



**National Park Service
Fire Ecology Annual Report
Calendar Year 2009**

A. Summary

The Zion Fire Effects team experienced a challenging, rewarding, and highly productive year despite staffing changes within Zion Fire Management and a very demanding workload. Not only did the crew have a large number of FMH plots scheduled, but it also needed to sample CBI plots and cheatgrass treatment plots as well. The crew collected data from 81 FMH plots, 75 CBI plots, and 155 other plots for a total of 311 plots in 2009! Part of the team's success was due the continuity and level of experience within the team. The Fire Ecologist, Lead monitor, and Assistant Lead Monitor were all returning staff, while the two additional crew members had worked in the NPS Fire Effects program in years past. The crew also received assistance from a number of sources: two Northwestern University student interns (7 weeks), two Grand Canyon Fire Effects Monitors (8 days), and a number of other staff at Zion and Bryce Canyon (particularly from the Resources division of each). In addition, crew members improved their botany skills by continuing to piece together a working herbarium complete with 100s of mounted specimens, a digital catalog, printed labels, and proper storage. By making good use of occasional office days during the summer, the crew was also able to complete all FMH data entry & checking by the time the seasonal positions were ending (October).

Despite the fact it was a slow fire year nationally, all members of the team were able to participate in fire operations. The team members detailed in with Zion Helitack, the Zion Fire Use Module, Zion Engines, and assisted in a number of capacities on prescribed fires, fire for resource benefit, and wildfires under full suppression. In addition, several team members gained valuable experience acting as resource advisors (READs) and in writing BAER assessments and fire monitoring reports. The crew received performance awards for their outstanding work and several of the team members were included in a special group award for "achievement in restoring fire-adapted communities." Individuals also received high marks from their detail supervisors during fire assignments and were able to complete HECM and FEMO taskbooks, while adding experience to new taskbooks.

All of this work took place rather seamlessly, considering the type of changes occurring on many levels in fire management. At the national level, this was the first year of "fire for resource benefit." Under this change in policy, Zion Fire Management successfully managed a natural ignition fire named the Horse fire (2100 acres) as well as the Bridge fire, which burned into Bryce Canyon. At the park level, Zion's FMO took a position at the regional office, the AFMO moved to the BLM, and the Bryce's Fuels Specialist took an acting role until the FMO vacancy

was filled in October (by the former AFMO). Within Zion Fire Effects, the Fire Ecologist received NPS approval/funding to enroll in a Masters Program at Northern Arizona University. She is studying fire ecology, and specifically looking at making adjustments to the Zion Fire Effects program. She started classes in Flagstaff full-time in late August but continues to make herself available via phone, email, and occasional meetings. To help fill the gap back at Zion, the Lead Monitor received a temporary promotion as Acting Fire Ecologist in October (NTE 120 days). He used the remainder of the year to prepare fire monitoring results for the annual report and in updating the Pocket Mesa burn plan. Finally, the Assistant Lead took a separate short-term GIS position in the Fire Effects office to assist in data analysis, and learn some new skills in ArcGIS. The Fire Ecologist and the Lead Monitor continue to work with both fire and resource managers to address the current needs of the Southern Utah NPS units, which they have the pleasure of serving.

Table 1. Fire Effects Plot Workload 2009

Park	Monitoring Unit	Type of Plot (FMH, photo point, other)	Pre-burn	Immed. Post	Postburn (1-20 yrs)	Total 2009 samples	Total Plots (installed to date)
Zion	White Fir	FMH Forest plot	2	0	1	3	9
Zion	Ponderosa Pine	FMH Forest plot	0	0	11	11	19
Zion	Juniper Woodland	FMH Forest plot	0	0	5	5	8
Zion	Aspen	FMH Forest plot	1	0	9	10	10
Zion	Gambel Oak	FMH Forest plot	0	0	9	9	11
Zion	Sagebrush	FMH brush plot	0	0	9	9	12
Zion	Three Finger Mesa Rx	Composite Burn Index plots	0	0	29	29	29
Zion	Kolob Fire	Post fire cheatgrass treatment plots*	0	0	140	140	140
Bryce	Ponderosa Pine	FMH Forest plot	4	0	12	16	23
Bryce	White Fir	FMH Forest plot	0	0	14	14	17
Bryce	Black Sagebrush	FMH Forest plot	0	0	4	4	7
Bryce	Puma Rx	Composite Burn Index plots	0	0	46	46	46
Bryce	Dave's Hollow	Tree Density Plots	15	0	0	15	15
Total FMH	-	FMH plots	7	0	74	81	116
Grand Total	-	All plots	22	0	289	311	346

*Plot reads are 2 years post-burn, but pre-secondary treatment (re-application of herbicide/ native seed mix)

Table 2. Fire Ecology Staffing 2009

Ecologist and Monitors	Starting Date	Ending Date	# of Pay Periods	READ Qualified (Yes or No)	Training and Development
Katie Johnson <i>Fire Ecologist</i>	01/01/09	12/31/09	22	Yes	I-Suite, M3 Aviation, NEPA, READ, WFDSS, RAWS Maintenance, online course from Oregon State Univ., FT graduate student at Northern Arizona Univ.
Joel Silverman <i>Lead Monitor</i>	02/09/09	12/31/09	22*	Yes	S-341 (GISS taskbook initiated), S-131 (ICT-5 taskbook initiated), S-212, READ training
Kathleen Walsh <i>Assistant Lead</i>	04/05/09	12/16/09	18**	Yes	S-131 (ICT-5 taskbook initiated), S-212, READ training, CPR/first aid, online and local GIS training
Shannon Eberhard <i>Crew Member</i>	04/27/09	10/23/09	13	No	S-131 (ICT-5 taskbook initiated), S-211, S-212, CPR/first aid; FEMO taskbook completed, local GIS training
Matthew Smith <i>Crew Member</i>	05/04/09	10/31/09	13	No	S-131 (ICT-5 taskbook initiated), S-232 (dozer-boss taskbook initiated), S-290, S-212, FEMO taskbook completed. HECM taskbook completed, CPR/first aid, local GIS training
Hannah McLimans <i>Student Intern</i>	07/06/09	08/21/09	4	No	Intern: learning fire effects
Muhammad Safdari <i>Student Intern</i>	06/15/09	07/31/09	3	No	Intern: learning fire effects

* Includes five PPs of work under a temporary promotion appointment as Acting Fire Ecologist.

** Includes three PPs of work as GIS office technician position.

Table 3. Management Objectives and Monitoring Results 2009

All results shown are 20% confidence intervals of the mean. Fuel reduction objectives/results are mean percent reduction from preburn to immediate postburn. Stand density objectives/results are for five-year OR one-year postburn mean percent stand density reduction from corresponding preburn. An underlined number of plots indicates that the minimum sample size has been attained for that variable. Minimum samples size calculations can be found in a supplemental MS Excel spreadsheet. All minimum sample size calculations included a minimum detectable change (MDC) value determined as suggested in the FMH handbook (p. 25, version 2003). Zion and Bryce Canyon results are given in separate tables. All p-values are based on paired Student's T-tests for the difference of the means ($H(0) = 0$ vs. $H(A) \text{ not } = 0$). In cases where the confidence interval range spans zero, capital letters were used to emphasize the mean change is not significantly different than zero and the direction of change cannot be determined.

Table 3a Zion National Park Management Objectives and Monitoring Results 2009

Monitoring Unit	Management Objective (Restoration)	Monitoring Results (20% confidence interval)	Objective Achieved?
Ponderosa Pine FPIPO1T09	Reduce needle and duff layer by 40-60% (immediate post burn)	1 st burn, reduction: 43 to 67% (<i>n</i> =19 plots, 8 fires, <i>p</i> -val<0.01) 2 nd burn, reduction: 38 to 69% (<i>n</i> =13 plots, 5 fires, <i>p</i> -val<0.01)	Yes; perhaps slightly over-achieved Yes; perhaps slightly over-achieved
	Attain 30-60% mortality of live ponderosa pine 4-12" DBH (5 years post burn)	1 st burn, mortality: 20 to 41% (<i>n</i> =17plots, 7 fires, <i>p</i> -val<0.01)	Yes, perhaps slightly low
	Reduce 1,000 hour fuels by 40-80% (immediate post burn)	1 st burn, reduction: 3% INCREASE to 31% DECREASE (<i>n</i> =19 plots, 8 fires, <i>p</i> -val=0.29) 2 nd burn reduction: 11 to 91% (<i>n</i> =13 plots, 5 fires, <i>p</i> -val=0.11)	No Uncertain; minimum sample not achieved
	Lower brush cover height by 40% (1 year post-fire)	1 st burn, reduction: 15 to 40% (<i>n</i> =18 plots, 7 fires, <i>p</i> -val=0.01) 2 nd burn, reduction: 6 to 45% (<i>n</i> =12 plots, 5 fires, <i>p</i> -val=0.10)	No No
	Limit mortality of ponderosa pine greater than 24" DBH to 20% (5 years post burn)	1 st burn mortality: INCREASE by 97% to a DECREASE of 30% (<i>n</i> =18 plots, 7 fires, <i>p</i> -val=0.50)	Yes, but only 16 trees of this size! Minimum sample not achieved. Need to adjust objective to include more mid-size trees
Quaking Aspen FPOTR1T02	Reduce fuel load 40-70% immediate post burn	1 st burn total fuel reduction: 4 INCREASE to 4% DECREASE (<i>n</i> =7 plots, 2 fires, <i>p</i> -val=0.49)	No; aspen groves barely burned
	Reduce live overstory tree (POTR) density 20-50% within 5 years post burn	1 st burn, reduction: 26 to 46% (<i>n</i> =9 plots, 2 fires, <i>p</i> -val<0.01)	Yes, BUT NOT DUE TO FIRE; Rx burn was too damp to ignite the aspen groves.
	Increase seedling and pole density/regeneration 15-40% within 5 years post burn	Pole density: 7% INCREASE to 66% DECREASE (<i>n</i> =9 plots, 2 fires, <i>p</i> -val=0.30) Seedlings density: 46 to 192% increase (<i>n</i> =9 plots, 2 fires, <i>p</i> -val=0.05)	No; minimum sample not achieved; no fire in groves. Yes, BUT NOT DUE TO FIRE; no fire in groves; also, minimum sample not achieved.

Table 3a. Continued

White Fir FABCO1T10	Reduce fuel load 50-80% immediate post burn	Total fuel reduction = 28 to 70% (<i>n=4 plots, 1 fire, p-val=0.03</i>)	Borderline; 49% mean fuel reduction
	Limit the reduction/mortality of overstory trees (ABCO) to 30-50% within 5 years post burn	Overstory reduction = 14 to 118% (<i>n=3 plots, 1 fire, p-val=0.13</i>)	Uncertain; minimum sample not achieved
Gambel Oak FQUGA1T06	Reduce total fuel load 30-80% immediate post burn	Fuel Reduction: 29 to 54% (<i>n=11 plots, 6 fires, p-val<0.01</i>)	Yes
	Reduce oak (QUGA) density of all size classes by 25-80% in 1 year	Seedling increase: 45 to 154% (<i>n=11 plots, 6 fires, p-val<0.03</i>)	No, <i>increased</i> seedlings; re-sprouts and seedlings are both included in this count; also, minimum sample not achieved
		Pole size reduction: 22 to 65% (<i>n=11 plots, 6 fires, p-val<0.02</i>)	Yes, but minimum sample is borderline.
		Overstory reduction: 3 to 59% (<i>n=11 plots, 6 fires, p-val<0.16</i>)	No, but minimum sample not achieved
	Limit Ponderosa overstory mortality to <50% within 2 years	Reduced by 5 to 28% (<i>n=18 plots, 8 fires, p-val=0.08</i>)	Yes
Juniper and Pinyon FJUOS1T06	Reduce overstory tree density by 20-40% within 1 year post burn	Reduced by 4 to 33% (<i>n=8 plots, 4 fires, p-val=0.19</i>)	No
	Reduce brush density by 5-25% within 1 year post burn	Brush reduction: 6 to 76% (<i>n=8 plots, 4 fires, p-val=0.14</i>)	Probably, but minimum sample not achieved
	Reduce seedling and pole sized trees by 5-20% within 1 year post burn	Seedling reduction: 16 to 44% (<i>n=8 plots, 4 fires, p-val=0.02</i>) Pole reduction: 10 to 62% (<i>n=8 plots, 4 fires, p=0.09</i>)	Probably, but minimum sample not achieved Uncertain; minimum sample not achieved
Sagebrush BARTR1T06	Reduce brush density by 40-80% within 2 years post burn	Brush density reduction: 49 to 80% (<i>n=10 plots, 5 fires, p<0.01</i>)	Yes
	Increase native grasses and forbs in 5-10 years by >10% cover	Increase in cover 10 yrs post fire: 27 to 112% (<i>n=6 plots, 2 fires, p=0.06</i>)	Yes, but minimum sample not achieved; need to review how well pre-fire grass ID was conducted too.
Brome GBRDI1T02	Reduce Ripgut Brome (BRDI) and Cheatgrass (BRTE) density 100%	81% decrease in BRDI at YR02 1232% increase in BRTE at YR02 (<i>n=4 plots</i>)*	NO – Partial decrease in ripgut brome offset by dramatic increases in cheatgrass and Russian thistle (overall non-native density decreased by 29%)*

	Increase relative cover of native vegetation 30-40% within 5-10 years post treatment	51% increase at YR02 (n=4 plots)*	YES – Over-achieved by increasing relative cover more than expected (no year 5 data yet—analysis run with year 2 data)*
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*Brome monitoring results are from last year's analysis (no new data available; no minimum sample calculations).

Table 3b Bryce Canyon National Park Management Objectives and Monitoring Results 2009

Monitoring Unit	Management Objective (Restoration)	Monitoring Results (20% confidence interval)	Objective Achieved?
Ponderosa Pine FPIPO1T09	Reduce total fuel load by 30-60% within immediate post burn	2 nd entry burn: 14 to 88% decrease (n=10 plots, 2 fires, p-val=0.09) 3 rd entry burn: 7% INCREASE to 44% DECREASE (n=5 plots, 1 fire, p-val=0.32)	Uncertain; minimum sample not achieved No; mean was 18%
	Increase native grasses and forbs by 5-20% within 5 years	2 nd entry burn: 7% DECREASE to 15% INCREASE (n=11 plots, 2 fires, p-val=0.60)	Uncertain; minimum sample not achieved
Mixed Conifer FABCO1G08	Reduce total fuel load by 20-50% immediate post burn	2 nd entry burn: 9% INCREASE to 26% DECREASE (n=10 plots, 1 fire, p-val=0.54)	Uncertain; minimum sample not achieved
	Reduce White Fir (<i>Abies concolor</i>) pole density by 10-20% within 2 years post burn	2 nd entry burn: 5% INCREASE to 21% DECREASE after 1 year post-fire (n=10 plots, 1 fire, p-val=0.44)	Uncertain; minimum sample not achieved; check again at 2 years post-fire
	Reduce White Fir seedling density by 20-40% within 1 year post burn	2 nd entry burn: 6 to 42% decrease (n=10 plots, 1 fire, p-val=0.10)	Uncertain; minimum sample not achieved;
	Increase Quaking Aspen (<i>Populus tremuloides</i>) seedling density by 30-70% within 2 years post burn	N/A insufficient data (only two seedlings found in 10 plots) after 1 year post-fire	No; check again at 2 years post-fire

B. Fire Ecologist Accomplishments and Areas of Focus

Table 4. Fire Ecologist Accomplishments/Focus Areas

Category	Percent Time	Accomplishments and/or areas of activities
Planning	10%	Kolob fire second treatment with herbicide and native plant seed.
Presentations	>5%	Resource management, internal park fire ecology talks
NPS Meetings/ task groups		Squad, Wilderness Committee, Resource Management meetings, attended Colorado Plateau conference in Flagstaff, AZ, International Fire Ecology Congress in Savannah, GA
Interagency work	>5%	LANDFIRE inputs, WFDSS
Fire Assignments	>5%	READ on Horse fire.
Research	15%	Various logistical and research orientated assistance with BAER and JFSP projects on Kolob and Dakota Hills fires; planning long-term monitoring on Kolob fire research plots after second herbicide and native seed treatment;

		NAU graduate research project planning.
Data Collection	1%	East Entrance RX plot installation.
Data entry	0%	Fire Effects Monitoring crew completed data entry.
Data analysis	5%	Data analysis for RX burn plans, and for 2008 Annual Report.
Supervision/Admin	18%	Supervision, travel, Quicktime certifier, purchasing, credit card
Training	30%	I-Suite, M3 Aviation, NEPA, READ, Fire Refresher, WFDSS, RAWS Maintenance, online Ecology course from Oregon State University, Full Time graduate student at Northern Arizona University in Fall 2009.
Miscellaneous	15%	BAER Accomplishment Report, Duty Officer, PT.

C. Fire Effects Crew Accomplishments and Areas of Focus

Table 5. Fire Effects Crew Accomplishments/Focus Areas

Category	Percent Time	Notes
FMH plots	65%	The crew read 70% of all FMH plots this year (none of which were immediate-post reads.
WUI plots	0%	N/A
CBI plots	5%	Conducted CBI plots on two prescribed fires, one at Zion and one at Bryce Canyon
Other plot work	10%	Other plot work included: cheatgrass monitoring plots and tree density plots
Fire Assignments	10%	- Crew assisted on three Zion prescribed fires, one Zion Fire for Res. Ben., and one Bryce Canyon Fire for Res. Ben. - Assistant went on two-week Fire Use Module detail. - Two crew members each did a two week detail with the Zion Helitack Crew. - Lead worked on BAER-type vegetation assessment and a separate READ assignment for a total of about two weeks. - All crew members assisted in initial attack of local wildfires
Fuels work	<5%	Three crew members assisted the fuels crew in preparation prescribed burn unit boundaries by cutting and swamping brush and trees. The crew also assisted in the collection of fuel moisture samples throughout the summer.
Data entry	5%	Completed data entry and error checks for all FMH plot data for 2009. CBI plot data was entered by researchers at the Missoula Fire Lab. Other plot data for the year is yet to be entered (see other plot work).
Data analysis	<5%	Data analysis for the 2009 annual report and for the Pocket Mesa burn plan resource objectives review were conducted by the Lead Monitor, but most of the work was accomplished during his detail as the Fire Ecologist in Oct 2009 (official temporary promotion, NTE 120 days).
Supervision/Admin	<5%	Lead Monitor hired and supervised three monitors (one re-hire) as well as two seasonal interns; misc travel and time paperwork. Lead trained Assistant Lead in more advanced use of GIS: using map templates, stratified sample point generation, differential correction, and the use of Arc toolbox analysis tools for raster and vector data.
Training	<5%	Each crew member had refresher training and completed S-212 (also see previous table).
Miscellaneous	<5%	Lead, Assistant Lead, and one intern continued the process of creating a real working herbarium at Zion, including identification, digital cataloging, labeling, SOP creation, and workflow design.

D. Complete Annual Report Supplement (“2009 Annual Report Supplement.xls”)

See separate MS Excel spreadsheet.

E. Annual Report Supplement Additional Information

Be sure to **complete numbers 1 and 2 below**. Number 3 is optional.

1. *Identify types of fire effects monitoring databases or spreadsheets being used (e.g., FFI, Access, Excel).*

Zion is using FFI v 1.03 for all of the current FMH datasets. CBI, Cheatgrass monitoring plots, and tree density plots have not yet been entered, but will probably be entered in FFI as well. All plot history is recorded on an Excel file (multiple sheets). GIS data (including plot locations, maps, and burn severity data) are housed within Arc GIS file types (shapefiles, raster sets, etc). GPS data are transferred from Trimble/Pathfinder ssf files to GIS shapefiles.

2. *Annual Meetings - Provide a brief description of the 2009 meeting(s) where fire ecologists present and discuss monitoring results with fire and non-fire park staff, and others have informal discussions.*

The bulk of presentations given this year at annual meetings centered on post-wildfire treatments within the Kolob burn, a 10,000+ acre fire (Zion’s largest), which occurred in 2006. Results from field studies were presented at a number of annual meetings including the George Wright Society, Fire Ecology and Management Congress, and the National Conference on Ecological Restoration. See **Appendix 1** below for a complete list of 2009 presentations related to this project.

Within Zion, a number of informal discussions took place between Resources and Fire to determine the best ways to proceed on several fire-related issues. Early in the season, a re-treatment was deemed necessary within the Kolob burn area (aerial application of herbicide and native seed). This took a high level of coordination with vegetation management and compliance staff. Also early in the year, Zion Fire Management received a scheduled program review from visiting team of NPS fire personnel. Zion Fire Effects staff met with members of the team to ensure data management, work processes, program goals, and budget matters were in order. During the summer, Zion Fire Management (including the Fire Ecologist) met numerous times with Resource staff to coordinate plans for the East Entrance prescribed burn and the Horse fire – an unplanned natural ignition which was successfully managed for resource benefit. One late-season prescribed burn in heavy fuels was converted to a wildfire due to loss of control and proximity to homes in a WUI environment (even though the fire did not end up escaping the unit). Afterwards a review was conducted by an outside team to determine causes and recommendations. One such recommendation from the team was

that resource objectives within the burn plan were not specific, measurable, achievable, reasonable, timely (SMART). This prompted Fire Management and Resources to re-write the resource objectives for another, larger, upcoming prescribed burn in the Pocket Mesa Unit.

Together, the two divisions formed questions and the acting Fire Ecologist reviewed and analyzed data from the previous burn. Results and conclusions were presented by the Acting Fire Ecologist, and the information was discussed among all parties. Finally, the burn plan resource objectives were re-written and adapted to fit new goals for the second-entry burn. Special emphasis was placed on addressing all the participants' concerns and making the new objectives SMART.

The Fire Ecologist gave a presentation to the Resource Management staff re-familiarizing them with the Fire Ecology program and our role in resources and fire management. Also, fire ecology and management presentations were given to park contracting staff in order to ensure their public presentations were current with regard to prescribed fire and fuels projects in the Wildland Urban Interface. The Lead Monitor gave two oral presentations which utilized FMH, CBI, exotic plant, and veg mapping field data. The data were used to create statistically-based habitat maps for several exotic plants within three NPS units. The first presentation was given to a group of scientists and managers at the USGS offices in Fort Collins, CO, while the second presentation took place at a Resource Advisor training held in Springdale. The Lead also gave Zion's interpretive rangers an overview of the Fire Ecology program at their annual orientation meeting.

3. *If further explanation for the Annual Report Supplement information is needed, please provide it here as well as any other information relating to the spreadsheet that you would like to include.*

F. Optional

Attach additional material not already covered: Describe in narrative form alternative monitoring activities, unique solutions to problems, and challenges facing monitoring program. Include any collaboration with natural resource managers, other federal agencies, or research institutions. Provide graphics and/or tables of data analysis results presentations, photographs of monitoring and fire activities.

Additional Program Notes

Zion Fire Effects continues to support Northern Arizona University (NAU) research (partially BAER funded) of the Kolob post-fire treatments. Although initial treatments were hampered by inconsistency in herbicide application and timing (in relation to cheatgrass emergence), a combination of seeding and herbicide did significantly decrease some measures of cheatgrass over the first two years. One more year of data needs to be analyzed and reported to the park. However, the park determined a second combination of treatments would be necessary to allow

native vegetation and keep cheatgrass attenuated – and implemented this re-treatment during the fall of 2009.

This year and next year, the park will continue to track the NAU findings, and work to transition to long-term monitoring protocols for the treatment area. In 2009, USGS and the Zion Fire Ecologist created a new, high-replicate, low-intensity sampling method, which the Zion Fire Effects crew implemented (140 plots). The monitoring will need to continue for many years to come, since the long-term success of the native flora (formerly a pinyon-juniper woodland) are by no means assured. This is adding a greater workload to the staff and extending the normal field season (cheatgrass monitoring needs to happen in the spring and fall). In addition to this, the program needs to update the Fire Monitoring Plan, identifying research needs and creating resource objectives for each vegetation monitoring type. This is especially true as the program begins to monitor 2nd, 3rd, and even 4th prescribed fire treatments. The objectives listed in this annual report are unofficial and only specify an initial percent reduction or increase for a given variable. Many of the objectives will need to be modified because the variability is too great (in other words, the minimum percent detectable change cannot be captured without a much larger sample size; see attached analysis Excel spreadsheets for minimum sample size calculations). Additionally, some vegetation types such as Gambel oak, aspen, and juniper woodlands are more difficult to manage than Ponderosa pine and will require further research in specifically identified areas. The Fire Ecologist will be looking to make changes to protocols, priorities, and identify research needs in the next couple years as part of her graduate work at NAU. New monitoring plans, objectives, etc. need to include well-researched desired future conditions and specific targets such as stems per hectare, and acceptable percent cover of invasive exotics vs. native species. Finally, results from monitoring need to be better incorporated into future burn plans and the next fire management plan.

Appendix 1.

2009 Kolob Presentations

Oral Presentations:

Weber, K.L., D. Laughlin, A. Thode, M. Brooks, C. Decker and K. Fuhrmann. 2009. **Response of cheatgrass (*Bromus tectorum*) to native seeding and landscape-scale imazapic application in Zion National Park.** In: 4th International Fire Ecology and Management Congress: Fire as a Global Process; 2009Nov30-Dec4; Savannah, GA.

Weber, K.L., C. Decker, and K. Fuhrmann. 2009. **Kolob Fire Treatment Update: First season data from two study sites.** In: 10th Annual Eastern Nevada Landscape Coalition's Meeting and Field Trip: Fire Rehab in the 21st Century: "The Southern Nevada Complex, Anomaly or the New Status Quo?" 2009 Jun12-14; Ely, Nevada.

Decker, C., K. Fuhrmann, and K. Weber. 2009. **Zion National Park: Kolob Fire Treatment Update.** In: Rethinking Protected Areas in a Changing World: 2009 George Wright Society Biennial Conference on Parks, Protected Areas, and Cultural Sites; 2009, March2-6; Portland, OR.

Posters:

Weber, K.L., C. Decker, and K. Fuhrmann. 2009. **Kolob Fire Treatment Update: Results from 2007 and 2008 Kolob Terrace Rd site.** In: 3rd National Conference on Ecological Restoration; 2009 Jul20-24; Los Angeles, CA.

Decker: **Fighting Cheatgrass instead of Fire in Zion National Park**

Decker, Cheryl; Weber, Karen; Fuhrmann, Kelly

NCER—3rd Annual National Conference on Ecological Restoration, July '09, Los Angeles, CA

Decker: **Kolob Fire Treatment Update**

Decker, Cheryl; Fuhrmann, Kelly, and Weber, Karen

Eastern Nevada landscape Coalition, June '09, Ely, NV.

Decker: **Kolob Fire Treatment Update**

Decker, Cheryl; Fuhrmann, Kelly, and Weber, Karen

George Wright Society, April'09, Portland, OR

Decker: **George Wright Society – Portland, OR 2009**

Poster on Kolob Fire BAER restoration project

Publications:

Fuhrmann, K. K. Weber, and C. Decker. 2009. *Note: Restoring Burned Area Fire Regimes in Zion National Park.* Ecological Restoration 27(2):132-134.

INSTRUCTIONS FOR UPLOADING 2009 ANNUAL REPORT

1. Go to the Fire folder on the NPS public FTP site (<ftp://63.220.43.40/Fire/>) and then place the report and spreadsheet in the FEP Annual Report folder. Instructions for how to access and log into the FTP site are below; instructions include username and password.

2. Please e-mail Nate Benson, MaryBeth Keifer, and your regional ecologist to let us know when you get your report uploaded.

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

Public FTP Server

The Denver Service Center announces the availability of a new public FTP server for use by the staff to transfer files outside of the NPS.

This is a public FTP server meaning NPS staff, cooperators and contractors located outside the NPS computer network can access the site. No anonymous FTP connections are allowed. Therefore, uploading and downloading of data requires a username and password. NPS staff may share this account information with cooperators but all are reminded that this site is for use only for NPS business.

The following usage policies should be observed:

- Users must log on to the FTP server to download and upload files. No anonymous FTP access is allowed.

- To conserve limited storage space, all folders and files on the server will be deleted 15 days from the date posted. Users are strongly encouraged to delete files and folders as soon as their contact/cooperator has downloaded them.

- Users are reminded this is a public, non-reviewed site and therefore should **not** post sensitive or proprietary data on the site.

The Denver Service Center assumes no responsibility for the usage of this server.

Public FTP Site address: <ftp://63.220.43.40>

Username (UPDATED): npsftpwin

Password (UPDATED and case-sensitive): FTP04npswin

Please note: it is a zero, not an 'O'.