



**National Park Service
Fire Ecology Annual Report
Calendar Year 2009
SOUTHERN GREAT LAKES AREA PARKS (INDU, LIBO & SLBE)
Lead Monitor, Mary Fisher-Dunham (INDU)
Fire Ecologist, Scott Weyenberg**

A. Summary

This was the twelfth year of the fire effects program at Indiana Dunes National Lakeshore (INDU). This year's staff included one permanent and three seasonal positions. The crew is responsible for the monitoring at INDU and two other parks: Lincoln Boyhood National Memorial (LIBO) and Sleeping Bear Dunes National Lakeshore (SLBE).

At INDU, six prescribed burns were completed out of the eleven that were scheduled. Two out of the seven spring burns spring were conducted with wet conditions and Karner Blue Butterfly issue preventing the completion of the other five. All four of the fall burns were conducted. The fire ecologist visited INDU for a day in December to meet with Resource Management staff.

At LIBO, one burn was completed in November.

At SLBE, no prescribed burns were conducted. A burn is scheduled for spring 2010 in an old field¹

¹ Burfiend Field was scheduled in 2008, but was not burned.

Table 1. Fire Effects Plot Workload 2009

Park	Monitoring Unit	Type of Plot (FMH, photo point, other)	Pre- burn	Immed. Post	Postburn (1-20 yrs)	Total Plots
Indiana Dunes	Prairie	FMH grass plot			26	28
Indiana Dunes	Oak Savanna	FMH forest plot	2	2	7	25
Indiana Dunes	Oak Woodland	FMH forest plot	9	9	6	22
Indiana Dunes	Oak Forest	FMH forest plot				1
Indiana Dunes	Pr/Sav/Wood/ Complex (Howes Pr.)	Other - USGS			31	31
Indiana Dunes	Sav/Wood/Forest	Other - NPS	15	40	19	152
Indiana Dunes	Sav/Wood/Forest	Photo				19
Sleeping Bear	Old Field	Photo				7
Sleeping Bear	Jack Pine	Photo				2
Lincoln Boyhood	Oak - Hickory	Other - USGS	6	6	6	8
Total**			32	57	95	295

Table 2. Fire Ecology Staffing 2009

Complete the staffing and personnel development table for fire ecologist and monitors. Include fire training (e.g. S-290, RX-310), distance learning or on-campus college credit, technology training, NWCG taskbooks initiated or completed, conferences attended, etc.

Monitors	Starting Date	Ending Date	# of Pay Periods	READ Qualified (Yes or No)	Training and Development
Mary Fisher-Dunham	2/17/09	12/18/09	22	No	Vegetative Monitoring in a Management Context, Botany Training,
Pete Akers	5/012/09	8/07/09	6.5	No	Botany Training (40 hour), Archeology (1 day)
Roger Mongold	5/012/09	9/24/09	10	No	Botany Training (40 hour), Archeology (1 day)
Michele Warner	5/012/09	10/9/2009	11	No	Botany Training (40 hour), Archeology (1 day)

Table 3. Management Objectives and Monitoring Results 2009

Monitoring Unit	Management Objective (Restoration)	Monitoring Results (XX% confidence interval)	*Objective Achieved?
Dune Ridge (Oak Woodland) n = 25.	1. Reduce overstory canopy closure/basal area. 2. Reduce understory stem density.	1. ~50% basal area reduction in smallest size class ($p=0.0001$). 2. Re-sprouts caused incr. in smallest size class ($p=0.015$).	1. No 2. No
Cowles Dunes (Oak Woodland) n = 2	1. Reduce overstory canopy closure/basal area. 2. Increase species diversity.	1. Pre BA=77ft ² /ac. Post 87ft ² /ac. 2. 10 to 60% increase.	1. No 2. Yes
Inland Marsh 5 (Oak Savanna) n = 1	1. Reduce overstory canopy closure/basal area. 2. Reduce shrub cover. 3. Increase cover of warm season grasses	1. Closure slightly reduced and poles reduced significantly. 2. Shrub cover increased from 40 to 60%. 3. Grass cover remains stable.	1. Yes. 2. No. 3. No.
Kintzele Ditch (Oak Forest) n = 7	1. Reduce overstory canopy closure/basal area. 2. Reduce understory stem density.	1. Closure unchanged, BA reduced in one size class due to wind throw. 2. Stems less than 2' reduced. Overall woody cover increased after windthrow.	1. No 2. No

*Whether objectives were achieved is not normally as simple as yes or no, see reports for detailed explanations.

B. Fire ecologist accomplishments and area of focus

See Northern Great Lakes annual report.

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 Accomplishments/Focus Areas

Category	Percent Time	Notes
FMH plots	20 %	• Re-measured INDU plots.
WUI plots	0%	
CBI plots	0%	
Other plot work	21 %	• Re-measured INDU & LIBO plots.
Fire Assignments	6%	• Spring prescribed fire – 2 shifts • Fall prescribed fire - 6 shifts.
Fuels Project work	0%	
Data entry	20 %	• 2009 data entry is complete and various corrections to database are begun. • All PLM and other protocol data was re-entered into FFI using protocol datasheets developed by ecologist. (9.5% of time).
Data conversion	0%	
Data analysis	<1 %	• Post burn reports.
Supervision/Admin	12 %	• The lead monitor hired and supervised three monitors and conducted recruitment and outreach activities. • Coordination with ecologist, fire staff, RM staff. • Program administration and planning.
Training	15 %	• Sampling techniques, plant ID, PT, weekly safety and mandated NPS/INDU training.
Miscellaneous	6 %	• Misc. administrative duties; including computer maintenance and troubleshooting, time and attendance, personnel, travel, policy, budget/request for supplies, e-mail.

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

Attached.

E. Annual Report Supplement Additional Information

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

1. *Identify types of fire effects monitoring databases or spreadsheets being used (e.g., FFI, Access, Excel).*

INDU: Some project level data are in Excel. These data may be transferred to FFI if it can be automated.

LIBO: We inherited monitoring plots at this park from a researcher. The data we collected is in FFI. Since the protocols are not at all like FMH many *User* columns were used making for a less than ideal situation regarding data entry and analysis. The data

collected by the researcher is in Access and will hopefully be converted to FFI this winter. Data will all be re-entered into customized data forms someday.

2. *Annual Meetings - Provide a brief description of the 2009 meeting(s) where fire ecologists present and discuss monitoring results with fire and non-fire park staff, and others have informal discussions.*

INDU: I attended a prescribed fire planning meeting for resource staff. The purpose was to discuss any concerns relating to the upcoming burns. I presented generalized monitoring results as well as implementation plans. The goal was to facilitate discussions and form a consensus on how to manage certain sites.

3. *If further explanation for the Annual Report Supplement information is needed, please provide it here as well as any other information relating to the spreadsheet that you would like to include.*

None.

F. Optional

INDU

The project level protocol underwent extensive review and revision last year. Fire Effects crew used these updated Project Level Monitoring protocols and field datasheets for the first time this year. The new updates resulted cleaner, clearer and more cohesive protocols, benefiting seasonal crew members' learning and implementation of the methods.

This year an effort was made to have all seasonals start on the same day to achieve a more efficient training period.

In addition, formalized training was implemented consisting of reviewing project level and FMH protocols and FFI data entry exercises. FFI data entry instructions were refined to help seasonal staff input data correctly. A week long botany training course was held for fire effect seasonal crew, fire personnel and resource management staff.

The seasonal crew had a busy season to complete all scheduled sampling and data entry goals. An interesting note: beginning in the fall of 2008, INDU experienced higher than normal rainfall. As a result, some plots had standing water in them and waders were required to perform the sampling.



In addition to entering this year's data, a large data entry project was completed. The past project level monitoring data for 125 plots with data from 2004 to 2008 was re-entered into the custom

data entry forms. The new forms aid in data entry and make for more efficient and accurate analyses.

INDU began the use digital photo for plot documentation this year, replacing the 35mm slide film. The project of scanning of all old slides into digital form which began in 2007 was continued and completed in 2009. Now, all old plot slides are scanned, organized and stored on an external drive with backups. Procedures and instructions were written to maintain this organization.

To meet diversity goals for the park, increased time has been directed toward outreach and recruitment. Mary developed a hiring flyer in collaboration with Resource Management and Human Resources staff. She also developed a student announcement flyer, expanded the email outreach list, contacted professors and attended two conferences for the purpose of outreach.

A bit of adaptive management occurred this year with our data is being used to make positive changes to fire application. This is an excellent sign and the direction we want to go. For example, Dune Ridge was not scheduled to be burned again till 2014, based on visual observations and data analysis, which showed a significant re-growth of sassafras, the unit was placed on the spring 2009 fire schedule. Additionally, the fire ecologist presented a summary of fire effects to resource management and fire staff during the December fire planning meeting. The meeting marks the third year of biannual meetings that provide fire effects data to resource management staff and solicit feedback on the goals and objectives for the prescribed burn units.

Mary completed a project in late winter at Cowles Dunes to help the ecologist estimate historic oak savanna overstory density. The information will be used to assist in determining target conditions in the Lakeshore's oak savannas. The results were incorporated into the ecologist's Cowles Dune analysis report.

Fire staff conducted several experimental burns to assisted researchers with a JFSP study on the effects of fire on Oriental bittersweet.

SLBE

The Burfiend Field burn was put on hold for 2009 and is currently scheduled for late spring, 2010.

LIBO

In the spring of 2009, ice and strong winds toppled trees throughout the memorial. The INDU fire crew assisted in clean up efforts prior to the Lincoln event later that spring. A site report was written by Mary with recommendations invasive species control and burn seasonality. The recommendations resulted in moving the scheduled burn up to this fall instead of spring 2010.

ATTACHMENTS:

Cowles Dunes Post Burn Report.

Dune Ridge Post Burn Assessment – Year 2.

Kintzele Ditch Post Burn Assessment.

Inland Marsh 5 Post Burn Assessment.