



**Indiana Dunes National Lakeshore
National Park Service
Fire Ecology Annual Report
Calendar Year 2004**

Summary

This was the seventh year of the fire effects program at Indiana Dunes. This year's staff included two permanent and four seasonal positions. Midway through the season there was a change in staffing. The lead fire effects monitor and permanent biological science technician switched certain duties and the biological science technician position was given additional duties and thus is not as involved in monitoring vegetation plots. The biological science technician still provides assistance to fire effects by writing reports on our prescribed fires and monitoring fuels and weather.

This year our fire effects program was broadened to include non-FMH plots. This was done so that prescribed fire objectives could be monitored more closely and results could be reported with higher confidence. Pre-burn and post-mechanical thinning monitoring was also conducted at Lincoln Boyhood this year.

Table 1. Fire Effects Plot Workload 2004

Park	Monitoring Unit	Type of Plot (FMH, photo point, other)	Pre-burn	Immed. Post	Postburn (1-20 yrs)	Total Plots
Indiana Dunes	Oak woodland	FMH forest plot	2	9	11	23
Indiana Dunes	Oak savanna	FMH forest plot	3		3	17
Indiana Dunes	Tall grass prairie	FMH brush plot			20	20
Indiana Dunes	Little bluestem prairie	FMH brush plot			6	8
Indiana Dunes	Oak woodland	Non-FMH Burn unit level (Circular-pole trees and fuels)	10			10
Lincoln Boyhood	Oak-hickory	Non-FMH (Circular-trees, shrubs, herbs, fuels, canopy, photos)	5			7
Total			20	9	40	85

Table 2. Fire Ecology Staffing 2004

Monitor	Starting Date	Ending Date	# of Pay Periods	Training and Development
Neal Mulconrey	2/8/04	7/17/04	11.5	Intro. to ArcGIS for Land Management Agencies Statistics Refresher
Amy Manke	2/29/04	12/18/04	21	I-200, S-133, S-131 Opened FFT2 and ENOP taskbooks Assisted teaching GPS for Fire Management and two Fire Refreshers GIST training MS Access level 1 Coaching, Mentoring, & Team building Seminar 4 TELNET courses
Mary Fisher-Dunham	4/4/04	9/3/04	13	S-290 on CD Opened FEMO taskbook
Megan Korte	5/2/04	9/3/04	11	
Yoana Rosales	6/7/04	8/21/04	5.5	
Mike Polomchak	6/14/04	8/28/04	4	

Management Objectives and Monitoring Results 2003

Minimal analysis was completed for the Marquette Trail using burn level data. Minimum plot calculations were done for fine fuels and pole sized trees. Approximately 30 plots are needed to say with certainty (80%) what the condition of the burn unit is regarding these variables.

Monitoring Unit	Management Objective (Restoration)	Monitoring Results (XX% confidence interval)	Objective Achieved?
Marquette Trail	Fuel reduction	80% CI. Total fuel reduction = 0% (<i>n=10 lines, 1 fire</i>)	NO
	Reduce litter depth to less than 2"	Pre depth 2.3" Post depth 0.65" (<2") $t<0.0001$ (<i>n=10 plots, 1 fire</i>)	YES

Ecologist Accomplishments.

The Great Lakes Eco-regional Fire Ecologist position was vacant till July when Scott Weyenberg filled the position. Scott visited Indiana Dunes October 19th-21st. During his visit protocols were reviewed and adjusted, the monitoring plan was discussed, and the Mnoké Prairie project planned.

- Protocols regarding point intercept, percent cover plots, and shrub, seedling and pole sized tree tallies were adjusted.
- The monitoring plan has been reviewed by Scott and awaits further review by the Regional Fire ecologist and the Park.
- Mnoké Prairie project is discussed below.

Optional.

In November all the fire ecologists and lead fire effects monitors in the region met in Omaha, NE for a Midwest Regional Fire Ecology meeting. Topics discussed included monitoring and adaptive management, I&M coordination, project level monitoring, FEAT, data conversion, and prioritizing work.

This year a burn unit level monitoring project was initiated at Marquette Trail. Marquette Trail is a 40 acre burn unit in oak woodland and the prescribed fire objectives included reducing leaf litter to less than 2" and top-kill at least 50% of shrubs and woody stems less than or equal to 5cm DBH. Ten 5m radius plots were established in the unit and shrubs and trees 4.5' to 5cm DBH were tallied by size class and key understory plants were recorded. Each plot also included one fuel transect. The plots will be resampled in spring to determine if objectives were met.

Another new project was also planned this year, but may not be implemented till next year. Mnoké Prairie is approximately 160 acres and is being restored from an abandoned field back to tall grass prairie. In 1996 twenty FMH brush plots were set up in a section of the prairie and have been sampled almost every year since. After the next prescribed fire the plots will be divided into different treatments: control/fire, seeding & transplanting/fire, mowed/seeding & transplanting/fire, and herbicide/seeding & transplanting/fire. The goal of the project is to monitor the effects of the different treatments to determine which treatments most effectively lead to the objective of restoring native tall grass prairie species and reducing non-native and aggressive species.

One problem that the program will encounter next year is a 30% increase in FMH rereads. However, managers would like to see more burn unit level monitoring to get feedback on each prescribed fire to determine if objectives were met. Solutions may include skipping the first year FMH rereads or not sampling every sub-sample during first and second year rereads.