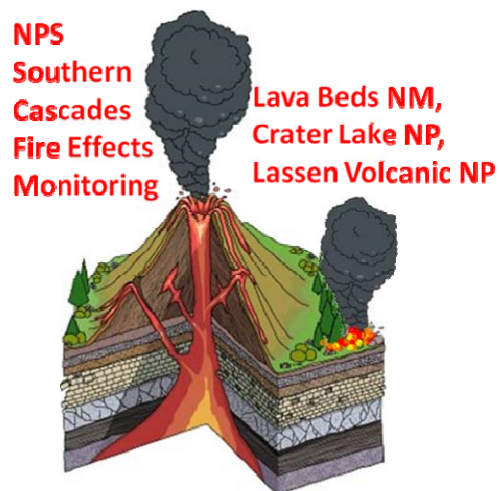


2012 Fire Ecology



Annual Report



A. Summary

2012 was yet another busy summer for the Southern Cascades fire effects crew. The crew completed 208 plots in their core parks (LABE, CRLA and LAVO) as well as assisting the Klamath network fire ecologist with plots in WHIS and ORCA.

Along with fire ecologist Calvin Farris and crew lead Todd Erdody, there were seasonals to assist with the workload. Due to budget constraints, Todd could only hire one seasonal and managed to acquire a fire effects veteran in Christy Frenzen. Christy had worked the previous 3 seasons as the acting lead at SEKI and before that was a regular crewmember on the REDW fire effects crew. Additionally, Todd supervised the San Francisco Bay Area network (SFBAN) fire effects crew from the middle of July until the end of the season. This crew consisted of Monica Delmartini and Jenny Cribbs.

Lava Beds National Monument (LABE):

Work in LABE started in March for an experimental project involving girdling mahogany trees with a propane torch. From the end of May and through June, FMH brush and forest plots were read in the South Boundary unit as well as some thinning plots on Bearpaw and Hippo Buttes. Photo points for the 2008 Jack wildfire were also taken as well as data for aspen suckers in LABE's only aspen grove.

Lassen Volcanic National Park (LAVO):

Much time and effort went into plots at LAVO in 2012, with the crew taking 4 trips and spending a total of 28 days. The first 3 trips involved installing numerous plots in the Northwest Gateway thinning project, around Manzanita Lake. Some of these plots were piggybacked off of stand exam plots and others, which focused on aspen and meadow communities, were newly installed. The first trip also provided an opportunity to read 7 FMH forest plots in the Hole unit, which burned in 2002. By the end of the second trip in the beginning of August, the crew assisted as FEMOs on the Reading fire. The Reading fire eventually re-burned the 7 plots in the Hole unit as well as 5 other forest plots and 7 aspen plots in adjacent units. Christy and Todd went back in mid-September for the immediate post-burn reads on these 19 plots.

Crater Lake National Park (CRLA):

Christy and Todd made a few day trips to CRLA in early July to read a few FMH forest plots in the Panhandle as well as fixed-radius forest plots for a University of Minnesota study in the Cornerstone unit. In mid-August the full crew came back to read FMH forest plots in the Cornerstone and Phoenix units as well as installing some vegetation transects in the whitebark pine ribbon forests. The crew was also made available for lightning severity but alas, no lightning struck the park all summer. Christy and Todd made it back in September to finish up the whitebark plots.

Whiskeytown National Recreation Area (WHIS):

From May 29 to June 1, Christy and Todd headed down to WHIS and met up with the Klamath network fire ecologist, Eamon Engber, and the SFBAN fire effects crew. Together, we completed post-fire FMH forest plots in the Panther Gap unit, post-thinning data in Coggins Park and photo points in the Eastside thinning units. Poison oak was abundant and unfriendly.

Oregon Caves National Monument (ORCA):

On June 26, Christy and Todd travelled to ORCA for 3 days and met again with Eamon Engber to read 3 forest plots.

Research:

The Fire Ecologist and FEMO performed field work, data analysis, and planning on six research projects in the Network: a climate variability project covering four Klamath Network plots, a demography/disturbance study at CRLA, an experimental fuels reduction project at LABE, aspen research at LAVO, and LiDAR research on forest structure/fire history at CRLA. In addition, three proposals were submitted. The ecologist also worked as part of a team studying wildland fire programs in the Gila Wilderness and Saguaro National Park.

Fire Operations:

In early March, Calvin and Todd proceeded to girdle mahogany trees in LABE with a propane torch. In April, Todd got the opportunity to work on his RXB3 by burning piles at LABE. The next time the crew saw fire was in the beginning of August on the Reading fire in LAVO. Christy re-certified her FEMO and Jenny was able to work on some FEMO tasks. The Fire Ecologist assisted on two Rx Fires for the USFS (adjacent to parks) and worked two fire assignments at LAVO in a variety of roles.

Table 1. Fire Effects Plot Workload (2012) and Total Plots Installed*

Park	Monitoring Unit	Plot Type (FMH Forest/Brush/Grass plot, photo point, Rapid Assessment, CBI, etc.)	Pre-burn 2012	Immed. Post 2012	Postburn (1-20 yrs) 2012	Annual Total (2012)	Total Plots
Lava Beds	Sagebrush Steppe	FMH Brush plot	2	-	12	14	90
Lava Beds	Perennial Bunchgrass	FMH Brush plot	-	-	-	-	24
Lava Beds	Ponderosa Pine	FMH Forest plot	-	-	3	3	18
Lava Beds	Juniper	FMH Forest plot	-	-	-	-	9
Lava Beds	Aspen	Modified FMH Forest plot	-	-	-	-	1
Lava Beds	Mahogany tree girdle	Individual tree assessment	1	1	-	2	1
Lava Beds	Jack Fire	Photo point	-	-	7	7	7
Crater Lake	Lodgepole Pine	FMH Forest plot	-	-	9	9	9
Crater Lake	Mixed Conifer (White Fir)	FMH Forest plot	-	-	4	4	24
Crater Lake	Ponderosa Pine	FMH Forest plot	-	-	-	-	14
Crater Lake	Mountain Hemlock	Modified FMH Forest plot	-	-	-	-	18
Crater Lake	Lodgepole Pine	Modified FMH Forest plot	-	-	-	-	4
Crater Lake	Mixed Pine	Fixed radius forest plot	-	-	21	21	21
Crater Lake	Whitebark Pine	Modified FMH transect	16	-	-	16	16
Crater Lake	Red Cone Fire	Photo Point	-	-	6	6	6
Lassen Volcanic	Mixed Conifer (White Fir)	FMH Forest plot	-	4	2	6	36
Lassen Volcanic	Lodgepole Pine	FMH Forest plot	-	3	3	6	3
Lassen Volcanic	Jeffrey Pine	FMH Forest plot	-	2	2	4	2
Lassen Volcanic	Red Fir	FMH Forest plot	-	3	-	3	9
Lassen Volcanic	Ponderosa Pine	FMH Forest plot	-	-	-	-	5
Lassen Volcanic	Greenleaf Manzanita	FMH Brush plot	-	-	-	-	17
Lassen Volcanic	Mixed Meadow	FMH Grass plot	-	-	-	-	4
Lassen Volcanic	Aspen	Modified FMH Forest plot	31	7	-	38	63
Lassen Volcanic	Mixed Conifer	Modified FMH Forest plot	39	-	-	39	39
Lassen Volcanic	Riparian Meadow	Modified FMH Forest plot	30	-	-	30	30
Lassen Volcanic	Campground thinning monitoring	FMH Brush plot	-	-	-	-	24
Total			119	20	69	208	494

*Note: This does not include FMH plots and photo points conducted in WHIS and ORCA, which is included in the Klamath Network annual report.

Table 2. Fire Ecology Staffing 2012

Ecologist and Monitors	Starting Date	Ending Date	# of Pay Periods	READ Qualified (Yes or No)	Training and Development
Calvin Farris	1/1/12	12/31/12	26	Yes	
Todd Erdody	1/15/12	12/1/12	23	Trainee	S-490, READ, S-260 (on-line)
Christy Frenzen	5/14/12	9/28/12	10	Trainee	READ, FEMO re-certified
Jenny Cribbs*	7/15/12	9/28/12	5.5	No	S-290, FEMO taskbook opened
Monica Delmartini*	7/15/12	9/28/12	5.5	Yes	

*Jenny & Monica are PORE employees but were under Todd's supervision during the time period shown.



The fire effects crew enjoys the tail end of a storm on the CRLA rim: Jenny Cribbs, Monica Delmartini, Todd Erdody, Christy Frenzen

Complete the following summary table for each monitoring unit for which analysis is available (Table 3). Monitoring results should include time frame, confidence interval, and sample size. An example from Sequoia-Kings Canyon is provided to illustrate how to complete the table. Note the column indicating the year the analysis for that monitoring unit was last completed.

Table 3. 2012 Management Objectives and Monitoring Results

Crater Lake NP results. All results shown are 80% confidence intervals of the mean. Fuel reduction objectives/results are mean percent reduction from pre-burn to immediate post-burn.

Monitoring Unit	Management Objective (Restoration)	Monitoring Results	Objective Achieved?	Year Analysis Completed (Range of Data [Yrs] Included in Analysis)
Interior Ponderosa Pine	Reduce surface fuel load to 60-90% of existing load	Total fuel reduction = +11% *increase* (CI ₈₀ %: -5% to +40%) (n=16 plots, 10 years)	NO	2012 (2001-2011)
	20-50 trees/acre > 12" dbh*	98 trees/ac > 12" (SE +/- 11.4)	NO	2012 (2001-2011)
	< 400 trees/acre 2-6" dbh	366 trees/ac 2-6" (SE 104) (n=16 plots, 10 years)	YES	2012 (2001-2011)
Lodgepole Pine	Reduce surface fuel load to 35-55% of existing load	Total fuel reduction = 54% (CI ₈₀ %: 43.2 to 64.7%) (n=30 plots, 4 fires 6 years)	YES	2012 (2006-2012)
	Total tree density = TBD Composition: 80-90% pine, 0-10% fir, 0-10% hemlock	Tree/acre =993 (SE +/- 364) Composition 94% pine 1% fir 9% hemlock	NO Note: tree density reduction was 48% (CI ₈₀ % 35%-61%)	2010 (1983-2010)
Other types	Insufficient data available			

B. Fire ecologist accomplishments and areas of focus

This section deals with roles and functions of the ecologist. Identify accomplishments and/or focus areas along with a rough estimate of the amount of time spent in these areas (see table format and example below). This includes planning documents produced or reviewed (e.g. fire management plans, monitoring plans, prescribed fire or mechanical treatment plans, etc.), presentations given and audience, meetings and task groups attended, contracts reviewed, interagency collaboration efforts, volunteer hours managed, and scientific or research publications produced.

Table 4. Fire Ecologist 2012 Accomplishments/Focus Areas

Category	Percent Time	Accomplishments and/or areas of activities
<i>Planning</i>	35%	• Pre-planning for NWG project, LAVO (Rx development, marking reviews, stand projections, unit layouts, PI scoping, etc.) • Fuels Treatment Plans at network parks • Vegetation management plans (integrating fire with resource management objectives (LBE)) • Objectives planning for two integrated veg management projects (network)
<i>Research</i>	20%	• Decadal-scale climate variability (network wide, UMN) • CoPI on Gila-Rincon fire research with USFS and NAU • Torch girdling for woody vegetation reduction (field trials) • Meadow and Aspen restoration research sampling in LAVO • Demography and Ribbon Forest (CRLA, UMN) • Fuels mapping and fire severity modeling (LAVO, PSU) • Fine-scale remote sensing for fire management planning (UI) • Submitted three proposals and began preparing two more.
<i>Fire Assignments</i>	15%	• Raptor Rx and Board Rx assist (USFS) • Reading Fire , two assignments (Decision-support, READ, monitoring) • Fire severity mapping and post-fire assessment LAVO
<i>Teaching/Training</i>	10%	• S495 cadre (online & classroom) • WFDSS/FSPRO trainings
<i>Presentations and Workshops</i>	10%	• Central Oregon Fire Science Symposium (presentation: Fire/Veg planning) • UC Cooperative Extension workshop (presentation and field tour: NWG project, and workshop panel) • PWR ecologist meeting (Stats tools and Torch project summaries presentation) • FSPRO workshop, Sacramento (presentation: Lessons Learned from 2011)
<i>Fire Fx Monitoring</i>	8%	• Summarized data for CRLA 10 year reads • NWS pre-treatment, and Reading Fire post-fire (LAVO) • Beta testing Paired Analysis Stats Tools with Ken Gerow.
<i>Administrative/Supervisory, Meetings, Misc</i>	2%	• Misc contracting and CESU reporting, etc. • Budget and Administrative • Supervised lead monitor and volunteer

C. Fire effects crew accomplishments and areas of focus

Table 5. Fire Effects Crew 2012 Accomplishments/Focus Areas

Category	Percent Time	Notes
FMH plots	45	
WUI plots	0	
CBI plots	0	

Other plot work	5	Photo points in LABE, CRLA and WHIS. Fixed-radius plots in CRLA. Individual tree assessments in LABE.
Wildfire assignments	1	Lead and crew were FEMOs on 1 wildfire
Prescribed fire projects	2	Lead was FEMO for 1 Rx fire in LABE, RXB3 trainee for pile burning in LABE and assisted in burn prep for multiple projects in LABE.
Non-fire fuels projects	0	
Travel out-of-park for plot or project work	5	4 trips to LAVO, 2 trips to CRLA (and some day trips), 1 trip to WHIS, 1 trip to ORCA and many day trips to LABE.
Data entry	20	All data entry for 2012 complete.
Data analysis	1	
Supervision/Admin	5	Lead monitor hired and supervised 3 monitors; misc travel and time paperwork through two different parks.
Training	5	Crew had refresher training. One crewmember had S-290. Lead and one crewmember had READ training. Lead had S-490 and took S-260 on-line.
Miscellaneous	11	

D. Additional Program Information

Please complete the new tables below which contain the information from the supplement that we feel is valuable to compile on an annual basis to help assess the fire ecology program workload. Everglades National Park is used as a fictitious example in the table.

Table 6. Planning - 2012

Park	Does Park have written DFCs? (yes or no)	Date Park-level Monitoring Plan completed (or revised)	Total # of Project- or Community-level Monitoring Plans (not just 2012)	Assisted with how many BAER plans in 2012?
Lava Beds National Monument	Y	2008	3	
Crater Lake National Park	Y	2005	1	
Lassen Volcanic National Park	Y	2008	5	1

Table 7. Monitoring - 2012

Park	% 2012 Data Entered	% 2012 Data Quality Checked	# Prescribed Fires Monitored*	# Non-fire Fuels Treatments Monitored*	# Wildfires Monitored*	# BAER Treatments Monitored*
Lava Beds National Monument	100%	100%	2	1	1	0
Crater Lake National Park	100%	100%	2	0	1	0
Lassen Volcanic National	100%	100%	1	1	1	0

Park						
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* Number of treatment units with treatment effects monitoring conducted. Include pre-burn and post-burn monitoring but not burn-day monitoring.

Table 8. Communicating Results - 2012

Park	# of Project Monitoring Reports completed in 2012	# of Annual meeting(s) with Park staff	# of Formal presentations of results	Do you use Minitab?*
Lava Beds National Monument	0	4	1	No
Crater Lake National Park	0	3	1	No
Lassen Volcanic National Park	1 (non-fire)	10 (including field meetings)	1	No

* This information will help to assess Minitab multi-user license needs.

Table 9. Research - 2012

Park	Are research needs identified in FMP or Monitoring Plan? (yes or no)	# of Proposals Submitted in 2012	# of Proposals Funded in 2012	# of Research Projects Supported in 2012*	Additional Comments
Lava Beds National Monument	Y	1	0	2	
Crater Lake National Park	Y	2	1	3	
Lassen Volcanic National Park	Y	0	0	2	

*Number of funded research projects, new or ongoing, supported by the fire ecology program including logistical info or support, staffing, etc.

Reserve Fund Research: If your park(s) received Reserve Fund Research funding or completed a previously-funded project in the last year, please provide the following:

Completed Projects:

- **Fine-Scale Remote Sensing Applications to Support Vegetation and Fire Management Planning and Implementation**
 - Purpose: To map fine-scale variables needed for development of spatially explicit fire and vegetation management planning
 - Cooperators: University of Idaho
 - Status: The research and products for this were completed in 2012. The final report is due in this March.
 - List of deliverables: GIS layers of fuel load, cheat grass cover, shrub cover, juniper successional stage, perennial cover, and vegetation structure maps.

- **Spatial patterns of forest fire severity and recovering in the early 20th century, Lassen Volcanic National Park.**
 - Purpose: 1- Quantify spatial and temporal changes in historic fire severity and vegetation development; 2- Develop predictive models of fire severity based on topographic and vegetative complexity.
 - Cooperators: Penn State and USFS PSW Research Station.
 - Status: The research is mostly completed but was extended one more year to utilize leftover funds. Many products have been delivered; final report in Dec 2013. .
 - List of deliverables: Thus far, two published journal articles, one in review, two MS theses, and 1 PhD dissertation

We expect the completion of one more project in late 2013 (disturbance and demography across a lodgepole-ponderosa ecotone, CRLA, University of Minnesota).

E. 2013 Direction

We are gearing toward a future with minimum staffing and shifting goals. We have focused more on targeted research and monitoring that address the issues at our parks, which deal more with landscape-scale and long-term wildland fire impacts in the backcountry (or wildfires) rather than a fuels or Rx fire projects which have largely disappeared (these are not well suited to an intensive plot-level monitoring protocol). We have increased our direct role in project planning and implementation (and conception) and we are continuing to take an active role in wildland fire operations ranging from decision-support to WFDSS analyses to monitoring. In many parks the front-country restoration emphasis is shifting from the fuels realm (funding and planning) to resource management realm, so we find ourselves more involved in resource management programs (i.e., the ‘fire’ linkage). Along these lines, in Lassen our fire ecology program took the lead on a large-scale mechanical treatment demonstration project in WUI (this project is going to contract after much planning and coordination with both fire and resource management). Although we have no seasonals anymore (and don’t expect to in the future), we are still making every effort to maintain the FMH monitoring network at some minimum level so it remains a viable and valuable resource for the future (i.e., ‘triage’).

F. Optional Information

To help in the ongoing effort to improve FFI, please include any feedback or suggestions here based on your experiences using FFI.

INSTRUCTIONS FOR UPLOADING 2012 ANNUAL REPORT

1. Save your report as a PDF file using the following file naming convention “2012 *Park/Network Name* Annual Report.pdf”.
2. Go to the NPS Fire Ecology Sharepoint site (<http://npsfamshare.nps.doi.net/wildlandfire/firescience/fireecology/default.aspx>). In Fire Ecology Documents, upload your report to the 2012 Park and Network Fire Ecology Program Annual Reports folder.
3. Please e-mail your regional ecologist, Nate Benson, and MaryBeth Keifer to let us know when you get your report uploaded.

Call MaryBeth Keifer (603-795-2333) or Nate Benson (208-387-5219) if you have any questions or problems.