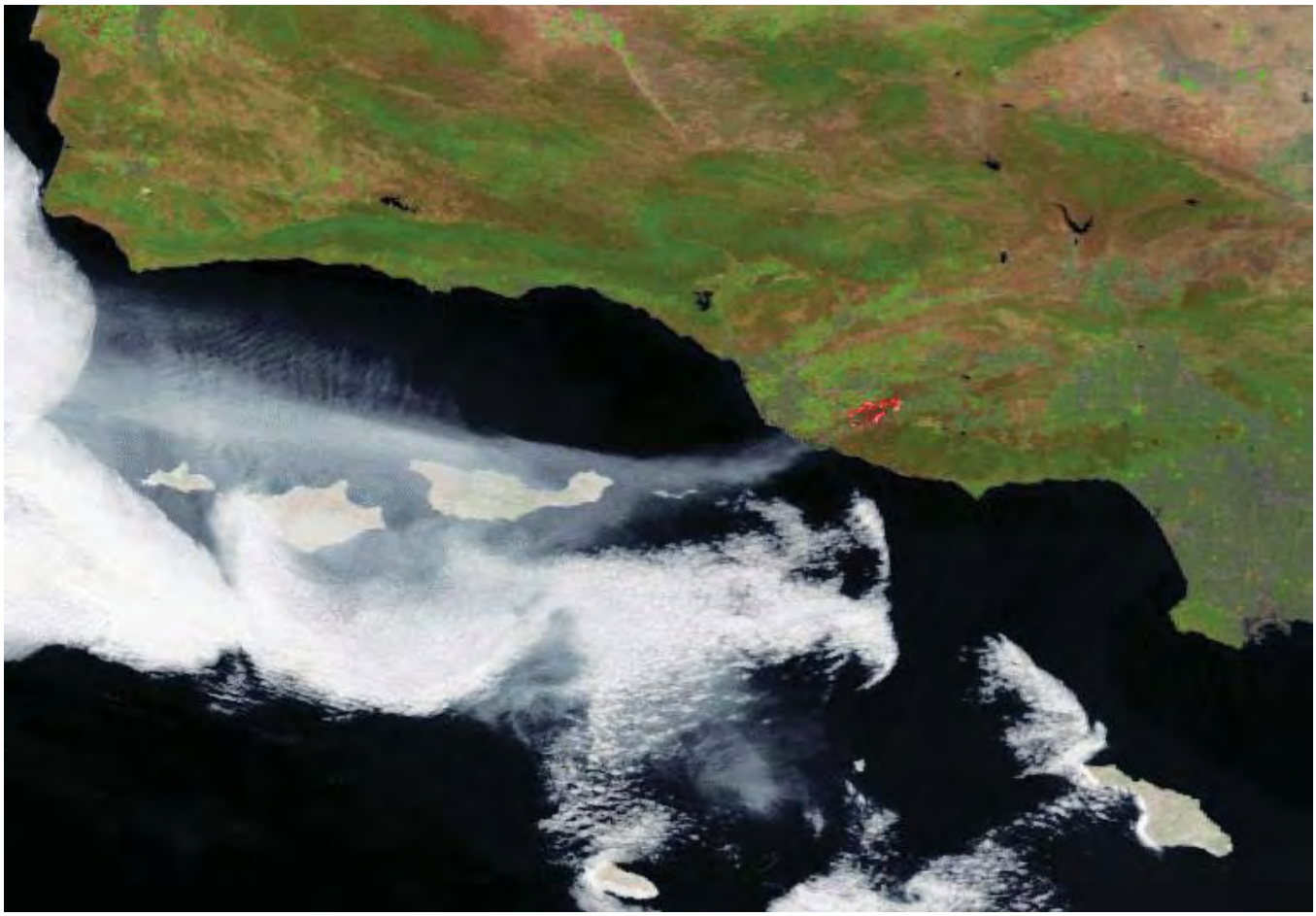
Santa Monica Mountains
National Recreation Area

National Park Service
U.S. Department of the Interior

Pacific West Region

SPRINGS FIRE

May 2 - May 12, 2013



Burned Area Emergency Response Plan

May 23, 2013

PARK UNIT: Santa Monica Mountains National Recreation Area

LOCATION: Thousand Oaks, Ventura County, CA

DATE: May 22, 2013

PREPARED BY: National Park Service Springs Fire BAER Team

Submitted By: David M. Szymanski **Date:** May 23, 2013

David Szymanski, Superintendent,

Santa Monica Mountains National Recreation Area

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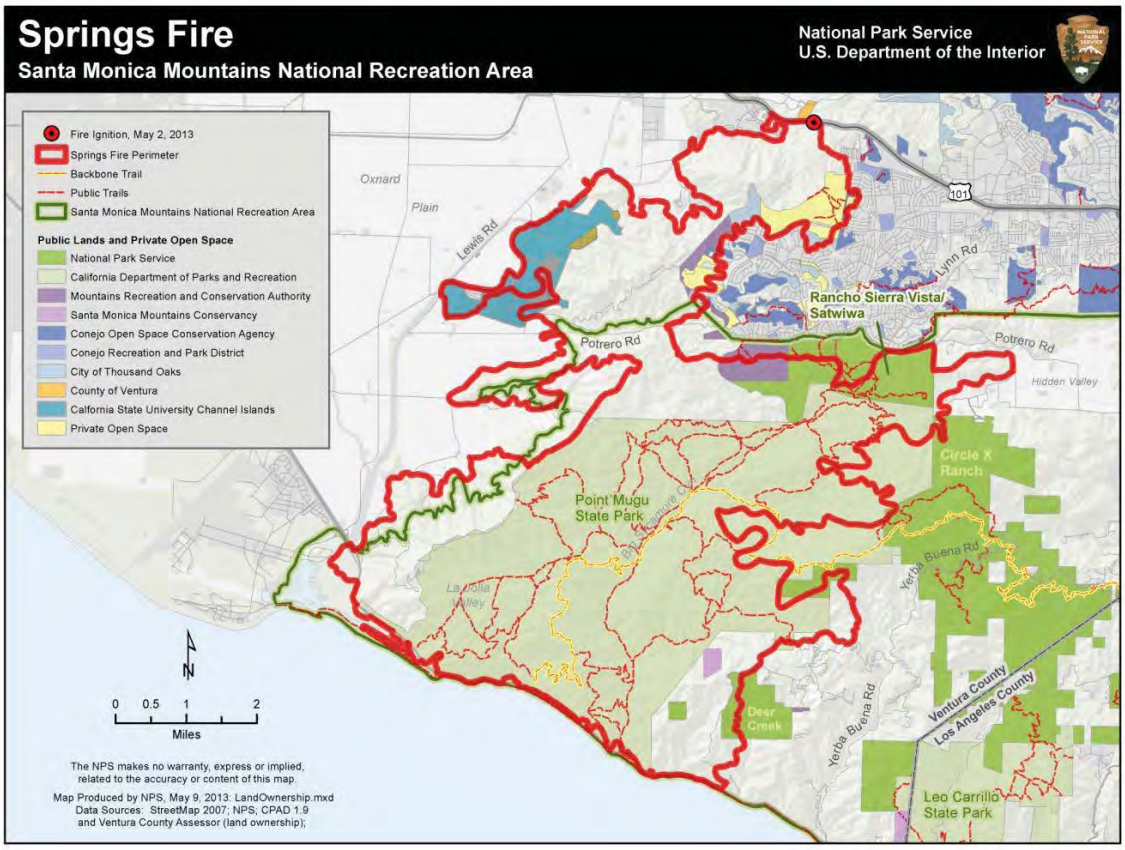
INTRODUCTION

This Burned Area Emergency Response (BAER) plan has been prepared in accordance with Department of the Interior and National Park Service policy, including DM 620 Part 3: Burned Area Emergency Stabilization and Rehabilitation, the Interagency Burned Area Emergency Response Guidebook, and NPS Reference Manual 18. The primary objective of BAER is to assess the need for and implement cost effective post-fire stabilization measures to protect human life, property, and critical cultural and natural resources in accordance with approved land management plans and policies, and all relevant federal, state, and local laws and regulations.

This plan provides emergency stabilization and rehabilitation recommendations for all cooperatively managed state and federal parklands burned within the Santa Monica Mountains National Recreation Area (SAMO) in the Springs Fire. It was prepared by a BAER team comprised of National Park Service (NPS) staff from the SMMNRA and experienced BAER team members from other NPS units.



The Springs Fire

The Springs Fire began on May 2, 2013 on the Conejo Grade section of the 101Freeway in Camarillo, CA by accidental ignition from a passing car or truck. The fire occurred under extreme weather conditions and was initially driven by strong Santa Ana winds. The fire burned 24,238 acres in a day and a half and is the 5th largest wildfire within the Santa Monica Mountains (Appendix F, Map 1). It burned 12% of the SMMNRA in the most undeveloped section of the park. A large portion of the fire burned in the 20 year old footprint of the 1993 Green Meadow Fire, the largest fire on record (38,478 acres) in the mountains (Appendix F, Map 10). There was minimal property damage to the surrounding communities as the fire burned mostly through undeveloped private property and parkland. The fire was declared 100% contained on May 12, 2013.

This fire is unprecedented for the time of year in which it burned. All large fires in the SMMNRA have previously been fall fires at the end of the summer dry season when fuel moisture is low and Santa Ana winds occur more frequently. This year low rainfall was concentrated early in the season and dry fuel conditions allowed rapid fire spread. This six months early wildfire means that vegetation recovery from winter rains will not begin for 6-8 months and will leave bare soils exposed for much longer than the more typical 1-3 months after fall fires.

The SMMNRA is the largest urban national park in the country, encompassing 153,075 acres of mountains and coastline in Ventura and Los Angeles counties (see Vicinity Map). Land ownership is a complex patchwork of private property and state, federal and local parklands. State and national parks have a cooperative management agreement to operate as unified network of parks among private lands and communities (Appendix C). The Springs Fire crossed many different jurisdictional boundaries including one of the major state park units, Mugu State Park; portions of the Conejo Open Space District, a local parks agency; and NPS's Rancho Sierra Vista (RSV) as well as three other "backcountry" NPS parcels (Appendix F, Map 2). Because RSV serves as a gateway entrance to Mugu State Park, the NPS and the state parks are cooperatively managing their emergency fire response.

Burned Area Emergency Response

As with previous large wildfires in the SMMNRA, postfire problems are related to a large urban population living in close proximity to an extensive burn area in mountainous terrain that is now devoid of vegetation cover. These conditions create multiple safety hazards for recreational park users and the potential for damage and looting of natural and cultural resources.

BAER planning began during the fire suppression phase of the fire when emergency measures to secure the park closure were implemented. The nearby urban population and numerous entry points to the park created enormous pressure on park resources and personnel once the fire appeared to be under control but before it was either contained or controlled. One element of the plan submitted here is for the emergency staffing that was required to control entry points, create new signage and maps of closure areas, and to provide updated information to the public on park conditions, prior to completing this plan.

Assessments

The most significant factor leading to emergency watershed conditions is loss of ground cover, which leads to erosion and changes in hillslope hydrologic function in the form of decreased infiltration and increased runoff. Such conditions lead to increased flooding, sedimentation and deterioration of soil condition. In addition, dry ravel and sediment loading of channels can lead to potentially life-threatening debris flows. Values at risk are human life, property, and critical natural and cultural resources located within or downstream of the fire that may be subject to damage from flooding, ash, mud and debris deposition, and hillslope erosion. The team assessed watershed threats by hydrological modeling and field reconnaissance. The plan provides preliminary estimates of anticipated watershed response, threats to natural and cultural resources, mapped locations of vulnerable infrastructure and recommendations for actions prior to storm events, including closures.

The Springs Fire burned an area that supports a unique assemblage of vegetation communities and several endemic plant species, and contains the only designated wilderness in the SMMNRA. The ecological importance of an early burn occurring during an extreme drought is not known and will require monitoring to assess. The immediate threat to native vegetation communities in the post-fire environment is from rapid expansion of invasive plants. We recommend taking control actions for seven high priority non-native invasive species occurring at eight locations. These species were chosen based on their high level of invasiveness and observed ability to survive and reproduce after fire and/or quickly regenerate from a seed bank. The locations were chosen based on the threat posed to sensitive (riparian, coastal sage) and rare (native perennial grassland, stabilized dune) habitats. Control of target species at these locations will require survey, treatment and monitoring of approximately 1,933 acres. We estimate that the net treatment area, the area actually treated with herbicide, will be 125-150 acres. In the course of treating the target populations/locations, we will conduct additional surveys and prescribe treatment as necessary.

The Springs Fire burned a large percentage of the habitat available for wildlife, including lizards, snakes, amphibians, small mammals, rabbits, mule deer, and carnivores, specifically bobcats and mountain lions. Sensitive wildlife species that occur in the burn area include the California newt, coast horned lizard, and coast patchnose snake. Creeks and ponds within the fire area provide breeding habitat for four native aquatic amphibian species (California newt, Western Toad, Pacific tree frog, and California tree frog) which may experience temporary impacts from post-fire sediment discharge. The Springs Fire also burned a total of 32 pitfall arrays from NPS's long-term monitoring program of the terrestrial herpetofauna. When the arrays burned, the lids on the 5-gallon bucket "pits" were destroyed leaving open buckets scattered throughout the landscape. These represent a death trap to herpetofauna and a trip and fall hazard to hikers and equestrians. Under emergency activities we assessed the threat to wildlife and visitor safety by visiting each site and placing stakes in each open bucket. The stake acts as a means of escape for any wildlife that is inadvertently trapped. Signs were placed at each array to inform visitors not to disturb the sites in the hopes of keeping hikers and equestrians away from open buckets. Warped and melted plastic

buckets and lids need to be replaced at 18 of the 32 burned pitfalls sites. At the other 14 sites, burned buckets will be removed and the holes back-filled with local soil with an archaeologist's oversight.

Well over 150 cultural resources were affected by the Springs Fire. Within this total, 110 known archeological sites and historic structures were affected on public lands that are included in this BAER Plan. Field assessments were possible at only 20 sites prior to formulation of this plan, but the assessments and ongoing work by State Parks personnel indicate that direct effects included fire damage to surface artifacts (especially shell and bone contained in many sites with shell middens), loss of ground cover on and around sites, and destruction of historic wooden structures. The most immediate threats are the exposure of sites to erosion and greatly increased visibility due to loss of ground cover. The increased visibility makes the sites targets for looters, as well as casual park visitors who also tend to collect interesting artifacts which they may encounter. Incidents of unauthorized site explorations were documented even within closed areas before the fire had been controlled; actual and suspected site disturbance also was reported (Appendix G). Given the large number of cultural resources at risk and high value of many sites, continuing inspections and documentation of sites and resource values are needed to prioritize site protection and management, to establish a baseline for monitoring of future impacts caused by effects of the Springs Fire and to identify any other post-fire treatments that may be needed at particular sites.

The extensive road and trail system of RSV and Point Mugu State Park (Appendix F, Map1 and above) have been moderately impacted by immediate postfire deposition of debris from burned brush, tree fall, and rockfall due to the loss of vegetation. The goal of the parks is to open the trail system to the public as soon as possible, where it can be done safely. Each park will be responsible for its own trail maintenance, but will coordinate regarding signage, notification of hazardous conditions and closures. Besides general debris removal, the most critical need for the NPS is repairing the stairs on the Satwiwa Loop Trail to re-open this core segment of the trail system. This trail is used for school programs and is one of the most popular trails for families in the SMMNRA. Unlike previous large fires in the SMMNRA, it will be 4-6 months before the first major rains. Rainfall will certainly lead to additional sediment deposition and rockfall on roads and trails. Specifications within this plan recommend that debris and rock be removed from roads and trails after rain events. Additionally road and trail culverts should be cleaned and channels cleared of floatable debris to reduce the threat from debris blockages that could lead to damage to the road and trail system.

The NPS's RSV and Mugu State Park are a heavily used recreation area, easily accessed by a large urban population. It is the least developed portion of the SMMNRA and has extremely important cultural and natural resources. For public safety and to protect natural and cultural resources, the Superintendents will restrict park use to daylight hours and require that visitors remain on established trails. Additional full closures may be required if predicted heavy rainfall events could create potentially hazardous flood or debris flow conditions. Because of the numerous points of potential

public entry, the vulnerability of sensitive resources, and the increased hazards created by the fire, many specifications within this plan address public safety: increased law enforcement to provide a daily ranger presence on site; emergency fencing and gates to limit public access at multiple sites; installation of boundary and closure signs; and new signage and public outreach to inform the public of the need for necessary park restrictions and of the new postfire hazards.

Emergency Stabilization

Based on GIS and hydrological analysis and ground surveys the Corral Fire BAER Team identified the following treatments for implementation in collaboration with California State Parks. These treatments are in accordance with National ESR Policy, and the Interagency Burned Area Emergency Stabilization, September, 2003.

- Increased law enforcement patrol
- Emergency fencing and gates for resource protection and public safety
- Re-survey and replace NPS boundary signs
- Sign installation for safety
- Public safety and fire information
- Culvert cleaning
- Debris removal from roads and trails
- Assess significant and unevaluated archeological resources for post-fire threats
- Assess vulnerable archeological sites following high flows
- Non-native invasive species control
- Administrative support and coordination of plan implementation
- Emergency closure stabilizations actions (completed)
- Plan preparation

Recommended Actions for State Parks Management

- Remove downed trees and stabilize fire damaged trees
- Channel clearing to protect infrastructure
- Bank stabilization to protect road

ASSESSMENT TEAM

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SUMMARY OF ACTIVITIES AND COSTS

Amount Requested

LINE ITEM NUMBER	SPECIFICATION NUMBER	TITLE	COST EMERGENCY STABILIZATION
1	CR-1	Conduct Cultural Resource Inspections	$ 37,950
2	CR-2	Monitor Cultural Resources	$ 10,544
3	VR-1	Invasive Plant Control	$ 158,120
4	WR-1	Replace Pitfall Trap Bucket Lids for Safety	$ 9,504
5	DM-1	Emergency replacement of nitrogen deposition study site and equipment	$ 1,146
6	RT-1	Asphalt Pavement Repair due to Fire Truck Damage	$ 8,740
7	RT-2	Clear burned brush from Satwiwa Loop and Hidden Valley Trail	$ 5,447
8	RT-3	Post trail closed and "Area Closed" signs throughout burned locations	$ 6,054
9	RT-4	Stabilize burned wood stairs on Satwiwa Loop Trail	$ 8,675
10	LE-1	RSV Boundary Fence	$ 15,300
11	LE-2	Deer Creek Gates	$ 12,420
12	LE-3	Rancho Sierra Vista Gate	$ 9,660
13	LE-4	Increased law enforcement patrol	$ 82,196
14	LE-5	Post Boundary with Federal Property	$ 4,110
15	LE-6	Smart Scouter Surveillance Cameras	$ 4,875
16	PI-1	Public Information for Safety and Resource Protection	$ 71,920
17	ADM-1	BAER Coordination and Administrative Support Costs	$ 42,755
18	ES-1	Emergency Stabilization Personnel Costs	$ 46,405
19	PL-1	BAER Plan	$ 31,250
TOTAL COST			**$ 567,071**

Amount Approved

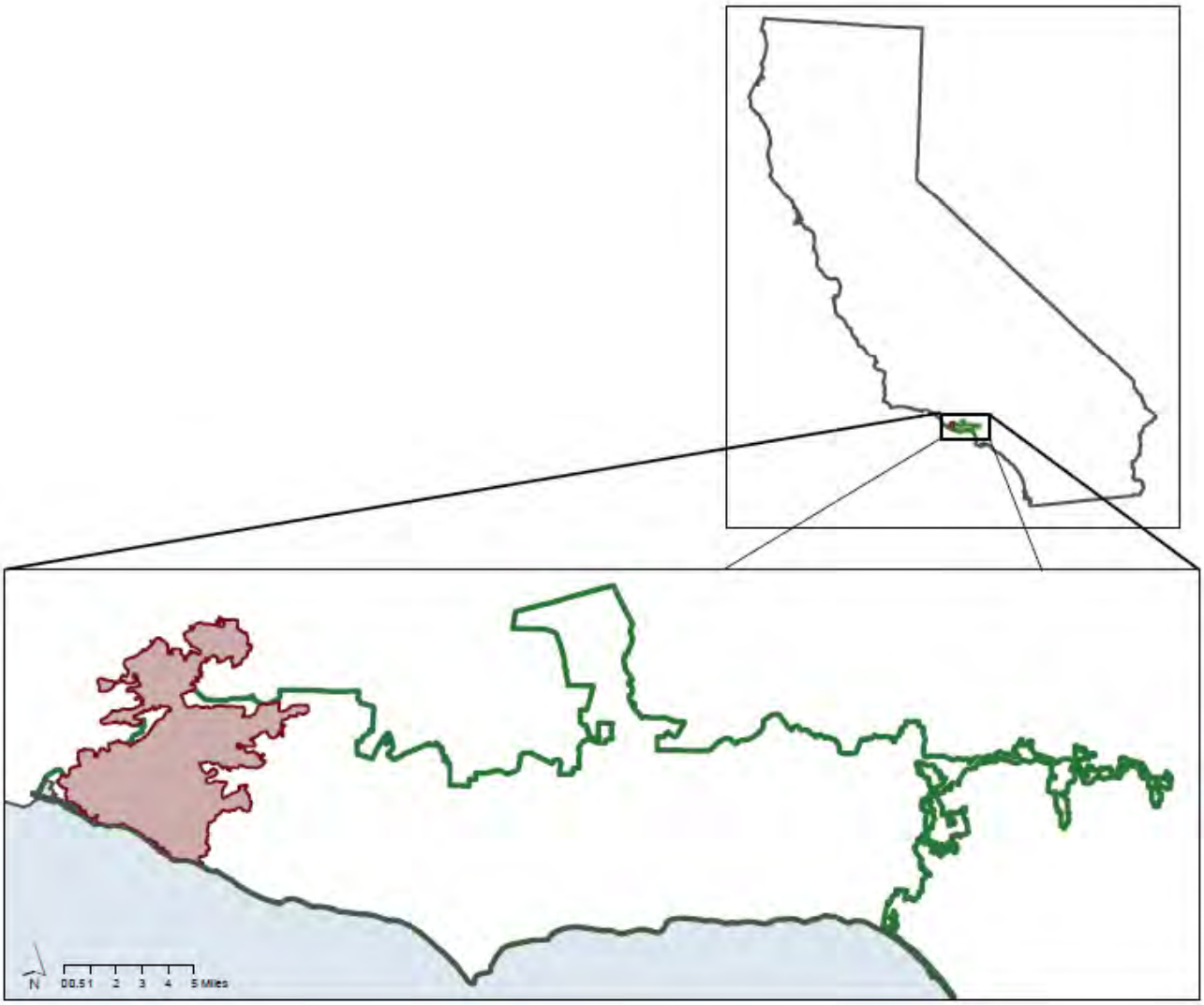
Table 1. Springs Fire BAER Specifications

Specification	FY13 Original BAER Request	FY13 Revised BAER Request	FY13 BAER Approved	Comments
Conduct Cultural Resource Inspections (CR-1)	$22,770	$18,512	$18,512	Total original FY13-14 BAER request was $37,950. The revised total request is $33,030.
Monitor Cultural Resources (CR-2)	$5,272	$1,584	$1,584	Total original FY13-14 BAER request was $10,544. The revised total request is $3,167.
Invasive Plant Control (VR-1)	$126,295	$30,044	$30,044	Total original FY13-14 BAER request was $158,120. A request for FY14 BAR funding will be submitted.
Replace Pitfall Trap Bucket Lids for Safety (WR-1)	$9,504	No Change	$9,504	
Emergency Replacement of Nitrogen Deposition Study Site and Equipment (DM-1)	$1,146	--	--	Equipment will be replaced using a non-NPS funding source.
Asphalt Pavement Repair due to Fire Truck Damage (RT-1)	$8,740	No Change	--	Charge suppression damage repairs against the Springs Fire suppression account.[1]
Clear burned brush from Satwiwa Loop and Hidden Valley Trail (RT-2)	$5,447	$2,000	$2,000	
Post Trail Closed and "Area Closed" Signs Throughout Burned Locations (RT-3)	$6,054	--	--	Treatment completed during burned area assessment.
Stabilize burned wood stairs on Satwiwa Loop Trail (RT-4)	$8,675	No Change	$8,675	
RSV Boundary Fence (LE-1)	$15,300	No Change	$15,300	
Deer Creek Gates (LE-2)	$12,420	No Change	--	Charge suppression damage repairs against the Springs Fire suppression account.[1]
Rancho Sierra Vista Gate (LE-3)	$9,660	No Change	$9,660	
Increased Law Enforcement Patrol (LE-4)	$64,117	No Change	$64,117	
Post Boundary with Federal Property Signs (LE-5)	$4,110	No Change	$4,110	
Smart Scouter Surveillance Cameras (LE-6)	$3,899	No Change	$3,899	
Public Information for Safety and Resource Protection (PI-1)	$71,920[2]	$4,970	$4,970	Total revised FY13-14 BAER request is $56,897.
BAER Coordination and Administrative Support Costs (ADM-1)	$30,754	$12,664	$12,664	Total original FY13-14 BAER request was $42,755. Total revised FY13-14 BAER request is $13,879.
Emergency Stabilization Personnel Costs (ES-1)	$46,605	No Change	$46,605	
BAER Plan (PL-1)	$31,250	No Change	$31,250	
Totals	$483,938	$284,054	$262,894	

[1] Springs Fire suppression account WBS (Level 2): PF.FSHFB3000.00.1
[2] Total FY13-14 BAER request; costs were not differentiated by FY

VICINITY MAP

Santa Monica Mountains National Recreation Area (SMMNRA) is the largest urban national park in the country, encompassing more than 150,000 acres of mountains and coastline in Ventura and Los Angeles counties. It comprises a seamless network of local, state, and federal parks interwoven with private lands and communities.



FIRE INFORMATION

Land Ownership within Springs Fire Perimeter	
Agency	**Acres**
National Park Service (NPS)	1,055
California Department of Parks and Recreation (CDPR)	12,255
Mountains Recreation and Conservation Authority (MRCA)	305
Santa Monica Mountains Conservancy (SMMC)	57
County of Ventura	43
Conejo Open Space Conservation Agency (COSCA)	32
City of Thousand Oaks Parks	122
California State University Channel Islands (CSUCI)	808
Private Park or Recreation Lands*	31
Private Park or Recreation Lands (temporary)**	440
Other Private Lands	9,090
Total	**24,238**
Land Burned within the SMMNRA	
Santa Monica MountainsNational Recreation Area (SMMNRA)	**18,338**

* Private open space dedications associated with Dos Vientos; combined on map with temporary category

** Private open space dedications associated with Dos Vientos; to be transferred to COSCA

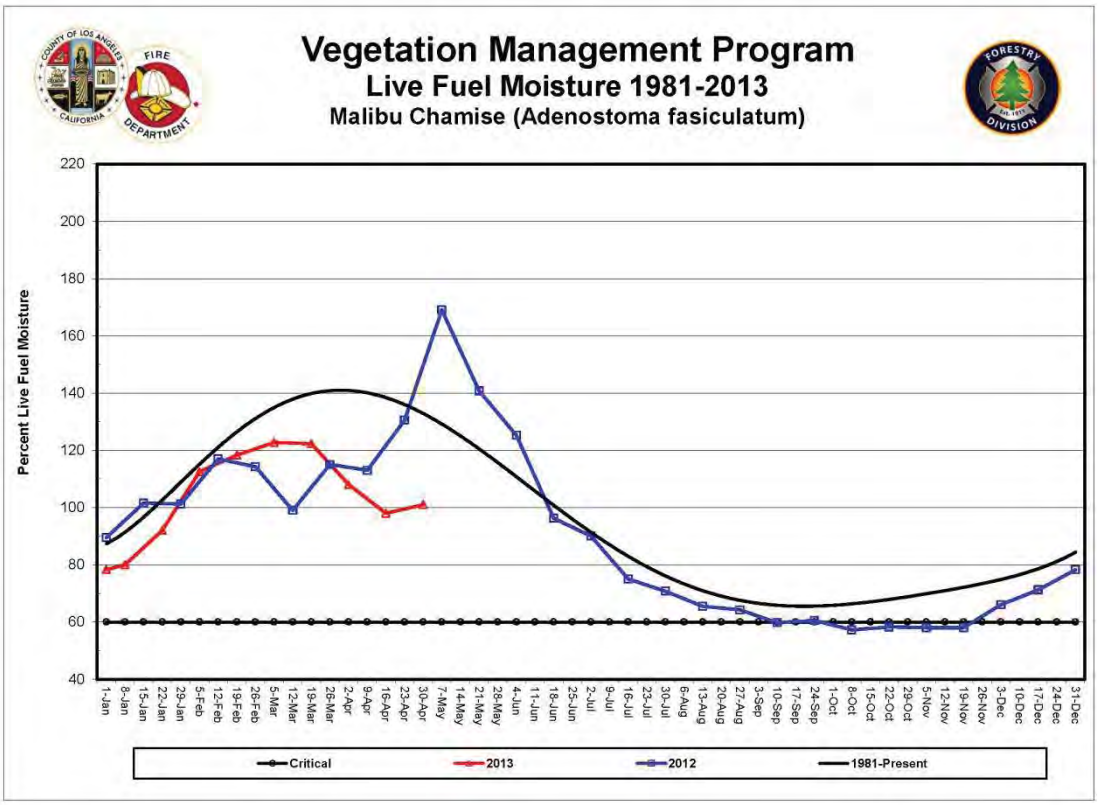
FIRE NARRATIVE

The Springs Fire was reported to the Ventura County Communications Center on Thursday May 2, 2013 at about 0630 AM. It started on a steep embankment on the south side of Highway 101 along the Conejo Grade during the heavy morning commute. This section of highway is an area of frequent fire ignitions. Two Ventura County Fire engines arrived on scene shortly after the fire was reported, but the steep 100-foot embankment could not be scaled and hose lays could not be established and the fire escaped.

The fire began during a period of high, sustained winds from the northeast ("Santa Ana" conditions) that are unusual for the spring. A Red Flag fire weather warning was in effect for the Santa Monica Mountains (SMM) and surrounding areas for May 1-3. Strong off-shore winds (blowing in a southerly direction) were well established before the fire started. The weather conditions recorded at the Cheeseboro Canyon RAWS station 14 miles east of the burn were 74° with 3% relative humidity and 27 -mph

northeast winds gusting to 48 mph. The Burning Index at Cheeseboro Canyon was 17,

Extreme. The preceding winter rainfall in the area was less than10 inches, resulting in live fuel moisture levels typically found in late June or early July rather than May. Ventura County Fire reported 77% live fuel moisture for this area in April; the long-term average is 135-140%.



The cause of the fire is under investigation, but thought to be from a vehicle. Carbon fragments were found at the origin alongside the southbound Highway 101 climbing lane, where cars and trucks struggle up the steep Conejo. Fires frequently start in this area and under normal on-shore wind conditions (mild winds blowing northward) are suppressed at the power line maintenance roads that bound the area from the truck scales at the top of the grade to the rocky bluffs to the southwest. However, fires starting in the Santa Monica Mountains under the dry high-wind conditions present on May 2nd can quickly burn to the Pacific Ocean.

The fire rapidly grew in size, the head of the fire moving southwest toward Camarillo Springs and Oxnard and south toward the Dos Vientos Ranch housing development in Newbury Park. A community and structure defense strategy was quickly established with the first and second alarm. Air support was ordered from Fox Field in Lancaster, but air tankers were grounded expecting unsafe wind conditions and did not arrive on the scene until later that morning. Helicopters were delayed as the fire occurred before

the regular contract season for helicopter support. Fortunately, available resources were already on staff due to the Red Flag warning. Regardless of aircraft availability, aircraft could not have dropped near the point of origin along the highway and under the extreme weather conditions and steep topography at the ignition site; the fire could not be contained by firefighters working on the ground.

The closest available resources were ordered under mutual aid agreements. Type 1, 2 and 3 federal, state and local engines and crews responded from San Luis Obispo to San Diego and were staged or immediately incorporated into Divisions in two branches. A Cal FIRE team was ordered and transition to Ventura County Fire to Cal Fire control took place at midnight and the Cal FIRE team would run the 0600 operational briefing beginning Friday morning.

On the east flank of the fire structure defense was successful in Camarillo Springs; however the fire spotted into a recreational vehicle storage area and ignited several RV's. The ignition of trailers and vehicles produced hazardous emissions and appropriate equipment responded to control these fires. Structure defense was also required at the leading edge of the fire as it spread to the western base of Conejo Mountain where infrastructure along the Oxnard Plain was threatened. This included a waste treatment plant, a memorial park and cemetery and numerous agricultural and horticultural businesses growing trees, flowers and vegetables. Much of this infrastructure was defended with burnout and back fires; where firefighting resources could be put into position between the infrastructure and the downslope run of the fire.

The fire consumed 3000 acres of open space from 0630 to 0930 in shrub fuel models SH2 SH5, and SH7, and grass fuel modelsGG2, GR4, travelling up and over the steep and rocky slopes of Conejo Mountain The fire's head quickly spotted across a ¼ mile wide vegetated strip west of Dos Vientos Ranch and east of a large rock quarry. It moved at a rapid rate of spread through this chokepoint and pushed by the winds with embers causing spot fires ahead of the front, moved into an open, vegetated area of 4000 acres north of Potrero Road.

By 1100 the fire progressed to Cal State Channel Islands University at the southwest base of the mountains. It spotted into the campus grounds and threatened several buildings. Resources were assigned to defend the University and some buildings sustained minor damage. Most of the vegetation surrounding the University was consumed.

Branch II attempted to hold the head of the fire from the University eastward along Long Grade Road to Potrero Road. Backfiring and line construction along Long Grade and along the frontage and powerline roads defended the private ranch and its infrastructure just east of the University. Efforts to stop the fire along its east flank above the Dos Vientos community were also successful, no homes were lost.

The two Branches saw an opportunity to pinch the head of the fire along Potrero Road, where the firefighters working the two flanks were converging. A frontal assault could

not be implemented however, because the fire moved rapidly to that location and the conditions were too extreme. At this time the fire was spotting a half mile ahead of the flame front, the probability of ignition was 95% and the weather was 82 degrees with 2% RH and 24-mph NE winds, with gusts to 48 mph. The fire crossed Potrero Road above Long Grade Road entering the boundary of the Santa Monica Mountains National Recreation Area one mile north of the 14,000 acre Point Mugu State Park. This area is composed of shrub fuel models SH2, SH5, SH7 and grass GR2 and GR4. The live fuel moisture was 77%. The fuel loading was estimated at 25 tons per acre. A significant amount of frost kill exists in the laurel sumac that is common in the area increasing the 10- and 100-hour dead fuel component. The Fine Fuel Moisture Content was 2, the 10-hour fuel stick was 2, the 100-hour fuels were 11, and the probability of ignition was between 90%-100%. The fire moved rapidly through the grass fuels and became established in Wood Canyon.

Branch II continued to use aircraft and line construction to hold the fire on a southwest running ridge of lighter fuel in the State Park. The fire was carried rapidly to the Pacific Ocean by the off-shore wind flow along the exposed slopes. The billion dollar Point Mugu Naval Base radar facility on Laguna Peak in Point Mugu State Park was in imminent danger of loss. Crews, aircraft, retardant and dozers prepped the facility before the fire front reached the site and were able to prevent damage to the facility. The fire continued to the coast and crossed Pacific Coast Highway (PCH). A Point Mugu facility on PCH was damaged by the fire. The following day the fire burned into the Point Mugu wetlands area and threatened additional Point Mugu Naval facilities.

The fire held in Branch I behind Dos Vientos. Dozer line, helicopters and crews controlled the fire's edge on a winding path at the interface of the residences and the open space. Another two Branches were created to control the east flank south of Potrero Road (Branch IV) and the coast (Branch III). Firefighters were assigned to prepare the State Park facility at Danielson Ranch in Sycamore Canyon. As fire the moved into the canyon the firefighters created a backfire to successfully protect Danielson Ranch. The fire established in Sycamore Canyon, south of Danielson Ranch and west in Wood Canyon, and ran the narrow drainage of Sycamore Canyon to the state beach campground at PCH, pushed by the increased velocity of the winds compressing through the canyon. Structure defense took place at Danielson Ranch and Sycamore Canyon Beach. The Fire crossed to the east side of Sycamore Canyon at Wood Canyon.

The coastal Branch III was assigned defend the homes that had become threatened in the Deer Creek Area. Homes intermixed with wildland vegetation were exposed to the fire's progress from the west in Sycamore Canyon and from the north where the fire crossed Sycamore Canyon at Wood Canyon.

Branch IV took the east flank from Potrero Road south and then east through Santa Monica Mountains Conservancy, Conejo Open Space and National Park Service lands. Shortly after midnight crews backfired and an Engine strike team held approximately 5 miles of trails and roads from Potrero Road to Danielson Ranch. With the fire's push to

the ocean and the implementation of a back fire, the size of the burn grew by 10,000 acres.

The following day, in Unified Command with Cal FIRE Team 5, the incident action plan created and staffed the fire with seven Branches and multiple Divisions. Surplus mutual aid Type 1 structure engines were released. The off-shore event was weakening and it was expected that the fire would reverse its course with an on-shore flow that afternoon. At 1030 the off shore wind was too light to continue to overpower the on-shore flow and the fire became active in the canyons where it had crossed PCH toward Point Mugu. Point Mugu Naval Station asked for additional resources to defend structures. The smoke column ceased to lean out over the ocean and was standing straight up. With the loss of wind topography began to have the greater influence on the fire's growth and firelines were now threatened by fire's uphill movement back to the north.

Direct line and burnout operations taking place where the fire crossed Sycamore Canyon at Wood Canyon became indefensible as the fire's momentum to the north took hold. This was an area where slop-overs had occurred and plagued progress at control. The fire climbed the steep slope on the east side of the Sycamore Canyon and made a significant 3000 acre run to the north up the east side of the canyon toward Rancho Sierra Vista (NPS), and the community of Hidden Valley. The fire made a 1000 acre push to the north east toward Yerba Buena Road threatening the Deer Creek area residences a second time. The fire progressed to Potrero Road from Wendy Drive to Hidden Valley, to the east at Boney Mountain, Tri Peaks and Sandstone Peak and to Mipolomo road north of the Deer Creek area. The run lasted several hours through shrub fuel model sSH5 andSH7, moving rapidly upslope but more slowly downslope and stalling at the peaks. The dry air over the ocean from the previous offshore flow was finally spent and normal coastal conditions with higher humidity's allowed the fire to succumb to suppression efforts on the ground and in the air. This last effort confined the fire to the footprint of the final run, an additional 8,000 acres.

The fire behavior was predominantly wind-driven with rapid backing fire on the east flank. The major fire progression was within the first 36 hours of ignition. On the first day of the fire the strong wind pushed the fire to the coast. The fire traveled at a rate of 120-160 chains per hour (1-2 mph) with wind domination. Spotting was a quarter to half mile downwind. Flame lengths were 30' to 50' with head fire alignment. The flanking fire spread at 15 to 30 chains per hour with backing fire rate of one to five chains per hour. A low pressure cell changed the weather pattern on the third day and fire suppression tactics became direct and took another two days to confine the fire and two more days to control it.

At the time of the fire, augmented staffing was in place throughout southern California. However, seasonal fire fighters and other fire season staffing were not set to be in place for another 2-4 weeks. Resources were able to respond rapidly to incidents as mutual aid. The Ventura County Fire Department deployed resources into structure protection groups and staging areas. Evacuations took place immediately and throughout the incident. The rapid rate of fire spread increased the fire size to 1000 acres within an

hour. No homes in the path of the east wind driven fire were lost to fire although a dozen out-buildings and several RV's were destroyed or damaged.

Evacuations and road closures were required to protect residents and the Ventura County Sheriff's (VCSD) responded to the incident. Unified Command was established with Ventura County Fire and Ventura County Sheriff's Departments and with the National Park Service the first day, May 2. Cal Fire Team 5 joined the Unified Command at midnight May 3. The fire was turned back to Ventura County Fire Department May 8. The successful partnership in command was responsible for the rapid establishment of evacuation centers and organized evacuation of both residents and their animals.

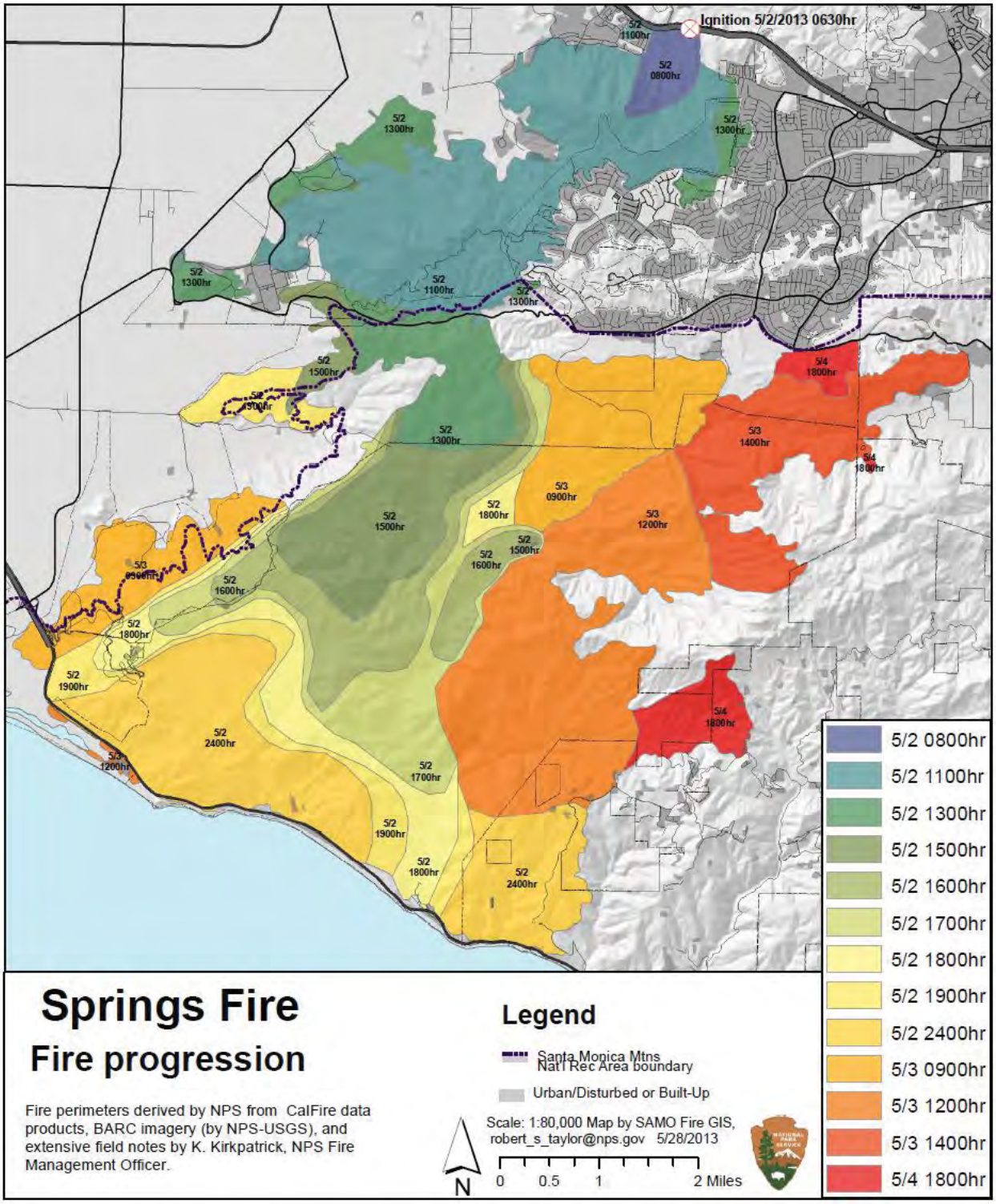
The fire ultimately reached 24,238 acres; forward progress was halted about 1800 Monday the 6th at the Oxnard Plain, Highway 101 and PCH and the direct lines east of Yerba Buena Road. Some fire did cross PCH at the wetlands east of Point Mugu. Backfiring operations were initiated May 2nd from Potrero to the east side of Sycamore Canyon at Danielson Ranch and May 3rd from the Rancho Sierra Vista area to Potrero and Hidden Valley to contain the fire's northern push. The Red Flag lasted from May 2-3 when a low pressure system brought .10-.24 of an inch of precipitation between midnight and 0600 on May 6th. Containment was declared May 10th and control May 12th. The fire was declared out May 18$^{th.}$ The fire cause may remain unknown, but a vehicle produced carbon fragment is most likely.

The fire burned 1055 acres, of NPS land in Rancho Sierra Vista, Deer Creek and two other isolated tracts of land between these two sites. 12,255 acres of CPDR land burned as well as 32 acres of COSCA and 57 acres of SMMC land. 18,338 acres are within the Santa Monica Mountains National Recreation Area boundary. Fire conditions for the Springs Fire were typical for a destructive Santa Monica Mountains wildfire where low humidity and high gusty off-shore winds rapidly spread the fire in first hours of the fire. However this fire was very large for the time of year as it started on an out of season Red Flag event beside the highway with 10 miles of open space in its path before it stopped at the Pacific Ocean.

Land Ownership within Springs Fire Perimeter	
Agency	**Acres**
National Park Service (NPS)	1,055
California Department of Parks and Recreation (CDPR)	12,255
Mountains Recreation and Conservation Authority (MRCA)	305
Santa Monica Mountains Conservancy (SMMC)	57
County of Ventura	43
Conejo Open Space Conservation Agency (COSCA)	32
City of Thousand Oaks Parks	122
California State University Channel Islands (CSUCI)	808
Private Park or Recreation Lands*	31
Private Park or Recreation Lands (temporary)**	440
Other Private Lands	9,090
Total	**24,238**
Land Burned within the SMMNRA	
Santa Monica MountainsNational Recreation Area (SMMNRA)	**18,338**

At its peak, the fire required the combined forces of over 2167personnel including 30 crews, 295 engines, 6 bulldozers, 8 fixed wing tanker planes, and 11 helicopters. Fire suppression costs were approximately $12,000,000 or $500/acre. No lives were lost but 12 outbuildings were destroyed. The number of homes threatened by the fire was 4000. The National Park Service did not lose any structures, primarily due to the first night's back firing operation from Potrero to Danielson, protecting the buildings and infrastructure from a frontal passage of the fire.

The fire burned from approximately 1750 feet elevation at Conejo Peak above Highway 101 to 10 feet elevation in the wetland area adjacent to the Pacific Ocean. Dominant plant communities in the burn area include non-native annual grassland, coastal sage scrub, chaparral, oak woodland, and riparian woodland. Fire impacts to vegetation were variable including unburned inclusions of chaparral at the margins of the fires and within the area of sandstone to Boney Mountain during the topographic on-shore run on May 3rd; low to moderate severity in riparian woodlands along the stream corridors; and moderately or severely burned coastal sage scrub and chaparral on the steeper slopes of the canyons.


Ignition 5/2/2013 0630hr
5/2 0800hr
5/2 1100hr
5/2 1300hr
5/2 1500hr
5/2 1600hr
5/2 1700hr
5/2 1800hr
5/2 1900hr
5/2 2400hr
5/3 0900hr
5/3 1200hr
5/3 1400hr
5/4 1800hr
Springs Fire
Fire progression
Fire perimeters derived by NPS from CalFire data products, BARC imagery (by NPS-USGS), and extensive field notes by K. Kirkpatrick, NPS Fire Management Officer.
Legend
Santa Monica Mtns Nat'l Rec Area boundary
Urban/Disturbed or Built-Up
Scale: 1:80,000 Map by SAMO Fire GIS, robert_s_taylor@nps.gov 5/28/2013
N
0 0.5 1 2 Miles

BURNED AREA ASSESSMENTS

WATERSHED RESOURCES

OBJECTIVES

- Assess overall soil and watershed changes caused by the fire, particularly those that pose substantial threats to human life and property, and critical natural and cultural resources. This includes evaluating changes to soil conditions, hydrologic function, and watershed response to precipitation events;
- Identify potential flood and erosion source areas and sediment deposition areas;
- Identify potential threats to life, property, and critical natural and cultural resources in relation to flooding, debris flows, erosion, and sediment deposition;
- Develop treatment recommendations, if necessary, and
- Identify future monitoring needs, if necessary.

ISSUES

- Risk to human life and property from floods, and debris flows within and downstream of the Springs fire.
- Critical natural and cultural resources including grassland and riparian habitat and prehistoric cultural resources.

OBSERVATIONS

Background

The purpose of a burned area assessment is to determine if the fire caused emergency watershed conditions and if there are potential values at risk from these conditions. Identification of values at risk occurs through consultation with the individuals, tribes, State and federal agencies and through field investigation. Not all values initially identified are determined to be at risk. If emergency watershed conditions are found, and values at risk are identified and confirmed, then the magnitude and scope of the emergency is mapped and described, values at risk and resources to be protected are analyzed, and treatment prescriptions are developed to protect values at risk. The most

significant factor leading to emergency watershed conditions is loss of ground cover, which leads to erosion and changes in hillslope hydrologic function in the form of decreased infiltration and increased runoff. Such conditions lead to increased flooding, sedimentation and deterioration of soil condition. Values at risk are human life, property, and critical natural and cultural resources located within or downstream of the fire that may be subject to damage from flooding, ash, mud and debris deposition, and hillslope erosion.

Climate

Southern California has a Mediterranean-type climate. This unique climate type is characterized by mild, wet winters and hot, dry summers. On average, 86% of the rainfall occurs between November and March, with the majority (47%), concentrated in January and February from large storms that last for several days. Average rainfall in the burn area is approximately 20”/year. The most significant feature of the regional rainfall pattern is its high degree of variability and unpredictability. Long periods may occur between storms in a single season, and enormous variation exists among total rainfall amounts between years. The lowest rainfall year is approximately 1/4 the annual mean, while the highest rainfall year is almost 2 ½ times the annual mean. Multiple years of low rainfall and extended drought punctuated by moderate to extremely wet years are not uncommon (Major, 1977). Additional variation in rainfall pattern occurs with respect to geographic location, with greater precipitation at higher elevations.

Average rainfall for the weather station located at Santa Monica Mountains Deals Flat (Latitude: 34°05’15.0” N, Longitude: 118°58’02.0” W, Elevation: 1,475 feet above sea level) for the period 1969-2009 was 20.43 inches. Rainfall in the past two years has been below normal: 13.67 in 2012 and 9.17 inches to date in 2013. Current Palmer Drought Severity for the entire southern California area is in the extreme drought category (http://www1.ncdc.noaa.gov/pub/data/cmb/drought/weeklypalmers/2013/pdi20130504-pg.gif).

Physiography/Geology

The Santa Monica Mountains are the southernmost mountain chain in the Transverse Ranges of southern California. They average 7.5 miles in width and have a mean elevation of 1,000 feet. The highest point is Sandstone Peak with an elevation of 3,111 feet. The Santa Monica Mountains contain numerous deeply incised north-south trending canyons draining into the Pacific Ocean (King, 2009). The Springs Fire is located on the western flank of the Santa Monica Mountains and burned most or all of two watersheds: La Jolla and Sycamore Canyons (Appendix F, Map 3).

The Santa Monica Mountains and Simi Hills form the eastern portion of the Transverse Ranges geomorphic province of California and the area is part of the Ventura Basin. The central Ventura Basin Contains a 10,000-meter thick accumulation of sediments recording continuous deposition from the Cretaceous to present, a period of over 100 million years. These sediments are marine sandstones and siltstones with minor

components of terrestrial stream gravels that are overlain and intruded by Tertiary volcanics in the western part of the range and underlie quaternary alluvium and colluvium. Paleomagnetic researchers noted measurements indicating that the igneous rocks in the Transverse Ranges have been rotated over 90-degrees clockwise from their original placement. It is suggested that the rocks had been detached from lower crustal rocks along a large horizontal fault surface, and transported by rotating about an eastern hinge to their present location (King, 2009).

Vegetation

The hillside vegetation of the SMMNRA is dominated by shrubby vegetation types, evergreen chaparral and drought-deciduous coastal sage scrub. North facing slopes with deep soils may have stands of coast live oak and drainages form bands of riparian vegetation with willow, sycamore and other riparian trees and shrubs. (See Appendix F, Map 4)

Hydrology and Water Quality

Big Sycamore and La Jolla Creeks are intermittent streams within the Santa Monica Mountains draining 20.9 and 3.4 square miles respectively. Big Sycamore Creek has a modest gradient of 0.02 near its outlet to the Pacific Ocean and a well-developed channel and adjacent floodplain. The gradient steepens substantially 5 miles upstream at the Upper Sycamore Canyon trailhead. La Jolla on the other hand drops from fairly low gradient uplands in La Jolla Valley (0.04) through a steep and narrow canyon with approximate gradients of 0.14. Both streams were dry at the time of this report.

Sediment input and transport in both systems appears to be largely fluvial in nature with minor input from debris flows. Small alluvial and debris flow fans line Big Sycamore Creek and appear to be the primary source of sediment for the main stem. There is no evidence of debris flows along the main channel. Similarly, La Jolla Creek exhibits few signs of debris flow activity.

Watershed Analysis

The table below identifies the amount of area burned in all watersheds affected by the Springs Fire.

Watershed	Burned area (acres)	Total watershed area (acres)	% Burned
Big Sycamore	11,602	13615	85.2
Calleguas	8,647	220179	3.9
Deer Canyon	924	2273	40.6
La Jolla	2,732	2799	97.6
Little Sycamore	26	3791	0.7
Malibu Creek	307	70519	0.4

Soil types located in the burn area (USDA, 2006)

Soil Type	Acres	% Burn Area
Chumash-Boades-Malibu association, 30 to 75 percent slopes	11,201	46.21
Hambright very rocky loam, 15 to 75 percent slopes	2,044	8.43
IGNEOUS ROCK LAND	1,923	7.93
Cotharin loam, 30 to 75 percent slopes, dry	1,462	6.03
Mipolomol-Topanga association, 30 to 75 percent slopes	1,383	5.71
Cotharin clay loam, 30 to 75 percent slopes	1,093	4.51
Kayiwish association, 0 to 9 percent slopes	889	3.67
Malibu-Chumash-Boades association, 15 to 50 percent slopes	772	3.18
Cotharin-Talepop association, 15 to 50 percent slopes	704	2.91
Cumulic Haploxerolls, 0 to 9 percent slopes	507	2.09
Cotharin loam-Rock outcrop complex, very bouldery, 30 to 75 percent slopes	335	1.38
Gilroy clay loam, 15 to 30 percent slopes	242	1.00
Kayiwish association, 9 to 30 percent slopes	224	0.92
Tongva-Cotharin-Rock outcrop complex, 30 to 75 percent slopes	182	0.75
Zumaridge-Sapwi-Kawenga association, bouldery, 30 to 75 percent slopes	136	0.56
Cropley clay, 2 to 9 percent slopes	123	0.51
Elder fine sandy loam, coastal, 0 to 2 percent slopes	111	0.46
Gilroy very rocky clay loam, 15 to 50 percent slopes	90	0.37
Cropley association, 2 to 15 percent slopes	67	0.28
Chumash-Boades-Malibu association, 5 to 15 percent slopes	62	0.26
Abaft-Beaches association, 0 to 5 percent slopes	60	0.25
Camarillo loam, coastal, 0 to 2 percent slopes	59	0.25
Pacheco silty clay loam, 0 to 2 percent slopes	59	0.24
RIVERWASH	43	0.18
Pacheco silty clay loam	41	0.17
Gilroy clay loam, 9 to 15 percent slopes	36	0.15
Hueneme sandy loam	36	0.15
Hambright rocky clay loam, 30 to 50 percent slopes	35	0.15
Camarillo loam, sandy substratum	35	0.14
Camarillo sandy loam	30	0.12
Metz loamy sand, 0 to 2 percent slopes	28	0.12
Vina gravelly loam, 2 to 9 percent slopes	26	0.11
PITS AND DUMPS	23	0.10
Botella loam, 2 to 9 percent slopes	20	0.08
GULLIED LAND	19	0.08
Metz loamy fine sand, 0 to 2 percent slopes	19	0.08
Camarillo loam	18	0.08
Pico sandy loam, 0 to 2 percent slopes	16	0.07
Sulfic Fluvaquents, frequently flooded, 0 to 1 percent slopes	15	0.06
Vina silty clay loam, 2 to 9 percent slopes	13	0.05
Cibo clay, 15 to 30 percent slopes	9	0.04
Diablo clay, 9 to 15 percent slopes	8	0.04
Anacapa gravelly sandy loam, 2 to 9 percent slopes	8	0.03
Vina loam, 2 to 9 percent slopes	6	0.02

Soils

Fifty-three percent of the burn area is in soil types characterized by slopes between 35-70% that are susceptible to erosion and mass movement, Twenty percent of these susceptible slopes are on areas with moderate burn severity and 69% on areas with low burn severity, as measured in the BARC severity map. The BARC burn severity map measures the relative change in vegetation cover before and after a fire and is not a measure of soil burn severity (Appendix F, Map5). It is important to note that in chaparral and coastal scrub vegetation, even in "low" severity burn areas, that the shrub canopy can be largely consumed and soils are as exposed as in higher burn severity areas.

Burn severity by class in the portion of the landscape where slope is 35-70%		
burn severity class	**acres**	**percent**
unburned/ very low	1370	11%
low	8630	69%
medium	2472	20%
total	**12472**	**100%**

Soil Burn Severity

Soil burn severity mapping is intended to reflect the degree of effects caused by the fire to soil characteristics that affect soil health and hydrologic function, hence erosion rate, and runoff potential. It is not a map of vegetation consumption. In mapping soil burn severity, the team evaluated field-observable parameters such as the amount and condition of surface litter and duff remaining, soil aggregate stability, amount and condition of fine and very fine roots remaining, and amount of woody plant material remaining. Ash and soil color may also indicate how intense the heat was and how long it remained at a given place (residence time). These parameters are compared to similar soils under unburned conditions to estimate the degree of change caused by the fire. Note that infiltration by water and repellency were not evaluated due to the presence of natural hydrophobicity in area soils (DeBano, 1966).

While soil burn severity is not based primarily on fire effects to vegetation, the team used post-fire vegetative condition as one of the visual indicators in assessing soil burn severity. In some cases, there may be complete consumption of vegetation by fire, with little effect on soil properties, such as in a shrub ecosystem. Denser vegetation, with a deeper litter and duff layer, results in longer heat residence time, hence more severe effects on soil properties. For example, deep ash after a fire usually indicates a deeper litter and duff layer prior to the fire, which generally supports longer residence times.

This promotes loss of soil organic cover and organic matter that are important for erosion resistance. The results are increased potential for runoff and soil particle

detachment and transport by water, wind, and gravity. This would be mapped as high soil burn severity.

Conversely, sparse or light pre-fire vegetation such as grasses or sparse shrubs usually have negligible litter layer and surface fuels and experience extremely rapid consumption and spread rates, with very little heat residence time at the soil surface. The result is very little alteration of soil organic matter and little or no change in soil structural stability. Water repellency, usually present under shrubs before the fire, may or may not be exacerbated by the fire. Areas between shrubs or grass crowns usually had very little fuel to burn, thus only experienced brief radiant heat as the flashy grasses and sparse shrubs burned. In these cases, soil burn severity would be low.

In between these extremes, the moderate class of soil burn severity is far more diverse in observed soil conditions and can include various vegetation types, ranging from forests to shrub communities. In the case of a forest, the litter layer may be largely consumed, but scorched needles and leaves remain in the canopy and will rapidly become mulch. This is important in re-establishing protective ground cover and soil organic matter. This factor can result in the classification of the area as moderate, rather than high. Generally, however, there will also be less destruction of soil organic matter, roots, and structure in an area mapped as moderate. In a shrub ecosystem, even where pre-fire canopy density was high, litter layer is generally thin, and while the shrub canopy may have been completely consumed by the fire, the soil structure, roots, and litter layer may remain intact beneath a thin ash layer. Above ground indicators such as size of unconsumed twigs remaining to help the team determine how long the heat may have persisted on the site. If only root stobs and large diameter twigs remain, it was likely a more intense fire with longer heat residence time, and combined with other observations of soil conditions may result in an assessment of high soil burn severity. More common in chaparral is a condition of remaining small diameter twigs, indicating a flashy fire with short residence time. Combined with other observations of soil conditions this usually resulted in a classification of moderate soil burn severity even though the outer canopy was consumed.

Soil Erosion/Debris Flow

Soil erosion potential following a fire is generally increased over pre-fire potential. This is largely due to loss of soil cover (forbs, grass, leaf, and needle litter), surface horizon soil organic matter responsible for structural stability, and in some cases, increased water repellency at or near the soil surface. The amount of increase over pre-fire condition is related to the degree of soil changes. The degree of soil alteration influences the potential of post-fire soil erosion and debris flow process.

The factors most affected by fire are: the amount of effective soil cover; the inherent susceptibility to soil particle detachment by wind, water, or gravity (a function of soil texture and structural stability); and the surface infiltration rate. These characteristics vary by degree of soil burn severity, and an area of high soil burn severity can be expected to show a larger increase in sediment production than an area of low soil burn severity. It is important to understand pre-fire erosion behavior when assessing post-

fire erosion, since some areas have water repellant surfaces and inherently high erosion potential even before the fire.

Watershed Response

Overland flow occurs as a result of rainfall that exceeds soil infiltration capacity and the storage capacity of depressions. On an unburned forest floor, overland flow often does not occur at all and when it does it follows a myriad of interlinking flow paths that constantly change as organic material (litter and duff layers) and inorganic material (rock) are encountered. Consumption of the forest floor by fire alters the path of overland flow by reducing the overall length of the flow path, resulting in the concentration of flow into a shorter flow path. This concentration of overland flow increases the hydraulic energy of the flow and can result in rill erosion. At the watershed scale, the reduction of hillslope flow path lengths and the formation of rills that have a high water conveyance capacity reduce the times of concentration or the amount of time for overland flow to reach a defined point within the watershed.

Overland flow is also increased if there is an increase in water repellency (hydrophobicity) of the soils because of the fire. This can reduce infiltration and increase overland flow (runoff). Infiltration curves for water repellent soils reflect increasing wettability over time once the soil is placed in contact with water. Water repellency decreases (hence infiltration increases) with time as the substances responsible for hydrophobicity begin to break down, or are disrupted by burrowing animals, thereby increasing wettability. In general, fire-induced hydrophobicity is broken up or is washed away within one to two years after a fire. The thicker and deeper the water repellant layer, the longer it will take to dissipate. In addition, as noted above, many of the soils in these vegetation communities are water repellant prior to the fire (i.e.: not fire-induced), and in these cases the water repellency will continue to be present to some degree. However, once soil cover and vegetative canopy begin to recover, this persistent water repellency becomes less significant to the runoff response since the litter and canopy quickly restore protection of soil and obstruction of overland flow, thus enhancing infiltration and reducing energy for runoff and erosion.

Raindrops striking exposed mineral soil with sufficient force can dislodge soil particles. This is known as splash erosion. These dislodged particles can fill in and seal pores in the soil thereby reducing infiltration. Further, once soil particles are detached by splash erosion they are more easily transported in overland flow. Surface erosion is defined as the movement of individual soil particles by a force (wind, water, or gravity), and is initiated by the planar removal of material from the soil surface (sheet erosion) or by concentrated removal of material in a downslope direction (rill erosion). Surface erosion is a function of three factors: 1) susceptibility of the soil to detachment, 2) magnitude of external forces (raindrop impact or overland flow), and 3) the amount of protection available by material that reduces the magnitude of the external force (soil cover). Implementing management practices can reduce erosion by altering these factors to reduce erosive energy.

On-the-ground field observations reconnaissance within and downstream of the burned

area was conducted to determine potential watershed response. Channel morphology related to transport and deposition processes were noted, along with channel crossings and stream outlets. Observations included condition of riparian vegetation and the volume of sediment stored in channels and on slopes that could be mobilized.

Reconnaissance Methodology

Analysis was based on GIS data, satellite imagery, ground reconnaissance, and hydrological modeling. Stream and watershed reconnaissance was conducted with Tarja Sagar on May 10, 2013 and with Katie Delaney on May 11, 2013. Values at risk are human life and property around campgrounds, infrastructure such as road, trails and bridges, and cultural resources located within or downstream of the fire that may be subject to damage from rock fall, flooding, ash, mud and debris deposition, and hillslope erosion.

Findings

In order to assess the degree of threat to values at risk from post-fire watershed conditions, several environmental aspects need to be evaluated including: soil burn severity, erosion and debris flow potential, and watershed response.

Soil Burn Severity

Soil Burn Severity was assessed in the field without the aid of a Burned Area Reflective Classification (BARC) map and only general observations are presented due to the limited areas of NPS lands affected. Field observations show that the majority of the burned areas within the fire are moderate Soil Burn Severity. Several areas appeared to be high Soil Burn Severity, but are limited spatiality and occur infrequently within the burned area, mostly on north and west facing slopes. No high Soil Burn Severity was observed on or above NPS land. The classification of Soil Burn Severity is based primarily on prior experiences from chaparral environments that have burned in wind driven events such as the Topanga Fire of 2005 and the Corral Fire of 2007. In these wind driven events in chaparral ecosystems, the fire tends to burn hot, however the fire has a short residence time and limits the effects to soil structure and composition.

BARC Burn Severity

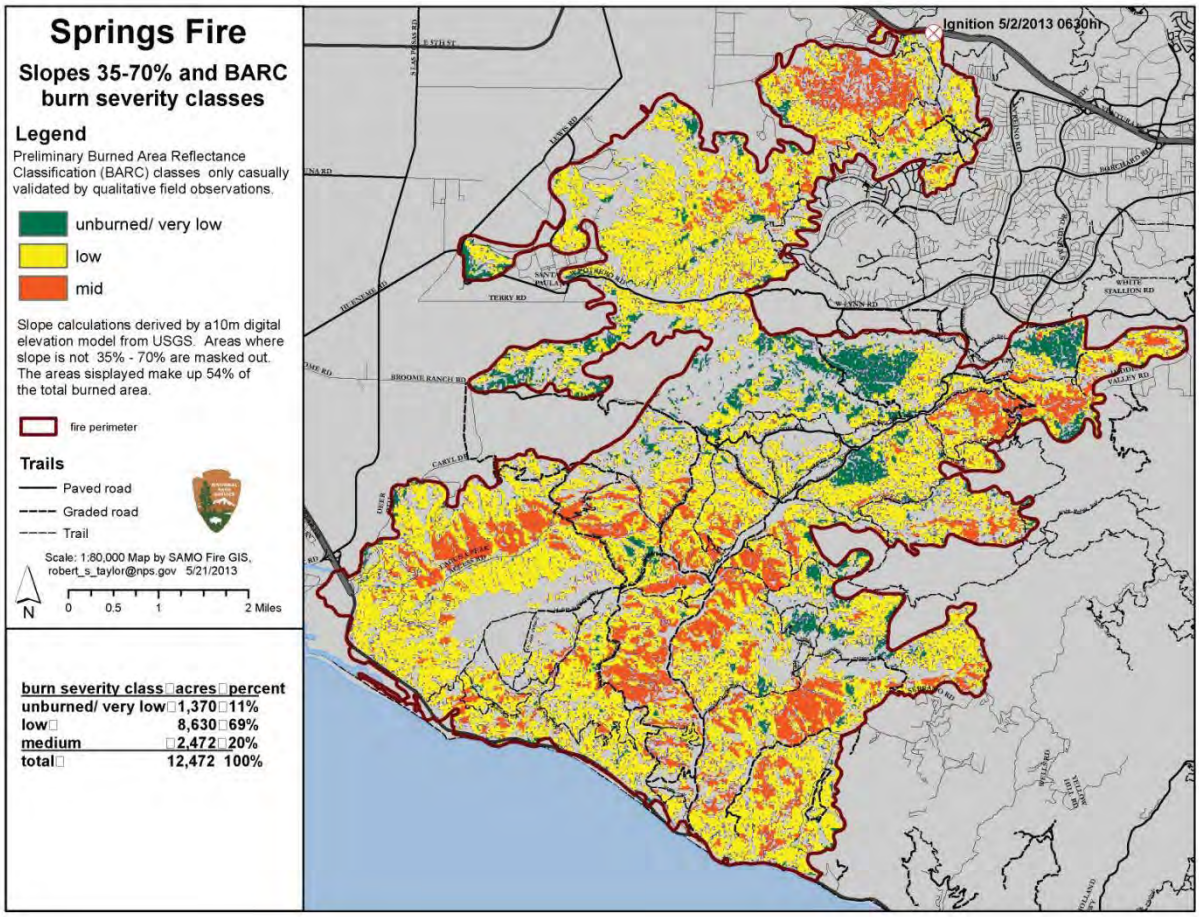
Area of Burn Severity Classes (BARC)		
Burn severity class	**Sum of acres**	**Percent of total**
1-Unburned/ very low	4328.2	17.4%
2-Low	16664.9	67.2%
3-Moderate	3814.5	15.4%
4-High	1.3	<0.1%
Total	**24809.0**	**100.0%**

BARC data, which shows (mostly) the difference in vegetation before and after the fire, are consistent with the findings for soil burn severity, i.e. that high burn severity was

very limited. This is most likely due to the short fire return interval between the Springs (2013) and Green Meadow (1993) fires.

Erosion Potential/Debris Flow Potential

The potential for erosion has increased in the burned areas as a result of the fires. The most significant increases are in areas where all vegetative cover is gone and where slopes are steep, 35-70% as shown in the map below. Approximately 53% of the burned area falls in this range. A high percentage of the burned area is underlain by fine to coarse-textured soils derived from siltstone and sandstone. These soils have low cohesion and moderate to high inherent erodibility, especially on slopes over about 35%, and after removal of litter and canopy by fire. However, most soils are very thin.



While there is certainly a potential for increased erosion as a result of fire, there is little field evidence of debris flows potentially impacting values at risk. This could be because of the thin soils and the ample low gradient channel or basin area between steep slopes and points of concern. That is debris flows or enhanced erosion could transport sediment to the lower gradient streambed where further transport is via fluvial action, essentially buffering downstream resources.

Watershed Response

The effect of wildfires on storm runoff is well documented. Wildfires typically cause an increase in watershed responsiveness to precipitation events. Burned watersheds can quickly yield runoff due to the removal of protective tree and shrub canopies and litter and duff layers, thus producing flash floods. Burned areas often respond to the local storm events in a much flashier way. The amount of water yield increase is variable and it is often orders of magnitude larger than pre-fire events. These negative impacts are especially true in watersheds that experienced total consumption of the shrub vegetation and moderate to high soil burn severity effects. Fires may increase the number of runoff events as well since it generally takes a smaller storm to trigger runoff until vegetation begins to recover. Peak flow increases from the fire may also be augmented by floatable and transportable material within the active channels.

The primary watershed response of the Springs fire is largely dependent on the type of precipitation events that occur following the fire. In order to estimate watershed response, an analysis was conducted using the Automated Geospatial Watershed Analysis (AGWA) model for clean water runoff and sediment flux from a 1-hour 25-year storm at points representing values at risk (Figure 1).

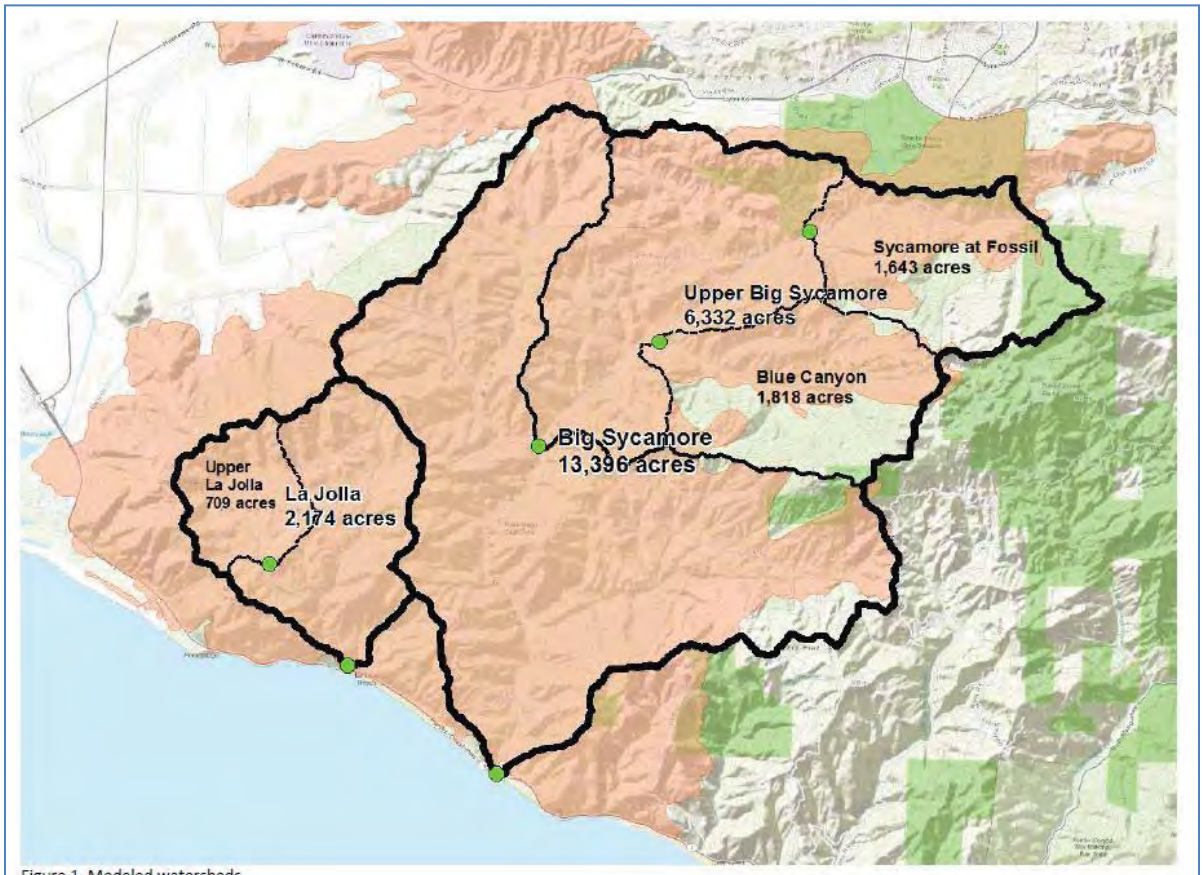


Figure 1. Modeled watersheds.

Results as peak flows (cubic feet per second) and sediment flux (tons per hour) are summarized in Table 1. Detailed model description and results are in Appendix C. It should be noted that post-fire results should be further increased by a factor of 1.3 – 1.5 to take into account bulking caused by suspended sediment and ash in the first few rain events following the fire (West Consultants 2011, Folz et al. 2009). As with any modeled results, one should view the values in the peak flow table as guiding and reinforcing field observations and professional judgment and not as absolute predictive values.

Table 1. Peak flows in modeled drainages in Sycamore and La Jolla Canyons

Watershed	Acres	Peak Flow (cfs)			Sediment Flow (tons/hr)		
		Pre	Post	% change	Pre	Post	% change
Big Sycamore Canyon at PCH	13,396	1059	2048	93	33493	85922	157
La Jolla Valley at PCH	2,366	212	530	150	5960	21306	257
Blue Canyon at Danielson Ranch	1,818	2295	2472	8	142574	189067	33
Big Sycamore Canyon at Fossil Trail	1,643	1483	1554	5	140439	161011	15
Upper La Jolla Valley	709	212	353	67	4687	10091	115
Upper Big Sycamore Canyon above Wood Canyon Road	6332	2013	2437	21	90466	139550	54

If rain events are low-intensity, and limited in total rain amount, an initial flush of ash and organic debris and localized erosion and deposition are expected. However, if rain events are higher in intensity or total rainfall amount, similar to storms experienced in the area throughout the past, the watershed response can be expected to include similar damaging events, such as significant flash flooding, debris flows, and extensive damage to property and infrastructure. Low soil permeability, existing soil surface crusting, slope steepness, and occurrence of rainfall anomalies are all important factors contributing to the potential for runoff and debris flows from the Spring Fire.

Throughout the fire area, vegetation recovery is largely dependent on climatic cycles. Given the early date (spring vs. fall) of this fire and the upcoming typically dry summer, vegetation recovery could be slow until winter rains return. Hence watershed response could be expected to remain elevated well into the fall of 2013. If next winter is wet, vegetation recovery could be rapid with forbs and grasses providing ground cover similar to that observed in unburned areas throughout the fires. By the second winter season, forbs, grasses, and re-establishing shrubs should provide sufficient cover to reduce the watershed response to near pre-fire levels. Once sprouting vegetation

begins to produce brushy crowns and a duff/litter layer, watershed response will be reduced further. However, if winters are dry, vegetation recovery will be slower, and watershed response will remain slightly elevated over pre-fire conditions.

A consequence of significant runoff, erosion, sediment and debris delivery is a short-term degradation of water quality as ash, sediment, and burned organic debris are delivered to streams and reservoirs within and downstream of burned areas. The impacts of this effect depend largely on the vegetative recovery times in combination with storm characteristics in the same time period.

Values at Risk

The NPS parcel Rancho Sierra Vista and Point Mugu State Park were assessed for watershed conditions and values at risk within the Springs Fire (Appendix F, Map 6). The NPS at Santa Monica Mountains National Recreation Area (SAMO) identified several values at risk for post-fire watershed conditions primarily in Big Sycamore and La Jolla Canyons. The values at risk included: threats to human lives and property, prehistoric cultural resources, infrastructure, and invasive species. Values at risk for the Deer Creek, Whelan and McDonald parcels are related to invasive species and safety and are described in the Vegetation and Law Enforcement assessments.

Human Life

Threats to human life include localized rock-fall, flooding, and trail navigation which represent safety issues to visitors and employees. Post-fire rock-fall hazards exist along most roads and trails in the Big Sycamore Creek and La Jolla watersheds. Three areas that represent perhaps the greatest hazard are sections of main road in upper-most portion of the Big Sycamore Canyon and along the southern portion of the Overlook Fire Road, as well as along the La Jolla Canyon trail.

Flooding at Danielson Ranch and Sycamore Campgrounds and the La Jolla Creek at PCH trailhead is a concern for both human life and infrastructure. Modeled post-fire 25-year flood events are estimated to be approximately double pre-fire flood magnitude at Sycamore Campground and the La Jolla Creek at PCH trailhead. Increases at Danielson Campground are expected to be modest with possible bulking by sediment and ash in the first several storms following the fire.

Damaged or destroyed trail navigation signs present a danger to public and employee safety.

Burned Sign

Lacking the signs, visitors and employees have a much greater risk of becoming lost. Debris on the trails also poses a risk to public and employee safety and could hinder search and rescue efforts.

Property (Infrastructure)

Identified threats to infrastructure within Sycamore Canyon are two bridges that cross Sycamore Creek, culverts that drain roads and trails, and points where Big Sycamore Creek impinges upon the Big Sycamore Canyon Road. The bridges are at risk from floatable and non-floatable debris mobilized in post-fire high flows, though they appear to have adequate freeboard to pass high flows with channel clearing. Modeled 25-year flows are expected to increase modestly, though flow bulking could result in higher flows during the first several rain events post-fire.

Bridge at risk from floatable debris

Culverts on roads and trails need to be inspected and cleaned if needed prior to the first rains, especially along Big Sycamore Canyon Road between the NPS boundary to one mile downstream of Danielson Ranch. One culvert in this area is of particular concern due to the fact that it is severely undersized and nearly completely plugged. Inspections of culverts should occur after significant precipitation (runoff) events for the first year. Failure to inspect and clean culverts may cause plugging and overtopping of the culverts, leading to failure of the road and trail prism and loss of the infrastructure.

Primary culvert of concern

Big Sycamore Creek impinges on the Big Sycamore Canyon Road in several locations (Appendix F, Map 3). In some locations, existing revetment (rip-rap) exists, though it is generally in poor repair. Other locations contain no protection for the road. Given the expected post-fire watershed response, the road in these areas is in danger of being washed out.

Invasive plant species

Invasion by invasive exotic weeds is of high concern. Most noxious weeds are favored by fire and all the weeds in the burned area are expected to spread beyond their current locations. Burned areas contain high nutrient levels, exposed ground surfaces and reduced shade. These conditions favor weed colonization and exponential weed growth, which can prevent reestablishment of desired vegetation and displace already established native plants. The burned areas are now considered to have increased invasibility and combined with the invasiveness of the weeds present in the burned area, there is a high potential for weed spread (see Vegetation assessment).

Critical Cultural Resources

Several historic and indigenous archeological sites have been identified by SAMO and California State Parks. The sites are along Big Sycamore and La Jolla Creeks are at risk to flooding, bank failure, and erosion. Big Sycamore Creek is a channelized and incised system that is punctuated by infrequent flooding. High-flows and flooding will be exacerbated in post-fire environmental condition for several years. Most high flows would be contained within the channel, though it is possible for peak floods to go over the banks. The greatest threat to indigenous cultural resources is channel migration and the accompanying bank undercutting and subsequent failure. Similar conditions are evident on La Jolla Creek in La Jolla Valley, though pertinent channel reaches are far more incised. Treatments for emergency stabilization in such conditions are difficult to implement and may have marginally effective results. (See Cultural Resources Assessment for further discussion)

Many archeological sites are located on alluvial and debris flow fans at the canyon margins where smaller tributary streams join Big Sycamore Creek. While fans are generally depositional environments leading to burial and potential protection of archeological resources, channels do form and incise the fan surface potentially threatening these resources. Treatments for emergency stabilization in these conditions are difficult because point protection measures could lead to inadvertent impacts to other parts of the site.

RECOMMENDATIONS

Emergency Stabilization

Signs

Post-fire rock-fall hazards exist throughout the burned area. In particular, road segments along the Big Sycamore Creek and the Overlook Fire Road, and the lower portion of the La Jolla Canyon trail were observed to have substantial rock-fall debris on them during field investigations. Signs need to be posted on major access roads and trails where they enter the fire perimeter. It is recommended that the lower portion of La Jolla Canyon trails be closed until after the first major rainstorm.

To insure public and employee safety road corridor markers damaged from the fire, such as reflective carsonite markers and road signs, need to be replaced.

Damaged or destroyed trail navigation signs should be replaced to insure public safety along trails to prevent visitor's form becoming lost. Trail clearing of fallen debris should be removed and the trail system should be regularly patrolled to keep the trail system open for public and employee safety search and rescue purposes.

Road Debris Removal

Rock-fall and other debris caused by post-fire watershed conditions may pose a safety hazard for visitors and employees. Big Sycamore Canyon Road should be patrolled regularly to remove debris from the road to keep it accessible to employee and emergency vehicles. Debris removal should occur from the Pacific Coast Highway entrance to Big Sycamore Canyon Road to the NPS Rancho Sierra Vista Unit boundary.

Debris Removal

Debris removal will clear trails to ensure visitor and employee safety. The trail network should be initially cleared and patrolled on a regular basis to keep the trail network open to the public and employees. Debris removal is also required to keep the trail system open for emergency situations

Channel Debris Cleanout

It is expected that high flow events will be larger than normal as a result of the fires with a concomitant increase in sediment loadings. As a result, it is recommended that Big Sycamore Creek channel be cleared of debris such as large floatable wood and brush, and other unnecessary flow impediments to facilitate passage of flood flows to protect downstream bridges. In particular, the channel upstream of the Big Sycamore Canyon Road bridge should be cleared to protect this critical access. To remove the floatable and non-floatable debris, hand crews should be utilized. Floatable debris includes dead or downed vegetation within the active channel and non-floatable debris includes trash and other items that may become entrained in high flows. Before removing non-floatable debris, consult with Cultural Resources staff to make sure the item does not have cultural significance.

Culverts Cleaning

Culverts and drainage structures are at risk to plugging and over-topping from post-fire watershed conditions. Culverts and drainage structures on roads and trails should be initially inspected and cleaned if necessary. For the first year after the fire, the culverts and drainage structures should be inspected and cleaned if necessary after significant precipitation events.

One culvert is of particular concern because it is substantially undersized and nearly completely blocked, and it on the upper part of the Big Sycamore Canyon road, a major access train and road. It is recommended that this culvert be replaced with one of sufficient size.

Invasive Species

See Vegetation Assessment

Road Stabilization

There are numerous points where Big Sycamore Canyon Creek impinges the main road threatening stability of the road. Several of these locations already contain rip-rap revetment in various states of repair. The revetment should be reinforced and expanded to protect the road.

Treatments Considered But Not Recommended

Archeological site stabilization was considered for eroded sites in La Jolla Valley and Wood Canyon. The sites have incised lateral drainages which cut headward into sites and created steep walls prone to slumping that might expose fragile archeological features. Given the remote and challenging site conditions, stabilization measures would be costly and the increase in erosion that is directly attributable to fire is believed to be low. Documentation (CR-1) and monitoring (CR-2) of these sites following storms will be implemented, but emergency stabilization is not presently recommended to mitigate erosion of archeological sites.

Management Recommendations – Non-Specification Related

Closure of La Jolla Trail

Considerable rock-fall was observed along the La Jolla Canyon Trail within 1.5 miles of the trailhead on the Pacific Coast Highway. It is recommended to close this section of the trail to public access for at least one year after the fire and up to three years to facilitate public safety.

Closure of canyons and campgrounds

Given the flooding potential in canyons during the initial storm events following the fire, it is recommended that the Big Sycamore and Danielson campgrounds and La Jolla Canyon at PCH trailhead be closed in advance of the first several large storms to hit the area.

Geomorphic Restoration

Upper La Jolla Creek in the vicinity of La Jolla Valley should receive consideration for strategic stream channel restoration. Substantial incision was observed on the main channel that was propagating into tributary channels as well as apparently forming incipient head-cuts. These impacts are affecting local groundwater storage and availability to vegetation as well as significant archeological resources. While comprehensive watershed restoration may not be cost-effective, arresting head-cut formation and propagation and stream incision should allow natural processes to eventually stabilize watershed conditions.

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CULTURAL RESOURCES

OBJECTIVES

- Determine if known or incidentally encountered cultural resources within, adjacent to, or downstream from the Springs Fire were impacted by the fire and/or are threatened by post-fire conditions. If applicable, propose emergency stabilization treatments or activities to minimize or avoid impacts.

- Determine if any proposed emergency treatments on the Springs Fire might adversely impact cultural resources and, if so, take measures to prevent those impacts.

- Meet all Federal cultural resources legal mandates, including consultation with appropriate American Indian tribes.

ISSUES

- Over 100 cultural resources are known to occur within or immediately adjacent to the Springs Fire. These resources are comprised of materials subject to direct fire effects and/or vulnerable to post-fire threats such as looting, vandalism, hazard trees, or destabilization (due to vegetation loss).

- Three additional cultural resources are found down slope from the burned area and may be subject to damage resulting from erosion.

- Thirteen historic structures in the Rancho Sierra Vista cultural landscape are located near the fire perimeter and may be smoke to smoke damage or other effects due to burning embers or future erosion down slope from the fire.

- Historic and ethnographic collections are housed in one of historic structures and one non-historic building may also have been affected by smoke at Rancho Sierra Vista.

- Other emergency stabilization treatments are proposed in this plan both within and around the Springs Fire that involve ground disturbance or other actions that could potentially impact known cultural resources.

- Contemporary members of the Santa Ynez Band of Chumash Indians affiliated with the Santa Monica Mountains National Recreation Area have expressed interest in the protection of cultural resources within the park, including fire management projects and related incidents.

OBSERVATIONS

Introduction

The purpose of a burned area assessment is to determine if post-fire conditions pose a risk to cultural resource values. The identification of cultural resource values at risk includes completing a cultural resources data records search for the fire area, consulting with individuals, tribes, and state agencies, and conducting field assessments. Not all values initially identified during the records search will be determined to be at risk. Where emergency conditions have the potential to affect known cultural resources, treatment prescriptions are developed to protect the values at risk. The most significant factor leading to emergency watershed conditions is loss of ground cover, which exposes artifacts to looters and leads to increased erosion as a result of decreased infiltration, increased runoff, and increased exposure to wind.

Cultural Context

The NPS recognizes five non-exclusive categories of cultural resources including archeological resources, structures, cultural landscapes, ethnographic resources, and museum objects.

1. Archeological resources are the physical evidence of past human activity, including the effects of these activities on the natural environment. Archeological resources are frequently conceptualized and managed as spatially discrete archeological sites. Sites are frequently clustered into larger units that can be defined as archeological districts, and sometimes archeological resources are obscured by vegetation or post-occupational soil deposition, or simply are too sparse to warrant site status.

2. Structures are constructed works built to serve some human activity and are usually immobile. They can be of either prehistoric or historic age, but only historic structures in the local area were normally built of non-perishable materials that survive lengthy periods of natural deterioration and decay. Examples include buildings and monuments, trails, roads, dams, canals, fences, and structural ruins. The NPS manages structures through the List of Classified Structures (LCS), an inventory of prehistoric and historic structures that have historical, architectural, or engineering significance.

3. Broadly defined, cultural landscapes reflect human adaptation, use of natural resources, and modification of the area through various land-use practices. Cultural landscapes are often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, the types of structures that are present, and the layout of structures with respect to other features of the physical and built environment. The character of a cultural landscape is defined both by physical materials, such as roads, buildings, walls, and vegetation, and by uses that reflect cultural values and traditions.

4. Ethnographic resources are basic expressions of human culture that are the basis for continuity of cultural systems. Ethnographic resources encompass both the tangible and the intangible, and include traditional arts and native languages, beliefs, and subsistence activities, as well as artifacts that were made and/or used by traditional groups and collected directly from them rather than recovered from archeological context.

5. Museum objects include specimens, objects, and manuscripts or photographs in archival collections. These items are frequently kept in a museum or designated curation facility with strict security and controlled environmental conditions. Their value may be derived from appreciation in exhibits or purely for research purposes, thus, museum objects may be displayed or curated in storage, respectively.

Prehistoric

The prehistory of the Santa Monica Mountains revolves around Native American occupation that is represented exclusively by archeological resources. The oral history maintained by modern-day descendants and written versions that were collected after Euroamerican provide information on the ancient past through an ethnographic perspective, but tangible archeological resources and their context within sites and cultural landscapes are the primary source of data on several millennia of human occupation by Native American groups. This record of occupation extends back over 10,000 years in the Channel Islands, with limited indications that a comparable timespan is represented in the Santa Monica Mountains.

Archeologists classify most of the prehistoric past in California in very general terms as the Early Period. In addition to a Clovis projectile point that was found at Point Dume, surface evidence of Early Period occupations is derived from numerous sites documented on surveys in the Santa Monica Mountains. Recent excavation at the Talepop site (CA-LAN-229) uncovered part of a probable house floor that is estimated to be 7,000-8,000 years old, as well as an archeological deposits that was considerably deeper and older than the house (King and Parsons 2012). These very ancient occupations are distinguished from the majority of the Early Period timeframe during which an abundance of groundstone tools such as manos and metates used to process plant seeds led archeologists to refer to this time after 7,000 years ago as the Millingstone Horizon. The Little Sycamore site (CA-VEN-1) on the Santa Monica Mountains coastline played a key role in identifying and dating the Millingstone Horizon (Dallas 2013; Wallace 1954). An Intermediate Period is sometimes distinguished between the Early and Middle periods when mortars and pestles began to accompany milling stones. These new forms reflect intensive use of acorns during the past 4,000-5,000 years.

The Middle Period is dated from roughly 800 B.C.-A.D. 1250 (King and Parsons 2010). The Chumash Tradition emerged as an identifiable archeological complex during this time throughout most of the Santa Monica Mountains and areas to the west and northwest, as well as the adjacent Channel Islands. This interval can be subdivided into

finer increments based on the types of shell beads which were common and important items of manufacture and exchange linking the Channel Islands and other coastal sites with inland areas during the Middle Period (King 1990; King and Parsons 2010). Long-distance exchange including trade with the Southwest became increasingly common during this period, along with increases in population, conflict, and subsistence intensification coinciding with significant warming in climate and environmental stress during the last 400-500 years of the Middle Period (Jones et al. 1999). An important maritime innovation dating to the first millennium A.D. was the creation of large sea-going canoes made by lashing large planks together and caulking the seams with asphaltum (natural tar deposits which are common in the Santa Monica Mountains and adjacent areas). These canoes were essential for obtaining sea mammals and large pelagic fish in much greater quantities than possible previously. Hunting of terrestrial mammals was facilitated by the introduction of the bow of arrow which is seen in the appearance of small projectile points.

Disruptions in trade and rapid changes in bead styles and technology occurred during the 1200s (King 1990). The Late Period followed these shifts and lasted until European colonization in the late 1700s. Groundstone tools indicate the continued importance of plant foods in addition to hunting, fishing, and collecting of shellfish. Rock art including petroglyphs pecked into stone and pictographs painted in protected rockshelters are potentially quite ancient, but the easily eroded types of bedrock exposed in the Santa Monica Mountains suggests that surviving Native American rock art in the area is associated with the Late Period (King and Parsons 2010; Knight 1999). Abstract, anthropomorphic, other naturalistic representations are most common, frequently depicted in very stylized fashion that is characteristic of Chumash art (Knight 1999, 2011). At the time of European contact, the Chumash resided in large permanent villages in coastal and valley settings. They lived in substantial dwellings built of wood, brush, and other perishable materials that do not normally survive well in archeological sites. Chumash “tomals” (sewn-plank canoes) were some of the largest, most seaworthy maritime vessels observed during early European explorations along the West Coast.

Ethnographic

A striking pictograph panel at Saddle Rock Ranch (CA-LAN-717) appears to depict one of the first European explorations near the Santa Monica Mountains, possibly the overland Portolá expedition of 1769-1770 (Reinhard 1981). The combination of traditional Chumash ceremonial figures and humans on horseback that appear to have Spanish-style helmets suggests that the artwork is Native American, as does the style and content of adjacent pictographs. Intermittent European expeditions by land and sea as early as Cabrillo’s voyage up the West Coast in 1542 probably had little impact on Native Americans except by introducing new diseases that spread rapidly among aboriginal populations which lacked resistance to smallpox and other European diseases. However, Spanish colonization quickly impacted the traditional way of life for Native Americans after missions were established in areas adjacent to the Santa Monica Mountains in the late 1700s and by the early 1800s Chumash culture and especially neighboring groups were swamped by Euroamerican settlements.

European explorers described several Chumash villages during the Late Period. Large, important coastal villages were visited at Malibu, Ventura, and Point Mugu, and smaller satellite villages and hamlets were noted in surrounding areas. The Hokan-speaking Chumash people dominated much of the Santa Monica Mountains and Channel Islands, as well as both coastal and inland areas west to Point Conception and north to San Luis Obispo and the Carrizo Plain. Shoshonean-speaking Tongva groups dominated the eastern Santa Monica Mountains, San Fernando Valley, Los Angeles Basin, the eastern Channel Islands, and beyond. Ethnohistoric documentation identifies a major inland Chumash village known as Talepop in the Santa Monica Mountains in the Malibu province (King 2003; King and Parsons 2012). At the west end of the Santa Monica Mountains, important coastal Chumash settlements were situated around the Mugu Lagoon at Muwu (CA-VEN-11) and at the mouth of Big Sycamore Canyon at Shuwalashu (CA-VEN-89), both sites within the Springs Fire perimeter.

The traditional Native American lifestyle of both Chumash and Tongva populations involved extensive maritime, mountain, and valley subsistence-settlement systems that were integrated through regional networks of trade and mobility. Tomols and other watercraft facilitated exploitation of marine resources in the coastal zone, where shellfish gathering and other near-shore resource harvesting were also important subsistence activities. Hunting and plant gathering were central to mountain and valley adaptations, with harvesting and processing of acorns proving a major focus. Steelhead trout fishing on major freshwater streams played another part of the subsistence cycle. The occurrence of rich marine shell middens at inland sites demonstrates the importance of exchange and organized transportation operations in supporting the large regional population. Although land-management systems included intentional burning and other practices to manipulate natural vegetation, it was not until Spanish missions were established that agriculture became part of the local economy.

Spanish colonization and missionization had profound effects on the way of life of Native peoples in southern California. In the late 1700s, Mission San Buenaventura drew Chumash from many different villages and localities, including the Santa Monica Mountains, Channel Islands, and surrounding areas, including people from beyond Chumash territory. Chumash from the Santa Monicas also joined non-Chumash groups at Mission San Fernando, so that by the time the missions were disbanded in the early 1800s, extensive intermarriage, acculturation, and replacement of traditional hunting, gathering, and fishing subsistence patterns with an agricultural economy and many descendants became assimilated into Euroamerican culture. Epidemic diseases had also drastically reduced the population of Native American groups throughout southern California. Today, the only federally recognized tribe in the general area is the Santa Ynez Band of Chumash, consisting mainly of people tracing their ancestry to groups from the missions at La Purismima and Santa Barbara, well to the northwest of the Santa Monica Mountains. There are many other family groups and individuals in closer proximity with Chumash, Tongva, and Tatavium ties, but none of these individuals have formed tribal governments that are federally recognized. A commonly recognized chief of the local Chumash is Charlie Cooke who was instrumental in the NPS establishment

of the Native American Culture Center at Satwiwa on the edge of the Spring Fire burn perimeter.

Historic

Early European explorations beginning with that of Cabrillo in 1542 noted the abundance of large coastal villages along both the mainland and Channel Islands in both Chumash and Tongva territory. The earliest recorded overland exploration through areas adjacent to the Santa Monica Mountains was that of Portolá in 1769-70, followed by de Anza in 1776 and soon after by founding of Mission San Buenaventura in 1782. Other missions were established along the Camino Real, with the Santa Monica Mountains and especially the rugged areas around Point Mugu providing a refuge for Native Americans who resisted missionization. The missions were followed by the establishment of ranchos as Mexico obtained independence from Spain and settlement shifted from religious to secular rule. The earliest Mexican settlements in the Santa Monica Mountains were in the Las Virgines/Malibu areas during the early 1800s, but Rancho Guadalasca was established farther west in the 1830s on the west side of the Springs Fire burn area. Rancho Callegues was established in 1837 at what now is Camarillo near the point of ignition of the (Camarillo) Springs Fire. The mission abandonments left many Native Americans available for employment on the Mexican ranchos and Rancho El Escorpion in the western San Fernando Valley was granted to Chumash descendants from Mission San Fernando in 1845.

California was transformed Mexican to United States territory through the Treat of Gualalupe Hidalgo in 1848. The Gold Rush immediately afterward intensified American settlement in much of California, but the Ventura-Santa Barbara area was beyond these mainstream developments and even Los Angeles was only small town until it was incorporated in 1850 and statehood began to change the small city into a metropolitan center. The railroads and oil discovery in the late 1800s fostered development of Los Angeles as a major industrial hub. However, it was the long-distance transportation of water to Los Angeles, San Fernando Valley, and areas adjacent to the Santa Monica Mountains that spearheaded intense development of a sprawling metropolitan area surrounded by rich agricultural settlements in the Simi and Santa Clara Valleys, including the Oxnard area where historic and modern farms but up against the mountains burned in the Springs Fire.

Much of Rancho Guadalasca in the western Springs Fire area was sold to a Santa Barbara businessman in 1873 and operated as the Broome Ranch. Cattle ranching in the mountains and farming on the adjacent Oxnard Plain has continued in much of the historic Broome Ranch to this day. Other portions were subdivided and sold, including a large upland area which was purchased by Carl Beal in 1936 and operated as a ranch and orchard known as Rancho Sierra Vista (NPS 2004). The Beal Family built a large ranch complex and lived at Rancho Sierra Vista. The ranch was purchased and further developed by Richard Danielson in 1947. Danielson was a Los Angeles businessman who built additional residences along Big Sycamore Canyon but did not actually live at the ranch. He expanded ranching and farming operations into Big Sycamore and surrounding valleys, while the main ranch area operated by Beal was then used

primarily as a horse ranch. Danielson donated a large part of the ranch to the State of California in 1973 and Point Mugu State Park was subsequently established. However, the horse ranch remained in private ownership until 1980 when it was purchased by the NPS after Santa Monica Mountains National Recreation Area was established. The majority of the area within the Springs Fire is within the historic Rancho Guadalasca/Rancho Sierra Vista area.

Background Information

Impacts to cultural resources as a result of fire, fire management actions, and post-fire conditions can be conveniently divided into three categories: direct, operational, and indirect. Direct impacts are those caused by the wildland fire itself or its byproducts (e.g., smoke); operational impacts are caused by fire management actions made in response to wildland fires (e.g., fire line construction, retardant drops); and indirect impacts occur as a result of fire-induced changes to the context in which cultural resources are found (e.g., looting and erosion due to loss of vegetation cover).

Operational impacts to cultural resources are identified, assessed and mitigated as part of fire suppression activity damage repair and funded from the emergency suppression account. No suppression impacts were evident at cultural resources inspected during the initial post-fire fieldwork. However, since only a fraction of the known cultural resources within the Springs Fire perimeter have been inspected to date, there is a possibility that operational impacts will be discovered.

Emergency stabilization (BAER) funds are used to assess and, if necessary, mitigate the direct effect of fire and related indirect impacts such as erosion, as well as identify and mitigate resources that could be affected by emergency stabilization treatments (e.g., ground-disturbing activities). With regard to direct effects to material cultural resources, the level of threat is a function of the fuels and associated fire behavior and the nature of cultural materials present. Fire effects vary with fire intensity and duration of heating that is dependent upon fuel type, fuel loading, and burning conditions. The results can be interpreted post-burn by examining the soil burn severity if the pre-fire vegetation types are known. Within the Springs Fire area, a combination of oak grasslands, coastal sage, and dense chaparral are the predominant fuel types which burned at varying intensity within the fire perimeter. With some of the runs exhibited by the crown fires, temperatures reaching 1000°C most likely occurred. Generally speaking, these burning conditions are known to produce adverse effects to most types of cultural resources known to occur within the general fire vicinity.

Indirect impacts of the greatest concern within the Springs Fire include erosion, fire-killed hazard trees, and looting or vandalism resulting from the post-fire exposure of artifacts. This includes incremental sediment loss and deposition, as well as catastrophic events such as debris flows. Onsite and upslope post-fire vegetation conditions will influence the potential for erosion. Falling trees can impact cultural resources through ground impact and root throw. Loss of vegetation can expose collectable cultural resources to looters and facilitate mobility for people, vehicles, and other mechanisms through the burned areas.

Applicable emergency stabilization policy and guidance (620 DM Part 3, Interagency Burned Area Emergency Response Guidebook) dictates that only those cultural resources known prior to the BAER assessment process, and others discovered incidentally during that process are eligible for emergency stabilization funding. Systematic inventories of burned areas are not allowed, unless those areas will be subjected to potentially detrimental emergency stabilization treatments.

Reconnaissance Methods

Assessments of previously recorded cultural resources within and adjacent to the Springs Fire were performed where safety was not a concern once fire behavior had subsided sufficiently for red-carded or escorted staff to access the interior of the fire perimeter. Park staff began field assessments on Sunday, May 5, 2013 accompanied by the Associate State Archaeologist of the California Department of Forestry and Fire Protection. Additional BAER Team members were ordered for the incident and began assisting with field assessments on May 9. District personnel from the California State Parks conducted cultural resource inspections with the BAER Team on May 9, as well as other occasions on lands within Point Mugu State Park within the Santa Monica Mountains National Recreation Area.

Cultural resource assessments for the fire included examination of fire and cultural resource data to identify resources most likely to be threatened by the fire, and completion of field assessments for sites that were easily accessible and in nonhazardous areas of the fire. Record searches of historical information were conducted, and examination of known cultural resources in relation to soil burn severity and slope data were completed to determine if sites were likely to have burned over and estimate potential threat of erosion due to moderate or high burn severity on steep slopes above given cultural resources. Field assessments consisted of documenting fire related impacts, post-burn threats, and treatment recommendations on a post-fire inspection form developed by the National Interagency DOI BAER Team, shown below.

Emergency Post-Fire Site Inspection Record
DOI BAER Team

Site No. **Site Name**	**Temporary or Other No.**
Date of Inspection:	**Inspector:**

UTM	Zone:	Easting	Northing
Elevation			

Site Description/Condition

Prehistoric		**Multi-component**	
Historic		**Other**	

Features Present:

Were Wood Elements Present, describe:

Were they burned? Yes ▪ No ▪

Has the site been vandalized Yes ▪ No ▪
If yes, describe:

Site Burn Severity
___ Low (duff partially consumed, none to little ladder fuels burned, no canopy burned)
___ Moderate (duff consumed, ladder fuel burned, isolated crown burn or torching)
___ Severe (duff, ladder and crown completely consumed)
Note: Map, photograph and describe affected areas of site

FIRE EFFECTS AT SITE	**SUPPRESSION IMPACTS TO SITE**
Cracking/spalling ▪	Handline ▪
Smoke/soot damage ▪	Drop point/safety zone ▪
Stump/root holes ▪	Dozer line ▪
Loss of architectural wood/features ▪	Retardant drop impact/staining ▪
Tree(s) on walls or rubble ▪	Mop-up ▪
Other:	Tree falling ▪
	Spike Camp ▪
	Safety Zone ▪
	Vegetation removal ▪
	Vehicle ruts ▪
	Other:

Emergency Post-Fire Site Inspection Record
DOI BAER Team

EROSIONAL THREATS TO SITE

On site slope %, Aspect °

Site Watershed (to 20 m. out) Slope %, Aspect °

Erosion threat:
Active gully/riling/scouring (depth and extent) ▪
Stump hole/burned log erosion ▪
Pedestaling ▪
Duff absent ▪
Hydrophobic Soils on site ▪
Desiccated (powdery) soils on site ▪

Other:

RECOMMENDED PRESERVATION TREATMENT

▪ No Treatment Recommended
▪ Monitor
▪ Treatment Recommended (describe (e.g. Directional falling, Straw bale, straw scatter, Excelsior matting, sandbag, etc.)

Additional comments:

Example of the National Interagency DOI BAER Team post-fire inspection form.

Findings

Over 150 cultural resources were impacted by the Springs Fire. Most of these archeological sites and other cultural resources are within Santa Monica Mountains National Recreation area, although only a portion of these sites are on land owned by the NPS. The largest number of sites occurs within Point Mugu State Park, situated within the recreation area and adjoining NPS lands on several sides. Additional sites are located on private lands and other public lands administered by the Conejo Open Space and Conservancy Association. Only cultural resources on NPS and State lands are included in this BAER Plan.

The preliminary analysis of burn severity focused exclusively on NPS land in the Rancho Sierra Vista/Satwiwa area (see A, below). Subsequent analyses took into account all NPS and State lands within or adjacent to the fire perimeter (within 1,000 feet and downslope).

Burn Severity

Examination of NPS park cultural resources GIS layers and historic data for the fire area initially identified 150 known archeological sites and historical features in the fire vicinity. Results of the GIS analysis indicate that 120 sites are located within the National Recreation Area in burned areas; most sites are located in areas with low to moderate burn intensities. Although sites on land not owned by the State or NPS are excluded

from this plan, they were considered in preliminary data analyses.

Twenty field site assessments were completed during BAER that included 19 sites located within the fire area perimeter. Of these sites, two that are located within moderate severity burn were determined to be unburned in the field; four sites located within low burn severity were found to have burned at moderate to high severity; one site with unburned severity rating was found to have been burned at low severity. Overall, these comparisons suggest that the BARC burn severity map derived for this incident was found to be accurate only 65 percent of the time for site specific burning intensity.

Subsequent analysis of burning for the total sites affected by the Springs Fire was dependent on the burn severity map and GIS data. Historic structures in Big Sycamore Canyon and Rancho Sierra Vista are includes below with archeological sites in the summary of fire effects on NPS and State Parks lands. Those structures within Rancho Sierra Vista are contributing features to the cultural landscape which has been determined eligible to the National Register of Historic Places (NPS 2004) and are included on the NPS List of Classified Structures.

Overall, 110 archeological sites and historic structures were affected by the fire. With one exception, these cultural resources were included in the GIS analysis of burning severity. The 12 structures at Rancho Sierra Vista did not burn, but they were subjected to indirect effects since all are within 1,000 feet of the fire perimeter. One other structure also was outside the perimeter, while two structural sites in Point Mugu State Park were classified as low severity, though standing structures burned almost completely, including those at Ranch Center in Wood Canyon. Archeological sites were about evenly divided between those in the low and moderate severity ranges. Twenty-four of these sites are characterized by heavy shell middens that suggest the sites were occupied as substantial habitations; some of them villages (see photographic examples). Several rockshelters also fall in the low to moderate severity range, some with associated middens or pictographs. The most common site type in all burn categories consists of artifact scatters, many of them containing marine shell or other indications of minor middens that may be buried or already largely eroded away.

Table. Number of Sites and Historic Structures by Soil Burn Severity Class

	Very Low Severity	Low Severity	Moderate Severity	Within 1,000 ft of Perimeter	TOTAL
Artifact Scatter	2	27	18	6	53
Scatter with Feature(s)	0	2	3	0	5
Isolated Feature	0	0	0	1	1
Rock Shelter	0	2	5	3	10
Midden	0	10	14	1	25
Historic Structure(s)	0	2	0	13	15
TOTAL	2	43	40	24	109

Note: One additional artifact scatter with feature could not be classified due to imprecise locational data.

Southwest side of La Jolla Valley showing difference in burn severity between moderate and low values corresponding to dense shell middens that had been covered with dense shrub (light gray from moderate burning in center of photo) and adjacent grasslands on non-midden areas of site (black areas in foreground).

Shell midden at site CA-VEN-205 in La Jolla Valley showing distinction between prehistoric midden (light gray in foreground) and non-midden portions of site area (blackened areas in distance) corresponding to moderate versus low burn severity.

Close-up of shell midden at CA-VEN18 in Big Sycamore Canyon showing moderate burning of midden area which had been covered with dense shrub and now is covered with prehistoric shell that has been heavily heat-impacted.

Slope and Erosion Potential

Cultural resources located on or below steep slopes that burned at moderate to high severity may be subject to increased precipitation runoff that can erode archeological sites or historic features. Fire soil burn severity data were examined in conjunction with slope data derived from a ten-meter DEM for the general vicinity of sites located within or near the fire perimeter. Most of the cultural resources assessed are located in areas with low slope values, although site level terrain variability can be significant and is not decipherable from the GIS data (in other words, field assessments are necessary to determine actual on-site erosion threats).

However, up-slope values can be used to derive potential flows resulting from heavy storms when examined in conjunction with the soil burn severity and soil type. Results of the hydrologic assessment of watershed indicate debris flows are not a major concern for most cultural resources, but this assessment did not address increased water flow resulting in increased localized erosion and increased deposition of sediments from the burned areas. For this analysis, slopes greater than 40 percent were considered to represent potential risk to sites resulting from erosion. Some sites identified as potentially at risk were reviewed in the field with the NPS BAER Team hydrologist and significant erosion threats beyond what would have occurred under a natural precipitation regime are not anticipated. However, a significant event such as a 100-year storm may result in substantially increased impacts. For the purposes of BAER treatments, only the analysis for 25-year storm impacts is taken into consideration.

Gently sloping site surface in typical prehistoric midden area at CA-VEN-205 in La Jolla Valley.

Ravines at prehistoric midden at CA-VEN-98 in La Jolla Valley, dissecting site area from runoff of steep slopes adjacent to the site.

Fire-Killed Trees

Archeological sites with fire-killed trees located on or near site features such as standing structures, stone foundations, or within recorded artifact concentration areas will need to be assessed. These trees will eventually fall, further disrupting site features and may pull up root balls that will impact subsurface archeological deposits. Completed field site assessments have demonstrated that many areas have fire-killed trees. The hazard level can vary significantly within the fire perimeter, with the potential greatest along major drainages such as Big Sycamore Creek and in some of the oak woodlands such as Wood Creek, both areas with substantial sites such as vulnerable prehistoric shell middens and historic structures. The soil burn severity data can be used to identify cultural resources located within relatively high soil burn severity areas to be assessed for hazard fire-killed trees with the potential to damage archeological sites or historical features.

Potential Looting of Archaeological Sites

Field examination of sites visited along accessible roads and trails during the initial assessment revealed the potential for archaeological site looting. Loss of vegetation providing ground surface cover was noted to have clearly revealed cultural material at visited sites. This is most conspicuous at sites with dense shell middens that are characterized by dense stands of shrub vegetation which have now burned (see photos above). Even prior to burning, illegal excavations targeted some of these sites, as revealed by looting pits and digging tools that were exposed by the fire (see photo below). Easy access resulting from close proximity to roads and loss of vegetative ground cover has elevated the post-burn probability of looting at these sites. Additional

reports by park staff indicate that signs of ground disturbance in the vicinity of artifacts at known sites has already occurred, along with unauthorized individuals trespassing on archeological sites in areas closed due to fire. There is a very clear need for increased law enforcement presence and archeological site monitoring to address potential looting concerns. See Appendix F for the most recent report of looting activity.

Analysis of site locations within the Springs Fire perimeter was completed using GIS to determine the number of sites near roads and trails where easy site access may present a concern for burned-over sites with exposed cultural materials. Of the 130 sites determined to be within 100 meters or inside the mapped fire perimeter and NRA boundaries, 91 sites were found to be within 100 meters of a road or trail. Additional analysis revealed that 72 of these sites (55%) are within 50 meters of a road or trail that provides easy access and ready site visibility, elevating the threat of looting to an alarming level. Fire crews observed one museum-quality artifact alongside the main trail/road through Big Sycamore Canyon in an area that clearly was visible after burning of moderate vegetation cover (see photo or mortar below).

Prehistoric shell midden at CA-VEN-205 where a rake that was probably used to comb through site deposits prior to burning had been concealed in vegetation.

Prehistoric stone mortar discovered by fire crew at non-site location in burned area along main road in Big Sycamore Canyon.

Potential smoke related impacts to museum collections

The Springs Fire was fast moving and threatened museum displays and collections at the Rancho Sierra Vista historic tack storage facility and Satwiwa Native American Culture Center. Some ethnographic artifacts were removed from the Culture Center and taken to park headquarters in anticipation of possible fire damage. Fortunately, the fire did not reach either of the two facilities, but potential smoke impacts to collections, museum displays, and collections facilities was identified as a possible concern. Therefore, on-site inspection is proposed as part of the continuing cultural resource inspections to determine if any fire-related impacts might require emergency stabilization. Items in both the historic tack room and ethnographic display consist largely of perishable materials such as leather and basketry which are susceptible to smoke damage.

Ground-Disturbing Emergency Stabilization Treatments

Proposed treatments for emergency stabilization were discussed with the BAER Team during daily meetings. For known resources, only three treatments were identified that had the potential to impact a cultural resource. The NPS proposes to monitor culverts along the Sycamore Canyon Road and remove accumulated woody debris from culverts following major precipitation events and spring snow melt over the next year. Several culverts located within known archeological sites may be affected by operations of heavy equipment used to clean culverts. Archeological monitoring will be provided for that work, along monitoring during herbicide spraying and animal pitfall trap restoration within certain sensitive archeological areas.

Recommendations

Treatment recommendations include both an emergency stabilization specification that is eligible for funding under BAER and non-specification management recommendations intended to meet general agency cultural resource management standards.

Emergency Stabilization Specifications

Conduct Site Assessments:

BAER cultural resource assessments are performed to identify (1) direct impacts and (2) threatening post-fire conditions that require allowable BAER treatments to mitigate. One hundred and twenty cultural resources were initially identified as resources at risk, with BAER field assessments completed at 20 sites. Additional archeological sites and historic features are located outside the fire perimeter and determined to not be at serious risk from indirect impacts. Eighty-five archeological sites remain within the fire perimeter at risk from direct fire impacts and potentially indirect effects such as erosion and looting. Completion of BAER cultural resource assessments is recommended to allow for implementation of any identified emergency stabilization treatments identified and future monitoring. These inspections also should include the historic structures at Rancho Sierra Vista and historic and ethnographic collections located in one historic structure and one non-historic museum building.

Monitor archaeological sites:

Significant post-burn threat of looting at archaeological sites is identified as a major concern following the fire. GIS analysis has revealed that 55% of known sites are in immediate proximity of park roads and trails (within 50 meters), while 70% are readily accessible (within 100 meters). In addition, many of the sites are situated at the base of steep canyon walls and although hydrologic modeling of the main stream courses did not identify specific threats to archeological sites, localized on-site erosion may occur following the first heavy rains of the season. Sites can potentially be affected by sheetwash, on-site channel cutting, or eroding of stream banks caused by increased downslope runoff and stream flow. Monitoring will consist of coordinating with law enforcement to complete scheduled site visits and use of motion sensor activated cameras to monitor sites for looting activity, as well as post-rain site visits at selected sites to check for on-site erosion. Identified looting activity will be managed using standard ARPA procedures, and identified erosion impacts by completing additional BAER treatment specifications when necessary. Monitoring will target the 25 prehistoric sites with dense midden features and 10 rock shelters where potential looting and erosional impacts are most likely and such loss would be especially significant.

Management Recommendations (Non-Specification Related)

Post-fire field conditions and data collected during fire suppression and BAER often lead to the need for management actions that were not addressed during the incident and are not eligible for emergency stabilization funding. The following recommendations are intended to assist the park meet general NPS management goals.

1. Record new cultural resource discoveries to professional standards. Numerous new archeological sites and historical features were reported during fire suppression and suppression repair activities that require further documentation to meet state standards. Current documentation consists of GPS locations, digital photographs, and some general field notes.

2. Update site records for previously recorded sites visited during BAER assessments. Several sites were visited during the BAER assessments and additional documentation was collected that can be used to update current site records.

3. Complete Archeological Sites Management Information System (ASMIS) assessments from BAER data. NPS policy requires scheduled monitoring of site condition to be entered into the service-wide archeological sites database (ASMIS). This information can be gleaned from BAER field site assessments.

4. Post-fire field conditions are often conducive to conducting field survey in archeologically sensitive areas due to the exposure of artifacts when vegetative cover is lost to fire. An archeological survey design can be derived based on historical literature and mapped fire severity to determine where field visibility is good due to reduced vegetative in archaeologically sensitive areas.

5. Consult with the PWR Cultural Resources Emergency Response Team (CRERT) to develop an Emergency Operations Plan (EOP). These documents are designed to guide parks staff regarding mitigating negative effects on museum collections resulting from emergency events. This typically includes a museum collections evacuation plan. Steve Floray is a member of the PWR CRERT who can be contacted to initiate the process.

Consultations

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VEGETATION RESOURCES

OBJECTIVES

- Evaluate and assess fire impacts to vegetative resources, including rare and threatened plant species.
- Determine emergency stabilization and monitoring needs supported by specifications to aid in vegetative recovery efforts.
- Evaluate potential for invasive plant species encroachment into native plant communities and potential impacts to sensitive plants.
- Provide management recommendations to assist in vegetation recovery and habitat protection and rehabilitation.

ISSUES

- Post-fire expansion of invasive non-native plant species may degrade rare and sensitive native vegetation communities, including perennial grassland, riparian woodland, stabilized dune, and coastal sage scrub.
- The unprecedented large spring burn and extreme drought conditions may disrupt processes by which vegetation communities reestablish after fire.
- Rare and threatened plant species may have been affected by the fire.
- There is potential natural resource damage resulting from visitor use of closed areas.

OBSERVATIONS

This report identifies and addresses known and potential impacts to vegetation resources within the Springs Fire, particularly those occurring in the national and state parks properties within the Santa Monica Mountains National Recreation Area (SAMO). Vegetation resources, for this assessment, are defined as plant communities, individual plant species, and rare or uncommon plant species.

Findings and recommendations contained within this assessment are based on information obtained from National Park Service staff at the Santa Monica Mountains National Recreation Area and staff at California State Parks - Angeles District. They are based on field reconnaissance; review of existing surveys and reports, and on professional expertise and experience. Reconnaissance of impacted areas was conducted by ground surveys and supported by aerial imagery and spatial data provided during the preparation of this plan.

This assessment will detail the known damage to the vegetation and plant resources and will outline expected post-fire response and recovery of the vegetation; it will

discuss revegetation needs and expected non-native invasive species encroachment and outline management considerations for recovery of the vegetation resources.

Background

A large fire in May is unprecedented in the Santa Monica Mountains. Prior to the Springs Fire, large fires have only occurred between September and December; with 95% of all area burned between 1925 and 2000 occurring during these months. Less than 1% of all acres burned in this period occurred in May. Regionally, the only precedent for a large spring fire is the Jesusita Fire on the slopes above Santa Barbara, which began on May 6, 2009 and burned 8,700 acres. The weather under which the Springs Fire occurred was unusual for May, but typical of fall wildfire conditions of high temperatures, low humidity, high winds, and reduced live fuel moisture levels.

The Springs Fire occurred in the midst of a severe drought. The Deals Flat hydrologic station, immediately east of the burned area recorded 9.2 inches precipitation since the beginning of the water year in October 2012; compared to a 40-year October-to-September average of 20.4 inches. Since the seasonal drought characteristic of the region's Mediterranean-type climate begins in late May, it is very unlikely that any significant precipitation will occur before November. The 2011-2012 water year was also dry, with 13.7 inches recorded at Deals Flat. The Palmer Drought Severity Index, a measure of long-term drought on unirrigated cropland, categorizes the region as under extreme drought. At the time of the fire, live fuel moisture of chamise (*Adenostoma fasciculatum*), a dominant plant in the Santa Monica Mountains, was 29% less than the long-term average and at a level generally found in late June.

Although the Springs Fire was an unusual and extreme event, its overall severity was moderate, based on Burned Area Reflectance Classification (BARC) analysis (USDA 2013). The BARC analysis indicates that approximately 15% of the area within the burn perimeter was unburned or burned at very low severity. The meaning of burn severity derived from BARC analysis for southern California soils and shrublands is not clear and the subject of ongoing research. (Appendix F, Map 5)

Approximately 85% of the area burned in the Springs Fire last burned 20 years ago in the October 1993 Green Meadow Fire. More than 98% of NPS and State Parks land burned in that fire. The natural chaparral fire return interval is generally held to be 25–100+ years. The Santa Monica Mountains, located along the coast with few lightening strikes, are believed to be at the upper end of this normal interval. Fires occurring at intervals of less than 15 years may result in significant native species loss (see discussion below of fire impacts on vegetation recovery).

Fire records do not exist for the burned area prior to 1950. Between 1950 and 2012 14% of the area burned once (62 year average return interval), 32% burned twice (31 year interval), 38% burned three times (21 year return interval), and 15% burned four or more times (16 years or less interval). On NPS and State Parks land 9% of the area burned once, 35% burned twice, 41% burned three times and 16 % burned four or more times. See Appendix F, Map 9 Fire Frequency.

The Springs Fire burned seven major natural or naturalized vegetation types as shown in Table 1 below and in Appendix F, Map 4 Vegetation.

Table 1. Vegetation types in the Springs Fire burn area

Major Vegetation / Habitat Type	Acres Burned in Springs Fire		Percent of Burned Area		Percent of Mapped Occurrence	
	Entire Burn	Within NRA[1]	Entire Burn	Within NRA	SMM Region [2]	Within NRA
Chaparral	7,407	5,756	31	31	8	9
Coastal Sage Scrub	12,614	9,477	52	52	20	26
Upland Woodland (mostly live oak)	700	682	3	4	4	6
Riparian Woodland	425	347	2	2	8	10
Wetland	71	68	< 1	< 1	16	17
Grassland (native and non-native)	1,964	1,649	8	9	10	20
Rock Outcrop	234	106	1	< 1	12	9
Disturbed Native Vegetation	160	101	< 1	< 1	1	1
Non-native Vegetation	136	26	< 1	< 1	3	3
Agriculture and Development	431	110	2	< 1	2	2
Other	96	16	< 1	< 1	6	3
TOTAL	24,238	18,338				

[1]Within the boundary of the Santa Monica Mountains National Recreation Area

[2]The Santa Monica Mountains ecological unit: Santa Monica Mtns., Simi Hills and Mountcleff Ridge.

Resource concerns include the potential for the rapid spread of non-native invasive species into sensitive and rare habitat and inhibited recovery and loss of native vegetation and rare and threatened plant species. Resource management direction was

obtained from the *Santa Monica Mountains National Recreation Area Resource Management Plan* (1999) and *Santa Monica Mountains National Recreation Area Fire Management Plan* (2005).

Reconnaissance Methodology and Results

The BAER team vegetation specialists conducted field reconnaissance of fire effects on vegetation resources in the three NPS park units that burned and in Point Mugu State Park. Reconnaissance methods consisted of vehicle and foot surveys along the trail networks, limited off-trail investigations (e.g. to check rare plant occurrences). State biologists extensively surveyed Point Mugu and provided verbal reports to NPS staff of their findings and post-fire management needs. In conducting the surveys and assessment, we utilized maps of existing vegetation, non-native invasive species and rare plants. All of the vegetation team had personal knowledge and experience working with plants and vegetation in the burn area.

Findings

Vegetation

The Springs Fire burned approximately 21,500 acres of native shrubland, woodland, and wetland vegetation. Also burned were approximately 2000 acres of grassland composed of naturalized Eurasian annual grasses mixed with native perennial grasses. The fire passed through the largest block of undeveloped and protected land in the Santa Monica Mountains; an area that supports a unique assemblage of vegetation communities and several endemic plant species. Regionally important plant communities that burned in the fire include:

- the largest native grassland in the Santa Monica Mountains (La Jolla Canyon)
- extensive riparian habitat (Sycamore Canyon and its side drainages)
- the only stabilized dune habitat in the Santa Monica Mountains (Point Mugu)
- 20% of the coastal sage scrub that occurs in the Santa Monica Mountains ecological region (composed of the Santa Monica Mountains, Simi Hills, and Mountcleff Ridge).

Coastal sage scrub, which occurs primarily in southern California, is rapidly being lost to urbanization and is considered to be globally threatened habitat type (O'Leary 1990, Bunn et al 2007).

Fifty-two percent of the area within the burn perimeter was coastal sage scrub and 31% was chaparral. Eight percent of the area was grassland. Woodlands, wetlands, and rock outcrops constituted less than 5% of the area. BARC analysis indicates that 11-12% of shrublands and woodlands were unburned, with unburned vegetation dispersed throughout the burn area. 103 vegetation associations and 50 alliances are mapped in the burn area (AIS 2007). This represents 50% of the association and 60% of the alliances that occur in the Santa Monica Mountains ecological region.
Sixteen of these alliances are considered "highly imperiled" by the California Department of Fish and Game (S3 ranking; having 21-100 variable occurrences over 6,400-32,000 acres; CDFG 2013, Sawyer, Keeler-Wolf and Evans 2008). In addition,

five coast live oak (*Quercus agrifolia*) associations occurring in the burn perimeter are ranked highly imperiled (Keeler-Wolf and Evans 2006). Nine of the imperiled alliances have more than 15% of their mapped area of occurrence in the Santa Monica Mountains ecological region within the burn perimeter. Three of the alliances, *Rhus integrifolia, Mimulus auriantiacus*, *Leptosyne gigantean have* more than 30% of their known occurrences within the burn perimeter.

Sensitive Vegetation Types Mapped within the Springs Fire Boundary			
Vegetation Alliances and Associations Considered to be Highly Imperiled by the California Department of Fish and Game[1]		Acres Burned in Springs Fire	% of Mapped Occurrence in SMM Region[2]
Alliance			
Ceanothus oliganthus	Hairyleaf ceanothus	5	< 1
Encelia californica	California encelia	225	13
Eriogonum cinereum	Ashyleaf buckwheat	256	28
Hazardia squarrosa	Sawtooth goldenbush	43	16
Juglans californica	California black walnut	51	2
Leptosyne gigantea	Giant coreopsis	30	36
Leymus condensatus	Giant wildrye	44	21
Mimulus aurantiacus	Bush monkeyflower	382	62
Opuntia littoralis	Coast prickly pear	604	31
Platanus racemosa	California sycamore	314	12
Quercus lobata	Valley oak	2	< 1
Rhus integrifolia	Lemonadeberry	736	30
Sambucus nigra	Black elderberry	4	2
Salicornia pacifica	Pickleweed	55	17
Umbellularia californica	California bay	42	3
Venegasia carpesioides	Canyon sunflower	1	18
Coast Live Oak Associations[3]			
Quercus agrifolia / Adenostoma fasciculatum Coast Live Oak / Chamise		4	5
Quercus agrifolia / Ceanothus spinosus Coast live oak / Greenbark ceanothus		52	5
Quercus agrifolia - Salix lasiolepis Coast live oak - Arroyo willow		4	1
Quercus agrifolia - Umbellularia californica Coast live oak - California bay		13	1
Quercus agrifolia/Salvia leucophylla – Artemisia californica Coast live oak / Purple sage - California sagebrush		8	< 1

[1]Imperilment is measured by assessment of rarity, trends, and threats. All alliances and associations listed in this table have received a rating of S3; having 21-100 variable occurrences over 6,400-32,000 hectares. All associations within an imperiled alliance are also considered imperiled. Source for alliance ratings is Sawyer, Keeler-Wolf and Evans, 2008. Source for association ratings is Keeler-Wolf and Evans, 2006.

[2]The Santa Monica Mountains ecological unit: Santa Monica Mtns., Simi Hills and Mountcleff Ridge.

[3]The Coast Live Oak alliance is not considered imperiled.

Rare and Threatened Plant Species

Eleven sensitive plant species (California Department of Fish and Game ranking of vulnerable, imperiled, or highly imperiled) occur in the burn area, including two federally listed endangered species and one threatened species. The entire known population of the federally listed threatened Verity's dudleya (*Dudleya verityi*) is within the burn perimeter. The table on the following page provides a list of these species, their status and number of occurrences in the burned area and in the Santa Monica Mountains.
In addition to special status species, 22 locally rare plant species occur in the burned area. These latter species are not globally threatened, but are so uncommon in the Santa Monica Mountains that we consider them to be in danger of being lost from our flora. The table on the second page following provides a list of these locally rare species and the number of occurrences in the burned area and in the Santa Monica Mountains.

Sensitive Plant Species Mapped within the Springs Fire Boundary									
Species Name	Mapped Occurrences in Burn by Land Ownership				All Mapped Occurrences in SMM Region	Listing		Ranking	
	NPS	CSP	Other Public	Private		US	CA	State & Global	CNPS
Known Populations									
Astragalus brauntonii Braunton's milk-vetch		1			7	E	-	S2 G2	1B.1
Calochortus catalinae Catalina mariposa lily	2	> 5	> 3	> 3	> 10	-	-	S3.2 G3	4.2
Calochortus plummerae subsp. plummerae Plummer's mariposa lily			1	1	10	-	-	S4 G4	4.2
Dudleya blochmaniae subsp. blochmaniae Blochman's dudleya		3	2	4	10	-	-	S2.2 G4T2	1B.2
Dudleya verityi Verity's dudleya			3	5	8	T	-	S1 G1	1B.2
Eriogonum crocatum Conejo buckwheat			4	5	11	-	R	S2.1 G2	1B.2
Erysimum suffrutescens Coast wallflower		1	1		2	-	-	S3.2 G2	4.2
Juglans californica California walnut		> 3 stands			> 50 stands	-	-	S3.2 G2	4.2
Lilium humboldtii subsp. ocellatum Humboldt lily		1			9	-	-	S3.2 G4T3	4.2
Senecio aphanactis California groundsel				1	3	-	-	S2 G3	2.2
Suaeda esteroa Estuary sea-blite			1		1	-	-	S2 G3	1B.2
*Thysanocarpus conchuliferus** Santa Cruz Island Frindgepod	1	1			5	E	-	S1 G1	1B.2
Potentially Occurring Populations									
Dudleya parva Conejo dudleya					10	T	-	S2 G2	1B.2
Dithyrea maritima Beach shieldpod					1	T	-	S2.1 G2	1B.1
Microseris douglasii subsp. *platycarpa*						-	-	S3.2 G4T	4.2

Small-flowered microseris				3	
Navarretia ojaiensis Downey navarretia		4	- -	S1 G1	1B.1

Federal (US) and California (CA) Listing: E = Endangered, T = Threatened, R = Rare
State and Global Rank: _1 = Critically Imperiled, _2 = Imperiled, _3 = Vulnerable, _4 = Apparently Secure
.1 = Very threatened, .2 = threatened, T = the global rank for the specific subspecies
California Native Plant Society Ranking: 1B = Rare, threatened, or endangered in California and elsewhere
2 = Rare, threatened, or endangered in California, more common elsewhere
4 = Plants of limited distribution
.1 = Seriously endangered in California,
.2 = Fairly Endangered in California
* Pending final determination. Authorities believe population is either *Thysanocarpus conchuliferus* or a new *Thysanocarpus* taxon.

Locally Uncommon Plant Species Mapped within the Springs Fire Boundary						
Species Name		Mapped Occurrences in Burn by Land Ownership				All Mapped Occurrences in SMM Area
		NPS	CSP	Other Public	Private	
Abronia maritime	Red sand verbena		1			2
Acer macrophyllum	Big-leaf maple		1			5
Allium praecox	Early onion		1			2
Berberis pinnata barberry	California				1	4
Calystegia soldanella morning-glory	Beach		1			2
Calochortus clavatus mariposa lily	Yellow		1			5
Carex praegracilis	Clustered field sedge		1			3
Carex spissa	San Diego sedge		2			5
Cheilanthes covillei	Coville's lipfern		1			3
Claytonia exigua	Pale claytonia		1			3
Claytonia gypsophiloides claytonia	Coast range		1			3
Dichondra occidentalis dichondria	Western		1			2
Draba cuneifolia	Rock cress		1			3
Erysimum suffrutescens wallflower	Coast		1			2
Eschscholzia caespitosa California poppy	Collarless		1			5
Helenium puberulum	Sneezeweed		1			3
Holodiscus discolor	Cream bush		2			5
Koeleria macrantha	June grass		1			3
Lasthenia coronaria	Southern goldfields				1	2
Lepechinia fragrance	Pitcher sage		1			2
Meconella denticulate meconella	Small-flowered		1			4
Polygala cornuta v. fishiae milkwort	Fish's		1			10
Vicia ludoviciana	Slender vetch				1	3

Non-native Invasive Plant Species

Three hundred seventy-five (357) non-native plant species occur in the Santa Monica Mountains and immediate vicinity, composing 31% of the flora. The California Invasive Plant Council (Cal-IPC) has rated 108 of these non-native species to be "invasive plants that threaten wildlands" in California. Staff from NPS, State Parks, and other local agencies has identified 24 of the Cal-IPC listed species as highly invasive and ecologically damaging in the Santa Monica Mountains and of greatest priority for monitoring and control in the SMMNRA. Thirteen of these priority species occur in the burn area. The table on the third page following provides a list of these species, their status, and number of mapped stands in the burn area.

Priority Non-native Invasive Plant Species			Mapped Occurrences in Burn by Land Ownership (2006)				Cal-IPC Rating	CDFA Rating
			NPS	CSP	Other Public	Private		
Acroptilon repens		Russian knapweed	1		1			B
Arundo donax		Giant reed		2	1		High	B
Carduus pycnocephalus		Italian thistle	3				Moderate	C
Conium maculatum		Poison hemlock	2	49	1	10	Moderate	
Cortaderia selloana		Pampas grass		2	1		High	
Cynara cardunculus		Artichoke thistle	Appeared after 2006 mapping				Moderate	B
Foeniculum vulgare		Fennel	20	150	9	37	High	
Myoporum laetum		Myoporum		5			Moderate	
Pennisetum setaceum		Fountain grass		60		4	Moderate	
Phalaris aquatica		Harding grass	92	227	1		Moderate	
Ricinus communis		Castor bean		21	6	5	Limited	
Spartium junceum		Spanish broom		1		1	High	C
Silybum marianum		Milk thistle	Appeared after 2006 mapping				Limited	

Fire and Drought Impacts on Vegetation Recovery

Fire is a dominant ecological force shaping California plant communities and changes in fire regime can result in significant changes in vegetation composition and structure. (Sugihara et al. 2006, Keeley et al. 2012). Large wind-driven fire events occur several times each decade in the Santa Monica Mountains. Although natural, lightning-ignited fires are uncommon, anthropogenic fires are frequent due to human activities throughout and surrounding the recreation area, (Taylor 2004, Keeley et al. 1999, Keeley 2005).

These fires are important episodic events, which are unpredictable in time and extent. They fully consume existing stands of shrubland vegetation and create the possibility for dramatic shifts in vegetation composition and species abundances. The exact nature of these changes depends on the interacting influences of pre-fire vegetation, site fire history, fire conditions, pre- and post-fire weather events, and the ingression of non-native invasive species.

Fire Return Interval

Although chaparral and coastal sage scrub may generally be considered fire adapted and for some species, fire dependent, overly frequent fires can impact these shrub systems beyond their capacity to recover. Chaparral is generally held to have a natural fire return interval of 25 to 100+ years. The coastal Santa Monica Mountains rarely have lightening strikes during the dry season and there is little evidence for burning by native peoples. They are therefore believed to historically have had long fire-free intervals.

Even a single premature re-occurrence can have significant impacts. Reproductive maturity for obligate seeding species, including *Ceanothus megacarpus*, a dominant in the burn area, requires 5-15 years before significant seed crops are produced and fires at more frequent interval can cause local population extinction (Zedler 1995, Fabritius and Davis, 2000). In addition, premature fire occurrence has been documented to reduce the capacity for resprouting species to recover (Fabritius and Davis, 2000). This impact may be particularly severe if preexisting drought, such as we have had in the last year, has depleted plant carbohydrate reserves (see below). Coastal sage scrub appears to be more tolerant of short fire return intervals than chaparral, likely due to differing modes of post-fire regeneration.

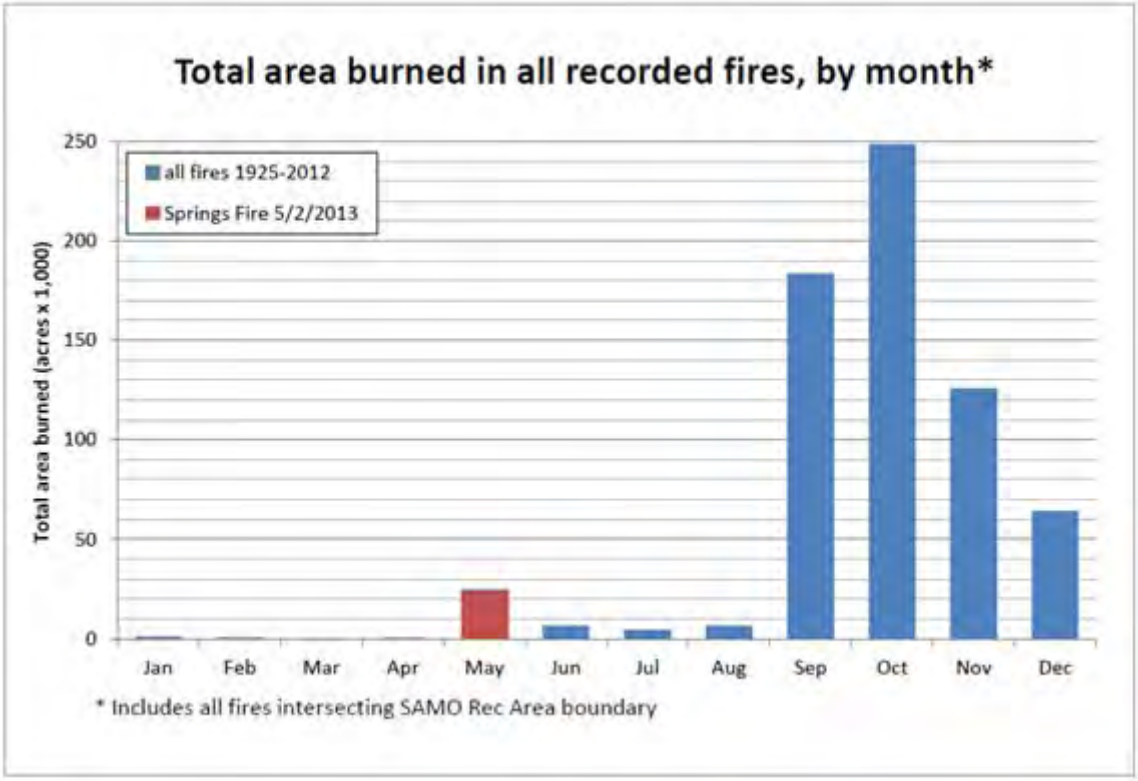
Ninety-eight percent of NPS and State Parks land burned 20 years ago in the Green Meadow Fire of October 1993. This is shorter than what we believe to be the natural fire return interval for our native shrublands, but likely beyond the period required for obligate seeding species to establish an adequate seed bank for post-fire regeneration. See Appendix F, Maps 9 and 10

Drought

The drought that the area has been suffering may directly and through interaction with pre-mature fire return and the early season burn contribute to the inhibition or failure of native vegetation recovery. The Springs Fire occurred in the midst of an extended and

severe drought. Only 9 inches of rainfall fell in the precipitation year preceding the fire, while the average precipitation is 20 inches. The 2011-12 precipitation year produced only 14 inches of rainfall. Recently researchers have begun to report significant leaf drop, twig dieback and even death in normally drought tolerant chaparral species. It is unknown what affect the drought will have on the capacity for vegetation to recover. Plant resources (e.g. carbohydrates) were likely severely depleted by the drought and, even if a more typical rainfall pattern were to resume, plants may have less than their normal capacity to recover from fire (Steven Davis, pers. comm.). Observers have also noted that many weed species often appear to be suppressed by the drought, but given their growth and reproduction patterns, invasive weeds may perform relatively better than natives in the post-fire environment, particularly if rainfall resumes.

Season of Fire



The most unusual and least predictable aspect of the Springs Fire is the timing of its occurrence; in the spring rather than late-summer or fall. Large fires in the spring are unprecedented in the Santa Monica Mountains and with one recent exception, elsewhere in the region. The fire occurred at a time when the plants were in their period of active growth, rather than when the plants were in their late-summer drought dormancy. Carbohydrates that might otherwise have been stored in underground organs and used for regeneration were lost and physiological changes associated with dormancy that may help plants survive fire had not yet occurred. In addition, plants

burned with moisture content more than 50% higher than in a typical fall fire (100% vs. 65-70%). Higher soil moisture availability than typical of the fall season may also result in greater mortality of native seeds (Parker 1987). The extreme drought may have acted to produce a phenological state more similar to that found in summer (e.g. live fuel moisture was at levels typical of late June) and possibly mitigated impacts. However, as noted above, the drought might also have inhibited acquisition of carbohydrate reserves and thus inhibit plants' ability to respond to fire. This year's seed set was also reduced or lost for many plants as a result of the drought and early fire occurrence.

The Springs Fire occurred at the beginning of the summer drought season typical of the region's Mediterranean-type climate. Significant rainfall is not anticipated for 6-8 months, as compared to 1-3 months for typical fall fires. We do not know what effect this will have on post-fire regeneration. It may result in failure of native resprouting plants or seedlings whose germination is stimulated by the fire and supported by remaining moisture in the soil. Conditions may favor invasive species, which we have observed often successfully resprouts or germinate at lower moisture levels than native species, which generally require significant rain events to stimulate germination and begin active growth.

Growth of native perennial grasses and grassland forbs has in a number of instances been shown to be stimulated by prescribed fires conducted in the spring, largely by releasing nutrients and reducing competition from non-native annual grasses and forbs (D'Antonio et al. 2002). However, observations based on our attempts to enhance native grasslands in the Santa Monica Mountains by spring burning indicate that drought will inhibit native perennial grass growth and even produce high levels of mortality, while at the same time favoring non-native forbs.

Fire Severity

The Springs Fire occurred under typical fall conditions of high temperatures, low humidity, and high winds. Although live fuel moisture was above that considered critical for an extreme fire (80%), it was at a level typically found at the beginning of summer (100% vs. 140% typical of mid-May) and a crown consuming fire typical of chaparral and coastal sage scrub occurred.

A BARC analysis indicates the burn severity was generally low to moderate, with approximately 15% of the area within the fire perimeter unburned (or burned with very low intensity), 69% burned at low severity, and 16% at moderate severity. There were no high intensity burn areas. A targeted field survey will be required to fully assess the pattern of burn severity on vegetation with respect BARC values. However, initial field observations indicate that the burn was moderate.

Burn Severity for Major Vegetation Types within the Springs Burn[1]						
Major Vegetation / Habitat Type	Within Burn Perimeter Acres (% of Vegetation Type)			NPS and State Park Lands Acres (% of Vegetation Type)		
	Unburned[2]	Low	Moderate	Unburned	Low	Moderate
Chaparral	825 (11)	4424 (60)	2148 (29)	632 (14)	2670 (59)	1253 (28)
Coastal Sage Scrub	1488 (12)	9980 (79)	1139 (9)	505 (8)	5550 (83)	645 (10)
Upland Woodland (mostly oak)	77 (11)	328 (47)	290 (42)	44 (8)	252 (46)	254 (46)
Riparian Woodland	53 (12)	236 (56)	135 (32)	33 (10)	189 (56)	112 (34)
Wetland	30 (43)	39 (56)	< 1 (1)	1 (73)	< 1 (27)	0
Grassland (native & non-native)	928 (47)	992 (51)	42 (2)	369 (36)	637 (62)	27 (3)
Rock Outcrop	37 (16)	177 (76)	20 (8)	31 (32)	58 (60)	8 (8)
Disturbed Native Vegetation	70 (45)	80 (52)	4 (2)	11 (59)	7 (38)	< 1 (4)
Non-native Vegetation	34 (25)	94 (70)	6 (5)	8 (47)	9 (53)	0
TOTAL	3542 (15)	16351 (69)	3784 (16)	1633 (12)	9373 (70)	2299 (17)

[1]Burn severity was estimated for each vegetation by overlaying the SAMO vegetation map on a Burned Area Reflectance Classification (BARC) map of post-fire vegetation condition. BARC is based on comparison of near and infrared reflectance values and has four severity classes: unburned, low, moderate and high. The latter class was not detected in the Springs Fire.

[2]Areas classified as unburned under BARC include vegetation that burned with very low severity. Very low severity burns are typical of annual grasslands and accounts for a large portion of grassland classified as unburned within the fire perimeter.

Woodland and riparian oaks and sycamores appear to have generally suffered only bark scorching and charring without killing the cambium. There has been much scorching and heat kill of leaves, though in many larger trees the upper canopy was unharmed. Conditions vary with location in the landscape, in lower, wider canyons where trees have a grassland or herbaceous riparian understory, impacts appear light. In upper, narrower canyons where trees are in more intimate contact with shrubs, there are numerous trees that have been heavily burned with complete leaf loss in the canopy. Oaks seedlings suffer fire mortality, but regeneration after fire by basal sprouting is commonly observed. Acorns are killed by fire, so there will be little post-fire recruitment.

The major impact to existing trees comes from fire entry into heartwood through cavities and burning the trunk of the tree out from the inside to the point where structural failure occurs. These failures are not a one-off result of the Springs Fire, but a result of multiple fires that have occurred over time. In the Santa Monica Mountains many oaks and sycamores have large cavities at ground level that are the result of a combination of injury from earlier fires and/or actions of decay fungi. Each time a fire passes through an area the tree cavity is partially burned or charred and becomes larger. In the intervening years the tree puts on new growth increasing the thickness of the outer wall that supports the tree. The structural integrity of the tree depends on this dynamic between loss to fire and regrowth. If a burn causes the outer wall to become sufficiently thin, the tree will fail. Dozens of trees were lost to the Springs Fire in this manner and it is anticipated that more will fall or need to be removed for safety reasons. The early burn and drought may inhibit the ability of trees to flush new leaves and thus put on new growth and restore structural integrity.

Lower Sycamore Canyon showing burned grassland, partially scorched tree canopies, and fully burned chaparral on hills in the background.

An unburned area of bigpod ceanothus chaparral.

Severely burned tree trunk. The hollow existed before fire, but was much increased by the burn. This tree will likely fall.

Chaparral and coastal sage appear to have burned in a manner typical of fall burns, with near full consumption of above-ground parts. One of the characteristic elements of shrubland vegetation is the abundant growth of a fire-ephemeral flora that occurs in the

first 1-3 years following fire. This flora is primarily herbaceous and includes annuals, perennials, vines, suffrutescent shrubs, and subshrubs. Some of these species are pyrophyte endemics, which persist in inter-fire years only in the seed bank. Other species, while more abundant following fire, may persist in canopy gaps, on disturbed sites or at xeric margins. The post-fire flora is an important component of Santa Monica Mountains biodiversity, comprising approximately 35% of the native annual and perennial herbs and approximately 20% the total native flora that occurs here.

More intense fires cause greater soil heating and may result in increased seed mortality (Davis et al. 1989; Keeley 2000) and fire intensity (fire severity) has been negatively correlated with post-fire species richness and total plant cover (Keeley 1998). The apparently moderate intensity of the Springs Fire may result in little impact on the post-fire flora. However, the moderate burn conditions may also result in high survivorship of seeds of aggressive non-native grasses and forbs and result in intense competition in the first few seasons following the fire and cause the post-fire flora to produce inadequate seed set, resulting in its reduction of loss.

Similarly, the low to moderate intensity burn may result in high survivorship of aggressive non-native perennial grasses invading native grasslands and stimulate the germination of invasive forbs occurring in native grassland (see below).

Fire Impacts on Rare and Threatened Plant Species

All of the 11 sensitive and 22 locally rare species within the burn area are herbaceous and occur in areas of generally low shrub canopy cover, such as rock faces, thin soils, and wetlands. Where species do occur in shrublands they generally do so in canopy openings. We thus expect that a moderately severe fire will not significantly impacts plants or seeds in the soil. For instance, initial investigation of two locations of Verity's dudleya; a succulent that grows on rock outcroppings and whose entire known population is in the burn area, showed that many plants at had survived the burn. We also expect that many of these species had completed their growth cycle and set seed before the fire. The most likely threat to these rare and threatened species will come from the possible rapid expansion of invasive non-native grasses and forbs. Many invasive species occupy the same habitats as our rare and threatened species and represent potentially the greatest immediate and long-term impact to these sensitive species. Additional surveys and monitoring will be required to fully assess the degree of impact of rare and threatened species

Threat from Non-native Invasive Plant Species Expansion in the Post-fire Environment

There are 108 non-native plant species that occur in the Santa Monica Mountains designated by the California Invasive Plant Council (Cal-IPC) as "invasive plants that threaten wildlands" in California (Cal-IPC 2013). Staff from NPS, State Parks, and other local agencies has identified 24 of the Cal-IPC listed species as highly invasive and ecologically damaging in the Santa Monica Mountains and therefore of greatest priority for monitoring and control. Thirteen of these priority species occur in the burn area.

We recommend taking control actions for seven species occurring at eight locations. These seven species are identified based on:

- High level of invasiveness in the Santa Monica Mountains
- Their observed ability to survive fire and quickly resprout and set seed or for their observed ability to quickly germinate from a persistent seed bank (persisting after plants have been eradicated from an area)
- The threat they pose to sensitive (riparian, coastal sage scrub) and rare (native perennial grassland, stabilized dune) habitats.

The table below lists the specific species proposed for control and summarizes locations of significant infestations, threatened habitats, size of the infestation and pre-fire target species density within the infestation. See Appendix F, Map 7.

Invasive Species Recommended for Control because of their Ability to Expand Rapidly After Fire and Threaten Sensitive or Unique Habitats					
Priority Non-native Invasive Plant Species	Primary Post-fire Response	Infestation Location	Primary Threatened Habit	Acres [1]	Pre-fire Cover[2]
Carduus pycnocephalus	Seed	· Rancho Sierra Vista	· Coastal Sage/Riparian	17.5	· High
Cynara cardunculus	Resprout	· La Jolla Valley	· Perennial Grassland	4.5	· Medium
Conium maculatum	Seed	· Rancho Sierra Vista · Middle Sycamore Canyon · Lower Sycamore Canyon	· Riparian/Wetland · Riparian · Riparian	7.0 5.5 6.5	· High · High · High
Foeniculum vulgare	Resprout	· Lower Sycamore Canyon · Deer Creek · Whelan · Rancho Sierra Vista	· Riparian · Coastal Sage · Coastal Sage · Coastal Sage	9.5 4.5 4.0 11	· Low · Medium · Low · Medium
Phalaris aquatica	Resprout	· La Jolla Valley · Wood Canyon · Rancho Sierra Vista	· Perennial Grassland · Riparian · Coastal Sage/Riparian	410 62 10.5	· Medium · Medium · High
Pennisetum setaceum	Resprout	· Mugu Dunes · La Jolla Valley-Chumash Tr	· Dune/Coastal Sage · Perennial Grassland	40 2.5	· High · High
Silybum marianum	Seed	· Middle Sycamore Canyon	· Riparian	120	· Low

[1]The area included within the mapped perimeter of the infestation. Target species distribution within an infestation is not uniform and areas characterized as moderate or low may have locally high concentrations. Conversely, larger mapped areas will include areas where no target species occur.

[2]Average pre-fire target species cover within infestation area: Low = <20% Moderate = 20-50% High = >50%

The potential for rapid expansion of these invasive plants in addition to threatening sensitive and rare habitats also threatens several long-term projects to eradicate these and other invasive species and restore native habitat that have been implemented at considerable effort and cost. Over the last 15 years NPS has spent over $600,000 in controlling poison hemlock (*Conium maculatum*), Harding grass (*Phalaris aquatica*), fennel (*Foeniculum vulgare*) and thistles (*Carduus pycnocephalus, Cynara cardunculus*) and restoring native coastal sage, riparian, and wetland communities. California State Parks is currently in the third year of a five-year $130,000 project to eliminate Harding grass and restore native grassland in La Jolla Valley, the largest native grassland in the Santa Monica Mountains. California state parks has also invested over $140,000 for control of poison hemlock, fennel, milk thistle (*Silybum marianum*), and other invasives in Sycamore Canyon. A concerted effort in the year immediately following the Springs Fire will assure that these gains in invasive species control and habitat restoration are not lost.

Fennel (*Foeniculum vulgare*) at Deer Creek that survived the fire and is looking vigorous.

We also recommend that actions be taken to control target species where they occur in the unburned grasslands at Rancho Sierra Vista. This is because of this sites critical location at the head of the Sycamore Canyon drainage and the strong possibility that species occurring here can serve as a source of propagules into the adjacent burn areas and canyons below. See Appendix F, Map 8 for locations.

Over 20 archeological sites occur within the recommended treatment areas and have been exposed by the fire. An archeological monitor will be necessary to coordinate crews performing work in the more sensitive locations to prevent adverse impacts to these sites.

RECOMMENDATIONS

Emergency Stabilization

- Restrict public access to existing roads and trails to prevent damage to regenerating vegetation and prevent spread of invasive weed seeds.
- Increase law enforcement patrols to insure restricted access compliance.
- Detect, control, and monitor seven invasive species that occur at nine sensitive/rare habitat locations and which have demonstrated high ability to rapidly expand in the post-fire environment. See Table 2.

Table 2.

Location	Target Species	Treatment Area[1] (Acres)	300-foot Buffer[2] (Acres)	Pre-fire Cover[3]
La Jolla Valley + Chumash Trail	Cynara cardunculus Phalaris aquatica Pennisetum setaceum	411	227	Medium
Middle Sycamore Canyon	Conium maculatum Silybum marianum	126	207	Medium
Lower Sycamore Canyon	Conium maculatum Foeniculum vulgare	13	52	Medium
Wood Canyon	Phalaris aquatica	62	126	Medium
Mugu Dunes	Pennisetum setaceum	40	50	High
Whelan	Foeniculum vulgare	4.0	7.8	Low
Deer Creek	Foeniculum vulgare	4.1	13.7	Medium
Rancho Sierra Vista Burned	Carduus pycnocephalus Foeniculum vulgare Phalaris aquatica	114	104	Low
Rancho Sierra Vista Unburned[4]	Carduus pycnocephalus Conium maculatum Foeniculum vulgare Phalaris aquatica	325	16	Low (locally dense)

[1]We estimate that the net treatment area (actual ground area sprayed) will be between 125 and 200 acres.
[2]The buffer is an area surrounding the mapped infestation where we believe relatively few plants occur, but will be intensively surveyed and monitored and treated as necessary.
[3]Average pre-fire target species cover within infestation area: Low = <20% Moderate = 20-50% High = >50%
[4]The unburned portion of Rancho Sierra Vista is target for treatment because of its critical position at the head of the Sycamore Canyon drainage and its potential to serve as a source of propagules.

- Treat other priority species as they are found to occur in the target treatment locations.
- Survey for additional occurrences of target species in the Sycamore Canyon drainage. Treat as necessary.
- Monitor vegetation recovery and plan for possible action in the event of adverse impacts from pre-mature fire return, out of season burn and drought.

- Monitor rare and threatened plants and plan for possible action in the event of adverse fire impacts

Rehabilitation

To be determined based on first-year BAER treatment monitoring

CONSULTATIONS

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WILDLIFE

OBJECTIVES

- Assess the effects of the fire to terrestrial herpetofauna pitfall trap arrays in the burn area.
- Assess the effects of the fire to Federally Threatened or Endangered animal species.
- Assess effects of the fire on state and park “Species of Concern” and their habitats.

Issues

- The Springs Fire burned in an area that supports habitat for many sensitive wildlife species, including the California newt, coast horned lizard, and coast patchnose snake.
- The Springs Fire burned in an area where 32 pitfall trap arrays are installed for long-term monitoring of terrestrial herpetofauna as part of the NPS Inventory and Monitoring Program. All 32 pitfall trap arrays were destroyed and are unable to be closed, therefore are open traps. These open traps represent a safety hazard for wildlife, equestrians, and hikers.
- Creeks and ponds within the fire area provide breeding habitat for four native aquatic amphibian species: California newt, Western Toad, Pacific tree frog, and California tree frog. These habitats and species may experience temporary impacts from post-fire sediment discharge. See Hydrological Resource Assessment.
- For aquatic species, post-fire impacts may include compromised water quality and changes in water chemistry due to ash delivery, changes in water temperature from loss of canopy shading, scouring of riparian/aquatic vegetation, changes in pool habitat due to geomorphic bed movement, sediment delivery and flushing of species during flood events downstream. See Hydrological Resource Assessment.
- There are occurrences of the California gnatcatcher (*Polioptila californica*), a Federally Designated Threatened bird species within the Springs Fire area.

Observations

Background Information

Terrestrial Herpetofauna

Reptiles and amphibians are affected by numerous stressors and impacts to their environment and habitat. Global fluctuations in temperature, increased exposure to ultraviolet radiation, interaction with exotic species, and changes in air and water quality have all been linked to declines in amphibian populations. In addition, urban development has significantly altered or destroyed critical habitat for many reptile and amphibian species. This is especially so in Santa Monica Mountains National Recreation Area (SAMO).

Because of the broad diversity of reptiles, their habitat requirements, and diet specificity, species richness has been suggested as a good indicator of ecosystem quality and integrity for these animals. Additionally, information on the distribution and abundance of reptiles and amphibians supports efforts to design restoration strategies and land management programs to aid in their protection and/or recovery from decline. Repeated quantitative assessments of the distribution and abundance of reptiles in the Santa Monica Mountains has provided information on the status, and trends in status, of these animals. Herpetofauna monitoring provides critical information to NPS resource managers in evaluating the ecological health of these important indicator species and the broader ecosystems of which they are a part.

Because of their small size, cryptic coloration, and nocturnal or fossorial behavior, effective sampling of reptile and amphibian populations can be difficult, and many techniques have been developed to assess the diversity and abundance of these species. Of the various methods tested, pitfall trapping with supplemental funnel snake-traps has been found to be an effective sampling methodology (Fisher & Case 2000; Case & Fisher 2001). Pitfall trapping has been used in southern California for monitoring distribution and abundance of terrestrial reptiles and amphibians since 1995.

Pitfall trapping consists of the deployment of a series of sampling arrays that are based upon the premise that ambulatory reptiles and amphibians can be directed by “drift” fences into bucket traps (pits) embedded in the ground (Figure 1).

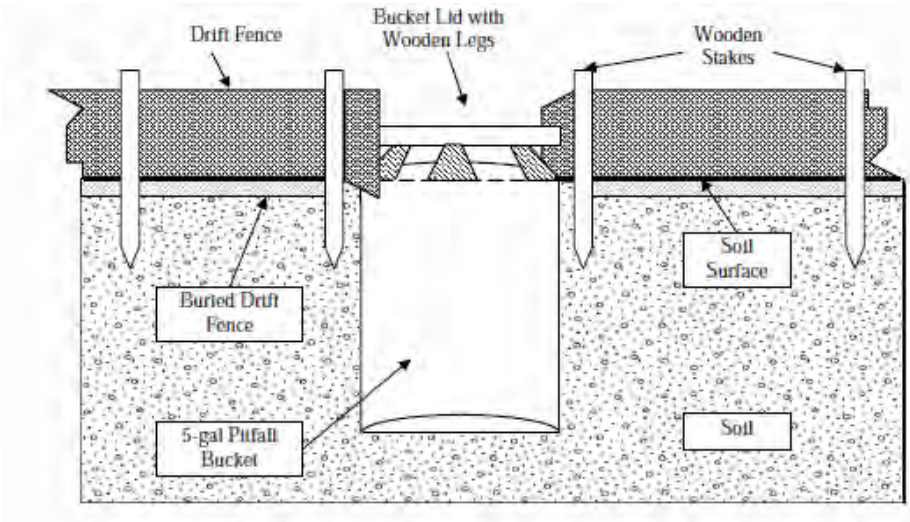

Figure 1. Cross-section view of buried 5-gallon bucket and drift fencing.

In this design each pitfall array consists of seven 5-gallon buckets buried so that the lip of the bucket is flush with the surface of the ground to serve as a "pitfall" (Campbell & Christman 1982). Buried buckets are situated approximately 7.5 meters apart along a "Y" configured drift fence (Figure 2 & 3). There are two buckets along each arm and one at the vertex of the three arms. Snake traps are placed along each arm of the drift fence. Drift fences intercept reptiles and amphibians directing them into either pitfall buckets or snake traps (Fitch 1992; Corn 1994; Greenberg et al. 1994).

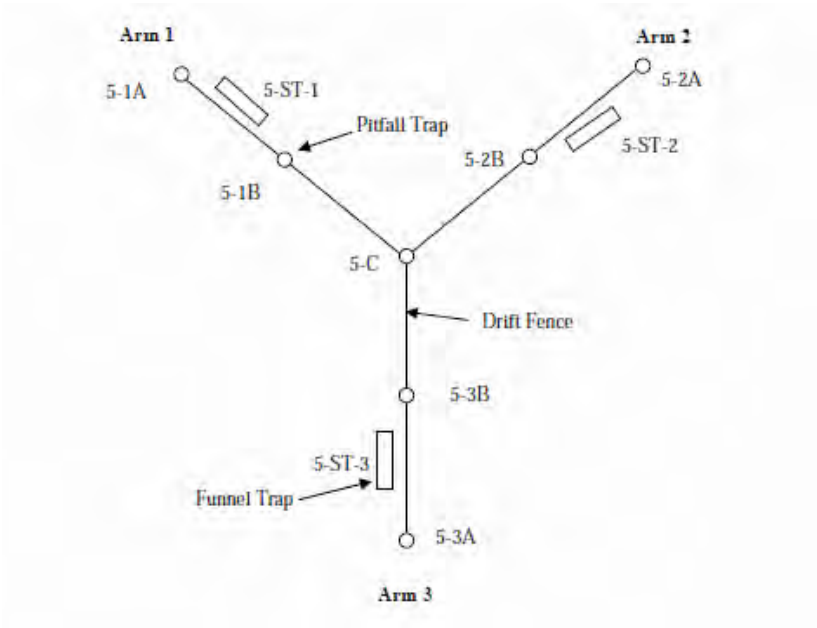

Figure 2. Bird's eye view of pitfall trap array.

Figure 3: Photo showing the middle bucket of a pitfall trap array with lid closed and three drift fence "arms".

When pitfall traps are open (i.e. lids off), they are monitored on a daily basis. When the traps are not being monitored, lids are hammered in place and remain tightly on the buckets. Lids are affixed to the buckets so that no wildlife is inadvertently trapped.

A subset of the pitfall traps within the burn area were being monitored from 2002-2007. A different subset of pitfall traps were newly built in 2012 and monitoring began on the new pitfall sites in October of 2012. These periods and subsets combined yielded a total of 2,283 individual reptile and amphibian captures from 28 different species (Table 1).

Table 1. The number of individuals captured of each species from the pitfall trap arrays in the Springs Fire burn area from 2002-2013. Row colors: green for amphibians, pink for lizards, and blue for snakes.

Species Code	Species Name	Common Name	Number of Individuals Captured
ANLU	Aneides lugubris	Arboreal Salamander	1
BANI	Batrachoseps nigriventris	Black-bellied Slender Salamander	163
BAPA	Batrachoseps pacificus	Garden Slender Salamander	5
BUBO	Bufo boreas	Western Toad	139
ENES	Ensatina eschscholtzii	Ensatina	6
HYRE	Pseudacris regilla	Pacific Treefrog	87
SCHA*	Scaphiopus hammondii	Spadefoot Toad	0
TATO*	Taricha torosa	California Newt	0
ANPU*	Anniella pulchra	Silvery Legless Lizard	1
CNTI*	Cnemidophorus tigris	Coastal Whiptail	82
ELMU	Elgaria multicarinata	Alligator Lizard	335
EUSK	Eumeces skiltonianus	Western Skink	397
PHCO*	Phrynosoma coronatum	Coast Horned Lizard	27
SCOC	Sceloporus occidentalis	Western Fence Lizard	772
UTST	Uta stansburiana	Side-Blotched Lizard	78
COCO	Coluber constrictor	Western Yellowbelly Racer	12
CRVI	Crotalus viridis	Southern Pacific Rattlesnake	28
DIPU*	Diadophis punctatus	Ringneck Snake	15
HYTO	Hypsiglena torquata	Night Snake	7
LAGE	Lampropeltis getula	California Kingsnake	20
LAZO	Lampropeltis zonata	Mountain Kingsnake	1
LEHU	Leptotyphlops humilis	Southwestern Blind Snake	0
MAFL	Masticophis flagellum	Red Coachwhip	0
MALA	Masticophis lateralis	Striped Racer	44
PICA	Pituophis catenifer	Gopher Snake	47
SAHE*	Salvadora hexalepis	Coast Patchnose Snake	2
TAPL	Tantilla planiceps	Western Blackhead Snake	7
THHA*	Thamnophis hammondii	Two-striped Garter Snake	7

* indicates a California Department of Fish and Wildlife Species of Special Concern

Aquatic Herpetofauna

Because of their moist and highly permeable skin, unshelled eggs, aquatic and terrestrial life histories, restricted home ranges, and limited dispersal abilities, amphibians generally are considered to be good indicators of ecosystem health (Blaustein et al. 1994; Welsh & Ollivier 1998; Beasley et al. 2002). The life history requirements of species that inhabit both wetland (streams) and upland habitats can provide useful indication of the health or condition of the overall landscape. Additionally, several species of amphibians are known to be sensitive to environmental stressors and

are considered good indicators of ecosystem health. For these reasons, aquatic amphibians (frogs, newts, and toads) were selected as a “vital sign” for Santa Monica Mountains National Recreation Area (SAMO) as part of the Mediterranean Coast Network of the NPS Inventory and Monitoring Program.

Several stream sites within the Springs fire burn perimeter have been surveyed for breeding amphibians by NPS staff, some sites since 2000. Monitoring began in 2000 for sites in Big Sycamore Canyon, Wood Canyon, and Serrano Canyon (Figure 4). Surveys in Wood Canyon and Serrano Canyon were conducted yearly until 2005. Surveys in Big Sycamore Canyon continue on a yearly schedule, and the last survey was done on 3/26/2013. The fourth stream that has been surveyed in the burn area is La Jolla Canyon, which has been surveyed intermittently for a project separate from the aquatic herpetofauna I&M monitoring (Figure 4). La Jolla Canyon was surveyed for habitat suitable for California red-legged frogs because it was a possible candidate site for re-introduction of that species.

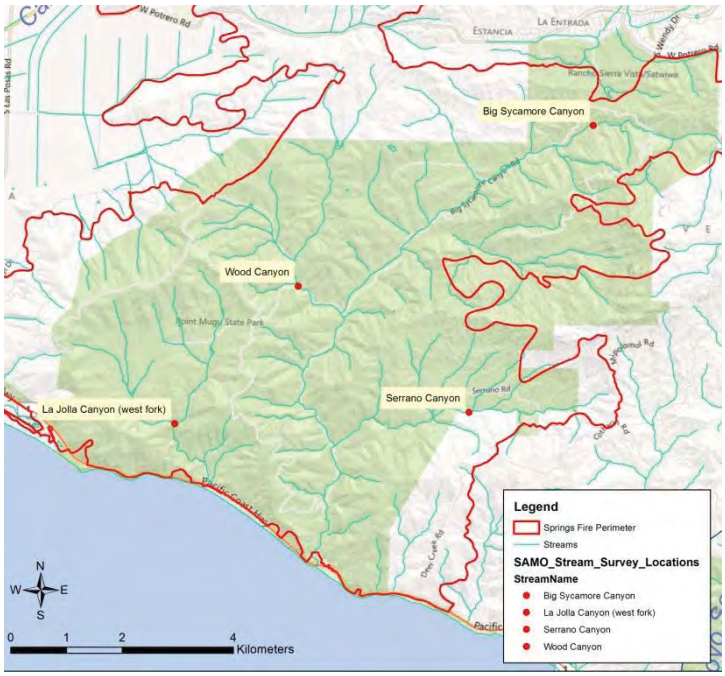

Figure 4. Map of stream survey locations within the Springs Fire burn perimeter.

Breeding populations of Pacific treefrog (*Pseudacris regilla*) have been detected in all four streams that NPS has surveyed in the Springs Fire burn perimeter (Table 2). In Big Sycamore Canyon, California newts (*Taricha torosa*) and California treefrogs (*Pseudacris cadaverina*) are also present and breed in the stream. Western toads were not detected in any of the past stream surveys; however, they were regularly captured in pitfall trap arrays (Table 1). So although they may not be breeding at our specific survey sites, Western toads are found within the aquatic systems of the Springs Fire burn area.

Table 2. Species presence in streams surveyed by NPS since 2000. ND=not detected. *=no breeding population detected but adults were abundant in the nearby area, see Table 1.

Stream Name	Pacific Treefrog	California Treefrog	California Newt	Western Toad
Big Sycamore Canyon	present	present	present	*
Serrano Canyon	present	ND	ND	ND
Wood Canyon	present	ND	ND	ND
La Jolla Canyon	present	ND	ND	*

Federally Threatened Species

Only one Federally Threatened or Endangered Species was known to occur within the burn area. The California gnatcatcher was designated as Federally Threatened in 1993 because of its limited range, small population size, and shrinking available habitat. It prefers coastal sage scrub habitat, which is often under threat of urban development in Southern California.

The only known locations of the California gnatcatcher from within the burn area were from the hills surrounding California State University Channel Islands (CSUCI) (Figure 5). Burn severity in that area was not high and it is expected that the gnatcatchers will return when the habitat recovers. It is unknown how the Springs fire affected the birds that have been observed in this area.

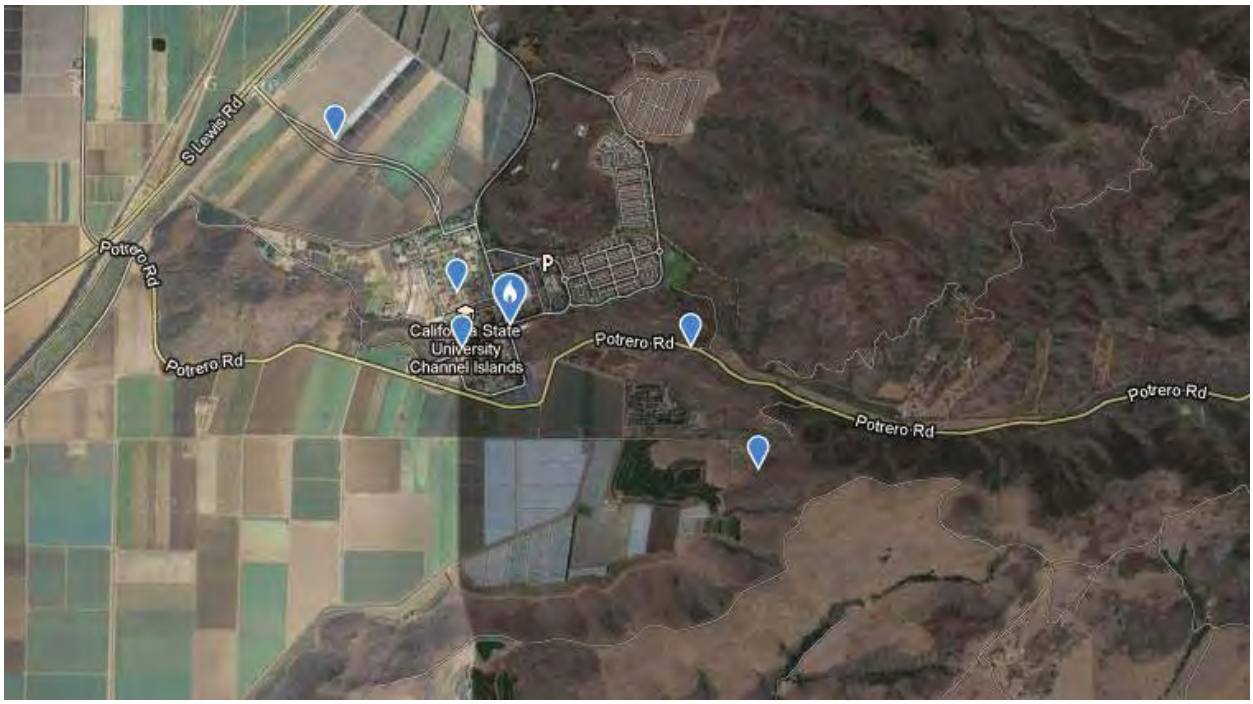

Figure 5. California gnatcatcher point locations from eBird.org; captured at 7:35 AM May 17, 2013.

Other Terrestrial Wildlife

The west end of the Santa Monica Mountains, including Pt. Mugu State Park and surrounding national and state park areas, is the least developed and fragmented part of SAMO, and therefore represents the largest area of contiguous natural habitat for wildlife in the park. Many species of mammals thrive in this end of the mountains, along with the diverse and abundance herpetofauna. Specifically, from our long-term radio-tracking studies of the ecology and conservation of bobcats and mountain lions, we know that both species used the burn area extensively, including for general movements and hunting but also for reproduction (we have found a number of bobcat dens in the burn area). Although we have not studied deer specifically, we know that mountain lions regularly make deer kills in the burn area, and we have observed deer throughout the area. As part of a larger study on the exposure of native wildlife to toxicants, we also sampled rodents and lagomorphs in one section of the burn area along Ranch Center Drive in Sycamore Canyon. We caught a wide variety of small mammals, including many woodrats, both dusky-footed woodrats (*Neotoma fuscipes*) and desert woodrats (*Neotoma lepida*) which are a state species of concern, pocket mice (*Perognathus californicus*), multiple species of *Peromyscus*, and rabbits, specifically the desert cottontail (*Sylvilagus audubonii*). We have also observed the brush rabbit (*Sylvilagus bachmani*).

Woodrats, in particular can be very susceptible to the effects of fire. Woodrats build large nests of sticks, which they can inhabit for many generations, even hundreds of years. These nests are their refuge, and they retreat to them when in danger. This is obviously not an effective strategy during a brush fire, as the nests are highly flammable. During our studies of small mammal exposure to toxicants, we found that woodrats were almost entirely absent from Cheeseboro Canyon in the area of the Topanga Fire (2005) in 2011, 5 ½ years after the fire. Woodrats are an important part of the fauna of Mediterranean coastal communities, as constructors of their nests, and as prey for a wide variety of carnivores and raptors.

Reconnaissance Method

Terrestrial Herpetofauna

When the Springs fire was approximately 85% contained, we were able to be escorted by a fire crew to examine the condition of the pitfall trap arrays. We drove and hiked to all 32 pitfall trap locations within the burn perimeter. Once a pitfall trap array was located, we checked each buried bucket, noted its condition, and placed sticks or stakes in each bucket to act as an escape route for animals that may fall into open buckets while they remain unmonitored. Signs with staff contact information were placed at some of the arrays.

Findings

Terrestrial Herpetofauna

There were 32 pitfall trap arrays within burn perimeter of the Springs Fire (Figure 6).

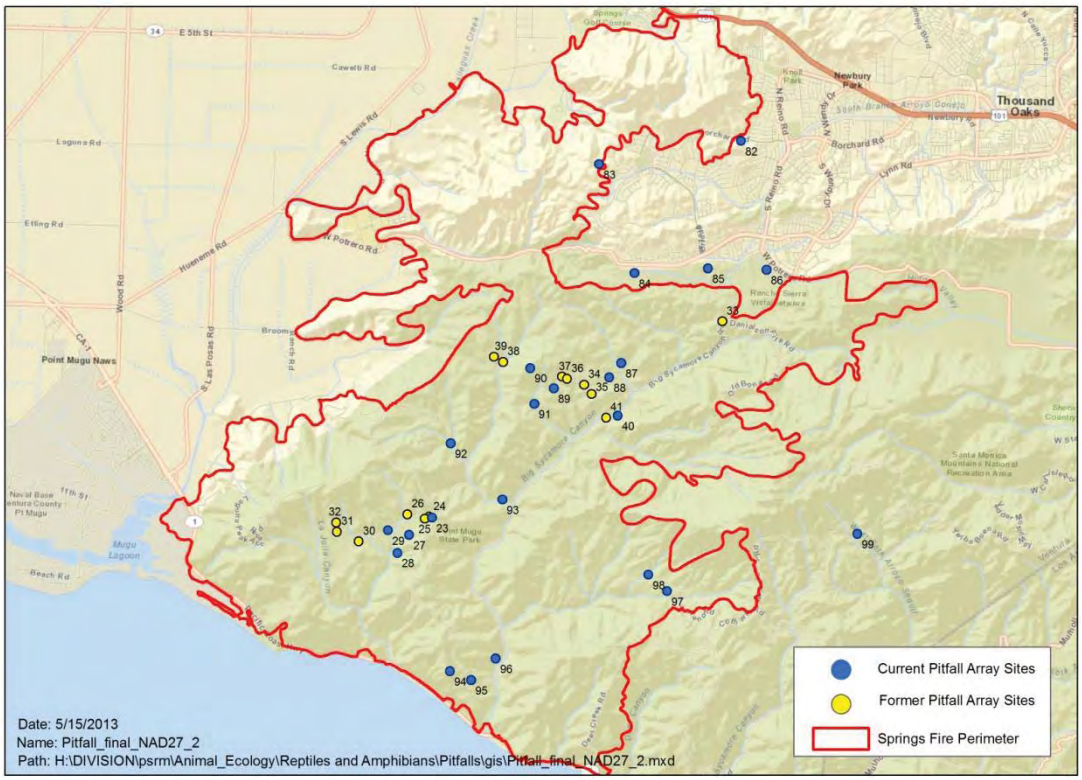

Figure 6. Map of pitfall trap locations and the perimeter of the Springs Fire.

During our reconnaissance trips to the burn area, we found that all of the pitfall trap arrays within the fire perimeter were destroyed. When the arrays burned, the lids were destroyed leaving open buckets in the environment. Open buckets represent a significant safety hazard to the public. A large effort was made to originally install pitfall traps in hidden areas behind vegetation. After the fire, pitfall traps are now highly visible from trails and roads making them more accessible to curious hikers, bikers, and equestrians. Open buckets represent a sharp drop from ground level to a depth of 15 inches (Figure 7). If a person or horse accidentally fell into the open holes created by the buckets, injuries may occur.

Figure 7. Photos of pitfall buckets with lids melted.

Other Terrestrial Wildlife

During these same reconnaissance trips to the burn area, dead woodrats were found in a number of different sites. We also received reports of groups of dead rabbits and rodents, potentially in remaining unburned areas where they had gathered before the fire consumed them. We did observe rabbits using some of the remaining unburned islands of vegetation. We are not currently radio-tracking bobcats in the burn area, but had been as recently as early 2012. We were radio-tracking two female mountain lions with kittens (one with very young kittens, one with year-old kittens) near the burn area. Neither one was present during the burn, but for both females, the burn area was regularly used for hunting and traveling. Effects on the deer population will be important both for the deer population itself and for mountain lions.

Recommendations

Management (specification related)

Terrestrial Herpetofauna

To make pitfall trap arrays safe for hikers and equestrians that may approach open buckets, we recommend back-filling pitfall trap arrays that we did not plan on monitoring in the future (Figure 4, "Former Pitfall Array Sites") and placing new buckets and lids in pitfall trap arrays that we plan on monitoring in the future (Figure 4, "Current Pitfall Array Sites").

Pitfall Trap Array Back-filling: There were 14 pitfall sites located in the burn area that we were not planning to include in future monitoring. At these sites we propose to remove melted buckets and lids and back-fill the remaining holes with soil taken from the nearby area. An archaeological monitor will accompany the crew to ensure that cultural resources are not disturbed.

Pitfall Trap Array Re-building: There were 18 pitfall sites located in the burn area that we plan to re-build in order to continue terrestrial herpetofauna monitoring. Although we plan to monitor these sites in the future, we are proposing, as an emergency measure, to replace only buckets and lids, not drift fencing. Once buckets and lids are replaced, the pitfall traps will not be a trip and fall hazard for hikers and equestrians.

Management (non-specification related)

Aquatic Herpetofauna

We propose to continue monitoring the streams for breeding amphibians as part of the NPS Inventory & Monitoring Program.

Sites will be assessed for changes in water quality. Results of breeding amphibian surveys will be analyzed in light of any potential changes that may have occurred because of increased sedimentation or any other change that could be attributed to the Springs Fire.

California gnatcatcher

Area search surveys should be done in locations around CSUCI where gnatcatchers were known to occur before the Springs Fire.

Consultations

Chris Dellith, USFWS, Ventura Office
eBird.org

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DAMAGES - Atmospheric Nitrogen Deposition Study Samplers

Objectives

- Maintain continuity of critical nitrogen deposition study data in the area burned by the Springs Fire.

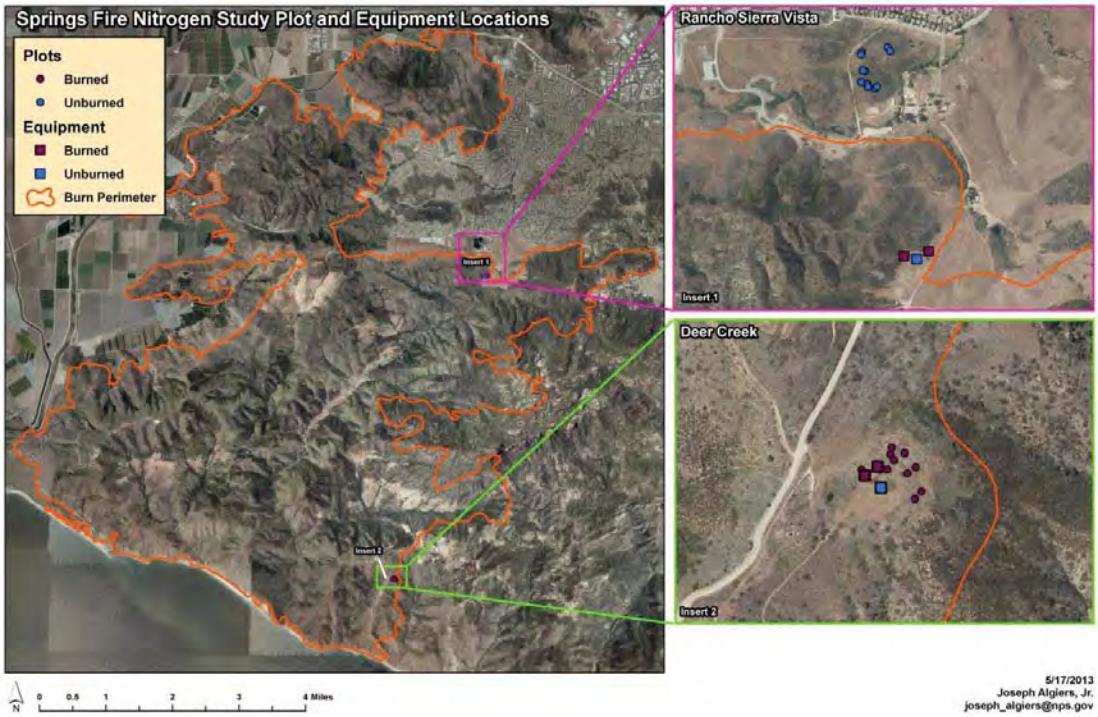
Issues

- There is a critical need to replace the equipment destroyed and a study site burned at Deer Creek by early June 2013 to avoid losing important summer season data. Currently six months of IER data (Nov 2012-May 2013) and plants/plots at Deer Creek have been lost.

Observations

Background Information

Twelve study sites are located across the SMMNRA to assess atmospheric nitrogen deposition, air quality and their effects on vegetation in the Santa Monica Mountains. This 3-year study began in October 2011 and is funded by the NPS Air Quality Division in collaboration with the University of California, Riverside and the US Forest Service. The Springs Fire damaged 2 of 10 study sites. These were two of the most important sites, located at Rancho Sierra Vista and Deer Creek. At these two sites we established nitrogen addition gradient plots in addition to passive nitrogen sampling (open canopy and under-shrub Ion Exchange Resin samplers (IERs)). Extensive vegetation and soil sampling also occurs at these two sites. The other eight study sites only have IERs and soil sampling.



Reconnaissance Method
Field observations

Findings
The Springs Fire damaged 2 of 10 study sites (see photos). The entire study area at Deer Creek will need to be replaced and established in an unburned location at the north end of that property.

Recommendations

Management (specification related)
Replace IERs ($16 X 39 =$624) and leaf litter traps ($9 x 60 = $540) and provide labor to replace Deer Creek site and relocate IERs at RSV.

Study Site

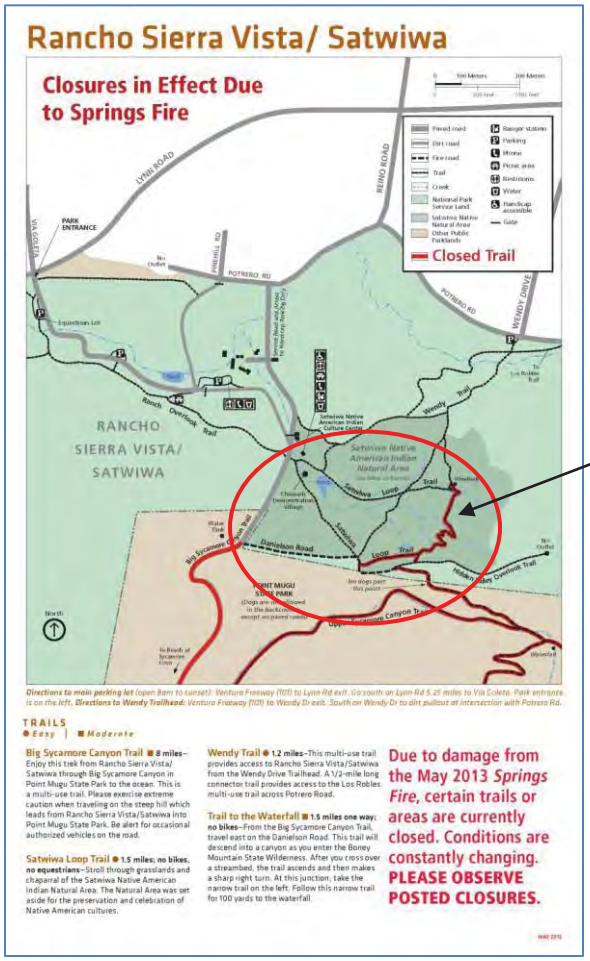
Melted IER sampler

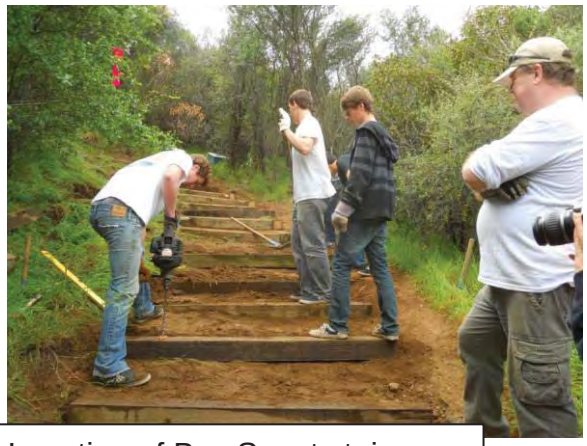
ROADS AND TRAILS

Objectives

- Re-open the existing core trail system at RSV as soon as possible to recreational use, repair damages, and maintain trails and roads after winter rains.

- Limit entry to closed areas and avoid creation of new social trails.





Location of Boy Scout stairs on Satwiwa Loop Trail

The Boy Scout stairs were completed two weeks prior to the Springs Fire on the Satwiwa Loop Trail. Photos at right show pre and post fire conditions.

Issues
See watershed assessment.

Observations

Background Information
RSV is a gateway park to the backcountry of the SMMNRA as well as a heavily used local park for families, area residents, and visitors. The Satwiwa Loop is at the core of the RSV trail system and is one of the most popular trails in the entire SMMNRA.

A portion of the Satwiwa Loop has been closed due to severe damage to recently completed stairs. The present condition is a hazard to park users and the closure significantly affects normal recreational opportunities at RSV. Failure to stabilize them now will result in greater long term costs because any (illegal) use will cause deterioration of the underlying concrete foundations.

Because RSV is a gateway to the severely damaged Sycamore Canyon in Mugu State Park, the NPS issued an emergency closure in coordination with California State Parks.

While trails have been impacted by debris, it is of a lesser magnitude at RSV than in the steeper canyons of the state park. It is expected that the park's maintenance division will be able to clear and open the trails quickly.

Reconnaissance Method
Field surveys by SAMO and emergency BAER staff.

Findings
The Springs Fire at SAMO burned through the Rancho Sierra Vista area taking with it approximately 100 wood trail stairs on the Satwiwa Loop Trail. In addition to removing the burnt brush and replacing the stairs with the same type of materials and construction techniques, the park's R&T crew will be removing a considerable amount of burnt brush that covers both the Satwiwa Loop Trail and Hidden Valley Overlook Trail. The first action will be to replace just what is needed to re-open the trails to the public followed by the systematic re-placement of the rest of the stairs by the end of FY13.

The park sign shop presently has passed out and installed a total of 94 carsonite posts in the attempt to curtail trail hikers from using fire truck tracks as trails. Damage caused by fire vehicles - driving on and off trails - has led to the possibility that these tracks will become permanent trails and not part of the overall trail plan for this area.

The Rancho Sierra Vista asphalt ½ mile service road has been damaged by heavy fire trucks utilizing this road to access the Springs Fire burn area. In doing so, the asphalt has been crushed and broken to the point that the road will relapse in five (5) areas.

These areas total a length of 150' by 12' wide. The pavement sections will need to be repaired by an asphalt contractor to prevent additional loss of resources as the road continues to degrade, which will eventually become a safety issue. This road serves as the primary access for national parks and state park personnel into the Sycamore Canyon area.

Recommendations

Management (specification related)

- Repair 150' of asphalt pavement damaged by fire trucks working the Springs Fire at Rancho Sierra Vista, SAMO
- Clear burned brush from Satwiwa Loop and Hidden Valley Trail
- Post trail closed and "Area Closed" signs throughout burned locations
- Replace burned wood stairs on Satwiwa Loop Trail

Specification Monitoring (specification related)

Monitor level of visitor use to return to pre-fire levels

Documentation

See Appendix H

Photo Documentation

Suppression damaged road segment

Temporary fencing and road barriers at Sycamore Canyon Overlook.

LAW ENFORCEMENT NEEDS

Objectives

- Reduce resource impacts by restricting visitors/horses to established trails and roads.
- Reduce theft and vandalism to area by increased law enforcement presence

Issues

- See watershed, cultural resources, roads and trails, and public information assessments

Observations

Background Information

The NPS's RSV and Mugu State Park are a heavily used recreation area, easily accessed by a large urban population. It is the least developed portion of the SMMNRA and has extremely important cultural and natural resources. For public safety and to protect natural and cultural resources, the Superintendents will restrict park use to daylight hours and require that visitors remain on established trails. Additional full closures may be required if predicted heavy rainfall events could create potentially hazardous flood or debris flow conditions. Because of the numerous points of potential public entry, the vulnerability of sensitive resources, and the increased hazards created by the fire, many specifications within this plan address public safety: increased law enforcement to provide a daily ranger presence on site; emergency fencing and gates to limit public access at multiple sites; installation of boundary and closure signs; and new signage and public outreach to inform the public of the need for necessary park restrictions and of the new postfire hazards.

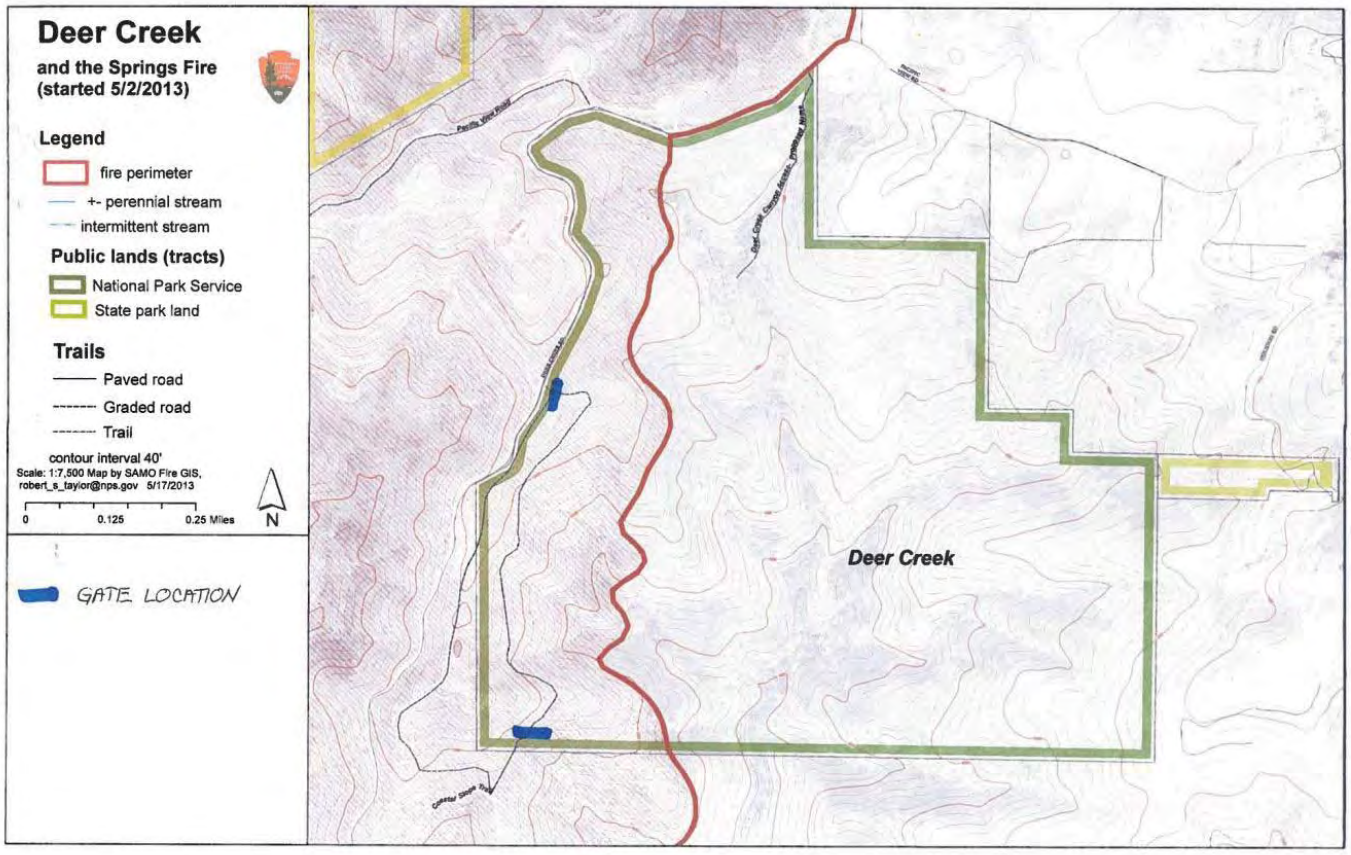
Reconnaissance Method

Field observations, field reports, and consultation with NPS and state parks staff on park protective measure required for resource protection and potential public hazards.

Findings

Deer Creek Gates

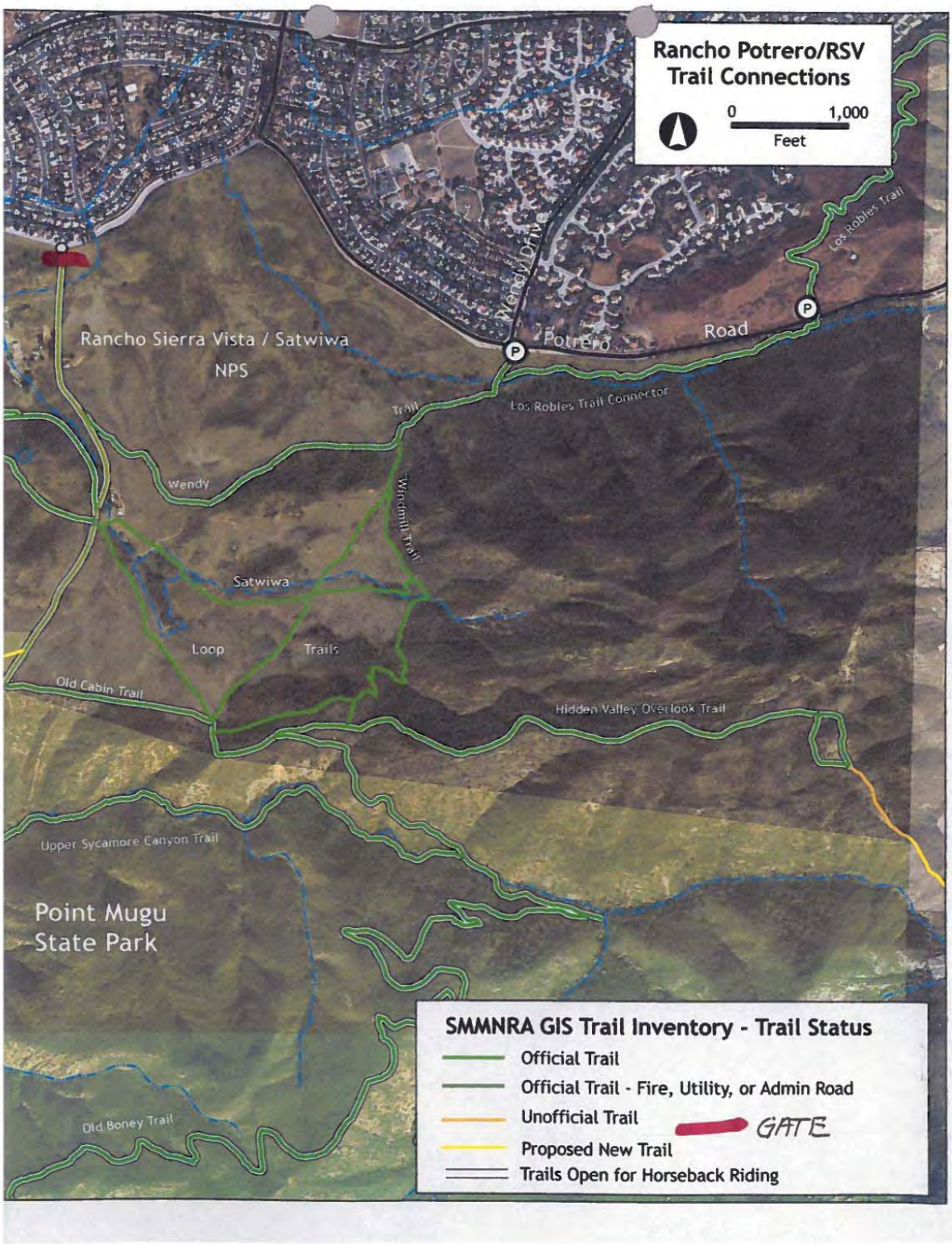
Due to the recent Springs fire, the Deer Creek fire road is now open and drivable for the public from a county roadway. Prior to the fire, the fire road was protected by a dirt berm and large rocks that prevented the public from entering this area. The area is steep and very unstable with a lot of rolling debris. The area is very remote and difficult to patrol.



Deer Creek Gates

RSV Gate

Due to the recent Springs Fire and the neighboring community of Newbury Park expanding to just outside the Park boundary, it has been difficult to keep visitors out of the posted administrative area. We are witnessing an increase in both vehicle traffic and pedestrian traffic through this entrance point. The road is narrow and not intended for public vehicular traffic. Due to safety concerns we would like to re-install a gate at this critical entry point.


Rancho Potrero/RSV
Trail Connections
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Los Robles Trail Connector
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Wendy
Windmill Trail
Satwiwa
Loop
Trails
Old Cabin Trail
Hidden Valley Overlook Trail
Upper Sycamore Canyon Trail
Point Mugu
State Park
Old Boney Trail
SMMNRA GIS Trail Inventory - Trail Status
Official Trail
Official Trail - Fire, Utility, or Admin Road
Unofficial Trail
GATE
Proposed New Trail
Trails Open for Horseback Riding

RSV Gate

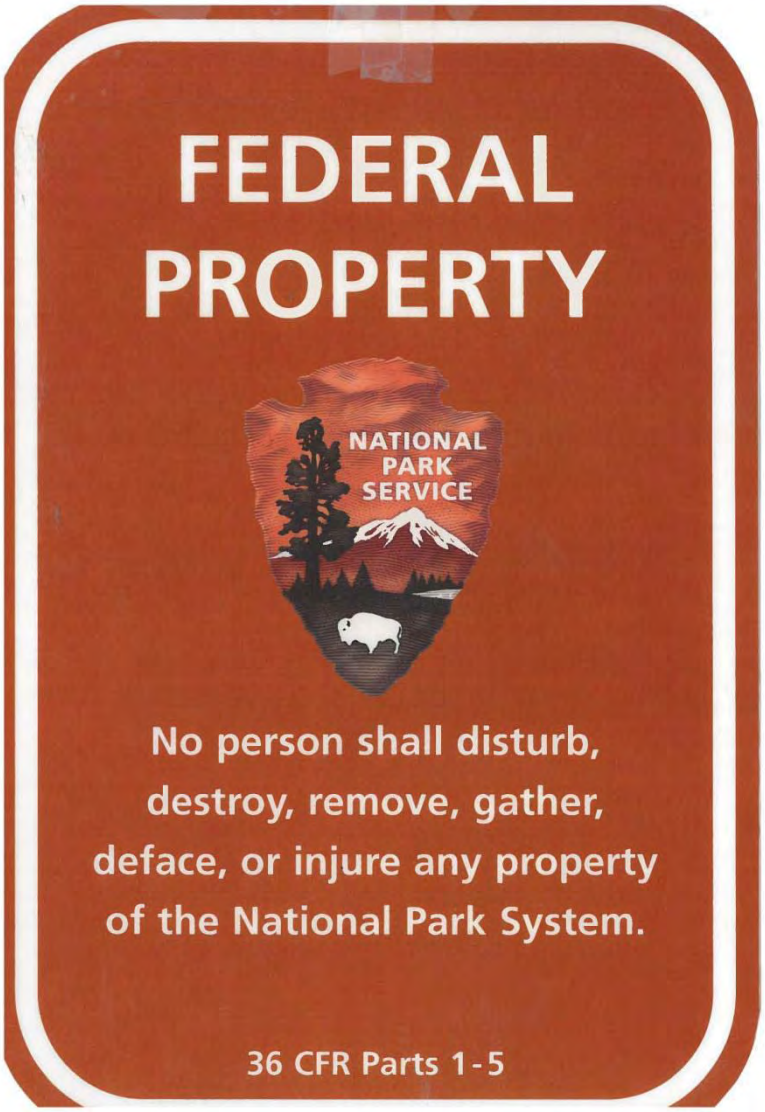
Fence between RSV and COSCA stables

Access along the south-west boundary of RSV where the park borders the Thousand Oaks Equestrian Center (AKA Rocking K) needs to be restricted to limit equestrian access to established trails. This will require installation of a new fence and a gate along the RSV boundary with COSCA (Rancho Potrero Open Space). Previous boundary markers are missing and presumed burned at benchmark approx Lat. Long 118 58.49 - 34 8.87 and will require a cadasrtral survey. The fencing is critical to keep visitors on established trails and to prevent short cuts and social trails from developing in burn area.

Fence between RSV and COSCA stables

Federal Property Signs

As a result of the recent Springs Fire all the vegetation has been burned from 1,200 acres of park land. To be able to enforce Federal regulations we need to walk the perimeter and install/replace Federal Property signs lost during the fire.



More than 100 Native American archaeological sites including culturally significant areas such as burial sites occur throughout the recently burned section of Santa Monica Mountains National Recreation Area (SAMO). The Springs Fire removed all of the natural vegetation acting as cover which was hiding these sites from public view. It has been difficult to keep visitors out of the posted burn area and monitor some of these archeological sites due to the sites remote location. We are seeing an increase in pedestrian traffic in these areas by curious visitors and persons intent on searching for antiquities. We have limited staffing level to surveil the sites completely.

Recommendations

Management (specification related)

- Due to safety concerns install a single swing arm pipe gate at both ends of the fire road at Deer Creek
- Install a double swing gate at the service entrance to Rancho Sierra Vista to restrict visitor access to administrative area of park and service road
- Install 2,500-feet of barbless wire fence and a swing gate along RSV boundary with COSCA (Rancho Potrero Open Space

.

- Add LE staff to increase systematic and discretionary patrols above routine law enforcement activities, make contacts with public as appropriate, and take action against violators.
- Order 100, 8x12-inch “Federal Property” signs, posts, and hardware needed to install them.
- Install surveillance cameras to assist law enforcement rangers in patrolling and monitoring these sensitive and irreplaceable resources

Specification Monitoring (specification related)

- Reduce theft and vandalism to area.

Management (non-specification related)

- Implement a “restricted closure”, authorized by 36 CFR section 1.5 (a) (1), within the boundaries of Rancho Sierra Vista and Point Mugu State Park until such areas are deemed safe for public entry and sensitive cultural and natural resources are no longer at risk of looting and vandalism. Modify “restricted closure”, which limits pedestrian traffic, biking, and equestrian use to roads and trails, as needed.

Consultations

Craig Sap, Superintendent
Angeles District CDPR

PUBLIC INFORMATION & INTERPRETATION NEEDS

Objectives

- To provide primary and front-line information and interpretation to the public

Issues

- Visitors understanding and compliance with changes in trail use and public use due to damage sustained in the fire.
- Community awareness post fire operations of the park including information and education, participation in emergency stabilization efforts and rehabilitation programs
- Publishing use restrictions to protect natural and cultural resources

Observations

Background Information

Rancho Sierra Vista / Satwiwa is a gateway park site that is up against the WUI. Many of the park's visitors are from the local neighborhood and community. There are also non-local residents that visit the park, which are a combination of tourists and excursionists.

While no NPS structures or infrastructure that impact primary visitor services were damaged in the fire, many of the trails were impacted. Front-line interpretation and media are needed as many visitors, are especially local residents have a heightened level of curiously about areas involved in the fire, especially burned areas and their recovery.

Reconnaissance Method

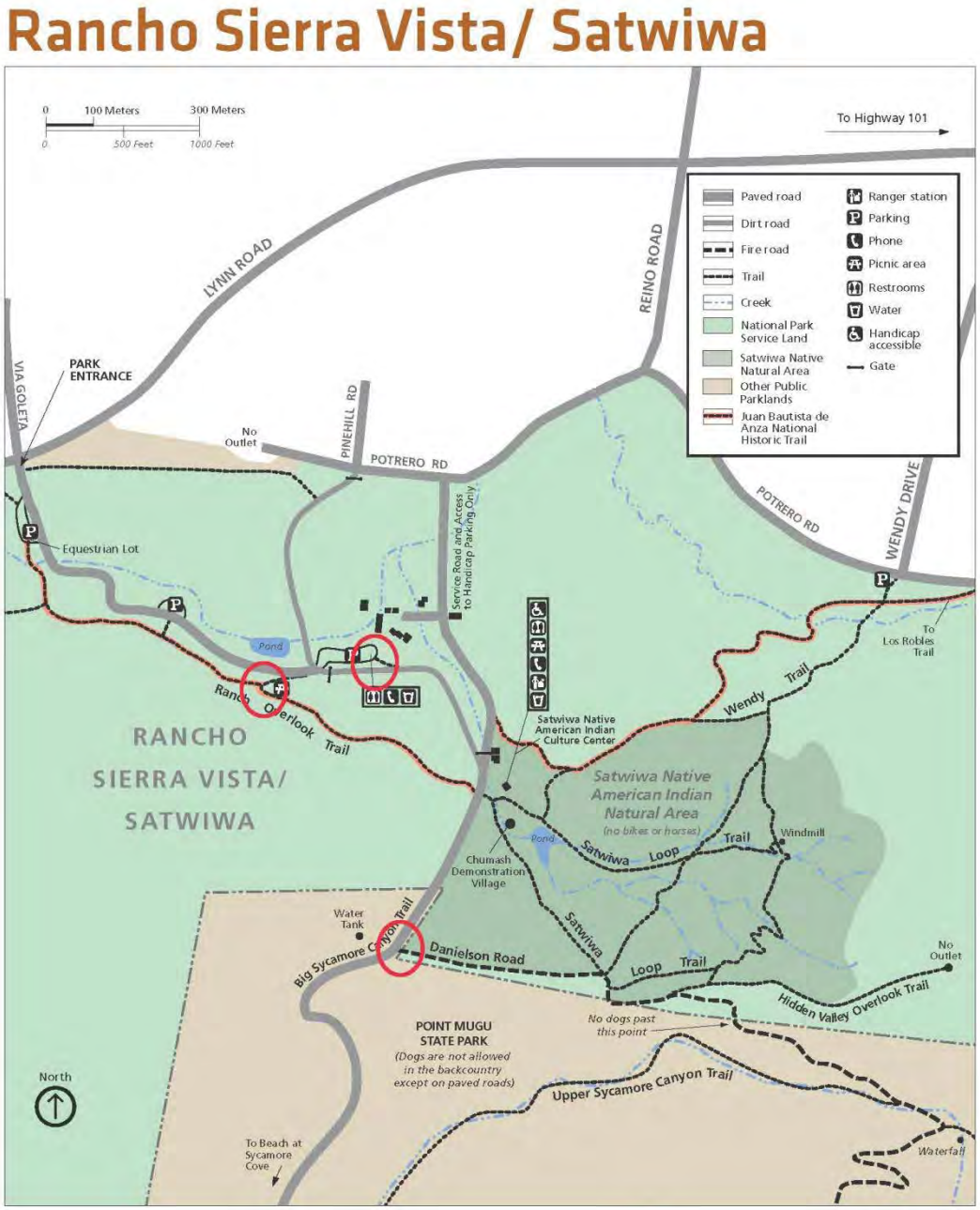
During the fire suppression efforts, park rangers and other park staff were stationed at primary and secondary access points and provided the public, with up-to-date information about and interpretation of the incident. At that time, staff documented FAQs and determined future methods of providing public information and interpretation during the BAER phase.

Findings

Through first hand staff observations from across multiple disciplines, primary and secondary access points into the park were identified (trailheads & choke points) as needing an increase in public information and interpretation. These include the overlook area of Sycamore Canyon (aka 'Asphalt Hill', see photo) and the Satwiwa Native American Indian Culture Center – a weekend operated contact station / visitor center.

A list of talking points, FAQs, and info sheets were presented to the public during the event. It was observed that the sharing of past, current, and future fire information relating to the 2013 Springs Fire was a high priority of visitors, especially during the short-term after containment, when access restrictions began to lift and visitors returned to the park.

Figure. Proposed wayside sign locations



Map showing proposed temporary waysides at Rancho Sierra Vista / Satwiwa in response to Springs Fire

Locations

Recommendations

Specifications – Public Information and Interpretation

It is recommended that the following work / monitoring be completed under the BAER to ensure visitor education and safety through public information and interpretation.

The recommendations (listed below) are intended to increase public awareness, participation, and compliance of the temporary restrictions designed to protect visitors, as well as the natural and cultural resources during the emergency stabilization process. Further, the additional goal is to educate the public in the area's natural post-fire recovery cycle.

1. Design, construct and post temporary closure/regulatory signs at all entrances and other possible public entry points to Rancho Sierra Vista / Satwiwa. Additional signs will be posted within the site's interior when it reopens to the public.

2. Design, produce and distribute a public notice mailer to adjacent neighborhoods and communities of Newbury Park and eastern Ventura County.

3. Design and create site brochures with built in maps identifying safety hazards and describing emergency stabilization and rehabilitation efforts.

4. Design, produce and install three wayside exhibits describing local fire ecology, the dangers of living in a WUI location, and the changes expected to the ecology of the burned areas as it relates to the Springs Fire (see map above).

5. Design, produce and distribute a site bulletin/information flyer to be distributed throughout the park describing public safety concerns in WUI areas.

6. Hire two front-line interpretive staff members to educate and provide basic safety presence in impacted area through roving both formal and informal interpretation to locals and visitors to the park. To be hired in two phases for full coverage for one-year as 6-month temporary seasonals.

Non Specification – Public Information and Interpretation

There are also these non-specification related actions that will take place post suppression. These include the continued use of digital and social media (that was taking place before the fire), public affairs work through press releases, and normal staffing of visitor centers and contact stations by already existing staff.

The park is in the process of developing BAR treatment specifications for long-term interpretation of fire ecology, fire history, and wildland fire through the incorporation of

information into education and formal interpretation programs, long-term waysides, and print and digital media publications.

Consultations

References

BAER Report for the 2007 Corral Canyon Fire

Documentation

See Appendix H.

STAFFING AND ADMINISTRATION NEEDS

Objectives

- Assist the individual projects by coordinating implementation and providing an efficient flow of information and documents through the various administrative processes and timelines.

Recommendations

Management (specification related)

- Provide personnel support costs for the Administrative Division staff and for dedicated clerical support to assist with the burden of the extra workload created by the project.
  - Administrative Division staff support includes but is not limited to Purchasing agent, Agreements and Contracting Specialist, Property/Fleet Manager, Human Resource staff.
  - 2. Clerical support to manage finance data, update logs and spreadsheets and perform follow up to meet critical deadlines.
  - Provide support costs to the Fire ecologist to coordinate plan implantation and prepare the final report.

INDIVIDUAL TREATMENT SPECIFICATION CR-1

TREATMENT/ACTIVITY NAME	Conduct Cultural Resource Inspections	PART E Spec-#	CR-1
NFPORS TREATMENT CATEGORY*	Assessment	FISCAL YEAR(S) (list each year):	2013; 2014
NFPORS TREATMENT TYPE *	Risk Assessment	WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK	N/A	IMPACTED T&E SPECIES	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

General Description: Continuation of the cultural resources assessment begun in conjunction with the BAER planning and assessment process for the Springs Fire. The large number of potentially vulnerable cultural resources dictated that not all assessments could be completed prior to completion of the BAER plan. Immediate post-fire work focused on sites vulnerable to looting and left many others in need of inspection.

Location/ (Suitable) Sites: Known cultural resources within the Springs Fire in readily accessible locations relative to post-fire threats, including looting/vandalism, and destabilization due to vegetation loss. At least 110 cultural resources will be assessed.

Design/Construction Specifications: The assessment will follow the protocol established for the BAER planning and assessment phase. Additional post-burn site inspections are needed due to the large number of sites burned over during the Springs Fire.

Field Site visits to inspect post-fire conditions at archaeological sites, including preparation of post-burn forms and photo documentation of resource condition and threats.
Inspect museum objects and exhibit cases at Rancho Sierra Vista historic tack storage facility and Satwiwa Native American Culture Center for smoke damage potential.
Compile, process, and archive field data to include GPS data, digital photographs, and field inspection notes to prepare an accomplishments report including an analysis of field methods and results and summarize the treatment specification success.
Treatment specification activities will be completed by NPS staff, interns, and cooperating partners.
Accomplishments report written to address project results, methods, and future recommendations.

Purpose of Treatment Specifications (relate to damage/change caused by fire): A large number of potentially vulnerable cultural resources are found within the Springs Fire. These need to be assessed for susceptibility to looting, erosional effects, and other fire-related impacts to determine any needed emergency stabilization treatment. If identified fire-induced impacts can be stabilized and fire-related threats mitigated in a time and cost effective manner, additional funding will be requested to perform treatments.
requested to
Treatment consistent with Agency Land Management Plan (identify which plan): General Management Plan, Resource Management Plan, Interagency Cooperative Mgmt Agreement.

Treatment Effectiveness Monitoring Proposed: Complete all proposed post-burn archaeological site inspections and determine if additional emergency stabilization treatment specifications are needed. Present

results in an accomplishment report and prepare a supplemental BAER plan request if needed.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
Cultural Resource Prog Manager GS-12 @ $54/hr x 160 hrs x 1 FY (8 hrs/day x 20 days)	$8640
Archeology Technician GS-07 @ $25/hr x 240 hrs x 1 FY (8 hrs/day x 30 days)	$6000
GIS Technician GS-07 @ $33/hr x 80 hrs x 1 FY (8 hrs/day x 10 days)	$2640
Cultural Resource Clerk GS-07 @ $38/hr x 56 hrs x 1 FY (8 hrs/day x 7 days)	$2128
Archeology Technician GS-05 @ $19/hr x 320 hrs x 1 FY (8 hrs/day x 40 days)	$6080
TOTAL PERSONNEL SERVICE COST	$25,488
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
Purchase one field camera	$350
GSA Lease 4x4 SUV vehicle @ $1600/month x 2 months x 1 FY	$3200
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	$3550
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
Miscellaneous Field and Lab Supplies @ $400 x 1 x 2 FY	$800
TOTAL MATERIALS AND SUPPLY COST	$800

TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
TOTAL TRAVEL COST	0
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
Field Technician under MRCA Task Agreement @ $30/hr x 200 hrs x 1 FY	$6000
Museum/Archive Technician under MRCA Task Agreement @ $22/hr x 96 hr x 1 FY	$2112
TOTAL CONTRACT COST	$8112

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
2013	6/03/2013	9/30/2013	C,F	Sites	$345	66	$22,770
2014	10/1/2013	5/10/2014	C,F	Sites	$345	44	$15,180
TOTAL							$37,950

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	C,E,M
3. Estimate supported by cost guides from independent sources or other federal agencies	

4. Estimates based upon government wage rates and material cost.	P, M
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

TOTAL COST BY JURISDICTION

JURISDICTION				UNITS TREATED	COST
NPS				25	$8625
CA State Parks				85	$29,325
TOTAL COST					$37,950

INDIVIDUAL TREATMENT SPECIFICATION CR-2

TREATMENT/ACTIVITY NAME	Monitor Cultural Resources	PART E Spec-#	CR-2
NFPORS TREATMENT CATEGORY*	Monitoring	FISCAL YEAR(S) (list each year):	2013; 2014
NFPORS TREATMENT TYPE *	Treatment Effectiveness; Risk Assessment	WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK	N/A	IMPACTED T&E SPECIES	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

General Description: Twenty-five exceptionally sensitive archeological sites out of 110 cultural resources to be inspected as part of this BAER Plan have been identified as potentially at risk from erosion, fire-killed tree fall, and looting. Emergency stabilization treatments may still be required following heavy rain that may induce localized erosional events within individual sites. Fire-killed trees that fall within archaeological sites may pull buried cultural deposits exposing sensitive cultural materials to looting. Finally, when the area is open to visitor use again, looting will be a threat until new vegetation grows to hide ground surface artifacts. Monitoring will be completed by park cultural resources staff to inspect site areas for fire-induced impacts and to detect signs of vandalism that will assist LE patrols.

Location/ (Suitable) Sites: Twenty-five archeological sites at risk for looting, erosion and fire-killed tree fall will be monitored within the park area burned during the Springs Fire. The sites targeted for monitoring consist of prehistoric habitations with dense shell middens and rock shelters, some having middens or rock art. Archeological sites located within or downstream of the burned area will be monitored; emphasis will be given to sites determined to contain large or especially significant cultural materials. Many sites are at risk for increased localized erosional impacts following heavy rain events during the fall and winter that may require emergency stabilization due to fire-related indirect impacts resulting from erosion.

Design/Construction Specifications: Continued cultural resource inspections will follow the protocol established for the BAER planning and assessment phase, including preparation of the post-burn BAER forms and photo-documentation of resource condition and threats. A monitoring log will be maintained showing dates and observations for site visits. Remote cameras will be used at sites with the highest risk for looting (e.g., most visible artifacts at easily accessible sites). Where needed, additional cultural resource specifications will be prepared to implement emergency stabilization. Site inspections required to monitor for potential erosion will be completed following the first heavy rains in the fall/winter. The work will be performed by NPS employees and partners employed through task agreements.

Purpose of Treatment Specifications (relate to damage/change caused by fire): A large number of potentially vulnerable cultural resources are found within the Springs Fire area. These need to be inspected for looting impacts and following fall/winter rain to determine if any emergency stabilization treatments are needed for fire-induced localized erosion and fire-killed tree fall impacts. If threats can be mitigated in a time and cost-effective manner, additional funding will be requested to perform treatments. Site monitoring for looting is needed where the fire exposed collectible artifacts at readily accessible sites. Any incidents that occur will follow the ARPA (Archeological Resources Protection Act) process and involve park law enforcement staff.

requested to
Treatment consistent with Agency Land Management Plan (identify which plan): General Management Plan, Resource Management Plan, Interagency Cooperative Mgmt Agreement.

Treatment Effectiveness Monitoring Proposed: Complete all proposed inspections and determine if additional emergency stabilization treatment specifications are needed. Present results in an accomplishments report and supplemental BAER plan request if needed.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
Cultural Resource Prog Manager GS-12 @ $54/hr x 32 hrs x 2 FY (8 hrs/day x 8 days)	$3456
Archeology Technician GS-07 @ $25/hr x 24 hrs x 2 FY (8 hrs/day x 7 days)	$1200
Cultural Resource Clerk GS-07 @ $38/hr x 16 hrs x 2 FY (8 hrs/day x 2 days)	$1216
TOTAL PERSONNEL SERVICE COST	$5872
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
n/a	
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	0
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
Motion Sensor Camera @ $250 x 4 x 1 FY	$1000
Miscellaneous Supplies @ $200 x 1 x 1 FY	$200
TOTAL MATERIALS AND SUPPLY COST	$1200
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
TOTAL TRAVEL COST	
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
Field Technician under MRCA Task Agreement @ $30/hr x 104 hrs x 1 FY	$3120
Museum/Archive Technician under MRCA Task Agreement @ $22/hr x 16 hr x 1 FY	$352
TOTAL CONTRACT COST	$3472

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
2013	6/03/2013	9/30/2013	F, C	Sites	$210.88	25	$5272
2014	10/1/2013	5/10/2014	F, C	Sites	$210.88	25	$5272
TOTAL							$10,544

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	P, M
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See cultural resources assessment

TOTAL COST BY JURISDICTION

JURISDICTION				UNITS TREATED	COST
SMMNRA- Mugu State Parks				25	$10,544
TOTAL COST					$10.544

INDIVIDUAL TREATMENT SPECIFICATION VR-1

TREATMENT/ACTIVITY NAME	Invasive Plant Control	PART E SPECIFICATION #	VR-1
NFPORS TREATMENT CATEGORY*		FISCAL YEAR(S) (list each year):	2013/2014
NFPORS TREATMENT TYPE *		WUI? Y / N	Yes
IMPACTED COMMUNITIES AT RISK	Rancho Sierra Vista/Newbury Park; Pt Mugu/ Malibu, Deer Creek/Malibu	IMPACTED T&E SPECIES	None

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task:
A. General Description: Detect, control, and monitor 6 high priority non-native, invasive species that threaten sensitive habitat types and that are common in the watershed to both NPS and Pt. Mugu SP. These species (*Conium maculatum, Cynara cardunculus, Foeniculum vulgare, Pennisetum setaceum, Phalaris aquatica and Silybum marianum*), and other non-native invasive species in burned areas and prevent the expansion of known populations into newly disturbed sites. Control weeds in the riparian corridors, valleys and established restoration sites.
B. Location/(Suitable) Sites: Riparian corridors, coastal dunes, coastal sage scrub, perennial grasslands. The total treatment area includes acres to be intensively surveyed, treated and monitored of the actual perimeter of infestations plus a 300 ft. buffer in both burned and un-burned areas. Actual herbicide use is estimated at 125 acres (calculated as Gross area of infestation X Percent cover = net herbicide spraying).
A. 1. Rancho Sierra Vista (572 gross acres)
2. Deer Creek (18 gross acres)
3. Whelan (12 gross acres)
4. La Jolla Valley + Chumash Trail (638 gross acres)
5. Mugu Dunes (90 gross acres)
5. Sycamore Canyon (398 gross acres)
6. Wood Canyons (188 gross acres)
C. Design/Construction Specifications:
1. Delineate treatment areas in all targeted locations and define site-specific mechanical / chemical treatment prescriptions.
2. Conduct surveys in target locations for target species emergence / occurrence and treat according to prescription. Monitor for treatment effectiveness and target species reestablishment. Treat as necessary. It is expected that control / eradication at each site will require 3-4 treatments.
3. Survey vector corridors and likely sites for early detection of invasive species:
Inspect trail and drainage corridors via vehicle or by foot.
Record location and routes of surveys.
Collect data regarding species found, abundance, and photo-documentation.
Provide GPS and data files to park GIS staff that will create maps and maintain the File Geodatabase.
4. Control / eradicate species found following prescription of park restoration ecologist
Removal of species using approved IPM methods.
Plants in seed must be bagged and removed off site.
5. Document all activities, monitor treatment effectiveness and regularly resurvey sites following prescription park restoration ecologist, CA State Park project leads and lead monitor.
6. Collect coastal sage scrub seed for 2014 application to high priority treatment areas.
D. Purpose of Treatment Specifications: Control establishment and spread of non-native invasive species into burned areas where they have the potential to change the native plant composition or prevent the re-

establishment of sensitive native plant communities. Protect the ecological integrity and site productivity of the Sycamore Canyon watershed by employing IPM procedures for weed abatement and suppression including mechanical, chemical biological (re-seeding) methods, including seeding (reestablishment of native species in highly disturbed sites has been demonstrated effective in suppressing invasive plants in Mediterranean-type climates).
E: Treatment Consistent with Agency Land Management Plan (identify plan): Resource Management Plan, Interagency Cooperative Mgmt Agreement.
F. Treatment Effectiveness Monitoring Proposed: Document all control actions, establish formal monitoring plots, and perform spot checks to ensure control methods are meeting management objectives. Survey crews will visit treated sites within one week of treatment and, on the basis of initial observations, plan additional visits; this is especially important to ensure effectiveness of applied herbicides Establish a monitoring program for the 6 target species in Pt. Mugu SP, and affected NPS lands at Rancho Sierra Vista, Deer Creek/Whalen. Incorporate findings into long-term integrated invasive plant management programs. Data are provided to NPS Exotic Plant Management Team (EPMT) for future project planning. Initiate follow-up treatments if additional non-native species or large populations are discovered.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
Plant Ecologist Project Oversight and ATR: (1) GS-12/6 @ $4800/PP x 1 PP = $4800 ***IN KIND***	$0
Restoration Ecologist Project Leader: (1) GS-11/3 @ $7320/PP x 1 PP = $7320 ***IN KIND***	$0
Lead Monitor: (1) GS-9/5 @ $3230/PP x 3 PP	$9,690
Assistant Monitor/GIS Data Manager: (1) GS-7/1 @ $1790/PP x 3PP	$5,370
TOTAL PERSONNEL SERVICE COST	$15,060
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	COST / ITEM
GSA Vehicle (4WD pickup) 1 @ $700/month x 9 months	$6,300
Terrasync software upgrade for GPS unit @ 2 @ $600	$1,200
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	$7,500
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
Herbicide (+ dye marker) @ $35 acre x 125 net acres x 4 treatments	$17,500
Backpack sprayers and supplies (8) @ $120 ea	$960
Brush cutters and supplies (4) @ $1300 ea	$5,200
PPE, equipment, fuel and miscellaneous supplies	$1,500
TOTAL MATERIALS AND SUPPLY COST	$25,160
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
None	
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
Archeological Monitor (1) @ $2,400/PP X 2 PP	$4,800
CA State Parks Sr. Environmental Biologist Project Lead (1) @ $4240/PP x 2 PP = $8480 ***IN KIND***	$0
CA State Parks Environmental Biologist Project Supervisor (1) @ $3680/PP x 2 PP = $7360 ***IN KIND***	$0
CA State Parks Lead Field Technician (1) @ $21/hr x 80 hr/PP x 20PP	$33,600
CA State Parks Field Technicians (3) @ $15/hr x 80 hr/PP x 20 PP x 3 technicians	$72,000
TOTAL CONTRACT COST	$110,400

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	# UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY 13	8/1/2013	9/30/2013	C, F				$126,295
FY 14	10/1/2014	6/1/2014	C, F	acres	$81.80	1933	$31,825
TOTAL							$158,120

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract,

T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	Estimate obtained from 2-3 independent contractual sources.	
2.	Documented cost figures from similar project work obtained from local agency sources.	P, E, M
3.	Estimate supported by cost guides from independent sources or other federal agencies	
4.	Estimates based upon government wage rates and material cost.	P
5.	No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report. See Vegetation Assessment
Map: Areas Proposed for Invasive Species Control
Map: Locations of Invasive Species in Burned and Unburned Areas at Rancho Sierra Vista

TOTAL COST BY JURSIDICTION

JURISDICTION	UNITS TREATED	COST
NPS Santa Monica Mountains National Recreation Area	250	$213,735
	TOTAL COST	$158,120

INDIVIDUAL TREATMENT SPECIFICATION WR-1

TREATMENT/ACTIVITY NAME	Replace Pitfall Trap Buckets/Lids	PART E SPECIFICATION #	WR-1
NFPORS TREATMENT CATEGORY*		FISCAL YEAR(S) (list each year):	2013
NFPORS TREATMENT TYPE *		WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK	N/A	IMPACTED T&E SPECIES	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description: Pitfall trap arrays are used to collect monitoring data on the terrestrial herpetofauna community. Each array consists of seven 5-gallon plastic buckets buried in the ground so the opening of the bucket is flush with ground level. Drift fencing is placed between buckets, which are placed at 7.5 meter intervals. Bucket lids are normally affixed to the buckets so that no wildlife, people, or domesticated animals (e.g. dogs, horses) will fall or trip. The Springs fire burned a total of 32 arrays. When the arrays burned, the lids were destroyed leaving open buckets in the environment which represent a trip and fall hazard to hikers and equestrians. Warped and melted plastic buckets and lids need to be replaced at 18 of the 32 burned pitfalls sites. Action at the other 14 sites will be to remove burned buckets and back-fill holes with local soil with an archaeologist's oversight.
B. Location/(Suitable) Sites: Point Mugu State Park (Ranch Center, Wood Canyon, La Jolla Canyon, Big Sycamore Canyon, Serrano Canyon).
C. Design/Construction Specifications:
1. Pitfalls to be replaced with new buckets and covers: Melted or warped buckets and lids will be removed, holes will be shaped to accommodate new buckets with lids, dirt will be back-filled along the outside of buckets so that they are securely buried.
2. Pitfall arrays to be back-filled: Melted or warped buckets and lids will be removed, soil from around the site will be used to fill in holes left by buckets.
3. Both actions described in C1 and C2 will be conducted with an archaeologist present to monitor digging and back-filling activities.
D. Purpose of Treatment Specifications: To close plastic 5-gallon buckets which are buried so that the lip of the bucket is flush to the ground. Open buckets are essentially "pits" and represent a trip and fall hazard for hikers and equestrians that may encounter them.
E: Treatment Consistent with Agency Land Management Plan (identify plan): Safety, Resource Management Plan,
F. Treatment Effectiveness Monitoring Proposed: Replacing burned buckets and lids with new buckets and lids will immediately ensure that lids are tightly secured thereby removing the trip and fall hazard to hikers and equestrians.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
Ecologist GS-11 @ 45/hour x 112 hours x 1 FY (8 hours/day x 14 days)	$5040.00
TOTAL PERSONNEL SERVICE COST	$5040.00

EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	COST / ITEM
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
5-gallon plastic buckets @ $4.00/each x 126 x 1 FY Plastic lids for buckets @ 1.00/each x 126 x 1 FY Shovels @ $25.00/each x 2 x 1 FY Rock Bar @ $32.00 x 1 x 1 FY TOTAL MATERIALS AND SUPPLY COST	$504.00 $126.00 $50.00 $32.00 $712.00
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL TRAVEL COST	
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
Archaeologist @ $30.80/hour x 40 hours x 1 FY Laborer 1 @ $21.00/hour x 40 hours x 1 FY Laborer 2 @ $21.00/hour x 40 hours x 1 FY Laborer 3 @ $21.00/hour x 40 hours x 1 FY TOTAL CONTRACT COST	$1232.00 $840.00 $840.00 $840.00 $3752.00

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY2013	6/3/13	7/31/13	C, F, V	32	$297.00	32	$9504.00
TOTAL							$9504.00

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	Estimate obtained from 2-3 independent contractual sources.	
2.	Documented cost figures from similar project work obtained from local agency sources.	
3.	Estimate supported by cost guides from independent sources or other federal agencies	
4.	Estimates based upon government wage rates and material cost.	P, M, C
5.	No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Wildlife Assessment

TOTAL COST BY JURSIDICTION

JURISDICTION	UNITS TREATED	COST
NPS SMMNRA	32	
	TOTAL COST	$99504.00

INDIVIDUAL TREATMENT SPECIFICATION DM-1

TREATMENT/ACTIVITY NAME	Replace nitrogen deposition study site and sampling equipment	PART E SPECIFICATION #	DM-1
NFPORS TREATMENT CATEGORY*		FISCAL YEAR(S) (list each year):	2013
NFPORS TREATMENT TYPE *		WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK	None	IMPACTED T&E SPECIES	None

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task:
A. General Description: The fire destroyed essential study equipment at Rancho Sierra Vista and Deer Creek, and experimental fertilization plots at Deer Creek only (the plots at RSV are outside the burn perimeter). These locations are two highly important sites (of ten total, distributed west to east) for a 3-year study to assess atmospheric nitrogen deposition across the Santa Monica Mountains, and its effects on vegetation. These two sites have experimental fertilization plots in addition to passive nitrogen sampling equipment, whereas the other eight sites do not. This study is a collaboration with the NPS, UC Riverside and US Forest Service. The fire caused the loss of six months of nitrogen deposition data at both sites in the middle of the study period (2011-2014). If the equipment/study area is not replaced in early June, additional loss of important data will occur, putting the entire study (funded by NPS Air Quality Division, $100,000) in jeopardy.
B. Location/(Suitable) Sites: Suitable sites for replacement will be in unburned areas of Rancho Sierra Vista and Deer Creek.
1. Rancho Sierra Vista: relocate new Ion Exchange Resin passive nitrogen samplers (IERs) in unburned chaparral and coastal sage scrub plants.
2. Deer Creek – relocate the entire study to an appropriate unburned site elsewhere on the Deer Creek property, either below the existing site or at the far north end of the property off of Pacific View Rd.
C. Design/Construction Specifications:
1. Construct 39 IERs total and relocate them under shrubs (RSV and Deer Creek)
2. Re-establish fertilization plots at Deer Creek in coastal sage scrub
3. Construct 60 leaf litter traps and relocate them under shrubs in the new fertilization plots at Deer Creek
D. Purpose of Treatment Specifications: There is a critical need to replace burned study equipment/experimental plots to unburned areas at the two sites in early June so sample collection may resume on schedule (see description in Section F).
E. Treatment consistent with Agency Land Management Plan (identify which plan): Resource Management Plan, CESU
F. Treatment Effectiveness Monitoring Proposed: This is a one-time equipment and site replacement. Once everything is replaced/relocated the treatment will have been totally effective and no further monitoring will be required. Sample collection will resume on schedule (soil: March/August, vegetation: March/August; and nitrogen deposition (late May-June/November).

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
TOTAL PERSONNEL SERVICE COST	
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits	COST / ITEM

over leasing or renting.	
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
Leaf Litter Traps @ $9/trap X 60 X 1 FY	$540
Ion Exchange Resin collectors @ $16/IER X 39 X 1 FY TOTAL MATERIALS AND SUPPLY COST	$624 $1,146
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL TRAVEL COST	
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
UC Riverside Project Lead $25/hr X 30 hrs TOTAL CONTRACT COST	

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY13	6/1/2013	6/5/2013	C, V	Acres	$191	6	$1,146
TOTAL							

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	Estimate obtained from 2-3 independent contractual sources.	
2.	Documented cost figures from similar project work obtained from local agency sources.	M, P
3.	Estimate supported by cost guides from independent sources or other federal agencies	M
4.	Estimates based upon government wage rates and material cost.	
5.	No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report. See Damage Assessment
Photo of Deer Creek burned area of plots
Photo of melted IERs
Map - location of study sites, with burn/unburned equip and plots

TOTAL COST BY JURSIDICTION

JURISDICTION	UNITS TREATED	COST
SMMNRA		$1,146
	TOTAL COST	$1,146

INDIVIDUAL TREATMENT SPECIFICATION RT-1

TREATMENT/ACTIVITY NAME	Asphalt Pavement Repair due to Fire Truck Damage	PART E SPECIFICATION #	RT-1
NFPORS TREATMENT CATEGORY*		FISCAL YEAR(S) (list each year):	2013
NFPORS TREATMENT TYPE *		WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK		IMPACTED T&E SPECIES	NO

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task:
A. General Description: Repair 150' of asphalt pavement damaged by fire trucks working the Springs Fire at Rancho Sierra Vista, SAMO
B. Location/(Suitable) Sites: RSV road to overlook
C. Design/Construction Specifications: Total road length is approximately ½ miles in length. Project calls for 1800 Sq.Ft/ 200 yards x 4" thick = 46 tons of asphalt at approximately $150.00 per ton = $6,900.00; 46 tons of road base at $40.00 per ton = $1,840.00; total cost $8,740.00.
D. Purpose of Treatment Specifications (relate to damage/change caused by fire): Water and heavy equipment caused buckling of the road. Hazardous condition
E. Treatment consistent with Agency Land Management Plan (identify which plan): Safety.
F. Treatment Effectiveness Monitoring Proposed: N/A – built to park standards

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
TOTAL PERSONNEL SERVICE COST	
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	COST / ITEM
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL MATERIALS AND SUPPLY COST	$8,740.00
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL TRAVEL COST	
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL CONTRACT COST	$8,740.00

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY13	July 2013	July 2013	S	Feet	$58/ft	150’	
TOTAL							$8740.00

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	Estimate obtained from 2-3 independent contractual sources.	
2.	Documented cost figures from similar project work obtained from local agency sources.	
3.	Estimate supported by cost guides from independent sources or other federal agencies	
4.	Estimates based upon government wage rates and material cost.	S
5.	No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report: Roads and Trails Assessment

TOTAL COST BY JURSIDICTION

JURISDICTION	UNITS TREATED	COST
SMMNRA	150 150’	8740
	TOTAL COST	8740

INDIVIDUAL TREATMENT SPECIFICATION RT-2

TREATMENT/ACTIVITY NAME	Clear burned brush from Satwiwa Loop and Hidden Valley Trail	PART E SPECIFICATION #	RT-2
NFPORS TREATMENT CATEGORY*		FISCAL YEAR(S) (list each year):	2013
NFPORS TREATMENT TYPE *		WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK		IMPACTED T&E SPECIES	NO

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task:
. General trail clearing and repair incorporates the use of saw and rakes and shovels.
A. General Description: To remove burnt brush form Satwiwa Loop and Hidden Valley overlook trails.
B. Location/(Suitable) Sites: RSV Trail system
C. Design/Construction Specifications: Remove burnt brush on trails due to Springs Fire at Rancho Sierra Vista, SAMO.
D. Purpose of Treatment Specifications (relate to damage/change caused by fire): Removing brush will allow park to open trails to public
E. Treatment consistent with Agency Land Management Plan (identify which plan): Safety, GMP (recreation)
F. Treatment Effectiveness Monitoring Proposed: N/A – to park standards

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
WL-07 at $35.78 per hour x 56 hours = $2,003.68 WG-07 at $29.37 per hour x 112 hours = $3,289.44 TOTAL PERSONNEL SERVICE COST	$5,293.12
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	COST / ITEM
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
Rakes (Receipt) TOTAL MATERIALS AND SUPPLY COST	$153.98
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL TRAVEL COST	
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL CONTRACT COST	

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY13	05/07/2013	06/07/2013	NPS Day Labor	miles	$3,361	1.5	
FY__							
FY__							
FY__							
TOTAL							$5,447.10

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	Estimate obtained from 2-3 independent contractual sources.	
2.	Documented cost figures from similar project work obtained from local agency sources.	P
3.	Estimate supported by cost guides from independent sources or other federal agencies	
4.	Estimates based upon government wage rates and material cost.	P
5.	No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report. See R&T assessment

TOTAL COST BY JURSIDICTION

JURISDICTION	UNITS TREATED	COST
SMMNRA	miles	5447.10
	TOTAL COST	5447.10

INDIVIDUAL TREATMENT SPECIFICATION RT-3

TREATMENT/ACTIVITY NAME	Post trail closed and "Area Closed" signs throughout burned locations	PART E SPECIFICATION #	RT-3
NFPORS TREATMENT CATEGORY*		FISCAL YEAR(S) (list each year):	2013
NFPORS TREATMENT TYPE *		WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK		IMPACTED T&E SPECIES	NONE

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description: Post carsonite trail and area closure signs throughout Springs Fire area
B. Location/(Suitable) Sites: RSV and Point Mugu
C. Design/Construction Specifications:
1. Carsonite post and NPS developed laminate signs in coordination with state parks for uniform signage
D. Purpose of Treatment Specifications (relate to damage/change caused by fire): Protect resources and provide for visitor safety by notifying park users of "No Access" on apparent "trails"
E. Treatment consistent with Agency Land Management Plan (identify which plan): Safety.
F. Treatment Effectiveness Monitoring Proposed: Trail damage does not increase after posting

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
WG-07 at $35.78 per hour x 39.5 hours = $1,413.31 TOTAL PERSONNEL SERVICE COST	$1,413.31
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	COST / ITEM
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
Carsonite Posts: 273 at $17.00 each = $4,641.00 TOTAL MATERIALS AND SUPPLY COST	$4,641.00
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL TRAVEL COST	
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL CONTRACT COST	

SPECIFICATION COST SUMMARY

FISCA	PLANNED	PLANNED	WORK	UNIT	UNIT	PLANNE	PLANNED

L YEAR	INITIATION DATE (M/D/YYYY)	COMPLETION DATE (M/D/YYYY)	AGENT	S	COST	D ACCOMPLISHMENTS	COST
FY13	05/07/2013	06/07/2013	NPS Day Labor				
FY__							
FY__							
FY__							
TOTAL							$6,054.31

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	Estimate obtained from 2-3 independent contractual sources.	
2.	Documented cost figures from similar project work obtained from local agency sources.	M
3.	Estimate supported by cost guides from independent sources or other federal agencies	
4.	Estimates based upon government wage rates and material cost.	P
5.	No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report. See R&T Assessment

TOTAL COST BY JURSIDICTION

JURISDICTION	UNITS TREATED	COST
NPS SMMNRA		
	TOTAL COST	$6,054.31

INDIVIDUAL TREATMENT SPECIFICATION RT-4

TREATMENT/ACTIVITY NAME	Replace burned wood stairs on Satwiwa Loop Trail	PART E SPECIFICATION #	RT-4
NFPORS TREATMENT CATEGORY*		FISCAL YEAR(S) (list each year):	2013
NFPORS TREATMENT TYPE *		WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK		IMPACTED T&E SPECIES	No

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task:
A. General Description: Remove and replace burnt wood stairs built by Boy Scouts and lost in the Springs Fire
B. Location/(Suitable) Sites: Satwiwa Loop Trail, Rancho Sierra Vista
C. Design/Construction Specifications:
1. Replace as previously constructed with labor from boy scouts and maintenance staff
D. Purpose of Treatment Specifications: Replacement is urgently needed as this is a segment of the heavily used Satwiwa Loop Trail. Enforcement of closure on this segment will be especially difficult due to heavy use traffic. Concrete footings are fragile and wood coverings need to be replaced as any significant damage to the footings will require reconstructing the foundation at much greater cost and effort.
E. Treatment consistent with Agency Land Management Plan (identify which plan): GMP recreation
F. Treatment Effectiveness Monitoring Proposed: N/A built to park standards by park staff

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
TG-07 at $29.37 per hour x 200 hours = $5,875.00 TOTAL PERSONNEL SERVICE COST	$5,875.00
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	COST / ITEM
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
6' x 6" x 10' stair lumber. 50 at $56.00 each = $2,800.00 TOTAL MATERIALS AND SUPPLY COST	$2,800.00
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL TRAVEL COST	
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL CONTRACT COST	

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY13	05/07/2013	09/30/2013	NPS Day Labor				
FY__							
FY__							
FY__							
TOTAL							$8,675.00

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	Estimate obtained from 2-3 independent contractual sources.	
2.	Documented cost figures from similar project work obtained from local agency sources.	M
3.	Estimate supported by cost guides from independent sources or other federal agencies	
4.	Estimates based upon government wage rates and material cost.	P
5.	No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report. See R&T assessment

TOTAL COST BY JURSIDICTION

JURISDICTION	UNITS TREATED	COST
NPS SMMNRA		
	TOTAL COST	$8,675

INDIVIDUAL TREATMENT SPECIFICATION LE-1

TREATMENT/ACTIVITY NAME	RSV Boundary Fence	PART E SPECIFICATION #	LE-1
NFPORS TREATMENT CATEGORY*		FISCAL YEAR(S) (list each year):	2013
NFPORS TREATMENT TYPE *		WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK		IMPACTED T&E SPECIES	No

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each: Fence Project
A. General Description: Install 2,500-feet of barbless wire fence and a swing gate along RSV boundary with COSCA (Rancho Potrero Open Space)
B. Location/(Suitable) Sites: Rancho Sierra Vista South/West boundary with Rancho Potrero Open Space
C. Design/Construction Specifications:
1. Install 2,457 feet of four strand barbless wire fence, 5-feet high and one 6' swing arm gate with two locking posts.
2. Use Cadastral Survey personnel to locate benchmark at approx Lat. Long 118 58.49 - 34 8.87. Previous boundary markers are missing and presumed burned. The fencing is critical to keep visitors on established trails and to prevent short cuts and social trails from developing in burn area.
3. Increase law enforcement patrols of Park boundary.
4. Post Federal Property boundary signs and implement visitor use restrictions. (Visitors are restricted to established trails/roads) The Thousand Oaks Equestrian Center (AKA Rocking K) borders the park along the south-west boundary. Equestrians are a high percentage of users to the area.
D. Purpose of Treatment Specifications: Resource Protection
E. Treatment consistent with Agency Land Management Plan (identify which plan): GMP, RMP
F. Treatment Effectiveness Monitoring Proposed: Reduce resource impacts by restricting visitors/horses to established trails and roads.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
None TOTAL PERSONNEL SERVICE COST	
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	COST / ITEM
None TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
None TOTAL MATERIALS AND SUPPLY COST	
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST /

	ITEM
None TOTAL TRAVEL COST	
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
$15,300 @ 1 job, 1 fiscal year = At a minimum, this is a two-day job. Quote (verbal) from Fence Factory sales representative using similar project description from a fence project in FY-12 in the same area. The Park does not have the tools or the ability to install barbless wire fencing. Contractor that specializes in building fences needed.	$15,300
TOTAL CONTRACT COST	$15,300

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY_13 _ FY__ FY__ FY__	6/15/2013	8/15/2013	S	Each	$15,300	1 job	$15,300
TOTAL							$15,300

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	Estimate obtained from 2-3 independent contractual sources.	none
2.	Documented cost figures from similar project work obtained from local agency sources.	C
3.	Estimate supported by cost guides from independent sources or other federal agencies	none
4.	Estimates based upon government wage rates and material cost.	none
5.	No cost estimate required - cost charged to Fire Suppression Account	none

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report. LE assessment 1. Map 2. scope of work 3.Cadastrail Survey request

TOTAL COST BY JURSIDICTION

JURISDICTION	UNITS TREATED	COST
NPS - Santa Monica Mountains National Recreation Area	1	$15,300
	TOTAL COST	$15,300

INDIVIDUAL TREATMENT SPECIFICATION LE-2

TREATMENT/ACTIVITY NAME	Deer Creek Gates	PART E SPECIFICATION #	LE-2
NFPORS TREATMENT CATEGORY*		FISCAL YEAR(S) (list each year):	2013
NFPORS TREATMENT TYPE *		WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK		IMPACTED T&E SPECIES	NONE

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task: Install two single swing arm gates at Deer Creek
A. General Description: Due to the recent Springs fire, the Deer Creek fire road is now open and drivable for the public from a county roadway. Prior to the fire, the fire road was protected by a dirt berm and large rocks that prevented the public from entering this area. The area is steep and very unstable. It has a lot of rolling debris. The area is very remote and difficult to patrol. Due to safety concerns we would like to install a single swing arm pipe gate at both ends of the fire road.
B. Location/(Suitable) Sites: Deer Creek road at the North and South boundary
C. Design/Construction Specifications: Two single swing-arm gates, 12-feet long, 3 ½-inches in diameter.
1.Two swinging-arm 12-feet pipe gate
2. Dark brown powder coating
3. A multiple lock mechanism
4. Two locking posts
D. Purpose of Treatment Specifications: Prevent unauthorized entry into the Deer Creek area.
E. Treatment consistent with Agency Land Management Plan (identify which plan): Safety, RMP
F. Treatment Effectiveness Monitoring Proposed: Reduce resource damage within burn area.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
TOTAL PERSONNEL SERVICE COST	
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	COST / ITEM
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL MATERIALS AND SUPPLY COST	
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM

TOTAL TRAVEL COST	

CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
$12,429 @ 1 job, 1 fiscal year These are specialized gates. The Park does not have the capacity to create these gates in a timely manner. An outside vendor who specializes in manufacturing swing gates is needed.	$12,420
TOTAL CONTRACT COST	$12,420

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY13__ FY__ FY__ FY__	06/15/2013	07/15/2013	S	2	$6,210	1 job	$12,420
TOTAL							

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	Estimate obtained from 2-3 independent contractual sources.	None
2.	Documented cost figures from similar project work obtained from local agency sources.	M, C
3.	Estimate supported by cost guides from independent sources or other federal agencies	None
4.	Estimates based upon government wage rates and material cost.	None
5.	No cost estimate required - cost charged to Fire Suppression Account	None

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report. LE assessment - Map and Scope of Work

TOTAL COST BY JURSIDICTION

JURISDICTION	UNITS TREATED	COST
NPS - Santa Monica Mountains National Recreational Area	1	$12,420
	TOTAL COST	$12,420

INDIVIDUAL TREATMENT SPECIFICATION LE-3

TREATMENT/ACTIVITY NAME	Rancho Sierra Vista Gate	PART E SPECIFICATION #	LE-3
NFPORS TREATMENT CATEGORY*		FISCAL YEAR(S) (list each year):	2013
NFPORS TREATMENT TYPE *		WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK		IMPACTED T&E SPECIES	NONE

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each: Gate Project

A. General Description: Install a double swing gate at the service entrance to Rancho Sierra Vista. At one time, a double-swinging wood gate was located on the service road at Rancho Sierra Vista. The gate was in poor repair and eventually dismantled. Due to the recent Springs Fire and the neighboring community of Newbury Park expanding to just outside the Park boundary, it has been difficult to keep visitors out of the posted administrative area. We are witnessing an increase in both vehicle traffic and pedestrian traffic through this entrance point. The road is narrow and not intended for public vehicular traffic. Due to safety concerns we would like to re-install a gate at this critical entry point.

B. Location/(Suitable) Sites: Rancho Sierra Vista Service Road, off Potrero Road.

C. Design/Construction Specifications: Double 12-foot swinging pipe gate.

1.The double swinging 12-foot pipe gate

2. Dark brown powdered coating

3. A multiple lock mechanism

4. Two locking posts

D. Purpose of Treatment Specifications: Visitor Safety

E. Treatment consistent with Agency Land Management Plan (identify which plan): Safety.

F. Treatment Effectiveness Monitoring Proposed: Restrict visitor access to administrative area of park and service road

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
None TOTAL PERSONNEL SERVICE COST	
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	COST / ITEM
None TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
None TOTAL MATERIALS AND SUPPLY COST	
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL TRAVEL COST	

CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
$9,660 @ 1 job, 1 fiscal year = This is a specialized gate from local vendor; see project description. The Park does not have the ability to manufacture this style of gate.	$9.660
TOTAL CONTRACT COST	$9,660

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY13__ FY__ FY__ FY__	06/15/2013	07/30/2013	S	Each	$9,660	1 job	$9,660
TOTAL							$9,660

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	Estimate obtained from 2-3 independent contractual sources.	none
2.	Documented cost figures from similar project work obtained from local agency sources.	M, C
3.	Estimate supported by cost guides from independent sources or other federal agencies	none
4.	Estimates based upon government wage rates and material cost.	none
5.	No cost estimate required - cost charged to Fire Suppression Account	none

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report. Attached Map and Scope of Work

TOTAL COST BY JURSIDICTION

JURISDICTION	UNITS TREATED	COST
NPS - Santa Monica Mountains National Recreational Area	1	$9,660
	TOTAL COST	$9,660

INDIVIDUAL TREATMENT SPECIFICATION LE-4

TREATMENT/ACTIVITY NAME	Increased law enforcement patrol	PART E SPECIFICATION #	LE-4
NFPORS TREATMENT CATEGORY*		FISCAL YEAR(S) (list each year):	2013 and 2014
NFPORS TREATMENT TYPE *		WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK		IMPACTED T&E SPECIES	NO

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description: Provide enhanced public safety and resource protection for Rancho Sierra Vista and Point Mugu State Park.
B. Location/(Suitable) Sites: Rancho Sierra Vista is a unit of the National Park Service. Point Mugu State Park is within the boundary of Santa Monica Mountains National Recreation Area and covered by a joint Cooperative Management Agreement.
C. Design/Construction Specifications:
1. Coordinate enhanced law enforcement patrols with Law Enforcement Branch Chief, District Rangers, Fire Management Officer, Fire Ecologist, and park's Cultural Resources Specialist.
2. Implement a "restricted closure", authorized by 36 CFR section 1.5 (a) (1), within the boundaries of Rancho Sierra Vista and Point Mugu State Park until such areas are deemed safe for public entry and sensitive cultural and natural resources are no longer at risk of looting and vandalism. Modify "restricted closure", which limits pedestrian traffic, biking, and equestrian use to roads and trails, as needed.
3. Increase systematic and discretionary patrols above routine law enforcement activities, make contacts with public as appropriate, and take action against violators.
4. Public trail system: patrol trails on a weekly and/or monthly basis to assess area for public and employee safety. Report findings to Roads and Trail supervisor and park's safety officer. Maintain safety and information signs within area.
5. Provide law enforcement patrol coverage; one shift per day; five days per week for approximately 11 pay periods (June 30, 2013 through November 30, 2013 respectively). For officer's safety, the regularly scheduled patrol rangers will assist and automatically respond to Rancho Sierra Vista and Point Mugu State Park during all medium and high-risk law enforcement contacts.
D. Treatment consistent with Agency Land Management Plan (identify which plan): Safety
E. Treatment Effectiveness Monitoring Proposed: Reduce theft and vandalism to area.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
DETAIL: LE Park Ranger: GL-7/1 at $23.62 hour x 880 hours x 2 fiscal year = (includes premium pay + benefits of 10%) x 1	$25,046
SUPERVISION: Supervisory Park Ranger: GS-11/4 at $45.00 hour x 220 hours x 2 fiscal year =	$9,900
(two hours per day, regular time)	$6,160
OVERTIME: LE Park Ranger: GL-9/4 at $55.00 hour x 112 hours x 2 fiscal year =	$21,000
PWR SETT CALL-OUT: 12 hours x 7 days x $50.00/day x 5 LE rangers =	
TOTAL PERSONNEL SERVICE COST	$62,106
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits	COST / ITEM

over leasing or renting.	
LE support; GSA vehicle; 11 pay periods; 5 month rental at $360.00/month + 800 miles/month ($0.26 per mile) x 2 = TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	$2,840 $2,840
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
LE support: duty belt, flash light, ammunition, gym membership, handheld radio, dispatch contract, mandatory training, etc. x 2 = TOTAL MATERIALS AND SUPPLY COST	$1,250 $1,250
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
PWR SETT CALL-OUT: Travel to and from assignment at SAMO; 5 SETT members (approximate cost)	$16,000 $16,000
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
None projected	

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY_13	06/30/2013	09/30/2013	FA	hours	$51.36	528	$64,117
FY_14	10/01/2013	11/30/2013	FA	hours	$51.36	352	$18,079
TOTAL							$82,196

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	Estimate obtained from 2-3 independent contractual sources.	none
2.	Documented cost figures from similar project work obtained from local agency sources.	none
3.	Estimate supported by cost guides from independent sources or other federal agencies	E & M
4.	Estimates based upon government wage rates and material cost.	P
5.	No cost estimate required - cost charged to Fire Suppression Account	none

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report: See LE assessment

TOTAL COST BY JURSIDICTION

JURISDICTION	UNITS	COST

	TREATED	
NPS – Santa Monica Mountains National Recreation Area	1	$82,196
	TOTAL COST	$82,196

INDIVIDUAL TREATMENT SPECIFICATION LE-5

TREATMENT/ACTIVITY NAME	Post Boundary with Federal Property Signs	PART E SPECIFICATION #	LE-5
NFPORS TREATMENT CATEGORY*		FISCAL YEAR(S) (list each year):	2013
NFPORS TREATMENT TYPE *		WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK		IMPACTED T&E SPECIES	NONE

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task: Post Boundary with Federal Property signs

A. General Description: As a result of the recent Springs Fire all the vegetation has been burned from 1,200 acres of park land. To be able to enforce Federal regulations we need to walk the perimeter and install/replace Federal Property signs lost during the fire.

B. Location/(Suitable) Sites: Rancho Sierra Vista, Circle-X Ranch and Deer Creek Canyon.

C. Design/Construction Specifications: Order 100, 8x12-inch "Federal Property" signs, posts, and hardware needed to install them.

1. Re-order Custom signs from Northern Safety and Industrial. Approximately $20/each.
2. Carsonite sign posts, approximately $17/each
3. Rivets (approx. 200) and a hand Riveter Gun. Approximately $120/each box
4. Industrial, spacers, approximately $40/each box
5. Pilot Driver, post driver, approximately $250/each

D. Purpose of Treatment Specifications: Advise the public of Federal Property boundary

E. Treatment consistent with Agency Land Management Plan (identify which plan): Safety.

F. Treatment Effectiveness Monitoring Proposed: Visitor Safety and Resources Protection

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
TOTAL PERSONNEL SERVICE COST	
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	COST / ITEM
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
Federal Property signs @ 20.00/each x 100 x 1 fiscal year =	$2,000
Carsonite posts @ 17.00/each x 100 x 1 fiscal year =	$1,700
Hardware (misc.) @ $160.00/total x 1 unit x 1 fiscal year =	$160
Pilot Driver - Post Driver @ $250.00/each x 1 unit x 1 fiscal year =	$250
TOTAL MATERIALS AND SUPPLY COST	$4,110
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM

TOTAL TRAVEL COST	
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL CONTRACT COST	

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY13__ FY__ FY__ FY__	06/15/2013	07/15/2013		1	$4,110	1 order	$4,110
TOTAL							$4,110

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	Estimate obtained from 2-3 independent contractual sources.	None
2.	Documented cost figures from similar project work obtained from local agency sources.	M, C
3.	Estimate supported by cost guides from independent sources or other federal agencies	None
4.	Estimates based upon government wage rates and material cost.	None
5.	No cost estimate required - cost charged to Fire Suppression Account	None

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report. See LE assessment

TOTAL COST BY JURSIDICTION

JURISDICTION	UNITS TREATED	COST
NPS - Santa Monica Mountains National Recreational Area	1	$4,110
	TOTAL COST	$4,110

INDIVIDUAL TREATMENT SPECIFICATION LE-6

TREATMENT/ACTIVITY NAME	Smart Scouter Surveillance Cameras	PART E SPECIFICATION #	LE-6
NFPORS TREATMENT CATEGORY*		FISCAL YEAR(S) (list each year):	2013
NFPORS TREATMENT TYPE *		WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK	Archaeological/Cultural Sites	IMPACTED T&E SPECIES	NO

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task: Purchase and deploy 7 Smart Scouter trail/game surveillance cameras within threatened archaeological sites.

A. General Description: More than 100 Native American archaeological sites including culturally significant areas such as burial sites occur throughout the recently burned section of Santa Monica Mountains National Recreation Area (SAMO). The Springs Fire removed all of the natural vegetation acting as cover which was hiding these sites from public view. It has been difficult to keep visitors out of the posted burn area and monitor some of these archeological sites due to the sites remote location. We are seeing an increase in pedestrian traffic in these areas by curious visitors and persons intent on searching for antiquities. Due to limited staffing levels, we would like to install surveillance cameras to assist law enforcement rangers in patrolling and monitoring these sensitive and irreplaceable resources.

B. Location/(Suitable) Sites: Various remote archeological sites within the burned area of Point Mugu State Park and Rancho Sierra Vista.

C. Design/Construction Specifications:

1. Seven SmartScouter Black OPS 940 AT&T Wireless Cellular Cameras plus CF Card
2. Seven Security Boxes
3. Wireless capability due to remote locations
4. Seven CF Cards to store images of potential looters
5. Eleven month 20MG Plan $49.99/month fixed - estimate 1000 Low Resolution pictures; seven month 2MG Plan $18.99/month fixed - estimate 100 Low Resolution pictures

D. Purpose of Treatment Specifications: Remote locations necessitate wireless capability due to terrain and distance

E. Treatment consistent with Agency Land Management Plan (identify which plan): Safety.

F. Treatment Effectiveness Monitoring Proposed: Protect cultural resources in sensitive areas

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
None TOTAL PERSONNEL SERVICE COST	0

EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.				COST / ITEM
7	SmartScouter Black OPS 940 AT&T Camera + CF Card (SKU=151)	$ 443.99	$ 3,107.93	
7	Security Box	$ 84.99	$ 594.93	
The requested surveillance cameras as compatible with the cellular telephone service offered in				

the burned area; western area of the Santa Monica Mountains. Once activated, the cameras will produce images for approximately one year. This is the most critical time during the recovery period. Surveillance cameras are not available for leasing or renting because of the harsh environmental conditions. TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	3,702.86
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL MATERIALS AND SUPPLY COST	0
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL TRAVEL COST	0
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM

7	Wireless Plan - Activation Fee (SKU=27) with AT&T			
7	2MG Plan $18.99/month fixed - estimate 100 Low Res pictures(SKU=67)	$ 1.00	$ 7.00	
	REMAINDER OF 1 YEAR WIRELESS CONTRACT IN FULL BELOW			
11	20MG Plan $49.99/month fixed - estimate 1000 Low Res pictures(SKU=76)	$ 49.99	$ 549.89	
77	SMART GROUP MONTLY FEE PER CAMERA $7.99	$ 7.99	$ 615.23	
TOTAL CONTRACT COST				$1,172.12

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY13__	06/15/2013	09/30/2013	S	7	$556.95		$3,899
FY14__	10/01/2013	07/15/2014	S	7	$139.52		$976
FY__							
FY__							
TOTAL							$4,875

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	Estimate obtained from 2-3 independent contractual sources.	None
2.	Documented cost figures from similar project work obtained from local agency sources.	None
3.	Estimate supported by cost guides from independent sources or other federal agencies	C, M
4.	Estimates based upon government wage rates and material cost.	None
5.	No cost estimate required - cost charged to Fire Suppression Account	None

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report. See LE assessment

TOTAL COST BY JURSIDICTION

JURISDICTION	UNITS TREATED	COST
NPS - Santa Monica Mountains National Recreational Area	7	$696.42
	TOTAL COST	$4,875

INDIVIDUAL TREATMENT SPECIFICATION PI-1

TREATMENT/ACTIVITY NAME	Public Information	PART E SPECIFICATION #	PI-1
NFPORS TREATMENT CATEGORY*		FISCAL YEAR(S) (list each year):	2013-2014
NFPORS TREATMENT TYPE *		WUI? Y / N	Yes
IMPACTED COMMUNITIES AT RISK	Public: Local Residents and Visitors	IMPACTED T&E SPECIES	No

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task:
A. General Description: Provide public information and education regarding the changes of Rancho Sierra Vista / Satwiwa. Promote participation in emergency stabilization and rehabilitation program by publicizing use restrictions protecting natural and cultural resources in multiple locations and multiple methods, inviting the public to become active contributors to the recovery efforts.
B. Location/(Suitable) Sites: Rancho Sierra Vista / Satwiwa Front gate, other entrances (official & unofficial), Satwiwa Native American Indian Culture Center, and the overlook area of Sycamore Canyon (aka 'Asphalt Hill').
C. Design/Construction Specifications:
1. Design, construct and post temporary closure/regulatory signs at all entrances/possible public entry points to Rancho Sierra Vista / Satwiwa. Additional signs will be posted within the site's interior when it reopens to the public.
2. Design, produce and distribute a public notice mailer to adjacent neighborhoods and communities of Newbury Park and eastern Ventura County.
3. Design, create site brochures with built in maps identifying safety hazards and describing emergency stabilization and rehabilitation efforts.
4. Design, produce and install three wayside exhibits describing local fire ecology, the dangers of living in a wildland-urban interface location, and the changes expected to the ecology of the burned areas.
5. Design, produce and distribute a site bulletin/information flyer to be distributed throughout the park describing public safety concerns in WUI areas.
6. Hire two front-line interpretive staff members to educate and provide basic safety presence in impacted area through roving both formal and informal interpretation to locals and visitors to the park. To be hired in two phases for full coverage for one-year as 6-month temporary seasonals.
D. Purpose of Treatment Specifications: To increase public awareness, and by extension participation and compliance, of the temporary restrictions designed to protect visitors, protect the natural and cultural resources during the emergency stabilization process, as well as educate the public in fire's natural recovery cycle.
E. Treatment consistent with Agency Land Management Plan (identify which plan): GMP
F. Treatment Effectiveness Monitoring Proposed: Tracked by a decreasing number of violations and an increasing number of supporting comments.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
GS-05 step 1 Park GUIDE NTE 1039 hours x 2 (Rate includes benefits, Sundays, 3 holidays, & 26 hours of night differential)	$43250
GS-07/09 Interpretive Media Specialist @ $44/hr x 320hrs	$14080
GS-11 Interpretive Media Manager @ $51/hr x 30 hrs	$1530

TOTAL PERSONNEL SERVICE COST	$58860
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	COST / ITEM
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
Materials for closure signs (laminate, paper, ink, adhesive fasteners) Site brochures with built in maps @ 0.16 /ea x 11,000 Materials for wildland fire / fire ecology / site history waysides @ $650/ea x 3 Panels for wildland fire / fire ecology / site history waysides @ $900/ea x 3 Design, produce & mail public notice mailer @ 0.18 / ea x 15,287 TOTAL MATERIALS AND SUPPLY COST	$1500 $1760 $2450 $2700 $2700 $11110
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL TRAVEL COST	
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
Design & produce park fire safety bulletin/flyer @ $44/hr x 17 hours Proofs and photo use right fees for wildland fire/fire ecology/site history waysides TOTAL CONTRACT COST	$750 $1200 $1950

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY13/14 FY__ FY__ FY__	6/15/2013	4/30/2014	F, S	Each (#of	0 contacts	500,000)	$71920
TOTAL							$71920

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	Estimate obtained from 2-3 independent contractual sources.	E, M, C
2.	Documented cost figures from similar project work obtained from local agency sources.	
3.	Estimate supported by cost guides from independent sources or other federal agencies	
4.	Estimates based upon government wage rates and material cost.	P
5.	No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report.
See Public Information needs assessment needs with map of proposed temporary wayside locations

TOTAL COST BY JURSIDICTION

JURISDICTION	UNITS TREATED	COST
NPS Santa Monica Mountains National Recreation Area	500,000	$71920
	TOTAL COST	$71920

INDIVIDUAL TREATMENT SPECIFICATION AD-1

TREATMENT/ACTIVITY NAME	BAER Coordination and Administrative Support Costs	PART E SPECIFICATION #	AD-1
NFPORS TREATMENT CATEGORY*		FISCAL YEAR(S) (list each year):	FY 13 and FY 14
NFPORS TREATMENT TYPE *		WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK		IMPACTED T&E SPECIES	N

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task:
A. General Description: Personnel costs for the Administrative Division staff and dedicated clerical support to assist with the burden of the extra workload created by the project. Fire ecologist to coordinate plan implantation and prepare final report.
B. Location/(Suitable) Sites: SAMO Headquarters
C. Design/Construction Specifications:
1. Administrative Division staff support includes but is not limited to Purchasing agent, Agreements and Contracting Specialist, Property/Fleet Manager, Human Resource staff.
2. Clerical support to manage finance data , update logs and spreadsheets and perform follow up to meet critical deadlines.
D. Purpose of Treatment Specifications: To assist the individual projects meet their missions by creating an efficient flow of information and documents through the various administrative processes and timelines.
E. Treatment Effectiveness Monitoring Proposed:

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
Administrative Division staff support: average @ $50/hr x 10 hr x 17 specifications = $8500 Fire Program Management Assistant (cost to govt. OT) GS 7@$45/hr @ 16 hrs x 12 months = $8640 Critical Hire GS 4 @$128.65/day x 120 days = $15,438 BAER Coordinator GS11@$3,991/PP @ PP26, and 5hrs/PP @24PP's = $9,977 TOTAL PERSONNEL SERVICE COST	$42,555
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	COST / ITEM
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	0
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
Resupply forms from Fire Cache system and basic office supplies TOTAL MATERIALS AND SUPPLY COST	$ 200
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL TRAVEL COST	0

CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL CONTRACT COST	0

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY12__	6/1/2013	09/30/2013	F	Hr	$50		$30,754
FY13__	10/01/2013	06/1/2014 (1/2 FPMA = 4320)	F	Hr	$50		$11,801
FY__							
FY__							
TOTAL							

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	Estimate obtained from 2-3 independent contractual sources.	
2.	Documented cost figures from similar project work obtained from local agency sources.	
3.	Estimate supported by cost guides from independent sources or other federal agencies	P
4.	Estimates based upon government wage rates and material cost.	P
5.	No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report. Final BAER Report with accounting spreadsheets.

JURISDICTION	UNITS TREATED	COST
SMMNRA		
	TOTAL COST	$42,755

TOTAL COST BY JURSIDICTION

INDIVIDUAL TREATMENT SPECIFICATION ES-1

TREATMENT/ACTIVITY NAME	Emergency Stabilization Personnel Costs	PART E SPECIFICATION #	ES-1
NFPORS TREATMENT CATEGORY*		FISCAL YEAR(S) (list each year):	FY 13
NFPORS TREATMENT TYPE *		WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK		IMPACTED T&E SPECIES	No

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task:
A. General Description: Personnel costs for the BAER team assessing the resource needs and preparing funding request.
B. Location/(Suitable) Sites: Springs Fire burn area
C. Design/Construction Specifications:
1. SAMO BAER assessment cost estimates derived from payroll inputs for pay period 2013-11.
2. Out of park BAER team costs paid from suppression funds and amount unspecified at time of submission.
D. Purpose of Treatment Specifications: To provide a comprehensive assessment of resource rehabilitation needs and prepare an accurate funding request. Some personnel performed approved emergency stabilization trail work, information and enforcement of trail closure and public safety issues. These personnel costs are also included and not reflected in the respective F-spec. Material costs required to complete these tasks are also included in these costs
E. Treatment consistent with Agency Land Management Plan (identify which plan): Safety.
F. Treatment Effectiveness Monitoring Proposed: Accounting records of project

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
Staff hours: Immediate stabilization: (646 base hours + 153 OT hours) 799 total hours x $50/hr x 1FY = 39,950 TOTAL PERSONNEL SERVICE COST	$39,950
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	COST / ITEM
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
Materials and Equipment service and repair TOTAL MATERIALS AND SUPPLY COST	$ 6655
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
	0

TOTAL TRAVEL COST	
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL CONTRACT COST	0

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY12__ FY__ FY__	6/1/2013	08/01/2013	F	Hr			$46,605
TOTAL							

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	Estimate obtained from 2-3 independent contractual sources.	
2.	Documented cost figures from similar project work obtained from local agency sources.	
3.	Estimate supported by cost guides from independent sources or other federal agencies	P
4.	Estimates based upon government wage rates and material cost.	P
5.	No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report. Administration and coordination assessment of needs

TOTAL COST BY JURSIDICTION

JURISDICTION	UNITS TREATED	COST
SMMNRA		
	TOTAL COST	$46,405

INDIVIDUAL TREATMENT SPECIFICATION PL-1

TREATMENT/ACTIVITY NAME	BAER Plan Personnel Costs	PART E SPECIFICATION #	PL-1
NFPORS TREATMENT CATEGORY*		FISCAL YEAR(S) (list each year):	FY 13
NFPORS TREATMENT TYPE *		WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK		IMPACTED T&E SPECIES	N

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task:
A. General Description: Personnel costs for the BAER team assessing the resource needs and preparing funding request.
B. Location/(Suitable) Sites: Springs Fire burn area
C. Design/Construction Specifications:
1. SAMO BAER assessment cost estimates derived from payroll inputs for pay period 2013-11.
2. Out of park BAER team costs paid from suppression funds and amount unspecified at time of submission.
D. Purpose of Treatment Specifications: To provide a comprehensive assessment of resource rehabilitation needs and prepare an accurate funding request. Some personnel performed approved emergency stabilization trail work, information and enforcement of trail closure and public safety issues. These personnel costs are also included and not reflected in the respective F-spec. Material costs required to complete these tasks are also included in these costs
E. Treatment consistent with Agency Land Management Plan (identify which plan): Fire Management Plan
F. Treatment Effectiveness Monitoring Proposed: Final BAER Report May 2014

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
Staff hours: Planning: (389 base hours + 236 OT hours) 625 total hours x $50/hr x1FY= 31,250 TOTAL PERSONNEL SERVICE COST	31,250
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	COST / ITEM
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL MATERIALS AND SUPPLY COST	
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL TRAVEL COST	0
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM

TOTAL CONTRACT COST	0

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY12__ FY__ FY__	6/1/2013	08/01/2013	F	Hr	50	625	$31,250
TOTAL							

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	Estimate obtained from 2-3 independent contractual sources.	
2.	Documented cost figures from similar project work obtained from local agency sources.	
3.	Estimate supported by cost guides from independent sources or other federal agencies	P
4.	Estimates based upon government wage rates and material cost.	P
5.	No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report. Springs Fire BAER Plan (this report)

TOTAL COST BY JURSIDICTION

JURISDICTION	UNITS TREATED	COST
NPS-SMMNRA		
	TOTAL COST	$31,250

APPENDIX A. ENVIRONMENTAL COMPLIANCE

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APPENDIX B. EMERGENCY CONSULTATION

APPENDIX C. COOPERATIVE MANAGEMENT AGREEMENT

COOPERATIVE MANAGEMENT AGREEMENT NO. G8544080042
among the
NATIONAL PARK SERVICE
and
CALIFORNIA DEPARTMENT OF PARKS AND RECREATION
and
SANTA MONICA MOUNTAINS CONSERVANCY
and
MOUNTAINS RECREATION AND CONSERVATION AUTHORITY
for
THE COOPERATIVE MANAGEMENT OF
THE SANTA MONICA MOUNTAINS NATIONAL RECREATION AREA

THIS COOPERATIVE MANAGEMENT AGREEMENT ("Agreement") is made and entered into this 30th day of May, 2008, by and between the STATE OF CALIFORNIA, acting through the California Department of Parks and Recreation ("CDPR"), the Santa Monica Mountains Conservancy ("SMMC"), the Mountains Recreation and Conservation Authority ("MRCA"), and the UNITED STATES OF AMERICA, acting through the National Park Service ("NPS"). CDPR, SMMC, MRCA. and NPS may hereinafter be referred to as a "Party," or collectively the "Parties."

ARTICLE I - BACKGROUND AND OBJECTIVES

The California Coordinating Committee on Operational Efficiencies ("Committee"), in a 1993 report representing the combined recommendations of the CDPR and the NPS, concluded that the Malibu Coast Parks located within the congressionally authorized boundary of the Santa Monica Mountains National Recreation Area ("Cooperative Zone") should be managed by the CDPR and the NPS in a cooperative manner under a Cooperative Management Agreement.

That Committee further concluded the CDPR and the NPS should seek participation from the SMMC in the cooperative management of the Cooperative Zone.

The Committee also concluded such cooperation would allow the identification, development and implementation of operational efficiencies resulting in enhanced protection of park resources and improved service to the public.

The SMMC has entered into a reciprocal management agreement with the MRCA, a joint powers agency of the SMMC and the Conejo and Rancho Simi Recreation and Park Districts, for the operation of parkland owned or administered by the SMMC.

The CDPR, the NPS, the SMMC and the MRCA similarly conclude that the commitment of their respective resources within the Cooperative Zone can enhance the common protection of all park visitors and resources, as well as the appropriate enjoyment and appreciation of the same by the public.

liaison level. Liaisons will meet on a quarterly basis to discuss and resolve coordination matters.

3. Seek to attain cooperative operating procedures and practices that result in efficiencies and cost savings. All revenues earned and received by a Party shall be retained by that Party and it is the Parties' intent that savings accruing therefrom be utilized for the enhanced protection of Cooperative Zone resources and service to Cooperative Zone visitors by each Party at its discretion, subject to applicable laws and policies.

4. Develop and employ operating procedures and standards to ensure cooperative accomplishments of agreed upon Cooperative Zone activities, which may include but not be limited to: visitor and resource protection, public safety, fire management, administration, public information, interpretation and publications, volunteer management, resource management, maintenance, design and construction, planning, signing, and the development of policies.

5. Work cooperatively to prepare an annual work plan that identifies common projects resulting in interagency cost efficiencies.

6. Produce, review, and approve Cooperative Zone plans by cooperative means. Existing plans will serve as current direction, pending their revision or replacement. The Parties shall cooperatively review non-Cooperative Zone plans that affect Cooperative Zone interests. In addition, NPS, CDPR, SMMC and MRCA agree that they should work cooperatively to:

   (a) Implement the Land Protection Plan for the Santa Monica Mountains National Recreation Area;
   (b) Develop a Regional Trail Management Plan to provide uniform standards and guidelines for managing trails in the Cooperative Zone; and
   (c) Develop a master plan for cooperative management of King Gillette Ranch, including planning for site improvements, building utilization, and an interagency visitor center.

7. Exchange operational responsibilities for parklands within the Cooperative Zone when the Parties of ownership and responsibility agree such exchanges will result in more cost-effective management and/or enhanced public services. Said exchanges shall be detailed in Addendums to this Agreement.

The parties may enter into Addenda for interpretation and education, law enforcement, maintenance, and other specific areas of responsibilities as needed. Any Addenda shall hereby incorporate the applicable provisions of this Agreement and the provisions of said Addenda are hereby incorporated.

B. The NPS shall:

1. With respect to FRANKLIN CANYON:

through curriculum-based education programs and other education services. Such plan and operation of an environmental education center and programs shall be implemented under an Addendum to this Agreement to be executed by the Parties.

C. The MRCA shall:

1. With respect to FRANKLIN CANYON:

   a) Conduct ranger patrol for law enforcement of applicable laws. In addition to general park ranger patrol and enforcement, the MRCA Park Ordinance shall be used for traffic enforcement on Franklin Canyon internal, mixed use roadways.

   b) Issue all special use permits and filming permits subject to a cost recovery schedule approved by the NPS.

   c) Use the Doheny Ranch House pursuant to written permission by NPS.

   d) Provide janitorial, trash removal and grounds maintenance based on a written site maintenance plan approved by NPS.

   e) Maintain the trail network (no new trails or substantial modification of existing trails will be done without prior written approval by NPS).

   f) Construct and maintain park-related improvements with prior written approval by NPS.

   g) Erect or post and maintain signs that reflect the joint management of the Franklin Canyon Area by NPS and MRCA.

   h) Cooperate in the preparation of a future revision of the Development Concept Plan for Franklin Canyon.

2. With respect to LIBERTY CANYON:

   a) Accomplish all planning and historic clearances required based on written proposal from the NPS for modifications to historic and contemporary facilities.

3. With respect to the interactions of the Mountain Bike Unit (MBU) and Mounted Patrol Unit (MPU), cooperatively managed volunteer programs:

   a) Submit appropriate worker compensation claims when volunteers are injured on while working within the scope of their assigned volunteer duties under supervision of MRCA.

ARTICLE IV - TERM OF AGREEMENT

This Cooperative Management Agreement shall remain in effect continuously from the effective date hereof, unless prior thereto it is terminated or modified pursuant to the provisions of Article IX hereof or of any applicable Federal or State law or regulation.

ARTICLE V - KEY OFFICIALS

A. For NPS:

1. Woody Smeck, Superintendent
   Santa Monica Mountains National Recreation Area
   401 W. Hillcrest Drive
   Thousand Oaks, California 91360

2. Jonathan Jarvis, Regional Director
   National Park Service
   Pacific West Region
   1111 Jackson Street, Suite 700
   Oakland, California 94607

B. For CDPR:

1. Ronald Schafer, Superintendent
   Angeles District
   California Department of Parks and Recreation
   1925 Las Virgenes Road
   Calabasas, California 91302

2. Ruth Coleman, Director
   Department of Parks and Recreation
   State of California
   1416 9th Street
   Sacramento, California 94926-0001

C. For SMMC:

Joseph T. Edmiston, Executive Director
Santa Monica Mountains Conservancy
5750 Ramirez Canyon Road
Malibu, California 90265

ARTICLE IX - MODIFICATION AND TERMINATION

A. This Agreement may be modified only by a written instrument executed by the Parties.

B. Any Party may terminate its participation in this Agreement by providing sixty (60) days written notice to the other parties.

ARTICLE X - GENERAL AND SPECIAL PROVISIONS

A. Non-Discrimination

All activities pursuant this Agreement shall be in compliance with the requirement of Executive Order 11246; Title VI of the *Civil Rights Act of 1964*, as amended, (78 Stat. 252; 42 U.S.C. §§ 2000d et seq.); Title V, Section 504 of the *Rehabilitation Act of 1973*, as amended, (87 Stat. 394; 29 U.S.C. §794); the *Age Discrimination Act of 1975* (89 Stat. 728; 42 U.S.C. §§ 6101 et seq.); and with all other federal laws and regulations prohibiting discrimination on grounds of race, color, sexual orientation, national origin, disabilities, religion, age, or sex.

B. Lobbying Prohibition

18 *U.S.C. § 1913*, Lobbying with Appropriated Moneys - No part of the money appropriated by any enactment of Congress shall, in the absence of express authorization by Congress, be used directly or indirectly to pay for any personal service, advertisement, telegram, telephone, letter, printed or written matter, or other device, intended or designed to influence in any manner a Member of Congress, to favor or oppose, by vote or otherwise, any legislation or appropriation by Congress, whether before or after the introduction of any bill or resolution proposing such legislation or appropriation; but this shall not prevent officers or employees of the United States or of its departments or agencies from communicating to Members of Congress on the request of any Member or to Congress, through the proper official channels, requests for legislation or appropriations which they deem necessary for the efficient conduct of the public business.

C. Anti-Deficiency Act

31 U.S.C. § 1341 - Nothing contained in this Agreement shall be construed as binding the NPS to expend in any one fiscal year any sum in excess of appropriations made by Congress for the purposes of this Agreement for that fiscal year, or other obligation for the further expenditure of money in excess of such appropriations.

Ron P. Schafer Date 5/12/08

Ronald Schafer, Chairperson
Santa Monica Mountains Conservancy
State of California

Date 05-15-2008

Michael Berger, Chairperson
Mountains Recreation and Conservation Authority
A Joint Powers Entity established pursuant to Section 6500 *et seq.* of the California Government Code

Jonathan B. Jarvis Date 4/30/2008

Jonathan B. Jarvis, Regional Director
Pacific West Region
National Park Service

Ruth Coleman Date 4-29-08

Ruth Coleman, Director
California Department of Parks and Recreation

Attachment A
SAMPLE ADDENDUM

Addendum Number J8540xxxxxx
Between
United States Department of the Interior
National Park Service
and
California Department of Parks and Recreation
Angeles Sector
and
Santa Monica Mountains Conservancy
and
Mountains Recreation and Conservation Authority

ARTICLE I – GENERAL TERMS

Unless otherwise specified herein, the terms and conditions as stated in the Cooperative Management Agreement shall apply to this Addendum.

ARTICLE II – STATEMENT OF WORK (include complete description of project/puchase, location, services to be provided and by whom, equipment needed duration of project, etc.)

NPS/CDPR/SMMC/MRCA agrees to:

1.

2.

NPS/CDPR/SMMC/MRCA agrees to:

1.

2.

[Optional] NPS/CDPR/SMMC/MRCA jointly agree to:

1.

2.

ARTICLE III- TERM OF ADDENDUM

This Addendum will become effective on the date of final signature and extend through _____(NTE Date).

APPENDIX D. SPRINGS FIRE BARC BURN SEVERITY MAP

Springs Fire 2013
Burned Area Reflectance Classification (BARC)

Santa Monica Mountains National Recreation Area
National Park Service
U.S. Department of the Interior

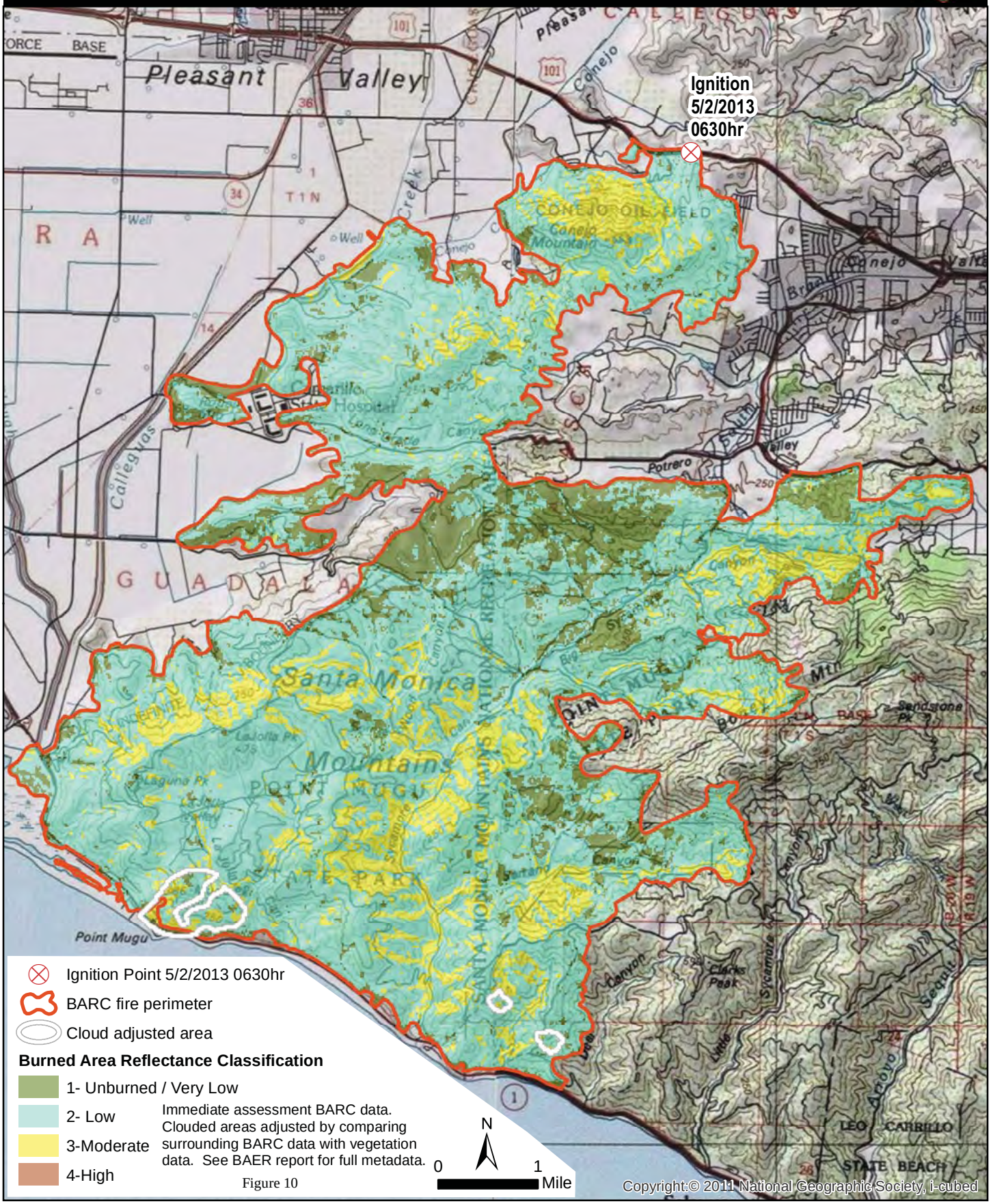


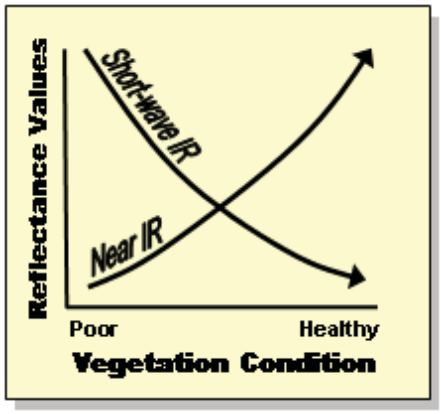
Figure 10

What is a BARC?

A Burned Area Reflectance Classification (BARC) is a satellite-derived map of postfire vegetation condition. The BARC has four classes: high, moderate, low, and unburned. This map product is used as an input to the burn severity map produced by the Burned Area Emergency Response (BAER) teams.

How are BARC maps generated?

BARC maps are made by comparing satellite near and mid infrared reflectance values. The logic behind the process is as follows:



- Near infrared light is largely reflected by healthy green vegetation. That means that near infrared bands will be very high in areas of healthy green vegetation and low in areas where there is little vegetation.
- Mid infrared light is largely reflected by rock and bare soil. That means that mid infrared band values will be very high in bare, rocky areas with little vegetation and low in areas of healthy green vegetation.
- Imagery collected over a forest in a pre-fire condition will have very high near infrared band values and very low mid infrared band values. Imagery collected over a forest after a fire will have very low near infrared band values and very high mid infrared band values.

It is the relationship between these two bands that BARC mapping attempts to exploit. The best way to do this is to measure the relationship between these bands prior to the fire and then again post fire. The areas where the relationship between the two bands has changed the most are most likely to be severely burned. The areas where that relationship has changed little are likely to be unburned or very lightly burned. To determine this relationship, analysts perform a band ratio between the mid and near infrared bands. The result is a classification of burned areas.

How should BARC data be used?

In the immediate aftermath of a wildfire, a Forest Service Burned Area Emergency Response (BAER) team is dispatched to the site to prepare an emergency rehabilitation and restoration plan. They do this by making an initial assessment of burn severity and to estimate the likely future downstream impacts due to flooding, landslides, and soil erosion. One of the first tasks for this team is the creation of a burn severity map that highlights the areas of high, moderate, and low burn severity. This map then serves as a key component in the subsequent flood modeling and Geographic Information System (GIS) analysis. The BARC data are meant to be used as a main input into the development of the final burn severity map.

What is the BARC256 and how do I use it?

In addition to delivering the 4-class BARC data to field teams, RSAC also provides field users a continuous 256-class version of the BARC. This is called the BARC256. This data set provides users the ability to adjust the break points between reflectance classes. Analysts at RSAC will color code the BARC256 image using the same classification scheme used for the BARC4 data, but the BARC256 will not be recoded into 4 classes. The breakpoints for the BARC256 will look something like this:

2013 Springs Fire BARC Adjustment Metadata:

BARC data as received from USGS EROS had 3 areas along the coast with no-data values due to cloud cover. The first area covered approximately 262 acres over Mugu Peak. Two smaller clouds covered approximately 41 acres near Deer Creek Road.

Clouded areas were replaced using vegetation data provided by the park and visual inspection of neighboring BARC classification. All veg types immediately along the coast were given a BARC classification of 1 (Unburned/very low) which was consistent with the BARC data. Other areas were given the following classification:

Generalized Vegetation	BARC Classification
Chaparral Types	3 - Moderate
CSS Types	2 - Low
Disturbed Vegetation Types	1 – Unburned/Very Low
Prairie/Meadow Types	1 – Unburned/Very Low
Rock Outcrop Types	1 – Unburned/Very Low
Sandy, Rocky, Mud types	1 – Unburned/Very Low
Upland Tree Types	2 - Low
Urban/Disturbed, Built Up, Cleared Types	1 – Unburned/Very Low

No other changes were made to the BARC data. Figure 10 depicts the BARC data as used in the watershed analysis.

For a full description of the BARC process visit the website:
http://www.fs.fed.us/eng/rsac/baer/barc.html

For information regarding BARC adjustment for the Springs Fire contact:

Mark Grupé
Geographer
National Park Service
Pacific West Region
333 Bush Street, Ste. 500
San Francisco, CA 94104
415-623-2212
mark_grupe@nps.gov

APPENDIX E. AUTOMATED GEOSPATIAL WATERSHED ASSESSMENT RESULTS

APPENDIX E
Automated Geospatial Watershed Assessment Results

The NPS Burned Area Emergency Response Team (BAER) was asked to model pre and post-fire watershed response using the Automated Geospatial Watershed Assessment (AGWA). AGWA is GIS extension that runs through ArcGIS software. AGWA uses a Digital Elevation Model (DEM) to delineate watersheds from selected outlet points and then intersects with soil, land-use/cover, and precipitation (uniform or distributed) to derive the requisite model input parameters (Goodrich et al, 2005). AGWA is designed to provide qualitative estimates of runoff and erosion relative to landscape change. It cannot provide reliable quantitative estimates of runoff and erosion without careful calibration. It is also subject to the assumptions and limitations of its component models (Goodrich et al, 2005).

Values produced by the model do not represent actual annual erosion predictions due to assumptions made in the model and because actual storm events cannot be predicted. However, comparisons between output values that are based on the same set of assumptions are useful in understanding expected differences between pre and post burn conditions given a modeled storm event.

The NRCS 2006 national soils database and the National Landcover Database (NLCD) were used to model pre and post-fire conditions. The AGWA model combines burn severity data with the soils and landcover data to derive predicted post-fire soils and landcover. Burned Area Reflectance Classification (BARC) data was used to change the NLCD data from pre-fire to post-fire conditions. The percent differences in the model results reflect differences in the areal extent of affected landscape within a given watershed.

Results assume uniform rainfall over the entire modeled watershed. Smaller modeled watersheds, generated from outlet points selected farther upstream, provide a better approximation of watershed response due to reduced attenuation effects. Assumption of uniform rainfall provides assessment of relative risk within the watershed, however an actual storm event likely won't cover the entire watershed. Since the entire watershed is used, results may include unburned areas of the drainage. The unburned areas have the same pre- and post-fire outputs therefore effectively attenuate the magnitude of the percent change at the outlet.

Watershed modeling for a 25 year, 1 hour event of 1.1 inches (from NOAA Atlas 14) was completed for six outflow points in down-channel areas associated with the Springs wildland fire (Figure 1). AGWA modeling results include generation of modeled channels and allow for examination of flow and sediment yields for any stream segment. Additionally, the Big Sycamore and La Jolla watersheds were modeled using a 25 year, 24 hour, 5.2 inch event (from NOAA Atlas 14).

Results

The highest peak flow percent change of +150% was modeled at the lowest channel of the La Jolla Valley watershed. The La Jolla Valley watershed also produced the maximum modeled

sediment flow percent change of +257% (Figure 6). Table 1 summarizes AGWA results. Hydrographs and maps of modeled watersheds are shown in Figures 2 through 7.

For more information regarding the modeling process used by the NPS BAER team for the Springs fire contact:

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National Park Service
Midwest Region
601 Riverfront Dr.
Omaha, NE 68102
402.661.1852

Mark Grupé
National Park Service
Pacific West Region
NPS 333 Bush St, Ste 500
San Francisco, CA 94123
415.623.2212

For more information regarding the Automated Geospatial Watershed Assessment visit the website: http://www.tucson.ars.ag.gov/agwa/

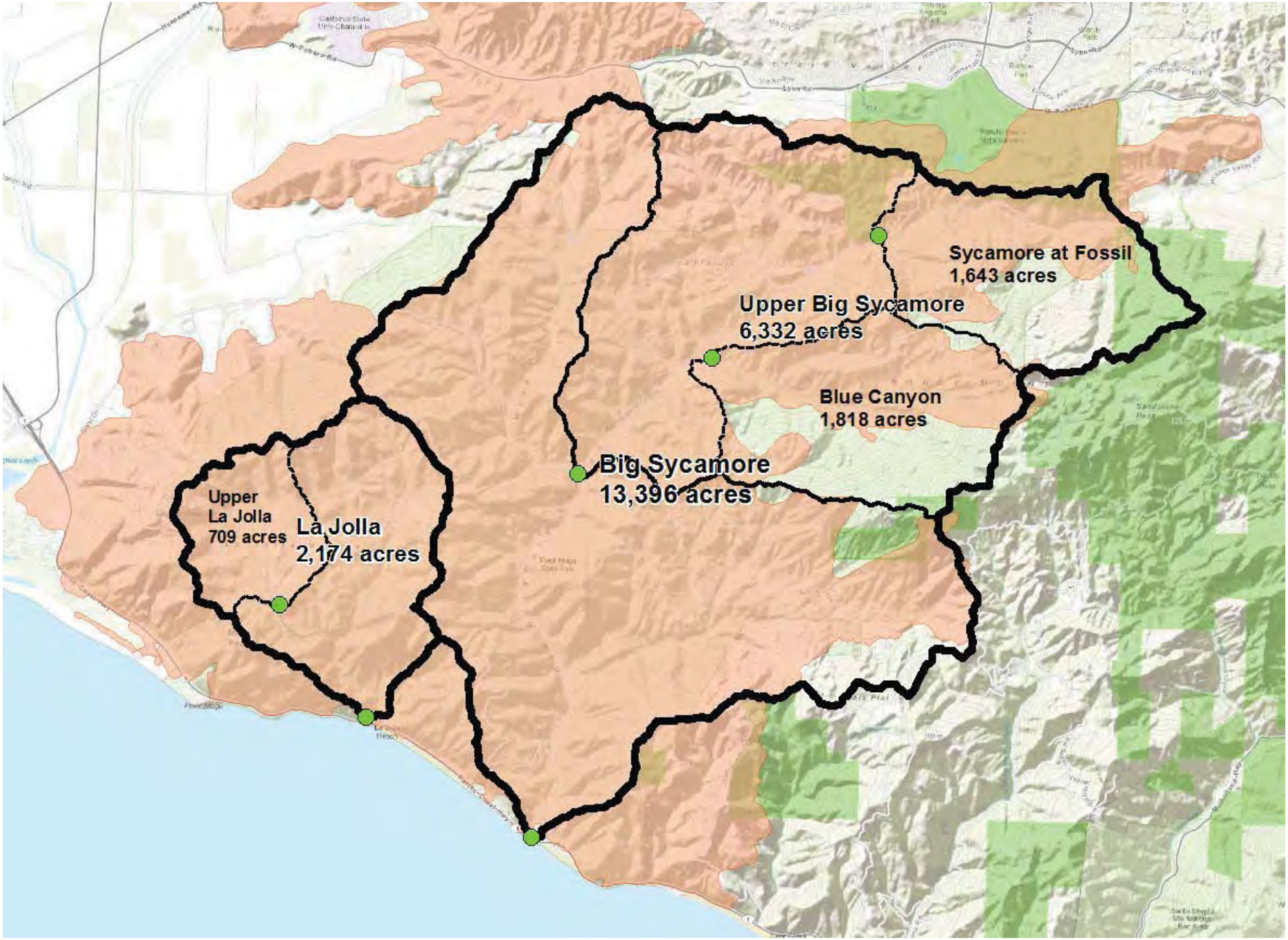


Figure 1. Modeled watersheds.

Big Sycamore Canyon – 25 year, 1 hour storm

Modeled 25 year storm event of 1.1” for 1 hour over entire watershed. Results may include unburned areas of the watershed.

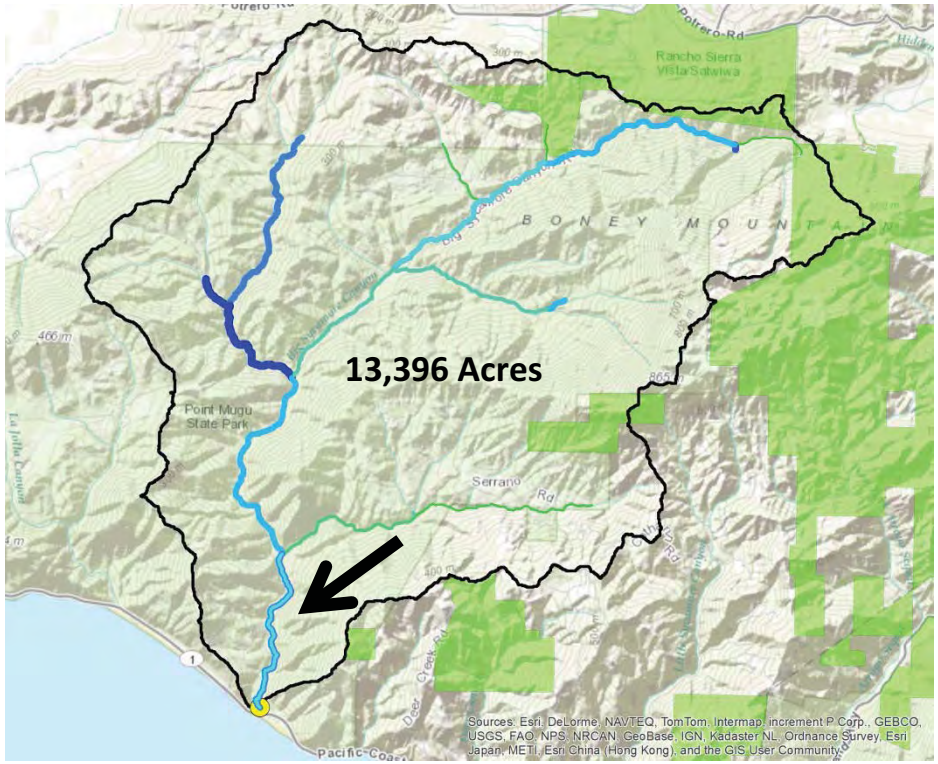
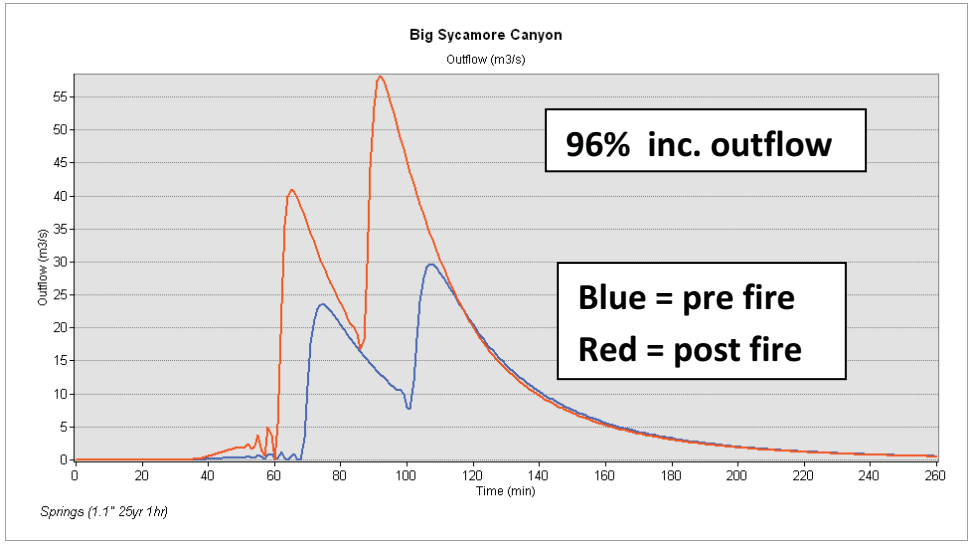
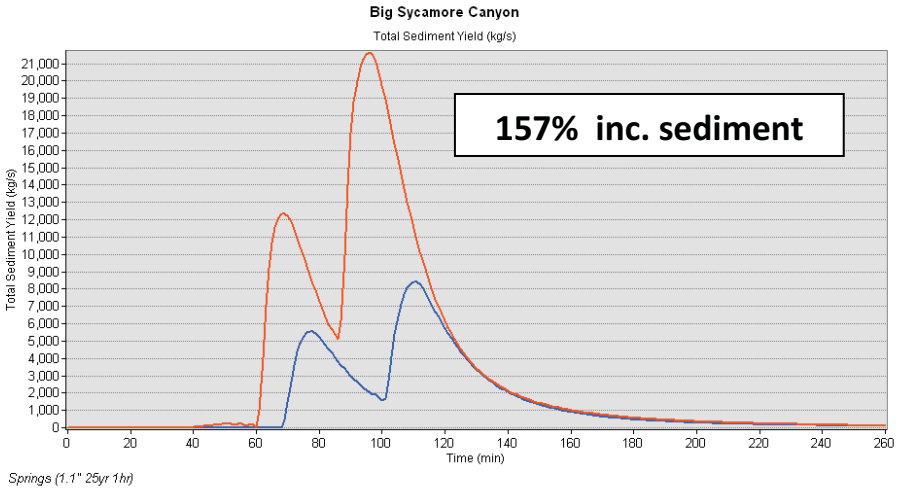


Figure 2. Modeled Big Sycamore Canyon watershed, 13,396 acres. Arrow indicates reach used for hydrographs. Darker, thicker channel segments represent more change between pre and post burn conditions.





Big Sycamore Canyon – 1.1”, 25yr, 1hr event							
	Pre-fire			**Post-fire**			**Percent Change**
	Metric	Eng.		Metric	Eng.		
Peak Flow m3/s, cfs	30	1,059		58	2,048		93
Sediment Yield kg/ha, tons/ac	3,912	1.74		9,018	4.02		131
Sediment Yield Kg/s, tons/hr	8,440	33,493		21,652	85,922		157

Upper Big Sycamore Canyon - 25 Year, 1 hour storm

Modeled 25 year storm event of 1.1” for 1 hour over entire watershed.
Results may include unburned areas of the watershed.

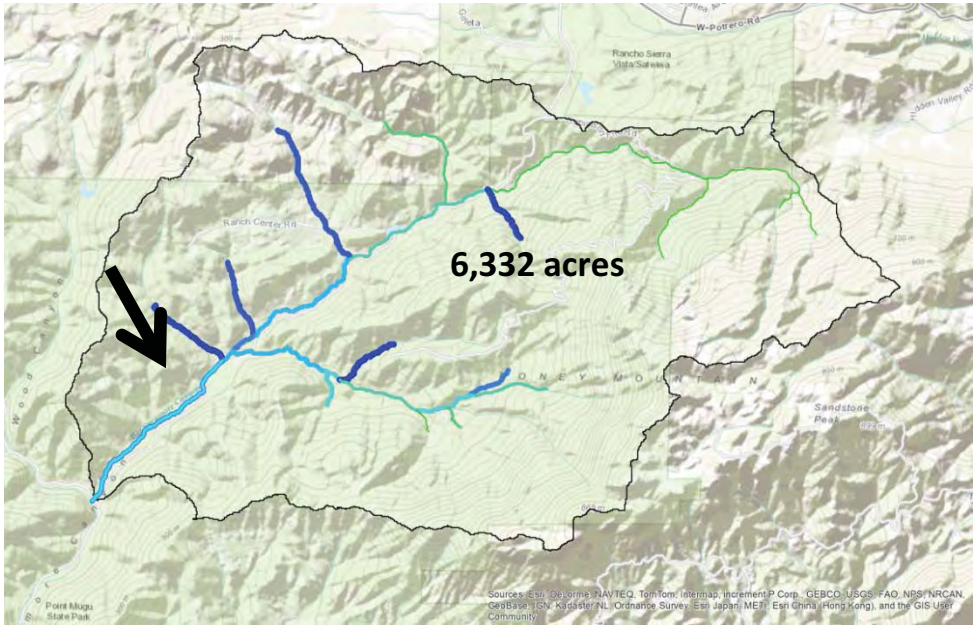
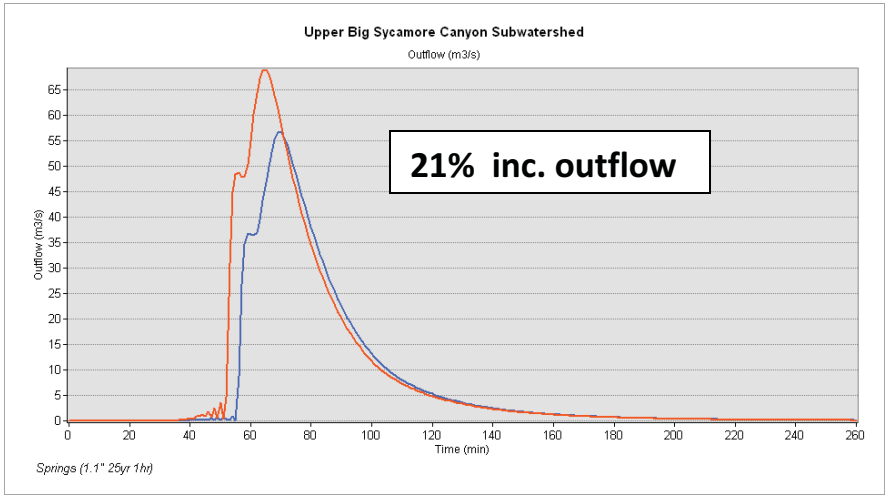
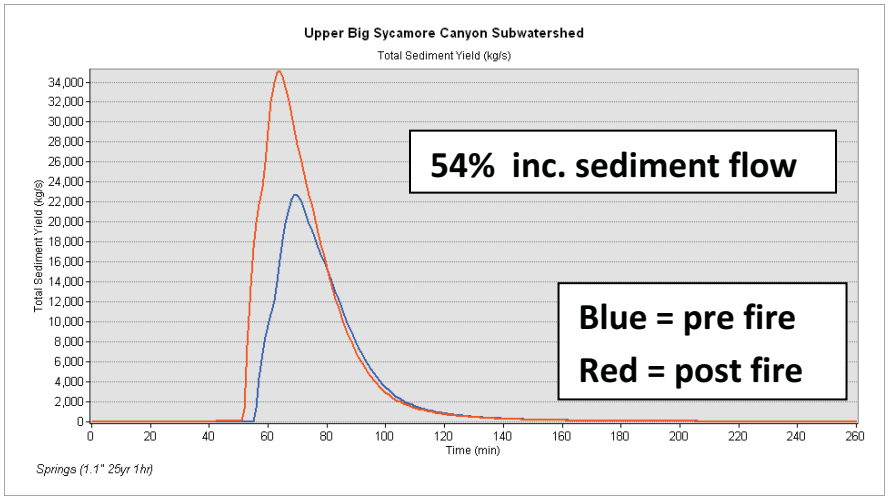


Figure 3. Modeled Upper Big Sycamore subwatershed, 6,332 acres. Arrow indicates reach used for hydrographs. Darker, thicker channel segments represent more change between pre and post burn conditions.





Upper Big Sycamore Canyon Watershed – 1.1”, 25yr, 1hr event							
	Pre-fire			**Post-fire**			**Percent Change**
	Metric	Eng.		Metric	Eng.		
Peak Flow m3/s, cfs	57	2,013		69	2,437		21
Sediment Yield kg/ha, tons/ac	14,379	6.41		20,821	9.29		45
Sediment Yield Kg/s, tons/hr	22,797	90,466		35,166	139,550		54

Blue Canyon – 25 year, 1 hour storm

Modeled 25 yr storm event of 1.1” for 1 hour over entire watershed.

Results may include unburned areas of watershed.

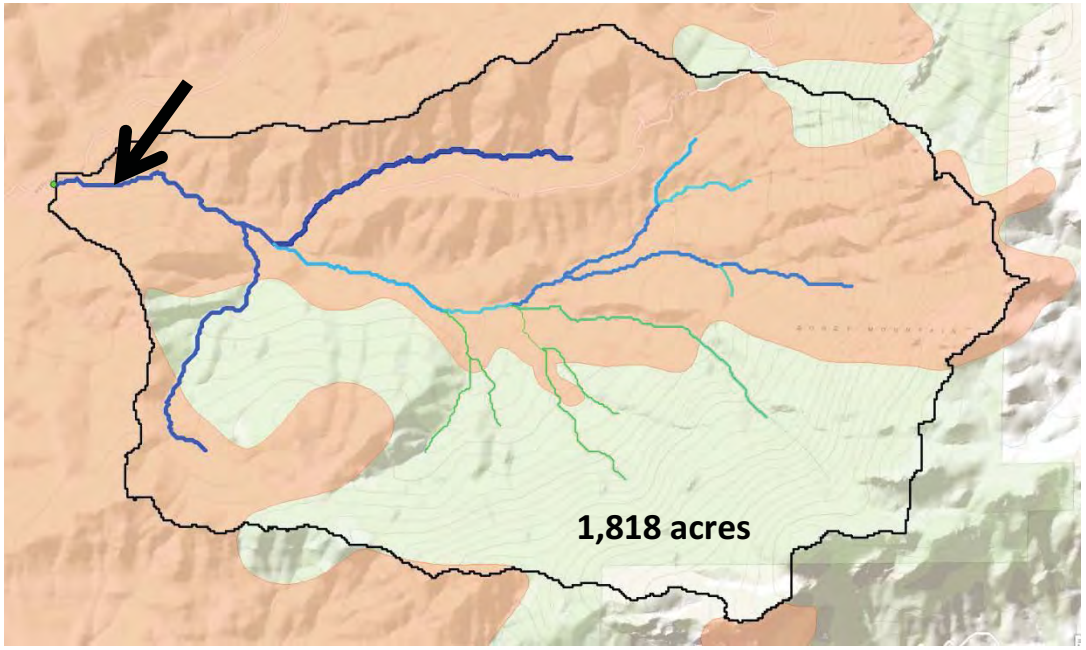
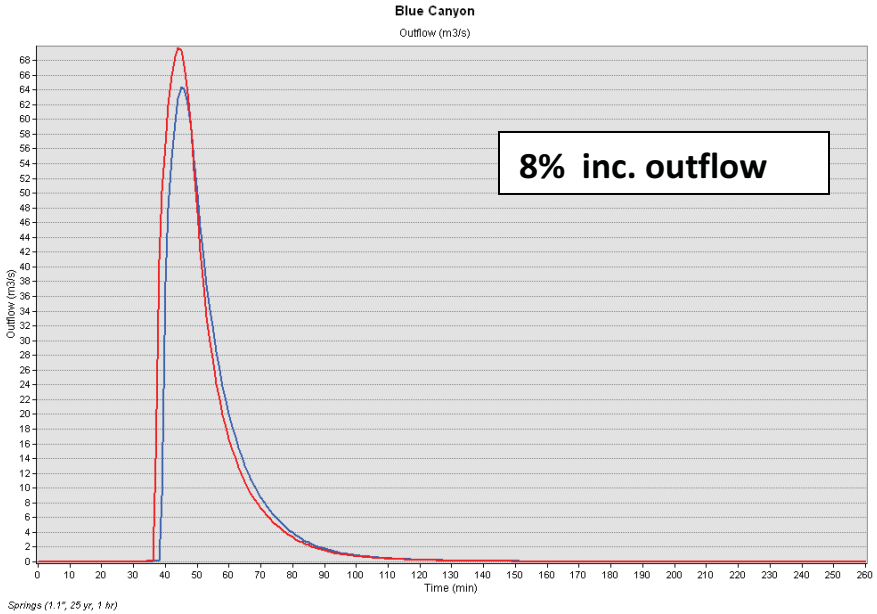
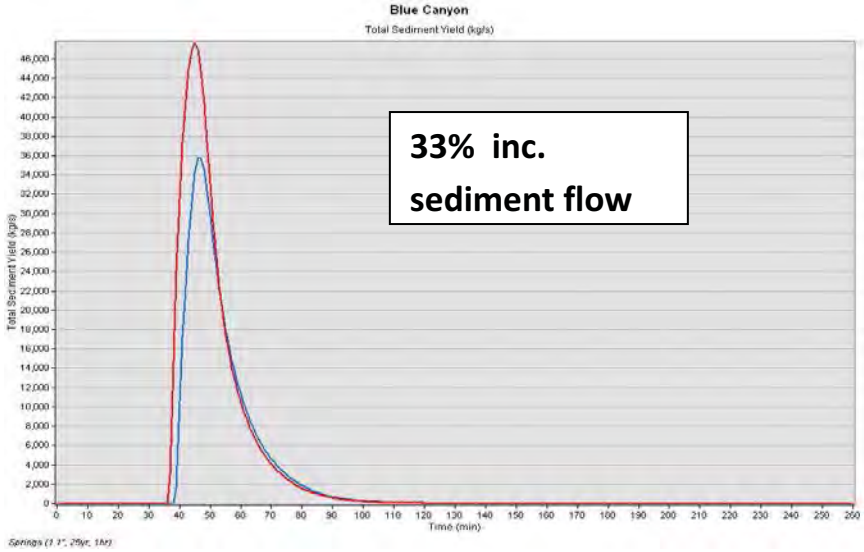


Figure 4. Modeled watershed of Blue Canyon. 1,818 acres. Darker, thicker channel segments represent more change between pre and post burn conditions. Arrow indicates channel used for hydrographs. Overall burned area (red shading) may included some unburned patches.





Blue Canyon – 1.1”, 25yr, 1hr event							
	Pre-fire			**Post-fire**			**Percent Change**
	Metric	Eng.		Metric	Eng.		
Peak Flow m3/s, cfs	65	2,295		70	2,472		8
Sediment Yield kg/ha, tons/ac	49,970	22.29		63,618	28.38		27
Sediment Yield Kg/s, tons/hr	35,928	142,574		47,644	189,067		33

Sycamore at Fossil – 25 year, 1 hour storm

Modeled 25 yr storm event of 1.1" for 1 hour over entire watershed.
Results may include unburned areas of watershed.

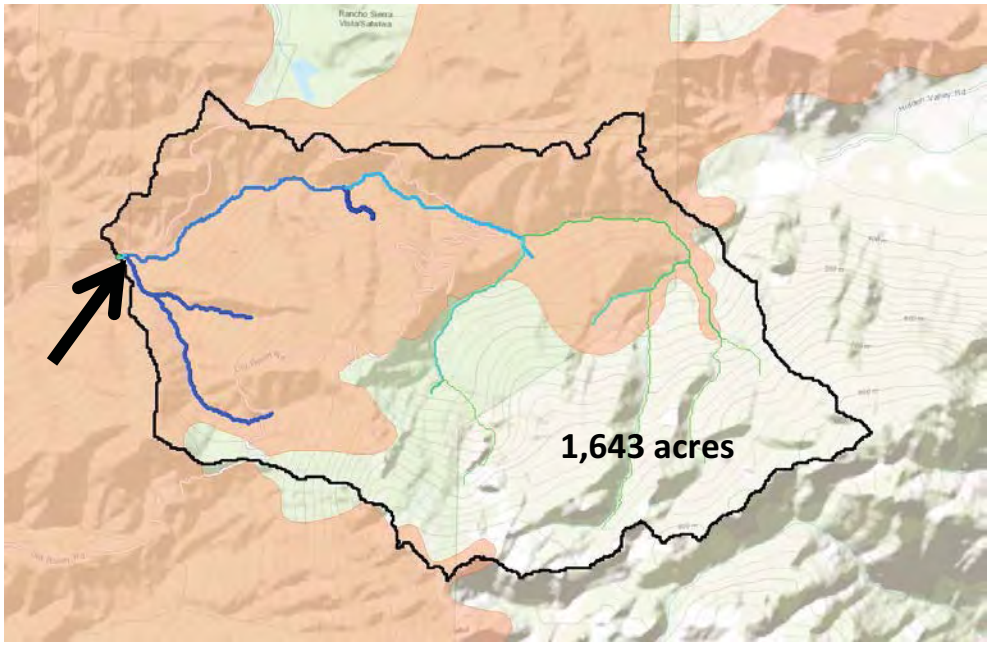
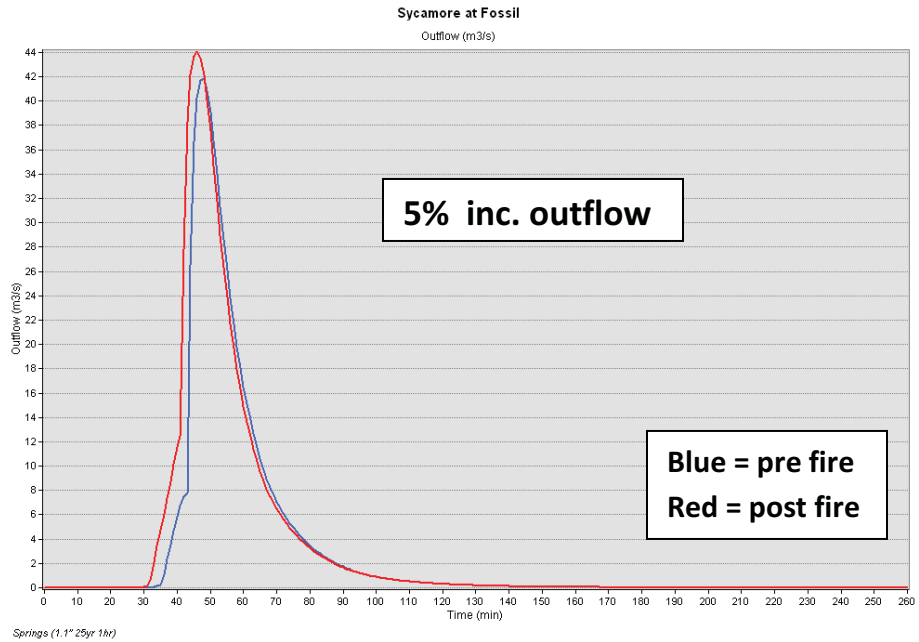
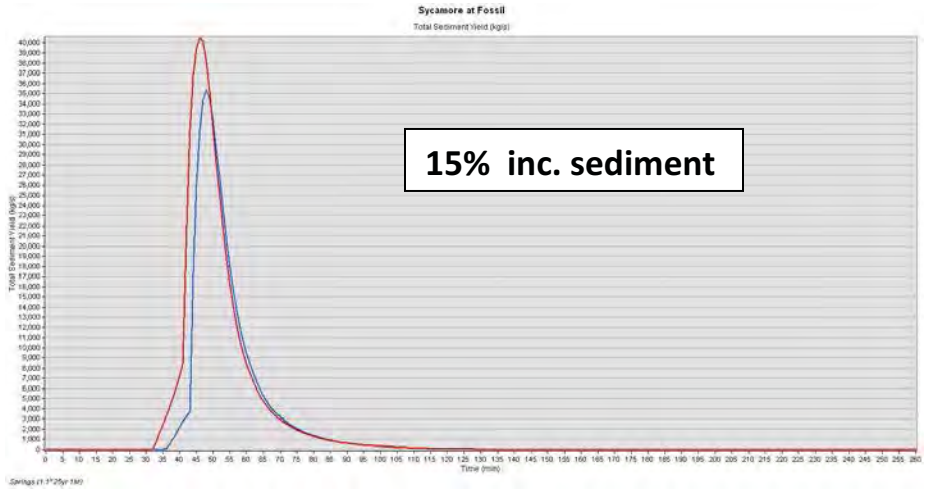


Figure 5. Modeled watershed at confluence of Sycamore and Fossil. 1,643 acres. Arrow indicates channel used for hydrographs. Darker, thicker channel segments represent more change between pre and post burn conditions. Overall burned area (red shading) may included some unburned patches.



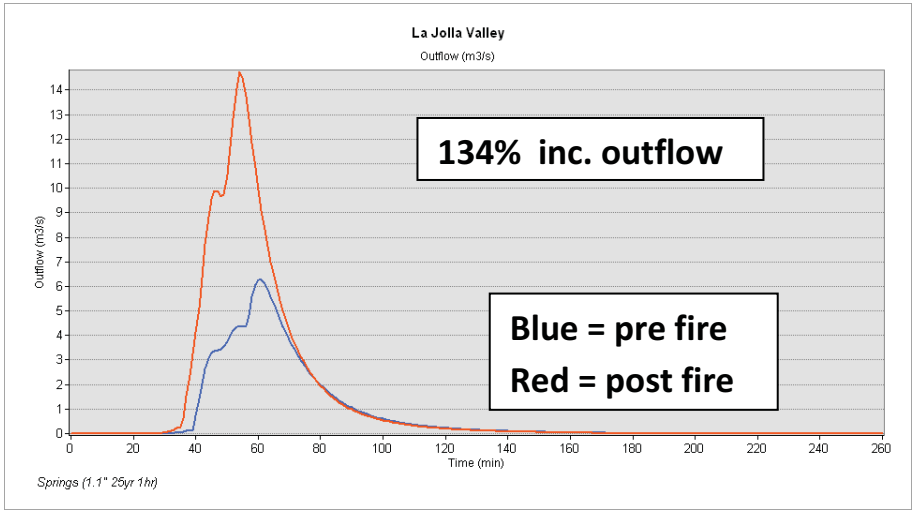


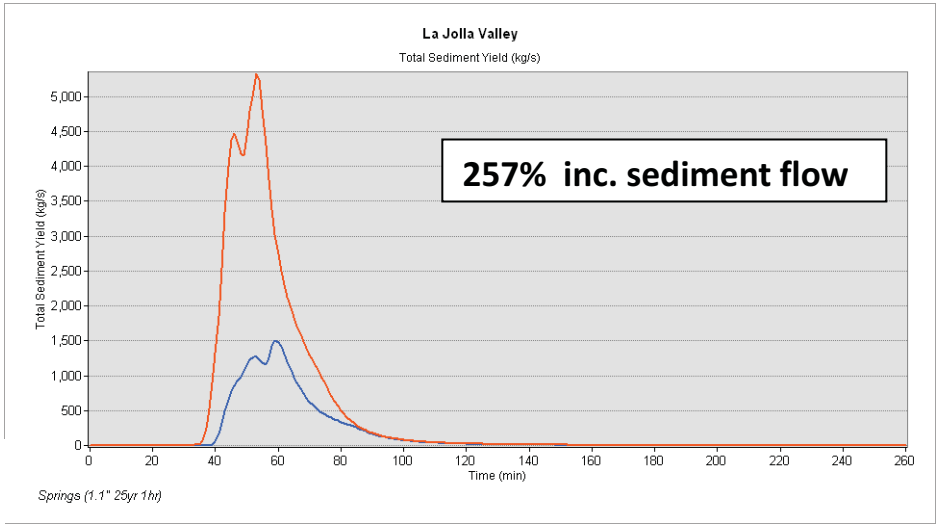
Sycamore at Fossil – 1.1", 25yr, 1hr event							
	Pre-fire			**Post-fire**			**Percent Change**
	Metric	Eng.		Metric	Eng.		
Peak Flow m3/s, cfs	42	1,483		44	1,554		5
Sediment Yield kg/ha, tons/ac	44,851	20.00		54,468	24.9		21
Sediment Yield Kg/s, tons/hr	35,390	140,439		40,574	16,1011		15

La Jolla Valley – 25 year, 1 hour storm

Modeled 25 year storm event of 1.1” for 1 hour over entire watershed.
Results may include unburned areas of the watershed.

Figure 6. Modeled La Jolla Valley watershed, 2,174 acres. Arrow indicates reach used for hydrographs. Darker, thicker channel segments represent more change between pre and post burn conditions.

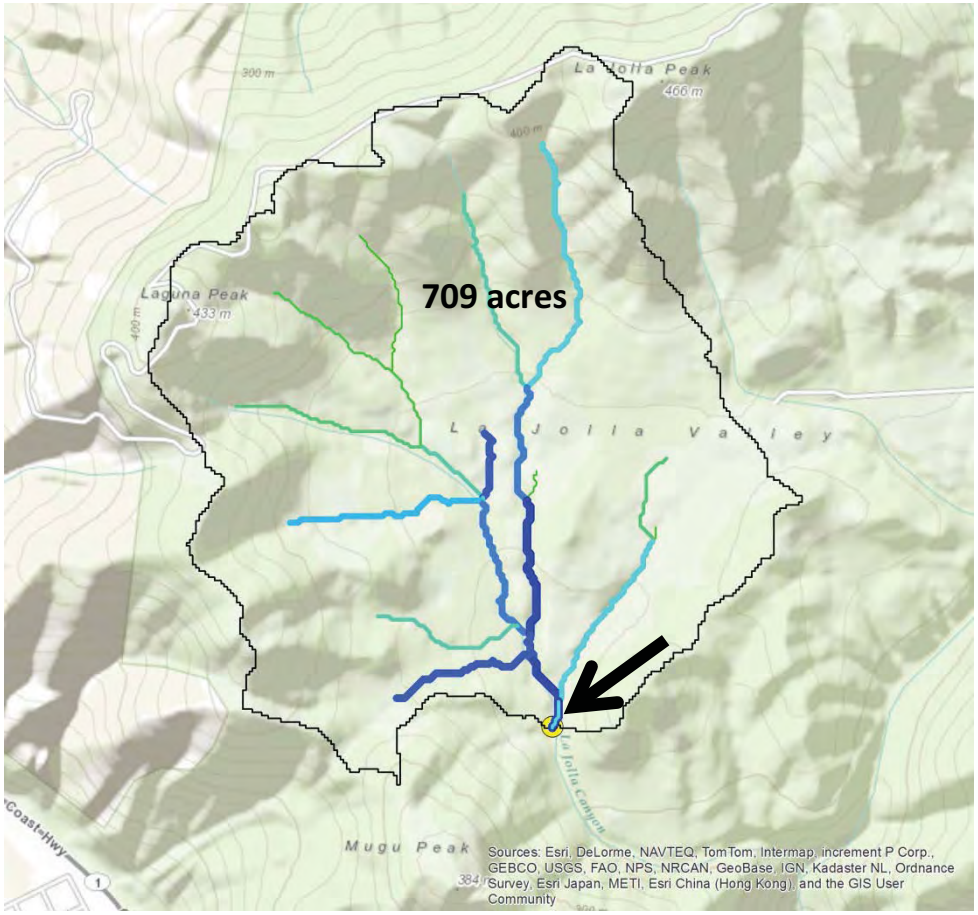


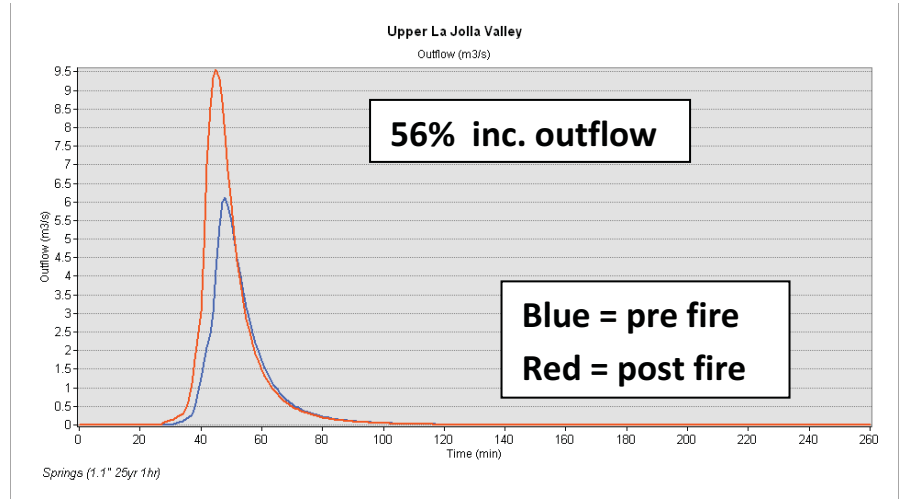


La Jolla Valley – 1.1”, 25yr, 1hr event							
	Pre-fire			**Post-fire**			**Percent Change**
	Metric	Eng.		Metric	Eng.		
Peak Flow m3/s, cfs	6	212		15	530		150
Sediment Yield kg/ha, tons/ac	2,688	1.20		7,887	3.52		193
Sediment Yield Kg/s, tons/hr	1,502	5,960		5,369	21,306		257

Upper La Jolla Valley – 25 year, 1 hour storm

Modeled 25 year storm event of 1.1” for 1 hour over entire watershed.
Results may include unburned areas of the watershed.





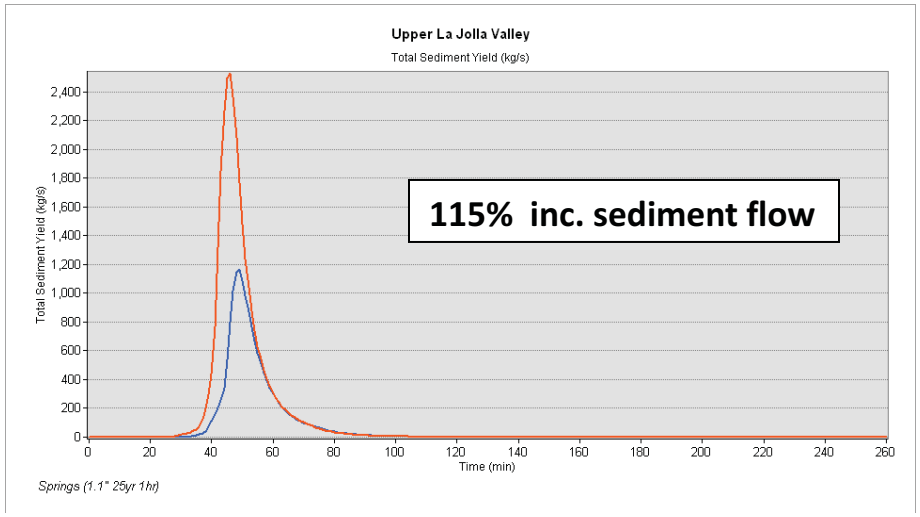


Figure 7. Modeled Upper La Jolla Valley subwatershed, 705 acres. Arrow indicates reach used for hydrographs. Darker, thicker channel segments represent more change between pre and post burn conditions.

Upper La Jolla Valley – 1.1”, 25yr, 1hr event							
	Pre-fire			**Post-fire**			**Percent Change**
	Metric	Eng.		Metric	Eng.		
Peak Flow m3/s, cfs	6	212		10	353		56
Sediment Yield kg/ha, tons/ac	3,145	1.40		5,987	2.67		90
Sediment Yield Kg/s, tons/hr	1,181	4,687		2,543	10,091		115

Big Sycamore Canyon – 25 year, 24 hour storm

Modeled 25 yr storm event of 5.2” for 24 hours over entire watershed.

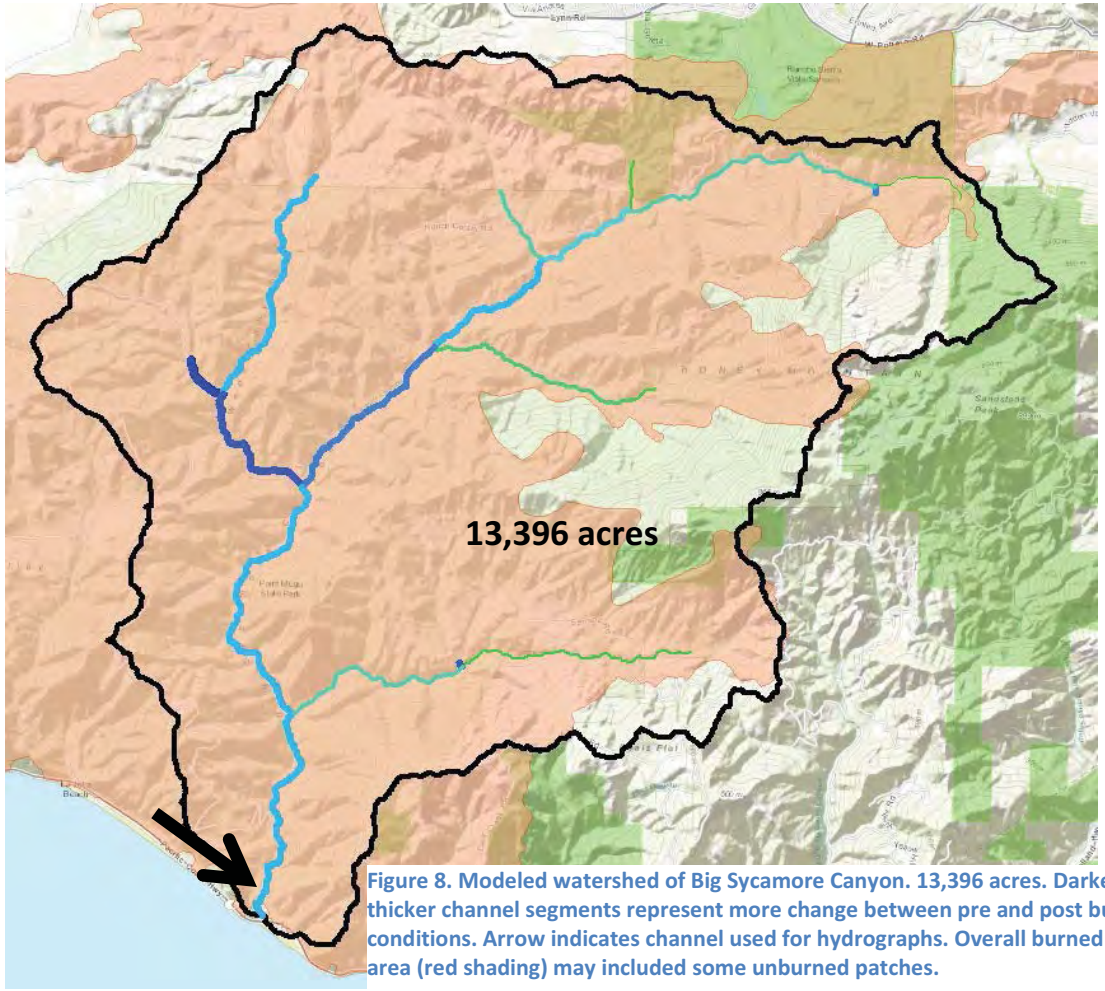
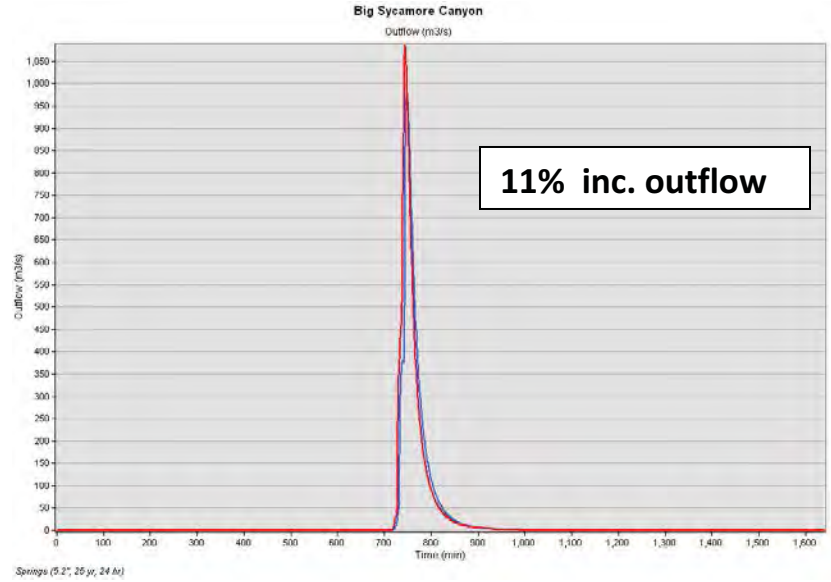
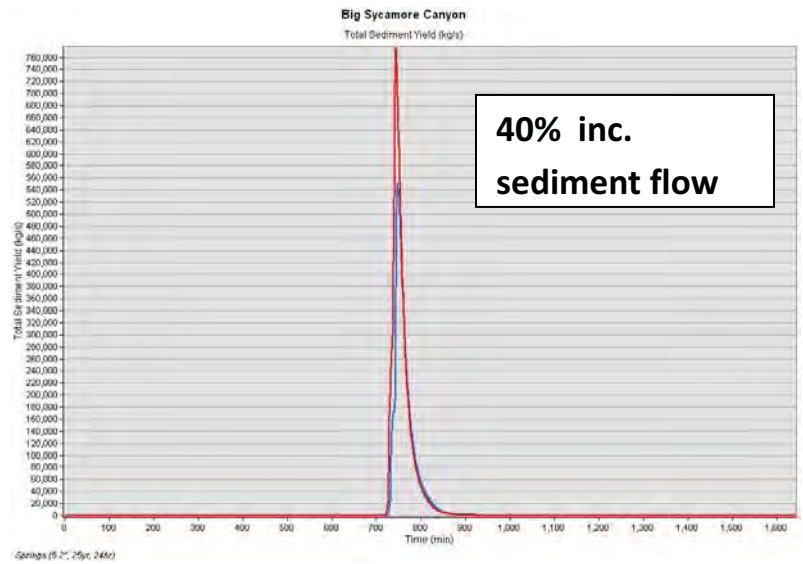


Figure 8. Modeled watershed of Big Sycamore Canyon. 13,396 acres. Darker, thicker channel segments represent more change between pre and post burn conditions. Arrow indicates channel used for hydrographs. Overall burned area (red shading) may included some unburned patches.





Big Sycamore Canyon – 5.2”, 25yr, 24hr event							
	Pre-fire			**Post-fire**			**Percent Change**
	Metric	Eng.		Metric	Eng.		
Peak Flow m3/s, cfs	977	34,502		1,086	38,352		11
Sediment Yield kg/ha, tons/ac	185,107	82.56		236,671	105.56		28
Sediment Yield Kg/s, tons/hr	552,027	2,190,620		775,496	3,077,417		40

La Jolla Valley - 25 Year, 24 hour storm

Modeled 25 year storm event of 5.2” for 24 hours over entire watershed. Results may include unburned areas of watershed.

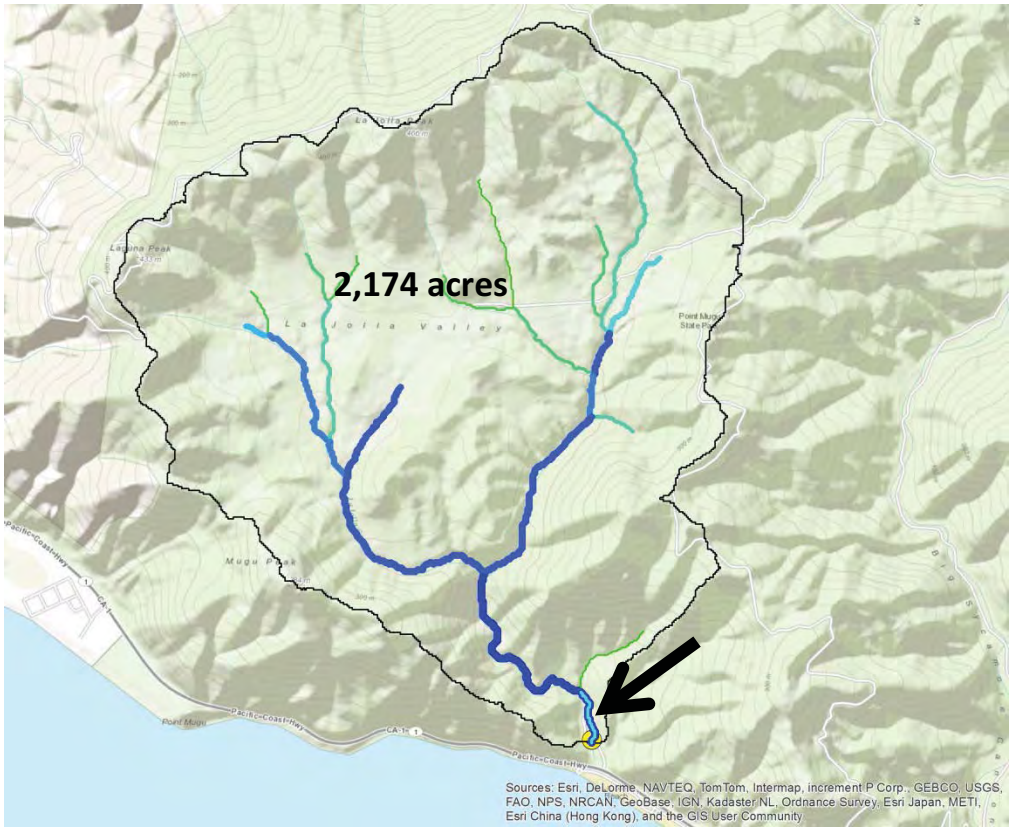
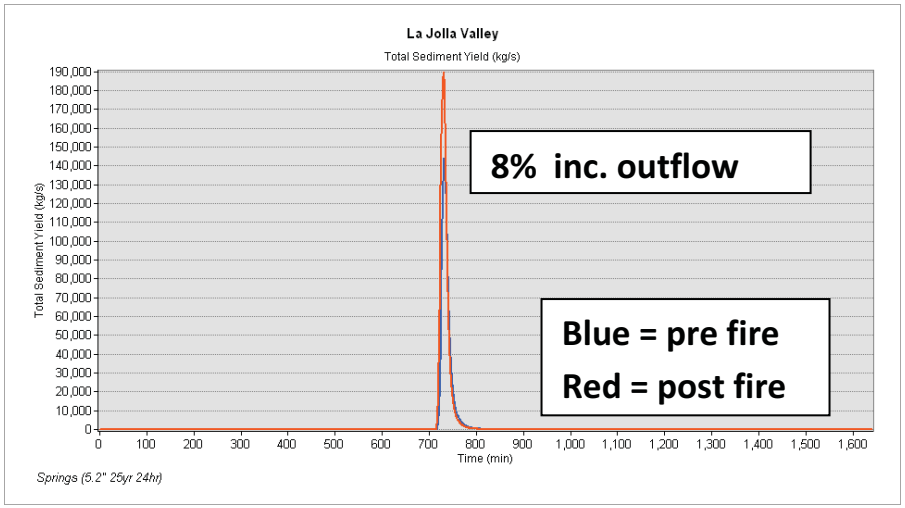
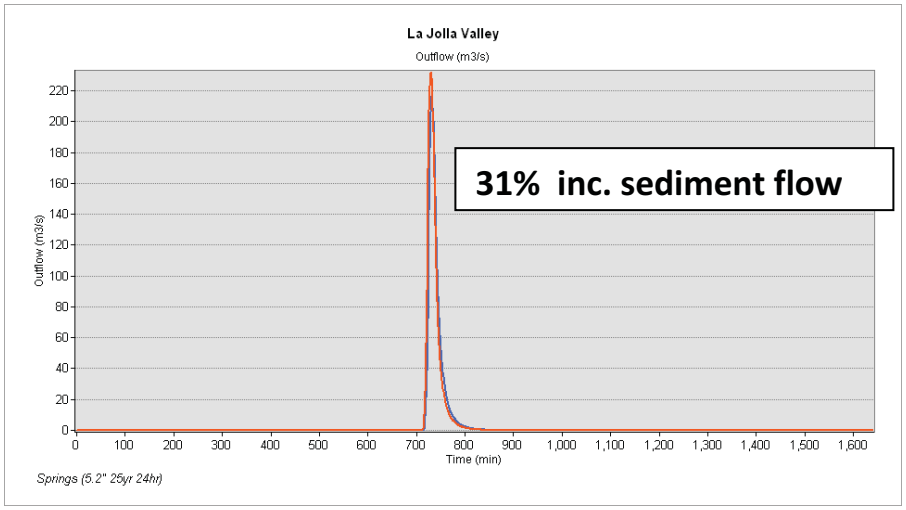


Figure 9. Modeled La Jolla Valley watershed, 2,174 acres. Arrow indicates reach used for hydrographs. Darker, thicker channel segments represent more change between pre and post burn conditions.





La Jolla Valley – 5.2”, 25yr, 24hr event							
	Pre-fire			**Post-fire**			**Percent Change**
	Metric	Eng.		Metric	Eng.		
Peak Flow m3/s, cfs	216	7,628		233	8,228		8
Sediment Yield kg/ha, tons/ac	178,155	79.46		226,607	101.07		27
Sediment Yield Kg/s, tons/hr	144,602	573,827		189,898	753,576		31

2013 Springs Fire BARC Adjustment Metadata:

BARC data as received from USGS EROS had 3 areas along the coast with no-data values due to cloud cover. The first area covered approximately 262 acres over Mugu Peak. Two smaller clouds covered approximately 41 acres near Deer Creek Road.

Clouded areas were replaced using vegetation data provided by the park and visual inspection of neighboring BARC classification. All veg types immediately along the coast were given a BARC classification of 1 (Unburned/very low) which was consistent with the BARC data. Other areas were given the following classification:

Generalized Vegetation	BARC Classification
Chaparral Types	3 - Moderate
CSS Types	2 - Low
Disturbed Vegetation Types	1 – Unburned/Very Low
Prairie/Meadow Types	1 – Unburned/Very Low
Rock Outcrop Types	1 – Unburned/Very Low
Sandy, Rocky, Mud types	1 – Unburned/Very Low
Upland Tree Types	2 - Low
Urban/Disturbed, Built Up, Cleared Types	1 – Unburned/Very Low

No other changes were made to the BARC data. Figure 10 depicts the BARC data as used in the watershed analysis.

For a full description of the BARC process visit the website:
http://www.fs.fed.us/eng/rsac/baer/barc.html

For information regarding BARC adjustment for the Springs Fire contact:

Mark Grupé
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Pacific West Region
333 Bush Street, Ste. 500
San Francisco, CA 94104
415-623-2212
mark_grupe@nps.gov

Springs Fire 2013
Burned Area Reflectance Classification (BARC)

Santa Monica Mountains National Recreation Area
National Park Service
U.S. Department of the Interior

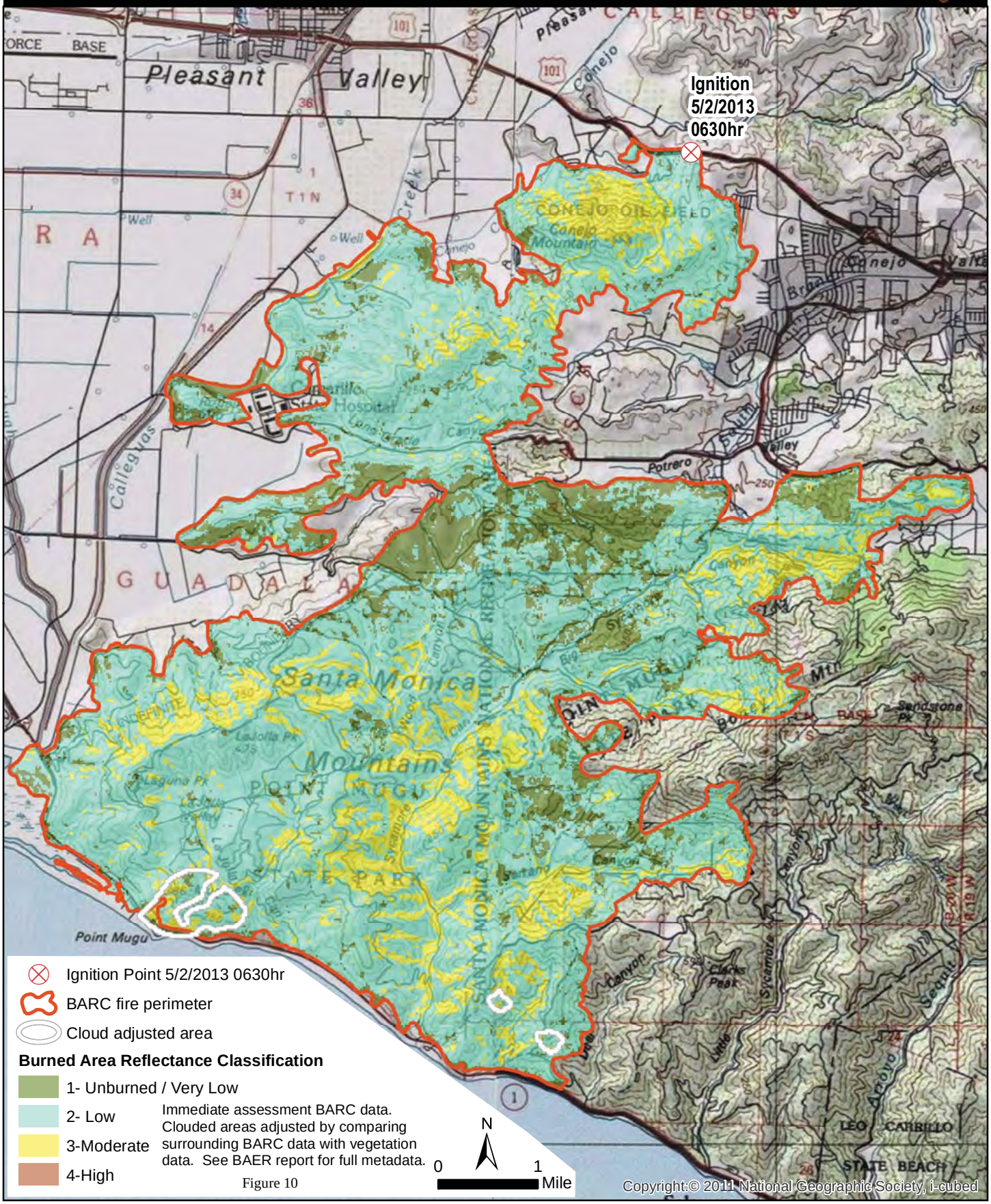


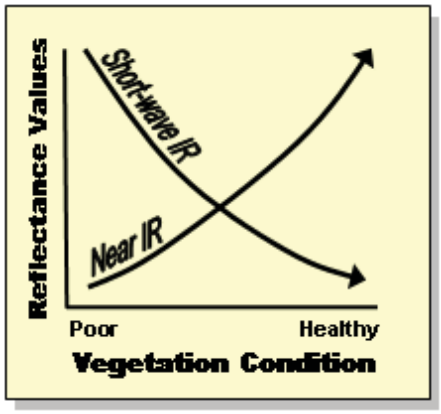
Figure 10

What is a BARC?

A Burned Area Reflectance Classification (BARC) is a satellite-derived map of postfire vegetation condition. The BARC has four classes: high, moderate, low, and unburned. This map product is used as an input to the burn severity map produced by the Burned Area Emergency Response (BAER) teams.

How are BARC maps generated?

BARC maps are made by comparing satellite near and mid infrared reflectance values. The logic behind the process is as follows:



- Near infrared light is largely reflected by healthy green vegetation. That means that near infrared bands will be very high in areas of healthy green vegetation and low in areas where there is little vegetation.
- Mid infrared light is largely reflected by rock and bare soil. That means that mid infrared band values will be very high in bare, rocky areas with little vegetation and low in areas of healthy green vegetation.
- Imagery collected over a forest in a pre-fire condition will have very high near infrared band values and very low mid infrared band values. Imagery collected over a forest after a fire will have very low near infrared band values and very high mid infrared band values.

It is the relationship between these two bands that BARC mapping attempts to exploit. The best way to do this is to measure the relationship between these bands prior to the fire and then again post fire. The areas where the relationship between the two bands has changed the most are most likely to be severely burned. The areas where that relationship has changed little are likely to be unburned or very lightly burned. To determine this relationship, analysts perform a band ratio between the mid and near infrared bands. The result is a classification of burned areas.

How should BARC data be used?

In the immediate aftermath of a wildfire, a Forest Service Burned Area Emergency Response (BAER) team is dispatched to the site to prepare an emergency rehabilitation and restoration plan. They do this by making an initial assessment of burn severity and to estimate the likely future downstream impacts due to flooding, landslides, and soil erosion. One of the first tasks for this team is the creation of a burn severity map that highlights the areas of high, moderate, and low burn severity. This map then serves as a key component in the subsequent flood modeling and Geographic Information System (GIS) analysis. The BARC data are meant to be used as a main input into the development of the final burn severity map.

What is the BARC256 and how do I use it?

In addition to delivering the 4-class BARC data to field teams, RSAC also provides field users a continuous 256-class version of the BARC. This is called the BARC256. This data set provides users the ability to adjust the break points between reflectance classes. Analysts at RSAC will color code the BARC256 image using the same classification scheme used for the BARC4 data, but the BARC256 will not be recoded into 4 classes. The breakpoints for the BARC256 will look something like this:

- Unburned / Very Low = < 75
- Low = 76 – 109
- Moderate = 110 – 187
- High = > 187

The color-coding on the BARC256 done by RSAC is meant to act as a starting point for field team members. Users can view the color scheme and adjust these break points as desired. This can easily be done in ArcMap.

The data will also typically be sent as a square or rectangular subset that covers land outside the fire perimeter. This can easily be clipped to the fire perimeter of choice using ArcMap's Spatial Analyst extension.

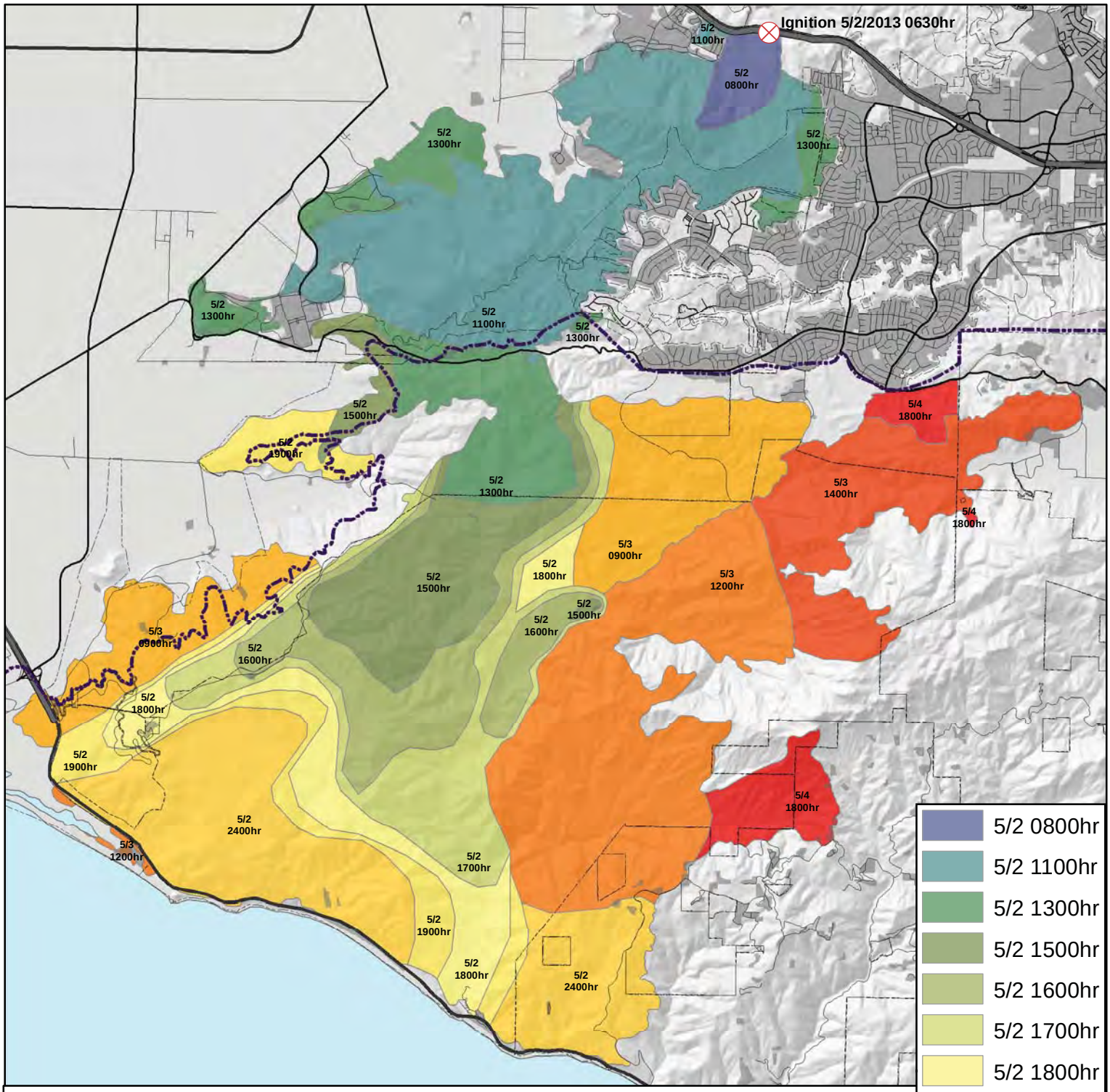
Who do I contact to get BARC maps?

The Forest Service Remote Sensing Applications Center (RSAC) and the US Geological Survey Center for Earth Resources Observation and Science (EROS) both provide satellite imagery and BARC mapping services to BAER teams. RSAC is responsible for all wildland fires on Forest Service lands, while EROS is responsible for all Department of Interior lands. However, depending on workload, each office may assist the other for fires on lands not under their stewardship.

To order BARC data for fires on FS lands, contact Jess Clark (801-975-3769; jtclark@fs.fed.us). For fires on DOI lands, contact Randy McKinley (605-594-2745; rmckinley@usgs.gov).

APPENDIX F: MAPS

1. ***Springs Fire Progression Map***
2. ***Springs Fire Land Ownership, Roads and Trails***
3. ***Springs Fire Watersheds***
4. ***Springs Fire Generalized Vegetation Map***
5. ***Springs Fire Burn Severity Classes (BARC) for Slope Classes 30-75%***
6. ***Springs Fire Watershed Hazards***
7. ***Weed Treatment Areas***
8. ***RSV Weed Infestations***
9. ***Springs Fire Fire Frequency***
10. ***Springs Fire Fire History – Time Since Last Fire***



Springs Fire

Fire progression

Fire perimeters derived by NPS from CalFire data products, BARC imagery (by NPS-USGS), and extensive field notes by K. Kirkpatrick, NPS Fire Management Officer.

Legend

Santa Monica Mtns Nat'l Rec Area boundary

Urban/Disturbed or Built-Up

Scale: 1:80,000 Map by SAMO Fire GIS, robert_s_taylor@nps.gov 5/28/2013

N

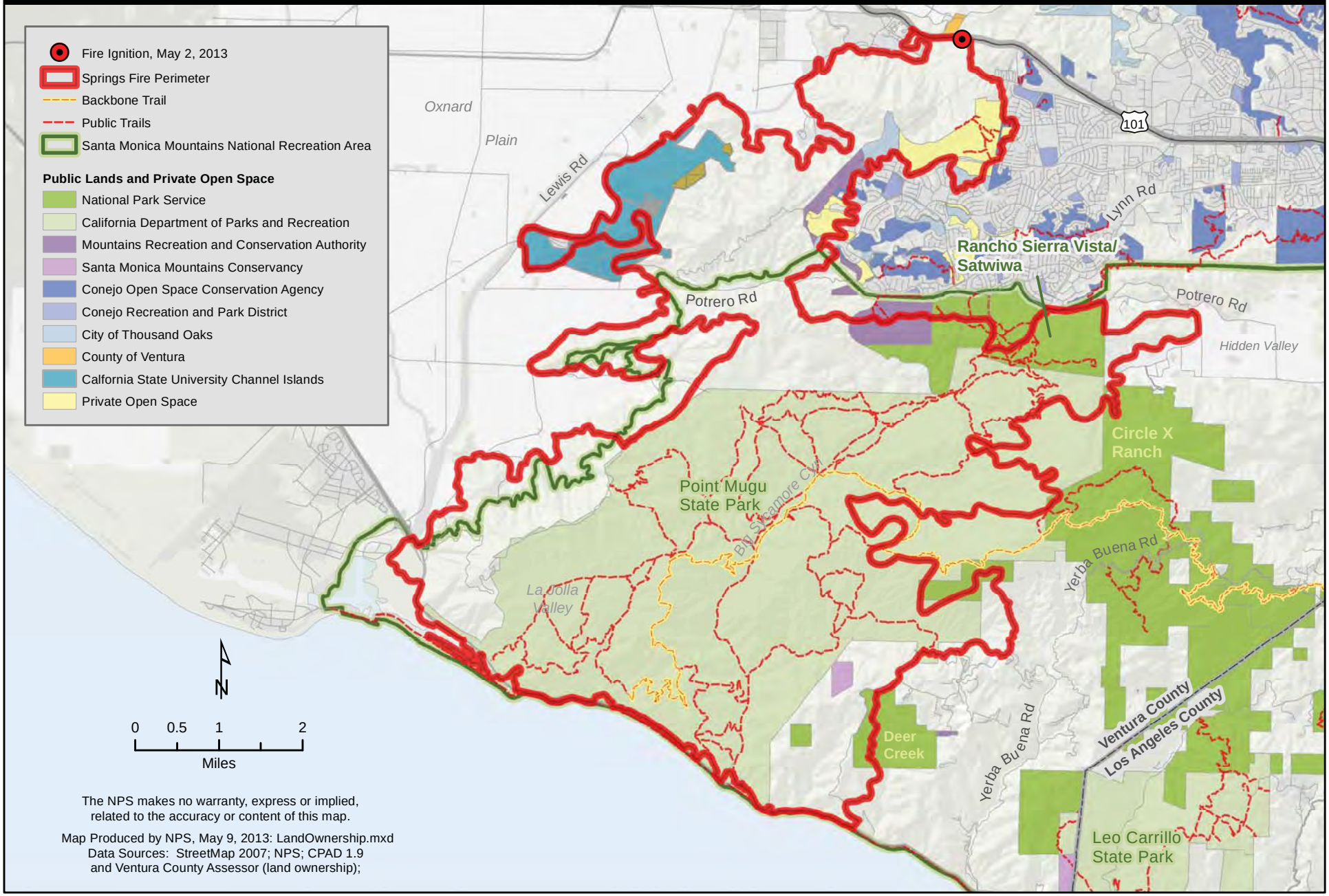
0 0.5 1 2 Miles

- 5/2 0800hr
- 5/2 1100hr
- 5/2 1300hr
- 5/2 1500hr
- 5/2 1600hr
- 5/2 1700hr
- 5/2 1800hr
- 5/2 1900hr
- 5/2 2400hr
- 5/3 0900hr
- 5/3 1200hr
- 5/3 1400hr
- 5/4 1800hr

Springs Fire

Santa Monica Mountains National Recreation Area

National Park Service
U.S. Department of the Interior



The NPS makes no warranty, express or implied, related to the accuracy or content of this map.

Map Produced by NPS, May 9, 2013: LandOwnership.mxd
Data Sources: StreetMap 2007; NPS; CPAD 1.9 and Ventura County Assessor (land ownership);

Springs Fire Watersheds

Firestart 5/2/2013, burned 24,232 acres incl. 1,050ac of NPS land.Presumed cause: accidental ignition by passing auto or truck on Hwy 101.

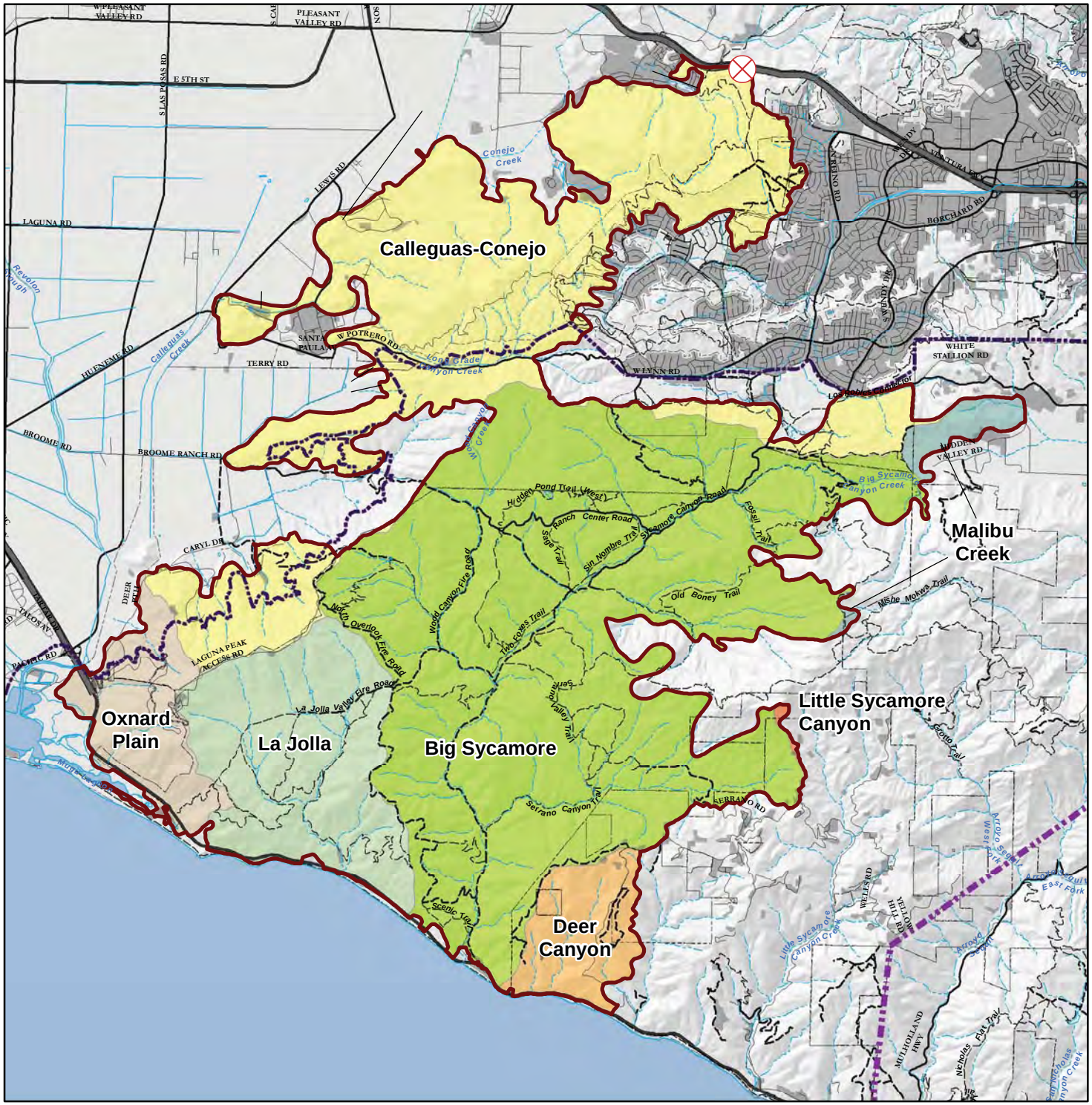
Legend

- fire perimeter
- Ignition point (5/2/2013 0630hr)
- Santa Monica Mtns Nat'l Rec Area boundary
- Urban/Disturbed or Built-Up
- +- perennial stream
- intermittent stream

Trails

- Paved road
- Graded road
- Trail
- Ventura-LA County line

Scale: 1:90,000 Map by SAMO GIS, 5/20/2013



Perimeter of the Springs fire and generalized vegetation/ land cover types

Ignition 5/2/2013, daft final perimeter 5/7/2013 by CalFire and NPS.

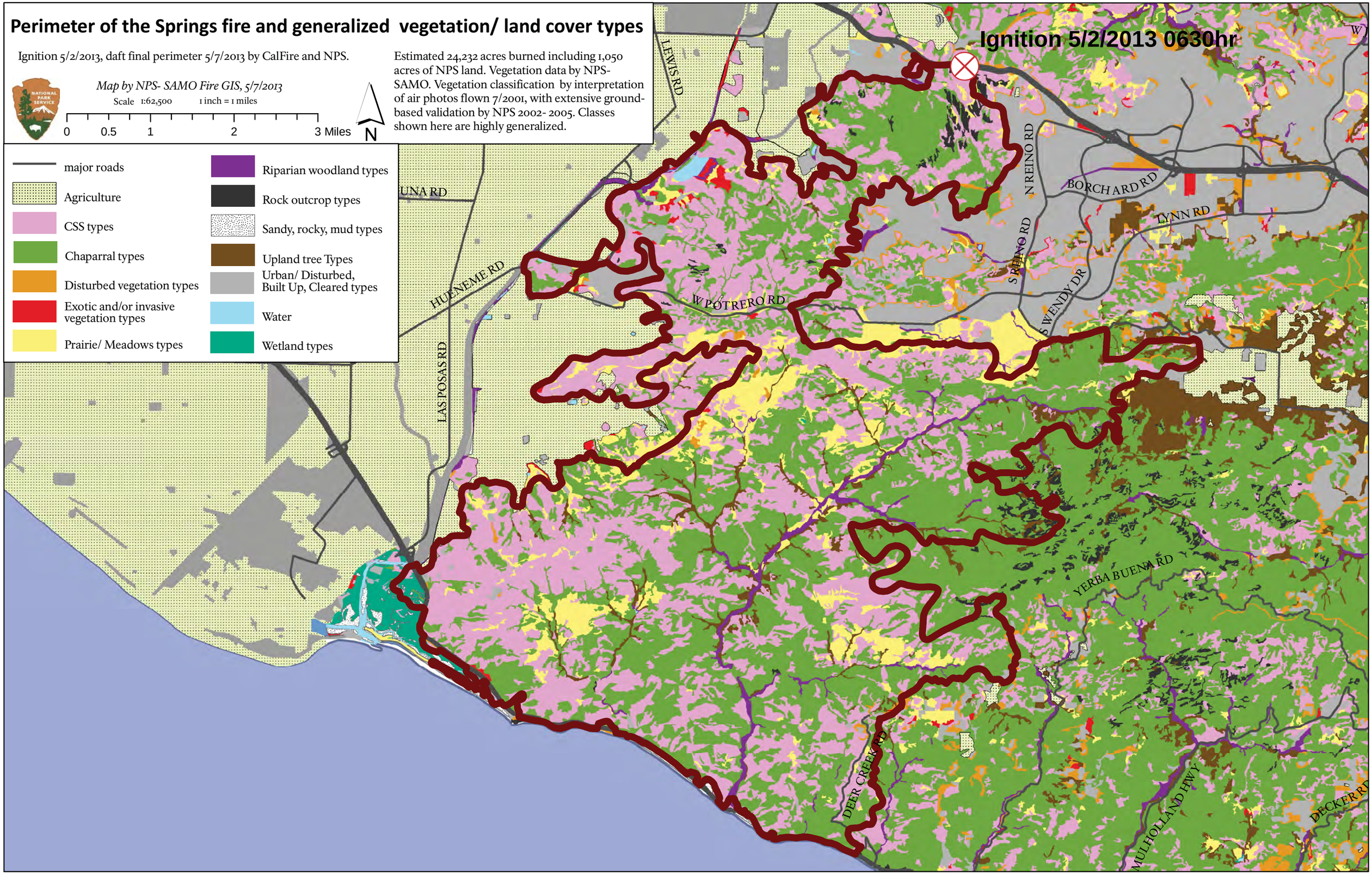
Map by NPS- SAMO Fire GIS, 5/7/2013

Scale 1:62,500 1 inch = 1 miles

0 0.5 1 2 3 Miles

N

Estimated 24,232 acres burned including 1,050 acres of NPS land. Vegetation data by NPS-SAMO. Vegetation classification by interpretation of air photos flown 7/2001, with extensive ground-based validation by NPS 2002- 2005. Classes shown here are highly generalized.



Springs Fire

Slopes 35-70% and BARC burn severity classes

Legend

Preliminary Burned Area Reflectance Classification (BARC) classes only casually validated by qualitative field observations.

- unburned/ very low
- low
- mid

Slope calculations derived by a10m digital elevation model from USGS. Areas where slope is not 35% - 70% are masked out. The areas sisplayed make up 54% of the total burned area.

fire perimeter

Trails

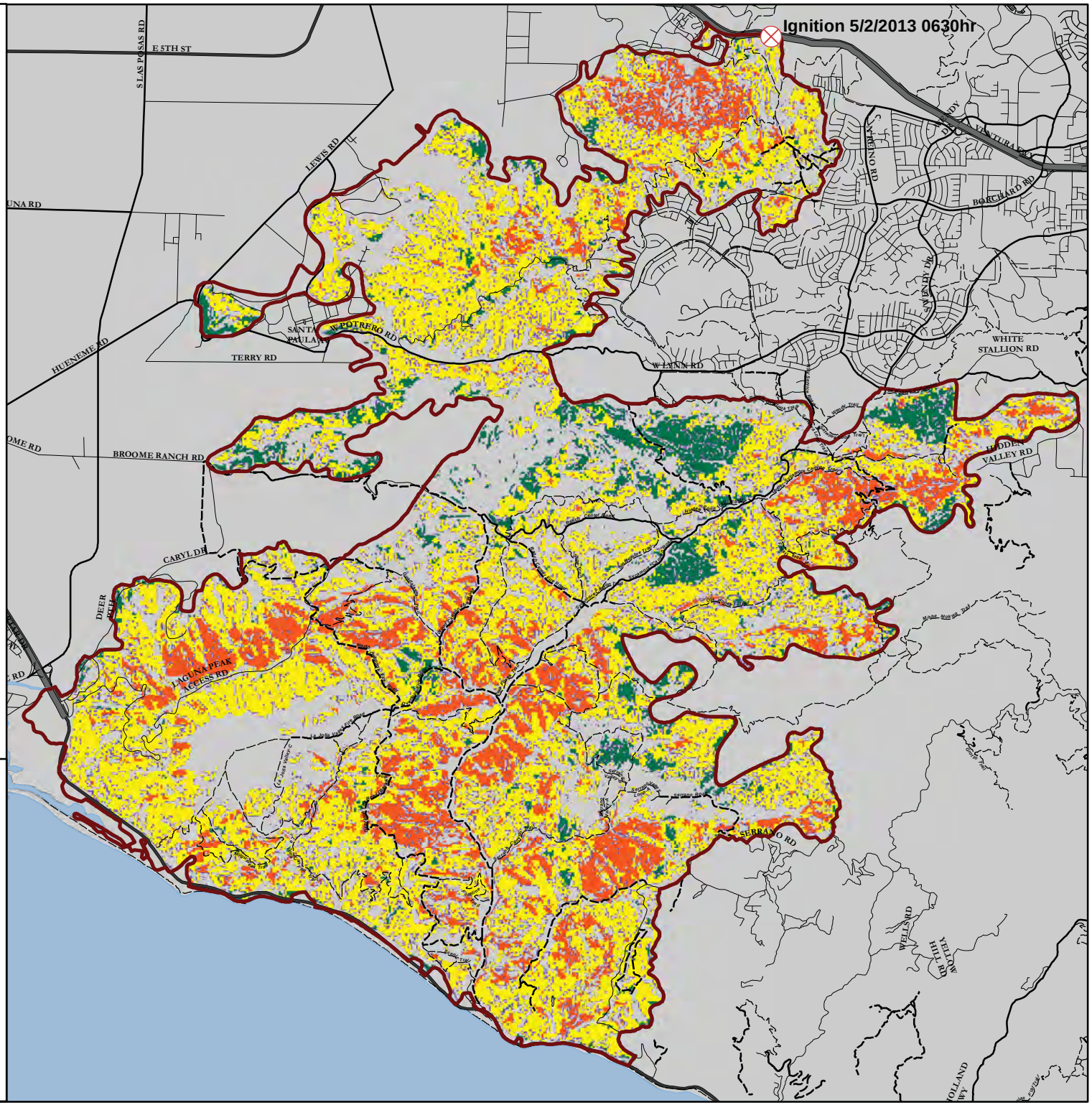
- Paved road
- Graded road
- Trail

Scale: 1:80,000 Map by SAMO Fire GIS, robert_s_taylor@nps.gov 5/21/2013

N

0 0.5 1 2 Miles

burn severity class	acres	percent
unburned/ very low	1,370	11%
low	8,630	69%
medium	2,472	20%
total	12,472	100%



Springs Fire*

Watershed Hazards

Legend

fire perimeter

Watershed hazards (see labels for details)

Inspect and clean culverts along entire stretch of road/ trail for obstruction. Approx. 10 culverts total.

Urban/Disturbed or Built-Up

+- perennial stream

intermittent stream

Public lands (tracts)

National Park Service

State park land

Other public land

Trails

Paved road

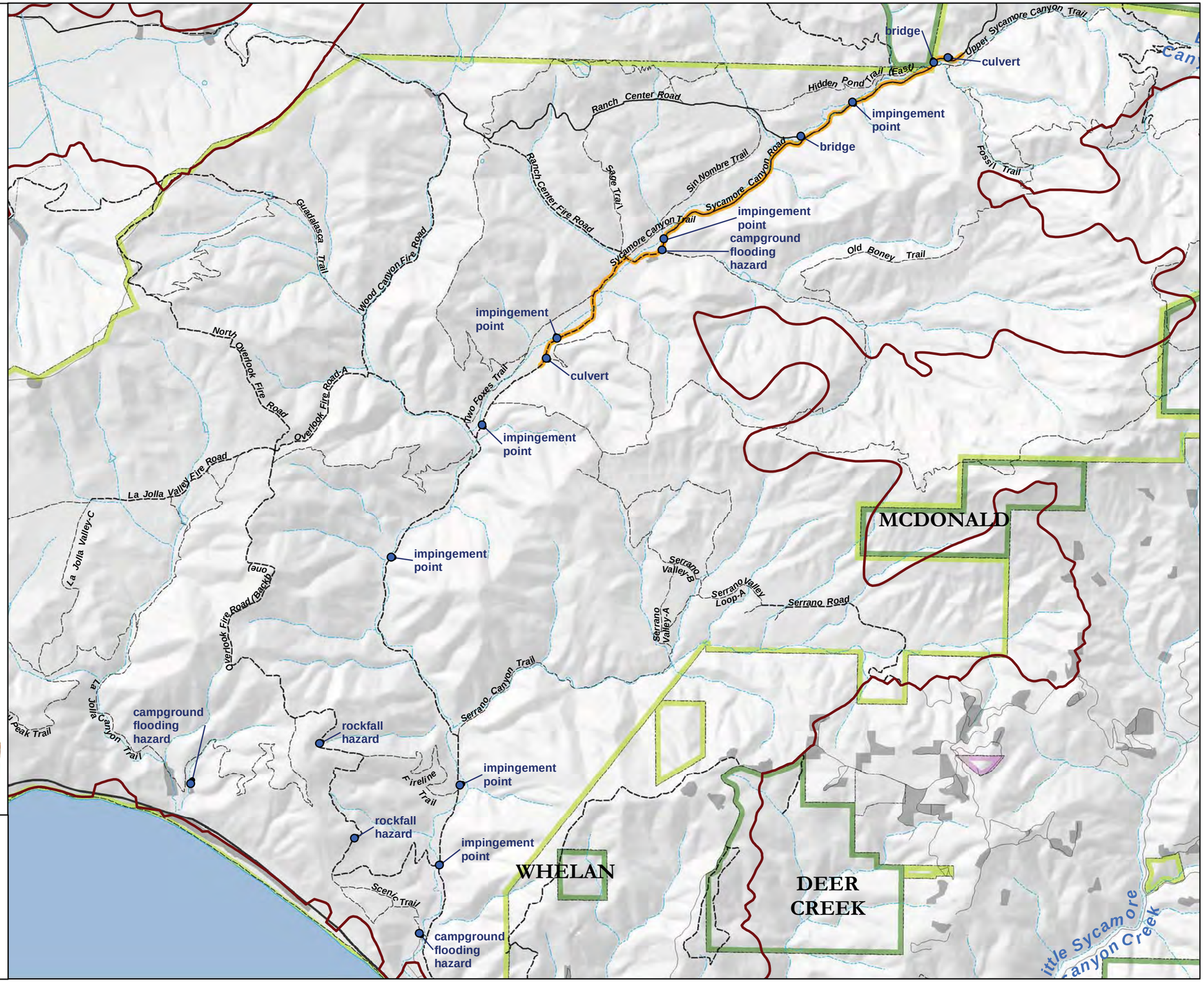
Graded road

Trail

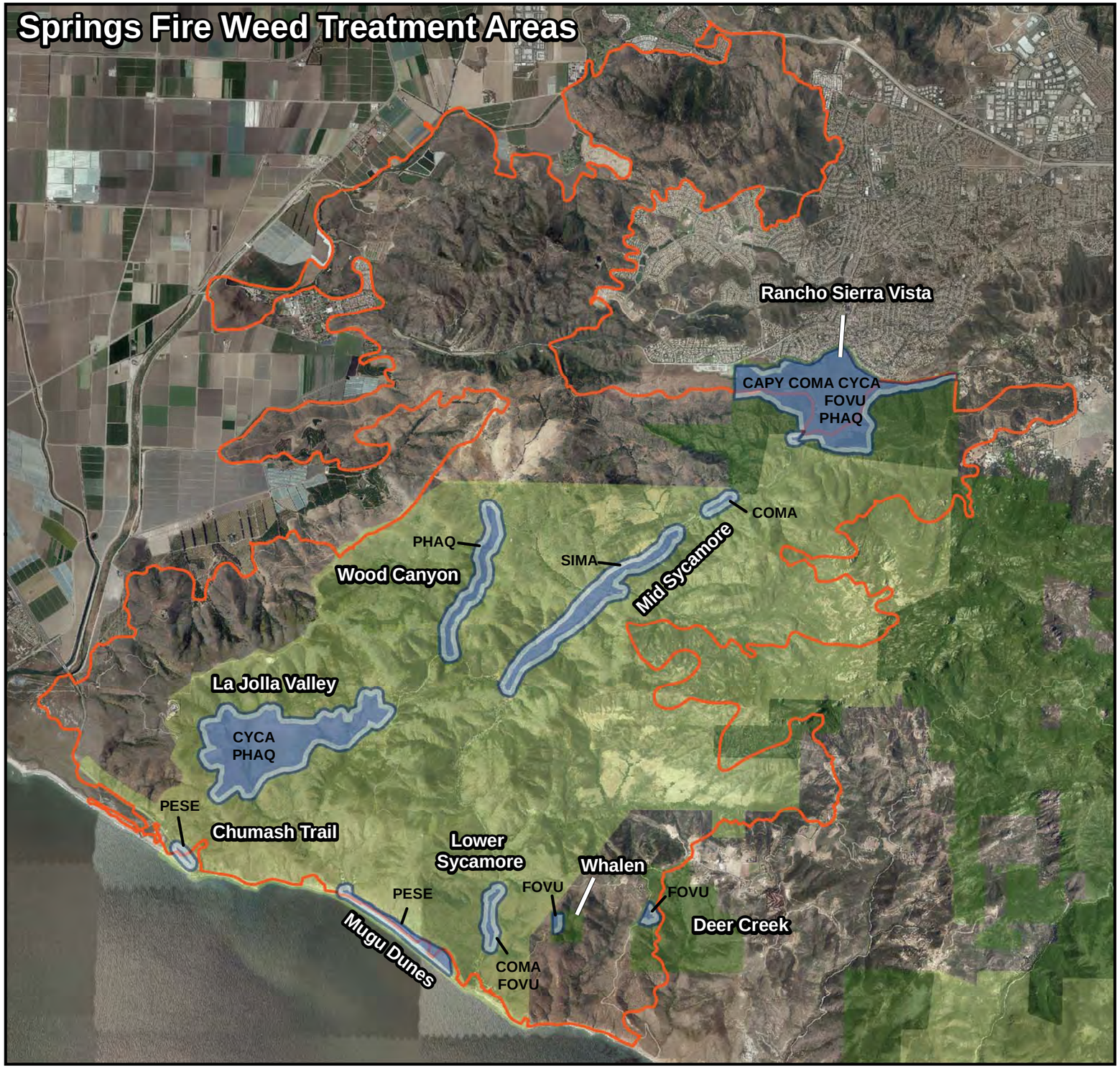
Scale: 1:30,000 Map by SAMO Fire GIS, robert_s_taylor@nps.gov 5/21/2013

N

0 0.25 0.5 1 Miles



* Firestart 5/2/2013, burned 24,232 acres.



Springs Fire Perimeter

National Park Service

Pt. Mugu State Park

Treatment Areas

- Treatment Area (TA)
- Treatment Area with 300 ft Buffer (TAB)

National Park Service Treatment Area Totals

Total Treatment Area:
TA = 447 acs
TAB = 589 acs

Within Burn Perimeter:
TA = 122 acs
TAB = 247 acs

Outside Burn Perimiter:
TA = 325 acs
TAB = 342 acs

Weed Density

Carduus pycnocephalus (CAPY) = high
Conium maculatum (COMA) = high
Cynara cardunculus (CYCA) = low
Foeniculum vulgare (FOVU) = moderate
Phalaris aquatica (PHAQ) = high

State Park Treatment Area Totals

Total Treatment Area:
TA = 656 acs
TAB = 1,328 acs

Within Burn Perimeter:
TA = 640 acs
TAB = 1,257 acs

Outside Burn Perimeter:
TA = 17 acs
TAB = 71 acs

Weed Density

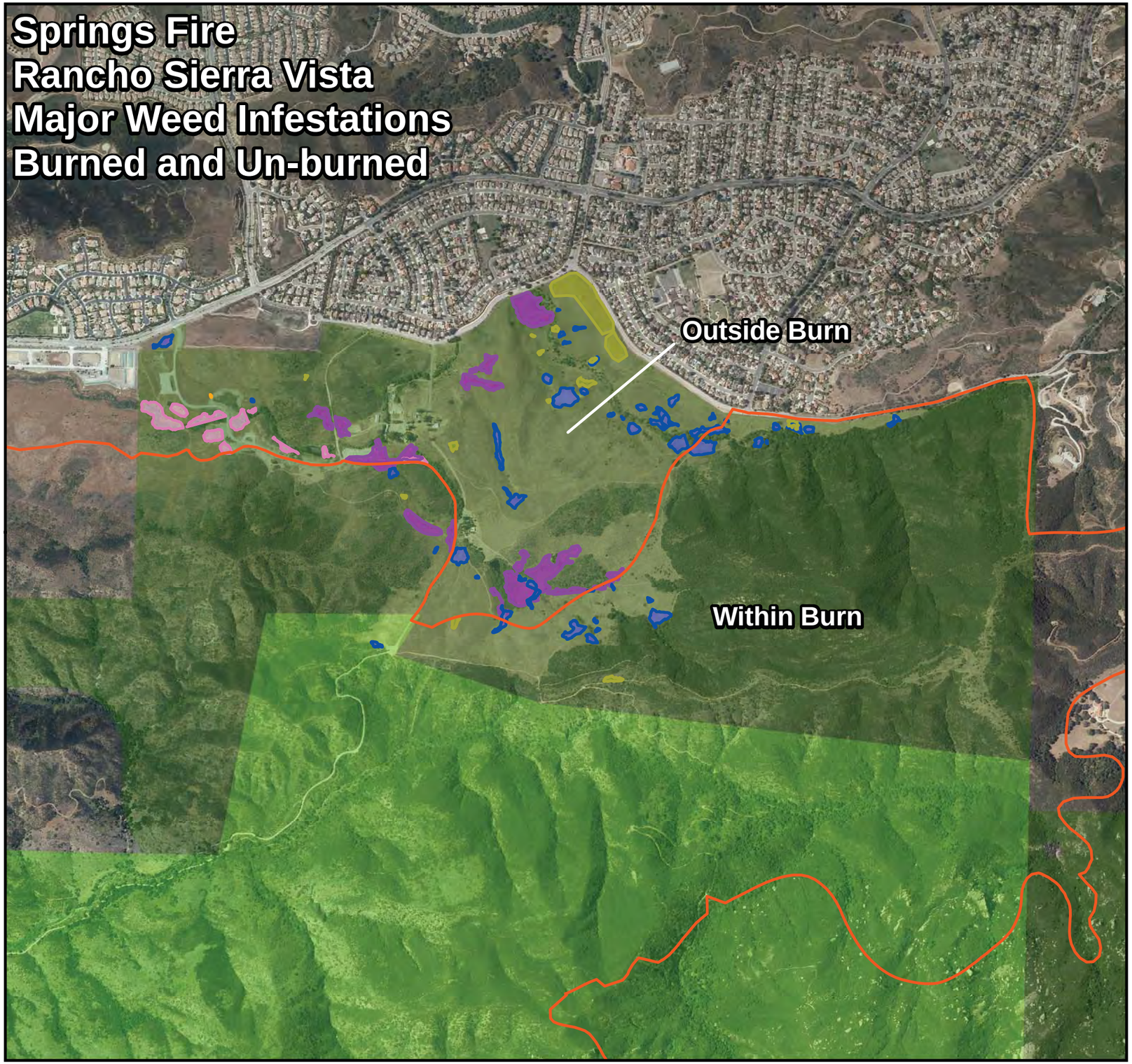
Conium maculatum (COMA) = high
Cynara cardunculus (CYCA) = low
Foeniculum vulgare (FOVU) = moderate
Pennisetum setaceum (PESE) = high
Phalaris aquatica (PHAQ) = high
Silybum marianum (SIMA) = low

N

0 1 2 3 4 5 Miles

5/17/2013
Joseph Algiers, Jr.
joseph_algiers@nps.gov

Springs Fire
Rancho Sierra Vista
Major Weed Infestations
Burned and Un-burned



Springs Fire Perimeter

National Park Service

Pt. Mugu State Park

Weeds	Burned	Un-burned
Carduus pycnocephalus	4.7 acs	12.7 acs
Conium maculatum	0 acs	6.5 acs
Cynara cardunculus	0 acs	0.01 acs
Foeniculum vulgare	0.3 acs	7 acs
Phalaris aquatica	3.6 acs	6.4 acs

Total Weed Occurrance Within Burn
8.6 acs

Total Weed Occurrance Outside Burn
32.5 acs

N

0 0.5 1 1.5 2 Miles

5/17/2013

Joseph Algiers, Jr.
joseph_algiers@nps.gov

Springs Fire
Fire Frequency

Firestart 5/2/2013, burned 24,232 acres incl. 1,050ac of NPS land.Presumed cause: accidental ignition by passing auto or truck on Hwy 101.

Legend

- fire perimeter
- Ignition point (5/2/2013 0630hr)
- Santa Monica Mtns Nat'l Rec Area boundary
- Urban/Disturbed or Built-Up
- +- perennial stream
- intermittent stream

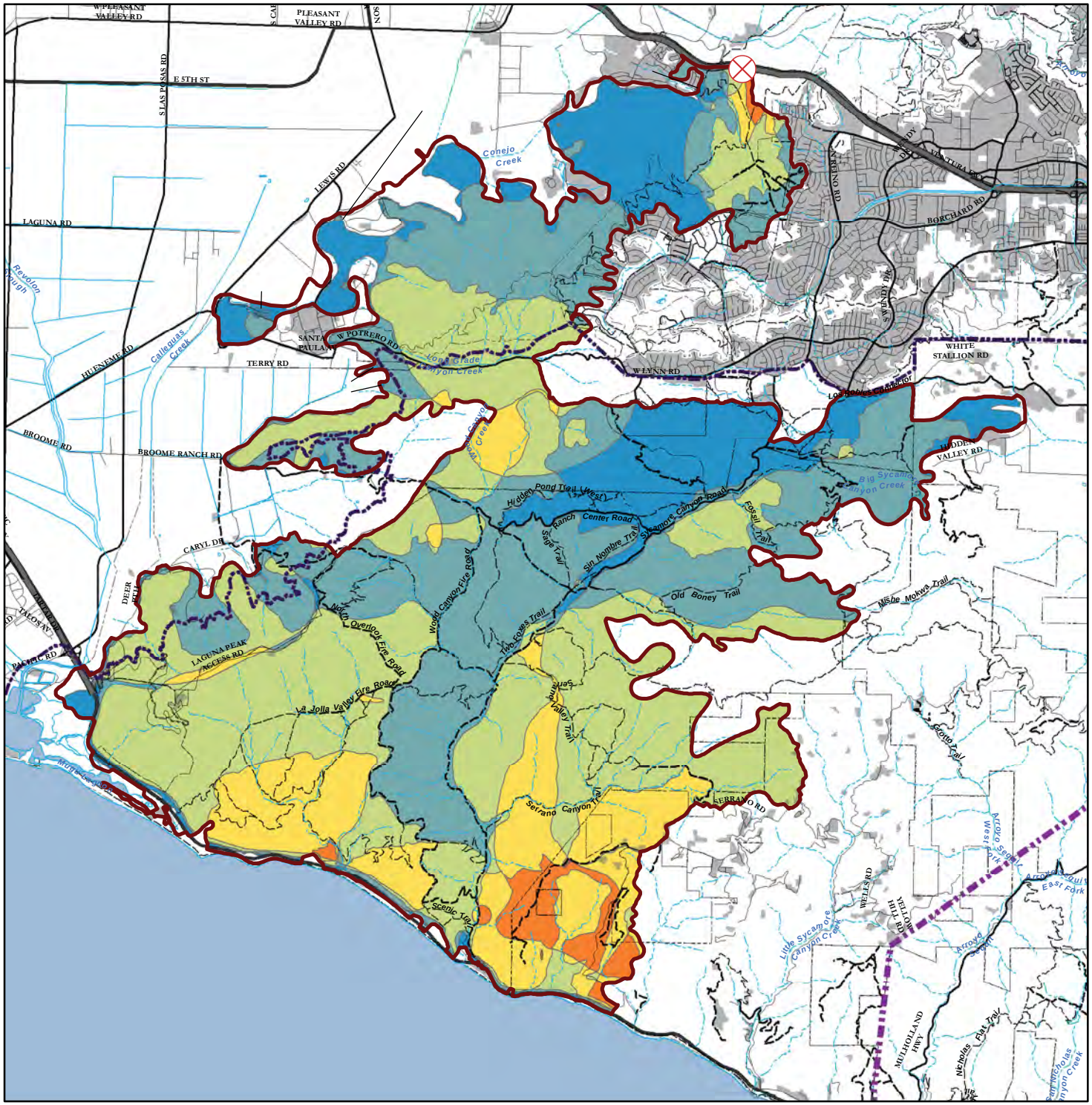
Trails

- Paved road
- Graded road
- Trail
- Ventura-LA County line

Burn Frequency

6	3
5	2
4	1

Fire Frequency 1925 - 2013
Scale: 1:90,000 Map by SAMO GIS, 5/20/2013



Springs Fire
Time Since Last Burn

Firestart 5/2/2013, burned 24,232 acres incl. 1,050ac of NPS land.Presumed cause: accidental ignition by passing auto or truck on Hwy 101.
For purposes of scale, maps below 5 acres (9 fires) were excluded.

Legend

- fire perimeter
- Ignition point (5/2/2013 0630hr)
- Santa Monica Mtns Nat'l Rec Area boundary
- Urban/Disturbed or Built-Up
- +- perennial stream
- intermittent stream

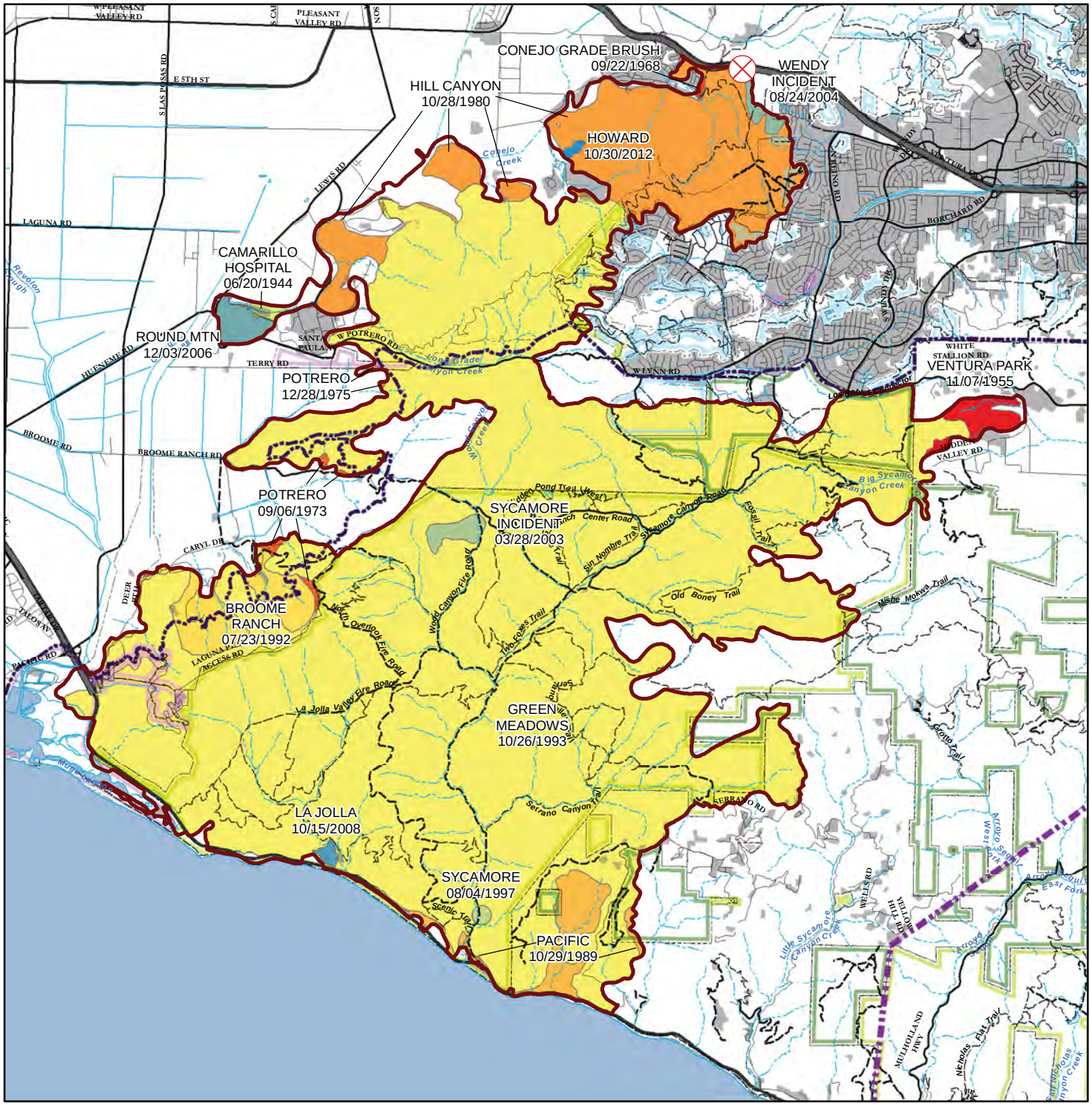
Public lands (tracts)

- National Park Service
- State park land
- City and local park land
- County park land
- Other public land

Trails

- Paved road
- Graded road
- Trail
- Ventura-LA County line

Recorded Fires 1925-2013
Scale: 1:90,000 Map by SAMO GIS, 5/16/2013



APPENDIX G. MOST RECENT REPORT OF ARCHAEOLOGICAL LOOTING

Witter, Martha <marti_witter@nps.gov>

Fwd: Artifact hunter at RSV

7 messages

Bonnie Clarfield <bonnie_clarfield@nps.gov> Tue, May 21, 2013 at 9:25 AM
To: Darcy MacDonald <Darcy_MacDonald@nps.gov>, Coby Bishop <coby_bishop@nps.gov>, James Herbaugh <James_Herbaugh@nps.gov>, Melanie Turner <Melanie_McDaniel@nps.gov>, seth_maile@nps.gov, Tom Young <Tom_Young@nps.gov>, chris_chaffee@nps.gov, John Chelko <John_Chelko@nps.gov>, Glen Douglas <Glen_Douglas@nps.gov>, Chris Newman <Christopher_Newman@nps.gov>, Michael Alongi <Michael_Alongi@nps.gov>
Cc: Dave Keltner <dave_keltner@nps.gov>, gary_brown@nps.gov, Kate Eschelbach <kate_eschelbach@nps.gov>, Marti_Witter@nps.gov

Hi Rangers,

Please read the email string.

FYI. Unfortunately Carolyn did not call dispatch, and SETT had enough resources that they may have been able to contact this individual.

As you meet park visitors at RSV, please encourage them to call dispatch is they see suspicious activities.

Darcy, can we ask interpretation to make such signs to post on the fire bulletin boards? I copied Kate, Marti. and Gary, too. Luckily, I believe there are more good stewards out there versus people who are collectors and just bad people in general, but we need to guide then to take the correct actions.

Thank you everyone for your vigilance, while you are assigned to RSV. (By the way, Carolyn sent a second email that she did see the closure signs for the Upper Satwiwa loop.)

B

Bonnie Clarfield
Supervisory Park Ranger
Santa Monica Mountains NRA
401 West Hillcrest Drive
Thousand Oaks, CA 91360

Cell: 805 391-1267
Office: 805 370-1853 ext. 301

Sent from my phone.

Begin forwarded message:

> **From:** Bonnie Clarfield <bonnie_clarfield@nps.gov>
> **Date:** May 21, 2013, 9:09:42 PDT
> **To:** Carolyn Greene <cgnpark@yahoo.com>
> **Subject: Re: Artifact hunter at RSV**
>
> Hi Carolyn,

Thanks for this info., this is bad,bad, bad news.

In the future please call dispatch (661-723-3620) from your cell phone in real time when you see this, even if the person "runs off." At least we can try to catch him/her down the trail or get a vehicle plate. Can you give a description? Age, ht, wght, hair, clothing, etc, thanks.

Did you get a sense if he was local or not? Anything else you can recall would be helpful.

As you know arch sites and ither resources are very vulnerable right now. Anyone carrying a shovel is suspect, so that alone is a good reason to call dispatch.

The upper Satwiwa Trail past the windmill is closed.

Thanks again for passing this info along.

B

Bonnie Clarfield
Supervisory Park Ranger
Santa Monica Mountains NRA
401 West Hillcrest Drive
Thousand Oaks, CA 91360

Cell: 805 391-1267
Office: 805 370-1853 ext. 301

Sent from my phone.

On May 20, 2013, at 19:04, Carolyn Greene <cgnpark@yahoo.com> wrote:

> Ran into guy at windmill today. He was coming back on the closed trail up to HV overlook. I watched him climbing around that midden site near the windmill I asked him if trail was open and he said no but he was looking for artifacts and "it doesn't hurt anyone" He had a shovel w him
>
> I don't know what you can do but less LEs at top of sycamore hill and more patrolling trails (or volunteers) might help
>
> I assume trail to windmill us open now as there were no signs at top of hill, even tho map still shows it closed. Sign at windmill itself saying trail closed beyond
>
> Guy ran off b4 I could get a good id
>
> Sent from my iPhone

Witter, Martha <marti_witter@nps.gov> Tue, May 21, 2013 at 9:34 AM
To: "Kirkpatrick, Kathy" <kathryn_kirkpatrick@nps.gov>, darcy macdonald <Darcy_MacDonald@nps.gov>

Hi guys-

Who is on the Fire BAER IC Operations Team so that when things like this come in we can send them to you to decide how to respond? Can you send out a parkwide message on SOP or bring it up at the debrief tomorrow?

Thanks!

Marti

Marti Witter, PhD.
Fire Ecologist, Mediterranean Coast Network
Santa Monica Mountains National Recreation Area/ Channel Islands National Park/ Cabrillo National Monument
401 W. Hillcrest Dr.
Thousand Oaks, CA 91360
805-370-2333

[Quoted text hidden]

Brown, Gary <gary_brown@nps.gov> Tue, May 21, 2013 at 10:17 AM
To: Bonnie Clarfield <bonnie_clarfield@nps.gov>
Cc: Darcy MacDonald <Darcy_MacDonald@nps.gov>, Coby Bishop <coby_bishop@nps.gov>, James Herbaugh <James_Herbaugh@nps.gov>, Melanie Turner <Melanie_McDaniel@nps.gov>, seth_maile@nps.gov, Tom Young <Tom_Young@nps.gov>, chris_chaffee@nps.gov, John Chelko <John_Chelko@nps.gov>, Glen Douglas <Glen_Douglas@nps.gov>, Chris Newman <Christopher_Newman@nps.gov>, Michael Alongi <Michael_Alongi@nps.gov>, Dave Keltner <dave_keltner@nps.gov>, Kate Eschelbach <kate_eschelbach@nps.gov>, Martha Witter <Marti_Witter@nps.gov>, Christy Brigham <christy_brigham@nps.gov>

Bonnie

Wow, this sounds like an ARPA violation or intended ARPA violation almost under our nose! Do we know if he actually put the shovel in the ground (ARPA violation) or ran off before actual crime was committed? Great communication on your part with the individual who reported the incident!

Please let me know if my assistance is needed on investigating this incident. The area described is a documented archeological site location (CA-VEN-1155). Please note that fire incident maps produced for site protection show this and other arch site locations, hence the need to treat as confidential need-to-know info to be shredded when no longer needed. Clearly, our concerns about looting are justified. Keep up the good work, and let's hope that our visitors continue to be vigilent.

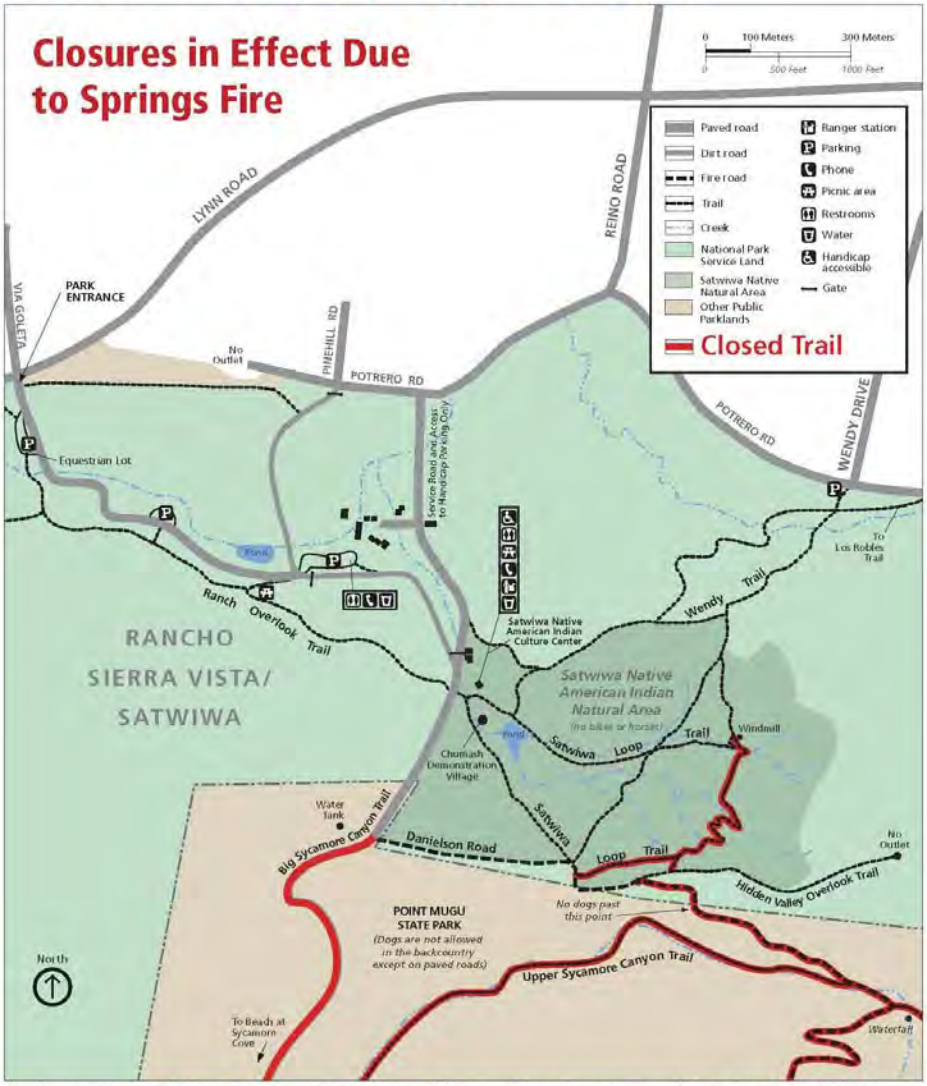
Thanks for passing this along!
--Gary

Gary M. Brown
Cultural Resource Program Manager
Santa Monica Mountains National Recreation Area
401 West Hillcrest Drive
Thousand Oaks, CA 91360

Phone (805) 370-2372
FAX (805) 370-1850
gary_brown@nps.gov

APPENDIX H. Public Information and Emergency Signage

Rancho Sierra Vista/ Satwiwa



Directions to main parking lot *(open 8am to sunset): Ventura Freeway (101) to Lynn Rd exit. Go south on Lynn Rd 5.25 miles to Via Goleta. Park entrance is on the left.* ***Directions to Wendy Trailhead:*** *Ventura Freeway (101) to Wendy Dr exit. South on Wendy Dr to dirt pullout at intersection with Potrero Rd.*

TRAILS
● *Easy* | ■ *Moderate*

Big Sycamore Canyon Trail ■ **8 miles**–Enjoy this trek from Rancho Sierra Vista/Satwiwa through Big Sycamore Canyon in Point Mugu State Park to the ocean. This is a multi-use trail. Please exercise extreme caution when traveling on the steep hill which leads from Rancho Sierra Vista/Satwiwa into Point Mugu State Park. Be alert for occasional authorized vehicles on the road.

Satwiwa Loop Trail ● **1.5 miles; no bikes, no equestrians**–Stroll through grasslands and chaparral of the Satwiwa Native American Indian Natural Area. The Natural Area was set aside for the preservation and celebration of Native American cultures.

Wendy Trail ● **1.2 miles**–This multi-use trail provides access to Rancho Sierra Vista/Satwiwa from the Wendy Drive Trailhead. A 1/2-mile long connector trail provides access to the Los Robles multi-use trail across Potrero Road.

Trail to the Waterfall ■ **1.5 miles one way; no bikes**–From the Big Sycamore Canyon Trail, travel east on the Danielson Road. This trail will descend into a canyon as you enter the Boney Mountain State Wilderness. After you cross over a streambed, the trail ascends and then makes a sharp right turn. At this junction, take the narrow trail on the left. Follow this narrow trail for 100 yards to the waterfall.

Due to damage from the May 2013 *Springs Fire*, certain trails or areas are currently closed. Conditions are constantly changing. PLEASE OBSERVE POSTED CLOSURES.

MAY 2013

National Park Service
California State Parks
STOP
THIS AREA
IS CLOSED TO
RECREATION
THIS IS NOT AN
OFFICIAL TRAIL.
Continued use
causes erosion and
endangers sensitive
plant and animal
species. Thank you
for your cooperation!

APPENDIX J. Response Request Memo

OFFICIAL CORRESPONDENCE VIA ELECTRONIC MAIL
NO HARD COPY TO FOLLOW

NATIONAL PARK SERVICE
Pacific West Regional Office
333 Bush Street, Suite 500
San Francisco, California 94104

IN REPLY REFER TO:
Y14 (PWRO-F)

July 10, 2013

Memorandum

To: Superintendent, Santa Monica Mountains National Recreation Area

From: Regional Director, Pacific West Region

Subject: Springs Fire Burned Area Emergency Response Request, FY13

This memorandum serves as the funding approval for the FY13 Springs Fire Burned Area Emergency Response (BAER) request. The Springs Fire BAER team is commended for producing an extremely thorough and well organized plan.

The initial Springs Fire BAER plan request was $567,071, including $483,938 in FY13 (Table 1). BAER requests exceeding $500,000 are approved by the Fire Management Program Center (FMPC), whereas amounts less than that are sanctioned through this office. Owing to an NPS-wide shortage of BAER funding and great potential for a busy fire season in 2013, the PWR BAER Coordinator requested that SAMO examine each specification for potential cost savings (especially in FY13), with the caveat that human safety cannot be compromised. SAMO staff resolutely performed this unenviable task and whittled the FY13 request down to $284,054 (Table 1). The PWR BAER Coordinator also examined each specification for concurrence with BAER policy, such as cases where repairs to damages caused by suppression activities were proposed (prohibited for funding under BAER), to further refine requests. This had the added effect of reducing the FY13 budget by more than twenty thousand dollars (Table 1, see comments).

We concur that multi-jurisdictional planning documents for the National Recreation Area legitimize the use of BAER funds on California State Parks holdings within the Springs Fire and have approved work proposed there. Given the current economic and political environment, however, SAMO must consider the following with regard to the continued expenditure of BAER and Burned Area Rehabilitation (BAR) monies on non-federal lands. First, the NPS currently shoulders a huge proportion of the post-fire financial burden; a more equitable approach needs to be developed. Second, the new approach shall be formalized through inclusion in the SAMO Fire Management Plan and other pertinent documents (e.g., Cooperative Management Agreement Work Plan). Third, every effort should be made to minimize costs, especially in relation to natural and cultural resources.

The Springs Fire BAER plan is approved at an amount not to exceed $262,894 in FY13 (Table 1). The BAER account number is provided in Table 2. Care should be taken to ensure charges are allocated correctly between the BAER and suppression accounts as indicated in Table 1. The FY14 BAER funding is contingent upon work completed in FY13 and submission of an accomplishment report. The SAMO BAER Implementation Leader is responsible for all reporting requirements under BAER policy.

Table 1. Springs Fire BAER Specifications

Specification	FY13 Original BAER Request	FY13 Revised BAER Request	FY13 BAER Approved	Comments
Conduct Cultural Resource Inspections (CR-1)	$22,770	$18,512	$18,512	Total original FY13-14 BAER request was $37,950. The revised total request is $33,030.
Monitor Cultural Resources (CR-2)	$5,272	$1,584	$1,584	Total original FY13-14 BAER request was $10,544. The revised total request is $3,167.
Invasive Plant Control (VR-1)	$126,295	$30,044	$30,044	Total original FY13-14 BAER request was $158,120. A request for FY14 BAR funding will be submitted.
Replace Pitfall Trap Bucket Lids for Safety (WR-1)	$9,504	No Change	$9,504	
Emergency Replacement of Nitrogen Deposition Study Site and Equipment (DM-1)	$1,146	--	--	Equipment will be replaced using a non-NPS funding source.
Asphalt Pavement Repair due to Fire Truck Damage (RT-1)	$8,740	No Change	--	Charge suppression damage repairs against the Springs Fire suppression account.[1]
Clear burned brush from Satwiwa Loop and Hidden Valley Trail (RT-2)	$5,447	$2,000	$2,000	
Post Trail Closed and "Area Closed" Signs Throughout Burned Locations (RT-3)	$6,054	--	--	Treatment completed during burned area assessment.
Stabilize Burned Wood Stairs on Satwiwa Loop Trail (RT-4)	$8,675	No Change	$8,675	
RSV Boundary Fence (LE-1)	$15,300	No Change	$15,300	
Deer Creek Gates (LE-2)	$12,420	No Change	--	Charge suppression damage repairs against the Springs Fire suppression account.[1]
Rancho Sierra Vista Gate (LE-3)	$9,660	No Change	$9,660	
Increased Law Enforcement Patrol (LE-4)	$64,117	No Change	$64,117	
Post Boundary with Federal Property Signs (LE-5)	$4,110	No Change	$4,110	
Smart Scouter Surveillance Cameras (LE-6)	$3,899	No Change	$3,899	
Public Information for Safety and Resource Protection (PI-1)	$71,920[2]	$4,970	$4,970	Total revised FY13-14 BAER request is $56,897.
BAER Coordination and Administrative Support Costs (ADM-1)	$30,754	$12,664	$12,664	Total original FY13-14 BAER request was $42,755. Total revised FY13-14 BAER request is $13,879.
Emergency Stabilization Personnel Costs (ES-1)	$46,605	No Change	$46,605	
BAER Plan (PL-1)	$31,250	No Change	$31,250	
Totals	$483,938	$284,054	$262,894	

[1] Springs Fire suppression account WBS (Level 2): PF.FSHFB3000.00.1

[2] Total FY13-14 BAER request; costs were not differentiated by FY

Table 2. Springs Fire BAER FBMS Master Data Elements

		13XP112585
Cost Center		PPPWPWROF0
Functional Area		PF220ES85.RM0000
Work Breakdown (WBS) Structure	Level 1	PF.FEHFB3
	Level 2	PF.FEHFB3000.00.1

Please feel free to contact Nelson Siefkin, BAER Coordinator, at 415.623.2213 with any questions.

/s/ Patricia L. Neubacher
(signed original on file)

(for)

Christine S. Lehnertz

cc: Marti Witter, Fire Ecologist/BAER Implementation Leader, SAMO
Kathy Kirkpatrick, Fire Management Officer, SAMO
Dick Bahr, Program Lead—Fuels, Ecology and Science, FMPC
Rich Schwab, BAER Coordinator, FMPC
Berkeley Yoshida, Fire Budget Analyst, PWR
Sid Beckman, Fire Management Officer, PWR
Robin Wills, Fire Ecologist, PWR
Nelson Siefkin, BAER Coordinator, PWR