



Big Cypress National Preserve

National Park Service Fire Ecology Annual Report Calendar Year 2013

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A. Summary

The Fuels/Fire effects crew at Big Cypress National Preserve had a pretty busy year. In CY 2013 we completed 16 prescribed fire projects and 20 Wildfires for a total 46,168 acres treated. When not burning or doing burn prep a large amount of time was spent writing new burn plans, fighting fire, plot visits, GIS and finishing a mechanical fuels treatment plan. 100% of the Preserve now falls under a burn plan. 92 pre, post, and pilot burn plots were visited.

The lack of staff has forced the employees in the Fuels/Fire effects crew to come up with innovative and time saving solutions that allowed us to do all the work needed without sacrificing quality. Here is a brief list of some of those accomplishments.

- In 2013 two employees in the Fuels/Fire effects crew have participated in Technical Fire Management. One person completed TFM, One person is finishing TFM. Final projects from these endeavors have rewarded BICY with creative, time saving, ecologically friendly, and cost efficient ways of implementing prescribed fire and preparing for wildfire.
- Updated comprehensive database for an easy way to compare data collected at many different photopoints.
- Evaluated an additional 49 plots evaluating stems per acre of wax myrtle following or preceding a fire event.
- Collected 360° panoramic photos, in addition to typical N, S, E, and W views, and we are in the process of linking them to GIS so when the photopoint is clicked a 360° view is available for the user.
- A TFM project was completed that statistically tests the hypothesis ($\alpha = .05$) using a linear regression model that the average stems-per-acre and average stem height per plot has a statistically significant relationship to elevation, FRI, fire weather conditions, hydrology, and NFDRS indices.
- We also maintain 4 weather stations that we perform all annual maintenance on. We have several sites around the preserve that we collect weekly fuel moistures from. We maintained all the fire reports
- We have started using the hydrology levels at 9 stations on the preserve and we have created a database for those hydrology levels that allow us to track seasonal severity.
- All the firefighters at Big Cypress National Preserve are suppression firefighters and prescribed firefighters regardless of their official title. We depend on each other for many things from monitoring, welding, chainsaw repair to digging handline.

Table 1. Fire Effects Plot Workload (2013)

Park	Monitoring Unit	Type of Plot (FMH, photo point, other)	Pre-burn 2013	Immed. Post 2013	Postburn (1-20 yrs) 2013	Total Plots
Big Cypress	Pine	Photo point	8	4	3	15
Big Cypress	Pine	FMH	0	0	1	1
Big Cypress	Prairie	Photo point	6	7	7	20
Big Cypress	Prairie	FMH	0	0	0	5
Big Cypress	Cypress Savannah	Photo point	1	4	2	7
Big Cypress	Cypress Savannah	FMH	0	0	0	0
Big Cypress	Hammock	Photo point	0	0	0	0
Big Cypress	Mechanical	Photo point	0	0	0	0
Big Cypress	Disturbed	Photo point	0	0	0	0
Big Cypress	Pine/Prairie	*TFM 27 PLOTS	49			49
Total			64	15	13	92

* Pilot sampling plots

Table 2. Fire Ecology Staffing 2013

Every firefighter at BICY, regardless of their position, contributed to monitoring, data collection and entry, suppression, and prescribed fire preparations. The people listed below work in Fuels or Fire Effects.

Ecologist and Monitors	Starting Date	Ending Date	# of Pay Periods	READ Qualified	Training and Development
Jill Waisley	1/1/2013	12/31/2013	26	No	TFM 27, FEMO, GISS, SEMG (T)
Mindy Wright	1/1/2013	12/31/2013	26	No	FIRB, ICT4(T), GISS
J Thatcher	1/1/2013	12/31/2013	9	No	DIVS(T), TFLD, HMGB RXB2
Justin Turnbo	1/1/2013	12/31/2013	26	No	DIVS,RXB2, ICT3(T)

Table 3. Management Objectives and Monitoring Results

Monitoring Unit	Management Objective (Restoration)	Monitoring Results	Objective Achieved?	Year Last Analysis Completed
Pine	Treat >70% of pinelands in BICY at least once within 7 years.	Fuel reduction treatments for the last 7 years impacted >70% of pinelands in BICY <i>(86,639 acres of pinelands treated in 308 fires within last 7 years)*</i>	YES	2013
	Reduce existing shrub height in pinelands >50% 1 year post burn	Ocular Estimation at photopoint site determined that >50% reduction in shrub height occur 1 year post at 100% of the plots <i>(n=4 plots visited one-year post treatment, 2 fires in pine plots)**</i>	YES (larger sample size is needed)	2013
Prairie	Treat >70% of prairies in BICY at least once within 7 years.	Fuel reduction treatments for the last 7 years impacted >70% of prairies in BICY <i>(51,227 acres of prairie treated in 308 fires within the last 7 years)*</i>	YES	2013
	Reduce existing shrub height in prairies >50% 1 year post burn	Ocular Estimation at photopoint site determined that >50% reduction in shrub height occur 1 year post at 100% of the plots <i>(n=2 plots visited, 5 fires in prairie plots)**</i>	YES (larger sample size is needed)	2013
All Units	Top-kill at least >75% of fine fuels and woody shrubs during each treatment	Total fuel reduction = 75%-100% <i>(n=15 plots visited, 100% of plots had >75% vegetation reduction immediate post burn)</i>	YES	2013

* Total Acres were calculated using the Rx 2010 feature Class values of the BICY Vegetation Layer. This feature class was used to align data used in the current Fire Management Plan.

* 1 pine and 1 prairie plot that didn't have any woody shrubs (before or after). These plots were not included in the n values because no reduction occurred. However, these plots will continue to be monitored to document any woody shrubs that may encroach into the area later.

B. Fire ecologist accomplishments and areas of focus

We do not have an Ecologist here at BICY. We do collaborate with the Regional Ecologist.

Table 4. Fire Ecologist Accomplishments/Focus Areas
(Please see B. above)

C. Fire effects crew accomplishments and areas of focus

Table 5. Fire Effects Crew 2013 Accomplishments/Focus Areas

Category	Percent Time	Notes
FMH plots	1%	FMH plots that reached completion of 3 yr rotation were converted to photo point plot, of 32 original FMH plots almost all have been converted in last 2 years
WUI plots	15%	Big Cypress 2010 FMP defines WUI as an “Area where an ignition can impact any structure or roadway within one burn period.” So all photopoints have been included in this estimate
CBI plots		Beginning of 2013 fiscal year all immediate post burn site visits include CBI data collection.
Wildfire assignments	15%	20 Wildfires on Preserve. 8 off unit assignments
Prescribed fire projects	20%	16 prescribed fire projects.
Non-fire fuels projects	17%	Estimated amount of time spent assisting with non-fire fuels projects; include READ activities
Data entry	15%	Estimated amount of time spent entering data from paper to PC
Data analysis	5%	This is expected to be very low number or zero for fire effects crew/lead monitor
Supervision/Admin	1%	Payroll, travel authorization/voucher, etc.
Training	1%	S-372, S-491 Annual Refreshers.
Miscellaneous	10%	Composed 2 Burn Plans Reviewed 2 Burn Plans Implemented Mechanical Treatment in the Sanctuary Unit.

D. Additional 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 2013)	Assisted with how many BAER plans in 2013?
Big Cypress National Preserve	yes	Completed 2013	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 Cypress National Preserve	100%		4	0	1	2

* 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?*
Big Cypress National Preserve	2	1	4	Yes but it is limited as it is the trial version.

* 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
Big Cypress National Preserve	yes	0	0	5	Raccoon Point Research Study/ Cypress Dome Burn Severity Study/ RCW, Fox Squirrel, and Panther research

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

E. 2014 Direction

1. We have continued to revamp the way in which we prioritize our burn treatments by assigning weights to the different variables listed below

- Vegetation type.
- Departure from desired fire return interval.
- Distance to roads and structures.
- Departure from desired condition class.
- New for 2014 will be burn location proximity to previously burned area.
- RVARs

Utilizing GIS we are able to pin point areas that are in need of treatment and the weighted values allow us to prioritize our treatments.

This system is repeated on a yearly basis. By combining resource objectives with wildland urban interface objectives we have been able to maximize our time and budget to provide the most benefit to Big Cypress National Preserve.

Due to a small sample size we are also considering use of random plots to increase sample size for reduction of woody shrubs 50% one year post..

F. Optional Information:

Our burn objectives highlight treatment of >70% at least once within 7 years, however we also examine the percentage of treatment at three years and at five years. This information can be found below:

	Acres Treated within		
	3 Years	5 Years	7 Years
Pinelands (95,978 acres total)	34,799	64,852	86,639
% of total in BICY	36%	68%	90%
Prairie (70,440 acres total)	23,197	40,057	51,227
% treated of total	33%	57%	73%