National Park Service
Yellowstone National Park
Fire Ecology Annual Report
Calendar Year 2013

A. Summary

No two seasons are ever the same in Yellowstone, and 2013 was not an exception. On the personnel front it was another year of change for the fire ecology program. Kate Williams and Regina Bilbrey were welcomed to the fire effects crew and Greg Oyler to the fuels program. While Greg is no stranger to Yellowstone as he was previously on the engine crew; Kate and Regina were not only new to the park, but also to the fire effects world. Despite the steep learning curve Kate and Regina were quick studies and both the fire effects and fuels crew accomplished many goals this season while still managing to enjoy work. Becky Smith remained at the helm as fire ecologist, Jess Page is still lead fire effects monitor, and Bill Mayer is the fuels specialist. This year also included big life milestones for two members of the Fire Ecology group: Jess got married in September and Bill learned he would be welcoming his third child in early 2014. Below is an in depth summary of the year.

Figure 1: Greg, Kate and Regina on the Lamar River.

Weather Network and National Fire Danger Rating System

Yellowstone's fire weather network consists of six remote automated weather stations (RAWS) and four manual weather stations. Most of the manual stations operate from June through mid-October, depending on weather conditions and the number of district volunteers available to collect the weather. The fire effects crew is responsible for conducting annual maintenance on the RAWS, setting up and taking down the manual stations every year, along with training the volunteers on how to accurately record weather observations and call them in to the fire dispatch center to be entered into the Weather Information Management System (WIMS) database.

Figure 2: From left to right: USFS engine crewmembers Tyler Kulla and Brent Fleming, Fire Ecology crewmembers Kate, Regina and Bill assisting with the Soda Butte RAWS FTS upgrade.

Weather station set up and rehab went surprisingly smooth for the crew this year. Three of the manual stations went online by the first week of June followed by Mt. Washburn at the end of the month. The new FTS models make annual maintenance on the RAWS much more efficient, and the park's last Vaisala station was swapped out for an FTS station without a hiccup this year. The entire RAWS network is now up to date and ready to go past the 2017 compliance deadline.

The fire effects crew is also responsible for gathering weather reports, lightning maps, fire weather indices, fuel moisture data, safety information and seasonal predictions for daily fire cache meetings, fire briefings and general park staff briefings. In order to be successful at this everyone within the fire ecology program, particularly the fire effects crew must be proficient with WIMS, the Wildland Fire Management Information (WFMI) website, and Fire Family Plus programs.

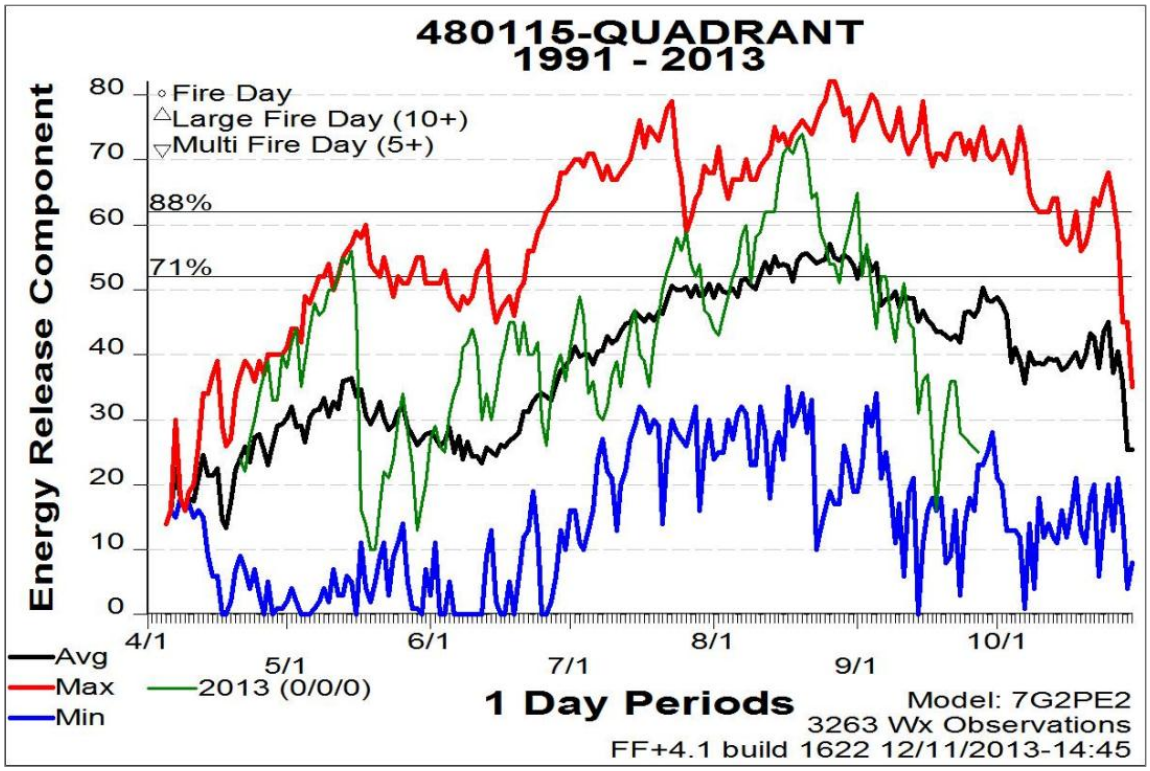


Figure 3: 2013 Quadrant ERC chart.

Fuel Moisture Sampling

During the 2013 field season the fire effects crew, along with assistance from engine, fuels and helitack personnel, made 37 total fuel moisture data collection visits to four long term sites representing the major vegetation types of the park. These major vegetation types include: mature lodgepole forest, regeneration lodgepole forest (i.e., 1988 burned area), Douglas-fir forest, and high elevation mixed conifer forest. Each manual weather station throughout the park has a 1000 hour fuel moisture log station; there are currently nine long term 1000 hour moisture monitoring sites in use. Log data at the manual weather station sites are collected once a week by the weather volunteers in the park and called into dispatch along with the weather, thereby helping the park's fire ecology program greatly. The fire ecology's fuel moisture program becomes indispensable during the fire season by serving to inform park managers during their decision process for a new fire start. The year's data showed the 1000 hour fuel moisture decreased steadily through June before dipping below the 10 percent mark where most of the stations remained until the end of September. The exceptions to this were Sylvan and Pebble Creek which are two higher elevation sites that don't usually have snow melt off until late June.

The fire effects crew once again assisted with collecting temperature sensors for Zack Holden at the Missoula Fire Science Lab. Data from the sensors were being used to model fine scale air temperatures in variable terrain.

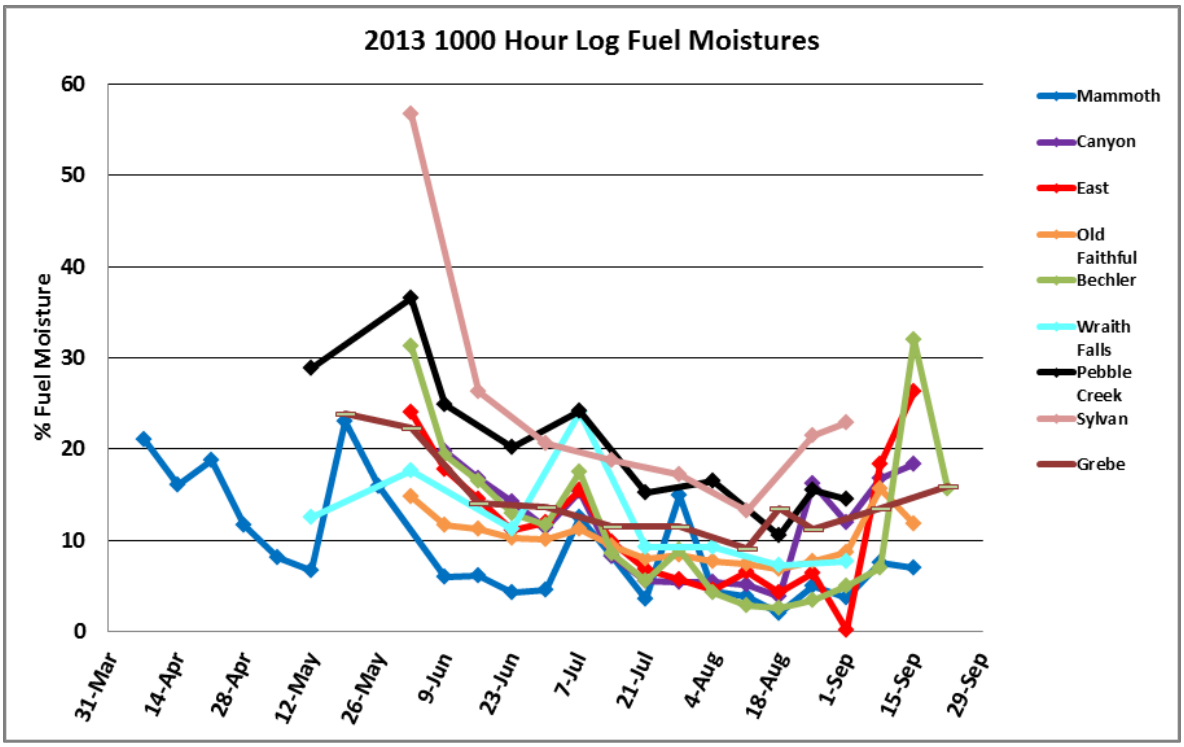


Figure 4: 1000 hour fuel moistures in 2013.

Fire Operations and Fire Monitoring

The fire season started off slowly in early May with the completion of a prescribed burn originally attempted in the fall of 2012. Becky, Bill and Jess provided leadership for this burn at the Stephen's Creek vegetation enclosures. Bill acted as RXB2, while Becky was the FIRB and Jess was the FIRB(t). Once the seasonals started, the crew spent much of the summer assisting with fires both in and out of the park. Kate scored two diverse out of park fire assignments: one in Arizona on a T6 engine from the Gallatin NF and another on a T2 handcrew to western Montana. Regina traveled with the helicopter crew to Rocky Mountain NP to assist with flood relief efforts and worked with both the park's exclusive use helicopter and a local call when needed (CWN) ship on various fires on the Gallatin NF to our north. Jess spent a couple days on the Shoshone NF helping out with helicopter work as well as acting as HMGB within the park quite a bit throughout the summer. Greg left the park on a T2 handcrew assignment to western MT as a Squad Boss (FFT1), and spent many weeks assigned to the Druid Complex as an ENGB. Becky had a short stint as an ICT4 on the Snake fire, spent three weeks as PSC3 for the Druid Complex, and then worked as a SCKN(t) with the NIMO team for eight days to finish her taskbook. Bill also joined the T2 handcrew assignment to western MT as a FFT1 with hopes of getting a DIVS(t) assignment. He acted as the ICT3(t) for the Snake fire and Druid Complex, along with a few days as a DIVS(t) on the Druid Complex.

Figure 5: Regina fearlessly fording a creek enroute to the early season Lewis fire.

All seasonal members of the fire effects crew also spent time working as either a HECM or FEMO within the park. Hands down the highlight of the summer for Jess and Kate was spending a week monitoring the Druid fire in the Lamar valley from a stellar lookout point. In all, the fire ecology group worked eight fires in the park and was able to maintain the following qualifications: ICT3(t), ICT4, ICT5, DIVS(t), HECM, HECM(t), FEMO, FEMO(t), HMGB, FFT1, FALB, FALA, ENGB, FRWS, PSC3, SCKN, and EMT.

Plot Work

During the 2013 field season the fire effects crew visited 14 hazard fuel plots and 13 photopoints. Three hazard fuel plots were revisited to monitor a second entry thin treatment consisting of 24 acres in Canyon developed area. Four plots at the Harebell patrol cabin were also opportunistically revisited during the Snake fire to monitor a 2003 thin treatment. These seven plots were converted this year from the old FMECH1T99 monitoring type to the new HZF monitoring type in an effort to standardize the mixed bag of protocols and plot sizes which have been used in the park's fire ecology program over the last 12 years. This entailed enlarging each plot from a seven meter radius to a 11.28 meter radius circle; switching from a metric Brown's transect to an English Brown's transect; and collecting vegetation data where none were collected initially. Seven plots were also installed into a 120 acre unit at Canyon

where a first entry thin is scheduled to begin in 2014, and 13 photopoints were revisited at the Nez Perce cabin to monitor the effects of a 2009 thin treatment and subsequent blowdown after the treatment occurred.

During the winter and summer of 2013 the fire ecologist spent time working with John Caratti to convert the program's entire collection of legacy plot data to FFI. This consisted of approximately 160 plots within seven different monitoring types (i.e., varying plot sizes and protocols), and approximately 180 reads over the course of 25 years. John did an amazing job and the Yellowstone fire ecology program is forever grateful to him and the National Fire Ecology Office which enabled this pipe dream to become a reality without having to spend thousands of crew hours to enter the data manually. After a small amount of time is spent cleaning up species list issues, the data will be ready to be fully analyzed to assist with determining which plots may still be useful to the program. Also, by now having all of the program's data in the database it will assist greatly with data requests by other park researchers.

Fuels Reduction

Figure 6: Members of the MCC working on the Canyon fuels project.

The fuels program welcomed fuels technician Greg Oyler to the organization. He was a great addition to the program and would have been an excellent crew leader had funding come through for the fuels crew. This year's work was focused on the Canyon government area hazard fuel reduction project. The Yellowstone Youth Conservation Corps (YCC) crew consisting of nine people spent four days working on this project processing trees into posts, poles, and firewood. The Montana Conservation Corps (MCC) also spent eight days with a seven person crew felling trees, processing materials, and feeding the wood chipper. These two crews helped get a significant amount of work done on the project. The 24 acre project was completed with local resources in between fire assignments during the fall of the year. The effort produced firewood, posts, poles, rails, and woodchips for multiple park divisions. Several fire cache personnel assisted the fuels program by burning four large slash/debris piles located at gravel pits throughout the park. The fuels program was able to complete 82, out of 1,945 total, structure assessments with help from miscellaneous fire crews working in the park. This means a total of 744 structure assessments, or 38 percent, have been completed. Two community protections plans, South Entrance and Lake, are also almost complete as a result of the structure assessments and wildfires in close proximity to park developed areas.

Figure 7: Members of the YCC working on the Canyon fuels project.

Table 1. Fire Effects Plot Workload (2013) and Total Plots Installed

Park	Monitoring Unit	Plot Type	Pre-burn /Precut 2013	Control (unburned /uncut) 2013	Imm. Post 2013	Postburn/ Postcut (1-20 yrs) 2013	Annual Total 2013	Total Plots
Yellowstone National Park	FLP01T08 (Lodgepole regeneration)	FMH forest	-	-	-	-	**-**	4
	FWFRB1T99 (Wildland Fire for Resource Benefits)	FMH forest	-	-	-	-	**-**	19
	FMICO1T10 (Mixed Conifer)	FMH forest	-	-	-	-	**-**	6
	Hazard Fuel Treatments	Photo point	-	-	-	13	**13**	74
	HZF (All past fuel treatment plots are being converted to this monitoring type)	Rapid assessment radial WUI	7	-	-	7	**14**	100
	Despain	Pre-FMH natural fire veg. and fuel	-	-	-	-	-	16
	Fireline Explosive	Vegetation transects						9
Little Bighorn Battlefield NM	No fire effects monitoring plots are currently installed at LIBI; a Fire Management Plan and Monitoring Plan need to be completed first.			-	-	-	-	0
Total			7	-	-	21	**27**	228

Table 2. Fire Ecology Staffing 2013

Ecologist, Fuels Specialist, Monitors and Fuels Tech	Starting Date	Ending Date	# of Pay Periods	READ Qualified (Yes or No)	Training and Development
Becky Smith	1/1/13	12/31/13	26	No	S-495, S-336, organized and taught 2 RT-130 classes, organized and taught Guard School (S-130, S-190, I-100, L-180, I-700), Operational Leadership training, Effective Facilitator training, Myer-Briggs workshop, First Aid class, SCKN taskbook completed
Bill Mayer	1/1/13	12/31/13	26	No	S-491, A-110, organized and taught RT-130, assisted teaching guard school (S-130, S-190, I-100, L-180, I-700,) organized and taught 2 S-212 classes, radio training, credit card training, Operational Leadership, Myer-Briggs workshop, worked on ICT(3) and DIVS taskbooks.
Jess Page	3/11/13	12/14/13	20	No	S-336, RT-372, L-280, co-taught RT-130, Radio training, EMS endorsement, FISSA, Wildflowers of Yellowstone, Myer-Briggs workshop, Operational Leadership training
Regina Bilbrey	5/19/13	10/19/13	11	No	ICT5(t) assignment, NSC Defensive Driving II, HAZWOPER, Bloodborne Pathogens, Radio training, EMS endorsement, RT-130, Credit Card training, B3, FISSA, completed HECM taskbook and stayed current as ICT5, FFT1, FEMO(t)
Greg Oyler	5/19/13	10/19/13	11	No	L-380, EMS endorsement, FISSA, credit card training, CDL training, assist teaching S-212.
Kate Williams	5/26/13	10/05/13	9.5	No	S-270/271, NSC Defensive Driving II, HAZWOPER, Bloodborne Pathogens, Radio training, RT-130, Credit Card training, B3, FISSA, opened HECM taskbook, worked on FEMO(t) taskbook and maintained currency in FFT1 and FALA

B. 2013 Management Objectives and Monitoring Results

Canyon Hazard Fuel Project (HZF Monitoring Type)

The 2004 and 2012 Canyon hazard fuel project consists of two treatment units, located in the Canyon government housing area, totaling 24.1 acres. The first fuel reduction treatment was conducted in 2004; the second entry treatment was completed in the fall of 2013. Three plots were installed in 2004 prior to the first entry. The plots were converted from the FMECH1T99 monitoring type to the hazard fuel (HZF) monitoring type this year to standardize plot sizes and methodology across treatment areas throughout the park.

In 2012, the objectives were written using the previous monitoring type's FMH-4, which utilizes 0.0025 lb/ft^3 (40 g/m^3) as a critical canopy bulk density to stop crown fire initiation, but more research is warranted within the park utilizing common weather scenarios to fully determine the appropriate critical canopy bulk density. Scott (2003) suggests 0.0062 lb/ft^3 (100 g/m^3) as critical canopy bulk density for horizontal propagation of crown fire; this number is also included on the graph to depict the goal of slowly thinning lodgepole forests to prevent blowdown due to shallow root systems.

Canopy bulk density and surface fuel results are mean percent change of overstory and pole size trees, from pre-treatment (PRE) through one year after the second treatment (02YR01) which includes an eight year read after the initial treatment (01YR08). Priority weed species are relative percent cover, and native vegetation species are mean relative percent cover, using the 02YR01 data as vegetation data were not collected until this most recent read. An underlined number of plots indicate the minimum sample size has been attained for the objective.

Table 3. Canyon HZF Monitoring Results

Monitoring Unit	Management Objective (Hazard Fuel Reduction)	Monitoring Results (80% confidence interval)	Objective Achieved?	Year Analysis Completed; (Range of Years Included)
Canyon Hazard Fuel (HZF)	Reduce mean treatment area canopy bulk density over the entire life of the project to ≤0.0025 lb/ft^3, as measured from original pre-thin conditions.	**PRE: 0.0132 (±0.0015) lb/ft^3** **01YR08: 0.0111 (±0.0017) lb/ft^3** Difference from PRE to 01YR08: -15.7% *(n = 3 plots, 1 treatment)* **02YR01: 0.0077 (±0.0016) lb/ft^3** Difference from PRE to 02YR01: -41.1% *(n=3 plots, 2 treatments)* Critical canopy bulk density: 0.0025 lb/ft^3	Not yet	2013 (2004-2013)

	Reduce mean dead and down 100 and 1000 hour fuel loads to ≤10 tons/acre over the entire life of the project, as measured from original pre-thin conditions.	**PRE: 4.3 (±3.02) t/ac** **01YR08: 9.7 (±2.26) t/ac** Difference from PRE to 01YR08: +124.8% *(n = 3 plots, 1 treatment)* **02YR01: 5.3 (±2.829) t/ac** Difference from PRE to 02YR01: +23.3% *(n = 3 plots, 2 treatments)*	Yes, although objective was achieved before project started and fuel loads have increased from PRE levels.	2013 (2004-2013)
	Monitor species listed on park priority weed list, through relative cover.	Canyon 7, 02YR01: **3.8% *Poa pratensis*** Canyon 8, 02YR01: **0%** Canyon 9, 02YR01: **2.4% *Poa pratensis***	Yes; only one species discovered.	2013 (2013)
	Monitor for native species composition change, using mean relative cover.	**02YR01: 97.9% (±2.1) native species** *(n = 3 plots, 1 treatment)*	No, as this was the first year data were collected.	2013 (2013)

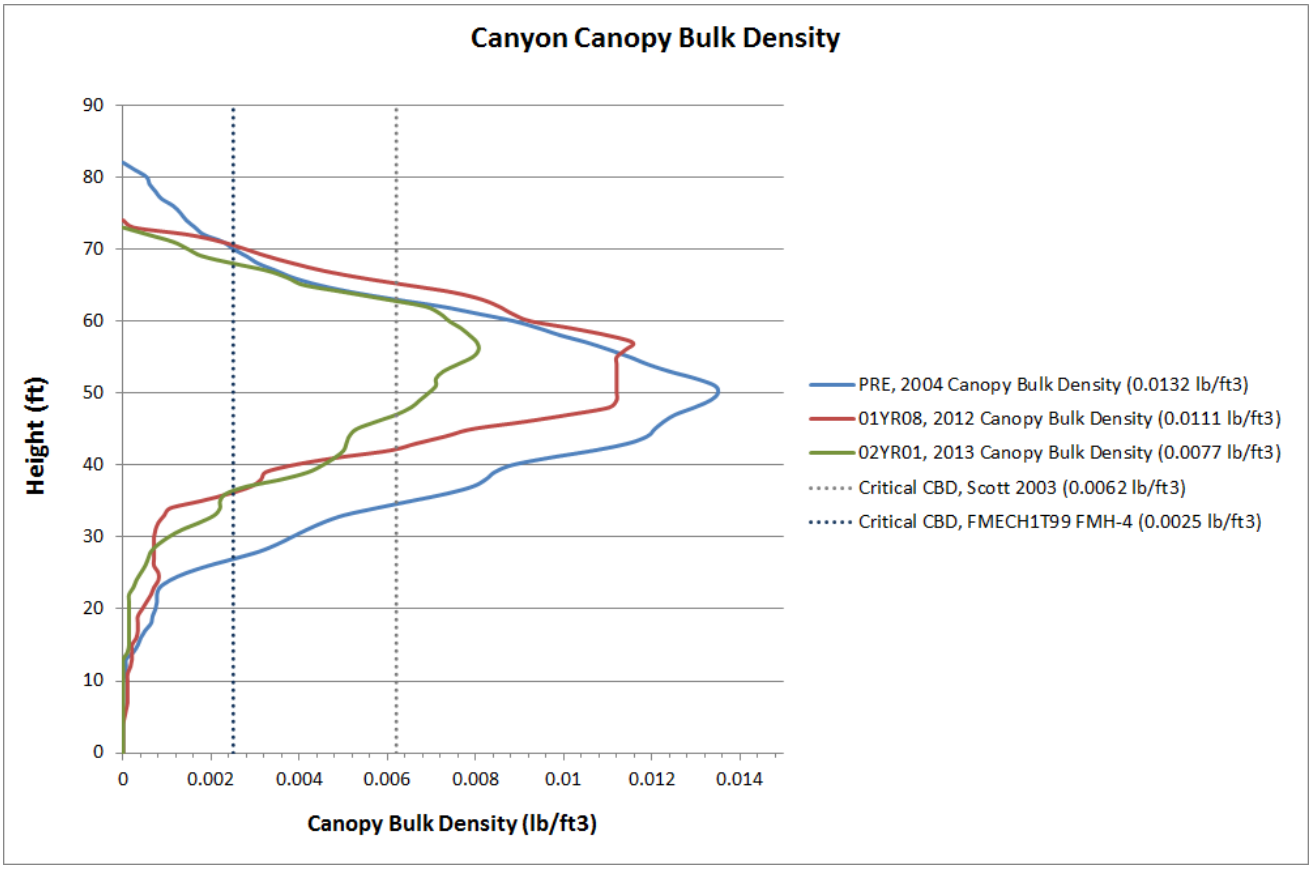
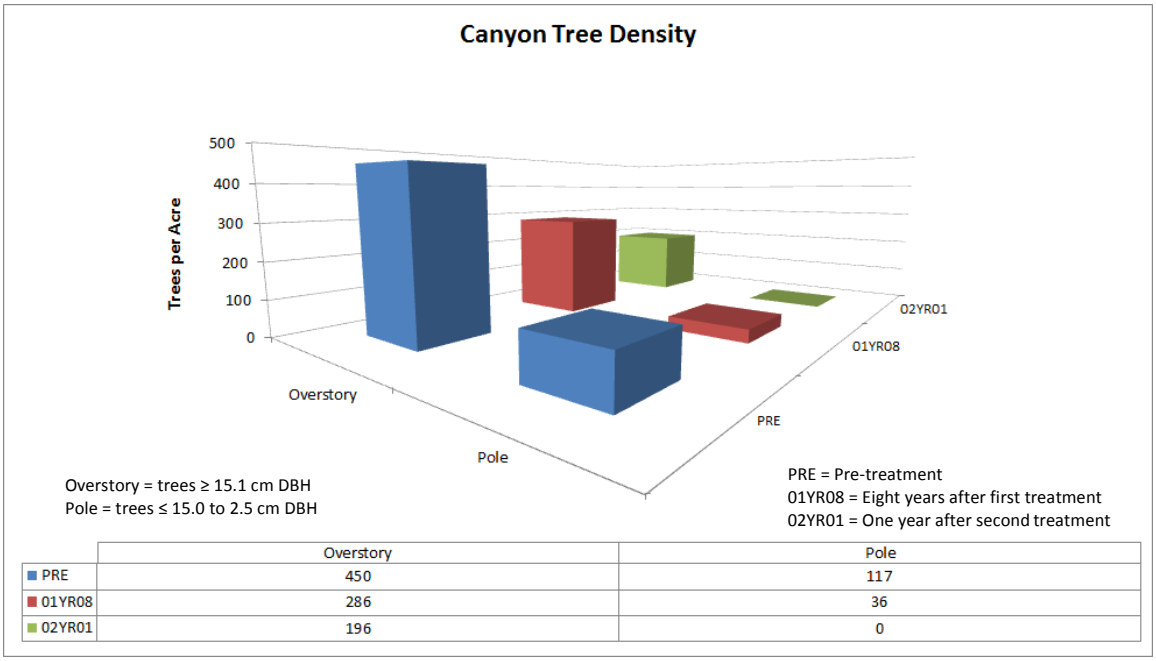


Figure 8: Canyon canopy bulk density trends through two thinning treatments.



	Overstory	Pole
PRE	450	117
01YR08	286	36
02YR01	196	0

Figure 9: Canyon tree density (all PINCON) to give mangers an idea of reduction through time of each tree size class.

The above graphs only show overstory and pole sized trees within the plots at Canyon. There is a small component of seedling sized whitebark pine within the understory which is not being cut due to its special status; but currently the seedlings are not dense or large enough to be a major contributor to fire behavior within this unit. Figures below depict one plot through time; pre-cut to one year after the second treatment.

Figure 10: Canyon plot 7, pre-cut (PRE).

Figure 11: Canyon plot 7, eight years post-cut (01YR08).

Figure 12: Canyon plot 8, one year after the second treatment (02YR01).

Harebell Hazard Fuel Project (HZF Monitoring Type)

The 2003 Harebell cabin hazard fuel project consisted of 10 acres. Plots were installed in 2003 prior to the first entry. The plots were converted from the FMECH1T99 monitoring type to the hazard fuel (HZF) monitoring type this year during the 10 year post thin read to standardize plot sizes and methodology across treatment areas throughout the park.

In 2003, the project objectives identified were not specific. One objective included a minimum tree bole spacing greater than 20 feet, which is difficult to monitor efficiently and accurately. Because of this, when the plots were installed the monitoring protocols focused on canopy bulk density rather than actual tree spacing.

Canopy bulk density and surface fuel results are mean percent change of overstory and pole size trees from pre-treatment (PRE) through 10 years post treatment (01YR10). An underlined number of plots indicate the minimum sample size has been attained for the objective.

Table 4. Harebell HZF Monitoring Results

Monitoring Unit	Management Objective (Hazard Fuel Reduction)	Monitoring Results (80% confidence interval)	Objective Achieved?	Year Analysis Completed; (Range of Years Included)
Harebell Hazard Fuel (HZF)	Reduce stand density to 20 foot bole spacing, using mean canopy bulk density as a measure.	**PRE: 0.0031 (±0.0011) lb/ft^3** **01YR10: 0.0029 (±0.0016) lb/ft^3** Difference from PRE to 01YR10: -5.7% Critical canopy bulk density: 0.0025 lb/ft^3 *(n = 4 plots, 1 treatment)*	Not yet	2013 (2003-2013)
	Remove concentrations of down fuels within five chains of the cabin, using mean 100 and 1000 hr. fuel loading.	**PRE: 10.0 (±9.0) t/ac** **01YR10: 4.2 (±4.4) t/ac** Difference from PRE to 01YR10: **-58.3%** *(n = 4 plots, 1 treatment)*	Yes, but 2003 objective is very vague	2013 (2003-2013)

Figure 13: Harebell plot 1, pre-cut (PRE).

Figure 14: Harebell plot 1, 10 years post-cut (01YR10).

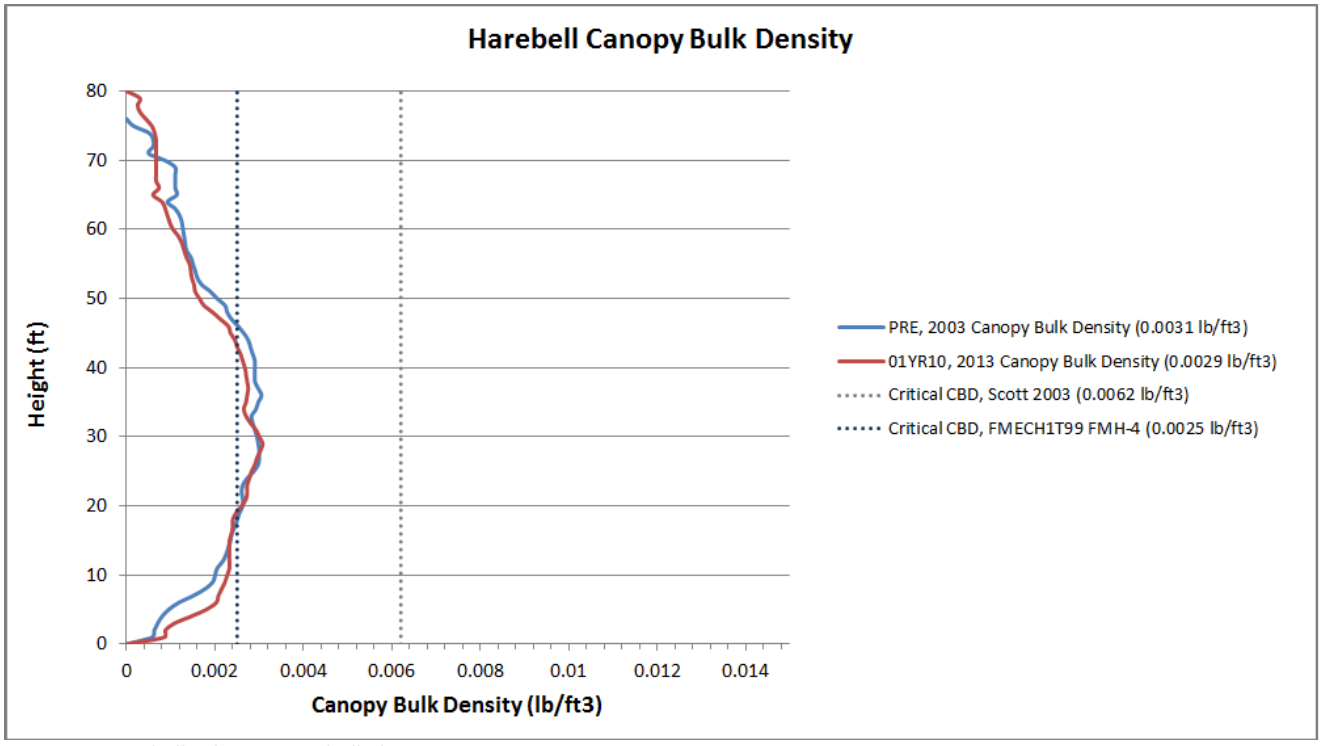
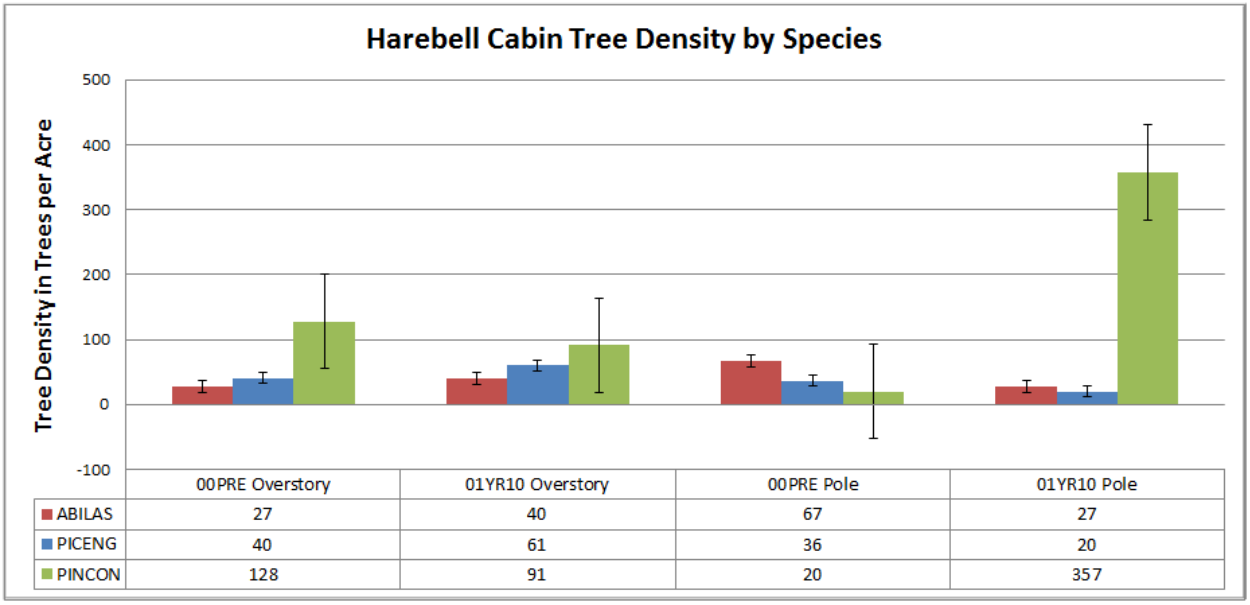


Figure 15: Harebell cabin canopy bulk density.



	00PRE Overstory	01YR10 Overstory	00PRE Pole	01YR10 Pole
ABILAS	27	40	67	27
PICENG	40	61	36	20
PINCON	128	91	20	357

Figure 16: Harebell cabin mean tree density by species to give mangers an idea of species and size classes within the unit.

When the Harebell plots were sampled pre-treatment seedling data were not collected; therefore the above graphs only show overstory and pole sized trees within the plots. As Figure 16 shows above, lodgepole pine (PINCON) pole sized trees, which were most likely saplings or seedlings during the initial pre-treatment read, now make up a significant part of the understory.

C. Fire ecologist and Fuels specialist accomplishments and areas of focus

Table 5. Fire Ecologist 2013 Accomplishments/Focus Areas

Category	Percent Time	Accomplishments and/or areas of activities
Planning	23%	• Lead for FMP EA; FONSI signed in February • Lead for Section 7 and 106 consultation (for FMP EA; Canyon Fuels and Norris Fuels Project) • Assisted with CE for Canyon and Norris Fuels projects • Assisted with a SOW, including monitoring objectives for Canyon and Norris projects • Wrote monitoring plan with protocols for all future hazard fuel treatments • Completed annual FWS T & E report for 2012 fire season • Lead of Fire and Fuels Interdisciplinary Team (IDT) • Writing FMP • Gathered necessary information for Star Fire analysis • Prepared all NFPORS funding worksheets through 2017 • Edited draft YELL Resource and Issues book • Worked with John Caratti to convert all plot Access and Excel data from 1979-2005 into FFI
Presentations	1%	• One presentation on YELL Fire Ecology to Yellowstone Association group • One presentation on YELL Weather Network to Yellowstone Association group • Three presentations on YELL Fire program to Yellowstone Conservation Corp; school group from Dubois, WY; and a Boy Scout group from PA • Consulted on a National LEGO Nature's Fury competition with a robotics club in FL
NPS Meetings/ task groups	4%	• Lead of Fire and Fuels Interdisciplinary Team (IDT); held three meetings with IDT to discuss FMP EA and upcoming fuel projects • Worked with Park web designer to update all YELL Fire Management webpages and provided pictures and educational information for social media updates • Attended daily (during fire season) and weekly (non-fire season) fire cache briefings; also attended Ranger Division weekly meeting in lieu of FMO as needed • Attended IMR fuels conference calls
Interagency work	0%	
Wildfire assignments/SAR assignments	22%	• Assisted with SAR ground search (one day) and as SAR PSC3 (one day) • ENOP(t) on Gallatin NF Penstock fire (two days) • ICT5 for Lewis Fire (one day) • ICT4 for Snake Fire (three days) • PSC3 for Druid Complex (three weeks) • SCKN(t) for NIMO team on Druid Complex (eight days) and completed taskbook
Rx fire projects	<0.5%	• FIRB on Stephen's Creek burn in April
Non-fire fuels projects	2%	• Assisted with Canyon fuels treatment for a few days as time allowed • Assisted with structure assessment paper management between Park and Region
Research	0%	
Data collection	5%	• Assisted with field installs of seven plots in Canyon WUI area • Assisted with fuel moisture sample collection
Data entry	<0.5%	• Started to clean FFI species list after all data were converted
Data analysis	7%	• Completed data analysis of fuel treatment for IDT purposes and for annual report
Supervision/Admin	10%	• Completed and certified time on bi-weekly basis, signed travel, supervised and all other supervisory tasks which fill the days

Training	23%	• Completed the massive amounts of prework for S-495 and attended • Attended S-336, Operational Leadership, Effective Facilitator class, Myer-Briggs workshop, and First Aid class • Organized and helped teach Guard School (I-100; L-180; S-130, S-190) in the park • Organized and co-taught two annual fireline refreshers (RT-130) in the park
Out of park travel	0%	
Miscellaneous	3%	• PT, assisting with RAWS maintenance

Table 6. Fuels Specialist 2013 Accomplishments/Focus Areas

Category	Percent Time	Accomplishments and/or areas of activities
Planning	6%	• NFPORS, WY DEQ coordination
Data Collection	<1%	• Fuel Moisture sample collection
Wildfire assignments	30%	• FFT1 Gold Creek Fire with IA type 2 crew • ICT3(T) Snake Fire • ICT3(T) Druid Complex • DIVS(T) Druid Complex
Prescribed fire projects	3%	• Stephens Creek RX burn plan and implementation
Non-fire fuels projects	28%	• Canyon fuels reduction implementation
Fire Cache Mgmt.	2%	• Manage fire cache in Yellowstone
Supervision/Admin	5%	• Hiring, Completed time, travel
Training	16%	• Attend S-491 • Attended Operational Leadership; Myer-Briggs workshop; Winter Survival Training • Helped teach Guard School (I-100; L-180; S-130, S-190) in the park • Organized and co-taught annual fireline refreshers (RT-130) in the park • Organized and taught two S-212 classes
Miscellaneous	10%	• Employee Safety Committee, Mammoth Community Center NPS Representative, • Fleet maintenance, Job Hazard Analysis development, search and rescue, structural fire

D. Fire effects crew accomplishments and areas of focus

Table 7. Fire Effects Crew 2013 Accomplishments/Focus Areas

Category	Percent Time	Notes
FMH plots	<1%	• Part of Sylvan WFRB was sampled before the crew was reassigned to various fires for the remainder of the year
WUI plots	5%	• 4 plots at Harebell cabin, 7 installs and 3 rereads at Canyon
CBI plots	0%	
Other plot work	0%	
Wildfire assignments	22%	• Various members of the crew performed as ICT5, HECM, HMGB, FEMO, FALA, FFT1 and FFT2 on 8 different fires in Yellowstone • One crewmember traveled with the Park helicopter to ROMO for flood relief efforts and also spent several weeks on a HECM assignment on the Gallatin NF • Another crewmember went on an engine assignment to AZ and a T2 crew assignment to western MT • Lead spent 3 days on a HECM assignment on the Shoshone NF, managed helicopters in the park for various fires, and spend a week as a lookout and FEMO on the Druid fire
Prescribed fire projects	<1%	• Lead participated in small prescribed burn at Stephen's Creek
Non-fire fuels projects	9%	• Fuel sampling 4 locations biweekly • Canyon mechanical thinning project
Travel out-of-park for plot work	0%	
Data entry	2%	• Data entry for FMH and WUI plots
Data analysis	<1%	• Lead completed FF+ and 1000 hr fuel moisture analysis for pocket cards
Supervision/Admin	6%	• Lead hired and supervised two seasonals • Project admin, credit card, travel, and payroll paperwork • Evaluations
Training	6%	• On-line credit card class, FISSA, USERRA, whistleblower in the workplace, blood borne pathogens, Hazwopper, NSC Defensive Driving II class, radio training, B3 aviation training, No Fear Act, • MTBI workshop • Operational Leadership • S-270/271, S-336, RT-372, L-280, Wildland Fire Refresher • Wildflowers of Yellowstone • New Yellowstone employee orientation • EMS endorsement
Miscellaneous	49%	• Weather station set up and rehab • NFDRS updates and WIMS configuration • ERC charts • Gathering info for morning meetings • Search and rescue • Presentations to outside groups • Teaching classes • Assisting other divisions with work • Leave taken, holidays worked or not, misc. office work, PT time, and janitorial duties • New for 2013: government shutdown hours!

E. Additional Program Information

Table 8. Planning - 2013

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?
Yellowstone National Park	no	Hopefully after Fire Mgmt. Plan is complete (2014!)	2	0
Little Bighorn Battlefield National Monument	unknown	Hopefully after Fire Mgmt. Plan is completed	-	0

Table 9. Monitoring - 2013

Park	% 2013 Data Entered	% 2013 Data Quality Checked	# Prescribed Fires Monitored*	# Non-fire Fuels Treatments Monitored*	# Wildfires Monitored*	# BAER Treatments Monitored*
Yellowstone National Park	100	100	0	3	0	0
Little Bighorn Battlefield National Monument	0	0	0	0	0	0

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

Table 10. Communicating Results - 2013

Park	# of Project Monitoring Reports completed in 2012	# of annual meeting(s) with Park staff	# of formal presentations of results	Do you use Minitab?
Yellowstone National Park	0	4	0	Infrequently
Little Bighorn Battlefield National Monument	0	0	0	

Table 11. Research - 2013

Park	Are research needs identified in FMP or Monitoring Plan? (yes or no)	# of Proposals Submitted in 2013	# of Proposals Funded in 2013	# of Research Projects Supported in 2013*	Additional Comments
Yellowstone National Park	Yes (Draft FMP)	0	0	1	
Little Bighorn Battlefield National Monument	Not yet	0	0	0	

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

F. 2014 Direction

The lead fire effects monitor will have her hands full in 2014; currently there are 47 plots within six WUI units and two backcountry cabin units scheduled to be sampled 10 years post thin. All of these will be converted to the new HZF monitoring type and will help managers assess a treatment's effectiveness through time and determine if and when subsequent entries are needed. There are also four sets of photopoints within these WUI units to complete. In addition the fire effects crew will attempt to fix six previously ill installed FMH plots and opportunistically read five WFRB FMH plots (01YR10-01YR15 reads). The fuels specialist also has a full plate with the hiring and supervision of the park's first ever fuels crew who will work towards accomplishing 120 acres of lodgepole to thin around the Canyon developed area, two acres of blowdown clean up at Norris Junction, and hundreds of structure assessments during the 2014 field season.

With the impending completion of the Fire Management Plan during the spring of 2014, the fire ecologist will have time to clean up FFI after the mass import of data and to analyze the historical plot data to determine what is still useful to the program. She also hopes to devote more time to critical canopy bulk densities throughout the park and should finally have time to start work on a much needed parkwide fire monitoring plan.

G. Optional Information

Time lapse plot photos to show effects of a manual WUI project.

Figure 17: Nez Perce cabin, pre-treatment (PRE) in 2009.

Figure 18: Nez Perce cabin, two years post-treatment (01YR02) and related blowdown.

Figure 19: Nez Perce cabin, five years post-treatment (01YR05).

Figure 20: Regina, Becky, Jess and Kate on Jess's big day.

H. Literature Cited

Scott, Joe H. 2003. Canopy Fuel Treatment Standards for the Wildland-Urban Interface. In: Omi, Philip N.; Joyce, Linda A., ed.; Fire, fuel treatments, and ecological restoration: Conference proceedings; 2002 April 16-18; Fort Collins, CO. RMRS-P-29: 29-37.