



**National Park Service
BIG CYPRESS NATIONAL PRESERVE
Fire Ecology Annual Report
Calendar Year 2007**

Summary

Big Cypress experienced one of the highest activity seasons in 20 years; over 60 wildfires were reported and 26 prescribed fires were conducted, for a total of 95,309 acres. 5,822 acres and 86 structures were treated and secured because of the efforts of the fire staff in late 2007. There were many occurrences that contributed to, and at the same time, inhibited some of Big Cypress' fire effects monitoring program activities in the calendar year 2007.

All fire activities were accomplished through combined efforts by both the suppression and prescribed fire crews, but due to the loss of four prescribed positions near the end of the year* and the hectic schedule of the 2007 fire season, field data collection was hindered. Two positions in the prescribed fire job categories were filled by detailers (suppression personnel) until the job vacancy announcements are advertised in 2008.

The Fire Use Training Academy (FUTA) in Albuquerque, NM sent a crew of trainees to assist in Big Cypress' prescribed fire projects during fall 2007. This partnership benefited the Preserve greatly. The opportunity allowed us to treat more acreage while providing invaluable training opportunities for students of the Academy. The prescribed fire office hopes to work with FUTA in the upcoming year, as well as the Prescribed Fire Training Center (PFTC) in Tallahassee, FL.

The monitoring crew's emphasis in the 2007 calendar year was placed primarily on qualitative data collection, shifted from previous years when quantitative data collection was an equivalent focus. While only three fire effects vegetation plots were visited and documented in 2007, 22 Photo Point sites were monitored (34 visits) and documented for fire effects both pre-burn and post-burn.

* Two fire effects monitors (GS-6), the prescribed fire technician (GS-7) and the fuels specialist (GS-9/11).

A long-term study of fire effects by USGS, Biological Resource Division personnel (Snyder, J. R.), is presently under way in the preserve. Plots have been established in a pine

forest/cypress dome complex located in the Raccoon Point area. The study will compare different seasons and frequency of burning in replicated study areas. We cooperated by conducting burns in 3 research units during 2007, at the intervals determined by the researchers. Results of this study should provide us with information on when and how often to use prescribed fire to achieve certain resource management goals as well as contribute data for fire behavior modeling.

Some of the research plots contain populations of endangered Red-cockaded Woodpeckers (*Picoides borealis*). The resulting data is helping us to refine our methods of protecting the RCWs while maintaining their preferred habitat conditions. In 2007 our RCW protection techniques consisted of clearing and/or burning around the base of each tree prior to conducting the full unit burn.

No new monitoring plots were established this year. The fire effects crew did start two experimental plots for a “Micro Burn” – an offshoot of a project started by USGS researcher Jim Snyder. The experimental microburn did not yield representative results and was abandoned when the 60,000+ acre “BICY Complex” (Type I wildfire) began.

Table 1. Fire Effects Plot Workload 2007

Park	Monitoring Unit	Type of Plot (FMH, photo point, other)	Total plots on Pre-serve	Not in a burn rotation	In burn rotation but no visit needed in 2007	Pre-burn	Immed. Post-burn	Post-burn visits (1-20 yrs)	Total plot visits in 2007
Big Cypress NP	Prairie	FMH grass plot	16	9	6	0	0	1	1
Big Cypress NP	Slash Pine	FMH Forest plot	12	6	3	0	1	1, and missed 1	2
Big Cypress NP	Cypress Savannah	FMH plot	5	3	2	0	0	0	0
Big Cypress NP	Disturbed/Mechanical Treatment	Pilot sampling	2	0	0	0	Missed 2	0	0
Big Cypress NP	Prairie	Photo point	22	17	1	1	2	4	7
Big Cypress NP	Slash Pine	Photo point	26	8	0	8	5	14	27
Big Cypress NP	Cypress Savannah	Photo point	11	11	0	0	0	0	0
Big Cypress NP	Disturbed/Mechanical Treatment	Photo point	2	2	0	0	0	0	0
Total			96	56	12	9	8	20	37

Table 2. Fire Ecology Staffing 2007

Monitor	Starting Date	Ending Date	# of Pay Periods	Training and Development
Eric Neiswanger	1/1/07	10/12/07	20	unknown
Brianne Davidson	1/1/07	10/12/07	20	unknown
Bela Harrington	9/25/07	12/31/07	7	PLDO training, completed EMT certification, RxB2 taskbook initiated
Ron Pevny	9/25/07	12/31/07	7	PLDO training, RX-300 class, RxB2 taskbook initiated

Table 3. Management Objectives and Monitoring Results 2007

Monitoring Unit	Management Objective (Restoration)	Monitoring Results (80% confidence interval)	Objective Achieved?
Pinelands	0-40% total cover change (over full fire interval)	Not tabulated – 2 FMH plot visits, but only photos were taken	
	0-30% change in herbaceous species richness index (over full fire interval)	“	
	0-100% overstory mortality & scorch, varying diversely among all burns or fire events	Observed via photo points	YES
	50-100% exotic species reduction (Basis: prior to herbicide/mechanical/burn treatments; Final: end of fire return interval)	Not tabulated – 2 FMH plot visits, but only photos were taken	
	>=50% dead fuels reduction (pre-burn to post-burn)	Observed via photo points	YES
Prairies	0-40% total cover change (over full fire interval)	Not tabulated – 2 FMH plot visits, but only photos were taken	
	0-30% change in herbaceous species richness index (over full fire interval)	“	
	30-100% decrease in hardwood encroachment (over full fire interval)	“	
	50-100% exotic species reduction (Basis: prior to herbicide/mechanical/burn treatments; Final: end of fire return interval)	“	
	>=50% dead fuels reduction (pre-burn to post-burn)	Observed via photo points	YES

Monitoring Unit	Management Objective (Restoration)	Monitoring Results (80% confidence interval)	Objective Achieved?
Cypress Savannas	0-40% total cover change (over full fire interval)	Not tabulated – no FMH visits	
	0-30% change in herbaceous species richness index (over full fire interval)	“	
	0-100% overstory mortality & scorch, varying diversely among all burns or fire events	Observed via photo points	YES
	30-100% decrease in hardwood encroachment (over full fire interval)	Not tabulated – no FMH visits	
	50-100% exotic species reduction (Basis: prior to herbicide/mechanical/burn treatments; Final: end of fire return interval)	“	
	>=50% dead fuels reduction (pre-burn to post-burn)	Observed via photo points	YES

Fire Ecologist accomplishments and area of focus

(No ecologist at Big Cypress.)

Fire effects crew accomplishments and area of focus (October thru December only)

Category	Percent Time	Notes
FMH plots	5%	Prep, Data collection, Travel.
WUI plots	0%	none
CBI plots	0%	none
Other plot work	15%	Photo points, plus travel to & prep for.
Fire Assignments	10%	Assisted on or served as Burn Boss for 12 prescribed fires.
Fuels Project work	5%	Clearing around values at risk, i.e. properties, RCW trees.
Data entry	5%	Entered FMH data for 2 plots into spreadsheets, update .ppt files with acquired photos.
Data conversion	10%	Converted GPS data to shapefiles and produced maps pre- and post-burn. (No FEAT conversion, as no monitoring databases are maintained – data is kept in powerpoints or spreadsheets.)
Data analysis	0	
Supervision/Admin	10%	Misc. travel and time paperwork, teaching others the plot and RX-burn prep procedures.
Training	15%	Each crew member had PLDO training, plus individual courses.
Maintenance	10%	Vehicle/buggy/office/cache maintenance.
Miscellaneous	15%	Furlough/leave time.

Challenges

The limited existing quantitative data collected from 2001 to 2007 had been stored in multiple spreadsheets PER plot PER visit, making overall analysis of multiple plots difficult and tedious. Adoption of the NPS FFI monitoring software (and conversion of old data into FFI) could improve our storage ease, and allow for quicker summation and reporting. Our I.T. staff has requested additional software documentation before FFI will be approved to install on our server.

Historically, the Big Cypress Fire and Aviation program has had high employee turnover, due in part to the high cost of living in the area without locality pay. In the case of the prescribed fire positions, the retention problem has contributed to the loss of data or information collected over the years, and a discontinuation of methods/protocols by which data should be amassed.

Logistically, access to areas governed by the Monitoring Plan has been a concern in the past. Many of the trails that are used for Off-Road Vehicle access are difficult to traverse due to high water and unstable ground conditions. The actual monitoring is completely dependent upon the weather as well. Some plot vicinities may be underwater for a certain number of months during the year, depending on their location in the Preserve. Some areas of the Preserve receive more rainfall than others, and are influenced by the historic flow of water south from Lake Okeechobee.

The vast area encompassed by the Preserve is a further concern – most of the 750,000 acres are susceptible to treatment by fire once every 3-5 years. The fire effects in one season alone can be too expansive for complete data collection in all affected areas. Further, southern Florida flora regenerates rapidly, within two weeks post-burn, making site visits more time-sensitive. It would be difficult to increase the number of samples in a large treatment area. Multiple visits would be required within a very short window; i.e. post-burn plots which must all be visited before “green-up” occurs.

Following a Fire Program review in 2007, regional reviewers suggested that

“The (Big Cypress) Fire Ecology and Fire Effects Monitoring Program would benefit greatly from a programmatic review by a team of experts to help steer a further course of action... Regional and National Office Fire Ecology staff should collaborate with BICY staff to convene a meeting of experts knowledgeable about the ecology of South Florida ecosystems, sampling and inventory design, and current park management. This meeting should be professionally facilitated and the outcome should be a set of recommendations for how to proceed with Fire effects monitoring within the park. This meeting should occur no later than June 1, 2008.” – (Fire and Aviation Program Review, 2007)

Looking Forward

While our monitoring of late has consisted only of photo points, the Preserve's Fire Effects Monitoring Plan does contain implementation methods for both qualitative and quantitative data collection. In the upcoming year the Preserve's fire effects crew should shift equal emphasis back to FMH data-collection (to ensure some quantitative assessment is being done) by one or more methods:

- Requesting assistance for design implementation or guidance from regional/national fire ecologists (as advised in the Program Review).
- Closer examination of the management objectives as set forth in the Preserve's Monitoring Plan and their implementation for data collection.
- A revision of the current protocols.

Despite challenges the Big Cypress monitoring program is facing, we look forward to continuing our legacy of productive fire utilization. We will be collaborating further with USGS researcher Jim Snyder as part of his long-term study for seasonality of burns. One research unit is scheduled to be burned within the first six months of 2008. Numerous large parcels that were prepped in 2007 will be ignited aurally in 2008. Our prescribed burning/monitoring program is forecasted to grow in scope as we strive to adhere to a shorter fire return interval. Three or more job vacancies within the Rx department will be filled during 2008. Future communications with national and regional Park Service ecologists should help us define our monitoring program/design so results can be used for adaptive management as we duplicate a historic fire regime Preserve-wide.