



Southern Plains, Permian and Southwest Texas Fire Groups Fire Ecology Report Calendar Year 2013

A. Summary

Following the previous two year if fire and drought, relative normalcy has returned to the southern portion of the intermountain region. The work continued under the very able Tyler Engle and Jeremiah Bonilla with the very capable assistance of Pete Loftis a teacher and coach at the nearby Borger School District who has been a long time fire seasonal at the park and who sadly lost his wife early in the year. The year began with the crew and the ecologist, assisting with the implementation of the 2013 Chickasaw Rx Burn with Tyler Engle spending several prior to and following implementation of the burn which largely took place over the month of February. The crew of three began their field work in earnest in May which also included monetary support to collect upland data from the Southern Plains Inventory and Monitoring Network's Long-term monitoring plots. Field work proceeded largely uneventful until August when the National Planning Level was elevated to 5. At that point all fire effects staff was assigned to fire assignments in Idaho, Wyoming and Oregon for one to two 2 week fire assignments. Most of the field work was completed by the end of September. However, limits on funding and time prevented any field work being conducted in any of the parks in Permian (CAVE/GUMO) or Southwest Texas Fire Groups (BIBE).

We also assisted Jason McDaniels with Fire Effects data specifically to address the question did reduction in shrub cover, mesquite, correspond to an increase in grass cover due to LAMR's fuel management activities. The finding were presented in Jason's Technical Fire Management project in April.

At the end of August the Guadalupe Mountain Nature Conservancy Fire Surrogate Project was completed. This project faced significant challenges to implement due to fires and severe droughts that occurred over the course of the study. Kudos to Helen Poulos and the TNC folks who helped pull this project off.

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

Park	Monitoring Unit	Plot Type (FMH Brush plot, photo point, CBI, etc.)	Pre- burn 2013	Immed. Post 2013	Postburn (1-20 yrs) 2013	Annual Total (2013)	Total Plots
Lake Meredith	Mixed Grasslands Cottonwood Honey Mesquite	FMH Grass plots I&M Long Term Plots	-	-	7 20	27	32
Chickasaw	Oak Woodland	FMH Forest plots Photo Point Burn Severity CBI I&M Long Term Plots	0 20 0 0	8 20 8 4	1 0 0 0 10	61	39
Washita Battlefield	Mixed Grasslands Restoration Area	FMH Grass plots I&M Long Term Plots	-	-	3 9	12	12
Capulin Volcano	Mixed Grasslands	FMH Grass plots I&M Long Term Plots	-	-	0 6	6	13
Bents Old Fort	Mixed Grasslands Cottonwood Restoration Area	FMH Forest plots I&M Long Term Plots	-	-	0 13	-	19
Sand Creek Massacre	Upland Grasslands Upland Sage Cottonwood Restoration Area	FMH Grass plots I&M Long Term Plots	12	-	-	-	12
Total			32	40	59	106	127

Table 2. Fire Ecology Staffing 2013

Ecologist and Monitors	Starting Date	Ending Date	# of Pay Periods	READ Qualified (Yes or No)	Training and Development
Tyler Engle Lead Fire FX Monitor	1/14/13	11/02/13	21	No	S-133 Look Up, Look Down, Look Around RT-130 Fireline Refresher S-131 FFT1 FFT1 Task Book Initiated FEMO Task Book Initiated
Jeremiah Bonilla Fire FX Seasonal	5/8/13	09/30/13	11	No	S-133 Look Up, Look Down, Look Around RT-130 Fireline Refresher S-131 FFT1
Charles "Pete" Loftis Fire FX Seasonal	6/05/12	8/07/13	5	No	FMH plot protocol I&M Long Term monitoring RT-130 Fireline Refresher
Richard Gatewood Fire Ecologist	FTE since 2001	na	26	No	RT-130 Refresher Completed FFT1 Task Book Opened ICT5 Task Book Opened ENOP Task Book

Table 3. 2013 Management Objectives and Monitoring Results

Monitoring Unit	Management Objective (Restoration)	Monitoring Results (XX% confidence interval)	Objective Achieved?	Year Last Analysis Completed
LAMR Low/High Density Mesquite	60-95% Total Shrub Cover Reduction	63% reduction* (n=17 80%CI)	Yes	2013
Low/High Density Mesquite	10-40% Increase in Grass Cover**	No significant difference (n=17, 80%CI)	NO	2013

*Low and high density mesquite were analyzed as one monitoring type.

**Secondary management objective

B. Fire ecologist accomplishments and areas of focus

Table 4. Fire Ecologist 2013 Accomplishments/Focus Areas

Category	Percent Time	Accomplishments and/or areas of activities
Planning	30	Internal scoping for SAND FMP/EA Reviewed interim SAND FMP/EA Reviewed Vegetation Management Plan for PALA Internal scoping for FODA FMP Began preparing to Revise 2005 BIBE FMP Assisted with Interagency Rx at CAVE Rattlesnake Springs
Presentations	<5	-Developed a success story of Chickasaw NRA 2013 Rx with PIO Michelle Fidler -Presentation on fuels and drought conditions for upcoming fire season for Fire and park Staff. (GUMO/CAVE)
NPS Meetings/ task groups	<5	Meeting with Resource Staff CAVE/
Interagency work	<5	Team member Desert Landscape Conservation Cooperative Critical Management Question [CMQ] 5 Altered fire Regimes in Southwest Desert Riparian System.
Wildfire assignments	<10	(2) 2 week Fire Assignment to the Rouge River NF as member of Type 6 Engine Module completed FFT1 Task Book and began ICT5 Task Book.
Prescribed fire projects	<10	Assisted with 2013 CHIC Rx for the month of February
Non-fire fuels projects	0	
Research	<5	- Worked with Oklahoma State University and the University of Arizona to develop a proposal for the 2014 RFP
Data collection	<5%	Estimated amount of time spent in the field collecting data; include time spent preparing for field work and travel time to local plot locations
Data entry	<5%	Estimated amount of time spent entering data from paper to PC
Data analysis	5%	
Supervision/Admin	<5%	Hiring, supervision, payroll, travel authorization/vouchers, purchasing, etc.
Training	<5%	RT130 Fire Refresher
Travel out-of-park for plot or project work	5%	Include <u>travel time only</u> for distant, multi-day plot/project work requiring a travel authorization (Note: include data collection or project time associated with these trips in the plot or project categories above)
Miscellaneous	<5%	Managed the LOOP Fire Rainfall monitoring station at CAVE downloading data periodically and insuring their functionality. Reviewed Natural Resource Condition Assessments for BIBE/GUMO/SAND/WABA

C. Fire effects crew accomplishments and areas of focus

This section deals with roles and functions of the fire effects crew. Identify accomplishments and/or focus areas along with a rough estimate of the amount of time spent in these areas (see table format and example below).

Table 5. Fire Effects Crew 2013 Accomplishments/Focus Areas

Category	Percent Time	Notes
FMH plots	35%	All FMH Forest plots and FMH Grassland plots were completed in LAMR, CHIC, WABA, BEOL, and CAVO.
WUI plots	0%	N/A
CBI plots/Burn Severity	3%	Data collected from CHIC RX Burn
Other plot work	45%	Collected data for I&M Long Term monitoring plots
Wildfire assignments	10%	Lead Monitor: 20 Hours worked on Satewhite Fire, TX 8 Hours worked on Shooter's Canyon Fire, on Bureau Land Management land, TX 160 hours worked on Elk Complex Fire, on Forest Service/Private, ID Seasonal Monitor: 20 Hours worked on Saterwhite Fire, TX 5 Hours worked on Little Fire, on LAMR, TX 140 Hours worked on Carpenter 1 Fire, NV 20 Hours worked on Moose Fire, WY 16 Hours worked on JDR Fire, WY 8 Hours worked on Pacific Creek Fire, WY 40 Hours worked on Alum Fire, WY
Prescribed fire projects	7%	Lead Monitor: 200 Hours working CHIC RX Burn 30 Hours helping Buffalo River on Lower Wilderness RX Burn (AR) Seasonal Monitor: 120 Hours assisted 2013 CHIC Rx 30 Hours helping Buffalo River on Lower Wilderness RX Burn (AR) (Note seasonal worked as AD and not as a Fx Seasonal)
Non-fire fuels projects	3%	20 Hours building fence at Lake Meredith
Travel out-of-park for plot or project work	0%	N/A
Data entry	<3%	Lead Monitor: 40 hours

Data analysis	0%	
Supervision/Admin	3%	Hired two Seasonal Employees Created work/travel schedule for field season
Training	<3%	Lead Monitor & Seasonal Monitor: 8 Hours on (S-133) Look Up, Look Down, Look Around 8 Hours on (RT-130) Fireline Refresher 8 hours on S-131 FFT1
Miscellaneous	0%	N/A

D. Additional Program Information

Please complete the tables below which contain additional information that we feel is valuable to compile on an annual basis to help assess the fire ecology program workload. Everglades National Park is used as a fictitious example in the tables.

Table 6. 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?
Southern Plains FG				
Bents Old Fort	No	None	None	None
Capulin Volcano NM	No	None	None	None
Chickasaw NRA	No	None	None	None
Lake Meredith NRA	No	None	None	None
Sand Creek Massacre NHS	No	None	None	None
Washita Battle Field NHS	No	None	None	None
Permian FG				
Carlsbad Caverns NP	No	None	None	None
Gila Cliff Dwellings NM	No	None	None	None
Guadalupe Mountains NP	No	None	None	None
White Sands NM	No	None	None	None
Southwest Texas FG				
Amistad NRA	No	None	None	None
Big Bend NP	No	None	None	None
Fort Davis NHS	No	None	None	None
Palo Alto Battlefield NHS	No	None	None	None

Table 7. Monitoring - 2013

Park	% 2013 Data Entered	% 2013 Data Quality Checked	# Prescribed Fires Monitored*	# Non-fire Fuels Treatments Monitored*	# Wildfires Monitored*	# BAER Treatments Monitored*
Southern Plains FG						
Bents Old Fort	100	100	1	0	1	
Capulin Volcano NM	100	100	2	0	0	
Chickasaw NRA	100	100	4	0	0	
Lake Meredith NRA	100	100	5	0	0	
Sand Creek Massacre NHS	100	100	1	0	0	
Washita Battle Field NHS	100	100	2	0	0	
Permian FG						
Carlsbad Caverns NP	na	na	0	0	0	3
Gila Cliff Dwellings NM	na	na	0	0	0	
Guadalupe Mountains NP	na	na	0	0	0	2
White Sands NM	na	na	0	0	0	
Southwest Texas FG						
Amistad NRA	na	na	0	0	0	
Big Bend NP	na	na	0	0	0	
Fort Davis NHS	na	na	0	0	0	1
Palo Alto Battlefield NHS	na	na	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 8. Communicating Results - 2013

Park	# of Project Monitoring Reports completed in 2013	# of Annual meeting(s) with Park staff	# of Formal presentations of results	Do you use Minitab?*
Southern Plains FG				No
Bents Old Fort	None	None	None	
Capulin Volcano NM	None	None	None	
Chickasaw NRA	None	None	None	
Lake Meredith NRA	None	None	None	
Sand Creek Massacre NHS	None	None	None	
Washita Battle Field NHS	None	None	None	
Permian FG				No
Carlsbad Caverns NP	None	None	None	
Gila Cliff Dwellings NM	None	None	None	
Guadalupe Mountains NP	None	None	None	
White Sands NM	None	None	None	
Southwest Texas FG				No
Amistad NRA	None	None	None	
Big Bend NP	None	None	None	
Fort Davis NHS	None	None	None	
Palo Alto Battlefield NHS	None	None	None	

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

Table 9. 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
Southern Plains FG					
Bents Old Fort		0	0	1	Assessing season of burning on shortgrass steppe Vegetation
Capulin Volcano NM	?	0	0	0	
Chickasaw NRA	?	1	0	0	Was for 2014 JFSP RFP collaborating with OSU and UofAZ (Currently in review)
Lake Meredith NRA	?	0	0	0	
Sand Creek Massacre NHS	?	0	0	0	
Washita Battle Field NHS	?	0	0	0	
Permian FG					
Carlsbad Caverns NP	Yes	0	0	0	
Gila Cliff Dwellings NM	?	0	0	0	
Guadalupe Mountains NP	Yes	0	0	1	Fire Surrogate Project carried out in collaboration with TNC Davis Mountain Preserve. Project completed in 8/2013
White Sands NM	?	0	0	0	
Southwest Texas FG					
Amistad NRA	Yes	0	0	0	
Big Bend NP	Yes	0	0	0	
Fort Davis NHS	Yes	0	0	0	
Palo Alto Battlefield NHS	?	0	0	0	

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

Reserve Fund Research: If your park(s) received Reserve Fund Research funding or completed a previously-funded project in the last year, please provide the following:

- Current project status (short description)
- Expected project completion date
- List of deliverables

Also, if a Reserve Fund research project is completed, please remember to submit an article to the Rx Effects newsletter by the last Friday in February (see <http://www.nps.gov/fire/wildland-fire/what-we-do/science-ecology-and-research/rx-effects-newsletter.cfm> for submission guidelines).

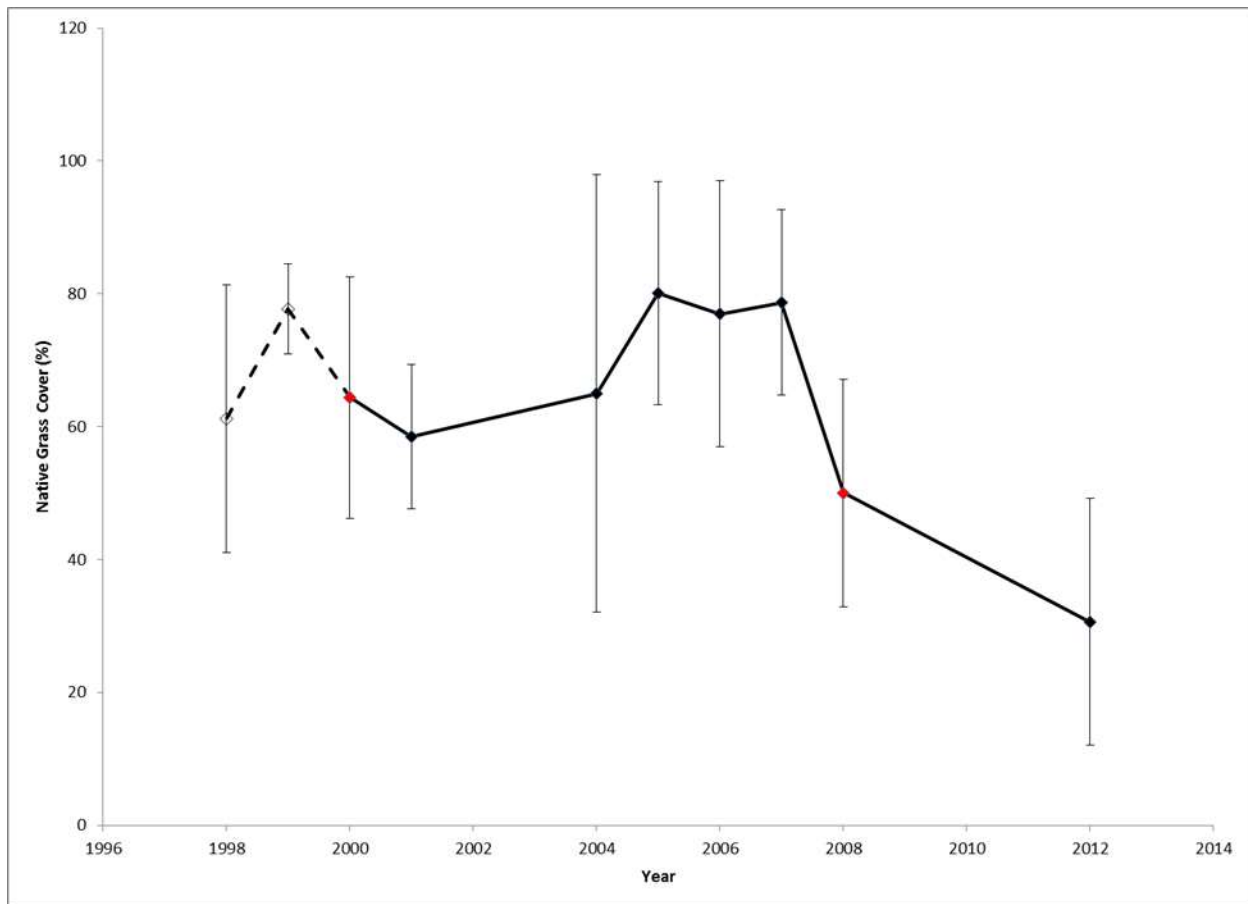
E. 2014 Direction

The problems that the program faces and has continued to face is the amount of funding we received. This year, because of funding limitations which translates to reduced staffing which cascades to productivity meant that we were unable to do field work at any of the Permian or SW Texas parks. Fortunately over the past several years we have benefited from an experienced crew which allowed them to be highly productive in spite of diminished staffing. One of the problems is that, due to the nature of the parks in the SPFG a lot of cost are due to lodging and per diem. This is because of the limited availability of camping or transient housing on the parks. Additionally a lot of the plots we do in the SPFG are I&M plots which do not directly contribute to our mission of evaluating the role of fire on the landscape. Thus we need to seriously reevaluate the benefit the fire program is receiving from this relationship. This came to light when we were analyzing the fire effects plots at LAMR with respect to changes in grass cover in response to reduction in shrub cover and we found that we could not empirically answer the question satisfactorily with the available fire effects plots. With the addition of the I&M plots to the fire effects workload, I believe that our ability to answer these very basic questions will be further diluted. I also have some questions regarding the current operational model we are employing to inform our fuels management. Other than that I think that our relationship to the Southern Plains I&M Network has been very positive.

What are program plans for the near future? This section can be brief and include changes to focus areas, any approved changes to monitoring protocols as a result of a program review, or plans to address future challenges (e.g. budget and staffing changes, travel caps, etc.).

F. Optional Information

From J McDaniel's 2013 TFM Project.



Graph shows the changes in percent cover from 1998 to 2012 in units having mesquite cover at Lake Meredith NRA. Plots burned in the fall of 1999 and again in the winter of 2007 (red marker). Pretreatment measurements are made in 1998 and 1999 (open markers). The decrease in cover from 2008 to 2012 measurements below all previous measurements reflects the effects of the severe drought of 2011. Error bars are the standard error of the mean, with $n=17$.

From: Fire and Fire Surrogates Study Davis and Guadalupe Mountains completed in August of 2013 by H. Poulos

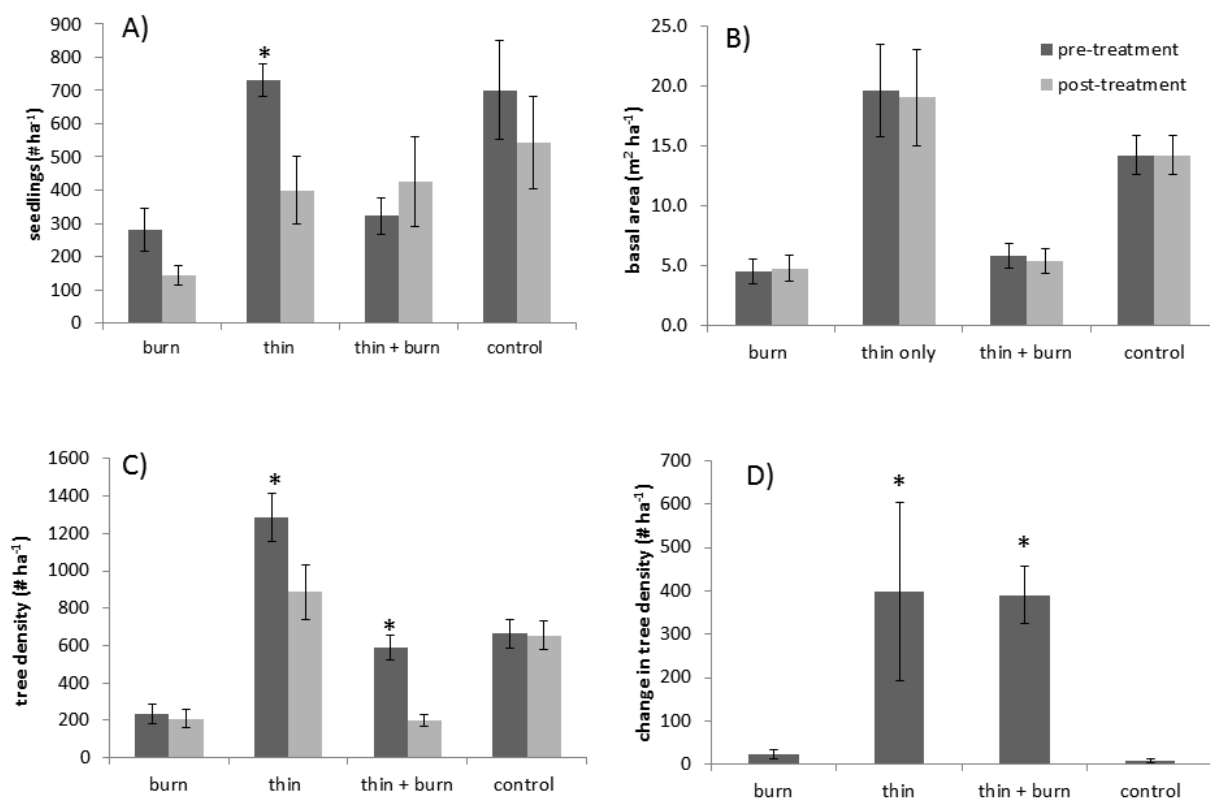


Figure 1: Differences in tree density and basal area before and after thinning, burning, thinning + burning, and control treatment implementations in the Davis Mountains. Values are reported as means + S. E. Significant differences are indicated with an (*) indicating significance of the Markov Chain Monte Carlo permutations at $P < 0.05$ for pre- and post-treatment effects.

G. Metadata and FFI Database Update on NPS Data Store

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

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

- 1) Backup the FFI database(s) in FFI (note backup file date for metadata).
- 2) Zip backup file(s) - this step is critical to reduce file size, upload time and server storage space utilized. PLEASE use the following naming convention for your zip files: "**FFI_2013_XXXX**", where XXXX is the 4 letter code for the park, or for the lead park in a network if more than one parks' data are included in the database.
- 3) Access the Data Store at: <https://irma.nps.gov/App/Reference/Welcome>
- 4) Select **Manage**, then **Manage My References** and click on the **Search** button (don't need to enter any search criteria to display all references for which you are an owner).
- 5) Select the reference (metadata record) you wish to update from the list displayed to open the Reference Profile where you can make edits to update the reference.
- 6) Expand "Version History", to view and select the **Manage Versions** option. You will then select **Clone this Reference to Create a New Version** to create a new Reference for this year's update while preserving past metadata and databases as archives.
- 7) Once you **Save** the new, cloned reference, you can make any changes necessary to update the reference with this year's information. Most likely, the edits will be to the "Date of Issue/Release", which is the date of the new FFI backup file, and the "Content End Date", if you have collected new data this year that was added to the FFI database. Select **Edit Details** from the menu at the top of the profile to make these changes. If anything else has changed (e.g. new protocols established, old protocols abandoned, etc.), you can make these edits to the text fields (e.g. Abstract) as well. Once changes are complete, you must select the "Save and set to" **Active** button at the bottom of the window.
- 8) Finally, upload the new zipped FFI database backup file by selecting **Add Digital File** from the menu at the top of the reference profile (or Add Holding from the Holdings section). Click on **Select Files** and then browse to your zipped FFI database backup file to select it, and then select **Upload**. You must also add additional owners here who have permission to edit the holdings if necessary (we recommend at least one person besides yourself; I (MB) am happy to serve as an additional owner to assist with Data Store if you'd like, but not required!). Remember to Save as **Active** once you have completed any changes.
- 9) Repeat the above steps for each of your FFI databases.

Please feel free to contact MB if you have any questions at all about the process of updating the metadata and FFI databases on the Data Store. This is the first year of adding this aspect to our

annual reporting process, therefore, we expect questions may arise about the Data Store, so don't be shy!

INSTRUCTIONS FOR UPLOADING 2013 ANNUAL REPORT TO SHAREPOINT

1. Save your report as a PDF file using the following file naming convention "2013 *Park/Network Name* Annual Report.pdf".
2. Go to the NPS Fire Ecology Sharepoint site (<http://famshare.inside.nps.gov/wildlandfire/firescience/fireecology/default.aspx>). In Fire Ecology Documents, upload your report to the 2013 Park and Network Fire Ecology Program Annual Reports folder.
3. Please e-mail your regional ecologist, Nate Benson, and MaryBeth Keifer 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.