United States
Department
of Agriculture

Forest Service

Pacific
Southwest
Region

Land Management Plan Monitoring and Evaluation Report

Cleveland National Forest
Fiscal Year 2019

September 2020

Dear Cleveland National Forest Stakeholders: September 2020

I am pleased to present the Cleveland National Forest's (CNF) annual monitoring and evaluation report for your review. The purposes of this report are – to determine if plans, projects, and activities are implemented as designed and in compliance with the CNF Land Management Plan (LMP); to evaluate the effectiveness of the LMP; and to help identify potential future adjustments to the LMP.

Monitoring is emphasized and identified as a key element in all programs to ensure achievement of the LMP's desired conditions over time. This year's report is the thirteenth monitoring and evaluation report produced since the LMP was revised in 2005 and includes annual indicators of progress and a comprehensive review of any trends.

Keeping CNF stakeholders informed of the results of our monitoring is important to me. This report will be posted on the CNF website at: https://www.fs.usda.gov/land/cleveland/landmanagement (under Forest Planning). If you are interested in becoming involved in projects or other planning, please also see our Schedule of Proposed Actions at https://www.fs.fed.us/sopa/forest-level.php?110502.

Sincerely,

Scott R. Tangenberg
Forest Supervisor
Cleveland National Forest

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Land Management Plan Monitoring and Evaluation Report
Fiscal Year 2019

1. Introduction

The CNF Land Management Plan (LMP) went into effect on October 1, 2006. The LMP includes a monitoring program that provides the means for confirming the sufficiency and adequacy of management direction in the 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 LMPs in order to achieve desired conditions while ensuring healthy National Forests exist for future generations. This report documents the evaluation of activities that were implemented on the CNF and the interpretation of monitoring data from Fiscal Year (FY) 2019, which began on October 1, 2018 and ended on September 30, 2019.

2. Methodology

Monitoring is described in all parts of the LMP, with monitoring requirements summarized in Part 3, Appendix C. Part 1 monitoring is required to be reported every two years and Parts 2 and 3 monitoring are to be reported annually. A summary of the requirements and recent changes to the reporting period for Part 1 are discussed below. For practical purposes and consistency, the CNF has decided to report on all requirements annually. The CNF Monitoring Guide further details the protocols that were used in this review. This guide is available on request. Contact information is listed on the final page of this report.

Part 1 of the LMP listed questions that will help to evaluate movement toward the desired conditions of the LMP goals over the long term. The monitoring guide describes the baseline data that will be used to answer these questions and evaluate progress. Previously, progress evaluation was completed every five years. The shorter reporting period, the addition of new monitoring questions, and the replacement of management indicator species with focal species were the 2016 administrative changes to the monitoring program per the new planning regulations.[1]

Part 2 monitoring is focused on program implementation including inventory. The current corporate system tracks performance measures linked to the National Strategic Plan and reports accomplishments through a national reporting system called the Performance Accountability System.

Part 3 implementation and effectiveness monitoring was conducted at the project level. A randomly selected sample of projects was visited to review the application and effectiveness of the design criteria. If problems with documentation or implementation were detected or if the

[1] Memorandum available at: https://www.fs.usda.gov/detail/cleveland/landmanagement/planning/?cid=stelprdb5270296.

design criteria were determined to be ineffective, then the monitoring team – an interdisciplinary team of specialists recommended possible corrective actions to Forest officials. All results, conclusions, and recommendations are documented in this monitoring and evaluation report. All recommendations are deliberative in nature and do not constitute a management requirement nor a commitment of funds. The following questions were asked for each reviewed project or ongoing activity:

1. By comparing expected results to actual results, did we accomplish what we set out to do? Were relevant legal and other requirements applied to the project or site? Were LMP goals, desired conditions, and standards incorporated into operational plans, such as burn plans, allotment management plans, and facility master plans? Is LMP consistency documented, such as by a project-specific consistency review checklist? Were National Environmental Policy Act (NEPA) mitigation measures or LMP project design criteria implemented as designed? Were requirements from biological assessments, biological evaluations, heritage evaluations, and watershed assessments implemented? To evaluate effectiveness, the review team asked: Have the project design criteria effectively improved environmental conditions as expected?

2. Why did it happen? If the CNF did accomplish what it had set out to do, the review team attempted to identify the reasons for success; conversely, if not, reasons why not. The CNF emphasizes and seeks out underlying cause-and-effect relationships, not individual performance or behavior.

3. What are we going to do next time? What activities should be continued to sustain success? Are changes needed to correct any implementation- or effectiveness-related failures? If change is needed, is an amendment or administrative change to the LMP required?

3. LMP Part 1 Monitoring

This chapter documents the monitoring of indicators of progress toward the desired conditions relative to the goals described in the CNF LMP Part 1 monitoring. Monitoring questions and indicators with an asterisk (*) represent additions from the 2016 administrative change to the monitoring program. Some monitoring questions are relevant to multiple goals. The discussion will be provided in the most relevant section with cross references to other sections. Tracking indicators annually helps identify trends over time and supports the comprehensive evaluation.

Forest Goal 1.1: Community protection (LMP, Part 1, pg. 19)

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

Activity, Practice, or Effect to be Monitored: (1) Vegetation Treatments in the Wildland/Urban Interface (WUI); and ***(2)** Fire Activity on the Landscape.

Monitoring questions: (1) Has the CNF made progress in reducing the number of acres that are adjacent to development within WUI defense zones that are classified as high risk? ***(2)** Are wildfires becoming larger, more frequent, or more severe, and is there a seasonal shift in fire activity?

Indicator: (1) Acres of High Hazard and High Risk in the WUI Defense Zone; and ***(2)** Total and Mean Fire Size, Ignition Density, Fire Severity, and Monthly Area Burned.

Monitoring Action: Use baseline acres from the 2006 Southern California LMPs analysis;[2] subtracting the areas treated, and areas that are no longer WUI Defense Zone; and adding acres from areas that have reverted to high hazard and risk due to maintenance backlog, and areas that have become WUI Defense Zone due to development.

In FY19, hazardous fuel treatments occurred on 1,140 acres in the WUI and 3,756 total acres of treatment activities were accomplished. Acres accomplished is higher because many fuel unit areas received multiple treatments and are counted more than once. This reporting contributes to the National Strategic Plan (Objectives 1.1 and 1.3). The LMP identifies a more specific indicator focused on measuring progress toward increasing the level of the CNF fuels program in the WUI defense zone described in the LMP.

Background on this indicator:

The WUI defense zone – the portion of the WUI that is directly adjacent to structures (LMP, Part 3, pg. 5, Standard S7; LMP, Appendix K) – has a variable width determined at the project level. The maximum width of the defense zone is defined by general vegetation types in Standard S7 (grass-100 feet, chaparral-300 feet, and forests-1,500 feet). The maximum width was used in

[2] CNF baseline acres as stated in the FY06 report were re-calculated in the FY17 report to account for land that has been added to the CNF since 2006, resulting in a small increase in baseline acreages. Throughout this LMP report, reference to the FY06 acreage should be understood to mean the FY06 acreage, as revised in FY17.

this report. This information was used to represent the present, or "baseline," extent of the WUI defense zone.

High hazard fuels are those that have the potential to burn with high intensity. Fire intensity contributes to suppression effectiveness in protecting structures in WUI. 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 is the indicator of risk in this analysis. Due to rapid development of private land in southern California, the inventory of areas with structures is constantly changing. Maps representing the WUI defense zone are typically out-of-date and therefore should only be considered an estimate of the actual area pending period updates. The actual presence of communities and substantial structures is determined at the project level. The decision is to apply the direction in LMP standards S7 (including Appendix K) and S8 to areas that are actually adjacent to communities or substantial structures at the time of project planning.

In addition, high hazard conditions can be returning in as little as five years after a fire in some vegetation types. For this reason, the hazard indicator is assumed to be high in all areas until a project level assessment determines otherwise. Therefore, the monitoring task is to track the level of management effort directed at reducing fire hazard in the WUI defense zone including keeping the inventory of the actual defense zone up-to-date.

Indicators of progress toward Goal 1.1 will be calculated by using the WUI defense zone from the LMP analysis database. Acres of treatments in the WUI defense zone were calculated for each of the fire regimes and entered into column D in Table 1. These entries represent the annual indicator of progress toward the desired condition.

The number of high-hazard acres will be re-calculated every two years and represent the new baseline for high hazard acres. This is because the acres documented as being treated to-date can be assumed to no longer be considered a high hazard in the corporate reporting system. The first monitoring and evaluation report after revision of the LMP, prepared for FY06, showed that baseline acres from the previous year's analysis was 10,230 acres. From a baseline of 6,339 acres in 2016 this was reduced to 4,219 baseline acres in FY18. Using 2018 as the new baseline, FY19 results (Table 1) add an additional 1,031 acres of treatment in the WUI defense zone during FY19. The result in column E shows a total of 3,187 adjusted acres. There were no changes in FY19 to the defense zone area resulting from new information on the presence of substantial structures.

Table 1: Progress in treatment of WUI defense zone FY19, adjustments to FY18 baseline.					
	A	B	C	D	E
Fire Regime	Baseline – FY18 High Hazard Acres (Recalculated)	WUI Defense Acres Removed *	WUI Defense Acres Added*	Acres of Treatment in WUI Defense Zone (FY19)	(A-B) + (C-D) (adjusted acres)
I	3,181	0	0	749	**2,432**
III,IV& V:	1,038	0	0	283	**755**
Total:	**4,219**	**0**	**0**	**1,031**	**3,187**
*acres are added or removed due to new information on the presence of substantial structures					

Table 2 shows the status of fuels accomplishment as per the Forest Service ACtivity Tracking System (FACTS) database. An annual query of this database measures the progress that the CNF has made to reduce the number of acres adjacent to development within WUI defense zones and that are classified as high risk. Use of spatially explicit information for adjusting the baseline is important so the cause of changes in the numbers can be evaluated. Knowing if the change is due to improved inventory information, actual treatments, or both is important. Simply adding the annual indicator – that is, the number of acres treated – and subtracting it from the baseline could over-count maintenance treatments and would not take into account acres added due to new development. If new development is adding acres in the defense zone, one strategy to prevent that from happening is through active involvement in local planning.

During FY19, approximately 5,413 acres were treated, of which 64 percent of the acres treated were in the threat zone, while 36 percent of the acres treated were in the defense zone (Table 2).

Table 2: Treatment activities in FY19.				
Activity	**WUI Class**			**Total Acres**
	Threat zone	**Environment**	**Defense zone**	
Broadcast Burning	222	0	164	386
Burning of Piled Material	607	0	217	824
Piling of Fuels, Hand or Machine	524	0	310	834
Rearrangement of Fuels	1110	0	811	1921
Recreation Removal of hazard trees and snags	47	0	130	177
Re-vegetation treatments - herbicides	63	0	22	84
Sanitation Cut	109	0	0	109
Special Products Removal	0	0	5	5
Thinning or Pruning for Hazardous Fuels Reduction	778	0	295	1073
Sum of acres	3,459	0	1,954	5,413
(some activities occurred in the same areas)				
Percent of total	**63.89%**	**0**	**36.11%**	**100**

A protocol was developed to evaluate whether temporal trends are evident for wildfire size, frequency, severity, and seasonality across the Southern California National Forests. Fire information by season is provided in Figures 1 to 3. On the CNF, fires historically occurred in

the fall with more variation and larger fires in recent times, although at the decade scale the variation is not so apparent. Fire size in recent years can be attributed to multiple, compounding factors such as vegetation density, the effects of climate change (e.g., warmer temperature with no corresponding increase in precipitation), wind speed, and droughts.[3] These factors result in a positive feedback loop with negative consequences on the landscape, which may be seen in the catastrophic fires that appear to be the new normal in California. Continued fuel reduction efforts are important to protect resources and the public at the local level.

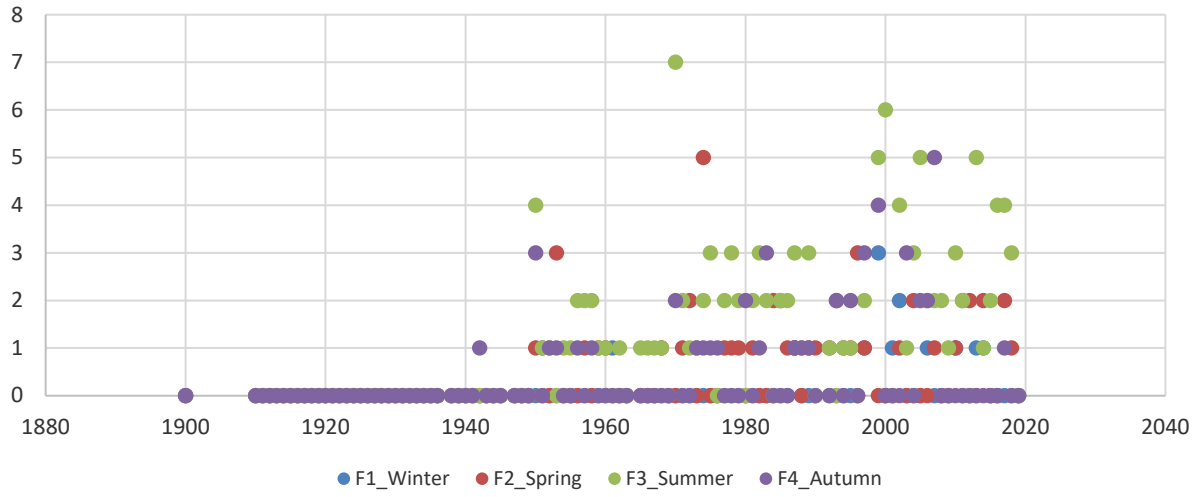


Figure 1 – Number of Large Fires by Season by Year

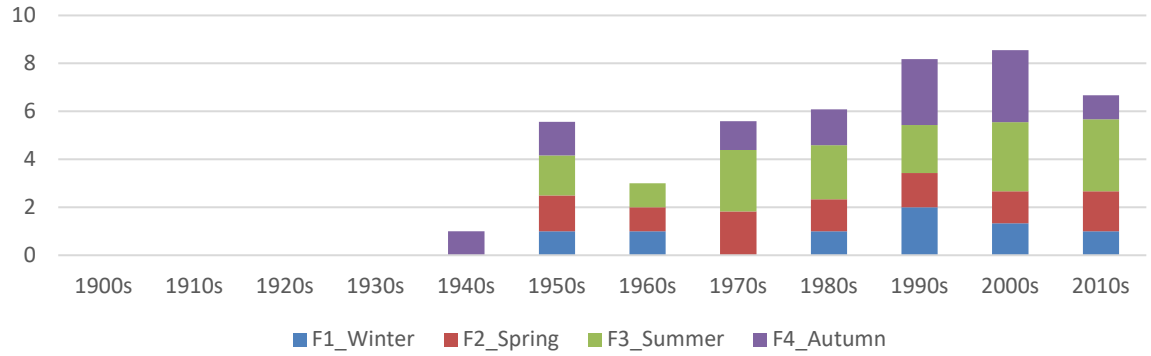


Figure 2 – Number of Large Fires by Decade

[3] California Department of Water Resources (https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/All-Programs/Climate-Change-Program/Files/Hydroclimate-Report-2017.pdf); Asner et al., 2015. Progressive forest canopy water loss during the 2012 – 2015 California Drought (http://www.pnas.org/content/113/2/E249.full.pdf); Intergovernmental Panel on Climate Change, 2014 Synthesis Report (http://ipcc.ch/publications_and_data/publications_and_data_reports.shtml).

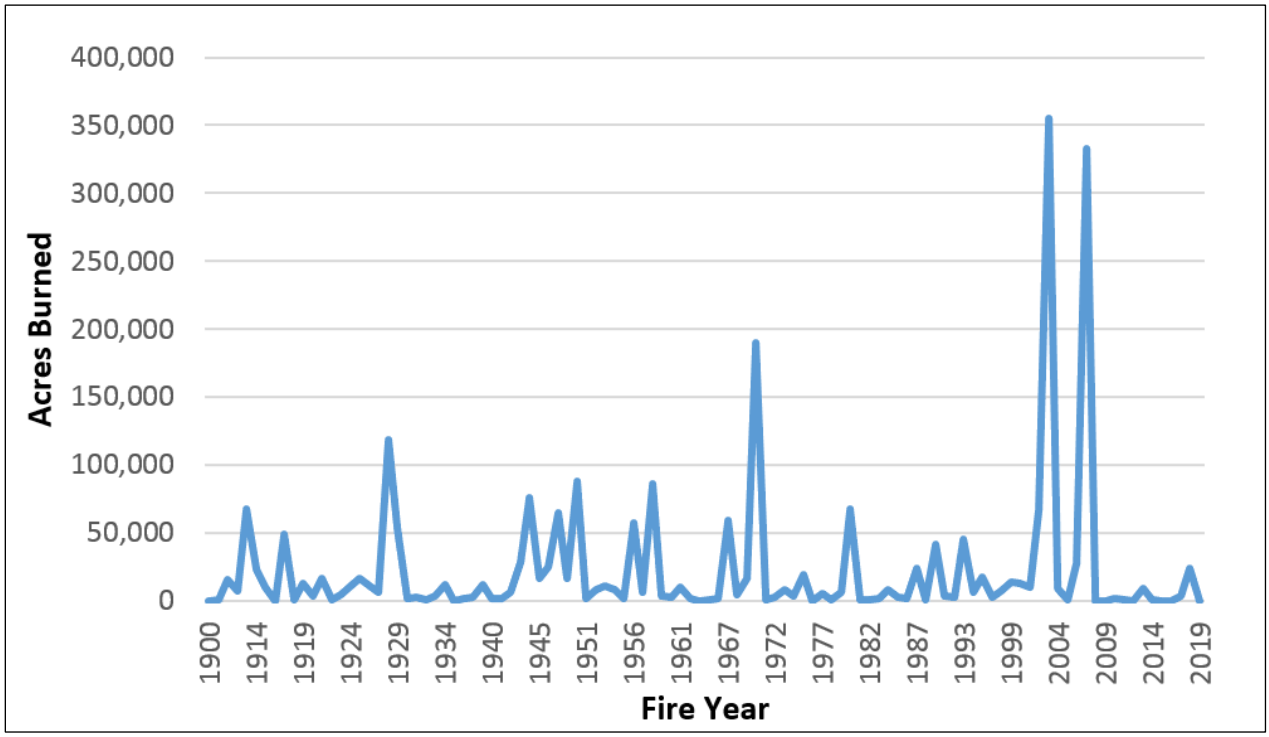


Figure 3 – Fire Size by Year

Trends in annual indicators for Goal 1.1: The CNF has achieved progress in meeting this goal. In FY06, approximately 6,656 high hazard acres were estimated in the WUI defense zone in Fire Regime I. By the end of FY19 approximately 3,475 of these baseline acres had been treated. Also by the end of FY19, of the 3,574 WUI defense zone high hazard acres for fire regimes III, IV, and V, 2,536 acres were treated.

Overall, between FY06 and FY19, approximately 6,011 high hazard acres have been treated in the WUI defense zone. Many of these acres had multiple activities undertaken, such as an area that underwent cutting, piling, and then burning of piles to reduce fuel loads. Figures 4 to 6 show actual fuel treatments over the past 5 years (FY15 to FY19) against the planned treatment areas. As discussed above, high hazard fuels can return in as little as five years in some vegetation types.

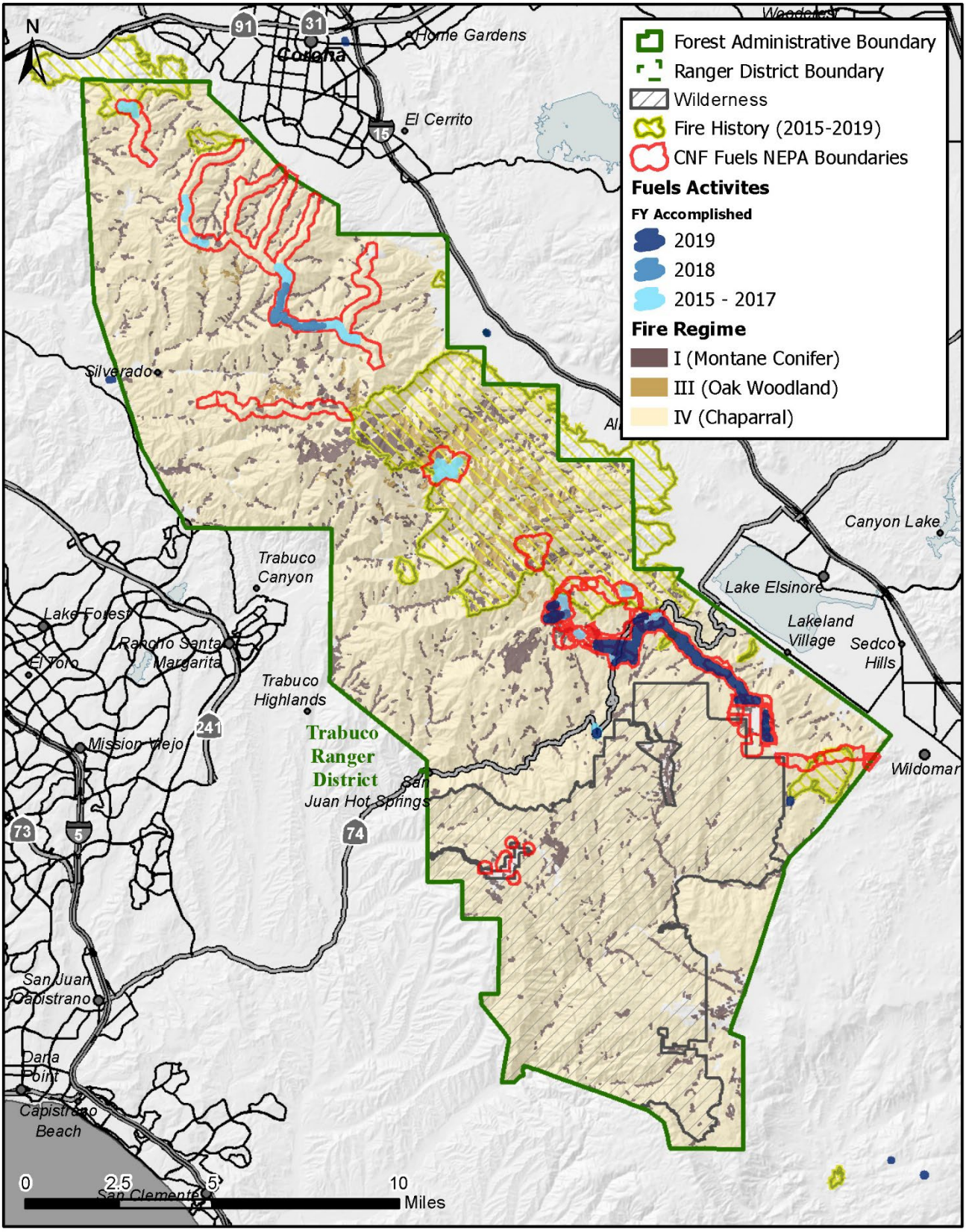


Figure 4 – Trabuco Ranger District Fuel Treatments

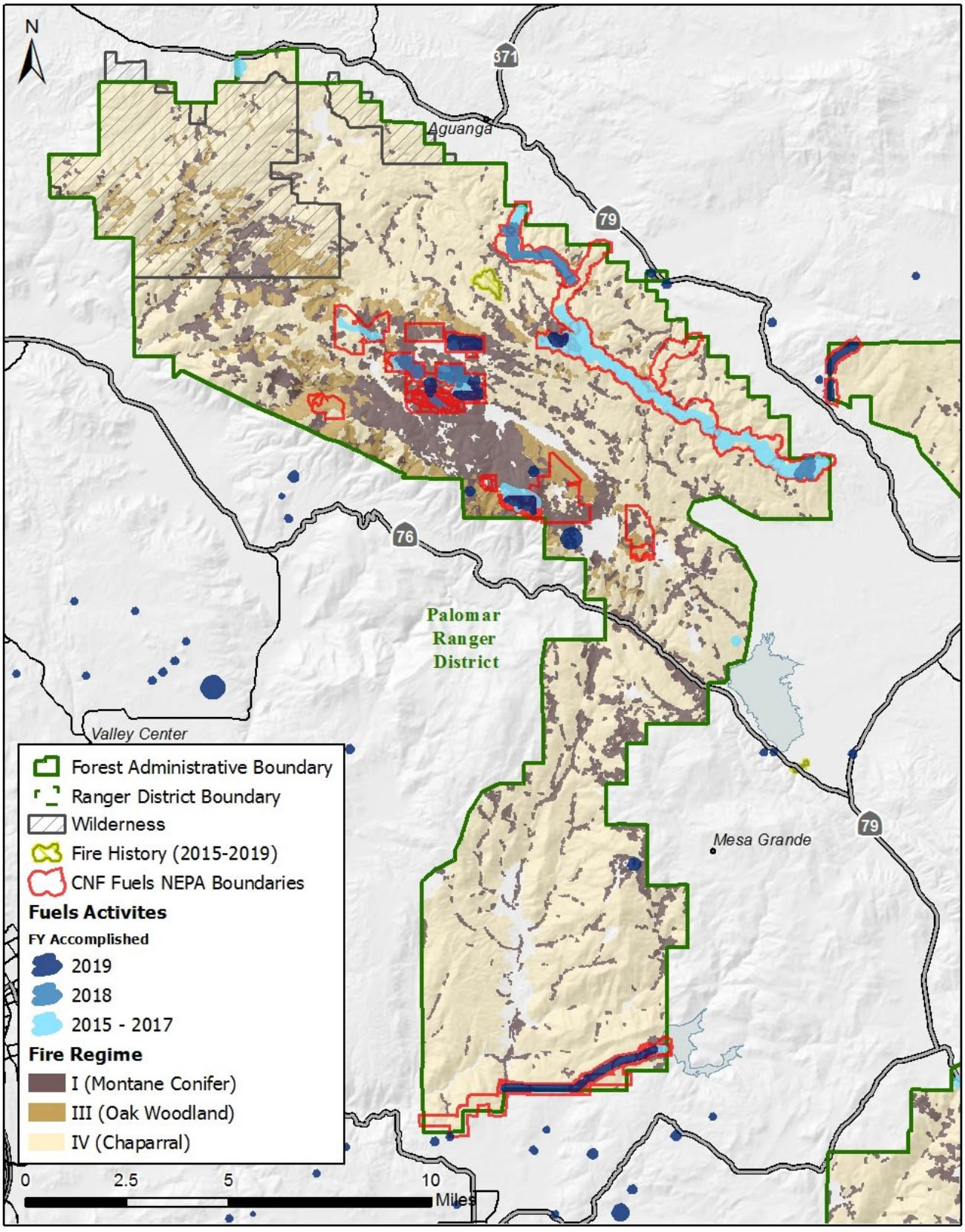


Figure 5 – Northern Palomar Ranger District Fuel Treatments

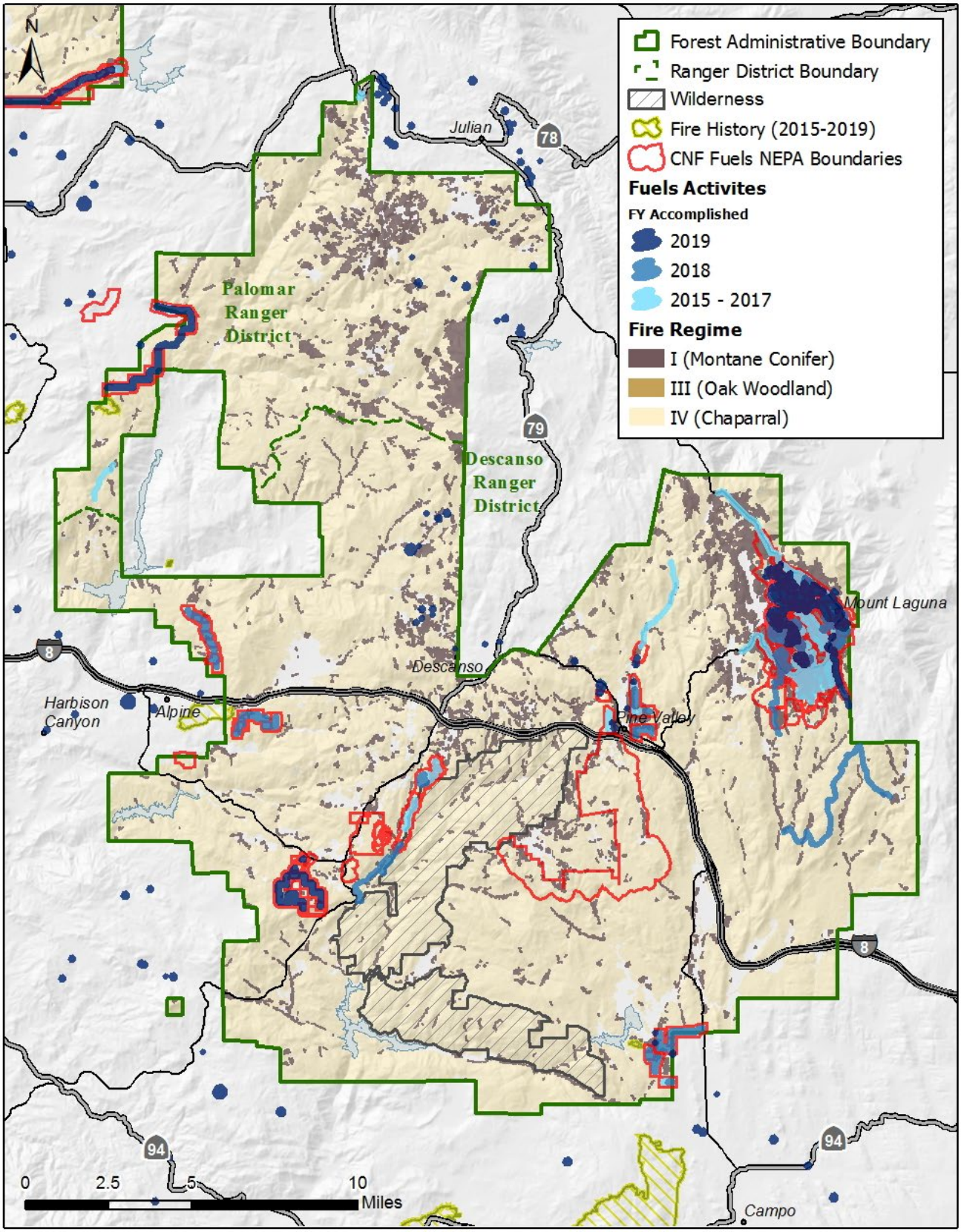


Figure 6 – Southern Palomar and Descanso Ranger Districts Fuel Treatments

Forest Goal 1.2: Restoration of forest health (LMP, Part 1, pg. 20)

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

Activity, Practice, or Effect to be Monitored: Vegetation condition.

Monitoring Question: ***(1)** Is tree mortality increasing across the landscape, and is it distributed evenly across elevations? ***(2)** Are fire frequencies becoming more departed from the natural range of variation?

Indicator: (1) Mortality Risk Assessment and *Forest Health Protection Mortality Surveys. ***(2)** Proportion of Landscape in Departed Fire Frequency.

Monitoring Action: Compare the annual National Insect and Disease Risk Map (NIDRM) data and cross referencing mortality within the reporting period and compare every two years.

The overall long-term goal is to perpetuate plant communities by maintaining or re-introducing fire regimes appropriate to each type while at the same time protecting human communities from destructive wildland fires.

This indicator gauges departure from either the minimum or the maximum fire return interval. In 2006, the fire regime condition class monitoring indicator was updated using new mapping procedures. In the new GIS maps, information is provided on presumed fire return intervals from the period preceding Euroamerican settlement ("pre-settlement") and for contemporary fire return intervals, and comparisons are made between the two.

Current differences between pre-settlement and contemporary fire return intervals are calculated based on mean, maximum, and minimum values. This map is a joint project of The Nature Conservancy California Chapter and the U.S. Forest Service Region 5 Ecology Program.[4]

The information was compiled from the fire history literature, expert opinion, data collection, and vegetation modeling. The California Department of Forestry and Fire Protection's Fire and Resource Assessment Program Fire History Database was used to characterize current fire regimes. The vegetation type stratification was based on the 1996 CALVEG map (U.S. Forest Service Remote Sensing Lab) for the four National Forests in Southern California.[5]

Table 3 displays the baseline status as of FY06 for departures from the mean fire return intervals, measured as Condition Class. Areas where the current interval is shorter (over-burned) than

[4] David Schmidt, Fire Ecologist, The Nature Conservancy;
Hugh Safford, Regional Ecologist, U.S. Forest Service, Region 5.

[5] For data limitations in these datasets, see the CALVEG mapping and California fire history database metadata, respectively:

- http://www.fs.usda.gov/detail/r5/landmanagement/resourcemanagement/?cid=stelprdb5347192
- http://frap.fire.ca.gov/data/frapgismaps/frap_maps.html

normal are shown as negative numbers, while areas with longer fire return intervals are shown as positive numbers (underburned). A condition class of either 1 or -1 indicates that fire return intervals are within the expected range of variability around the mean for a given fire regime. Condition classes 2 or -2 indicate a moderate departure from the expected mean, while condition classes 3 or -3 indicate a high departure from the expected mean.

Both moderate and high departures may indicate that altered fire regimes pose a risk to the ecological condition of the site. Type conversion from high fire frequencies (Condition Class -3) or deforestation from wide-spread high severity crown fires (Condition Class 3) are more likely as the absolute value of the condition class rating increases.

Table 3: FY19 status of departures from mean fire return interval.

Fire Return Interval Departure (Condition Class)	Acres (FY19)	% of total (FY06)	% of total (FY19)	% Difference (FY06-19)
CC-3	19,091	6	2	**-4**
CC-2	105,096	43	5	**-38**
CC-1	120,444	33	25	**-8**
CC1	130,151	7	28	**+21**
CC2	32,396	2	30	**+28**
CC3	12,413	5	8	**+3**
Unclassified	7,219	2	2	**0**

Trends in annual indicators for Goal 1.2:

In FY19, the calculation for condition class showed a significant reduction in the percent of the forest in condition class -2 (CC-2) and increase in CC-1 from the previous year, indicating that ecological recovery from over-burning has occurred on the landscape. Up until FY19, the percent of the forest in condition class -2 (too frequent fire) was significant and had increased due to two unprecedented, large wildfire events in 2003 and 2007.

Since FY06, percent of the forest in CC-2 decreased from 43% to 5%. Also, since 2006, the percent of the forest in CC2 (too infrequent fire), increased from 2% to 30% due to lack of wildfire and fuel treatments.

Forest Goal 1.2.1: Fire Regime I, 0 to 35 years, low severity (LMP, Part 1, pg. 22)

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

Activity, practice, or effect to be monitored: Vegetation condition.

Monitoring question: Is the CNF making progress toward increasing the percentage of montane conifer forests in Condition Class 1?

Indicator: Departure from desired fire regime, acres by Fire Regime I.

Monitoring Action: Use baseline acres of Montane Conifer, Fire Regime I, from the 2006 Southern California LMP analysis that were in Condition Class 1; subtracting the areas that have not had mechanical treatment, prescribed under burning, or wildfire within the previous 35 years; and adding the areas that have been mechanically treated, areas that have had prescribed under burning, and areas that have had wildfire over the two year monitoring period.

Table 4 shows that in FY19, a total of 2,348 acres were treated, of which 86% were in CC3, which are most in need of treatment. Treating hazardous fuels in these areas that have missed expected fires is consistent with Goal 1.2.1 of the LMP, which directs the CNF to reduce the potential for widespread losses of montane conifer forests caused by severe, extensive, stand replacing fires (LMP, Part 1, pg. 22).

Table 4: Acres treated in Fire Regime I by condition class (FY19).

Activity	Condition Class						Total
	CC-3	CC-2	CC-1	CC1	CC2	CC3	
Broadcast Burning	0	0	0	45	7	101	153
Burning of piled material	0	0	6	6	17	231	260
Piling of fuels	0	0	8	3	12	360	383
Rearrangement of fuels	0	0	7	4	136	792	939
Removal of Hazard Trees and Snags (Recreation)	0	0	0	0	4	127	131
Sanitation Cut	0	0	7	4	36	51	98
Special Products Removal	0	0	0	0	0	1	1
Thinning or pruning for hazardous fuel reduction	0	0	8	3	12	360	383
Total	**0**	**0**	**35**	**66**	**226**	**2,026**	**2,348**
% of Total	0%	0%	1%	3%	10%	86%	100%

*Some units received more than one treatment in FY19

Trends in annual indicators for Goal 1.2.1: Based on reported fuel reduction activities from FY08 through FY19, approximately 14,458 acres were treated in montane conifer. Some 12,915 acres of the total, or 89%, were treated in CC3, while 1,044 acres, or 7 percent, were treated in CC2. Over that same period, only 608 acres, or 4% of the total, were treated in all other condition classes.

Based on these data, the CNF has made good progress toward increasing the percentage of montane conifer forests in Condition Class 1.

Forest Goal 1.2.2: Maintain or increase percent chaparral and coastal sage scrub in condition class 1 (LMP, Part 1, pg. 25)

Goal: Restore forest health where alteration of natural fire regimes has put human and natural resource values at risk. Reduce the number of acres at risk from excessively frequent fires while improving defensible space around communities.

Activity, practice, or effect to be monitored: Vegetation condition.

Monitoring questions: Is the CNF making progress toward maintaining or increasing the percentage of vegetation types that naturally occur in Fire Regime IV in Condition Class 1 (CC1)?

Indicator: Departure from desired fire regime, acres by Fire Regime IV (Chaparral, Coastal Sage Scrub, Gabbro, Serpentine, Closed-cone conifer, and Lower montane vegetation types), Fire Regime.

Monitoring Action: Show trends from 2006 baseline forest acres in Fire Regime IV that were in CC1 by subtracting the areas that have a return interval of disturbance that is less than 35 years over the two year monitoring period through mechanical treatment, prescribed under burning, and wildfire; and adding the areas that have not had mechanical treatment, prescribed under burning, or wildfire within the previous 35 years.

Approximately 49 percent of the forest land area was in CC-2 and CC-3, at moderate to high risk of type conversion from excessively frequent fires in FY06 (Table 3). In Fire Regime IV, chaparral habitat, vegetation treatments in CC-2 or CC-3 move the area away from the desired condition by adding another burn or disturbance to a location that has already burned too frequently. These concerns primarily apply to Fire Regime IV, which includes mostly chaparral and coastal sage scrub vegetation types but also serotinous conifer and big sagebrush vegetation types.

The CNF strategy in treatment of these vegetation types is to focus vegetation management to pre-identified strategic locations where protection of communities can be improved, such as major ridge tops that are upslope from developed areas. Fire history patterns show that fires often stop in the same locations due to topography or man-made features such as reservoirs or highways.

Table 5: Acres treated in fire regime IV by condition class (FY19).

Activity	Condition Class						
	-3	-2	-1	1	2	3	Total
Broadcast Burning	0	30	93	79	0	0	**202**
Burning of Piled Material	50	215	131	88	8	50	**492**
Piling of Fuels, Hand or Machine	29	108	78	111	16	29	**342**
Re-vegetation treatments - herbicides	0	4	24	54	0	0	**82**
Rearrangement of Fuels	0	8	35	71	11	0	**125**
Removal of hazard trees and Snags (Recreation)	0	0	2	10	10	0	**22**
Sanitation Cut	0	4	1	5	0	0	**10**
Special Products Removal	0	0	0	3	0	0	**3**
Thinning or Pruning for Hazardous Fuels Reduction	29	104	52	57	16	29	**258**
Total	**108**	**473**	**416**	**478**	**61**	**108**	**1,536**
% of Total	7%	31%	27%	31%	4%	7%	100%

*Some units received more than one treatment in FY19.

Table 5 shows that 1,536 total acres were treated in Fire Regime IV in FY19. Fifty eight percent of treatments were in areas of condition classes of CC-1 or CC1. 31% were in areas of CC-2,

where fire is overly frequent. These areas were treated primarily for community defense against wildfire in the WUI. Location and fuel condition were the primary factors for their selection rather than condition class.

FY19 was atypical, in that very few wildfires burned or threatened CNF land. CNF's fire suppression efforts are typically a measure of effective protection of chaparral and coastal sage scrub ecosystems from overly frequent fire, but this was not a factor in FY19.

Trends in annual indicators for Goal 1.2.2: Based on reported fuel reduction activities that have occurred from FY08 through FY19, approximately 20,623 acres were treated in Fire Regime IV. Some 1,760 acres of the total, or 9 percent, were treated in condition classes 2 and 3, while 8,781 acres, or 43 percent, were treated in condition classes -2 and -3. Over that same period, 9,728 acres, or 46 percent of the total, were treated in condition classes -1 and 1.

Although 8,781 acres were treated in condition classes -2 and -3, which represent areas that have experienced fire or disturbance more frequently than would be naturally expected, the areas that were treated are found mainly in areas that comprise WUI defense or threat zones. Fuel reduction activities in these areas are expected to reduce the potential for wildfires to threaten the safety of the public living near the perimeter of the National Forest.

Goal 1.2.3: This goal relates to maintaining long fire-free intervals in habitats where fire is naturally uncommon, is not addressed in this report because this goal was developed at a scope that accounted for all four Southern California National Forests.

Forest Vegetation and Health Monitoring

Inventories of Vegetation Resources

The Forest Service Remote Sensing Lab provides inventories of vegetation resources in an ecological framework for determining changes, causes, and trends to vegetation structure, health, biomass, volume, growth, mortality, condition, and extent.

For details of the vegetation monitoring section, see: http://www.fs.fed.us/r5/rsl/projects/.

Oak Tree Mortality

Widespread oak tree mortality is occurring on federal, state, private, and Native American lands in San Diego and Riverside Counties, including the southern portion of the CNF. Researchers from the Forest Service and other agencies discovered that dead and dying oaks were infested with a beetle called the Gold-Spotted Oak Borer (*Agrilus coxalis, GSOB)*. The oak borer infests and kills California black oak, coast live oak, and canyon live oak. Due to current and potential impacts, both regionally and throughout California, multiple agencies and organizations are working together in the research, education, and outreach efforts regarding this pest. Information on the GSOB may be found at: http://www.gsob.org.

Forest Goal 2.1: Invasive species (LMP, Part 1, pg. 31)

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

Activity, practice, or effect to be monitored: Invasive species.

Monitoring question: Are the CNF's reported occurrences of invasive plants/animals showing a stable or decreasing trend?

Indicator: Acres of treatments in reported occurrences.

Monitoring Action: Establish a baseline for the acres of reported occurrences of invasive plant and animal species; subtracting the areas that have been effectively treated; and adding areas where new presence of invasive species has been reported.

During FY19, approximately 289 acres of invasive species were treated on the CNF. There were invasive plants/weed treatments on Trabuco and Descanso Ranger Districts, with most the acreage treated focused on tamarisk in Cottonwood-La Posta area of the Descanso Ranger District. Aquatic invasive fish removal treatment was done on the Palomar District in Cedar Creek, a tributary to the San Diego River.

Trends in annual indicators for Goal 2.1: Survey data was entered into the Natural Resource Information System (NRIS) corporate database and acres treated are recorded in the FACTS database. Based on reported activities that have occurred from FY08 through FY19, approximately 2,425 acres were treated or retreated for invasive plant species on the CNF. Invasive species that were removed include giant reed (*Arundo donax*), Edible Fig, (*Ficus carica)*, tree tobacco, tamarisk, yellow starthistle, Italian thistle, Spanish broom, mustard, and purple pampas grass. Eradication of new infestations and treatment of riparian areas were emphasized.

New treatment areas in the San Diego River Watershed for aquatic invasive fish were identified, primarily targeting green sunfish, bass, and bullfrogs. Because the Forest does not receive a level of funding sufficient to conduct a comprehensive inventory, we are unable to identify a trend based on change from total inventoried acres. Based on internal knowledge of the infested areas, it is likely that there is a decreasing trend for our priority weed species; however, for all invasive plants it is stable or even increasing.

Forest Goals 3.1 and 3.2: Managed recreation in a natural setting (LMP, Part 1, pp. 33 to 36)

Goals: Provide for public use and natural resource protection (3.1).

Retain a natural-evolving character within wilderness (3.2).

Activity, practice, or effect to be measured: (1) Visitor use of the CNF (3.1). **(2)** Wilderness use (3.2).

Monitoring questions: (1) Are trends in indicators and visitor satisfaction surveys indicating that the CNF has provided quality, sustainable recreation opportunities that result in increased visitor satisfaction? **(2)** Are trends in indicators and visitor satisfaction surveys depicting the CNF has provided solitude and challenge in an environment where human influences do not impede the free play of natural forces?

Indicators: (1) Visitor satisfaction survey (National Visitor Use Monitoring, NVUM). **(2)** Wilderness condition.

Monitoring Actions:[6] **(1)** Use baseline scores in Visitor Satisfaction from NVUM that occurred around the 2006 Southern California LMPs and comparing the five year NVUM Visitor Satisfaction scores. **(2)** Use baseline scores in Visitor Satisfaction for Wilderness from NVUM that occurred around the 2006 Southern California LMPs and compare the five year NVUM Visitor Satisfaction scores for Wilderness; national reporting systems for management actions in wilderness; and accomplishment data related to the National 10-year Wilderness Stewardship Challenge.

Annual indicators are "recreation facilities managed to standard", including natural resource protection as described in Goal 3.1. Implementation and effectiveness monitoring of resource protection actions required by LMP standards S34 and S50 (including Part 3 Appendix D) help to measure the resource protection element of this goal.

Long-term indicators are visitor use trends by activity and overall satisfaction from the National Visitor Use Monitoring (NVUM) survey. Data for FY19 is not available.[7] The baseline NVUM survey reported 97 percent visitor satisfaction; 93 percent of visitors were satisfied as of 2014. The current report summarized data which were collected in 2014 as shown below in Table 6.

Table 6. Percent satisfied by site type.

Satisfaction Element	Satisfied Survey Respondents (%)		
	Developed Sites	Undeveloped Areas (general forest areas)	Designated Wilderness
Developed Facilities	82.2	80.3	78.8
Access	95.4	85.5	98.4
Services	86.8	78.6	77.5
Feeling of Safety	98.7	93.3	100

These 2014 values are generally higher across the board than those determined in 2009. The two exceptions are developed facilities in developed sites, and service in designated wilderness. This data differs slightly from what was reported in the FY16 LMP Monitoring and Evaluation Report and may be due to updates made in the NVUM database as recently as January 26, 2018. The results also indicate that CNF visitation has increased substantially since 2009, with approximately 641,000 visits in 2014 relative to 465,000 in 2009. The 2014 report is available online at: http://www.fs.fed.us/recreation/programs/nvum/.

FY14 marked the end of the 10-Year Wilderness Stewardship Challenge, and the beginning of the implementation of a new performance measure called the Wilderness Stewardship Performance (WSP) in the following year. WSP is a framework used to measure Forest Service efforts to meet its primary responsibility under the Wilderness Act – *to preserve Wilderness character*. The national framework establishes a consistent approach and allows units to tailor

[6] Baseline data does not exist in FY06. Data is only available for FY09 and FY14.
[7] FY19 survey is not available, see: https://apps.fs.usda.gov/nvum/results.

their reporting to local Wilderness needs and priorities by selecting the elements of greatest local relevance. From 20 elements possible, each unit selected 10 core elements to be graded on, four of which were required.

Preliminary reporting was initiated in 2015. Table 7 shows the WSP scores of all four CNF Wilderness areas for FY 2015 to 2019. These scores reflect the 10 core elements of wilderness condition. Each element has a 10-point score maximum with a combined maximum score of 100. Scores over 60 are considered "managed to standard". Currently, only Agua Tibia Wilderness Area is considered managed to standard. For FY19 there was an 18-point improvement in the overall wilderness area score. Scores increased slightly for all wilderness areas in FY19 due to the offering of wilderness training and education.

Table 7: Wilderness Stewardship Performance Scores.

Year	Wilderness Area			
	Agua Tibia	Hauser	Pine Creek	San Mateo Canyon
2015	38	20	22	26
2016	38	24	22	26
2017	54	48	44	48
2018	56	48	44	48
2019	62	52	48	52

Trends in annual indicators for Goal 3.1 and 3.2: While the baseline NVUM survey and the current report from data collected in 2014 cannot be compared directly due to differing methodology, the CNF maintains a high level of user satisfaction. The trend between 2009 and 2014 reports shows increases in visitor satisfaction on the CNF, and Wilderness condition is improving consistently as well.

Forest Program Goal – Her 1: Heritage Resource Protection

According to the Heritage Program Managed to Standard (HPMtS) criteria established by the U.S F.S Regional Heritage Program, the CNF Heritage Program was not managed to standard in FY19. "A minimum cumulative score of 45 is necessary to meet the minimum stewardship level. A score of less than 45 does not trigger punitive action, but rather indicates where emphasis is needed to bring a program up to standard." Due to a robust Forest Program of Work monopolizing the heritage staff time, the CNF was unable to plan and coordinate the heritage program desired for FY19.

The CNF Heritage Program staff accomplished a great deal of work on the ground, much of which was not captured by the reporting database. The CNF Heritage Program conducted a variety of Section 110 activities that earned the Forest an actual total of 31 points[8]. Section 110 projects were completed, relationships with partners and volunteers were maintained and strengthened and points were earned in 6 of the 7 indicator categories by the CNF, including:

Indicator 1: Program Plans (3 points);

[8] It should be noted, however, that while the official score may be 22 according to NRM.

Indicator 2: Section 110 Field Survey (0 points);
Indicator 3: NRHP Evaluations and Nominations (2 points);
Indicator 4: Priority Heritage Asset Condition Assessment (6 points);
Indicator 5: Priority Heritage Asset Stewardship (5 points);
Indicator 6: Public Outreach (10 points);
Indicator 7: Volunteer Contributions (5 points).

The desired condition is to preserve or enhance significant heritage resources. FY19 CNF Heritage Program accomplishments under the *Programmatic Agreement among the U.S.D.A Forest Service, Pacific Southwest Region (Region 5), California State Historic Preservation Officer, Nevada State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Processes for Compliance with Section 106 of the National Historic Preservation Act for Management of Historic Properties by the National Forests of the Pacific Southwest Region (RPA)* or Section 106 of the National Historic Preservation Act (NHPA) included the analysis of the potential for effects to historic properties for a total of 46 proposed undertakings were analyzed for the potential for effects on historic properties by the CNF HPM in FY19. All 46 proposed undertakings were determined to be compliant with Section 106 of the NHPA through the application of the stipulations of the RPA.

Of the 57 projects determined to be compliant with Section 106 of the NHPA through the application of the stipulations of the RPA in FY19, 26 required the assessment of the identified potential for effects associated with those projects, although only 9 required additional survey be conducted for the identification of historic properties. Cultural resource surveys conducted in support of these undertakings resulted in the survey of a total of approximately 698 acres. A total of 2 new cultural resource sites were identified during survey. The staff recommended 14 protection measures in projects (Appendix E 1.1-1.5; 2; 3; or Appendix H 5.2a-f, 5.3) and another 12 needed no standard resource protection measures (either due to the nature of the undertaking or lack of resources at risk within the APE, or both).

Table 8 provides a summary of the 57 proposed undertakings that were analyzed for their potential for effects and determined to be compliant through the application of the stipulations of the RPA in FY19. The associated Area of Potential Effects (APE) of 9 of them required survey, 17 were determined to have been adequately surveyed in association with previous projects, and 31 met the requirements for being authorized as Screened Undertakings per Stipulation 7.2 and Appendix D of the RPA.

Table 8: Project Summary.

Total Projects	36 CFR 800 Projects	RPA Projects	Survey Projects	Previously Surveyed	Screened Undertakings
57*	0	57	9	17	31

Table 9 summarizes the number of acres surveyed and number of sites associated with projects determined to be compliant under the stipulations of the RPA in FY19.

Table 9: Historic Property and Survey Data.

Acres Surveyed	New Sites Recorded	Sites Updated	Sites Protected	Sites Monitored	Inadvertent Effects
698	3	43	43	43	0

Air Quality Monitoring

Under the Interagency Monitoring of Protected Visual Environments (IMPROVE) program, a sampling station at the Dripping Springs Fire Station monitored the air quality near the Agua Tibia Wilderness Class 1 air-shed. Monitoring results indicate that the largest sources of haze were ammonium sulfate and ammonium nitrates and that visibility has been improving for the Agua Tibia Wilderness since monitoring began (Figure 7[9]). Trend shows the number of hazy days decreasing.

A deciview (dv) reading of "0" indicates a clear view with no reduction in visibility. Data after 2017 is not available for Agua Tibia due to Forest Service budget reallocation. In addition, the Forest Service conducts real-time visibility monitoring of select locations using a real-time web camera[10], but the CNF is not included.[11] The Forest Service would continue to assess wilderness visibility under the Clean Air Act's Prevention of Significant Deterioration (PSD) program for projects on the CNF, as applicable.

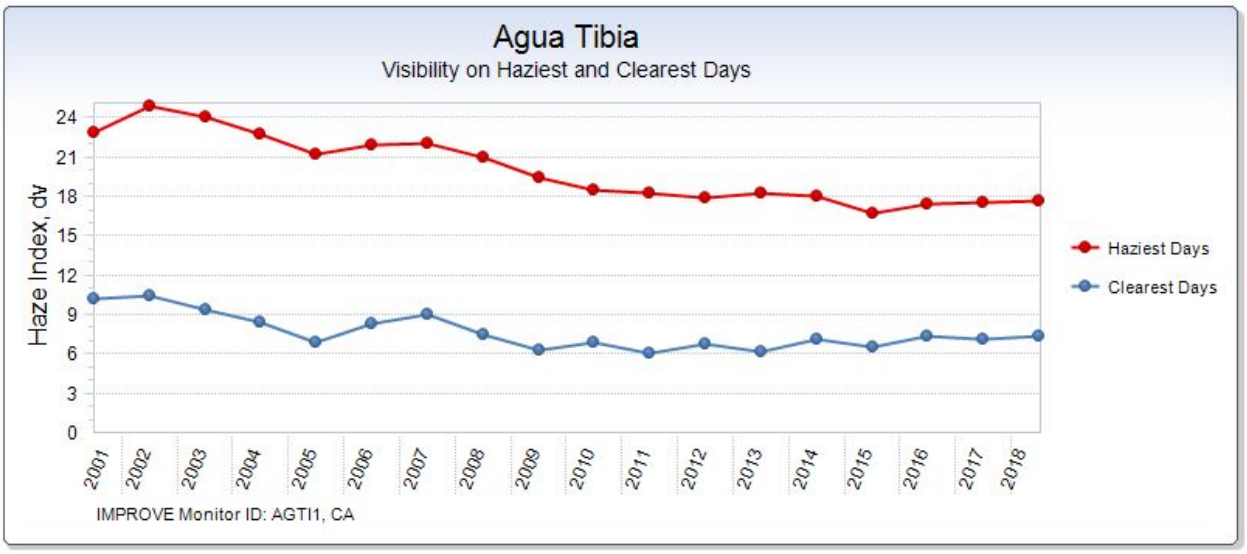


Figure 7 - Agua Tibia Air Quality Monitoring Results.

Forest Goals 4.1a and 4.1b: Energy and minerals production (LMP, Part 1, pp. 37 and 38)

Goals: Administer minerals and energy resource development while protecting ecosystem health (Goal 4.1a). Administer renewable energy resource developments while protecting ecosystem health (Goal 4.1b).

Activity, practice, or effect to be measured: (1) Mineral and energy development (Goal 4.1a). **(2)** Renewable energy resource development (Goal 4.1b).

[9] http://views.cira.colostate.edu/fed/SiteBrowser/Default.aspx?appkey=SBCF_VisSum
[10] https://www.fsvisimages.com/
[11] The Forest Service's Air Quality Specialist for the Pacific Southwest Region is looking into alternative monitoring strategies for the CNF.

Monitoring questions: Has the CNF been successful at protecting ecosystem health while providing renewable resources for development?

Indicators: (1) Number of Mineral and Energy Development Projects Proposed and Approved. **(2)** Renewable Resources Success at protecting Ecosystem Health.

Monitoring Actions: (1) Compare the number of mineral and energy development projects proposed with those approved to establish a baseline of impacts to resources. Compare the number of acres of habitat conserved as part of mitigation for mineral and energy development projects. **(2)** Compare the number of renewable resource projects proposed with those approved to establish a baseline of impacts to resources. Compare the number of acres of habitat conserved as part of mitigation for renewable resource projects.

In FY19, the Forest Service continued monitoring implementation of the ongoing San Diego Gas & Electric's (SDG&E) powerline replacement project. Aside from the mitigation funds provided by SDG&E, the fire hardening aspect of this project is a significant benefit to National Forest System lands, its resources, and communities located within and adjacent to the CNF by minimizing the potential for powerline caused wildfires in the future.

In FY19, the CNF did not acquire any lands. Additional acquisitions are planned in the future.

In FY19, the Forest Service continued conducting site inspections to determine the status of mining claims on the CNF. From 2012-2014, gaps in the mining record exist due to lack of permit administration staff. There are currently 12 claims on the Trabuco Ranger District, 17 on the Palomar Ranger District, and 20 on the Descanso Ranger District. There was likely mining-related activity on 13 of these claims.

In total, 15 special use authorizations (SUAs) were processed for powerlines projects, including operation and maintenance of pre-existing powerlines (SCE, SDG&E, Motorola, and State of California) and 0 SUA was issued for mineral exploration on the CNF in FY19.
No new hard rock mine approvals on National Forest System (NFS) lands occurred in FY19.

Trends in annual indicators for Goal 4.1a and Goal 4.1b: Projects that meet the criteria of these goals include SDG&E's project and administration of existing mining claims to ensure ecosystem health is protected. The CNF continues to meet the intent of both these goals.

Forest Goals 5.1 and 5.2: Watershed function (LMP, Part 1, pg. 39) and riparian condition (LMP, Part 1, pg. 41)

Goals: Improve watershed conditions through cooperative management (Goal 5.1).

Improve riparian conditions (Goal 5.2).

Activity, practice, or effect to be monitored: (1) General forest activities and watershed improvement projects (Goal 5.1). **(2)** General forest activities (Goal 5.2). **(3)** Streamflows (Goals 5.1 and 5.2).

Monitoring questions: (1) Is the CNF making progress toward sustaining Class 1 watershed conditions while reducing the number of Condition Class 2 and 3 watersheds? ***(2)** How do streamflows compare with historical records? **(3)** Is the CNF increasing the proper functioning condition of riparian areas?

Indicators: (1) Number of Watersheds in each Condition Class. ***(2)** Monthly Streamflows, Timing and Magnitude of Peak Flows, Degree of Variation. **(3)** Change in Indicator Score for Aquatic Habitat, Aquatic Biota and Riparian Vegetation.

Monitoring Actions: Compare baseline number of watersheds in each Condition Class from the LMPs analysis with the five year Watershed Condition Assessment (Goal 5.1). Compare the change in score from the Watershed Condition Assessment indicators (Goal 5.2; coordinate with Goal 5.1).

Table 10: Watershed Condition Framework – 2011[12]

Outcome indicator	Desired condition	Baseline Watersheds	Trigger
Condition Class 1, Properly Functioning	Maintained condition ratings	31	Decrease in number of Class 1 watersheds
Condition Class 2, Functioning at Risk	Maintained or improved condition ratings	17	Decrease in number of Class 2 watersheds
Condition Class 3, Impaired Function	Improved condition ratings	0	Degrading conditions in Class 3 watersheds

Table 10 displays Watershed Condition Framework (WCF) ratings finalized in 2011. The majority of watersheds on the CNF are functioning properly; none are impaired. Priority watersheds are: Arroyo Trabuco (Trabuco Ranger District), Cedar Creek (Palomar Ranger District), and Kitchen Creek-Cottonwood Creek (Descanso Ranger District).

In FY19, the CNF continued to implement Watershed Restoration Action Plans (WRAPs) in Cedar Creek and Kitchen Creek-Cottonwood Creek watersheds and started to implement the WRAP in Arroyo Trabuco. Both Cedar Creek and Kitchen-Cottonwood Creek WRAPs include invasive feral pig monitoring and eradication. An initial entry for Invasive Fig removal was completed in Arroyo-Trabuco. Dam removal sites completed in earlier years were monitored for recovery.

A new priority watershed (Boulder Creek) has been identified and the WRAP is in draft form. Several actions identified in the draft WRAP were planned in FY18 for implementation in FY19/20 (invasive weed removal, aquatic invasive removal, trail stabilization and management, impacted site monitoring).

[12] https://www.fs.fed.us/naturalresources/watershed/condition_framework.shtml

The CNF's biannual Best Management Practices Evaluation Program report for FY17 and FY18 is currently being prepared and will be sent to the Regional Water Quality Control Board. This report is delayed due to impacts from 2018-2019 government shutdown and BAER response actions for the 2018 Holy Fire. In addition, periodic road decommissioning projects contribute to improved watershed function as well as projects to remove Aquatic Organism Passage barriers.

This is the third year utilizing the new protocol developed for tracking streamflows. Figures 12 and 13 show percentiles and median streamflows from historical years 1955-1980 for two gauged streams on the CNF: Santa Ysabel Creek on the Palomar Ranger District and Sweetwater River on the Descanso Ranger District. Highest and lowest flows from 1955-2019 are also displayed.

For 2019, Santa Ysabel Creek experienced above average flows relative to the historical period of 1955-1980. Cumulative discharge exceeded the 75th percentile in the first event of the year in December 2018. December-February was very dry, although cumulative flow remained slightly above the historical average. Two major storms Step-wise nature of the data is reflective of flashy discharge events, which could be partially due to high-intensity precipitation events. Significant storms and steady rain in February (most notably on February 14th, 2019) increased the cumulative daily flow above the 75th percentile of the historical average. Cumulative annual flow is approximately 80th percentile the historical average.

Sweetwater River experienced above average flows relative to the historical period of 1955-1980. The flow at the gauge was negligible until mid-January. The February 14th storm increased the cumulative daily average flow over the 75th percentile of the historical average. Cumulative annual flow is approximately 80th percentile the historical average.

Trends in annual indicators for Goals 5.1 and 5.2: No changes in Watershed Condition Class or indicators have been documented since the initial ratings, and no trend is evident.

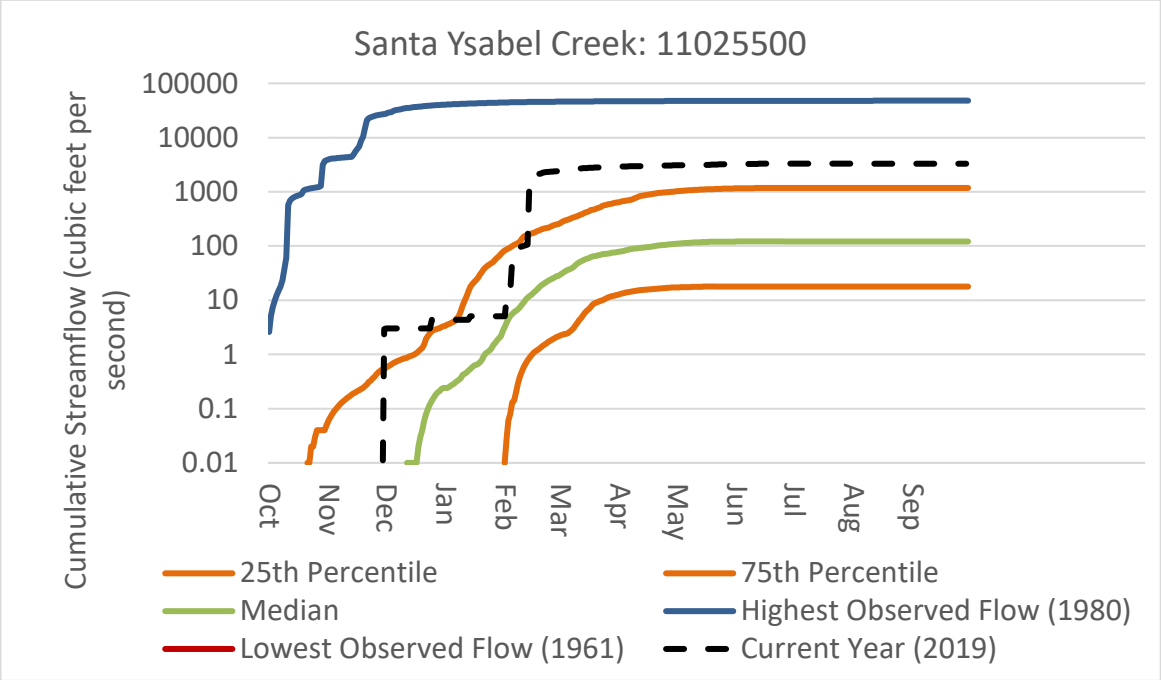


Figure 8. Santa Ysabel Creek Streamflow.[13]

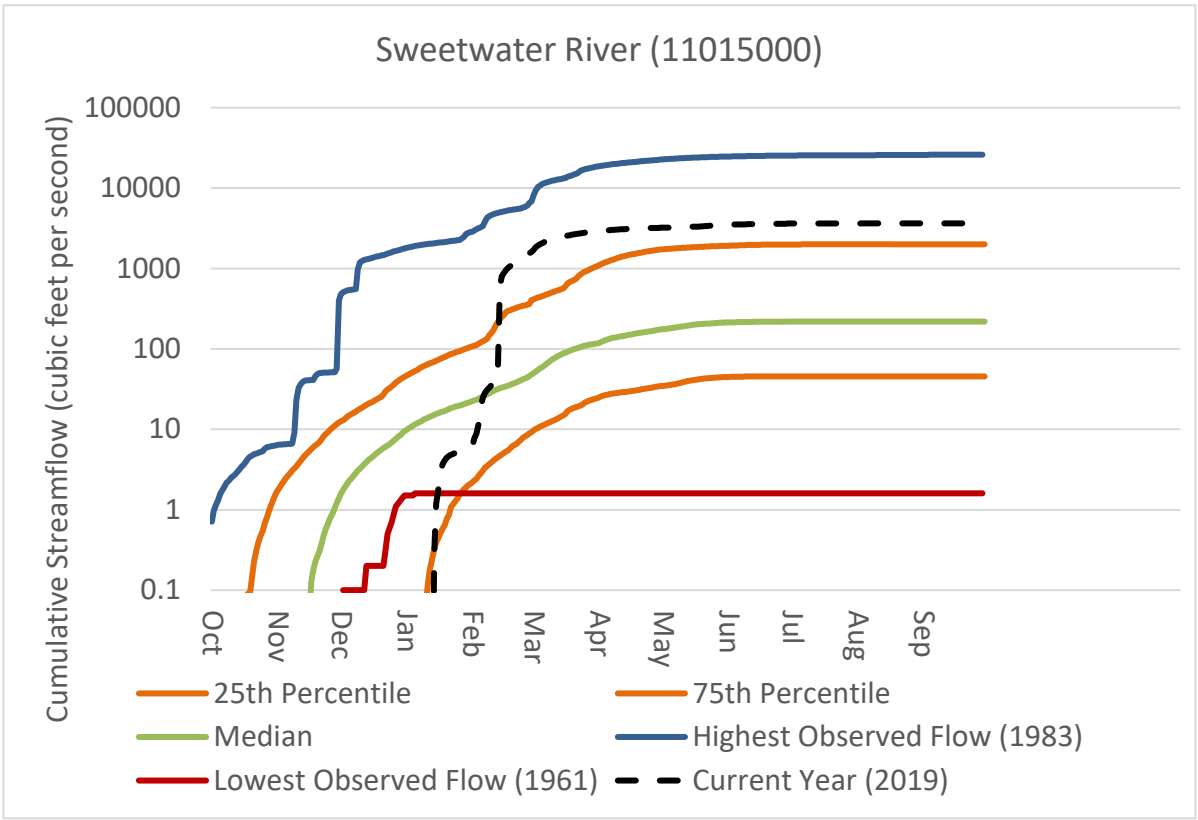


Figure 9. Sweetwater River Streamflow.[14]

[13] Historical Years: 1955-1980; Total Data Years: 1955-2019 (water year).
[14] Historical Years: 1957-1980; Total Data Years: 1957-2019 (water year).

Forest Goal 6.1: Rangeland condition (LMP, Part 1, pg. 42)

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

Activity, practice, or effect to be measured: Livestock grazing.

Monitoring question: Is forest rangeland management maintaining or improving progress toward sustainable rangelands and ecosystem health?

Indicator: Percent of key areas in active allotments meeting or moving towards desired conditions.

Monitoring Action: Compare baseline percent of Key Areas in active allotments meeting or moving towards desired conditions from the 2006 Southern California LMP analysis.

Table 11 displays the baseline and trend monitoring for the range and grazing for FY19.

Table 11: Baseline and trend monitoring for range allotments in FY19.

Outcome indicator	Desired condition	Previous monitoring	Current	Trend	Trigger
Good/high	Maintain condition rating	12	12	Stable	Decrease in number of key areas in good condition
Fair/moderate	Maintain/improve condition rating	14	14	Stable	Decrease in number of areas in fair condition
Poor/low	Improve condition rating	0	0	Stable	Degrading conditions in key areas poor condition

Table 12 displays the most recently available allotment conditions.

Table 12: Grazing Allotment Conditions.

Allotment, pasture	Condition	Assessment type	Year
Black Mountain	Good—stable	Annual compliance monitoring, BMP monitoring	2018
Corte Madera, Lower Bear Valley	Fair – Signs of reduced OHV trespass damage, drought impacts highly visible, grazing season shortened	Annual compliance monitoring	2019
Guatay	Good – Stable	Region 5 long-term trend monitoring in 2010; annual compliance monitoring	2019
Indian Creek	Un-grazed, not monitored	--	n/a

Allotment, pasture	Condition	Assessment type	Year
Laguna, Kitchen Valley	Moderate	Annual compliance monitoring	2012
Laguna, Cameron, La Posta Creek	Moderate	Region 5 long-term trend monitoring in 2010; annual compliance monitoring	2019
Laguna, Joy Pasture	Low—2006 , Low – 2011 Visual assessment in 2013 showed improvement and reduction on OHV impact – Fair condition in 2017	Region 5 long-term trend monitoring in 2017; annual compliance monitoring	2017
Laguna, Long Canyon Pasture	Low—2006; Moderate—2009	Region 5 long-term trend monitoring in 2009; annual compliance monitoring	2016
Laguna Meadow, mid-meadow plot	Good—light grazing pressure well within standards	Annual compliance monitoring	2019
Laguna Meadow, Las Rasalies plot	High 2000, moderate 2005, moderate 2009, trend stable	Region 5 long-term trend monitoring, annual compliance monitoring	2011
Love Valley	High—stable	Annual compliance monitoring, un-grazed due to SDGE construction yard	2019
Mendenhall, Lower	Good	Annual compliance monitoring	2019
Mendenhall, Upper	High	Region 5 long-term trend monitoring in 2011; annual compliance monitoring	2019
Mesa Grande, Kelley unit	Fair – difficult to monitor	Rapid	2008
Miller Mountain	Good	Annual monitoring compliance	2019
Samataguma	Good	Annual monitoring compliance	2019
Tenaja	Good – un-grazed	Region 5 long-term trend monitoring	2011
Verdugo	Good	Annual compliance monitoring	2019
Warner Ranch	Good	Annual compliance monitoring	2018

Trends in annual indicators for Goal 6.1: All areas showed improved productivity from two years of good rainfall for the winter season. However, drought conditions over a longer timeframe continue. In general, grazing permittees have responded to the drought by reducing numbers of the livestock in the herds or selling calves early. Based on periodic compliance monitoring, nearly half of allotments or pastures remain in good to high condition (Table 12).

Several issues with range condition are tied to illegal OHV use and not grazing management. These include areas on the Corte Madera Allotment and on the Laguna Allotment. Work has occurred to block off sensitive meadow areas from vehicular trespass at Bear Valley and along Kitchen Creek Road. Monitoring has shown OHV caused damage remaining relatively stable in Bear Valley in FY19, and sharply reduced along Kitchen Creek Road.

Forest Goal 6.2: Biological resource condition (LMP, Part 1, pg. 44)

Goal: Provide ecological conditions to sustain viable populations of native and desired non-native species.

Activity, practice, or effect to be measured: General forest activities and focal species.

Monitoring questions: (1) Are trends in resource conditions indicating that habitat conditions for fish, wildlife, and rare plants are in a stable or upward trend? ***(2)** Are chaparral and coastal sage scrub vegetation community types converting to non-native annual grasslands? ***(3)** Is coast live oak mortality increasing across the landscape?

Indicator: (1) Habitat Condition of At-Risk Species. ***(2)** Extent of Non-native Annual Grasses. ***(3)** Forest Health Protection Mortality Surveys.

Monitoring Action: Use baseline habitat condition from the 2006 Southern California LMPs analysis and compare with the existing habitat condition on the southern California National Forests.

Threatened and Endangered Species monitoring: In 2019, the CNF continued with monitoring specified in applicable biological opinions. The CNF annual report to the U.S. Fish and Wildlife Service included the following species and monitoring activities, where applicable:

Arroyo Toad – Sites on the Cleveland require some level of arroyo toad monitoring effort including five roads, two campgrounds and one trail. Monitoring efforts primarily focus on three factors including the determination of toad presence/absence, toad mortality and habitat disturbance. In 2019, no roadkill was detected. In general, protection measures were implemented and were working well. Other responsibilities include checking relevant signage, barriers, fences, and gate closures, etc.

Habitat improvement work (including noxious weed removal) was completed in Trabuco and San Juan Canyons. The Forest is also continuing work on a dam removal project that will result in the removal of 81 check-dams that are impairing stream function. Approximately 70 dams have been removed from Silverado, San Juan, Trabuco and Holy Jim Creeks (FY15, FY17, FY18, FY19 work). The Forest has seven agreements in place with partners who are funding or contributing in-kind effort to this project. The project has already improved fish passage in San Juan Creek, and the resident Arroyo Chub (FS sensitive species) has expanded its range in this watershed. When completed, the project will have substantial benefits for arroyo toad populations in San Juan and lower Trabuco Creeks as it will restore more natural flows of water and sediment in the stream.

Coastal California Gnatcatcher – Coastal sage restoration work is underway at San Diego River. This project is located within designated critical habitat for the gnatcatcher, and it is funded through the Witch Fire settlement (multi-year project). The Forest also continued the implementation of a Forest-wide project closing and decommissioning unauthorized motor vehicle routes. This project benefits the California Gnatcatcher and other species.

Least Bell's Vireo - A Least Bell's Vireo survey was conducted in San Diego River to check the status of this small population. Two pairs of vireos were detected. The population at San Diego River appears to be increasing slightly.

Southwestern Willow Flycatcher – U.S. Geological Survey (USGS) continued the 4th year of 5-year monitoring and research program at the upper San Luis Rey River in 2019. About 10 pairs of Southwestern Willow Flycatcher were detected on the Forest in 2019. Nest monitoring will resume next year, and no incidental take has been detected.

Hermes Copper Butterfly (candidate species) – The Forest has conducted additional surveys for this species and has implemented a number of management actions to protect its habitat including gates and barriers to prevent OHV traffic and restoration of nectar sources after fire. Several parcels of land the Forest has received (or will receive) as mitigation for the San Diego Gas and Electric (SDG&E) Sunrise Powerlink construction support this species; specifically, the Nelson Canyon parcel, acquired in 2014, and the Bell Bluff parcel which will be acquired in the next few years.

Laguna Mountains Skipper – Skipper surveys were conducted at Palomar Mountain sites by Forest staff. Fence enclosures at Observatory Campground, Mendenhall Valley and Mount Laguna were maintained. Monitoring fire effects to the Skipper's host plant, Cleveland's horkelia (*Horkelia clevelandii)*, continued in select fuels treatment blocks. Initial results demonstrated that prescribed fire was not detrimental to plant populations. Monitoring will continue into future years and efforts expanded into additional treatment blocks.

Munz's Onion – Improved habitat by controlling yellow star thistle population at Elsinore Peak, along South Main Divide Road. In 2019, at the Forest's request, SoCal Edison relocated an underground line at Elsinore Peak to an overhead location along the access road. This will reduce future disturbance to the Munz's Onion habitat in this area.

San Bernardino Bluegrass – Pre-grazing checks were completed for populations at Laguna and Mendenhall Meadows.

San Diego Thornmint – Implementation continued for grass-specific herbicide treatment to control or eradicate non-native Purple False Brome in occupied habitat along Viejas Grade Road to improve habitat for San Diego Thornmint. This work will continue for several years and is being implemented by the San Diego Gas and Electric (SDG&E) as part of the mitigation for the Sunrise Powerlink Project. In partnership with the San Diego Management & Monitoring Program, several populations were monitored as part of a coordinated landscape-scale conservation effort. In 2019, the San Diego Thornmint had a very good year, both from existing seed sources and from areas that were re-seeded as part of the restoration project.

Southern Steelhead – In 2019, additional planning was done for removal of 81 check-dams. The Forest is currently working with several partners including Caltrans, Orange County Parks, U.S. Marine Corps, and Orange County Transportation Authority; all of these partners are expected to contribute funding toward the completion of the dam removal project. In 2019, spider excavators removed 2 dams from Silverado Creek, and 15 dams from San Juan Creek. The spider excavators also removed three abandoned vehicles from San Juan Creek. An American

Conservation Experience crew removed 2 dams from San Juan Creek. Over the next 5- 10 years, the endangered Southern Steelhead is expected to return to spawn on the Forest.

Incidental Take: No take was observed for any threatened or endangered species in 2019 from LMP on-going activities.

The environmental baseline identifies the extent of occupied and suitable habitat for each species and describes ongoing activities in relation to the occupied and suitable habitat. Annual reporting of activities that may change the baseline conditions—including recovery actions proposed, new conservation strategies and new information from surveys or inventory—for threatened, endangered, proposed, and candidate species is recommended by the U.S. Fish and Wildlife Service.

Sensitive Species Monitoring: Kirsten Winter, Forest Biologist, and Julie Donnell, Forest Fisheries Biologist conducted monitoring to look at the effects of wildfire on sensitive plants. Heart-leaved Pitcher Sage (*Lepechinia cardiophylla*) and Keck's Phacelia (*Phacelia keckii*) were evaluated, both had responded very positively to the 2018 Holy Fire.

Focal Species Monitoring: A LMP administrative change was completed in May 2016 and added two focal species to the CNF monitoring program: non-native annual grasses and coast live oak. The coast live oak issue is being monitored in part via interpretation of aerial photos, which help to track oak mortality. This is the second annual monitoring report to address these questions.

Non-Native Annual Grasses – A protocol was being developed to evaluate the extent of type conversion from shrublands to annual grasslands across the Southern California National Forests. As previously reported, the number of acres of habitat type conversion from shrubland to annual grassland from Historic conditions to 2011, was determined as follows. The Wieslander Vegetation Type Map (VTM) was used as the best historic baseline of shrubland vegetation extent. This vegetation map was created from data collected in the 1930s. The VTM was spatially compared to a 2011 model of herbaceous ground cover developed by Isaac Park (University of California Riverside) and the Angeles National Forest. The model capitalizes on phenological differences between evergreen (shrublands) and summer senescent (annual grasses and other herbaceous species) vegetation types. Any area within the VTM shrubland vegetation type that was greater than 50% herbaceous cover was considered type converted. Areas recovering from fire, having burned within the last 10 years, were excluded from the analysis.

Wieslander's VTM contains 225,303 baseline acres of shrubland within the land area managed by the CNF in 2017. Approximately 11,425 acres (5.1%) have type converted to annual grassland according to the 2011 model. Regional USFS staff were not able to reproduce the 2011 methods and could not generate a model for more recent years. Therefore, no updated FY19 information is available.

Coast Live Oak – The Forest Health Protection Program of the Forest Service conducts Aerial Detection Survey overflights annually to monitor tree mortality (Figure 10). In 2019, coast live oak mortality was observed in an estimated 310 acres (Table 13), but the data reported was focused on live oaks generally, and mortality was not specifically attributed to the golden spotted oak borer (GSOB), as it was in past years. The apparent CNF acreage affected is less than FY18.

In 2019, oak mortality was more observable on the Trabuco Ranger District as shown on Figure 11 (large cluster apparent; smaller infestation areas not visible on map). Figure 12 shows the movement and continued presence of GSOB on CNF and adjacent areas.

Limitations exist for interpreting FY19 data. First, the exact same flight path not flown each year. Second, data collection and reporting changes and may not be directly comparable. For instance, coast live oaks and number of individual trees was reported in past reports, whereas a general acreage was reported for this report. Third, GSOB movement may not necessarily represent an increase or decrease in GSOB populations. Fourth, the location of the dead trees does not necessarily indicate the location of the current GSOB infestation since aerial detection survey results are reporting trees in the "red-dead" phase.

Table 13: Coast Live Oak mortality (in acres).	
Year	**Mortality**
2011	1,272
2012	1,002
2013	720
2014	939
2015	2,146
2016	2,177*
2017	1,050
2018	438 (522**)
2019	310**

Table 13:

*Previously reported acres for 2016 (4,096) were reduced in the 2017 Aerial Detection Survey report.

**Tracking Live Oaks generally, no longer focused on Coast Live Oak.

Source: https://www.fs.usda.gov/detail/r5/forest-grasslandhealth/?cid=fseprd658624

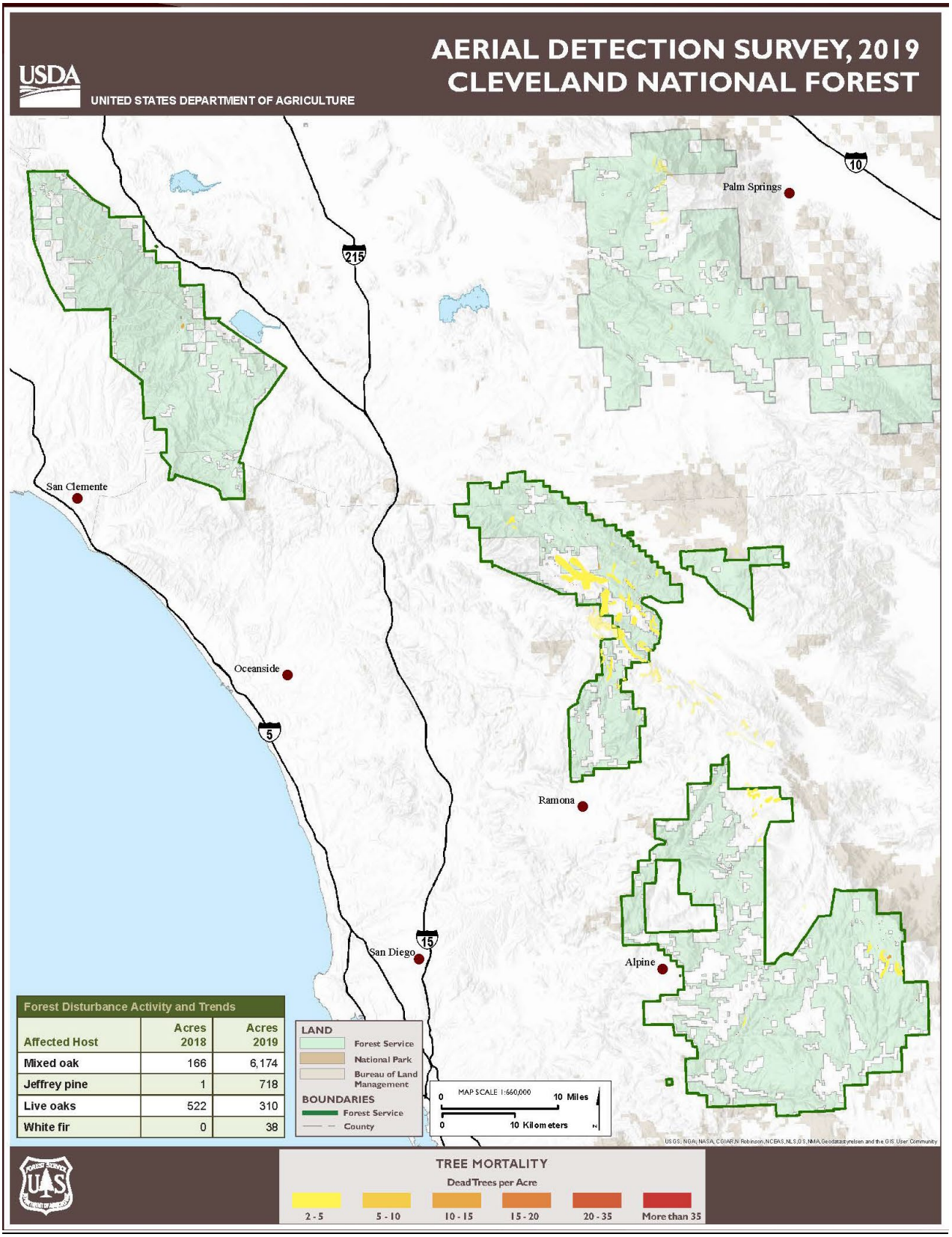


Figure 10 - Aerial Detection Survey in 2019

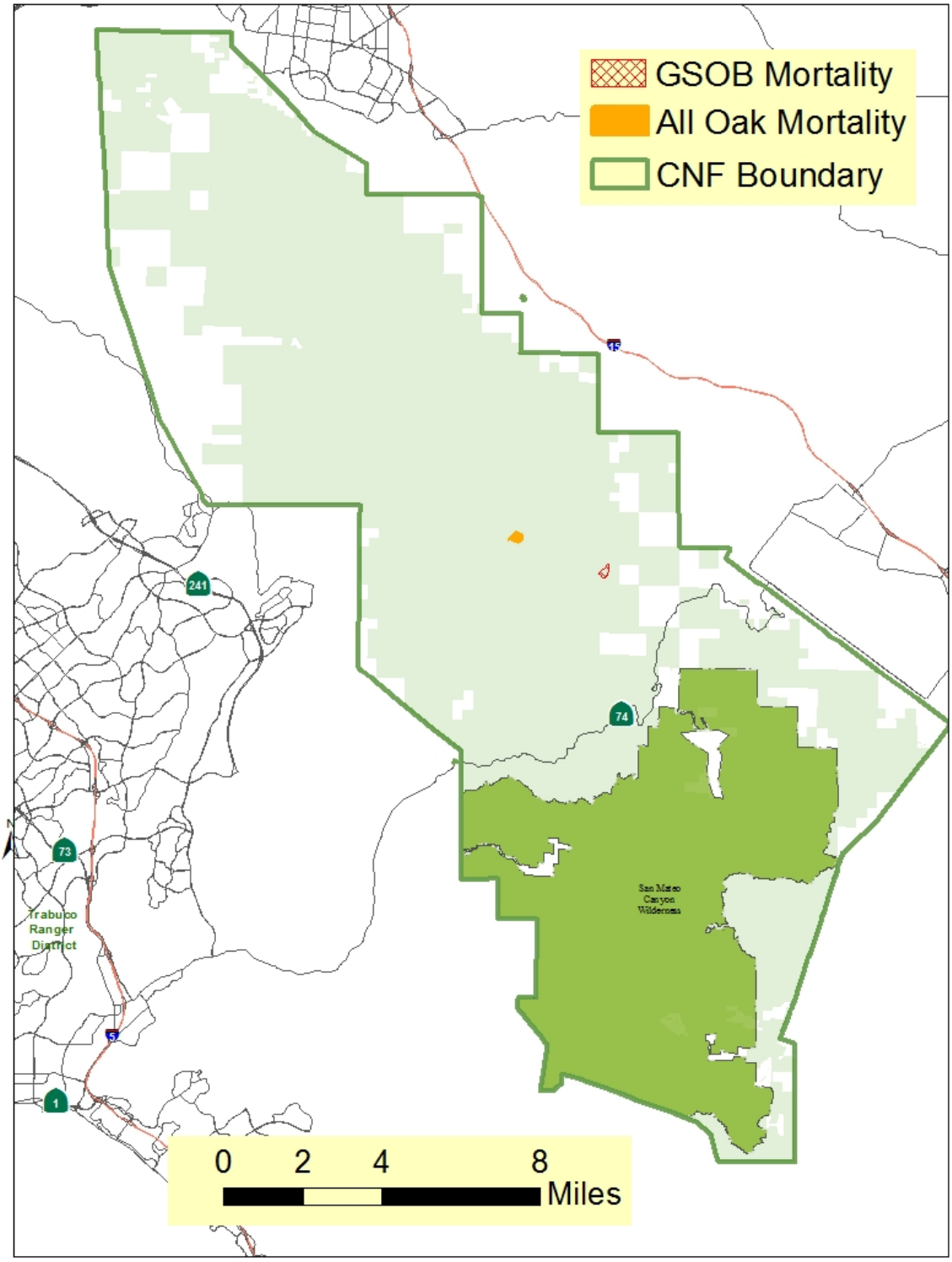
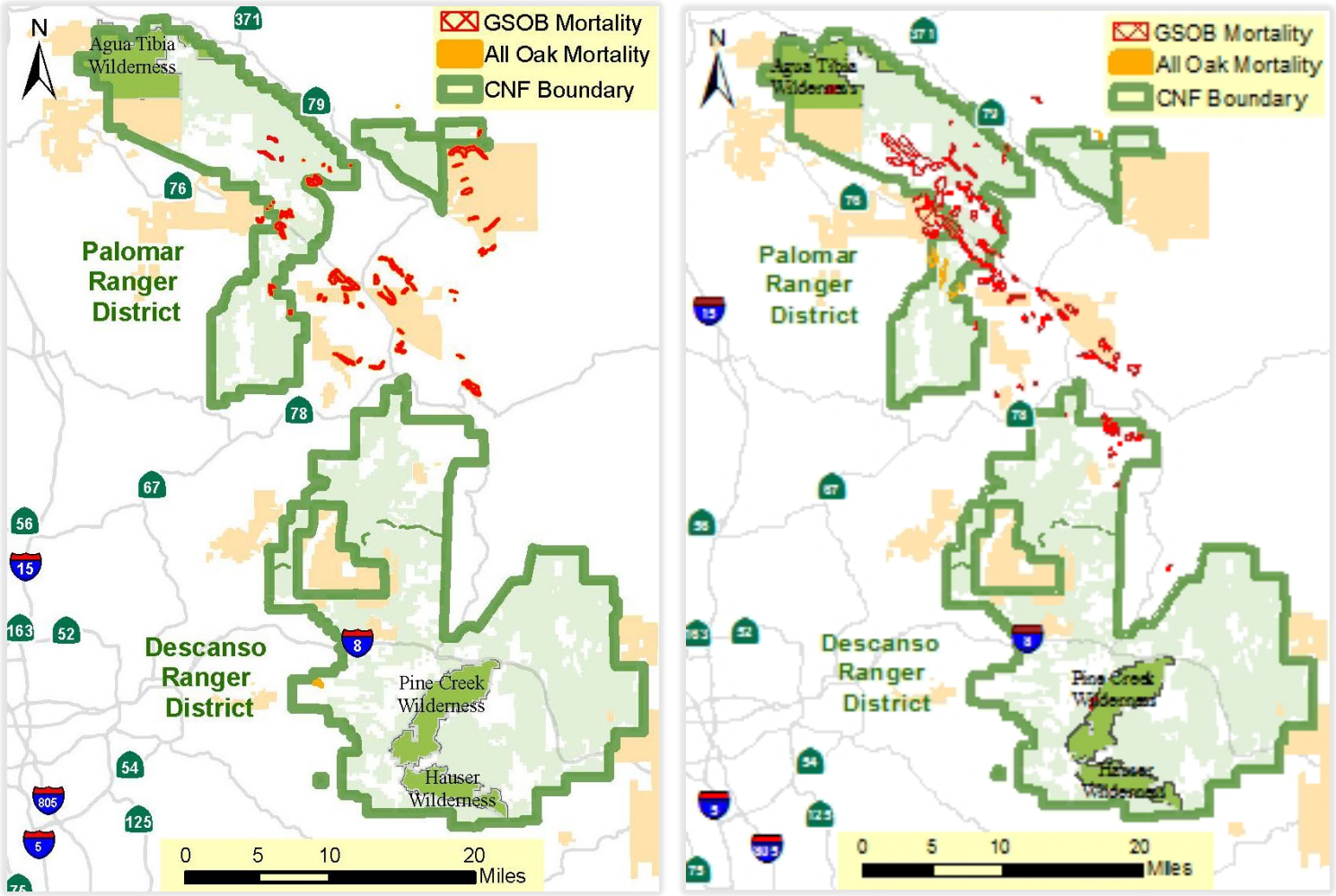


Figure 11. All Oak Mortality (2017 - 2019 Combined)



2018 **2019**

Figure 12 – All Oak Mortality & GSOB-Related Oak Mortality[15]

[15] Source: https://www.fs.usda.gov/detail/r5/forest-grasslandhealth/?cid=fsbdev3_046696

Trends in annual indicators for Goal 6.2: Monitoring has not identified any trends in resource conditions that indicate habitat conditions for fish, wildlife, and rare plants are not stable, with the exception of California Spotted Owl and California Gnatcatcher, both of which appear to be experiencing loss of habitat and declining populations due to drought or too-frequent fire.

The threatened and endangered species monitoring program is adequate. More funding and staff time is needed to support this program and meet legal requirements. A process is in place to update procedures based on monitoring results. Information is not available to determine shrubland type-conversion for FY19. Coast live oak mortality affected less acreage in FY19, but the data reported focused on live oaks generally rather than coast live oaks, as in past reporting.

Recommendations

Continue required monitoring. Suppress fires to prevent further type conversion within coastal sage scrub vegetation communities, assumed to be occurring since 2011. As operational plans are developed for recreation sites, ensure institutional memory of problem resolution by documenting past protection measures (e.g., in Infrastructure - INFRA database), whether on an annual, periodic, or one-time basis.

Forest Goal 7.1: Natural areas in an urban context (LMP, Part 1, pg. 46)

Goal: Retain natural areas as a core for a regional network while focusing the built environment into the minimal land area necessary to support growing public needs.

Activity, practice, or effect to be measured: Built landscape extent; land adjustment; special use authorizations.

Monitoring questions: (1) Is the CNF balancing the need for new infrastructure with restoration opportunities or land ownership adjustment to meet the desired conditions? ***(2)** How many of each type of special use authorization, mining permit, and forest product permit are active on the forest?

Indicators: (1) Land Ownership Complexity, Authorized and Administrative Infrastructure, Miles of Unauthorized Motorized Routes. ***(2)** Number of Special Use Authorizations and Permits by Type.

Monitoring Actions: Calculate the miles of exterior and interior boundary divided by the acres of NFS lands and compare from the 2006 Southern California LMPs analysis. Establish a baseline number of authorized and administrative infrastructure from the 2006 Southern California LMPs analysis and comparing the existing authorized and administrative infrastructure on the National Forests. Establish a baseline for the miles of unauthorized motorized roads and trails reported; subtracting the miles that have been decommissioned; and adding the miles of unauthorized motorized roads and trails that have been reported.

As of the end of FY19, the CNF manages 426,804 acres of land with 1,036 miles of boundary, yielding a perimeter to area ratio of 0.00243 miles per acre. This acreage reflects the recent land acquisitions and also corrections to errors made that were discovered over the past year.

Goal 7.1 calls for minimization of the built environment. In 2006, there were 286 administrative buildings on the CNF. As of the end of FY19, 259 administrative buildings existed following the demolition of 12 buildings (10 administrative buildings and 2 recreation buildings). This represents a 4% reduction from the prior fiscal year.

Roads are another element of the built environment and are part of the outcome indicators for this goal. Table 14 below shows that the CNF has successfully decommissioned 157.84 miles of unauthorized travel routes[16] between FY06 and FY19. Many of these routes impact riparian conservation areas (RCA), archaeological sites, Wilderness areas, or habitat for endangered or threatened species. The 2016 Forest-wide Unauthorized Route Decommissioning decision is still being implemented in FY19 (a total of 26.08 miles left to be decommissioned). In FY19, no NFS roads or unauthorized routes were decommissioned, but 92 miles of Level 2 roads were maintained (e.g., bladed, drainage features cleaned). Table 14 provides an overview of maintenance and decommissioning activities to-date.

Table 14: Miles of travel routes in Forest Service jurisdiction by type, 2006 baseline and FY19.

Maintenance level		NFS road	Permitted road	Unauthorized, undetermined	Unauthorized, unneeded, existing	Unauthorized, unneeded, decommissioned
Not applicable	2006	--	--	154.0	--	4.0
	2019	--	--	2.9	26.08	157.84
1: Basic custodial care (closed)	2006	34.4	--	--	--	--
	2019	35.1	--	--	--	--
2: High clearance vehicles	2006	280.9	136.9	--	--	--
	2019	276.97	129.9	--	--	--
3: Suitable for passenger cars	2006	11.5	--	--	--	--
	2019	15.0	--	--	--	--
4: Moderate degree of user comfort	2006	54.2	--	--	--	--
	2019	54.1	--	--	--	--
5: High degree of user comfort	2006	18.1	--	--	--	--
	2019	19.0	--	--	--	--
Totals	**2006**	**399.1**	**136.9**	**154.0**	**--**	**4.0**
	2019	**400.17**	**129.9**	**27.6**	**21.9**	**161.84**

Table 15 below shows the number and variety of special use authorizations (SUA) administered in FY19 – a total of 841 permits were active on the CNF with 150 administered in FY19. This represents a 2 percent increase in total number of active authorizations/permits (699 permits in FY18) and a 34 percent increase in SUAs administered (99 permits administered in FY18). There were noticeable increases for recreational events, outfitting and guiding services and

[16] This includes roads and motorized trails (e.g., OHV trails).

guides, and private mobile radio service. In addition, there were 115 special forest product permits issued.

Trends in annual indicators for Goal 7.1: As of FY19 land ownership complexity has been reduced relative to 2006 despite an increase in land area. The number of buildings and footprint on the landscape has been reduced by 4 percent. From 2014 through FY19, an overall total of 92.84 miles of unauthorized routes have been decommissioned. Of the 70.6 miles planned for decommissioning under the 2016 decision, 43.2 miles have been completed as of FY19. The remaining known routes are expected to be decommissioned in the next several years. A wide variety of special uses are authorized across the CNF. For FY19, the number of authorizations (total active) increased by 17% compared to FY18.

Table 15. Number and type of special use authorizations and permits in FY19.

Type	#	Type	#	Type	#
Club	4	Construction Camp and Residence	2	Cellular	2
Shelter	1	Warehouse and Storage Yard	0	Resource Monitoring Site	3
Recreation Residence	336	Commercial Still Photography	0	Commercial Mobile Radio Service	8
Resort	2	Motion Picture and TV Location	7	Facility Manager	17
Concession Campground	1	Geological and Geophysical Exploration	2	Telephone and Telegraph Line	15
Recreation Event	26	Powerline	19	Fiber Optical Cable	3
Apiary	9	Other Utility Improvement	1	Other Communication Improvement, not	2
Convenience Enclosure	0	Airport, Heliport	2	Navigation Equipment	2
Church	1	DOT Easement	5	Irrigation Water Trans- Pipeline >= 12”	2
Marker	4	Forest Road and Trail Act Easement	6	Irrigation Water Trans- Pipeline < 12”	12
Monument	1	Federal Land Policy and Management Act Easement	8	Water Trans- Pipeline >= 12” Diameter	1
Service Building	9	Federal Land Policy and Management Act Permit	82	Water Transmission Pipeline < 12”	7
Site Survey and Testing	0	Wilderness Act Auth-, Roads and Trails	1	Dam, Reservoir	5
Resource Survey	1	Amateur Radio	1	Water Diversion, Weir	3
Experimental Station	0	Microwave-Common Carrier	6	Well, Spring, or Windmill	6

Type	#	Type	#	Type	#
Research Study	7	Microwave-Industrial	6	Wildlife Water Supply	2
Weather Station	3	Local Exchange Network	1	Water Storage Tank	17
Observatory	1	Private Mobile Radio Service	34	Water Treatment Plant	1
Military Training Area	3	Passive Reflector	0	Special Forest Product Permit	115
Non-disturbing Use (Arch Investigation)	5	Cable Television	1	Active Mineral Operations	10
Disturbing Use (Arch Investigation)	2	Outfitting and Guiding Service	6	Non-Commercial Group Use	**1**
Education Center	2				
				TOTAL [17]	**841**

[17] Based on number reported in Special Use database (SUDs), forest product permits (separate database), and mining claims (currently not reported in SUDs/SUDs not accurate).

4. Part 2 Monitoring

This section documents program implementation as tracked through performance measures linked to the National Strategic Plan and accomplishments reported through national databases. Note that more detailed information about certain accomplishments is provided by Goal in Part 1, while these summary data are consolidated for review.

Table 16. Part 2 Monitoring Summary Indicators

Part 2 Indicators	FY19 Accomplishment	Part 2 Indicators	FY19 Accomplishment
Acres of Terrestrial Habitat Enhanced	4,430	Recreation Days Managed to Standard (General Forest Areas)	Unassigned
Miles of Aquatic Habitat Enhanced	22	Land Use Authorizations Administered to Standard	82
Acres of Noxious Weeds Treated	289	Number of Mineral Operations Administered	13
Acres of Veg Improved (also see Hazardous Fuels Reduction)	5,188	Number of Allotments Administered to Standard	see Table 12
Acres of Watershed Improved	1,431	Acres of Hazardous Fuel Reduction	5,188
Acres of Land Ownership Adjusted	730	Miles of Passenger Car Roads Maintained to Objective Maintenance	0
Heritage Program Management Points	31	Miles of High Clearance & Back Country Roads Maintained to Objective	92
Products Provided to Standard (Interpretation and Education)	Obsolete	Miles of Road Decommissioned	0
Recreation Special Use Authorizations Administered to Standard	336	Miles of Trail Operated and Maintained to Standard	Unassigned
People-at-one-time Days Managed to Standard (Developed Sites)	119,955		

5. Part 3 Monitoring

This section addresses the monitoring and evaluation of projects and activities. Using the methodology described in the 2014 LMP Amendment, 8 new or existing projects were randomly selected for review from five of the six functional areas listed in the LMP, as shown in Table 17. The LMP monitoring team conducted field visits on June 11th, 17th, and 21st, 2019.

Table 17. FY19 projects randomly selected for Part 3 monitoring.

Ranger District	Project Name	Functional Area	New or Existing	Section in monitoring
Descanso	Descanso Manual Weed Treatment	Natural Resource	New	5.1
	Recreation Residence (DRD658411)	Public Use & Enjoyment	Existing	5.2
	Recreation Residence (DRD637311)	Public Use & Enjoyment	New	5.2
	Deer Park Road (14S04)	Facility Operations & Maintenance	Existing	5.3
Trabuco	San Juan Fence	Facility Operations & Maintenance	New	5.3
	Powerline (TRD6432017)	Commodities & Commercial Uses	Existing	5.4
	Motion Picture and TV Location	Commodities & Commercial Uses	New	5.4
	Trabuco Campground Hazard Tree Sanitation	Fire and Aviation Management	New	5.5

In response to the questions for each projects:

Conclusions
1. By comparing expected results to actual results, did we accomplish what we set out to do?
2. Why did it happen?

Recommendations
3. What are we going to do next time?

5.1 Natural Resource Projects

Descanso Manual Weed Treatment Project (Robert's Ranch)

This project involves continued implementation of CNF's invasive weed treatment program[18]. Monitoring for this event was a desk-audit of current documents. No field visit was conducted because project monitoring information was available.

[18] Environmental Assessment for Invasive Weed Management on the Cleveland National Forest (2014) and authorized by the Forest Supervisor in a 2014 Decision Notice/Finding of No Significant Impact (DN-FONSI)

Relevant and Notable Information:

Survey Date in 2019	Yellow Star-Thistle (# Plants) Detection
6/17	1
7/19	94
8/2	127
8/16	35
8/30	50
9/12	24
9/27	2

- The non-native invasive weeds – yellow star thistle, Spanish broom and salt cedar – were treated at the "Robert's Ranch" area. Spanish broom was treated with the herbicide *Garlon 4 Ultra* (approximately 0.31 gallons) and yellow star thistle was removed by hand. Both species were present in small occurrences. Most of the infestation is yellow star-thistle. There was no salt cedar present. This treatment at Robert's Ranch comes after years of non-treatment due to lack of available crews and difficulty scheduling at the proper time to avoid flowering and seed set.

Conclusions

- The analysis and findings in these NEPA documents demonstrate LMP consistency and other legal compliance. The documents specifically identify the Robert's Ranch area for treatment and allowed for the targeted use of herbicides as part of an Integrated Pest Management (IPM) approach to managing nonnative invasive weeds.

Recommendations

- Continue treatments at Robert's Ranch, as a priority location before moving into other areas so that the past investments made in treating this area are not lost due to limited staff and funding. Continue to limit use of herbicides to non-native weeds species that could not be removed by other methods.

Figure 13 – Weed Treatment Area Map

5.2 Public Use and Enjoyment Projects

Recreation Residence Tract (DRD658411 & DRD637311)

- DRD658411 - Piedra Tract
- DRD637311 - Boiling Springs Tract

Monitoring

A review of these projects was not possible due to the COVID-19 stay at home order, which prevented employees from entering the office to search hard copy records and conducting a field visit.

5.3 Facility Operations and Maintenance Projects

Deer Park Road Maintenance (Road 14S04)

Monitoring for this ongoing maintenance of an existing NFS road was a desk-audit of current documents. No field visit was conducted because project monitoring information was available.

Relevant and notable supporting information:

- Deer Park Road has severe erosion in some segments (see photos below).

- Standard maintenance operations were constrained by heritage limitations due to the potential existence of sites protected the National Historic Preservation Act (NHPA), the desire to try to avoid adverse effects to historic properties and remain within the scope of the *Regional Programmatic Agreement*, and additional direction in the Cleveland LMP.

Conclusions

- Deer Park Road was implemented in accordance with limitation imposed during planning to ensure legal compliance with NHPA (no adverse effects to historic properties) and LMP consistency.

- The measure imposed to protect the potential heritage sites may have affected the sites due to erosion as well as potentially creating a new issue (erosion/water quality).

Recommendations

- Ensure the IDT is comprised of multiple and relevant disciplines, these functions are represented during planning, and the team concurs on resources protection measures. This is generally a function of the NEPA process – for there to be an analysis of effects from a proposed action (in this case maintenance of existing roads), including the potential effects of imposing mitigation measures (some measures may in fact affect the human environment even if intended to have beneficial effects).

- Reconvene the Cleveland interdisciplinary team (IDT) earlier and adjust limitations when there are signs indicating that measures imposed are not effective and/or inadvertently impairing other resources.

Figure 14 - Existing Erosion Issues along Deer Park Road

San Juan Fence Installation Project

This project was the installation of a chain linked fence at a Fire Station. Monitoring for this event was a desk-audit of permit, planning and implementation documents. No field visit was conducted because project monitoring information was available.

Relevant and notable information:

- NEPA categorical exclusion was used for installation of the fence (36 CFR §220.6(d)(3)). No environmental or cultural issues were anticipated or noted, but water quality Best Management Practices were incorporated into the action.

- CNF Cultural Resource Staff conducted a survey and discussed with interested Native American tribes.

Conclusions

- NEPA review was completed but the document summarizing results was unsigned.

- Results from field monitoring was not in project record, but the Forest Service Archeologist confirmed that some post-implementation administrative work is pending.

Recommendations

- Although there is no NEPA document required for use of CE (d)(3), signature is a best practice to ensure that the Line Officer authorized project implementation. Same recommendation from FY18 report - improved recordkeeping.

Figure 15 - After Construction - Installed Gate

Figure 16 - During Construction – Pole and Concrete

5.4 Commodities and Commercial Uses Projects

Powerline Elsinore Peak Stoneman 12Kv Line Replacement Project (TRD6432017)

The project is the authorization under and existing permit to re-route a segment of powerline running up to Elsinore Peak. Monitoring for this event was a desk-audit of permit, planning and implemetnation documents. No field visit was conducted because project monitoring information was available.

Relevant and notable information:

- Southern California Edison's (SCE) Elsinore Peak Stoneman powerline is currently under a special use permit (SUP) with the Forest Service (CNF02092018). SCE requested maintenance of their underground powerline. The Forest Service requested SCE rebuilt a section of line along an existing road so that the old underground line in endangered plant habitat can be retired. Pole replacement would occur along Elsinore Peak Road, a native surface road that branches off South Main Divide, a main thoroughfare for Forest users and residents. Elsinore Peak Road leads up to the peak which houses a tower facility under a SUP. The road is gated and access is limited to Forest Service staff and permitees servicing tower facilities.

- Federally listed plants: it was determined that based on the small area of habitat affected by the project, and the absence of individuals or designated critical habitat within project activity sites, the project would have no effect on the *thread-leaved brodiaea.*

- Forest Service sensitive plants species: it was determined that based on the small area of potential habitat affected by the project and the absence of individuals in or adjacent to the project area, the project would have no effect on *Rainbow manzanita, Tecate cypress, and San Bernardino Aster*. It was determined that the project could affect the following species and/or their habitat: *Santa Rosa Basalt brodiaea and Hammitt's claycress.* Because of the small footprint of disturbance (0.175 acres of temporary disturbance, 0.01 acres of ongoing disturbance, and 0.003 acres of permanent disturbance) coupled with precautionary measures to limit the spread of non-native plants, it was determined that the project is not likely to lead to a trend toward federal listing or a loss of viability for these species.

- Forest Service sensitive animal species: It was determined that the proposed project would not affect roosting or breeding habitat for *Bald Eagle, Pallid Bat, Townsend's Big-eared Bat, and Fringed Myotis* and are not expected to interfere with foraging activities. However, the project could affect resting, foraging, and breeding habitat for *Large-blotched Salamander, Orange-throated Whiptail, Blaineville's Horned Lizard, Coastal Rosy Boa, San Diego Ring-necked Snake, San Diego Mountain Kingsnake, Red Diamondback Rattlesnake, and Two-striped Garter Snake* due to loss or alteration of suitable habitat and the potential for damage to individuals during construction. Based on the relatively small acreage affected by the proposed project, the project was not likely to result in a trend toward federal listing nor a loss of viability for these species.

- Yellow starthistle occurs along South Main Divide Road on Elsinore Peak. Large infestations of Yellow starthistle occur on some private lands in the vicinity. Prevention measures were recommended to prevent the spread of yellow star-thistle including washing equipment before entering the project area and monitoring the area for new occurrences and other noxious weed species after implementation.

- As to water quality, Best Management Practices were incorporated into the project, namely: *Road-4, Fac-2; Veg-2, Fac-2; Road-4; BMP 2.10, Road-3, Fac-2; Road-4; BMP 2.3; BMP 2.4; BMP 5.6, Fac-10; BMP 7.1, Road-10; BMP 2.11; BMP 7.4, Road-3; Road-4; BMP 2.4, Road-10, and BMP 7.1*.

- Cultural resources surveys determined that the potential for subsurface deposits was low and cultural monitoring was not recommended. However, general monitoring would occur during ground disturbing activities to observe for any archeological material.

Conclusions

- The SCE proposed modification was reviewed as part of permit administration and not considered a new federal proposed action. This is because the original permit required an initial analysis and review for LMP consistency and compliance with laws. Thus, Forest Service special use staff and resources specialists reviewed the proposal for consistency with permit term/conditions and the LMP, and compliance with relevant laws, namely: Clean Water Act, Endangered Species Act, and National Historic Preservation Act. Results are provided above.

- Construction occurred on October 1, 2019. Pits were dug and existing powerline pulled out from those locations. Poles were installed along an existing dirt road leading up to the facility.

- Biological monitoring confirmed there were no impact to species.

Recommendations

- Continue to review SCE requests for powerline modifications to ensure they comply with permit terms/conditions and current law and policy.

- Ensure monitoring information is saved to a central project record for ease of access. See similar/same recommendation from FY18 report.

Figure 17 - Elsinore Peak before overhead powerline (Left) and planned pole locations of overhead line (Right).

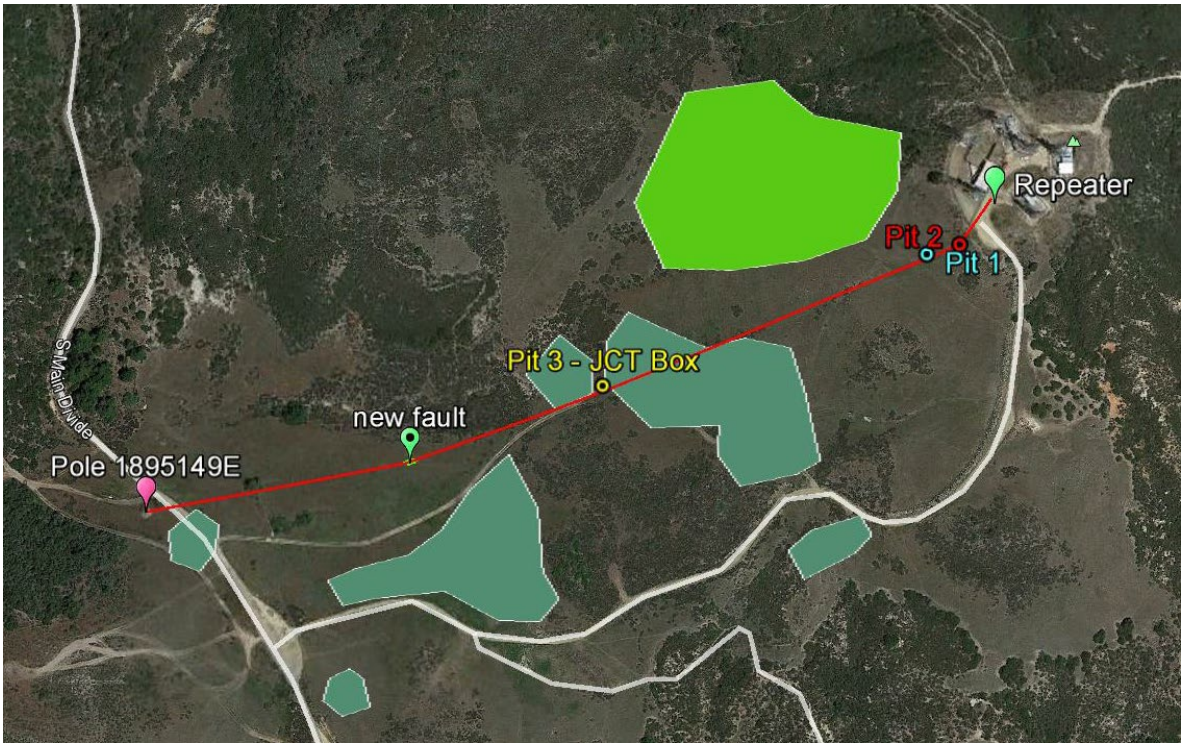


Figure 18 - Red line is location of underground powerline and polygons are species habitat.

Figure 19 - Field team digging pit (underground line location).

Figure 20 - Powerline being installed (Left) and new powerline (view from access gate)(Right).

Motion Picture & TV Location

Monitoring

The project is the authorization of a special use permit for filming. Monitoring for this event was a desk-audit of permit, planning and implementation documents. No field visit was conducted because the action is not susceptible to post-implementation monitoring.

Relevant and notable information:

- The Forest Service issued a permit to allow filming for a 1-day driving sequence along existing Maple Springs Road in Silverado Canyon, involving vehicles, film crew, a UTV, and drone.

- NEPA categorical exclusion was used to issue the permit (36 CFR §220.6(d)(8)). No environmental issues were anticipated or noted. There was a requirement to use a Forest Service approved spark arrestor on vehicles and for the drone pilot to be licensed by the Federal Aviation Administration.

Conclusions

- The permit did not have the potential to result in adverse effects to resources. A Forest Service monitor was onsite for access and public safety reasons and to ensure no vegetation was damaged.

Recommendations

- Although there were no potential resource issues noted, the permit has a list of cautionary requirements related to these resources (e.g., Endangered Species Act, pesticides, etc.). See similar/same recommendation from FY18 report.

Figure 21 - Filming Location

5.5 Fire and Aviation Management Projects

Trabuco Campground Hazard Tree Sanitation Project

The project consisted of the removal of hazard trees at developed recreation sites and along roads on the Trabuco Ranger District. Monitoring for this event was a desk-audit of planning and implemetnation documents. No field visit was conducted due to COVID-19 stay at home order.

Relevant and notable information:

- Hazard trees are removed in accordance with the *Cleveland National Forest Hazard Tree Program Implementation Plan* and *the Hazard Tree Guidelines for Forest Service Facilities and Roads in the Pacific Southwest Region (Report # RO-12-01).*

- The Cleveland program requires annual site assessments of developed recreation sites and roads open to the public or of high use. Hazard trees are evaluated on an individual basis. In FY19, hazard trees site assessments and individual tree evaluations were conducted in June 2019. A total of 15 sites were assessed with trees recommended for either pruning or removal. A total of 49 trees were identified for some form of abatement. Removal was recommend in most cases - 47 trees at 7 sites – 22 trees (Bluejay Campground); 3 of 5 trees (Falcon Group Campground); 12 trees (Long Canyon Road); 1 tree (El Cariso Fire Station); 3 of 4 (El Cariso Campground); 5 of 7 (Forest Road 7504); and 1 (Wildomar OHV staging area).

- NEPA categorical exclusion (d)(4) and (d)(5) is used to support removal hazard trees within the boundaries of campgrounds. A focused environmental review for archeology and biological concerns precedes any tree removal. A review of the FY19 project file

contains the necessary archeological review and implementation measures, but not the biological review.

Conclusions

- Hazard trees are consistently evaluated, with hazards abated in a timely manner; preventing harm to the public in the campgrounds and using public/high use roads.
- The program is implemented in a streamlined manner with supporting environmental review completed before any trees are removed.

Recommendations

- Conduct and save documentation of biological review in the project file.

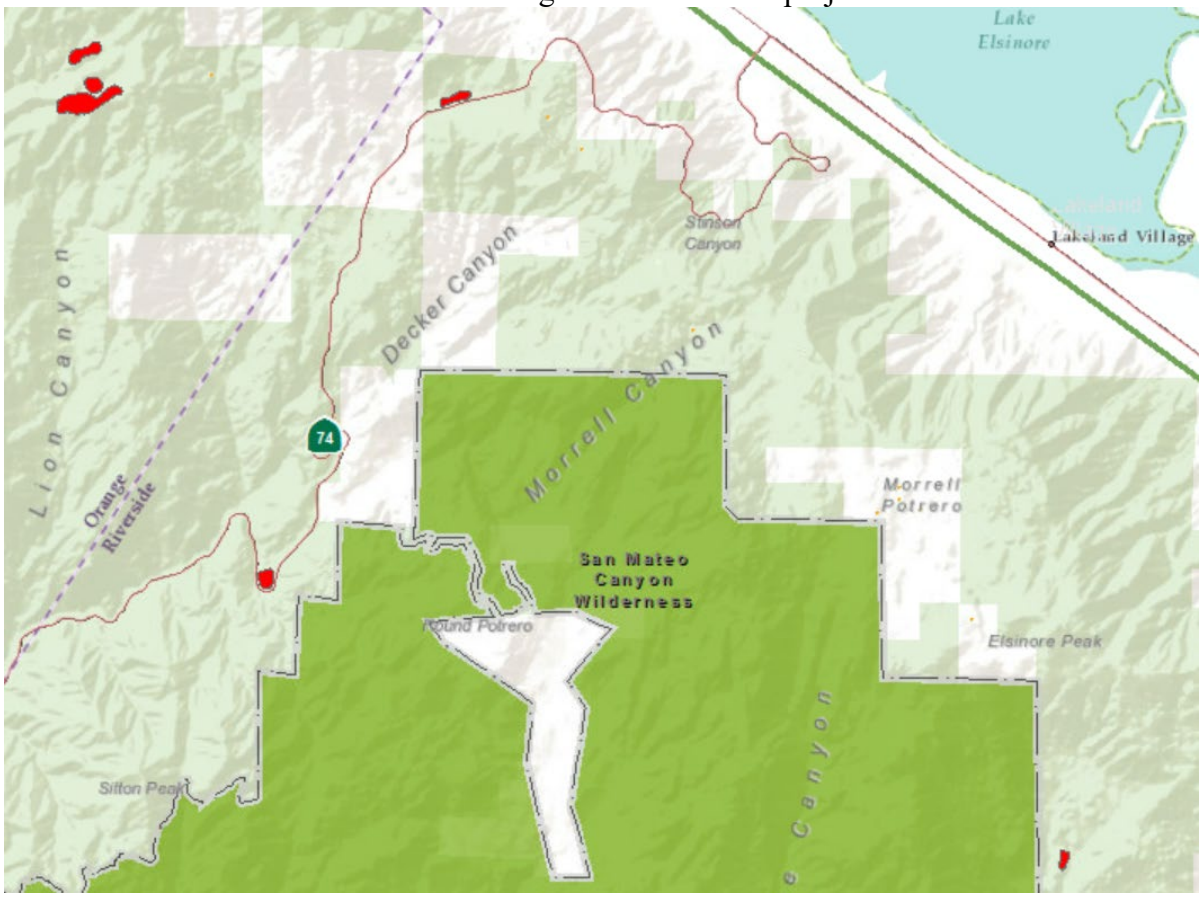


Figure 22 - Hazard trees removed from various campgrounds and roads (red polygons).

6. Action Plan, Forest Leadership Team

The actions discussed below include those actions from past monitoring that need to continue.

Program of Work (POW)

- Ensure the number of projects planned for each fiscal year is commensurate with staff availability to carry out project planning, with consideration given to post-planning (implementation) requirements those same staff are required to perform.

- Ensure a project leader is assigned to all proposed projects. It could be the person who is proposing, developing, and/or designing a project to respond to a need.

Monthly Standing IDT Meeting

- Continue the monthly standing IDT meetings to ensure communication across IDT.

- Encourage active project leader involvement in monthly standing IDT meetings to ensure that projects identified in the POW are being moved through the necessary planning, permitting, and consultation processes in advance of any contracting deadline.

Project Planning (LMP, NEPA, and Other Legal Compliance)

- Involve project implementers into the planning process to ensure projects and mitigation measures as designed are feasible and projects are "shovel ready" once the NEPA process is completed.

- Resume use of LMP consistency checklists during project development to inform Forest Service Line Officers. LMP consistency is a prerequisite to initiating the NEPA process.

- Involve tribes before initiating any NEPA public involvement processes. Improve documentation for pre-scoping tribal notification and coordination. This obligation is rooted in the unique Government-to-Government relationship between tribes and the federal government. In addition, advance communication will facilitate compliance with other historic and cultural resources laws, regulations, and policies pertaining to tribes. The PA is the Forest Service R5 programmatic agreement with the SHPO and tribes on how the agency will comply with the NHPA on NFS lands.

- Improve NEPA documentation and demonstrating LMP consistency and other legal compliance so that the NEPA documents truly are informational documents for meaningful public involvement. This would ensure Line Officers make informed decisions. Improved documents would also help project implementers know the next steps after the NEPA process. These improvements would ensure a "hard look" was taken under NEPA and that errors are minimized during project implementation.

- Improve the integration of adaptive management into NEPA documents and avoid unnecessary prohibitions on agency action so that implementers have the flexibility to do what is right by the resource.

- Integrate the agency-wide Environmental Analysis and Decision Making (EADM) streamlining principles into project planning. For instance, consolidate similar minor projects with little-to-no potential for adverse effects (i,e: all reoccurring recreation events) into single NEPA review to make efficient use of IDT time. Also, consider a forest-wide fuels reduction/treatment NEPA project.

Project Management

- Keep all project planning documents in the working CNF project file for the current fiscal year or the permit file to support SUAs. This is recommended despite NEPA not requiring a project file for use of some CEs.

Project Implementation

- Improve project implementation and effectiveness monitoring to facilitate similar future projects. The agency at the Washington Office level is requesting National Forests make efforts to improve monitoring, so that future project NEPA analyses can be supported by evidence. In addition, the Forest Service NEPA regulations are being revised to allow for use of CEs for similar projects. Monitoring data would support using the new CE (e.g., demonstrating that past planned project resulted in little to no adverse effects as anticipated). The project's Contracting Officer Representative (COR) is often the only person involved in project implementation and thus the most logical person to aid the agency with conducting project implementation and effectiveness monitoring (bottom of the triangle in Figure 23). COR field notes could integrate relevant information.

- Continue to improve internal communications so that project planning requirements are carried forward into contracts. Projects are implemented based on the design and mitigation measures identified in the planning process.

- Continue to ensure projects are implemented according to specific instructions provided by signed NEPA decisions. Cross-reference to make sure that specialist reports match analysis and decision documents, and that language and locations for contract specifications, permits, and project plans are derived from decision documents.

- Continue to involve the IDT through project implementation, especially when changes in projects not fully anticipated during the NEPA process.

- Continue to arrange for the transfer of project leadership duties from departing staff members to new personnel. Avoid communication issues and lack of project oversight.

Road/Route Management

- Continue to emphasize decommissioning of unneeded roads. This work serves to improve watershed function and further LMP goals and objectives.

- For roads under SUP (which the permittee is required to maintain), ensure that permittee is aware of current road management standards and monitor condition of roads. Issue notices of non-compliance for roads not meeting forest standards that are contributing to

degraded watershed conditions. Develop SUP for existing, needed roads without permits when considering nearby projects.

- Update the CNF road and trail layer to ensure correct information is located in one place.

Watershed Management

- Develop a prioritized plan for improving the condition of roads, trails, and facilities that do not meet Best Management Practice standards for protecting water quality.

LMP Annual Monitoring Report

- Complete monitoring and prepare this report earlier in the FY (i.e. March/April) to avoid conflicts with other pressing forest management activities (e.g. wildfire), and to contribute to the POW planning for the following FY that begins in the springtime.

7. Public Participation

The center of the NEPA triangle for plan implementation is public involvement (Figure 23). Groups or individuals who have indicated an interest in LMP monitoring received an email notifying them of the availability of this report on the CNF web site and how to obtain a print version of this document.

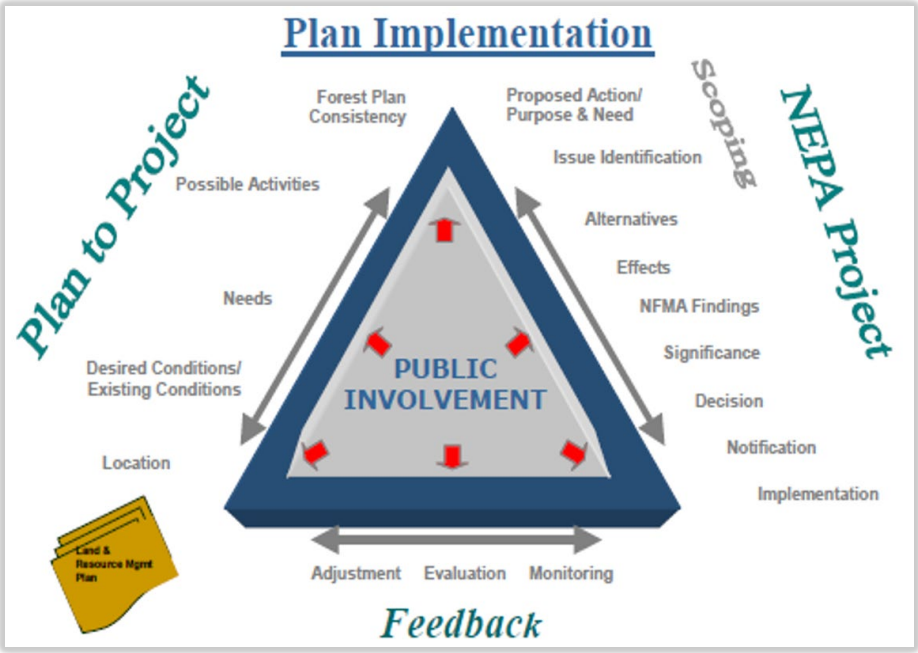


Figure 23 – NEPA Triangle

8. Members of the Monitoring Team

Monitoring and evaluation of the LMP requires support and contributions from a wide range of program and project leaders on the CNF. Completion of this year's report was primarily challenged by limited staff availability due to emergency response efforts associated with the COVID-19. Despite these and other challenges, meaningful contributions were made by USDA Forest Service staff in the furtherance of this process and the management of the CNF.

Members of the FY19 project field monitoring team include the following CNF staff:

Management:	Jeff Heys, Resource Staff Officer
	Darrell Vance, Trabuco District Ranger
	Amy Reid, Palomar District Ranger
	Bob Heiar, Descanso District Ranger

Program monitoring information was contributed by:

Principal Author:	Linda Serret, Forest Planner
Air Quality:	Andrea Nick, Pacific Southwest Region Air Resources Specialist
Archaeology:	Karin Klemic, Heritage Resource Program Manager
	Eraina Nossa, Archeologist
Engineering:	Trien Le, Transportation Engineer
	Foster Kuramata, Roads Engineer
	Whitney Hosseini, Civil Engineer
	Tammie Mather, Civil Engineer
Ecology	Nicole Molinari, Southern Province Ecologist
Forestry:	Andrew Weinhart, Forester
Fuels Specialists:	Stephen Fillmore, Fuels Mgmt. Specialist
	Jamie Rickard, Battalion 43
GIS:	Steven Del Favero, GIS Coordinator
Hydrology:	Victoria Stempniewicz, Hydrologist
	Emily Fudge, Supervisory Hydrologist
Lands/Special Uses:	Brad Aughinbaugh, Utilities Coordinator
	Kim Villa, Resources Assistant
Range/Weeds:	Lance Criley, Rangeland Management Specialist
Recreation:	Joe Raffaele, Recreation Program Manager
	Lindsey Steinwachs, Descanso RD Recreation and Lands Officer
	Jake Rodriguez, Trabuco RD Recreation and Lands Officer
Wildlife:	Kirsten Winter, Forest Wildlife Biologist
	Jeff Wells, Wildlife Biologist
	Julie Donnell, Fish Biologist

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