# CHAPTER 5 CONTENTS

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# FOREST PLAN IMPLEMENTATION, MONITORING, EVALUATION, AND AMENDMENT

## INTRODUCTION

This chapter describes how the Forest Plan will be put into practice. The first section explains how the management direction described in the preceding chapter will be implemented in the daily operation of the Forest by developing individual projects to achieve management area, Forest and province goals. Generally, implementation will be accomplished through landscape-scale analysis, and will comply with the FSEIS Record of Decision (FSEIS ROD) of April 1994 and its accompanying standards and guidelines. The second section describes the Monitoring and Evaluation Program which will determine if specific management direction is implemented as designed and is effective in achieving management objectives. This section also explains how monitoring results will be used to make periodic adjustments to management practices through the adaptive management process. The Forests Monitoring Plan has been modified since the 1993 Draft to comply with implementation direction in Appendix E of the FSEIS ROD. The third section of this chapter outlines when and how the Forest Plan could be amended or revised.

## IMPLEMENTATION

Forest planning is pursuant to the National Forest Management Act [NFMA, P.L. 94-588, CFR Part 219} which addresses broad-scale land allocations and general management direction for National Forest System (NFS) lands. The Forest Plan is implemented through the daily operations of the Forest which involve the coordination of numerous activities including technical assessments, information management, project planning, decision-making, project implementation, public service and administrative support to all the above. This document is not a complete guide to all operations of the Forest — manuals and handbooks contain much additional direction. The Forest Plan addresses the general allocation of resources to manage a diverse landscape in compliance with legal requirements and public desires about the use of their lands.

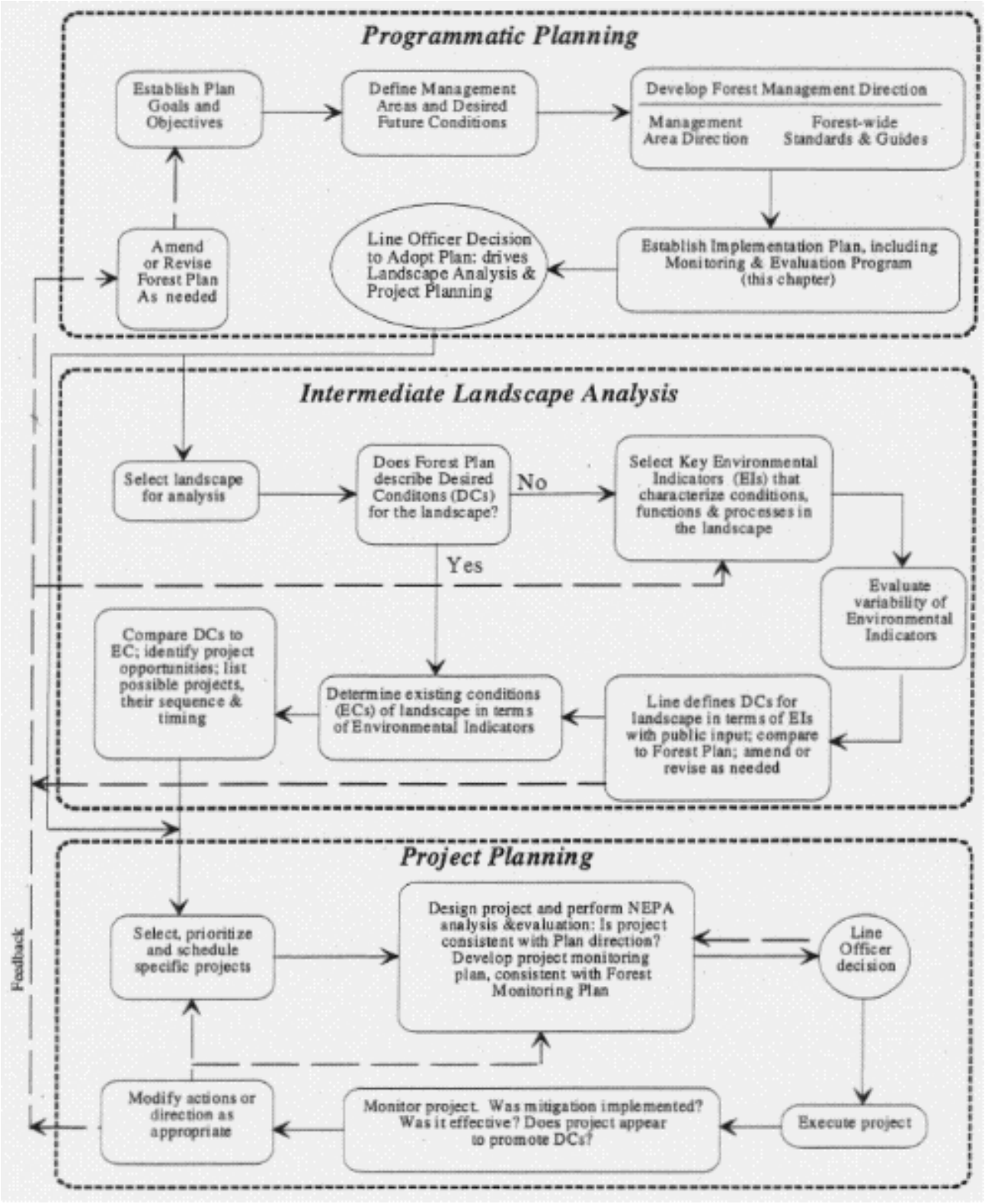
## PLANNING AND PROGRAM-OF-WORK DEVELOPMENT

Forest Service planning involves two levels of decisions through which a Forest's program of work is implemented. The first level is programmatic and is covered by this document and its supporting Environmental Impact Statement. As described in Chapter 4, this Forest Plan provides general direction and broad goals for 17 management areas, and also specifies standards and guidelines that will direct project implementation throughout the Forest in achieving desired conditions for each management area and for the Forest collectively. This direction serves as a "blueprint" and "ordinance" under which future project-level decisions are made. However, the individual projects and other activities are not identified at the programmatic level.

The second planning and decision level involves the actual implementation of this direction. It includes the identification, analysis, design and execution of projects and other allowable activities across the Forest. Each proposed activity or project will be evaluated to ensure that on-the-ground implementation is consistent with the management direction and goals in this Forest Plan. Projects will normally be evaluated with respect to provisions of the National Environmental Policy Act (NEPA), as discussed in a separate section below. Proposed activities that are inconsistent with this Plan's direction can only go forward through the amendment or revision processes which are described in the third section of this chapter.

An additional level of analysis between these two formal planning and decision levels will address management issues of large landscapes across multiple jurisdictions and ownerships within the broad framework of ecosystem management. These analyses will allow land management agencies,

Figure V-i. Forest Planning and Project Implementation through Ecosystem Analysis.



4. Define desired conditions. This is a quantitative and qualitative description of the analysis landscape in terms of environmental indicators that ideally is forged between the Forest management team and public stakeholders. Defining desired conditions may involve compromises among the various indicators because the RMR for one indicator may be incompatible with RMRs for others. If this desired condition is outside the scope of the current Forest Plan, amendment or revision procedures would need to be followed.

5. Determine existing conditions. This description should be parallel to the preceding description of desired conditions; that is, it should be based on most or all of the same indicators. These two steps will commonly be done together. Links to larger and smaller scales are important to examine at this stage.

6. Compare existing and desired conditions. This comparison will indicate where the landscape currently sits in relation to long-term goals for its sustainability. Typically, desired conditions will be represented by ranges of values, while existing conditions will be single values. Over large analysis areas, however, existing conditions may be represented by a spatial distribution of values that is more comparable to the range of desired conditions. It is important to note that desired conditions are more than a list of RMRs - they involve value judgments by management and the public.

7. Identify project opportunities. The goal of this step is to develop a schedule of projects designed to move the landscape progressively closer to its desired condition over years or decades. An interdisciplinary team would explore different ways to manipulate landscape components, structures and processes to achieve desired outcomes. Previously identified differences between existing and desired conditions present opportunities for action. Collaboration with the public is appropriate at this stage to elicit ideas that might not be obvious to the Forest team. From the comprehensive list of project opportunities, the management team and technical staff would select, prioritize and schedule a tentative list of projects for implementation. Some key questions to address in this process are:

• How effective and efficient will a particular project or action be in moving the landscape toward or maintaining desired conditions?

• What is the feasibility of protecting critical landscape elements if these projects or actions are implemented?

• What are the potential cumulative effects of these projects or actions on biodiversity and sustainability at the landscape scale?

• How well would the projects or actions provide important goods, services or other values to the public?

The resulting schedule of approved projects is expected to help allocate limited resources, promote a rational sequence of work where appropriate, and help arrange partnerships well in advance of implementation.

8. Project implementation and evaluation. Selected projects would then proceed through the usual NEPA process, but the goals and issues are likely to be broader in scope than in the past when projects focused on administrative targets. Issues and effects of implementation would generally be framed in terms of previously identified environmental indicators. Lastly, monitoring plans would be an integral part of each project to evaluate how effectively the various project actions have achieved desired conditions in terms of key environmental indicators. Because of its wider scope, ecosystem monitoring efforts must be coordinated among Federal, State and local agencies and other interests. It should be able to detect changes in ecological systems, provide standardized data as a basis for decisions, ensure prompt analysis and application of data in the adaptive management process, and distribute results in a timely manner.

The FSEIS ROD identifies watershed analysis as one of the primary tools for this intermediate level of project development. Watershed analysis is a rigorous, scientifically based procedure to help understand ecological structures, functions and processes and their interactions within a watershed, and to describe past and current conditions and trends. This understanding will be based on a compilation and synthesis of existing physical and biological information about a landscape of 20 to 200 square miles. Watershed analyses must be interdisciplinary and must involve multiple agencies

to comply with the FSEIS ROD. These ongoing studies will be initiated on the Forest during the next three to five years, and will be the dominant scale at which ecosystem management is implemented in the daily operations of the Forest. Each analysis should (1) describe important conditions, interactions and causes of change in the watershed; (2) examine large-scale relationships among ecosystem components, functions and processes that will assist managers in making ecologically sound project-level decisions; and (3) guide future monitoring and inventory by disclosing critical gaps in existing data. Ultimately, project-level decisions based on watershed analysis will be more likely to preserve biodiversity by sustaining the important processes and functions that are identified and better understood at these larger scales.

The methodology of watershed analysis is currently being developed and tested. It is expected to evolve s various techniques are tried and evaluated. In any Oase, a large proportion of the Forest program of work for the first decade of this Plan will involve watershed and ecosystem analysis to begin identifying and prioritizing actions that implement the Plan. The results of watershed analyses will be used to reveal the most useful indicators for monitoring environmental change, to detect magnitude and duration of changes in conditions, to formulate and test hypotheses about causes of change, and to manage the ecosystem for desired outcomes. The results of these studies also may indicate the need for a Plan amendment, and would be used to support the NEPA analysis for the amendment.

Some ecosystem concerns, such as vegetation disturbance regimes and the viability of certain terrestrial and aquatic species, cannot be addressed adequately within the limits of a 20- to 200-square-mile watershed. These concerns will be dealt with in larger scale landscape analyses or studies of broader scope such as river basin analyses and late seral reserve (LSR) assessments. As they are completed, these broader studies will provide a reference to ongoing watershed-scale analyses. The key to having these multiple and concurrent levels of ecosystem analysis work effectively together is open communication among the various Forest Service units, interdisciplinary teams, other state and federal agencies, and the public.

### Project Environmental Analysis

All proposed projects and activities during this planning period will be evaluated to assess compliance with management area direction and Forest-wide standards & guidelines, as well as consistency with ongoing landscape-level analyses. The evaluation will meet the requirements of NEPA, and will be documented in accordance with the Council of Environmental Quality Regulations [40 CFR 1500-1508] and the Forest Service Environmental Policy and Procedures Handbook [FSH 1909.15].

Ecosystem management principles will be emphasized in applying the NEPA process to project development. In the past, projects were driven primarily by commodity output targets. Potential impacts on other “dependent resources” were mitigated to the extent practicable, but this often resulted in conflicts among individual resource objectives. Under ecosystem management, a variety of innovative practices including new silvicultural treatments will be applied to create and sustain desired forest conditions for various purposes. This will require a more integrated and balanced approach to project design, execution and evaluation, as explained earlier. Outputs of goods and services, both commodity and amenity, will be byproducts of maintaining forest health.

Public participation is required in all NEPA analyses, and will be especially important for potentially controversial or innovative projects and activities. The overriding goal will be to determine an ecologically sound balance between reasonable levels of commodity outputs and sustained forest health, including the viability of dependent wildlife communities. Individual resource objectives will focus on achieving forest health in the long term, as well as protecting particular resources in the short term. Monitoring will be a key component of this strategy. The project ID Team will prepare a project monitoring plan that supports and is consistent with the goals of the Monitoring Plan described in the next section.

Supplemental Management Direction The Forest must comply with certain legal mandates outside the scope of NFMA in implementing this Plan. All projects and activities must be consistent with the following specific directives that take precedence over general Plan direction.

including the Forest Service, to evaluate the connections among individual projects and their cumulative effects more comprehensively. Project selection and design will generally be directed at accomplishing broad ecological, objectives rather than individual resource output objectives as in the past In particular, ecosystem management will enable the Forest to address the issues of timber supply and wildlife habitat protection together in an appropriately broad context. These intermediate analyses are not subject to the provisions of NEPA, but ideally they will involve substantive interaction with other State and Federal agencies, as well as public stakeholders. They are expected to provide a comprehensive understanding of the conditions, functions and processes of ecosystems at varying scales that can serve as a basis for subsequent project implementation. The three levels of planning and implementation, and the connections among them, are shown in Figure V-i.

Region 5 of the Forest Service is preparing an Ecosystem Management Guidebook for this intermediate level of analysis. The following are highlights of the existing draft. A major premise of ecosystem management is that ecosystems can be sustained by maintaining their inherent biodiversity. This will be done on NFS lands by collecting and analyzing data about a variety of environmental indicators that are considered to provide valid measures of ecosystem health as management activities occur on the landscape. The Forest management team will decide what the desired conditions of these indicators should be in conjunction with other agencies and interested publics. Individual projects will then be designed' and prioritized to achieve those desired conditions as much as possible. Not all projects will need to be supported by landscape-level analysis, however. For example, road maintenance, some fuels treatments and thinning projects may proceed under a simple decision notice. The ultimate goal of ecosystem management is for the landscapes comprising the Forest to be both productive and sustainable — they need to provide human goods and uses while preserving the important functions of natural systems for non-human uses. A synopsis of the steps in ecosystem analysis follows.

1. Select the landscape to analyze. The boundaries will depend on the analysis questions and should encompass those ecosystem elements that are relevant to the questions being addressed.

2. Select key ecosystem elements and indicators. Environmental, indicators will be used to represent the response of biological, physical and social ecosystem elements. Ideally, groups of indicators will be selected to give a more comprehensive measure of the element they represent. The selection of elements and their indicators is governed by the expected detail, scope and degree of quantification needed for the analysis. Some indicators will be broad in scope (coarse filter indicators) and address diversity within and among species, as well as diversity of ecosystem conditions. Other indicators will be focused (fine filter indicators) and deal with specific, critical elements such as T&E species. Finally, selected indicators should include a mix of ecosystem components, structures (arrangements of components), and processes (relations among components. and structures).

3. Evaluate variability of environmental indicators. This step estimates historic range of variability (HRV) and derives recommended management range (RMR). HRVs serve collectively as a comparative benchmark that represents the envelope within which a particular ecosystem has presumably evolved. Establishing HRVs requires quantifiable data about past and current conditions of the selected environmental indicators. RMR is a selected range of variability designed to preserve ecosystem resilience and sustainability. In most instances, extreme values of environmental indicators that may be within the HRV are not included in the RMR since they could jeopardize ecosystem resilience and sustainability if caused to occur more frequently by management disturbances. The RMRs are a collective recommendation by resource specialists to management and provide the basis for establishing desired conditions.

with pertinent management direction identified in the environmental analysis document. This would include any relevant management area direction, such as special mitigation for riparian areas, managed wildlife habitat, or botanical areas, if management activities were proposed there.

As individual projects are proposed, designed and executed to carry out the direction of this Plan, the project ID Team and the decision maker will prepare a monitoring schedule as an integral part of the environmental analysis for the project. The project monitoring schedule will be specific in terms of the resource and management issues involved. Where appropriate, it will emphasize monitoring items that address this Plan's driving issues (maintaining biodiversity, protecting riparian areas, and providing a steady timber supply), but not to the exclusion of other important resource issues raised by the project.

The most common forms of compliance monitoring will be end-product reviews and general management reviews. It is expected that all projects would be evaluated when completed, except for routine management actions that are unlikely to affect other resources. End-product reviews will be conducted by interdisciplinary teams of line officers, resource specialists, and other staff. Representatives from the public and other agencies may be invited to participate on these review teams. The project ID Team leader will be responsible for conducting and documenting the review.

Compliance monitoring will be considered as an "overhead cost" of implementing projects. On the average, it is expected to account for about five percent of total project cost. It would vary from project to project, depending on the issues and resource sensitivities involved. For example, a routine road maintenance project would probably warrant a lower percentage expenditure on compliance monitoring than a silvicultural project which included some timber harvest in a landscape containing sensitive riparian and wildlife areas or cultural resources. The level of monitoring would be one of the issues to be dealt with during public scoping for the project, and a rationale for the selected level will be presented in the supporting environmental analysis.

Acceptable levels of compliance would also be specified in the environmental analysis for the project and could vary depending on a variety of factors, such as potential resource damage, critical issues, or public concerns. The minimum level of compliance for general planning purposes will be 80 percent acceptable implementation of specified direction. For some critical resource concerns, such as prevention of sedimentation in riparian zones, protection of TES species habitat or protection of cultural resource sites, it could be as high as 95-100 percent. If compliance with the management direction on a sample basis falls below the specified threshold, the reason(s) for non- compliance will be determined to the extent possible, and corrective actions will be taken to ensure future compliance.

General management reviews also will be conducted periodically on a sample of Forest projects by teams of Forest and Regional Office staff. These reviews will provide for Regional oversight of Forest Plan goal accomplishment on a broader scale than end-product reviews.

scientific disciplines, organizations and members of the public who are involved at various steps of the adaptive management process will vary with the scope of the issue(s) being considered. Some decisions may be local while others are regional in scope; some will have a limited technical focus while others will require a broad interdisciplinary approach.

New information requiring an adjustment of strategy could come from monitoring, research, regulatory changes or organizational assessments. The decision to change strategies or goals would be made by the Forest Supervisor, the Regional Forester or an interagency steering committee, depending on the scope of the issue. Any changes in federal land management decisions that arise from the adaptive management process will be subject to existing regulatory and statutory requirements, including NEPA. Most adjustments are expected to be within the realm of administrative change, while some will require formal NEPA procedures.

The concept of adaptive management applies to all land allocations. It acknowledges the need to manage forest resources under circumstances that contain varying degrees of uncertainty. There is a considerable range in the degree of confidence associated with different management strategies, resources and geographic locations. Although there are known gaps in scientific knowledge, there is enough reliable information, field experience and scientific data to proceed with implementation of this Plan.

**Monitoring Actions**

The Forest monitoring program presented below is in accordance with the Land and Resource Management Planning Handbook {FSH 1909.12, Chap. 6, WO Amendment 1, 7/88]. It is limited to those actions necessary to comply with the regulations set forth by NEPA and NFMA, and it will be evaluated and updated periodically. Other resource monitoring required by laws, executive orders or supplemental plans (such as T&E recovery plans) will continue to occur; those plans are presented in Appendix H.

In order for the monitoring, evaluation and adjustment steps to be effective and efficient, several criteria must be met. Monitoring must ask specific questions that focus on measurable performance and pertain to key elements of existing management direction. Monitoring questions must lead to information that can actually resolve the issues or concerns that generated them. Therefore, the conditions or processes that are monitored should be indicative of ecosystem responses to natural events and management disturbances. From a practical standpoint, the scope and costs of monitoring must fit within real constraints of budget and personnel that would be allocated to monitoring activities as a percentage of the total Forest program. Therefore, monitoring will generally be conducted on a sample basis, and its level and intensity will vary, depending on the sensitivity of the management area or resource and the scope of actual management. Monitoring should be coordinated among agencies and organizations (both public and private) for efficiency and usefulness of results,. especially at larger scales. Protocols and reporting criteria will be developed to promote this coordination. Finally, a long-term commitment for consistent and adequate funding is required to gather and evaluate useful environmental data. This will be done by building the costs of necessary monitoring into all projects.

Forest Plan monitoring occurs at two levels, corresponding to the levels of planning described earlier. At the project level, monitoring will examine in detail how well specific management direction (the standards and guidelines) is applied on the ground and how effectively it produces desired or expected results. At the broader level, Plan performance is measured against the attainment of the goals listed in Chapter 1. Monitoring actions at this broad level will question how well projects and other activities achieve the goals and attain the desired conditions of the 17 management areas, individually and collectively. Therefore, the Monitoring Program has been organized around groups of management areas with similar goals. The principal concern is to preserve and enhance forest health so that the various commodity and non-commodity outputs can be achieved over the long term. Program results, such as recreation use, fisheries and wildlife habitat improvements, and timber production also will be examined at this broad level to ensure that they are comparable to Plan projections.

1. Compliance (implementation) monitoring is used to determine if plans, prescriptions, projects and activities are actually implemented as designed and are consistent with Plan objectives and with Forest-wide standards and guidelines. Compliance monitoring will be conducted on a sample basis to evaluate and document as objectively as possible the degree of conformance (expressed as a percentage)

**Program Budget Process**

The Budget and Program Development process allocates dollars and other resources among capital investment projects and both fixed and variable cost activities. Fixed cost activities include general administration, facilities maintenance, and those expenditures necessary to ensure public safety and protect the environment. Variable costs are associated with production of goods and services that can be controlled, such as resource planning, inventories or management projects, as well as unforeseen costs such as fire suppression. The Forest budget will be developed to achieve the mix of goods and services established by this Plan. The relative proportions of forest goods and services are expected to remain fairly constant, although total outputs may vary with the annual budget allocated to the Forest.

Annual deviations from the programmed distribution fbr individual resources will be evaluated to determine the need for Plan amendment. Cost and accomplishment data will be used to update and modify budget proposals. A proposed 3-year schedule for watershed analyses has been prepared by the Management Team and is presented in Appendix B. Annual programs of work will evolve from these analyses, and budgets prepared accordingly. Present uncertainty about commodity output levels that would be consistent with FSEIS ROD guidelines make it impossible to provide any greater detail. Typically, allocated budget amounts differ substantially from submitted budget levels.

## MONITORING AND EVALUATION

The Monitoring and Evaluation Program provides essential information about the relative success of management strategies in this Forest Plan. Its fundamental purpose is to determine how well the Plan (1) delivers projected goods and services that the public desires, (2) creates or maintains desired conditions in each management area, consistent with public expectations, and (3) protects other forest resources and values to ensure forest health and biodiversity. Monitoring and evaluation include both formal and informal processes to review Forest projects periodically and provide feedback to adjust management practices at various points. This is the essence of the adaptive management strategy, as explained below. Monitoring observes and records both the effects of natural processes and the results ofactions permitted by the Forest Plan. It is conducted at a variety of levels and scales. Evaluation examines those effects and results, determines how well they meet Plan direction, and identifies appropriate changes in management direction to keep the Plan viable. These internal reviews are then summarized and given to the public for comment. As described below under AMENDMENT AND REVISION, this review may result in new issues or revised management goals, which subsequently would be translated into revised management direction. Monitoring results also may affect ongoing watershed or ecosystem analyses by modifying the suite of environmental indicators or revising desired conditions. Results will also be combined with new research information to provide a basis for changes to the Plan through the adaptive management strategy.

Additional guidance for monitoring is provided in Section E of the FSEIS ROD. A working group attached to the Regional Ecosystem Office is currently finalizing an Interagency Framework for Monitoring the President's Forest Ecosystem Plan. Monitoring will be conducted at multiple scales (project area, riparian reserves, LSRs, provinces, river basins) and levels (individual project or site, landscape assessment, Forest Plan, Regional Guides). The coordination among agencies, individual units and other organizations will be emphasized in the final monitoring framework. The monitoring plan for the Six Rivers National Forest will tier to the interagency framework when completed, and will be modified or amended as necessary to be in compliance with that direction.

**Adaptive Management**

The adaptive management process is inherent in the various feedback links shown in Figure V-1. According to the FSEIS ROD, adaptive management is an ongoing process of action-based planning, monitoring, research, evaluation and adjustment, the objective of which is to improve Plan implementation and the accomplishment of its management goals. Current management direction is based on current scientific understanding. For ecosystem management to succeed, it must have the flexibility to respond to new information and knowledge. Adaptive management is the mechanism by which new information will be evaluated and a decision made whether to make adjustments. Adaptive management decisions may vary in scale from individual watersheds or specific forest types to the entire Forest or whole physiographic provinces. Consequently, the

Group II: Non-Commodity Values . These lands are protected in a near-natural condition to provide non- commodity outputs such as essential wildlife & fish habitat, river-oriented & other recreational experiences, and visual quality. The overall monitoring purpose is to ensure protection of both inherent & dependent resource values (including important fish & wildlife habitat, and high quality recreational use).

| **Monitoring Element** | **Effectiveness Monitoring Questions** | **Sampling Methods and Intensity** | **Threshold of Concern and Responsible Staff** |
|---|---|---|---|
| Special Habitat (219,690 ac)<br><br>*[includes LSRs from FSEIS ROD]* | Is identified critical habitat for peregrine falcon, bald eagle, marbled murrelet & spotted owl occupied at anticipated levels?<br><br>Is the habitat functional in terms of reproductive success, thereby contributing to recovery goals?<br>If *Ptilidium Californicum,* great grey owl, or *Ulota meglospora* occur on SRNF, are protection buffers adequate? | Field surveys, in accordance with established protocols, to document occupancy and reproductive success.<br><br>Detailed sampling protocols are displayed in Appendix H.<br><br>Methodologies will be further refined by the Regional Ecosystem Office (REO). | TOCs are specified in the protocols (see Appendix H).<br><br>Analysis of monitoring data, in cooperation with adjoining Forests, research personnel, and other regulatory agencies, could result in re-evaluating the set-aside strategies and related management direction for these species.<br><br>S.O. & District wildlife *staff* |
| Riparian and Aquatic Ecosystems (99,730 ac)<br><br>*[includes Riparian Reserves from FSEIS ROD]* | Do project-level resource protection measures and the general exclusion of management disturbances from riparian areas promote short & long-term health *of* riparian ecosystems and viability of dependent resources? *<br><br>Do riparian areas provide functional wildlife habitat connectors? | Fisheries habitat condition surveys, including baseline surveys in relatively undisturbed riparian areas,<br><br>Annual fish counts on approximately *25* miles of representative stream reaches.<br><br>See Appendix H under *Water* & *Fisheries* for details.<br><br>Methodologies will be further refined by the REO.<br><br>Field surveys to sample habitat conditions along approximately 20 miles of riparian corridors. | More than 15% of surveyed reaches or areas display conditions below desired levels of habitat quality.<br><br>Fish counts are below *85%* of desired levels for sampled species.<br><br>Analysis of monitoring data may result in re-evaluating Riparian Strategy.<br><br>S.O. & District fisheries biologists, ecologists and earth scientists. |
| Recreational & Scenic River (1030 ac) *[plus considerable additional acreage in Riparian]* | Are designated river corridors being managed to provide a range of recreational opportunities and access, ranging from developed to near-natural settings?<br><br>Do the visual, aesthetic and fisheries values satisfy recreational users needs? | Direct field evaluation of 20 sample sites (access or view points) or river segments per year to assess maintenance of visual & aesthetic values.<br><br>Surveys of public satisfaction using informal questionnaires at access points. | More than 15% noticeable degradation of key values, or expressed public dissatisfaction.<br><br>S.O. & District recreation *staff* |

* monitoring items that will likely be resolved only in the long-term , defined as more than approximately 30-50 yrs

| Group II: Non-Commodity Values (cont.) | | | |
|---|---|---|---|
| **Monitoring Element** | **Effectiveness Monitoring Questions** | **Sampling Methods and Intensity** | **Threshold of Concern and Responsible** Staff |
| **Smith River** NRA (187,770 ac) *[includes only the acreage outside of other management areas]* | Do management direction and prescriptions specified in the NRA Plan (including uneven- aged management with extended rotations) create and preserve the recreational values and biologic diversity * while allowing limited levels of commodity outputs? | Sample and rate overall visual/aesthetic quality for 15% of areas affected by management disturbances.<br>Conduct formal surveys of public users to assess satisfaction with recreational values provided. | More than 15% of visual ratings fall substantially below predetermined levels.<br>More than 20% of public surveyed express dissatisfaction with recreational quality.<br>S.O. & District recreation staff, silviculturists, wildlife biologists, resource officer |

**Group III: Adaptive Management** – These are lands that will be managed for a balance between traditional commodity outputs and biologic diversity that promotes long-term forest health. The overall monitoring purpose is to evaluate the effectiveness of the adaptive management strategy in achieving balanced multiple use of all resources.

| **Monitoring Element** | **Effectiveness Monitoring Questions** | **Sampling Methods and Intensity** | **Threshold of Concern and Responsible Staff** |
|---|---|---|---|
| **Managed Habitat** (103,630 ac)<br>*[includes* ***Managed LSRs from the FSEIS ROD****]* | **Do silvicultural practices** produce stand structure in the short term that mimics known, occupied habitat, and that would therefore be considered functional?<br>Does managed habitat provide connectivity between riparian reserve corridors and other large wildlife reserves?<br>Are identified suitable habitat areas occupied at desired levels after disturbance with active, reproductive animals?<br>Did any candidate or sensitive species become listed? | **Survey protocols for** marten, fisher, Del Norte salamander & ***Sarcosoma mexicana*** are being developed. Baseline sample of suitable habitat areas in years 1 to *5; 50%* sample of habitat for effectiveness (occupancy) thereafter.<br>Sampling procedures for candidate species not yet developed.<br>Methodologies will be further refined by the REQ.. | Inventoried habitat suitability less than minimum standards.<br>Less than 90% of designated, suitable habitat is occupied.<br>More than a 20% decline in detected presence, habitat availability, or occupancy.<br>Any species is petitioned for State or Federal listing.<br>S.O. & District wildlife staff |
| **Partial Retention VQO** (27,080 ac) | **Do proposed silvicultural** strategies meet Partial Retention VQO standards throughout the Forest matrix? | Sample & rate visual quality for *25%* of area affected by any vegetation or land disturbance using standardized methods. | More than 20% of sampled sites do not meet Partial Retention VQO.<br>S.O. landscape architect |

| **Group Ill: Adaptive Management** (cont) | | | |
|---|---|---|---|
| **Monitoring Element** | **Effectiveness Monitoring Questions** | **Sampling Methods and Intensity** | **Threshold of Concern and Responsible Staff** |
| **General Forest** | **Will stocking** levels, growth | Inventory 20% of plantations | More than 10% deviation |
| (109,150 ac, | **and** yield rates of timber-suited | less than 20 yrs old for | below projected yields or |
| total; 69,890 ac | lands meet long-term Forest | stocking levels & yields. | levels. |
| timber-suited) | output goals? | | |
| | Will proposed silvicultural strategies generate predicted | Conduct general management reviews of economic & | More than *5%* change in productivity or suitability |
| Special | net values of the timber | budget data, as well as stand | class beyond that expected |
| Regeneration | program? | inventory data. | from planned activities. |
| (46,850 ac) *[includes* ***Matrix from the*** *FSEIS* ***ROD]*** | Is the current inventory system effective in determining which lands can be managed successfully for timber production? | | Timber management staff |
| | Does the identification of key watersheds and special managment prescriptions successfully protect habitat of identified at-risk fish species? | Forest-wide habitat surveys in representative reaches –(refer to Riparian Management Area) | Same as for Riparian Management Area |
| | Are prescriptions and mitigations designed to maintain soil productivity and protect water quality effective in limiting erosion, mass wasting & sediment yield to streams from areas disturbed by management? (Includes BMPs & evaluation of cumulative watershed effects) | End-product review of sample projects, up to 10 yrs after completion; documentation of on-site & off-site effects, using data sheets, comparative airphoto inventories, and photographs from reference sites. Includes Region *5* BMP Evaluation Process (BMPEP). | More than 10% of sampled cases indicate failure to protect on-site or off-site dependent resource values. BMPEP has its own established TOCs.<br><br>S.O. & District earth scientists and fisheries biologists |
| | Are practices & mitigations designed to protect habitat and habitat components (such as snags and large downed logs) for other wildlife species in the General Forest Management Area successful in maintaining desired populations? | Sampling methods and intensity, using a variety of environmental indicators, will be developed from landscape- scale ecosystem analyses and at the project level. | Thresholds and other management criteria will be developed as part of landscape-scale analysis.<br><br>S.O. & District wildlife staff |

| Name or Type of Strategy | Purpose & Scope of Strategy | Completion Target Date | Responsible Unit(s) |
|---|---|---|---|
| Fire Management Action Strategy | Establish direction for specific implementation actions within the fire management program. | 1998 | Fire / fuels |
| Off-Highway Vehicle (OHV) Management Strategies | Assess areas for OHV use. Schedule projects to implement vehicle use in some areas and restrict use in other areas. | As needed | Recreation |
| Transportation Management Strategy | Assess transportation system and use. Schedule projects to construct, reconstruct, or decommission roads based on anticipated needs. | 1998 | Engineering |
| Threatened, Endangered and Sensitive (TES) Species Guides | Ensure a coordinated approach on regional and provincial levels to TES species management and conservation, including territory management plans. | 2002 | Wildlife, fisheries and botany |
| Visual Corridor Management Strategies | Develop management strategies for scenic byways on the Forest. | 1998 | Recreation |

***Table V-2. Existing plans or strategies retained and incorporated by reference into the Forest Plan.***

| Name or Type of Plan/Strategy | Purpose of Plan/Strategy | Responsible Unit |
|---|---|---|
| Smith River National Recreation Area Management Plan | Establishes eight management areas within the Smith River NRA, and sets general direction for each area. | Smith River NRA (Gasquet) |
| Facilities Master Plan | Coordinates and prioritizes the siting, construction and maintenance of Forest facilities. | Engineering |
| Lower South Fork Trinity River Wild & Scenic River Management Plan | Guides management of the wild & scenic segments of the lower South Fork Trinity River. | Recreation |
| Communications Site Plans for Camp 6, Orleans Mtn., Horse Mtn., Antenna Ridge, Baldwin Ridge, and Pickett Peak | Guides management of designated multiple-use communications sites until updates are completed. Plans for Camp 6 and Horse Mtn. need updating to reflect current conditions and trends. | Lands |
| Forest Development Transportation Plan | Documents designation of non-temporary Forest transportation facilities. | Engineering |

**Table V-3: Effectiveness Monitoring Program** - acres listed are aggregate for the Forest, not counting any overlap with a Management Area listed above it in the table.

**Group I: Reserved / Special Emphasis** – These lands are managed to remain in essentially natural condition for specific uses. The overall monitoring purpose is to ensure protection of intrinsic values and provide for user satisfaction.

| Monitoring Element | Effectiveness Monitoring Questions | Sampling Methods and Intensity | Threshold of Concern and Responsible Staff |
|---|---|---|---|
| Wilderness (123,150 ac)<br><br>**Wild Rivers** (14,250 ac) | Does management direction maintain the desired balance between protecting the natural characteristics & key resources of these management areas, and providing satisfaction to public users? | Field evaluation of 20 sample sites (trails or campsites) per year to aswss protection of visual quality & aesthetic values.<br><br>Annual surveys of public satisfaction using informal questionnaires at trail heads. | More than 15% noticeable degradation of key values or expressed dissatisfaction by public. Apply the ***Limits of*** *Acceptable Change* criterion.<br><br>S.O. & District recreation *staff.* |
| NACUAs (1140 ac) | Does management direction provide the solitude desired by Native American contemporary users, while minimizing conflicts with other recreational uses? | Formal surveys of Native American users and informal surveys of other recreational users. | More than 15% expressed dissatisfaction with level of solitude provided.<br><br>Forest heritage resources staff |
| Research Natural Areas (6990 ac) | Does management promote the maintenance of biodiversity in these areas so as to conserve their ecological components and meet the needs of researchers? | Qualitative assessments to determine gross changes. Establishment of permanent transects (similar to California Native Plant Society (CNPS) protocol). | Sampling indicates more than a *25%* change in any variable of concern over a *5-* to 10-year period.<br><br>See Appendix H for additional details.<br><br>Forest botanist, ecologist |
| **Special Interest Areas** (330 ac) | Does management ensure the conservation of diverse plant communities and associated rare plant species in the areas?<br><br>Do restoration efforts restore degraded habitats effectively?<br><br>Does public use compromise the integrity of the area's natural features?<br><br>Is the permit process adequately protecting uninfècted areas of North Fork Smith River botanical area? | Field surveys of rare plant populations, communities and degraded habitat,<br><br>Establish permanent transects (similar to CNPS protocol) or plots as appropriate.<br><br>Informal user surveys,<br><br>Field inspections to check gate closure and compliance? | Sampling indicates more than a *25%* change in any variable of concern over a *5-* to 10-year period. See Appendix H for details.<br><br>More than 20% of those surveyed express dissatisfaction.<br><br>Two or more trespass violations in wet periods; three or more in dry periods<br><br>Forest botanist, geologist,<br>recreation staff |

## *Table V-1. Supplemental strategies needed to implement the Forest Plan.*

| Name or Type of Strategy | Purpose & Scope of Strategy | Completion Target Date | Responsible Unit(s) |
|---|---|---|---|
| Watershed Analyses | Collect and compile information within watersheds that is essential to making management decisions. Required prior to management actions in key watersheds. | As needed. All key watersheds by 1998 | All resource programs |
| Late Successional Reserve (LSR) Assessments | Describe conditions in each LSR, provide a fire management plan, list criteria for treatments and areas that could be treated, and list monitoring components. | As needed. All LSR assessments completed by 2000 | Wildlife |
| Adaptive Management Area (AMA) Plan | Identify desired conditions, learning opportunities, and develop a strategy to guide implementation, restoration, monitoring & experimental activities in the Hayfork AMA. | 1996 | All resource programs |
| Ecosystem Management Strategies | Assess terrestrial and aquatic ecosystems (e.g., province, river basin, section, species range) to determine issues, management priorities, and coordinated management actions. | As needed. | All resource programs |
| Wilderness Implementation Schedules | Coordinate management of the Siskiyou,YoIIa Bolly, and North Fork Eel wilderness areas. | 1998 | Recreation |
| Wild and Scenic River Management Plans | Coordinate management of the wild and scenic segments of the Klamath, Trinity and North Fork Eel Rivers with adjoining National Forests and other agencies. | 2002 | Recreation |
| Research Natural Area (RNA) Management Strategies | Guide and promote research within RNAs. Develop additional management direction to protect natural characteristics. | 2002 | Ecology and botany |
| Special Interest Area (SIA) Management Strategies | Guide management and promote interpretive management strategies within SIAs. | Begin in 1996; completed by 1999 | Botany and geology |
| Species Habitat Guides | Coordinate habitat enhancement and project implementation for specific plant species. | As needed. | Botany |
| Land Adjustment Strategy | Guide land adjustment program; provide information for exchange proponents. | 1995. with periodic updates. | Lands |

the most useful information on Plan performance. Considerable effort will be needed to acquire reliable data, however. The intensity and scope of effectiveness monitoring will depend on funding levels and project activity levels. Highest priority will be given to monitoring items that (1) are related to the driving issues of this Plan, (2) involve new and uncertain practices, or (3) could have substantial consequences if monitoring were neglected. About 90 percent of the monitoring budget will be allocated to questions that pertain directly to the driving issues of maintaining biodiversity, protecting riparian areas, and providing a steady timber supply. Many of these priority items also deal with uncertainty about new techniques or involve high risk of resource impacts if not monitored. Costs associated with the various wildlife elements are considerably higher than other elements because of the complex scientific protocols needed to acquire statistically reliable data on both habitat and populations. As the wildlife data base grows, biologists' understanding of habitat-population relationships may also improve. This could allow for sufficiently reliable predictions of population dynamics with less complex and costly monitoring techniques in the future, and also could enable the Forest to apply proven management techniques outside the specific monitoring areas.

Data collection and analysis will be integrated as much as possible to gain a more complete understanding of the interactions among resource concerns, such as wildlife habitat and stand productivity, or upsiope watershed condition and fisheries habitat. Resource specialists will design and perform effectiveness monitoring in an interdisciplinary mode to ensure data compatibility and consistency, avoid duplication of effort, and increase the likelihood of gaining useful insights about the complex cause and effect relationships within forest ecosystems.

The scope of effectiveness monitoring will vary over time. Monitoring costs are expected to be greater during the first and second decade of Plan implementation as new ecosystem data are collected and management strategies are tried. Some effects are likely to appear in the short term, requiring immediate and relatively continuous monitoring. Other effects may not appear for years or decades, and will require long-term, intermittent monitoring. Adjustments in monitoring levels will be handled through the Plan amendment process where changes are deemed significant.

The Effectiveness Monitoring Plan is presented in Table V-3. Monitoring elements have been grouped under four main headings. Each of the first three groups include designated management areas that have a common theme in terms of direction and goals: Special Emphasis, Non-Commodity Values, and Adaptive Management. Most effectiveness monitoring related to individual resources will be planned and conducted in one of these groups, particularly the Adaptive Management group. The remaining resource-specific effectiveness monitoring is listed under a fourth group of items that address project performance and target attainment Forest-wide. PSW will be responsible for management and monitoring of the Experimental Forest. Monitoring emphasis at the Nursery will be on efficient productivity of seedlings within constraints set by State guidelines for air and water quality standards.

• Endangered Species Act — requires implementation and monitoring of existing recovery plans for the Peregrine Falcon and Bald Eagle, as well as final recovery plans for the Northern Spotted Owl and Marbled Murrelet once those plans are completed. The Endangered Species Act also requires consultation with the U.S. Fish & Wildlife Service under Sec.7 on any actions that may affect these federally listed species.• Clean Water Act — requires application of Best Management Practices (which are incorporated in this Forest Plan's standards & guidelines) and evaluation of their effectiveness.• Wilderness Act — provides administrative direction pursuant to the Act that requires development of implementation schedules for allowable activities in, and overall management of each designated Wilderness area.• Wild and Scenic Rivers Act — requires development of management plans for wild, scenic and recreational segments, including monitoring of public use and protection of intrinsic values.The management plan for the South Fork Trinity River was completed by the Shasta-Trinity National Forests in 1994. It prescribes extensive monitoring of public use, and is incorporated by reference into this Forest Plan.• Smith River National Recreation Area Act — all management activity must comply with direction in the Smith River Plan (see Appendix A), as required by the Act.The data collection phase of the forest planning process addressed current issues and concerns on the Forest. Plan analysis identified specific areas or issues that will be addressed more completely during Plan implementation. Table V-1 lists additional strategies needed to implement the Forest Plan. This supplemental direction will conform to Forest Plan direction on a site-specific basis, and will also identify any needs for resource coordination. The resultant documents are required by law or are necessary to coordinate project development or implementation more effectively. All other plans, strategies or Forest direction are superseded by the Forest Plan, with the exception of those existing stratcgics listed in Table V-2 that are rctaincd and incorporated by reference into this Forest Plan.

In addition, several research programs will either be initiated or continued to facilitate implementation of the Forest Plan. Most will be integrated with validation monitoring actions (see below) that deal with regional issues addressed by the FSEIS ROD. In general, these studies relate to critical assumptions or modeling parameters used in development of this Plan. The most critical needs that are currently identified include:

• specific habitat requirements, conditions of occupancy, and population dynamics of TES species dependent on mature and old-growth forests;

• habitat requirements of sensitive aquatic and riparian species, as well as interactions among the physical and biological variables affecting those habitats;

• response of timber stands to new silvicultural techniques, including the feasibility of maintaining a multistoried structure and retaining legacy trees, snags and logs; and

• general effects of management on overall biodiversity and forest health, as well as socioeconomic health of dependent communities.

Monitoring and evaluation are expected to identify additional research needs during the life of this Plan. Other less critical research questions, as well as details on the above items, are presented in Appendix G. The PSW and PNW Research Stations will have general responsibility for these research programs, while Forest personnel will collaborate and provide input to their design and execution.

Implementation of the Forest Plan will change the way some resources are currently managed. All permits, operating plans, leases, and contracts issued prior to issuance of the Forest Plan will be administered under existing provisions. Changes to existing timber sale and silvicultural contracts may be proposed and implemented on a case-by-case basis where overriding resource considerations are present. Appropriate NEPA documentation will be prepared for these changes. All proposed new or renewal lease applications, permits, contracts and operating plans will be evaluated for consistency with, and administered under the provisions of the Forest Plan. All supplemental management direction, as discussed above, will be consistent with Forest Plan direction within one year of Plan approval, subject to valid existing rights and outstanding permits, contracts or cooperative agreements.

### ADMINISTRATIVE REVIEWS

Purpose:

• Evaluate Forest compliance with required procedures & documentation consistency with Plan direction.

• Identify remedial actions and responsibilities as necessary.

Participants: Forest line & LMP staff; Regional LMP, Budget & NEPA staff

Procedure: general review of planning records & project files

• Are they properly maintained?

• Are "Consistency with the Plan findings documented?

• Are appropriate amendments being expedited?

• Was the 5-year review conducted and documented?

• Are implementation, monitoring & evaluation being conducted using an interdisciplinary approach?

• Are NEPA requirements, including public involvement, being done properly?

• Are program budgets consistent with the Plan?

• Are economic considerations being incorporated in Plan implementation?

### ACTIVITY REVIEWS

Purpose:

• Review implementation of activities on the ground for consistency with Plan direction & management requirements, and accomplishment of Plan goals

• Determine the need to adjust monitoring, evaluation or other requirements

Participants: varies with purpose & issues involved; Forest Line & staff, plus key Regional staff

Procedure: Field reviews of completed or in-progress projects

• Are Plan content & direction understood & followed by Forest personnel?

• Are projects & other activities achieving Plan goals?

• Are applicable standards & guidelines being applied?

• Are both project and Forest-wide monitoring occurring?

• Are management area delineation's appropriate?

• Are interdisciplinary procedures effective in Plan implementation?

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The outcome of general management reviews will be a Report and Action Plan that could change implementation procedures, expand or modify monitoring activities, or modify the Plan.

2. Effectiveness monitoring is the "heart' of the monitoring plan because it determines how well management area direction and Forest-wide standards and guidelines achieve the Plan's performance goals. It also addresses whether specific practices produce the expected results, individually and collectively, To measure accomplishment of Plan goals, effectiveness monitoring should be an integrated and balanced examination of both direct and indirect results of management practices. Measured responses to management activities will provide essential guidance for the kinds and locations of subsequent projects through the adaptive management process.

Effectiveness monitoring is conducted by technical specialists on a selective basis in response to resource values and risks, as well as public issues. It is performed only when compliance monitoring has demonstrated that management direction is being implemented within acceptable limits. It will involve both objective and subjective data collection and analysis. The majority of monitoring activity will be focused at this level because it is expected to provide

**Group IV: Forest-wide Resource Elements** – Standards & Guidelines that pertain to more than one of the preceding groups. The overall monitoring purpose is to evaluate how well specific direction accomplishes Plan goals on a ***Forest-wide*** basis.

| **PHYSICAL ENVIRONMENT** | | | |
|---|---|---|---|
| **Monitoring Element** | **Effectiveness Monitoring Questions** | **Sampling Methods and Intensity** | **Threshold of Concern and Responsible Staff** |
| **Air Quality** | Do prescriptions for fuels treatment produce levels of particulate matter that exceed currently established guidelines for State air quality & smoke management? | Sampling systems & models are under development, | Particulate matter levels in excess of baseline values for extended periods of time in areas of concern.<br><br>S.O. fire & fuels management staff |
| **BIOLOGICAL ENVIRONMENT** | | | |
| **Monitoring Element** | **Effectiveness Monitoring Questions** | **Sampling Methods and Intensity** | **Threshold of Concern and Responsible Staff** |
| Biodiversity | Is forest ecosystem functioning productive sustainable ecological unit?<br>Do silvicultural treatments and<br>– fire management maintain<br>– natural processes and move vegetation towards recommended management ranges? *<br>Are desired habitat conditions for northern spotted owl and marbled Murrelet maintained where adequate and restored where inadequate?<br>Are desired habitat conditions for at-risk fish stocks maintained where adequate and restored where inadequate? | These questions will be addressed by means of a number of physical and biological indicators that will track ecosystem conditions and trends.<br>Indicators may include land & vegetation condition, patterns of plant disease or infestation, amounts & distribution of fuels, aparian & aquatic habitat condition, and air & water quality parameters.<br><br>Methodologies will be further developed by the REO. | Reliable indications, as determined by resource specialists, that desired ecosystem conditions or trends are not being maintained or restored by combined management actions.<br>Forest management team and other resource managers at S.O. and on Districts. |
| Sensitive Plants | Are sensitive plant populations being protected by standards & guidelines, and other specific project mitigations? | Annual field evaluation of 20% of established long-term monitoring sites within managed forest, botanical, and research natural areas.<br>(See Appendix H for details.) | Sample populations show more than a 20% decline in number of individuals over a 5-year sampling period.<br><br>Botany / ecology staff |

**Group IV: Forest-wide Resource Elements** (cont)

**BIOLOGICAL ENVIRONMENT** (cont)

| Monitoring Element | Effectiveness Monitoring Questions | Sampling Methods and Intensity | Threshold of Concern and Responsible Staff |
|---|---|---|---|
| **Survey** & **Manage** Species | Does management promote conservation of vascular and non-vascular plants associated with late-successional and old- growth forests?<br><br>Has management helped to avoid the listing of any Survey & Manage species? | See FSEIS ROD for details under *Survey & Manage.*<br><br>Initial sampling will probably involve a census for species of unknown or little known distribution. Once mapped, ecology plots (in accordance with Region 5 Ecosystem Classification) can provide a framework to collect habitat data. Permanent quadrants or transects will be installed for subsequent monitoring. | Thresholds have not yet been established.<br>Forest botanist, ecologist |

## SOCIO-ECONOMIC ENVIRONMENT

| Monitoring Element | Effectiveness Monitoring Questions | Sampling Methods' and Intensity | Threshold of Concern and Responsible Staff |
|---|---|---|---|
| **Community Health** | **What** are the measurable effects of Forest management on socioeconomic conditions of dependent communities in Del Norte, Humboldt & Trinity Counties?<br><br>To what degree are various public interest groups (such as Amenity Values, Native American Cultural Users, Timber-dependent & Firewood Gatherers) satisfied with those aspects of Forest management that affect group interests? | Compile and analyze employment/unemployment data in occupations related to forest products & recreational uses.<br><br>Evaluate commodity data for timber sold, recreational use, permits and applications for grazing or minerals, as well as payments to counties.<br><br>Develop & conduct formal surveys of representative Forest users to gauge satisfaction with management.<br><br>Methodologies will be further developed by the REO. | Greater than 20% change in employment/unemployment levels in any category.<br><br>Greater than 15% annual change in commodity or non-commodity outputs, or greater than 10% change for 3 successive years.<br><br>Greater than 15% expressed dissatisfaction with Forest management by any interest group.<br><br>Public affairs, timber management, recreation & heritage resources staff. |

| **Group IV: Forest-wide Resource Elements (cont)** | | | |
|---|---|---|---|
| **RESOURCE MANAGEMENT PROGRAMS** | | | |
| **Monitoring Element** | **Effectiveness Monitoring Questions** | **Sampling Methods and Intensity** | **Threshold of Concern and Responsible Staff** |
| **Dispersed Recreation** | Are the types & amount of recreation that are occurring compatible with adopted Recreation Opportunity Spectrum (ROS) classes?<br><br>Are public expectations of recreational use & opportunity being accommodated?<br><br>Is OHV use effectively limited or restricted to designated routes to avoid resource damage outside those routes? | Annual field reviews of areas classified as primitive and semi-primitive (including both non-motorized & motorized) to assess project effects on recreation setting & ROS category.<br><br>Annual field sampling of 20% of OHV routes. | More than 10% variance from planned use levels.<br>Visible damage of Forest resources along or adjacent to OHV routes.<br><br>S.O. & District resource officer & recreation staff; Forest engineering staff (for OHV use) |
| Fire **Management** & Fuels **Treatment** | Do fire suppression strategies protect dependent resources in the various management areas, such as wilderness, managed wildlife, & general forest?<br><br>Are fuels treatments effective in reducing fuel loadings to lower the potential for uncontrolled ignitions, while protecting residual soil & other organic legacy? What are the short-term and long-term * effects ***of*** fuels treatments on ecological processes, * structural elements, and species composition? | Review all significant fire suppression actions with respect to this concern,<br><br>Document fuel loadings & calculate fire hazard as pait of end-product reviews for other resources (refer to Group III).<br><br>Short term: pre- and post- burn inspections, Long-term: to be developed at landscape scale for various representative geographic & topographic settings | Unacceptable loss of dependent resources resulting from suppression strategy.<br><br>Fuel loadings above safe levels, according to fire spread models, in more than 20% of areas inventoried.<br><br>Undesirable alteration of species composition or forest structure.<br><br>S.O. fuels management *staff;* ecology/botany staff |
| **Forest Pests** & Diseases | Are applicable mitigations & management strategies preventing / minimizing significant damage or growth reductions from destructive insects or diseases on the Forest, including Port-Orford cedar root disease? | Routine sampling during stand exams and reforestation surveys,<br><br>Bi-annual aerial detection surveys, plus intensive sampling of road systems infected by POC root disease.<br><br>(See Appendix H for details.) | Pathogen or pest levels indicate potential for damage or growth loss in 15% of samples.<br><br>Detected acceleration of POC root disease spread.<br><br>S.O. & District silviculturists |

**Group IV: Forest-wide Resource Elements (cont)**

| **RESOURCE MANAGEMENT PROGRAMS** (cont) | | | |
|---|---|---|---|
| **Monitoring Element** | **Effectiveness Monitoring Questions** | **Sampling Methods and Intensity** | **Threshold of Concern and Responsible** Staff |
| Heritage Resources | Have activities adversely affected cultural sites or values?<br>Do project-level mitigations protect heritage resource values and deter vandalism?<br>Do projects encourage Native American contemporary use? | Review all projects with identified significant cultural sites or values, or that are intended to promote Native American contemporary use.<br>Methodologies will be further developed by the REO. | Ineffective heritage resource protection, based on visible field evidence.<br>Heritage resources staff |
| Lands - Special Use Permits | Are special use permits issued & administered in a timely manner? | Part of routine program management review. | Documented permittee dissatisfaction.<br>S.O. lands staff; District resource officer |
| **Minerals** | **Are operating permits** & plans being administered in ways that protect surface resources?<br>Are areas withdrawn from mineral entry appropriate for withdrawal? | Field evaluation & documentation of *50%* of currently operating mineral operations annually. | Observed non-compliance with operating plans.<br>Visible damage to surface resources.<br>District resource officer, S.O. minerals staff |
| **Range** | Has management direction maintained vegetation quality in areas with satisfactory conditions, and improved areas with unsatisfactory conditions? | Random field sampling of 30% of key grazing areas annually to document ecological conditions & impacts on other resources. | More than 20% of sampled areas in satisfactory condition exhibit downward trend in forage quality or ecological integrity.<br>Sampled areas in unsatisfactory condition exhibit a downward trend.<br>District resource officer |

**Group IV: Forest-wide Resource Elements (cont)**

**RESOURCE MANAGEMENT PROGRAMS** (cont)

| **Monitoring Element** | **Effectiveness Monitoring Questions** | **Sampling Methods and Intensity** | **Threshold of Concern and Responsible Staff** |
|---|---|---|---|
| **Special Forest** Products | Are special forest products (SFPs) managed to ensure sustainability of the resource while maintaining other forest values?<br>Are publics adequately informed about availability of products, proper harvesting techniques, and lands not available for harvest of SFPs? | Establish long-term quadrats or belts through collection areas and a paired control to assess harvesting effects on species of concern. Monitor within *5* years of baseline. | Interdisciplinary task force will evaluate permits to identify resource pressures, market demand and areas to improve SFP management.<br>Forest botanist, silviculturist |
| Transportation **& Facilities** | Do Forest roads and other facilities support a full range of management objectives, while providing safe use by the public? | Annual survey of roads and facilities on a planned 3-year rotation schedule, emphasizing facilities used by the public. | Any significant unsafe condition; ***should be corrected promptly or close the facility.*** **S.O. engineering** staff |
| Wildlife | Are seasonal restrictions adequate to prevent disturbance or displacement of sensitive species? | Annual monitoring of management related disturbances at selected sites. | Evaluate all sites where seasonal restrictions have apparently failed.<br>Wildlife staff |

3. Validation monitoring focuses on the Forest Plan strategy and determines if it is the best way to meet Forest goals. It also examines the assumptions underlying management direction. New information on the validity of current assumptions is being developed from different areas of forest research. For example, new information related to fisheries and wildlife, particularly the accuracy of habitat capability models and life history knowledge, is being developed through the Forest Service Fish and Wildlife Habitat Relationships Program. In terms of Plan implementation, validation monitoring will be initiated when effectiveness monitoring indicates that the desired results are not being attained. Some validation monitoring will probably be initiated immediately, however, in conjunction with currently known research needs on the key resource issues cited earlier. Specific questions that are an immediate priority include:

• Are populations of TES species stabilizing or increasing?

• Are the assumed relationships between wildlife populations and late-successional habitat valid?

• Are reserves occupied by stable populations of sensitive species?

• Can silvicultural practices create and maintain habitat conditions as expected? • Do changing National Forest activities and programs affect dependent human communities as predicted?

• Does the public approve of forest conditions that are or will be created by implementing this and other Forest Plans?

No cost estimates are presented for validation monitoring. It would be conducted very selectively on “high stakes” issues because of the large commitment of time and resources needed to achieve meaningful results. Validation monitoring normally will involve long-term studies that examine cause-effect relationships. Because of the large geographic scope of the issues involved and the diversity of jurisdictions involved in resolving these resource questions, validation monitoring will be conducted by a variety of participants, including Forest Service Research, personnel on this and adjoining National Forests, and other cooperating agencies. Universities and other public groups may participate in designing and performing the data collection to support validation monitoring.

Validation and
effectiveness monitoring are key, complementary facets of implementing the adaptive management strategy. Both approaches are required: validation monitoring examines the attainment of the broad goals of ecosystem management, while effectiveness monitoring looks in detail at the means of achieving those goals - the actual management practices. Therefore, both validation and effectiveness monitoring must be subject to periodic adjustment as this Plan is implemented, with the results of one guiding the design and performance of the other.

**Evaluation and Management Responses**

Evaluation of monitoring results will compare the actual costs, outputs, or conditions to projected or desired values. Differences between the actual and desired values that exceed the compliance tolerance (for implementation monitoring) or the threshold of concern (for effectiveness monitoring) would indicate a possible management problem requiring corrective action. As explained earlier, the management response to unacceptable levels of compliance will be to take additional actions to ensure that the Forest Plan is implemented as designed. Management problems identified through evaluation of effectiveness monitoring will be resolved in one or more of the following ways:

• modifying management practices, activities, or performance

• revising project implementation schedules or the cost per unit of outputs

• deferring action and re-evaluating the threshold of concern

• modifying the standards and guidelines as a Plan amendment

• modifying management area direction as a Plan amendment

• revising the Plan.

The Planning ID Team will evaluate monitoring results annually and quantify the degree of compliance during Plan implementation. An annual report summarizing pertinent observations and measurements of project performance in critical resource areas will be prepared and made available for public review by January 1st of each year. The results of effectiveness monitoring will be compiled and evaluated at least every two years. The evaluation

process will be applied to a representative sample of Forest projects. Based upon this evaluation, the ID Team will recommend changes in management direction or desired amendments and revisions in the Forest Plan to the Forest Supervisor.

Effectiveness and validation monitoring together will be the means of evaluating how well the adaptive management strategy is working in achieving desired conditions of the 17 management areas, other specific landscapes within the Forest for which watershed analyses have been completed, and the Forest as a whole. These questions will also have provincial and regional contexts. This level of evaluation must have a longer term focus because results are not likely to be evident for several years or decades. The means and protocols of defining the level of success in reaching ecosystem management goals have not yet been established. It will require cooperation between and committment of the National Forests involved as well as research, regulatory agencies, and academia.

**AMENDMENT AND REVISION**

National Forest planning is an ongoing process. Forest Plans can and should be modified when conditions warrant. Amendment or revision may be needed because of either external factors, such as a change in issues, new research results, or changing socioeconomic conditions, or internal factors such as monitoring and evaluation results. The general threshold for revision or amendment is tied to ongoing research efforts, as explained earlier.

The Forest Supervisor will review the conditions on NFS lands covered by this Plan, as well as public opinion, at least every five years to determine whether those conditions or public demands have changed enough to warrant an adjustment to the Plan. Adjustments may also result when the Forest Supervisor determines that changes in the policies, goals or objectives of the Resources Planning Act could affect Forest programs. In addition, the Planning ID Team may recommend an adjustment of the Forest Plan whenever the monitoring and evaluation program yields information indicating a need for change in management direction.

The need for Plan adjustment also may arise from an individual situation. When a proposed action appears to be inconsistent with the Plan, either the action cannot be implemented or a Plan amendment must be prepared. The most efficient way to amend the Plan is through the environmental analysis and decision document for the proposed action, but only if the amendment is determined to be non-significant. The Forest Supervisor will determine whether a proposed amendment would result in a significant change, based on an analysis of the objectives, standards and guidelines, and other contents of the Plan. A change is likely to be significant if it (1) will occur during the current plan period, (2) involves a sizable component of the planning area (3) substantially affects the output of goods or services, or (4) could set a precedent for future decisions [FSH 1909.12, Chap. 5, Section 5.32]. If the change resulting from the proposed amendment is determined to be significant with respect to earlier or newly emerging issues, concerns and opportunities, the Forest Supervisor will follow the same procedures that are required for development and approval of a Forest Plan. If the change resulting from the amendment is determined not to be significant with respect to the Forest Plan, the amendment may be implemented following appropriate public notification and satisfactory completion of NEPA requirements.

The need for Forest Plan revision will be evaluated at least every 15 years. Under current NFMA regulations, procedures for revising the Plan are the same as those required for initial Plan preparation and approval. By keeping the Plan current through periodic, incremental amendments, however, the more complex revision process may be unnecessary.