



# The Current

Issue 5, Spring 2011



## Urban Parks and Wild Lands

By Ted Gostomski, Network Science Writer

If you visit the Science Museum of Minnesota in downtown St. Paul, you will probably notice the National Park Service arrowhead on the exterior brick wall of the building as you walk to the front door. It faces an always-busy Kellogg Boulevard and the Excel Energy Center (home of the Minnesota Wild hockey team) across the street. Tucked just inside the museum entrance is the only visitor center the Mississippi National River and Recreation Area (MISS) operates. I can only imagine people wondering, “what’s the National Park Service doing here? Where’s the park?”

The word “national park” conjures images of grand scenery and thoughts of wilderness backpacking, but in urban parks, the scenery can be more subtle, the wilderness all but gone, retained perhaps in a small patch of river-side forest or the swale of a Lake Michigan sand dune. There are many national park units in urban areas, but there are just two in the Great Lakes Network: MISS and Indiana Dunes National Lakeshore. Parts of the lower St. Croix National Scenic Riverway could also be considered urban, but Mississippi River and Indiana Dunes are embedded in the developed landscapes of major metropolitan areas. They are truly “urban parks.” How does management of an urban park differ from one that is more “wild” and off the beaten path? And how can the Inventory and Monitoring Program assist the park in achieving their management goals?

The major difference may be in managing boundary issues. All parks deal with this to some extent, but the sheer number and variety of encroachments on our urban parks makes managing their boundary issues a daily task. At Indiana Dunes, located between Gary and Michigan City, Indiana, boundary issues take the form of road-building and the associated staging of construction equipment; maintenance of railroad rights-of-way, including visibility requirements that call for cutting trees, some of which are on park property; and land use by private and industrial neighbors directly adjacent to the park. When park managers want to conduct a prescribed burn on park property to enhance the habitat needed by the endangered Karner blue butterfly, a lot of work goes into educating neighbors about the butterfly and its habitat requirements, and about prescribed fire. In addition, fire managers must keep neighbors informed of events leading up to, during, and after the burn.

Until recently, MISS owned 35 acres of scattered island properties in the upper Mississippi River but no land along the river. In 2010, the MNRRA acquired a 29-acre parcel formerly belonging to the U.S. Bureau of Mines, on which they are now working to restore oak savanna by removing buildings, roads, and invasive

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## Urban Parks and Wild Lands

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plants. But this sort of direct management is new. Typically, the staff at MISS need to develop partnerships with a state or local entity (or both) to implement any sort of management actions on the river. By necessity, park managers at MISS work with a long list of partner agencies and organizations who share responsibility for or interest in the conservation of the Mississippi River's cultural and natural resources.

As one of those partners, one thing the Inventory and Monitoring Program does is help to fill information gaps. When the Network established its water quality monitoring program on the river, our staff worked with MISS to identify sites that no other agency was monitoring and that were of interest to the park. At INDU, a collaborative effort between the Network's land cover/land use program, the U.S. Geological Survey, and NatureServe led to the creation of a fine-scale vegetation map (see pages 4-5). Future work by land cover/land use staff will be to use satellite imagery and aerial photography to identify, quantify, and map disturbances within and adjacent to both parks. This type of analysis will help park managers in addressing boundary issues.

Boundary issues are not unique to urban parks, but they are often more pronounced and require more attention than in the more remote northern parks. Staff at Mississippi River and Indiana Dunes deal with these issues daily, but they have the same goal as all the other parks: the protection of nationally significant cultural and natural resources. These resources are part of the scenery that draws visitors to the Lake Michigan shore at Indiana Dunes. Where the Mississippi River runs through the Twin Cities metropolitan area—and especially south of the Cities, where the river widens out and the landscape becomes more rural—this is where many find recreation and relaxation. These places offer a respite from the noise and busyness of city life. They are important places to many people for many reasons, and that is why they are part of the superlative legacy that is the National Park System. ●



**The urban and the wild** at Indiana Dunes National Lakeshore (1, 2) and Mississippi National River and Recreation Area (3, 4).

## Can we help you?

You can find reports, Resource Briefs, past issues of *The Current*, and more on our web site:

<http://science.nature.nps.gov/im/units/glkn/>

## 2011 Field Schedule

Network staff and cooperating partners will soon be taking to the field to conduct annual monitoring of park critical resources, or “vital signs.” New for 2011 is a landbird monitoring program at Pictured Rocks National Lakeshore. Landbird monitoring is now conducted in all nine Network parks by a combination of park staff and volunteers.

Be sure to see page 7 for outreach programs coming to parks this year! ●

	BC-eagles	BC-fish	LB	LCLU	VEG	WQ
Apostle Islands (APIS)	June		June	Aug/Sept	July-Sept	June-Sept
Grand Portage (GRPO)		mid-May	June	TBD		
Indiana Dunes (INDU)		early May	early June			May, Jul, Sept
Isle Royale (ISRO)		late May-June	June			May-Sept
Mississippi River (MISS)	mid-May		mid-April-early July		May-July	
Pictured Rocks (PIRO)		late May-June	June			Jun-Sept
St. Croix (SACN)	late May-June		June			Apr-Nov
Sleeping Bear Dunes (SLBE)		mid-May	June			Jun-Sept
Voyageurs (VOYA)		early May	June			Jun-Sept

**BC - Bioaccumulative Contaminants.** **Eagles** led by Bill Route and Mark Martell (MISS). **Fish** teams from the University of Wisconsin-La Crosse led by Jim Wiener and Kris Rolfhus at INDU, PIRO, and SLBE, and Mark Sandheinrich and Roger Haro with Ted Gostomski at ISRO, GRPO, and VOYA.

**LB - Landbirds.** Conducted by park staff and volunteers.

**LCLU - Land Cover/Land Use.** Ulf Gafvert and Al Kirschbaum.

**VEG - Vegetation.** Team of five biological technicians led by Suzy Sanders and Jessica Grochowski.

**WQ - Water Quality.** Joan Elias (APIS), Josh Dickey (INDU), Rick Damstra and one biological technician (ISRO), Lora Loope (PIRO), David VanderMeulen (SACN), Chris Otto (SLBE), Jaime LeDuc (VOYA).

## Staff Insider

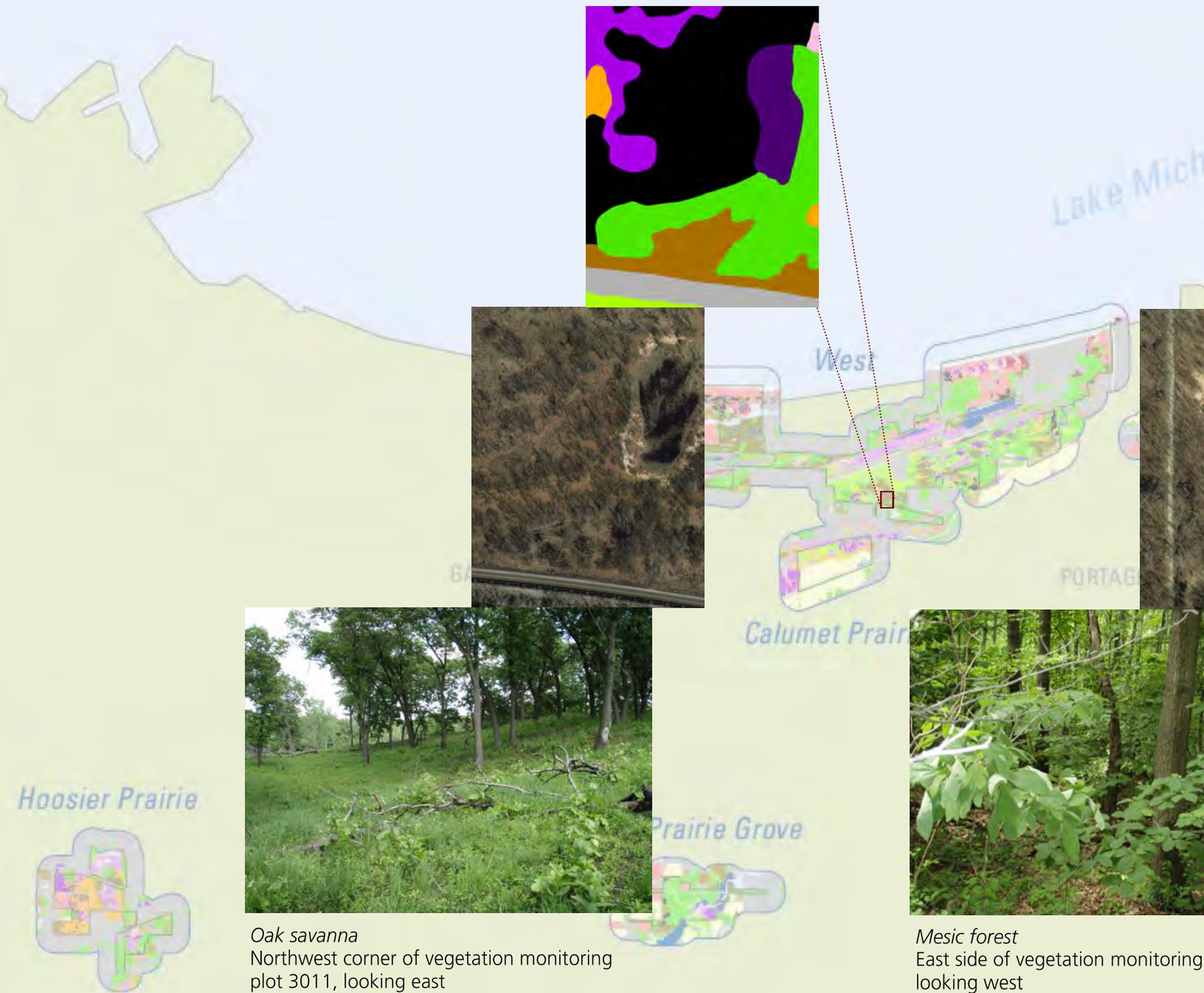
### *Rebecca Key, Data Management Specialist*

Rebecca Key joined the Great Lakes Network in 2007 after beginning her career with the Will County (Illinois) Forest Preserve District. She has an undergraduate degree in Biology from Northland College, and she is conducting research on the population viability of an endangered plant species for a Master’s degree in Environmental Biology from Governors State University. Along with monitoring and conservation of endangered, threatened, and rare species, Rebecca has experience conducting biological inventories, has served on the line conducting prescribed fire, and now uses her skills in GIS and data management to support both the Network’s monitoring programs and the work of the Great Lakes Exotic Plant Management Team. ●



# The Big Picture at Indiana Dunes National Lakeshore

Our monitoring efforts provide park managers with different ways of seeing the patterns and relationships between wildlife and destinations for visitors. Inventorying and mapping vegetation (background and top insets), overlay photos, and analyzing the data collected from monitoring plots (bottom insets), helps us read the story of the landscape.



*Oak savanna*  
Northwest corner of vegetation monitoring plot 3011, looking east

**Common plant species:**

- Trees
- Black oak (*Quercus velutina*)
- Shrubs
- Carolina rose (*Rosa carolina*)
- Herbs
- Flaxleaf whitetop aster (*Ionactis linariifolius*)
- Purple lupine (*Lupinus perennis*)
- Wild blue phlox (*Phlox divaricata*)



*Mesic forest*  
East side of vegetation monitoring plot 3011, looking west

**Common plant species:**

- Trees
- Red maple (*Acer rubrum*)
- Black cherry (*Prunus serotina*)
- Sassafras (*Sassafras albidum*)
- Shrubs/Vines
- Gray dogwood (*Cornus racemosa*)
- Virginia creeper (*Parthenocissus vitacea*)
- Herbs
- Enchanter's nightshade (*Circaea*)

between soil, water, and plant community that create habitats for  
 using aerial photography (center insets), zooming in with ground-level  
 and at Indiana Dunes and other Network parks.



Pinhook Bog



plot 3014,

*Wet forest*  
 Northeast corner of vegetation monitoring plot  
 3019, looking west

**Common plant species:**

Trees

- Red maple (*Acer rubrum*)
- Sassafras (*Sassafras albidum*)
- White oak (*Quercus alba*)
- Black gum (*Nyssa sylvatica*)

Shrubs

- Spicebush (*Lindera benzoin*)

Herbs

- False lily of the valley (*Maianthemum racemosum*)
- Jack-in-the-pulpit (*Arisaema triphyllum*)
- Skunk cabbage (*Symplocarpus foetidus*)
- Beech fern (*Phegopteris connectilis*)

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## Things We're Learning

From *Spatial patterns of persistent contaminants in bald eagle nestlings at three national parks in the upper Midwest* by B. Route, P. Rasmussen, R. Key, M. Meyer, and M. Martell. 2011. Natural Resource Report NPS/GLKN/NRR-2011/431. National Park Service, Fort Collins, Colorado.

This monitoring program is assessing levels of targeted environmental contaminants in bald eagle nestlings at sites in and adjacent to Apostle Islands National Lakeshore (APIS), Mississippi National River and Recreation Area (MISS), and St. Croix National Scenic Riverway (SACN) (see map). This report presents data from 2006 through 2009. We make the following observations and recommendations, knowing they are subject to change as we learn more about the patterns and trends of these contaminants and the complex systems they affect.

Regionally, bald eagle **productivity** has increased dramatically from lows in the 1960s and 1970s, such that it is at or above levels considered necessary for a healthy population. Productivity is highest on the MISS and lowest at APIS; the SACN nearly spans this gradient. Lower productivity observed at APIS is likely due to lower food availability compared to the other study areas.

**Mercury** levels in eagles have been steadily declining in the region, but these trends could reverse. Increasing concentrations in some wildlife, together with the relatively high levels we measured in eaglets from the upper St. Croix River (U-SACN), indicates that continued monitoring of this pervasive contaminant is warranted.

There were five instances of elevated **lead** exposure in nestlings: four on the upper MISS, and one on the lower St. Croix (L-SACN). A large proportion of lead in eaglets is probably a lingering effect of using alkyl lead in gasoline, but we found elevated levels in some nestlings near sites with contaminated soils and sediments from industrial or municipal waste.

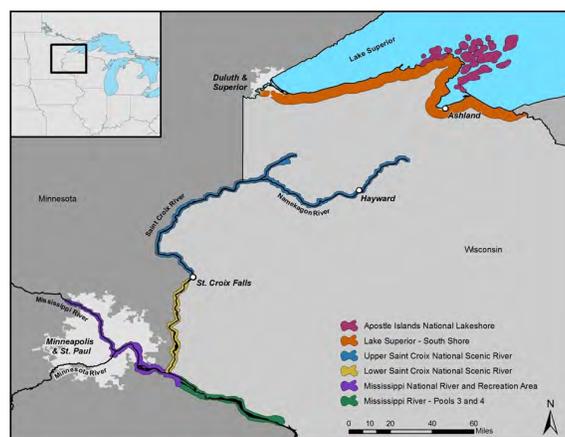
**DDT** and its metabolites **DDD** and **DDE** continue to linger more than 30 years after DDT was banned in North America. APIS eaglets continue to bioaccumulate DDE, and occasionally DDT. One extremely high concentration of DDT in a nestling at MISS warrants further investigation from local authorities for potential illegal use. Combining our data with that from the Wisconsin Department of Natural Resources (WDNR) shows DDE declined in APIS eaglets at a rate of 3% annually between 1989 and 2008. The literature suggests this decline is regional.

Combining our data with that from the WDNR shows that polychlorinated biphenyls (**PCBs**) declined in APIS nestlings at rate of 4.3% per year between 1989 and 2008. The literature suggests this trend is regional.

Certain forms of **flame retardants (PBDEs)** appear to have increased between 2001 and 2006. Average levels at APIS have since declined. This pattern coincides with industry use and subsequent international bans and phasing-out of these forms.

We found high levels of **PFCs**, especially **PFOS**, in nestlings on the lower MISS and L-SACN. Preliminary evaluations of **PFOA** and **PFOS** suggest they are declining at MISS, coinciding with the phase-out of production by 3M. We expect these chemicals to decline, but some are highly persistent and could linger for decades. ●

See the **full report** and more on our website: <http://science.nature.nps.gov/im/units/GLKN/monitor/contaminants/contaminants.cfm>



## Newly Published Reports

**Gostomski, T.** 2011. 2010 Communication evaluation survey: Great Lakes Inventory and Monitoring Network. Natural Resource Technical Report NPS/GLKN/NRTR—2011/425. National Park Service, Fort Collins, Colorado.

**Route, B., P. Rasmussen, R. Key, M. Meyer, and M. Martell.** 2011. Spatial patterns of persistent contaminants in bald eagle nestlings at three national parks in the upper Midwest. Natural Resource Technical Report NPS/GLKN/NRTR—2011/431. National Park Service, Fort Collins, Colorado.

**Underwood, H. B., and R. Knutson.** 2011. Analysis of night-spotlighting counts for white-tailed deer: Indiana Dunes National Lakeshore, 1991-2006. Natural Resource Technical Report NPS/GLKN/NRTR—2011/424. National Park Service, Fort Collins, Colorado.

Technical reports can be downloaded from the Network website—<http://science.nature.nps.gov/im/units/glkn>.

## Reaching Out to a Park Near You

While the newest data are being collected during the 2011 field season, Network staff and cooperating scientists are writing articles for park newspapers, giving talks to park staff and visitors, and sharing information with the public using our traveling display at park events. Here are just a few of the places we'll be this season. Hope you can join us!

What	Where	When	Who
Riverway Speaker Series— <i>Monitoring Bald Eagle Chicks for the Health of the Riverway</i>	St. Croix River Visitor Center, St. Croix Falls, Wisconsin	April 9	Bill Route
Public/staff presentation— <i>Contaminants in fish and aquatic food webs in Indiana Dunes National Lakeshore and other national parks of the Great Lakes region</i>	Bailley Ranger Station training room, Porter, Indiana	April 14	Jim Wiener
Public/media event— Monitoring contaminants in bald eagles (in the field)	Lilydale Regional Park, St. Paul, Minnesota	May 18	Bill Route and others
Public/staff presentation— <i>Monitoring bioaccumulative contaminants in fish at Sleeping Bear Dunes</i>	Sleeping Bear Dunes Visitor Center, Empire, Michigan	May 19	Jim Wiener
2011 BioBlitz	Katharine Ordway Natural History Study Area, Inver Grove Heights, Minnesota	June 10—11	Ted Gostomski



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**Improving park management through  
greater reliance on scientific knowledge**



Apostle Islands National Lakeshore  
Grand Portage National Monument  
Indiana Dunes National Lakeshore  
Isle Royale National Park  
Mississippi National River and Recreation Area  
Pictured Rocks National Lakeshore  
Sleeping Bear Dunes National Lakeshore  
St. Croix National Scenic Riverway  
Voyageurs National Park

*The Current* is published twice a year for Great Lakes Network park staff, our partners, and others interested in resource management at Great Lakes region national parks.

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