



**Big Thicket National Preserve
National Park Service
Fire Ecology Annual Report
Calendar Year 2013**



A. Summary

Big Thicket National Preserve Fire Ecology Program saw many changes this year. In the beginning of the year within a month of each other, the fire ecologist took a new position, and a new lead fire effects monitor was hired. Due to the time constraints the fire ecologist and lead FEMO only had about a month of time to collaborate the views each had on the future direction for the program. It was decided by both that because of the coming budget issues the most important aspect of the season was to get the fire effect crew familiarized with the current plot reading practices and locations. This season we hired three seasonals with FEMO backgrounds in order to help with the field work that needed to be completed. The week of their arrival the Lead FEMO was informed that the only returning seasonal took another position leaving just three employees for the crew. Although the crew was not complete we still finished all the predetermined work including: All 235 BITH FEMO plots, installed eighteen rapid assessment plots, and monitored both longleaf seedling survivorship in previously planted restoration areas and survivorship of Texas Trailing Phlox plots.

The monitoring crew also participated in four prescribed burns in our Big Sandy Unit, Turkey Creek, and Hickory Creek Units, totaling in 1921 acres. Post burn assessments were taken at the Hickory Creek Unit and monitoring reports for submitted to the Fire Management Officer upon completion of all Rx burns. Crew members also participated in wildfire assignments in different capacities in Arizona, California and Texas Gulf Coast.



Pre-burn and immediate post burn newly established RA plots

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 2012	Immed. Post 2012	Postburn (1-20 yrs) 2012	Annual Total (2012)	Total Plots
Big Thicket	Upland Pine	BITH FEMO	24	-	1	25	25
Big Thicket	Upland Pine-Oak	BITH FEMO	29	-	1	30	30
Big Thicket	Mid-slope Pine-Oak	BITH FEMO	19	-	1	20	20
Big Thicket	Lower-slope Pine-Oak	BITH FEMO	14	-	1	15	15
Big Thicket	Sandhill Forest	BITH FEMO	15	-	-	15	15
Big Thicket	Wetland Pine Savanna	BITH FEMO	25	-	-	25	25
Big Thicket	Control Plots	BITH FEMO	-	-	105	105	105
Big Thicket	Upland Pine Forest (Turkey Creek)	Rapid Assessment	-	-	-	0	16
Big Thicket	Upland Pine Oak Forest (Big Sandy)	Rapid Assessment	-	-	-	0	8
Big Thicket	Upland Pine Forest (Hickory Creek)	Rapid Assessment	18	18	-	36	18
Big Thicket	Upland Pine Forest (Hickory Creek)	Cool Luke (WF 2000)	-	-	15	15	15
Big Thicket	Pipeline Road Wildlife	CBI	-	-	-	0	37
Total			144	18	124	286	329

BITH FEMO refers to the plots established by Rice University to monitor fire effects. Most of the methods are similar to FMH but not identical.

Table 2. Fire Ecology Staffing 2013

Ecologist and Monitors	Starting Date	Ending Date	# of Pay Periods	READ Qualified (Yes or No)	Training and Development
Deanna Boensch Fire Ecologist	1/1/2013	2/9/2013	3	No	?
Ryan Desliu Lead FEMO	11/18/2013	9/21/2013	19	No	S-212, Safety Training, Operational Leadership, Fire Refresher
Jason Watson Seasonal FEMO	2/25/2013	9/10/2013	11	No	S-290,S-212, Safety Training, Fire Refresher
Meagan Gamble Seasonal FEMO	2/25/2011	9/10/2013	11	No	S-290, Safety Training, Fire Refresher

Table 3. 2013 Management Objectives and Monitoring Results

Monitoring Unit	Management Objective (Restoration)	Monitoring Results (XX% confidence interval)	Objective Achieved?	Year Last Analysis Completed
Wetland Pine Savanna -HCU	30-80% total fuel reduction – Immediate Post Burn	Total fuel reduction = 45% (<i>n=4 plots, 2 fire</i>)	YES	2014
	Reduce seedling and pole size tree density 25-50% within 1 year post burn	This objective was not met, because of lack of personnel. The only staff is furloughed at this time	NO	?
Upland Pine-BSU	30-80% total fuel reduction – 1 year post fire	No plots were located in this area. Do to time restrictions RA plots were not installed	Unknown	2011
	Reduce sapling tree density 25-50% within 1 year post burn	No plots were located in this area. Do to time restrictions RA plots were not installed	Unknown	2011

B. Fire ecologist accomplishments and areas of focus

Position vacant, below is a summarization of the Lead Fire Effects Monitors time. The responsibilities of the fire ecologist have been divided between the Fire Management Officer and the Lead Fire effects Monitor.

Table 4. Lead Fire Effects Monitor 2013 Accomplishments/Focus Areas

Category	Percent Time	Accomplishments and/or areas of activities
Planning	5%	• Worked with FMO and Fire Ecologist to planning for upcoming field season
Presentations	0	
NPS Meetings/ task groups	5%	• Weekly Fire Management Meetings • Resource Management Meetings: GIS. • BITH ATBI Science Committee Meetings
Interagency work	5%	• Participate with TX/LA Longleaf Pine Taskforce • Coordinate with Preserve Ecologist for St Michael's Volunteer Group, NPCA longleaf pine seedling plantings for BITH for a total of 900 hours of volunteer work.
Wildfire Assignments	30%	• Crew member on BITH engine for WF assistance on 3 WF in McFadden NWR on Texas Gulf Coast • Crew member on BITH engine on a one week detail in Saguaro National Park in Tucson AZ . • Appointed in a detail with the Texas Initial Attack Crew as a FFT1(t). • Initial Attack on Wild Fire in Texas Forest Service Mutual Aid area
Prescribed fire projects	5%	• Participated as FFT1 (t) and FEMO on 4 RX burns throughout BITH
Non-fire fuels projects	<5%	• Texas Trailing Phlox Plots • Long Leaf Pine plots
Research	0	
Data collection	30%	• Lead the seasonal crew in all data collection.
Data entry	0	• Monitors completed data entry
Data analysis	5%	• Analyzed data for meeting with FMO on previous WF burn scar and deciduous tree mortality, FEMO and annual reporting.
Supervision/Admin	10%	• Conducted lead FEMO duties from February-September • Hired seasonal FEMO crew • Travel and time paperwork
Training	<5%	• S-212, Safety Training, Operational Leadership, Fire Refresher
Miscellaneous	<5%	• Clean Office

C. Fire effects crew accomplishments and areas of focus

The Fire Effects Crew this year accomplished a goal that has not been accomplished before. We sampled all fire effects monitoring plots with a crew that was minus one member. The hard work of both Jason Watson and Meagan Gamble made this possible. Their continual upbeat behavior in one of the most hot and humid climates in the country made them a privilege to work with. With this accomplished the new lead can focus on data analysis in 2014 to better understand fuels reduction and the most important habitat as far as restoration burning and where to apply this knowledge.

Table 5. Fire Effects Crew 2013 Accomplishments/Focus Areas

Category	Percent Time	Notes
FMH plots	40%	• Pre-burn plots • 1st year • 2nd year • Control plots
WUI plots	<5%	• Hickory Creek WUI plots
CBI plots	0	
Other plot work	15%	• Rapid Assessment • TX Trailing Phlox Monitoring • Longleaf Pine Seedling Mortality Surveys
Wildfire assignments	13%	• Engine crew member detail to Saguaro National Park • DOI WF McFadden NWR
Prescribed fire projects	4%	• Big Sandy Unit Prescribed burn • Hickory Creek Unit Prescribed burn
Non-fire fuels projects	0	
Travel out-of-park for plot or project work	0	
Data entry	17%	• Completed all data entry for 2013
Data analysis	0	
Supervision/Admin	0	
Training	5%	• Defensive Driving, Safety Training • Annual Fire Refresher • S-290, S-212
Miscellaneous	5%	• Bi-Weekly Live Fuel Moisture Data Collection • Weekly office cleaning • Fire equipment rehab • Seasonal Employee Orientation

D. Additional Program Information

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 2011)	Assisted with how many BAER plans in 2011?
Big Thicket National Preserve	no	2001	0	1
Padre Island National Seashore	no	2006	0	0
Lyndon B Johnson National Historical Park	no	N/A – no treatments planned	0	0
San Antonio Missions National Historical Park	no	N/A – no treatments planned	0	0

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*
Big Thicket National Preserve	100%	100%	5	0	3	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 2012	# of Annual meeting(s) with Park staff	# of Formal presentations of results	Do you use Minitab?*
Big Thicket National Preserve	0	0	0	No

* 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 2011	# of Proposals Funded in 2011	# of Research Projects Supported in 2011*	Additional Comments
Big Thicket National Preserve	No – plans are up for rewrite in 2014	1	0	0	

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

E. 2014 Direction

Without a Fire Ecologist the Big Thicket Fire Effects Program is currently lacking direction. To add to the issue of not having a fully staffed program the only other permanent position (Lead Fire Effects Monitor) is subject to Furlough for six months. The Lead FEMO is working with the Fire Management Officer Fulton Jeansonne in order to alleviate some of the Fire Ecology work load. The future of the program rests squarely on budget issues with less time to work on acquiring new plots in areas of the preserve that have none. We have to focus on working on the plots that we currently have and analyzing data that is back logged from prior years. We have been informed within the last month that we will hire two seasonals this year instead of our normal three so there is opportunity to catch up on projects that have been left for the future. The main direction for the program this year is to work with the enormous amount of data collected in 2013, help with prescribed burns planned for this year, and possibly begin working on updating the FFI data base.

F. Optional Information

Alternative Monitoring

Longleaf Pine Restoration

The Lead Fire Effects Monitor also worked with volunteers from St. Michael's College, and the National Park Conservation Association. This yearly event is coordinated by the Preserve Ecologist, and taken place for the last five years.

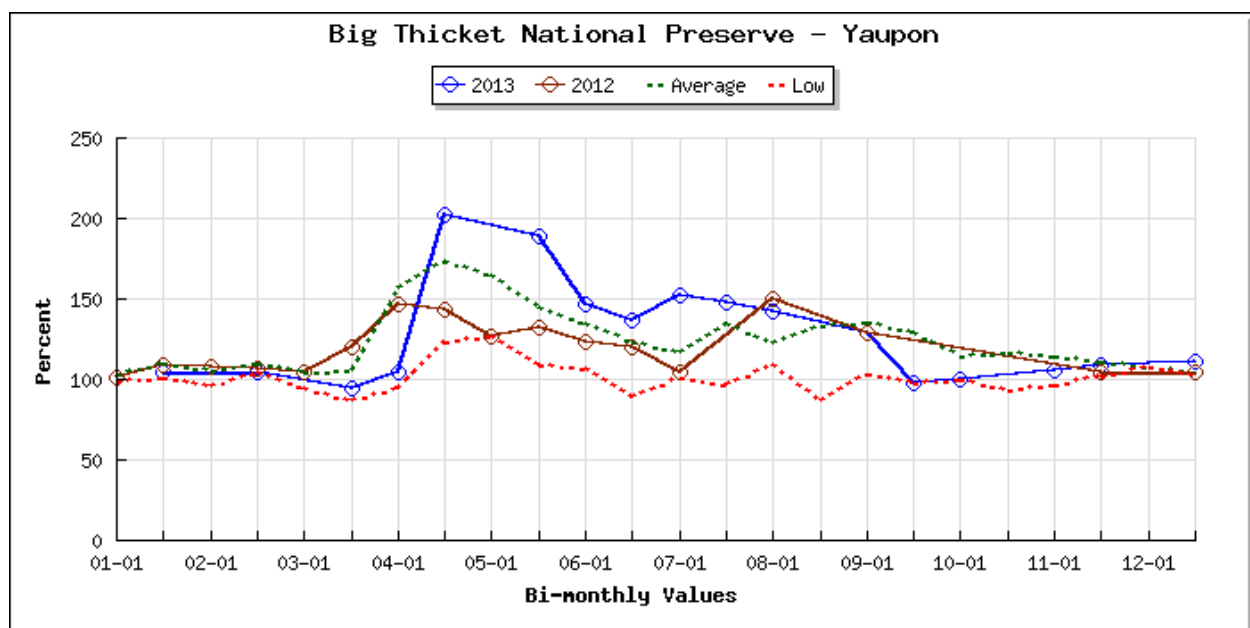
Each year preserve employees decide which areas need to be repopulated with Longleaf Pine seedling, and begin preparation for the area. This year the St. Michael's group helped to clear areas in the Big Sandy Unit of large amounts of midstory vegetation in order to create suitable habitat for the pine seedlings. On January 11, 2013 we planted 4,000 seedlings with 50 volunteers from the NPCA.

Every year these areas are visited by the FEMO crew to measure the mortality rates of each area. Most areas have a relatively good survivorship at 60 percent with the exception of areas were drought effected the previous year's planting.



Live Fuel Moisture Monitoring Program

Big Thicket National Preserve is committed to collecting live fuel moisture on a biweekly base. This data is invaluable to the fire staff since LFM has a profound effect on the behavior fire throughout the preserve. This data is collected and entered into the national database and reported to the fire crew as well. As you can see in the graph below 2013 was a year of variability. During the beginning and end of the year we experienced new historical lows, while during most of the summer we above normal moisture. This is mostly due to rain events and humidity. During the month of March and April we experienced a later than normal spring green, caused by a relatively dry winter. The current and historical data can help with the decision on future fire management by giving the managers a window into how fire might carry through the system.



Big Thicket National Preserve - Yaupon

	01-01	01-15	02-01	02-15	03-01	03-15	04-01	04-15	05-01	05-15	06-01	06-15	07-01	07-15	08-01	08-15	09-01	09-15	10-01	10-15	11-01	11-15	12-01	12-15
2013		104		104		95	105	202		189	147	137	152	148	142		129	98	100		106	109		111
2012	101	109	108	107	104	120	147	143	127	132	123	120	105		150		129					104		104
Avg	103	110	106	110	105	106	157	173	165	144	134	123	117	134	122	133	136	129	114	117	114	111	108	105
Low	99	101	96	104	94	87	95	123	127	109	107	89	101	97	109	87	103	98	100	93	97	102	108	102

To help in the ongoing effort to improve FFI, please include any feedback or suggestions here based on your experiences using FFI.

The FFI program at Big Thicket is currently not up to date and there is a back log of data from 2010 to the present. The expectation for this year is to get some time to work on the FFI data base; however; this comes down to time, with seasonals becoming a possibility and a subject to furlough lead monitor the possibility of getting the FFI database may not be fully restored. It is a very important part of the program that needs to be addressed, but at this time we lack the infrastructure.