Monitoring and Evaluation Report – Fiscal Year 1996

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Summary

Forest Monitoring Activities

The implementation of the Shasta-Trinity National Forests Land and Resource Management Plan (LRMP) establishes the framework for translating management direction into goals, objectives, and standards for on-the-ground projects.

Monitoring and evaluating the implementation process, effects and outputs helps determine how well the Forest Plan objectives are being met and how closely standards and guidelines are being followed. Chapter Five of the Forest's LRMP displays the items identified for monitoring and verifying implementation of the plan.

The Shasta-Trinity LRMP is based on the President's Northwest Forest Plan and includes monitoring guidance from the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl (ROD).

Shasta-Trinity National Forest Monitoring System

Monitoring Scales - Information obtained through the monitoring and evaluation system was reported at several different geographic scales including management areas, watersheds, individual project areas, or the Forest as a whole. For this report, information was collected at both the District and Forest level with District information aggregated up to the Forest level whenever possible.

Monitoring Levels - Information for this report came basically from three levels of monitoring:

1. Project Environmental Analysis
2. Single Resource - Forest Program Assessment
3. Forest-wide Multiple Resource Assessment

Each level consists of two components: data acquisition and administrative review. Data acquisition refers to the collection and processing of environmental data. Administrative review refers to program analysis after the information has been evaluated and compared with Forest Plan objectives, standards, and guidelines.

The Forest data-base will be updated periodically. Each of the above levels will contribute to the process, but project level assessments will be the most often used means of insuring that District level information is incorporated into the broader Forest data-base.

Project Environmental Analysis - One of the common processes available for monitoring is project environmental analysis where on-the-ground information is compared with the existing data-base. This information is used to verify assigned management area prescriptions, projected outputs, and objectives originating from the Forest Plan for updating, if necessary.

Single Resource - Forest Program Assessment - The next level is a Forest-wide assessment of single resources and Forest programs. For example, single resources such as bald eagle habitat or anadromous fisheries are site-specific, but they may not coincide with project environmental assessments.

Forest-wide Multiple Resource Assessment - The Forest-wide scheme includes intensive field surveys and high resolution remote sensing data which provides the framework for monitoring single resources and Forest programs. As in the other two levels, information obtained in these assessments will be used for updating the existing data-base for multiple resources and comparing results with Forest objectives.

As part of the process for FY 1996, the Shasta-Trinity established a monitoring team and a monitoring report steering committee. The team reviewed Chapter 4 and 5 of the Forest Plan to verify Standards and Guides (S&Gs) and management concepts that were appropriate for first year implementation monitoring. The team and committee set up a short term strategy and discussed concepts for a long term strategy. A questionnaire form was designed for use by the districts and various resource specialists. Input from the questionnaire was summarized, assessed and aggregated up to the Forest level wherever possible for inclusion into this report.

Activities monitored during FY 1996 as part of the Forest's monitoring and evaluation program included; reforestation success, thinning and release, timber sales, inventories of cultural sites; wildlife and fisheries habitat condition and the presence of selected Threatened, Endangered, and Sensitive (TES) species. Outputs associated with timber products, roads, fuel management, habitat improvement projects and livestock grazing were also monitored.

The Forest also monitored conditions from the LRMP including the Aquatic Conservation Strategy (ACS) objectives and Survey and Manage species for which protocols existed.

Other monitoring items included actions taken to achieve Rural Development and Community Development Program goals, completion of Watershed Analyses (WA), Late Successional Reserve (LSR) Assessments, and the Adaptive Management Area (AMA) Guide. A review of whether WA, LSR Assessments and the AMA Assessment were used in project planning was also conducted. Actions taken to improve relationships with elected representatives of Native American Indian Tribes were also monitored.

Elements identified in Chapters 4 and 5 of the Forest Plan that were monitored and reported on a Forest-wide basis in FY 1996 included soil productivity, Best Management Practices, habitat restoration, inventories of species/habitats, inventories of special habitat components, application of selected S&Gs and verification of inventories of cultural sites.

Refer to the appendix for additional information on monitored activities.

Evaluation of Monitoring Results

Overall, when specific standards and guidelines were monitored for implementation or effectiveness, the Forest was successful in meeting or in moving closer to Forest Goals and Objectives.

Soil cover monitoring indicated that standards and guidelines were implemented and effective. Best Management Practices had been implemented on all of the sites sampled and were effective on over 95 percent of the areas to which applied. Watershed cumulative effects and water temperatures were also monitored in selected areas. A number of Watershed Analyses (5) and interim and regular LSR Assessments (6) were initiated or completed and used for project planning efforts. Documents for selected projects were reviewed and found to be consistent with LRMP intent.

An AMA Assessment and Implementation Guide was drafted in FY 1996. Selected projects within the Adaptive Management Area were reviewed for their consistency with the opportunities identified in this draft guide. The Hayfork Watershed Group also worked on economic-related projects for the AMA.

The Forest certified 3,927 out of 3,942 (99.6%) acres of regeneration harvest accomplished in FY 91 as being adequately stocked, meeting timber management objectives for controlling competing vegetation and exhibiting desirable spacing.

Portions of selected grazing allotments were designated as being suitable for livestock grazing as required in the Forest S&Gs. Range readiness and utilization standards were checked on all 22 active allotments, although not all allotments were managed to the Forest's agreed upon administration standards, due to availability of person power and funding. Portions of several allotments were fenced, managed, and monitored to help verify that the Forest was meeting ACS objectives.

The Forest surveyed for cultural sites on 100% of the projects initiated prior to site-disturbing activities.

The Forest met at the 95% or higher level its agreed upon Regional Targets in all resource areas (refer to Output table in the Appendix.)

The Forest's efforts in cooperating with other agencies, organizations, tribes and individuals was extensive. The Forest cooperated with numerous partners in aquatic and terrestrial restoration projects, surveying wildlife, fish and rare plant habitats. The Forest also provided environmental education programs for students and other groups. Extensive coordination and cooperation occurred with more than eight Tribes including periodic meetings and the completion of four Memoranda of Understanding. The Forest, in cooperation with other groups and agencies, also assisted in securing Rural Development grants to create job opportunities and to place workers in jobs through the Rural Development and Community Development programs.

Evaluating the 1996 monitoring efforts and data resulted in the Forest identifying the need to develop a more comprehensive resource project implementation monitoring system, including collection and reporting of information.

Monitoring of wildlife/fish implementation concepts and their effectiveness needs to focus more on monitoring habitat and associations of species in an ecosystem management approach, rather than on individual populations.

During the first two years of implementing the LRMP the Forest's timber stand management has focused primarily on intermediate thinning and salvage of dead and dying trees. Regeneration harvest,

such as Green Tree Retention (GTR), was applied at only 6 percent of LRMP levels. Monitoring has shown that with limited regeneration cutting occurring within the Matrix and the Adaptive Management Area, the Forest may not be moving towards a regulated condition which would provide for long term sustained yield in these areas.

Timber stand regeneration prescriptions help the Forest to meet objectives for early successional species and without stand manipulation, whether natural or prescribed, biodiversity objectives and/or S&Gs may not be met. The Forest is currently placing increased emphasis on applying management practices which would help provide for early seral wildlife species/habitat.

Monitoring ACS, geology, soils, water, fisheries, and wildlife standards and guidelines at the project level identified two important items: 1) It re-emphasized the importance and necessity of implementation monitoring. When implementation monitoring does not precede effectiveness and validation monitoring, a determination of which activities were effective and validation of assumptions can not be made. 2) In most cases monitoring should be done by an interdisciplinary group representing various units/resources.

Review of five completed Watershed Analyses (WA) and a random sample of 70 NEPA documents indicated that all appear to be consistent with the intent of the LRMP, including moving toward desired future conditions and applying landscape level analyses. It is important to note that documentation of intent does not always mean application of the standard and guide on the ground at the project site. This requires field monitoring and verification.

The Forest did not conduct studies to verify any of the LRMP modeling assumptions. Two circumstances were identified that could affect such assumptions: 1) application of the dispersal requirement for the Northern Spotted Owl in the WA process was not modeled in the Plan, and 2) Level l teams often make agreements on attributes that were not modeled and could affect outputs of some resources even though such agreements do not constitute decisions.

The Forest finished developing a snag model which is intended to meet the 40 percent viability rule for snag dependent species. While the model has not been verified or fully implemented in all areas, it was used for planning purposes in the WA process and is intended to be implemented forest-wide in FY 1998.

A Provincial Monitoring Group visited selected timber sales on portions of the Shasta-Trinity within the NW Sacramento and Klamath Provinces in FY 1996. The composition of these groups included State, public, Federal (other than Forest Service), and Forest Service participants. Results of this effort showed that projects were meeting or moving towards meeting the intent of the Forest LRMP. One area that needed improvement was the clarification and application of riparian management concepts as per the ACS. For example, the identification of intermittent or ephemeral stream courses and the application of an appropriate boundaries adjacent to such areas was not always clear on the ground due to fluctuations of annual waterflow and variances in the interpretation of definitions for these types of areas.

Recommended Monitoring of Natural Resources for FY 1997:

Monitoring Item	Recommendations for Future Monitoring
Water Quality/Soil Cover	Continue monitoring and incorporate into interdisciplinary process and combine with BMP efforts
Water Quality/Fine Organic Matter	Continue monitoring, and incorporate into interdisciplinary process and combine with BMP efforts
Water Temperature	Continue
Best Management Practices	Continue as part of Regional program, examine for incorporation with water quality monitoring efforts
Air Quality Photos of Yolla Bolly Wilderness Area	Continue
Fisheries Habitat Restoration and Biodiversity	Continue
Sensitive Plant Baseline Trend	Continue
Surveys for Survey and Manage Species	Continue /expand 1997 efforts
Watershed Analysis Accomplishments	Continue
Aquatic Conservation Strategy	Expand effort of interdisciplinary process
Pre-project Sensitive Plant Surveys	Continue
TES Species Populations and Habitats	Continue
Wildlife/Fish Habitat Restoration and Implementation of Biodiversity and Species/habitat S&Gs	Continue
Special Interest and Research Area Trend	Continue
Fish Populations	Continue
Public Presentations	Continue
Selected Sensitive Plant Populations in Grazing Allotments	Continue
Cultural Treatment, Certification and Timber Product Outputs.	Continue
Acres of Fuel Treatment	Continue
Range Condition/suitability and Utilization	Continue
Effects of Grazing on Selected Riparian Areas	Continue
Actions to Assist in Enhancing Economic and Social Viability of Forest-dependent Communities	Continue
Level of Forest Reserve Revenue Payments and their Effects on Associated Counties	Continue
Forest Programs and Budgets	Continue
Effects of Forest Activities on Local Economy	Continue
Cumulative Watershed Effects	Continue
Riparian Reserves	Continue
Consistency of Project and Watershed/landscape Documents as Related to LRMP	Continue
Completion of Late-Successional Reserve Assessments	Continue
Activities that Lead to Accomplishing Adaptive Management Area Goals	Continue

Recommended Monitoring of Public Services Resources for FY 1997:

Monitoring Item	Recommendations for Future Monitoring
HERITAGE RESOURCES Investigate disturbances of Native American religious/sacred places	Continue as disturbances occur
Investigate disturbances of Native American traditional resource areas (not religious)	Continue as disturbances occur
Check adequacy of site protection measures	Continue, tied to 106 Programmatic Agreement
Determine thoroughness of field identification of sites; datum tagging	Continue, tied to 106 Programmatic Agreement
LANDS Effect of land exchanges on total Forest timber land base and inventory	Continue
MINERALS Mineral activities	Continue, on a case by case basis
RECREATION Implementation of Recreation Opportunity Spectrum (ROS)	Activity Reviews will occur in FY 98
Determine if recreation management direction meets expectations of visitors	NEPA, surveys and comment cards, front desk surveys and Congressional inquiries
Determine if critical recreation resource attributes for each ROS class are protected from degradation	Activity Reviews will occur in FY 98 for selected areas
Determine if actual use compares with projections	FY 98 utilizing operating plans for concessionaire, resort/marinas and other commercial recreation permittees to provide use data as well as general forest area surveys.
Condition of developed sites	Continue development of MM standards and Infra
Recreation management and facility costs	Continue development of MM standards, Infra and concession audits/reviews, utilization of Forest-wide facility designs
Determine effectiveness of off-highway vehicle (OHV) plan in protecting Forest resources	Continue via partnership with BLM for OHV area and green sticker annual reporting to include snowmobiling
VISUAL QUALITY Determine if visual resource management (VRM) standards are being followed, and visual quality objectives (VQOs) are being met	Planned field visits to selected projects FY 98, Implementation of new Scenic Management System
Determine if VRM guidelines are reliable	Planned field visits to selected projects FY 98
Determine trend of visual character	Planned field visits to selected projects FY 98
Verify sensitivity levels	Coordinate with province transportation planning efforts
Visual resource rehabilitation or improvement	Opportunity and dollar driven limited activity occurring
WILD AND SCENIC (W&S) RIVERS Monitor attributes	Continue via the Southfork W&S Management Plan, Trinity River W&S Implementation Guide & river ranger monitor reports
WILDERNESS AN ROADLESS AREAS Determine if Limits of Acceptable Change (LAC) are being exceeded	Continue via LAC Reviews, on the ground contacts and implementation and monitoring of Forest Orders
Determine trends of wilderness attributes as affected by natural and human-caused events	Continue via LAC Reviews, on the ground contacts and implementation and monitoring of Forest Orders

Action Plan

The following recommendations are based upon adequate funding and program priorities. The strategy has a short term component and a long term component. Implementation of the needs and strategy depend on adequate program funding and program priorities.

Immediate Needs

The following list summarizes recommendations for what improvements in monitoring or in forest policies should be implemented for FY 1997 and beyond:

- Inventory undisturbed or relatively undisturbed watersheds to determine baseline data.
- Obtain clarification from the REO on the process to be used for Survey and Manage species status reviews.
- Develop a more systematic and quantifiable approach to measuring habitat components such as coarse woody material, snags and canopy closure.
- Organize and report the information collected in the customer/user satisfaction program "Serving People" at the forest-wide level so it can be evaluated next year.
- Use an interdisciplinary approach to identify Limits of Acceptable Change (non-recreation standards) for the Forest so monitoring of wilderness management can occur.
- Develop systems for collection, assessment and reporting data. Examples of systems needed include:
    - Land adjustments.
    - Locatable and saleable minerals.
    - Road construction and decommissioning.
    - Forest range program S&Gs.
    - Outside job placement resulting from human resource programs.
    - Accomplishments in the rural and community development programs.
    - Implementation and monitoring biodiversity and S&Gs.
- Develop a marketing method to inform the public of recreational opportunities available on the Forest, including fishing and hunting.
- Develop a method of assessing and showing how timber harvest methods as applied to various
- Land allocations and watersheds help in meeting Forest Plan desired conditions.
- Work with the NW Sacramento and Klamath Provincial Advisory committees, other interested members of the public, and Forest specialists to improve monitoring processes related to social and economic effects.
- Become more consistent in displaying and/or including a discussion of related ecosystem analysis documents in project documentation.
- Require that the type of cutting method be reported on the Harvest Record Cards in the Stand Record Card System.
- Examine the timber harvest inspector daily reports to see if they can be aggregated and used to report monitoring information at the forest level.

Short Term Strategy

The Forest's Short Term Strategy will be to monitor implementation of the LRMP at the project level, evaluate the effectiveness of mitigation measures, evaluate current conditions and predict future landscape changes. The Forest will emphasize implementation monitoring in FY 1997, primarily through the use of developed questionnaires and Forest interdisciplinary teams. Questions will be derived from the standards and guidelines for selected management and resource areas plus appropriate forest-wide or prescription specific standards and guidelines. Questions relating to outputs will also be included as this information will help with effectiveness and validation monitoring in the future.

The Forest Interdisciplinary Team will test out the process and refine it as necessary. Monitoring will be conducted on a random selection of projects including: prescribed fire, grazing, flood damage repair, fish and wildlife habitat improvement projects, and timber sales. Public and interagency involvement is desirable in identifying and sampling post-implementation projects.

Long Term Strategy

The primary objective of the Long Term Strategy will be to monitor implementation over the planning period, evaluate effectiveness and validate assumptions that may require adjustments to the LRMP.

This strategy will be the primary mechanism for validation monitoring, but will incorporate implementation and effectiveness monitoring as well. Currently an effectiveness monitoring strategy has been developed for Northwest Forest Plan (NWFP) forests and will be implemented in FY 98.

Potential Forest Plan Amendments

No Forest plan amendments have been proposed at this time.

Forest Plan Maps Errata

References to the Off-Highway Vehicle map, the Visual Quality Objectives map, and the Recreation Opportunity Spectrum map in the LRMP should be deleted. Direction for each of these objectives is provided in Chapter 4 of the LRMP under the Forest management prescriptions and the Standards and Guidelines listed for each management area.

Research Needs and Projects

1. Assess and verify current and potential production for fall Chinook, Coho, and steelhead within the Trinity River basin using existing and potential habitats.
2. Obtain a better understanding of the status and trend of aquatic Threatened, Endangered and Sensitive (TES) species and habitats and their conservation. Develop an integrated approach to aquatic TES management emphasizing ecosystem management and biodiversity.
3. Continue research on the social and economic value of recreation, tourism and visual resources. The Hayfork Watershed Center has done research on the socio-economic impact of contracts on

Trinity County using funding from Pacific Southwest Station (PSW). A report is due during the summer of 1997.

4. Conduct research on recreational carrying capacities, especially those capacities related to water oriented activities.
5. Conduct periodic assessments of user preference/satisfaction levels. Some information has been assembled for the Hayfork AMA plan.
6. Conduct biological studies to obtain information needed to develop Conservation Strategies for sensitive plants. Such research would include studies of distribution, habitat requirements, population dynamics, and responses to management activities. These studies would include information necessary to supplement existing data to assure the continuation of reproducing plants throughout the range of the species. Using funding from PSW, the Watershed Center in Hayfork has done regeneration trials on Prince's Pine using a Geographical Information System (GIS) to model the distribution of non-timber resources and the impacts of harvesting.
7. Continue research into the characteristics and dynamics of the black stain root disease on timber stands in the McCloud Flats area. PSW-Redding monitored the abundance of the suspected insect vectors of blackstain root disease in the Spring 1996 prescribed burn at McCloud Flats. Forest Pest Management installed blackstain root disease monitoring plots in the Spring 1996 burn. It will be several years before it will be known whether spring burning has an effect on the spread of the disease.
8. Continue research on the relationships between vegetative disturbance in late-successional forests and spotted owl habitat. The objective is to attempt to establish more clearly defined thresholds of population viability. PSW-Redding is now analyzing data from a long-term study in the Upper South Fork of the Sacramento (the Eddy Mountains) to use charcoal in lake sediment to establish the long term fire frequency. The PSW-Arcata lab has an ongoing project involving Spotted Owl habitat in the Hayfork AMA.
9. Continue research on the effects of logging and road construction on sediment delivery, runoff, and water quality using localized information or other means. Using funding from PSW, the Watershed Center in Hayfork has been studying the impacts on the soil using a small yarder.
10. Continue research on the long-term effects of timber harvest and reforestation practices on soil productivity. There is a paper being prepared reporting on the first 5 years of progress on the North American Long-Term Soil Productivity Study which will be published in the proceedings of the 18th Annual Forest Vegetation Management Conference. Although none of the 12 California sites are located on the Shasta-Trinity National Forest, the results will be applicable.
11. Conduct research to assess the costs and effectiveness of various vegetation management treatment methods. PSW-Redding has completed 3 major studies on the Mt. Shasta, McCloud and Yolla Bolla Ranger Districts and has manuscripts at the publishers.
12. Conduct research to assess the role of fire suppression and fuels management in meeting habitat needs for different species of wildlife. PSW-Redding is analyzing data collected for a landscape level fire history in the Hayfork AMA.

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Additional Support

Thanks to the Klamath National Forest for making the format and corresponding information from their report available for use by our Forest.

Location of Supporting Documentation

The supporting information for this report is on file in various resource departments in the Supervisor's Office and at ranger district offices. Refer to the appendix for specific documents and their locations by functional area.

Public Participation Plan

A notice of the FY 1996 Monitoring and Evaluation Report will be mailed to those on the Forest Plan mailing list and a copy of the report will be provided to the Provincial Advisory Committee.

Appendix

FY 1996 Monitoring and Evaluation Report Appendix

This appendix provides background information for Fiscal Year (FY) 1996 Monitoring and Evaluation Report. It is organized by resource area. The supporting documentation for the Monitoring and Evaluation Report is at the resource departments of the Supervisor's Office or at district offices.

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Physical Environment

Soil and Water

Monitoring Objectives: Verify implementation and effectiveness of BMPs at selected timber sale sites. For soil quality, verify retention of appropriate levels of ground cover and fine organic matter retained on site after logging. Monitor and assess the implementation of selected watershed restoration projects. Monitor water temperatures and watershed cumulative impacts as part of water quality assessment and S&Gs implementation. Monitoring questions include:

- Were BMPs implemented?
- Are the BMPs effective for protecting soil and water quality?
- What watershed restoration activities were implemented?
- Were cumulative watershed impacts monitored/assessed?

Results and Specific Examples:

1) BMPs

Objective: Best Management Practices (BMPs) have been agreed to by the Forest Service, State of California and Environmental Protection Agency as reasonable practices to protect water quality from adverse impacts during land disturbing activities. The objective is to control erosion and other potential off-site pollutants.

Methods: Selected sites and units from 3 timber sales were visited and verification of implementation and effectiveness of BMPs was made.

Results Table:

Standard or Objective	Activity	Areas Sampled	Areas Met	Percent Met (%)
BMP 1.8, 1.19, 1.22	Streamside Management Zone	3	3	100
BMP 1.10, 1.17	Tractor Skidding Design	4	4	100
BM[P 1.11	Suspended Yarding	3	3	100
BMP 1.12, 1.16	Landing Location	5	5	100
BMP 1.18, 1.22, 5.3	Meadow Protection	4	4	100
BMP 2.2, .4, .5, .7, .10, .23	Road Surface, Drainage	4	2	50
BMP 2.1, .4, .5, .7, .10, .23	Stream Crossing	4	4	100
BMP 2.11	Sidecast Material	4	4	100
BMP 2.16, 2.26	Temporary Roads	4	4	100
BMP 4.1, 4.2	Designated Swim	1	1	100
BMP 4.3, .4, .5, .6, .9, .10	Developed Recreation	1	1	100
BMP 5.1, 5.2, 5.5	Vegetation Management	2	2	100
BMP 8.1 – 8.4	Range Management	1	1	100

Riparian meadows and stream courses were adequately protected, ground disturbance was low, water bars well spaced and not overbuilt, yarding activities well conducted, selected road segments met standards and landings well managed. Logging practices could have been improved at a couple of units.

Recommendation: Continue BMP monitoring.

2) Soil Quality

Objective: Monitor percent ground cover and percent fine organic material retained after logging on selected sites.

Methods: Standards were monitored and assessed on 8 timber sale units.

Results: Average percent ground cover retained equaled 81, while average percent fine organic matter retained equaled 66. These were sufficient for meeting standards.

Recommendation: Continue monitoring soil quality standards.

3) Water Temperature

Objectives: 1) Maintain a long term trend monitoring program for the main channel of the South Fork Trinity River. The purpose is to assess efforts to restore fisheries of the South Fork Trinity by establishing a record of this most important water quality parameter. 2) Build a baseline data set for other rivers and streams to be used in the future for detecting changes in water temperature variables over time.

Methods: Hourly water temperatures at 25 locations were monitored across the Forest for the purpose of maintaining long term data sets at some locations and establishing baseline data at other locations. Data were collected with programmable digital data recorders placed in the streams in the spring and removed in the fall. Data were then downloaded into a Personal Computer. Collected data were stored in spreadsheet format in both hourly and daily high-low data sets. Analysis of data includes determination of 7 day maximum temperatures, diurnal fluctuation, correlation with physical parameters in the watershed, and correlation with daily high air temperatures.

Results: Analysis of results show daily high water temperatures to be greatest in low elevation stream channels exposed to direct solar radiation. Larger channels with low gradient, shallow channel configurations show high water temperatures regardless of management intensity in the watershed upstream. The water temperature in the main channel of the South Fork Trinity River is well above ideal water temperature for cold water fish habitat. This condition results from physical exposure of the channel to direct solar radiation. Due to the width of the channel, additional riparian vegetation will not be an effective tool to reduce high water temperatures. Since this condition has historically occurred in this system, the historical fish run must have adapted to these temperatures by utilizing thermal refugia within the system. Present monitoring efforts have not discovered the nature of this refugia, if it exists.

Stream temperatures are highly correlated to air temperatures in the summer months. High summer water temperatures are naturally occurring in rivers and streams over much of the Forest. Riparian vegetation is a controlling factor on small streams but may have a less significant effect on large low gradient streams exposed to direct solar radiation.

Recommendations: Continue monitoring for trends in the South Fork Trinity River and tributaries. Continue gathering temperatures for baseline information on other streams across the forest. Use analyzed data to determine which streams may benefit from riparian vegetation enhancement. Monitor micro-habitats in the South Fork Trinity River to determine source and abundance of thermal refugia.

4) Watershed Condition

Monitoring Objectives: Determine current watershed conditions and evaluate the effects of proposed future management. The attributes of most concern are the in channel stream conditions sensitive to cumulative impacts of multiple management activities in the stream's watershed. Monitoring the results of Cumulative Watershed Effects (CWE) analysis will help provide this answer.

Methods: The results from three CWE analyses were examined to verify the implementation of the CWE analysis method, and to determine if the recommendations coming out of the process are consistent with the process results. The three watersheds analyzed were: Iron Canyon - 11,250 acres; Deer Creek- 9,258 acres; and Lower Hayfork- 48,769 acres.

Results and Actions from the Iron Canyon CWE: Results of this analysis showed that the equivalent roaded area in the sub-watersheds had lessened considerably due to the recovery of the watershed from large scale harvest activities that occurred in the 1960s and the relative absence of activity during the 1980s. The analysis also determined that the proposed treatments would have a minimal effect on the sub-watersheds due to the light nature of the silvicultural treatments (thinning from below). The action taken as a result of the analysis was the formulation of treatment prescriptions in Riparian Reserves.

Results and Actions from the Deer Creek CWE: The analysis found that the equivalent roaded area in the sub-watersheds tributary to the North and South Forks of the Sacramento River, Wagon Creek and Deer Creek had lessened due to the recovery of the sub-watersheds from selective logging practices occurring from 1966 through the 1980s. Unlike Iron Canyon, the equivalent roaded areas were still high for late-successional reserve lands due to the large acreages impacted by continuous entries for selective logging. The final ERAs were still within the 16 percent threshold of concern. This analysis provided recommendations for thinning and burning in Riparian Reserves and recommended applicable BMPs.

Results and Actions from the Lower Hayfork CWE: Results were similar to the other two listed above. This 5th order watershed (Lower Hayfork Creek) is not in condition class 3 as identified in the Final EIS for the Shasta-Trinity NFs. More monitoring is needed of stream reaches further upstream, particularly to establish the presence and percentages of A, B, and more C channel types.

Cumulative watershed impacts from any activities in the entire Hayfork Creek watershed are best observed in C channel types, which are more sensitive to higher levels of sediment concentrations than either the A or B channel types that are predominant at the upper 5th order watershed.

Results: Use of the Cumulative Watershed Effects methodology has the objective of ensuring that the watershed is in sufficiently healthy condition to withstand the cumulative impacts of proposed management activities. In the three watersheds analyzed in 1996, all were found to be in a state of recovery from past management disturbances. Recommendations that followed from the analyses were

consistent with the results. Use of the CWE process is a form of monitoring watershed conditions with the objective of ensuring that cumulative effect thresholds are not being approached. Monitoring the process of applying the CWE analysis ensures that watershed conditions are being considered and are being included in management recommendations.

Recommendations: Continue using the CWE analysis process as a monitoring tool of Watershed Condition and continue monitoring the use of the CWE process to ensure its appropriate use. Future watershed analysis planned for Middle Hayfork, Upper Hayfork, Corral, and Salt Creek watersheds should discuss sediment budgets that are further upstream and transport sediment into the Lower Hayfork Creek watershed analysis area. This is especially important at Upper Hayfork Creek, which is identified in chapter 3 of the LRMP as one of seven 5th order watersheds that has high disturbance levels.

5) Watershed Restoration - Trinity Side

Objectives: Monitoring of watershed restoration projects conducted under the Jobs in the Woods program was done for the purpose of evaluating implementation and effectiveness of the work conducted in FY 1996. Implementation monitoring focused on the use of the project work contracts, how well they worked and what changes were needed to have them work better in the future. Effectiveness monitoring was focused on the techniques used to decommission or storm-proof roads.

Methods: Contracts through contract administration were monitored. The Forest monitored implementation of field work by selecting a sample of road segments and following the monitoring methods of the Regions Best Management Practices Evaluation Process. The field sites were evaluated following the winter after the projects were completed.

Results: The use of several smaller contracts enabled small businesses to bid on the work which resulted in keeping the work local. Field verification identified additional roads needing treatment. These roads could not be added to the contract because they were not listed on the contract waiver.

On decommissioned roads, tank traps that were built behind berms to block a road met all specifications and were well constructed. When areas around the sides of the berm were bare of vegetation, the tank trap was exposed and there remained a possibility that a motorcycle or small off-road vehicle could accidentally drive into the tank trap.

Ripping roadbeds seems to have been successful. The specified 3 foot spread between the rippers has been met. A soil spade was used to check the compaction of the ripped roadbed. Most areas, with the exception of soils that contained a heavy amount of clay, were uncompacted. Ripped areas that were wet and contained soils with a heavy amount of clay had very large soil clods and were compacted.

On the stream crossings where Corrugated Metal Pipes (CMPs) had been removed, it was observed that approximately 50 feet of roadbed on each side of the crossing was compacted. There were no signs of the soil being ripped in any of these 50 foot sections. Also, one of the stream crossing channels was incorrectly placed. One of the stream crossings where a CMP was removed had small 12 inch berms left from the cat tracks through the crossing. In a high flow this new crossing could divert from the new channel because of the berms left in the crossing.

All waterbars needed to be leveled properly and the lead-out ditch opened up to permit water to drain properly. This seems to be a problem on all the roads observed to date. A few waterbars and/ or dips were improperly constructed.

Recommendations: Place large unmerchantable logs on the sides of tank traps and at the entrance to all decommissioned roads to help prevent access into these areas.

A soil scientist should check areas proposed for ripping to make sure that the objectives and specifications be met. Each specific road crossing removal site should be looked at closely and specifications provided to ensure that streams are relocated to the original pre-road site. It is suggested that such sites be visited by hydrologists, engineers and field contract preparers to discuss this type of situation and develop site-specific prescriptions.

Once the contract is awarded and before work begins specifications for waterbars and dips should be shown again to the contractors and the objectives explained to alleviate any confusion. Also the Forest should have inspectors on the job daily so that problems can be dealt with immediately.

Seed collection Project:

Objectives: Collect seeds from selected indigenous plants for use in future seeding/revegetation projects. Information from the monitoring will be used to benefit next years seed collection contract.

Methods: Seed collection was done with an operational agreement with the local Watershed Center. The project was implemented in time to collect the seed at the appropriate time of seed development. Watershed Center personnel collected approximately 50 grocery bags full of native seeds over one week. Seed was collected over six elevation bands in the Butter Creek watershed.

Results: The collected seeds have been stored in a cooler on the Yolla Bolla district compound. Some of the seed will be used to broadcast seed areas that will need revegetation in FY 1996. Other seed will be sent out to be propagated, with the resulting seedling plugs being used in FY 1997.

Recommendations: Monitor the future use of utilizing collected seed and seeding results.

5) Watershed Restoration - Shasta Side

Objectives: Evaluate watershed restoration treatments (seeding, vegetation planting, rock & log placement, water-bars) completed earlier in the year. Evaluate eleven treatments at four sites to determine effectiveness.

Results: An Interdisciplinary (ID) Team approach was used to evaluate treatment effectiveness. Post-project review concluded that the treatments were effective in the control of erosion and watershed problems, including 3 acres of riparian habitat restoration at Lewiston Lake.

Recommendations: Use these treatments in other areas that have similar watershed conditions. Continue monitoring to determine long-term effect.

Biological Environment

Biological Diversity

Monitoring Objective: Integrate multiple resource management on a landscape level to provide and maintain diversity and quality of habitat to support viable populations of plants, fish, and wildlife. Monitoring questions include:

- How much habitat restoration or improvement occurred?
- What special habitat types and attributes are being monitored?
- Are survey and manage species being monitored?

Results and Specific Examples:

1) Dead Standing/Down Material

Objective: Verify implementation of coarse woody debris and snag retention S&Gs.

Methods: Field Survey and review of selected salvage and green sale areas occurred on McCloud Flats. Local Audubon and conservation groups and agency members were involved in addressing issues including management of dead standing and down material.

Results:

Windthrow sales - Enough broken and unmerchantable pieces were left to exceed down/ dead wood requirements in almost all cases. While some snags were lost as a result of the windthrow, some snapoffs were present which provided some snags in the area.

Fire salvage sales - Met requirements for standing and down/ dead material.

Hazard Tree Sales - Roadside hazard tree harvest removed snags which resulted in narrow or fairly small areas being below S&G levels. However, when S&Gs were applied to a larger adjacent landscape area, snags existed and were being managed for over time.

Green - Most of these sales fell below the District's established interim standard of retaining 3 snags /ac average. It should be noted that some of the areas did not meet the standard prior to harvest which indicated a need to manage for future snags. This standard for dead/down material was met in all areas. It should be noted that the standard of 3 snags per acre is being applied until verification and implementation of the Forest's snag model is complete. The LRMP states that the standard should support cavity nesting bird species at 40 percent of potential populations in the Matrix. The Forest snag model was being developed in FY 1996 for future implementation. In the meantime, the district used a goal of 3 snags per acre.

Recommendations: Continue monitoring of salvage and green sales for dead standing/down woody material and coordinate such monitoring with fuels and timber managers.

2) Large Woody Debris; accumulation/retention within watercourses:

Objective: Verify implementation of LRMP Standards and Guidelines identified for Timber Management, Aquatic Conservation Strategy and riparian habitat conditions.

Methods: This effort monitored unmanaged streams throughout the South Fork and Trinity River systems to: 1) Test the hypothesis that quantitative standards for large woody debris identified in the National Marine Fisheries Service (NMFS) Matrix of Pathways and Indicators (1996) are not representative of large woody debris densities within the Trinity basin; 2) describe naturally occurring densities, sizes and distributions of large woody debris. In this effort 35 miles of streams were inventoried.

Results: Preliminary analysis indicates that naturally functioning riparian areas within the Trinity basin do not generally meet the quantitative guidelines identified by NMFS. However, it is likely that in some areas, particularly following landslide or flood disturbances, that densities of wood may meet or exceed these guidelines. The project also revealed the randomness in which wood is recruited into the stream, making the process of predicting future recruitment highly variable.

Recommendations: Change the standards and guidelines for large woody debris needs in Riparian Reserves. The variability at which wood is recruited and distributed is too random to predict. Future land management activities should focus on maintaining natural riparian processes needed to recruit and distribute large woody debris throughout a watershed.

Overall Results:

Biodiversity Table

Standard or Objective	Activity	Results
Manage, restore or recover ecosystems.	Habitat restored or enhanced (including partners, fire and fuels projects).	5912 ac
	Structures constructed (including partners).	36 structures
Survey and Manage Species.	Salamander, great grey owl, plant, fungi & lichen habitat surveys.	750 ac
Survey prior to ground disturbing activities.		1230 ac

Restoration and habitat improvement projects benefited wetland species, neotropical birds and cavity-dependent species. The Forest cooperates with numerous partners in restoration projects. Our partners in this survey effort are listed in the Wildlife, Fish and Rare Plant Management System Report along with other information on monitoring of the wildlife, fish and sensitive plant programs. This report is kept in the Supervisor's Office within the Ecosystem Management staff area.

Over 70 National Environmental Policy Act (NEPA) documents, five Watershed Assessments and several active timber sales were reviewed for consistency and application of LRMP S&Gs. At the planning level, compliance was considered to be at the 100 percent level, while compliance at the field application level was estimated to be less than 100 percent. The latter indicates a need for better understanding and implementation of intended management concepts and S&Gs at the project level.

Overall Recommendations: Continue implementation monitoring for Survey and Manage species. Continue monitoring for habitat restoration/improvement and for application and implementation of

habitat attributes and S&Gs. Obtain clarification on the process for Survey and Manage species status reviews. Consider having training sessions pertaining to implementation of LRMP S&Gs.

Aquatic Conservation Strategy

Monitoring Objective: The objective is to determine if the productivity and resiliency of riparian and aquatic ecosystems are being maintained and restored. Monitoring questions include:

- Are watershed analyses being completed?
- Are Aquatic Conservation Strategy, geology, soils, water, and fisheries S&Gs being met?

Results and Specific Examples:

1) Watershed Assessment (WA)

Objective: Complete selected WA projects.

Methods: Watershed Analysis completed for 5 Watersheds.

Results: Two WAs were completed for blowdown projects during FY 1996. The Hayfork unit completed a draft AMA Implementation Guide.

Recommendations: Continue with the WA process in and set priorities for recommendations.

2) Vegetative Response to fire

Objectives: Monitor vegetative response to prescribed burning and ensure that Aquatic Conservation Strategy (ACS) objectives were met.

Methods: Photo points were established at Garden Ridge in riparian reserves and upland habitat. Habitat and vegetative conditions were described and photos were taken. Twelve hundred acres were burned and monitored visually. Visits were made to sites after burning and comparison data was collected.

Results: A team of specialists in hydrology, botany, ecology, biology, fish, fuels and soils) reviewed the project. It was determined that in protecting riparian reserves, wildlife and vegetative objectives were not fully met. The fire did not burn hot enough in portions of the project area. However, snag and riparian objectives were fully met.

Recommendations: Continue with pre- and post-burn monitoring and make prescription adjustments to provide hotter burns.

Overall Results: Monitoring ACS, geology, soils, water, and fisheries S&Gs at the project level identified two important points, 1) complete implementation monitoring prior to effectiveness and validation monitoring and 2) implementation monitoring provides the best results when done in an interdisciplinary manner.

Standard or Objective	Activity	Acres Analyzed
Complete Watershed Analysis before initiating actions within a Key Watershed.	1 WA completed	47,000
Ultimately watershed analysis should be conducted in all watersheds.	5 WAs completed	229,000

Overall Recommendations: Continue monitoring WA accomplishment and projects resulting from same. Incorporate ACS monitoring into the process.

Sensitive Plants

Monitoring Objective: The objective is to assure the maintenance of sensitive plant populations and/or species viability. Monitoring questions include:

- Are sensitive plant surveys being completed prior to management activities?
- Are project mitigations for sensitive plants being implemented as designed, and are the mitigations effective in maintaining the viability of sensitive plant populations?
- What are the natural fluctuations of sensitive plant population numbers and conditions?

Results: Sensitive plant habitat surveys were conducted on 6,940 acres and sensitive plant biological evaluations were written for 45 projects.

Approximately 60% of projects evaluated had no expected effect on sensitive plants and needed no mitigation. Remaining projects were judged to have potential impacts to sensitive plant individuals, but none were judged to have potential impacts leading to a trend toward federal listing. Mitigations were recommended for 25% of projects with potential impacts. Of those where mitigations were recommended, 25% were revisited to see if the mitigations were implemented. Three sensitive plant species have permanent plots established to measure population changes over time in the absence of management: Scott Mountain phacelia (*Phacelia dalesiana*), showy raillardella (*Raillardella pringlei*), and Umpqua green gentian (*Swertia fastigiata* or *Frasera umpquaensis*). Umpqua green gentian plots were read. Of the approximately 4500 sensitive and endemic plant populations on the Forests, 2% were visited to evaluate condition and trend.

Recommendations: Continue pre-project surveys and analysis of project impacts. Improve follow-up of mitigation measures. Continue periodic readings of baseline plots.

Wildlife Management

Monitoring Objective: Determine if wildlife habitat management activities are meeting LRMP goals. Monitoring questions include:

- Are territories/habitats for Threatened, Endangered, Sensitive (TES) and other species of interest being used?
- How much habitat restoration or improvement for TES and other species has been completed?

Results and Specific Project Examples:

1) Cave Inventory - McCloud Flats Area

Objective: Survey for life forms within caves.

Methods: Collected samples of invertebrates and completed identification and verification.

Results: Some caves had bats species and unique or undescribed arthropod species. Some caves had interesting geologic features. Vandalism is a problem in some caves. Caves with water at the mouth of the cave were being used by deer.

Recommendations: Continue monitoring cave and gate vandalism. Develop direction on how to record monitoring information. Use invertebrate specialist to describe and record the unique species.

2) Water Developments - McCloud Flats Area

Objective: Monitor water retention and wildlife use of guzzlers and ponds.

Methods: Water developments were surveyed for use by wildlife. Date when water developments went dry were recorded as well as tracks or direct observations of wildlife species.

Results: Most ponds held water into August. One went dry in July while three held water all year. Track data revealed an increase use of these ponds, and nearby ponds, by elk. Half the ponds had high deer use, especially those near fawning habitat. High numbers of passerine and Neotropical Migratory Birds were at the ponds in July. Almost every pond had one set of bear tracks sometime during the year. The ponds were generally not used by livestock. Guzzlers held water all year, but water levels in some were quite low by September. Almost all had moderate to heavy use by deer and other wildlife.

Recommendation: Continue monitoring and add water developments where water is limited.

3) Hazard Tree Removal at National Recreational Area (NRA) Campgrounds

Objective: Monitored impacts of removing hazard trees in campgrounds and the disturbance to habitat and potential for disturbance to nearby nesting species.

Methods: Monitored selected habitats within or adjacent to campgrounds with hazard trees for use by TES species and other resident species to ensure that removal of hazard trees would not result in adverse impact to wildlife species as a result of noise, activities and or direct loss of habitat. Collected data on 61 acres at 12 NRA campgrounds and assessed habitat suitability and need for hazard tree removal. Performed ocular assessments at each campground.

Results: Projects met the intent of the LRMP or were modified on the ground to ensure compliance.

Recommendation: Continue with this type of monitoring.

4) Lake Shore Seeding

Objective: Seed portioned of Shasta and Trinity Lake shorelines to improve wildlife forage habitat below high water line. Perform pre- and post-project monitoring.

Methods: Vegetative condition prior to treatment seeding were monitored. Treatment goals to meet resource objectives were established. Sites were visited to design projects and ensure that resource objectives could be met within existing budget. Photos were taken before and after projects for comparison purposes and to document results. At least 1000 acres were assessed and seeded.

Results: A team of fisheries and wildlife biologists met and designed project to meet resource objectives. Hydrologist and soils and fuels specialists were consulted as needed. It was determined that seeding the lakes below high waterline could improve wildlife and fish habitat as well as improve the condition of the soils. It was also determined that this project would not significantly increase the risk of fire if a chain buffer between the green line and the treatment boundary was left untreated. Grasses grew until lake levels rose during winter storms.

Recommendation: Continue with seeding and pre- and post-treatment monitoring.

5) TES Species Monitoring

Objectives: Nest sites and territories were monitored using established protocols and methodologies for northern spotted owl, bald eagle, peregrine falcon, and goshawk within the NRA, South Fork Management Unit (SFMU) and the Shasta McCloud Management Unit (SMMU).

Methods: Most of the wildlife monitoring reported is program monitoring. Surveys for TES species used protocols to provide feedback on how well individual species and their habitats were doing. The Forest cooperates with numerous partners in surveying wildlife, fish and rare plant habitat. Partners in this survey effort are listed in the Wildlife, Fish and Rare Plant Management System Report along with other information on monitoring of the wildlife, fish and sensitive plant programs. This report is on file in the Supervisor’s Office.

Results: Refer to Table under overall results below. Specifically in the case of the NRA, monitoring enabled the unit to determine that we are not permitting recreation activities which could result in adverse impacts to eagles.

6) Determine Effectiveness of Wood Duck Nest Boxes

Objective: Fifty wood duck nest boxes were visited several times during nesting season to determine occupancy and nest success.

Methods: Nest boxes were installed and monitored to ensure that they were being used and that LRMP resource objectives were being met. Each box was visited several times each season and nest success data were collected for each nest. Monitored 50 structures on 3-5 acres.

Result: Wood duck nest box program is a success.

Recommendation: Continue with wood duck nest box program and monitoring.

Overall Results Table of Selected Wildlife Monitoring and Habitat Improvement Outputs

Standard or Objective	Activity	Results
Determine use, condition and trend of bald eagle habitat.	Bald eagle habitat surveys and determination of nesting success	38 territories at 64,000 acres
Verify nesting and reproductive success of peregrine falcons during breeding season.	Peregrine falcon habitat surveys and determination of nesting success	14 territories at 1400 acres
Gather population and territory data to determine effectiveness of LSRs for northern spotted owls	Northern spotted owl habitat surveys and some determination of nesting success	41 territories at 250,000 acres
Determine goshawk territory occupancy and reproductive success	Goshawk habitat survey and determination of nesting success	20 territories at 4,000 acres
Determine use by Pacific fisher	Pacific fisher habitat surveys	89,000 acres
Improve, create or maintain forage and cover conditions for upland wildlife	Habitat restoration or enhancement benefitting deer, elk, quail, turkey	1144 acres

Also refer to tables in Biodiversity and Forest Program Accomplishments sections for additional outputs or information.

Overall Recommendations: Continue monitoring selected species and habitats. As part of the Long Term Strategy, additional information should be collected and recorded on the management activities occurring in and around species territories so conclusions on forest practices can be drawn in an adaptive management approach.

Survey spotted owls territories to determine whether project implementation had an effect upon owls. There should be a consistent method for collecting and recording information on the status of species of concern after projects are completed. This could be incorporated into the Short Term Strategy. Information on factors which affect species but are beyond the Forest's control (such as climate change) also could be collected and evaluated as part of the Long Term Strategy. Future Forest Plan monitoring should be based primarily on habitat rather than populations. This would help to screen out the effects of some factors which are outside the Forest's authority (e.g. private land management).

Fisheries Management

Monitoring Objective: The objective is to determine if the fisheries program is being implemented and is effective. Monitoring questions include:

- How much habitat restoration has been completed?
- What is the condition of selected streams and lakes?
- What are population trends for selected species?
- How much and what type of use is occurring on improvement structures?

Specific Examples:

Anadromous Fisheries - NF Trinity Steelhead

Objectives: Annual trends in summer steelhead and spring Chinook populations were monitored. Monitoring efforts have been ongoing since 1980.

Methods: The methodology used was direct observation with mask and snorkel by two divers. Forty miles of streams were inventoried. The project was funded through the Trinity River Restoration Project.

Results: Preliminary observations indicated that there was a large variation in the number of returning adult fish on an annual basis. Some of the variability can be explained through natural variations in runoff patterns, climate, and ocean conditions which often mask management related effects. Preliminary analysis showed fluctuating patterns in the amount of summer steelhead returning to the North Fork Trinity River, New River, and Canyon Creek.

Recommendations: Continue with the monitoring program.

Inland Fisheries - Warm Water and Cold Water Resident Fish

1) Use of Habitat Improvement Structures

Objectives: Monitored the species and numbers of fish that used habitat improvements to determine what improvements provided the best results for the investment. Using direct observations, monitored 15 structures each in Shasta and Trinity lakes and compared results to five control (untreated) sites.

Methods: Observations were conducted using the scuba diving technique.

Results: Observations indicated that treated areas (structures installed) had 3 to 5 times more fish than control sites (no structures). Observers were unable to determine the difference in use by fish between the different structure types.

Recommendation: Continue monitoring.

2) Trout Creek Habitat Monitoring

Objectives: Willow planting survival and structure maintenance was monitored and evaluated. Monitored a one half mile reach of stream through visual observations.

Results: A team of fisheries personnel was used to conduct the evaluation. Past habitat improvement efforts appear to have been effective in creating cover and deep water habitats.

Recommendations: Continue habitat monitoring. Population surveys should be incorporated to compare fish response between treated and untreated areas. Determine limiting habitat factors within selected stream courses and lake segments. Include hydrology staff to the review team.

Overall Results:

Table of Selected Anadromous and Inland Fisheries Outputs

Standard or Objective	Activity	Results
Streams and lakes will be managed to maintain or improve habitat for aquatic species.	Stream habitat restoration or enhancement (includes partners)	56 miles 50 Acres 25 Structures
Conduct Population/Habitat Inventories	Stream inventories (includes partners)	62 miles

Additional information can be found in the Wildlife, Fish and Rare Plant Management System Report. This report includes additional breakdowns by the following categories: anadromous fish; Threatened, Endangered and Sensitive Species; inland coldwater species; listed and proposed species; and recreational fisheries. Additional monitoring information can also be found under Aquatic Conservation Strategy in this report.

Overall Recommendations: Continue monitoring activities. The Forest will move towards addressing important monitoring issues in the future in the Long Term Strategy. Monitoring has often been based on items for which data is readily attainable, rather than on the most critical factors which reflect the needs of the population. Fisheries monitoring objectives should be habitat condition and population stability. Better documentation is needed for what project objectives are, what actually occurs on the ground, and actual results.

Public use and Information Programs

Recreation Management

Monitoring Objectives: Determine if the recreation program offers a wide range of recreational attractions and opportunities that are responsive to the demands of multi-cultural, traditional, and non-traditional recreation users and if the program is supportive to communities' efforts to diversify, strengthen and attract activities and businesses which will strengthen local economies.

Methods: A customer user satisfaction program, Serving People, is in place. Recreating public had an opportunity to complete a satisfaction questionnaire. Action was taken when appropriate. Information from the National Customer Use Survey is on file in the Recreation Office.

Recommendations: Information from "Serving People" should be summarized and reported next year so it can be evaluated. As part of the Long Term Strategy, a method for recreational monitoring needs to be developed in conjunction with the needs of the Rural Development Program.

Heritage Resource Management

Monitoring Objectives: The objective of monitoring cultural resource surveys is to assure that archaeological sites are not being adversely affected by management activities. The monitoring questions include:

- Are cultural resource surveys being completed prior to management activities?
- Are cultural resource properties being interpreted?
- Is the public being involved in the efforts to protect cultural resources?

Methods: The surveys above were for projects such as timber sales, prescribed burning, land exchanges, range allotments, and storm damage repair.

The Region entered into a Programmatic Agreement for Compliance with Section 106 of the National Historic Preservation Act. The agreement defines projects that are exempt from further review or consultation as well as projects that may be exempt from routine review and consultation by the Office of

Historic Preservation. This agreement allows the Forest to begin projects more rapidly than they have been able to do in the past.

The Forest has developed a Historic Property Monitoring Plan which includes two levels of monitoring. The first level requires monitoring of historic properties and sites, protection and site record update as part of project implementation and is tied to the Programmatic Agreement. The second level is general Heritage Program monitoring and re-evaluation of sites located within the Forest. The second level includes Section 110 monitoring activities and is also addressed in the Programmatic Agreement. Copies of the Programmatic Agreement for Compliance with Section 106 of the National Historic Preservation Act for Undertakings on the National Forests of the Pacific Southwest Region and of the Shasta-Trinity National Forest Historic Property Monitoring Plan are on file in the Heritage Resource Office of the Supervisor's Office.

Results Table:

Standard or Objective	Number	Acres Surveyed
Conduct a cultural resource survey before all ground-disturbing activities.	87	21284
Suitable cultural resource properties may be interpreted for recreational use and educational benefit.	121	
Develop a program designed to inform the public of their responsibilities toward cultural resources and their protection.	703	

The Forest is surveying 100% of projects initiated for cultural resources prior to site-disturbing activities as required by law. The Forest also provides environmental education programs which include programs on heritage resources to many groups in the local community, to youth from schools and environmental programs. Further information can be found in the Historic Property Monitoring Report and the Public Outreach Report which are on file in the Heritage Resource Department of the Supervisor's Office.

Recommendation: Continue monitoring.

Tribal Government Program

Monitoring Objective: The objective of monitoring the Tribal Government Program is to determine if relationships, communication and understanding between the Forest Service and Indian people are improving. Monitoring questions include:

- What actions have been implemented to achieve the objective?

Methods: The Forest and eight Tribes/Nations of California have a Government-to-Government Agreement. As part of this agreement, the Shasta-Trinity and these entities are scheduled to hold annual meeting. Intensive consultation with the elected representatives of some of these Nations is a routine part of the design and implementation of Forest Service projects and activities which have a potential to affect

Native American values such as timber sales, prescribed burns, recreation site improvement and maintenance, and land use permits.

Results: A representative of the Shasta Nations participated as monitors during field surveys and provided information relating to spiritual use in project areas in FY 96 as well as participating in the NW Sacramento PAC Provincial Timber Sale monitoring effort.

The Forest and the Tsnungwe Tribe (of the Hoopa Tribe) are working on an agreement to better define portions of the boundaries of Iron Side Mountain.

Four Memoranda of Understanding (MOU) were completed, one each with the Pitt River Tribe, Shasta Nations, Toyon Wintu and Redding Rancheria. Also developed with the Pitt River Tribe were some separate participating agreements for specific resources in Forest Conservation.

Recommendation: Continue monitoring.

Wilderness Management

Monitoring Objective: The objective is to determine if desired future conditions are being met.

Methods: The Forest manages all or part of five Wildernesses areas including the Trinity Alps, Mt. Shasta, Chanchellulla, Castle Crags and Yolla Bolla. The Forest Plan provides for the Limits of Acceptable Change process to be used to determine if wilderness management is achieving our goals. The Limits of Acceptable Change have been defined for select high use Forest Wilderness areas to include the Trinity Alps and Mt. Shasta.

Recommendations: Continue to monitor Limits of Acceptable Change using an interdisciplinary approach for the high use wilderness areas and make management adjustments where appropriate.

Lands Program Management

Monitoring Objective: The objective is to determine if land adjustments have increased administrative efficiency and to assure that Forest outputs are not adversely affected.

Recommendations: Due to the scope of the Forest land adjustments program, less than 450 acres per year, no additional monitoring is required providing that the land adjustments guide is followed.

Potential Forest Plan Amendment: The Forest completed land acquisitions for the following areas Beegum Basin (paid for with Land and Water Conservation Funds) and Shasta Lake NRA (Canyon Creek Church Group).

A Forest Plan amendment is not needed to establish management objectives and management direction for these areas, as the lands acquired are in fact consistent with the land adjustments guide contained with in the LRMP.

Minerals Management

Monitoring Objective: Determine if operators are consistent with existing Plans of Operation.

Methods: Currently no systematic process to collect or record this information exists but, the Forests do conduct site reviews and monitoring on a case by case basis.

Recommendations: Begin monitoring minerals projects using the interdisciplinary process as defined for the Short Term Strategy. Develop a uniform reporting system for locatable and saleable minerals.

Potential Forest Plan Amendment: No need for minerals type Plan amendment at this time. There is a need for some clarification of existing language within the plan, which can be handled as an errata item.

Resource Management Programs

Transportation Management

Monitoring Objective: The objective of monitoring transportation management is to determine if we are providing an economical, safe and environmentally sensitive transportation system for the Forest which emphasizes the maintenance and restoration of existing roads as well as the decommissioning of selected roads/trails over the construction of new roads/ trails where appropriate. The monitoring questions include:

- What is the amount of roads constructed, reconstructed or maintained?
- What is effectiveness of decommissioning roads as related to other resources especially those that are riparian dependent as well as the amount accomplished?

Results and Specific Examples:

1) Stump Timber Sale

Ripping and seeding of 9 acres of existing logging roads put to bed to reduce open road density. Post treatment effectiveness monitoring was not completed in FY 96.

2) Butter Creek skid trail/landing rehabilitation

Objectives: Field verification of proposed skid trail/landings was needed for contract prep to know the exact number of miles to be treated and specific landing sites.

Results: Field verification of the projects showed that far fewer erosion producing skid trails existed than had been tentatively identified in aerial photos. The landings and skid trails used during the 1987 fire salvage sales had been ripped and waterbarred where needed. Because there were so few skid trails/landings to treat, a separate contract was not prepared for this work. Instead, all sites that were identified as needing treatment were included in the road sediment reduction contract. Refer also to section on soils/BMPs.

Recommendations: There is a need to include additional watershed restoration dollars (beyond the administration percent) in order to meet true monitoring needs for these types of projects.

3) Butter road decommission

Objectives: Monitor all aspects of the decommission and closure contracts, from field verification of projects to contract administration.

Methods: Monitored: the contract proposal package, field verification of selected roads, and rock source. Following the first winter, after completion of the contract, a random visual sampling was performed. This enabled us to incorporate any changes needed for the next years contracts. Information was gathered by speaking with the specialists that were involved with each phase of the contract prep and administration.

Results: The contract package for road decommission and closure was offered with nine separate bid items. This kept the bid price attainable for small businesses. Local contractors expressed satisfaction with this approach. Some roads finally selected for decommission or closure were different than those originally proposed because many were needed for short or long term management by various disciplines. Field verification identified additional roads to be treated. These roads could not be added to the contract because they were not listed on the contract waiver. In the future, to remedy this problem, the contract waiver will include all roads.

A rock source had been prescribed for development to provide rock for spot rocking for decommission/closure, road sediment reduction and road surface stabilization projects. The cost of developing and crushing the rock was too expensive at the identified rock source, so an alternative of pit run rock was used. The road surfacing project was postponed until the following year when a determination could be made on the correct rock to be used.

Recommendations: There is a need to include additional watershed restoration dollars (beyond the administration percent) for monitoring purposes.

Overall Results: In FY 1996, there were 3 miles of new road construction on the Forest compared with 0 miles of reconstruction and 61 miles of maintenance. In addition, 13.1 miles of road were decommissioned. Additional information can be found in the Forest's Road Accomplishment Report.

Overall Recommendations: A method needs to be developed to determine if changes in the future transportation system are effective in achieving the criteria of being economic, safe and environmentally sensitive as part of the Long Term Strategy. A method for tracking the road construction and decommissioning inside Key Watersheds should be developed to determine if the objective of no net increase in roads is being achieved. Develop a set of criteria to determine which roads should be decommissioned.

Timber Management

Monitoring Objective: The objective is to determine if we are achieving desired conditions, including the offering of timber products. The monitoring questions include:

- Are regenerated stands being restocked within five years of final harvest?
- What amount of reforestation occurred?
- What amount of timber stand improvement (release and thinning) occurred?
- What amount of timber products are being offered?

Method: Information on cultural treatments and timber products is collected at the district level and compiled at the forest level into a national database. This type of information has been collected for many

years. Improvement is needed in analyzing and evaluating this information. For example, reforested stands are visited three years after planting to determine if stocking objectives are met. If they are, the stand is certified. If objectives are not met, treatment prescriptions are revised and the stand visited again five years after planting.

Results and Specific Projects

1) Sale Quantity

Objectives: Determined if the timber sold meets the allowable sale quantity (ASQ) level for the 10 year period.

Results: The timber volume offered for sale in FY 96 totaled 65.9 MMBF. This met the Regional Target of 65 MMBF, but was less than the 82 MMBF ASQ in the Forest Plan. The Regional Target was less than the Forest Plan ASQ because it was recognized that it takes 2-3 years after implementation of the new Forest Plan to attain levels prescribed in the Plan.

Recommendations: Continue monitoring annually to determine the average annual output for the 10 year period of the Plan.

2) Reforestation and TSI

Objectives: Determine if reforestation and TSI goals are being met. This is a monitoring item from Chapter 5 of the LRMP to assess reforestation and TSI program outputs and target accomplishments.

Results: Reforestation acres accomplished in FY 1996 totaled 2052 acres. This was less than the 3500 acres projected in the Forest Plan because the Forest has emphasized thinnings and salvage, and not regeneration cutting, the past few years. TSI acres accomplished in FY 1996 totaled 8875 acres. This was more than the 5300 acres projected in the LRMP because the Forest still has TSI work in plantations created from regeneration cutting prior to the implementation of the Forest Plan.

Recommendations: Continue monitoring annually to determine the average annual output for the 10 year period of the Plan.

3) Regeneration

Objectives: Determine if regeneration harvest areas are adequately restocked within five years. This is a monitoring item from the Monitoring Plan in Chapter 5 of the LRMP to assess reforestation status.

Results: Of the 3942 acres of regeneration harvest accomplished in FY 1991, 3927 acres (99.6%) were reported as adequately stocked in FY 1996. Fifteen acres were not adequately stocked due to heavy shrub and grass competition on the Yolla Bolla District.

Recommendations: Continue monitoring annually to determine reforestation status each year.

Overall Results:

Table of Objectives and targets met

Standard or Objective	Activity	Accomplishment
Reforestation - assure restocking within 5 years	Planting/Natural Regeneration in FY96	2052 acres
	Acres of Reforestation in FY91 certified	3927 acres (99.6%)
Well-spaced growing stock and Control competing vegetation to meet objectives	Precommercial Thinning and Release Treatments (Timber Stand Improvement)	8875 acres
Allowable Sale Quantity	Volume Sold and Awarded	65.9 MMBF
Firewood	Cords Sold	8367 cords

Overall Recommendations: Continue monitoring. The information on when the stand was planted should be tracked along with the acres certified. The type of cutting method used should be reported on the green harvest activity cards in the Stand Record System using the best acre estimates available. This information can then be aggregated by sale, district and forest so that accurate records are available for the annual Stand Record System Report.

Much monitoring occurs during timber sale administration. The Forest had 36 active sales in which sale administrators were monitoring to verify implementation of appropriate S&Gs of the LRMP and the project specific NEPA documents. There is currently no uniform forestwide reporting system for administered timber sales that can be tied back to LRMP objectives. Improvement in reporting and documentation needs to be developed for these items.

Fire Management

Monitoring Objective: The objective is to determine if we are moving towards the goal of reintroducing fire into the environment where Forest ecosystems evolved under the influence of wildfires and towards the goal of reducing unacceptable fuel buildups and the potential acreage of future high intensity wildfires. Monitoring questions include:

- How many acres have been treated through the use of fire?
- Are we moving towards the Forest Plan objective?

Results: The number of acres treated is well below the objective identified in the LRMP of an average of 27,108 acres per year for Decade 1. This is due to the low level of funding received and the ambitious objective the Forest set for themselves to show how committed we are to using fire as an ecological tool in the fire ecosystems of the Klamath Province. The Forest's success in obtaining funding for fuel treatment is improving. The number of acres treated on the Forest has increased each year over the last three years and another substantial increase is projected in the FY 1997 budget. During FY 1996 and 1995, most all fuel treatment funded by the Forest Service was fire or timber-related although some projects were related to wildlife resources as well.

Overall Results:

Standard or Objective	Activity	Accomplishment
Fire-related fuel treatment for ecosystems management	Prescribed Burning	1250 acres
Timber-related fuel treatment for biomass	Prescribed Burning	2585 acres
Fuel treatment to achieve resource objectives i.e. BD	Prescribed Burning	1848 acres
Total Fuel Treatment of all types of acres	Prescribed Burning	5683 acres

Also refer to section on Biological Diversity.

Overall Recommendations: Continue monitoring. Non-commodity and resource protection values need to be developed for validating fire suppression decisions. Examples include decisions in LSRs, anadromous spawning beds, TES habitat and Native American sacred areas.

Range Management

Monitoring Objective: The objective is to determine if rangeland ecosystems are healthy and if livestock forage is available on a sustainable basis. Key questions include:

- Is range condition and utilization being monitored and are range S&Gs being applied and met?
- Is land suitable for livestock grazing being designated and appropriate management being applied?
- Are the appropriate procedures and documentation being used in range planning?

Methods: Two of the grazing allotments were vacant, thus information monitored was based on 22 active allotments. Information was collected by Range Program Coordinators. Additional information can be found in the Annual Grazing Statistical Report which is kept in the Forest Supervisors Office, Ecosystems Management Group. Both hard wire and electric fence systems were put in on four allotments in an effort to monitor use and management of riparian areas within these allotments. Range readiness checks were made on each of 22 active allotments. Distribution of livestock use and suitability of range within several of the allotments was also checked to see if management objectives were met.

Overall Results:

Standard or Objective	Activity	Accomplishments
Provide for proper management of selected riparian areas.	Riparian areas monitored and/or protected.	75 acres
Designate lands that are suitable for livestock grazing	Determination of suitability	3,500 acres
Ecosystem analysis, NEPA documents and Annual Operation instructions is the primary tool for implementing management actions.	Annual Operating Instructions prepared	15
WA & NEPA documents shall be prepared to bring authorized grazing use into conformance with Forest Plan objectives	Preparation of NEPA documents	Began work on WA/NEPA package for Manzanita
Verify range readiness, proper utilization and distribution on active allotments.	Range readiness, Utilization & Distribution checked	22 Allotments

Yearly utilization measurements indicate that some areas might be able to sustain higher utilization levels while others may need less utilization. While use in some riparian areas exceeded utilization standards, overall results were satisfactory and were determined to be moving us towards LRMP objectives. The ecological status information collected will be correlated with integrated vegetative inventories and management plans for the respective allotments. Some work was also completed on the development of a Forest history of grazing over the past 90 years. This information will be of value for landscape analysis and planning and for the permit reissue process.

Recommendations: Continue monitoring. Examine how range monitoring can be incorporated into the interdisciplinary monitoring of projects as defined in the Short Term Strategy. Develop better reporting procedures. Conduct an analysis of selected C&T range transect data collected in FY 1997 and compare to data from the same transects collected over the past 30-45 years. This analysis is expected to help identify trends in range condition and in the development and implementation of future management plans.

Social and Economic Environment

Rural Development

Monitoring Objective: The objective of monitoring the Rural Development Program is to determine if our efforts to assist forest-dependent communities in enhancing their economic stability and social vitality are succeeding. Monitoring questions include:

- What actions have been implemented to achieve the objective?

Methods: Between 1990 and 1996, the Forest provided technical assistance to local communities to help them complete community action plans. Part of the Rural Development Program is working as partners with those communities as well as other partners such as the Superior California Economics Development District, Great Northern Corporation, the Siskiyou County Community Action Plan Committee, Siskiyou County Economic Development Council, the Forestry Roundtable, the Province Advisory Committee, Trinity, Shasta-Tehama and Siskiyou Bioregional Groups and others to implement community action plans by identifying action items and trying to obtain necessary funding, technical expertise and skills. These plans are reviewed at least once every year. Copies of the Community Action Plans and the Strategic Marketing Plan for Northern California Tourism and Outdoor Recreation are on file at the Rural Development Department of the Forest Supervisor's Office. The development of the Hayfork AMA Plan which was initiated in FY 1996 with the completion of the AMA Assessment is also expected to achieve rural development goals (refer to Aquatic Conservation Strategy and AMA sections).

From 1994 through 1996, the Forest has been helping administer a grant program which was created by the Northwest Forest Plan. This is a five year program designed to end in 1998. The intent of the grants is not to create jobs immediately, but to help build the foundation for future growth. Grants have been awarded in the past three years for infrastructure, feasibility reports, training, design studies, and tourism brochures. In 1996, 17 grants for a total of over $650,000 were awarded to Siskiyou, Trinity and Shasta Counties through this grant program. The grants are reviewed quarterly by Forest Service

personnel to determine if they are following the established criteria, adhering to their budgets and following civil rights requirements. Refer to Economics Section for additional information.

Results: One of the grants awarded in 1996 helped fund a Tourism Extension agent serving communities in a 9 county region. This position has been instrumental in providing technical leadership and assistance in developing and promoting tourism. One of the results is an innovative electronic kiosk (information station) system project which will provide tourism informational key stops along the Interstate-Five highway corridor. The Forests evaluation is to monitor the effectiveness of the electronic kiosks to determine need for expansion to more key visitor stops.

Standard or Objective	Activity	Results
Assist forest-dependent communities with efforts to enhance economic stability, develop partnerships, identify opportunities.	Annually revisit Community Action Plans	Weed, McCloud, City if Shasta Lake, Dunsmuir, Hyampom, Hayfork, Lewiston, Weaverville, Anderson, and Siskiyou Co.

Recommendations: Continue monitoring. Work with Recreation Department to develop methods for monitoring in the Long Term Strategy.

Community Development

Monitoring Objective: The objective of monitoring is to determine if the training provided by our Human Resource Programs is helping with eventual job placement and community development. The monitoring questions include:

- What actions have been implemented to achieve the objective?

Methods: The Forest cooperates in a number of Human Resource Programs. Quarterly reports are completed for the Senior Community Service Employment Program. The Forest hires a number of Youth Conservation Corps participants. However, the number varies each year depending on the Forest budget. Information on the Human Resource Programs is compiled and reported annually. The reports are on file in the Human Resource Department of the Supervisor's Office.

The Forest has also participated in the Jobs-in-the-Woods ecosystem restoration program for the last three years. In 1996, the Forest provided work for the county Siskiyou Training and Development Program (STEP) Jobs-in-the-Woods Retraining Program, the Shasta County Private Industry Council, and the Trinity County Step Program.

Recommendations: Currently, there is no systematic process for reporting outside job placement in the Human Resource Program. The Forest needs to develop methods to measure and document the total number of participants that are placed as well as a way to measure those that retain employment so the effectiveness of this program can be monitored. The programs such as STEP and Private Industry Council should be contacted to obtain this information.

The Forest also tries to find opportunities for those who wish to perform their community service for the Forest. These requests are handled on an individual basis, usually through the Community Development Department. This program might be more effective if there was a systemized approach for

handling these requests. The Sugar Pine and Trinity Conservation Crews also contribute labor for Forest projects. A system to measure and track these contributions would allow the Forest to monitor their effectiveness and adapt from what we learn.

A comprehensive, systematic measuring and reporting system for monitoring accomplishments in both the Rural Development and Community Development programs is needed to better track implementation, effectiveness and validation monitoring. This would allow for evaluation of these programs using the monitoring data recorded.

Economics

Monitoring Objective: The objective of monitoring economic effects is to determine if Forest programs are promoting the economic stability of local communities and the development of non-traditional, forest-based resources that could contribute to economic stability.

- What level of Forest Reserve Revenue payments are made?
- How do these payments affect county funding for roads and education?

Methods: Actual payments to Siskiyou, Trinity, Shasta, and Tehama Counties were tracked from 1980 until the present. The period from 1991 through 2003 includes a recalculation of the payments to counties based upon formulas established in a series of Congressional Budget Acts for the areas affected by the Northwest Forest Plan. The intent of the Acts is to moderate the reduction in these payments over time for areas which experienced large reductions in timber harvest levels. The most recent data on expenditures per average daily attendance for Siskiyou County's FY 1994 to 1995 was reviewed and compared to other counties in the State. A report by Candy Dillingham called "FY 96 Technical Economic Monitoring Report" is on file in the Land Management Planning Department.

Results: Actual payments are substantially higher (180%) with the enhanced payments than if based solely on the standard payment formula. The standard payment to counties consists of 25% of receipts to the National Forest Fund plus revenues as defined in Knutson-Vandenberg, Purchaser Credit and Salvage Sale Funds. This money goes to counties based on the national forest acreages within each county. These revenues are a product of both volume and value. To some degree the recent trends toward higher values compensate for low volumes. Local market situations determine the value of chips and small diameter logs, often resulting in an inability to sell these products and preventing resource objectives from being achieved. Emphasis on salvage, chips and small diameter logs lowers the receipts due to their relatively low value compared to large green logs. Half of the county receipts go to roads and half to schools.

The Forest cannot influence the structure of these payments which are based on national law, but can affect receipts by the kinds of sales offered and by improving receipts in other categories such as recreation and tourism. Recreation is an economic focus in Siskiyou County, as well as in Shasta County, and is second to timber as a source of Forest Reserve revenue payments to counties.

Recommendations: Continue monitoring Forest Reserve Revenue payments and their effect on the county. Develop a substantial green sale program with high stumpage value. Expedite salvage sales to obtain maximum stumpage values.

Project Planning

Monitoring Objective: The objective is to determine if procedural processes are being used appropriately. Key questions include:

- On what type of project was planning completed and what National Environmental Policy Act (NEPA) documentation was used?
- Were WAs, LSR Assessments and the AMA Guide used in developing project proposal actions?
- Did planning procedures comply with environmental laws?

Methods: A sample of NEPA environmental documents and Forest Service decision documents completed in FY 1996 were reviewed. These documents were reviewed to determine that appropriate landscape level analysis documents were used in project planning. The landscape level analysis documents include WAs, LSR Assessments and the AMA Guide.

Results: The Forest initiated a variety of projects for implementation under the NEPA process ranging from the issuance of special use permits, timber harvest, fuels treatments to the improvement of chaparral. About 60% of the documents prepared were Categorical Exclusions; the rest were Environmental Assessments. No Environmental Impact Statements were prepared in FY 1996. A total of 73 projects were reviewed. All projects were consistent with the LRMP. About 90% had been developed as a result of landscape analysis.

Recommendations: Incorporate functional monitoring into interdisciplinary monitoring of projects as defined by the Short Term Strategy. Include documentation of plan-to-project analysis within the project file for specific proposals.

Management Areas

This section provides information on those Management Areas for which monitoring information was reported.

Late-Successional Reserves

Monitoring Objective: Late-Successional Reserves (LSRs) were developed to protect and enhance conditions of late-successional and old growth forest ecosystems, which serve as habitat for late-successional and old growth-related species. These reserves are designed to maintain a functional, interacting, late-successional and old growth forest ecosystem. The objective is to determine if LSRs are functioning to provide habitat for late-successional species. The monitoring questions include:

- Are LSR Assessments being completed prior to management activities within the LSRs?

Standard or Objective	Activity	Results
A management assessment should be prepared for each LSR before habitat manipulation activities are designed and implemented.	2 interim LSR assessments completed. Iron Canyon, Deer Ck.	18,871 acres
	Some LSR assessments in progress and/or completed in FY 95/96: Butter, Chalk Mtn., New River, Spanky Dee	180,000 acres
Projects and activities within LSRs may proceed in FYs 1994-1996 using initial LSR assessments.	Thinning, blowdown salvage, fuel reduction	23,000 acres treated
Identify 100 acres of northern spotted owl habitat to be retained for each owl activity center.	Mapped 100 acre core LSRS	63 LSRs established

Methods: Interim LSR Assessments were completed for 2 LSRs, in addition to 4 assessments that were worked on covering a total of 199,000 acres in FY 1996. Copies of the LSR Assessments are on file in the Resource Department and at the appropriate district office.

Results: The Salvage Amendment of the Rescission Act that was in effect for salvage sales for the later part of Calendar Year 1995 and all of Calendar Year 1996 provided an emphasis to treat salvage material that was causing extreme fire risk to the future viability of LSRs due to heavy fuels from dead trees. The completion of these LSR assessments allowed the Forest to develop a good working relationship with members of the Regional Ecosystem Office in Portland through the reviews that office provided of projects proposed in the LSRs. The Forest was able to assure that implementation of the Forest Plan in LSRs was consistent with the intent of the Northwest Forest Plan. The fuel management plans for Chalk Mtn. and Iron Canyon provide the basis for planning future fuel reduction projects within the LSR.

Recommendations: Continue monitoring completion of LSR Assessments. Review of the mapping of the 100-acre LSRs identified a need for a more consistent approach forestwide. Develop criteria for mapping 100-acre LSRs, document it and apply it forestwide.

Monitoring at Other Scales

Northwest Forest Plan Monitoring

A pilot implementation monitoring program was conducted at the Northern spotted owl regional scale. As timber sales were determined to be the highest priority for monitoring of the Northwest Forest Plan, a 10% sample was conducted. A questionnaire format was used. Interagency and additional Regional Ecosystem Office review occurred. Of the sales monitored by the Shasta-Trinity one was in the Klamath Province and two were in the NW Sacramento Province. Regionwide, a high level of compliance, 95%, was found. At the regional level, the non-compliance was associated with Watershed Analyses in three instances, with Riparian Reserves in 8 instances, with coarse woody debris in 11 instances, with snag retention in seven instances. The non-compliance was expected to have minor biological effects at the regional scale. A breakdown of the results by province or forest is not available. Generally, biological

effects at the local, project-level scale are anticipated as minor with the exception of several effects of medium to high concern. More information is available in “Results of the FY 1996 (Pilot Year) Implementation Monitoring Program, Final Report” dated March 3, 1997.

Three timber sales were monitored on the Shasta-Trinity NFs as part of the Northwest Forest Plan (NWFP) Implementation Monitoring effort. The purpose of this monitoring was to determine whether or not the standards and guidelines from the NWFP were being consistency implemented on these timber sales.

The monitoring review teams consisted of Province Advisory Council (PAC) members. The three sales reviewed were Mud and Ninebuck (McCloud), and Elk Gulch II (Weaverville). On all three sales, the project proposal, layout and prescription were found by the teams to be consistent with the intent of the NWFP including all appropriate standards and guidelines, with the exception of riparian reserves. In most cases, riparian reserves were properly identified and adequate boundaries were located on the ground. However, on the Elk Gulch II sale, a riparian reserve was not established on an intermittent waterway. The monitoring team felt that a riparian reserve should have been established for an area that the agency considered a snowmelt channel. The area in question was at the border between an intermittent stream and a non-stream area.

Recommendations: Develop a system similar to this for monitoring other resource projects.

Adaptive Management Area

Monitoring Objective: To report implementation and effectiveness of actions that lead towards the goals and objectives for the Hayfork Adaptive Management Area.

Method: Report accomplishments for 1996.

Recommendations: Continue monitoring. Examine how to incorporate the Monitoring Strategy that is being developed as part of the AMA Plan into the Forest Short Term and Long Term Strategies.

Results Table

Standard or Objective	Activity	Accomplishments
Riparian protection in AMAs should be comparable to that prescribed for other areas, however flexibility is provided to achieve these conditions.	Establishment and monitoring of four electric fence systems. Upper Hayfork and Indian Valley areas.	Reduced impacts on riparian vegetation and meadows.
Hayfork AMA includes 1/4 of the acres scheduled for timber harvest.	Planned projects.	About 29 salvage or green timber projects proposals planned.
Technical and scientific training of a local workforce should be an educational priority of the AMA Program.	Ecosystem Management and watershed evaluation and stabilization work. Small log demonstration project.	Training provided to displaced timber workers in the county. Training and work contracted by Jobs-in-the-Woods program with Hayfork Watershed Resource Training and Employment Center.
Reduce risk and hazard of catastrophic stand losses.	Planned projects.	About 40 projects were planned to reduce risk or hazard of catastrophic stand loss.

Human Resources Program:
Youth Conservation Corps (YCC) (enrollee wks.) - 221 Senior Community Service Employment Program (SCSEP) (enrollee hrs.) - 23673
Soil/Water/Air
Water Quality Monitoring - 40 BMP Sites
Ecological Unit Inventory - 500,000 acres
Watershed Analysis - 5 watersheds

Other National Forest Facts:

Receipts Paid to Counties
$6.6MM
Receipts From (in dollars):
Timber Sales - $14.3MM
Recreation Special Uses - $1MM
Recreation User Fees - $81M
Power - $180M
Grazing Fees - $6.1M
Land Use Permits - $68.5M
Forest Plan Allocations:
Matrix - 23%
AMA - 8% Riparian - 13% Late Successional Reserves - 25%
Administratively Withdrawn areas - 7%
Wilderness - 24%

1996 Program Accomplishments Table

Timber Management
Environmental Assessments/Categorical Exclusions (number) - 9 EAs and 42 CEs (salvage, thinnings, etc.)
Timber Volume Offered for Sale - 65.9 MMBF (7.5 GTR)
Timber Volume Harvested - 36 active sales of 50 MMBF
Fuels Reduction (BD/KV acres) - 5728 acres
Timber Stand Improvement (acres) - 8875 acres
Reforestation (acres) - 2052 acres
Christmas Tree Permits Issued - 5521 permits
Firewood sold - 8367 cords
Recreation
Environmental Assessments - 27
Recreation Use - 5,326,900 RVDs
Wildlife
Environmental Assessments - 3
LSR Assessments (acres) - 2 Interim Assessments of 18,871 acres
Threatened/Endangered/Sensitive (TES) Species:
Habitat Inventoried - 211,400 acres
Other Wildlife:
Habitat Structures Installed - 36
Habitat Restoration/Enhancement - 1144 acres
Habitat Inventoried (acres) - 5000
Fisheries
Anadromous Fisheries (includes TES):
Habitat Restoration/Enhancement (Mi.) - 56
Stream Inventory (Mi.) - 62
Inland Fisheries (includes TES):
Habitat Restoration/Enhancement - 50 acres and 1 mile
Range
Environmental Assessments - 1
No. of Cattle Grazed - 2000
No. of Grazing Allotments (Admin./Total) - 22
No. of Permittees - 25
Wild Horses - 20
Sheep - 2000
Beefalo - 40
Engineering
Road Construction (Mi.) - 3
Road Maintenance (Mi.) - 3300
Road Reconstruction (Mi.) - 25
Roads Decommissioned (Mi.) - 13

Fire
Environmental Assessments - 2
Forest Wildfires - 166
Total acres Burned by Wildfires - 4296 acres
Prescribed Fire - 3306 acres