



**National Park Service
Fire Ecology Annual Report**

**Calendar Year 2006
INDU, LIBO & SLBE**

**Lead Monitor, Amy Ortner (INDU)
Fire Ecologist, Scott Weyenberg (VOYA)**

Summary

This was the ninth year of the fire effects program at Indiana Dunes National Lakeshore (INDU). This year's staff included one permanent and three seasonal positions. As well as monitoring the plots at INDU the crew is also responsible for the monitoring at Lincoln Boyhood National Memorial (LIBO) and Sleeping Bear Dunes National Lakeshore (SLBE).

No monitoring took place at SLBE this year however fire personnel from INDU met with SLBE resource staff to select burn units for 2007. The first burn is tentatively scheduled for the fall of 2007 in an old field. The fire ecologist plans to meet with resource managers this summer to discuss objectives and future treatments.

Table 1. Fire Effects Plot Workload 2006

Park	Monitoring Unit	Type of Plot (FMH, photo point, other)	Pre-burn	Immed. Post	Postburn (1-20 yrs)	Total Plots
Indiana Dunes	Old field prairie	FMH Grass plot		20	20	20
Indiana Dunes	Sand-Mined Little Bluestem Prairie	FMH Grass plot				8
Indiana Dunes	Oak Savanna	FMH Forest plot	4	2	7	17
Indiana Dunes	Oak Woodland	FMH Forest plot	2		8	23
Indiana Dunes	Prairie, Savanna, Woodland complex (Howes Prairie & Lupine Lane)	Howes Prairie/USGS methods		28	31	31
Indiana Dunes	Oak Woodland (Hobart Prairie Grove)	Burn Unit Monitoring with nested frequency		14	16	16
Indiana Dunes	Oak Woodland (West Beach)	Burn Unit Monitoring			4	10
Indiana Dunes	Oak Savanna (Miller Woods)	Burn Unit Monitoring				31
Indiana Dunes	Oak Savanna/Woodland/Forest (Tolleston Dunes)	Burn Unit Monitoring				20
Indiana Dunes	Oak Woodland (Dune Ridge)	Burn Unit Monitoring		25	25	25
Indiana Dunes	Oak Woodland (Marquette Trail)	Burn Unit Monitoring				10
Indiana Dunes	Oak Woodland (Calumet Dune)	Burn Unit Monitoring	9			12
Indiana Dunes	Oak Woodland (Grand Boulevard)	Burn Unit Monitoring	16	16		16
Indiana Dunes	Mixed Wetland (Derby Ditch)	Photo point			15	15
Sleeping Bear	Jack Pine Barrens (Life Saving Station)	Photo point Mechanical Thinning			0	7
Lincoln Boyhood	Upland Oak-Hickory (Cemetery Hill)	Other				8
Total			21	105	126	269

Table 2. Fire Ecology Staffing 2006

Monitor	Starting Date	Ending Date	# of Pay Periods	Training and Development
Amy Ortnier	1/16/06	12/8/06	22.5	S-260, L-380, ATVO
Mary Fisher-Dunham	4/24/06	10/13/06	12.5	
Adessa Schwartz	4/24/06	10/6/06	12	
Christina Barba	4/24/06	10/6/06	12	

Table 3. Management Objectives and Monitoring Results 2006

Data were analyzed for three individual burn units and the oak savanna system as a whole. Coefficients of variation and p-values are shown to indicate precision and significance respectively. Additional analyses for these sites can be found in the attachments as only those that pertained to specific objectives were included here.

Monitoring Unit	Management Objective (Restoration)	Monitoring Results	Objective Achieved?
Mnoké Tallgrass Prairie	<u>By 2017:</u> -Increase cover of desirable grass species to >30% -Reduce turf grasses to <10% -Reduce undesirable grasses to <30% -Reduce woody spp. cover to <10%	(n=20 plots, 5 fires as of 2005) -Native grasses 12% (CV=1.36) -Turf grasses 31% (CV≈0.43) -Undesirable grasses 62% (CV≈0.43) -Woody spp. cover 30% (CV≈0.75)	NO, not yet.
Dune Ridge Trail (Savanna)	<u>Immediate post burn:</u> -Reduce litter depth to <2". -Top-kill 50% of all woody species <2" DBH.	(n=25 plots, 1 fire) -Litter depth 0.3" (p=0.0001) -Top-kill 92% (p=0.0001)	YES YES
Hobart Prairie Grove (Woodland)	<u>Immediate post burn:</u> -Reduce litter depth to <2". <u>By 2 years post burn:</u> -Top-kill 50% of all woody species <2" DBH. -Diversity of > 75 herbaceous species per 0.1 ha.	(n=16 plots, 1 fire) -Litter depth 0.4" (p=0.0001) -Top-kill 36% (p=0.0001) -88 herbaceous species per 0.1ha.	YES NO but yes for smaller size classes. YES
Oak Savanna	<u>Immediate post burn:</u> -Reduce litter depth to <2". -Diversity of > 75 herbaceous species.	(n=7 plots, 7 fires) -Litter depth 0.5" (p<0.05) -99 herbaceous spp. for 11 plots.	YES minimum sample size surpassed YES when all sites are combined.

Fire ecologist accomplishments and area of focus

See Voyageurs N. P. annual report.

Fire effects crew accomplishments and area of focus.

INDU Fire Effect Crew Accomplishments/Focus Areas

Category	Percent Time	Notes
FMH plots	23%	Re-measured ~40 plots.
Other plot work	23%	Measured 105 project level plots & 15 photo points.
Fire Assignments	15%	Rx – 15 shifts Wildfires in park – 4 shifts Fire Assignments – 70 shifts
Fuels Project work	0%	Fuels project work
Data entry	16%	2006 data entry is about 90% complete.
Data conversion	0%	Finished.
Data analysis	1%	Fuel load calculations, data preparation/manipulation, and review of FEMP and analyses reports.
Supervision/Admin	2%	Lead monitor hired and supervised three monitors.
Training	20%	Training, PT, etc.
Miscellaneous (Assistance from fire staff)	0%	The biological science technician on the fire staff, provided assistance to fire effects by writing some of the reports on our prescribed fires, monitoring fuels and weather, and assisted in sampling a few of the burn unit level monitoring plots. This year the technician wrote 5 of the 9 prescribed fire reports which saved the fire effects crew about 50 hours of work and contributed about 30 hours to sampling monitoring plots. The primary fire staff also provided approximately 70 hours of assistance this year by writing 2 of the prescribed fire reports, helping with the sampling of Mnoké Prairie, and helping sample fuel loading pre and post burn.

Optional

Significant progress was made for INDU with the completion of the monitoring plan. Sorting out the numerous protocols and changes to each over the years was a project and a half for Amy and myself. Adjustments and subtractions continue be made with protocols and monitoring events to limit the collection of unnecessary data. Currently the crew has reached the maximum number of plots they can read per year so adjustments were needed. Fortunately we have a new addition to the monitoring crew with the birth of Amy's daughter. I figure she will help them complete at least 10 more plots per year.

I completed analyses of several areas at INDU. In all cases progress was made however progress toward full restoration is slow. It is unclear if this can be sped up through practical means. I added a floristic quality assessment to the Mnoké Prairie analyses and feel this is a useful tool for assessing success. Dan Swanson has also done this and finds it to be useful for tracking ecosystem change.

Several reports that were written over 2006 are attached.

Mnoke 05 Summary.doc	Hobart Prairie Grove Summary.doc
2006 Addendum to Mnoke 05.doc	Post Fuels rep HP 11_06.doc
INDU Sav Fuels rep05.doc	Post Fuels rep Grand Blvd 11_06.doc
Post Fuels rep IM 3_4 11_06.doc	Dune Ridge Year 1 Post Burn Summary.