



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

A. Summary

The Everglades fire effects monitoring crew continued to read FMH plots and refine methodologies in both Everglades National Park and Cape Canaveral National Seashore. Fire effects staff worked with SFNRC to discuss monitoring needs for *Lygodium microphyllum* and *Schinus terebinthifolius* and began to design monitoring methods. In the Pine Rocklands, monitoring of imperiled butterfly host plants and rare herbaceous plants continued.

Everglades fire ecology and fire effects staff continued to assist and collaborate with other departments in ENP, as well as with other outside organizations. The staff provided technical assistance to a University of Vermont researcher by collecting data in pine rockland research plots. The fire effects crew collaborated with U.S. Fish and Wildlife Service (USFWS) employees from Merrit Island, who are developing a fire effects monitoring program. The Everglades fire ecology / fire effects staff provided input and expertise to National Key Deer Refuge biologist in the development of a pineland croton and butterfly fire effects monitoring program. Maya Vaidya and Aerin Land continued to participate as members of the ENP Wilderness Committee. They also represented Everglades National Park at the Florida and Caribbean Fire and Invasives Learning Network (FILN) meetings. Maya Vaidya worked with ENP Environmental Education to develop an inquiry based learning project for the PARK Teachers program with a grant from the National Park Foundation. Maya worked on National Environmental Policy Act (NEPA) compliance for the 2009 prescribed fire projects and continued to assist with the development of the Fire Management Plan (FMP) and Environmental Assessment (EA). Maya completed section 7 endangered species consultation with USFWS and section 106 cultural resources consultation with the State Historic Presentation Office (SHPO). Maya assisted with United States Geological Survey (USGS) soil core sampling in unburned areas of ENP around Main Park Rd and Old Ingram Highway. Maya provided technical input in the development of the Cape Canaveral National Seashore burn plan. Maya also provided input on NEPA compliance for the aviation and flight following communications project. Maya collaborated with ENP burn bosses to plan environmental and cultural mitigations for the 2009 prescribed fires. Maya co-lead a field trip to the ENP Pine Rocklands for the participants of the FILN workshop. Aerin Land continued to represent Everglades and Biscayne National Parks at the Imperiled Butterfly Working Group meetings and joined the group's Strategic Planning Committee. Aerin also accompanied two researchers from the Maguire Center to Elliot Key and assisted with endangered Shaws swallowtail surveys. Aerin assisted

with the planning of the 2010 Pine Rockland Working Group meeting. Aerin reviewed Marc Minno's research proposal for Joint Fire Science Program (JFSP) funding and will serve as a federal cooperator for the project if it is accepted. Sarah Chmielewski and Matt Smith assisted the ENP exotic plant management crew with Brazilian pepper and bamboo treatments.

Fire effects crew members gave presentations at various venues in 2009. Katherine Budzinski continued to work on the Everglades Fire Communications Team and presented a communications team success story at the 24th Tall Timbers Fire Ecology Conference in Tallahassee FL. Maya Vaidya had an article published in the RX FX Newsletter regarding the integration of fire and exotics management in Everglades National Park. Maya also presented a talk on Everglades Fire Effects Photo Monitoring at the South Florida Prescribed Fire Council. Aerin Land gave an oral presentation at the 2009 Imperiled Butterfly Working Group conference about fire effects on candidate species in ENP. Aerin Land and Colleen Holland presented posters at the International Fire Congress about fire effects on butterflies and fire effects monitoring of invasive exotic plants.

The fire effects staff was involved with a number of outreach events in 2008. They staffed a booth at the Miami-Dade county fair and discussed wildland firefighting with the public. Aerin Land organized field trips and presented imperiled butterfly fire effects information in Long Pine Key to staff from South Florida Natural Resource Center (SFNRC), ENP firefighters, Biscayne National Park, Miami-Dade County Parks and National Key Deer Refuge. Maya Vaidya developed and presented a fire ecology talk at the Fairchild Tropical Gardens Everglades Day event.

The fire ecology and fire effects staff was involved in several wildland fire operational activities in 2009. The staff worked on prescribed fires and wildland fires within ENP; they also assisted with staffing needs for severity and preparedness. Maya Vaidya provided information and graphs for the 2009 Severity Package. Aerin Land served on the ENP Hurricane Incident Management Team as the Deputy Planning Section Chief.

Table 1. Fire Effects Plot Workload 2009

Park	Monitoring Unit	Number of Plots	Type of Plot (FMH, photo point, other)	Pre-burn	Immed. Post	Postburn (1-20 yrs)	Total
Everglades	Pine Rockland	27	FMH Forest plot	0	0	7	7
	Short Hydro-period Prairie	28	FMH grass plot	4	3	12	19
	Long Hydro-period Prairie	11	FMH grass plot	7	0	1	8
	Coastal Prairie	18	FMH grass plot	0	9	0	9

	Butterfly Host plant Monitoring	2	Host-plant monitoring	N/A	0	24	24
	Phenology Monitoring	8	Phenology monitoring	N/A	0	0	0
	Shrub Monitoring	6	Tagged individual shrub monitoring plot	0	0	0	0
	Insect Monitoring	6	Insect Monitoring plot	N/A	0	0	0
	1970's photo-point relocation plots	225 (26 relocated)	Photo Point	N/A	0	0	0
Canaveral	Slash Pine Flatwoods (<i>Pinus elliottii</i>)	11	FMH Forest plot	0	0	0	0
	Coastal Scrub	18	Photo Point	0	0	7	7
	Scrub Oak*	7	Photo Point, cover line	7	0	0	7
Total		161		18	11	51	80

* Pilot sampling plots

In 2009, the Everglades fire effects crew monitored 43 FMH plots and conducted 24 butterfly host plant plot visits in Everglades National Park. In Cape Canaveral National Seashore, the 7 best Coastal Scrub photopoints were revisited and 7 new plots were installed in Scrub Oak habitat. The crew also monitored 6 University of Vermont pine forest plots.

Table 2. Fire Ecology Staffing 2009

Ecologist and Monitors	Starting Date	Ending Date	# of Pay Periods	Training and Development
Maya Vaidya	1/1/09	12/31/09	26	RT-130, L-280, CPR/1 st Aid, ATV Refresher, RT-271, HRO Training, Grass Identification Workshop, Fire and Invasives Learning Network meeting, International Fire Congress conference, Cape Sable Seaside Sparrow Symposium
Aerin Land	1/1/09	12/31/09	26	RT-130, CPR/1 st Aid, S-131, ATV training, RT-271, I-200, I-300, I-400, IDEAS training, Grass Identification Workshop, Imperiled Butterfly Working Group meetings, Fire and Invasives Learning Network meetings, International Fire Congress conference, Cape Sable Seaside Sparrow Symposium
Colleen Holland	01/01/09	12/31/09	26	RT-130, RT-212, Grass Identification Workshop, International Fire Congress Conference, Cape Sable Seaside Sparrow Symposium, ATV refresher, SKILLSOFT Excel trainings, Squad Boss detail at Lassen Volcanic National Park

Katherine Budzinski	1/1/09	2/14/09	4	24 th Tall Timbers Fire Ecology Conference, RT-130
Sarah Chmielewski	02/01/09	07/18/09	12	B-3, S-271
Matthew Smith	11/22/09	12/31/09	2	Cape Sable Seaside Sparrow Symposium

Changes in the fire effects staff took place in 2009. Katherine Budzinski left the program in February to join an Everglades National Park wildland fire engine crew. Aerin Land was temporarily promoted to Lead Biological Science Technician, February through May, and the promotion was made permanent in June. Colleen Holland was temporarily promoted to Assistant Lead Biological Science Technician, February through May, and the promotion was made permanent in August. Student Conservation Association Intern, Sarah Chmielewski joined the fire effects crew in February and completed her internship in July. Matthew Smith joined the fire effects crew as a biological science technician in November. The fire effects crew received field assistance from 8 different volunteers, who contributed a total of 48 hours of work. The volunteers consisted of wildland firefighters, a college student, an exotic plant intern and an interpretative park ranger.

Table 3. Management Objectives and Monitoring Results 2009

Monitoring Unit	Management Objective (Restoration)	Monitoring Results (XX% confidence interval)	Objective Achieved?
Slash Pine Savanna	<u>Canaveral-</u> Limit mortality of <i>Pinus elliottii</i> overstory trees to less than 30% as measured two years post burn.	Overstory pine mortality 28% 2 years post fire	Yes
	Induce top-kill of pole size hardwoods by 50-100% immediately post burn.	No longer monitoring hardwoods. (Resource objectives refined Nov. 2004)	N/A
	Promote 20% recruitment of seedling and pole sized PIEL >15cm in DBH five years post burn.	Have not completed 5 year post read.	N/A
	Reduce height of hardwoods and shrubs <6 feet immediately post burn.	No longer monitoring shrubs. (Resource objectives refined Nov. 2004)	N/A
	Increase cover of bare ground/open space to 25% bare ground / 75% litter cover 5 years post burn.	Have not completed 5 year post read. 2 year post : 41% bare ground 59% litter covered ground (Bare ground = <50% litter cover Litter cover = >50% litter cover)	N/A Have not reached 5 years post (not reached at 2 years post)

Slash Pine Savanna	Everglades- To maintain fire frequency return interval 1-5 yrs while maintaining up to 33% of the pinelands in a three year rough condition.	59% of our pineland FMH plots are within the fire frequency return interval of 1-5 years. 49% of our pineland FMH plots are at 6 years since last fire. According to GIS, 17.8% of the pinelands are in a three year rough condition.	No Fire Frequency maintained at 1-5 yrs for only 59% of pineland FMH plots Yes- 17.8% of the pinelands are in a three year rough condition
Short Hydroperiod Prairie	Topkill >50% of encroaching woody species immediately post-burn	Did not complete belt transects Photomonitoring used to monitor woody species encroachment	No data * Photomonitoring data not analyzed
	Reduce fine fuels >70% immediately post-burn	Did not complete cover transects	No data * Photomonitoring data not analyzed
Coastal Prairie	Treat up to 100% of Old World climbing fern (<i>Lygodium microphyllum</i>) and/or Brazilian pepper (<i>Schinus terebinthifolius</i>) populations that have been identified by the Exotic Plant Management staff for fire treatment annually	<i>Lygodium microphyllum</i> : 80% exotic plant populations were treated <i>Schinus terebinthifolius</i> : No populations were identified for treatment	Yes
Long Hydroperiod Prairie	Topkill >50% of encroaching woody species immediately post-burn	Did not complete belt transects Photomonitoring used to monitor woody species encroachment	No data * Photomonitoring data not analyzed
	Reduce fine fuels >70% immediately post-burn	Did not complete cover transects	No data * Photomonitoring data not analyzed

B. Fire ecologist accomplishments and areas of focus

Maya Vaidya was in the fire ecologist position for all of 2009. Maya worked with the South Florida Natural Resources Center (SFNRC), the Park compliance division and Parsons Environmental Group in planning and developing the Environmental Assessment that will accompany the new Fire Management Plan. The fire ecologist was also responsible for the annual NEPA compliance process on prescribed fire projects and section 7 endangered species with the USFWS ecological services and section 106 cultural resources consultation with the SHPO. Maya continued to serve on several working groups and committees throughout 2009. Maya presented fire effects data and fire ecology program information at the Fairchild Botanical garden, Miami, FL and presented the Photo monitoring protocols and lessons learned at the 2009 South Florida Prescribed Fire Council meeting, Clewiston, FL. In 2009 Everglades National Park was awarded a grant from the National Park foundation to develop an inquiry based in Park learning project to conduct with local college students. Everglades fire ecology, environmental education and Miami-Dade College partnered to develop and present a pilot of this program in

2009. Everglades National Park was one of only four Parks to be chosen for this project and awarded a grant from the National Park Foundation.

Table 4. Fire Ecologist Accomplishments/Focus Areas

Category	Percent Time	Accomplishments and/or areas of activities
Planning	30%	Annual NEPA compliance, Sec 7 endangered species consultation, Sec 106 cultural resources consultation, CSSS Fire Management Strategy, FMP revision, Environmental Assessment research and planning
Presentations	<5%	Fire effects data summary presentation, Photomonitoring protocols and lessons learned presentation
NPS Meetings/ task groups	10%	Work with SFNRC, I&M, Florida and Caribbean Fire and Invasives Learning Network, Pine Rockland Working Group, Imperiled Butterfly Working Group, Cape Sable Seaside Sparrow Working Group
Interagency work	<5%	Work with Big Pine Key National Wildlife Refuge, SFNRC, I&M, Merritt Island National Wildlife Refuge,
Fire Assignments	<5%	FFT2 – Media Event prescribed fire
Research	5%	Support and consultation for research in Everglades National Park conducted by USGS, UVM, FIU and UF researchers and students, working with SFNRC to develop exotics monitoring protocols, background research for planning and consultation
Data Management	<5%	Data entry, quality checking, analysis and conversion
Outreach, education programs	10%	Development and pilot presentation of a fire ecology based inquiry learning project with Environmental education, field trip-presentation for the Fire and Invasives Learning Network meeting in Miami, FL
Monitoring Field Work	<5%	Assisted crew in monitoring fire effects plots in EVER and CANA, butterfly host plant plots in EVER
Supervision/Admin	20%	Supervised fire effects monitors, Hiring: promoted lead and assistant lead, recruited and hired two GS 5 fire effects monitors, completed EPAP evaluations for fire effects crew
Training	10%	RT-130, CPR/1 st Aid, ATV refresher, RT-271, Grass Identification Workshop, Imperiled Butterfly Working Group meeting, Fire and Invasives Learning Network meeting, International Fire Congress conference, Cape Sable Seaside Sparrow Symposium, Inquiry Grant workshop training, Endangered Species Act - Sec 7 consultation workshop-training, HRO workshop-training
Miscellaneous	5%	Staffing, assistance with other Fire Management projects, severity packages, Wilderness committee, burn plan and project proposal reviews

C. Fire effects crew accomplishments and areas of focus

In 2009, the Everglades fire effects crew monitored 43 FMH plots. All FMH data was entered into FFI and quality checked by the fall of 2009. Fire effects monitoring of the butterfly host plant, *Croton linearis*, continued to be conducted monthly. In Cape Canaveral National Seashore, the 7 best Coastal Scrub photopoints were revisited and 7 new plots were installed in Scrub Oak habitat. The crew also assisted the University of Vermont with a long-term fire effects study in the pine rocklands by monitoring 6 of their plots. Crew members continued to scan and digitally store FMH photo slides, using the external hard drive archiving system.

Table 5. Fire Effects Crew Accomplishments/Focus Areas

Category	Percent Time	Notes
FMH plots	15%	Estimated amount of time spent collecting plot data; includes any preparation time.
WUI plots	N/A	
CBI plots	N/A	
Other plot work	8%	Pineland Croton, Canaveral Coastal Scrub and Scrub Oak plots
Fire Assignments	0%	
Fuels Project work	1%	Assisted the fuels crew with soil and life fuel collections
Data entry	15%	Estimated amount of time spent entering data from paper to PC
Data conversion	0%	Estimated amount of time to convert FEAT data to FFI; includes verification of protocols, error checking, etc.
Data analysis	15%	Time spent on data analysis and preparing monitoring protocols for Canaveral
Supervision/Admin	5%	Travel, payroll and purchasing, paperwork, etc. - Lead monitor-training new personnel, crediting plan, hiring new fire effects monitors
Training	10%	S-131, RT-130, RT-271, CPR/1 st aid, ATV Refresher, I-200, I-300, I-400, IDEAS training, Grass Identification Workshop, R-212, SKILLSOFT EXEL Trainings, B-3, S-271
Presentations/Conferences	5%	Imperiled Butterfly Working Group, International Fire Congress conference, Cape Sable Seaside Sparrow Symposium, 24 th Tall Timbers Fire Ecology Conference
Public Outreach	2%	Hosted field trips for wilderness instructors and members of the Imperiled Butterfly Working Group and staffed a table at Miami-Dade County Fair
NPS meetings/task groups	5%	Fire Communications team, ENP Wilderness Meetings, Environmental Assessment Meetings, Prescribed Fire Meeting, Fire Management AAR, ENP Hurricane Incident Management Team Meetings
Interagency Meetings	2%	Imperiled Butterfly Working Group, Cape Sable Seaside Sparrow Symposium, Fire and Invasives Learning Network meetings
Miscellaneous	17%	local prescribed and wild fires, staffing dispatch, fire engines and helitack, hurricane incident management, ENP Trail maintenance, assist National Key Deer Refuge with development of butterfly host plant fire effects monitoring, University of Vermont pine forest plot work

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

E. Annual Report Supplement Additional Information

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

1. FFI, Excel

2. Annual Meetings - Maya also presented a talk on Everglades Fire Effects Photo Monitoring at the South Florida Prescribed Fire Council. Aerin Land gave an oral presentation at the 2009 Imperiled Butterfly Working Group conference about fire effects on candidate species in ENP. Aerin Land and Colleen Holland presented posters at the International Fire Congress about fire effects on butterflies and fire effects monitoring of invasive exotic plants. Aerin Land organized field trips and presented imperiled butterfly fire effects information in Long Pine Key to staff from South Florida Natural Resource Center (SFNRC), ENP firefighters, Biscayne National Park, Miami-Dade County Parks and National Key Deer Refuge.

F. Optional

DRAFT

Monitoring Type Description Sheet

Monitoring Type Code: SCOA (Scrub Oak)

Monitoring Type Name: Oak-Saw Palmetto Scrub

Prepared by: M. Vaidya, A. Land, C. Holland

Management Objectives:

Hazard Fuels Management

- Reduce cover of saw palmetto by 50-80% immediately post burn.
- Reduce cover of live oak species by 40-60% immediately post burn.

Ecosystem Management

- Reduce number of scrub oak trees, taller than 2 meters, by 50-80%, as measured three years from the second application of fire.
- Increase relative cover of non-woody species by 50-70%, as measured two years from the second application of fire.

Monitoring Objectives:

Monitor all objective variables to inform Canaveral Resource Management Staff of fire treatment impacts upon oak scrub cover and height.

Objective Variables:

- Average shrub height, specifically scrub oaks
- Percent cover of palmetto, scrub oaks, and herbaceous layer
- Percent of open space
- Burn severity

Physical Description:

Occurs on the higher ridges and along the gradient between xeric scrub and mesic flatwoods. Soils include the excessively-drained series that may support sand pine scrub or better drained inclusions within moderately well-drained soil series (Schmalzer et al. 1999)

-Moderately well drained Pomello or Orsino sands

Biological Description:

Oak scrub and oak-saw palmetto scrub according to “Brevard County Scrub Systems” is dominated by scrub oaks (*Quercus chapmanii*, *Q. geminata*, *Q. myrtifolia*), saw palmetto (*Serenoa repens*) and *Lyonia spp.*

Rejection criteria:

Areas within 50 meters of a man-made structure. Areas not accessible due to restricted access. Areas that do not and/or will not display characteristic habitat based on biological description i.e. areas with standing water and little oak and palmetto vegetation present. Areas dominated by uncharacteristic species, such as grape vine, sable palm groups and willow. These rejection criteria are somewhat subjective and based on the knowledge and opinions of the field staff.

Notes:

Unit is extremely dense pre-burn, more transects may be installed as access to unit interior increases (through prescribed burning or mechanical treatments)

Max Hoeck 1: Plot methods

These methods were adapted based on needs identified in the current burn plan and are currently going through pilot tests.

Plot Selection and Installation:

Randomly select points within the unit using either the grid method or ArcGIS. Choose more points than needed, as many may end up being rejected. Make sure the points are at least 100 m apart and 50 m from the road.

When a point is reached, check the area to make sure it falls outside of the rejection criteria. A point intercept pole is blindly thrown to determine the location of the 0P rebar. Randomly select the transect azimuth using a random number table or other means. The transects are 15.5 m long to reduce the amount of trample at the 15m point. Install the 15P rebar at the end of the transect (15.5m). (Figure 1). The tags on the rebar are labeled with the plot name and the transect ends (0P or 15P). PVC is placed over the rebar for easy relocation in future visits. Fill out plot location and history of site visits data sheets, Appendix A & B. Include the Plot Maintenance log in the plot folder for future maintenance needs, Appendix C.

Figure 1: Transect Layout



Plot Protocols:

Equipment:

30m tape

5 m retractable measuring tape

2 or 3 point intercept poles

Camera with wide angle lens

Mono-pod with bubble level

3 meter range pole (50cm increments)

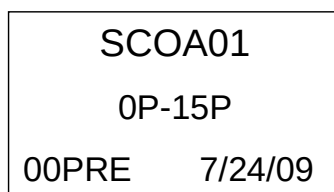
White board and marker

Data sheets

Photo-monitoring

Photos are taken from the 0P and 15P ends of the transect, focused on the 3 meter range pole at the opposite end of the transect. We use a digital camera, with a 17-85mm wide angle lens, attached to a mono-pod set at 1.37m (standard DBH). The mono-pod is placed directly to the left of the rebar. A bubble level is attached to the mono-pod to level and center the camera. These measures will help ensure repeatable photographs. A white board with the plot date, plot status and camera location is used for photo identification. (Figure 2) If the white board cannot be seen on the left side of the shot, at a distance of three meters from the camera, attempt different distances before switching sides of the tape. Record all changes to this protocol in the Photo Monitoring Log (Appendix D).

Figure 2: White board set-up



Cover/Gap Transect:

Along the 15m transect, note the point on the tape where shrub cover begins and ends. Any cover change over a distance greater than 5 cm is recorded. Note where the cover is consists of oaks, palmetto and herbaceous plants. The oak and palmettos may overlap; however, the herbaceous layer should only be considered when there is no shrub canopy directly overhead. All the open space, as defined below, is further classified into litter cover classes.

Open space is defined as bare ground, open to the sky, that also includes litter covering soil or sand with no rooted non-herbaceous vegetation or canopy cover. The percent of litter cover, in gaps, is estimated visually along the line. Data is recorded on the data sheets in Appendix E & F.

Average Shrub Canopy Height:

At four points along the transect (1, 5, 10, and 15 meters), use the point intercept poles to identify the center and create a perpendicular line to the transect. Select the individual, based on shrub canopy that is closest to the center point in each quadrat. Collect the height, repeat in all four quarters. If one individual's canopy is the closest in more than one quarter, select the second closest canopy to the center point – do not count an individual twice. See Figure 3 below. Record the height of the shrub to the nearest centimeter and record it as either “oak” or “other shrub species” (Appendix G).

Definitions

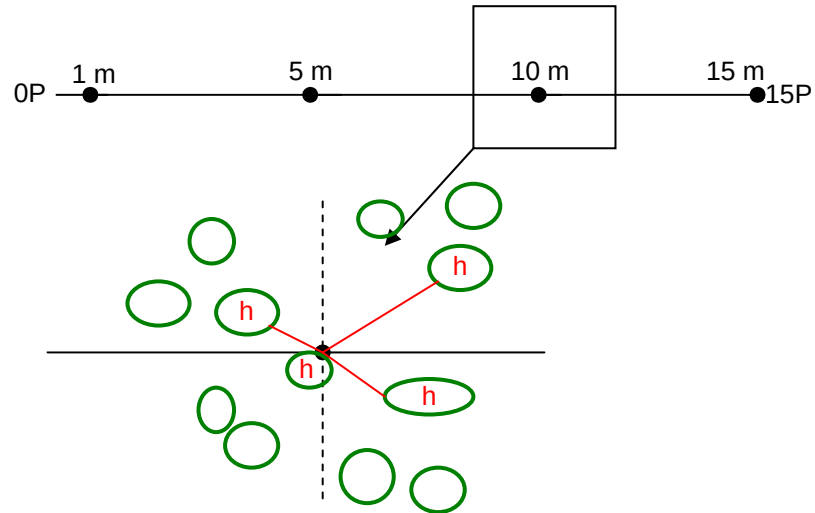
Individual shrub: All the above ground branches connected to a single stem that enters the ground.

Closest Point: The individual crown closest to the center point.

Canopy: A shrub in the canopy layer receives light in the crown from more than one direction, not just directly overhead.

Height: Vertical distance from the base of the main stem to the tallest green point of the shrub.

Figure 3: Average canopy height methods, not to scale.



References

- BRIENINGER, D.R., P.A. Schmalzer. 1990. Effects of Fire and Disturbance on Plants and Birds in a Florida Oak/Palmetto Scrub Community. *American Midland Naturalist*. 123(1):64-74.
- , et al. 1998. Linking habitat suitability to demographic success in Florida scrub-jays. *Wildlife Society Bulletin* 26(1):118-128.
- , et al. 1996. A Conservation Strategy for the Florida Scrub-Jay on John F. Kennedy Space Center/ Merrit Island National Wildlife Refuge: An Initial Scientific Basis for Recovery. NASA publication NASA-TM-111676
- ELZINGA, CARYL L. D.W. Salzer, J.W. Willoughby. Measuring and Monitoring Plant Populations. BLM Technical Reference 1730-1.
- ENGEMAN, RICHARD M., R.T. Sugihara, L.F. Pank, W.E. Dusenberry. 1994. A Comparison of Plotless Density Estimators Using Monte Carlo Simulation. *Ecology* 75(6); 1769-1779.
- FAULHABER, CRAIG. 2009. Fish and Wildlife Conservation Commission. PERS. COMM.
- MILLETT, CHERYL. 2009. The Nature Conservancy, Florida. PERS. COMM.
- MITCHELL, KEVIN. 2007. Quantitative Analysis by the Point-Centered Quarter Method. Version 2.15. Department of Mathematics and Computer Science, Hobart and William Smith Colleges.
- SCHMALZER, P.A., C.R. Hinkle. 1992. Recovery of Oak-Saw Palmetto after Fire. *Castanea*, 57(3):158-173.
- , S.R. Boyle, H.M. Swain. 1999. Scrub ecosystems of Brevard County, Florida: A regional characterization. *Florida Scientist*. 62(1):13-47
- , C.R. Hinkle. 1992. Species Composition and Structure of Oak-Saw Palmetto Scrub Vegetation. *Castanea* 57(4):220-251.
- Vegetation Monitoring Materials and Methods, TNC Jay Watch program

Appendix A: Plot Location Data Sheet (edited to fit page)

FMH-5	PLOT LOCATION DATA SHEET
--------------	---------------------------------

Plot ID: _____ Date: _____
Burn Unit: _____ Recorders: _____
Topo Quad: _____ Transect Azimuth: _____ Declination: _____
UTM Zone: _____ UTMN: _____ UTME: _____
Date of Last Known
Fire: _____
Fire History of
Plot: _____

1. Road and trail used to travel to the plot: _____

2. Compass bearing at point where road/trail is left to go cross-country to the plot: _____

**3. Describe the route to the plot; include or attach a hand drawn map of the plot layout;
include plot reference feature and other significant features:**

4. Describe reference feature: _____

5. Compass bearing from plot reference feature to plot reference stake: _____

6. Distance from reference feature to reference stake: _____ m

7. Problems, comments,
notes: _____

Date Entered: _____ Entered By: _____ Quality Checked: _____

Appendix B: History of Site Visits (Edited to fit page)**HISTORY OF SITE VISITS**

Plot ID: _____ B / C (Circle one) Burn Unit: _____

	Date	Burn Status	Purpose	Comments
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Appendix C: Plot Maintenance log (Edited to fit page)

PLOT MAINTENANCE LOG

Plot ID: _____

Date Log Initiated: _____

[illegible]

Photo Monitoring Log
CANA-Scrub Jay Plot

Plot # _____ Park Code: _____

OP: _____

15P: _____

[illegible]

Appendix E: Cover/Gap Line Datasheet. Edited to fit the page.

15 Meter Cover / Gap Line Transect Data Sheet

Plot ID: _____	B / C (circle one)	<u>Cover Class</u>	<u>Percent</u>
Burn Unit: _____		1	0-5%
Burn Status: _____		2	6-25%
Date: / /		3	26-50%
Recorders: _____		4	51-75%
		5	76-95%
		6	<95%

cover = basal (if < 1m) aerial (if > 1m) or gap

coverclass = percent litter cover

cover	start (m)	finish (m)	coverclass	notes	dist

Gap(open)-bare ground (sand or soil) that may also include discontinuous litter covering sand or soil with no rooted vegetation or canopy cover. This could include ground, soil, sand or litter.

*For this category give a litter cover class.

Cover>1m- open space as defined above that includes overhanging vegetation greater than 1meter in height.

*Also give a litter cover class.

Cover<1m- any vegetation that intercepts the transect that is less than 1 meter in height.

The observer should consider cover to be closed until there is a gap of greater than 5 cm in the canopy cover.

The same goes for open space the area is considered open until there is greater than 5 cm canopy cover.

Appendix F: Species Cover data sheet (Edited to fit page)
15 meter Shrub Canopy Cover

Plot ID: _____	Burn Status: _____
Transect # _____	Date: / /
Burn Unit: _____	Recorders: _____

Species	start (m)	finish (m)	start (m)	finish (m)	start (m)	finish (m)
Scrub Oak						
Palmetto						
Herbaceous						

Record the start and end points of oak, palmetto and herbaceous cover.
 Herbaceous cover is only considered when there is no shrub cover.
 The palmettos and oaks can overlap.

Appendix G: Shrub Canopy Height Data sheet. (Edited to fit page)

Shrub Height- Max Hoeck Unit

Plot ID: _____
Burn Unit: _____
Burn Status: _____

Date: / / _____
Recorders: _____

1m		Species	Height(m)
	1		
	2		
	3		
	4		

5m		Species	Height(m)
	1		
	2		
	3		
	4		

10m		Species	Height(m)
	1		
	2		
	3		
	4		

15m		Species	Height(m)
	1		
	2		
	3		
	4		

At each of the four meter points, draw a line out perpendicular to the transect.
Record the height (down to two decimal points) of the nearest shrub in each of
the quadrants.

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'.