



**National Park Service
CENTRAL AND SOUTHERN CALIFORNIA
Fire Ecology Annual Report
Calendar Year 2009**

**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

Fire Effects Crew

In 2009, the Central and Southern California Fire Effects Monitoring Crew (FEM) worked in seven parks, under the direction of four different fire ecologists (a record for the latter!). The season began in mid-April and the first monitoring trip was to Channel Islands and Santa Monica Mountains (SAMO). On Santa Cruz Island, the FEM crew collected a third year of data for a project to assess shrub regeneration after a wildfire. The crew then continued on to SAMO to do year 4 reads of shrub plots burned in a 2005 wildfire.

In May, the FEM crew headed to Pinnacles to install yellowstar thistle monitoring plots in the Bottomlands unit; these plots followed an alternate protocol designed by the park botanist. In June the crew returned to Pinnacles to participate in the Bottomlands prescribed burn. The Bottomlands area is a relatively newly-acquired piece of land and the park hopes to control the starthistle on this lovely oak-studded property.

Also in May and June, the FEM crew assisted the Bay Area Network Inventory and Monitoring staff, by working with them to re-read unburned FMH plots at Golden Gate (GOGA) and Point Reyes (PORE) for the purpose of looking at plant community change over time.

In June and July, the FEM crew began a new project to look at the effects of fire and mechanical plant removal on habitat improvement and expansion for the endangered Mission Blue Butterfly. Plots were established at two different sites in GOGA where the butterfly occurs. Unfortunately the treatments did not end up happening this year, but this will allow sampling to occur next year a little earlier in the season.

July and August were filled with three trips to northern parks, where the crew helped the Klamath-Cascades network. The FEM crew made two trips to Crater Lake (CRLA), where first, the plots burned in the 2007 Cornerstone Burn were read. Next, new white fir plots in the adjacent Phoenix burn unit were installed. The PORE crew worked with the Eastside Klamath fire effects crew. (The lead monitor later traveled back to CRLA for the Phoenix Burn, but it was cancelled after briefing.) The other northern trip was to Whiskeytown, where the crew assisted the Westside Klamath fire effects crew (from Redwood) to do composite burn index (CBI) plots in two 2008 wildfires.

In between all the traveling, FMH plots were read at PORE and GOGA, the home parks. In addition, the crew worked with U.C. Berkeley researchers to do SOD (Sudden Oak Death) plots; this work was a continuation of last year's project.

The season for the FEM crew wrapped up in early October. Although the Bottomlands Burn at Pinnacles was the only one carried out in crew's parks this year, the FEM crew did have a chance to fill requests for their assistance to help with several resource management projects at PORE. They assisted on at least eight different days with weed control, rare plant monitoring, and fish monitoring.

Bay Area Network Fire Ecology

Mediterranean Coast Network Fire Ecology

Fire Effects Plot Workload 2009

Channel Islands National Park

The crew visited Santa Cruz Island in order to do Year 03 reads of the plots installed in the Cruz wildfire, which is on Nature Conservancy property. This is a collaborative study of island shrub regeneration after fire, and instead of FMH protocols, uses methods modified from a sampling design created by Jon Keeley. With the flexibility offered by FFI, the SAMO fire effects monitor was able to create data entry protocols for these sampling methods, and all of the data have now been entered into FFI. The SAMO monitor also assisted with the field work, and SAMO staff did some of the data entry.

Park: Channel Islands

Monitoring Type Name	Number of Plots Read in 2009			Total # of Plots, by Monitoring Type	
	Pre-burn	Immediate Post	Postburn, (1-20 yrs)	Burn	Control
SRI Coastal Sage Scrub (<i>Artemisia</i>)				7	14
SRI Coastal Grassland (<i>Nassella</i>)				9	10
SCI Fennel				5	0
SCI Mixed Fennel				7	0
SCI Fennel Regeneration			2	2	0
SCI Mixed Coastal Sage Scrub				6	0
SCI CSS Regeneration			6	6	0
SCI Island Manzanita				5	0
SCI Island Scrub Oak				6	0
Total Plots for 2009	0	0	8		
Total Number of Plots Installed to Date				53	24



Crater Lake National Park

Crater Lake (CRLA) is part of the Klamath-Cascades network, so the table below shows only the plot reads that the Central and Southern California fire effects (FEM) crew did. Two trips were taken to CRLA, to read plots burned in the 2007 Cornerstone Prescribed Burn, and to install new plots in the Phoenix burn unit. The FEM also entered the data into the FFI database. The two Klamath fire effects monitors assisted with the field work, and the new lead monitor came out one day as well.

Park: Crater Lake

Monitoring Type Name	Number of Plots Read in 2009*		
	Pre-burn	Immediate Post	Postburn, (1-20 yrs)
Lodgepole Pine (various mon. types)			5
White Fir	10		
Total Plots for 2009	10	0	5

*This is the total that the PORE crew did



Golden Gate National Recreation Area

The big fire effects news at GOGA this year was the initiation of a Mission Blue Butterfly project. A total of nine plots were installed at two different sites (one in San Mateo County, and the other in Marin County). Each plot had burn, mechanical removal, and control treatments; sampling methods were line-point and density counts. For the control plots, burn boxes were made by a contractor, based on specs provided by the Fire Ecologist. However, neither the burn nor the mechanical treatments were carried out in 2009. The advantage is that the plots can be re-sampled next year at a better time for plant phenology; the 2009 sampling was constrained by project planning delays.

The tall fescue (*Festuca arundinacea*, or FEAR) plots in the Marin Headlands were re-read in anticipation of a burn, and new control plots were established there as well. But this burn was also cancelled.

The other plots read at GOGA in 2009 were done at the request of Inventory and Monitoring staff, who also provided field assistance. The goal was to examine plant community change over time, and several never-burned FMH plots at both GOGA and PORE provided the perfect opportunity to start this process. The plots read in 2009 were established in approximately 1990 and have not burned since, either because they were control plots or because they were in burn units that were abandoned and not burned. In all, 12 plots were read at GOGA, and 3 at PORE for this project.

Park: Golden Gate

Monitoring Type Name	Number of Plots Read in 2009			Total # of Plots, by Monitoring Type	
	Pre-burn	Immediate Post	Postburn, (1-20 yrs)	Burn	Control
Northern Coastal Scrub (ARCA)				1	0
Northern Coastal	2			11	7

Scrub (BAPI)					
Manzanita Chaparral				4	0
Annual Non-native Grassland (BRDI)				25	3
Annual Non-native Grassland (BRDI2)				5	3
Italian Thistle				5	0
Eucalyptus Forest				1	0
Mustard				1	0
Northern Coastal Prairie (NAPU)	9			16	9
Perennial Non-native Grassland (PHAQ)				6	2
Perennial Non-native Grassland (FEAR)	7			4	3
Mission Blue Butterfly*	9			9	plots contain controls
Redwood Forest				9	0
Bay Woodland	1			4	0
Total Plots for 2009	28	0	0		
Total Number of Plots Installed to Date				101	27

*These alternate-method plots have three blocks: burn, mechanical, and control

Joshua Tree National Park

No trips were made to Joshua Tree this year. The park has 12 plots in one monitoring type (as shown in the table), and the ten-year read was done in 2003. No new burns or plot work are planned.

Park: Joshua Tree

Monitoring Type Name	Number of Plots Read in 2009			Total # of Plots, by Monitoring Type	
	Pre-burn	Immediate Post	Postburn, (1-20 yrs)	Burn	Control
Black Brush Scrub				10	2
Total Plots for 2009	0	0	0		

Total Number of Plots Installed to Date

12

Pinnacles National Monument

The FEM crew made one trip to Pinnacles to install new yellowstar thistle (*Centaurea solstitialis*, YST) plots in the Bottomlands burn unit. The method was designed and the sampling overseen by Brent Johnson, PINN Botanist. The point-frame method was used to assess vegetative cover, and counts were made of starthistle in its different growth stage categories. The plots included both burn and control blocks, though many of the control plots also burned. PINN staff collected immediate postburn data from the YST plots. The SAMO fire effects monitor designed data-entry protocols so that these alternate-method data could be entered into FFI.

The park is very interested in restoring the Bottomlands site to a more native-dominated plant community. Treatment of the unit will continue in the coming years; various exotic plant control methods are being considered, including the use of herbicides, burning, and goat grazing. The Bottomlands Burn was the first management-ignited fire in the park in eleven years, and its success stimulated hopeful enthusiasm for continuing the work that has begun in this unit. There were also FMH-style starthistle (CESO) plots in the Bottomlands unit, but time allowed only two to be read post-burn. The FMH starthistle plots in the Entrance Meadow unit were also read (though that unit was not burned this year).

Park: Pinnacles

Monitoring Type Name	Number of Plots Read in 2009			Total # of Plots, by Monitoring Type	
	Pre-burn	Immediate Post	Postburn, (1-20 yrs)	Burn	Control
Chamise Chaparral				26	0
Mixed Chaparral				28	0
Blue Oak Woodland				16	0
Yellow Starthistle (CESO)*	10	2	5	8	2
Yellow Starthistle alt. meth. (YST)	12	8	10	10	2
Total Plots for 2009	22	10	15		
Total Number of Plots Installed to Date				92	

* Two of the original 12 plots were eliminated, one (a burn plot) due to being in a helicopter landing zone and the other (a control plot) because it was in the path of a water well installation project.

Point Reyes National Seashore

At PORE, the *Deschampsia* (hairgrass) and PIMU (Bishop pine, brush method) plots that burned in last year's Limantour Burn received their year 01 read. A new PIMU control plot was installed to replace one that was too deep in poison oak. All of the French broom (GEMO2) plots were re-read, in anticipation of a burn. And, as mentioned in the GOGA section above, three long-established control plots in coyote brush (BAPI) were read as part of a project to look at community change. No burns were carried out in the park in 2009. However, mechanical fuel reduction by the Hazard Fuel Crew continues, and some of this work was documented by the FEM crew through the use of photomonitoring at permanent points. As they did last year, the FEM crew contributed a sizable effort towards an ongoing study of SOD in the park, by assisting U.C. Berkeley researchers to conduct field work at PORE. This disease is having a very serious impact on the tanoak (*Lithocarpus densiflorus*) in the park.

Park: Point Reyes

Monitoring Type Name	Number of Plots Read in 2009			Total # of Plots, by Monitoring Type	
	Pre-burn	Immediate Post	Postburn, (1-20 yrs)	Burn	Control
Non-native Annual Grassland (LOPE)				22	14
Non-native Perennial Grassland (PHAQ)				4	3
Non-native Grassland with Scotch Broom				18	0
Non-native Grassland with French Broom			13	13	0
Perennial Grassland: <i>Deschampsia</i>			7	4	3
Northern Coastal Scrub (BAPI)			3	6	4
Bishop Pine (forest plots)				3	0
Bishop Pine (brush plots)			6	3	3
Douglas Fir				1	0
Eucalyptus				5	0
Total Plots for 2009	0	0	29		
Total Number of Plots Installed to Date				79	27

Santa Monica Mountains National Recreation Area

In 2009 there was a change in allocation of seasonal staffing of the fire effects monitors. One-third of the seasonal time went to SAMO, allowing the Mediterranean Fire Ecologist, Marti Witter, to staff ongoing projects within that park. The PORE crew made one trip to SAMO and conducted year 04 reads of shrub plots burned in the 2005 Topanga Fire. The table below shows these reads, as well as all of the other FMH plots located at SAMO. The rest of the work done at SAMO will be detailed in the report submitted by the Mediterranean Network.

Park: Santa Monica Mountains

Monitoring Type Name	Number of Plots Read in 2009			Total # of Plots, by Monitoring Type	
	Pre-burn	Immediate Post	Postburn, (1-20 yrs)	Burn	Control
<i>Avena fatua</i> Non-native Annual Grassland				10	1
<i>Bromus diandrus</i> Non-native Annual Grassland				10	0
Non-native Annual Grassland (ANGR)				16	8
<i>Phalaris aquatica</i> Non-native Perennial Grassland				10	0
<i>Distichlis spicata</i> Native Perennial Grassland				1	0
<i>Nassella pulchra</i> Native Perennial Grassland				8	0
Mustard				0	1
Forb (non-native annuals and herbaceous perennials)				16	0
Sagebrush Coastal Sage Scrub			2	16	0

Laurel Sumac Coastal Sage Scrub				1	0
Chamise Chaparral			6	16	0
Big-pod Ceanothus Chaparral				11	0
Greenstem Ceanothus Chaparral				5	0
Hoary-Leaf Ceanothus			1	1	0
Eastwood Manzanita Chaparral				1	0
Black Sage Chaparral*				1	0
Oak Woodland				11	1
Burn Severity				30	0
Total Plots for 2009	0	0	9		
Total Number of Plots Installed to Date				166	11

* One SAME plot has been converted back to its original monitoring type of ADFA

Whiskeytown National Recreation Area

The FEM crew traveled to Whiskeytown, and spent a pay period conducting composite burn index (CBI) plots, led by the Redwood (Westside Klamath) fire effects crew. Working in three pairs, the combined crews covered a lot of (often very steep!) ground in the 2008 Motion and Whiskeytown Complex wildfires, and completed a large number of CBI plots.



PORE and REDW crews after last dinner in Redding

Management Objectives and Monitoring Results 2009

Fire Ecology Staffing 2009

Monitor	Starting Date	Ending Date	# of Pay Periods	Training and Development
<i>Alison Forrestel</i>	<i>n/a</i>	<i>n/a</i>	26.5	
Wende Rehlaender	1-1-09	1-10-09	23.5*	HAZWOPER, all-risk READ (5 days total)
	2-21-09	1-2-10		
Nathan Cofer	4-15-09	10-10-09	12.5	S-130, S-190
Christopher Pearce	4-16-09	7-4-09	5.5	
Dylan Voeller	8-5-09	10-2-09	4.5	

*Calendar year 2009 contained 26.5 pay periods

Accomplishments and Focus Areas for Fire Ecologists and Fire Effects Monitors

Fire Effects Crew

Category	Percent Time		Accomplishments/Focus Area
	Crew	Lead	
Vegetation Plots (FMH and other methods)	40%	18%	Includes travel time to away parks
Other Field Projects	14%	5%	<ul style="list-style-type: none"> • Field work for a SOD research project at UC Berkeley (14 people-days) • WHIS trip for CBI plots (one pay period, 3 people) • Pulled weeds (6 people-days) • Fish and rare plant monitoring (2 people-days) • GPS'd mowed areas at PORE; downloaded to GIS (1 person-day) • Photomonitoring of fuels reduction projects at PORE and GOGA (2 people-days)
Fire Assignments	<1%	<3%	<ul style="list-style-type: none"> • Lead Monitor was FEMO on a prescribed burn at PINN (1 day) and wrote burn report. Seasonal (not yet red-carded) observed. • Lead Monitor participated in prescribed burn with a local agency (1 day) • Lead Monitor traveled to CRLA for a burn, but it was cancelled (3 days includ. trav.)
Data Entry, Slide & Photo Labeling, Keying Vouchers, and Miscellaneous Office Work	30%	25%	And for Lead only: work on FFI to maintain databases and to clean up code lists
Supervision and Administration	0%	35%	Hiring, planning, timesheets, travel, and other paperwork, evaluations, preparing for trips, ordering things, annual report, and various other administrative tasks
Meetings	<1%	3%	
Training and Development	7%	7%	Fire refresher, training and development as noted in previous table, regular PT
Orientation and Informal Training	8%	4%	Learning and teaching