

Teton Interagency Fire Fire Ecology Annual Report Calendar Year 2010



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Summary

The Teton Interagency Fire Ecology program includes the Fire Effects Crew, Fire Ecologist, Prescribed Fire Technician, Fuels Specialist, Fire Planner, and Fuels AFMOs from the three zones of the Bridger-Teton National Forest. Together this group supports Teton Interagency Fire with an “adaptive management loop” that uses a variety of treatment methods, assessments of effectiveness, and science-based information.

Fire effects monitoring is done on an individual project basis, with a menu of protocols that relate to specific stated objectives. Each project’s monitoring protocols and results are tracked over time, and individual reports are written and presented to the responsible burn bosses and FMOs. In the case of prescribed fires, during-burn weather and fire behavior observations are compared to vegetation and fuels effects to help tweak prescriptions for the future.

In 2010, the fire effects monitoring program incorporated a new weed mapping and monitoring protocol that will be incorporated into all new projects at Grand Teton National Park. It made its debut at the Phelps Moraine prescribed burn, with help from the Grand Teton Exotic Plants crew, Engine 4, the fuels crew, and the GIS office. Unfortunately, a large and widespread infestation of St. John’s wort was discovered, which derailed the full implementation of the burn. While this is a setback for the fuels program, we may have averted a serious weed problem. The burn must be delayed until St. John’s wort is curtailed.

With the departure of Kristen Shive for graduate school in November of 2009, Teton Interagency Fire made the decision to adopt a permanent GS6/7 crew lead, in order to provide continuity to the program. Hiring was delayed until summer, unfortunately, which left the fire effects crew without leadership for the field season. Two detailers from Grand Canyon National Park, Li Brannfors and Jasper Peach, generously travelled to the Tetons to fill in during the season’s most hectic period during June and July. The detail was quite successful and fostered valuable idea-sharing that will hopefully help both programs.

In the fall of 2010, Grand Teton National Park and the Bridger-Teton National Forest met to renew the operating agreement that allows interagency crews and resource sharing to happen. At this time, the forest agreed to continue to fund half of the Lead Fire Effects Monitor salary as well as one of the seasonal crew members. USFS fire managers were very enthusiastic and supportive of the services the fire effects crew provides.

With a permanent crew lead in place, Fire Ecologist Diane Abendroth will be able to devote more time to interagency planning and scientific investigations. She will spend 50% of her time working for each agency.

Table 1. Fire Effects Plot Workload (2010) and Total Plots Installed

Unit	Project	Type of Plot	Pre	Imm. Post	Post (1-20 yrs)	Total Plots
Grand Teton National Park	2011 Planned Shadow Mountain Rx Burn	Photopoints Shrub Intercept Species Composition Weed mapping	4 59 3 1			67
	2009 Bearpaw Bay Wildland Fire	Photopoints			Year 1 5	5
	2005 Lost Creek Rx Burn	FMH Brush Plots			Year 5 5	5
	2009 Airport Road Sage Strips Mowing Treatment	Photopoints Species composition and Cover Nested Frequency			2 26 100	126
	2010 Phelps Moraine Rx Burn	Stand Exams Weed Mapping Photopoints	10 3	 1		14
	Death Canyon 2 Mechanical Thinning	Stand Exams			10	10
	Death Canyon 3 Mechanical Thinning	Stand Exams			10	10
	Ditch Creek Mechanical Thinning	Stand Exams			10	10
	Signal Mountain Mechanical Thinning (10 Year Re-Treatment)	Stand Exams	10			10
Unit	Project	Type of Plot	Pre	Imm. Post	Post (1-20 yrs)	Total Plots
Bighorn Canyon NRA	Barry's Island RX Burn	FMH Brush Plots with line intercept transects			2	2
	East Trail Creek Rx	FMH Brush Plots with line intercept transects			4	4
	Stateline –Yellow Hill Rx	FMH Brush Plots with line intercept transects			1	1
Unit	Project	Type of Plot	Pre	Imm. Post	Post (1-20 yrs)	Total Plots
Fossil Butte National Monument	Rock Creek Rx	FMH Brush Plots with line intercept transects			6	6
Unit	Project	Type of Plot	Pre	Imm. Post	Post (1-20 yrs)	Total Plots
North Zone Bridger-Teton NF	Beaver Mountain Rx	photopoints	1			1
	Diamond L Rx	Aspen Circles Photopoints			80 6	86
	Dry Quad Slashing, Rx	Aspen Circles Photopoints	28 1			29
	Lower Gros Ventre 1 Rx	Aspen Circles Photopoints			30 4	34
	Lower Gros Ventre 3 Rx	Aspen Circles Photopoints	51 14	14		79
	Upper Palmer Rx	Shrub Line Intercepts	11			11

Unit	Project	Type of Plot	Pre	Imm. Post	Post (1-20 yrs)	Total Plots
West Zone Bridger-Teton NF	Bradley Mountain Rx	Photopoints			3	3
	Lower Cottonwood Rx	Mahogany Circ. Plots Juniper Circ. Plots Shrub Circ. Plots Photopoints			31 30 30 3	94
	Pole Creek Rx	Aspen Circles Photopoints	30 8			38
	Spring Creek Rx	Nested Frequency			1	1
	Kelly Mechanical Thinning	Stand Exams Browns Transects Sightability Transects Photopoints	5 5 5 1			16
Unit	Project	Type of Plot	Pre	Imm. Post	Post (1-20 yrs)	Total Plots
East Zone Bridger-Teton NF	Fremont II Rx	BFH Macroplots Photopoints			5 2	7
	1985 Half Moon Rx & 1996 Fayette Fire	BFH Macroplots			2	2
	Willow Rim Rx	Aspen Circles Photopoints			20 3	23
	Monument II RX	Photopoints Burn mosaic mapping		7		7
	Maki Creek Slashing and RX	Aspen Density Circles Photopoints			90 3	93

Table 2. Fire Ecology Staffing 2010

Because of the vacancy in the lead monitor position, we used a rotating lead throughout the year. We can't thank the staff at Grand Canyon enough for allowing both Li and Jasper to come up for 30-day details. This vacancy also allowed our crewmembers the opportunity to lead the crew. Jon Freeman, the new permanent crew lead, managed to sneak in for the last two pay periods of 2010.

Ecologist and Monitors	Starting Date	Ending Date	# of Pay Periods	READ Qualified (Yes or No)	Training and Development
Diane Abendroth	1/1/10	12/31/10	26	Trainee	1 st Aid, CPR 32 fire operational periods
River Osborn	6/1/10	10/22/10	10 ½	No	1 st Aid, CPR L-280 S-212 Completed FEMO taskbook Opened FALA, PIOF taskbooks Saffron WFU (Grand Canyon) 7 fire operational periods
Kaleb Stromberg	6/1/10	11/5/10	11 ½	No	1 st Aid, CPR L-280 Advanced botany class Type 21A crew assignment 34 fire operational periods

Cynthia Worthington	6/1/10	9/30/10	9	No	1 st Aid, CPR L-280 S-290 Opened FEMO taskbook Advanced botany class Type 21A crew assignment 24 fire operational periods
Li Brannfors*	6/1/10	7/1/10	2	No	1 st Aid, CPR L-280 0 fire operational periods
Jasper Peach*	7/12/10	7/29/10	1 ½	No	Advanced botany class 0 fire operational periods
Jon Freeman	12/6/10	12/31/10	2	No	2 fire operational periods Opened RXB3 taskbook

*Grand Canyon NP fire effects employee

Table 3A. Grand Teton National Park Project Management Objectives and Monitoring Results 2010

Grand Teton National Park Project	Management Objectives	Monitoring Results (significance at 80% confidence in bold)	Objective Achieved?
2011 Planned Shadow Mountain Rx Burn	- Reduce the percent cover and height of live sagebrush to specific levels - Achieve a burn severity level of 4 or less - Map and track the spread of exotic weeds, including smooth brome	- Pre burn monitoring only. Sagebrush cover: 35% in Unit 1, 34% in Unit 2, 21% in Unit 3 - Average height: 71cm in Unit 1, 68 cm in Unit 2, 59cm in Unit 3. - Musk thistle found in 16 locations - Smooth Brome patch = 5.4 acres	Pre Monitoring Only
2009 Bearpaw Bay Wildland Fire	- Monitor post-burn revegetation over time - Monitor the survival of Douglas Fir trees, in comparison to tree size and burn severity factors - Map burn severity	dNBR mapping shows 38% severe, 22% moderate, 28% low, and 12% unburned within the fire perimeter.	Yes
2005 Lost Creek Rx Burn	- Remove 40-60% of live sage density and cover within the burn unit area to be measured immediately post burn. - Increase percent cover of native grasses by at least 25% in burned shrub fields within 2 years post burn.	Sagebrush cover and density reduced to desired levels No significant difference in native grass cover in burned areas	Yes No
2009 Airport Road Sage Strips Mowing Treatment	- Monitor changes in the frequency of exotic plants - Monitor changes in the percent cover of all plant species	- Species composition showed BRTE increased from 5-15% to 15-15% cover - Several new exotic plants were observed Nested frequency analysis showed significant increases (p=.10) in cheatgrass and 3 other weed species.	Yes Yes
2010 Phelps Moraine Rx Burn	- Minimize overstory tree mortality in the mechanical treatment buffer so that <10% of the tree canopy is impacted. - Consume 25% - 50% of 1000 hr fuels within the treatment area. - Reduce crown bulk density by 25% through group torching. - Achieve moderate burn severity conditions across the project area so that 30% - 50% of the 0" to 3" diameter trees and 0 – 30% of pole trees, 3" – 6" diameter trees, are	- The test burn area experienced 100% tree mortality. - Woody and canopy fuel loading differences are unknown. No plots burned in the test area. - Burn severity was higher than desired. - Pre burn weed distribution in the burn unit was mapped in GIS and found to be more widespread than anticipated.	No Unknown No Preliminary

Grand Teton National Park Project	Management Objectives	Monitoring Results (significance at 80% confidence in bold)	Objective Achieved?
	killed. • Detect the distribution of noxious weeds in the treatment units before and after the burn.		
Death Canyon 2 Mechanical Thinning	• Reduce dead and down fuel loading to 10 tons per acre • Remove all ladder fuels (limb trees, remove conifer regeneration) • Increase tree spacing distance to 10-12 feet (1500 stems per acre) between trees or groups of trees.	• Findings somewhat inconclusive for total woody fuel loading – insufficient sample size? • Crown base height increased from 3 ft. to 10 ft. • CBD reduced from .070 to .046	No Probably Probably
Death Canyon 3 Mechanical Thinning	• Reduce dead and down fuel loading to 10 tons per acre • Remove all ladder fuels (limb trees, remove conifer regeneration) • Increase tree spacing distance to 10-12 feet (1500 stems per acre) between trees or groups of trees.	• Dead and Down fuel loading reduced from 12.67 to 6.29 tons per acre • Canopy Base Height increased from 4 ft. to 12 ft. • CBD reduced from .058 to .039 • Torching Index increased to 138.6 mph for 97th percentile weather. • Crowning index increased to 45.5 mph for 97th percentile weather • Fire Type remained surface fire for both pre and post treatment.	Yes
Ditch Creek Mechanical Thinning	• Reduce dead and down fuel loading to 10 tons per acre • Remove all ladder fuels (limb trees, remove conifer regeneration) • Increase tree spacing distance to 10-12 feet (1500 stems per acre) between trees or groups of trees. •	• Dead and Down fuel loading reduced from 9.43 to 5.21 tons per acre • Canopy Base Height increased from 5 ft. to 12 ft.. • Torching Index increased to 178.8 mph for 97th percentile weather. • Crowning index increased to 29.3 mph for 97th percentile weather • Fire Type remained surface fire for both pre and post treatment.	
Signal Mountain Mechanical Thinning (10 Year Re-Treatment)	• Reduce dead and down fuel loading to 10 tons per acre • Remove all ladder fuels (limb trees, remove conifer regeneration) • Increase tree spacing distance to 10-12 feet (1500 stems per acre) between trees or groups of trees.	• Total woody fuel loading was 22.3 tons per acre • Canopy base height was 6 feet. • Canopy Bulk Density was .088 • Predicted fire type was surface fire • Probability of torching was 59%	Pre Treatment Data
	•	•	

Table 3B. Bighorn Canyon National Recreation Area Project Management Objectives and Monitoring Results 2010

Bighorn Canyon NRA Project	Management Objectives	Monitoring Results (significance at 80% confidence in bold)	Objective Achieved?
Yellow Hill Prescribed Burn	• Reduce the percent cover of live Utah juniper by at least 60% one year post treatment • Reduce shrub density by 30-50% one year post burn • Increase the percent cover of herbaceous plants by at least 30% two years post treatment.	• Live juniper cover was reduced by 44% • Juniper density decreased by 92% • Herbaceous cover (forbs) decreased by 74%	No Yes No
Barry's Island – Chain Canyon Prescribed Burn	• Burn in a mosaic pattern between 40-70% of the targeted acreage, to be measured immediate post burn. • Achieve 70-90% juniper mortality	• The burn mosaic has not yet been completed. • Juniper cover was reduced by 54% • Juniper density was reduced by 95%	Unknown Yes

Bighorn Canyon NRA Project	Management Objectives	Monitoring Results (significance at 80% confidence in bold)	Objective Achieved?
	in dense stands across the unit immediately post burn		
East Trail Creek Prescribed Burn	• Achieve 70-90% juniper mortality in dense stands across the unit immediately post burn • Increase horizontal visibility to 70-90% as measured by a Sightability board in vegetation greater than 32" in height within targeted fuels.	• Juniper cover was reduced by 8% • Juniper density was reduced by 71%	No (% cover) Yes (density)

Table 3C. Fossil Butte National Monument Project Management Objectives and Monitoring Results 2010

Fossil Butte NM Project	Management Objectives	Monitoring Results (significance at 80% confidence in bold)	Objective Achieved?
Rock Creek RX Burn	• Blacken 30-60% of the unit of BLM land, and 25-35% on Fossil Butte land. • Achieve 70% resprout density of pre-burn serviceberry and snowberry two years post burn. • Achieve 50% resprout density of pre-burn bitterbrush two years post burn. • Achieve at least 1000 sagebrush stems per acre five years post burn.	• Burned 30-60% of BLM land. Probably burned more than 35% of Fossil Butte Land • No significant difference in AMAL and SYOR cover in Year 2 • Bitterbrush density was reduced by 85% in year 2 post burn. • Mean sagebrush density was 1405.2 stems per acre in year 5.	Yes and No Yes No Yes

Table 3D. Bridger-Teton National Forest North Zone Project Management Objectives and Monitoring Results 2010

North Zone BTNF Project	Management Objectives	Monitoring Results (significance at 80% confidence in bold)	Objective Achieved?
Beaver Mountain Rx Burn	• Reduce live conifer between 20% and 60% • Reduce overstory aspen density by 70% by one year post-burn. • Blacken between 40% and 80% of the sagebrush within in the burn unit, in a mosaic pattern. • Achieve 10-30% canopy fire effects • Favor survival of large-diameter Douglas-fir trees (> 12") in burned areas to retain forest shaded conditions	• Qualitative pre monitoring completed in 2010	Unknown (pre monitoring only)
Diamond L Rx Burn	• Kill 50-80% of the overstory trees (over 5.9" dbh) and 85% of conifers in the identified stands. • Produce 2000-5000 live aspen stems per acre over 10 feet in height within 15 years post fire. • Maintain less than 20% bare soil within 5 years post fire.	• 18% reduction in overstory conifers (not significant) • 2% increase in overstory aspen (not significant) • Significant increases in shorter aspen suckers bodes well for meeting this objective • 1% bare soil recorded at year 2 post burn	NO Preliminary YES

North Zone BTNF Project	Management Objectives	Monitoring Results (significance at 80% confidence in bold)	Objective Achieved?
Dry Quad Slashing and RX Burn	• ≥ 50-80% mortality of overstory aspen (> 5.9" DBH) and 85% of conifers post burn in all treated stands (A, B, E, D) • Attain at least 2000 aspen suckers/acre over 6 ft in height 3 years post burn (All stands). • Attain at least 1000 aspen suckers/acre over 10 ft in height 15 years post burn (All stands).	• Pre Treatment Density Data : Suckers/Ac, Conifers/ac, OS Aspen/ac Stand A: 1227.5, 310, 29 Stand B: 2693.5, 24, 18 Stand C: 2264.3, 263, 58 Stand D: 3256.7, 114, 32 Stand E: 936.5, 1303, 32	Unknown (pre monitoring only)
Lower Gros Ventre RX Burn, Phase I	• Reduce live conifer presence in aspen stands by $>60\%$ to promote aspen health and vigor. • Reduce live aspen overstory tree density by $>60\%$. • Attain at least 1000 aspen stems per acre at 10 ft or taller within 15 years post burn in treated aspen stands. Maintain aspen browse levels at less than 30% on terminal leaders.	• No significant decrease in live overstory aspen density • No significant difference in live conifer density • Aspen sucker density significantly increased to 5666 stems/ac +/- 1367 stems per acre.	NO NO Preliminary
Lower Gros Ventre RX Burn, Phase III	• Introduce stand replacement fire effects with canopy mortality of 20-40% in conifer forest. • Retain 30% of mapped mature aspen stands, with a post-treatment conversion of up to 70% to early succession stands. • In mountain big sagebrush stands, treat only 40% of sagebrush that will carry fire. Avoid the bench area above and to the north of Lower Slide Lake. • Treat prioritized wildlife areas to the extent possible. • ≥ 1000 live aspen suckers per acre over 10ft tall 15 years post fire	• Treated 39.7% of the planned burn unit. • Treated 24.2% of mapped conifer forest, 46% of aspen, and 32% of sagebrush vegetation • Treated 38.6% of priority wildlife habitat as part of a 17,272 acre multi-year project. • Pre burn aspen sucker density for stems over 10': 106 +/- 90 stems/acre in stand 1, and 229 +/- 122 stems per acre in Stand 2.	YES YES YES Preliminary data only
Upper Palmer Creek Unit RX Burn	• Reduce live conifer between 20% and 60% • Reduce overstory aspen density by 70% post-burn. • Attain > 3000 aspen suckers/acre two years post burn. • Attain > 1500 aspen suckers per acre over 6 feet tall 5 years post burn. • Attain > 1000 aspen stems/acre > 10 ft 15 years post treatment. • Maintain aspen browse levels at less than 30% on terminal leaders. • Blacken between 40% and 80% of the sagebrush. Achieve at least 40% conifer mortality in encroached meadow areas	Stand 1 (heavily conifer encroached) Pre Burn: • 723 +/- 336 live aspen suckers per acre (25.7 % browse) • 70.5 +/- 60.2 live suckers over 10 ft per acre • 19 +/- 4 live overstory aspen per acre • 439 +/- 10 live conifers per acre Stand 2 (Moderately encroached) Pre Burn: • 2143 +/- 418 live aspen suckers per acre (27.9% browse) • 73.8 +/- 34.4 live suckers over 10 ft per acre • 99 +/- 19.5 live overstory aspen per acre • 6 +/- 4.4 live conifers per acre Stand 3 (Shrubland) Pre Burn: • 25% cover sage, 10% various shrub species • 68cm average sage height	Unknown (pre monitoring only)

Table 3E. Bridger-Teton National Forest East Zone Project Management Objectives and Monitoring Results 2010

East Zone BTNF Project	Management Objectives	Monitoring Results (significance at 80% confidence in bold)	Objective Achieved?
Fremont II Rx	• Increase aspen suckering from 100-200 stems/acre to at least 5,000 stems/ac three years post-burn. • Attain >80% ground cover in sagebrush/grass communities and aspen communities within 5 years post-burn. • Attain 10+ foot tall aspen sucker density of at least 1000/ac at or before 10 years post-burn (in burned stands).	• Aspen sucker density was 2719 stems/acre in year 5 • Ground cover in sagebrush was 71% in plot SLLS4, and 82% in plot SLLS2. Control plot ground cover was 93% • Ground cover in burned aspen was 93% • Sagebrush density decreased to 1.1% and 27.1% of preborn levels. Bitterbrush density reduced to 43.4% and 60.0% of pre burn levels.	No Yes/No Yes
1985 Half Moon Rx – 1996 Fayette Fire	• Improve age class diversity in shrub communities • Maintain suitable ground cover • Increase the percent cover of grasses and forbs	• Shrub recovery very slow, difficult to measure • Litter cover increasing, bare ground decreasing (<10% at FCHM, 30% at FC3P) • Grass and forb cover stable (Grasses 76% & 85%, forbs 43% & 9%)	No Yes Yes
Willow Rim Rx Burn	• Attain 1000 stems per acre in burned aspen areas $\geq$ 10 feet tall within 15-years post burn. • Attain 60% ground cover in burned aspen areas within 2-years post burn and 80% within 5-years post burn.	• Aspen sucker density at Year 5 post burn: 8450 stems/acre. • Ground cover objectives achieved in YR02	Unknown (preliminary) YES
Monument II RX Burn	• Burn 30-60% of the sagebrush communities in a mosaic pattern within the project area. • Measure the reduction of big sagebrush (<i>Artemisia tridentata</i> var. <i>vaseyana</i> and <i>Artemisia cana</i>) height and canopy cover 1 and 5 years post burn. • Attain < 40% bare ground in burned sage/grass communities 1 year post burn, and < 20% bare ground after 5 years post-burn.	• Pre burn big sagebrush cover = 26.2% (+/- 6.4) • Pre burn silver sagebrush cover = 7.2% (+/- 2.8) • Ground cover was 79% pre burn • 41% of the planned unit was blackened • 63% of the acreage within the blackline was blackened	Unknown (pre monitoring only) Yes
2008 & 2009 Maki Creek RX	• Obtain aspen sucker density ($\geq$ 10 ft) of at least 1000 stems/acre 10-15 years post-burn and/or post-thin. • Compare pre-burn (post slashing) fuel bed depth to post-burn severity in treated aspen-conifer stands. • Measure woody fuel reduction between pre burn (post-slashing) and post burn in treated aspen-conifer stands.	• 1 and 2 years post burn, aspen suckers were 6536 +/- and 4060 +/- stems per acre, respectively. • In moderate severity area, wood fuels reduced from 20.3 to 15.4 tons per acre. Fuel bed depth dropped from 25.8' to 9.0'. In lightly scorched areas, fuel bed depth declined from 16.5' to 11.5'. No reductions in loading were found. • Slashed areas with red needles remaining experienced desired burn severity, while older slashed areas did not.	Unknown (preliminary) Yes, in Moderate Severity Areas

Table 3F. Bridger-Teton National Forest West Zone Project Management Objectives and Monitoring Results 2010

West Zone BTNF Project	Management Objectives	Monitoring Results (significance at 80% confidence in bold)	Objective Achieved?
Bradley Mountain Rx	• Treat 30-60% of the project area, focusing on high and moderate priority areas. • Attain 10 foot tall aspen sucker density of at least 1000 stem per acres at or before 15 years post burn. • Maintain the long term distribution and extent of aspen, mountain shrubland, and big sagebrush • Achieve 40-80% conifer mortality • Restore canopy cover of shrubs to pre-burn levels within 25-40 years. • Increase shrub canopy cover and reduce conifer canopy cover	• Photopoints only in 2010	Unknown (Photopoint retakes only this year)
Lower Cottonwood Rx	• Attain > 60-80% mortality of juniper (<i>Juniperus spp.</i>) in burned areas. • Restore bitterbrush cover to 50% or greater of pre-burn levels within 10 years and to pre-burn levels within 20 years. • Restore canopy cover of palatable shrubs to pre-burn levels in 20 years. • Restore the pre-burn density of mountain mahogany within 25 years.	• Live juniper density decreased by 76.3%. • Significant decreases post burn in mountain shrubs • Live mahogany density decreased by 55.6%	YES Preliminary Preliminary
Pole Creek Rx	• Blacken 30-60% of mountain shrubs and sagebrush, 80% of conifer forest, and >80% of conifer-encroached aspen. • Reduce live conifer and overstory aspen trees • Regenerate > 1000 live aspen suckers per acre over 10ft tall, 15 years post burn • Track the fire effects on the sagebrush community and subsequent recovery	• Aspen suckers per acre were only 580/acre +/- 161.3 pre burn • Conifers were 581 +/- 135.5 per acre • Overstory aspen were 63 +/- 19 per acre • Aspen suckers were 33.9% browsed	Pre burn data only
1995 Spring Creek Rx Burn	• Improve the health of vegetation communities • Improve wildlife habitat	• Nested frequency results showed changes in plant composition over 15 years. • Ground cover transects indicate good recovery of litter, but 31% bare ground remains. • Rabbitbrush and snowberry have returned to pre burn density and cover • Sagebrush and bitterbrush are returning to the site very slowly	Objectives not measurable....
Kelly Mechanical Thinning	• Reduce down woody, ladder, and canopy fuels in the vicinity of the Kelly Guard Station	• Pre treatment down woody fuel loading was 14.51 tons per acre • Canopy base height was 4 ft. • Canopy Bulk density was .036 • Torching index was 7.9 mph for 97th percentile fire weather	

Fire ecologist accomplishments and areas of focus

Fire Ecologist Diane Abendroth officially works 50% of her time for the Grand Teton National Park Fire Management Program, and 50% for the Bridger-Teton National Forest. During 2010, she took on more planning tasks including a couple of project ID teams. In the absence of a Lead Fire Effects Monitor, Diane arranged for detailers to assist with the crew, and also spent extra time in the field herself. Once Jon Freeman was hired, Diane was able to dedicate more time and attention to her new Fire Ecologist role.

Table 4. Fire Ecologist Accomplishments/Focus Areas

Category	Percent Time	Accomplishments and/or areas of activities
Planning	20%	• Fire Management Working Group • Resource Council • Public meetings (Lower Gros Ventre RX, Hayfields restoration, Teton to Snake Fuels Project) • Forest Service ID Team Fire Ecology representative : Buffalo Valley Fuels, Teton to Snake Fuels, Star Valley Front • 5 year fuels planning (NPS & BTNF)
Presentations	15%	• Fire Effects Results Presentations: 4 interagency meetings with associated reports for each project • Interpreters Training Day – 30 min presentation on Fire Ecology of the GYA • GTNP Guides Training Day – 45 min presentation of Fire Ecology of GTNP • All Fire Days – 1 hour presentation on Fire Regimes of Western Wyoming • San Antonio FMO Meeting – Poster on Project Level FX Monitoring, Poster on the Management of the Bearpaw Bay Fire (with Traci Weaver). • Meadow Academy High School – Ecology field trip to GTNP (with Ron Steffens) • S290 instruction assistance • Presented literature reviews on the effects of burn season to fire management group
NPS Meetings/ task groups	1%	• GTNP Safety Committee (a few meetings)
Interagency work	99.9%	• Almost all is interagency!
Wildfire assignments	5%	• ICT5-T – West Jenny Fire • FFT1 – Pilgrim Fire • PIOF –Antelope Fire (YELL), Arthur II Fire (YELL)
Prescribed fire projects	15%	• FEMO – Elbo West RX, Lower Gros Ventre RX, Phelps Moraine RX, Monument II RX • PIOF – Elbo East RX • RXB3 –T – Shadow RX Burn (Piles) • Phelps Moraine RX: Project planning and scouting, Lynx habitat assessment, co-development of monitoring objectives • Lagoon RX: Scouting and recommendations • Phillips Bench: Scouting and recommendations • Developed new methods for monitoring invasive plants on all future RX burns in GTNP
Non-fire fuels projects	2%	• Developed new standards for monitoring mechanical thinning projects on the BTNF • Revised field methods to incorporate lynx habitat measures
Research	2%	• 2 proposals for GIS analysis projects involving fire ecology • Coordinated with Romme/Turner group on fire ecology research in

		GTNP • Missoula Fire Lab Threat Assessment modeling workshop
Data collection	10%	• Assist with Fire Effects Data Collection in the field: 4 weeks
Data entry	5%	• 2 weeks of fire effects data entry
Data analysis	10%	• 4 weeks of fire effects monitoring data analysis and report writing
Supervision/Admin	15%	• Hiring of fire effects crew Summer 2010 • Hiring of Permanent Lead Fire Effects Monitor • Coordination of 2 detailers from Grand Canyon NP • Regional program review • New elements for EPAPs with benchmark standards • Other admin
Training	10%	• S495 – Geospatial Fire Analysis • S234 – Ignition Specialist • USFS Lynx Habitat Assessment • S203 – Fire Information Officer • CPR Refresher
Miscellaneous	10%	• Geospatial analysis of fire effects to Canada lynx habitat in GTNP using burn severity map data • Similar analysis of fire effects to moose habitat in the Teton Wilderness • GTNP and BTNF vegetation map updates based on burn severity map data • Field trips to evaluate RX burns in riparian areas with FS Research biologist Dr. Kate Dwire. • Continued to produce burn severity history atlas of all fires since 1985 for GTNP and BTNF. • Fire Management and Ecology verbiage for Greater Yellowstone Science website

Fire effects crew accomplishments and areas of focus

Despite not having a dedicated crew lead, the fire effects crew managed to get a significant amount of work done. Lead responsibilities were shared between the fire ecologist, the Grand Canyon detailers, and the crewmembers themselves. Plot work continued to take up the majority of the crew's time. For a slow fire season nationally, the crew did manage to spend a fair bit of time on both wildland, fire use, and prescribed fires.

Table 5. Fire Effects Crew Accomplishments/Focus Areas

Category	Percent Time	Notes
NPS Plots (non-FMH)	11%	Various non-FMH plots read at Grand Teton National Park
NPS plots (FMH)	10%	Post-treatment plots at GRTE, BICA, and FOBU
USFS Plots...	21%	Various non-FMH plots read on the Bridger-Teton National Forest
Wildfire assignments	17%	Includes both suppression and "fire use" fires, locally and out of area, as members of engines and handcrews as well as single resources
Prescribed fire projects	14%	Grand Teton National Park and Bridger Teton National Forest projects
Non-fire fuels projects	2%	Provided assistance to fuels, engine, and weeds crews
Data entry	5%	100% of FFI compatible data entered into FFI version 1.3
Data analysis	1%	Analyses for annual report and presentations to Park and Forest managers
Supervision/Admin	10%	Hiring, payroll, travel authorization/voucher, etc.
Training	9%	Various crew members attended CPR, 1 st Aid, L-280, S-212, S-290
Miscellaneous	0%	



The Crew monitoring weeds along a roadside fuels treatment



The Lower Gros Ventre III RX Burn, proceeding nicely



Jasper Peach with the crew at Fossil Butte



Li Brannfors and the crew measuring aspen density

Additional Information

Table 6. Data Entry and Projects Monitored in 2010

Park	% 2010 Data Entered	% 2010 Data Quality Checked	# Prescribed Fires Monitored*	# Non-fire Fuels Treatments Monitored*	# Wildfires Monitored*	# BAER Treatments Monitored*
Grand Teton National Park	85%	85%	3	5	1	0
Bighorn Canyon NRA	100%	100%	3	0	0	0
Fossil Butte National Monument	75%	75%	1	0	0	0
Bridger-Teton National Forest	90%	90%	14	6	0	0

* Number of treatment units with treatment effects monitoring conducted by the fire effects crew.

Table 7. Projects Currently Being Tracked by the Teton Interagency Fire Effects Program

Unit	Total Projects and	Projects with Post	Project with New
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	Fires Being Monitored Over Time	Treatment Monitoring in 2010	Pre-Treatment Implementation 2010
Grand Teton NP	37	8	3
BTNF North Zone	20	3	8
BTNF East Zone	16	4	1
BTNF West Zone	9	7	2
Fossil Butte NM	1	1	0
Bighorn Canyon NRA	4	3	0
Total	87	26	14

Figure 1. Breakdown of Fire Effects Crew Time for 2010 Field Season

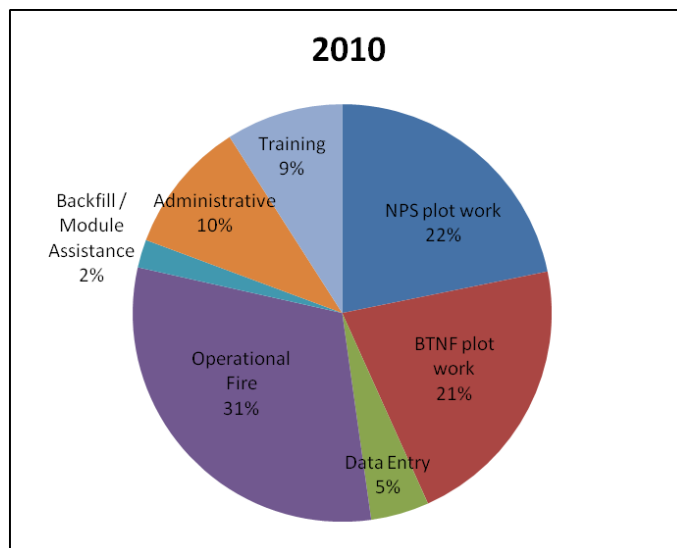


Figure 2. Long term project tracking for the Teton Interagency Fuels and Fire Effects Program

