United States Department of Agriculture

Forest Service
Pacific Southwest Region

October 2012

Angeles National Forest Fiscal Year 2011

Land Management Plan

Monitoring and Evaluation Report

Photo Credit: USDA Forest Service, Angeles National Forest

October 2012

Dear Forest Stakeholders:

I am pleased to present the Angeles National Forest's Monitoring and Evaluation Report for activities and actions implemented in fiscal year 2011. Monitoring occurred during fiscal year 2011 (October 2010 through September 2011) while projects were being implemented, or after they were completed. The purpose of the Monitoring and Evaluation Report is to determine if plans, projects and activities are implemented as designed and in compliance with the Land Management Plan; evaluate Plan effectiveness relative to species and habitats and the principles of adaptive management; and help identify if future Plan changes are needed.

In April 2006, the revised Angeles National Forest Land Management Plan was approved. In the Record of Decision, monitoring is emphasized and identified as a key element in all programs to assure the achievement of desired conditions over time.

This report summarizes monitoring efforts conducted in the fourth full year of implementing the revised plan. The fifth year monitoring report will address questions designed to evaluate progress toward achieving the Forest's desired conditions.

It is important to me to keep you informed of the results of our monitoring. This Monitoring and Evaluation Report will be posted on our Forest website at **http://www.fs.fed.us/r5/angeles/**. If you are interested in becoming involved in our planning process, please see our national website to review current projects and activities under evaluation (**http://www.fs.fed.us/sopa/**).

Sincerely,

Thomas A. Contreras
Forest Supervisor
Angeles National Forest

Angeles National Forest
Land Management Plan
Monitoring and Evaluation Report
For Fiscal Year 2011

Table of Contents

Angeles National Forest Land Management Plan Monitoring and Evaluation Report - 2011

I. Introduction

This Monitoring and Evaluation Report documents the evaluation of projects randomly selected from projects that were implemented during the previous fiscal year (FY), in this case FY 2011 (October 1, 2010 through September 30, 2011).

The revised Angeles National Forest (ANF) Land Management Plan (LMP) went into effect October 1, 2005. Projects with decisions signed after this date must comply with direction in the revised plan. Decisions approved prior to this date that are not under contract or permit but continue to be implemented in phases are also expected to be consistent with the revised plan. This report documents the evaluation of activities and the interpretation of monitoring data to determine the effectiveness of the LMP and addresses whether changes in the plan, or in project or program implementation, are necessary.

II. Methodology

Monitoring for the ANF LMP is described in all parts of the plan. The monitoring requirements are summarized in LMP Part 3, Appendix C. The draft Angeles Monitoring Guide further details the protocols that were used in this review. Our monitoring reflects the use of a new mapping protocol to determine fuels treatment effectiveness. The fire return interval departure (FRID) mapping reflects the ecologists' review of scientific literature, historic and current records of wildfires, and mapping of Fire Regimes and Condition Classes for the Pacific Southwest Region of the Forest Service. Roads monitoring is conducted in compliance with a national roads monitoring protocol. Finally, the monitoring approach is adjusted to reflect that the Region plans for a vegetation snapshot every ten years. The draft guide is available to the public upon request to the Forest.

In Part 1, the LMP identifies outcome questions that will help to evaluate movement toward the desired conditions over the long-term. The monitoring guide describes the baseline data that will be used to answer these questions and evaluate our progress toward achieving desired conditions over time. A comprehensive evaluation of our progress will be prepared in the fifth year following plan implementation.

Corporate databases track accomplishment of work related to objectives and strategies as listed in Part 2 of the LMP. This information is available upon request from the ANF, and details will be included in next year's 5-year trend monitoring report.

Implementation and effectiveness monitoring for Part 3 of the LMP was conducted at the project or activity level. A ten percent sample of projects and ongoing activities was randomly selected 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, then corrective actions were recommended in this report.

The Forest asked the following questions of each reviewed project or ongoing activity:

1. **Did we accomplish what we set out to do?** We compared expected results to the actual results achieved in responding to this question. Specifically we looked at:

   - whether LMP goals, desired conditions and standards were incorporated into operational plans (i.e. burn plans, facility master plans, etc.);
   - whether NEPA mitigation measures or LMP project design criteria carried through implementation as designed;
   - whether requirements from biological assessments and evaluations; archaeological resource reports; and watershed assessments were implemented according to prescription;
   - whether projects and activities were reviewed in light of legal and other requirements (such as LMP consistency reviews); and
   - whether operational controls were effective at protecting the environment as anticipated.

   In cases where actual project/program/action resulted in outcomes that were different than expected, we looked for cause and identified deficiencies. Where outcomes were consistent with expectations, we identified what actions lead to success.

2. **Why did it happen?** In evaluating effectiveness, we looked at whether project design criteria were effective at improving environmental conditions as expected. We sought out underlying cause-and-effect relationships that were not dependent on human performance or behavior.

3. **What are we going to do next time?** We also looked at what activities should be continued to sustain success and identified changes that are necessary to correct implementation or deficiencies in effectiveness. Where we determined that change was needed, we evaluated whether an amendment or administrative correction to the Land Management Plan was necessary.

We documented the results, conclusions, and recommendations of our review in this annual LMP Monitoring and Evaluation Report.

III. Land Management Plan Monitoring and Evaluation of Projects, Activities, and Programs

In accordance with the methodology described in the draft monitoring guide, we randomly selected ten percent of new projects or ongoing activity sites for each type of activity for review. We list the fiscal year 2011 projects and activities selected for review in Table 1.

Table 1. Angeles National Forest projects and activities selected for LMP monitoring and evaluation.

Ranger District *	Name	Project Type	Reviews Conducted
Los Angeles	Charlton / Chilao Hazardous Fuels Reduction	Vegetation/Fuels Management	Project file, Correspondence with Project Lead
San Gabriel	Mt. Baldy Fuels Project	Vegetation / Fuels Management	Correspondence with Project Lead
San Gabriel	Cottontail Plantation	Vegetation / Fuels Management	Project File review and correspondence with Project Lead
Los Angeles	Station Fire Reforestation	Reforestation	Project file, interview with Resource Officer
San Gabriel	Crystal Lake Campground Tree Planting	Recreation Site Improvement	Project File review and correspondence with Project Lead
San Gabriel	San Gabriel Canyon OHV Site Improvements	Recreation Management	NEPA documentation, project file
Santa Clara/ Mojave and Los Angeles	Project Name: Santa Clara Divide (3N17) slide repair	Road Maintenance	Correspondence with Project Lead
Santa Clara/Mojave	Largo Vista Fire BAER Implementation – Invasive Plant Survey and Removal	BAER Implementation / Rare Plants	BAER plan, project file

FUELS PROJECTS / VEGETATION IMPROVEMENT PROJECTS:

Project Name: Charlton / Chilao Hazardous Fuels Reduction

Project Description and Monitoring: The Charlton/ Chilao hazardous fuels project is located off the Angeles Crest Scenic Byway (State Highway 2), northwest of the San Gabriel Wilderness (Devils Canyon). This treatment provides for defensible space around structures/site improvements, reduce the risk of loss of human life, and natural resources from wildland fire in this high recreation-valued area. Both public and private facilities are located within the project area.

Vegetations was thinned and piled for burning.

Result: The project was implemented as planned. Forest Resources staff was involved in application of the LMP standards, and visited the treatment sites during implementation to ensure all recommended measures were followed. The project successfully reduced fuel loading while protecting sensitive resources.

Conclusions: The project contributed to achieving desired conditions in LMP Goal 1.1, and 1.2 by protecting both public and private resources and contributing to forest health. The completion of this project helps prevent crown fires from spread between large trees while retaining the recreational value of the Charlton / Chilao area.

Recommendations: Continue to give priority to fuels treatments nearest to communities that enhance the ability to protect them. To sustain success, maintain the project over time by continuing to gather/chip woody material as necessary. Selling firewood or likewise increasing biomass utilization is encouraged. Coordination with local Air Quality Districts should continue to ensure that impacts to air quality are minimized.

Pile burning being conducted during the Charlton / Chilao Hazardous Fuels Reduction project.

Project Name: Mt. Baldy Hazardous Fuels Reduction

Project Description and Monitoring: The Mt. Baldy Village (population approximately 800) is comprised of private inholdings, Forest Service facilities, and multiple special use permit facilities for various recreational purposes including; summer cabin residents, convenience store, lodges and a ski resort. Due to the fuel build-up, dry conditions and crowded vegetation in the area, the Mt. Baldy community was vulnerable to losing private facilities, recreation sites and high-valued conifer stands. There was a need to reduce the risk of a catastrophic wildfire, provide a safety zone for firefighters, attain desired ecological conditions, provide community protection and enhance fire suppression operations in the future.

Results: Fuel loading was reduced around private property and public lands.

Conclusions: This project contributed to achieving desired conditions in LMP Goal 1.1, and 1.2 by protecting both public and private resources and contributing to forest health.

Recommendations: Continue to monitor regrowth of vegetation after treatment to determine if additional treatments are needed in the near future.

Project Name: Cottontail Hazardous Fuels Reduction

Project Description/Monitoring: Lack of management activity in this area led to the invasion of brush species into the tree stands. This created a situation where a future fire could spread rapidly and at high intensity, damaging the residual stands. This plantation was damaged by wildfires in 1999, 1960, and 1924; and was threatened by an additional four wildfires which were contained before entering the plantation. The purpose of the project was to increase the resistance of the stands to the effects of fire, improve wildlife habitat, improve health and vigor of the natural stands and assure the long term retention of these features on the landscape of the forest. A portion of this area now serves as a gene bank to maintain genetic diversity in Coulter pines.

Specific activities consisted of: mortality removal, thinning, pruning, hand clearing (release), prescribed fire burning, planting and chipping.

Results: The Cottontail Plantation is now protected from a stand replacing fire.

Conclusion: Treating this site allows for increased protection of the trees established within the plantation. This project contributed to achieving desired conditions in LMP Goal 1.2 by contributing to forest health.

Recommendations: Give priority to fuels treatments nearest to communities that enhance the ability to protect them rather than plantations. To maintain the improved condition within this plantation, gather/chip woody material and sell to the public. This site has easy access for firewood sales to the public and has been used as such in the past.

REFORESTATION ACTIVITIES:

Project Name: Station Fire Reforestation

Project Description/Monitoring: In 2009, the Station Fire burned over 161,000 acres of the Angeles National Forest. Based on a Post-Fire Assessment, it was determined that close to 36,000 acres of tree-dominated vegetation types were burned. Of these tree dominated burned acres, around 24,000 acres were determined to be in a deforested condition with little to no post-fire tree survival. The Angeles National Forest took part in a carbon sequestration demonstration to address the deforestation caused by this large wildfire. Funding for this project was obtained by partnerships between the National Forest Foundation (NFF) and South Coast Air Quality Management District (SCAQMD). The goal of this project was to accelerate establishment of ecological appropriate forest cover through planting of areas that will not regenerate naturally, while establishing a minimum of 75-100 trees per acre. As well as allow for natural regeneration to take place in areas that were not determined to be in a deforested condition while maintaining tree species diversity and composition that occurs naturally in the area.

Results: Between 3/8/11 and 4/20/11 a total of 912,649 trees were planted on 4,306 acres in 2011. Based on data from survival exams conducted in the late summer of 2011 approximately 50 trees per acre surviving at the end of the first growing season. All planted species were native to the Angeles National Forest , species mix composition was 47% Coulter pine, 28.5% ponderosa pine, 24% big cone Douglas fir, and 0.5% Jeffrey pine. Overall average tree planting density was 212 trees per acre with the objective of having at least 75-100 trees per acre at the end of 5 years. Survival rates for the 2011 planting season were around 25%, lack of soil moisture was the overall reason for seedling mortality.

Conclusions: Bench marks for tree survival in the Station Fire Reforestation project were not met in the 2011 planting year due to climatic conditions. However, this is a multi-year project and better success may be attained in the following years. This reforestation project works towards meeting the LMP goal of 1.2.

Recommendations: Continue to implement the remainder of the reforestation project. Additional planting may increase the survival rate as the 2011 planting season was exceptionally dry.

Left: A contractor planting a tree.

Right: A volunteer using a planting bar to plant a tree.

RECREATION PROJECTS AND ONGOING ACTIVITIES:

Project Name: Crystal Lake Campground Tree Planting

Project Description/Monitoring: The Crystal Lake Campground has been impacted by both wildfire and bark beetle infestations. This has caused high mortality rates to the high value trees in the campground vicinity. A reduction in trees within the campground could lead to less recreational visitor satisfaction. Volunteers planted 80 acres of various tree species within the campground, this project complimented earlier bark beetle pest control treatments.

Volunteers planted trees ranging from 3 – 5 years of age. These trees where cared for in a nearby nursery within the forest to allow for trees to acclimate to local conditions and improve survival rates when planted.

Results: Many of the trees planted by volunteers are surviving. These trees will enhance the visitor's experience when trees reach maturity. Volunteers from local communities are becoming engaged in forest management through this project. In addition volunteers are taught the core principles in properly planting trees.

Conclusions: The project successfully added increased recreational value to a highly visited recreational facility. This project was in alignment with LMP Goal 3.1, Provide for Public Use and Natural Resource Protection.

Recommendations: Continue to utilize volunteer groups to enhance the Crystal Lake Campground through tree planting.

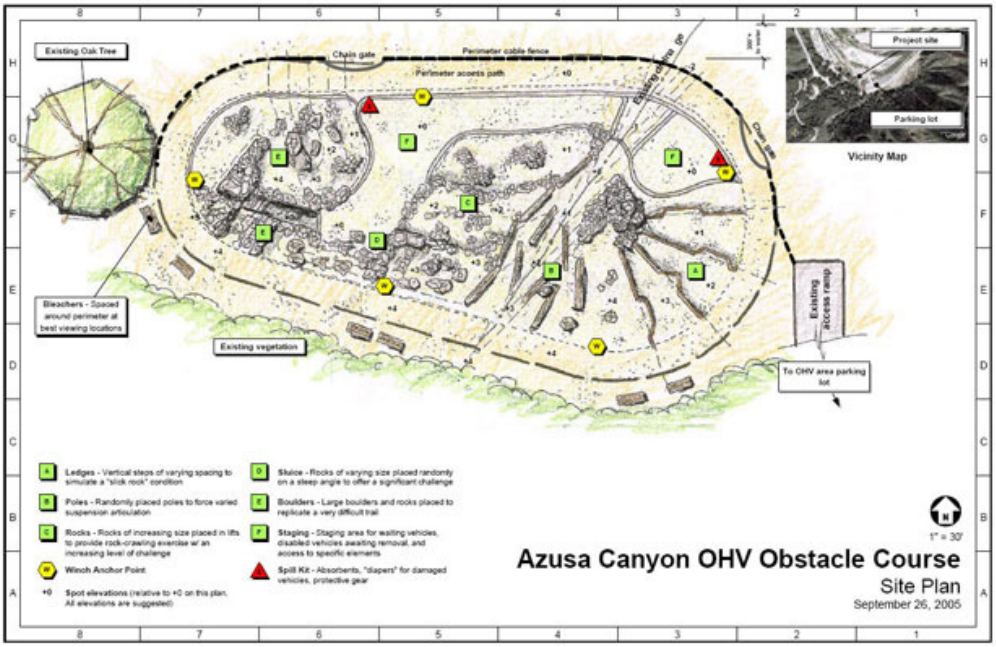
Project Name: San Gabriel Canyon OHV Site Improvements

Project Description and Monitoring: The San Gabriel Canyon OHV site is a popular OHV destination of southern California. Through the help of a local non-profit, the OHV site underwent construction to build a new OHV obstacle training area. This site is adjacent to the OVH parking and trail entrance area. The purpose of this facility is to offer a safe environment for training new OHV riders to trail challenges. This OHV facility improvement was done in conjunction with a local non-profit OHV group.

Results: When implemented, the project will provide enhanced facilities for OHV recreationists, and will minimize impacts by keeping recreational facilities in their existing footprints as opposed to expanding them.

Conclusions: This project will contribute to meeting desired conditions in LMP Goal 3.1 (Provide for Public Use and Natural Resource Protection). Demand for OHV recreation opportunities continues to grow and the ability to provide new riding areas is limited, making the maintenance and improvement of existing areas like San Gabriel Canyon OHV important.

Recommendations: Continue to look for opportunities to improve existing recreation facilities before developing new ones. Look to the State OHV grant program and non-profit groups for continued partner funding.



A conceptual drawing of the San Gabriel Canyon OHV site improvement.

Early construction stage of the San Gabriel Canyon OHV obstacle course project.

ROADS PROJECTS OR MAINTENANCE:

Project Name: Santa Clara Divide (3N17) slide repair

Monitoring: This is a road maintenance project completed by a contractor. The focus of the work was to repair two slides in the road surface to keep the road within its Objective Maintenance Level (OML), and to prevent further erosion and sediment flow into the watershed. The site was visited before implementation by various specialists to ensure the proposed work will not adversely affect resources. All work occurred in the existing road prism.

Results: The road was maintained within agency guidelines for its Objective Maintenance Level (OML). Watershed conditions will be improved by maintaining proper drainage and preventing sediment flow into it. The road will be kept open for public use by minimizing the potential for damaging washouts. Resource values were maintained.

Conclusions: Proper road maintenance contributes to achieving the desired conditions in LMP Goal 3.1 – Provide for Public Use and Natural Resource Protection.

Recommendations: Continue to maintain roads as budgets allow within the appropriate Objective Maintenance Level (OML) guidelines. Keep the Heritage program involved in road maintenance project reviews as many roads cross archeological resources.

WATERSHED STABILIZATION – EMERGENCY:

Project Name: Largo Vista Fire Burned Area Emergency Response (BAER) Implementation – Invasive Plant Survey and Removal

Monitoring: BAER is a Forest Service program designed to protect life, property, water quality, and deteriorated ecosystems from further damage from flooding in the initial year(s) after the fire is out. BAER seeks to reduce watershed damage from flooding or landslides that can occur due to the land being temporarily exposed in a fragile condition. A BAER team assesses the area and recommends treatments, looking for opportunities to mitigate potential impacts to downstream values including infrastructure and critical wildlife, plant and fisheries habitat.

The Largo Vista fire reached 100 acres before containment. This fire was in a Pinyon Pine ecosystem with many populations of the Forest Service listed sensitive plant of *Opuntia basilaris* v. *brachyclada*. This area had no prior record of wildfire activity. Following the fire nearly 90 of the 100 acres where heavily infested with tumble mustard. Tumble mustard was eradicated using the hand pulling method. Once pulled, weeds were tarped to solarize any seeds that may have been viable. Both volunteers and the Fenner L.A. County Corrections crews were used to complete this project.

Results: This project removed approximately 90% of tumble mustard individuals over the burned area. The Fenner L.A. County Corrections crews completed nearly 1,600 hours of restoration within the Largo Vista fire area.

Conclusions: Invasive plant removal from the Largo Vista fire site allows for recovery in an otherwise undisturbed ecosystem. The weed survey was consistent with goal 2.1 to reduce impairment of natural communities from invasive species. This project also allows for a healthy habitat for the Forest Service listed sensitive plant of *Opuntia basilaris* v. *brachyclada* to recover.

Recommendations: A seed source may still remain banked in the surrounding soil, therefore follow up monitoring and treatment are necessary during subsequent years in order to control, contain and eventually eradicate these invasions throughout time. The results of the removal and solarization will be monitored in the spring of 2012.

One of the Forest Service listed sensitive plants of *Opuntia basilaris v. brachyclada burned in the Largo Vista Fire.*

IV. Annual Indicators of Progress Toward Forest Goals

This section documents the monitoring of indicators of progress toward achieving the desired conditions described in the ANF LMP. Tracking such indicators will help us to identify trends over time and will support our comprehensive evaluation that will be prepared in the fifth year following plan implementation. Information below is presented for goals listed in Part 1 of the LMP.

Forest Goal 1.1:

Forest Goal	Activity, Practice Or Effect To Be Measured	Monitoring Question
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 part of this state's ecosystem.	Vegetation Treatments in WUI	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?

Background on this Forest Goal

The ANF began updating mapping of WUI Defense Zones for structures on adjacent private lands in 2010 and carried into fiscal year 2011. These are sites where treatment would need to occur on NF as well as private lands to protect the structure. Mapping was updated by manual digitizing using current aerial photography to locate individual structures. A revised total of Defense Zone acres will be included in the comprehensive 5-year review to be completed next year.

Indicators of progress toward Goal 1.1 were calculated by using the WUI defense zone from the LMP analysis database. Adjustments to this coverage based on documented project analysis or other monitoring may be made, but as described above, were not completed in fiscal year 2010. Accomplishment polygons were selected from the Forest Activity Tracking System (FACTS) for accomplishment codes for hazardous fuels reduction for fiscal year 2011. The number of acres of treatments (accomplishment polygons from FACTS) that occur within defense zones is the annual indicator of progress toward the desired condition, as shown in Table 2. Every five years the number of high hazard acres within the defense zone should be calculated to use for documenting the trend as a long-term indicator. Acres documented as being treated in the corporate reporting system can be assumed to no longer be considered a high hazard.

In 2011, we reported a total of 1,655 acres of hazardous fuel treatments as accomplished. The LMP identifies a more specific indicator focused on measuring progress toward increasing the level of the ANF fuels program in the Wildland-urban interface (WUI) "*defense zone"* directly adjacent to communities. The LMP defined this defense zone as that portion of the WUI that is directly adjacent to structures and evacuation routes (LMP, Part 3, pg. 5, Standard S7; LMP, Appendix K). The LMP also provided a maximum width for the defense zone by general vegetation type.

Map 1: Fuels Treatment Areas on the Angeles National Forest for fiscal year 2011

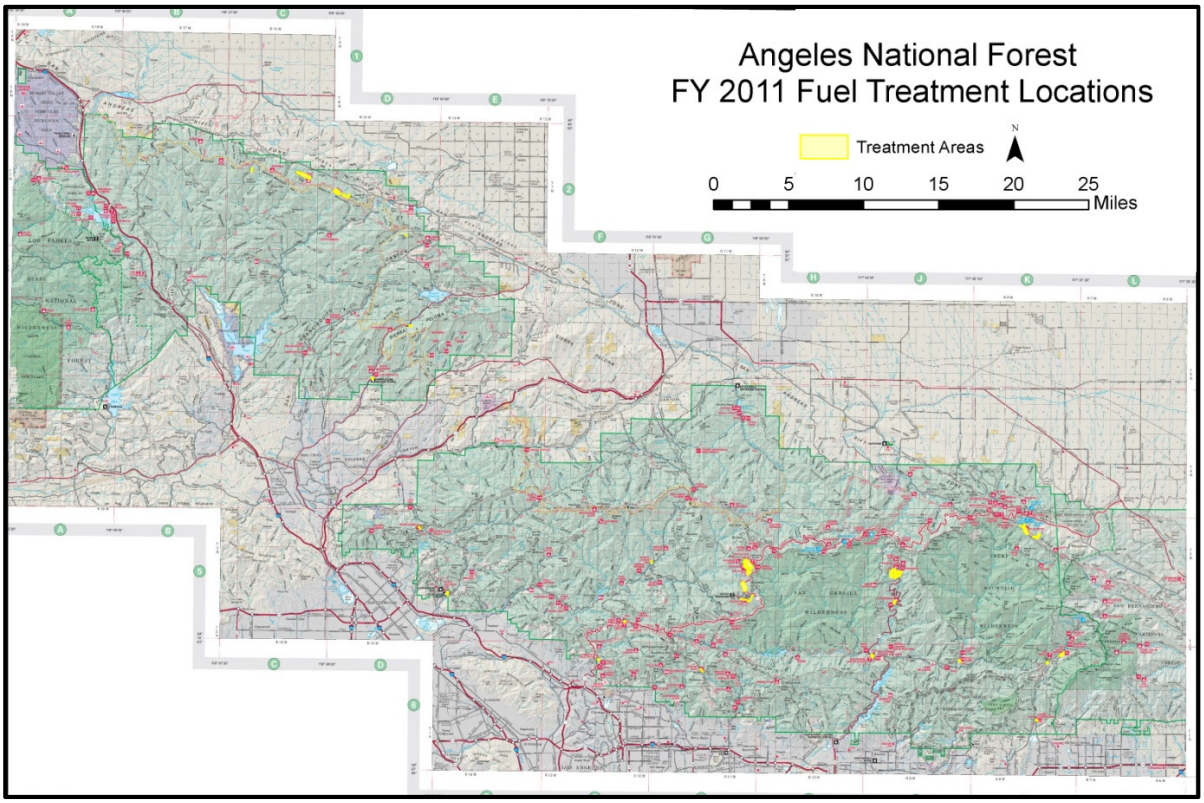


Table 2: WUI Defense Zone vs. Estimated Acres of fuels reduction treatment

Baseline acres of Defense Zone	Acres treated fiscal year 2011
Total: 9,309 acres*	1,655

*Source: LMP Final EIS

The ANF focused its vegetation treatments for fiscal year 2011 in the WUI Defense Zone, public facilities, and Forest Service facilities. The primary methods of treatment were chipping, piling of fuels, burning of piled material, rearrangement of fuels, thinning and pruning, and compacting/crushing.

The forest has made progress toward reducing acres at high risk by continuing to focus treatments on the WUI Defense Zone. The comprehensive 5-year report to be prepared next year will look at the trends over time in relation to fires that have occurred since the plan was adopted.

Forest Goal 1.2:

In 2010, the fire regime condition class monitoring indicator was updated using new mapping procedures. This indicator gauges departure from a natural fire return interval. In the new GIS maps, information is provided on presumed fire return intervals from the period preceding Euroamerican settlement ("presettlement") and for contemporary fire return intervals, and comparisons are made between the two.

Current differences between presettlement and contemporary fire return intervals are calculated based on mean, maximum, and minimum values. The information was compiled from the fire history literature, expert opinion, data collection, and vegetation modeling. The CDF-FRAP fire history database was used for characterizing current fire regimes. The vegetation type stratification was based on the 1996 CALVEG map (USDA-Forest Service Remote Sensing Lab) for the four national forests in southern California.

For data limitations in these datasets, see CALVEG mapping metadata (http://www.fs.fed.us/r5/rsl/clearinghouse/data.shtml) and California fire history database metadata (http://www.frap.cdf.ca.gov/data/frapgisdata/select.asp).

Table 3 (On next page) displays the baseline status as of 2010 for departures from the mean fire return intervals. Efforts to update and refine this data and the methodologies used to derive it are part of the Landfire program, and are ongoing. Some forest specific edits to the data have occurred to capture effects of wildfires in fiscal year 2009, these efforts are ongoing also, and updates based on more accurate data will be noted in future LMP monitoring reports. Landfire is a national program, producing national scale data, which presents many limitations for interpretation at a local scale. To review information on this program, including some of these limitations, please visit: http://www.landfire.gov/documents_frcc.php

Condition Class definitions are:

- Condition Class 1 - Fire regimes are within a historical range (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.

Table 3: 2011 baseline status for departure from natural fire return interval

Condition class	Acres
1	190,426
2	336,641
3	90,960
Unlcassified	46,200
Total	**664,227***

*Total is greater than reported in previous LMP Analysis reports due to inclusion of surface water features and private lands within the forest.

Forest Goal 1.2.1:

Goal Code	Forest Goal	Activity, Practice Or Effect To Be Measured	Monitoring Question
1.2.1	Reduce the potential for widespread losses of montane conifer forests caused by severe, extensive, stand replacing fires.	Vegetation Condition	Is the forest making progress toward increasing the percentage of montane conifer forests in Condition Class 1?

Updates to Condition Class mapping were not completed during fiscal year 2011. The monitoring question will be directly answered in future LMP monitoring reports as data showing the trends in condition class becomes available.

In fiscal year 2011, a total of 618 acres of treatment occurred in forested areas. These treatments were taken from the FACTS database for Timber/Silviculture Activities. Unlike the acres reported under Goal 1.1, the goal of these treatments was to enhance forest health, not necessarily to reduce hazardous fuels. In reality, projects often accomplish both. Treatment methods included: pruning, site preparation, precommercial thinning, tree planting, and disease control.

Forest Goal 1.2.2:

Goal Code	Forest Goal	Activity, Practice Or Effect To Be Measured	Monitoring Question
1.2.2	Reduce the number of acres at risk from excessively frequent fires while improving defensible space around communities.	Vegetation Condition	Is the forest making progress toward maintaining or increasing the percentage of chaparral and coastal sage scrub in Condition Class 1?

As shown in table 3 above, the updated mapping of condition classes shows that, 64% of the forest land area was at moderate to high risk of type conversion from excessively frequent fires (condition classes 2 and 3). Unlike in Fire Regime I, vegetation treatment in condition class 2 or 3 moves the site away from the desired condition by adding another burn or disturbance event to an area that has already been burned too frequently. The Forest strategy in treatment of chaparral and coastal sage scrub, therefore, is to focus our vegetation management into direct protection of communities or in pre-identified strategic locations where protection of communities can be improved such as major ridge tops upslope from developed areas. Fire history patterns show that fires are often held in the same locations due to topography or sometimes manmade features such as reservoirs or freeways.

As with Goal 1.2.2, this outcome question cannot be directly answered until current versions of fire regime and condition class data are compared over time. Approximately 16 of the total acres treated for hazardous fuel reduction in fiscal year 2011 occurred in chaparral and coastal sage scrub vegetation types. Please note, a large amount of the areas treated in fiscal year 2011 were within unclassified vegetation areas.

Forest Goal 1.2.3:

Goal Code	Forest Goal	Activity, Practice Or Effect To Be Measured	Monitoring Question
1.2.3	Maintain long fire-free intervals in habitats which are slow to recover	Vegetation Condition	Has the National Forest been successful at maintaining long fire-free intervals in habitats where fire is naturally uncommon?

Progress toward achieving desired conditions in Forest Goal 1.2.3, is primarily a function of the success of fire prevention and suppression efforts, which are related to the success of the hazard fuels reduction program. The Angeles continues to implement a fire management plan which calls for aggressive suppression of all wildfires on NF lands. A large majority of fire starts are suppressed upon initial attack, and this trend is expected to continue.

Forest Vegetation and Health monitoring

The Forest Service Remote Sensing Lab provides vegetation resource inventories in an ecological framework for determining changes, causes, and trends to vegetation structure, health, biomass, volume, growth, mortality, condition, and extent. The existing ANF vegetation map was completed in 2005. Details are available in the vegetation monitoring section at:
http://www.fs.usda.gov/detail/r5/landmanagement/resourcemanagement/?cid=stelprdb5350981

Insects and diseases are integral components of forest ecosystems. They play a critical role in shaping forest lands, nutrient recycling, and small-scale disturbance. Disturbances result in changes in the ecosystem function which often means mortality of trees. Tree mortality and other forest damage is detected by annual aerial surveys over forested lands. The primary purpose of the aerial survey is to create sketch maps of areas containing current year conifer and hardwood mortality, defoliation, and other damage. More information regarding the Aerial Detection Monitoring Program can be found at:
http://www.fs.usda.gov/detail/r5/forest-grasslandhealth/?cid=fsbdev3_046696

Survey information and mapping (as .pdf or view using Google Earth and Google Maps) is available at the following websites, shown by year of survey:

2011: http://www.fs.usda.gov/detail/r5/forest-grasslandhealth/?cid=stelprdb5327987
2010: http://www.fs.usda.gov/detail/r5/forest-grasslandhealth/?cid=stelprdb5327981
2009: http://www.fs.usda.gov/detail/r5/forest-grasslandhealth/?cid=stelprdb5362691
2008: http://www.fs.usda.gov/detail/r5/forest-grasslandhealth/?cid=fsbdev3_046623

These inventory efforts will be used in future monitoring reports to better quantify changes in vegetation as a result of treatment actions and wildfires.

Forest Goal 2.1:

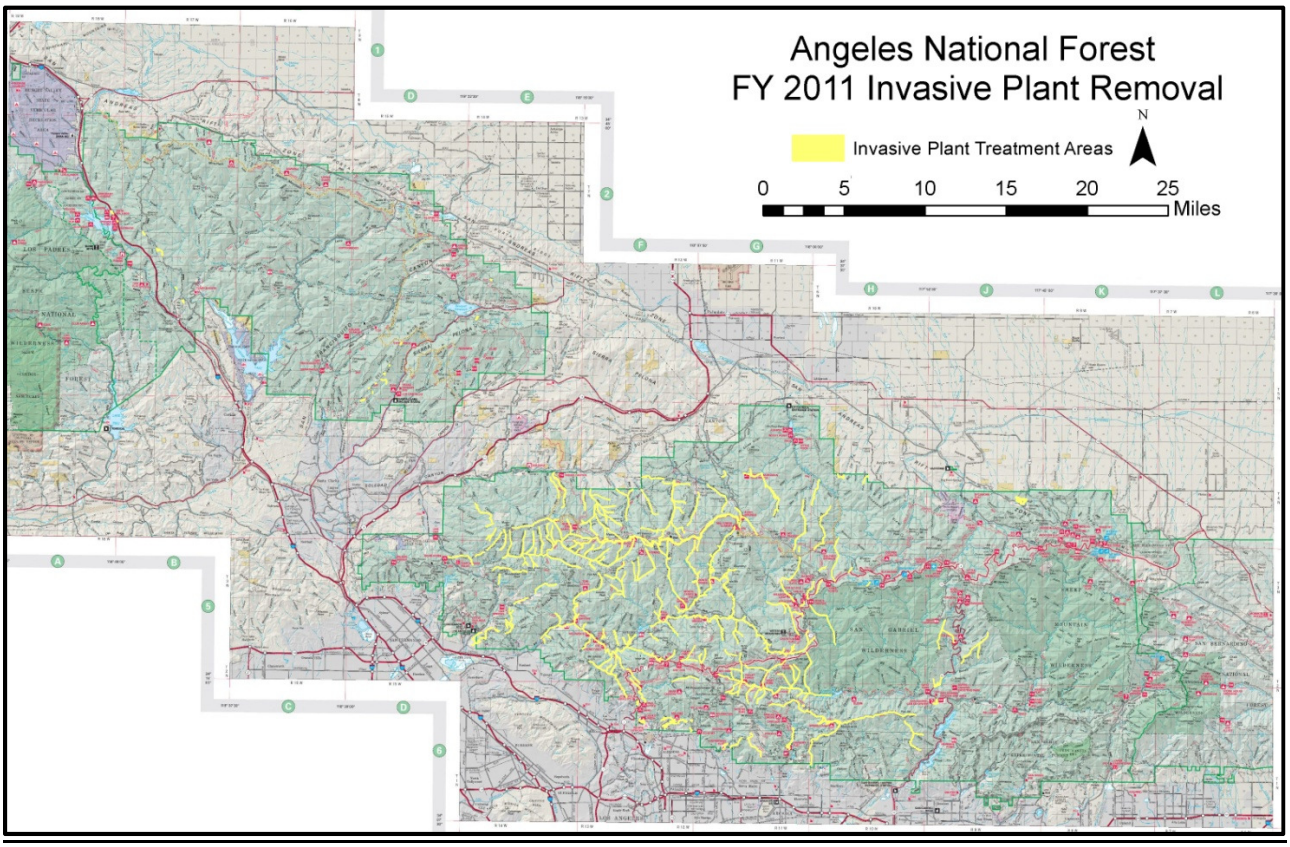
Goal Code	Forest Goal	Activity, Practice Or Effect To Be Measured	Monitoring Question
2.1	Reverse the trend of increasing loss of natural resource values to invasive species.	Invasive species inventory, monitoring, and treatment	Are the national forests' inventory of invasive plants and animals showing a stable or decreasing trend in acres of invasives?

During fiscal year 2011, at total of 1,184 invasive plant species population locations were added to the corporate database of record (NRIS). A wide range of invasive plants were surveyed including; bermudagrass, big leaf periwinkle, black locust, bulbous bluegrass, bull thistle, casterbean, sowthistle, crimson fountaingrass, giant reed (arundo), himalayan blackberry, Italian plumeless thistle, maltese star-thistle, various mustards, poison hemlock, prickly lettuce, rabbitsfoot grass, russian thistle, puncturevine, ripgut brome, saltcedar (tamarix), smilograss, spanish broom, tree tobacco, yellow star-thistle, and yellow

sweetclover. Continuing updates of this corporate database will allow for an analysis of the trends in the 5-year comprehensive monitoring report. This represents a significant increase in acres treated over past years, and is primarily a result of continued funding from the BAER program. A map of the treatment areas can be found below.

Staff efforts continue to focus on partnering with special use authorization holders to perform invasive monitoring, inventory, and treatment. The BAER program is a source of funding for emergency treatment after fires, when invasive plants are likely to spread rapidly. Work continues on preparing NEPA documents to authorize the use of herbicides, a tool which should greatly enhance the success of eradication efforts.

Map 2: Invasive Plant Treatment Areas on the Angeles National Forest for fiscal year 2011



Because the inventory is continually being updated, it is difficult to determine a true resource trend. One promising sign is the increasing willingness of special use authorization holders to comply with measures such as surveying for and removing weeds in advance of ground disturbing projects, and washing ground disturbing equipment before entering NF lands. Restoration plans for larger projects with over 1 acre of ground disturbance have included requirements to monitor and remove invasives for up to 5 years after the project. Another good indicator is that no new species not previously inventoried have been found. Based on these factors, we would estimate that the trend is stable, with ongoing threats being countered by increases in eradication efforts.

Forest Goals 3.1 and 3.2:

Goal Code	Forest Goal	Activity, Practice Or Effect To Be Measured	Monitoring Question
3.1	Provide for Public Use and Natural Resource Protection.	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?
3.2	Retain a Natural Evolving Character within Wilderness.	Management and preservation of wilderness character	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?

The annual indicator for goal 3.1 is the percentage of recreation facilities managed to standard including natural resource protection as described in Forest Goal 3.1. Many recreation facilities were affected by the Station Fire, including several that were completely destroyed. Efforts to update this data are ongoing, and will be included in future LMP monitoring reports. Implementation and effectiveness monitoring of resource protection actions required by Standards S34 and S50 (including Appendix D) help to measure the resource protection element of this goal.

Standard S50 states: **"**Mitigate negative long-term impacts from recreation use to soil, watershed, riparian or heritage resources". The Angeles National Forest has completed its Motor Vehicle Use Maps (MVUM), available to the public, which outlines areas designated for off- highway use. This will reduce the amount of vehicle recreation occurring in restricted areas thereby, reducing resource impacts.

Standard S34 states**: "**Where a threatened, endangered, proposed, candidate, or sensitive species occurs in a recreation site or area, take steps to avoid or minimize negative impacts to the threatened, endangered, proposed, candidate or sensitive species and its habitat. Use the least restrictive action that will effectively mitigate adverse impacts to the species and habitat." The Angeles National Forest has limited stream crossing points within the San Gabriel OHV site to reducing impacts to riparian vegetation within the San Gabriel River which hosts the Santa Ana Sucker.

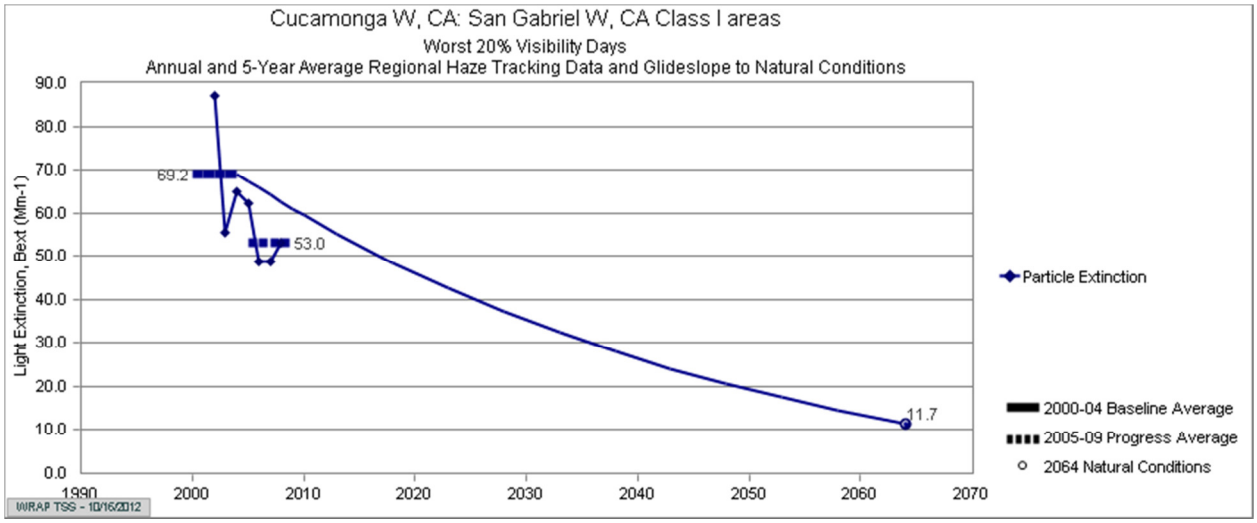
Goal 3.2 will use as indicators the 10 wilderness elements and the scores for each reported through the INFRA-Wild database. In fiscal year 2009, two new wilderness areas were designated on the Angeles National Forest, Magic Mountain and Pleasant View Ridge. Indicator data for fiscal year 2011 was available for the Sheep Mountain and San Gabriel Wilderness Areas. Cucamonga Wilderness is partially on the ANF but is managed and reported on by the San Bernardino National Forest. For fiscal year 2011 both Sheep Mountain and San Gabriel were reported as meeting minimum wilderness stewardship requirements. The updated NVUM survey will be used in future LMP Monitoring Reports to indicate visitor's perceptions of trends in management of the wilderness resource.

Heritage Resources
The desired condition is to preserve or enhance significant heritage resources. A total of 114 projects were evaluated under Section 106 of the National Historic Preservation Act ("NHPA") by Heritage Resources in fiscal year 2011.

- Of the 114 total projects, 31 involved consultation with the State Historic Preservation Office. These were projects that had effects on historic properties.
- The remaining 83 projects were considered under the Regional Programmatic Agreement.
- A total of 16 projects involved surveys.
- A total of 31 projects were located in previously surveyed areas.
- A total of 36 projects were exempted under the Programmatic Agreement from further Section 106 review.
- 25 new sites were reported.
- A total of 1283 acres were surveyed.
- A total of 29 sites were updated.
- A total of 36 sites were monitored.
- A total of 127 sites were protected.

Air Resources
The desired condition is to remediate and prevent human caused impairments to air quality values. Under the Region 5 air quality monitoring program, a sampling station near Vetter Mountain (named SAGA1) monitors the air quality of both the San Gabriel Wilderness and Cucamonga Wilderness Class I airsheds. Information about this station, which is part of the IMPROVE national monitoring network, is found at: http://vista.cira.colostate.edu/improve/

The Station Fire of 2009 destroyed the SAGA1 IMPROVE site. The site has since been re-established however, some sampling was interrupted by the loss of equipment. Current measurement data from this site shows that the air around these wildernesses is improving with respect to visibility. Currently, the San Gabriel and Cucamonga wildernesses are on track to meet the 2064 Regional Haze Rule goals of the Clean Air Act. See graph on the next page for monitoring data recorded at the SAGA1 site and the 'glide path' to 2064.



Additional monitoring for ozone, nitrogen, and particulate matter is being conducted at Vetter Mountain in conjunction with South Coast Air Quality Management District (SCAQMD). The Vetter Mountain monitoring site was establish to help provide data to the SCAQMD which could be used to give the Angeles National Forest more 'burn authorization days'. Additional days allows the forest greater opportunities to conduct prescribed burning and thereby more likely to achieve FMP Goal 1.1.

Forest Goals 4.1a and 4.1b:

Goal Code	Forest Goal	Activity, Practice Or Effect To Be Measured	Monitoring Question
4.1a	Administer minerals and Energy Resource Development while protecting ecosystem health.	Mineral and Energy Development	Has the forest been successful at protecting ecosystem health while providing mineral and energy resources for development?
4.1b	Administer Renewable Energy Resource Developments while protecting ecosystem health.	Mineral and Energy Development	Has the forest been successful at protecting ecosystem health while providing renewable resources for development?

Work continued on the environmental study process for both the Tehachapi and Barren Ridge Renewable Transmission Projects in fiscal year 2011. The purpose and need for the projects was to increase the capacity of the state grid to transmit renewable energy. No new mineral authorizations were issued in fiscal year 2011. Most work was of an administrative nature, involving site inspections, compliance reviews, and billing.

Forest Goal 5.1:

Goal Code	Forest Goal	Activity, Practice Or Effect To Be Measured	Monitoring Question
5.1	Improve watershed conditions through cooperative management.	Watershed	Is the forest making progress toward sustaining Class 1 watershed conditions while reducing the number of Condition Class 2 and 3 watersheds?

Regarding LMP Goal 5.1, a watershed assessment was done as part of the LMP revision process (see Table 4). Another assessment is not planned until the comprehensive evaluation which will be done on a Region wide basis in 2011. Results of this update will be used in the comprehensive 5-year monitoring report to determine trends.

Table 4. Watershed Condition Baseline

Outcome Indicator	Desired Condition	Baseline
Watersheds in Condition Class I – Good	Maintained condition ratings	4 watersheds
Watersheds in Condition Class II – Moderate	Maintained or improved condition ratings	8 watersheds
Watersheds in Condition Class III – Poor	Improved condition ratings	2 watersheds

Forest Goal 5.2:

Goal Code	Forest Goal	Activity, Practice Or Effect To Be Measured	Monitoring Question
5.2	Improve riparian conditions.	General Forest Activities	Is the forest making progress toward reducing the number of streams with poor water quality or aquatic habitat conditions?

There were four streams on ANF lands listed as having impaired water quality under Section 303(d) of the Clean Water Act, as of the LMP baseline in 2006:

- Mint Canyon Creek for ammonia, nitrate and nitrite concentrations
- Piru Creek for chloride and PH
- East Fork San Gabriel for trash
- Monrovia Creek for lead

Monrovia Creek and East Fork San Gabriel have Total Maximum Daily Load (TMDL) plans approved by the US Environmental Protection Agency. No monitoring guidelines for the Angeles National Forest exist at this time.

Piru and Mint Canyon are scheduled to have TMDL plans approved in 2019. No updates to the 303(d) list had occurred as of FY 2011.

The East Fork San Gabriel River TMDL requires the Angeles National Forest to reduce the level trash in the river to zero. In addition, the TMDL stipulates that the Angeles National Forest

> "must conduct monitoring at locations downstream of each of the four informal recreational areas [the flats downstream of Follows Camp, Oak Park, Eldoradoville, and Coyote Flats]. During the peak usage months of June through September, monitoring shall be conducted downstream of one of the four sites each week. Using a rotating schedule for monitoring will result in each picnic area being monitored at least once each month during the peak period. Monitoring may be conducted every other month during the rest of the year. Monitoring will not only include sampling for trash

flowing downstream of each of the four areas, but also visual observations of the river terrace areas. Sampling must be conducted in a manner that will measure both floatables and "bedload" trash. The USFS staff should conduct visual observations during their public education visits. Standard data sheets should be developed for recording observed trash levels. The USFS shall comply and submit to the Regional Board the results of monitoring on a monthly basis. The reports are due by the 15'"day of the month following the collection of data."

The East Fork San Gabriel River TMDL recommends that the Angeles National Forest may use the following to meet the zero trash requirement of the TMDL:

- During the peak picnicking season (summer), provide trash and hot coal receptacles in the river terrace area where the picnickers actually congregate. Make receptacles readily visible. To prevent the potential of causing a flood hazard, install the receptacles in the river terrace area at the beginning of May and remove them at the beginning of October.

- Provide at least one full-time person at each of the four identified sites on each weekend day and holiday to direct picnickers to the trash receptacles, provide them with information on environmental issues and litter laws, and ensure the receptacles are in proper working order. The on-site person for these areas should be able to communicate both in English and Spanish. It will be the duty of these persons to recommend improvements in the trash collection system as necessary. They should do so in writing to the District Ranger as necessary.

- Provide a full-time trash collection crew for the East Fork on each weekend day and holiday to collect litter from the river terrace and roadside receptacles. This should be done at a frequency to prevent "fly away" of any litter from the terrace into the watercourse.

- Post bi-lingual "No Littering" signs at the East Fork Road intersection with Highway 39 and at the parking areas at each of the four informal picnic areas. The signs should contain appropriate symbols as well as the written message, and cite the appropriate federal and county codes, citing the largest possible penalty amount. These signs should also be placed near the river terrace and roadside receptacles at each of the four informal picnic areas.

- Enforce existing anti-litter laws. Personnel with authority to issue citations for litter law violations should increase patrolling in the area during peak use periods.

As well as evaluate:

- The need, feasibility, and practicability of a prohibition of glass containers in the East Fork area.
- Options for the disposal of hot charcoal, to prevent the deposition of charcoal in the stream.
- Measures necessary to eliminate the improper disposal of used diapers.

As of fiscal year 2011, the Angeles National Forest has been unable to fully meet the requirements of the East Fork San Gabriel River TMDL do to funding shortages. Volunteers take part in a quarterly trash removal project in the San Gabriel River to work towards meeting the TMDL guidelines.

Forest Goal 6.2:

Goal Code	Forest Goal	Activity, Practice Or Effect To Be Measured	Monitoring Question
6.2	Provide ecological conditions to sustain viable populations of native and desired nonnative species.	General Forest Activities	Are trends in resource conditions indicating that habitat conditions for fish, wildlife, and rare plants are in a stable or upward trend?

Species Monitoring
In 2011, the Angeles National Forest continued with monitoring listed species populations in partnership with the US Geological Survey (USGS), Southern California Edison and California Department of Fish and Game. The ANF's annual report to the US Fish and Wildlife Service (FWS) included the following species and monitoring activities:

- Mountain yellow-legged frog populations were surveyed by USGS at South Fork Big Rock Creek, Littlerock Creek, Bear Gulch, Vincent Gulch, and Devil's Canyon.
- ANF and Southern California Edison staff surveyed Arroyo toad populations and habitat in Upper Big Tujunga, Alder Creek, Castaic, Little Rock Creek, and Santiago Creek.
- Santa Ana sucker populations were monitored by LA County contractors in Big Tujunga Creek. USGS conducted population assessment surveys in Big Tujunga Creek.
- Unarmored threespine stickleback surveys were conducted by USGS in Bouquet Canyon. FWS continued efforts to conduct genetic testing in this area to determine levels of cross-breeding. NONE
- California red-legged frog populations in San Francisquito and Aliso Creeks were surveyed by USGS.
- Southwestern willow flycatcher and Least Bell's vireo surveys were conducted by CalTrans in the North Fork San Gabriel River, along California State Route 39 (Hwy 39).

A majority of the threatened or endangered species which reside on the ANF are amphibians. Determining trend for these species is difficult due to a wide variability of habitat factors and breeding success from year to year. In fiscal year 2011, critical habitat was revised for the Santa Ana sucker on 12/14/2010 (75 FR 77962), Thread-leaved Brodiaea on 02/08/2011 (76 FR 6848), and the Arroyo toad on 02/09/2011 (76 FR 7246). These designations, as well as determinations of trend for each species, will be noted in the 5-year comprehensive LMP Monitoring Reports. No changes to baseline activities in critical habitat occurred in fiscal year 2010.

During fiscal year 2011, almost 500 rare plant species populations were added to the corporate database. Data inputs from this fiscal year nearly quadrupled the size of the Angeles National Forest's rare plants record in the corporate database. Continuing these efforts in the future would allow for the forest to better assess rare plant population trends.

Table 5. Summary of Baseline Activities (Acres) in Critical Habitat (as of 7/29/08)

Species Common name	Total on ANF lands	Built Area	Dispersed Recreation	Fuel-breaks	WUI Defense Zone
Plants					
Thread Leaved Brodiaea	13*	0	0	0	0
Fish					
Santa Ana Sucker	1159*	608	139	26	507
Amphibians/Reptiles					
Arroyo Toad	2168*	153	83	78	29
California Red Legged Frog	4,313	341	82	162	283
Mountain Yellow Legged Frog	4,482*	7	0	0	38
Birds					
California Condor	992.3	2	0	0	0
California Gnatcatcher	1,217.9	18	0	77	14

**Critical Habitat Revisions occurring between Dec 2010 and Feb 2011.*

The Forest is currently preparing a Biological Assessment (BA) regarding ongoing activities. Consultation with the FWS on this BA is expected to occur in fiscal year 2013. The threatened and endangered species monitoring program is working well in most areas. A process is in place to update procedures based on what is learned, and changes are expected through the updated consultation with the FWS. All projects, programs, and ongoing activities are routinely reviewed by ANF staff for their effects on listed species.

Management Indicator Species

Twelve management indicator species (MIS) were selected to monitor certain habitat types and issues, as described in Part 1 of the Angeles National Forest Land Management Plan. These species will be monitored along with other indicators of progress toward achieving desired conditions for biological resources. An Angeles National Forest management indicator species report was prepared to describe the environmental baseline conditions. Management indicator species reports were completed for multiple projects. None of the reports found that project implementation would affect populations or habitat trends for management indicator species.

The ANF will continue required monitoring, and as operational plans are developed for recreation sites, ensure institutional memory of problem resolution by making sure to document protection measures used in the past (whether on an annual, periodic, or one-time basis). These may be documented in the INFRA database for each site.

Forest Goal 7.1:

Goal Code	Forest Goal	Activity, Practice Or Effect To Be Measured	Monitoring Question
7.1	Retain natural areas as a core for a regional network while focusing the built environment into the minimal land area needed to support growing public needs.	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 Management Plan Goal 7.1 calls for management efforts that minimize the built environment. Roads are one element of the built environment and are part of the outcome indicators for this goal. In addition, Goal 3.1 instructs the Angeles National Forest to remove roads that are determined to be unnecessary through a roads analysis and the analysis required by the National Environmental Policy Act.

The road miles maintained in fiscal year 2011 were comparable to previous years. In future years ANF plans to pursue funding for road decommissioning through the Region's Legacy Roads Program. Additional analysis of unauthorized roads and trails within Inventoried Roadless Areas is still ongoing.

V. Potential Land Management Plan Amendments and Corrections

1) An exception made for the Scenic Integrity Objectives for the Tehachapi Renewable Transmission Project (TRTP).

VI. Action Plan, Forest Leadership Team

The following are actions that will be implemented in response to LMP monitoring:

1) Continue efforts to work together with other agencies and partners to plan and carry out a coordinated strategic plan of research and management actions to address ongoing need for integrated wildfire preparedness planning and post-fire stabilization planning.

2) Emphasize integrated fuels treatments in Fire Regime I (montane conifer) where there is work to be done to address the missed fire return, risk of loss, and protection of mountain communities, and also where the Forest can count on a broad range of public support for implementing treatments that are needed to move toward the desired condition. The Forest can also maintain existing fuelbreaks as well as include community protection projects in Fire Regime IV. Engage the interested public in a dialogue about fuels issues and collaboration on fuels treatments.

3) Address departures from BMPs on Forest Service projects and activities and for special uses, during the permit issuance process. The NEPA process and new permits, if approved, give the Forest an opportunity to impose mitigations, standards, and guidelines that were previously not implemented, or to eliminate a use as in the case of road decommissioning. The BMPEP report includes current year as well as previous year needs.

4) Continue to inventory and pursue funding for decommissioning of undetermined, unneeded roads and resolving the status of "temporary roads." This work serves to improve watershed function and further LMP goals and objectives.

5) Update the NEPA documentation and clarify the scope of the work covered for invasives treatment on Forest.

6) Consistent with the Regional emphasis to improve planning, the Forest will emphasize management controls and planning protocol to ensure NEPA quality:
    a. Line officers will issue a Project Initiation Letter for all projects requiring documentation in a Decision Notice or higher level NEPA document, assign appropriate IDTs to each project, and ensure that heritage, biological, and other protocols are met.
    b. Line officers, project interdisciplinary teams, and planning staff will engage in discussion of issues before project NEPA is initiated or early in the process. Planning staff will advise line officers or project planners of current planning direction.
    c. Make sure to consider connected actions. In particular look for opportunities to address unauthorized routes whether appropriate action is to decommission or to add to the road or trail system.
    d. Line officers need to ensure that IDTs conduct consistency reviews with the revised LMP (which includes new court rulings and all overarching direction) and document in the project file, including projects that were approved prior to October 2005. Update specialist reports if needed.
    e. Project leaders will review each document to check that current requirements are being met.
    f. Line officers will ensure that all approved mitigation (including Best Management Practices) is specifically listed in the decision document and carried over into any operational plans (e.g. burn plans).
    g. Line officers will ensure that project files document consistency of the NEPA planning and decisions with the LMP and any relevant legal mandates.
    h. Project leaders will send all environmental documents and decisions (upon approval) to the Forest Environmental Coordinator for the Forest file.

7) Continue to fine tune an interdisciplinary process for developing the program of work, striving to create an integrated program of work that is responsive to common priorities under the Land Management Plan.
8) Prepare operations and maintenance plans for Forest Service recreation sites over time, beginning with the sites with the most sensitive resources to protect.
9) The leadership team will clearly assign responsibility for the variety of database stewardship duties. An assigned team will continue to address data entry in FACTS as per the Forest FACTS Guide. Database stewards will keep corporate data current including both tabular and spatial data so that

data used for project analyses and management decisions is reliable and so that Forest accomplishments are given proper credit in the budget allocation process.

10) Continue to refine and implement the Station Fire Recovery Strategy as developed by the Angeles National Forest Leadership Team.

VII. Public Participation

The Angeles National Forest Land Management Plan Monitoring and Evaluation Report for fiscal year 2011 will be posted on the Forest web page. Please contact the Angeles National Forest at 626-574-1613, or visit www.fs.fed.us/r5/angeles for specific questions.