Land and Resource Management Plan

Monitoring and Evaluation Report

Shasta-Trinity National Forest

FY 2007 & FY 2008

Front Cover Photo:
On the Fireline, August 2008

Non Discrimination Statement

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Current Trends and Highlights

This document summarizes monitoring activities related to the implementation of the Shasta-Trinity Land and Resource Management Plan during fiscal years 2007 and 2008. It does not include all monitoring activities that were undertaken during this timeframe. Below are some of the trends and highlights from both fiscal years.

- Partnerships continue to improve and develop for many areas of forest management.
- There continues to be an increase in illegal drug activity.
- Lessons learned locally regarding fuels treatment effectiveness were shared at the national level.
- Overall timber volumes continue to be lower than Forest Plan objectives. However, reported volumes for intermediate cutting and salvage cutting exceeded Forest Plan objectives.
- Bark beetle induced conifer mortality remained low and the Douglas-fir tussock moth outbreak began to subside.
- Spawning habitat along the Trinity River was improved and elementary school children assisted in habitat improvement projects along Trinity Lake.
- Twenty-nine new populations of sensitive plants and lichen were identified across the Forest.
- Wildfires burned over 215,000 acres of the Forest in 2008.
- Safety continues to be primary objective for road maintenance projects as funding remains insufficient to cover all maintenance needs.

Summary of Results

Public Use and Information Programs

Heritage Resource Management

Monitoring was recorded at 23 historic properties in 2007 and 109 historic properties in 2008 for both Section 106 and Section 110 compliance of the Historic Preservation Act of 1966. Many of these projects fell under a Programmatic Agreement for Section 106. Several inadvertent effects to historic properties were found in association with timber sales. Administrative steps have been taken to avoid such future effects.

Recreation

Partnerships: There has been a strong emphasis on partnerships, volunteerism and hosted programs on the Forest since 1995. In 2007 and 2008 the Forest maintained partnerships with numerous local, state, and national organizations.

Off Highway Vehicles (OHV): Implementation of the 2005 Travel Management Rule continued with NEPA analysis through 2007 and 2008.

Pacific Crest Trail (PCT): Each year the California Conservation Corps, the Back Country Horsemen and the Pacific Crest Trail Association helped the forest maintain the PCT.

Wilderness

The forest implemented the 10-year Wilderness Stewardship Challenge. Areas of potential encroachment were monitored and posted and a temporary campfire closure order was maintained around high elevation lakes at Canyon Creek and Stuarts Fork headwaters.

Wild and Scenic Rivers

Annual cleanup projects helped significantly to improve the wild and scenic character of Trinity River. Section 7 analysis of the Wild and Scenic Rivers Act was conducted and implementation began for Caltrans curve widening projects along Hwy 299 during 2007 and 2008.

Visual Quality

The visual quality program focused on design collaboration with California Department of Transportation and Bureau of Reclamation; monitoring of scenery design at several vegetation management projects and review scenery for recreation residences, PG&E hydroelectric permit re-licensing, and Travel Management.

Law Enforcement

Illegal activities continued to increase in the number of marijuana gardens, plants and sophistication of management; vandalism and theft of property, resource damage from OHV use, and theft of fuelwood and timber. Law enforcement and investigation statistics show a decrease from previous years with 1,315 incidents in 2007 and 1,039 incidents in 2008.

Social and Economic Environment

Hayfork Adaptive Management Area

A University of Washington research study on noise disturbance caused by off-highway vehicles to the northern spotted owl continued in 2007 and 2008. Contracts were awarded and community collaboration occurred for various fire and fuels activities near Post Mountain, Hayfork Valley, and State Highway 3. Two of these projects are enjoined due to litigation of the categorical exclusion category 10.

Community Development/Partnerships

The Forest executed 55 new agreements in 2007 and 48 new agreements in 2008. In 2007, there were 21 Resource Advisory Council projects in Shasta County funded at $ 885,641 and 24 projects funded in Trinity County at $ 1,069,485. The amount awarded went to both counties in 2008 with $ 643,856 awarded in Shasta County for 13 projects and $ 862,854 in Trinity County for 26 projects. In addition to the two Resource Advisory Committees, there were over 30 partners involved with grants or agreements in each fiscal year.

Tribal Government Program

Consultation continued with Native Americans for timber sales, special use permits and recreation improvements on all management units of the Forest. As described in an MOU, the Forest continues to hold quarterly meetings with the Pit River Tribe and the McCloud Wintu. The Forest continues productive consultations with Pit River, McCloud Wintu, Hayfork Nor-Rel-Muk Wintu, and Tsnugwe tribal groups in resolving issues arising during project planning. Each management unit continues to meet with Tribal Councils and tribal members regularly to discuss ongoing management issues affecting the tribe, provide opportunities to ask questions and share information.

Resource Management Programs

Fire and Fuels

The Forest monitored projects for prescribed fire implementation and vegetation treatment implementation. Fuels treatment effectiveness reports were written and submitted to the Washington Office for projects in the Gulch and Eagle fires of 2008. Activity fuels were assessed for several projects on the Shasta McCloud Management Unit and post-burn fuels inventories were utilized to determine success in meeting goals and objectives of the projects.

Timber Management

Allowable Sale Quantity: The Forest offered 71.6 MMBF and 21.9 MMBF in 2007 and 2008 respectively. These figures were both short of the Forest Plan target of 82.0 MMBF. Since the signing of the Forest Plan in 1995 through 2008 the average annual timber volume offered for sale is 54.8 MMBF.

Silvicultural Systems: In 2007 and 2008 the Forest did not meet annual regeneration cutting objectives outlined in the Forest Plan, but exceeded objectives for intermediate and salvage cutting.

Reforestation: In 2007 and 2008 the Forest focused on thinning and salvage more than regeneration cutting. This resulted in 588 acres reforested in 2007 and 732 acres in 2008. Both years were substantially lower than the 3500 acres per year projected in the Forest Plan. Timber Stand Improvement: The Forest accomplished 2,519 acres of timber stand improvement in 2007 and 3,018 acres in 2008. Both years fell short of Forest Plan projections of 5300 acres per year.

Biomass: In 2007 approximately 50% of the timber volume offered was sold as biomass. This dropped to nearly 38% of the offered volume in 2008. Biomass opportunities continue to be emphasized on the east side of the Forest. Opportunities were more limited on the west side of the Forest.

Forest Health Protection

Aerial detection surveys located 8,132 acres of conifer mortality from bark beetles on the Forest in 2007 and 39,198 acres in 2008. The Douglas-fir tussock moth outbreak, which caused large areas of conifer defoliation from 2005-2007, subsided in 2008.

Range Management

Sustainability of Forage: Monitoring occurred on 12 allotments in 2007 with 5 of those subject to more intense monitoring due to resource concerns. Monitoring in 2008 was reduced to 3 allotments as all other active allotments were affected by wildfire for most of the summer. In both 2007 and 2008 riparian exclosures were maintained, range readiness checks were conducted, and the distribution of livestock use and utilization was monitored.

Coordinate With Other Organizations: Permittees assisted in the development of annual operating plans.

Biological Environment

Fisheries Management

Sport Fisheries: In 2007 and 2008, elementary school children and kids from the Youth Conservation Corps assisted in habitat improvement projects in Shasta and Trinity Lakes. Fish utilization and abundance continues to be greater in improved areas compared to controls. Numerous trout were raised to about 4 pounds per fish and then later released into Shasta, Trinity, and Lewiston lakes for recreational angling.

Summer Steelhead and Spring-run Chinook Salmon Habitat: Surveys in 2007 on the South Fork Trinity River for spring-run Chinook salmon and summer steelhead tallied more adults than in the previous year. Surveys were not completed in 2008 due to wildfire and budget constraints.

Wild Trout and Salmon: Stream condition inventories were used to complete 26 aquatic inventories in 2007 and 16 inventories in 2008. Habitat restoration projects for redband trout were implemented along Trout Creek both years.

Instream Flows: The Forest worked with PG&E to review and comment on monitoring plans requested as part of FERC re-licensing for Pit 3, 4, and 5. This has been an on-going project for the past several years. In 2008, collaboration with the California Department of Fish and Game worked to determine an acceptable riparian habitat replacement ratio for a project along the Trinity River near Lewiston.

Improve the Anadromous Fishery: The Forest continued to be an active member of the Trinity River Restoration Program in 2007 and 2008. Participation in this group facilitated the Sven Olbertson project to improve spawning habitat on the Trinity River near Lewiston, as well as projects addressing river side-channels and large wood placement for juvenile habitat and rearing ponds. Numerous fish passage projects implemented by Trinity County Resource Conservation District were supported by the South Fork Management Unit and partner source funds.

Wildlife Management

Late-Successional Reserves: Late-Successional Reserve Assessments were originally completed in 1998 and 1999. These assessments were used in 2007 and 2008 for project planning and design**.**

Threatened, Endangered, and Sensitive Species: In both 2007 and 2008 the Forest managed for 6 threatened, 2 endangered, and 2 candidate species.

Neotropical Birds: The Monitoring Avian Productivity and Survivorship protocol was used to band 400 birds from 38 different species. Breeding Bird Surveys were conducted on 1,000 across three of the Forest's management units.

Biological Diversity: Snag Retention: All projects completed during 2007 and 2008 that met minimum standards before treatment, as outlined in the Forest Plan also met minimum standards after treatment. In some locations hazard trees, were left on site after felling as downed wood.

Terrestrial Species Monitoring Examples

Spotted Owl monitoring - Shasta Forest
The Shasta McCloud Management Unit surveyed 30,000 acres of suitable northern spotted owl habitat in 2007 and 50,000 acres in 2008. Pairs were located at 3 sites the first year and 8 sites the following year.

Northern Goshawk monitoring
Acoustical walking surveys identified 33 nest sites in 30 territories in both 2007 and 2008.

Bald Eagle monitoring
Mid-winter and nesting season surveys were conducted at Shasta, Trinity, and Lewiston lakes in 2007 and again in 2008. The 2007 surveys identified 145 mid-winter eagles and 29 fledged chicks during the nesting season. During 2008 surveyors recorded 80 eagles during the mid-

winter survey and 5 fledged chicks during the nesting season. Forest Orders restricting access to some territories continue to contribute to breeding success.

Green Mountain Prescribed Burning Project
The Forest partnered with the Rocky Mountain Elk Foundation to implement this habitat improvement project. Six hundred acres were prescribed burned in 2008 including two bald eagle nest sites. Both eagle sites were under-burned at low intensity. Monitoring plots were established and read pre- and post-burn to determine if objectives were met.

Peregrine Falcon monitoring - Shasta Forest
Active nest sites along the Sacramento River and Castle Crags were monitored in both 2007 and 2008.

Botany

Sensitive Plants: Thirteen new populations of sensitive plants and lichens were found and 33 biological evaluations were written for projects in 2007. The following year 16 new populations of sensitive plants were found and 21 biological evaluations were written for projects. Additionally, mitigations were developed for 21 projects in 2007 and 16 projects in 2008 to lessen or eliminate impacts to sensitive plants.

Conservation Strategies: The conservation strategy process for serpentine endemics of Rattlesnake Terrane moved forward with draft manuscript released in 2007 and final manuscript submitted for publication in 2008. The document provides a comparison of habitat modeling results for six species conducted by the University of California at Davis.

Noxious Weeds: Under the Memoranda of Understanding for Shasta, Siskiyou, and Trinity Weed Management Areas, Forest weed program coordinators continued to cooperate with agencies and organizations to develop and implement weed inventory, prevention, and treatment projects. Weed inventory data was partially migrated to the National Data Center in 2007. The following year current inventory data was entered into the NRIS INPA database at the National Data Center. Weed treatment data entry into the FACTS database was initiated in 2007 and continued in 2008.

Physical Environment

Soil

Fiscal Year 2007: Wind erosion monitoring was conducted after the 2006 Hotlum Fire where 3,017 acres burned at moderate soil burn severity. Concern was expressed about the possibility of wind erosion affecting travel on the Highway 97 corridor northwest of Mt. Shasta. Soils were monitored from April 7th to June 1st, 2006. Results showed that along the Highway 97 corridor most soil erosion occurred in the less than a 1 foot zone and didn't travel over 20 feet. Stations higher than 2 feet mostly picked up bugs and very little sediment, showing saltation occurs in the less than a 1 foot zone and has no affect on safe highway travel.

Fiscal Year 2008: This monitoring effort shows how soil moisture and timing of campground entry is critical for successful implementation of soil quality standards in regards to soil porosity. Monitoring results show that campgrounds can be managed to control compaction if careful planning, proper timing of entry, and low impact camping are utilized.

Water – BMP (Best Management Practices)

The Forest monitored 66 randomly selected sites in 2007 and 64 sites in 2008 for protection of soil and water resources in accordance with regional protocols. Monitoring sites were selected at a variety of project types including: timber, engineering, recreation, range, fire, minerals, and other types of vegetation management. BMPs were fully implemented at 75% of the monitored sites and effective at 84% of the sites in FY 2007. Effectiveness in 2008 was at 83%, this represents a slight decline in BMP effectiveness compared to the previous year of 84% effective.

Watershed Restoration

The Shasta McCloud Management Unit Earth Science Department accomplished three types of monitoring in 2007 and 2008. First was long-term water quality monitoring at 20 locations across the unit. Second, was evaluation of best management practices at 30 sites in 2007 and 31 sites in 2008. Finally, they conducted project specific monitoring for a number of projects each year.

Facilities Management

Road Maintenance:

Funding was insufficient to maintain roads at forest target operational levels. The limited funds were used to provide some level of road maintenance on18 to 23% of forest roads. These projects were prioritized for implementation based on health and safety issues. In addition, an average of 12 miles of road was decommissioned both years with more to be decommissioned and "disinvested" in the future. A total of 4.5 miles of new roads were constructed.

Dams and Bridges:

Qualified engineering staff completed bridge and dam inspection reports in compliance with required inspection frequencies. All operating dams and bridges were found to be up to standard. Some small dams have been removed and stream channels returned to more pre-dam conditions.

Buildings and Administrative Sites:

The Forest complied with required inspection frequency and deferred maintenance protocols for every building to be inspected by qualified personnel at least once every five years. While current funding levels are not sufficient to maintain buildings to standards, most funds are used to correct health and safety deficiencies. The Forest worked to dispose of buildings identified for decommissioning in the Facilities Master Plan.

Potable Water Sources:

All potable water sources at approximately 40 sites were tested according to regulations. In 2007, monthly routine water samples found 11% testing positive with 3% confirmed positive after repeat bacteriological sampling. In 2008, monthly routine water samples found 3% testing positive with 1% confirmed positive after repeat bacteriological sampling. Mitigation occurred after immediate regulatory agency consultation. Through this process water quality was maintained to standard.

Contribution to National Strategic Plan

The USDA Forest Service Strategic Plan for Fiscal Years 2007-2012 displays seven conservation goals for the Nation's forests and grasslands. The seven goals are based on four current threats to conservation: (1) growing fire danger due to hazardous fuel buildups, (2) the introduction and spread of invasive species, (3) loss of open space, and (4) unmanaged recreation, particularly the unmanaged use of off-highway vehicles. The seven goals of the Strategic Plan include:

1. Restore, Sustain, and Enhance the Nation's Forest and Grasslands
2. Provide and Sustain Benefits to the American People
3. Conserve Open Space
4. Sustain and Enhance Outdoor Recreation Opportunities
5. Maintain Basic Management Capabilities of the Forest Service
6. Engage Urban America With Forest Service Programs
7. Provide Science-Based Applications and Tools for Sustainable Natural Resources Management

Appendix A

Public Use and Information Programs

Heritage Resource Management

Forest Plan Standard: For Prescription XI (Heritage Resource Management) sites, achieve full compliance with Section 106 and develop required protection plans. (Ref: Forest Plan, page 4-50, D3, D12)

Monitoring Objectives: To ensure that Forest's program of work is in compliance with Section 106 and 36 CFR 800. Determine if plans have been completed for significant heritage resources and determine if sites are being monitored sufficiently.

Methods: The Annual Report for the Section 106 Programmatic Agreement describes Forest compliance with Section 106 and monitoring efforts.

Data Collected: Monitoring was recorded at historic properties associated with Section 106 compliance for timber sales. This occurred at 7 historic properties in 2007 and 43 historic properties in 2008. For compliance with Section 110 of the National Historic Preservation Act, monitoring occurred at 16 sites in 2007 and 66 sites in 2008. Protection plans were prepared during 2008 to avoid effects to historic properties in timber sales. There were no protection plans prepared in 2007.

Results: In 2007 and 2008 the vast majority of projects fell under the Programmatic Agreement for Section 106. Based on the monitoring of timber sales, several inadvertent effects to historic properties were identified. Administrative steps were initiated to avoid future effects. Reviews by the State Historic Preservation Office and Region 5 support this conclusion.

Recommendation: In some cases monitoring sites needs to be more frequent and priority of monitoring needs to be given to Prescription XI sites within proposed actions.

Interdisciplinary Involvement: Information resulting from archaeological studies is being shared with other specialists preparing watershed studies.

Public Involvement: Public involvement occurs during the NEPA process.

Data location: Heritage department, Forest headquarters, Redding, CA.

Recreation

Partnerships

Forest Plan Standards: Promote partnerships with user groups to assist in the operation, maintenance, and development of recreation sites and facilities (Ref: Forest Plan, pg 4-23, r).
Monitoring Objective: To identify existing partnerships and partnership opportunities.

Method: Recreation staff participated in on-going discussions related to maintaining and expanding existing partnerships, developing new partnerships, exploring new ways of doing business, and determining the most efficient means for accomplishing program objectives, including providing safe, quality recreation opportunities and meeting the diverse needs of the recreating public.

The forest encouraged the public to participate in the Recreation Facility Analysis (RFA) process. The RFA process was designed to align developed recreation sites with the unique characteristics of the forest and to position the forest to meet projected recreation demand and visitor expectations. This process included identifying user groups who might assist in the operation, maintenance and development of recreation sites and facilities on the forest.

The goals of the RFA were to:

- Focus resources on recreation opportunities that would meet changing public desires and demands.
- Maintain or enhance visitor satisfaction with the sites and services provided.
- Meet quality health and safety standards at all developed recreation sites
- Ensure sites are financially sustainable
- Ensure sites are environmentally sound
- Maintain community sustainability

Results: In FY 2007 and FY 2008, the Forest maintained partnerships with Shasta Lake Improvement Project Partnership, Shasta and Trinity Houseboat Owners Associations, Backcountry Horsemen of America, California Conservation Corps (CCC), Backcountry CCC, Redding Dirt Riders, and Trail Weavers. Additional partners included Redding Mountain Biking and Sierra Club in 2007 and the Recreation Outdoors Coalition in 2008. These partners assist the forest in operating, maintaining and enhancing recreation sites and trails for forest visitors. The majority of the developed sites in the National Recreation Area continue to be managed by concessionaires.

In 2008 the Forest's Recreation Facility Analysis process was completed. A five year program of work was developed to identify and implement priority Recreation Site Improvement projects.

Recommendations: Continue to promote partnerships and explore ways to improve efficiency and the condition of forest facilities.

Public Involvement: Included direct involvement with partners, stakeholders, other forests, other agencies and interested community members.

Data location: Public Uses Department, Forest Headquarters and District Offices.

Off Highway Vehicles (OHV)

Forest Plan Standard: Cooperate with the State, other agencies, and user groups to identify potential OHV trails. Where compatible with management objectives, develop segments of OHV trails that support the concept of a statewide OHV trail system. (Ref: Forest Plan, page 4-23, #16 f.)

Monitoring Objective: To document progress on implementation of the 2005 Travel Management Rule.

Method: The Forest continued to implement the Travel Management Rule in FY 2007 and FY 2008.

Results: The draft route inventory was completed in 2007. The Forest released a proposal/proposed action in 2008 to add some OHV routes to the forest's transportation system. The Forest then solicited public input on the proposal/proposed action.

Recommendations: Continue to implement the Travel Management Rule and work towards defining a system of designated routes and motorized use areas. Promote increased public participation in the process.

Public Involvement: Direct involvement with motorized and non-motorized user groups, other state and federal agencies and local community members occurred in both 2007 and 2008.

Data location: Public Uses Department, Forest Headquarters, Redding, CA.

Pacific Crest Trail (PCT)

Forest Plan Standard: Provide a safe, usable, and convenient passage through the project area or a reasonable detour during the entire period of project activities. As a minimum, detours will consist of temporary route markers and a four-foot wide travel way cleared of vegetation. Tread work will only be performed to allow safe stock passage. (Ref: Forest Plan, page 4-23, #16 b.2)

Monitoring Objective: To document collaborative efforts for PCT maintenance.

Method and Results: In 2007, the California Conservation Corps, the Back Country Horsemen and the Pacific Crest Trail Association helped maintain the portions of the PCT that traverse the Forest. In 2008, the same three groups helped maintain Sections O and P of the PCT on the Forest.

Recommendations: Provide regular maintenance on the sections of the PCT that cross the Forest. Continue to provide safe, useable and convenient passage for users. Ensure the appropriate level of training is provided for individuals performing maintenance and enforce the use of Personal Protective Equipment while performing trail maintenance activities on the PCT.

Public Involvement: Direct involvement with the California Conservation Corps, Back Country Horsemen of America, Pacific Crest Trail Association and "through hikers".
Data location: Public Uses Department, Forest Headquarters and District Offices.

Wilderness

Develop Direction

Forest Plan Standard: Develop wilderness direction to guide annual programs and long-term strategic actions in the Forest's 5 wildernesses. (Ref: Forest Plan page 4-29, #24a).

Monitoring Objective: To document activities associated with the 10-year Wilderness Stewardship Challenge.

Method: Nationwide, a 10-Year Wilderness Stewardship Challenge has been initiated to ensure that all wilderness areas are meeting common objectives that will result in quality wilderness areas. Components of the strategy include addressing noxious weeds, fire ecology, environmental education, information needs documented, Forest Plan direction and campsite inventories.

Results: The FY 2007 focus of the 10-year Wilderness Stewardship Challenge was Fire Plan Evaluates Full Range of Responses for Entire Wilderness. Development of a draft Fire Use Plan was initiated for the Trinity Alps Wilderness to meet this objective.

The FY 2008 focus of the 10-year Wilderness Stewardship Challenge was Information Needs Documented. Over 100,000 acres burned in the forest's Wilderness areas in 2008. This unprecedented fire season highlighted the need for a significant amount of information to protect wilderness resources and values. Information needs were documented during After Action Reviews and other fire related meetings. Some of the identified information needs included: additional detailed information related to fire suppression activities in Wilderness in the Forest Fire Management Plan, a map identifying the location of historic structures and other culturally significant features, wilderness trail maintenance specifications. A Fire Use Plan is still being developed for Trinity Alps Wilderness.

Recommendations: Continue to implement the 10-year Wilderness Stewardship Challenge.

Public Involvement: Included direct involvement with partners, stakeholders, other forests, other agencies and interested community members.
Data location: Public Uses Department, Forest Headquarters and District Offices.

Encroachment Sites

Forest Plan Standard: Post potential encroachment sites on the boundaries of the five Wildernesses as necessary. (Ref: Forest Plan page 4-29, #24b)

Monitoring Objective: To evaluate compliance with wilderness boundary posting requirements.

Method: Wilderness boundary posting is an on-going forest program. Posting is routinely conducted in conjunction with specific projects, such as timber sale activity adjacent to Wilderness for Forest Service and private lands timber management.

Results: Areas of potential encroachment were monitored and posted in FY 2007 and FY 2008.

Recommendations: Continue program.

Public Involvement: None.

Data location: Public Uses Departments at District Offices.

Visitor Information

Forest Plan Standard: Initiate visitor information and education programs that interpret and emphasize values and behavior that protect wilderness resources. Post regulations, orders, and/or permits outside the Wilderness boundaries. (Ref: Forest Plan page 4-29, #24f).

Monitoring Objective: Identify methods utilized for education and information sharing with various publics.

Method: Seasonal wilderness rangers meet visitors and provide them with information. Signs and pamphlets are also posted at developed trailheads. The Trinity River Management Unit is utilizing an "electronic kiosk" to disseminate wilderness information, education, and permits. Recreation Opportunity Guides are available either in hard copy form or on the Forest website (http://www.fs.usda.gov/goto/stnf/rogs). During 2008 news releases shared important information about why fire suppression strategies should differ in Wilderness areas.

Results: Various methods of sharing information related to wilderness ethics and protecting wilderness character were used. Problem areas still exist, requiring creative approaches. For example, a temporary campfire closure order was maintained around high elevation lakes at Canyon Creek and Stuarts Fork headwaters to decrease defoliation of natural vegetation and allow for recovery.

Recommendations: Continue using proven methods and develop new ways of disseminating information to wilderness users. Continue to monitor the effectiveness of the campfire closure order before making a decision as to whether to implement it for a longer period of time.

Public Involvement: Utilization of materials provided for educational or informational purposes.

Data location: All Ranger District Offices and Forest Headquarters.

Wild and Scenic Rivers

Forest Plan Standard: Protect the existing character within established boundaries of designated Wild and Scenic Rivers, and within a 1/4 mile boundary on either side of the proposed Wild and Scenic Rivers pending the outcome of their formal classification by Congress. (Ref: Forest Plan page 4-28, #23 Wild and Scenic Rivers).

Monitoring Objective: To document projects subject to Section 7 analysis under the Wild and Scenic Rivers Act of 1968.

Method: Management Plans are completed for all designated rivers. These plans are used to address specific issues, such as improved public access. Proposed rivers are being addressed through the project planning process. The Forest and partners also come together each year to participate in activities, such as the annual National Rivers Cleanup Day.

Results: Annual river cleanup projects helped significantly to improve the wild and scenic character of Trinity River. Three curve widening projects to mitigate safety concerns along

Highway 299 finished Section 7 analysis during FY 2007 and FY 2008. Construction began on Pigeon Point in 2007 followed by Italian Creek in 2008 and finally China Slide will begin in 2009. Caltrans continues to propose actions (i.e. curve widening) for Highway 299 that must be analyzed for potential effects to the Trinity River. Due to long-standing problems with the land survey along much of Trinity River, encroachments of private features onto National Forest System lands, and *vice versa*, continued to be identified. Private landowners also approached the Forest seeking access to their lands. Land ownership issues are being prioritized to accommodate current budget levels.

Recommendations: Continue to conduct high priority projects and maintain active community involvement.

Public Involvement: There is strong community participation in the annual cleanup projects.

Data location: Weaverville Ranger District Office and Forest Headquarters, Redding, CA.

Visual Quality

Forest Plan Standard: Maintain a diversity of scenic quality throughout the Forest, particularly along major travel corridors, in popular dispersed recreation areas, and in highly developed areas. (Ref: Forest Plan Goals, page 4-5)

Monitoring Objective: To assess the integration of visual quality standards in forest management activities.

Method: The 2007 and 2008 visual quality program focused on the design needed to: (1) collaborate and review scenery with other agencies such as the California Dept. of Transportation, and Bureau of Reclamation; (2) the monitoring of scenery for vegetation management projects, such as Green Mountain Fuels, Algoma Vegetation Management and Rattlesmoke Vegetation Management project in 2007, and Pettijohn and Salt in 2008; (3) collaborate and review scenery for special use permits, including recreation residences and the PG&E / FERC permit re-licensing for Pitt 3, 4, 5 and McCloud-Pitt; and (4) miscellaneous projects such as Travel Management in 2008.

Results: Projects will be monitored for implementation of proposed objectives.

Recommendations: Continue development and implementation of proposals.

Public Involvement: Public involvement was achieved through the NEPA comment process.

Data location: Recreation and visual quality department, Forest headquarters, Redding, CA.

Law Enforcement

Forest Plan Standard: Protect the public interest by a thorough and aggressive program of violation prevention, violation detection, investigation and apprehension of violators and the presentation of cases for prosecution. (Ref: Forest Plan page 4-21, #13)

Monitoring Objective: To document the annual number of reported incidents.

Methods: Data is summarized yearly by Law Enforcement staff in the Law Enforcement and Investigations Management Attainment Reporting System (LEIMARS) report.

Results and Recommendations:
LEIMARS annual statistics for Shasta-Trinity Forest: Incidents, Warnings, Citations and Arrests are shown in Table 1.

Table 1: LEMIMARS entries for the Shasta-Trinity National Forest by fiscal year.

Fiscal Year	2001	2002	2003	2004	2005	2006	2007	2008
LEIMARS Entries	1,557	1,912	1,897	2,223	2,681	1,522	1,315	1,039

Though LEIMARS statistics show a decrease from previous years, 2007 and 2008 had an increase in the number of marijuana gardens, the number of plants eradicated and an increasing sophistication of the drug trafficking organizations that manage the gardens.

There was also an increase in vandalism and theft of both private and public property including resource damage due to OHV use, range allotment fences, fuelwood theft and timber theft. The trend of more visitors each year to the National Recreation Area at Shasta Lake is welcome from a recreation viewpoint but it is increasingly difficult to deal with recreational violations from a law enforcement standpoint.

Data location: Law enforcement office, Forest headquarters, Redding, CA.

Social and Economic Environment

Hayfork Adaptive Management Area

Forest Plan Standard: Development, demonstration, implementation, and evaluation of monitoring programs and innovative management practices that integrate ecological and economic values. (Ref: Forest Plan, page 4-69, Technical Objectives).

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

Method: Identify the status and progress of multiple projects within the AMA.

Results: The status of one research project and three fuels reduction projects are described below.

Research on Effects of Off-Highway Vehicles (OHV) on Northern Spotted Owls: Information is needed on the effects of OHV use on northern spotted owl stress levels, behavior, and nesting success. Results of this study would assist in managing OHV use in owl habitat. The University of Washington is working on a study is to address these issues. Data collection within the AMA occurred in FY 2006 and FY 2007. Work done during the spring and summer of 2007 was considered a successful effort since the lack of snow increased efficiency and the spotted owl had high reproductivity.

Controlled and simulated enduro motorcycle (an OHV type) experiments were conducted at 15 owl pair sites. At each site 2 to 5 volunteer motorcycle riders passed by owl territories on the closest road up to 45 times in an hour. To test the owl's stress from this noise disturbance, corticosterone hormones from owl scat was measured in the university's lab this fall in 2007 (FY08). This acute OHV exposure showed a significant increase in the stress hormone level for male spotted owl, but not females. Other lab analysis work is on-going. Funding for continuing more years of this research has not become available. More information is located at the University's website: http://depts.washington.edu/conserv/Spotted%20Owls.html

Post Mountain Stewardship Collaboration: During 2005, the Post Mountain NEPA process started. In FY 2006, collaboration continued with the Post Mountain Volunteer Fire Department and the Hayfork Watershed Research and Training Center. The NEPA document was completed in May of 2006. The Post Mountain Stewardship Integrated Resource Contract is was awarded in 2007. However, this project is currently enjoined due to litigation concerning all category 10 categorical exclusions (CEs).

Brady Fuels Reduction Stewardship Agreement: Collaboration began in 2006 with Hayfork Watershed Research and Training Center and adjacent land owners in the Hayfork Valley. This project will be showcased in the community to share what can be done in a collaborative effort. It will be used for field visits for community members to see what type of fuel reduction could occur on and adjacent to their property. This agreement was signed in FY 2007. The Trinity County Resource Advisory Committee provided funding in 2007 to begin work on the Lucky Little Fuelbreak. The project area was then burned through during the 2008 Miner's Fire. Implementation of the timber portion of this project is still pending.

Highway 3 and Hayfork South Fuel Reduction: A collaborative effort was developed with the Hayfork Watershed Research and Training Center and landowners adjacent to State Highway 3. The goal was to reduce fuel directly adjacent to State Highway 3. Implementation along Hwy 3 began in 2006 and was completed in 2007. Work began on a second portion of the project, Highway South, in 2007. This project is currently enjoined as a result of the CE category 10 litigation.

Recommendations: Continue monitoring on-going projects. Provide opportunities and processes for information sharing so lessons learned can be evaluated for use in the next generation of AMA projects.

Public Involvement: Public involvement occurs during the NEPA process.

Data Location: South Fork Management Unit, Hayfork, CA.

Community Development/Partnerships

Forest Plan Standard: Emphasize the development of partnership programs through coordination with interested public and agencies (Ref: Forest Plan, page 4-5 #28).

Monitoring Objective: To determine if the Forest is utilizing opportunities to collaborate with a variety of interested publics and agencies.

Methods: Query I-WEB grants and agreements module to determine the types of agreements being executed and collaborators involved. Summarize Resource Advisory Committee project funding history for Shasta and Trinity counties.

Results: In FY 2007, the Forest executed 55 new agreements. There were 48 new agreements executed in FY 2008. Table 2 shows the number of agreements in each category for each fiscal year.

Table 2: New grants and agreements executed for the Shasta-Trinity National Forest separated by type and fiscal year.

Type	2007	2008
Grants	2	4
Collection Agreements	3	4
Participating Agreements	24	17
Cost Share Agreements	14	11
Interagency Agreements	7	7
MOUs	4	3
Fire Agreements	0	1
Cost Recovery Agreements	1	1
Total	**55**	**48**

Partnerships included grants and agreements with over 30 different partners in both FY 2007 and FY 2008. Some of these include: the Resource Advisory Councils (RAC) in Shasta and Trinity Counties, Caltrans, California Conservation Corps, Trinity County Resource Conservation District, Bureau of Reclamation, Western Area Power Administration, the State of California, University of California, the Watershed Research & Training Center, and the Back Country Horsemen of California.

Specific examples of projects that involved collaboration with other organizations can be found throughout this document under many of the specialty areas.

Resource Advisory Committees (RAC):

In October 2000, Congress passed Public Law 106-393 entitled "Secure Rural Schools and Community Self Determination Act of 2000" which stabilized federal payments to states for funding schools and roads.

The Act established the committees consisting of 15 local citizens representing a broad array of backgrounds, interests, and experiences. Each year the Resource Advisory Committees recommend projects to the Forest Service to be conducted on Forest Service system lands, or that will benefit resources on Forest Service system lands. For more information visit the Forest website at http://www.fs.usda.gov/goto/stnf/rac

Table 3 outlines the number of projects funded by each RAC by fiscal year and the associated cost. A majority of these projects were implemented on lands managed by the Forest, however a few were implemented on state or private lands, or on the Six Rivers National Forest.

Table 3: RAC projects and associated expenditures for each fiscal year.

County	Fiscal Year	Projects	Cost
Shasta	2007	21	$ 885,641
Shasta	2008	13	$ 643,856
Trinity	2007	24	$1,069,485
Trinity	2008	26	$ 862,854

Public Involvement: Interested publics are directly involved with development and/or implementation of agreements.

Data location: Grants and Agreements department, Forest headquarters, Redding, CA.
Trinity County RAC (http://www.trinitycounty.org/departments/admin-Bos-cao/agenda%20min/BACKUP0902/201.pdf)
Shasta County RAC (http://www.fs.usda.gov/goto/stnf/rac)

Tribal Government Program

Forest Plan Standard: Develop partnerships with Native American tribes and consult with Native Americans at the planning and project level of analysis. (Ref: Forest Plan page 4-4 #7, and page 4-50 #4)
Monitoring Objectives: The objective of monitoring the Tribal Government Program is to determine if partnerships and the consultation process are established and serving to improve relationships, communication and understanding between the Forest Service and Indian people.

Methods: MOUs are signed with the Pit River Tribe, the Shasta Nation, the Redding Rancheria, and the McCloud Wintu. Annual meetings are held with recognized tribes and Native Americans are consulted during scoping and watershed analysis where there are issues of concern. Non recognized tribes are also included during NEPA and Section 106 consultation. All tribal groups need to be involved and informed on District and Forest management potentially affecting them.

Results: In FY 2007 and FY 2008, consultation continued with Native Americans for projects such as timber sales, special use permits and recreation site improvements. The Forest entered into new MOUs with the Pit River Tribe and the McCloud Wintu. The Forest held quarterly meetings with these two groups. Native American consultations have been productive in resolving issues arising during project planning. Some projects were modified following consultations. Native Americans are interested in both historical places and areas of current use on the Forest. The Pit River Tribe, the McCloud Wintu and the Hayfork Wintu continue to be the most actively involved tribal groups. For more information related to these objectives, refer to the Sec 106 PA Heritage Resource Management Report for FY 2007 and FY 2008 prepared by the Forest Archeologist.

On the South Fork Management Unit consultation on various vegetation management projects was carried out in 2007 and 2008 with the Nor-Rel-Muk Wintu and with the Tsnungwe on the Trinity River Management Unit. Meetings were also held with the Nor-Rel-Wintu Tribal Council discussing ongoing management issues affecting the tribe. The South Fork Management Unit continues to have regular contacts with tribal members who have questions or information to share

with the District. . Work continues to manage the sacred site of Natural Bridge with this tribe and Ironside Mountain with the Tsnungwe.

The Heritage Program on the Trinity Side continues to participate in interpretation and educational activities with the local Native American community. Primary example of this is the annual Native American Day held each Fall that takes local third grade students and educates the children on various aspects of local Indian culture and archaeology.

Recommendation: Continue consultations and partnerships at current level**.** In 2010 a revised Section 106 Programmatic Agreement will encourage more consultation and collaboration with local tribes on Forest issues and proposed actions. Continue to further close personal contacts with tribal members to help preserve and educate the general public on their history and culture.

Public Involvement: Direct involvement with tribes and their members concerning various resource issues.

Data location: Heritage department at Forest headquarters, Redding, CA.

Resource Management Programs

Fire and Fuels

Hazard Fuels Treatments and Strategic Planning:

Forest Plan Standard: Natural fuels will be treated in the following order of priority: 1) public safety; 2) high investment situations (structural improvements, power lines, plantations, etc.); 3) known high fire occurrence areas; and 4) coordinated resource benefits, such as ecosystem maintenance for natural fire regimes. (Ref: Forest Plan, page 4-17 #8, e)

Prescribed Fire Monitoring

Objective: Prescribed fire monitoring is ongoing as is the collection and analysis of repeated observations and or measurements to evaluate changes in condition and progress toward meeting project objectives. The following elements are monitored; the weather (forecast and observed), fire behavior, fuels information, smoke dispersal monitoring in accordance with the smoke management plan.

Methods: On site observations were made for the Green Mountain project area, documented and evaluated against the approved plan and purpose and need identified for the project.

Results: The results are used to determine appropriateness of continuing project implementation as well as improvements that can be applied to future projects. The outcome of the Green Mountain project is a mosaic pattern across the landscape. This pattern is a desired outcome as stated in the project NEPA document. In the areas observed, there was general agreement that more consumption of the brush component would be desired. The results are used to determine appropriateness of continuing project implementation as well as improvements that can be applied to future projects.

Recommendation: Continue efforts to learn and adopt a continuous improvement approach to project implementation and development.

Public Involvement: Public involvement was accomplished through project noticing and news releases regarding the projects.

Data Location: Monitoring data is maintained on each Management Unit in the Project File.

Vegetation Treatment Monitoring:
Objective: Monitor the effectiveness of various vegetation treatments in the Knob/Beegum NEPA area as well as the Eagle Ranch project area. These projects were monitored for fire effects following the 2008 Gulch fire and 2008 Eagle fire respectively.

Monitoring Objective: Determine the effectiveness of various fuels and vegetation management treatments implemented post-fire to meet forest land management objectives.

Methods: For each project, a team of subject mater experts was assembled from various levels of the agency to review the project objectives, treatments completed, fire conditions and fire effects within various treatment areas. On site observations were made by the team and interviews were conducted with individuals who had particular knowledge thought to be important to the team.

Results: For the Gulch fire Knob/Beegum project area a fuels treatment effectiveness report was written, submitted to the Washington Office (WO) and shared across the forest. For the Eagle fire Eagle Ranch project area a fuels treatment effectiveness report was written, submitted to the WO and shared across the forest. Observations determined that thinned units, with surface fuels treated, fared well during the passage of fire. Treated stands received scorch heights much lower than those of the adjoining untreated landscape.

Recommendation: Continue Forest efforts to learn and adapt project design and implementation to improve vegetation treatment outcomes.
Public Involvement: Public involvement was accomplished through project noticing and news releases regarding the projects.

Data Location: Forest headquarters and the Wildland Fire Lessons Learned center (http://www.wildfirelessons.net/Home.aspx).

Activity Fuels

Forest Plan Standard: Activity fuels that remain after meeting wildlife, riparian, soil, and other environmental needs will be considered surplus and a potential fire hazard. The amount and method of disposal will be determined in ecosystem analysis. (Ref: Forest Plan, page 4-17)

Monitoring Objectives: Monitor and evaluate the effectiveness of fuel treatments designed to treat excess activity fuels.

Methods: Proposed treatment areas were visited prior to logging during the NEPA process. Fuels inventories, photo series assessment, and team expertise were used to estimate the amount of activity fuels likely to be generated on a unit-by-unit basis for the project area. If there were no

plans for reforestation; activity fuels were treated to meet hazard reduction objectives. In areas of reforestation, fuels specialists and silviculturists worked together to prescribe the appropriate method of fuel treatment. All treatments, both for hazard reduction and site-prep, were developed by project interdisciplinary teams.

Results: In FY 2007 and 2008, 29 activity fuels treatment projects were monitored on the Shasta McCloud Management Unit. Post-burn fuels inventories and visual site assessments found that the prescribed burn treatment of activity fuels successfully met goals and objectives stated in the environmental document.

Recommendation: Continue to carefully monitor the timber sale Brush Disposal (BD) program, to assess whether the pre-sale estimated BD work adequately meets the needs of LRMP standards and recommendations for the post-harvest outcome.

Public Involvement: Field trips with local citizens groups and industry representatives are conducted to review timber sale areas.

Data location: Burn plans are located at local Management Unit Offices, Forest headquarters in Redding and Redding Interagency Command Center. Post-burn summaries are located at the local Management Unit Offices

Timber Management

Allowable Sale Quantity

Forest Plan Standard: Timber yields from suitable lands will be chargeable toward the Allowable Sale Quantity (ASQ). The suitability of land for timber production will be field verified at the project level using the timber suitability criteria shown in Appendix I of the Forest Plan. (Ref: Forest Plan page 4-26, #20a., and page 5-13, Timber)

Monitoring Objective: The objective is to determine if the timber sold in FY 2007 and FY 2008 meets the ASQ level specified in the Forest Plan.

Method/Data Collected: Information on timber products offered and sold is collected at the district level and compiled at the forest level into a national database called the Timber Information Management System (TIM).

Results: The timber volume offered for sale in FY 2007 totaled about 71.6 MMBF. This was lower than the 82.0 MMBF allowable sale quantity as stated in the Forest Plan. The average annual timber volume offered for sale since the signing of the Forest Plan in 1995 is about 57.4 MMBF, or about 70% of the ASQ. In FY 2008, 21.9 MMBF was offered for sale. This reduced the average annual timber volume offered for sale since 1995 to 54.8 MMBF, which is approximately 67% of the ASQ.

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

Public Involvement: Public involvement occurs during NEPA at the project level.

Data Location: The Timber Information Management (TIM) report can be accessed through Forest Service computers.

Silvicultural Systems

Forest Plan Standard: Silvicultural Systems/Harvest Methods. Emphasize the regeneration harvest of understocked and poorly growing stands, whether using even or uneven-aged systems. Intermediate cuttings in overstocked stands (thinning) and the salvage of dead and dying trees will also be emphasized.(Ref: Forest Plan page 4-26, #20e)

Monitoring Objective: The objective is to determine if silvicultural systems and harvest methods prescribed in timber sales are following the prescriptions specified in the Forest Plan.

Method: Information was compiled through review and collection of volume per acre data from individual timber sale Environmental Assessments (EAs) and contracts sold.

Data Collected: Volume and acres of regeneration cutting and intermediate (thinning) and salvage cutting in timber sales.

Results: The Forest did not meet annual regeneration cutting objectives, but exceeded the intermediate and salvage cutting objectives, as shown in table 4.

Table 4: Timber accomplishments for each fiscal year by harvest type.

Harvest Type	Forest Plan Objective	FY 2007 Accomplishment	FY 2008 Accomplishment
Regeneration Cutting-Volume (MBF)	66,000	5,147	1,243
Regeneration Cutting-Acres	3,500	435	105
Intermediate Cutting-Volume (MBF)	12,000	48,598	12,778
Salvage Cutting-Volume (MBF)	4,000	17,860	7,875

Recommendations: The Forest would have to place additional emphasis on regeneration cutting in the future in order to meet long-term sustained yield timber objectives as specified in the Forest Plan.

Public Involvement: Public involvement occurs during NEPA at the project level. Extensive public involvement occurred during the preparation of the Forest Plan.

Data Location: Timber sale EAs and contracts are at Forest headquarters, Redding, CA.

Reforestation

Forest Plan Standard: Achieve stocking standards of well distributed trees within five years of final harvest (unless otherwise certified by a certified silviculturist as meeting ecosystem objectives) under all silvicultural methods. (Ref: Forest Plan page 4-26, #20g, and page 5-13, Timber)

Monitoring Objectives: The objectives are to 1) determine if reforestation goals are being met, and 2) determine if regeneration harvest areas are being adequately stocked within five years.

Method: Information on reforestation accomplishment and regeneration status was taken from the Forest Service Activity Tracking System (FACTS).
Data Collected: FY 2007 and 2008 reforestation acres accomplished and FY 2002 and 2003 regeneration harvest acres certified for reforestation in FY 2007 and 2008.

Results: Reforestation acres accomplished totaled 588 acres in 2007 and 732 acres in 2008. This is about 17% and 21% resectively of the 3500 acres projected in the Forest Plan. Forest emphasis on thinnings and salvage more than regeneration cutting during the past few years has kept reforestation acres low.

Recommendations: Continue monitoring annually.

Public Involvement: No direct involvement.

Data Location: The data resides in the National FACTS Database.

Timber Stand Improvement

Forest Plan Standard: Timber stand improvement (TSI) projects will emphasize maintaining or improving growth, and healthy, vigorous trees, through release and thinning. (Ref: Forest Plan page 4-27, 1, and page 5-13, Timber)

Monitoring Objective: The objective is to determine if timber stand improvement goals are being met.

Method: Information on TSI accomplishment was taken from the FY 2007 and 2008 FACTS National Database.

Data Collected: TSI acres accomplished.

Results: TSI acres accomplished totaled 2,519 acres in 2007 and 3,018 acres in 2008. This was less than the 5300 acres (48% and 57% respectively) projected in the Forest Plan.

Recommendations: Continue monitoring annually.

Public Involvement: No direct involvement.

Data Location: The data resides in the National FACTS Database.

Biomass

Forest Plan Standard: Incorporate biomass opportunities into ecosystem analysis and project proposals that meet ecosystem objectives, such as dead/down material for wildlife and ground cover for soil protection, and to reduce fuel loading to complement the natural fire regime. (Ref: Forest Plan page 4-14, #3a)

Monitoring Objective: Determine if biomass opportunities have been incorporated into project proposals.

Method: Information on biomass volume offered and sold was compiled through the review and collection of volume data from timber sale contracts sold in 2007 and 2008.

Data Collected: Volume of biomass sold in FY 2007 and FY 2008.

Results: No specific volume targets for biomass were established in the Forest Plan. In 2007 approximately 35,635 MBF (50%) of biomass sold as part of the Forests' regular timber sale program of 71,600 MBF. The Forest's regular timber sale program fell to 21,900 MBF in 2008, of which, 8,257 MBF (38%) was sold as biomass. Biomass opportunities have been emphasized more on the east side of the Forest. Biomass opportunities have been limited on the west side of the Forest, primarily due to economic considerations.

Recommendations: In the future, greater priority should be placed on sawlog volume when allocating timber dollars (NFTM). Biomass opportunities should be multi-funded, using fuels, wildlife, EM, and other funding sources along with timber dollars to accomplish biomass removal projects.

Public Involvement: Public involvement occurs during NEPA at the project level.

Data Location: Timber sale contracts at Forest headquarters, Redding, CA.

Forest Health Protection

Forest Plan Standard: When conducting watershed/ecosystem analysis, consider the possible effects that Forest pests may have on management objectives and desired future conditions. (Ref: Forest Plan Standards and Guidelines, page 4-18)

Objective: To identify the location and extent of insect induced conifer mortality.

Methods: Aerial detection surveys are flow on an annual basis to document infected areas.

Results: As was reported in 2006, with increased rain conditions prior to FY 2007, aerial detection surveys flown in 2007 located decreased number of acres (8,132) of conifer mortality from bark beetles on the Forest, compared to 8,485 acres in 2006 (a relatively wet year), and 42,671 acres in 2005 and 53,000 acres in 2004 (two dry years). The conifer types with mortality included pine, fir, mixed conifer, Douglas-fir and tan-oak mortality. In the northeast portion of California, the Shasta-Trinity was one of three Forests that showed heavy mortality of lodgepole, ponderosa and whitebark pine due to mountain pine beetle. While defoliation from Douglas-fir tussock moth subsided in many areas of the state, high levels of defoliation (approximately 7,000 acres) continued in 2007 in and around the Shasta-Trinity National Forest.

In 2008, aerial detection surveys showed increased conifer mortality levels due to bark beetles. 39,198 acres of conifer mortality due to bark beetles were identified, likely due to increased drought conditions. In contrast, defoliation due to Douglas-fir tussock moth subsided, and no defoliation acres were observed.

Recommendation: Continue annual surveys.

Public Involvement: No direct involvement.

Data Location: Forest Health Protection Shared Service Area Office at Forest Headquarters, Redding, CA.

Range Management

Sustainability of Forage

Forest Plan Standard: Manage rangeland vegetation and livestock grazing activities in order to meet and/or provide for desired ecosystem conditions, including the sustainability of forage for livestock and wildlife and the attainment of the Aquatic Conservation Strategy and proper management of Riparian Reserves. (Ref: Forest Plan Goals, page 4-5 and Standards, page 4-22)

Objective: Determine if rangeland ecosystems are healthy, if livestock/wildlife forage is available on a sustainable basis and if proper management of this resource and its associated attributes is occurring.

Results: In 2007, eleven of the Forest's twenty-three allotments were vacant, thus monitoring was based on the 12 active allotments. Of these, 5 were monitored more intensely than others due to resource concerns.

In 2008, ten of the Forest's twenty-three allotments were vacant; thus monitoring was based on the 13 active allotments. On June 21, 2008, the Forest experienced an onslaught of lightning strikes that sparked large fires across the Forest. Ten of the 13 active allotments were directly affected by the fire activity. The fire activity was of high intensity and continued through September. Range monitoring was not done on these allotments. During this time, range personnel worked with permittees in evacuating livestock back to their home ranches. Some permittees were able to come back once the fires were contained later in the season. Monitoring was concentrated on the three allotments that were not directly impacted by the fire season.

For both 2007 and 2008, a combination of hardwire and electric fence systems were maintained on six allotments in an effort to monitor use and exclude livestock from riparian areas. In both 2007 and 2008 Range readiness checks were made on 8 of the 12 active allotments. Allotments that did not have range readiness check done, were in similar elevation and vegetation as adjacent allotments and presumed to be ready based on the adjacent allotment's readiness check.

In 2007, distribution of livestock use and utilization was monitored to determine if management objectives and Forest standards and guidelines were being met. In 2008, due to the large fire activity on the Trinity side of the Forest, monitoring was not done on the allotments affected by the fires. Allotments that were not affected by the fires were monitored. Overall results are displayed in table 5.

Recommendation: Continue to monitor range condition, suitability and utilization each year. Continue to work with permittees and cooperating agencies in development and implementation of Annual Operating Instructions.

Table 5: Range activities associated with forest plan standards or objectives by fiscal year.

Standard or Objective	Activity	2007 Accomplishments	2008 Accomplishments
Provide for proper management of selected riparian areas	Riparian areas monitored and/or protected	7 sites/ 52 acres	8 sites/ 153 acres
Ecosystem analysis, NEPA documents and annual operation instructions is the primary tool for implementing management actions	Completed NEPA analysis	4 allotments	3 allotments
WA & NEPA documents shall be prepared to bring authorized grazing use in conformance with Forest Plan objectives	Supporting documentation and surveys in preparation for an EA	Sailor Bar EA Upper South Fork & Post Creek EA	Bartle, Bear Creek and Toad Mountain EA
Verify range readiness, proper utilization and distribution on active allotments.	Range readiness and/or utilization and distribution checks done	12 allotments	3 allotments

Data location: Information can be found in the Annual Grazing Statistical Reports in the Range department at Forest headquarters, Redding, CA.

Coordinate With Other Organizations

Forest Plan Standard: Coordinate rangeland activities with other agencies, organizations and individuals having an interest in the management of the rangeland resource where it is appropriate. (Ref: Forest Plan Standards, page 4-22, #f)

Objective/Method: Determine by review of program records if rangeland activities are being coordinated with other agencies, organizations and individuals, as appropriate.

Results: Annual operating plans were developed through coordination with the permittees. Permittees were required to maintain allotment structures, including electric fences. Permittees were also responsible for maintaining proper distribution of their livestock.

Recommendation: Continue to work with permittees and cooperating agencies in development and implementation of Annual Operating Instructions.

Public Involvement: Permittees were involved in developing annual operating plans.

Data location: Range department at Forest headquarters, Redding, CA

Biological Environment

Fisheries Management

Sport Fisheries

Forest Plan Goal: Emphasize sport fisheries as a major recreational activity by expanding recreational fishing opportunities. (Ref: Forest Plan Goals, page 4-4, # 12).

Habitat Improvement

Monitoring Objective: To determine fish response and abundance related to habitat improvement treatments compared with untreated areas in Shasta and Trinity Lakes.

Methods and Results: There were 160 acres of underwater lake habitat improved in 2007 for sport fisheries benefit in Shasta Lake, and 70 acres improved in Trinity Lake. For 2008, 170 acres were treated in Shasta and 70 acres again improved in Trinity. Included are the placement of underwater manzanita brush structures, rooted willow plantings, and acres of annual cereal grass seeding. Fish utilization abundance was monitored at the Shasta Lake improvement sites via scuba diving accompanied with underwater photography. Fish abundance continues to range from three to ten times greater in these treatment areas compared to untreated control areas. The cereal grass benefited newborn young-of-the-year fishes primarily.

Public Involvement: 1) Several acres of fish habitat were improved both years with contributions by children of Bella Vista Elementary School. Many parent chaperones and teachers participated. **2)** Twelve children were also hired in conjunction with the Youth Conservation Corps and the Shasta County Resource Advisory Committee to implement fish habitat improvement projects in 2008. **3)** School classroom presentations were made in during National Fishing week both years, in combination with a fishing trip for the children to the upper portions of Trinity Lake. More fish were caught than the number of students participating.

Raise and Release

Monitoring Objective: Raise and release 'trophy' sized trout for anglers on Shasta, Trinity and Lewiston Lakes.

Methods and Results: Around 750 trout were raised in up to 11 cages to a size of 4 pounds per fish in 2007 and again in 2008. Once released, these fish can continue growth up to 17 pounds as per a catch in Lewiston Lake. The Forest's recreational fishing website is viewable at: http://www.fs.fed.us/r5/shastatrinity/recreation/st-main/st-fishing/index.shtml

Public Involvement: Numerous partners contribute time, money and other resources to help make this a very satisfying experience for the angling public.

Data Location: Forest Headquarters, Redding, CA.

Summer Steelhead and Spring-run Chinook Salmon Habitat

Forest Plan Goal: Emphasize the restoration of summer steelhead and spring-run Chinook salmon habitat in the South Fork Trinity River Basin**.** (Ref: Forest Plan Goals, page 4-4, #13)

Methods and Results: South Fork Trinity River spring-run Chinook salmon adult surveys have been conducted repeatedly since 1964 via snorkeling and the counting of spawning redds. The California Department of Fish and Game coordinates this survey and staff from the Forest participates every year. Spring-run Chinook salmon adult and redd surveys were once again funded and conducted in FY 2007, but wildfires and California state funding problems forced the cancellation of surveys in 2008.

In 2007 surveyors counted 212 adult spring-run Chinook, and 130 steelhead. The spring-run Chinook salmon figure is greater than the results from the previous four years. The steelhead total is greater than any single year's survey results since 1964 Comparisons such as this are always encouraging, but do not necessarily indicate an improvement of more meaningful long-term trends.

Wild Trout and Salmon

Forest Plan Goal: Provide for the protection, maintenance, and improvement of wild trout and salmon habitat. (Ref: Forest Plan Goals, page 4-4, #14)

Twenty-six total aquatic inventories using the Stream Condition Inventory (SCI) method; salmon/steelhead redd and/or spawning surveys; or summer season direct observation fish counts were conducted in 2007. Sixteen such surveys were completed in 2008. The results of both years are seen in table 6.

Stream restoration work was also conducted both years in Trout Creek, a tributary of the McCloud River harboring the rare redband trout. Riparian habitat was planted in 2007, a new floodplain constructed and a large gully prevented from capturing future stream flow. Work in 2008 included stream bank restoration, insertion of gradient control structures, rearrangement of large wood pieces, and removal of noxious weeds and conifers encroaching on the stream banks.

Table 6: Results from various stream condition and fish survey methods, 2007 and 2008.

Survey Type	Location	Results 2007	Results 2008
SCI	Manzanita Creek.		Completed
SCI	Little Browns Creek		Completed (1.0 mile)
SCI	E. Fk. No. Fk. Trinity		Completed
SCI	Dutch Creek		Completed
SCI	Tangle Blue Creek		Completed
SCI	Little Trinity River		Completed
SCI	Picayune Creek		Completed
SCI	Connor Creek	Completed	
SCI	West Weaver Creek	Completed	
SCI	Soldier Creek	Completed	
SCI	Little Browns Creek	Completed (0.5 mile)	
SCI	Barker Creek	Completed	
SCI	Boulder Creek	Completed	
SCI	Big French Creek	Completed	
SCI	North Fk Trinity River	Completed	
SCI	Rush Creek	Completed	
SCI	Nelson Creek	Completed	
SCI	Big Creek	Completed	
SCI	Butter Creek	Completed	
SCI	Indian Valley Creek	Completed	
SCI	Cottonwood Creek	Completed	
SCI	*Total Distance Completed*	*12.0 miles*	*4.1 miles*
Spawn/Redd	Deadwood Creek	65 Coho redds; 12 Chinook redds	5 redds; 3 Chinook, 2 coho
Spawn/Redd	Rush Creek	6 Coho redds; 7 Chinook redds	3 redds, 0 fish
Spawn/Redd	Dutch Creek	0 redds; 0 fish	0 redds, 0 fish
Spawn/Redd	Soldier Creek	0 redds, 0 fish	0 redds, 0 fish
Spawn/Redd	E. Fk. No. Fk Trinity	1 Coho redd; 29 Chinook redds	55 Chinook redds
Spawn/Redd	No. Fk. Trinity River	43 redds; 27 salmon	25 Chinook redds
Spawn/Redd	Canyon Creek	8 Chinook redds	
Snorkel Cts.	Canyon Creek	2 steelhead!	0 fish!
Snorkel Cts.	North Fk. Trinity	399 summer steelhead	167 summer steelhead
Snorkel Cts.	New River	898 steelhead; 50 Chinook	194 steelhead; 28 Chinook

Instream Flows

Forest Plan Standard and Objective: Develop an instream flow assessment program to determine fish needs and to protect the integrity of fish habitat in selected streams. (Ref: Forest Plan Standards and Guidelines, page 4-18, #9a)

Results: In 2004, an agreement was signed by PG&E to adopt the proposed flows for the Pit 3, 4 and 5 FERC relicensing project supported by the Forest Service. The agreed-upon flows within the three Pit River bypass reaches (20+ miles in length) increase up to 300% over existing flow levels. The new license cannot be issued, however, until PG&E develops numerous monitoring plans that were requested by the Forest Service within the 4(e) conditional environment. Review and comment on these draft plans by the USFS occurs on short notice whenever PG&E issues new drafts and was on-going in 2007 and 2008. Issuing of the license by FERC is not expected to occur for several more years until operational infrastructure changes can be completed to accommodate the greater flow releases.

Forest Plan Standard: Coordinate instream flow needs with the California Department of Fish and Game (DFG), Counties, and other local agencies to benefit fish habitat. Specific projects may entail hydroelectric facilities, water diversions, and water impoundments. (Ref: Forest Plan Standards and Guidelines, page 4-18, #9b)

Results: The DFG was a representative on the Pit River Collaborative Team and worked cooperatively with the USFS in the development of the Forest Service's 4(e) conditions and 10(a) recommendations. This has been an ongoing collaboration every year since 1999.

The Forest also worked closely with the Department in negotiating an acceptable riparian habitat replacement ratio (1:1 chosen) for the vegetation removed in order to widen the Trinity River near Lewiston on Forest Service land. The widening occurred in order to accommodate greater volumes of coarse sediment injected onto 1800 feet of river in 2007 to benefit fish.

Improve the Anadromous Fishery

Forest Plan Standard and Objective: Improve the anadromous fishery within the Trinity River and its tributaries. This can be done by evaluating and implementing opportunities for stream habitat improvement, watershed restoration, and biological (stock) enhancement in the context of a watershed/ecosystem analysis. These projects will be done in conjunction with the Trinity River Basin Fish and Wildlife Management Program. (Ref: Forest Plan Standards and Guidelines, page 4-18, #9c)

Results: South Fork Management Unit fisheries and partner source funds were used to support the Trinity County Resource Conservation District (RCD) projects for fish passage in Little Browns Creek, and Hidden Valley, Browns, Happy Camp, Soldier and Wilcox Roads watershed restoration and road decommissioning. Juvenile coho salmon surveys, adult salmonid surveys, stream condition surveys, and spring/fall Chinook salmon surveys were all conducted within the South Fork Trinity. Many of the fish passage projects as well as the South Fork Trinity surveys spanned both fiscal years.

In 2008, ten acres were improved along the Trinity River main stem just downstream from the fish hatchery and the Forest's spawning gravel augmentation site in Lewiston, called the Sven Olbertson site. River side-channels, large wood added for juvenile fish habitat and rearing ponds that will benefit both juvenile fish and wildlife were funded and constructed cooperatively with the Bureau of Reclamation via the Trinity River Restoration Program (TRRP).

Forest Plan Standard: Coordinate rehabilitation and enhancement projects with cooperating agencies involved in the Trinity River Basin Fish and Wildlife Management Program (TRRP; Ref: Forest Plan Standards and Guidelines, page 4-18, #9d)

Results: Coordination with the TRRP was active in FY 2007 and 2008. The Forest Service is a chartered member of the TRRP Management Council and participates in all Council and subcommittee functions. The Forest took the lead on a Trinity River coarse sediment injection project in the Trinity River on Forest Service managed lands immediately below the Lewiston Dam outlet in FY 2006, and then completed in FY 2007. Gravel injection covered 1,800 feet of river with about 9,000 tons of rock. Funding for the project originated from the Trinity River Restoration Program. This project is also known as the Sven Olbertson project.

Wildlife Management

Late-Successional Reserves

Forest Plan Standard: A management assessment should be prepared for each large Late-Successional Reserve (or group of smaller Late-Successional Reserves) before habitat activities are designed and implemented. (Ref: Forest Plan page 4-37)

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. LSR Assessments will provide guidelines to meet desired conditions.

Methods: A comprehensive forest-wide late-successional reserve assessment (LSRA) was completed in 1999. This LSRA was produced by an interagency core team, including USFWS and the Bureau of Land Management. The LSRA was a significant undertaking, covering 18 LSRs and 6 Managed Late-successional Areas (MLSAs). One additional LSR, Clear Creek, was completed in 1998. All of these assessments used methodology provided by the Regional Ecosystem Office (REO) and the Record of Decision for the Northwest Forest Plan.

Results: These assessments have been used extensively in project design and planning. The LSRA stressed the need to treat unacceptable fuel hazards and over stocked stand conditions. As shown in table 7, the planning for several habitat improvement and protection projects progressed in FY 2008.

Table 7: 2008 status of NEPA documents addressing wildlife issues in LSRs.

Project	Description	Status
Chanchellula LSR - Gemmill Thin project; 1,500 acres in LSR	Thinning and fuels reduction to enhance and protect late successional habitat near Wildwood and Chanchelulla Wilderness. Draft EIS completed in FY08	Final EIS expected in FY09
Harris Mountain LSR - Harris LSR Fuels Reduction project; 650 acres in LSR	Remove dead and dying trees near McCloud. Proposed Action in development in FY08	FEIS Decision expected in FY11
Clear Creek LSR – Pettijohn LSR project; 1,500 acres in LSR	Thinning smaller trees and removing ladder fuels maintain and enhance old growth habitat. Draft EIS in progress FY08	FEIS Decision expected in FY10
Mudflow LSR – Mudflow LSR project; 350 acres in LSR	Draft EIS in progress FY08	FEIS Decision expected in FY10
Algoma LSR – 3 Algoma LSR projects (South, East, West); 5,750 acres in LSR	Draft EIS in progress FY08	FEIS Decision expected in FY10
Porcupine LSR - Porcupine LSR project; 240 acres in LSR	Draft NEPA document in progress FY08	Decision expected in FY10

Recommendations: Continue use of the LSR assessment for project planning and update at periodic intervals.

Public Involvement: The public was informed of project progress in the quarterly Schedule of Proposed Actions, which can be found at http://www.fs.fed.us/sopa/forest-level.php?110514

Data location: Forest headquarters, Redding, CA, various Ranger Districts, and the Shasta-Trinity Forest website at http://www.fs.usda.gov/goto/stnf/planningdocs.

Threatened, Endangered, and Sensitive Species

Forest Goals and Standards: Monitor and protect habitat for federally listed threatened and endangered (T&E) and candidate species. Assist in recovery efforts for T&E species. Cooperate with the State to meet objectives for State-listed species. Manage habitat for sensitive plants and animals to prevent them from becoming a candidate for T&E status.

Monitoring Objective: Identify species found on the Forest that are identified as threatened, endangered, or candidate species under the Endangered Species Act of 1973.

Results: The Forest was home to six threatened, two endangered, and two candidate species in FY 2007 and FY 2008. These species are listed below in table 8.

Table 8:Species protected under the Endangered Species Act.

Scientific Name	Common Name	Category*
Orcuttia tenuis	slender Orcutt grass	T
Arabis macdonaldiana	McDonald's rock-cress	E
Branchinecta lynchi	vernal pool fairy shrimp	T
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	T
Pacifastacus fortis	Shasta crayfish	E
Rana aurora draytonii	California red-legged frog	T
Brachyramphus marmoratus	marbled murrelet	T
Coccyzus americanus	western yellow-billed cuckoo	C
Strix occidentalis caurina	northern spotted owl, Critical habitat	T
Martes pennanti pacifica	Pacific fisher	C

*Endangered Species Act Designation: (E) Endangered; (T) Threatened; (C) Candidate

Data located: Forest Records and US Fish & Wildlife Service document December, 11 2008: 218404039-16368

Neotropical Birds

Forest Plan Standard: Manage habitat for Neotropical migrant birds to maintain viable population levels. (Ref: Forest Plan page 4-29, #25.c)

Objective: Continue to survey breeding birds and Neotropical migratory birds. Although this is not a Land & Resource Management Plan requirement, monitoring is part of the national Forest Service "Partners in Flight" program for Neotropical migratory bird management. Additionally, annual Breeding Bird Surveys are conducted to monitor range-wide trends in Neotropical migrant bird populations and distribution.

Methodology: In FY 2007, two methodologies were used. First, bird population and habitat data were collected at White's Bar bird banding station. Mist net captures were from May-August according to the Monitoring Avian Productivity and Survivorship (MAPS) protocol. Partnerships include Partners in Flight, the Institute for Bird Populations, and Forest Service PSW Redwood Sciences Lab.

Secondly, Breeding Bird Surveys (BBS) are a series of point counts along 25-mile road transects, surveying a total area of 130 acres per transect. Breeding Bird Surveys were conducted on 3 routes: one each on the Trinity River Management Unit, South Fork Management Unit, and the Mt. Shasta McCloud Management Unit.

Results and Recommendations: MAPS captures were conducted at two locations, ten days per location. Breeding Bird Surveys were conducted on 1,000 acres. Over 400 birds and 38 species were banded. Results were integrated into the Breeding Bird Survey analysis program at the US Geological Survey's Patuxent Wildlife Research Center and the MAPS analysis program PSW Redwood Sciences Laboratory and the Institute for Bird Populations. No data was collected in 2008 due to wildfires.

Public Involvement: Partners in Flight and the Institute for Bird Populations collaborated on this project.

Data located: North American BBS web-site, Big Bar Ranger Station, USGS Patuxent Wildlife Research Center, PSW Redwood Sciences Laboratory, and the Institute for Bird Populations.

Biological Diversity: Snag Retention

Forest Plan Standard: Snags are to be retained within the harvest unit at levels sufficient to support species of cavity-nesting birds at 40 percent of potential population levels based on published guidelines and models or a minimum average of 1.5 snags per acre greater than 15 inches in diameter and 20 feet in height. Provide specified amounts of coarse woody debris in Matrix management well distributed across the landscape: (1) Provide a renewable supply of large down logs well distributed across the Matrix (2) Coarse woody debris already on the ground should be retained and protected. (Ref: Forest Plan, page 4-61)

Objective: Survey and maintain at least minimum management requirements for dead/down, hardwoods, and snags at both pre and post-project levels.

Methods: Data was collected from visual surveys for snag and dead/down densities at timber sale projects and from silvicultural measurements taken on site at proposed vegetation projects. The public was involved during project level NEPA.

Results and Recommendations: For FY 2007 and 2008, dead/downed wood minimum standards were met in all areas where the baseline level of snags met the minimum standards. Additionally, Mt Shasta and McCloud District policy is to leave any tree or snag deemed a hazard on site as downed wood. Continue monitoring of salvage and green sales for dead standing/down woody material.

Public Involvement: Opportunities during the NEPA process.

Data location: Data is in NEPA documents at the Ranger stations.

Terrestrial Species Monitoring Examples

Spotted Owl monitoring - Shasta Forest

Objective: Monitor northern spotted owl nesting territories to determine breeding status and monitored projects to determine presence as required to complete projects during limited operating period.

Methods: During FY 2007, 30,000 acres of suitable northern spotted owl habitat were surveyed on the Shasta McCloud Management Unit. This included 6 timber sale projects that were surveyed at night.

In FY 2008, 50,000 acres of suitable northern spotted owl habitat were surveyed on the Shasta McCloud Management Unit. This included 10 timber sale and at FERC projects that were surveyed at night.

Region 5 spotted owl survey protocol was utilized and historical searches to determine breeding status. Information was coordinated with the State of California and adjacent private landowners.

Results and Recommendations: Found northern spotted owl pairs at three sites in FY 2007 and at eight sites in FY 2008. Recommend continuing monitoring owl territories and projects to assess breeding status.

Public Involvement: None.

Data location: USDA Forest Service FAUNA database; Mt. Shasta Ranger District at the wildlife department.

Northern Goshawk monitoring
Objective: McCloud Ranger District contains approximately 33 historical nesting territories. The standard is to protect the viability of the species and to assess individual territories on a project basis. Since 1992, 100-acre goshawk territories have been defined to include primary and alternate nest cores. During project preparation, habitat alteration is delayed or minimized in the 100-acre territories if nesting has occurred in recent years.

Methods: Acoustical walking surveys determined recent occupancy and nest success in 30 goshawk territories. Information was shared with California Department of Fish and Game and adjacent land owners.

Results and Recommendations: In both FY 2007 and FY 2008, nest searches were completed in 30 territories and 3000 acres. The validity of the 100-acre core territories will be visited on a project-by-project basis. Recommend to continue monitoring 100-acre nest territories.

Public Involvement: Information is shared with California Department of Fish and Game and adjacent landowners.

Data location: Mt. Shasta Ranger District.

Bald Eagle monitoring
Objective: To protect, monitor, manage and enhance the bald eagle population and habitat on Shasta, Lewiston and Trinity Lakes within the National Recreation area (NRA).

Methods: In FY 2007 and FY 2008, conducted inventory of entire lake and shoreline at Shasta, Lewiston, and Trinity Lakes in support of nationwide annual survey effort of the Mid-Winter Bald Eagle Survey. Nesting season surveys were also conducted to determine nesting territory occupancy, nesting activities and nest productivity as per Pacific State Bald Eagle Recovery Plan direction and California Dept. of Fish and Game protocol.

Results and Recommendations: The FY 2007 results of the mid-winter survey for Shasta Lake were 63 adults and 23 immature eagles for a total of 86 eagles. At Trinity Lake there were 21 adults and 29 immature eagles for a total of 50 eagles. At Lewiston Lake there were 3 adults and 6 immature eagles for a total of 9. The total eagle count for all three lakes was 145.

During FY 2007, 45 nest territories and 52,000 acres of eagle habitat were monitored at 3 reservoirs in the NRA. Monitoring revealed that 38 territories were occupied. Twenty-nine bald

eagles chicks were fledged. Contributing to breeding success was implementation of a Forest Order to close and restrict access to 3 nest territories to protect against visitor impacts. Continue yearly monitoring.

In FY 2008 Survey conditions during this year's midwinter bald eagle survey were difficult. Heavy snowfall and limited visibility combined to make generally poor conditions for viewing eagles. The FY 2008 results of the mid-winter survey for Shasta Lake were 40 eagles. At Trinity Lake there were 25 eagles. At Lewiston Lake there were 15. The total eagle count for all three lakes was 80.

During FY 2008, 45 nest territories and 52,000 acres of eagle habitat were monitored at 3 reservoirs in the NRA. Monitoring revealed that 30 territories were occupied. A subset of nests were monitored to determine fledging success, and 5 chicks were fledged from those nests. Contributing to breeding success was implementation of a Forest Order to close and restrict access to 3 nest territories to protect against visitor impacts. Continue yearly monitoring.

Public Involvement: Public outreach and education at Ranger Districts.

Data location: Shasta Lake and Weaverville Ranger Districts.

Green Mountain Prescribed Burning Project
Objective: The objectives of this habitat improvement project are to use prescribed fire and mechanical treatment as a tool:

1. To increase the quality and quantity of forage and increase habitat effectiveness for Rocky Mountain elk and other resident wildlife in the vicinity of the Squaw Creek/Pit watershed;
2. Protect bald eagle nest trees and territories;
3. Improve forest health; and
4. Reduce the risk of catastrophic wildfire.

Methods: Fire was applied by hand firing methods. Pre- and post-burn monitoring was conducted to determine relative success of meeting resource objectives. Photo-points are established to monitor growth of vegetation over time.

Results and Recommendations: During FY 2008 a total of 600 acres were prescribed burned. Two bald eagle nest stands were under-burned at a low intensity, reducing surface fuel loading. Objectives for the project were met. Recommend continuing treatments at Green Mountain to restore and maintain wildlife habitat and reduce fuel loading.

Public Involvement: Partnered with Rocky Mountain Elk Foundation to fund the project. The Foundation contributed $40,000 toward completion of the project.

Data location: Shasta Lake Ranger Station.

Peregrine Falcon monitoring - Shasta Forest
Objective: Monitor historical sites to conform nesting or occupancy.

Methods: Used Region 5 peregrine protocol as a guide for monitoring individual, known peregrine habitat. Several visits were made to each site.

Results and Recommendations: Two active sites were monitored in FY 2007 and FY2008 at the Sacramento River site and Castle Crags site. Recommend to continue yearly monitoring.

Public Involvement: Information is shared with California Department of Fish and Game and adjacent land owners.

Data location: Mt. Shasta and McCloud Ranger Districts.

Botany

Sensitive Plants

Forest Plan Standard: Analyze, mitigate, and monitor project impacts to sensitive plants. (Ref: Forest Plan pages 4-14 and 4-16, #4a, b, c, Sensitive and Endemic Plants).

Monitoring Objective: To ensure that the Forest sensitive plant program effectively maintains the viability of sensitive and endemic plants on the Forest at the project level.

Method: Biological evaluations based on preliminary potential habitat evaluation using existing soils and TES plant data; and field surveys of potential habitat in the areas to be affected by project implementation. Mitigation measures are developed by interdisciplinary teams and made part of project designs. Monitoring site visits are taken 1-2 years after project implementation. GIS botany spatial and tabular data are updated periodically as needed.

Data Collected: Population numbers, size, location, and habitat; potential project impacts and proposed mitigations. For monitoring, whether mitigations were implemented as prescribed, and whether populations recovered or persisted as predicted by Biological Evaluations.

Results: Thirteen new populations of sensitive plants, lichens and fungi were found and documented in FY 2007. An additional 16 populations were identified and documented in FY 2008. Field surveys were performed for all large projects. A few small or dispersed projects likely to have no effect on sensitive plants because of lack of suitable habitat or lack of expected impacts were analyzed with existing data. Plant Biological Evaluations were written for 33 and 21 projects forest-wide in 2007 and 2008 respectively. No sensitive plants on the Forest were proposed for listing by USFWS. Mitigations were developed for 21 projects in FY 2007 and 16 projects in FY 2008 to lessen or eliminate project impacts to sensitive plants. In general, mitigations were implemented as written and were effective.

Recommendations: Continue field surveys and post-project monitoring at project level.

Public Involvement: Through the NEPA process. Also organizations including the California Native Plant Society and the California Department of Fish and Game are involved in reviewing status of sensitive species list.

Data location:
- Project NEPA files,
- Headquarters & Ranger District botany files,
- NRIS TESP database (housed at Electronic Data Center in Kansas City)
- Wildlife, Fish and Rare Plant Management System
- California Natural Diversity Database (Department of Fish and Game)

Conservation Strategies

Forest Plan Standard: Develop at least one conservation strategy per year. (Ref: Forest Plan page 4-16, #4f)

Monitoring Objective: To review compliance with our Forest standards, and effectiveness of our collaboration with other agencies in conserving sensitive plants.

Method: Office review of sensitive plant files.

Data Collected: Number and names of conservation strategies developed or signed in FY 2007 and FY 2008.

Results: The conservation strategy process for serpentine endemics of the Rattlesnake Terrane (Yolla Bolla and Hayfork Ranger Districts) moved forward in 2007 with completion of a draft manuscript describing results of habitat model comparison for six species by the University of California, at Davis, CA. The Final manuscript was submitted for publication in 2008.

Recommendations: Continue to focus on multi-species, rather than single species strategies. Continue with the Rattlesnake Creek Terrane conservation strategy and look next to the Shasta McCloud Management Unit for an opportunity for a multi-species strategy.

Public Involvement: No public involvement.
Data location: Botany departments at Forest headquarters and Ranger Districts.

Noxious Weeds:

Collaboration in Weed Management Areas (WMAs)

Northern Province Noxious and Invasive Weeds Program Strategy Objective/Action Item: 2A. Northern Province Forests will actively participate with other agencies and interested parties in county WMAs.

Monitoring Objective: To review compliance with Northern Province Weed Program Strategy, and effectiveness of our collaboration with other stakeholders in managing invasive plants.

Method: Phone conversations with district noxious weed coordinators; review of files at the Forest headquarters.

Data Collected: Weed Management Area MOUs for Siskiyou, Shasta, and Trinity counties were signed by the Forest Supervisor; attendance by Forest Service representatives at WMA meetings and other events; informal contacts with WMA participants; inventory, prevention, and treatment projects with partners.

Results: MOU for Shasta, Siskiyou, and Trinity WMAs were still in effect in FY 2007 and FY 2008. Shasta-Trinity weed program coordinators cooperated with agencies and non-government organizations in Siskiyou, Shasta, and Trinity WMAs to develop and implement weed projects.

Recommendations: Continue regular involvement with Siskiyou, Shasta, and Trinity WMAs and their constituent organizations.

Public Involvement: WMAs include federal, state, county, and local agency representatives, non-profit groups, and private stakeholders.

Data location: Weed Management Area WMA MOUs are on file at County Agriculture offices, the botany department at Forest headquarters, and Ranger Districts.

Databases

Northern Province Noxious and Invasive Weeds Program Strategy Objective/Action Item: 1B. Develop and implement automated databases for the storage and retrieval of information on noxious weeds. Ensure that the forests implement Forest Service inventory and monitoring protocols and that data is gathered and shared consistently across units and Forests**.**

Monitoring Objective: To review compliance with corporate inventory & monitoring procedures, and use of corporate databases for invasive plants.

Method: Review of NRIS INPA (invasive plant) database records housed at Electronic Data Center in Kansas City.

Data Collected: Proportion of existing invasive plant records in corporate GIS layers and entered into NRIS Terra Invasives database.

Results: 2006 NRIS weed spatial and tabular data were prepared in FY 2007 for entry to the National Data Center in 2007. 2007 NRIS data was prepared and entered into the database during FY 2008. Fourth-quarter weed treatment data for 2007 and Q1-3 weed treatment data for 2008 were entered into FACTS.

Recommendations: Continue entering invasive plant inventory data into NRIS INPA. Continue entering invasive plant treatment data into FACTS.

Public Involvement: None

Data location: Electronic data on local and national database servers; hard copy data in Botany departments at Ranger Districts and Forest headquarters.

Physical Environment

Soil

Fiscal Year 2007

Forest Plan Standards: Implement forest soil quality standards as they relate to soil productivity and soil erosion. (Ref: Forest Plan 4-25e. Forest Soil Quality Standards, in relation to soil erosion).

Objectives: On February 26th – 28th 2006, the Hotlum fire (northwest of Mt. Shasta) a moderate intensity fire driven by strong winds (50+mph) moved through the area rapidly consuming 3,017 acres of mixed chaparral with scattered Ponderosa Pine. Concerns were expressed about the possibility of wind erosion after the Hotlum Fire in the Hwy. 97 corridor. Soils in this area are sandy loams (Delaney series) with a high wind erosion index.

Methods: Ten wind erosion-monitoring stations were set-up in the perimeter of the fire focusing on areas that burned the hottest throughout from the upper elevation areas to the lower elevation areas. Three elevations (3 ft., 2 ft., and 1 ft.) were chosen to evaluate wind erosion extent using catchment and accretion measuring devices. Stations 1, 4, 5, 6, and 7 focused on Hwy 97 corridor in various conditions and heights. Stations 2 and 3 were in upland positions and stations 8, 9, and 10 were on lowland positions in Whitney Ck. outwash sediments, where past wind erosion had been observed (see figure 1). Data analysis and interpretation was completed during FY 2007.

Results: Stations were monitored from April 7th to June 1st, 2006 checking on April 7th (set-up date), May 4th, and June 1st. Results are shown in figure 1, which shows most erosion occurred in the less than one foot range and was most pronounced in the Whitney Ck. outwash areas (stations 8,9,10).

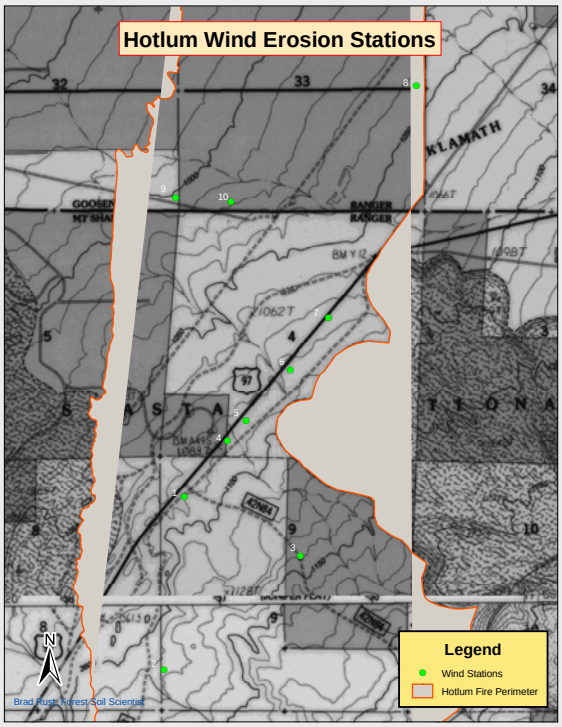
Along the Hwy 97 corridor (stations 1, 4, 5, 6, 7) most soil erosion occurred in the less than 1 ft zone and didn't travel over 20 ft. Stations higher than 2 ft, mostly picked up bugs and very little sediments were captured, showing saltation occurs in the less than 1 ft zone. These soils are somewhat coarser sandy loams so the wind didn't pick up these sands and move them very far.

The Whitney Creek outwash area (stations 8, 9, 10) has finer sands and silt due to being glacial outwash mixed with fine ash which did blow and move at higher elevations greater than 3ft (see map and table above). These silts and fine sands can create dust clouds (as seen driving NE on Highway 97 looking on a windy day towards Lassen Nursery fields to the north) but pose no threat to highway safety on Highway 97.

Recommendation: Vegetative cover is coming back nicely so there will not be a wind erosion problem threatening Highway 97 corridor. Soil is moving and being deposited in Manzanita patches where it is held thus creating erosional pavement areas between brush. This causes a slight mounding and soils that have better available water holding capacity reflected in high soil moisture levels (see Table 1) with high rates of seed sprouting.

Public Involvement: Occurs during the NEPA process for identified projects.

Data Location: Soils department at Forest headquarters, Redding, CA.



Station	Date	Description	Soil Moisture	Plate count	Erosion	Amount
1	4/7	3ft, windy, burn manz	22%b, 14%o		6.0	
	5/4	s/w windy	21%b, 14%o	low (bugs)	7.0	
	6/1	very windy	22%b, 17%o	low (bugs)	7.0	1.0
2	4/7	1ft, windy, burn manz			6.6	
	5/4	s/w windy	40%b, 32%o	moderate	7.0	
	6/1	very windy	43%b, 22%o	high	7.3	0.6
3	4/7	1ft, windy, open			7.3	
	5/4	s/w windy	32%b, 20%o	high	7.3	
	6/1	very windy	37%b, 24%o	v-high	7.3	0.0
4	4/7	3ft, windy, burn manz	24%b, 16%o		7.0	
	5/4	s/w windy	39%b, 20%o	low (bugs)	7.3	
	6/1	very windy	37%b, 27%o	moderate	7.3	0.3
5	4/7	1ft, windy, open			8.0	
	5/4	s/w windy	25%b, 11%o	high	8.3	
	6/1	very windy	36%b, 25%o	high	8.3	0.3
6	4/7	2ft, s/w windy, burn manz	25%b, 17%o		5.0	
	5/4	s/w windy	40%b, 19%o	mod (bugs)	5.3	
	6/1	very windy	42%b, 23%o	mod (bugs)	6.0	1.0
7	4/7	1ft, s/w windy, burn manz			7.0	
	5/4	low winds	24%b, 14%o	moderate	7.2	
	6/1	mod winds	24%b, 17%o			0.2
8	4/7	3ft, windy, open sandy			4.5	
	5/4	s/w windy	44%b, 27%o	moderate	5.5	
	6/1	very windy	61%b, 27%o	high	6.0	1.5
9	4/7	2ft, windy, burn manz	48%b, 25%o		6.0	
	5/4	windy	51%b, 20%o	moderate	6.4	
	6/1	very windy	32%b, 19%o	high	6.5	0.5
10	4/7	1ft, windy, open			5.5	
	5/4	windy	41%b, 21%o	high	6.0	
	6/1	very windy	28%b, 20%o	high	6.0	0.5

Figure 1: Location of Hotlum Fire wind erosion monitoring stations and results from each station.

Fiscal Year 2008

Forest Plan Standards: Implement forest soil quality standards as they relate to soil productivity and soil erosion. (Ref: Forest Plan 4-25e. Forest Soil Quality Standards, in relation to soil erosion).

Objectives: To determine if soil porosity (compaction) standards were met in forest managed campgrounds on sensitive soils. This monitoring effort was also initiated to evaluate continued tree loss due to root disease. Concern was expressed that soils were too compacted and trees were stressed due to the compaction. Although Forest Service special administrative units (campgrounds) are exempt from regional soil quality standards guidelines, detrimental soil compaction can affect the quality of campground trees and regeneration potential. Currently soil quality standards require at least 90% of the total porosity found under undisturbed or natural conditions. Porosity is evaluated between 4 and 8 inches below the surface for soils with tree and shrub potential. A 10% reduction in total soil porosity corresponds to a threshold soil bulk density that indicates detrimental soil compaction.

Methods: Two campgrounds were selected to monitor soil porosity on sensitive soils. The first was Hirtz Bay campground along Shasta Lake and the other was Bushytail group campground along Trinity Lake. Two 200 foot transects were taken across each campground, one being in the campground itself and the other in an adjacent undisturbed area of similar soils and topography.

Twenty soil cores were taken per transect and 60 soil strength readings per transect. Data was averaged per transect, evaluated and compared focusing on disturbed and undisturbed areas. Data collected focused on disturbance class, soil strength, bulk density and soil porosity. Data was collected on November 5th and 6th when soils were at their driest state. All soils were fine textured soils with high soil compaction ratings.

Results: Bulk density cores and penetrometer readings were analyzed in the Pacific Southwest Experimental Station laboratory in Redding, CA. All methods of sampling were statistically analyzed and are displayed below. The charts shows how soil strength and bulk density increase with increasing disturbance. Soil porosity gives the relative pore volume in the soil that is available for air and water transport. As this value decreases, compaction increases to a threshold (10%) when it becomes detrimental to root elongation and water uptake. The following graphs show how that in all disturbance classes; light, moderate, and heavy, soil porosity did not exceed forest soil quality standards for porosity. Differences between disturbances were not statically significant.

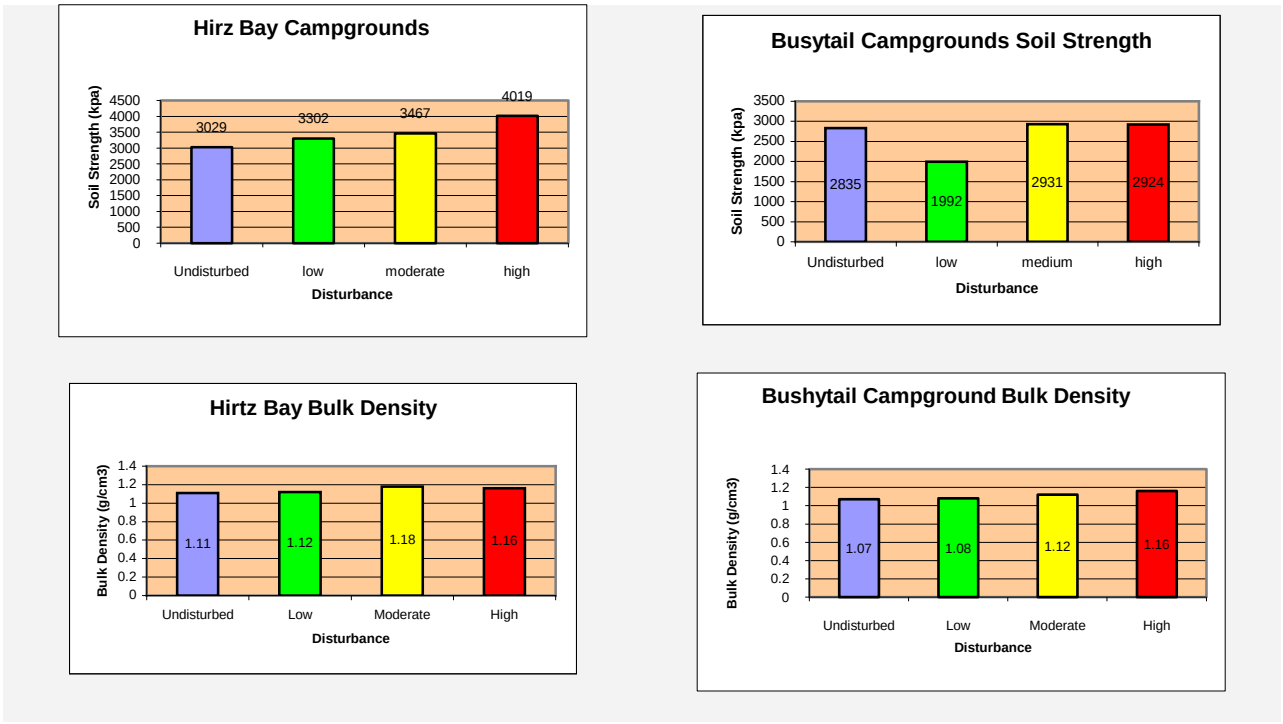


Figure 2: Soils strength and soil bulk density results at Hirtz Bay Campground on Shasta Lake and Bushytail Campground on Trinity Lake.

Recommendation: This monitoring effort was initiated to evaluate continued tree loss due to disease. Concern was expressed that soils were too compacted and trees were stressed due to the compaction. After careful monitoring, soils were only moderately compacted. This data provides quantitative values for current compaction on fine textured soils in campgrounds. With these soils at a moderate compaction status, care should utilized to reduce further soil compaction by limiting camping to only dry season camping (May – October).
Most compaction was expressed in the upper 4 inches of the soil due to foot traffic. This surface compaction could reduce rain infiltration and increase runoff from these sites thus reducing

overall site soil moisture. The reduction in soil porosity and decreased infiltration could be one of the many factors leading to increased tree loss due to disease.

Public Involvement: Occurs during the NEPA process for identified projects.

Data Location: Soils department at Forest headquarters, Redding, CA.

Water BMP

Forest Plan Standard: Implementation of Best Management Practices for protection or improvement of water quality. (Ref: Forest Plan 4-18 c.)

Monitoring Objectives: Determine if BMPs were implemented as prescribed in the BMP handbook. Determine if BMPs were successfully implemented at selected sites where BMPs had been prescribed. Determine if the BMPs as implemented were effective for their intended purpose.

Methods and Data Collected: Evaluation procedures vary greatly based upon the management activity evaluated, but the overall evaluation process is similar. The type and number of management activities evaluated each year on the Forest are assigned by the Regional Office. The specific management activity sites evaluated are randomly selected from project pools. The criteria for sample pool development have been standardized by the Region for each activity type and are described in the BMP User's Guide (2002).

All BMP evaluations were carried out by unit hydrologists and/or hydrologic technicians. Whenever possible, evaluators were accompanied by unit personnel responsible for implementing the BMP (i.e. range conservationist, contracting officer, etc.). Follow-up office reviews of each BMP occurred with the evaluator and appropriate department representative in those cases when a representative could not accompany the evaluators to the field.

Results: The Forest monitored 66 randomly selected sites in FY 2007 for BMP implementation and effectiveness (Table 1). This exceeded the regional assignment of 53 sites. Implementation is considered to be successful when measures planned were implemented, as well as where slight modifications or improvement to what is originally planned occurs as site specific conditions warrant. Some measures are considered at risk if implementation is different from what is typically prescribed.

Effectiveness monitoring assesses how successful each protection measure met its objective to protect water quality. A failure in effectiveness means that sediment likely entered a stream. In some cases the degree and extent of failure is slight and to better understand the implications of failed BMPs, one needs to look closer at the details of the monitoring results. At risk effectiveness ratings are indicative of a partial effectiveness that does not result in direct impacts to stream courses or water quality. In FY 2008 the Forest monitored 64 sites, which again exceeds the regional assignment of 53 sites. Activities monitored in 2007 and 2008 are shown in Table 9.

Observations from the 2007-2008 BMP evaluations include the following:

- Timber harvest and fuels treatment monitoring results indicate that BMPS were fully implemented with no failures for 2007 and 2008. In 2008, however, there was evidence of offsite erosion due to suspended yarding practices that results in at risk ratings.
- In 2007 developed recreation sites appeared to have issues. These high use areas that are typically immediately adjacent to lakes and streams will continue to need to be monitored closely to ensure that resources are available to address issues as they develop in these high use sites.
- In 2007 and 2008 in channel construction, stream crossing evaluations and road decomissioning indicate that there is a need for improvement associated with both implementation as well as to modify typical implementation measures to better address effectiveness as well.
- In 2008 the only BMPs that rated as implementation failure was road decomissioning.
- During FY 2007 and FY 2008 the activities on the forest met water quality and land management objectives through the implementation of BMPs. BMPs were fully implemented at 75% of the monitored sites and effective at 84% of the sites in FY 2007. In FY 2008 implementation was at 98% when "at risk sites", sites with modification to measures planned are included. Comparing implementation with last year's results that utilized a pass/fail scoring system, implementation improved from 75% to 95% comparing only sites where exactly what was planned occurred. Effectiveness in 2008 was at 83%, this represents a very minor but slight decline in BMP effectiveness compared to the previous year of 84%.
- BMP evaluations, implementation, and effectiveness from 1993 through December 2009 include evaluations of 685 sites with 93% fully implemented and 89% overall effectiveness for all BMPs evaluated over the last 15 years.

Table 9: BMP Monitoring for 2007 and 2008 by Activity Category

Best Management Practice Monitored	BMPEP Evaluations	2007	[1]2008				
			% I Pass	%I Fail	%E Pass	%E Fail	**Total Evaluations**
Streamside Management Zones	T01	4	100%	0%	100%	0%	5
Skid Trails	T02	7	100%	0%	100%	0%	6
Suspended Yarding	T03	2	100%	0%	67%	0%	3
Landings	T04	13	100%	0%	100%	0%	12
Timber Sale Administration	T05	3	100%	0%	0%	0%	1
Meadow Protection	T07	1	100%	0%	100%	0%	2
Road Surface, Drainage and Slope Protection	E08	5	100%	0%	75%	25%	4
Stream Crossings	E09	4	100%	0%	50%	0%	4
Road Decomissioning	E10	4	71%	14%	43%	14%	7
Control of Sidecast	E11	3	100%	0%	100%	0%	4
In-Channel Construction	E13	3	75%	0%	50%	0%	4
Temporary Roads	E14	3	100%	0%	100%	0%	3
Water Source Development	E16	1					
Snow Removal	E17	1					
Management of Roads During Wet Weather	E20	1					
Prescribed Fire	F25	2	100%	0%	100%	0%	1
Grazing	G24	1					
Common Variety Minerals	M27	1	100%	0%	100%	0%	1
Developed Recreation Sites	R22	1	100%	0%	100%	0%	5
Dispersed Recreation Sites	R30	2	100%	0%	100%	0%	2
Vegetation Manipulation	V28	3					
Revegetation of Disturbed Areas	V29	1					
Grand Total	2008		95%	2%	83%	3%	**64**
	2007	66	75%		84%		66

[1] *Note that evaluations rated as "Pass" and "Fail" do not make up 100 percent of all monitoring points. Ratings that are considered to be "At Risk" make up the remaining percentages.*

Most of the BMP deficiencies occur at engineering activity sites. The Forest ecosystem management and engineering staffs are actively working to resolve these problems by increasing coordination and involving earth scientists more frequently to review and develop contract provisions and designs as well as involvement in site inspections. Additionally, the Forest is working to involve more disciplines in the BMP process through additional training and interdisciplinary field evaluation of activities.

Recommendations:

- Continue to increase preventative road maintenance (storm proofing) to reduce impacts that would otherwise result if stream crossing failures or debris flows occur.
- Continue increasing miles of decommissioned routes and utilize past monitoring to modify and better arrest erosion at decommissioning sites.
- Insure that rolling dips are utilized frequently to improve road drainage, break up surface flow slope distances, lower maintenance needs and decrease rilling and gully erosion.
- Increase conservation education to better address human waste and trash disposal, especially during hunting season.
- There is a need to continue sediment source inventories, field checking and updating maintenance or other improvements needed as well as updating road status and improvements in Infra (the USFS Forest Road management database).
- Continue working to increase involvement with Water Quality Control Boards. Invite water board staffs to participate in a variety of BMP evaluations each year.
- Future BMP evaluations need staff area involvement from the disciplines that are implementing the BMPs onsite during the evaluation.
- Follow-up office reviews of any BMP deficiencies with implementing staff if they are unable to participate in the monitoring.
- Noxious weeds associated with ground-disturbing activities continue to be observed. Early successional colonizers, St. Johns Wort, Common Mullein and Bull thistle, are present in the landings and roads. The Forest botanist recommends that adding competition from native species should be enhanced by collecting native seed and spreading on sites where those invasive species occur. It is recommended landings be seeded with native bromes in order to curb non-native species introduction.
- Up to 90% of timber sale activity occurs on gently sloping terrain on the Shasta – McCloud Management Unit. The current random selection of monitoring sites therefore places emphasis on activities occurring on areas where BMPs are most easily obtained on gently sloping terrain. Because of this, when activities do occur on more sloped terrain, stratified sampling will be incorporated into the random site selection.
- There is a need for more effective, site specific seeding prescriptions by botanists. Native grass seed used on decommissioning and other watershed restoration projects is not effectively controlling erosion and might be better controlled by other species. The native seed mixes likely help to prevent the spread of noxious weeds, however to bolster erosion control and loss of soils to support success of seeding and site productivity it appears that erosion control needs to be better addressed in prescribed mixes.
- Continue to seed landings with native species to help prevent the introduction of noxious weeds.

Site specific recommendations were made for the sites where BMPs were found to not be effective.

Public Involvement: Occurs during the NEPA process for identified projects.

Data Location: The results of the BMP monitoring are stored in the Regional BMPEP Database as well as on a Forest database. The Hydrology department at Forest headquarters also has the original data collection forms.

Watershed Restoration

Forest Plan Standards: Identify and treat areas with degraded watershed condition. (Ref: Forest Plan 4-25, f.)

Monitoring Objectives: To establish baseline conditions prior to restoration implementation. To determine if watershed restoration projects were implemented as planned. To determine if the watershed restoration practices implemented were effective in achieving desired results.

Methods: The Shasta McCloud Management Unit Earth Science Department carried out monitoring of land management activities in both 2007 and 2008. Monitoring accomplished by the unit can be partitioned into three categories: 1) Long-term water quality monitoring, 2) BMP and Timber Harvest Waiver Monitoring, 3) Project Specific Monitoring. The former two categories are monitored on an annual basis according to specific protocols established by the Forest Service and Central Valley Water Quality Control Board. The type and amount of monitoring carried out for specific restoration and/or watershed projects is highly variable and is described by project for both 2007 and 2008.

Results:

Long-Term Water Quality Monitoring (2007 and 2008)
The Shasta McCloud Management Unit monitored water temperature at 20 locations on the Unit during the summer months in both 2007 and 2008. Water temperatures were monitored continuously from June through September using data loggers (Onset Optic Stowaways). The SMMU will continue to monitor water temperature for the purpose of collecting baseline and trend information on water temperature to support Forest management decisions and activities.

BMP and Timber Harvest Waiver Monitoring (2007 and 2008)

Best Management Practices Monitoring: The Shasta-McClound Management Unit (SMMU) Earth Science program is responsible for monitoring the effects of management activities on soil and water resources. Annual implementation and effectiveness monitoring occurs under the Best Management Practices (BMP) annual monitoring program.

A total of 30 and 31 Best Management Practice evaluations were conducted for the 2007 and 2008 monitoring years, respectively on the SMMU (Table 1). Implementation and effectiveness monitoring occurred for each evaluation. All evaluations indicated that the unit was providing

for the protection of water quality and aquatic/riparian resources while implementing management activities. Minor deficiencies, when noted, were addressed in the 2007 and 2008 annual monitoring reports for Best Management Practices.

Table 10: Best Management Practices Monitoring on SMMU for FYs 2007 and 2008. This is a subset of values reported in Table 9.

Form	Practice	Number of Sites Monitored 2007	Number of Sites Monitored 2008
T01	Streamside Management Zones	1	4
T02	Skid Trails	5	4
T04	Landings	10	9
T05	Timber Sale Administration	1	1
T07	Meadow Protection	1	2
E08	Road Surface Protection and Drainage	2	0
E09	Stream Crossings	1	0
E10	Road Decommissioning	1	1
E11	Control of Sidecast Material	0	0
E12	Servicing and Refueling	0	0
E13	In-Channel Construction Practices	0	0
E14	Temporary Roads	2	3
E17	Snow Removal	0	0
E18	Pioneer Road Construction	0	0
E19	Restoration of Borrow Pits	0	0
E20	Management of Roads During Wet Periods	0	0
R22	Developed Recreation Sites	1	5
R30	Dispersed Recreation Sites	2	2
F25	Prescribed Fire	0	0
V28	Vegetation Manipulation	2	0
V29	Revegetation of Surface Disturbed Areas	1	0
	Totals	30	31

Timber Harvest Waiver Monitoring (2007-2008): The Central Valley Water Quality Control Board requires that all timber sales with the potential to affect water quality or aquatic/riparian resources and respective beneficial uses be enrolled under a timber harvest waiver. Resolution No. R5-2005-0052 requires the discharger to submit an Annual Monitoring Report to the Executive Officer of the CVWQCB by July 15th for inspections covering the previous winter period for every year a timber harvest activity is enrolled in the waiver. The SMMU submitted monitoring reports for both 2007 and 2008 for all timber sales that were enrolled under the waiver. In addition to the reports the unit conducted periodic visits to the timber sale areas independently or with representatives from the Central Valley Water Quality Control Board. All timber sales are currently in compliance with the waiver.

Trout Creek Backwater Pool Project (2007): The SMMU completed restoration work on a large backwater pool created in Trout Creek by plug-and-pond restoration activities that occurred in 2006. No restoration activities were proposed for the backwater pool reach during implementation of the Trout Creek Restoration Project in 2006. Late in 2006 SMMU hydrologists noted that there was a need to outslope and revegetate the vertical banks around the

pool in order to stabilize the banks and provide for increased public safety. In addition to the outsloping activities it was noted that there was an opportunity to create a floodplain within the gully at the head of the backwater pool. This project was implemented in partnership with California Trout during the summer of 2007. SMMU hydrologists oversaw implementation of the project which was carried out in-part by Forest Service engineering crews. The project succeeded in its objectives of creating new floodplain, reshaping vertical stream banks and also had the added benefit of decreasing seepage losses in the backwater pool allowing for more downstream movement of water into the restored reach of Trout Creek.

Trout Creek Campground Project (2007 and 2008): Trout Creek is one of four isolated redband trout streams north of the McCloud River on the Shasta-Trinity National Forest. Increased OHV use within Trout Creek Campground had resulted in degradation of redband trout and riparian habitats. The Western Native Trout Initiative provided funding to improve habitat for redband trout, stabilize eroding banks, and mitigate OHV impacts on the lower perennial reach of Trout Creek within Trout Creek Campground.

The following entities contributed time and funding for the project:

- U.S. Fish and Wildlife Service – Lead applicant for WNTI funds and participant in project planning and field trips.
- U.S. Forest Service – Responsible for project planning and implementation. Provided personnel time to oversee planning and implementation.
- California Trout – Contributed funding for kiosk construction and redband trout brochure development. Also is assisting in development of additional interpretive materials for campground kiosk.
- The River Exchange – Provided funding and staff time to plan and coordinate community and school working field trips to Trout Creek as well as kiosk construction.

In 2007 the following tasks were accomplished:

- Functional instream structures were repaired and nonfunctional structures were removed.
- The kiosk was constructed.
- Both low water fords were obliterated and replanted with riparian vegetation.
- Gradient control structures were installed at both former ford locations. Streambanks were recontoured and revegetated.
- Fire rings located in sensitive meadow areas were removed.
- Conifers encroaching on the floodplain were cut and the debris was chipped.
- The artificial floodplain was lowered and recontoured.

In 2008 the following tasks were accomplished:

- The Forest Service completed public involvement on the location of the barriers and the kiosk. The kiosk was also constructed and delivered to the McCloud Ranger Station where it awaits installation.

A monitoring/progress report was prepared for the U.S. Fish and Wildlife Service for both 2007 and 2008. Additional activities are planned for 2009 for the final phase of the project.

Trout Creek Fencing Project (Phase 1) (2007): The SMMU awarded a $21,300 contract for construction of 1.5 miles of let-down fence around the Trout Creek Mitigation Area. This was the first phase of a larger fence construction project that was completed in FY 2009. The Earth Science Department COR monitored implementation of the contract. Several deficiencies in the new design were noted and the contract was not fully executed as a result of these deficiencies. All remaining work was rectified in 2009 during completion of the fence.

Trout Creek Restoration Project Monitoring (2007-2008): Monitoring activities continued under a 10-year monitoring plan at the Trout Creek Restoration Project (implemented in 2006). Monitoring activities included bi-weekly discharge measurements at three locations on Trout Creek, macroinvertebrate sampling and analysis, green-line surveys of vegetation in the Trout Creek project area, groundwater measurements and preparation of the 2007 and 2008 monitoring reports that were distributed to Caltrans to fulfill the monitoring requirements for the mitigation site.

Fender's Ferry Road Rocking Project (Phase 2) (2007): The Forest and its partners accomplished the second phase of rocking and drainage improvements on the Fender's Ferry Road. Partners for implementation included the Forest Service, Pacific Gas and Electric and Sierra Pacific Industries. This project was implemented to respond to concerns from the California Department of Fish and Game and the Central Valley Water Quality Control Board regarding sedimentation into Bear Canyon Creek that was being generated from the native road surface. In addition to rocking 2.6 miles of the road, multiple cross-drains were added and the inside ditches were armored. The Forest accomplished numerous monitoring activities including BMP monitoring, turbidity monitoring and stream condition inventories in Bear Canyon Creek. As with Phase 1, Phase 2 of the project was mostly funded by a grant from the Shasta County Resource Advisory Committee for $120,000. The Resource Advisory Committee required quarterly monitoring reports for the project. Additional monitoring was completed for the project mostly addressing the effectiveness of activities occurring under Phase 1 of the project. One monitoring report was produced for the project.

Windrow Respreading (2007): The Forest awarded one contract for the respreading of windrows for the purpose of encouraging early seral stages, improving wildlife habitat and restoring soil productivity. The contract was awarded in FY 2007 and implemented in the first quarter of 2008. Windrow respreading occurred on total of 110 acres in the Lava Crack area of the management unit. Implementation of the contract was monitored by the designated COR for the Earth Science unit. Note: Windrow respreading activities planned for FY 2008 were cancelled due to the need to retain funds for 2008 fire suppression efforts.

Stream Condition Inventories (SCI) (2007): The SMMU accomplished SCI on 1 stream in the Sacramento River Watershed in 2007 (Nelson Creek) to collect data needed for a future fish passage restoration / dam removal project.

Stream Condition Inventories (SCI) (2008): The SMMU accomplished SCI on 3 streams in the McCloud River Watershed in 2007 for the purpose of establishing baseline conditions for the streams and to identify watershed improvement needs to be accomplished in conjunction with

the Algoma Vegetation Management Project. Inventories were completed on one reach of the McCloud River, Moosehead Creek and unnamed perennial tributary.

Military Road Decommissioning (2008): One small section of road (< 0.1 mile) was decommissioned in a wetland on the east slopes of Mount Shasta. The fill within the wetland was removed and placed on the road prism outside of the wetland to recontour a portion of the decommissioned road. One culvert was also removed. Removal of this road segment and restoration of the wetland addressed an action identified in the Military Timber Sale EA. The project was monitored by SMMU hydrologists during implementation.

White Deer Lake Aspen Fencing (2007-2008): In 2007 unit hydrologists monitored over snow logging activities associated with the Jefferson Davis Timber Sale on the White Deer lakebed. The monitoring focus was on hauling on frozen road surfaces. The unit hydrologists also participated in the development of a monitoring plan for the Caltrans mitigation site at White Deer Lake which includes photo transects, initial plant transects and an initial wetland delineation. In 2008 the Forest Service monitored aquatic invertebrates and sensitive plants (Rorippa Columbiana) in the White Deer Lake project area. Encroaching conifers that remained in the lakebed following the Jefferson Davis timber sale were cut down in 2008. Fencing for protection of aspen was installed on approximately 1 acre. The fenced area is serving as a mitigation site for a Caltrans project on Highway 89. Hydrologist monitored pile burning activities within the fenced exclosure in the fall of 2008 (FY09). The White Deer Lake mitigation area will be monitored for 10 years to determine the success of restoration efforts.

SMMU Road Closure Monitoring (2007): The Earth Science program oversaw the implementation of road closure projects associated with the South Flats EA and located immediately to the east of McCloud. Monitoring of the closures was deemed necessary because the SMMU had not implemented any road closures in over a decade and there were concerns that the closures could be vandalized due to being in close proximity to McCloud. The closures, which included guard rail barricades and earth berms were implemented in the summer of 2007. No closures were damaged during the summer and fall season in 2007 and no reports of vandalism to the closures were noted.

Bartle Road Closures (2008): The Earth Science program oversaw implementation of additional road closure project in the Bartle area, 20 miles east of McCloud. At the time of this report no monitoring of the closures had occurred.

Recommendations:

- Continue to explore methods to make monitoring more efficient and accomplish more monitoring through the use of partnerships and outside funding sources.
- Explore ways to increase capability of watershed implementation and monitoring program. Personnel time for administering contracts, agreements and working with partnerships is only factor limiting restoration capability.
- Continue monitoring of watershed restoration activities.

Public Involvement: Public involvement occurred at a minimum during the NEPA process for the projects described above. The Trout Creek Campground Restoration Project included a large

community involvement component. The Forest Service partnered with the River Exchange to conduct several school field trips at Trout Creek where students were given the opportunity to participate in restoration activities.

Data location: Shasta McCloud Management Unit, McCloud California.

Facilities Management

Road Maintenance

Forest Plan Standard: Schedule and perform road maintenance activities to meet management objectives. (Ref: Forest Plan page 4-16, #7a., and page 5-7, Facilities)

Monitoring Objective: To ensure that the Forest road maintenance program meets current regulations and direction.

Methods/Data Collected:

Results:
In FY 2007, based on a total of 6,560 miles of forest roads:

1. Miles of roads maintained:

High clearance roads	416
Passenger vehicle roads	801
Total	1,217 miles of road maintenance

2. Total miles of new road construction = 0 miles
3. Total miles of road decommissioned = 13 miles

Results show that current funding is not sufficient to maintain roads at target operational levels. Only 18% of forest roads received some type of maintenance.

In FY 2008, based on a total of 6,605 miles of forest roads:

1. Miles of roads maintained:

High clearance roads	586
Passenger vehicle roads	920
Total	1,506 miles of road maintenance

2. Total miles of new road construction = 4.5 miles
3. Total miles of road decommissioned = 11.2 miles

Results show that current funding is not sufficient to maintain roads at target operational levels. Only 23% of forest roads received some type of maintenance.

Recommendations: Due to lack of funding, health and safety issues have become the overriding consideration for road maintenance. More roads will need to be decommissioned and "disinvested" in the future unless funding increases.

Public Involvement: Informal contacts, public comments and complaints.

Data location: Engineering department at Forest headquarters, Redding, CA.

Dams and Bridges

Forest Plan Standard: Inspect dams and bridges at prescribed intervals and provide the maintenance necessary to keep them safe. (Ref: Forest Plan on page 4-16, #70)

Monitoring Objective: To ensure facilities do not pose a threat to public health and safety.

Method: Visual inspection following methods as required by the Forest Service manual.

Data Collected: Qualified Engineering staff completed bridge and dam inspection reports.

Results: The Forest is in compliance with required inspection frequencies. Inspection results were shared with the District Rangers and engineering staff. All operating dams and bridges were up to standard. Based on load analyses, a bridge may be posted for a reduced weight limit and maintained at that revised standard. Routine maintenance of bridges is performed by road maintenance crews. Major repairs were prioritized and completed as funding permits. Some small dams have been removed from the system and the stream channels put back to more pre-dam conditions.

Public Involvement: Posted information and public comments due to closures.

Data location: Engineering department at Forest headquarters, Redding, CA.

Buildings and Administrative Sites

Forest Plan Standard: Manage, construct, and maintain buildings and administrative sites to meet applicable codes and to provide the necessary facilities to support resource management. (Ref: Forest Plan page 4-17)

Monitoring Objective: To ensure buildings and administrative sites do not pose a health and safety hazard to public and employees and that they meet the requirements of the applicable building codes and the Forest Service manual.

Method: Visual inspection following methods required by manual. Every building to be inspected by qualified personnel at least once every five years in accordance with Deferred Maintenance protocols.

Data Collected: Over the last 5 year years, engineering staff has overseen the completion of inspection reports for every building on the forest. Inspection information, including annual and deferred maintenance needs were entered into the INFRA data base.
Results: The Forest was in compliance with the required inspection frequency and deferred maintenance protocols. However, current funding levels were not sufficient to maintain buildings to standard. Funding was primarily dedicated to correcting health and safety deficiencies. The deferred maintenance backload continued to increase, while OMB and the Department expect the Forest Service to reduce deferred maintenance 25% by 2010. Work was conducted to dispose of buildings identified for decommissioning in the Facilities Master Plan.

Recommendations: Perform maintenance work to eliminate health and safety concerns and reduce deferred maintenance backlog. Continue efforts to dispose of buildings.

Public Involvement: Minimal public involvement is required unless the building is historical or the building is to be disposed.

Data location: Engineering department at Forest headquarters, Redding, CA.

Potable Water Sources

Forest Plan Standard: Monitor potable water sources and designated swimming areas according to the Safe Drinking Water Act and other regulatory health requirements. (Ref: Forest Plan page 4-16, #7p.)

Monitoring Objective: To ensure potable water sources provide safe water for public and employee use.

Methods/Data Collected: All potable water sources were tested in 2007 and 2008. Monthly routine water samples were taken and tested at a State certified lab which provided notification within 24 hours when bacteria were present. When repeat samples confirmed bacteria, the State or County regulatory agency was contacted within 24 hours to agree on the mitigation measures to follow for public water systems. Federal, State and/or County laboratory chemical monitoring testing schedules were also followed at all water systems. There are approximately 40 water systems monitored by the Forest.

Results: The program is monitored according to regulations; water quality is being maintained to standard. All official drinking water system records were documented per Forest Service Manual 7400 (Public Health and Pollution Control Facilities). The forest maintains a computer-based Drinking Water System inventory for each drinking water system, including physical data, maintenace, and monitoring testing results. Monthly bacteriological testing results were the following: In 2007, 11% of routine tests were positive and 3% of repeats were positive, and then in 2008, 3% of routine tests were positive and 1% of repeats were positive.

Recommendations: Continue monitoring to standard and fully implement use of the inventory database. Investigate contracting out water sampling and testing to provide better consistency and timely accountability to meet regulatory standards. Review special use agreements regarding drinking water monitoring and maintenance responsibilities. Continue interagency coordination to keep testing up to standard at shared interagency facilities. Interior storage tank cleaning and repairs shall be conducted by confined-space trained and certified 3-person crews. Note: Costs for the drinking water program continue to increase.

Public involvement: If substandard results are found from testing, all faucets at the site are posted “non-potable” until water test are bacteria free. The public may also fill out complaint forms available at recreation facilities or call the Forest Service to report drinking water concerns.

Data location: Engineering department at Forest headquarters, Redding, CA.

Appendix B

Acronyms

Acronym	Definition	Acronym	Definition
AMA	Adaptive Management Area	MOU	Memoranda of Understanding
ASQ	Allowable Sale Quantity	NEPA	National Environmental Policy Act
BBS	Breeding Bird Surveys	NRA	National Recreation Area
BD	Brush Disposal	NRIS	Natural Resource Information System
BMP	Best Management Practice	OHV	Off Highway Vehicles
BMPEP	Best Management Practices Evaluation Program	OMB	Office of Management and Budget
CCC	California Conservation Corps	PCT	Pacific Crest Trail
CE	Categorical Exclusion	PSW	Pacific Southwest Research Station
CVWQCB	Central Valley Water Quality Control Board	RCD	Trinity County Resource Conservation District
EA	Environmental Assessment	REO	Regional Ecosystem Office
EIS	Environmental Impact Statement	RFA	Recreation Facility Analysis
FACTS	Forest Service Activity Tracking System	SCI	Stream Condition Inventory
FEIS	Final Environmental Impact Statement	SFMU	South Fork Management Unit
FERC	Federal Energy Regulatory Commission	SMMU	Shasta-McCloud Management Unit
INFRA	Infrastructure	T & E	Threatened and Endangered
INPA	Invasive Plants	TESP	Threatened, Endangered, and Sensitive Plants
LEIMARS	Law Enforcement and Investigations Management Attainment Reporting System	TIM	Timber Information Management
LRMP	Land and Resource Management Plan	TRMU	Trinity River Management Unit
LSR	Late Successional Reserve	TRRP	Trinity River Restoration Program
LSRA	Late Successional Reserve Assessment	TSI	Timber Stand Improvement
MAPS	Monitoring Avian Productivity and Survivorship	USFWS	U.S. Fish and Wildlife Service
MBF	Thousand Board Feet	USGS	U.S. Geological Survey
MLSAs	Managed Late-successional areas	WMA	Weed Management Area
MMBF	Million Board Feet	WO	Washington Office

Appendix C

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