

**National Park Service  
CENTRAL AND SOUTHERN CALIFORNIA  
Fire Ecology Annual Report  
Calendar Year 2003**



**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 Southern and Central California fire effects crew had a great year in 2003. We had a terrific crew of three seasonals, and they did a fine job of completing the fairly heavy workload of 125 plots, among other things. The crew was led by the assistant lead monitor, as the lead monitor position was vacant until December 2003.

The fire ecologist, Brian Twedt, completed an analysis of some of the ten years of FMH data for Point Reyes, and gave several presentations of his work. He also accompanied the crew on a trip to Pinnacles, and provided additional field assistance on several occasions at the home parks. Unfortunately, he vacated the position in late August, 2003.

The report below covers four of the six parks monitored by the Central and Southern California fire effects crew: Golden Gate, Joshua Tree, Pinnacles, and Point Reyes. The accomplishments for the remaining two parks, Channel Islands and Santa Monica, are presented in a report written by Marti Witter, Fire Ecologist, and a copy of this report is attached.

## Workload and Staffing

### Plot Work

The plot year began in April, when the assistant lead monitor traveled to Joshua Tree (JOTR) for the 10-year re-read of the park's 12 plots, assisted by JOTR staff (Table 1b). After the crew came on, one trip was made to Pinnacles (PINN) (Table 1c), and two longer ones to Santa Monica Mountains (SAMO). At SAMO we also spent 1½ days assisting the fire ecologist with other plot types (see attached report).

Golden Gate (GOGA) had quite a few plots to read this year, as 20 plots were due for their 10-year read, and 12 for their 5-year one (Table 1a). Although the park is not carrying out an active burning program at present, several mechanical fuel reduction projects are in progress, and we continued the photomonitoring of eucalyptus groves that we started last year (see table below).

At Point Reyes (PORE) there were also 20 plots up for their 10-year re-read (Table 1d). We also read 9 other plots that had been burned in the last two years. PORE was the only park in which we established new plots in 2003. As with last year, requests for new plots came in too late for sampling during the optimal phenological period for the plants. A grassland restoration project that will involve burning and re-seeding was planned for the historic D Ranch, and we installed six burn and three control plots in the non-native grasslands. Unfortunately, the weather would not cooperate during the several times that the burn was scheduled, and it was cancelled. Four other new plots were established in Scotch broom grassland on McDonald Ranch, which has been burned numerous times for broom control. There was a concern that the burning was actually increasing the broom, so we put in the new plots, but only read the brush belt this year. The burning season also ran out before this unit was burned, but we plan to do complete reads of all new plots in new PRE reads in the spring. The park was able to complete three burns, though none contained plots.

The new set of LOPE transects established late last year on Tomales Point were not re-read. Aside from the plots having disparate burn histories, there are no plans to burn the unit. The stakes remain in the field.

All of the plots shown below in Tables 1a-1d are FMH plots, therefore a column indicating plot type is not needed. Photomonitoring information (done for GOGA and PORE) is shown in separate tables.

**TABLE 1a. Number of FMH plots installed by monitoring type at GOGA.**

<b>Park: Golden Gate</b>					
<b>Monitoring Type Name</b>	<b>Pre-burn, 2003</b>	<b>Immediate Post, 2003</b>	<b>Postburn, 2003 (1-20 yrs)</b>	<b>Total Number of Plots Installed to Date</b>	
				<b>B</b>	<b>C</b>
Northern Coastal Scrub (ARCA)	0	0	0	1	0
Maritime Chaparral	0	0	0	4	0
Northern Coastal Scrub (BAPI)	0	0	6	11	7
Annual Non-nat. Grassland (BRDI)	0	0	8	25	3
Annual Non-native Grassland (BRDI2)	0	0	3	5	3
Thistle	0	0	4	5	0
Eucalyptus Forest	0	0	0	1	0
Mustard	0	0	0	1	0
Northern Coastal Prairie	0	0	6	16	9
Perennial Non-native Grassland (PHAQ)	0	0	4	6	2
Perennial Non-native Grassland (FEAR)	0	0	0	4	0
Redwood Forest	0	0	1	7	0
Bay Woodland	0	0	0	4	0
<b>Totals</b>				<b>90</b>	<b>24</b>
<b>Total number of plots</b>				<b>114</b>	

Photomonitoring at GOGA

We have done some photomonitoring at GOGA and PORE, and because the layout of the sampling doesn't fit the format of the regular table well, an altered table is presented below. All of the projects involved removal of eucalyptus (*Eucalyptus globulus*) groves, and site name is listed instead of "Monitoring Type Name". Photos were taken pre-cutting, and in some cases, one year after tree removal. One to several photos were taken at each photopoint, but only the total for the site is given.

**Photomonitoring, Golden Gate**

Site Name	# of Photopts. Pre-cut, 2003	# of Photopts. Postcut, 2003 (1 yr)	Number of Photos Taken at Each Site Visit	Total # of Photopoints Installed to Date
Morning Sun	5	0	21	5
Marin Drive	0	5	8	5
Vista del Valle	0	1	2	1
Via Recodo	0	8	10	8
Three Corners	4	0	13	4
<b>Total number of photopoints</b>				23

**TABLE 1b. Number of FMH plots installed by monitoring type at JOTR.**

Park: Joshua Tree					
Monitoring Type Name	Pre-burn, 2003	Immediate Post, 2003	Postburn, 2003 (1-20 yrs)	Total Number of Plots Installed to Date	
				B	C
Black Brush Scrub	0	0	12	10	2
<b>Total number of plots</b>				12	

**TABLE 1c. Number of FMH plots installed by monitoring type at PINN.**

<b>Park: Pinnacles</b>					
<b>Monitoring Type Name</b>	<b>Pre-burn, 2003</b>	<b>Immediate Post, 2003</b>	<b>Postburn, 2003 (1-20 yrs)</b>	<b>Total Number of Plots Installed to Date</b>	
Chamise Chaparral	0	0	1	26	
Mixed Chaparral	0	0	1	28	
Blue Oak Woodland	0	0	3	16	
<b>Total number of plots</b>				70	

**TABLE 1d. Number of FMH plots installed by monitoring type at PORE.**

<b>Park: Point Reyes</b>					
<b>Monitoring Type Name</b>	<b>Pre-burn, 2003</b>	<b>Immediate Post, 2003</b>	<b>Postburn, 2003 (1-20 yrs)</b>	<b>Total Number of Plots Installed to Date</b>	
				<b>B</b>	<b>C</b>
Northern Coastal Scrub	0	0	6	6	4
Non-native Grassland with Scotch Broom	4	0	6	12	0
Non-native Grassland with French Broom	0	0	3	3	0
Non-native Grassland	9	0	14	16	10
Bishop Pine	0	0	0	3	0
Douglas Fir	0	0	0	1	0
<b>Totals</b>				41	14
<b>Total number of plots</b>				55	

### Photomonitoring at Point Reyes

Plans are afoot to expand the photomonitoring at PORE, but to date only one site has been done by the fire effects crew in this park. Unfortunately, most of the cutting had been done before we took the photos.

#### **Photomonitoring, Point Reyes**

<b>Site Name</b>	<b># of Photopts. Pre-cut, 2003</b>	<b># of Photopts. Postcut, 2003 (1 yr)</b>	<b>Number of Photos Taken at Each Site Visit</b>	<b>Total # of Photopoints Installed to Date</b>
Kule Loklo	0	6	16	6
<b>Total number of photopoints</b>				<b>6</b>

### **Other Accomplishments**

In addition to our duties involving FMH work and prescribed burns, the fire effects monitors spent time on other activities as well.

The crew keyed out all unknown plants. They mounted vouchers from this year, and went through our pressed plant collection and mounted all samples that were in good condition. This took care of the sizeable backlog of unknowns and unmounted samples that had accrued from previous years, and transferred our voucher samples from newspaper to a more accessible format. All vouchers are now stored in binders for each park.

The crew participated in several weed removal projects in the park, particularly iceplant removal from dunes and headlands. Two crewmembers assisted with the park's "Rare Plant-a-thon."

The Scotch broom fire research project at PORE has been discontinued, so the crew removed all of the hundreds of pieces of rebar marking the plots for this study (much of which had unfortunately just been pounded in last year).

Computer maps of photomonitoring sites were created, and directions to photopoints written. All photos were printed, with "before" and "after" photos appearing on the same page for sites that had been cut.

We assisted prescribed fire operations staff by preparing GIS maps of burn units, including large format briefing maps and regular-sized IAP maps.

The assistant lead monitor and one seasonal monitor joined fire crews, serving when the country was under a high preparedness level. We were able to complete task book items for FFT1 (assistant lead) and FFT2 (seasonal).

## Staffing

Table 2 shows the staffing of the fire effects monitoring crew for 2003. Training classes attended were fire-related. We all attended either a fire refresher or the basic red card training. And the seasonal monitors completed their pre-requisite S-290 training, which allowed them to initiate fire monitor (FEMO) taskbooks. They each got one assignment as a monitor on a burn, but need more experience in order to be completely signed off. The assistant lead monitor attended Helicopter Crew Member (S-271) training, though has yet to have an assignment in that capacity.

Informal, on-the-job training for the seasonals included plant identification training (two of the seasonals had not previously worked in California), instruction on use of FMH field methods and computer software, credit card training

**Table 2. Fire Ecology Staffing 2003**

Monitor	Starting Date	Ending Date	# of Pay Periods	Training and Development
Wende Rehlaender	1-1-03	12-31-03	24	S-271
Tanya Baxter*	5-5-03	10-31-03	13	S-290
James Cohen*	5-5-03	10-31-03	13	S-130/S-190, S-290
Ann McCauley*	5-19-03	10-31-03	12	S-130/S-190, S-290

\* = seasonal employee

## Program Results

PORE conducted preliminary analysis of FEM data 2003. This draft analysis is available through the park, however further working of the data and write-up is pending. See "Additional Information- Monitoring Results" for further discussion.

## Additional Information

### Sampling Design & Field Methods

It is expected that mechanical fuel reduction will play an increasingly important role in some, if not all, of the parks in our network. We anticipate installing and reading plots in mechanically thinned units in order to meet managers' needs to monitor vegetation change due to these treatments. So far, we have only used photomonitoring to record

changes, because the projects monitored involved complete removal of tree groves, and resulted in a lot of site disturbance.

We eagerly await the arrival of both the new Point Reyes fire ecologist, and the new FEAT software. The network's parks have yielded a lot of data in the past nearly fifteen years, and it is important to carefully assess and use these data, and to address the many fire effects questions that exist. (Of course, two of the parks are in the capable hands of Marti Witter.)

### **Changes in Protocols**

None

### **Recommended Changes in Protocols**

Several items were covered in this section in part two of last year's report, but action on them has yet to be taken. See the 2002 report for sections about "Rejected plots", "Plots that don't meet the monitoring type description," and "Monitoring type description sheets."

### **Innovations**

In last year's report, under "Innovations," we mentioned that we use GIS and GPS to find new plot locations. This method is easier, more flexible, and offers more options than the old dot-grid method. The key is using AlaskaPak in ArcView. AlaskaPak is a package of extensions that was developed by the Alaska Support Office. It is excellent, and also offers a "layout wizard," a means of calculating area, and a lot of other tools. To download, go to <http://www.nps.gov/akso/gis/av31/akpk.htm>. We use the "Create Random Site" option. In the resulting dialog box you can have the points be generated within the view extent, but we like to choose to have them be in "selected polygons of active theme." The active theme can be a burn unit, a vegetation type, or any polygon covering the area you wish to put plots in. In the dialog box, you create a shapefile in which to store your new random points

After points are created, select "Add XY to Attributes," in the AlaskaPak menu, and instantly the UTM coordinates will be added to the attribute table for your random point shapefile. These points can be directly downloaded to a GPS unit (we have a protocol written for our Garmin 3+). It is easy to make a map of the new random points, as each one is numbered in the attribute table. Make the random point theme active, select "Auto-label" from the Theme menu, and then choose the field of the theme that contains the point number.

To find the points in the field, all you need is your GPS and compass. Our Garmin 3+ doesn't have a high accuracy, but since it's all random anyway, it doesn't matter. We can later get more exact UTM coordinates of the actual stake, using a more precise GPS unit such as a Trimble with a Beacon On a Belt (BOB).

## **Status of Planning Documents**

### **GOGA**

Fire Management Plan Completed internal and public scoping for the FMP Environmental Impact Statement on December 5, 2003. Planners are in the initial stages of preparation of the administration draft EIS.

Management Objectives: Scoping resulted in the development of FMP goals. Management objectives will be included in the public draft EIS.

Multi-year Burn Plan Currently no multi-year burn plan exists for GOGA, because the FMP has to be completed first. The plan will be included in the EIS, but will also include fuel reduction projects. Once the Fire Management Plan is prepared, a multi-year burn plan would be Appendix H to the plan.

Monitoring Plan Currently no monitoring plan exists. This will be developed as part of the FMP process as an appendix per RM-18.

### **PORE**

Fire Management Plan The administrative draft EIS has gone through internal and regional reviews, and will soon be released for a 60-day public review/comment period. Management Objectives for each FMU (fire management unit) will be included in the public draft EIS.

Multi-year burn plan Currently in use is a multi-year plan written a couple of years ago. So far, all burn projects have come from this list.

Monitoring plan Currently no monitoring plan exists. This will be developed as part of the FMP process as an appendix per RM-18 once the new fire ecologist is on board.

### **PINN**

Fire Management Plan Planning is underway.

Multi-year burn plan: Currently operating under existing burn plan.

Monitoring plan Currently no monitoring plan exists. This will be developed as part of the FMP process as an appendix per RM-18.

## **Monitoring Results**

During FY03, FMH data for PORE were analyzed. Results of this preliminary analysis were presented to park staff; this powerpoint presentation is available through PORE. Additional work on this data will be continued with the University of California, Berkeley with a publication forthcoming (see Research Projects/Collaboration). While this is a work in progress, the following excerpt from the "Results" section of this analysis is provided to show how this is coming along:

## **Preliminary Results of PORE FEM Analysis 2003**

PORE has four monitoring types: Coyote brush (*Baccharis pilularis* or BAPI), perennial ryegrass (*Lolium perenne* or LOPE), *Cytisus scoparius* (CYSC) and *Genista monspessulana* (GEMO). In 2003, Fire Ecologist Brian Twedt analyzed these types with the primary goal of examining trends with native species on burn sites using relative per cent native cover. A complete draft report is available through PORE Plant Ecologist Jane Rodgers. This report is being finalized through a task agreement with the University of California, Berkeley to be completed by December 2004.

## **Research Projects/Collaboration**

Point Reyes is working with Northern Arizona State University to establish a fire history for the park using soil cores and analyzing pollen samples. Contact: Jane Rodgers, PORE Plant Ecologist.

Point Reyes is working with the University of California, Berkeley, to further analyze fire effects monitoring data for PORE, PINN, and GOGA. This work is being conducted under Task Agreement J8530030125 under the CESU Agreement H8530000045. Contact Jane Rodgers, PORE Plant Ecologist.

In 1996, PORE hosted the Vision Fire Symposium. A publication from this will be published by summer 2004.

Pinnacles NM is considering the use of fire and other treatments to manage yellow star thistle. This work is currently on hold.

Joshua Tree National Park is collaborating with the USGS USGS Las Vegas Field Station studying the effects of fire on *Yucca brevifolia* (to be published 2004) and the effects of fire on blackbrush communities. Additional work is being done through the University of California, Riverside to develop a fire history for the park. Contact: Matt Brooks (USGS), Todd Esque (USGS), and Richard Minnich (UCR).

## **Adaptive Management**

At PORE, in addition to the normal project review process, interdivisional meetings have been held, and more are planned for the future. In recent years, managers from all interested fields, including wildlife, range, science, weeds, and planning, have sat down to go over the list of proposed burns for the year. Concerns are addressed, often resulting in changes to the burn unit boundaries, the schedule, and whether or not a burn actually goes forward. Fire and Resource Management are working towards coordinating more closely, in order to jointly meet the goals of both divisions. As mentioned above, meetings are scheduled for the purpose of re-considering how we want to use fire in the park, and to set priorities and explore options. The park is

currently working towards applying fire effects monitoring data to fuels and vegetation management, bringing in an adaptive management approach to planning efforts.

## **Publications**

A Coupled Model Approach for Assessing Fire Hazard at Point Reyes National Seashore: FlamMap and GIS. Erin K. Noon. Adaptive Management Services Enterprise Team, Region 5, US Forest Service. 2003. Contact information: [Erin\\_Noonan@fs.fed.us](mailto:Erin_Noonan@fs.fed.us)

Report written by Wende Rehlaender, with additions by Jane Rodgers  
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