



**National Park Service
Southern Cascades Network
Fire Ecology Annual Report
Calendar Year 2014**

A. Summary

A considerable amount of our work in 2014 was spent supporting other parks across the region. This was necessary to meet key PWRO priorities outside our network (e.g., Rim Fire), and share resources given the overall reduction in ecology workforce. We assisted Yosemite with fire effects monitoring and field research related to the Rim Fire, assisted two other parks in the Klamath Network with field monitoring, and were involved in fire ecology research that covered the entire Sierra Nevada region and the Southwestern United that had direct NPS implications (which involved both field work and data analysis). We began work on three new research projects, one of which covers the entire network and one that covers half of the region, and are making progress toward wrapping up several others. Back at home, we managed to stay current on monitoring of high priority projects despite having no seasonals the past two years, thanks largely to the fact that Todd (Lead FEMO) is himself an efficient one-man crew.

Speaking of Todd, the biggest news of the year for our program is that he left NPS in November to become fire ecologist for the BLM in Battle Mountain, NV. Congrats to Todd and BLM, but bad for NPS. This will be a huge blow to our productivity in all facets of the program as he was a very motivated and skilled employee (many years of NPS service). The South Cascades program now consists just of a fire ecologist with no FEMO or seasonal staff on the FTO.

We continued to collaborate closely with fire and resource management staff to help plan, implement, and monitor various projects. The biggest accomplishment by far in 2014 was completion of the Northwest Gateway Restoration project, a 600+ acre silviculture-based restoration around the Manzanita Lake WUI in LAVO. The NPS had been trying to treat this landscape since the early 1990s with fire and manual treatments, but the shift to a full-scale mechanical thin and much hard work finally made it a reality. A similar project is being planned in the Panhandle of Crater Lake NP, which will utilize lessons learned and monitoring data from LAVO.

Incident support workload was far below our average in 2014. This was partly due to Todd leaving (we found out early in the summer), which shifted our focus to wrapping up as much field work and as many loose ends as possible. There was also surprisingly little fire activity in national parks. However, we still supported a number of small suppression fires as READs, and the Founder's Fire (managed lightning fire) at Crater Lake for WFDSS planning and fire behavior modeling. Fire support is anticipated to be higher in 2015 as the region continues to experience drought. There was no Rx fire activity in the network in 2014.

Table 1. Fire Effects Plot Workload (2014) and Total Plots Installed

Park	Monitoring Unit	Plot Type (FMH Forest/Brush/Grass plot, photo point, Rapid Assessment, CBI, etc.)	Pre-burn 2014	Immed. Post 2014	Postburn (1-20 yrs) 2014	Annual Total (2014)	Total Plots
Lava Beds	Sagebrush Steppe	FMH Brush plot	-	-	1	1	90
Lava Beds	Perennial Bunchgrass	FMH Brush plot	-	-	10	10	24
Lava Beds	Ponderosa Pine	FMH Forest plot	-	-	-	-	18
Lava Beds	Juniper	FMH Forest plot	-	-	-	-	9
Lava Beds	Aspen	Modified FMH Forest plot	-	-	1	1	1
Lava Beds	Mahogany tree girdle	Individual tree assessment	-	-	1	1	1
Lava Beds	Jack Fire	Photo point	-	-	-	-	7
Crater Lake	Lodgepole Pine	FMH Forest plot	-	-	-	-	9
Crater Lake	Mixed Conifer (White Fir)	FMH Forest plot	-	-	-	-	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
Crater Lake	Whitebark Pine	Modified FMH transect	-	-	-	-	16
Crater Lake	Red Cone Fire	Photo Point	-	-	-	-	6
Lassen Volcanic	Mixed Conifer (White Fir)	FMH Forest plot	-	-	4	4	36
Lassen Volcanic	Lodgepole Pine	FMH Forest plot	-	-	3	3	3
Lassen Volcanic	Jeffrey Pine	FMH Forest plot	-	-	2	2	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	-	-	1	1	17
Lassen Volcanic	Mixed Meadow	FMH Grass plot	-	-	-	-	4
Lassen Volcanic	Aspen	Modified FMH Forest plot	-	-	49	49	63
Lassen Volcanic	Aspen deer enclosure	Aspen sucker heights - Read 3x this year	-	-	30	30	10
Lassen Volcanic	Mixed Conifer	Modified FMH Forest plot	-	-	-	-	39
Lassen Volcanic	Riparian Meadow	Modified FMH Forest plot	-	-	-	-	30

Lassen Volcanic	Campground thinning monitoring	FMH Brush plot	-	-	-	-	24
Total			-	-	105	105	504

Note: This does not include 5 pay periods spent reading plots in WHIS, which is included in the Klamath Network annual report, and in YOSE (~35 FMH forest plots and ~20 historical 1911 plots).

Table 2. Fire Ecology Staffing 2014

Ecologist and Monitors	Starting Date	Ending Date	# of Pay Periods	READ Qualified (Yes or No)	Training and Development
Calvin Farris	1/1/14	12/31/14	26	Yes#	No Training
Todd Erdody	2/9/14	11/29/14	21	Yes	RX-341, S-231, Permanent relocation to NV BLM.

Will not be available for fireline READ duties in the future due to health issues.

Table 3. 2014 Management Objectives and Monitoring Results

Crater Lake NP programmatic FMH monitoring results through 2014. For percent-change objectives, Confidence Intervals were calculated using a nonparametric bootstrapping (n = 1000 simulations) of the Ratio of Means Statistics, except for paired plots in mountain hemlock which were from the Mean of Ratios Statistic. Other CIs were derived from distributions of individual values (unless reported as SE). Fuels reduction measurements were assessed using 01Post data, unless otherwise noted.

Monitoring Unit	Resource Management Objective (Restoration)	Monitoring Results (sample sizes)	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 = 9% (CI _{80%} : +5% to 24%) (n=16plots, 10 yrs)	NO	2014 (2002-2013 years)
	20-50 trees/acre > 12" dbh*	98 trees/ac > 12" (SE +/- 11.4)	NO	
	< 400 trees/acre 2-6" dbh	366 trees/ac 2-6" (SE 104) (n=16 plots)	YES	
	Limit post-fire mortality of <i>Pinus</i> >18" (45 cm) dbh to <25% within 2-years post-treatment	2-year mortality = 4% (CI _{80%} : 2% to 7%) (Note: 10 year mortality = 11%, CI _{80%} : 3-24%) (n=16 plots)	YES	
	Increase low-mixed severity burn occurrence to MFRI of 9-15 years	Unable to calculate MFRI ^a NFR ₍₁₉₃₃₋₂₀₁₃₎ = 66-85 yrs ^b NFR ₍₁₉₇₈₋₂₀₁₃₎ = 33-42 yrs ^b	NO	

Monitoring Unit	Resource Management Objective (Restoration)	Monitoring Results (sample sizes)	Objective Achieved?	Year Analysis Completed (Range of Data [Yrs] Included in Analysis)
Lodgepole Pine	Reduce surface fuel load to 35-55% of existing load	Total fuel reduction = 54% (CI _{80%} : 43.2 to 64.7%) ^c (<i>n</i> =30 plots, 4 fires, 5 years)	YES	2014 (2006-2013)
	Total tree density = no metric	Tree/acre =993 (SE +/- 364) Note: tree density reduction was 48% (CI80% 35%-61%)	N/A	
	Composition 80-90% pine, 0-10% fir, 0-10% hemlock	$\bar{x}$ = 94% pine (SE +/-9%) $\bar{x}$ = 1% fir $\bar{x}$ = 9% hemlock	YES	
	Increase occurrence of low/mixed severity burns to MFRI 60-80 yrs	NFR ₍₁₉₃₃₋₂₀₁₃₎ = 912 yrs ^b NFR ₍₁₉₇₈₋₂₀₁₃₎ = 457 yrs ^b	NO	
Mixed Conifer	Reduce 60-90% of existing dead & down fuels	Total fuel reduction 79% (CI _{80%} :75% to 86%) ^c (<i>n</i> = 4 plots, 2 fires, 3 years)	YES, but insufficient sample size	2014 (2003-2014)
	30-80 trees/acre > 12” dbh < 600 trees/acre 2-12” dbh	94 trees/ac >12” (SD +/-27) 128 trees /ac (SE +/-56)	YES, but insufficient sample size	
	Composition: 40-80% fir 15-40% pine, 0-20% other	$\bar{x}$ = 97% fir $\bar{x}$ = 12% pine $\bar{x}$ = 1% other	NO, but insufficient sample size	
	Constraint: Limit post-fire mortality of <i>Pinus</i> >18” (45 cm) dbh to <25% within 2-years post-treatment	2-year mortality = 14% (CI _{80%} : 0% to 43%)	YES, but insufficient sample size	
Mountain Hemlock	Reduce 35-55% of existing dead & down fuels	Total fuel reduction = 43% (CI _{80%} : 26 to 54.7%) (<i>n</i> = 14 plots, 1 fire, 5 years)	YES	2014 (2006-2011 years)
	Composition (15-60% hemlock, 0-40% fir, 0-10% pine)	$\bar{x}$ = 77% hemlock $\bar{x}$ = 32% fir $\bar{x}$ = 13% pine	YES (if CI intervals are included)	
Red Fir	Insufficient data available for stand metrics (patch data currently being analyzed from dNBR)			
	Increase occurrence of fires to a MFRI of 40-65 years	NFR ₍₁₉₃₃₋₂₀₁₃₎ = 725 yrs ^b NFR ₍₁₉₇₈₋₂₀₁₃₎ = 387 yrs ^b	NO	
Whitebark Pine	No fire activity			

^a The MFRI in the FMP is described as the mean interval for all pine sites. This can't be calculated with the relatively short time frame and lack of overlapping fires unless it is as a composite, but the NFR serves as an approximation (time required to burn area of PIPO in park for a given time period, equating roughly to a mean interval for each pixel). The first time period (1933-2013) is the entire park history; the second period (1978-2013) represents the era of managed fires (lightning and Rx).

^b Dates in parentheses indicate the time period used for the calculation to determine the average. The period of data availability is 1933-2013; the period 1978-2013 spans the fire management era when restoration burns began. For PIPO, the low range given includes all acreage in 1980 Sharp Peak polygon, and the high range includes only 10% of it (most of this huge Rx polygon never burned, but records are lacking to determine exactly how much did).

^c No Post1 fuels data was available for any PICO plots for various reasons, so 01Yr01 data is used here. This is a conservative estimate of fuels reduction given that there is often input of new fuels after the first winter, but objectives were still met.

NOTES:

PICO Monitoring Type Data are from Bybee WFU, Cornerstone Rx, and Phoenix Wildland Fire, and UMN research plots

PIPO Monitoring Data are from Timber Crater Burn Units (TC, TC2, TC3), and UMN research plots

Mixed Conifer Data are from Phoenix Wildland Fire and Panhandle3 Rx Burn. An additional 20 mixed conifer plots in the park have not been burned yet.

Mtn Hemlock Data are from Bybee WFU and UCB research plots.

Lassen Volcanic NP programmatic FMH monitoring results through 2014. For percent-change objectives, Confidence Intervals were calculated using a nonparametric bootstrapping (n = 1000 simulations) of the Ratio of Means. Other CIs were derived from distributions of individual values (unless reported as SE)

Monitoring Unit	Resource Management Objective (Restoration)	Monitoring Results (sample sizes)	Objective Achieved?	Year Analysis Completed (Range of Data [Yrs] Included in Analysis)
Ponderosa / Jeffrey Pine	Fuel Load: Reduce surface fuel load to 30-80% of existing load	Total reduction = 52% decrease (CI _{80%} : 32% to 99%) (n=7 plots)	YES small sample size	2014 (1995-2011) All but one plot burned 2X
	Tree density: 40-250 trees/ha all sizes	131 trees/ha (CI _{80%} : 82 to 181) Note: reduction from pre-fire was 60% (CI _{80%} : 45-81%)	YES	
	10-80 trees/ha >80 cm dbh	16 trees/ha (CI _{80%} : 10 to 27) Note: reduction from pre-fire was 33% (CI _{80%} : 10-74%) (n=7 plot,)		
	Composition: 60-90% Jeffrey pine	$\bar{x}$ = 70% Jeffrey pine (CI _{80%} : 51 to 90)	YES	
10-30% Other Species	$\bar{x}$ = 30% Other spec. (CI _{80%} : 10 to 48) (n=7 plots)			

Monitoring Unit	Resource Management Objective (Restoration)	Monitoring Results (sample sizes)	Objective Achieved?	Year Analysis Completed (Range of Data [Yrs] Included in Analysis)
Lodgepole Pine	Fuel Load: Reduce surface fuel load to 35-55% of existing load	1X Fires (plots burned just once) Total fuel reduction = 35% (CI _{80%} : 30 to 47%) (<i>n</i> =3 plots, 11 years) 2X Fires (plots burned twice) Total fuel reduction = 78% (CI _{80%} : 58 to 89%) (<i>n</i> =3 plots)	Insufficient Sample Size	2014 (2002-2013) All plots burned 2X (Data includes 2012 Reading Fire)
	Tree density (all sizes): No target specified for Trees per Hectare	General Information Unburned: $\bar{x}$ = 1143 (575-1711) Burned 1X: $\bar{x}$ = 993 (127-339) Burned 2X: $\bar{x}$ <10 TPH (0-9) (<i>n</i> =3 plots)	Insufficient Sample Size	
	Composition: 80-90% lodgepole 0-10% fir, 0-10% hemlock	$\bar{x}$ = 97% PICO (CI _{80%} : 92-100%) $\bar{x}$ = 3% Fir $\bar{x}$ = <1% Hemlock (<i>n</i> =3 plots)	Insufficient Sample Size	
Mixed Conifer	Fuel Load: Reduce 60-75% of existing dead & down fuels	63% reduction (CI _{80%} : 57% to 68%) (<i>n</i> = 27 plots)	YES	2014 (1994-2012)
	Tree Density: 50-300 trees/hectare all sizes	406 trees/ha (CI _{80%} : 338 to 475) Note: reduction from pre-fire was 60% (CI _{80%} : 56%-65%) (<i>n</i> = 34 plots).	NO (but much closer after burning)	
	< 10-80 trees/hectare >80 cm dbh	16 trees/ha (CI _{80%} : 12 to 19) Note: reduction from pre-fire was 9% (CI _{80%} : 0%-19%) ^c (<i>n</i> = 34 plots)	YES	
	Composition: 40-60% fir 15-40% pine, 0-20% other	$\bar{x}$ = 80% fir (CI _{80%} : 76-84%) $\bar{x}$ = 18% pine (CI _{80%} : 14-22%) $\bar{x}$ = 2% other (CI _{80%} : 0.5-3%) (<i>n</i> = 34 plots)	NO, (but much closer after burning)	
Mountain Hemlock and	Fuel Load: Reduce 35-55% of existing dead & down fuels	No Data at LAVO (see CRLA for data from this type)	N/A	N/A
	Composition 15-60% hemlock, 0-40% fir, 0-10% pine (inc. PILA)	No Data at LAVO (see CRLA for data from this type)	N/A	

Monitoring Unit	Resource Management Objective (Restoration)	Monitoring Results (sample sizes)	Objective Achieved?	Year Analysis Completed (Range of Data [Yrs] Included in Analysis)
Red Fir / White Pine	Fuel Load: Reduce 60-75% of existing dead & down fuels	40% reduction (CI _{80%} : 10% to 66%) (<i>n</i> = 5 plots, 2 years)	YES small sample size	2014 (2004-2012)
	Tree Density: 60-350 trees/ha all sizes	248 trees/ha (CI _{80%} : 84 to 411) Note: reduction from pre-fire was 76% (CI _{80%} : 34-85%)	YES small sample size	
	10-100 trees/ha $\geq$ 80 cm dbh	48 trees/ha (CI _{80%} : 26 to 69) Note: reduction from pre-fire was 14% (CI _{80%} : 7-29%)		
	Composition: 30-70% fir 20-50% <i>Pinus</i> 0-20% other	$\bar{x}$ = 78% fir (CI _{80%} : 69-88%) $\bar{x}$ = 21% pine (CI _{80%} : 12-31%) $\bar{x}$ = ~1% other (<i>n</i> = 5 plots)	YES small sample size	

NOTES:

PICO Monitoring Type Data are from the Hole Rx and subsequent Reading Wildland Fire

PIJE/PIPO Monitoring Data are from Butte Lake Rx, Hole Rx, and Warner Rx units

Mixed Conifer Data are from Butte Lake, Flume, Hole, Knob, Raker, Roadside, Shack and Warner Valley Rx Units.

Red Fir data rea from

Lava Beds National Monument programmatic monitoring results for fuels reduction objectives through 2014. Other ecological objectives are currently being assessed using newly obtained mapping data from a recent reserve project and ancillary aerial photo analysis (see report citation below).

For percent-change objectives, Confidence Intervals were calculated using a nonparametric bootstrapping (*n* = 1000 simulations) of the Ratio of Means. Other CIs were derived from distributions of individual values (unless reported as SE)

Monitoring Unit	Resource Management Objective (Restoration)	Monitoring Results (sample sizes)	Objective Achieved?	Year Analysis Completed (Range of Data [Yrs] Included in Analysis)
Ponderosa Pine (FPIPO)	Fuel Load: 50-90% total fuel load reduction	40% reduction (CI _{80%} : 22% to 54%) (<i>n</i> = 16 plots)	YES	2014 (9-23 years)

Monitoring Unit	Resource Management Objective (Restoration)	Monitoring Results (sample sizes)	Objective Achieved?	Year Analysis Completed (Range of Data [Yrs] Included in Analysis)
Sagebrush Steppe (BRUSH)	Fuel Load: 30-70% total fuel load reduction	1% reduction (CI _{80%} : -1% to 7%) (<i>n</i> =13 plots)	NO (doesn't include standing shrub biomass)	2014 (8-25 years)
Perennial Bunchgrass (BGRAS)	Fuel Load: >70% total fuel load reduction	Biomass Calculations in Progress	N/A	2014
Juniper Woodland (FJUOC)	Fuel Load: All plots still unburned	N/A	N/A	2014

B. Program Information

Please complete the tables below which contain additional information 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 tables.

Table 4. Planning - 2014

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 2013)	Assisted with how many BAER plans in 2013?
Lassen Volcanic	Yes	2007 #	3	0
Lava Beds	Yes	2007 #	3	0
Crater Lake	Yes	2007 #	1	0

Original completion date listed, but plans are revised periodically with FMP reviews and revisions.

Table 5. Monitoring - 2014

Park	% 2014 Data Entered	% 2014 Data Quality Checked	# Prescribed Fires Monitored*	# Non-fire Fuels Treatments Monitored*	# Wildfires Monitored*	# BAER Treatments Monitored*
Lava Beds	100%	100%	3	1	0	0
Crater Lake	100%	100%	0	1	1	0
Lassen Volcanic	100%	100%	0	1	1	0

* Number of treatment units with treatment effects monitoring conducted. Include pre-burn and post-burn monitoring but not burn-day monitoring. (Labe cele, CRLA ribbon/phoenix, lavo NWAG/Reading)

Table 6. Communicating Results - 2014

Park	# of Project Monitoring Reports completed in 2014	# of Annual meeting(s) with Park staff	# of Formal presentations of results	Do you use Minitab?*
Lassen Volcanic NP	0	4	1	Yes (began last month)
Crater Lake NP	1	3	1	
Lava Beds NM	0	2	1	

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

Table 7. Research - 2014

Park	Are research needs identified in FMP or Monitoring Plan? (yes or no)	# of Proposals Submitted in 2014	# of Proposals Funded in 2014	# of Research Projects Supported in 2014*	Additional Comments
Lassen Volcanic NP	yes	2#			See footnote...
Crater Lake NP	yes	2			
Lava Beds NM	yes	1			

One covered the entire Klamath and South Cascades Network, and one covered CA and the SW (joint with USGS)

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:

New Projects:

- *Project Title:* Using LiDAR to Guide Restoration in the Crater Lake Panhandle (with *Cooperator:* Jerry Franklin and Van Kane, University of Washington
Goal: To develop LiDAR tools to facilitate mechanical restoration planning and monitoring, and compare field inventory methods with LiDAR derived methods.
Expected Completion: Dec 2015 (funded in 2014)
- *Project Title:* Does forest management promote forest resistance and resilience to drought?
Cooperator: Phil van Mantgem, USGS).
Goal: To determine if stand conditions created by NPS forest management encourages forest resistance and resilience to severe drought and how this varies across the diverse conditions in the Klamath region.
Expected Completion: 2017 (funded in 2014)

Projects Completed:

- Margolis, E.Q. and C.A. Farris. 2014. Quaking aspen regeneration following prescribed fire in Lassen Volcanic National Park, California, USA. *Fire Ecology*. 10(3): 14-26. Link: <http://fireecologyjournal.org/docs/Journal/pdf/Volume10/Issue03/014.pdf>
- Demography and Disturbance History Across the Ponderosa Pine-Lodgepole Pine Ecotone in the Southern Cascade Range, with University of Minnesota. Final report submitted in 2014. Link: http://www.cesu.umn.edu/Partners/UniversityPartners/UofMinnesota/Projects/UMN_NP_S_23/index.htm

Projects Nearing Completion:

- Relationship Between Fire History and Forest Structure Using LiDAR, with Jerry Franklin and Van Kane, UW. Final report expected in 2015
- Spatial Patterns of historical fires and shrub field dynamics, with Alan Taylor (Penn St) and Carl Skinner (USFS). Three journal articles, one PhD dissertation, and two MS Theses have already been produced, one final paper forthcoming soon.

Other NPS related (non-reserve fund):

- Hunter, M.E., Iniguez, J.M, and C.A. Farris. 2014. Historical and current fire management practices in two wilderness areas in the southwestern United States: The Saguaro Wilderness Area and the Gila-Aldo Leopold Wilderness Complex. Gen. Tech. Rep. RMRS-GTR-325
Link: http://www.fs.fed.us/rm/pubs/rmrs_gtr325.pdf
- Margolis, E.Q. and C.A. Farris. 2014. Quaking aspen regeneration following prescribed fire in Lassen Volcanic National Park, California, USA. *Fire Ecology*. 10(3): 14-26. Fulé, P.Z., T.W. Swetnam, P.M. Brown, D.A. Falk, D.L. Peterson, G.H. Aplet, M.A. Battaglia, D. Binkley, C.A. Farris, R.E. Keane, E.Q. Margolis, H. Grissino-Mayer, C. Miller, C.H.

Sieg, C. Skinner, S.L. Stephens, A.H. Taylor. 2014. Unsupported inferences of high severity fire in historical western United States dry forests: Response to Williams and Baker. *Global Ecology and Biogeography*. 23(7): 825–830
 Link: <http://onlinelibrary.wiley.com/doi/10.1111/geb.12136/full>

C. Fire ecologist accomplishments and areas of focus

Table 8. Fire Ecologist 2014 Accomplishments/Focus Areas

Example of Fire Ecologist Accomplishments/Focus Areas (These are fictitious estimates with some help from SHEN)

Category	Percent Time	Accomplishments and/or areas of activities
<i>Planning and Project Support</i>	<i>30%</i>	<i>Panhandle Mechanical Restoration, CRLA. Delineated treatment units and objectives. Completed initial surveys and field mapping. Wrote proposal for funding. Participate in EA planning and scoping preparation, and field collaboration with foresters.</i> <i>NW Gateway project, LAVO. Assisted with Rx guidelines and operational implementation, and evaluation of contract specifications.</i> <i>Fuels Treatment and project planning input at all three network parks, including meetings and long-term plans</i> <i>FMP and vegetation management planning at all three parks (meetings, reviews, analyses, etc).</i>
<i>Research</i>	<i>25%</i>	<i>Proposal writing and new project collaboration (three proposals for NPS units in 2013)</i> <i>Manuscript preparation and revisions: Published three papers in 2014, and one is in revision.</i> <i>Completed GIS modeling for Rim Fire/Sierra Nevada project</i> <i>Peer reviewed three journal articles</i> <i>Field work for drought-fire mortality and decadal-scale climate variability projects (network wide, UMN)</i> <i>Collaboration with universities and other agencies on 7 projects involving network and non-network national parks.</i> <i>Collaborated on a response article to address recent findings relevant to NPS units</i>
<i>Fire Fx Monitoring Field Work and Analysis</i>	<i>20%</i>	<i>Analyzed monitoring data for three parks</i> <i>Equipment maintenance and data collection for soil moisture and deer browse monitoring at CRLA and LAVO</i> <i>Planning for field work and staffing</i>
<i>Fire Assignments</i>	<i>5%</i>	<i>WFDSS and fire modeling support for Founder's Day fire.</i>
<i>Training</i>	<i>0%</i>	<i>No amount of training can save me.</i>
<i>Presentations and Workshops and Field Trips (including prep time)</i>	<i>15%</i>	<i>CA Rx Fire Council presentation and meeting</i> <i>Univ of Arizona seminar speaker</i> <i>Oregon Tech guest lectures</i> <i>Deschutes Landscape Restoration Collaborative presentation</i> <i>Panhandle Interagency field presentation</i>
<i>Administrative/Supervisory, Meetings, Misc</i>	<i>5%</i>	<i>Misc paperwork and reporting, etc.; Budget and Administrative</i> <i>Supervision duties for lead monitor</i>

D. Fire effects crew accomplishments and areas of focus

This section deals with roles and functions of the fire effects crew. 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).

Table 9. Fire Effects Crew 2014 Accomplishments/Focus Areas

Category	Percent Time	Notes
FMH plots	25	LABE, LAVO, WHIS and YOSE
WUI plots	0	
CBI plots	0	
Other plot work	20	1911 plots in YOSE. Soil moisture sensor plots in CRLA. Individual tree assessments in LABE. Tree-coring in WHIS and LABE.
Wildfire assignments	2	Lead was on multiple wildfires in CRLA as a READ and HECM.
Prescribed fire projects	0	What is this thing you call prescribed fire?
Non-fire fuels projects	0	
Travel out-of-park for plot or project work	10	3 trips to LAVO, 2 trips to WHIS, 4 trips to YOSE and many day trips to LABE and CRLA.
Data entry	20	All data entry for 2014 complete.
Data analysis	2	
Supervision/Admin	5	Misc travel and time paperwork through two different parks.
Training	5	Refresher, RX-341, S-231
Miscellaneous	11	

E. 2015 Direction

We've received one-time funding support to hire one fire effects seasonal to assist with completion of three important projects in the network in Todd's absence. These include completion of the initial Northwest Gateway field work following the project's completion in 2014, which is important because it serves as a pilot project or template for future work in the network and region. We also plan to collect 25 year post-fire monitoring data in Lava Beds NM, which will make it one of the richest and longest continuously post-fire monitoring datasets for sagebrush steppe habitats (a recent review by Rick Miller at Oregon State found very few published studies >5 years). After spending much time over the past two years cleaning up the LABE fire effects data, we just started an informal collaboration with Rick Miller (retired) to help us analyze this data. This will be timely given the emphasis on 'the bird' now (LABE represents of the best examples of burned, intact sagebrush systems). In addition to continuing to assist parks with FMP and project planning, the primary focus of 2015 will be to complete three ongoing research projects, including a study of large fire characteristics across the Sierra Nevada and two papers based on FMH data. I also plan to be active giving presentations and

participating in outreach and collaborative efforts with outside groups. Finally, as for wildland fire support, the summer will dictate that for us.

F. Optional Information

I continue to work very closely with Ken Gerow from the University of Wyoming. We converse weekly. I can't speak for others, but I have found his collaboration and access to be invaluable for completing projects I'm working on. Thanks for renewing that support this year, and hopefully that is an option next year as well.

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

G. Metadata and FFI Database Update on NPS Data Store

As you know, long-term monitoring data are highly valuable! We are glad to have almost all of the NPS FFI databases centrally located on the NPS Data Store. This central data storage option allows us to have an additional secure data location other than those in the parks' or regional offices. It also allows NPS users and others to view the metadata and contact data stewards for access to monitoring data for research or educational purposes. In addition, Landfire staff will be able to download the needed FFI databases directly from the Data Store for Landfire model validation purposes, eliminating the need for NPS staff to respond to another, separate data call.

Once this season's FFI data entry and quality checking are complete, please follow these instructions to update your park(s) metadata ("references") and upload the updated FFI databases to the NPS Data Store.

- 1) Backup the FFI database(s) in FFI (note backup file date for metadata).
- 2) Zip backup file(s) - **this step is critical to reduce file size**, upload time and server storage space utilized. PLEASE use the following naming convention for your zip files: **"FFI_2014_XXXX"**, where XXXX is the 4 letter code for the park, or for the lead park in a network if more than one parks' data are included in the database.
- 3) Access the Data Store at: <https://irma.nps.gov/App/Reference/Welcome>
- 4) Select **Manage**, then **Manage My References** and click on the **Search** button (don't need to enter any search criteria to display all references for which you are an owner).
- 5) Select the reference (metadata record) you wish to update from the list displayed to open the Reference Profile where you can make edits to update the reference.

- 6) Expand “Version History”, to view and select the **Manage Versions** option. You will then select **Clone this Reference to Create a New Version** to create a new Reference for this year’s update while preserving past metadata and databases as archives.
- 7) Once you **Save** the new, cloned reference, you can make any changes necessary to update the reference with this year’s information. Most likely, the edits will be to the “Date of Issue/Release”, which is the date of the new FFI backup file, and the “Content End Date”, if you have collected new data this year that was added to the FFI database. Select **Edit Details** from the menu at the top of the profile to make these changes. If anything else has changed (e.g. new protocols established, old protocols abandoned, etc.), you can make these edits to the text fields (e.g. Abstract) as well. Once changes are complete, you must select the “Save and set to” **Active** button at the bottom of the window.
- 8) Finally, upload the new zipped FFI database backup file by selecting **Add Digital File** from the menu at the top of the reference profile (or Add Holding from the Holdings section). Click on **Select Files** and then browse to your zipped FFI database backup file to select it, and then select **Upload**. You must also add additional owners here who have permission to edit the holdings if necessary (we recommend at least one person besides yourself; I (MB) am happy to serve as an additional owner to assist with Data Store if you’d like, but not required!). Remember to Save as **Active** once you have completed any changes.
- 9) Repeat the above steps for each of your FFI databases.

Please feel free to contact MB if you have any questions at all about the process of updating the metadata and FFI databases on the Data Store.

INSTRUCTIONS FOR UPLOADING 2014 ANNUAL REPORT TO DATA STORE

1. Save your report as a PDF file using the following file naming convention “2014 *Park/Network Name* Annual Report.pdf”.
2. **NEW THIS YEAR!!!** We will now be uploading our annual reports to the IRMA Data Store instead of the Fire Ecology Sharepoint site. This change will allow us to have all of our Fire Ecology Program information stored in one reliable, accessible location. We are working with the I&M program to transfer all of our past annual reports from Sharepoint to the Data Store. Once this is done, you will be able to use the versioning feature of Data Store to clone the last annual report reference and update it with the current year’s report (just as we are doing with the FFI databases). I will be sending out separate, detailed instructions for uploading the annual reports to the Data Store as soon as they are finalized.
3. Please e-mail your regional ecologist, MaryBeth Keifer, and Nate Benson to let us know when you get your report uploaded.

Call MaryBeth Keifer (603-795-2333) if you have any questions or problems.