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Forest Service
Pacific Southwest Region
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Los Padres National Forest

Land Management Plan Monitoring and Evaluation Report for 2010

Los Padres National Forest Stakeholders

I am pleased to present the Los Padres National Forest's 2010 Monitoring and Evaluation Report. The components include Part 1 monitoring measuring large scale movement toward desired conditions over the long-term; Part 2, summarizing specific program accomplishments for the year; and Part 3 identifying whether plans, projects and activities are implemented as designed and in compliance with the Los Padres National Forest Land Management Plan (LMP).

The LMP emphasizes and identifies monitoring as a key element in all programs to assure the achievement of desired conditions over time. Recently implemented projects are monitored as well as ongoing activities, programs, and resource status. Through monitoring, evaluation, and adaptive management, we aim to further increase management effectiveness and resource protection.

It is important to me to keep you informed of the results of our monitoring. If you are interested in becoming involved in a project or other planning activity, please see our national website http://www.fs.fed.us/sopa/. Additional information and opportunities on the Los Padres National Forest may be found on our Forest website http://www.fs.usda.gov/lpnf/.

Sincerely,

/s/ *Kenneth E. Heffner* June 15, 2012
for

PEGGY HERNANDEZ Date
Forest Supervisor
Los Padres National Forest

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Introduction

Monitoring is a means for confirming the sufficiency and adequacy of guidance in the Forest Land Management Plan (LMP) and for tracking the status of and trends in changing resource conditions. It facilitates the process for adapting to change and documents the need to update, amend and eventually revise land management plans in order to achieve desired conditions while ensuring healthy National Forests exist for future generations. Monitoring requirements are found in all three parts of the 2006 Los Padres National Forest Land Management Plan (LMP). Appendix C in Part 3 of the LMP summarizes the monitoring requirements identified in each part of the LMP.

Part 1 monitoring identifies outcome evaluation questions that will assess resource conditions and movement towards the desired conditions over the long-term. The outcome evaluation questions are measured through indicators of each goal toward which the Los Padres National Forest (Forest) implements projects that move it toward desired conditions. Table 1: Part 1 Monitoring Summary captures the monitoring questions and indicators for each goal and specifies a reporting period. 2010 is the fifth year of implementation of the LMP and thus contains a discussion of what is known about the 5 year trend for each goal.

Part 2 monitoring focuses on program implementation through accomplishments tracked in Forest Service corporate databases. The annual accomplishment indicators determine if the program areas are implementing the objectives and strategies established in Part 2 of the LMP. The annual Best Management Practices Evaluation Program (BMPEP) report is included in this section.

Part 3 monitoring is conducted at the project or activity level in order to evaluate the effectiveness and application of design criteria established in the LMP. Projects that were completed or were in ongoing implementation in Fiscal Year 2010 were selected for monitoring from representative functional areas and Districts. Selected projects were then visited by an interdisciplinary monitoring team to review the application and effectiveness of the design criteria. If problems in implementation were detected or if design criteria were determined to be ineffective, the team recommended corrective actions.

The Fiscal Year (FY) 2010 LMP Monitoring and Evaluation Report documents the evaluation of selected projects and programs where activities occurred during October 1, 2009 through September 30, 2010.

Part 1 Monitoring

Monitoring and evaluation provide knowledge and information to keep the LMP viable. Appropriate selection of indicators, and monitoring and evaluation of key results helps the Forest Service determine if the desired conditions identified in the LMP are being met. Monitoring and evaluation also help the Forest Service determine if changes should be made to goals and objectives, or monitoring methods.

The aggregated outcome of project-level work reflects progress towards achieving the desired conditions of the LMP and the contribution to Forest Service priorities. This emphasizes the importance of using the National Strategic Plan desired conditions, goals and objectives that apply to the planning area in the LMP and to use common criteria and indicators as appropriate. This approach will enable

monitoring and evaluation efficiencies and provide critical information on the contribution of the Forest to the Forest Service's mission, goals, and objectives.

Monitoring and evaluation processes begin by identifying key questions Forest Service managers need to answer about land management plan implementation. Managers must also understand baseline conditions (that is, the resource conditions that were present when the record of decision was signed) versus desired conditions, and the evaluation strategies that will help determine if movement towards desired conditions is occurring. Current conditions of key environmental indicators are identified in the final environmental impact statement (USDA Forest Service 2005) along with projected trends. Actual trends in key environmental indicators are used to measure changes over time as the basis for determining when a need for change is indicated.

Table 1: Part 1 Monitoring Summary

Goal	Activity, Practice Or Effect To Be Measured	Monitoring Question	Indicators	Data Reliability	Measuring Frequency (Years)	Report Period (Years)
1.1	Vegetation Treatments in WUI Defense Zone	Has the Forest made progress in reducing the number of acres that are adjacent to development within WUI defense zones that are classified as high risk?	Acres of High Hazard and High Risk in WUI Defense Zone	High	1	5
1.2	Restoration of Forest Health	Has the Forest been successful at reducing mortality risk?	Mortality Risk Assessment	High	1	5
1.2.1	Restoration of Forest Health in Fire Regime I	Is the National Forest making progress toward increasing the percentage of vegetation types that naturally occur in Fire Regime 1 in Condition Class 1?	Departure from desired fire regime, acres by Fire Regime I	Mod	5	5
1.2.2	Restoration of Forest Health in Fire Regime IV	Is the Forest making progress toward maintaining or increasing the percentage of vegetation types that naturally occur in Fire Regime IV in Condition Class 1?	Departure from desired fire regime, acres by Fire Regime IV	Mod	5	5

1.2.3	Restoration of Forest Health in Fire Regime V	Has the Forest been successful at maintaining long fire-free intervals in habitats where fire is naturally uncommon?	Departure from desired fire regime, acres by Fire Regime V	Mod	5	5
2.1	Invasive Species	Are the Forest's reported occurrences of invasive plants/animals showing a stable or decreasing trend?	Acres of treatments in reported occurrences	Mod	1	5
3.1	Visitor Use of the Forest	Are trends in indicators and visitor satisfaction surveys indicating that the Forest has provided quality, sustainable recreation opportunities that result in increased visitor satisfaction?	Visitor Satisfaction (NVUM)	Mod	5	5
3.2	Wilderness Use	Are trends in indicators and visitor satisfaction surveys depicting the Forest has provided solitude and challenge in an environment where human influences do not impede the free play of natural forces?	Wilderness Condition, Wilderness Satisfaction (NVUM)	Mod	5	5
4.1	Mineral and Energy Development	Has the Forest been successful at protecting ecosystem health while providing mineral and energy resources for development?	Number of Mineral and Energy Projects Proposed and Approved, Minerals and Energy Success at protecting Ecosystem Health, Utility Corridor Effectiveness	Mod	1	5

4.2	Mineral and Energy Development	Has the Forest been successful at protecting ecosystem health while providing renewable resources for development?	Number of Renewable Resource Projects Proposed and Approved, Renewable Resources Success at protecting Ecosystem Health	Mod	1	5
5.1	Watershed Function	Is the Forest making progress toward sustaining Class 1 watershed conditions while reducing the number of Condition Class 2 and 3 watersheds?	Number of Watersheds in each Condition Class	High	1	5
5.2	Riparian Condition	Is the Forest increasing the proper functioning condition of riparian areas?	Change in Indicator Score for Aquatic Habitat, Aquatic Biota and Riparian Vegetation	Mod	5	5
6.1	Rangeland Condition	Is Forest rangeland management maintaining or improving progress towards sustainable rangelands and ecosystem health?	Percent of key areas in active allotments meeting or moving towards desired conditions	Mod	1	5
6.2	Biological Resource Condition	Are trends in resource conditions indicating that habitat conditions for fish, wildlife, and rare plants are in a stable or upward trend?	MIS Habitat Condition	Mod	5	5

7.1	Built Landscape Extent/ Land Adjustment	Is the Forest balancing the need for new infrastructure with restoration opportunities or land ownership adjustment to meet the desired conditions?	Land Ownership Complexity, Authorized and Administrative Infrastructure, Inventoried Unclassified Roads and Trails	High	5	5

Goal 1.1: Vegetation Treatments in WUI Defense Zone

Improve the ability of southern California communities to limit loss of life and property and recover from the high intensity wildland fires that are a natural part of this state's ecosystem.

Large fires are an inevitable and increasingly common part of southern California ecosystems. Suburban communities have been developed in more remote areas and urban areas have pushed up into the foothills in many places. This has led to an increase in the amount of Wildland/Urban Interface (WUI) areas that are at risk from wildland fire. The desired condition is to have vegetation treated to enhance community protection and reduce the risk of loss of human life, structures, improvements, and natural resources from wildland fire and subsequent floods. Firefighters should have improved opportunities for tactical operations and safety near structures, improvements, and high resource values. By providing for defensible space, public and firefighter safety is enhanced. Local jurisdictional authorities, citizen groups and the Forest Service acting together to mitigate hazardous fuel conditions in areas surrounding urban interface, urban intermix, and/or outlying improvements should be improved.

In assessing the wildfire risk to communities it must be considered that fuels treatments in any of the three WUI zones (illustrated in Figure 1 below) can help reduce the threat from those acres in WUI defense zones at high risk from human and naturally caused wildfires. Los Padres National Forest fire personnel respond to an average of 60 fire starts/year within Forest boundaries for the period 1980-2009. This initial attack response is usually enough to keep the fires at less than 10 acres. In the period from 1970-2008, approximately1500 of the 2200+ fire starts were stopped at <10 acres. Key to this success is having good access which allows quick response with ground assets and the roads and fuelbreaks themselves act as effective barriers to the spread of wildfire. Considerations of fuels treatment location must be made for areas where fuels concentrations are high or within a 24-hour burn interval and are likely to carry wildfire toward a community (WUI threat zone and WUI Environmental). It is always preferable to slow or stop the progress of a wildfire before it reaches the defense zone in the immediate vicinity of a community. Areas suited for slowing or stopping the spread of wildfire have been identified and this information utilized in prioritizing the location of fuels treatments. For these reasons the discussion of communities at risk and fuels treatments in defense zones has to include the total fuels program and the treatments that have occurred in all WUI zones.

Treatments effective in reducing wildfire risk to communities, such as fuelbreaks, have been located outside of the WUI defense zones (Syphard et al, 2011; Kerr, Fuel Treatment Effectiveness Monitoring Report for La Brea Fire, 2009). Effective fuelbreak locations are dependent on topographic and logistical considerations. According to Syphard et al, the most effective fuelbreaks are those which allowed firefighter access to fuelbreaks with younger vegetation or fuelbreaks which were distinct from the surrounding vegetation condition. If vegetation age was older and the fuelbreak was not discernible from surrounding vegetation, then access was hampered with the result that the fuelbreak and the firefighters were not as likely to stop the wildfire. Longer fuelbreaks have better access points. Kerr documented that a medium-intensity prescribed burn, the Pine unit of the Brookshire project discussed below, allowed for the protection of the Tepesquet community because the treatment stopped the spread of the fire and also served as anchor points for fireline construction and other fire containment activities.

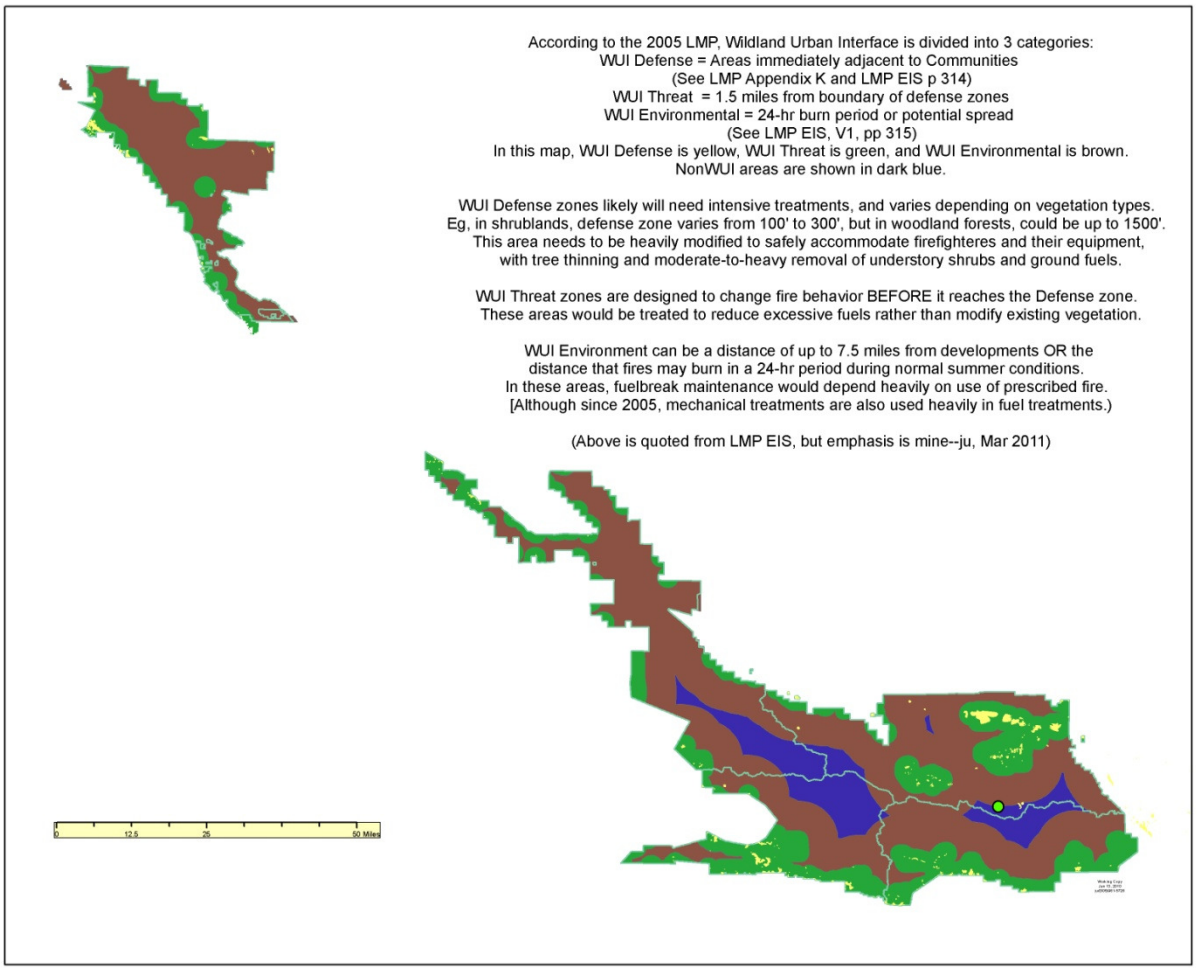

Figure 1. WUI zones as mapped for the Land Management Plan. The yellow were the WUI defense zones, green are the WUI threat zones, and brown are the WUI Environmental zones.

Outcome Evaluation Question

Has the Forest made progress in reducing the number of acres that are adjacent to development within WUI defense zones that are classified as high risk?

Acres of high hazard and high risk in the WUI Defense Zone

The National Fire Plan prioritizes fuel reduction projects within the Wildland Urban Interface (WUI). The LMP analysis defined three subcategories of WUI: defense, threat, and environment. The WUI defense zone is defined in Part 3 of the LMP in standard S7, including the referenced Appendix K. The defense zone is the portion of the WUI that is directly adjacent to structures. The extent of the WUI defense zone depends on the extent of structures and the type of vegetation surrounding the area. It has a variable width which is determined at the project level up to maximum widths defined for general vegetation types in standard S7.

High hazard fuels are those that have the potential to burn with high intensity. Fire intensity affects suppression effectiveness in protecting structures in interface areas. A key strategy in the LMP is to reduce fire hazard adjacent to communities and structures to improve suppression effectiveness and provide defensible space in interface areas. Risk is related to human values or "risk of loss." The presence of structures and other infrastructure is one indicator of risk in this analysis.

The baseline acres for fuel reduction treatments were analyzed in the LMP EIS. The baseline acres for defense zones for the LMP was 161,000 acres, calculated using incomplete knowledge of the locations of structures and fire regimes of vegetation types. Baseline acres included non-federal lands adjacent or within the Forest boundaries. The defense zones were spatially defined as within 400-m of structures and evacuation routes if in Fire Regime I (forested or mixed forest areas). In Appendix K, the forested woodlands defense zones could range from 300' - 1500' in most cases, although site-specific conditions might necessitate larger zones. For other Fire Regime groups, the defense zone was defined spatially as within 100-m of mapped structures. Most of the mapped WUI defense zones are within the Developed Area Interface, directly adjacent to communities (Table 2).

Table 2: Los Padres Baseline of Forest types within WUI Defense Zones, Developed Area Interface, and WUI threat zones (LMP EIS, pp. 314 & 315, 320).

Forest Types	Total Area of Forest Type	WUI Defense Zone	Defense Zone within DAI	WUI Threat zone	25% of the WUI threat zone type class to be treated
Mixed conifer	34, 187	132,966	16,365	11,429	0
Serotinous pines	49,207	97	71	9,249	0
Bigcone Douglas-fir	18,255	2	1	3,752	0
Hardwood forests and woodlands	204,166	791	581	48,247	0

Jeffrey and ponderosa pines	52,922	333	244	14,804	0
Desert conifer and scrub	209,515	1,342	985	50,529	0
Chaparral	1,001,847	1,333	850	22,100	5,525
Coastal Sage Scrub	138,033	549	277	14,404	3,601
Subtotal	1673945	136,213	19,374	174,514	9,126
Other vegetation types	0	24,596	109,428	0	0
Total	1673945	160,809	128,802	174,514	9,126

The acreages of chaparral and coastal sage scrub within the threat zones were calculated. Inholdings within LPNF are not represented in these acreages. The top six woodland forest vegetation types tend to be grouped in Fire Regime I.

In 2010, the Regional Forester issued a supplemental direction to ensure consistent clearance for defensible space (FSM 5100-2010-1). This supplement formalized the direction to work with other agencies and partners to ensure the maintenance of defensible space according to the California Code Section4291 (a1 and a2). The direction was to maintain a minimum of 100' defensible space around FS structures, special-use permitted structures, and on developments adjacent to NFS lands.

Overall, the WUI areas where vegetation management projects would reduce the risk of wildland fires to communities amount to 310,000 acres. Because these areas are on National Forest land, are vegetated and on slopes, they are assumed to be at high risk. The most efficient method of protection is to ensure quick response to fire starts because fires can spread and become a threat to communities. A network of fuelbreaks, access routes for initial response to fire starts, and areas with reduced fuels indirectly contribute to community protection, even if they are not in the defense zones.

From 2006 through 2009, fuels projects were completed in four major areas to reduce risk to communities and other values-at-risk:

1) Fuelbreaks and firelines – During fire suppression activities, firelines and fuelbreaks were reinstalled. Some of these reinstalled firelines have grown back and now have substantial fuels. In other areas, the firelines still have reduced fuel (summarized in Table 2).

Table 3: Fuel loads affects by wildland fire, fire suppression, and fuel reduction along access routes

Wildland Fire Effects on Fuel Loads	ACRES	Comments
Acres of High Severity Burning during wildland fires that are slow to recover y , 2003-2009	515,470	When wildland fires burn with high severity, the result is that revegetation does not occur readily, resulting in more exposed soils and lower fuel loads for a longer span of time.
Fire Suppression Effects on Fuel Loads	**Acres**	**Comments**

2007 Zaca dozerlines of 235 miles	285	All of the dozer lines have revegetated but have less fuel loads than before the Zaca fire; dozer widths assumed 10' because assumed larger dozer sizes
All Monterey RD firelines of Chalk, Basin, Indians fires of 2008	0	Growth rate on MRD keeps vegetation growing back except where maintenance occurs on trails and roadside. Maintenance acres are not counted here.
2008 Gap fire of 65 miles of dozer line	63	Comparatively reduced fuel loads in fuelbreaks installed during the Gap fire. There were two other fires, Tea and Jesusita, where most of the fuelbreak, firelines, and backburns were put on private lands.
Fuels treatments along access routes used during initial response to fire starts	**Acres**	**Comments**
Access roads and trails maintained in 2008 & 2009, 275 miles,	333	Assuming 5' widths because mostly done by hand along road and trail, limbing up
Roadside brush reduction in 2008 and 2009 (275 ac) and in 2010, 200 miles of 10' widths	760	On MRD, SLRD, and partial SBRD roads, mastication at 10' on either road
Ojai CDZ mastication occurred with two entries, 2008- 2011.	1952	Achieved by task order to a Blanket Purchase Agreement,
Camino Cielo Project, started in 2004	530	Lateral fuelbreaks and main fuelbreak which were treated assisted in the control of 3 wildland fires in the Front Country of the greater Santa Barbara area during 2007-2009.

2) Fuel Reduction Projects which Incorporated Pile Burns and Broadcast Burns: Pile burns are usually conducted where understory has been cleared with the objective of modifying fire behavior during wildland fire to increase firefighter safety, increase protection of communities and increase protection of the vegetative resources within the area. Prescribed burns are placed to best utilize local features to reduce the threat of fire spreading to communities and increase protection of communities. The preparations for prescribed burns and the burns themselves affect the fuel loading within the project area for some years with less resource damage than would occur under high intensity wildland fire conditions. Following are fuels reduction projects completed within the past 5 years:

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a) Alamo Project - The goals of the Alamo Projects I & II were:

- protect and maintain the timbered ecology,
- improve forest health,
- improve human safety and maintain recreation opportunities,
- improve browse quality and the juxtaposition of hiding cover to benefit wildlife,
- reduce risk to the Sespe Wilderness and Condor Sanctuary from human-caused wildfire,

- reduce the severity and extent of potential wildfire damage to natural and cultural resources in the Upper Piru watershed, and
- reduce risk to areas designated as Wildland Urban Interface and the Piru municipal watershed.

Too crowded, these ladder fuels can carry fire into the larger trees

On Alamo Mountain, trees in an overly dense forest structure tend to be stressed due to competition and are therefore more susceptible to disease, insects, and invasive species. Implementation of Alamo Mountain Project treated 4847 ac & in a separate entry, treated 350 acres in 2005 and 2006, respectively. This was a light intensity burn.

Low intensity burn crept under whitethorn,
but did not kill shrubs

The treatments implemented defensible space around three campgrounds: Sunset, Lockwood Flat, and Dutchman's Flat. Although these treatments were light treatments of understory, when the Day Fire spread upslope into the treated areas in 2007, the treatments also reduced the severity of fire effects to conifer stands so there was reduced mortality in the treated areas.

b) Brookshire Project - The project goal was to reduce risk to private property (Tepusquet residents) and public resources (watersheds, wilderness, TEPC species habitat) from wildfire damage. The Brookshire Project was implemented in different units: Madre Unit (4800 ac), two entries in Colson (2500 & 4500 ac), and Pine Unit (4000 ac) for a total of 15,800 acres treated. Although the Brookshire burns were in the WUI threat zone, the project modified the fire behavior during the La Brea fire of 2009 which lowered the damage to the environmental effects. During the La Brea fire, the community of Tepusquet had been evacuated but because of the Brookshire project, the fire was contained at the project area.

Figure 2 (a). Crews prepared a fuelbreak with clearing brush and pile burns along a ridge. (b) Dozers and chainsaws cleared chaparral along Forest boundary and made access for vehicles. (c) Treated vs Untreated chaparral. After one season, some chaparral resprouted to about 2-3 feet tall, but it was fresh green, and sparse compared to adjacent older brush. (d) Understory burn under the oaks was lighter than would occur under wildland fire conditions.

- Diablo burn (4500 ac) on the Santa Barbara RD was for multiple objectives including resource benefits.
- WUI defense in Painted Cave community on National Forest lands was implemented (25 acres).
- Camino Cielo Project→Pine plantations near Camino Cielo were thinned, masticated, and chipped in order to reduce risk to pines from wildland fires.

3) Other Community perimeter projects included:
   - Frazier Park, 50 acres treated/yr, maintaining a fuelbreak around a community (174 ac total).
   - Pine Mountain Club, (total project area is 1865 ac; fuelbreak of 100 acres, Treated 1200 acres of thinning)
   - Lake of the Woods, implementation started in 2006 in project area of 175 acres, maintained 100 ac/yr)
   - Laguna, Chismahoo, and Ojai CDZ=mastication and handwork implemented to reduce the risk of wildfire reaching communities, from 2004 to 2010; 3000 acres treated in different units of fuelbreaks.
   - Partner Projects included
     - Bureau of Reclamation shared boundary and adjacent land of 1200 ac, treated annually
     - Painted Cave mastication, small community adjacent to SBRD

- Assisted in Ft Hunter Liggett prescribed burns, ~18-20,000 ac/yr from 2000 to present,
- Various Landowners with shared boundaries, e.g., San Reyes Ranch in the Santa Ynez recreation area.

4) Defensible space for LPNF structures and developments were cleared around campgrounds, stations, facilities, etc.; approximately 400 acres/district with pile burning and hand clearing in FY10 and FY11. The FS infrastructure were not included as part of the WUI during the LMP analysis.

There is no current site-specific inventory of fuel hazard within the defense zone overall. In this context hazard is defined as fuel loading by vegetation type and growth whereas risk is defined as the increased risk of ignitions due to natural or anthropogenic causes. During the LMP analysis, there was a baseline of 7,708 acres of high-hazard chaparral for the LPNF (from Table 554 of LMP EIS.) Monitoring is to verify whether there has been a reduction of these high-hazard acres.

Table 4: Fifth Year Trend of Acres of High Hazard and High Risk in WUI Defense Zone

Indicator	Forested baseline Acres in WUI defense zones	Acres Treated in all zones by broadcast burns/fuel projects for risk reduction to communities	Acres removed due to high severity fires in defense and threat zones	Previously unaccounted for acres around FS structures	Untreated acres of hazard fuels from wildfires	Five Year Trend in High Hazard and High Risk Acres
Acres	~136,000	40,000	400	25,000*	13,286	Insufficient data to determine a trend

During the LMP analysis, there were 137,400 acres of WUI Defense zones on the LPNF. In the past 8 years, there were ~40,000 acres treated in all WUI zones which reduced fuels and reduced risk to communities from wildland fires. From 2003 to 2009, there were many fires with acreages which burned with high severity and subsequent severe effects to the ecosystem's ability to recover with slow to no regrowth and exposed soil coverage. Of the areas affected by high severity fire, 400 acres were in the defense zone as defined in the LMP and have reduced fuel loads.

The ability to map facilities has improved since 2002 when the LMP geospatial database was gathered. With the increased resolution, there are more structures that can be noted in the GIS layer of 2004. If the structures from the improved GIS layer are included, and buffered by 300', there is an increase in defensible space of 24,450 acres. WUI zones are not a fixed land designation in the Forest Plan. WUI zones are defined by potential fire behavior and proximity to structures and are variable, particularly the WUI defense zone.

Routine maintenance occurred throughout the forest to reduce fuel loads. These routine maintenance sites are accomplished by contract or with FS personnel and varied by year depending on the fuel load

around these sites. Approximately +13,286 acres have fuel reduction treatments implemented around structures, campgrounds, roads, and trailheads. These acres need to be maintained on a short rotation maintenance schedule for structure protection, community risk reduction, and visitor/FS personnel safety. Therefore, these acres will need to be maintained continuously.

Conclusion:

Because of the additional acreages which need to be maintained for reduced fuel loads, approximately 37,800 acres, the effect of treatments and the effects from high-severity fires on reduced fuel loads (40,500 acres) have remained about the same. The new baseline acreage for defense zones is approximately 175,000 acres. It is recommended that the outcome evaluation measure be changed to total acres of fuels treated in WUI defense zones. There are several reasons. First, renewed emphasis on treatment and maintenance of defensible space largely addresses the issue of acres of high risk in the WUI defense zones. Second, fuels treatments in all WUI zones reduce risk to communities by slowing fire spread and reducing risk to fire fighters before the fire reaches the vicinity of structures. Third, recent reporting requirements to compute net acres treated create a record of the effectiveness of treated areas that fall in the path of wildfires and provide another basis for discussion of fuels treatment effectiveness.

Goal 1.2: Restoration of Forest Health

Restore forest health where alteration of natural fire regimes has put human and natural resource values at risk.

The interaction of climate, geology and topography has created an array of vegetation types on the Forest that ranges from dry desert scrub to high elevation alpine forests. Further, the current condition of the vegetation on the Forest has been influenced by a century of fire management, mostly in the form of fire suppression, as well as by other land-use practices, including logging, grazing, and mining. Restoration of forest health requires the analysis, understanding, and management of complex and interrelated natural resources including additional consideration of increasing human-use pressures, and continual threats from native and exotic insects and diseases.

The long-term desired condition for the remaining unburned National Forest System (NFS) forested lands will be to:

1. Create forests more resistant to the effects of drought, insect and disease outbreaks and stand-killing crown fires;
2. Encourage tree recruitment that contain a species mix more like pre-settlement composition, (i.e., with a higher representation of shade-intolerant species like ponderosa pine that have declined during the period of fire suppression);
3. Recreate stand densities more like those of the presuppression era; and
4. Encourage a stand structure that emphasizes large-diameter trees.

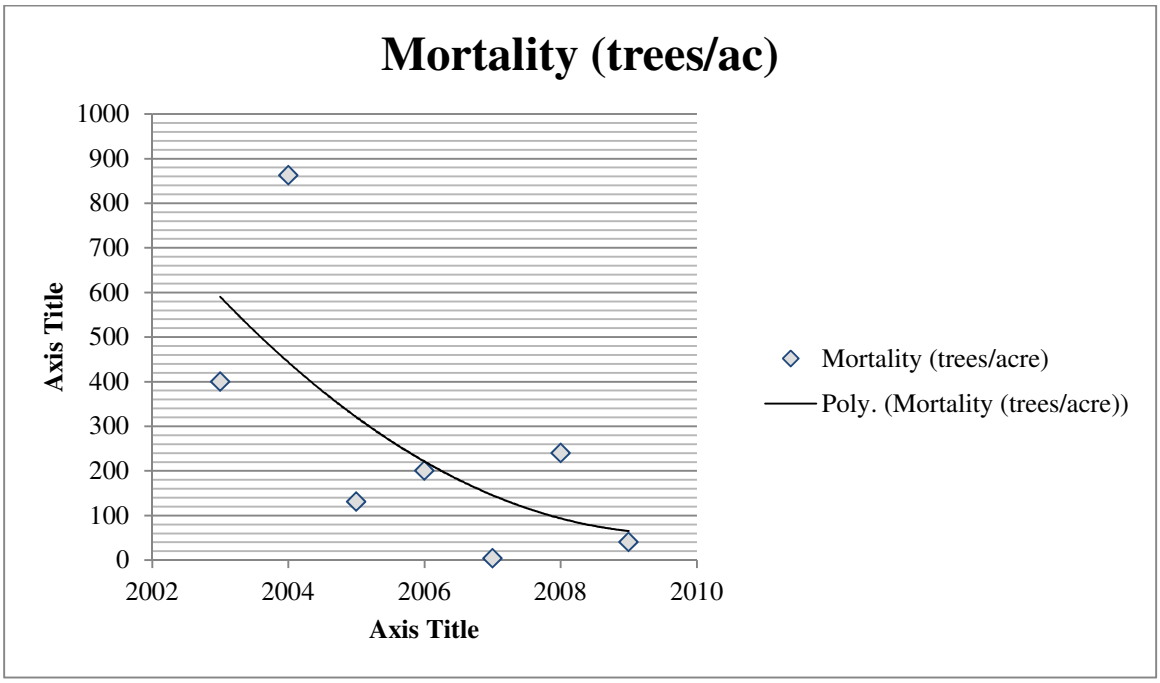
Outcome Evaluation Question

Has the forest been successful at reducing mortality risk?

Mortality Risk Assessment

The influence by a century of fire management with an emphasis on fire suppression continues to pose a substantial risk to the forested environment on the Los Padres National Forest. During the LMP analysis, there was baseline acreage of 568,252 of forested woodlands of fir types, pine types, Douglas-fir, mixed conifer, closed-cone conifers, coastal conifers/cypress, and pinyon-juniper and hardwood forests. During the period of 2006 to 2010 the Los Padres National Forest experienced many large-scale high severity fires which resulted in approximately 75,000 acres of forests burning into a deforested condition, about 13% of the conifers and hardwoods forested area. The Forest ecosystem values for these burned 75,000 acres has been lost because these areas have <20% canopy cover left with type conversion to drier vegetation types. The Forest is now left with an annual average loss for this time period of 15,000 forested acres destroyed per year.

Mortality acreages were measured across the Forest:



As with any disease vector, there is natural variability in the prevalence (spread) of a disease. The datum for 2004 is a statistical outlier, much higher than for the other years, and tends to 'lever' the trend line. Mortality from insects, disease and fire is both caused and worsened by prolonged drought as well as high stand density and/or age structure within stands. Forest health can be restored by reducing stand density, planting seedlings in areas which had high mortality, reducing ladder fuels from understory burns, or limbing, or other actions. Although the records are not complete and acreages are counted according to the effectiveness of the treatment, (and not just the treatment area itself), the historical database does indicate activities which improved forest health and areas where mitigation of the more severe effects of wildland fires have occurred.

In the five years from 2006-2010, LPNF has successfully treated just over 5,000 acres for forest health and fuels reduction (Table 3). An additional hazard tree removal of 1,000 acres was accomplished after the Day Fire. Also, prescribed burn activities such as understory burns, pile burns, and broadcast burns decreased fuels and increased forest health.

Table 5: Reported results from historical data for forestry activities for 2006-2010

Year	Fill-in or Replant Trees	Fill-in planting concurrent with site prep	Insect Prevention	Plant Trees	Reforestation Enhancement	Grand Total
2006	0	5	0	0	0	5
2007	0	0	0	0	0	0
2008	0	0	0	60	60	120
2009	0	0	500	1000	0	1500
2010	400	0	500	800	0	1700
2011	800	0	400	600	0	1800
Grand Total	1200	5	1400	2460	60	5125

Conclusion:

Although the trend line appears to be declining, part of that trend is because of the distorting effect of the 2004 point and there is not enough information to determine the degree to which the trend line is due to chance. The remaining forested areas are likely to remain highly susceptible to stress factors such as drought, diseases, and insect attacks. Ongoing treatments and weather and other factors will continue to be used to evaluate trends in mortality risk.

Workbook for 2006 California insects and disease risk map:
http://www.fs.fed.us/foresthealth/technology/pdfs/CA_Workbook_2007.pdf

Schmidt, K.M., Menakis, J.P., Hardy, C.C., Hann, W.J., Bunnell,D.L., 2002. Development of coarse-scale spatial data for wildland fire and fuel management. USDA Forest Service General Technical Report RMRS-GTR-62.

Goal 1.2.1: Restoration of Forest Health in Fire Regime 1

Reduce the potential for widespread losses of montane conifer forests caused by severe, extensive, stand replacing fires.

Overview

The structure, function, and species composition of nearly all southern California plant communities are under the direct control of recurrent fire. The long-term goal of vegetation management is to perpetuate plant communities by maintaining or re-introducing appropriate fire regimes while also reducing risk to human communities from destructive wildland fires. To accomplish this goal, the Forest

Service has developed desired conditions within the framework of five major fire regimes that have been described for the United States (Schmidt et al. 2002). In this classification, fire regimes are defined primarily by the frequency (average interval between fires) and fire severity (which is related to intensity). Generally, other elements of fire regimes such as season of burning, landscape pattern, and size are not so heavily weighted in this classification. The regimes are as follows:

- Fire Regime I (0 to 35 years, low severity)
- Fire Regime II (0 to 35 years, stand replacement)
- Fire Regime III (35 to over 100 years, mixed severity fires)
- Fire Regime IV (35 to over 100 years, stand replacement)
- Fire Regime V (Over 200 years, stand replacement)

A national Condition Rating System has been developed that links fire regime to existing vegetation by evaluating the degree to which a vegetation type has departed from its ideal regime. The greater the departure, the greater the risk fire poses to the functioning of the ecosystem. The three Condition Classes are as follows:

- Condition Class 1 - Fire regimes are within a historical range (i.e., 1910 to present), and the risk of losing key ecosystem structure and function is low. Vegetation attributes (e.g., species composition and structure) remain intact and operate within the historic range.
- Condition Class 2 - Fire regimes have been moderately altered from their historic range. Fire frequencies have departed from historical frequencies by one or more return intervals (either increased or decreased) and the risk of losing key ecosystem components is moderate. Vegetation attributes have been moderately altered from their historic averages resulting in moderate changes to one or more of the following attributes: fire size, intensity and severity, and landscape pattern.
- Condition Class 3 - Fire regimes have been significantly altered from their historical range. Fires have departed from historic frequencies by multiple return intervals. Vegetation attributes have been significantly altered from their historic range. The risk of losing key ecosystem components is high resulting in significant changes to one or more of the following fire regime attributes: fire size, intensity, severity, and landscape pattern.

The interval between fires will be shortened in montane conifer forests to emulate historic intervals so that excessive accumulations of stand-threatening ladder and ground fuels do not develop. However, complete elimination of stand-replacing fires is not possible because during wildland fire weather, topography and fuels create localized patches of high-intensity, passive crown fires. Moreover, small areas of crown fires are desirable because they provide openings for the regeneration of shade-intolerant species. Rather, the goal will be to reduce the occurrence of extensive crown fires like those that burned in 2003. With this management emphasis, the majority of forest stands would eventually be returned from Condition Class 3 to Condition Class 1.

The desired condition will be to: (1) create forests more resistant to the effects of drought, insect and disease outbreaks and stand-killing crown fires; (2) encourage tree recruitment that contain a species mix more like pre-settlement composition, (i.e., with a higher representation of shade-intolerant species like ponderosa pine that have declined during the period of fire suppression); (3) recreate stand

densities more like those of the presuppression era; and (4) encourage a stand structure that emphasizes large-diameter trees.

Although the overall goal of fuels reduction also applies to the forested areas with growing sites that are more productive, which have high canopy cover with densely-shaded understories, they will be managed to maintain high canopy cover, as well as greater within-stand vertical (e.g., tree regeneration layers, snags) and horizontal (e.g., downed woody material) heterogeneity than in other montane conifer forests. Many wildlife species, including the California spotted owl, specifically require this type of high-cover conditions.

Outcome Evaluation Question

Is the National Forest making progress toward increasing the percentage of vegetation types that naturally occur in Fire Regime 1 in Condition Class 1?

Departure from desired fire regime, acres by Fire Regime 1

Vegetation types in Fire Regime I had presettlement fire return intervals of ~7-15 yrs. Acres in Condition Classes 2 and 3 are due to the infrequency of fires. Vegetation treatments envisioned by the LMP are to be designed to bring forested stands into Condition Class 1. Fire can be classified as prescribed and wildfire. Prescribed fire is used as a management tool to help reduce the vegetation and reintroduce fire as a natural process. The desired condition for fire is low intensity, high frequency that removes ladder fuels and reduces the risk of crown fires.

Table 6: Fifth Year Trend of Acres by Fire Regime 1

Vegetation Type	2010 Reference FireRegime I Acres	Acres in mean CC1 or CC -1	Five Year Trend in Condition Class 1 Acres
Montane Conifer, Regime 1	331,500 (Safford et al, FRID 2010)	145130	Insufficient data to determine a trend.

Safford, H.D., K. van de Water, and D. Schmidt. 2011. California Fire Return Interval Departure (FRID) map, 2010 version. USDA Forest Service, Pacific Southwest Region and The Nature Conservancy-California. URL: http://www.fs.fed.us/r5/rsl/clearinghouse/r5gis/frid/
Date of this version: June 21, 2011

The baseline amount of vegetation types that are in Fire Regime 1 on the Forest is 331,500 acres. Although the LMP noted that Fire Regime I was mainly montane conifer forests, there is not necessarily a 1:1 correspondence with Fire Regime I and Montane conifer forests. Currently mapped Fire Regime I vegetation types include areas with oak woodland, mixed evergreen, dry mixed conifer, moist mixed conifer, yellow pine, and redwood. The condition classes were calculated as time since last fire, including prescribed burn areas as entered into the spatial database, up to 2009. A review of the Condition Class of Fire Regime I vegetation types noted that a median of about 5,000 acres are in Condition Class 1 or -1 on the LPNF, although the mean acreages of CC1 or CC-1 are much higher, 145,130 acres. There were 76,330 acres which had no wildland fires for the past 12-20 yrs, which is still

in keeping with the Fire Regime I natural fire regime. However, the rest of the acres in Fire Regime 1 have overly long fire return intervals.

Conclusion:

A 5-yr trend cannot be calculated because no baseline data for Condition Class 1 or -1 has been identified. A recent GIS review showed that about half of the acres are within pre-settlement frequencies of short fire return intervals with a mean Condition Class of 1 or -1.

Goal 1.2.2: Restoration of Forest Health in Fire Regime 4

Reduce the number of acres at risk from excessively frequent fires while improving defensible space around communities.

A variety of vegetation types and habitats are identified as being under the influence of Fire Regime 4. The desired condition for chaparral is to establish a diversity of shrub age classes in key areas near communities to improve the effectiveness of fire suppression operations. Adequate defensible space around communities could greatly reduce the risk of structure loss, as well as improve safety for residents. Thus, at the urban interface there will be a management emphasis on direct community risk reduction. In addition to reducing risk to urban areas, strategically placed blocks of young chaparral around certain forest types (e.g., montane conifer and bigcone Douglas-fir) could be used to reduce the risk of crown fires. For coastal sage scrub, the desired condition is to increase the average interval between fires thereby reducing the area at risk of type conversion. For closed-cone conifers found in these habitats, the desired condition is to maintain 35- to 100-year intervals between stand-replacing fires depending on the life history characteristics of each species.

Outcome Evaluation Question

Is the Forest making progress toward maintaining or increasing the percentage of vegetation types that naturally occur in Fire Regime 4 in Condition Class 1?

Departure from desired fire regime, acres by Fire Regime 4

Acres in Condition Classes 2 and 3 are due to excessively frequent fires. Acres of fuel treatment, therefore, are not good indicators of making progress toward this goal. Improved suppression and prevention effectiveness over time may lead to improving conditions where long-term trends will indicate progress toward the desired condition. Those areas that do not have a fire return interval that is too frequent, greater than 35 years, are in Condition Class 1.

Table 7: Fifth Year Trend of Acres by Fire Regime 4

Vegetation Type	Fire Regime IV, 2010 LPNF Acres	Condition Class		5-yr trend
		-1	1	
Chaparral/ Coastal Sage Scrub/ Closed-cone conifer/ Lower montane; Regime 4	1,504,300	352,680	175,840	Insufficient data to determine a trend

Conclusion:

The baseline amount of vegetation types that are in Fire Regime IV or II/IV on the Forest is 1,504,300 acres. Of these, about 525,000 acres are within the reference range of fire return intervals of 11 years to 610 years in Condition Class -1 or +1. No 5-yr trend can be noted because the baseline in 2005 of Condition Class I or -1 acres was not identified.

Goal 1.2.3: Restoration of Forest Health in Fire Regime 5

Maintain long fire-free intervals in habitats which are slow to recover.

A variety of vegetation types fall into Fire Regime 5. The pre-settlement vegetation type in Fire Regime V was desert mixed shrub.

Outcome Evaluation Question

Has the Forest been successful at maintaining long fire-free intervals in habitats where fire is naturally uncommon?

Departure from desired fire regime, acres by Fire Regime 5

Table 8: Fifth Year Trend of Acres by Fire Regime 5

Vegetation Type	Reference Acres	Condition Class		Five Year Trend in Condition Class 1 Acres
		1	-3	
Desert mixed shrub; Regime 5	283	250	33	Insufficient data to determine a trend

Conclusion:

The current vegetation types in Fire Regime 5 on the Forest comprise 283 acres. The original 283 acres were originally assigned in the LMP vegetation types as: 10 Singleleaf pinyon pine with juniper understory, 2 California annual grassland, 3 Urban or rural development, 4 Desert sagebrush, 4w sagebrush with woodland (up to 40%), 5 xeric chaparral, 6w mesic chaparral (60%) with woodland (40% cover), 9 Canyon live oak at upper elevation or riparian woodland, and mt of missing type. Of these, 33 acres are rated in Condition Class -3. Given that there has been 500,000+ acres of high severity burns, much of the acreages which were in the categories of 10, 4, 4w, and 9, these types may have burned in a stand-replacement fire, but there is not enough fieldwork or remote sensing data to determine trends.

Goal 2.1: Invasive Species

Reverse the trend of increasing loss of natural resource values due to invasive species.

Invasive nonnative species are animal and plant species with a high capacity for reproduction and spread at the expense of native species. They are introduced into an area in which they did not evolve and in which they have few or no natural enemies to limit their reproduction and spread. These species can cause environmental harm by significantly changing ecosystem composition, structure, and function. They can prey upon, consume, harm, or displace native species.

The desired condition is that the structure, function, and composition of plant communities and wildlife habitats are not impaired by the presence of invasive nonnative plants and animals.

Outcome Evaluation Question
Are the Forest's reported occurrences of invasive plants/animals showing a stable or decreasing trend?

The Forest has not been able to complete an inventory of invasive plants and animals over the monitoring period and is unable to report if management is moving towards desired conditions. The outcome evaluation question for Goal 2.1 is more useful if it uses the aggregated effectiveness of treatments over the five year monitoring period. Aggregated effectiveness is total acres treated adjusted for relative efficiency of the treatment and whether the net acres of invasives is increasing or decreasing.

Acres of treatments in reported occurrences
The indicator for determining if the Forest is moving toward the desired conditions is the number of acres of reported occurrences that have been treated.

As data become available, the Forest will develop the baseline acres of reported occurrences of invasive plant and animal species in order to determine if the Forest is moving toward desired conditions. Most significantly infested locations in the forest are well known and many of those are treated. The forest has not been able to formally inventory infested areas or survey the forest for previously unknown infestations. As part of an effort to begin the process, the forest is undertaking a project to remove salt-cedar (*Tamarisk* spp.) from riparian areas where it is most commonly found. An inventory of salt-cedar has been conducted as part of the analysis for the project and will be used in the project EIS and as a baseline for monitoring. There are an estimated 4,247 acres of riparian habitat included in the study that will be monitored for treatment effectiveness once the project is implemented. Salt-cedar is currently being hand-treated in the Piru Creek, Sespe Creek, Santa Ynez River and Sisquoc River watersheds. In addition, cape Ivy (*Delairea odorata*) is being treated with herbicides on the Monterey coast. French broom (*Genista monspessulana*) is being treated on the Monterey District. Several species of invasive weeds are being treated on the Santa Barbara District including, Spanish (*Spartium junceum*) and French broom, yellow (*Centaurea solstitialis*) and purple (*C. calcitrapa*) starthistle, puncture vine (*Tribulus terrestris*), hoary cress (*Cardaria draba*), tree spurge (*Euphorbia dendroides*), and artichoke thistle (*Cynara cardunculus*). There is no formal or accurate inventory of any of these species. They are simply treated where they are found.

Goal 3.1: Managed Recreation in a Natural Setting

Provide for Public Use and Natural Resource Protection.

A major factor in the management of recreation on the Forest has traditionally been the density of visitor use. Dispersed or general forest areas have received light use due to limited access dictated by steep topography and dense vegetation. This pattern of general low use across most of the landscape has required minimal regulation. In contrast, areas of highly concentrated and popular use are established in typically flat areas, have roaded access, and water (streams, lakes, rivers) is often a key component. Over time, these areas have received large investments in facility development to manage the impact of the higher intensity use while providing recreation facilities at a development level demanded by the visitors. These areas of concentrated use have necessarily become more regulated and have become a concern, especially where there may be conflict with sensitive species in riparian zones.

Desired conditions for managing recreation include accommodating the increased demand for recreation within the capacity of the land to support it. An emphasis on natural resource protection improves resource conditions through increased regulation of recreation use. Improved recreation infrastructure is designed to direct use away from sensitive areas or, where this is not possible, minimize adverse effects. Expansions in recreation infrastructure are balanced by restoration and removal of unneeded facilities that do not meet user needs or are in conflict with resource protection needs. Increases in roaded acres over time should be low, as defined by the road density analysis.

Outcome Evaluation Question

Are trends in indicators and visitor satisfaction surveys indicating that the National Forest has provided quality, sustainable recreation opportunities that result in increased visitor satisfaction?

National Visitor Use Monitoring *(*NVUM) Visitor Satisfaction Data

NVUM field data is planned for collection every five years on National Forests. Data across multiple survey intervals is expected to provide long term visitor satisfaction trend information. To date, two NVUM surveys have been conducted on the forest in 2002 and 2009. However, changes in survey techniques from 2003 to 2009 may provide questionable comparisons. As stated in the 2009 NVUM Report, "caution should be used in interpreting any comparison of results with those obtained from the 2002 survey. Difference cannot be interpreted as a trend. Several method changes account for the differences, for both visitation estimates and visit characteristics. One key factor is that the first application of the NVUM process (2002) was largely a national beta-test of the method, and significant improvement occurred following it." Data showing trends is expected to be available after the next survey is conducted sometime after 2014. Only 2009 data is used in this report.

To describe customer satisfaction, several different measures are used. Recreation visitors were asked to provide an overall rating of their visit to the national forest, on a 5-point Likert scale. About one-third of visitors interviewed on the forest rated their satisfaction with fourteen elements related to recreation facilities and services, and the importance of those elements to their recreation experience. For the 2009 NVUM, the Likert scale for performance ranged from very dissatisfied to very satisfied. The satisfaction elements most readily controlled by managers were aggregated into four categories: developed facilities, access, services, and visitor safety. The aggregate measure is called "Percent Satisfied Index (PSI)", which is the proportion of all ratings for the elements in the category where the

satisfaction ratings had a numerical rating of 4 or 5. Conceptually, the PSI indicator shows the percent of all recreation customers who are satisfied with agency performance. The agency's national target for this measure is 85%.

Table 9: Percent Satisfaction Index scores for aggregate categories (2009)

Items Rated	Satisfied Survey Respondents (%)	
	Developed Sites *	Undeveloped Areas (GFAs)
Developed Facilities (includes restroom cleanliness and facility condition)	76.6	71.6
Access (includes parking availability, parking lot condition, road condition and trail condition)	84.5	75.8
Services (includes availability of information, signage, employee helpfulness)	67.6	59.8
Perception of Safety	94	94.1

* This category includes both Day Use and Overnight Use Developed Sites.

This is a composite rating. It is the proportion of satisfaction ratings scored by visitors as satisfied or very satisfied. It is computed as the percentage of all ratings for the elements within the grouping that are at or above the target level, and indicates the percent of all visits where the person was satisfied with agency performance.

The 2009 NVUM indicated satisfaction with agency performance in regards to Developed Sites at 76.6% for Developed Facilities, 84.5% for Access, 67.5% for Services, and 94.0% for Perception of Safety. For Undeveloped Areas/ General Forest Areas, satisfaction is at 71.3% for Developed Facilities, 75.8% for Access, 59.8% for Services, and 94.1% for Perception of Safety.

Goal 3.2: Wilderness

Retain a Natural Evolving Character within Wilderness.

There are 10 existing wilderness areas on the Forest totaling more than 860,678 acres and comprising 48.3% of the Forest.

Desired conditions for wilderness include the following. Ecological processes occur untrammeled. Human influences do not impede the free play of natural forces in the ecosystem. Management activities prescribed for enhancement and recovery of threatened and endangered species and for the re-introduction of extirpated species are supported. Vegetation management maintains or mimics natural processes for the purpose of achieving wilderness fire management objectives. The risks and consequences of wildland fire within wilderness or escaping from wilderness are reduced to an acceptable level. Outstanding opportunities for solitude and inspiration are characteristic and stable, or increasing. Primitive and unconfined recreation opportunities that offer physical and mental challenges are stable or increasing. Human-caused impairments to air quality values including visibility, ozone

injury, and acid and nitrogen deposition are remediated and prevented. Suppression of wildland fires and ignition of prescribed fires in wilderness will consider impacts to human health and air quality. People are connected to the values of wilderness resulting in support and stewardship for these values. Wilderness is used as a benchmark for ecological studies.

Outcome Evaluation Question

Do trends in indicators and visitor satisfaction surveys indicate the Forest has provided solitude and challenge in an environment where human influences do not impede the free play of natural forces?

National Visitor Use Monitoring *(*NVUM) Visitor Satisfaction Data

NVUM field data is planned for collection every five years on National Forests. Data across multiple survey intervals is expected to provide long term visitor satisfaction trend information. To date, two NVUM surveys have been conducted on the forest in 2002 and 2009. However, changes in survey techniques from 2003 to 2009 may provide questionable comparisons. As stated in the 2009 NVUM Report, "caution should be used in interpreting any comparison of results with those obtained from the 2002 survey. Difference cannot be interpreted as a trend. Several method changes account for the differences, for both visitation estimates and visit characteristics. One key factor is that the first application of the NVUM process (2002) was largely a national beta-test of the method, and significant improvement occurred following it." Data showing trends is expected to be available after the next survey is conducted sometime after 2014. Only 2009 data is used in this report.

The satisfaction elements most readily controlled by managers were aggregated into four categories: developed facilities, access, services, and visitor safety. The aggregate measure is called "Percent Satisfied Index (PSI)", which is the proportion of all ratings for the elements in the category where the satisfaction ratings had a numerical rating of 4 or 5. Conceptually, the PSI indicator shows the percent of all recreation customers who are satisfied with agency performance. The agency's national target for this measure is 85%.

Table 10: Percent Satisfaction Index scores for aggregate categories (2009)

Items Rated	Satisfied Survey Respondents (%)
	Wilderness
Developed Facilities (includes restroom cleanliness and facility condition)	63.4
Access (includes parking availability, parking lot condition, road condition and trail condition)	94.1
Services (includes availability of information, signage, employee helpfulness)	68.4
Perception of Safety	99.7

This is a composite rating. It is the proportion of satisfaction ratings scored by visitors as satisfied or very satisfied. It is computed as the percentage of all ratings for the elements within the grouping that are at or above the target level, and indicates the percent of all visits where the person was satisfied with agency performance.

The 2009 NVUM indicated satisfaction with agency performance in regards to Wilderness at 63.4% for Developed Facilities, 94.1% for Access, 68.4% for Services, and 99.7% for Perception of Safety. Future monitoring reports will present equivalent data that will allow comparisons and analysis of trends.

10- Year Wilderness Stewardship Challenge Accomplishment Data

The Forest is working to improve wilderness condition through the Forest Service 10-Year Wilderness Stewardship Challenge (10YWSC) initiative. Each element is scored on a 1-10 point scale and a "minimum stewardship level" is reached when a wilderness scores 60-points or higher of a total possible 100-points on the combined ten elements. The elements are:

Element 1: Fire Management direction exists in the Forest Land Management Plan (LMP), or an amendment to the LMP, and information is contain in the Fire Management (FMP) or the Fire management Reference System (FMRS) which address the natural role of fire in wilderness and informs the full range of management responses to wildland fire.

Element 2: This wilderness was successfully treated for non-native, invasive plants.

Element 3: Monitoring of wilderness air quality values is conducted and a baseline is established for this wilderness.

Element 4: Priority actions identified in a wilderness education plan are implemented.

Element 5: This wilderness has adequate direction, monitoring, and management actions to protect opportunities for solitude or primitive and unconfined recreation.

Element 6: This wilderness has a completed recreation site inventory.

Element 7: Existing outfitter & guide operating plans for this wilderness direct outfitters to model appropriate wilderness practices and incorporate awareness for wilderness values in their interaction with clients and others. Needs assessments are completed for new operations or for major changes to existing outfitter programs.

Element 8: This wilderness has adequate direction in the Forest Plan to prevent degradation of the wilderness resource.

Element 9: The priority information needs for this wilderness have been addressed through field data collection, storage and analysis.

Element 10: The wilderness has a baseline workforce in place.

The 2011 scores for the Los Padres National Forest 10 wilderness units are as follows:

Table 11: 10-Year Wilderness Stewardship Challenge (2011)

Los Padres Fiscal Year 2011 10YWSC Scores		
	Wildernesses	**Total Score**
1	Silver Peak	38
2	Ventana	36
3	Chumash	36
4	Machesna Mountain	59
5	Santa Lucia	57
6	Garcia	64
7	San Rafael	59
8	Dick Smith	27

9	Sespe	51
10	Matilija	41

The 10YWC provides a tool for a measured and consistent annual evaluation of wilderness stewardship management based upon the program standards. As can be seen from the table, there is much room for improvement by this measure. The current wilderness stewardship scores provide a baseline from which to gauge progress toward the goals of solitude and minimal human influence as stated in the monitoring question.

Goal 4.1a: Energy and Minerals Production

Administer Minerals and Energy Resource Development while protecting ecosystem health.

The Los Padres National Forest has a limited variety of minerals and energy resources. Mineral material operations, such as quarries, do not exist on the Los Padres NF. For locatable minerals, which include gold mining activities, there are no commercial operations. But there are a small number of claims that could be characterized as recreational mining that do not require a plan of operations because they do not significantly affect the landscape. By far, oil and gas is the main production taking place on the Forest. In addition to oil and gas production, oil and gas transmission takes place via major oil and gas pipelines crossing the Forest. The Forest has a role in contributing to an adequate and stable supply of mineral and energy resources while continuing to sustain the land's productivity for other uses and its capability to support biodiversity goals.

The desired condition is that approved minerals and energy developments are managed to facilitate production of mineral and energy resources while minimizing adverse impacts to surface and groundwater resources and protecting or enhancing ecosystem health and scenic values.

Oil and Gas operations have occurred on the Los Padres N.F. north of Fillmore since oil was discovered in Tar Creek in 1887. The 3,000 acre Sespe Oil Field on the Los Padres N. F. has been producing commercial quantities of oil and gas since that time. Currently, there are more than 200 active wells inside the Forest boundary in the Sespe Oil Field, about half of which are on National Forest System lands and half on private land inholdings. One hundred producing wells on 50 separate well pads are located on Federal lands.

The South Cuyama Oil Field is located in the Cuyama Valley and the adjacent northern foothills of the Sierra Madre Mountains in northeastern Santa Barbara County, California. It was discovered in 1949 and currently has a productive area of 3,051 acres, which includes 120 acres on the Los Padres N.F. Of the top forty onshore oil fields in California, it is the most recent to be discovered. Currently there are 77 active oil and gas wells in the Cuyama Oil Field, which include 33 wells on Forest System lands, out of which 9 wells are active.

Currently, oil and gas production is occurring in portions of the Cuyama, Piru, Santa Paula, and Sespe watersheds. Oil is also produced on one well northeast of Ojai and from 26 wells on two separate

National Forest System parcels in the Cuyama Valley. Los Padres N.F. currently has 21 leases on 4,642 acres.

During the time period of July 2010 to July 2011 oil production on the Los Padres N.F. totaled 99,800 barrels (bbls). Total gas production was 210,728 mcf (one thousand cubic feet).

The total production of oil (07-2010 to 07-2011) in the Sespe oil field, on N.F. Lands = 90,938 bbls

The total production of gas (07-2010 to 07-2011) in the Sespe oil field, on N.F. Lands = 210,728 mcf

The total production of oil (07-2010 to 07-2011) in the Cuyama oil field = 8,862 bbls

Under the Onshore Oil and Gas Leasing Reform Act of 1987, Los Padres N.F. must consent to leasing of National Forest System lands and is responsible for management of surface resources on oil and gas leases on Forest lands.

Los Padres N.F. issued a decision in 2005 that identified an additional portion of Forest lands available for oil and gas exploration, development, and production, subject to Forest Service stipulations. The decision delineated three specific high oil and gas potential areas (HOGPAs) where oil and gas exploration, development, and production is authorized. The three HOGPAs, South Cuyama HOGPA, Sespe HOGPA, and San Cayetano HOGPA, encompass 106,584 acres that are in or adjacent to areas where oil and gas operations are already occurring on Los Padres N.F. lands. Actual leasable area in these HOGPA's amounts to 52,075 acres of which the great majority, 47,798 acres, are No Surface Occupancy due to confluence with inventoried roadless areas. Only 4%, or 4,277 acres, are potentially subject to surface disturbance from oil and gas exploration and development.

It is also important to note that once a lease is granted to explore and potentially develop an oil field, site-specific NEPA is required at multiple phases: exploration, exploratory drilling, and production wells. The Oil and Gas EIS analyzes aggregate potential impacts of oil and gas development with stipulations that include further site-specific assessments of impact that must meet all environmental requirements of the LMP, NEPA, Section 7 of the Endangered Species Act, and Section 106 of the National Historic Preservation Act.

Currently, the decision to lease additional Forest land under the Final Oil and Gas Leasing EIS is under litigation. By agreement with the BLM, no leasing activity on the Los Padres NF is taking place until the litigation is resolved.

Outcome Evaluation Question
Has the National Forest been successful at protecting ecosystem health while providing mineral and energy resources for development?

In the past 5 years, three oil spills have occurred which were contained and rehabilitated successfully. Response to such spills is prescribed by protocol with the Office of Spill Prevention and Response (OSPR), California Department of Fish and Game, as lead agency. The protocol has performed as expected and has not been found to require modification. In addition, annual inspection of the permit

and drilling facilities is performed. Existing standards, particularly with regard to condors, are monitored for conformance. Recent inspections have revealed that a number of unused surface pipelines could be removed. A cooperative effort with the permittee has been initiated to identify and remove such pipelines as opportunities allow. Reduction of oil field infrastructure is beneficial to resource, wildlife, and visual values in an area of great natural beauty.

No new developments occurred in the oil and gas leased area on the Los Padres N.F. during the past 5 years due to a hold on development pending the outcome of litigation against the Oil and Gas EIS. In addition, no new developments took place regarding oil and gas transmission across the Forest.

Goal 4.1b: Energy and Minerals Production

Administer Renewable Energy Resource developments while protecting ecosystem health.

Wind energy can be developed to generate mechanical power or electricity and solar energy can be developed to provide electricity to supplement commercial sources of energy. Hydroelectric power can be developed to provide both mechanical power and electricity. The Forest has a potential role in supplementing the supply of renewable energy resource developments with emphasis on sustaining the land's productivity for multiple uses and its capability to support biodiversity.

The desired condition for solar, wind, and hydroelectric energy resources is to evaluate proposals for the development of these renewable resources for supplemental energy production while protecting multiple uses and maintaining biodiversity.

Outcome Evaluation Question

Has the National Forest been successful at protecting ecosystem health while providing renewable resources for development?

Number of Renewable Resource Projects Proposed and Approved

The number of renewable resource projects proposed and approved will be used as an indicator of the potential impacts to resources. The screening of projects, the difference between the proposed and approved projects, is the first indicator of the protection of ecosystem health. Screening is used to ensure that projects comply with the LMP and other applicable laws, regulations, and policies and include an assessment of the likelihood of success based on footprint, potential impact to species, potential cost of NEPA, and economic viability.

To date, no proposals have been received that required full screening for feasibility of success.

Goal 5.1: Watershed Function

Improve watershed conditions through cooperative management.

The Forest provides the headwaters and primary source areas for many major river systems in southern California. Streams and rivers offer habitat to numerous aquatic and riparian-dependent species-at-risk found over the Forest; in addition to providing water for municipal, commercial and agricultural uses off of the Forest. Watershed conditions, or watershed health, on the Forest vary depending upon the

amount of disturbance that has occurred within each watershed, and the effect of the disturbance on the natural integrity of the watershed as a whole.

The desired condition is that watersheds on NFS lands are healthy, dynamic and resilient, and are capable of responding to natural and human caused disturbances while maintaining the integrity of their biological and physical processes. Geologic resources are managed to protect, preserve and interpret unique resources and values, and to improve management of activities that affect watershed condition and ecosystem health. Geologic hazards are identified, analyzed and managed to reduce risks and impacts where there is a threat to human life, natural resources, or financial investment.

Outcome Evaluation Question

Is the Forest making progress toward sustaining properly functioning watershed conditions while reducing the number of functioning at risk and impaired watersheds?

Number of Watersheds in each Watershed Condition Class

It is generally accepted that watersheds heavily altered by disturbance would contain more impaired water bodies than watersheds with moderate or minimal disturbance. The number of Hydrologic Unit Codes (HUC) in each condition class will be used as an indicator for moving toward desired conditions.

To determine the baseline condition class for each watershed during Forest Plans amendment in 2005, HUC 5 watersheds were classified using an integrated team approach to rank various watershed health conditions. These indicators included soil erosion, mass wasting, floodplain connectivity, water quality, water quantity, stream vegetation, channel stability, and aquatic integrity. Of the 35 HUC 5s that the Forest overlaps, 18 were rated as properly functioning, 16 were rated as functioning at risk, and 1 was rated as impaired.

The Los Padres Land Management Plan calls for plan level monitoring every five years. In 2005 Watershed Condition was assessed using an integrated team approach. However, in 2010 a national set of indicators was mandated to be used that differed from the Southern California Land Management Plan indicators. The watershed health indicators themselves and the scale at which the watersheds were defined were changed in the new approach. The scale of the analysis was applied at the smaller HUC 6 watershed (between 10,000 and 40,000 acres) level, leading to a greater number of measured watersheds. And instead of 8 indicators as in 2005, there were 12 which were then grouped as follows:

- Aquatic physical characteristics which include Water Quality, Water Quantity, and Aquatic Habitat and account for 30% of the score.
- Aquatic biological characteristics include Aquatic Biota and Riparian Vegetation and account for 30% of the score.
- Terrestrial physical characteristics include Roads and Trails, and Soils and account for 30% of the score.
- Terrestrial biological characteristics include Fire Regime, Forest Cover, Non-forest Cover, Terrestrial Invasive Species, and Forest Health and account for 10% of the score.

Each indicator was given a rating of 1 (functioning), 2 (functioning at risk), or 3 (impaired) and the values were averaged for the watershed as a whole. In 2010, of the 154 HUC 6s that the Forest overlaps by at least 5%, 24 (16%) were rated as Properly Functioning, 113 (73%) were rated as Functioning at Risk, and 17 (11%) were rated as Impaired.

Table 12: Fifth Year Trend of Number of Watersheds in each Watershed Condition Class

Watershed Condition Class	Desired Condition	2005 Baseline: Number and Percent of Watersheds in each class (Using HUC 5 analysis)	2010: Number/Percent of Watersheds in each class (Using HUC 6 analysis)	Fifth year trend
Properly Functioning	Maintained condition ratings	18 = 51%	24 = 16%	Declined from 51% to 16%
Functioning at Risk	Maintained or improved condition ratings	16 = 46%	113 = 73%	Increased from 46% to 73%
Impaired	Improved condition ratings	1 = 3%	17 = 11%	Increased from 3% to 11%

The change in assessment methods does not allow us to state whether the trends indicated in Table 1 reflect real changes on the ground or are an artifact of the change in methods. If future watershed condition monitoring is conducted using the same methods, watershed condition will be comparable.

If the trends indicated in Table 1 reflect real changes, they would suggest that watershed conditions are generally moving toward functioning at risk or impaired. If so, part or all of the explanation is that between 2006 and 2010 almost one million acres of the Los Padres National Forest burned in wildfires. Some of the larger fires during this period between the initial watershed assessment in 2005 and the 2010 assessment were the Day Fire of 2006 (164,000 ac), the Zaca Fire of 2007 (240,000 ac), the Ranch Fire of 2007 (58,000 ac), the Basin/Indians/Chalk Fires of 2008 (256,000 ac) , and the LaBrea Fire of 2009 (90,000 ac). These large, intense wildfires severely degrade aquatic and terrestrial physical and biological indicators. Although recent fires are within the range of natural variability for watersheds the close intervals, size, and high intensity of recent fires are not. It is likely that recent drought conditions and successful fire suppression efforts are leading to higher than normal fuel loadings and causing fires to burn hotter. The aquatic and terrestrial indicators will eventually recover, the fire effects on these indicators completely overwhelm any management affects by many orders of magnitude. Because so much of the Los Padres burned within a relatively short time frame, the overall impact to our watershed condition class rating and five year trend is downward as measured by either the 2005 or 2010 watershed classification methods. Much of the forest management during this period has been focused on mitigating these impacts where possible; for instance weed eradication and road and trail

maintenance. However, recovery of the watershed will require natural re-vegetation to stabilize the slopes, and natural stream flows to transport increased sediment through the system.

Goal 5.2: Riparian Condition

Improve riparian conditions.

Riparian and aquatic ecosystems play a vital role in watershed function and in the survival of most species-at-risk. These ecosystems contain aquatic and terrestrial features adjacent to perennial, intermittent, and ephemeral streams, as well as in and around meadows, lakes, reservoirs, ponds, wetlands, vernal pools, seeps, springs and other bodies of water.

The Land Management Plan created Riparian Conservation Areas (RCA's) which are designated along streams and around water/riparian features to protect riparian and aquatic ecosystems and the dependent natural resources associated with them during site-specific project planning and implementation. Standard S47 including Appendix E of Part 3 of the LMP explains the concept and the process for delineating RCAs, and the protections that will help improve riparian conditions on the Forest.

The desired condition is that watercourses are functioning properly and support healthy populations of native and desired nonnative riparian dependent species. Riparian vegetation should consists mainly of native species, with minimal or no presence of invasive nonnative plants. Nuisance nonnative aquatic animals should be absent or rare in streams and lakes. Riparian and aquatic ecosystems (including vegetation, channel stability, water quality, and habitat for aquatic and riparian dependent species) should be resilient and able to recover after natural events, such as floods and wildland fires.

Outcome Evaluation Question

Is the Forest making progress toward reducing the number of streams with poor water quality or aquatic habitat conditions?

The original indicator of this monitoring question in the 2005 LMP was the number of streams that the California Water Quality Control Board listed as impaired. These Clean Water Act Section 303(d) listings are based on water quality constituent data, such as sediment loading, and how those affect beneficial uses, such as municipal supply (MUN), contact recreation (REC1), non-contact recreation (REC2), cold water fishery (COLD), etc. If a stream is listed as impaired, the State calculates a Total Maximum Daily Load (TMDL) for water quality constituents deemed excessive in that stream. By capping the amount of water quality constituents such as sedimentation allowed in a stream, the State plans to bring the water body back into compliance with its beneficial uses. However, the quality of these beneficial uses, though indirectly influenced by riparian conditions, is not a good surrogate or indicator of overall riparian conditions, which is what the Forest is interested in tracking. Furthermore, the original list of 303 (d) watersheds from 2005 is not comparable to the 2010 list because the State has continued the process of evaluating streams throughout this period; a stream may have been added to the 303 (d) listing not because conditions have worsened but because the stream had never been previously assessed. Also, improving the 303 (d) listings is in many cases dependent on non-Forest actions outside

of our control. The State of California is responsible for changing the 303 (d) listings and may not review these streams on a timeline suitable for Forest monitoring.

As detailed above, tracking the number of 303 (d) listings will not provide adequate information on the riparian condition of the watersheds. A more direct measure of change in water quality and aquatic habitat conditions is a subset of the 2010 Watershed Condition Framework (WCF) that examines aquatic habitat conditions (watershed condition indicator #3), aquatic biota conditions (watershed condition indicator #4), and riparian/wetland vegetation (watershed condition indicator #5). Therefore, Goal 5.2 - Riparian Condition monitoring will be amended to use the following indicators and attributes:

- Aquatic Habitat (3): Habitat Fragmentation (3.1); Large Woody Debris (3.2); Channel Shape and Function (3.3).
- Aquatic Biota (4): Life Form Presence (4.1); Native Species (4.2); Exotic and/or Invasive Species (4.3).
- Riparian/Wetland Vegetation (5): Riparian/Wetland Vegetation Condition (5.1).

Change in Indicator Score for Aquatic Habitat, Aquatic Biota and Riparian Vegetation

The WCF rates each HUC 6 watershed on the Forest as Properly Functioning, Functioning at Risk, or Impaired for 12 indicators. A composite score for riparian condition is created by averaging the aquatic habitat, aquatic biota, and riparian/wetland vegetation indicators. At five year intervals these scores can be compared to indicate trends toward the desired condition of improving water quality.

Using the above indicator scores from the 2010 WCF, 54% of the Los Padres National Forest watersheds rate as Properly Functioning, 38% rate as Functioning at Risk, and 8% rate as Impaired.

Table 13: Baseline Condition of Aquatic and Riparian Indicators

Watershed Condition	Desired Trend	Baseline Percentage of Watersheds (2010)	Percentage of Watersheds in the fifth year	Fifth year trend
Good (Properly Functioning)	Maintained condition ratings	54%	Yet to be determined	N/A
Fair (Functioning At-Risk)	Maintained or improved condition ratings	38%	Yet to be determined	N/A
Poor (Impaired)	Improved condition ratings	8%	Yet to be determined	N/A

Goal 6.1: Rangeland Condition

Move toward improved rangeland conditions as indicated by key range sites.

Rangeland management of livestock grazing areas for sustainability is achieved by allowing moderate utilization levels that maintain forage, cover, and habitat requirements for wildlife; and maintain soil productivity, water quality, and ecosystem health. Moderate use is defined as leaving adequate amounts of residual dry matter or plant stubble height in order to provide favorable microenvironments for early seedling growth, protect root development in perennial plants, maintain soil protection, and provide adequate soil organic matter. Standard S56 including Appendix E in Part 3 of the LMP defines specific forage utilization standards that must be met in different vegetation types in order to achieve moderate use.

The desired condition is that livestock grazing opportunities are maintained and are managed for sustainable, healthy rangelands that contribute to improving watershed conditions towards a fully functional and productive condition.

Outcome Evaluation Question

Is forest rangeland management maintaining or improving progress towards sustainable rangelands and ecosystem health?

Percent of Key Areas in active allotments meeting or moving towards Desired Conditions

In livestock grazing areas, 'key areas' are designated to monitor rangeland conditions. Key areas are defined as a portion of the range, which, because of its location, grazing or browsing value, and/or use serves as an indicative sample of range conditions, trend, or degree of use seasonally. A key area guides the general management of the entire area of which it is part.

The five year trend will be determined by first establishing a baseline percent of Key Areas in active allotments meeting or moving towards desired conditions. Information will then be compiled from annual compliance monitoring, Region 5 long-term range monitoring, and other condition assessments conducted in the key areas to determine condition trends in Key areas every five years. The five year trend will then inform the Forest if they are moving toward desired conditions. If the five year trend shows a decrease in the percent of Key Areas in active allotments meeting or moving towards desired conditions, evaluation will need to determine if a trigger has been reached, thereby requiring an amendment or revision of the LMP.

Table 14: Percent of Active Allotments' Key Areas meeting Desired Conditions

Indicator	Percentage of Key Areas in active allotments meeting or moving towards Desired Conditions
2006 Baseline	89
2010 Level	100
Fifth year trend	Up

Following is a summary of the current conditions of the Los Padres livestock grazing allotments for 2010 in comparison to 2006 based on acreage determined by monitoring whether desired conditions are meeting or moving towards desired conditions.

This is the baseline table and trend monitoring for the Range LMP indicator for 2006:

Table 15: Vegetation (Uplands) and Riparian Conditions for the Los Padres N.F. Livestock Grazing Areas

	Upland Vegetation - Desired Condition			Riparian Vegetation - Desired Condition		
Los Padres National Forest	Meeting or Moving Towards	Not Moving Towards or Meeting	Undetermined	Meeting or Moving Towards	Not Moving Towards or Meeting	Undetermined
2002	203050	4131	5	6561	387	30
2006	184025	4500	13881	6492	47	580
2010	387506	1740	3863	6020	26	90

The table above indicates a possible upward trend for both the upland and riparian vegetation desired conditions from the year 2006 to 2010 as is shown by the reduction in acres in the Not Moving Towards or Meeting and un-determined columns. The increasing trend is due in large part to focusing the efforts of Forest staff on the improvement of rangeland conditions through implementation of NEPA decisions. The effort towards NEPA compliance has resulted in some tradeoffs between field monitoring and planning for NEPA decisions which often involves the same staff. This has resulted in variances in the intensity of monitoring activities annually. The 2002 data is found in the 2005 Los Padres Land Management Plan FEIS.

Goal 6.2: Biological Resource Condition

Provide ecological conditions to sustain viable populations of native and desired nonnative species.

The mountains and foothills of southern California are home to approximately nine native species of fish, 18 amphibians, 61 reptiles, 299 birds, 104 mammals, 2,900 vascular plants, and an unknown number of species of invertebrate animals and non-vascular plants. Approximately 3,000 of these species occur on the four southern California National Forests.

Many of the 3,000 species have a large proportion of their distribution on NFS lands. Some are endemic to the Forest (essentially found nowhere else in the world), and some have special status as federally listed threatened, endangered, proposed, candidate, or Forest Service sensitive species. Other species have wide geographic ranges and are found elsewhere in California, Mexico, the West or the Southwest, but are rare in southern California. There are also plants and animals that were formerly common in southern California, but are now rare because of urban development. Some of the best remaining habitat for these species occurs on the margins of NFS lands.

The desired condition is that habitats for federally listed species are conserved, and listed species are recovered or are moving toward recovery. Habitats for sensitive species and other species of concern are managed to prevent downward trends in populations or habitat capability, and to prevent federal listing. Flow regimes in streams that provide habitat for threatened, endangered, proposed, candidate, and/or sensitive aquatic and riparian-dependent species are sufficient to allow the species to persist and complete all phases of their life cycles. Habitat conditions sustain healthy populations of native and

desired nonnative fish and game species. Wildlife habitat functions are maintained or improved, including primary feeding areas, winter ranges, breeding areas, birthing areas, rearing areas, migration corridors, and landscape linkages. Fish habitat functions are maintained or improved, including spawning areas, rearing areas, and upstream and downstream migration, where possible.

Outcome Evaluation Question

Are trends in resource conditions indicating that habitat conditions for fish, wildlife, and rare plants are in a stable or upward trend?

Monitoring has been defined as the collection and analysis of repeated observations or measurements to evaluate changes in condition and progress toward meeting a management objective (Elzinga et. al. 2001) Monitoring and evaluation are critical to adaptive management. Monitoring and evaluation processes begin by identifying key questions Forest Service managers need to answer about forest plan implementation. Understanding the questions help to identify information needs, data collection designs, and tools needed to turn data into information and knowledge. Managers must also have a clear understanding of baseline conditions (current resource condition at the time of signing the ROD) versus desired conditions and the evaluation strategies that will help determine if movement towards desired conditions is occurring. Appropriate selection of indicators help assess resource status and trends, and progress towards meeting the desired conditions identified in the forest plan.

Management Indicator Species are selected because their population or habitat trends are believed to indicate the effects of management activities (36 CFR (Code of Federal Regulation) 219.19(a)(1) [1982]; 36 CFR 219.14 [2005]), and as a focus for monitoring (36 CFR 219.19(a)(6) [1982]). Species considered for designation as MIS were assessed using the following criteria to determine their appropriateness:

- Changes in the species' population or habitat should reflect the effects of national forest management activities; and
- Population or habitat trends for the species must be capable of being effectively and efficiently monitored and evaluated.

Twelve MIS were selected for habitat types and issues shown below in Table 16. They were monitored along with other indictors of progress toward achieving desired conditions for biological resources.

Table 16. Management issues and corresponding Management Indicator Species

Indicators of Management	MIS Species
Healthy Diverse Habitats	Mule Deer
Fragmentation	Mountain Lion
Aquatic Habitat	Arroyo Toad
Riparian Habitat	Song Sparrow
Oak Regeneration	Blue Oak

Oak Regeneration	Engelmann Oak
Oak Regeneration	Valley Oak
Bigcone Douglas-fir Forest	Bigcone Douglas-fir
Coulter Pine Forest	Coulter Pine
Montane Conifer Forest	California Spotted Owl
Montane Conifer Forest	California Black Oak
Montane Conifer Forest	White Fir

Mule Deer

Mule deer was selected as a MIS to answer the question, "Are shrub, woodland, and forest habitats being managed adequately to provide the quality and quantity of habitat for species dependent on or strongly associated with large blocks of healthy, diverse wildland with low to moderate human disturbance?" Mule deer abundance is used to monitor the effects of Forest Service management on landscape patterns in chaparral age class diversity related to fire and on motorized road and trail density. Mule deer is also an indicator of Forest Service effectiveness in working with state agencies and other interested groups. Monitoring was conducted by the California Department of Fish and Game through on-going interagency efforts with the intent of monitoring herd size and distribution as well as habitat condition.

A long-term increase in the size of a herd can be used to infer the effectiveness of forest plan objectives and standards in moving wildlife habitat toward desired conditions. Although trends in mule deer populations are difficult to detect, the Forest Service believes they can be determined through cooperation with the California Department of Fish and Game. Observed changes in mule deer abundance may not be due entirely to the effects of Forest Service management. This lack of a precise cause-and-effect relationship is due to the complex interrelationship between deer herd size, hunting pressure, human developments, disturbance and roads, and vegetation management practices on private wildlands. Also this type of monitoring cannot detect cause and effect relationships. However, the Forest Service recognizes that mule deer population trends on the national forests are in large part dependent on Forest Service management of recreation, roads and vegetation. Because providing suitable deer habitat is an important management objective for the national forests of southern California, it is important for the Forest Service to engage in interagency monitoring efforts of deer population abundance and habitat condition.

Mountain Lion

The mountain lion was selected as a MIS to evaluate and guide planning related to the effects of Forest Service management activities on landscape level habitat fragmentation and habitat linkages. The mountain lion is the largest carnivore on the four southern California national forests, and it requires large core habitat areas, abundant prey, and habitat connectivity between subpopulations. The Forest Service believes that interagency, inter-forest monitoring of mountain lion populations, habitat, and

landscape linkages can be used to estimate the effects of national forest management on mountain lion abundance and distribution, and that trends can be an indicator of the condition of biological communities at the landscape level. Maintaining linkages between national forests and to other protected wildlands is critical to the future of mountain lions and other species, and continued mountain lion movement will measure the effectiveness of the national forests in cooperating with other agencies in providing for landscape linkages.

Arroyo Toad

The arroyo toad was selected as an indicator to answer the question, "Is arroyo toad habitat being managed to achieve protection and recovery objectives for the species?" In selecting the arroyo toad, the Forest Service considered the following:

- The arroyo toad is an indicator of aquatic habitat quality (U.S. Fish and Wildlife Service 2001)
- It occurs on all four national forests in southern California.
- Considerable effort is being directed toward the management of the arroyo toad in the form of land use designations and use of site-specific mitigations. There is a need to predict how effective these measures will be, followed by monitoring to determine actual species response and effectiveness of management actions.
- Short-term fluctuations in arroyo toad populations may not indicate the effects of management actions, being strongly influenced by weather patterns. However, management believes that long-term trends in arroyo toad population abundance, distribution, and habitat condition will reflect the effectiveness of management activities in protecting and improving habitat conditions for arroyo toads, as well as other riparian dependent species, that are susceptible to high levels of human disturbance and habitat degradation.

Song Sparrow

The song sparrow was selected to answer the question, "Is riparian habitat being managed to provide the quality and quantity of habitat for species dependent on or strongly associated with riparian areas?" The song sparrow was selected because its abundance is expected to be responsive to management actions as well as indicating trends in the status of the biological community. For example, song sparrow abundance is negatively correlated with the use of riparian understories for grazing and recreation (Marshall 1948a, 1948b) and positively correlated with the abundance of herbaceous vegetation (Ballard and Geupel 1998). Monitoring song sparrow abundance and/or habitat condition will provide insight into the effects of grazing and recreation use on riparian bird communities. Long-term changes in the size of the song sparrow population or habitat conditions will be used as an indicator of the effectiveness of forest plan objectives and standards in moving riparian habitats toward desired conditions. The song sparrow is widely distributed throughout the southern California national forests and is relatively easily monitored using point count methods that have been used for many years on the national forests. A ten-year data set on a monitoring scheme, developed in cooperation with the Pacific Southwest Forest and Range Experiment Station, already exists for the national forests that can be used as a baseline for future comparison.

Foothill Oak Woodland/Savanna Species

Abundance of blue oak, Engelmann oak, and valley oak saplings will be monitored to answer the question, “Is management successful in preventing the conversion of savannas and woodlands to annual grasslands or other non-oak vegetation types?” Lack of oak regeneration has been identified as a problem in these vegetation types, attributed to the combined effects of livestock grazing, deer browsing, competition from nonnative annual grasses, and unnatural abundance of some acorn-eating animals such as gophers and ground squirrels (Borchert et al. 1989, Pavlik et al. 1991). Monitoring abundance of these oak species, particularly saplings, will indicate whether Forest Service management has been successful in creating conditions favorable for oak regeneration and, in consequence, maintenance of this habitat type.

Bigcone Douglas-Fir

Bigcone Douglas-fir was selected as a MIS because of concern about the effects of increased fire frequency and severity on this habitat type. Altered fire regimes are affecting the abundance and distribution of this tree and the vegetation series of which it is the dominant constituent element. The bigcone Douglas-fir habitat type is one that will be a major focus of vegetation management projects, and the bigcone Douglas-fir trees themselves are an obvious and appropriate indicator of the successful restoration and maintenance of this community.

Coulter Pine

Coulter pine was selected as a MIS because of the concern that drought and bark beetle-caused mortality without subsequent burning to open the cones could be jeopardizing seedling establishment and stand persistence. Monitoring will help answer the question “Is vegetation and fire management providing the ecological conditions necessary to maintain Coulter pine?"

Montane Conifer Forest Species

The California spotted owl, California black oak, and white fir were selected as MIS for the montane conifer forest habitat type. These species were selected because their populations and their population structure are indicators of the condition of montane conifer forests. Taken together, population trends of these species will indicate progress toward achieving the desired condition for montane conifer forest habitat that contain large patches of mature trees with reduced stem densities, interspersed with canopy gaps providing opportunities for regeneration of light-requiring species, including black oak, Jeffrey and ponderosa pine.

California Spotted Owl

The California spotted owl and its habitat will be monitored to answer the question, “Are mature, large diameter, high canopy cover stands with densely-shaded understories being maintained in sufficient distribution, quantity and quality to provide habitat for California spotted owl and other interior forest species?” Many wildlife species, including the California spotted owl, specifically require these ecological conditions. A territorial species with large acreage requirements (at least 300 acres of mature forest per pair), the California spotted owl is an indicator of mature conifer forest with a dense, multi-layered canopy (Stephenson and Calcarone 1999). Monitoring the California spotted owl and its habitat

will indicate the effectiveness of management activities in achieving maintenance and restoration of this type of montane conifer habitat.

Black Oak

Black oak will be monitored to answer the question, "Is fire or other disturbance occurring too infrequently in mid-elevation conifer stands to allow black oak and other shade-intolerant species to persist over time?" Black oak is a gap-phase species that requires occasional openings in the forest canopy in order to regenerate. Its acorns are also an important food source for many forest animal species (California Department of Fish and Game 2002). Abundance of black oak, especially saplings, will indicate progress toward reducing forest stand densities and creating regeneration opportunities for light-requiring tree species.

White Fir

White fir was selected as a MIS to answer the question, "Are management activities changing montane conifer forest tree species composition to achieve density and age/size class distributions more similar to pre-suppression conditions?" The abundance of shade-tolerant white fir has increased with the success of fire suppression in montane conifer forests once dominated by black oak, Jeffrey pine and ponderosa pine (Stephenson and Calcarone 1999); thus it acts as an indicator of forest stand densification. Reduced abundance of small-diameter white fir and well-distributed large-diameter white fir in conifer stands will indicate a return to more historic stand conditions and meet the desired condition for this habitat.

Desired Condition

The desired condition is that habitats for federally listed species are conserved, and listed species are recovered or are moving toward recovery. Habitats for sensitive species and other species of concern are managed to prevent downward trends in populations or habitat capability, and to prevent federal listing. Flow regimes in streams that provide habitat for threatened, endangered, proposed, candidate, and/or sensitive aquatic and riparian-dependent species are sufficient to allow the species to persist and complete all phases of their life cycles. Habitat conditions sustain healthy populations of native and desired nonnative fish and game species. Wildlife habitat functions are maintained or improved, including primary feeding areas, winter ranges, breeding areas, birthing areas, rearing areas, migration corridors, and landscape linkages. Fish habitat functions are maintained or improved, including spawning areas, rearing areas, and upstream and downstream migration, where possible.

Vegetation condition is managed toward the desired conditions identified for each habitat grouping listed under Forest Goal 1.2 - Restoration of Forest Health.

Riparian and aquatic habitat conditions are managed toward the desired conditions identified under Goal 5.2 - Riparian Condition and Goal 5.1 - Watershed Function.

Outcome Evaluation Question: Are trends in resource conditions indicating that habitat conditions for fish, wildlife, and rare plants are in a stable or upward trend?

This report presents the results of MIS monitoring for the four National Forests (Angeles, Cleveland, Los Padres, and San Bernardino) of the Southern California Province of Region Five.

Methods

The method used to monitor each species differs depending on the purpose for monitoring that species. Table 17 presents the purpose method and data source for each species. Details of each method can be found in the individual species accounts.

Table 17: Purpose, method and data source for each MIS

Issue	Habitat Type	MIS	Objectives	Monitoring Method	Measure
Vegetation diversity and age class mosaics; roads and recreation effects	All	Mule deer	Stable or increasing well-distributed populations	Herd composition in cooperation CDFG; habitat condition	Trend in abundance and/or habitat condition
Landscape linkages; habitat fragmentation	All	Mountain lion	Functional landscape linkages; species well-distributed	Studies in cooperation with CDFG, USGS	Trend in distribution, movement and/or
Ground disturbance including trampling and compaction; spread of invasive non-native species; mortality from collision; altered stream flow regimes	Aquatic and riparian habitats	Arroyo toad	Properly functioning streams; stable or increasing populations	Population abundance and/or habitat condition in selected locations	Trends in abundance, distribution, and/or habitat
		Song sparrow	Stable or indreasing populations; healthy riparian habitat	Riparian bird species point counts and/or habitat condition	Trend in abundance and/or habitat condition
Oak regeneration	Oak woodlands and savannas	Blue oak	Perpetuate habitat type	FIA data	Trend in sapling abundance
		Valley oak	Perpetuate habitat type	FIA data	Trend in sapling abundance
		Engelmann oak	Perpetuate habitat type	FIA data	Trend in sapling abundance
Drought/beetle-related mortality and lack of fire	Chaparral/conifer ecotone	Coulter pine	Maintain Coulter pine habitat	FIA data; aerial photo-monitoring	Trend in age/size class distribution
Altered fire regimes (fire severity and/or fire return interval)	Chaparral/conifer ecotone	Bigcone Douglas-fir	Maintain bigcone Douglas-fir stands	FIA data; aerial photo-monitoring	Trend in extent of vegetation type
	Mixed conifer forests	California spotted owl	Maintain/increase numbers and distribution	FS Region 5, CDFG prorocol	Occupied territories and/or habitat condition
		Black oak	Maintain or increase numbers	FIA data	Trend in abundance , size class distribution
		White fir	Pre-settlement age/size class distribution	FIA data	Trend in size class distribution

All the methods listed in Table 2 are observational in nature and, therefore, while statistically significant differences can be found, none is rigorous enough to attribute significant differences to a cause. The best use of this kind of result is to use it to trigger a predetermined management response that is keyed to a threshold of change. Since in this case the cause is unknown, the best management response is probably to initiate more intensive monitoring or research to determine the cause of any significant decline.

Results

The results presented here are summarized from the species accounts. Refer directly to the species account for each species to obtain more detailed information about methods and findings.

Mule Deer

In the southern Province, deer populations have been stable to slightly declining throughout all hunt zones over the past 10 years. Populations continue to be significantly below stable populations of the 1960s and 1970s. The causes of this continued trend is likely a result of lack of quality habitat in the southern Province National Forest. Extended drought conditions, increase human encroachment and competition for resources (food and water) and a lack of disturbance (low intensity fire) has all resulted in a reduction of the quantity and quality of mule deer habitat. Extremely large wildfires have resulted in the short-term loss of hiding cover in a significant amount of habitat. The loss of hiding cover and food resources to invasive plants is a major problem in the lower elevation urban interface areas. Invasive species are affecting oak woodlands and this could be significant to deer as well as other wildlife.

Many management activities can be used to increase mule deer habitat and thus increase mule deer populations. These actions will help achieve the goal of increasing mule deer populations and their distribution across the southern Province National Forests. The recent evaluations by each forest of their Travel Management Systems and future efforts to close and restore unclassified routes is critical to the management of vehicle-associated disturbance of deer and the associated habitat degradation. Reducing road/trail densities on NFS lands will help improve conditions for deer in many ways. Increasing the use of small scale prescribed fires in montane habitats and forest management practices designed to reduce invasive non-native species will also provide an increase in forage and thermal/hiding cover. Providing and maintaining artificial water sources to offset drought conditions and increasing human demands for natural water sources (streams and rivers) will also increase the availability of quality mule deer habitat. Intensive management of recreational use and preventing the increase of non-natives from recreation use will also increase the quality of mule deer habitat**.**

Mountain Lion

Mountain lion population estimates in California were speculative prior to the 1970's but appear to have increased up to about 1996 and stabilized since then based on depredation permits. Using depredation permits to estimate lion population trends is risky because increased permits may result from increased human encroachment into lion habitat or an increase in numbers of lions, or both.

On national forest lands, the prime impact to mountain lions occurs from large wildfires which can both benefit or harm deer, the mountain lion's main prey species. Immediately after fires deer and mountain lions are displaced but will increase in abundance beyond the pre-burn level after one to three years of vegetative growth supplies excellent deer forage. Excessively large fires that are adjacent to each other or excessively frequent fires that shift habitats to grasslands may negatively affect the lions. Wildfire is largely not controlled by Forest management however, so tracking mountain lion populations through depredation permits probably does not reflect changes in mountain lion habitat fragmentation due to actual management decisions. Rather it reflects a larger southern California change in habitat from fires on public land, fragmentation from development, roads, and riparian

habitat loss on other lands, changes in deer habitat and populations, and normal fluctuations in mountain lion populations. Depredation permits do not differentiate between the effects of each of these variables.

It may be that changes on non-forest land have more impact on mountain lions than forest management. It will be more useful to directly measure the above variables as well as depredation information, and any small scale (smaller than the Province level) population studies in cooperation with other agencies and organizations. One issue as of 2011 is the decreasing state and federal budgets that support monitoring of mountain lions and their habitat. Population trend, habitat use, and demographic studies of this species are exceptionally expensive because of the puma's reclusiveness, difficult terrain and vegetation to move through that lions are found in, and the relatively rarity of the species across the landscape. Consequently, province level estimates of population size and trend have very large margins of error and so this information should be used with caution.

In order to understand the status of mountain lion across the southern California province, we recommend that the Forests continue to cooperate with ongoing studies and efforts to maintain core habitat and linkages with the USGS, National Park Service, UC Davis and other universities, California State Parks, California Fish and Game, and county boards, as well as any non-profit groups such as the Missing Linkages Project. Because measuring mountain lion populations directly is so difficult to obtain statistically reliable information at the province level, Forests will need to also track other indicators of mountain lion health both on and off forest, such as the creation of new roads, urban development, or other barriers to movement, large fires, and other variables that affect mule deer populations.

Arroyo Toad

Across the Southern Province, monitoring has consistently focused on determining presence/absence, status of reproductive activity, distribution and changed habitat conditions. Monitoring efforts have not typically been designed to obtain the level of information needed to determine trend. Based on this, it is not possible to make a definitive statement regarding trends in abundance and habitat conditions for the S. Province.

Arroyo toads and their habitat have been impacted by water diversions, water extractions, flood control structures, developments, roads, recreation and grazing. However, since the 1990s, protective measures have improved occupied arroyo toad habitat on NFS Lands. Management actions to protect arroyo toads and their habitat have included elimination/reduction of grazing near/in occupied habitat, decommissioning and seasonal closures of recreation facilities and roads in/near occupied habitat, installation of habitat protection barriers, elimination of parking opportunities near occupied habitat, etc...

In spite of Forest Service efforts to protect arroyo toads and their habitat, other factors such as long periods of severe drought have likely resulted in negative impacts. Continued human population growth in southern California has likely resulted in increasing recreational impacts and pressures in occupied and suitable habitat. Additional impacts to habitat have continued as a result of water diversions, water

extractions, and flood control structures under Forest Service permit, trespass diversions on NFS lands, as well as water extractions on adjacent non-NFS lands. Furthermore, many small water diversions do not have valid State water rights and in an arid environment can also have cumulative negative impacts due to over usage of water.

Song Sparrow

The prescribed monitoring method is to be Riparian Bird Counts (RBC) and/or habitat conditions. Song sparrows are well-represented on all Forests in the S. Province. Riparian Bird Counts were conducted at 206 sites on the four Forests annually between 1988 and 1996 and again in 2003. No RBCs have been conducted since 2003.

During the RBC surveys, negative trends in song sparrow abundance were detected on all four Forests, with all trends being statistically significant except the CNF. There is some variation between the different Forests in terms of the degree of the downward trend.

The decline in the number of song sparrows breeding in the southern Province suggests that there has been a declining trend in the riparian habitat conditions for which song sparrow is an MIS. However, it is believed that riparian conditions on the National Forests have generally improved since the 1990s due to changes in management practices.

The cause of the song sparrow population declines is uncertain. It is reasonable to speculate that numerous factors could contribute. While removing/reducing grazing from many riparian areas on NFS lands has reduced impacts to the habitat, there are still many pressures on riparian zones, especially low-elevation riparian areas close to urban areas. Dispersed recreation use concentrated in these areas continues to increase and result in habitat degradation/destruction and disturbance to riparian-dependent species. Studies have found that grazing and recreation both result in reduced song sparrow abundance.

Domestic and commercial water extractions/diversions likewise continue to degrade riparian habitat, resulting in shrinking of riparian zones and lower quality habitat. The effects of water extractions/diversions on riparian habitat are probably most severe during drought cycles.

Climate change may also be affecting riparian-dependent species, including song sparrows, and riparian habitat. Severe droughts during the late 1990s and early 2000s and exceptionally large wildfires since the mid-1990s have also lead to temporary or long-term degradation or loss of riparian habitat and may have affected population size and habitat occupancy. An extreme 200-300 year drought event between 1999 and 2003 may have been partially responsible for the apparent population decline. Large wildfires in the past ten years have also resulted in the temporary loss of riparian habitat and may have affected population size and habitat occupancy. The extent and duration of fire and drought-related population declines is not possible to evaluate due to lack of monitoring since 2003.

It should be noted that no monitoring has been conducted in the RBC sites since 2003 so it is not possible to determine current population status or trends. Other data (*e.g.,* Breeding Bird Surveys [BBS] and Christmas Bird Counts [CBC]) were evaluated to determine if they could be used for monitoring song

sparrow populations in the Southern Province or fill in the data gaps for the RBC. Because of inconsistencies in survey efforts in those other methods, it is not possible to evaluate population status or trends. Of the three, the RBCs have the best data set for evaluation of trends in the Southern Province. However, there were problems with the RBCs when they were conducted which were similar to the inconsistencies and information gaps found in BBS surveys. Observer skills varied to a great extent and there were access problems to some sites, both of which prevented consistent sampling between visits and between years making much of the data unusable. The only way to get consistent, replicable results is to have the same people conduct the surveys each year and it is unlikely that such a scenario can be accomplished given personnel changes within the agency and potential contractors.

MIS Trees

The Forest Management Plans for the Southern Province require the use of FIA plots to monitor for trends in population and population structure. Trends in these species will require long term monitoring of FIA plots. These plots are measured once every 10 years and none has been measured twice since the implementation of the Forest Management Plan. Thus far, only three surveys have been completed in the Province, not enough to delineate trends. Also, the data for plots that have been measured are not yet available from the Pacific Northwest Research Station which is responsible for collecting and publishing these data. Until the data are published, no trend analysis can be conducted using the method outlined in the Forest Management Plan.

Blue Oak

The initial status of blue oak on Los Padres National Forest has been well documented by Borchert et al. (1993). However, there are no recent trend results for blue oak.

Englemann Oak

There are no trend analysis results for Englemann oak.

Valley Oak

There are no trend analysis results for valley oak.

Bigcone Douglas-fir

There are no trend analysis results for bigcone Douglas-fir.

Coulter Pine

There are no trend analysis results for Coulter pine.

California Spotted Owl

Monitoring of spotted owl occupancy and habitat conditions have varied by Forest and over time. Current population status and long-term trend data are lacking for much of southern California. The most consistent monitoring has occurred on the SBNF in the San Bernardino Mountains. Because similar

habitat changes (*e.g.,* fire, vegetation mortality, fuels treatments, fire salvage operations, drought, etc.) have occurred across the S. Province, it is reasonable to extrapolate the population status and trend data gathered from the SBNF to the other S. Province Forests.

While monitoring efforts have fluctuated in the S. Province, it is clear that the southern California population of California spotted owls has declined over the past two decades in terms of total number of individual adult owls and in the number of occupied territories. The number of successfully-reproducing pairs has continued to decline, resulting in fewer fledglings being recruited into the population each year.

As evidenced by the San Bernardino Mountains data and pointed to by the limited data from other Forests, there has been a dramatic decline in spotted owl numbers throughout southern California since the late 1980s/early 1990s. The number of "active" territories has declined substantially and the nearest-neighbor distance between territories has increased. In some isolated mountain ranges (*e.g.,* San Jacinto Mountains, Palomar Mountain, Santa Ana Mountains, Laguna Mountains), the number of owls is so low that viability, even in the short-term, is threatened.

During the same period when the owl populations have declined, there has been a substantial loss or degradation of suitable habitat throughout the southern Province. Large-scale wildfires, severe droughts, large-scale vegetation mortality, intensive fuels treatment around communities and developed areas, urban development, invasive plant species, and other factors have combined to significantly change the amount and quality of habitat for California spotted owl. Fragmentation and loss of habitat have resulted in more territories becoming isolated and reduced the size of habitat patches, which are important for the owls.

Several factors have affected and are likely still affecting territory occupancy and habitat conditions: 1) lingering effects of severe droughts; 2) increase in size and severity of wildfires; 3) the need for intensive fuels treatment around communities and developments, 4) habitat loss/degradation through development; 5) increasing disturbance levels as recreational use of southern California's forests increases as human populations grow; 6) climate change effects resulting in the compressing and isolation of suitable habitat patches; 7) invasive species, and, 8) potentially declining populations of prey species due to climate change, invasive plants, fires, diseases, etc. The degree to which each of these factors plays into the loss of occupied territories and degradation/loss of habitat condition varies by territory.

California Black Oak

There are no trend analysis results for black oak.

White Fir

There are no results for white fir from any province wide data sources or FIA plots. However, since the drought of 2003, the overall tree density of white fir on the four Forests has likely decreased considerably. On the SBNF thousands of large and small-diameter trees died in the drought, especially those at lower elevations where white fir had expanded owing to successful fire suppression. In addition

to the drought, wildfires such as the Butler 2, Cedar, Day, and Slide have burned large areas in higher elevation forests where white fir is abundant. These fires have almost certainly thinned many understory firs, and in the case of the Butler 2 Fire, killed even the largest trees. In addition to wildfire and drought, white fir has been targeted in fuels' reduction projects, particularly on the SBNF. Where thinning has been implemented, small-diameter ladder firs have been reduced in an effort to create more fire resilient forests.

Conclusions

Conclusions drawn from this first monitoring effort are presented below. Each issue is addressed below and the results related to the objective of the monitoring plan.

Healthy Diverse Habitats

The issues here are 1) vegetation diversity and age class mosaics and 2) roads and recreation effects. The condition of the mule deer population is used as an indicator of health of southern California forest habitats. It is assumed that stable or increasing well distributed populations of mule deer will reflect healthy vegetation in a diverse mosaic of age classes. It may also indicate the effects of roads and recreation activities on the health of vegetation.

Results indicate that the mule deer population of southern California, as a whole, is in a stable or slightly declining state. CDFG data suggests that the mule deer population of the Angeles National Forest is decreasing while those of the Cleveland, Los Padres, and San Bernardino National Forests appear to be stable to slightly increasing over the last 10 years. Populations continue to be significantly below the stable populations of the 1960's and 1970's. The potential reasons for the longer-term population decline are presented in the results above and are detailed in the species account in Appendix A. It is important to note that the many large wildfires which have occurred recently throughout the Province have probably had a significant impact on mule deer populations. These fires have removed large areas of mature vegetation and reduced cover. However, a mosaic of fire in brush less than ten years old increases forage for deer and maintains some hiding cover which could result in future increased deer numbers.

The long-term (decades) decline in southern California mule deer populations and the short-term (10 year) apparent stability or slight increase in many of the forest populations is not enough to warrant any new changes in general management of National Forest lands with respect to health diverse habitats. The next five years may prove to be very interesting as the effects of recent large fires in habitat begins to have effect.

Habitat Fragmentation

The issues here are 1) landscape linkages and 2) habitat fragmentation. How badly are habitats fragmented and how well are fragmented areas linked with corridors that allow movement of species among them? The lack of sufficient data about mountain lion population and the effects of large recent wildfires on the mountain lion's main prey species, mule deer, make it difficult to use the mountain lion

as an indicator of habitat fragmentation at this time. The cooperative studies that were required to supply the data and information needed to support this monitoring effort have not materialized in a way that was initially anticipated. Without this information, the trend in distribution, movement and/or habitat conditions cannot be assessed. Mountain lion population estimates in California were speculative prior to the 1970's but appear to have increased up to about 1996 and stabilized since then based on depredation permits. Using depredation permits to estimate lion population trends is risky because increased permits may result from increased human encroachment into lion habitat or an increase in numbers of lions, or both.

The only information available then suggests that there is a stable mountain population but there is no way currently to assess distribution and therefore, landscape linkages or habitat fragmentation. The effect of recent large wildfires on mountain lion population distributions and habitat fragmentation on nation forest lands is not known.

Aquatic and Riparian Habitat

The issue here is 1) ground disturbance including trampling and compaction, 2) spread of invasive non-native species, 3) mortality from collision, and 4) altered stream flow regimes. Conservation of aquatic and riparian habitat is a high priority for all National Forests within the Southern Province. The new Forest Plans set a goal to "improve riparian conditions". Arroyo toad and song sparrow were selected as management indicator species because the condition of their populations was considered to be a reflection of the effectiveness of management actions in protecting low-elevation riparian and aquatic habitat from disturbance and degradation.

The decline in the number of song sparrows breeding in the southern Province would seem to suggest that there has been a declining trend in the riparian habitat conditions. For the arroyo toad, monitoring efforts have been able to confirm that all sites previously documented as occupied continue to remain occupied. When compared to past conditions (10-20 years) the trend for this habitat type is considered to be stable or improving on NFS lands in the S. Province. This inference is based on the fact that management actions to protect habitat have included elimination/reduction of grazing near/in occupied habitat, decommissioning and seasonal closures of recreation facilities and roads in/near occupied habitat, installation of habitat protection barriers, elimination of parking opportunities near occupied habitat, and etc.

The data needed to properly assess the status and trend of the two aquatic and riparian habitat MIS species is not available. There is a need to collect population abundance data for arroyo toad and conduct riparian bird species counts of song sparrow on a regular basis. With these data, trends can be more confidently determined and conclusions about the effectiveness of management efforts to preserve and improve aquatic and riparian habitats will be more useful.

Oak Regeneration

The issue here is oak regeneration. How well are oak woodlands and savannas being protected and maintained? Data for the tree MIS species used in the land management plan for the southern province

are not yet available from the U. S. Forest Service Forest Inventory and Analysis (FIA) system for the last 5 years. These data are in the process of being cleaned and entered into the FIA database. FIA data is necessary to determine trends in sapling abundance which will be used to evaluate oak regeneration. Currently there is a request into the Forest Service Remote Sensing Lab in Sacramento where data are managed for Region 5. Once the data are available, analysis should be conducted for the province as a whole, as well as individual forests.

Coulter Pine Forest

Lack of available FIA data has prevented the proper analysis of Coulter pine as an indicator of the issues: 1) drought/beetle-related mortality and 2) lack of fire. The land management plan associated the health of Coulter pine habitat with this indicator. FIA data is needed to analyze trends in age/size class distribution. The LMP also calls for aerial photo monitoring but no new aerial photo data are available to compare with older photos.

Montane Conifer Forest – Altered Fire Regimes

The issue here is altered fire regimes (fire severity and/or fire return interval). If these populations are healthy and in the proper proportions to their expected role in the ecosystem then it is thought that fire regimes have been restored or are in sync with what is thought to be historically characteristic of mixed conifer forests. However, as with most of the other MIS species, there is significant lack of basic monitoring data with which to evaluate trends in bigcone Douglas-fir, black oak and white fir. The monitoring of these species depends once again on FIA data which is currently unavailable.

In addition, monitoring of California spotted owl has been very inconsistent with some forests not able to conduct the necessary yearly surveys. The San Bernardino Nation Forest has the most complete data set and has observed a steady decline in numbers of owls and occupied territories. Spotty data and general observations on other forests suggest similar trends there. The decline is probably due to several factors including large-scale fires, severe drought, large-scale vegetation mortality, intensive fuel treatments around communities, urban development, invasive plant species, increased recreational use as human populations increase, climate change, and declining prey populations. Habitat loss would seem to suggest that the desired mature, large diameter, high canopy closure conditions of montane conifer forest are in decline and moving opposite to what is called for in the Land Management Plan.

Overall Conclusion

The effects of management activities are not always known. Monitoring gives insight into these effects and allows us to change or redesign management activities if undesired effects are observed. This report is the first Management Indicator Species monitoring report under the 2005 Forest Management Plan for the four Southern California Province forests. While some of the results are compelling, it is very early in the monitoring process and the results are preliminary. Continued monitoring and the utilization of additional monitoring methods will begin to confirm trends that may call for changes in management direction.

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Goal 7.1: Natural Areas in an Urban Context

Retain natural areas as a core for a regional network while focusing the built environment into the minimum land area needed to support growing public needs.

Urbanization within and surrounding NFS lands threatens to alter the natural character of many areas. Suburban communities have been developed in more remote areas and urban areas have pushed up into the foothills in many places. This has led to an expansion in the amount of Wildland/Urban Interface areas that are at risk from wildland fire, landslides, and floods. The combination of increased development and the lack of urban planning designed to avoid impacts from natural catastrophes will put increasing pressure on National Forest managers to alter landscape character to mitigate the effects from fire, landslides, and floods on urban encroachment.

The desired condition is that the natural and cultural features of landscapes that provide their sense of place are intact. Landscapes possess a vegetation pattern and species mix that is natural in appearance and function. Built elements and landscape alterations complement landscape characteristics. Areas zoned as Back Country retain an undeveloped character with a low level of loss of acres in this condition.

Outcome Evaluation Question

Is the Forest balancing the need for new infrastructure with restoration opportunities or land ownership adjustment to meet the desired conditions?

Land Ownership Complexity

The complexity of internal and external boundaries is determined through calculating the miles of boundary per area of the NFS lands. A higher value indicates highly intermixed ownerships.

The Forest's Land Ownership and Adjustment Program continues to aid other programs to meet LMP goals. The conservation organizations partnering with the Forest to acquire valuable habitat now include four land trusts. When land purchase and donation opportunities are combined, the Forest acquired 750 acres in various habitat types. These acquisitions eliminate the need for future road access, water, and electrical developments. No further infrastructure authorizations will be required for these parcels. Management costs are also reduced by eliminating boundary line maintenance and resolving encroachments from private land developments.

The land adjustment program can reduce ownership complexity through consolidation of ownerships. The annual indicator is the acres of land acquired which generally reduces the complexity of ownership and reduces the boundary miles per area. Over the five year monitoring period the following land adjustments have occurred on the Forest:

Table 18: LPNF Acquisitions 2005-2010

Name	Date of Acquisition	Acres Acquired	Boundary Line Reduced (miles)	Boundary Line Added (miles)
Rancho Calera	7/30/2007	450		3.750*
Horse Pasture	10/22/2008	160	2.5	
Pacific Valley II	2/6/2010	80	1.5	
Pacific Valley III	9/1/2010	40	0.875	
Pacific Valley IV	9/1/2010	20	0.5	
TOTAL		750	5.375	3.75

*Rancho Calera purchase is outside the proclaimed forest boundary. The purchase connects the Bixby/Brazil Ranch lands (purchased 2002) to the Mill Creek Preserve of the Monterey Peninsula Regional Park District, creating a corridor of public land ownership from Big Sur Coast to NFS lands in Monterey Ranger District.

Authorized and Administrative Infrastructure

Accommodating urban infrastructure to support growing populations is one of the management challenges that the Forest faces. There are increasing requests from private, semi-private and public industry, corporations, organizations, associations and private individuals for various uses on NFS lands including infrastructure for community support. In addition, the combination of increased development and the need to protect these developed areas from fire and other natural events puts increasing

pressure on managers to alter landscape character to accommodate these uses. One strategy to reduce future effects is to be proactive in local planning efforts.

The amount of authorized and administrative infrastructure on NFS lands increases the overall footprint and complexity of management. As data becomes available, the Forest will analyze numbers and acres of authorized and administrative infrastructure in order to determine if the Forest is moving toward desired conditions.

Administrative infrastructure is split into two categories. Recreation is one and Fire, Administrative and Other (FA&O) is the second category. Generally speaking, funding for new construction, rehabilitation and decommissioning of infrastructure comes from congressionally appropriated construction funds for facilities, roads and trails. Additional infrastructure funding was received last year through the American Recovery and Reinvestment Act (ARRA). Although significant backlogs exist in deferred maintenance and funding needs for the three types of construction funding, significant infrastructure improvements have been made over the five year monitoring period.

Examples of accomplishments include:

Recreation: Frazier Mountain Trailhead (new facility for winter snow play and other seasonal OHV staging area); toilet replacements at McGill, Valle Vista and Plaskett Campgrounds; and Sand Dollar Day Use Area. Trial maintenance and reconstruction work forestwide benefited from ARRA funding totaling $2,295,000.

FA&O: Decommissioning of structures and site rehabilitation occurred at Wheeler Gorge Station garage, White Oaks Station, Figueroa Station residence, Chuchupate Station residence, and Cachuma Saddle Station. Additionally, 25 Recreation Residence structures were decommissioned on the Santa Barbara Ranger District. Finally, there was replacement of two barracks buildings at Los Prietos Station and replacement of the Monterey and Mount Pinos Ranger District Offices.

Inventoried Unauthorized Roads and Trails

The number of inventoried unauthorized roads and trails will be used as an additional indicator of the effectiveness of the Forest's movement towards desired conditions. The Forest's inventory of the unauthorized roads and trails will demonstrate the effectiveness of the Forest at protecting resources, although the GIS data is not always up to date in showing all unauthorized roads and trails. Available data will be analyzed to show trends in unauthorized access and potential damage from such access.

Part 2 Monitoring

Monitoring identified in Part 2 of the Southern California Land Management Plans is focused on program implementation including inventory activities. The National Forests currently use attainment reporting for tracking program accomplishments as discussed in Part 2 of the Land Management Plan. The attainment measures are linked to the National Strategic Plan and report accomplishments through a national reporting system. Although the system will evolve~~s~~ over time as management needs change,

Table 19 represents the type of measures that are currently reported on an annual basis. These attainments are a reflection of current budget and staffing.

Table 19: FY2010 Accomplishments

FY2010 Attainments		
Indicator	**Units**	**2010 Accomplishment**
Terrestrial habitat enhanced	Acres	1400
Aquatic habitat enhanced	Miles	14
Noxious weeds treated	Acres	102
Vegetation improved (not haz fuels reduced)	Acres	700
Watershed improved	Acres	8
Land ownership adjusted	Acres	60
Heritage sites managed to standard	Number	17
Interpretation and education	Products Provided	31
Recreation SUA's managed to standard	Number	45
Recreation sites managed to standard	PAOT Days	389500
General Forest area visitation	Recreation Days	552,200
Wilderness area visitation	Recreation Days	63,700
Non-recreation SUA's managed to standard	Number	117
Mineral operations administered	Number	90
Grazing allotments administered to standard	Acres	243459
Hazardous Fuels Reduction	Acres	6217
Roads maintained to standard	Miles	130
High clearance roads maintained fo standard	Miles	269
Roads decommissioned	Miles	0

Los Padres National Forest
Best Management Practices Evaluation Program
2010 Accomplishment Report

INTRODUCTION

This report summarizes monitoring conducted in 2010 by the Los Padres National Forest (LPNF) in association with the United States Department of Agriculture, Forest Service (USFS) Best Management Practices Evaluation Program (BMPEP). The objectives of this program are to: 1) fulfill USFS monitoring commitments to the State Water Resources Control Board (SWRCB), as described in the 1981 SWRCB/USFS Management Agency Agreement and Water quality Management for National Forest system Lands in California (USFS, 2000); 2) assess and document the efficacy of the USFS water quality management program, specifically the implementation and effectiveness of Best Management Practices (BMPs); 3) facilitate adaptive management by identifying program shortcomings; and 4) develop a record of performance that demonstrates the ability to control nonpoint source pollution on USFS lands. Best Management Practices (BMPs) to be employed by the USFS during projects and activities are detailed in *Water Quality Management for National Forest System Lands in California – Best Management Practices* (USFS 2000), and are required by the Region 5 Water Quality Management Program and the *Los Padres National Forest Land Management Plan* (USFS 2005).

Onsite evaluations are the foundation of the BMPEP and are the focus of this report. Onsite evaluations assess the implementation and effectiveness of BMPs applied on project sites or activity areas. The implementation assessment determines the extent to which planned water quality protection measures were actually put in place on project sites. The effectiveness assessment determines the extent to which the practices met their water quality protection objectives.

METHODS

Twenty-nine different practices have been identified for evaluation and each practice has a corresponding onsite evaluation form to rate implementation and effectiveness criteria. The USFS Regional Office (Region 5) assigned 20 of these practices to be evaluated by the LPNF in 2010 (Table 1). Not all of the 29 practices are evaluated by each forest because not all are applicable (e.g., the LPNF does not typically conduct timber harvest). The Regional Office assigned a minimum of 42 onsite evaluations to be performed by the LPNF in 2010 (Table 1). Forest personnel completed a total of 24 onsite evaluations and one administrative evaluation in 2010. Fewer evaluations were accomplished than were assigned in 2010 because for some of the assigned practices no projects were performed on the LPNF last year (e.g., Pioneer Road Construction, Restoration of Borrow Pits and Quarries, etc.). The Monterey Ranger District did not complete the nine assigned evaluations. However, the District Resource Officer confirmed that BMPs were applied on all projects and activities on the district.

Table 20: 2010 BMPEP Evaluations Performed on the Los Padres National Forest

Practice	Form	Assigned Number of Evaluations	Number of Evaluations Performed	Site/Project Name	Ranger District
Streamside Management Zones	T01	1	1	Frazier Park DFPZ	MPRD
Road Surface, Drainage and Slope Protection	E08	3	1	Camuesa Road (5N15)	SBRD
Stream Crossings	E09	3	2	Camuesa Road (5N15)	SBRD
				Lockwood Road (8N12)/	MPRD
				Seymour Creek	
Road Decommissioning	E10	1	0		
Control of Sidecast Material	E11	3	1	Camuesa Road (5N15)	SBRD
In-channel Construction Practices	E13	2	1	Lockwood Road (8N12)	MPRD
Rip Rap Composition	E15	1	0		
Water Source Development	E16	2	2	Happy Canyon Allotment	SBRD
				Mill Canyon Quail Guzzler	MPRD
Pioneer Road Construction	E18	1	0		
Restoration of Borrow Pits and Quarries	E19	2	0		
Management of Roads During Wet Periods	E20	4	4	Camuesa Road (5N15)	SBRD
				Colson Road (11N04)	SLRD
				Potrero Seco (6N11)	ORD
				Grade Valley Road (7N03)	MPRD
Developed Recreation Sites	R22	3	2	Figueroa Campground	SLRD
				Wheeler Gorge CG	ORD

Location of Stock Facilities in Wilderness	R23	2	1	Madulce Stock Corral	SBRD
Range Management	G24	2	2	Happy Canyon Allotment	SBRD
				Cuddy Allotment	MPRD
Prescribed Fire	F25	2	4	District Pile Burning	SLRD
				Laguna Ridge	ORD
				Pine Mountain CG	ORD
				Pine Mountain Club West	MPRD
Mining Operations	M26	2	0		
Common Variety Minerals	M27	1	0		
Vegetation Manipulation	V28	1	1	Figueroa Fuels Mgt.	SLRD
Revegetation of Surface Disturbed Areas	V29	3	0		
Dispersed Recreation Sites	R30	3	2	Lizards Mouth	SBRD
				Navajo Flat Staging Area	SLRD
TOTAL		**42**	**24**		

RESULTS

TIMBER

Streamside Management Zone – (SMZ) (T01)

The project evaluated for this practice was a Defensible Fuels Profile Zone, in which fuels were removed surrounding a community. The Burn Plan and other project documents did not include measures for avoidance of the SMZ; however, during implementation the location of the SMZ was communicated verbally to the equipment operators and compliance was monitored by USFS staff.

Effectiveness:

- Within the SMZ, there was no disturbance to groundcover, canopy cover, or streambanks. There was no evidence of sediment movement to the SMZ, and no adverse effects to beneficial uses of water.

ENGINEERING

Road Surface, Drainage and Slope Protection (E08)

Annual maintenance of Camuesa Road (5N15) was evaluated. The area evaluated was adjacent to a perennial stream.

Effectiveness:

- There was some evidence of rilling, sediment deposition in the SMZ, scour at outlet of a culvert, and partial blockage of a culvert. There was no evidence of sediment transport to the channel.

Stream Crossings (E09)

Stream crossings were evaluated for Camuesa Road (5N15) and Lockwood Road (8N12). The Lockwood Road crossing had rip rap grouting. Implementation met contract/project requirements in both cases.

Effectiveness:

- Camuesa Road had some rills present on the fill slopes and road surface, and a small amount of erosion was noted. There was some scour at the outlet of the culvert, and partial blockage of the culvert.
- The Lockwood Road site crossed an intermittent stream, which was dry, so an evaluation of project effectiveness was not applicable.

Control of Sidecast Material (E11)

Annual road maintenance of Camuesa Road (5N15) was evaluated. Project plans contained requirements for sidecast material that were implemented during the project. A perennial stream was located near the project site.

Effectiveness:

- There was no effect of sidecast material on the SMZ, stream channel, or stream banks.

In-channel Construction Practices (E13)

The low water crossing of Lockwood Road (8N12) for Seymour Creek was evaluated. During implementation, the channel was not returned to a natural grade and revegetation and a barrier to vehicle entry are needed. In 2011, the area was signed and will be patrolled to minimize unauthorized vehicle use.

Effectiveness:

- There were no adverse effects of the project on water quality. The amount of disturbance was minimized, and no construction material was left in the channel.

Water Source Development (E16)

Two water sources were evaluated – the Happy Canyon Allotment and Mill Canyon Quail Guzzler. During the installation of the Happy Canyon trough, project requirements were not followed because excess water is not piped back to the creek and is allowed to spill on the ground, leading to muddy conditions and livestock trampling directly around the trough, but away from the channel. The permittee has been told to make this change in 2011. The Mill Canyon water source, a wildlife guzzler, met contract requirements.

Effectiveness:

- The Happy Canyon Allotment and Mill Canyon Quail Guzzler water sources have no effect on aquatic resources or the stream habitat.

Management of Roads During Wet Periods (E20)

Four roads were evaluated: Camuesa Road (5N15), Colson Road (11N04), Potrero Seco (6N11), and Grade Valley Road (7N03). Three of these roads are closed to vehicular traffic during wet conditions, and one (Camuesa Road) is permanently closed to public vehicles although off-highway vehicles can access it. Colson Road was to have a gate installed prior to winter rains, but the contract was late and temporary barricades were installed for the interim. Barricades were not 100% effective, and permanent gates were installed in spring 2010.

Effectiveness:

- Camuesa Road had significant rilling and rutting, and sediment deposition to the SMZ.
- Colson and Potrero Seco roads had some rilling and rutting, but no sediment transport to the SMZ.
- Grade Valley Road had only a minor amount of rutting present in the road, and no rills. In the adjacent stream channel a significant deposition of sediment was noted in the channel; however, this was due to a slide that occurred upstream of the site as a result of the Day Fire and is not related to the road or road management activities.

RECREATION

Developed Recreation Sites (R22)

Figueroa and Wheeler Gorge Campgrounds were evaluated. Figueroa Campground is maintained by the Forest Service, and Wheeler Gorge is maintained by a concessionaire. These two campgrounds do not have developed water sources, and only Wheeler Gorge is near a stream. All of Figueroa's operations were rated as exceeding management requirements, and Wheeler Gorge met management requirements.

Effectiveness:

- Both campgrounds had no evidence of water quality problems due to sanitation, refuse, or sediment.

Dispersed Recreation Sites (R30)

The Lizard's Mouth site is popular for bouldering and partying and had a lot of trash and graffiti. There is a lack of personnel and money needed to clean up the site. The Navajo Flats Staging Area is for Off-highway Vehicle Use and contains some camping facilities (picnic tables, pit toilets). This site requires more fencing to prevent vehicle trespass into stream and SMZ areas, and a project is underway to install protective fencing. Both sites noted deficiencies in implementation due to departures from the Land Management Plan guidance.

Effectiveness:

- Impacts at Lizard's Mouth included trash blowing into the drainages and human waste washing into the drainage. Volunteers have removed trash and graffiti, but more patrols and signage are needed to address the increase in use.

- Impacts at Navajo Flats Staging Area included significant effects to stream banks and sediment delivery to the stream channel as a result of off-highway vehicle unauthorized use. Trash was also evident in the stream. Grants are being prepared to secure funding to fix the situation.

RANGE MANAGEMENT

Location of Stock Facilities in Wilderness (R23)

The Madulce stock corral was evaluated, and implementation met contract requirements. It has a small barbed wire fence that is used only 1 to 2 times per year.

Effectiveness:

- There was no evidence of sediment or other substances (e.g., animal waste, fertilizers, feeds) that might degrade water quality.

Range Management (G24)

The Happy Canyon and Cuddy allotments were evaluated, and both had site-specific Land Management Plan resource protection guidelines incorporated into the permit. An Administrative Evaluation (AE-4) was also prepared for the Cuddy Allotment. This evaluation noted that the Range Environmental Analysis needs to be revised as well as the Annual Operating Plan, which is being conducted in 2011.

Effectiveness:

- At the Happy Canyon Allotment, the spring exclosures that were installed in 2009 have resulted in improved vegetative conditions in the wetland and riparian areas. As a result, the measure of vegetation met established standards. No problems were noted for bank stability, rilling, erosion, hoof prints, or altered flow patterns.
- At the Cuddy Allotment, measures of vegetation met or exceeded standards. There was no evidence of rilling, unstable banks, or erosion.

FIRE MANAGEMENT

Prescribed Fire (F25)

The prescribed fire projects evaluated included mechanical clearing of undergrowth and burning piles, and the Laguna Ridge Prescribed Fire.

Effectiveness:

- All four projects that were evaluated had no adverse impacts to groundcover, hydrophobic soils, rilling, or evidence of sediment transport to SMZ.

VEGETATION MANAGEMENT

Vegetation Manipulation (F28)

The Figueroa Fuels Management project evaluated consisted of mastication and hand thinning. All implementation criteria evaluated met or exceeded project requirements.

Effectiveness:

- There was no evidence of rilling, rutting, or sediment transport to the SMZ.

2010 Los Padres National Forest BMPEP Summary

The majority of sites evaluated for Best Management Practice (BMP) implementation and effectiveness provided protection for water quality and beneficial use. The departures below have been shared with the project leaders and Line Officers for any further work needed and to aid in improved implementation and effectiveness in future projects.

Departures in **implementation** were identified as follows:

- During construction of a low water crossing, some specifications were not met.
- During installation of a livestock trough, one project requirement not followed.
- One road that was to have a seasonal closure had temporary barricades instead of permanent gates that were not 100% effective, due to contract delays.
- Two dispersed recreation sites had departures from LMP guidance.

Departures in **effectiveness** are as follows:

- For road maintenance, there was some evidence of rilling, sediment deposition in the SMZ, scour at the outlet of a culvert, and partial blockage of a culvert.
- At a stream crossing, there were some rills present on the fill slopes and road surface, a small amount of erosion, scour at the outlet of the culvert, and partial blockage of a culvert.
- Management of roads in wet weather - significant rilling and rutting, and sediment deposition to the SMZ.
- Other roads in wet weather - some rilling and rutting but no sediment transport to the SMZ.
- Need more labor to remove trash and graffiti, and more patrols and signs at the dispersed recreation sites.
- Unauthorized OHV use led to degraded stream banks and sediment delivery to the stream channel.

CONCLUSIONS

Of the 24 onsite evaluations contained within this report, 20 (83%) found no evidence of adverse effects on water quality. Two (8%) of the evaluations found a potential for effects, in which sediment was found in the stream management zone, but not in the stream channel. Two (8%) of the evaluations found significant effects. One of these was due to off-highway vehicle unauthorized use around fencing that had been installed to protect aquatic resources. A project is underway to install more fencing along the creek and other sensitive areas. In the second case where sediment was reported at the monitoring site, the sediment was not the result of the road being evaluated (7N03), but instead was due to a slide that occurred upstream in the watershed following a fire.

The practice that had the highest degree of impacts to water quality was dispersed recreation. Both sites evaluated had degraded vegetation in drainages and trash and/or other contamination of waterways as a result of an inability to control access to these sensitive areas. There is a project

underway at one of the sites to limit access to the stream channel, and the other site lacks personnel and funding to increase patrols and remove trash.

Part 3 Monitoring

Implementation and effectiveness monitoring for Part 3 of the LMP is conducted at the project level. Part 3 requires annual implementation monitoring of new projects and ongoing activities and sites. A sample of projects and ongoing activities were selected, evaluated for compliance with the LMP, and visited by an interdisciplinary team (IDT) to review the application and effectiveness of design criteria. If problems with documentation, or implementation were detected, or if the design criteria were determined to be ineffective, then the IDT recommended possible corrective actions. All recommendations are deliberative in nature and do not constitute a management requirement nor a commitment of funds.

The following questions were investigated for each reviewed project or ongoing activity:

- Is the project consistent with the LMP, and were LMP goals, desired conditions, and standards incorporated into the decision document?
- Were mitigations or design criteria identified from the LMP, consultations, and public input included in the decision, and implementation documents?
- Was the project implemented effectively?
- Were mitigations or design criteria effective?
- Were monitoring requirements identified and followed?

The following projects were chosen from a stratified sample of projects representing program areas and districts on the Los Padres National Forest. The Forest Plan monitoring appendix calls for a 10% random sample of new and ongoing projects. Technically, an ongoing project is one that is either implemented over a span of time or is part of a long term lease such as a range allotment but which still requires NEPA for reauthorization. A new project is one which is planned, implemented, and completed within a recent period such that the NEPA is still fresh. Projects that are a simple renewal of a permit with no change in condition or permittee typically do not present the kinds of planning and implementation issues Part 3 monitoring is trying to monitor. Therefore, these kinds of projects are not included in the sample unless there is some kind of overriding resource issue that compels examination. The LPF typically has approximately 50 ongoing and new projects in any year so the strategy is to select projects covering a range of program areas geographically distributed over the Forest. Hence, at least one project per District is selected while striving to have several major program areas represented:

Table 21: Projects selected for review

Ranger District	Project Name	Program Area	Documentation Reviewed
Santa Barbara	Tenured Recreation Residence Removal	Administrative Facility Decommissioning	NEPA documentation, Contract
Ojai	Ortega OHV Trail Maintenance	Dispersed Recreation	NEPA Documentation

Monterey	Gorda Grazing Allotment	Grazing Management	NEPA Documentation, Term Grazing Permit
Santa Lucia	Figueroa Mountain Prescribed Burn – Initial Phase	Hazardous Fuels Reduction	NEPA Documentation, Burn Plan
Mt Pinos	Pine Mountain Club	Forest Health/Hazardous Fuels Reduction	NEPA Documentation, Work Order

Tenured Recreation Residence Removal

Project Description

The objective of this project was to remove 27 buildings owned by the Forest Service. The buildings were originally part of the recreation residences program and privately owned buildings on National Forest System lands. An environmental analysis and decision completed in 1975 determined these and other recreation residences were in conflict with projected public recreation needs, and the special use for these residences was scheduled to terminate several decades later. This decision was controversial, and termination of the use was ultimately delayed by appeal and litigation. In 2005 a court ordered settlement agreement was issued that required all the buildings be relinquished to the Forest Service by 2008, after which time the buildings could be removed.

Monitoring

The Tenured Recreation Residence Removal project was analyzed under a categorical exclusion in 2009. The decision was documented in a letter to the project file after consultation with archaeology, the tribal liaison, biology, and others. Mitigations were designed into the project and were documented in the decision document, biological assessment/evaluation (BA/BE), and archaeology report. These design criteria included disconnecting utility lines and removing hazardous materials before demolition, avoiding damage to native vegetation, implementing the project outside of migratory bird and bat breeding season, and implementing pertinent best management practices (BMPs). The project area included a historic site eligible for the national registry and required the following design criteria to avoid impact: vehicular equipment were limited to rubber-tires and operated under dry soil conditions, all subsurface utilities abandoned in place and cut flush with the surrounding grade, foundations removed flush with ground surface, an archaeological monitor be present for all ground-disturbing actives, and septic tanks collapsed and filled in with off-site material. An LMP consistency check was completed for the project, but was not documented.

This project was partially funded by the American Recovery and Reinvestment Act (ARRA), and implementation occurred in several phases. The first building was removed in advance of the others on October 23, 2009 due to a law enforcement situation. The remaining 26 cabins were removed in October 2010 under contract. The final phase occurred in February 2011 with the removal of the retaining wall at the Holly Hill parcel.

The field review for this project occurred on October 6, 2011. Implementation of the project began with an assessment of each building for hazardous materials, and where identified, extraction from the building and transport to an appropriate disposal facility. The demolition contract included some, but not all of the mitigations measures designed into the project. As a result, an archaeologist was not present for ground disturbing actives that occurred at the beginning of project implementation. To install drift fencing (an erosion BMP), trenching occurred within the eligible historic site. Had an archaeologist been present for all activities as specified in the archaeology report, impact to the historic site could have been avoided. The project was halted and the contract modified to incorporate the missing design criteria. The remainder of the project was implemented without incident. The design criteria were appropriate, and when implemented achieved the desired outcome. The contractor did a great job of removing all trash and building debris from the project area. Vegetation has already begun to grow in previously occupied areas. Vegetation recovery in road and driveways will take longer.

Conclusion

This project is consistent with LMP Goal 3.1 to provide for public use and natural resource protection. This activity is also consistent with the Figueroa-Santa Ynez place based program emphasis to complete scheduled residence removals.

Most, but not all design criteria were implemented for the duration of the project. Although the decision document did note there were design criteria, it did not specify what the design criteria were nor where they could be located. Additionally, a review of the project file for the design criteria was not completed for project implementation. The archaeology report included a stipulation sheet that listed all of the archaeology mitigations, in particular, those required for work within the eligible historic site. Many of these mitigations and others were not initially recorded in the demolition contract. As a result, there was some ground disturbance that did occur within the eligible historic site resulting in an adverse impact to the integrity of that site. NEPA project documentation could be improved to avoid confusion on LMP consistency and mitigations designed into the project.

Recommendation

- NEPA team leader should ensure all resource protection design criteria are included in the decision document.
- NEPA team leader should document LMP consistency check, and reference in the decision document.
- Forest NEPA coordinator should develop a line officer checklist identifying roles and responsibilities of the NEPA team leader and implementation lead.
- The Deciding Officer should transmit a copy of the decision document to the appropriate Forest Staff Officer for tracking program accomplishments and the implementation lead for carrying out the Deciding Officer's decision.
- Implementation lead should ensure that all design criteria are identified and incorporated into the operation plan and appropriate contract clauses for the project.

- Forest NEPA coordinator will spot check NEPA decisions needing implementation plans or contracts to check for inclusion of resource protection design criteria.

Ortega OHV Trail Maintenance

Project Description

The objective of this project was to complete trail maintenance on 8.7 miles of the Ortega OHV trail. Trail maintenance activities included brushing the sides of the trail, clearing rock and slough from the trail, and repairing the trail tread using a trail tractor to re-establish the shape and function of erosion control devices.

Monitoring

This project was funded by the 2009/2010 California State Parks Off -Highway Motor Vehicle Recreation grant program. Implementation of the project was initiated in 2010, with the majority of the work occurring in 2011 until the funding was exhausted. This project began with brushing within the trail corridor in the upper portion of the trail. A trail tractor was utilized in the lower portion of the trail to re-install rolling dips and contour the trail tread to mitigate erosion potential. In a few areas, dog bones were installed across the trail on slopes susceptible to rutting from off-highway vehicles (OHV) use. A dog bone is a common term for a barbell-shaped concrete device about 4' long which creates an erosion bar when anchored by the large ends and oriented across the trail. These areas will be monitored to determine how effective this improvement is at maintaining the trail tread and minimizing erosion potential. Annual monitoring is also planned along other parts of the trail, in particular those areas with rolling dips. These water control devices need periodic maintenance to ensure the devices continue to function properly.

This project was analyzed under a program wide decision memo completed in 2007. Biological analysis was completed as part of the annual OHV grant submission. Additional project specific resource assessments for botany and archaeology were completed, and the latter documented. Design criteria included avoidance of a sensitive plant species, and BMP's to minimize erosion. LMP consistency was not documented.

Conclusion

This project is consistent with LMP Goal 3.1 to provide for public use and natural resource protection. This activity is also consistent with the Adaptive Mitigation for Recreation Uses guidelines found in Appendix D, Part 3 Design Criteria.

Overall, this project is achieving its intended objective. Maintaining outslopes and minimizing rutting is a management challenge for OHV trails. Continued work will be needed to maintain the trail surface, erosion control devices, and re-establish the original clearance limits for safe and enjoyable access.

Recommendation

- The NEPA team leader should document LMP consistency, consultations with resource specialist, and all design criteria to minimize or avoid resource impacts.
- The Deciding Officer should facilitate monitoring and maintenance of erosion control devices.
- The Forest recreation staff should assess the functionality of the dog bones and whether application should be expanded.

Gorda Grazing Allotment

Project Description

Livestock grazing on the Gorda Allotment is an on-going activity authorized through a term grazing permit. Located near Gorda, CA on the Monterey Ranger District, the Gorda Allotment is part of the coastal rangeland program. The allotment is comprised of four grazing units that are authorized to receive between 230 to 450 animal unit months per unit from approximately February 1 to August 30.

Monitoring

An environmental assessment (EA) and decision notice/finding of no significant impact (DN/FONSI) were completed in 2005. The decision to authorized livestock grazing included design criteria to protect resources in accordance with the forest plan and as stipulated by the biological opinion, BA/BE, Region 5 Memorandum of Understanding for Grazing, and national programmatic agreement. The decision included adjustments to livestock distribution to protect cultural resource areas, and management requirements to protect Smith's blue butterfly habitat and steelhead trout. A number of monitoring requirements were also incorporated to assess rangeland and resource conditions, and to determine whether management adjustments are needed. Those design criteria and resource protection measures that required adherence by the permittee were included in the term special use permit. Operating instructions are issued to the permittee as adjustments are made to allotment management.

A field review of this project was completed on October 18, 2011. With exception of the Mill Creek Unit and south pasture of the Pacific Valley Unit, all allotment units are currently being utilized for livestock grazing. An IDT visited several locations on the north pasture of the Pacific Valley Unit: a previously grazed area now excluded from livestock grazing, the livestock crossing at Prewitt Creek, and a population of seacliff buckwheat, habitat for the Smith's blue butterfly.

During the environmental review process a decision was made to exclude livestock from a portion of the north pasture adjacent to Prewitt Creek. A row of fencing was installed to close off the sensitive area, and the fence has been successful at preventing livestock access. However, since the exclusion of livestock grazing, Italian thistle, a noxious weed species, has become well established and is outcompeting more desirable plant species.

Livestock are permitted to cross Prewitt Creek up to 4 times per year. However, presently the crossing is utilized only once annually. The route livestock travel through the riparian corridor was barely discernable within the vegetative component, and waterway. Overall the riparian corridor appears healthy, supporting a diversity of plants and aquatic organisms.

A population of seacliff buckwheat adjacent to the allotment boundary with the Pacific coastline was visited. A monitoring site is located in the vicinity as stipulated in the decision. The location appears to be utilized by livestock consistent with the other areas of the allotment observed. None of the buckwheat plants inspected appeared to be targeted nor damaged by livestock.

Conclusion

The project was under analysis during the LMP revision process. As a result, the project was designed to be consistent with the 1988 and revised 2006 LMPs. The project is consistent with Goal 6.1, "move toward improved rangeland conditions as indicated by key range sites," as well as other objectives, standards, and the Big Sur place-base program emphasis found in the LMP. Livestock grazing standards have also been incorporated into the term grazing permit.

According to this review, all project design criteria and monitoring are being completed as stipulated. The design criteria appear to be effective at achieving the desired result. Rangeland condition is either at or moving toward desired conditions for areas currently being grazed by livestock. A noxious weed management challenge exists for some areas that either receive very limited grazing or none at all. In some of these locations thick concentrations of weeds have developed.

Recommendation

- Continue to manage the allotment consistent with the DN.
- Complete an updated Proper Functioning Condition assessment on selected streams as stipulated in the DN.
- Update LMP consistency to ensure all applicable land management plan standards are incorporated into allotment management.
- Develop a strategy to reduce the Italian thistle noxious weed concentration within the Pacific Valley Unit where livestock grazing no longer occurs.
- For future decision documents, include the specific management requirements from biological reports, rather than incorporating by reference.

Figueroa Mountain Prescribed Burn – Initial Phase

Project Description

The objective of the Figueroa Mountain Project is to protect the Figueroa Mountain Recreation Area and adjacent private property from stand-replacing wildfires by restoring the health of the existing mature conifers and oaks. This project consists of 4 treatment blocks in which the initial treatment phase generally includes thinning through mechanical and hand methods, followed by an initial broadcast burn treatment. The intent of this phase is to move the project area toward forest health and fire intensity desired conditions. The second phase consists of maintenance treatments (broadcast fires, mechanical and/or hand thinning) intended to maintain the desired vegetation conditions achieved during the initial phase, and to further reduce fuel loading and ladder fuels where needed. This monitoring effort

evaluated the implementation and effectiveness of the prescribed broadcast burn treatment completed in the initial treatment phase in 2010.

Monitoring

The Figueroa prescribed burn activity was analyzed in an EA completed on September 13, 2006. The DN included a FONSI, and design criteria for the following resource areas: silviculture, fuels/air quality, heritage, recreation, visuals/scenic, noxious weeds, wildlife, botany/threatened, endangered, sensitive (TES) plants, watershed, and soils. Not all design criteria listed were relevant to the prescribed burning activity. A supplement to the decision was completed on August 14, 2008 to provide clarification on how and where masticators would be utilized in the project area.

The prescribed burn was initiated on November 16, 2010, and occurred within an 8-acre stand in block A. A burn plan was completed for the activity, and included protection measures, such as notification of the local Air Resources Board, that are standard for most burn plans. However, the protection measures from this decision and applicable to the prescribed burn were not included in the burn plan. It was stated that the decision with its protection measures had been provided to the burn boss and other fuels personnel. During the previous year, the stand had been pre-treated with masticators to reduce the understory brush and ladder fuel component. Vegetation was left adjacent to Figueroa Mountain Road to maintain shading and screening. The intent of the burn was to consume the masticated material and other ground level biomass at a low-moderate burn intensity to reduce the fuel component while also protecting the overstory forest.

An IDT completed a field review of this prescribed burn project on October 19, 2011. Overall, the 8-acre stand is at or moving toward desired conditions. The masticator operators did a great job of targeting the brush understory, while also protecting trees over 4 inches in diameter. The prescribed burn achieved most of the criteria established for the project. Some of the roadside screening was consumed in the burn, though it is not clear if the visual intent of the screening was compromised. The burn was maintained at the desired intensity within the understory of the stand achieving the targeted fuel consumption while also protecting the overstory. Most of the monitoring activities have been considered as stated in the decision notice.

Conclusion

This project is consistent with LMP Goal 1.2.1 to “reduce the potential for widespread losses of montane conifer forest caused by severe, extensive, stand replacing fires.” It contributes to the goals in the LMP for Forest Health, as described in Part 2, Program Strategies and Tactics, Restoration of Forest Health. This activity is also consistent with the program emphasis for the Figueroa-Santa Ynez Place to “conduct prescribed fire and fuel treatment projects to maintain diverse vegetation, improve watershed conditions, and minimize large-scale wildland fire.”

Most of the design criteria applicable to the prescribed burn project were implemented successfully. Improvements could be made in how adherence is documented to ensure all criteria are implemented, such as inclusion in the burn plan. Site specificity on where vegetative screening should be retained,

and how to mitigate treatment impact to the screening, should be identified. The application of SPORAX was analyzed in the EA and should be implemented as one of the protection measures. However, it was revealed that there is an apparent shortage of personnel who are certified for application of SPORAX.

Of all the monitoring detailed in the Decision Notice the two items not yet monitored are noxious weed monitoring and BMP verification.

Recommendation

- District Ranger ensures that project design features are carried forward into implementation (i.e. burn plan).
- Project leader concurs with district recreation staff on site specific locations for vegetative screening adjacent to campground, recreation residences, and Figueroa Mountain Road.
- District Resource Officer monitors for noxious weeds after project activities.
- District Resource Officer verifies implementation of BMPs; include specific and applicable BMP's in implementation documents (i.e. burn plan).
- Implementation leader completes maintenance treatments as needed to move toward or to maintain desired conditions.

Pine Mountain Club

Project Description

The objective of the Pine Mountain Club Project is to reduce fire risk to the community of Pine Mountain Club, reduce risk of insect and disease mortality, maintain health of mature conifers, and protect high value recreation areas by reducing fuel loads. The project area includes 1,865 acres, seven different treatment blocks, and is partially within the Wildland Urban Defense Zone and Inventoried Roadless Area. Three of the seven treatment blocks (B, C, F) will be managed to create a shaded fuel break condition. Treatment will be achieved using chainsaw thinning techniques, a masticator where appropriate, and maintained primarily through broadcast burning. The four remaining treatment blocks (A, D, E, G) will be managed to improve forest health, reduce disease, and reduce fuels. Primary treatments for the four areas differ, and may include broadcast burning, mechanical means, and hand thinning techniques.

Monitoring

This project was analyzed in an EA completed on January 22, 2008. The DN included a FONSI, and design criteria for the following resource area: silviculture, fuels/air quality, heritage, recreation, scenery, noxious weeds, wildlife, botany/TES plants, watershed, and soils. A revised wildlife BA was completed in October 21, 2010 to respond to new information regarding the behavior of the California condor in the project area. The BA includes design criteria for blocks A, B, and C. Current implementation documentation includes a work order for mastication and hand thinning activities, and burn plan for prescribed fire applications. The burn boss is briefed on the project design criteria, and the project lead also provides oversight for mastication and had thinning activities to ensure implementation of design criteria. In addition, each respective group is given a copy of the DN.

The field review for this project occurred on October 21, 2011. At the time of the review, blocks D and F had received extensive treatment, blocks G and E minimal treatment, and blocks A, B, and C no treatment. The IDT visited block F, which is managed as a shaded fuel break adjacent to the Pine Mountain Club Subdivision. This block had received hand thinning and mastication treatments 2 years prior. The portion of the fuel break near the highway had a high brush component, and will need successive mastication treatments to maintain the fuel break. Cheat grass, a noxious weed species, has reacted favorably to the disturbance and was prevalent in that portion of the fuel break. Future treatments here should consider how to mitigate growth and spread of cheat grass. Another location of the fuel break was visited further off the highway. This location had higher tree densities than the previous location. The IDT observed a small area on the west side of the fuel break that did not receive treatment, and was retained as a natural vegetative island. Trees that were thinned by hand were treated with SPORAX to combat annosus root disease infection.

A location in block D off the Cerro Noroeste Road near Apache Saddle Fire Station was also visited. The prescription for block D was to complete understory thinning and reduce tree crown densities. The area was treated by masticator 1 year prior. On one side of the road a vegetative screen was retained to meet visual objectives for Camp Condor. Within the treatment area several bunches of cheat grass were observed.

Conclusion

The Pine Mountain Club project is consistent with LMP Goal 1.1 "improve the ability of southern California communities to limit loss of life and property and recover from the high intensity wildland fires that are a natural part of this state's ecosystem," Goal 1.2 "restore forest health where alteration of natural fire regimes have put human and natural resource values at risk," and Goal 1.2.1 to "reduce the potential for widespread losses of montane conifer forest caused by severe, extensive, stand replacing fires." It contributes to the goals in the LMP for Forest Health, and Fire as described in Part 2, Program Strategies and Tactics, Restoration of Forest Health, Insect and Disease Management, and Direct Community Protection. This activity is also consistent with the program emphasis for the Mt. Pinos Place to maintain the big tree appearance of Jeffrey pine forest through vegetation treatments that reduce stand densification problems, and to actively manage vegetation to maintain healthy conifer stands and protect communities.

Implementation of this project is ongoing. Of the six treatment blocks only two have received extensive initial treatments. Those blocks that have been treated are moving toward desired conditions. Additional treatments will be needed in some locations to achieve the desired vegetation densities and composition, and successive treatments will occur to maintain the desired condition. Implementation of design criteria and monitoring of the treated areas is occurring. Noxious weed growth was anticipated and will require continued monitoring and treatment to control and reduce. Design criteria are realistic, applicable, and appear to be achieving the intended result.

Recommendation

- Botanist input on noxious weeds, and an updated survey for sensitive plants are needed.

- Apply design criteria NX-2 to identified cheat grass plants in block D; develop treatment strategy for cheat grass infestation in portions of block F.
- Identify the specific BMPs applicable to the project, and document.
- Continue to implement design criteria for all project related activities. Continue to work with heavy equipment operators, hand crews, and prescribed burn crews to ensure implementation of design criteria.
- Document monitoring efforts for the project and include in project file.
- Continue to monitor the temporary road in block F for inappropriate use.
- When implementation begins in blocks A, B, and C, ensure California condor resource protection measures are followed.

Overall Recommendations

- Table 3-3 of Appendix C of Part 3 in the LMP identifies Goals 1.2.1, 1.2.2, 1.2.3 as Vegetation Condition. This definition of the Goal is not consistent with Part 1 of the LMP, and Table 3-3 of Appendix C of Part 3, LMP should be updated to reflect the definition of Goal 1.2.1: Restoration of Forest Health in Fire Regime I; Goal 1.2.2: Restoration of Forest Health in Fire Regime IV; and Goal 1.2.3: Restoration of Forest Health in Fire Regime V.
- For Goal 2.1, the Forest has not been able to complete an inventory of invasive plants and animals over the monitoring period and therefore is not able to report if management is moving toward desired conditions. The LMP should be updated to change the outcome evaluation question for Goal 2.1: Invasive Species. The new question would use the aggregated effectiveness of treatments over the five year monitoring period to measure the Forest's progress at moving toward desired conditions.
- To be consistent with the other Goals, Goal 4.1a: Mineral and Energy Development should be amended to Goal 4.1: Energy Transmission and Production, and Mineral Development. The addition of Energy Transmission better reflects the use on the Forest, and the evaluation will indicate if the Forest is moving toward desired conditions.
- Table 3-3 of Appendix C of Part 3 in the LMP identifies Goal 4.2 as Energy Infrastructure Support. Energy infrastructure support would be covered by the re-definition of Goal 4.1 in the recommendation above. The LMP should be updated to remove the definition of Goal 4.2 as Energy Infrastructure Support, and replace it with Renewable Resource Energy Development as the new Goal 4.2.
- The LMP should be updated to change the outcome evaluation question for Goal 5.2 - Riparian Condition. Clean Water Act 303d listings are based on water quality constituent data and an assessment of beneficial uses, which are not a good surrogate or indicator of riparian conditions. The use of the aquatic habitat, aquatic biota, and riparian/wetland vegetation indicators from the Watershed Condition Framework (WCF) provide a better picture of riparian condition. The measuring indicator for the monitoring question thus becomes the changing trend over time of the averaged scores of the WCF indicators noted above.

LMP Amendments

The LMP is a dynamic document that can be amended in response to:

- Errors and or discrepancies found during implementation;
- New information;
- Changes in physical conditions;
- New laws, regulations, or policies that affect National Forest management;
- New guidance indicated by application of adaptive management principles.

Significant LMP amendments change guidance or management zoning which, because the LMP is a NEPA document, requires NEPA. This is done by project NEPA which amends the LMP as part of the project decision or directly in a supplemental EIS. Non-significant changes not requiring NEPA include corrections; clarification of intent; changes to monitoring questions; and refinements of management area boundaries to correct GIS inaccuracies. These are simply updates that are posted to the LMP and made public through such means as publishing on the Forest website as is the case for this document.

From the recommendations above, no amendments are needed other than updates.

Public Participation

The 2010 Los Padres National Forest Land Management Plan Monitoring, Evaluation, & Trend Report is posted on the Forest website.

List of Preparers

The following individuals participated in the completion of this report either as Parts 1 and 2 contributors of program area assessments or as team members in Part 3 project field reviews:

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