



**Teton Interagency Fire
Fire Ecology Annual Report
Calendar Year 2012**



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A. Summary

Fire Effects Crew:

The Teton Interagency Fire Ecology Program serves Grand Teton National Park, Fossil Butte National Monument, Bighorn Canyon National Recreation Area, and the Bridger-Teton National Forest. In 2012, the program was staffed by Diane Abendroth, Fire Ecologist, Jon Freeman, Lead Fire Effects Monitor, Ron Steffens, Fuels Monitor, Kal Stromberg, Assistant Lead Monitor, Fire Effects Crew Members Jessica Haddon and Carly Monahan, and Joe Vaughn. This is the first time in the history of the interagency program that the crew experienced a 100% return rate for employees. With such a solid and experienced workforce the crew continued to improve efficiency, fire preparedness, training, morale, and overall functionality. These are the very results that were hoped for when GRTE chose to hire a permanent STF Lead Fire Effects Monitor in 2011, even though Regional funding was not provided. Currently the Assistant Lead Monitor position is seasonal, but it is hoped that the Bridger-Teton National Forest will be able to contribute a permanent STF position to help maintain program strength and continuity.

The job description for the Fire Effects program seems to increase in complexity every season. While the crew continues to provide science-based data collection for the evaluation of fire management treatment objectives, they also serve several functional roles outside their traditional use. The crew is also highly qualified in the wildland fire arena. In one of the busiest fire seasons locally in quite some time, the crew was available as an initial attack squad daily throughout the fire season. Four of the five crewmembers are FFT1 (or higher) qualified, and were regularly asked to assist in staffing engines, helicopters, and the wildland fire module. In another direction, the crew also assisted in collecting data for a fire history study and regularly collected fuel moisture samples for the park and forest. 2012 also marked a drastic uptick in outside employees detailing to the fire effects crew. Word spreads quickly, and the crew generally had one detailer working with them through the majority of the monitoring season. In 2012, the crew visited 32 locations on the park and forest for plot work (up 7 projects from 2011), and participated in numerous unplanned fires locally and further afield in the Eastern Great Basin and Rocky Mountain GACCs. In addition to the Fire Effects Crew, the Teton Interagency Fire Ecology Program depends on collaboration with numerous fire and resource managers and crews in the parks and on the forest as well as the Wyoming Game & Fish Department.

And in a true success story, the program was able to convert an NPS/SCA Academy Intern into a SCEP appointment. Joe Vaughn, a college student from Georgia who was hired as an intern under the NPS Academy diversity hiring initiative, came to the crew in 2011. After a stellar season there was no question that the crew, the park's fire and resource protection staff, and all of Grand Teton National Park wanted to see Joe succeed. With a little persistence we found the money necessary to get Joe a SCEP appointment (now referred to as "Pathways") and Joe returned for a second amazing season in 2012 and plans to return in 2013.

The Intermountain Region of the National Park Service is placing a high priority on completing structure assessments on all NPS units, and the fire effects crew contributed greatly to that progress in 2013. Lead monitor Jon Freeman received first hand training on completing the structure assessment process from the Bandelier Wildland Fire Module. While the Module was here on severity, it completed several structure assessments and trained local resources as well. The fire effects crew completed several more structure assessments at Grand Teton NP and completed all of the structure assessments for Fossil Butte NM. The crew also completed all uploading of data to the regional ftp site, and was one of the first to complete this task regionally. The crew made several suggestions to improve the structure assessment process and will continue to support this regional and national effort in the future.



Fuels Monitoring Program

Seasonal Fuels Monitor Ron Steffens worked his 20th fire season at Grand Teton National Park this year. The Fuels Monitoring Program Ron began many years ago continues to provide one of the longest-duration consistent records of live fuel moistures available. Ron presented a summary of this work at the Association of Fire Ecology's Fire Congress in Portland, Oregon in December. His findings demonstrate a distinctly drier and longer fire season for the area since approximately 1990.

Ron has developed a series of web pages about fire danger indices, weather forecasts, and fuel conditions for the tetonfires.com website. His skills with web design and programming are key to the success of the site. During a fire assignment with Great basin Area Command in August, Ron gained expertise in building a Common Operating Picture (COP) in Google Earth. We hope to develop such a COP for our interagency fire area.

Fire Ecologist

With Jon Freeman in his second year as permanent Lead Fire Effects Monitor, the Fire Effects Crew management was very smooth and productive. This meant greater work capacity on the part of the Fire Ecologist in 2012. One of the important focus areas this year was on a GIS project that used FSIM and FlamMap 5 to create maps of fire risk, benefit, and values across the landscape. One of the primary values chosen for analysis was "diverse and resilient vegetation." Mapping and evaluating this GIS data was an interesting and enlightening project (see GRTE Fire Regimes Handout for Resource Managers, in Appendices). This year was also very busy for fire operations, which provided many training opportunities in leadership, firing, fire behavior forecasting, and common operating picture (COP) development. Finally, planning and field

work for the Douglas-fir fire regime research project, funded by the NPS Reserve fund, was completed this year. The final report will be produced when laboratory results are available from Oregon State University.

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

Park/Forest	Monitoring Unit	Plot Type	Pre-Burn 2012	Immed. Post 2012	Post (1-20 yrs) 2012	Annual Total 2012	Total Plots
Grand Teton National Park	Bar BC Rx	Photo Points Invasive Plant Survey			3 1	3 1	3 1
	Bearpaw Fire	Photo Points PSME Mortality Plots			5 30	5 30	5 30
	Granite Creek Rx	Photo Points Invasive Plant Survey			5 1	5 1	5 1
	Jackson Lake Lodge Rx	Photo Points			3	3	3
	Phelps Moraine Rx	Photo Points Stand Exams			3 5	3 5	4 13
	Kelly Rx	Photo Points Shrub Line Intercept Plots			5 46	5 46	5 46
	Lower Spread Creek Rx	Photo Points Willow Exclosure Plots			6 6	6 6	6 6
	Airport Sage Strips Monitoring	Photo Points			2	2	2
	Shadow Mountain Rx	Photo Points Invasive Plant Survey Shrub Line Intercept Plots			4 1 90	4 1 90	4 1 90
	Wolff Ridge Rx	Photo Points Aspen Circles Shrub Line Intercept Plots FMH Shrub Belts			30 5 5	30 5 5	30 5 5
	Beaver Creek Housing Mx	Photo Points Stand Exams	2 10			2 10	2 10
	Colter Bay Haz Trees Mx	Photo Points	13				13
	Colter Bay Log Cabins Mx	Photo Points Stand Exams	2 10			2 10	2 10
	Colter Bay Marina Mx	Photo Points Stand Exams	2 10			2 10	2 10
	Powerline Cooridor Mx	Photo Points	4				4
	Colter Bay Housing Mx	Photo Points			2		2
	Leeks Marina Mx	Photo Points			2		2
	Flagg Ranch Block 2 Mx	Photo Points Stand Exams		1 10		1 10	1 10
	Shadow Mountain Mx	Photo Points Stand Exams			1 10	1 10	1 10
	Signal Mountain Mx	Photo Points Stand Exams			3 10	3 10	3 10
	Matilda Rx	Photo Points Stand Exams Invasive Plant Survey	11 20 1			11 20 1	11 20 1
Bighorn Canyon NRA	N/A – No projects monitored in 2012						0
Fossil Butte NM	N/A – No projects monitored in 2012						0
North Zone Bridger-Teton NF	Red Rock Complex	Photo Points			20	20	20
	Lower Gros Ventre Rx	Photo Points Aspen Circles		1	11 60	12 60	16 60
	South Burro Hill Rx	Photo Points			2	2	2
	Willow Creek Rx	Photo Points Aspen Circles	5 30			5 30	5 30
	Rec Trails Mx	Photo Points Stand Exams	2 10			2 10	2 10
	Heart Six Rx	Photo Points					

		Stand Exams					
	Lava Creek Rx	Photo Points		3		3	6
	Red Top Mx	Photo Points	2			2	2
		Stand Exams	10			10	10
West Zone Bridger-Teton NF	Pole Creek Rx	Photo Points		4		4	8
East Zone Bridger-Teton NF	Horse Creek Fire	Photo Points			2	2	2
		Aspen Circles			15	15	15
		Ground Cover Plots			15	15	15
	Fremont 2 Slash Unit	Photo Points			1	1	5
		Aspen Circles			30	30	30
						TOTAL: 582	

The workload proportional breakdown for the 2012 Fire Effects Crew is fairly similar to previous years, however no time was spent on prescribed burns or managed fires, due to fire restrictions. More time was spent on NPS plot work than BTNF plot work this year.

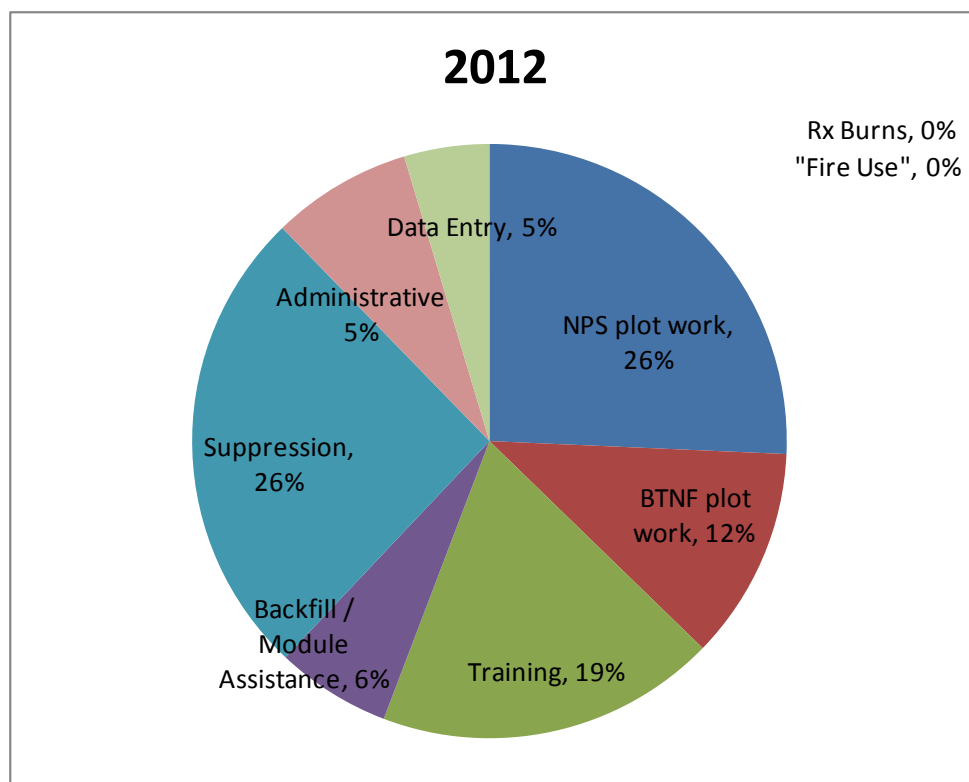


Figure 1. Fire Effects Crew Hourly Workload Breakdown

Table 2. Fire Ecology Staffing 2012

Ecologist and Monitors	Starting Date	Ending Date	# of Pay Periods	READ Qual? (Yes or No)	Training and Development
Diane Abendroth	1/1/12	12/31/12	26	YES	PFTC, E3, Teton Crew, Teton Module, Type 3 Team Assignments Completed RXB3, FALA taskbook Worked on FIRB taskbook S-230, S-231, S-212 retake, I-Suite Unit Instructor S290, S244 83 Fire Operational Periods
Ron Steffens	5/21/12	8/24/12	5.5	NO	2 Team Assignments Completed LTAN taskbook S490, S590 Lead Instructor S244 28 Operational Periods
Jon Freeman	4/9/12	11/15/12	16 ½	YES	E4, E441, FOBS, Kings Peak assignments Completed ENGB, FOBS taskbooks Worked on ICT4 taskbook S-244, S-200, RX-341 Unit Instructor S190, S244 Lead Instructor S234 Lead Instructor S133 59 Fire Operational Periods
Kal Stromberg	5/14/12	10/20/12	11 ½	NO	E4, Teton Crew, Teton Helitack, Kings Peak assignments Completed FFT1 taskbook Worked on ICT5, HECM, and FALB taskbooks S-211, S-215, S-234 50 Fire Operational Periods
Jessica Haddon	5/29/12	10/20/12	10 ½	NO	Teton Crew, Kings Peak assignments Completed FEMO taskbook Worked on ENGB taskbook S-244, S-231, B3 HECM refresher 40 Fire Operational Periods
Carly Monahan	5/29/12	10/25/12	11	NO	Teton Crew, Teton Helitack, Kings Peak assignments Completed FEMO and FALA taskbooks, worked on HECM taskbook S-215, S-234, S-211, S-290(online) 38 Fire Operational Periods
Joe Vaughn	5/29/12	8/9/12	5 ½	NO	Teton Crew, Teton Module assignments Worked on FALA taskbook 28 Fire Operational Periods

Table 3. 2012 Management Objectives and Monitoring Results

All results shown are 80% confidence intervals of the mean if they are in **bold**.

Park/Forest	Monitoring Unit	Management Objective	Monitoring Results	Objective Achieved?
Grand Teton National Park	Bar BC Rx Year 5 Post	Reduce Sagebrush Fuels in the WUI	Photopoints Retaken for Year 5 Post	NO
		Track the spread of weeds in burned areas	Weeds are similar and reduced	YES
	Bearpaw Fire Year 2 Post	Monitor DF survival vs. severity measures	See appendix for findings	YES
		Track post-burn revegetation	Photopoints show vigorous herbaceous growth and seedling pines	YES
	Granite Creek Rx Year 5 Post	Reduce live sagebrush density by 60%	Achieved in Unit B, not in Unit A (already sparse area)	YES
		Maintain or reduce exotic plant cover	Some thistles are receiving herbicide treatment	YES
	Jackson Lake Lodge Rx Year 10 Post	Monitor willow regrowth and ungulate browsing	Photopoints indicate vigorous regrowth and minimal browsing effects	YES
	Phelps Moraine Rx Year 1 Post	Consume 25%-50% of 1000hr fuels	55% reduction measured	YES
		Reduce CBD by 25%	32% reduction measured	YES
	Kelly Rx Year 10 Post	Reduce shrub density	No significant difference	NO
		Reduce shrub percent cover by 60%	64% reduction in year 1	YES
		Increase percent cover of native plants by 25%	No significant difference	NO
	Lower Spread Creek Rx Year 15 Post	Compare willow heights by exclosure type	Significant differences due to exclosures	YES
		Compare aspen density by exclosure type	Not statistically different due to sample size but very evident	YES
	Shadow Mountain Rx Year 1 Post	Reduce percent cover of sagebrush	Reduced sage fuels cover by more than 50%	YES
		Reduce average height of sagebrush by 50%	Significantly reduced in two units , not sig different in 1 unit. Mean is more than 50% reduced.	YES
		Map and track noxious weeds and smooth brome	Little Change	YES
	Wolff Ridge Rx Year 10 Post	Attain 1000 live suckers per acre over 10' 10 years post burn	1,351 Suckers over 2m per acre	YES
		Reduce shrub density	Not measured in 2012	YES
		Reduce shrub percent cover by 60%	Still less than 40% of pre burn levels ten years later	YES
		Increase percent cover of native plants by 25%	No significant difference, not monitored in 2012	NO
	Beaver Creek Historic Housing Mech Pre Treatment	Reduce average visual obscurity to less than 20% post treatment below 2 meters.	Pre Treatment Monitoring Only	N/A
		Reduce standing dead trees to <1/ac	Pre Treatment Monitoring Only	N/A
	Colter Bay Log Cabin Mech Pre Treatment	Reduce average visual obscurity to less than 30% post treatment below 2 meters.	Post-Treatment Data will be collected in 2014	N/A
		Reduce density in <3" dbh trees to <200/ac		
		Reduce dead & down fuel loading to <5T/ac		
		Reduce standing dead trees to <1/ac		
	Colter Bay Marina Mech	Reduce average visual obscurity to less than	Post-Treatment Data will be collected in 2014	N/A

	Pre Treatment	30% post treatment below 2 meters.		
		Reduce density in <3" dbh trees to <200/ac		
		Reduce dead & down fuel loading to <5T/ac		
		Reduce standing dead trees to <1/ac		
	Powerline Corridor Mech Pre Treatment	Monitor visual changes resulting from mechanical fuel reduction	Post-Treatment Data will be collected in 2013	N/A
	Colter Bay Housing Mech Post Treatment	Monitor visual changes resulting from mechanical fuel reduction	Photopoints indicate the effects of thinning on ladder fuels and woody fuel loading	YES
	Leeks Marina Mech Post Treatment	Monitor visual changes resulting from mechanical fuel reduction	Photopoints indicate reduced fuels but many trees remain very close to structures	?
	Flagg Ranch Mech Post Treatment	Reduce dead & down fuel loading to <10 T/ac	Reduced from 13.4 T/ac to 11.1 T/ac	NO
		Remove all conifer ladder fuels	Increased canopy base height from 6' to 15'	?
		Increase tree spacing to 1500 trees/ac	Post treatment tree density 3010/ac	NO
	Shadow Mountain Mech Post Treatment	Reduce dead & down fuel loading to <10 T/ac	Reduced from 21.14 T/ac to 13.3 T/ac	NO
		Remove all conifer ladder fuels	Increased mean canopy base height from 37' to 43'	?
		Increase tree spacing to 1500 trees/ac	Not measured	NO
	Signal Mountain Mech Post Treatment	Reduce dead & down fuel loading to <10 T/ac	Total Woody Fuels = 10.5 Tons/acre	YES
		Remove all conifer ladder fuels	Visual Obscurity showed a 50% reduction in ladder fuels	YES
		Increase tree spacing to 1500 trees/ac	Overstory trees per acre reduced to 213/ac, Pole trees to 300/ac	YES
	Matilda Rx Pre burn	Reduce dead & down fuel loading to <10 T/ac	Post-Burn data will be collected in 2014	N/A
		Reduce average fuel depth to <2"	Post-Burn data will be collected in 2014	N/A
		Reduce the probability of torching by >50%	Post-Burn data will be collected in 2014	N/A
		Reduce the crowning index to <30mph	Post-Burn data will be collected in 2014	N/A
		Reduce visual obscurity to < 20% below 1.5m	Post-Burn data will be collected in 2014	N/A
		Monitor exotic thistle distribution pre and post	Post-Burn data will be collected in 2014	N/A
Park/Forest	Monitoring Unit	Management Objective	Monitoring Results	Objective Achieved?
North Zone Bridger-Teton NF	Red Rock Complex	Document fire effects pre and post fire using permanent photopoints	Photopoints show unusually minimal revegetation in 2012 – potentially due to drought.	YES
	Lower Gros Ventre – Phase 3 Rx	Reduce live conifer density in aspen stands >60%	Live conifers decreased by 40% in stand 1 and 90% in stand 2	NO/YES
		Reduce live aspen overstory by >60%	Live overstory aspen decreased by 11% in stand 1 and 63% in stand 2	NO/YES
		Attain >1000 aspen suckers per acre >10' ten years post burn	To be determined Year 10 Post Burn	N/A
		Maintain aspen browse levels <30%	9% browsing in stand 1 and 24% in stand 2	YES
	South Burro Hill Rx	Reduce sage density by >50% post burn	Not statistically different in year 2 but small sample size existed	NO
		Increase herbaceous cover by >25% one year post burn	Achieved in year 2, however no control plots existed	?
	Willow Creek Rx	Reduce live conifer and overstory aspen density	Post-Burn data will be collected in 2014	N/A
		Attain >1000 aspen suckers per acre >10' fifteen years post burn	Post-Burn data will be collected in 2014	N/A

		Maintain aspen browse levels <30%	Post-Burn data will be collected in 2014	N/A
	Rec Trail Mech	Reduce fuel loading		
	Heart 6 Rx	Reduce dead and down woody fuel loading by 20-40%	Post-Burn data will be collected in 2014	N/A
		Kill 30-40% of seedling and pole trees	Post-Burn data will be collected in 2014	N/A
		Preserve live conifer trees >15" dbh	Post-Burn data will be collected in 2014	N/A
	Lava Creek Rx	Reduce live sagebrush density by >60% Increase native grass and forb cover by >25%	Immediate post burn photos collected in 2012	
	Red Top Mech	Reduce Down Woody Fuels to 7 tons per acre	Woody fuel loading estimated at 3.4 tons per acre 7 years post burn	YES
		Increase canopy base height to 15 ft	Photos indicate this may have been achieved	YES
		Leave desired tree spacing according to distance from private lands	Photos indicate this may have been achieved	YES
Park/Forest	Monitoring Unit	Management Objective	Monitoring Results	Objective Achieved?
West Zone Bridger-Teton NF	Pole Creek Rx	Reduce live conifer and aspen overstory tree density	To be determined when monitoring stand area is treated – expected for 2013	N/A
		Regenerate >1000 live aspen suckers per acre over 10' 15 years post burn	Ten year post burn objective	N/A
Park/Forest	Monitoring Unit	Management Objective	Monitoring Results	Objective Achieved?
East Zone Bridger-Teton NF	Horse Creek Fire	Attain >1000 aspen suckers per acre >10' fifteen years post burn	To be evaluated ten years post burn	N/A
		Regain ground cover of less than 20% bare ground 5 years post fire	11% bare soil in year 5 post burn	YES
	Fremont 2 Slash Unit	Attain >1000 aspen suckers per acre >10' ten years post burn	313 stems per acre over 10' ft ten years post burn	NO

B. Fire Ecologist accomplishments and areas of focus

Table 4. Fire Ecologist 2012 Accomplishments/Focus Areas

Category	Percent Time	Accomplishments and/or areas of activities
Planning	23%	BTNF Star Valley Front ID Team Teton to Snake Fuels Project EA and ID Team\ GTRE Fire Management Working Group Teton Interagency Area Risk and benefit Assessment vegetation/fire regime mapping GRTE Fire Regimes Handout for Resource Managers
Presentations	8%	Aspen in the JIHI burns – ten year summary: Public evening presentation GRTE Annual Fire Effects Report meeting North Zone BTNF Annual Fire Effects Report results presentation East Zone BTNF Annual Fire Effects Report results presentation West Zone BTNF Annual Fire Effects Report results presentation Fire History Hike – All Fire Days NPS Academy – What fire monitors do

		Teton to Snake EA Public Meeting
NPS Meetings/ task groups	2%	GRTE Wilderness Committee VRP Supervisors Group
Interagency work	(50%)	Technical Transfer ID Teams Fire Effects Monitoring Teton Interagency Area Risk and benefit Assessment BTNF Vegetation Condition Assessment report Network of Fire Science Champions Burn Severity Mapping and imagery requests & interpretation
Wildfire assignments	25%	FIRBt, FEMO, FFT1, GISSt, GSAN, RXB3, (83 operational days), Teton Fire Module, Interagency Type III team cadre,
Prescribed fire projects	1%	PFTC: 3 weeks in Florida 1 day GRTE
Non-fire fuels projects	1%	4 operational days
Research	10%	Douglas Fir NPS Reserve Fund Research Request with Donato, Research permitting, administration, and field work Aspen Fire Ecology Proposal with Shinneman & McIlroyUSGS Fire History Proposal to NPS Reserve Fund with Sibold & Krasnow Provided data for Harvey et al Research on BTNF Provided data for Murphy & Courtemanch project on Red Rock Fire Fire Scarred Tree slab collection proposal - GTRE
Data collection	4%	Work with Fire Effects Crew, collect live fuel moistures bi-monthly with Steffens
Data entry	1%	Assist with fire effects data entry
Data analysis	5%	Approximately 50% of projects, fuel moistures with Steffens
Supervision/Admin	5%	Supervise 1 STF, 1 seasonal
Training	5%	PFTC, S230, S231, S212, I-Suite, ArcFuels Workshop, AFE Fire Ecology Conference, GRTE Leadership Discussion Group
Travel out-of-park for plot or project work	0%	Not in 2012, unless you count the BTNF, our interagency partner (see above).
Miscellaneous	10%	Instruction: S244, S495 cadre, SOPs for Teton Fire Module, FMO office move, FMO library organization

C. Fire effects crew accomplishments and areas of focus

Table 5. Fire Effects Crew 2012 Accomplishments/Focus Areas

Category	Percent Time	Notes
FMH plots	1%	NPS only
NPS plots	25%	Aspen circles, brown's lines, stand exams, shrub intercepts, photopoints
USFS plots	11%	Aspen circles, brown's lines, stand exams, shrub intercepts, photopoints
Wildfire assignments	25%	2 helitack assignments, 2 engine crew assignment, 6 T2IA handcrew assignments, 5 Wildland Fire Module (WFM) assignment, 1 Single Resource Assignment (FOBS)
Prescribed fire implementation	0%	2 early spring burns completed (LGV and Lava Creek) prior to crew start date. Zero fall burns completed.
TIF Module	6%	Fuels reduction projects, backfill/step up staffing (E3, E4, E441, Helitack)

Support		-excludes weekend/lieu day staffing
Data entry	5%	FFI, FVS, Excel
Data analysis	2%	FFI, FVS, Excel
Supervision, Administration	6%	Timekeeping, travel, conferences/presentations/meetings, evaluations, gear/vehicle maintenance and upkeep
Training, Teaching	19%	S-130, S-133, S-190, S-200, S-211, S-215, S-234, S-244, S-290, RX-341, misc. NPS training

D. Additional Program Information

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?
Grand Teton National Park	Yes - vague	2010	24	0
Fossil Butte NM	no		1	0
Bighorn Canyon NRA	no		4	0
Bridger-Teton NF – N Zone	Yes – 1990 vintage	2006	20	0
Bridger-Teton NF – W Zone	Yes – 1990 vintage	2006	14	0
Bridger-Teton NF – E Zone	Yes – 1990 vintage	2006	17	1 – a little bit

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*
Grand Teton National Park	100%	100%	9	11	1	0
Fossil Butte NM	N/A	N/A	0	0	0	0
Bighorn Canyon NRA	N/A	N/A	0	0	0	0
Bridger-Teton NF – N Zone	100%	100%	5	2	2	0
Bridger-Teton NF – W Zone	100%	100%	1	0	0	0
Bridger-Teton NF – E Zone	100%	100%	1	0	2	0

* 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?*
Grand Teton National Park	10	1	1	No
Bighorn Canyon NRA	1	0	0	No
Fossil Butte NM	0	0	0	No
Bridger-Teton NF – N Zone	8	1	3	No

Bridger-Teton NF – W Zone	3	1	1	No
Bridger-Teton NF – E Zone	5	1	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
Grand Teton NP	yes	2	1	2	• OSU Douglas-fir research • USGS Shinneman & McIlroy Aspen proposal • 3. Sibold & Krasnow CSU/TSS Fire History Study proposal
Bighorn Canyon NRA	no	0	0	0	
Fossil Butte NM	no	0	0	0	
Bridger-Teton National Forest	no	1	1	2	• OSU Donato & Abendroth Douglas-fir research • Murphy & Courtemanch Research • 3. UW Harvey et al research

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

Reserve Fund Research:

In 2012 a research project entitled, “Using Archival Digital Orthophotographs to Investigate the Effects of Fire Exclusion and Insect Outbreaks on Douglas-fir in Grand teton national Park and Surrounding Areas” was funded for \$9,500.00. Dr. Daniel Donato from Oregon State University is the co-P. I. with Diane Abendroth. Dan was a GRTE Fire Effects Crew member in 2000.

The project proposed to use scanned and georectified archival air photographs from 1945 and 2006 to locate sites for pilot field investigations. Specifically:

- 1) Where Douglas-fir appears to have encroached into open shrub communities in the past decades:
 - a. How long has encroachment generally taken?
 - b. Do tree growth rates differ between these types and adjacent long-standing forest?
 - c. What other factors may be associated with tree colonization in these openings?
- 2) Where past stand-replacement fire scars are evident in Douglas-fir landscapes:
 - a. What are stand age distributions?
 - b. Does the apparent susceptibility to Douglas-fir beetle outbreaks differ between these stands and adjacent forest?
 - c. Do adjacent stands show evidence of co-incident surface fire?

- d. What characteristics differentiate stands from past surface fires versus stand-replacement patches and patches without detectable fire history?

Four sites were chosen for data collection during August of 2012. At this time, tree cores are at the laboratory at Oregon State for analysis. A final report will be produced in the spring of 2013, with a completion date of July 1, addressing the following:

1. Where Douglas-fir encroachment has occurred into open areas since 1945:
 - a) What are the stand age spatial patterns and disturbance history associated with this movement?
 - b) Can fire exclusion be attributed to this change?
 - c) What other mechanisms might be involved, such as climate, wildlife impacts to microsites, etc
2. Where past stand replacement fire can be identified:
 - a) What can be learned about past fire effects within and adjacent to these burns?
 - b) How has stand composition changed post fire?
 - c) How are these disturbances related to secondary beetle infestation?

In addition, deliverables include:

1. An evaluation of the use of this digital orthophotography for this ecological study.
2. A greater understanding of the fire and insect regimes of Douglas-fir in the Greater Yellowstone Area, with potential for further investigation in the future.
3. Presentation of results to the National Park Service and US Forest Service colleagues locally and nationally.

E. 2013 Direction

Fire Ecology:

- Clarify roles and expectations for weed monitoring. Establish appropriate protocols.
- Synthesize 12 years of fire effects results for general findings and recommendations
- Utilize Burn Severity Atlas data to develop objectives for future managed fires
- Prioritize future prescribed burn projects based on Teton Interagency Area Risk (and benefit) Assessment.
- Propose prescribed burns in Douglas-fir forest types according to research findings
- Develop measurable objectives for the resource benefits of managed fires, to be used in WFDSS documentation
- Contribute to NAFRI training courses – RX510 and S495
- Develop Fire Ecology education materials for use by local Fire Information Officers

Fire Effects:

- Continue to pursue needed career seasonal Assistant Lead Monitor position
- Assist in development of electronic field data entry platform
- Continue to pursue detailers and student employees to increase production and efficiency
- Continue to develop streamlined weed monitoring and CBI protocols
- Train Teton Fire Module in fireline and immediate post burn monitoring protocols for managed fire monitoring. This greatly increases the volume of fire effects data created in a season.
- Continue to provide a highly qualified pool of firefighters for the park and forest fire staff

Fuels Monitoring:

- Synthesize 20 years of fuels monitoring data

- Continue to develop fuels information on tetonfires.com website
- Promote the interagency fire program internationally
- Train new FOBS, LTAN, and SOPL candidates within the Teton Interagency Fire organization.

F. Appendices

Please see the attached appendices A through D for complete fire effects monitoring reports for all projects visited by the Fire Effects Crew in 2012.

Appendix E is the Fire Regimes handout for Grand Teton National Park produced as part of developing Healthy and Resilient Vegetation values for the Teton Area Interagency Risk Assessment process.