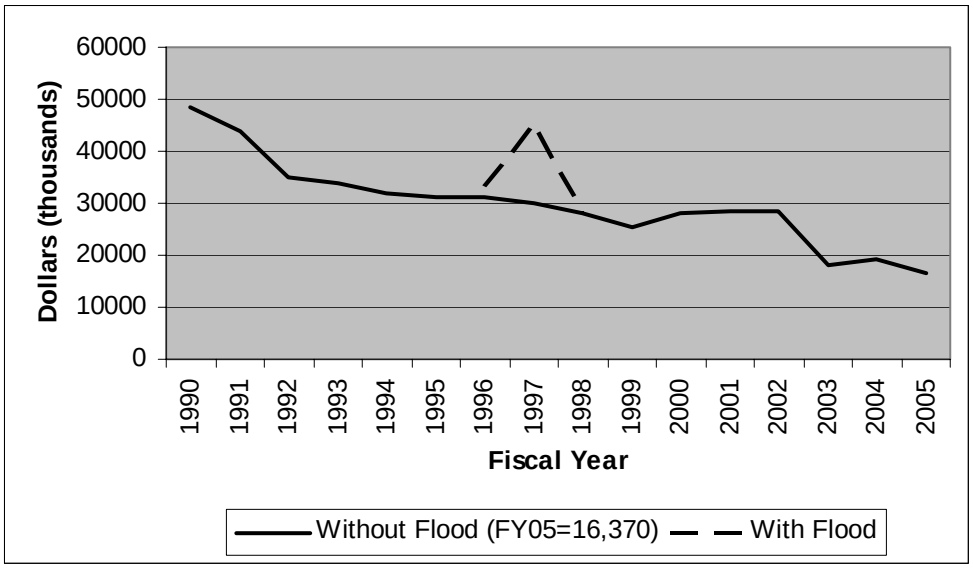
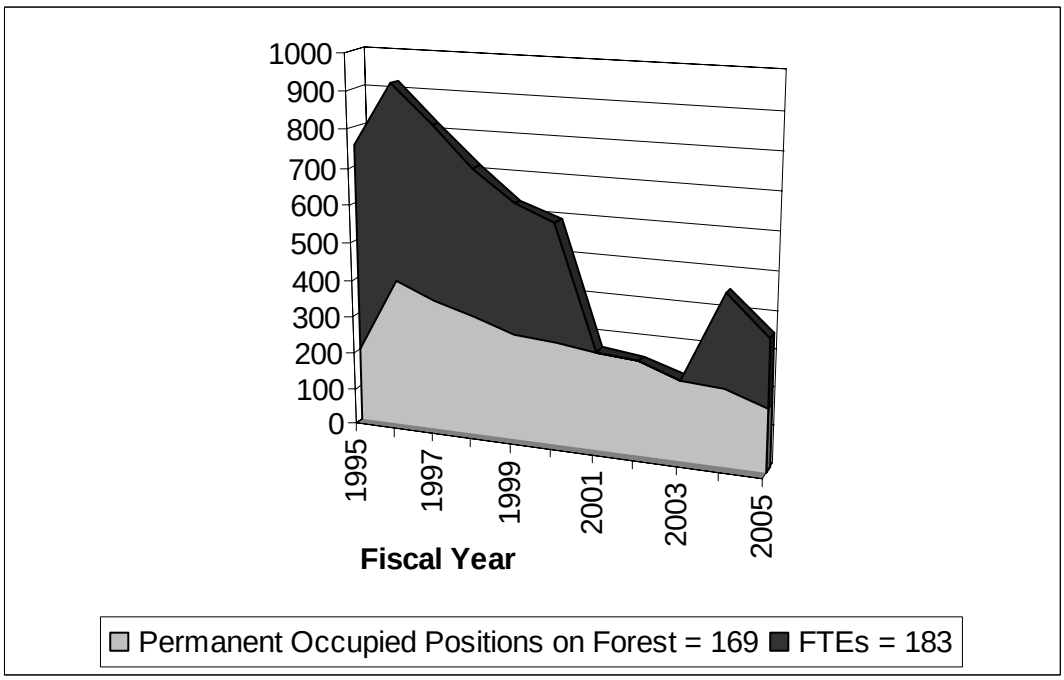


Figure 3-2. Mt. Hood National Forest FTE/Position Usage*



* No FTE data available for FY02 and FY03.

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Chapter 4

Forest Plan Amendments/ Interpretation Process

Chapter 4

Forest Plan Amendments/ Interpretation Process

As the Forest continues to implement the Forest Plan as amended by the Northwest Forest Plan, it is apparent that amendments and clarification of direction is continually needed if the Forest Service is to meet the expectation and desires of the public.

New information identified through various monitoring programs will continue to be evaluated. The need to change the *Mt. Hood Land and Resource Management Plan* will be reviewed in accordance with the National Forest Management Act (NFMA) regulations and the Northwest Forest Plan Standards and Guidelines.

Amendments

An important aspect of keeping the Plan an up-to-date living document is the preparation of amendments. Based on analysis of objectives, standards, monitoring, and changing conditions, the Forest Plan will need to be amended from time to time. Some of these amendments may involve significant changes and will require an Environmental Impact Statement to be completed. Other changes, however, will require only minor adjustments and an Environmental Assessment may be adequate.

As of September 30, 2005, fourteen amendments have been made to the Forest Plan. Five amendments reflect changes made during Wild and Scenic River planning; two concern invasive plant (noxious weed) management; one adjusts a Research Natural Area Boundary; one responds to Elk Habitat Enhancement needs; one deals with standards and guidelines relating to management of Habitat for Late Successional and Old Growth Related Species within the Range of the Northern Spotted Owl; one expands Mt. Hood Meadows ski area permit boundary; one Congressional Act modifies activities within the Bull Run watershed; one designates Timberline Lodge and its immediate environs (approximately 5 acres) as a Historical Special Interest Area (A-4); and one changes the visual quality objective for roads near Timberline Lodge.

Two additional amendments have been proposed. Amendment thirteen has been proposed, but the implementing decision was recalled during the appeal process and has not yet been reissued. This amendment would modify Standards, Guidelines and Management actions related to the use and management of the Mt. Hood, Salmon-Huckleberry, and Hatfield Wildernesses. Amendment sixteenth has been proposed, but the implementing decision has not been finalized; the decision is expected in October/November 2006. This amendment would allow for careful and targeted herbicide use to treat invasive plants.

The sixteen amendments are:

1. *Big Bend Mountain Research Natural Area.* This amendment changes the boundary within the Bull Run Watershed. 10/3/1991

2. *Clackamas Wild and Scenic River Environmental Assessment and Management Plan.* This amendment delineates final river boundary and removes all National Forest System land within the river corridor from “regulated” timber harvest. 4/19/1993

3. *Salmon Wild and Scenic River Environmental Assessment and Management Plan.* This amendment delineates final river boundary and eliminates “regulated” timber harvest within the corridor. 3/10/1993

4. *Lemiti Elk Habitat Enhancement Project.* This amendment exchanges an existing Roaded Recreational Management Area at Lemiti Creek with an adjacent Deer and Elk Summer Range Management Area. 5/17/1993

5. *Roaring National Wild and Scenic River Environmental Assessment and Management Plan.* This amendment delineates final river boundary and modifies management direction within the corridor relating to recreational developments, timber harvest and commercial livestock grazing. 9/13/1993

6. *Upper Sandy National Wild and Scenic River Environmental Assessment and Management Plan.* This amendment delineates final river boundary and eliminates "regulated" harvest within the corridor. It provides replacement management direction for the new A-1 allocation. 2/24/1994

7. *White River National Wild and Scenic River Management Plan.* This amendment delineates final river boundary which included the adjustment of the river corridor termini to include White River Falls. It also modified management direction in relation to recreational use, timber harvest, and road construction among other site specific management activities. 11/3/1994

8. *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within theRrange of the Northern Spotted Owl.* This decision amends current land and resource management plans with additional land allocations and standards and guidelines. 5/13/1994

9. *Environmental Assessment for Management of Noxious Weeds, Mt. Hood National Forest.* This amendment clarifies noxious weed management objectives by adding missing statements pertaining to noxious weed management under Goals, Desired Future Condition and Resource Summary sections of the Forest Plan. 12/8/1993

10. *The Environmental Impact Statement for the New Long Term Conceptual Master Plan for Mt. Hood Meadows Ski Area.* This amendment expands the ski area permit boundary by 96 acres to include an area which was being used by the ski area. It changes the land allocation for this area from a Wildlife/Visual classification to Winter Recreation classification. It also changes the Northwest Forest Plan allocation from Matrix to Administratively Withdrawn. 1/24/1997

11. *The Oregon Resource Conservation Act of 1996 Changed the Allocation for the Bull Run Area from Administratively Withdrawn to Congressionally Withdrawn.* This amendment prohibits harvesting of trees for timber management within the Bull Run drainage and prohibits the authorization of salvage sales.

12. *The Timberline Lodge Master Development Plan Amendment.* This amendment adopts the Historic Building Preservation plan to provide the long-term management strategy for Timberline Lodge as a National Historic Landmark. The amendment also designates Timberline Lodge and immediate environs as a (Historic) Special Interest Area (A-4 Land Allocation). 11/4/1998

13. *Wilderness Recreation Spectrum Allocations and Forest Plan Standards.* This amendment would make revisions to the Wilderness Recreation Spectrum allocations and Forest Plan standards dealing with "Limits" as related to Limits of Acceptable Change process. Standards relating to visitor use, restoration of impacted sites and public involvement are adjusted. 12/11/2000

    Note: This decision was recalled based on information identified during the administrative appeal process. A new decision has not yet been issued and the amendment has not been implemented.

14. *Timberline Express Final Environmental Impact Statement.* This amendment revises the Visual Quality Objective (A11-017 and A11-020) from "Partial Retention" to "Modification" in the foreground, as viewed from Timberline Highway (Highway 173), West Leg Road (Road 2645), Timberline Road, and riparian areas within the Timberline Special Use Permit area. This change increases the percent of the seen area visually disturbed at any one time. 11/1/2005

15. *Pacific Northwest Region Invasive Plant Program – Preventing and management Invasive Plants Record of Decision.* This amendment adds invasive plant management direction, including invasive plant prevention and treatment/restoration standards intended to help achieve stated desired future conditions, goals and objectives. The management direction is expected to result in decreased rates of spread of invasive plants, while protecting human health and the environment from the adverse effects of invasive plant treatments. 10/11/2005

16. *Site-Specific Invasive Plant Treatments for Mt. Hood National Forest and Columbia River Gorge National Scenic Area in Oregon.* This amendment allows, where appropriate, careful and targeted herbicide use to treat invasive plants according to the Pacific Northwest regional standards and in accordance with the project design criteria. This amends six existing Forest Plan standards and guidelines that discourage or prohibit the use of pesticides, including herbicides. These standards and guidelines were not amended under the new management direction provided by Amendment #15.

    Note: The implementation decision has not been made; the decision is expected in October/November 2006.

Monitoring has disclosed significant disparity between the amended 1994 Forest Plan projections and existing forest conditions that would currently warrant a revision at this time. The Forest Service will continue to make non-significant amendments to the Forest Plan as needed as the Forest Service looks forward to a full Forest Plan revision. The Forest is currently scheduled to begin a Forest Plan revision in 2009 with preparation of a Draft Environmental Impact Statement due in 2012.

Chapter 5
Ongoing Planning Actions

Chapter 5

Ongoing Planning Actions

The Forest Plan as well as the Northwest Forest Plan implementation process is now well underway. As the Forest moves further into the implementation phase, the Forest is doing its best to meet the intent of the Plans. In addition to site-specific project analysis, several additional planning and monitoring actions are continually taking place.

There are four primary components of this plan that the Forest is involved in:

- Watershed Analysis;
- Watershed Restoration;
- Implementation Monitoring; and,
- Northwest Economic Adjustment Initiative.

Extensive energy has been focused on the following areas and is summarized below.

Northwest Forest Plan

Introduction

Implementation of the Northwest Forest Plan, also titled the *Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old Growth Forest Related Species Within the Range of the Northern Spotted Owl*, began in 1994.

Watershed Analysis

Watershed analysis is an intermediate analysis between land management planning and project planning. It provides analytical information about ecosystem functions, structures, and flows in the watershed, including past and current conditions and trends. The result is a scientifically based understanding of ecological interactions occurring within a watershed as they relate to specific social issues.

Watershed analysis is purely an analysis step and does not involve NEPA (National Environmental Policy Act) decisions. Given the desired future conditions, goals and objectives, management area boundaries, and standards and guidelines from the Forest Plan and the Northwest Forest Plan, watershed analysis is a tool to help identify and prioritize Forest Plan implementation actions.

Nearly 100% of the Forest has been covered by an initial watershed analysis. The watershed analyses are completed by fifth field watersheds. In the State of Oregon, there are 1,063 fifth field watersheds with an average size of 58,218 acres. The boundaries of the watersheds were changed to make the watershed sizes more consistent; this process was completed in 2005. Table 5-1 indicates the new watershed names and the applicable watershed analysis. All fifth field watersheds that include Forest land are illustrated in Figure 5-1.

The Forest is now updating/revising watershed analyses where changed management priorities, changed natural conditions, or inherent risk factors were not reviewed in the first watershed analysis efforts of a decade ago. In 2005, the draft Miles Creek Watershed Analysis Update was completed. The Update focused on two key sections:

Chapters 2, 3, and 4, taken together look at past and present aquatic conditions, desirable conditions and trends, restoration projects, and monitoring recommendations that can improve ecosystem health in the watershed. Chapter 2 will serve as a Water Quality Restoration Plan (WQRP) for the Miles Creeks Basin. This WQRP is prepared to meet the requirements of Section 303(d) of the 1972 Clean Water Act.

Chapters 5, 6, and 7 focus on significant tree mortality and resulting fuels situation in the forested part of the watershed. Intertwined with the fuels condition is the updated wildlife section that illustrates the major changes in how the Forest Service thinks about snags and down woody debris across the forested landscape.

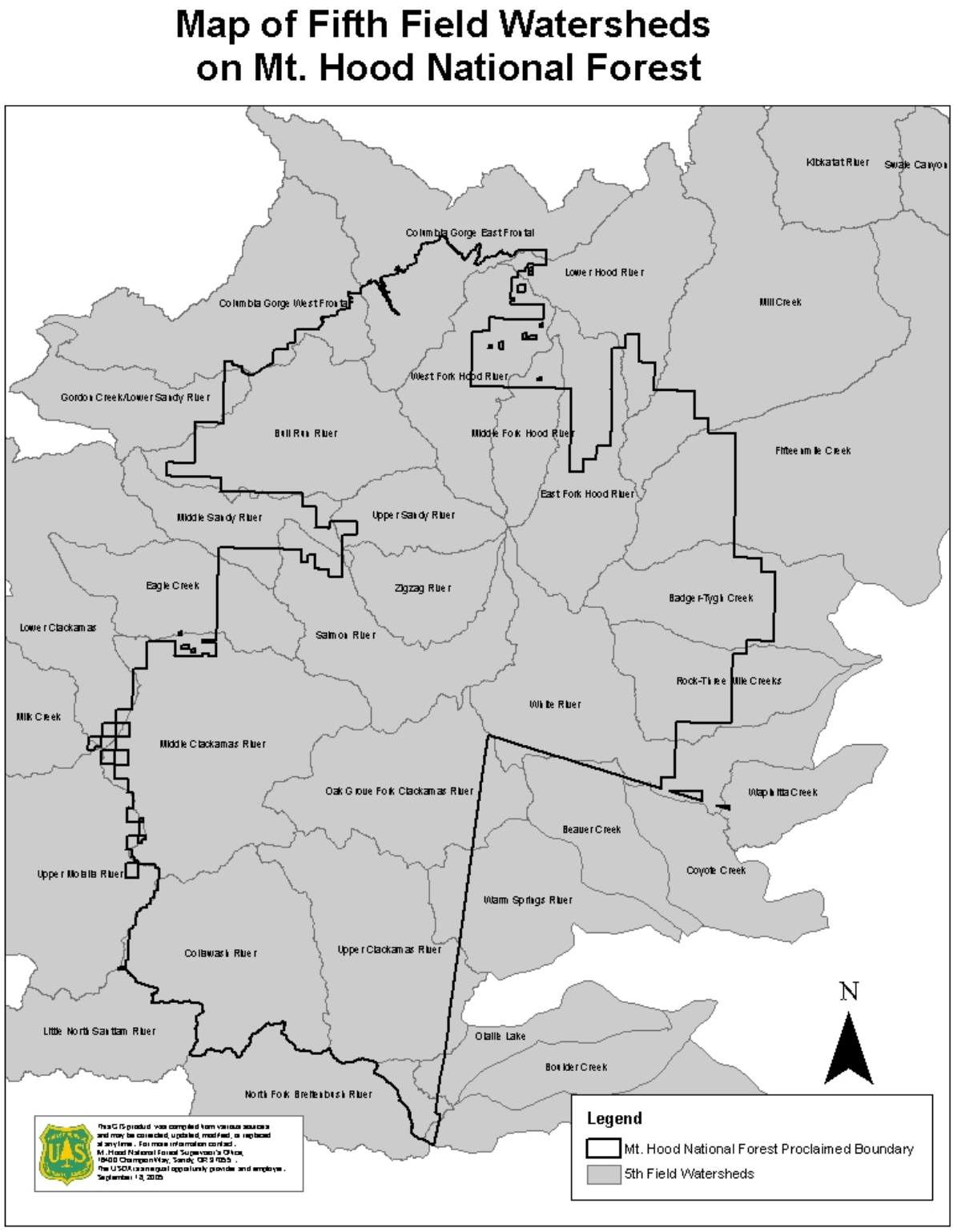
Table 5-1. Fifth field watersheds containing Mt. Hood National Forest lands and the applicable watershed analysis.

5th Field Number	5th Field Watershed Name	Applicable Watershed Assessment(s) *	Year Completed
1707010502	Fifteenmile Creek	Mile Creeks	1994
1707010503	Fivemile Creek	Mile Creeks	1995
1707010504	Middle Columbia/Mill Creek	Mill Creek	2000
1707010505	Mosier Creek	Mosier (Wasco County SWCD)**	2002
1707010506	East Fork Hood River	East Fork Hood River & Middle Fork Hood River	1996
1707010507	West Fork Hood River	West Fork of Hood River	1996
1707010508	Lower Hood River	Hood River (Hood River SWCD) **	1999
1707010512	Middle Columbia/Grays Creek	Hood River (Hood River SWCD) **	2000
1707010513	Middle Columbia/Eagle Creek	Columbia River Tributaries East	1998
1707030604	Mill Creek	Olallie Lake	1997
1707030607	Middle Deschutes River	White River	1995
1707030609	Tygh Creek	White River	1996
1707030610	White River	White River	1997
1708000101	Salmon River	Salmon River	1995
1708000102	Zigzag River	Zigzag	1995
1708000103	Upper Sandy River	Upper Sandy	1996
1708000104	Middle Sandy River	Upper Sandy	1997
1708000105	Bull Run River	Bull Run River	1997
1708000107	Columbia Gorge Tributaries	Columbia River Tributaries East	1998
1708000108	Lower Sandy River	Oregon Columbia River Tributaries West	1999
1709000505	Little North Santiam River	Collawash/Hot Springs	1995
1709000905	Upper Molalla River	South Fork Clackamas River	1997
1709001101	Collawash River	Collawash/Hot Springs	1995
1709001102	Upper Clackamas River	Upper Clackamas River	1995
1709001103	Oak Grove Fork Clackamas River	Clackamas River - Oak Grove Fork	1996
1709001104	Middle Clackamas River	Fish Creek (1994), Lower Clackmas River (1996), North Fork Clackamas River (1996), Roaring River (1996), South Fork Clackamas River (1997)	1994-97
1709001105	Eagle Creek	Eagle Creek	1995
1709001106	Lower Clackamas River	Lower Clackamas River	1996

Watershed Assessments prepared by the Mt. Hood National Forest are available at: http://www.fs.fed.us/r6/mthood/publications/.

** Watershed Assessments prepared by local Soil & Water Conservation Districts (SWCD)

Map 5-1. 5th Field Watershed Map



Restoration

The Forest has been a major catalyst in the Riverkeeper program that promotes the best stewardship of the Upper Sandy River Basin through coordination of federal, state, county, and private restoration efforts. An anadromous, fish-bearing tributary of the Wild and Scenic Salmon River is being restored through the efforts of:

- The Resort at the Mountain;
- Trout Unlimited;
- The Mazamas;
- U.S. Fish and Wildlife Service;
- Oregon Department of Fish and Wildlife; and
- A variety of individual volunteers.

Additional 2005 restoration projects completed with volunteers, partners and other agencies, including these listed above, are:

- Salmon Carcass Nutrient Restoration. The return of ocean-derived nutrients to Cascade streams is important to restore nutrient-deficient ecosystems. Volunteers and partners in the Sandy River and Clackamas River basins distributed forty-nine tons of salmon carcasses.

- Welches Road Bridge. An impassable culvert under Welches Road was replaced with a full span bridge over Wee Burn Creek. Funding was from an Oregon Watershed Enhancement Board grant, Clackamas County and Mt. Hood National Forest. In fall of 2005, the newly opened stream was used for spawning by coho salmon.

- Sandy River Keeper. This is a long-term restoration project between the Forest, The Resort at the Mountain/Wee Burn Creek Project, and the Arrah Wanna Homeowners Association. All the projects focus on improving habitat conditions for fish and other aquatic species.

- Fifteenmile River Keeper. In cooperation with the City of Dufur and Oregon Department of Fish and Wildlife, the Forest is using Wyden Amendment authority to lead efforts to improve habitat conditions in low-elevation farmlands in the Fifteenmile Basin.

- The Richardson Creek Monitoring Project. Originally, this project restored a Greenspace area owned by Portland Metro in the lower Clackamas River. The Forest, in cooperation with Clackamas River Basin Council, Metro, and Oregon Department of Fish and Wildlife, assisted in the project and now monitor use of the restored area.

- The Catlin Gabel School. The school, in its sixteenth year of a long term partnership with the Barlow Ranger District, has helped plan and implement various watershed restoration and protection projects in the Rock Creek and surrounding drainages, including stream restoration, seeding, and fencing. Additionally, each year various classes from Catlin Gabel take on additional projects as part of their commitment to community service.

Implementation Monitoring

A crucial component of the Northwest Forest Plan is monitoring implementation at a variety of scales. At the request of the Regional Ecosystem Office, an interagency regional review team was formed and they developed a process to review projects or analysis located within the area covered by the Northwest Forest Plan.

The core of the reviews is an extensive questionnaire which was to be filled out for the project or watersheds selected.

Analysis of the findings indicate that, at the Regional scale, the Forest Service and Bureau of Land Management (BLM) have a high level of compliance with the standards and guidelines and no major changes in management direction are warranted at this time.

In addition, other project specific monitoring trips are carried out by individual Districts. These reviews consider several aspects including management and condition of roads, landings, skid trails, slash treatment, adequacy of riparian buffers and silvicultural prescription implementation.

Northwest Economic Adjustment Initiative

The Economic Action Program (EAP) is a group of Forest Service State and Private programs listed in the congressional budget under one heading. EAP consists of four program components (Economic Action, Forest Products, Landowner Assistance, Urban Forestry), as well as a variety of special projects funded by Congress. In 2005, Congress only approved funding for select special projects and no funding was available to the Forest for new projects or technical assistance.

Ongoing Grants

The remaining two ongoing EAP grants were completed in 2005:

Clackamas County Culvert Replacement Program

This $973,000 grant assisted Clackamas County in restoring road and stream crossings to a “fish friendly” status, thereby continuing the important work of providing healthy, sustainable fish runs for generations to come. The project goal was to remediate road/stream crossing barriers (remove culverts) for the purpose of endangered or threatened species recovery.

City of Molalla Strategic Plan

This $20,000 grant supported the preparation of a new 5-year strategic plan for the City of Molalla. The new plan created a strategic approach developed through community involvement for transportation issues, coordination with schools, use of industrial lands, and downtown infrastructure needs.

Secure Rural School and Community Self-Determination Act of 2000

This Act addresses the decline in revenue from timber harvest in recent years received on Federal land, which have historically been shared with counties. For each year from 2001 to 2006, the law allows counties to receive a payment from the Federal government based on the State average of their top three years of payments from Federal lands.

The purpose of the Act is to stabilize payments to counties that help support roads and schools; provide projects that enhance forest ecosystem health and provide employment opportunities; and improve cooperative relationships among Federal land management agencies and those who use and care about the lands that the Forest Service and BLM manage. These projects, referred to as Title II Projects on Federal Lands, are reviewed and recommended to the Secretary of Agriculture by Title II Resource Advisory Committee s (RACs).

Public Law 106-393 creates a mechanism for local community collaboration with federal land managers in recommending projects to be conducted on federal lands or that will benefit resources on federal lands. These RACs are balanced and diverse with equal representation from industry, environmental groups, elected officials, and local people.

The following projects were recommended for funding by the Hood and Willamette RAC for FY2005:

Arrah Wanna Riverkeeper, Clackamas County - $54,630

This project provided water to the Arrah Wanna side-channel year round to increase channel complexity as well as spawning and rearing habitat for various life history stages of threatened, endangered and sensitive salmonids. It re-established riparian-dependent shrubs and conifers for shade, temperature regulation and future large wood recruitment. It also eradicated noxious weeds that persist in the project area. The site is used as a display area for conservation education.

Barlow Noxious Weed Control, Wasco County - $65,000

This project treated existing infestations of noxious weeds in order to eradicate or slow the spread of target weeds. The goal is to restore and maintain healthy, functioning ecosystems.

City of The Dalles Watershed Deferred Maintenance, Wasco County - $50,000

The City of the Dalles Watershed provides approximately 95 percent of the water for The Dalles. All entry points into the watershed are gated. This project fixed maintenance needs inside and along the edges of the watershed to reduce erosion and help assure access to the watershed.

Clackamas Precommercial Thinning #1, Clackamas County - $41,385

This project thinned undesirable conifers from 283 acres of forest. Vegetation was cut and left on the ground to provide for wildlife habitat and return nutrients to the forest. This treatment will optimize the growth of young trees in 10 to 20 year old plantations, promote stable slopes, and improve habitat and forage for wildlife. Maintaining healthy forest environments promotes healthy watersheds for multiple uses.

Clackamas Precommercial Thinning #2, Clackamas County - $41,095

Similar to the previous project, this project thinned undesirable conifers from 281 acres of forest.

Clackamas Precommercial Thinning #3, Clackamas County - $40,988

Similar to the previous projects, this project thinned undesirable conifers from 376 acres of forest.

Coe Branch Diversion, Hood River County - $51,000

This project modified the diversion structure for fish passage, fish screening and fish trapping in Coe Branch. It restored unimpeded migration of fish and other aquatic organisms.

East Mt. Hood Road Maintenance, Wasco County – $42,750

This project accomplished 27.8 miles of road maintenance on Forest Service roads within the City of The Dalles Watershed, protecting watershed health and wildlife habitat.

Hazard Tree Removal, Wasco County - $ 16,150

This project removed dead and dying trees along 15 miles of Forest roadways to improve safety and provide firewood for the public in the National Forest.

Hood River Precommercial Thinning, Hood River County - $62,485

This project thinned 1231 acres of young, dense stands of trees (less than 6 inches diameter). A site-adapted, structure-based silvicultural prescription was used to produce some subtle spatial and structural characteristics of a "wild" forest stand while retaining most of the benefits associated with traditional thinning.

Illegal Dumping Prevention and Cleanup, Clackamas County - $120,000

This project continued a public education campaign developed to reduce illegal dumping incidences by 50 percent through education of environmental impacts and consequences resulting from illegal indiscriminate acts.

Japanese Knotweed Eradication and Aquatic Restoration, Hood River County - $29,268

This project involved three ongoing projects to eradicate a recent invasion of Japanese Knotweed in Hood River County before it spreads resulting in deleterious effects on aquatic systems.

Lower Fifteenmile Creek Riverkeeper, Wasco County - $63,381

This project improved spawning and rearing habitat for federally listed threatened wild steelhead trout; improved stream and riparian connectivity; and improved vegetation health along one mile of stream and 36 acres of streamside vegetation.

Phase 2 Central Canal Upgrade/Neal Creek Siphon, Hood River County - $251,000

This project is the second phase of a 3-phased pipeline that replaces an open irrigation ditch and restores essential habitat for threatened steelhead and native cutthroat trout in Neal Creek, a key tributary to the Hood River.

Rock Creek Dam Auxiliary Spillway, Wasco County - $18,055

This project reconstructed the Dam spillway to provide for the ability to modify the spillway volume during a flood event. It reduced the likelihood of a catastrophic dam breach, which would cause environmental and infrastructure damage downstream.

Sportsman's Park Fuel Reduction, Wasco County - $12,090

This project reduced the threat of crown fire in the community of Sportsman's Park for a distance of up to 1500 feet inside the Forest boundary through selective thinning and limbing of conifers. It provided a fire defensible space that can be used as a control line for fire suppression activities in the event of a wildfire.

Title II and Title III Project Coordinator, Wasco County - $13,125

This project provided consistency and communication between the Barlow Ranger District and Wasco County, and coordination between the Forest Service and Corrections Crew supervisor for Title III project work on public lands.

West Fork Hood River Wood Placement, Hood River County - $76,000

This project extended the suitable holding, spawning and rearing habitat for summer steelhead and spring Chinook further upstream in the West Fork Hood River. It involved area schools in monitoring and revegetating activities.

Wolf Run South Ditch Pipeline, Wasco County - $17,800

This project piped a portion of the Wolf Run South Ditch to eliminate water loss and attach to an existing pipeline to provide pressurized water to irrigators; thereby, conserving electricity by eliminating pumps.

Other Community Engagement

Partnerships/Volunteers

Volunteers and partnerships are an integral part of management of the Forest and are as varied as the work they accomplish.

Some partnerships simply help the Forest Service get the work done; while others are involved in major collaborative and stewardship roles becoming advocates helping to implement the natural resource agenda at the local level. Partnerships reconnect people with natural resources as they enable participants to get involved, make a difference, and learn more about their environment and their National Forests. The volunteers may work as part of an organized group or may contribute their hours alone. They come from all over the country and serve from a few hours a week to those who come back year after year and stay for months at a time.

The following is a brief sampling of partnerships that occurred during the last year. **Partners are shown in bold text.** ***Those long-term partnerships that have spanned a decade or more are shown in bold italics.***

Traditional Human Resource Programs, more aptly called ***Senior, Youth and Volunteer and Hosted Program*** opportunities resulted in:

- 1,018 participants
- Accomplishing 19 person years of work
- Valued at over $390,300 in FY05.

Although accounting for only a portion of the work accomplished by partnerships, these Senior, Youth, Volunteer and Hosted Programs included the following.

Senior Community Service Employment Program (SCSEP). Due to changes made by the Department of Labor in how this program is delivered in the field, the Forest now only provides one position for a low-income senior to receive job training skills while earning extra income. This position is located in Wasco County.

Two Forest Service operated Youth Conservation Corps (YCC) non-residential crews employed 29 eastside youth as a result of the Forest pooling resources with:

- **Hood River County Juvenile Department**;
- ***Oregon Youth Conservation Corps***;
- **Trust Management Services**;
- **Wasco County Payment to Counties, Title I and III**; and,
- **Mid-Columbia Council of Governments**.

These partners contributed 100 percent of the funding needed for the YCC program. During the eight-week summer program, the youth accomplished needed work for the Forest, developed skills, earned money, and in many cases gained high school credit or a post high school education award. Recruitment information was available in both English and Spanish. The Forest has been proud to make it a priority to provide opportunity for youth through a YCC program for all except six years since the passage of the YCC legislation in 1973.

Hosted Programs are programs where the manpower, job training and development programs run by other organizations that the Forest Service "hosts" on the Forest by providing a worksite. Included are hosted arrangements with organizations and local government agencies such as:

- ***Clackamas County Education, Training and Business Services***;
- ***MacLaren Youth Correction Facility***;
- ***Multnomah County Department of Juvenile and Adult Community Corrections***;
- **Northwest Youth Corps**;
- **Reynolds School District, Multnomah Youth Cooperative**; and,
- ***Wasco County Department of Youth Services***.

As a result of these hosted programs, Forest roads and trails have been brushed, riparian fencing built, facilities maintained, and invasive plants removed. For example, **Northwest Youth Corps** worked two weeks on the Pacific Crest National Scenic Trail.

Other partnership accomplishments in 2005 include the following.

- **Oregon Zoo's** Urban Nature Overnights (UNO) connects innercity children with nature through supervised campouts. The Forest became an UNO partner and arranged for UNO events to be held at Wildwood Park; arranged for Smokey Bear and Forest Service fire prevention staff to visit the campout; and invited two conservation education organizations (***Wolftree*** and **Cascadia Wild!**) to provide the morning activities.

- The Forest participated with **Hood River** and **Clackamas Tourism Development Councils** in developing the nomination which led to the successful Federal Highways Administration designation of the Mt. Hood Scenic Byway.

- In response to an invitation from the **Smithsonian**, the Forest collaborated with the **World Forestry Center** in nominating the World Forestry Center as a host site for the touring Forest Service Centennial exhibit, which was selected and is scheduled to host the exhibit in September 2006.

- The Forest, as a celebration of the Forest Service Centennial, partnered with photographer **Peter Marbach** and **Graphics Arts Publishing, Inc**. to produce a large format, coffee table photography book about the Forest. Forest Supervisor Gary Larsen wrote the book's forward where he acknowledged the hundreds of Mt. Hood National Forest volunteers and partners.

Volunteers include both individuals and organized groups. Individual volunteers contributed their time and effort to positions, such as:

- Timberline Lodge Interpretative Specialists;
- Clackamas Lake Guard Station Visitor Information Specialist;
- Hickman Butte Fire Lookout;
- Winter Snow Trails Specialists; and,
- Wilderness Stewards.

Others participated in one-time events or a specific project, such as:

- Fishing Clinics;
- Festival of the Forest;
- Geologic Surveys ;
- Trail Maintenance Work Days;
- PIT (Passport in Time) Archeological Survey Projects; and,
- Fish and Wildlife Surveys and Habitat Improvement Projects.

A significant percentage of volunteer accomplishment is accounted for by sponsored groups. As the Forest employees continue to downsize, more emphasis is placed on organized volunteer groups and other arrangements where partners take an active role in recruiting, training and supervising volunteer activities.

The 2005 Forest Partners and Volunteers Recognition Picnic hosted 110 volunteers and partners who had contributed their time or resources to Forest work. At this event, recipients of the USDA Forest Service 2005 National Volunteer Award winners were recognized. **Donovan Harding** and **Doug Latourette** received a National Director's Award for Individual Effort, for their work as team members on the Clackamas River Ranger District in support of the trails program.

Enhanced Recreation Opportunities

Playing a significant role in trail maintenance on the Forest, are organized groups who provided volunteers such as:

- **Backcountry Horsemen of Oregon**;
- **Marion County Posse**;
- ***Mazamas***;
- ***Mt. Hood Snowmobile Club***;
- **Mt. Scott Motorcycle Club**;
- ***Oregon Equestrian Trails***;
- **Oregon Muleskinners**;
- ***Oregon Nordic – Portland, Teacup and The Dalles Chapters***;
- ***Pacific Crest Trail Association – Mount Hood Chapter***;
- **Portland United Mountain Pedalers (P.U.M.P.)**; and,
- **Discovery Bike Shop**.

Other sponsored volunteer groups helped to maintain and restore recreation sites. They included:

- ***Izaak Walton League – Washington County Chapter***;
- ***Oregon Equestrian Trails***;
- ***Oregon State Federation of Garden Clubs***;
- ***Sierra Club***; and,
- ***Youth organizations, such as Boy and Girl Scout troops***.

The Friends of Timberline and ***Friends of Silcox Hut*** continued their strong stewardship roles in support of these unique, historic facilities. The **Friends of Clackamas Lake Guard Station** helped with the annual "Spring Cleaning" of the site as well as working to develop a source of funds for future improvements.

Winter sport enthusiasts reaped the benefits of several partnerships involved in grooming of snow trails. The ***Mt Hood Snowmobile Club,*** in cooperation with the ***Oregon Department of Transportation,*** utilizes a portion of the snowmobile licensing fees to groom a wide array of snowmobile trails in the Frog Lake and Skyline Road area. Additionally, a local volunteer groomed cross country ski trails in the Trillium Lake Basin. Donations from the community, local organizations and retailers as well as the trail system users covered the cost of the equipment rental.

Wilderness Stewardship

In 2001, Wilderness Co-Stewardship agreements emphasizing Leave No Trace education as well as monitoring and restoration were developed with several organizations including ***Mazamas and Oregon Equestrian Trails.*** As a result, 11 volunteer wilderness stewards, both equestrians and hikers, served as on site stewards in wilderness sites with higher visitation. The stewards reached an estimated 1,500 wilderness visitors.

Portland Mountain Rescue members volunteered to help provide Leave No Trace education with an emphasis on preparedness to climbers on Mt. Hood's southside climbing route. Funding provided by the ***Mazamas***, allowed the Forest Service to increase patrol days on the southside climbing route from two days a week in the spring to four days a week. The goal of this increase patrol was to provide climbers with current information on climbing conditions (crevasse condition, snowpack, rockfall hazard) on both the Forest website (http://www.fs.fed.us/r6/mthood/recreation/climbing/index.shtml) and in the climbers' register at Timberline Lodge.

The third annual ***Southside Cleanup*** on Mt. Hood occurred in early September. Volunteers swept the southside climbing route for litter during this lowest snow level of the year window. ***RLK and Company*** assisted by transporting the trash bags from the top of the Palmer lift down to the base area.

Citizen Stewardship Plan for Action

The Mt. Hood National Forest Community Engagement Action Team (CEAT) was created in 2002 to expand engagement of community and partners in sound resource management and stewardship of the Forest. Developments continue in the areas of internal capacity building, communication, partnership building, and honoring Forest partners and volunteers.

In October 2005, the CEAT organized a unique session called *"Engaging Citizens in Forest Stewardship through Volunteerism – Creating the Forest Service of the Future"*. The objective was to bring forward the perspectives of public lands managers and partners who have significantly expanded their involvement of citizens in the public lands stewardship. One panel discussed volunteer engagement from the volunteer's perspective. The other panel talked about volunteer engagement from the land manager's perspective. The experience resulted in a Forest decision to develop a Citizen Stewardship Plan for Action for 2006.

"Citizen Stewardship", in this instance, is all-encompassing and includes Senior, Youth, Volunteer and Hosted programs and partnerships involving citizens engaged in stewardship activities. The Plan for Action includes three concurrent components:

- Build a collaborative coalition Citizen Stewardship;
- Enhance and improve existing (volunteer) programs; and,
- Develop new tools for volunteer engagement.

Recently finalized, this plan will be implemented in 2006.

Conservation Education, Information and Outreach Activities

Forest partners, collaborators, and cooperators participate, through a variety of agreements, in delivering a wide array of informational, educational and outreach activities to thousands of Forest visitors all year long.

As a partner in ***Fire Prevention Cooperatives*** and local events, the Forest reached well over 25,000 people with key messages. Events ranged from the Pacific Northwest Sportsmen Show to county fairs and local festivals, such as the Sandy Mountain Festival and the Molalla Buckaroo.

Teachers, scout leaders and others have borrowed traveling programs, slide shows, displays, educational games, and video tapes from the Environmental Education Resource Center, a library of educational programs and resource materials housed at the Forest Headquarters and designed to share the wonders of the natural world with kids of all ages. In addition, employees across the Forest participated in a wide range of local school programs focused on natural resource management.

The Forest, ***Wolftree, Inc*** and the ***Bureau of Land Management (BLM)*** teamed up in 1993 to develop Cascade Streamwatch, a conservation education program which dovetails with school curriculum serving over 4,000 urban youth as well as those from the surrounding communities. It is estimated that another 10,000 visitors to Wildwood Park benefited from the environmental education facilities developed for Cascade Streamwatch as part of their use of Wildwood Park. In addition, natural resource professionals from the Forest assisted in teaching on site field sessions in another Wolftree school program, Highland Ecology; an ecological exploration of forest organisms.

Salmon Watch, a partnership with ***Oregon Trout*** and several other regional partners and foundations provided 5,190 middle and high school students and 138 teachers, from 97 classrooms, with opportunities to study aquatic and riparian ecology and the relationship of humans in their environments. This on-going program is coordinated amongst six National Forests, and includes visits from most of the large metropolitan areas and neighboring National Forest communities throughout Oregon.

The Mt Hood National Forest partnered with the ***Bureau of Land Management***, ***Oregon Trout***, the ***Audubon Society***, ***Multnomah County Parks***, and ***Portland General Electric*** to host the Oxbow Salmon Festival, an annual event celebrating the return of the Fall Chinook Salmon to the Sandy River. The Forest Service sponsor's the Children's Activity Tent where local government and private organizations feature hands-on activities promoting wise-use and stewardship of natural resources, engage visitors in playing the "Salmon Life Cycle Game", and present interactive exhibits on fisheries/aquatics and hydrology. The highlight and cornerstone activity is the Forest Service's popular Salmon Tent, Frank and Francis fish mascots, and Smokey Bear.

National Fishing Week events including Junior Fishing Clinics have been expanded to be held throughout the spring to provide opportunities for young people to get "hooked on fishing". More than just fishing, these events give young people hands on experience and increase public awareness of the fishery resource through a variety of environmental education activities including aquatic plant and insect identification, fly tying, a salmon tent and a costume parade. These events were held at various locations throughout the Forest in cooperation with ***Oregon Department of Fish and Wildlife*** and community partners including ***Timberlake Job Corps Center***, **Oregon State Police*, Boy and Girl Scouts*** and ***fisheries groups*** as well as ***local merchants*** who generously donate prizes.

Get Wild! is an evening conservation education event held in Jackson Park, in Hood River. Event activities focus on education about birds, animals, and forest habitat. Approximately 300 people attended the event. The event is a collaboration between the **Hood River Community Education** and the Forest Service.

The 3rd Annual Festival of the Forest included a Forest Service organized conservation education component which emphasized forest wildlife. The Festival is a partnership between the ***Hoodland Chamber of Commerce***, ***Bureau of Land Management***, and Forest Service. The Festival was held at the BLM Wildwood Recreation Site, in Welches, and was attended by more than 1800 visitors.

Estacada Holiday Tree Festival is an annual December event celebrating the town's distinction of being the "Christmas Tree Capital of the World". The festival includes street festoons, music, tree lightings, gift bazaars, and the Forest Service providing winter forest safe travel and winter recreation information. Festival partners include the **Estacada Chamber of Commerce**, the **City of Estacada**, and the Forest Service.

Resource Assistants **Student Conservation Association** and Forest Service volunteers staffed the visitor information station and Interpretive Program at Timberline Lodge, a National Historic Site. Lodge tours, nature walks and the information counter operated 7 days a week and served over 20,000 visitors from the local area as well as from around the country and around the world.

For the 14th year in a row Pioneer History Camp was held on the Barlow Trail. An 1840's pioneer camp was recreated to demonstrate a living history experience for over 700 school children, and 350 to 400 Forest visitors and history enthusiasts from all over the world. Volunteer interpreters dress in pioneer clothing, live in tents and cook their meals in Dutch ovens.

2005 Conservation Education

The Forest worked with many community partners, educators, organizations and public agencies to provide a variety of informational, educational and outreach materials and activities throughout the year to thousands of urban residents and Forest visitors. These activities include:

<u>Forest Offices – Education Materials</u>

- Northwest Interpretive Association conservation education sales materials
- Teacher's conservation education materials checkout program

On Forest – Education Projects

- Catlin Gable School Riparian Rangers
- Cloud Cap Inn Interpretive Program
- Mountain Bike Rangers Program
- National Fishing Week Junior Fishing Clinics
- Pioneer History Camp – Barlow Trail
- Salmon Watch
- Ski with the Ranger Program
- Timberline Lodge Interpretive Program
- Volunteers involved in Forest resource work
- Watchable Wildlife: Bonney Butte Hawk Watch Migration
- Watchable Wildlife: Washington Cascades Birding Trail
- Yodel for the Watershed

In Community – Education Events

- Arbor Day at Magness Tree Farm
- Cascade Streamwatch
- Children's Clean Water Festival
- Festival of the Forest
- Get Wild! Festival
- Hood River County Fair
- Junior Ranger Program in Parkdale
- National Fishing Week Junior Fishing Clinics
- Numerous K-12 school programs
- Oregon Zoo's Urban Nature Overnight Program
- Oxbow Salmon Festival
- Portland Boat Show
- Pacific Northwest Sportsman Show
- Smokey Bear Day and Safety Fair Day at Portland's PGE Baseball Park
- Firewise educational displays at ten local nurseries
- Clackamas County Fair
- Sandy Mountain Festival
- Oregon City Safety Fair

Monitoring

Long-term partners involved in monitoring activities include:

Northwest Ecological Research Institute who has partnered with the Mt Hood since 1987 to recruit, train and supervise ***Wetland Wildlife*** volunteers who monitor wildlife activities at specific wetland sites across the Forest.

HawkWatch International, a non-profit organization established in 1986, conducted their annual fall surveys to observe and band migrating raptors at Bonney Butte on the eastside of the Forest. Due to its panoramic vantage point to view migrating hawks and eagles, the Bonney Butte raptor counting site attracts birdwatchers from around the world. In 2005, there were 444 visits to Bonney Butte, including repeat visitors, which represents a significant decline compared to the last two years. The lower visitation likely is due to decreased media attention and inclement weather causing groups to cancel visits. ***HawkWatch International*** wildlife interpreters provide raptor education to visiting birdwatchers and outdoor enthusiasts. Others supporting this partnership include:

- ***Portland Audubon Society***;
- ***Oregon Department of Fish and Wildlife***;
- **Boise Cascade Corporation**;
- **National Fish and Wildlife Foundation**;
- **Coffee People**; and,
- **Leupold and Stevens**.

The ***Oregon Archeological Society (OAS)*** has been an ongoing partner in archaeological site monitoring and evaluation projects. In 2005, OAS participated in the evaluation of an archaeological site within the Long Prairie Cattle Allotment, assisting the Heritage Program in evaluating the effects of proposed improvements within the allotment. OAS volunteers assisted in test excavations and site mapping. Throughout the year, other OAS volunteers continued periodic monitoring inspections of select archaeological sites within the National Forest.

Appendix A
List of Preparers

Appendix A

List of Preparers

Cartwright, Linda—*Range and Noxious Weeds*

DeRoo, Tom—*Geology and Minerals*

Dodd, John—*Soils*

Dyck, Alan—*Wildlife/Plants*

Falknor, Penny—*Partnerships*

Geiser, Linda—*Air Quality*

Godek, Chris—*Financial*

Gross, David—*Partnerships*

Hamilton, Malcolm—*Recreation*

Hickman, Tracii—*Fisheries*

Lankford, Nancy—*Silviculture*

Martinez, Juan—*Human Resources*

McClure, Rick—*Heritage Resources*

O'Connor, Jennie—*Planning*

Rice, Jeanne—*Ecology*

Rice, Jim—*Timber*

Steinblums, Ivars—*Water Resources*

Tierney, Jim—*Transportation/Roads*

Wrightson, Jim—*Fire*

York, Shelly—*Desktop Publishing*

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Appendix B
Draft Criteria and Indicators

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Draft Criteria and Indicators

The following draft criteria and indicators, developed during the LUCID test, provide a first approximation relevant to describing sustainability for the Mt Hood National Forest and will be further refined and adapted through the collaborative process.

Principle 1 - Social Well-Being

Collaborative Stewardship

- Citizen Involvement (volunteerism, cooperative agreements, collaboration, political engagement)
- Local area empowerment (Forest Service community capacity building, education)
- Collaborative decision making (Involvement in decision making process)
- Civic science (expertise, process)

Community Resilience

- Civic competence at the community level (knowledge, skills and abilities about resources)
- Civic enterprise (collective action experience)
- Social capital – Built relationships (number of civic/mediating organizations, environmentally focused non-profits, local services)

Institutional Adequacy

- Rules of the game (structure of government)
- Tenure (public and private land ownership)
- Legal framework (laws)
- Authority structure (land use agreements, stewardship certification)

Social and Cultural Values

- Sense of place
- Aesthetic values (scenic integrity)
- Recreational values (risk and safety, impacts & conflicts)
- Access
- Cultural heritage
- Civil rights
- Environmental justice organization
- Worker safety

Community Livability

- Community health (employment, crime, education, services, spousal abuse)
- Settlement pattern (complexity of land use, migration, demographics)

Principle 2 – Ecological Integrity

The ecological criteria and indicators were based on maintaining integrity of ecological systems to provide sustainable forests.

Landscape Function – *processes that influence landscape patterns and distribution*

- Disturbance processes (fire risk, insect and disease risk)
- Hydrologic function (watershed condition class, hillslope processes)
- Long-term Community Dynamics (longevity of current plant community assemblages)

Landscape Structure/Composition – *landscape structures/composition that influence pattern*

- Landscape diversity (vegetation composition – seral stage)
- Landscape patterns (habitat distribution, human developed landscape features)

Ecosystem Function - *ecosystems are defined by fluxes in energy and matter*

- Productive capacity (site productivity, tree growth, animal production)
- Functional diversity (species at risk or extirpated)
- Invasive species (plants and fish)
- Nutrient cycling (soil organic matter)
- Carbon sequestration (soil carbon and carbon sinks)
- Stream function (riparian vegetation, stream condition, community health)

Ecosystem Structure - *ecosystems are defined by fluxes in energy and matter*

- Air, soil and water quality (municipal water supply, air quality index)
- Ecological legacies (snags and coarse woody debris levels)
- Special habitats (wetlands)
- Species richness (native species diversity)

Population Function – *defined by processes such as competition, predation, and mutualism that define interaction between organisms in the assemblage*

- Species of concern (population viability of plants, animal and aquatic species)

Population Structure - *plant and animal communities are defined by the occurrence of, density and age structure of indigenous species especially threatened, endangered and sensitive species*

- Population of indigenous species (listed species)

Genetic Function - *processes that shape population and genetic variation*

- Artificial selection (harvest prescriptions)
- Migration (genetically selected stock, offsite stock)
- Drift (census population estimates)

Principle 3 – Economic Well-Being

The economic criteria and indicators were based on two fundamental principles of sustainable development:

1. Maintain sufficient natural, built, and human/social capital through time to provide non-declining flows of the goods and services desired by society from the Forest; and,

2. Distribute the goods and services in ways that 'equitable' access and benefit are achieved for all major stakeholders, and for future generations.

Sustain minimum stocks of natural, human and built capital

- Natural capital (land, timber, water, wildlife that contribute to ecosystem functioning and/or human welfare)
- Human capital (private forest workforce and public agency workers)
- Built capital (facilities, roads, trails contributing to providing goods and services)

Produce and consume sustainable (annual) flows of market goods and services

- Commercial products from the forests and lands, (forest products, minerals)
- Energy flows (kilowatts generated)
- Developed recreation (recreation fees – ski passes, camping)

Produce and consume sustainable flows of non-market goods and services

- Undeveloped active recreation (recreation for which access is not regulated directly by fees – hiking)
- Passive tourism and scenic amenities (scenic viewing by touring)
- Water flows and quality (municipal water supplies, instream flows)
- Air quality effects (carbon sequestration, smoke, pollution)

Ensure an equitable distribution of benefits and costs

- Marketed forest goods and services
- Non-marketed goods and services
- Demographics of workforce
- Local revenue sharing (government payments to local jurisdictions related to forest operations)
- Rent distribution by recipient (timber, recreation, range)

Maintain an appropriate regional economic trade balance

- Exports of goods and services
- Imports of goods and services (meeting sustainable flows of desired services)
- Ability for local community to meet labor requirements (capacity to delivering sustainable flows of goods and services from forest resources)