

CHAPTER V

IMPLEMENTATION AND MONITORING

Implementation of the Forest Plan requires moving from an existing management program to a new management program that will provide a different way of addressing the issues and concerns people have voiced about management of the Forest. This Forest Plan establishes the direction for the Willamette National Forest into the future. It will be used in conjunction with Forest Service Manuals and Handbooks and the Pacific Northwest Regional Guide.

This chapter of the Plan includes three sections: Implementation, Monitoring and Evaluation, and Amendments and Revisions. Collectively, these sections explain how management direction will be implemented, how implementation activities will be monitored and evaluated, and how the Plan will be kept current as conditions change and new information becomes available.

IMPLEMENTATION

The Forest Supervisor has the overall responsibility for implementing the Forest Plan. Implementation will occur through the identification, selection, scheduling, and execution of management practices designed to meet the management direction of the Plan. Implementation will also involve responding to proposals by others for use and/or occupancy of Forest lands. Additionally, it will be necessary for other plans or instruments, budget proposals, and environmental analysis required for implementation of specific management practices to be consistent with this Plan.

Implementing Forest Plans under the National Forest Management Act (NFMA) involves **two decision levels**. The **first level** is associated with approving, amending or revising the Forest Plan. The decisions made at this level are to provide direction for all resource management programs, practices, uses, and protection measures. These decisions involve full compliance with both NFMA and NEPA. Final decisions made in the Forest Plan are:

1. Forest-wide goals and objectives.
2. Forest-wide desired future condition.
3. Forest-wide standards and guidelines.
4. Management area goals and standards.
5. Management area desired future condition.
6. Management area standards and guidelines.

IMPLEMENTATION

7. Monitoring plan and evaluation process.
8. Incorporation of extant plans or projects (see Appendices A and B)
9. Identification (location) of lands considered suitable and selected for timber harvesting.
10. Establishment of the Forest-wide allowable sale quantity.

The emphasis of the Forest Plan decisions are not on site specific projects or site specific resource outputs. Nor does the Forest Plan identify the cumulative effects and connected actions of individual projects. The Forest Plan and accompanying Environmental Impact Statement (EIS) do not contain sufficient detail to determine which activities will be undertaken in a site specific location. Before these decisions can be made, further analysis will be necessary.

The **second level** of decisions is associated with the approval of site specific projects and activities necessary to achieve the goals, objectives and desired future conditions in the Forest Plan. This level also involves full compliance with NFMA and NEPA. Figure V-1 displays the relationship of project plans to the Forest Plan, NEPA compliance, and the relationship of intermediate analysis and evaluation to these two decision levels.

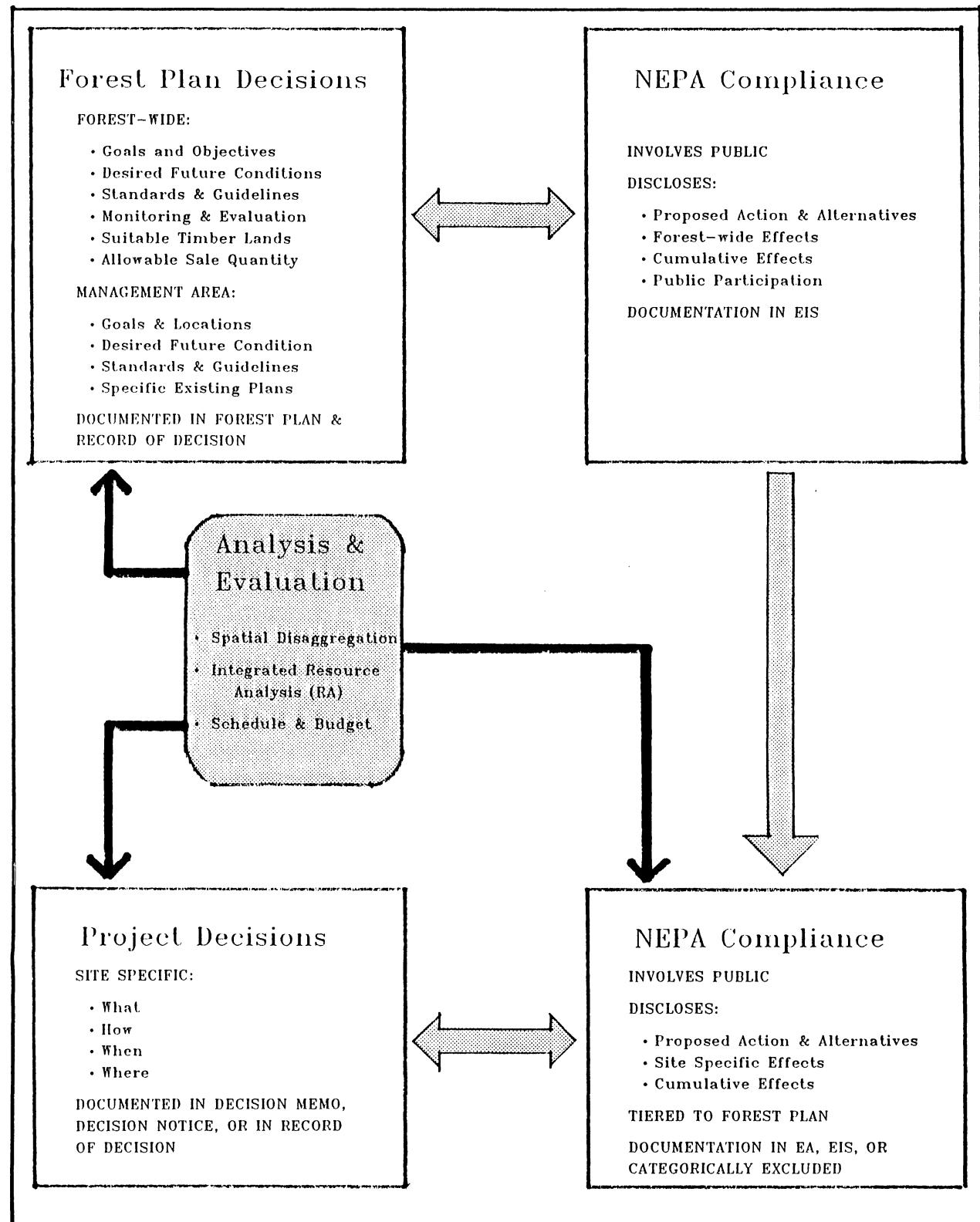
Project Scheduling

Appendices C and D list proposed resource schedules, including a proposed timber sale schedule. These multiyear activity schedules will be updated each year. These schedules will be in response to the management direction in this Plan as well as site-specific near-term needs and opportunities. The execution of these projects will be in response to the annual budget. The projects listed in these schedules provide a pool of possible activities from which implementation schedules will be developed in conjunction with funding approvals. These listings will routinely change as projects are implemented, or are removed from the listings for other reasons, and as new projects take their place.

The basic objective of project development and scheduling is to ensure activities are carried out in accordance with the direction specified in the Plan. This is achieved through an integrated resource management approach, assuring interdisciplinary teamwork and public involvement throughout the process.

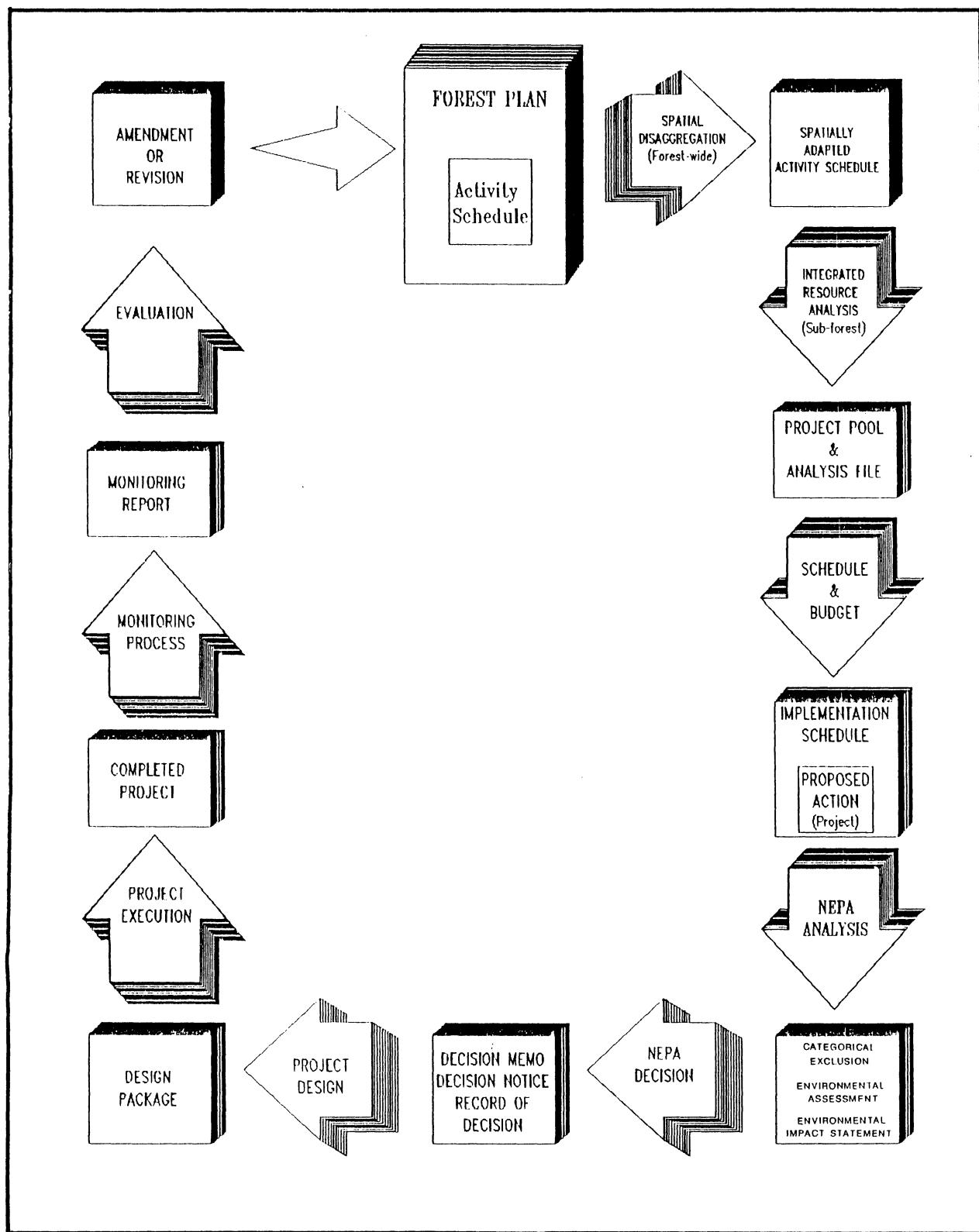
Usually, some amount of intermediate analysis will be needed between the Forest Plan level and project level decisions. This may be necessary to interpret the Forest Plan direction to a smaller area, to fully integrate all resources, to evaluate cumulative effects and connected actions, and to establish implementation schedules. Intermediate analysis will provide information for use throughout the implementation process, but it will not be a decision-making step.

Guidance for implementing the Plan can be found in the document "Steps of the Journey, Forest Plan Implementation Strategy" (USDA Forest Service, Pacific Northwest Region, April 1990). This document describes a process for moving from Forest Plan direction to spatial disaggregation of this direction, to developing an integrated resource analysis, scheduling and budgeting, environmental analysis, NEPA decision, project design, project execution, and monitoring and evaluation. Figure V-2 is an excerpt from "Steps of the Journey" which shows the flow of activities to implement the Forest Plan.

Figure V-1. Forest Plan Implementation

IMPLEMENTATION

Figure V-2. Flow Chart of Forest Plan Implementation



Consistency With Other Instruments

This Forest Plan serves as the land management plan for the Willamette National Forest. This Forest Plan replaces the 1977 Willamette Multiple Use Land Management and Timber Plan. The Oregon Cascade Recreation Area (OCRA) Management Plan has been updated for release with this Forest Plan and is included in Appendix B.

All outstanding and future permits, contracts, cooperative agreements and other instruments for occupancy and use of lands included in the Willamette Forest Plan will be brought into agreement with this Forest Plan, subject to the valid existing rights of the parties involved. This will be done as soon as practicable, and generally within three years of the date of this Plan. Subsequent administrative activities affecting such lands, including budget proposals, will be based on the Forest Plan.

Budget Proposals

Management activities scheduled in this Plan are associated with a multiyear program budget proposal that identifies funds necessary to implement the Plan. This is then used to request and allocate funds. Outputs and activities in individual years may be significantly different than the averages shown in Chapter IV, depending on available funds.

The Forest Supervisor may change proposed implementation schedules to reflect differences between proposed annual budgets and actual funds received. Such schedule changes shall be considered an amendment to the Forest Plan but shall not be considered a significant amendment, or require preparation of another EIS, unless the changes significantly alter the long-term relationship between levels of multiple-use goods and services projected under the planned proposals as compared to those projected under the actual appropriations.

Upon approval of the final budget for the Forest, the annual program of work is adjusted to the final budget and then carried out. Accomplishment of the annual program of work results in the incremental implementation of the Plan management direction.

Environmental Analysis

Final decisions on site-specific projects will be made during Forest Plan implementation after appropriate analysis and documentation meeting NEPA requirements. The form of documentation will be consistent with the Council on Environmental Quality Regulation (40 CFR 1500-1508). NEPA documents in the form of Categorical Exclusions, Environmental Assessments, or Environmental Impact Statements will be filed and available for public review at various offices on the Forest.

MONITORING AND EVALUATION

Monitoring and evaluation will provide the public, the Regional Forester, and Forest officials with information on the progress and results of implementing the Forest Plan. Activities will be compared with Forest Plan direction and the actual effects resulting from these activities will be compared to the predicted effects. Where activities are congruent with direction, and effects are congruent with expectations, the determination will be documented and implementation will continue. Where activities and effects are not congruent with direction and expectations, further evaluation will occur and appropriate action will be taken to correct inadequacies or to modify the Forest Plan where necessary.

MONITORING AND EVALUATION

The overall objectives of the Monitoring Plan are to determine if programs and projects are meeting Forest Plan Direction, and to keep the Plan viable.

Specific objectives of the monitoring and evaluation program are to determine whether:

1. Planned goals and objectives are achieved.
2. Programs and activities address existing and emerging public issues and management concerns.
3. Standards and guidelines are being followed.
4. Standards and guidelines maintain environmental quality.
5. Resource and cost information used in projecting output and impacts are correct.
6. The Forest Plan needs to be amended or revised.
7. Intensity of monitoring is commensurate with the risks, costs and values involved in meeting plan objectives.

Monitoring

Monitoring will test resolution of the Forest Plan issues, concerns, and opportunities (ICO). For each ICO there are one or more monitoring questions which will be answered at specific time intervals. Tables V-M1 to V-M41 list these monitoring questions by resource.

Costs, outputs, and environmental effects will be measured to determine if the relationships on which the Plan is based are still valid. Differences will be evaluated and appropriate action taken, which could range from correcting performance deficiencies when standards and guidelines are not being implemented, to amending or revising the Forest Plan when acceptable effects cannot be achieved within the present framework of the Plan.

While the monitoring questions are designed to be clear about what outcome is being tested, they are purposely phrased to allow flexibility in sampling procedures. This will allow monitoring personnel to tailor the design of the monitoring activities to special management concerns at the time of sampling, and to current developments in sampling and analysis procedures. For long term monitoring projects, it will be important to develop sample procedures that will be valid over a long enough period of time to gather consistent data that will be useful to determine cause and effect relationships.

Monitoring activities will be coordinated with other Federal and State agencies, the Regional Office, and adjacent Forests to develop monitoring and sample designs that are the most effective at the least cost.

Three types of monitoring will be used:

Implementation monitoring is to determine if plans, prescriptions, projects, and activities are implemented as designed and are in compliance with the Forest Plan objectives, standards and guidelines. The question being asked is, "Did we do what we said we going to do in the Forest Plan?"

Effectiveness monitoring is to determine if plans, prescriptions, projects, and activities are effective in meeting Management direction, objectives, standards and guidelines. The question being asked is "Did the practice or activity do what we wanted it to do?"

Validation monitoring is validation of the assumptions used in Forest Plan development and analysis. Some examples include wildlife habitat relationships, relationships between timber harvest and water quality, and timber growth and yield. This will normally be coordinated with or conducted by research, but there are some on-forest validation efforts identified. The question being asked is "Are the basic assumptions about cause-effect relationships accurate? And, if not, is there some better way to meet our goals and objectives?"

Figure V-3 displays the relationship of the three levels of monitoring. Note that effectiveness and validation monitoring are only triggered if there is a significant issue, concern or opportunity to address.

The Monitoring Plan contains the following elements which are included in Tables V-M1 to V-M41:

General Monitoring Question

Major questions that need attention to determine if the Forest Plan is working as expected. The "Discussion" part of this element elaborates on the pertinent components of the general issue the question is addressing.

Evaluation Question

A question that deals with a facet of, and helps answer the general monitoring question. These include Forest Plan assumptions and indicator items that, when answered in total, help answer the general monitoring questions.

Measured Action/Effect

Specific statement of what will be examined.

Methods

The process by which the examination will be done.

Unit of Measure

The unit of measure applicable.

Estimated Reliability

The level of validity and exactness of the data. Reliability is the expected probability that information acquired through sampling will reflect actual conditions. Reliability is rated as high, moderate, or low.

MONITORING AND EVALUATION

Information Collection Frequency

Specifies the minimum collection intervals expressed as given time periods.

Report Period

The minimal time interval for reporting.

Management Responsibility

Person who has responsibility for compilation of information at the Forest level. Actual data collection may be the responsibility of Forest Staff or District Rangers.

Threshold of Variability

Threshold that triggers further investigation to determine the proper course of action.

Estimated Annual Cost

The approximate annual cost of accomplishing the monitoring tasks.

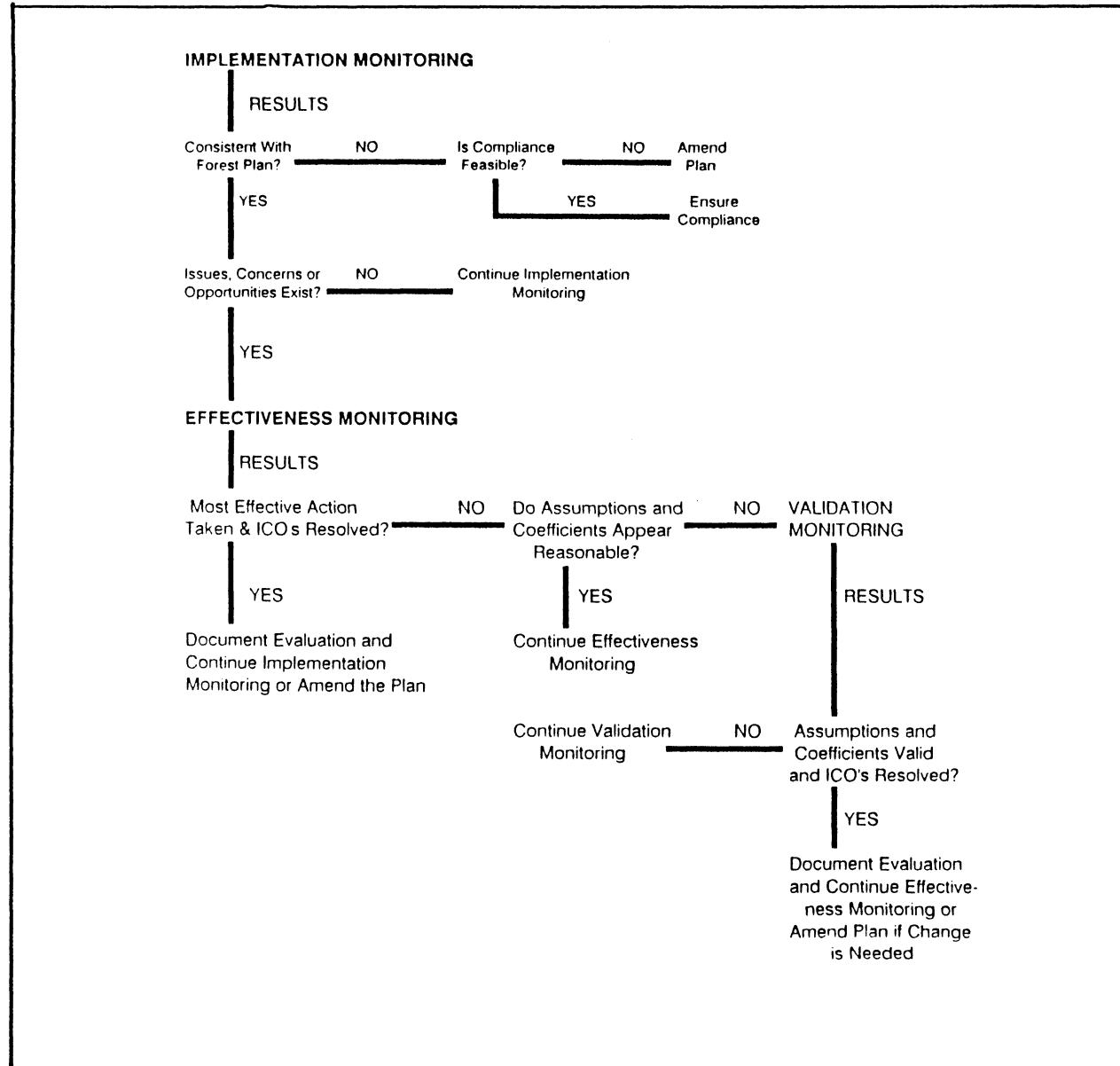
Figure V-3. Evaluation of Monitoring Results for Forest Plan Implementation

Table V-M01 Monitoring Questions - Standards and Guidelines

QUESTION: Are Forest Plan standards and guidelines (Forest-wide and for each Management Area) being incorporated into project level planning and decisions?

Discussion - The Forest Plan standards and guidelines provide direction for project level planning that is intended to result in an overall desired condition of resources over time. They should be used so that all resources and issues are considered in an interdisciplinary process. They provide the limits within which project analysis should normally occur. Long term, cumulative deviations from this direction will result in different resource conditions than those projected in the Forest Plan.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are Forest Plan S&Gs being adequately followed in project level planning?	Application of S&Gs in project planning.	An interdisciplinary team review the planning process and documents for one large project per District per year.	Deviations from specific S&Gs	Good	Annually	Annually	Planning Staff	Any single deviation that may effect the implementation decision, or cumulative project deviations of 2 or more.	\$25,000
Are the Forest Plan S&Gs as applied in project execution resulting in, or making reasonable progress towards, the overall, cumulative resource conditions that were envisioned in the Forest Plan?	Resource Conditions	Five year check of resource conditions resulting from the projects reviewed earlier.	Deviations from desired results	Good	5 Years	5 Years	Planning Staff	Any significant deviations from desired results	\$20,000

Table V-M02 Monitoring Questions - Cultural Resources

QUESTION: Are cultural resources (CR) being managed and protected according to the Plan's Standards and Guidelines?

Discussion - A variety of federal laws and regulations require the protection by management of significant cultural resource values (prehistoric and historic site) and full consideration of modern ethnic concerns in their management, particularly those of American Indian Tribes. Monitoring provides information to determine whether the Forest is complying with this legislation at 3 levels: (1) project, (2) resource, and (3) public interest/involvement.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are cultural resource sites being "condition" checked and maintained on a regular basis?	Damages to significant sites.	Field Inspections	Change in site conditions	High	Annually	Annually	Recreation Staff	5% or more of sites show significant condition change from previous year.	\$14,000 (\$2,000 per District)
Are significant (National Register eligible) historic buildings being maintained, stabilized, and repaired according to historic preservation standards?	Condition of all significant structures.	Field inspection	National Register of Historic Places guidelines	High	2 years	2 years	Recreation Staff	Significant resource change noted.	\$4,000

Table V-M02 (Continued). Monitoring Questions - Cultural Resources

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are public values, including those of American Indians, an active part of cultural resource management and planning?	Public involvement in cultural resource management	Sample review of project planning documents to determine the extent of public contacts with historical societies and Indian tribes.	Variety of contacts.	Moderate	2 years	2 Years	Recreation Staff	Failure of at least 50% of documents to identify involvement.	\$1,000
Are the cumulative effects of Forest project activities in cultural resources being tracked and studied?	Condition of sites after project activity	Sample comparison of site conditions in relation to the management prescription and protection measures.	Site conditions	High	3 years	3 Years	Recreation Staff	25% of sites in degraded condition in relation to protection intent stated in EA's and management plan.	\$1,000

Table V-M03 Monitoring Questions - Wilderness

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

Discussion - Wilderness management features naturalness, opportunities for solitude, challenge, and inspiration. It accommodates a wide range of uses such as recreation, scenic, scientific, educational, conservation, and historical as well as other nonconforming uses permitted by the Wilderness Act.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are Wilderness Resource Spectrum (WRS) class settings consistent with the standards and guidelines for Wilderness management?	Conditions of physical, social, and managerial settings of each WRS class.	Annual field observation of heavy use areas and travel routes during peak season of use. Sample field observation at other times. Limits of acceptable change (LAC) assessments.	Acres not meeting established standards by WRS class.	High	Annual	2 years	Recreation Staff	When LAC are exceeded, Forest Plan standards are not being met or a downward trend in conditions is observed by WRS class.	\$32,000
Are Wilderness use levels within the limits established for management plans for each WRS class.	Use levels of specific areas by WRS class.	Use permit, visitor registration, Recreation Information PAOTs Management (RIM) use reports, annual field observation during peak season of use.	RVDs PAOTs	High	Annual	2 years	Recreation Staff	When actual levels exceed capacity established for WRS classes by Wilderness management plans or a downward trend in Wilderness quality is determined.	\$65,000

Table V-M04 Monitoring Questions - Wild and Scenic Rivers

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

Discussion - Federal law mandates the protection of outstandingly remarkable values of eligible, study, and designated Wild and Scenic Rivers at the river class for which they qualify.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
For eligible and study rivers, are we assuring that attributes for potential classification for Wild & Scenic River designation are maintained? For designated Wild and Scenic Rivers, are the remarkable and other values being protected as consistent with the Wild and Scenic Rivers Act?	Effects of activities on attributes for potential classification of eligible and study river segments. Effects of activities on outstandingly remarkable values of designated rivers.	Project review on all actions involving vegetation, soil, and scenery manipulation/alteration.	Acres within river corridor not meeting desired attributes	High	Annual	3 years	Recreation Staff	When activities would lower actual or potential classification of the river segment	\$2,000
Have management plans been written for designated Wild and Scenic Rivers?	Completion of management plans	Review of management plans for designated rivers.	Management Plans	High	Annual	Annual	Recreation Staff	Management Plans not completed	\$1,000
Have there been any changes in the designation status of eligible and study rivers?	Changes to status	Review of decisions changing status.	Status changes of each eligible and study river.	High	Annual	Annual	Recreation Staff	Any change in status	\$1,000

Table V-M05 Monitoring Questions - Recreation: Roadless Areas and Other Unroaded Lands

QUESTION: Are Roadless Areas and other unroaded lands being maintained in an undeveloped condition as provided for in Forest Plan management?

Discussion - Roadless Areas and unroaded lands are the source areas for potential wilderness and semiprimitive recreation experiences and therefore are of significant interest to many public groups. Some of these areas are also reservoirs of standing old growth timber and varied wildlife habitats.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are the remaining acreages and number of inventoried Roadless Areas consistent with Forest Plan direction and projections?	Acres remaining in roadless condition (greater than or equal to 5000 acres and any size if contiguous to an established wilderness).	Review of project documentation for timber harvest, road construction, or other land disturbing activities.	Acres and number of areas.	High	2 Years	Annually	Recreation Staff	When planned actions would result in an area less than 5000 acres in size.	\$1,500
Are the remaining acreages and numbers of other unroaded areas consistent with Forest Plan direction and projections?	Acres remaining in an unroaded condition (greater than or equal to 2000 acres).	Review of project documentation for timber harvest, road construction, or other land disturbing activities.	Acres and numbers of areas.	High	2 Years	Annually	Recreation Staff	When planned actions would result in an area less than 2000 acres in size.	\$1,000

Table V-M06 Monitoring Questions - Recreation: Recreation Opportunity Spectrum (ROS) Settings

QUESTION: Are physical/environmental, social, and managerial conditions for dispersed ROS settings being planned for a wide range of activities consistent with public demand?

Discussion - A broad spectrum of dispersed recreation opportunity settings are provided in response to projected public demand. It is essential to determine that these settings are planned, maintained, and managed in a condition to satisfy this demand.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are activities used for the removal of resource products or the actions taken to accommodate or control human use in ROS class settings being conducted in accord with management standards and guidelines?	Deviation from ROS class standards.	Review of proposed project development and management actions, and field review of project accomplishment by management area.	ROS class setting indicators.	High	Annually	Every 3 years.	Recreation Staff	Failure to meet standards and guidelines for physical, social, or managerial ROS class setting indicators.	\$3,200

Table V-M07 Monitoring Questions - Recreation: Visitor Use

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

Discussion - The allocation of capital and resources to provide for future use of recreation opportunities depends on accurate information/data regarding public use trends activities and preferences.

Evaluation Question	Measured Action/Effect	Method	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are projected rates of increase in recreation visitor day use for dispersed Recreation Opportunity Spectrum (ROS) areas, trails, and developed recreation settings being realized?	Amount of reported or actual use by activity by dispersed and developed ROS settings, including trends.	Recreation Information Management (RIM) use reports and other valid sample methods.	RVD's	Moderate	Annually	3 years	Recreation Staff	For dispersed settings: when reported or actual use exceeds practical capacity or averages below 10% of practical capacity over a 3 year period for individual semiprimitive areas. For individual developed sites: when reported or actual use exceeds 60% of theoretical capacity or averages less than 10% of practical capacity over a 3 year period.	\$7,400

Table V-M08 Monitoring Questions - Scenic Resource

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

Discussion - To provide visually attractive landscapes for Forest visitors and also carry on resource management activities, visual quality objectives (VQOs) are established in the Forest Plan. Monitoring whether activities meet the VQOs individually and cumulatively determines how well the visual resource is being managed.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are the effects of individual landscape alterations consistent in design and implementation with the scenic quality standards for each management area?	Visual effects of projects which alter the landscape.	Sample or simulations of proposed projects. Review of project EAs. Field review of completed project.	VQO criteria.	High	Annual	3,6, & 9 years.	Recreation Staff	When any alteration fails to meet VQO of a management area.	\$24,000
Are the cumulative effects of all management activities that might physically alter the landscape consistent with the VQOs in the Forest Plan?	Cumulative effects to the visual resource over time.	Field observation. Inventory and analysis of viewshed conditions. Photo control points.	Summary viewshed ratings for VQO objectives.	High	Every 3 years.	3,6, & 9 yrs.	District Ranger, Recreation Staff	When planned or actual rates of harvest exceed standards and guidelines. When alterations fail to meet VQO of a management area.	\$2,000

Table V-M09 Monitoring Questions - Recreation; Special Areas

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

Discussion - Many special areas (Special Interest Areas (SIA's), Old Growth Groves (OGG's), Oregon Cascades Recreation Area (OCRA), and Hardesty Mt. Ecological Area) are designated for protection, but also provide for human use and enjoyment of their special qualities. They are, however, vulnerable to the affects of over use, unauthorized activities, and the influences of adjacent management.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are actions used to accommodate and manage human use of SIAs, OGGs and the OCRA employed in a manner to maintain and protect the special attributes of these designated areas, as specified by management area standards and guidelines and specific management guides?	Deviations from Recreation Opportunity Spectrum (ROS) class standards or Limits of Acceptable Change (LAC) standards.	Review of proposed management actions and field review of project accomplishment by individual area.	ROS setting indicators or limits of acceptable change.	High	20% of designated areas annually	Every 3 years	Recreation staff	Failure to meet standards and guidelines for ROS class indicators or LAC.	\$2,200

Table V-M10 Monitoring Questions - Recreation: Trails

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

Discussion - Protection and maintenance of trail facilities and trail environments is a major concern with the public.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are project management activities consistent with standards and guidelines for trail management classes?	Deviation from trail management class and trail maintenance class standards.	Review of prepared project plans. Field reviews of project accomplishments.	Miles of trail management class and maintenance class indicators.	High	Annually	Annually	Recreation Staff	When management activities are inconsistent with trail management class and or maintenance, reconstruction or construction standards and guidelines.	\$4,000
Is trail construction and reconstruction being accomplished as scheduled in the Forest Plan?	Miles of trail.	Review trail construction accomplishment reports.	Miles	High	Annually	Annually	Recreation Staff	25% downfall in predicted construction.	\$1,000

Table V-M11 Monitoring Questions - Developed Recreation

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

Discussion - Developed recreation sites should be designed to meet customer expectations of National Forest campgrounds, meet their technological needs, and interests. These sites should also be well maintained with facilities at or above standard condition, including the site protection and natural resources. A variety of development levels should be distributed throughout the Forest to meet customer interests, ROS experiences, and continue to provide a range of activities.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are the developed recreation sites provided by the Forest maintained to standards acceptable and expected by the recreating public?	Recreation visitor complaints or increased vandalism of facilities.	On-site questionnaires for visitor's use.	Facility condition	Moderate	Daily, summarize monthly	Annually	Recreation Staff	10% of the facilities in a site are in maintenance Class 3, or below 20% of the facilities in a site are in maintenance Class 2 or below.	\$6,000
	Incident reports of vandalism.	Number of vandalism incidents.	Low	With each incident	Annually	Administrative Officer	Consistent forms of facility/resource vandalism.		\$5,000
Are developed sites being used in a manner consistent with the site design purpose?	Type of recreation use matches site design and setting.	Visual observations by FS personnel and random surveys by site.	Amount of use in each site design	Moderate	Seasonally	Annually	Recreation Staff	Site is being used more than 30% of the time by the wrong type of user.	\$3,000

Table V-M11 Cont. Monitoring Questions - Developed Recreation

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are the range of sites provided and distributed throughout the Forest consistent with customer's preference and use trends?	Degree of overuse in some areas and underuse in other geographic areas.	User surveys, visual observations, marketing surveys.	Site use figures.	Moderate	Annually	Annually	Recreation Staff	20% of the sites are overused and/or 40% of the sites are underused.	\$3,000

Table V-M12 Monitoring Questions - Recreation Off-Road Vehicle (ORV) Use

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

Discussion - ORV areas should provide opportunities for the ORV enthusiast which are safe for all users and nonusers, and do not harass wildlife or degrade wildlife habitat or other natural resource environs.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are quality ORV opportunities provided in areas which are suitable for ORV use and the needs, skills, and interests of users?	Use of provided areas.	Market survey visitor counts.	ORV- RVD's	Moderate	Monthly	Annually	Recreation Staff	30% of the ORV developed sites or areas are used less than 40% of the time.	\$4,000
Are the ORV opportunities provided effective in minimizing conflicts between user groups and safe for users and the general public?	Conflicts between users	Accident/incident reports.	Number and type of accidents	Moderate	Monthly	Annually	Administrative Officer	3 accidents/ quarter per ORV area.	\$2,000

Table V-M12 Cont. Monitoring Questions - Recreation Off-Road Vehicle Use

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are the ORV opportunities provided in locations which minimize harassment of wildlife, degradation of their habitats, or other resource damage?	Wildlife population trends	Population surveys.	Population of key species.	Low	Annually	Annually	Wildlife Staff	10% reduction in key wildlife species.	\$2,000
	Vegetation changes.	Photo points and vegetation mapping.	Ground cover disturbed.	Low	Annually	Annually	Forest Recreation Staff	10% overall loss of cover due to ORV use.	\$2,000

Table V-M13 Monitoring Questions - Anadromous Fisheries**QUESTION:** Are predictions of maintaining or improving outputs of steelhead and chinook valid?**Discussion -** The FEIS predicts that outputs of winter steelhead and spring chinook will increase during the next decade as a result of riparian management practices and stream rehabilitation projects.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are winter steelhead and chinook smolt numbers increasing in proportion to the number of adults?	Changes in smolt production and survival.	Cooperative effort with ODFW to determine total changes in smolt numbers, and to determine effects of land disturbing practices on reproduction and survival.	Number of smolt, survival of smolt	Moderate	Annually	Annually	Wildlife Staff	Decrease of trends in ratio of smolt to adult escapement.	\$75,000

Table V-M14 Monitoring Questions - Riparian Aquatic habitat & Streambank stability (Effectiveness)

QUESTION: Are Standards and Guidelines for Water Quality and Riparian Areas effective in maintaining or enhancing stream conditions and aquatic habitat?

Discussion - The Standards and Guidelines provide direction to enable the Forest to meet the goals of maintaining or improving stream condition and aquatic habitat, including habitat for Management Indicator Species, resident and anadromous salmonids. The Forest's ability to meet the goals depends on the effectiveness of S&Gs for Water Quality (including cumulative effects) and riparian areas in maintaining stable, diverse habitat.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability Estimated Annual Cost
Are S&G's effective in maintaining or enhancing the following: Existing and future inputs of Large Woody Material; Volume and area of primary pools; Substrate suitable for spawning; Streambank stability; Fish populations; macroinvertebrates.	Changes in quality and quantity of aquatic habitat and streambank stability, fish populations, and indicator macroinvertebrates.	Extensive surveys of fish bearing streams. Intensive survey of representative reaches in sample subdrainages, repeating surveys 3 times in 10 years. Sample approximately 20 miles/year. Use Rapid Bioassessment Method for macroinvertebrates.	Large Wood material; Pool Volume and Area; % of substrate in fines or embedded; % of streambank stable; fish populations	Low	Annually	Annually	Wildlife staff	Decreasing trends in large woody material, pool volume; increasing trends in % fines in substrate, % of streambanks in unstable condition. Also, decreasing trends in resident fish population numbers. \$158,000

Table V-M15 Monitoring Questions - Wildlife (Bald Eagle)

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

Discussion - The bald eagle is a threatened species. Recovery objectives and management considerations are required under the *Pacific States Bald Eagle Recovery Plan*. Further guidelines have been developed in the *Working Implementation Plan for Bald Eagle Recovery in Washington and Oregon*. The Forest has existing and potential bald eagle territories within the Willamette Basin Recovery zone. These territories require protection and special management consideration.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability Estimated Annual Cost
Are all 24 known and potential nest sites protected in accordance with the Forest Plan?	Acres managed or protected for bald eagles	Field survey	Acres/site	High	Annual	Annual	Wildlife Staff	Any site not protected \$2,000/site/yr until completed
Have bald eagle management plans been prepared for all occupied territories, all newly discovered nest sites, and potential sites that have become occupied?	Management Plans	Document review	Plans completed	High	Within 3 years of plan implementation, or within 2 years of discovery.	Annual, or within 2 years of discovery.	Wildlife Staff	Any active nest or site not having a plan within 3 years of plan implementation or 2 years of discovery. \$5,000/plan; 75,000/yr
Have S&Gs been applied to all activities that might affect habitat in Management Area (MA) 8?	S&G compliance	Review of projects in MA 8.	# of projects within MA 8.	High	Annual	Annual	Wildlife Staff	Any project not in compliance. \$2,000
Are bald eagle numbers and habitat being maintained or increased on the Forest?	Population numbers in suitable habitat	Population surveys and habitat condition surveys in MA 8.	Eagles and acres	Moderate	Annual	Annual	Wildlife Staff	5% decline in population or loss of 5% nesting sites \$2,000

Table V-M16 Monitoring Questions - Wildlife (TE&S Plants)

QUESTION: Have populations of all threatened, endangered, and sensitive plants been inventoried, and are these plant populations being maintained at viable levels?

Discussion - No forest-wide inventory of TE&S plant species has been completed. No known federally listed T&E plants occur on the Forest, however numerous sensitive species do occur and require special consideration and/or protection.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability Estimated Annual Cost
Are sensitive plant inventories being completed to determine the status/presence of populations in wilderness areas and other areas removed from timber harvest?	Inventoried acres	Field survey	Acres	Moderate	Annual	Annual	Wildlife Staff	20% of the no harvest acres are not inventoried within 5 years of Plan implementation \$30,000
Have sensitive plant inventories been conducted for all ground disturbing activities?	Projects with Proposed Endangered or Threatened Species (PETS) Biological Evaluations	Project review	Number of project plans with BE's.	High	Annual	Annual	Wildlife Staff	5% of projects reviewed without Biological Evaluation. \$2,500
Has the Forest established a "Monitoring Watch List" identifying plant species that are rare, unusual, or of special concern?	Monitoring watch list established	Review data base	Watch list published	Moderate	Annual	Annual	Wildlife Staff	A "no" answer to monitoring question \$500
Have protective measures implemented as part of project activities been effective in maintaining the integrity of sensitive plant populations?	Plant population retained and productive	Field survey to Regional Standards.	Sites maintained	Moderate	Every other year beginning with the second year of implementation	Every 2 years	Wildlife Staff	5% loss of protected populations \$15,000

Table V-M16 (Continued). Monitoring Questions - Wildlife (TE&S Plants)

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability Estimated Annual Cost
Have species management plans been prepared and have they been effective in guiding management activities to protect sensitive plant populations?	Species management Plan evaluation	Field review	Plans prepared & sites protected	Moderate	Every other year beginning with the 5th year of implementation	5 Years	Wildlife Staff	5% of sites protected using plan guides lose viability \$1,000

Table V-M17 Monitoring Questions - Wildlife (Northern Spotted Owls)

QUESTION: Is the population and habitat of Northern Spotted Owls on the Forest being maintained at the level predicted in the FEIS?

Discussion - The FEIS for spotted owls estimated the long-term capability of the Forest to be 227 pairs. Of these, 60 pairs are in SOHAs, 55 pairs are in reserved lands, and 112 pairs will occur on lands suited and available for timber harvest. To date 219 pair activity areas (HAc) have been identified with 60 pairs in SOHAs, 15 pairs on reserved lands, and 144 pairs in lands available for timber harvest. The Northern Spotted Owl is listed as a sensitive species in the *Regional Forester's Sensitive Species List, Threatened in the State of Oregon*, and is being considered for listing as a threatened species by the USFWS. Spotted owls are an ecological indicator for mature and old growth forest habitats. Monitoring of habitat conditions and spotted owl populations is needed because of the potential decline in habitat and species numbers.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability Estimated Annual Cost
Are SOHAs being maintained in the correct number, size, distribution, and quality of habitat to meet S&Cs?	Habitat composition, #, size	Field surveys of all SOHAs within 3 years of plan implementation (est. 20/year)	SOHA, acres of suitable habitat	High	Annual	Annual	Wildlife Staff	5% of acres allocated per SOHA \$40,000
Is the Forest maintaining capability to support the number of pairs of spotted owls within reserved lands, general Forest, and SOHAs as estimated in the R-6 Guide?	Pairs of spotted owls (HACs)	Banding, field survey	Pairs	Moderate	25% of HACs outside SO-HAs annually	Annual	Wildlife Staff	A "no" answer to this monitoring question \$50,000
Are the number of spotted owl pairs in the Forest SOHA network increasing or maintaining?	Owl pairs	Field survey	# owl pairs	High	Annual	Annual	Wildlife Staff	5% decline in pair occupancy from current condition within any 3-year period \$100,000
Are SOHAs with verified pairs producing young at least once every 3 years?	Reproductive	Field survey	# pairs with young	High	Annual	Annual	Wildlife Staff	5% decline in nesting success Included above

Table V-M17 (Continued). Monitoring Questions - Wildlife (Northern Spotted Owls)

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability Estimated Annual Cost
Is the total number of young produced in the SOHA network increasing or at least remaining constant?	# fledged owls	Field survey	# young owls fledged	High	Annual	Every 3 years	Wildlife Staff	5% decline in young produced on 3 year average Included above

Table V-M18 Monitoring Questions - Wildlife (Peregrine Falcon)

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

Discussion - Peregrine falcons are an Endangered species in the Pacific Northwest. Recovery objectives require the establishment and maintenance of two pairs of peregrine falcons in the Cascades breeding management unit. Twelve potential nest sites have been inventoried on the Forest. There has been no attempt to reintroduce pairs.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability Estimated Annual Cost
Has all suitable nesting habitat been validated on the Forest?	Habitat availability	Field surveys ODFW & USFWS survey data	# Sites validated	Moderate	Once within 3 years	3 years after Plan implementation	Wildlife Staff	Any sites not validated. \$5000
Have the identified potential nest sites been surveyed for falcon activity or nesting?	Falcon Activity	Field Survey	Sites	Moderate	Annually	Annual	Wildlife Staff	10% of site not surveyed \$1,000/site; \$12,000 /year
Have management plans been prepared for each nest site?	Site plan	Review	Plans	High	Within 1 year of nest site discovery	2 years after site discovery	Wildlife Staff	Noncompliance with required preparation of management plan \$5,000/plan
Have Peregrine Falcons begun to use these sites and maintain a stable population?	Site use	Field surveys of ODFW & USFWS survey data	# Falcons	High	3 Years	3 Years	Wildlife Staff	Any occupancy of a site \$2,000

Table V-M19 Monitoring Questions - Wildlife (Primary Cavity Excavators)

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

Discussion - Primary cavity excavators are those bird species that excavate nest and roost cavities. Numerous species of birds and mammals are dependent on these cavities for nesting and denning and are referred to as secondary cavity users. On the Forest, two species of primary cavity excavators are used to represent the habitat requirements for all species dependent on snag habitat.

Evaluation Question	Measured Action/Effect	Method	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability Estimated Annual Cost
Are the number, sizes, species, and distribution of wildlife trees prescribed in the EAs and prescriptions being left on harvest units?	Snags and distribution	Field survey	# units meeting prescription	High	Annual	Annual	Wildlife Staff	10% of harvest units not meeting EA prescription \$70,000
Are wildlife trees retained on harvest units being used by primary excavator and secondary cavity nesting species? Are populations of primary excavators at the predicted levels?	PCE use of snags/snag decay rates	Field survey of managed stands retaining snags	# snags with PCE activity	High	Every other year beginning with the 3rd year of implementation	2 Years	Wildlife Staff	10% of trees being retained not used by PCE \$4,000
Are the existing snags and replacement trees standing and remaining suitable for the predicted length of time?	Decay classes of snags and number of replacements available.	Field survey of managed stands retaining snags.	number snags/ acre in Class I-III, number of replacements available per acre.	High	Once every 3 years	5 years	Wildlife Staff	20% of units without prescribed number of snags and replacement trees. \$6,000

Table V-M20 Monitoring Questions - Wildlife (Marten & Pileated Woodpeckers)

QUESTION: Is there an adequate amount, quality, and distribution of mature or old-growth forests to maintain viable populations of species dependent on this successional stage of forest habitat?

Discussion - Marten and pileated woodpeckers have been selected as ecological indicator species. As ecological indicator species, marten and pileated woodpeckers represent numerous wildlife species that are dependent on the vegetation attributes of older forests including large trees, snags, down logs, and closed forest canopies.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability Estimated Annual Cost
Have marten and pileated habitat areas been provided in patterns maintaining three directional links to other habitat areas or mature/old-growth habitats (160 acres for marten and 300 acres for pileated woodpeckers) at maximum distances of 3 miles for marten habitat areas and 5 miles for pileated habitat areas?	Habitat distribution	Map sample analysis	Distance	High	Once within 2 year of implementation, then every 5 years	2 years after implementation, then every 5 years	Wildlife Staff	10% of areas do not meet distribution
Does the habitat mapped for PWHAs and MHAs meet the definitions for mature/old-growth habitat?	Habitat quality	Field sample	Acres	Moderate	Once within 5 years; first sample within 2 years	5 year	Wildlife staff	10% of acres sampled unsuitable \$1,000
Are projects being implemented meeting the intent of the standards and guidelines for maintaining habitat conditions and security needed for dispersal, foraging, and reproduction?	S&G compliance	Project review	Number of projects meeting S&G's	High	Every other year	2 Years	Wildlife Staff	5% of projects not meeting S&G intent \$500

Table V-M20 (Continued). Monitoring Questions - Wildlife (Marten & Pileated Woodpeckers)

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are habitat areas occupied by martens and/or pileated woodpeckers? Are habitat areas providing habitat conditions that allow the species to reproduce successfully?	MHA & PWHA occupancy & reproduction by indicator species	Field survey	# habitat areas occupied by reproductive pairs	Moderate	50% of habitat areas every 3rd year, 1st year, 1st sample within 2 years of implementation	Every year of sampling	Wildlife Staff	10% of habitat areas not occupied by indicator species	\$30,000

Table V-M21 Monitoring Questions - Wildlife (Deer & Elk)

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

Discussion - Roosevelt elk and blacktailed deer are important game species on the Forest. Habitat effectiveness for elk is assumed to provide similar habitat quality for deer. Potential population indexes for deer and elk are used to assess relative habitat conditions and objectives with low, moderate, and high emphasis management areas.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability Estimated Annual Cost
Are projects being implemented to achieve the habitat effectiveness values as predicted in the Forest Plan?	Habitat improvement projects implemented	Field check 25% of projects with habitat improvement projects proposed	Projects implemented	High	Every other year starting with the 3rd year of implementation	Each year sampled	Wildlife Staff	5% of prescribed projects not implemented within 2 years of timber sale completion \$3,000
Are habitat improvements (road closures, forage enhancement, and unit distribution) increasing the use of management areas by deer and elk?	Increased elk and deer use	Comparison of elk use of improved vs. unimproved areas	Deer and elk use	Moderate	Every other year starting with the 5th year of implementation	5th, 7th, & 9th year	Wildlife Staff	10% of emphasis areas without predicted response \$9,000
Are deer and elk population densities maintained at the index values estimated for the three levels of management emphasis?	Population estimate	Winter post hunting counts within high, moderate, and low areas (with ODFW)	# deer & # elk	Low	3rd, 5th, & 7th year	4th, 6th, & 8th year	Wildlife Staff	±20% of potential population index for sample area \$5,000

Table V-M22 Monitoring Questions - Timber Suitability

QUESTION: Has the suitable land base changed?

Discussion - The ability of the Forest to provide the ASQ in this Plan is contingent on the land base classed as suitable for timber production. Only lands determined to be suitable for timber production should be harvested to meet the planned outputs. Area analysis during project planning may reveal that more or fewer acres are needed to meet resource protection levels or objectives for other resources. Major trends in changes of land suitability may indicate the need to recalculate the ASQ. Also, NFMA regulations require that the lands identified as not suited for timber production be evaluated every ten years to determine if the land has become suited.

Evaluation Question	Measured Action/Effect	Method	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability Estimated Annual Cost
Are lands identified as not suitable for timber production still unsuitable and those identified as suitable for timber production still suitable?	Changes in the classification of suited/available land base.	Identify changes in suitable land by re-evaluating suitability (TRI/GIS).	Acres	High	5 years	5 years	Timber Staff	5% change in suited land base \$2,000
Have cumulative changes to allocations caused changes to total suitable acres?	Changes in mapping	Correct base to reflect changes in acres of stream buffers, vegetation leave areas, etc., identified during project planning to meet Standards and Guidelines.	Acres	High	Ongoing	2 years	Timber Staff	5% change in suited land base \$4,000

Table V-M23 Monitoring Questions - Timber Program

QUESTION: Is the timber sale program quantity/quality comparable to the planned level?

Discussion - The amount and species of timber harvested is a major issue with most people interested in the management of the Forest. The ASQ in this Plan was developed to meet the demand for wood products while avoiding adverse impacts to fish and wildlife habitat and other important Forest resources.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Is the number of acres of programmed timber sold similar to the predicted amount?	Number of regeneration acres, or equivalent, sold.	Measure with STARS, TSA, and TRACS. Tracked on TRI/GIS.	Acres	High	Annual	Annual	Timber Staff	Deviation of 10% from predicted amount annually, 5% for the decade.	\$1000
	Number of commercial thinning acres sold.	Measure with STARS, TSA, and TRACS. Tracked on TRI/GIS.	Acres	High	Annual	Annual	Timber Staff	Deviation of 10% from predicted amount annually, 5% for the decade.	\$500
Is the volume of programmed timber sold similar to the predicted amount?	Volume sold	Measure with STARS, TSA, and TRACS.	MMBF/MMCF	High	Annual	Annual	Timber Staff	Deviation of 10% from predicted amount annually, 2% for the decade.	\$1000
Is the number of acres of programmed timber sold by working group, distributed as planned?	Distribution by working group.	Measure with STARS. Track by TRI/GIS.	Acres	High	Annual	Annual	Timber Staff	Deviation of 15% from predicted amount.	\$1000

Table V-M23 (Continued). Monitoring Questions - Timber Program

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability Estimated Annual Cost
What is the actual rate of harvest on the less than full yield allocations (e.g., 5, 7, 10, 12% per decade allocations)?	Acres of equivalent acres of timber sold within less than full yield allocations.	Measure with STARS, Track with TRI/GIS.	Acres	High	Annual	5 years	Timber Staff	Deviation of 25% in any category at five-year reporting period.
Is uphill falling being implemented as directed in Standards and Guidelines and are effects as predicted?	Use and effectiveness of uphill falling standard.	Sample one sale per District per year for compliance and effects to establish predicted versus actual defect and breakage.	MMCF	Moderate	Annual	5 years	Timber Staff	Deviation of 10% from predicted.

Table M-24 Monitoring Questions - Silvicultural Practices

QUESTION: Are silvicultural practices outlined in Standards and Guidelines being implemented as planned?

Discussion - Maintaining non-declining flow and sustained yield of timber requires maintenance of stand growth at the levels predicted in the Plan. This will require attainment of the prescribed intensive silvicultural treatments.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability Estimated Annual Cost
Is stocking being established and maintained at recommended levels and timeframes?	Acres regenerated by "years to accomplish."	Annual reforestation survival report and TRACS. Tracked on TRI/GIS.	Acre	High	Annual	Annual	Timber Staff	10% deviation in decadal total. \$316,000
Are managed stands being maintained at the prescribed stocking levels?	Acres precommercially thinned.	TRACS. Tracked through TRI/GIS.	Acre	High	Annual	Annual	Timber Staff	Deviation of 10% from projected acres. \$500
	Change in the amount of understocked acres in managed stands.	Acres of understocked areas identified through random sampling of stocking surveys.	Acres	Moderate	5 years	5 years	Timber Staff	10% deviation in base level. \$1000
Is growth response to intensive management practices similar to predicted amounts?	Growth and yield of managed stands.	Managed stand plots (in conjunction with the Regional Office).	Cubic foot growth per acre, stand BA	Moderate	2 years	10 years	Timber Staff	Deviation of 10% from projected growth and yield. \$5000
Is the need for release being prevented or completed according to silvicultural prescription?	Prescribed release accomplished.	TRACS. Tracked through TRI/GIS.	Acres	High	Annual	2 year	Timber Staff	Deviation of 10% of cumulative years needs. \$1000

Table V-M24 (Continued). Monitoring Questions - Silvicultural Practices

Evaluation Question	Measured Action/Effect	Method	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability Estimated Annual Cost
Is fertilization being accomplished according to Standards and Guidelines?	Acres fertilized	TRACS. Tracked through TRI/GIS	Acres	High	Annual	2 year	Timber Staff	Deviation of 10% of cumulative years needs. \$1000
Is genetically improved planting stock utilized as planned?	Compare planned to actual usage.	TRACS.	Acres	High	Annual	2 year	Timber Staff	Deviation of 10% of cumulative year planned. \$1000
Are created openings within established maximum size limits and are the size limits meeting objectives?	Size of created openings. Number and nature of requests for variance review.	STARS and review requests to Regional Office. Tracked through TRI/GIS.	Acres	Moderate	Annual	5 year	Timber Staff	10% of harvest units exceed 60 acres. 5% of programmed acres require Regional Office review for opening size variance. \$500
Are destructive insects and disease organisms below potentially damaging levels?	Extent of outbreaks and infestations.	Regional aerial surveys to District reporting.	Acres by pathogen	Moderate	Ongoing	Annual	Timber Staff	5% of total Forest acres above endemic levels. \$1000
Are Phellinus areas being adequately identified and properly restocked after management?	Phellinus areas restocked with resistant species.	Field survey tracked through TRI/GIS.	Acres	High	Annual	2 years	Timber Staff	Less than 70% being regenerated with resistant species. \$1000

Table V-M25 Monitoring Questions - Effectiveness (Turbidity)

QUESTION: Are Standards and Guidelines for Water Quality effective in providing water which meets Water Quality Standards for turbidity?

Discussion - The Standards and Guidelines provide direction to enable the Forest to meet the goals of maintaining or improving water quality. The Forest's ability to meet the goals depends on the effectiveness of S&Gs for Water Quality (including Best Management Practices) to minimize increases in turbidity and temperature.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability Estimated Annual Cost
Are S & Gs effective in meeting State Water Quality Standards for turbidity?	Increases in Turbidity (NTU's).	Collect data on turbidity and flow, and sample macroinvertebrate indicators in sample subdrainage tributaries and mainstem streams. Several subdrainages will have 2 sample sites for above/below comparisons. Assess as described in A budget analysis of turbidity and streamflow data.	Turbidity /flow ratios.	Low	Turbidity Flow data will be collected with increasing frequency during high flows between October and March.	Data reports annually; analysis reports every 3 years.	Soil & Water Staff.	Turbidity/flow ratio indicates increases in turbidity. 1st year - \$80,000; Following years - \$50,000

Table V-M26 Monitoring Questions - Effectiveness (Water Quality - Temperature)

QUESTION: Are Standards and Guidelines for water quality effective in providing water which meets Water Quality Standards for temperature?

Discussion - The Standards and Guidelines provide direction to enable the Forest to meet the goals of maintaining or improving water quality. The Forest's ability to meet the goals depends on the effectiveness of S&Gs for Water Quality, (including Best Management Practices) to minimize increases in turbidity and temperature.

Evaluation Question	Measured Action/Effect	Method	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability Estimated Annual Cost
Are Standards and Guidelines effective in meeting State Water Quality Standards for temperature?	Increases in Temperature.	Collect Temperature data in sample subdrainages and Watersheds. Several subdrainages will have 2 sample sites for above/below comparisons.	Temperature	Moderate	Annually, between July 15 and October 15.	Data reports annually; analysis reports every 3 years.	Soil & Water Staff	Increasing temperature trends, temperatures in excess of State numerical standards.

Table V-M27 Monitoring Questions - Effectiveness (Peak Flows)

QUESTION: Are timber harvest schedules effective in minimizing detrimental increases in peak flows?

Discussion - Peak flows may increase due to openings created in the transient snow zone. The potential damage from increased peak flows are assumed to be mitigated through cumulative effects standards.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability Estimated Annual Cost
Are increases in peak flows occurring in subdrainages?	Increases in peak runoff during rain-on-snow storms.	Monitor flow, snow depth, temperature in approximately 10 sample subdrainages. -Comparisons of before and after harvest, and between subdrainages.	Cubic feet/ sec.	Low	Annually	Data reports annually, analysis reports every 3 years.	Soil & Water Staff.	Significant increase in flows during rain-on-snow events.
If increases in peak flows occur, are they having detrimental effects on stream condition?	Changes in channel characteristics.	See "Effectiveness (Riparian Aquatic Habitat & Streambank Stability)," Table V.M14						\$50,000 (includes \$26,000 for USGS stations).

Table V-M28 Monitoring Questions - Effectiveness (Riparian Terrestrial Habitat)

QUESTION: Are Riparian S&Gs effective in meeting Forest Goals for terrestrial riparian resources?

Discussion - The Standards and Guidelines provide direction to enable the Forest to meet the goals for riparian areas. These goals are to provide 1) 100% of potential populations of primary cavity excavators, 2) optimal thermal cover for deer and elk, 3) input of Large Woody Material to the stream, 4) full floodplain functioning, 5) dispersal of interior species across the landscape, 6) habitat for riparian dependent plant and wildlife species. The Forest's ability to meet the goals depends on the effectiveness of S&Gs for Riparian Areas.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are Riparian Areas providing for; 1.) 100% of potential populations of primary cavity excavators? 2.) Optimal cover for deer and elk? 3.) Input of Large Woody Material to streams, 4.) Full floodplain functioning, 5.) Corridors for dispersal of interior species? 6.) Riparian dependent plant and wildlife species?	Changes in quality of Riparian plant and wildlife habitat.	1.-4.) Field sample approximately 25% of stream length affected by project work before and after projects. This is approximately 25 miles per year (12.5 miles affected Annually 5.) Evaluate percent of watershed connected by riparian corridors by examining project planning records. (See Soil and Water Implementation Monitoring). 6.) Inventory of riparian dependent species by research.	1.) Number of snags. 2 & 3.) Feet or meters. 4.) Percent of floodplains included in riparian areas.	Low	Annually	1.) Annually; 2.) Every 5 years; 3 & 4.) Annually; 5.) Every 5 years.	Soil & Water Staff.	1.) A decrease of 10% of riparian areas in less than 100% snag levels. 2.) A decrease of 10% of riparian areas in winter range of High or Medium Emphasis Areas not used for optimum cover. 3.) A decrease in input of Large Woody Material below averages shown in Riparian Field Guide. 4.) A decrease in 10% of floodplain functioning. 5.) An increase of 5% in riparian fragmentation within a 5 year period.	\$12,000

Table V-M29 Monitoring Questions - Validation (Hydrologic Recovery)

QUESTION: Are the modeling tools of the Cumulative Effects Standards and Guidelines valid?

Discussion - FORPLAN estimates of outputs included a constraint to model the "Recommended ARP" that may be used as a project level BMP. The modelling tool is "Midpoint ARP". The differences between Recommended ARP and Midpoint ARP may cause an overestimation or underestimation of acres which can be harvested.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are Midpoint ARPs a valid representation of the Recommended ARPs?	Difference in acres programmed to be available for harvest at the project level, and the planning level.	Review project planning records to determine the number of acres in a subdrainage being harvested, and whether they are limited by Recommended ARP. Compare these acres with those modelled in the FORPLAN sidemodeL, Spatial Disaggregation Process (SDP). Coordinate this review with Soil & Water Implementation review.	Acres	Low	Annually.	Data reports annually; analysis reports every 3 years..	Soil & Water Staff.	5% increase or decrease in the number of acres shown as available in SDP.	\$1000

Table V-M30 Monitoring Questions - Effectiveness (Lakes)

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

Discussion - The Standards and Guidelines provide direction to enable the Forest to meet the goals of maintaining or improving water quality and riparian conditions of lakes. The Forest's ability to meet the goals depends on the effectiveness of S&Gs for Water Quality and Riparian Areas.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
1.) Are S & G's effective in maintaining the chemical, biological, and physical characteristics in lakes surrounded by areas of timber management and/or intensive recreational use?	Increases in non-point pollution.	Sample lakes on the Forest, establishing permanent monitoring points within the lake-side management influence zones.	Specific to parameter being measured.	Low	Annually	Annually	Soil & Water Staff	Decreasing trend in quality.	\$13,000

Table V-M31 Monitoring Questions - Effectiveness - Wetlands

QUESTION: Are Standards and Guidelines for riparian areas and water quality effective in maintaining beneficial values of small wetlands?

Discussion - Small wetlands provide unique habitats and clean water. The Clean Water Act mandates mitigation of wetland loss. This mitigation will occur through implementation of the Standards and Guidelines.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are management practices maintaining aquatic invertebrates, vegetation, and water quality in representative small wetlands?	Changes in biotic communities, water characteristics, wetland functions and values.	A sample of small wetlands near areas of management activities, as described in "Guidelines for assessing the biotic communities of freshwater wetlands" (Brooks & Hughes 1986),	Specific to parameter being measured.	Low	As in methods.	Data report annually. Analysis report every 3 years.	Soil & Water Staff	Decreasing trends of functions and values near areas of management activities.	\$20,000

Table V-M32 Monitoring Questions - Effectiveness (Mass Movement)

QUESTION: Are Standards and Guidelines for Water Quality effective managing Mass Movements to meet Forest Goals?

Discussion - The Standards and Guidelines provide direction to enable the Forest to meet the goals of maintaining or improving water quality, including using practices to ensure that mass movement does not decrease water quality. The Forest's ability to meet the goals depends on the effectiveness of S&Gs for Water Quality (including Best Management Practices) to manage mass movements.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are Standards and Guidelines effective in managing mass movement within Forest Goals?	Increases in mass movement due to management practices.	Critical sites of potential highly unstable land-types where management practices have occurred will be monitored across the Forest. These will be selected to represent a range of conditions and practices. Methods used will be specific to the site.	Number of projects	High	Annually	Annually	Engineering Staff	5% of projects do not result in desired conditions of the project.	\$50,000 the first 3 years; \$30,000 in following years.

Table V-M33 Monitoring Questions - Validation (Soil Mass Movement)

QUESTION: Are the FEIS predictions of mass movement valid?

Discussion - Predicted outputs of sediment in the FEIS were based largely on interpretation of aerial photographs. Additional verification of the rates of mass movement is needed to validate the predicted risk of environmental effects.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are the rates, magnitudes, and/or intensities of mass movement from both managed and unmanaged lands consistent with the historic levels and assumptions?	Mass movement of soils.	Aerial photo interpretation and ground verification of movement following storm events with a 10 year return frequency. Additional information on mass movements will be acquired through Road Damage Assessments.	Cubic yards / acre	Fair	Annually	Data reports annually; analysis reports every 3 years.	Soil, Water, Fish & Wildlife Staff	When average rates are determined to be 50% above or below those predicted in the FEIS.	\$15,000

Table V-M34 Monitoring Questions - Effectiveness (Soil Productivity)

QUESTION: Are Standards and Guidelines for Soil Productivity effective in maintaining soil condition and conditions for nutrient cycling?

Discussion - The Standards and Guidelines provide direction which enables the Forest to meet the goals of maintaining or improving soil productivity. The Forest's ability to meet the goals depends on the effectiveness of S&Gs.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are S&Gs effective in meeting Forest Goals for soil condition, erosion, and nutrient cycling?	Detrimental soil conditions.	Utilize a representative sample of the Forest with methods described in FSM 2520 R6 Supplement-50. Additional acres will be assessed based on visual estimates accomplished and documented during project monitoring.	Percent of area, large woody debris, duff retention, compaction	Moderate	Annually	Annually	Soil & Water Staff	More than 20% of soil in areas surveyed in detrimental conditions.	\$11,000

Table V-M35 Monitoring Questions - (Air Quality)

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

Discussion - Activities on the Forest lands must meet State Implementation Plan requirements for visibility, particulate emissions, and prescribed burning instructions issued daily by the Oregon State Forester. The visibility protection plan requires that any prescribed burning conducted on forest land between July 4 and Labor Day meet specific criteria. A large part of the Willamette valley and the city of Bend have been declared "Designated Areas." The objective of the Oregon Smoke Management Plan is to prevent smoke resulting from forest burning from being carried to or accumulate in Designated Areas or other areas sensitive to smoke.

Evaluation Question	Measured Action/Effect	Method	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Were there deviations from state smoke management plan requirements?	Compliance with daily smoke management instructions	Measured fuel loading data and fuel consumption modeling	Tons per acre and consumption	Moderate	Daily when prescribed burning	Annually	Fire Staff	When deviations occur without prior approval.	\$12,000
Were visibility standards for Wilderness Class I areas exceeded during the July 4 to Labor Day period as a result of management activities?	Approved activities conducted within parameters of smoke management instructions and visibility protection guidelines.	Visual monitoring by fixed and aerial methods.	Presence of smoke.	Low	Each prescribed burn project conducted during the summer period.	Annually	Fire Staff	When or if burning activities were planned regularly that cannot be accomplished due to air quality restrictions, or if intrusions occurred.	\$1,000
Did any reportable intrusions occur in designated or smoke-sensitive area?	Intrusions into designated areas	Evaluation of reports of intrusions into designated or smoke-sensitive areas	Number of intrusions	Moderate	When reports are received	Annually	Fire Staff	When 4 or more intrusions occur annually.	\$1,600

Table V-M36 Monitoring Questions - Fire Protection

QUESTION: Are fire protection objectives as outlined by standards and guidelines being achieved?

Discussion - Desired result is to provide fire protection capability.

Evaluation Question	Measured Action/Effect	Method	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are the acres burned by wildfire within the levels considered in the Plan?	Number and size of wildfires	Reports and surveys.	Acres	High	As fires occur	Annually	Fire Staff	When actual acres burned in any year is more than 50% of expected acres burned per decade	\$2,000

Table V-M37 Monitoring Questions - Fuels

QUESTION: Are fuel treatment guidelines as outlined by standards and guidelines being implemented as planned?

Discussion - Maintenance of acceptable level of fire hazard and prompt regeneration of harvest areas, while meeting standards for fuel loading and long-term site productivity, are objectives of the Plan.

Evaluation Question	Measured Action/Effect	Method	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Were fuel loading/distribution standards met on affected activity areas?	Adequacy of fuel loading and distribution.	Physical inventory or photo series comparison	Tons per acre for small size classes, pieces per acre for large wood.	High	Following completion of harvest for each project area.	Annually	Fire Staff	More than 10% of harvest exceed fuel loading and distribution standard.	\$50,000

Table V-M38 Monitoring Questions - Transportation

QUESTION: Is the transportation system meeting the planned resource objectives?

Discussion - Roads are designed and maintained to minimum standards required for safety of users, for intended uses and to meet all resource objectives for an area. The monitoring items will provide information about how well the proposed road program meets the Forest Plan objectives.

Evaluation Question	Measured Action/Effect	Method	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are planned projects and program targets being accomplished?	Project output.	ROADS (existing reports)	Miles	High	Annual	Annually and as needed	Engineering Staff	Accomplishments deviate more than 10% from Forest Plan targets over 3 years.	\$5,200
Are system roads meeting Plan objectives?	Roads open to passenger cars, roads suitable for high clearance vehicles, roads closed to vehicles, and Road Standards.	Roads accomplishment report (existing reports). Review Road Management Objectives.	Miles	High	Annual	Annually	Engineering Staff	Road system miles or standards deviates from Plan more than 10% over 3 years.	\$10,000
Are system roads meeting Plan objectives?	Roads removed from system, closed, and have vegetative cover reestablished.	Project review, annual report	Miles	Moderate	Annual	Annually	Engineering Staff	10% of roads not removed that are determined not to be needed on system or less than 10 miles in 3 years identified for removal.	\$10,000

Table V-M38 Cont. Monitoring Questions - Transportation

Evaluation Question	Measured Action/Effect	Method	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are treatments of temporary roads meeting Plan objectives?	Temporary roads closed and revegetated.	Project reviews Annual report	Miles	Moderate	Annual	Annually	Timber Staff	Temporary roads not closed and revegetated deviate from Forest Plan timeframes more than 10%.	\$10,000
What traffic volumes and characteristics are using the transportation system?	Number of vehicles by traffic type.	Field traffic surveillance.	Average daily traffic/ peak traffic volumes (number of vehicles by traffic type).	Moderate	Varies by site.	Annual	Engineering Staff	Mix of traffic and/or volumes deviate more than 10% from historical levels.	\$25,000

Table V-M39 Monitoring Questions - Research Natural Areas

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

Discussion - RNAs are established as preserves and sources for data. They are valuable for research and long-range monitoring of the status of minor components of ecosystems. Monitoring on RNAs serves two purposes: (1) to protect the value of the RNA as an ecological preserve and (2) to provide baseline data for monitoring the Forest's resources as well as for research and education.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Is management preventing or minimizing disturbance to the RNA?	Vegetation and habitat conditions.	Map and inventory vegetation and habitat factors.	Species composition, vegetation structure, spatial distribution.	Moderate	Annual	2 years	Planning Staff	Changes in vegetation greater than natural variability.	\$5000
Are more RNA's needed to serve as an ecological reference point for the Forest and scientific community?	Baseline data.	Review data base.	Data set for each RNA.	Moderate	Annual	2 years	Planning Staff	Unfilled need for baseline vegetation inventory and mapping.	\$750

Table V-M40 Monitoring Questions - Biological Diversity

QUESTION: Is biological diversity being maintained or enhanced on the Forest?

Discussion - Maintenance of biological diversity is required by NFMA (219.26, 219.3, and others).

Evaluation Question	Measured Action/Effect	Method	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Is an ecologically sound distribution of plant communities and seral stages being maintained?	Acres of spatial distribution of plant association groups by seral stage.	Calculate acres of plant association group by seral group.	Acres	Moderate	Annually	Annually	Planning Staff	1.) Decline of any plant association and seral stage group to less than 10% of historical content.	\$10,000

Table V-M40 (Continued). Monitoring Questions - Biological Diversity

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Is a Forest-wide network of ecologically significant old-growth stands being maintained?	Loss of corridor connection. Loss of the most ecologically significant stands of old growth.	Map network. Calculate ecological significance. Map and measure loss of connection and loss of the most significant stands: percent of acres per sub-basin and Forest-wide.	Acres and percent area of old growth stands and connectors by significance rank. Map of network.	Moderate	Annually	Annually	Planning Staff	More than 10% of the harvest occurs in the top 20% of ecologically significant old growth. More than 10% of the top 20% of the ecologically significant stands are not connected to old growth network. Ecologically significant ranking for the top 25% of ecologically significant old growth stands is declining.	\$20,000
Are old-growth stands evaluated for ecological significance prior to project design?	Ranking/evaluation of ecological significance Forest-wide.	Calculate stand ecological significance using landscape and within-stand criteria. Map Forest-wide, verify in the field as necessary.	NA	Moderate	Annually	Annually	Planning Staff	A Forest-wide ecological significance ranking does not exist.	\$100,000 includes field verification

Table V-M40 (Continued). Monitoring Questions - Biological Diversity

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Is within-stand diversity meeting standards and guidelines for live green trees, snags, and down logs?	If harvested units comply with standards and guidelines.	Verify levels of snags, green trees and logs in all units post-harvest.	Numbers per acre and distribution	High	Annually	Annually	Planning Staff	More than 10% of units do not comply	\$100,000
Are unique or special wildlife or plant habitats being maintained?	Natural species diversity	Statistically sound samples comparing baseline and post-activity for a portion of effected areas.	Natural species composition and dominance.	Moderate	Annually	Annually	Planning Staff	More than 10% of effected areas suffer significant diversity losses.	\$20,000

Table V-M41 Monitoring Questions - Economic and Social

QUESTION: Are economic and social assumptions, values, and projections valid?

Discussion - Economic values were based on historical data. The value of many of the Forest's outputs are determined by trends in public preferences. Changes in timber availability, markets and technology could have significant effects on several economic variables. There is also an opportunity to begin collecting baseline data for future planning efforts.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Have there been changes in the local population?	Changes in local population	Review reports from U.S. Census, State publications, County and local agency reports.	Thousands of persons	High	Annually	Annually	Planning Staff	+/- 15% change in 3 years	\$500
Have there been changes in local employment patterns?	Changes in local employment pattern	Review reports from U.S. Census, State publications, County and local agency reports.	Thousands of persons by industry of occupation	High	Annually	Annually	Planning Staff	+/- 15% change in 3 years	\$2,000
Do the 3-year average annual payments to each county meet projections?	Payments to counties	Review Forest records	Dollars	High	Annually	Annually	Planning Staff	Deviations from projections exceed 10% over 3-year average	\$100
Do the average annual receipts and product prices conform to predictions?	Annual receipts	Review revenue reports	Dollars	High	Annual	Annually	Planning Staff	Deviations from expected values exceed 10% over 3 years	\$500

Table V-M41 (Continued). Monitoring Questions - Economic and Social

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Do the average measures of local employment and income rates meet projections?	Local employment and income rates	Review State Employment/ Income Statistics	Percent unemployment and income rates	High	5 years	Annually	Planning Staff	Deviations from projections exceed 20% over 5 years	\$500
Do total costs by resource activity and major program costs conform with predictions?	Total costs	Review budget reports	Dollars	High	Annual	Annually	Planning Staff	Deviations from expected values exceed 10% over 3 years.	\$500
Has there been a significant change in public attitudes, beliefs or values?	Various	Review of public response to Forest management, including interaction with key publics and opinion leaders in communities, media reports, editorials, etc.	Various	Moderate	Continuous	Annually	Planning Staff	Trend toward Forest - community conflict or new social problems identified.	\$80,000
Has the Forest's contribution to area forest products industries changed?	Log flows	PNW Publications, Timber Disposition Forms	MMCF/year, % distribution by industry	High	Annual	Annually	Timber Staff	Deviation from current situation exceeds 50%.	\$100

Evaluation

When the answer to a Monitoring Evaluation Question exceeds the threshold of variability, then further investigation will occur in order to determine whether there is a need to: 1) take corrective action in implementing Forest Plan direction; 2) amend the Forest Plan; 3) revise the output schedule; or, 4) initiate revision of the Forest Plan. This evaluation will proceed according to the flow diagram displayed in Figure V-4: Decision Flow Diagram for the Evaluation of the Forest Plan.

A designated monitoring coordinator will prepare an annual evaluation report from the Decision Flow Diagram. As applicable, the following will be included in each evaluation report:

1. Summary of the responses to each monitoring question which is to be answered in the current year.
2. Situations where further evaluation is needed, and describes the action which will be taken.
3. The status of evaluations which are underway, including the identity of the person who is responsible for conducting the evaluation, and its projected time frame.
4. Summary of the findings of evaluations which were completed during the year, and the actions which were taken in response to these findings.
5. Additional research needed to support the management of the Forest.

AMENDMENTS AND REVISIONS

The Forest Plan will be kept valid and current through the use of amendments and revisions. The guidance for making these changes is in 36 CFR 219.10(f) and (g). As new issues and concerns arise the Forest Plan will be amended or revised if needed.

Plan Amendments

The Forest Supervisor may amend the Forest Plan. Based on an analysis of the objectives, standards, and other contents of the Forest Plan, the Forest Supervisor shall determine whether a proposed amendment would result in a significant change in the Plan. If the change resulting from the proposed amendment is determined to be significant, the Forest Supervisor shall follow the same procedure as that required for development and approval of a Forest Plan. If the change resulting from the amendment is determined not to be significant for the purposes of the planning process, the Forest Supervisor may implement the amendment following satisfactory completion of NEPA procedures. Table V-1 displays reasons for amendment, examples of what could trigger a nonsignificant versus a significant amendment, and reasons for revision.

An annual summary of Forest Plan amendments will be prepared and incorporated into the Plan as additions and will be made available to interested parties. This is to ensure that the Plan will remain current, as intended by the monitoring, evaluation, amendment, and revision provisions of the Code of Federal Regulations.

The Forest Plan incorporates legal mandates, professional judgement and the public's stated concerns into a future vision of the Forest. It charts a path for getting there by developing management goals

AMENDMENTS AND REVISIONS

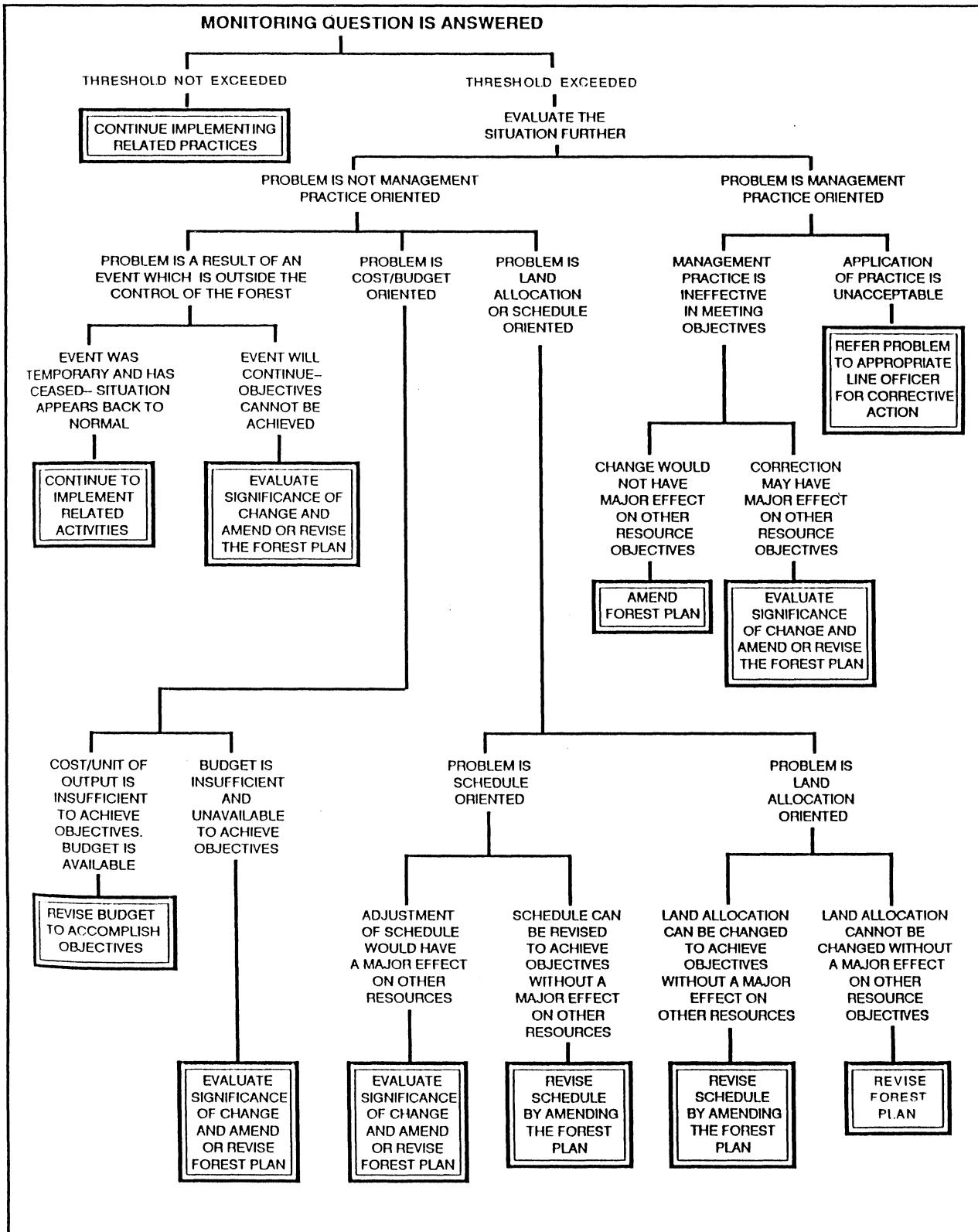
and objectives and translating them into management direction in the form of standards and guidelines for management areas on the Forest. National Forest planning is a dynamic process, and the products -- Forest plans -- are similarly dynamic. Forest Plans can and should be modified if conditions warrant. As management goals are applied on the ground or as new information is learned about resources, the Plan's goals and objectives, or activities the goals generate, may no longer be appropriate. In such instances, activities may be tailored to fit the resource, or planning objectives as stated in the Plan may be amended. Plans do not apply direction in site-specific management activities. It would not be feasible to identify, analyze and schedule the myriad projects or activities that occur on a National Forest. Instead, this type of site-specific planning occurs at the project level planning stage, such as subdrainage analysis.

Plan Revisions

The Forest Plan shall ordinarily be revised on a 10- to 15-year cycle. It also may be revised whenever the Forest Supervisor determines that conditions or demands in the area covered by the Plan have changed significantly or when changes in RPA policies, goals, or objectives would have a significant effect on the Forest's programs. In the monitoring and evaluation process, the interdisciplinary team may recommend a revision of the Forest Plan at any time. Revisions are not effective until considered and approved in accordance with the requirements for the development and approval of a Forest Plan.

The Forest Supervisor shall review the conditions on the land covered by the Plan at least every 5 years to determine whether the conditions or demands of the public have changed significantly. The Forest Plan will be considered for revision at that time and will be revised as necessary, but no later than 15 years from the date of approval of this Plan.

Figure V-4. Decision Flow Diagram for the Evaluation of the Forest Plan



AMENDMENTS AND REVISIONS

Table V-1. Examples of Needs to Amend or Revise the Forest Plan

ITEM	POSSIBLE REASONS
Reasons for Amendment	<ul style="list-style-type: none"> 1. Recommendations of the interdisciplinary team based on findings that emerge from monitoring and evaluating implementation of the Forest Plan (36 CFR 219.12(k); Forest Service Manual 1922.6). 2. Decisions by the Forest Supervisor that existing or proposed permits, contracts, cooperative agreements, and other instruments authorizing occupancy and use should be considered for approval but are not consistent with the Forest Plan (36 CFR 219.10(e)). 3. Changes in proposed implementation schedules necessary to reflect differences between funding levels contemplated in the Plan and funds actually appropriated. 4. Changes necessitated by resolution of administrative appeals. 5. Changes to correct planning errors found during Plan implementation. 6. Changes necessitated by changed physical, social, or economic conditions.
Nonsignificant Amendments	<ul style="list-style-type: none"> 1. Actions that do not significantly alter the multiple-use goals and objectives for long-term land and resource management. 2. Adjustments of management area boundaries or management prescriptions resulting from further site-specific analysis when the adjustments do not cause significant changes in the multiple-use goals and objectives for long-term land and resource management. 3. Occasions when a decision is made to proceed with consideration of a project or activity that is not consistent with the Plan and the change is minor. 4. Minor changes in standards and guidelines. 5. Short-term fluctuations in an implementation schedule or changes in planned annual output(s).
Significant Amendments	<ul style="list-style-type: none"> 1. Changes that have an important effect on the entire Plan or affect land and resources throughout a large portion of the planning area such as large, Forest-wide increases or decreases in resource demands. 2. Changes that would significantly alter the long-term relationship between levels of multiple-use goods and services originally projected (36 CFR 219.10(e)). This category would include changes in implementation schedules created by sustained differences between proposed budgets and actual appropriations.
Reasons for Revision	<ul style="list-style-type: none"> 1. Five year review identifies resource conditions or demands of the public have changed significantly from those projected. 2. Plan has not been revised for 15 years. 3. At any time, the Forest Supervisor determines that resource conditions or public demands have changed significantly. 4. Changes in laws or RPA policies, goals, or objectives have a significant effect on programs.