



**National Park Service  
CENTRAL AND SOUTHERN CALIFORNIA  
Fire Effects Annual Report  
Calendar Year 2004**

**Channel Islands National Park  
Golden Gate National Recreation Area  
Joshua Tree National Park  
Pinnacles National Monument  
Point Reyes National Seashore  
Santa Monica Mountains National Recreation Area**

**Summary**

The Central and Southern California Fire Effects crew had another productive year in 2004, completing a medium-sized workload of 71 plots. Most notable were two trips to Santa Cruz Island to install plots in the proposed Del Norte burn unit. Time was also available to assist resource management projects at Point Reyes that were critically short-staffed. We were happy to welcome the arrival of Alison Forrestel, the new Fire Ecologist and fire effects supervisor, who arrived in June to fill a position which had been vacant for nearly a year. Wende Rehlaender was appointed to the lead fire effects position (vacant since FY03) and hired two seasonal technicians. The assistant lead position was lapsed during FY04, with hopes of filling the position in FY05.

Although most of the proposed prescribed burns were cancelled this year, we completed the D Ranch burn at Point Reyes. This burn, at the historic D Ranch, was postponed in FY03 due to out of prescription weather conditions. We also participated in three burns with outside agencies, which provided good training opportunities for the crew.

This year there were regular meetings with fire and resource management staff at Point Reyes, and it has been great to have the two divisions meeting and talking about the best uses for fire in the park, and about alternate fuel treatments.

## Fire Effects Plot Workload 2004

### Channel Islands

Two trips were made to Channel Islands, in order to install new plots on Santa Cruz Island in the large Del Norte burn unit. The plan was to burn and herbicide areas of dense fennel in order to restore the vegetation and to open up the canopy for hunting of feral pigs. Transects were established in seven monitoring types ("tree form" and "shrub form" versions of the manzanita and oak types are merged in the table below). However, as of this writing, the burn has been put off for at least two years, and if it happens it will probably be much smaller. Pre-burn re-reads will be required if the unit is not burned within two years. Several photopoints were also established to monitor Island evergreen forest, which occurs in narrow, deep, often inaccessible canyons where 30m line transects aren't suitable.

#### Park: Channel Islands

Monitoring Type Name	Number of Plots Read in 2004			Total # of Plots, by Monitoring Type	
	Pre-burn	Immediate Post	Postburn, (1-20 yrs)	Burn	Control
Coastal Sage Scrub				7	14
Coastal Grassland				9	10
Fennel	5			5	0
Mixed Fennel	7			7	0
Mixed Coastal Sage Scrub	6			6	0
Island Manzanita	5			5	0
Island Scrub Oak	6			6	0
<b>Total Plots for 2004</b>	<b>29</b>				
<b>Total Number of Plots Installed to Date</b>				<b>45</b>	<b>24</b>

### Golden Gate

No FMH plots were installed or due to be read in 2004. The park has 114 FMH plots, in 13 monitoring types.

Cutting had been done in some of the park's eucalyptus groves, so one trip was made in order to re-take some photo point shots, and to establish some new ones.

## Joshua Tree

No trips were made to Joshua Tree this year. The park has 12 plots in one monitoring type, and the ten-year read was done last year. No new burns or plot work are planned.

## Pinnacles

Five FMH plots were due for their 10-year read in 2004. There are seven more 10-year reads upcoming, but this park has no plans for more burns or plot work at the present time.

### Park: Pinnacles

Monitoring Type Name	Number of Plots Read in 2004			Total # of Plots, by Monitoring Type
	Pre-burn	Immediate Post	Postburn, (1-20 yrs)	
Chamise Chaparral			3	26
Mixed Chaparral			1	28
Blue Oak Woodland			1	16
<b>Total Plots for 2004</b>			<b>4</b>	
<b>Total Number of Plots Installed to Date</b>				<b>70</b>

## Point Reyes

New plots were installed in several burn units, and pre-burn re-reads were done for nine plots that were established very late in the season last year. FEMO monitoring was carried out for the D Ranch burn, mentioned above. The post-treatment for this burn includes re-seeding with native grass seed. The fire effects monitors may be involved with this.

Since time was available, the seasonals assisted resource management staff with several projects. The fish and cape ivy projects were particularly short-staffed this summer, and fire effects assistance to them comprised the bulk of the non-FMH work.

A new project at Point Reyes is to monitor eucalyptus stands that are slated to be thinned. Alison Forrestel has developed a sampling protocol (with regional input), and ten pilot plots were sampled in November 2004. Based on the data from the pilot plots, permanent plots will be established in February 2005.

**Park: Point Reyes**

Monitoring Type Name	Number of Plots Read in 2004			Total # of Plots, by Monitoring Type	
	Pre-burn	Immediate Post	Postburn, (1-20 yrs)	Burn	Control
Non-native Annual Grassland	11*	6		22	14
Non-native Perennial Grassland	7			5	2
Non-native Grassland with Scotch Broom	9			18	0
Non-native Grassland with French Broom			1	3	0
Northern Coastal Scrub				6	4
Bishop Pine				3	0
Douglas Fir				1	0
Eucalyptus**	10			10	0
<b>Total Plots for 2004</b>	<b>38</b>	<b>6</b>	<b>1</b>		
<b>Total Number of Plots Installed to Date</b>				<b>68</b>	<b>20</b>

\*This number actually represents the number of reads, rather than plots. There are nine plots, but two control plots were excluded when a fence was put across the unit, so they had to be re-located and re-read.

\*\* Eucalyptus plots were read as pilot plots as part of a program to develop a new monitoring protocol for mechanical treatments in eucalyptus.

**Santa Monica Mountains**

All of the '04 SAMO plots were burn or control plots for the 2002 Cheeseboro burn. One of our grass plots was crossed by a band of planted native grasses, and will have to be abandoned. No new plots were installed, and no other plots were up to be read. Aside from the oft-reburned grass plots, most of the SAMO plots have already had their 10-year read, although ten of the dozen oak plots are due next year.

At SAMO we also helped Marti Witter, the Fire Ecologist, by reading some non-FMH *Nassella pulchra* plots. They too were in Cheeseboro Canyon.

**Park: Santa Monica Mountains**

Monitoring Type Name	Number of Plots Read in 2004			Total # of Plots, by Monitoring Type	
	Pre-burn	Immediate Post	Postburn, (1-20 yrs)	Burn	Control
<i>Avena fatua</i> Non-native Annual Grassland			6	11	1
<i>Bromus diandrus</i> Non-native Annual Grassland			6	10	0
Native Perennial Grassland			2	8	0
Mustard				0	1
Coastal Sage Scrub			1	16	0
Laurel Sumac Coastal Sage Scrub				1	0
Chamise Chaparral				17	0
Big-pod Ceanothus Chaparral				11	0
Greenstem Ceanothus Chaparral				5	0
Eastwood Manzanita Chaparral				1	0
Black Sage Chaparral				1	0
Oak Woodland				11	1
<b>Total Plots for 2004</b>			<b>15</b>		
<b>Total Number of Plots Installed to Date</b>				95	3

## Fire Effects Staffing 2004

The fire effects staff consisted of the lead monitor and two seasonals. In addition, we added another person to our team for one trip to Channel Islands, in order to complete all the plot work within the limited time on the island.

Monitor	Starting Date	Ending Date	# of Pay Periods	Training and Development
Alison Forrestel	6-1-04		15	S130; S190; NEPA; FPA-PCHA
Ben Peterson	5-30-04	6-12-04	1	
Wende Rehlaender	1-1-04	12-11-04	21.5	PFTC; worked on FFT1 taskbook
April Sall	5-16-04	10-23-04	11.5	S-290; started FEMO taskbook
Ken Stella	5-2-04	10-30-04	13	S-290; attended Cal-IPPC conference
Marti Witter			26	

## Management Objectives and Monitoring Results 2004

### Bay Area Network

#### Park: Point Reyes NS

Monitoring Unit	Management Objective	Monitoring Results (90% CI)	Objective Achieved?
Northern Coastal Scrub	Native grassland improvement/exotic grass reduction	16-41% Reduction in native species (n=6)	No
Non-native Annual Grassland	Native grassland improvement/exotic grass reduction	4-9% Reduction in native species (n=10)	No
Scotch Broom	Scotch broom reduction (1°)/native plant enhancement(2°)	1°: 3-24% Reduction in Scotch broom 2°: 5-26% Reduction in native species (n=7)	1°: Yes 2°: No
French Broom	French broom reduction(1°)/native plant enhancement(2°)	1°: 4-34% Reduction in French broom 2°: 0-33% Reduction in native species <sup>#</sup> (n=3)	1°: Yes 2°: Unknown

<sup>#</sup> Indicates that results are not statistically significant at  $\alpha = 0.1$

**Park: Golden Gate NRA**

Monitoring Unit	Management Objective	Monitoring Results (90% CI)	Objective Achieved?
Northern Coastal Scrub	Native grassland improvement/exotic grass reduction	0-17% Increase in native species <sup>#</sup> (n=4)	Unknown
Non-native Annual Grassland	Native grassland improvement/exotic grass reduction	1-8% Increase in native species (n=13)	Yes
Non-native Annual Thistle	Thistle reduction(1°)/native plant enhancement(2°)	1°: 0-33% Reduction in thistle <sup>#</sup> 2°: 0-9% Reduction in native species <sup>#</sup> (n=5)	Unknown
Northern Coastal Prairie	<i>Nasella pulchra</i> increase(1°)/native plant enhancement(2°)	1°: -16 to +6 Change in <i>Nasella pulchra</i> <sup>#</sup> 2°: -1 to +6 Change in native species <sup>#</sup> (n=6)	Unknown
Non-native Tall Perennial Grassland	<i>Phalaris aquatica</i> decrease (1°)/native plant enhancement(2°)/fuel reduction	1°: 10% Increase to a 20% decrease in <i>Phalaris aquatica</i> <sup>#</sup> 2°: 0-22% Increase in native species (n=6)	1°: Unknown 2°: Yes

<sup>#</sup> Indicates that results are not statistically significant at  $\alpha = 0.1$

**Park: Pinnacles NM**

Monitoring Unit	Management Objective	Monitoring Results	Objective Achieved?
Chamise Chaparral	Enhance native plants*	8-35% Decrease in native species (n=7)	No
California Mixed Chaparral	Enhance native plants, specifically <i>ceanothus</i> *	2°: -44 to +97 Change in native species <sup>#</sup> (n=2)	Unknown
Blue Oak Woodland	Enhance native plants**	Unknown	Unknown

<sup>#</sup> Indicates that results are not statistically significant at  $\alpha = 0.1$

\* This was not the original burn objective. The original goal was to create a discontinuity in the fuels along the boundary without type converting the area to grass. This objective is no longer considered valid.

\*\* This was not the original burn objective. The original goal was to prevent encroachment by shrubby species and remove low limbs in the boundary buffer area. This objective is no longer considered valid.

Further data analysis for parks in the Bay Area Network is ongoing. Dr. Scott Stephens at the University of California at Berkeley has been contracted to analyze the fire effects data and monitoring design for Point Reyes NS, Golden Gate NRA, and Pinnacles NM. The contract is set to finish 2/28/05 and the final report will analyze the data for all three parks and provide recommendations for improving the quality of the fire effects data set including sample size, controls, etc. The fire ecology staff hopes that the product of this contract as well as ongoing in-house work, will provide a more thorough analysis of monitoring results to guide management.

## **Ecologist Accomplishments**

### **Bay Area Network Ecologist**

Having started in June 2004, I have spent most of the last six months orienting myself to the position and to the network parks. In addition to catching up on the history of fire management in the network parks and on relevant literature, I have had several great training opportunities. These include the statistics training in Ft. Collins, S130/S190, and NEPA training among others. I have also been working on several projects since arriving on the job:

FEAT: One ongoing project has been getting FEAT up and running. We collected and entered this year's data using FMH, since the conversion has not happened yet. FEAT and its associated programs have been loaded onto all fire ecology/fire effects computers. Preparation of the species code lists for each of the six parks has also been completed.

WUI boundary rework: At the end of FY2004, we initiated a small contract to locate boundary monuments along the Point Reyes NS WUI boundary behind Inverness and Inverness Park. This area of the boundary is very convoluted and the park lacks a clear digital version of its location. Good boundary data is essential to WUI fuels planning, education and outreach. Furthermore, if there were ever an incident in this area, knowing the location of the boundary would be of utmost importance. Using the GPS data from the monument location contract, I am in the process of replotting the boundary using existing surveys. When this work is completed, the updated boundary file will be extremely useful both to the fire team and to the rest of the Point Reyes staff.

Eucalyptus monitoring protocol: The direction of fuels management at Point Reyes NS and Golden Gate NRA is shifting more and more towards mechanical fuels treatments. A major push in 2005 and into the future is removing eucalyptus, a fuel hazard and a non-native species, via mechanical thinning. As the network parks take on more and more of these types of projects, it is essential to monitor their effectiveness in reducing fuels and their effects on native flora and stand structure. In order to do this, I developed a monitoring protocol targeted specifically at mechanical thinning in eucalyptus. Ten pilot monitoring plots were established in November 2004 and the data from these plots is currently being analyzed in order to refine the sampling design. Permanent plots will be established using the finalized protocol starting in February 2005.

Sudden Oak Death Research Plan: I have been collaborating with local scientists (including Dr. Max Moritz, UC Berkeley) to establish a research plan to look at the effects of fire on the spread of Sudden Oak Death (SOD). Sudden Oak Death primarily

affects oak and tanoak and is caused by a fungus-like organism that is believed to be non-native. Recent studies suggest that areas that have burned in the last fifty years may be less affected by SOD than areas that have not burned. Point Reyes National Seashore is in a unique position to follow up on this research as the disease front is currently located within the park. I am working with Dr. Moritz to develop a research plan to explore this issue. We hope to submit the plan for JFSP funding in 2005 as well as to look for alternate funding sources.