

# Division of Nature Preserves

## Indiana Nature Preserves

### 2011 Annual Report:



DNP: Mission and Staff

Natural Heritage Data Center

Indiana's Nature Preserve System

Nature Preserve Dedications

Heritage Trust Land Acquisition

Nature Preserve Management

Lake Michigan Coastal Program

## Division of Nature Preserves Annual Report for 2011

### Executive Summary

The Division of Nature Preserves is charged with finding, protecting, and managing examples of Indiana's natural communities, coastal resources, and rarest species for the benefit of present and future generations. It is comprised of four primary components: Nature Preserve Protection, Nature Preserve Management, the Natural Heritage Data Center, and the Lake Michigan Coastal Program. The Division is funded by a variety of funding sources, including trust funds, grants, and general funds. Approximately half of the staff are paid by non-general fund sources, and all of the remaining staff receive a portion of their funding from non-general fund sources (See Figures 1 and 2). Division staff work in nine locations scattered around the State, including the Central Office in Indianapolis.

The Division works with numerous partners, utilizing grants and donations to protect, manage and restore natural areas. For example, a Great Lakes Restoration Initiative Grant through the Army Corps of Engineers will restore 150 acres of Calumet Prairie. Mitigation settlement led to the protection of a high quality prairie and restoration of a fen, and a NiSource donation restored 13 acres at Hoosier Prairie.

Division staff was involved with numerous publications and outreach activities. These included 28 presentations, 60 partner projects, 59 technical assists to partners, 48 interagency projects, 40 outreach activities and numerous projects to improve access and trails for visitors. Public dedication ceremonies were held at Ambler Flatwoods in LaPorte County, owned by the Shirley Heinze Land Trust. A media day was held at Hoosier Prairie, where NiSource donated funds for restoration activities.

During 2011, some of the field inventory work resulted in the discovery of some extremely rare plants, including Canada burnet, log sedge and short-horned beak rush. Staff also monitored nearly 50 occurrences of endangered and threatened plants.

The Natural Heritage Database now contains 16,747 element occurrences (rare plants, animals, natural community locations), and during 2011, 190 new records were entered and 9,394 records were updated. Staff answered 701 information requests and conducted 654 environmental reviews, 110 floodway permit application reviews, 146 public lake permit application reviews, and 23 coal permit application reviews. Seventy-six research and collecting permits were issued. The certified ginseng harvest was 3,477 pounds; and twenty-eight ginseng dealers were licensed.

There is at least one nature preserve in every natural region in Indiana except the "Black Swamp" Region, located in eastern Allen County. Nature preserves contain at least one example of all but two of the 58 natural community types known to occur in the State. Of the 213 state-endangered plants, there is at least 1 protected example of 179 of them. All but 3 of the 88 threatened species have at least 1 population protected, and only 2 of the 115 rare plant species have no protected populations.

To date, 242 nature preserves have been dedicated. They are owned by 46 different owners, which include 5 different DNR landholding divisions, 12 land trusts, 18 city/county governments, and 4 colleges/universities. Nature preserves protect some of Indiana's most diverse landscapes, including dunes, sand prairies and savanna, wetland complexes, lakes, rivers, forested ecosystems, glades, karst features, prairies, fens, bogs, swamps, and geologic features. In 2011, seven new preserves were dedicated including Allee Woods in Parke County, owned by Wabash College, four preserves in Fort Harrison State Park, two preserves in Harmonie State Park, and additions to Boot Lake (Elkhart County), Conrad Savanna (Newton County), and Fourteenmile Creek in Charlestown State Park.

Regional ecologists managed over 3,400 acres in 2011, removing invasive species, installing and repairing trails, restoring wetlands, and planting prairie and wetland species. Large restoration projects

funded through the Great Lakes Restoration Initiative are underway at several areas in Lake County. Regional ecologists were involved with prescribed burns at 20 different properties encompassing over 1,030 acres. Technical assistance was provided to a number of agencies, and conservation planning efforts helped with the decision making for the future use of the now closed Newport Chemical Depot in Vermillion County. Conservation planning was also provided for Governor Daniel's Healthy Rivers Initiative projects along the Sugar Creek, the Muscatatuck, and the Wabash Rivers.

The Lake Michigan Coastal Program hosted the 2011 State of Lake Michigan Conference and the Great Lakes Beach Association Meeting. They also supported the Coastal Zone 2011 Conference in Chicago. LMCP funded a number of projects in 2011 through its matching grant program, passing through funds from NOAA. In 2011, there were 35 projects open (across all grant years), totaling over \$1 Million.

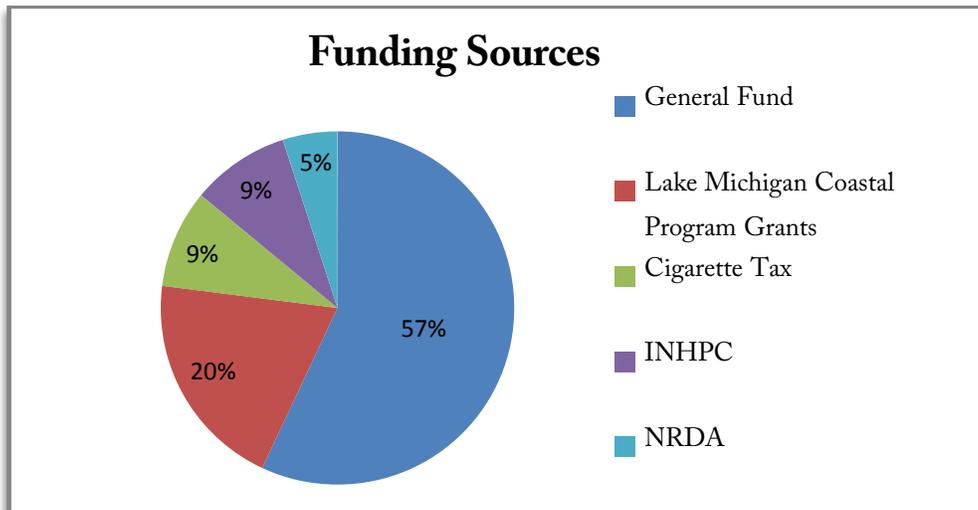


Figure 1. Funding sources for the Division of Nature Preserves.

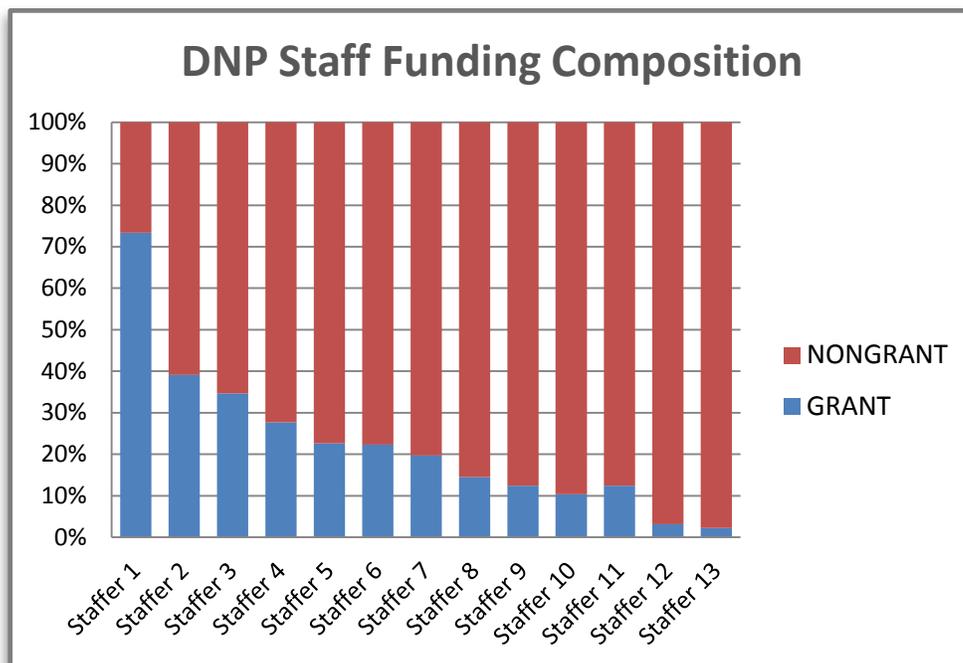


Figure 2. Composition of funding sources.

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## I. Introduction

The Division of Nature Preserves (DNP) is made up of four components: the Nature Preserve Program, Preserve Management Program, Natural Heritage Data Center, and the Coastal Program. The Nature Preserve Program works with numerous partners to protect natural areas through acquisition and other protection actions and dedication into the State Nature Preserve System. The Preserve Management Program takes care of DNP owned Nature Preserves and assists partners with their nature preserves by using many restoration and management activities, including prescribed burning and control of invasive species; the program also provides access to DNP managed Nature Preserves by providing parking and trails where appropriate. The Natural Heritage Data Center collects and manages data on rare species and high quality natural communities which are used in two primary ways. The Department's environmental review process uses the data and coordinates with other agencies to avoid impacts to important natural features. The data are also used to guide conservation efforts of agencies and organizations across Indiana. The Coastal Program is responsible for coastal activities including natural, cultural, and historic resource activities in the Indiana Lake Michigan Coastal Zone, providing grant funding for a variety of projects, as well as being a central clearinghouse for natural resource conservation and planning.

## MISSION

The Indiana Legislature passed the Nature Preserves Act in 1967, creating the Division of Nature Preserves, charging it to work with partners to set aside and preserve areas of unusual natural significance for the benefit of present and future generations. Since that time, Division staff has worked with colleagues in the Department of Natural Resources, and with partners throughout Indiana, to catalogue Indiana's flora, fauna, and natural areas, striving to set up a system of nature preserves that includes examples of all the natural areas and rare species habitat that occur in Indiana. While not totally complete, much progress has been made. At least one example of 56 out of 58 types of natural communities found in Indiana at the time of settlement is included in Indiana's nature preserve system. Ninety percent of the 416 plants considered endangered, threatened, or rare have viable populations in Indiana nature preserves.

*The mission of the Division of Nature Preserves is to identify, protect, and manage an array of nature preserves and natural areas in sufficient numbers and sufficient sizes to maintain viable examples of all of Indiana's natural communities. Nature Preserves will also manage and maintain viable populations of endangered, threatened and rare species. These activities will be conducted for the benefit of the natural communities, and their representative species, as well as for the benefit of future generations of mankind.*

*The purpose of the Indiana Lake Michigan Coastal Program is to enhance the State's role in planning for and managing natural and cultural resources in the coastal region and to support partnerships between federal, state and local agencies and organizations. The Indiana Lake Michigan Coastal Program relies upon existing laws and programs as the basis for achieving its purposes.*

## Funding

For a number of years, the Division's Operating Budget was funded solely through the Indiana General Fund, and its Capital Funds alternately were either Cigarette Tax or General Fund. Starting in the 1980's, as new staff positions were added to the Division to meet increasing demands, they were paid for with alternate funding sources. Currently, 43% of Division staff is paid through a variety of non-general fund

sources: INHPC Endowment, Coastal Program, Natural Resources Damages Account, and Cigarette Tax.; 57% are paid with General Fund monies (Figure 1). For General Fund paid staff, all has a portion of their salaries paid by non-state funds. These funds come from Office of Surface Mining, US Fish and Wildlife Service (USFWS), and other sources, since a portion of the work being done by these employees is for projects desired by both the Division of Nature Preserves and those entities. A portion of the time of most of these employees also serves as match for employees paid for with NOAA Coastal Program funds. Additionally, all seasonal division employees have at least a portion of their salaries paid for by federally funded projects, which further enhance taxpayer funds, enabling more natural resource work to be accomplished with less state funding (Figure 2). See Appendix A for a listing of Nature Preserve staff.

## Public Relations and Outreach Activities

Outreach activities are documented into 6 broad categories: Presentations, Partner Projects, Technical Support, Inter-Agency Projects, Outreach, and Public Access Projects (Table 1).

Nature Preserves staff made **28 Presentations** to a variety of partners with the majority to Non-Profit Environmental Groups and Schools. The Non-Profit groups included our partner land trusts and hiking clubs. The various environmental groups ranged from educational to those supporting local natural treasures. Presentations to schools ran the entire gamut from elementary to university, including three presentations of original research to the Indiana Academy of Science. Staff also made presentations to 2 of our county partners, 2 city partners, and 5 inter-agency partners.

Nature Preserves' Regional Ecologists were involved in **60 Partner Projects** that included land trusts with 23 projects, 5 counties, 6 cities, and 11 non-profit groups. There was a wide variety of projects, from salvaging and moving a non-profit owned floating boardwalk to a city owned nature preserve, assisting in several building projects, rails to trails conversion, invasive species workshops, eradication of kudzu infestation, assistance with Phragmites control, restoration planning with land trusts and city partners, nuisance animal problems, Eagle Scout trail projects, building wood duck boxes with youth groups, multiple WRP/MRBI projects on hundreds of acres, working with county partners to clear trails after storm damage, and collaborating with various partners to dedicate their properties as nature preserves.

An additional **59** partners received **Technical Assistance** with their own projects from nature preserve staff, ranging from landowners, land trusts, universities, and city and county agencies. Staff presented the WREP process to area landowners, advised other landowners on potential areas to protect, assisted partners in identifying needs and location of trails and structures, invasive species workshops and control, plant ID materials and display areas, advised industry on culvert issues, and answered various information requests from the public.

There were at least **48 Inter-Agency Projects** that occurred in 2011. Some of the largest were the multi-agency mitigation project at Prophetstown Fen, the GLRI or Great Lakes Restoration Initiative, the Newport Re-Use Authority Conservation Plan, and implementation planning for the Governor's Initiative along Sugar Creek. Staff participated on the NiSource Advisory Committee for mitigation project selection, the Gary Airport expansion, and the development of a guide to critical wetlands in the coastal region. Restoration projects with state and federal partners include Calumet Prairie, BP Wetlands, DuPont Natural Area, Roxanna Marsh, Hobart Marsh, and Hoosier Prairie. A partnership with the Division of Fish and Wildlife resulted in improvement of hunter access at the Manitou Island Nature Preserve. Staff was also involved in the planning of possible introduction of the federally endangered Mitchell's satyr butterfly into the fens of suitable nature preserves.

Last year there were several projects that addressed 'natural damage'. Thunderstorms caused damage in several areas in the state and Nature Preserve staff joined Homeland Security to open roads in

McCormick’s Creek and Brown County State Parks. There was also a lot of damage in the northern part of the state, including Pokagon State Park, caused by the emerald ash borer, leaving standing dead trees in areas that were heavily used by the public. Nature Preserve staff advised State Park personnel in removal of the more dangerous trees from the park and preserve. Staff also worked with state agency personnel on invasive species control, placement of trails, rare plant surveys, forestry inventory, breeding bird counts, deer monitoring exclosures, and the dedication of four nature preserves within Fort Harrison State Park.

There were **43 Outreach Activities** in 2011. This category includes leading 21 hikes on nature preserves, 3 public dedication ceremonies, visitor interactions at nature preserves, participating in clean-up days, attending public open houses where staff had a booth, handouts and short presentations, interviews with the press, publication of articles in Outdoor Indiana, participation in the Hoosier Outdoor Experience, the State Fair Exhibit, and in local workshops on invasive species. Public dedication ceremonies were held for Ambler Flatwoods in LaPorte County, owned by the Shirley Heinze Land Trust, and for Camp Red Mill at the Little Calumet River Headwaters where a new structure was built. There was also a media day at Hoosier Prairie where NiSource made a donation towards restoration of 30 acres. And there was a book published by a staff member last year! Mike Homoya’s field guide *Wildflowers and Ferns of Indiana Forests* was released on November 10, 2011. A portion of the proceeds from the sale go to the Indiana Department of Natural Resources for land protection and stewardship (Figure 3).

**Public Access Projects** include activities that most directly affects a visitor’s experience in a nature preserve: improvement to 25 trails systems, 13 parking lots, installation of signs, gates, 2 new bridges, 2 boardwalks systems, 1 ADA trail, 2 access roads, and three hunter registration stations. Many nature preserves, in a variety of ownership types, are open and have trails that provide an excellent opportunity for nature study and outdoor recreation. See our website for information and maps [www.in.gov/dnr/naturepreserve](http://www.in.gov/dnr/naturepreserve).

**Table 1. 2011 Outreach Numbers**

<b>Activities</b>	<b>Count</b>
Presentations	28
Partner Projects	60
Technical Support	58
Inter-Agency Projects	48
Outreach Activities	40
Public Access Projects	52

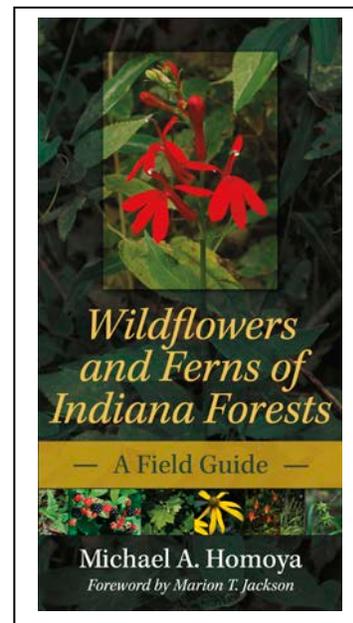


Figure 3. Book published by M.A. Homoya, 2011.

## II. INDIANA NATURAL HERITAGE DATA CENTER

The Indiana Natural Heritage Data Center collects and manages natural resource data, including rare plants, rare animals, and natural community information; this information is used to conserve the State's biological diversity. Division ecologists conduct field surveys to find and monitor endangered, threatened, and rare plants and rare and/or high quality natural communities. Information on Indiana's plants and animals is also gathered from biologists statewide; then managed using the program's Biotics software. The data are used by public and private conservationists to help guide protection efforts. The data are also used in the Department of Natural Resources environmental regulatory process to help avoid or minimize impacts to significant natural communities, rare species, and nature preserves.

### Nature Serve

Nature Serve is an international organization which serves as the umbrella structure for the network of natural heritage programs and conservation data centers in the United States, Canada, Central and South America. The organization helps to insure data consistency across the network, and also serves to provide natural heritage data to clients who need it across state and country boundaries. Nature Serve's website is broadly recognized as the best source of summary data on plant associations, plant, animal and insect species and their global significance.

### Field Notes

#### New Botanical Discoveries

An impressive population containing hundreds of plants of Canada burnet (*Sanguisorba canadensis*) was discovered in a wetland community known as a fen in Hancock County. This attractive member of the rose family is state endangered and thus known from only 1 – 5 locations in Indiana. Further north in Cass County, a new population of the state rare, forked aster (*Aster furcatus*) was discovered growing on a rich slope and forested seep, while western rockjasmine (*Androsace occidentalis*), listed as state threatened, was found at a new location in northwest Indiana's Jasper County.

During a survey of a wetland sinkhole swamp (a very rare natural community type) in southern Indiana's Harrison county, DNP ecologists found a new population of the state endangered log sedge (*Carex decomposita*). Associate species of the log sedge included additional rarities: short-horned beak rush (*Rhynchospora corniculata*) and large sedge (*Carex gigantea*). This occurrence of large sedge represents Indiana's largest known population of this species. Also in southern Indiana, the tiny aquatic, Carolina mosquito-fern (*Azolla caroliniana*) was found in Gibson County. It is state threatened. A new site was also found for the state rare, hairy lipfern (*Cheilanthes lanosa*) in Perry County. Cusp dodder (*Cuscuta cuspidata*), a perennial vine was discovered for the first time in Indiana in Jackson County. Additional populations were found in Jackson and Marion Counties.

## DNP ECOLOGISTS HELP DEVELOP WETLAND ASSESSMENT METHODOLOGY

Division of Nature Preserves ecologists completed a two year project to help develop wetland assessment methodology as part of USEPA's upcoming national wetland sampling. DNP ecologists cooperated with the Michigan Natural Features Inventory, under the leadership of Nature Serve.

Using wetland occurrence data from the Natural Heritage Program's database, wetland sites were selected across a series of wetland types and conditions. Biologists conducted field sampling of more than 100 wetland sites during a two year period. With the experience gained through the field sampling, DNP ecologists provided suggestions for improving sampling methods as well as time saving measures. The project was extremely beneficial to DNP, providing significant funding as well as updated wetland occurrence data for the Natural Heritage database.

## Monitoring

Much of the 2011 growing season was spent monitoring previously known populations of rare plant species to verify their continued occurrence and condition as well as evaluate their associated habitats and natural communities. Nearly 50 element occurrences were monitored, that included 33 state listed plants and 2 federal listed plants. Two staff members spent 22 days surveying 19 different sites for listed species and natural communities owned by a variety of partners.

Populations of four of Indiana's very rarest species were monitored during the 2011 growing season. In recent years three of these species have had only one extant occurrence in the state, while the fourth was known from only 3 extant occurrences. The latter – *Malaxis unifolia* – is a native orchid known as the green adder's mouth orchid. The largest population known occurred at Morgan-Monroe State Forest. Alarmingly, no plants were observed this year. The reason is unknown, but it's hoped that the plants are experiencing a cyclical dormancy and that they have not perished. Another orchid, the eastern prairie white-fringed orchid (*Platanthera leuchophaea*), was also absent at its only known population in the state. This fire adapted species typically blooms after a prairie fire, and a prescribed fire is planned for 2012. It is hoped that it will reappear. Populations of two native goldenrod species located in far southern Indiana, namely Short's goldenrod (*Solidago shortii*) and stout-ragged goldenrod (*Solidago squarrosa*), were found to be stable, and absent, respectively. Indiana's population of Short's goldenrod is one of only two extant naturally occurring ones on earth. Its population appears to be maintaining itself at around 200 clumps. No plants of the stout-ragged goldenrod were found during a careful search of its one known Indiana site, located in Clark State Forest. The cause of absence is unknown, but one theory is that its habitat is becoming less suitable because of accumulating leaf litter and dense shade. Severe drought may also be a cause.

## Research and Collecting Permits

Because most of Indiana's original landscape has been so altered, few natural areas exist today as they did in presettlement times. Fortunately, the Nature Preserves System has protected in perpetuity a number of high quality natural areas that link us to the past and at the same time, protect significant biological features, many of which are irreplaceable. Because nature preserves are reservoirs of biological diversity, they also serve not only as important areas for passive recreation, but also for unequalled opportunities for scientific research. A total of 76 Research and Collecting Permits were issued to researchers to permit work on dedicated nature preserves in 2011. This represents an increase of 88% from 2010 when 43 permits were issued.

## 76 Permits

118 Nature Preserves

**88%** increase in permits from 2010

70% issued to University / Non-Profit

25% issued to State and Federal Agencies

39% issued to Out of State Organizations:  
Universities or State/Fed Agencies

1 issued to International University

39% Vegetation Studies

22% Soil, Water, and Air Studies

17% Herptile Studies

10.5% Bird Studies

### Highlights: Year of Research

The surprise for research in 2011 was the increase in numbers and diversity of studies and preserves. An **88% increase** in the number of permits issued and a 20% increase in the number of preserves studied. There were 76 permits issued for 118 different preserves;

however, 48 permits were studies for multiple locations.

The diversity also extends to the permit applicants. There was a slight drop in percentage of permits to University / Non-Profit groups but an increase of 9% in those issued to state and federal Agencies. Another surprise was the jump in out of state organizations consisting of universities and state / federal agencies. There was even an international university that was issued a permit.

The range of study subjects also increased in diversity. The bulk was still in vegetation studies but ranged from acorn production, genetic sampling of several species, an increase in tree studies, to deer browsing impacts. The other subjects included soil sampling, herpetology, seismology, air and water quality, bat recordings, and many bird counts.

## Rare Animal Species Highlights

### Reptiles and Amphibians

Wildlife Diversity Section staff within the DNR Division of Fish and Wildlife conducted surveys for the state endangered ornate box turtle (*Terrapene ornata*) at several potential sites within the species historic Indiana range. In September 2011, turtles were found in at least two separate sites in black oak savanna natural communities in two separate counties in northern Indiana on State dedicated nature preserves

Biologists with the Field Museum in Chicago continued inventories of several northern and central Indiana nature preserves for reptiles and amphibians. Data analysis and results of these inventories are still being summarized.

Bird studies around the state included point count censuses and characterizations of associated habitats of previously identified Important Bird Areas, investigation of source-sink dynamics for migratory songbirds, and establishment of avian point count stations for birds and local vegetation sampling at various sites statewide, including state dedicated nature preserves.

### Mammals

DNR Division of Fish and Wildlife's Wildlife Diversity Section in conjunction with Purdue University continued monitoring of extant populations of the state endangered Allegheny woodrat (*Neotoma magister*) in southern Indiana nature preserves.

DNR Fish and Wildlife also cooperated with continuing surveys of Priority 1 Indiana bat (*Myotis sodalis*) hibernacula at select sites in southern Indiana. Indiana State University biologists surveyed potential habitat of select forest tracts in southwest Indiana for Rafinesque's big-eared bat (*Corynorhinus rafinesquii*) on State dedicated nature preserves.

## Environmental Review

<b>Lands Unsuitable Database</b> Element Occurrences (EOs)	
<b>Statistics</b>	
EOs in the INHDC database:	16,747
New records entered:	190
EO records updated:	9,394
The Natural Heritage Program Database serves as DNR's Land Unsuitable Database, for the Division of Reclamation. We continuously update and quality control the database.	
<hr/>	
<b>Natural Heritage Database Usage</b>	
Information requests:	701
Early Coordination:	654
Floodway Permit Applications:	110
Public Lake Permit Applications:	146
The database is used for permit reviews in several DNR Programs and aids in planning and site development, while minimizing impact to sensitive natural resource features.	

<b>Coal Permit Application Reviews</b>	
New Permit Applications	4
Permit Amendments	3
Permit Renewals	13
Permit Transfers	2
AML Construction Grants	1

## Ginseng Conservation

The 2011 harvest season for ginseng was 3,477 pounds reported as being harvested; twenty-eight ginseng dealers were licensed. The serious drought during the harvest season had a negative effect on the root availability. Pricing of the root started the trade season at about \$375/lb, increased to about \$475, then leveled to about \$425 by mid-season. The Division of Nature Preserves has and continues to work diligently with the Division of Law Enforcement to update the Indiana Code, the Administrative Code, and the entire ginseng regulatory process. Changes to the process have been implemented but changes to the Indiana Code have not yet occurred. The Department will again attempt these changes this coming legislative session. Consideration of changes to the IAC which would enhance the overall program is also under consideration.

### III. Nature Preserve Program

There are 242 nature preserves dedicated under state law, Indiana Code 14-31-1. This represents more than 41,632 acres spread throughout Indiana. We work closely with many others in dedicating significant natural areas, including DNR Divisions of State Parks and Reservoirs, Forestry, and Fish and Wildlife, as well as Indiana State Museum and Historic Sites, The Nature Conservancy, local land trusts, local county park systems, and colleges and universities.

The first dedicated nature preserve was Pine Hills Nature Preserve in Shades State Park dedicated in 1969. Since then, the nature preserve system has grown to be the most widely distributed system of protected lands in the state. Sixty-eight counties contain a nature preserve. More than any other reason, nature preserves are set aside to protect the plants, animals, and natural communities which are found on them, providing in perpetuity protection for the benefit of future generations. Visitation is allowed to the extent that the features can tolerate it without deterioration.

#### Overview of Indiana's Nature Preserve System as of 2011

Number of nature preserves: 242

Number of acres: 41,632

Average size: 172

#### Number of owners

46 different owners: 4 colleges and universities; 12 land trusts; 18 city/county/local governments; 1 federal agency; 2 private conservation groups/organizations; 2 state agencies. Within the Department of Natural Resources, nature preserves are owned by 6 divisions.

#### Ownership information

129 nature preserves are owned by DNR (63 by Division of Nature Preserves; 31 by State Parks and Reservoirs; 18 by Forestry; 8 by Fish and Wildlife; 7 jointly owned by Fish and Wildlife and Nature Preserves; 2 by State Museum and Historic Sites. Of land trusts, 28 are owned by The Nature Conservancy; 26 by ACRES; 5 by Shirley Heinze; 5 by CILTI; 4 by Whitewater Valley; 3 by NICHES; 2 each by Oak Heritage and Indiana Karst Conservancy, and 4 by colleges and universities. See Appendix C for complete listing of owners.

#### Interesting Statistics

Smallest nature preserves:	German Methodist Cemetery Prairie	1.01 acres
	Smith Cemetery Prairie	1.1 acres
	Orangeville Rise	3.02 acres
Largest nature preserves:	Ten O'clock Line	3,339 acres
	Rocky Hollow-Falls Canyon	1,608 acres
	Fourteenmile Creek	1,602 acres
	Dunes	1,530 acres
	Minton	1,301 acres
	Whip-poor-will Woods	908 acres
	Thousand Acre Woods	933 acres
Thomastown Bottoms	888 acres	

## Natural Community Types found in the Nature Preserve System

### Dunes Ecosystem

Lakefront, Beach, Foredune, High Dune, Prairie, Swamp Forest, Savanna and Marsh natural communities are protected in *Dunes Nature Preserve*;

Interdunal Ponds and Dune and Swale complexes are protected at *Pine Station and Clark and Pine Nature Preserves*.

Sand Prairie and Sand Savanna complexes: *Bill Barnes, Tefft Savanna, Hoosier Prairie, Stoutsburg Savanna, Liverpool, Beaver Lake, and Conrad Savanna. Kankakee Sands Wetland and Prairie Restoration* connects these complexes.

Dune and Swale complexes are represented at *Gibson Woods, Ivanhoe and Tolleston Ridges*..

Coastal Plain Pond: a very rare natural community throughout the entire Midwest, *Coastal Plain Ponds Nature Preserve*

Burr Oak Savanna: a rare community in Indiana, is found at *McCloskey Savanna*

### Glacial Morainal Complex

*Moraine Nature Preserve* includes Pond, Fen, Upland Forest, and Seep;

*Spicer Lake* protects an excellent Kettle Lake;

### Lakes and Wetlands

*Chain of Lakes: Trine; Wing Haven/Seven Sisters/Marsh Lake*

Undeveloped natural Lake: *Olin Lake*

Marl Beach: *Loon Lake*

Bog: *Elkhart Bog*

Fen: *Mongoquinong; Prophetstown; Potawatomi*

Floating Mat: *Pipewort Pond; Boot Lake; Chamberlain Lake*

Northern Forested Swamp: *Marsh Lake; Ropchan; Tamarack Bog*

Sedge Meadow: *Hoosier Prairie; Bill Barnes*

Marsh: *Manitou; Big Chapman Lake*

Seeps: *Jordan Seeps; Wening-Sherrit;*

Springs: *Big Spring; Charles Spring*

Wetland Complexes: *Manitou/Bob Kern/Judy Burton; Ball Wetlands; Swamp Angel*

### Glacial Landscape

*Potawatomi Marsh* contain examples of Pond, Swamp Forest, Fen, Sedge Meadow, Marsh, and Upland Forest

### Forested Ecosystems

Large complexes of Upland Forest types are included in *Ten O'Clock Line; Low Gap; Rocky Hollow-Falls Canyon; Brock-Sampson Nature Preserves*

Old Growth Forests: *Donaldson Woods; Kramer Woods; Wesselman Woods; Shrader-Weaver Woods*

Southern Swamp Forest/Cypress Swamp: *Twin Swamps; Wabash Lowlands; Buffalo Pond*

Flatwoods: a forest type in which a shallow hardpan restricts root growth and results in a unique forest type

Flatwoods Types:

Bluegrass Till Plain: *Guthrie Woods, Versailles Flatwoods, Chelsea Flatwoods*

Boreal: *Ambler Flatwoods*

Central Till Plain: *Bryan Woods, Bell-Croft Woods, Stout Woods*  
Dry Flatwoods: *Bloomfield Barrens*  
Sand Flatwoods: *Bill Barnes*  
Southwestern Lowland: *Section Six Flatwoods*

### **River Landscapes**

*Tippecanoe River; Fawn River; Fourteen Mile Creek; Pigeon River (Mongoquinong Fen); Blue River Gravel Wash*  
Sugar Creek Corridor: *Mossy Point; Rocky Hollow-Falls Canyon; Pedestal Rock; Pine Hills*  
(protects Floodplain and Upland Forest, Seep, Fen, Canyon, Waterfall)  
Cedar Creek: *Dustin; Rodenbeck; Barrett*  
River Bluff: *Deam's Bluffs*

### **Karst Landscape**

These areas are underlain by limestone, characterized by Sinkholes and Caves: *Mitchell Sinkhole Plain; Donaldson Woods and Donaldson's Cave; Wolf Cave.*  
Caves: *Buddha; Donaldson's; Scout Mountain*  
Sinkhole Pond – Indiana's rarest natural community – *only 1 known example: The Nature Conservancy owns 1/3 of this community, Three-Way Sedge Swamp. Not dedicated*

### **Glades and Barrens**

Limestone Glade: *Mosquito Creek; Teeple Glade; Leavenworth Barrens*  
Sandstone Glade: *Armstrong Glade*  
Chert Barrens: *Flint Barrens*  
Clay Barrens: *Bloomfield Barrens*  
Gravel Slope Barrens: *Wea Creek; Lookout Point*  
Sand Barrens: *Granville Sand Barrens*  
Siltstone Glade and Knobstone Glade: *Minton*

### **Prairies**

Black Soil/Loam Prairie is one of Indiana's rarest natural communities; Gravel Prairies were one of the rarest types of prairies in Indiana even during pre-settlement times.  
Mesic Prairie: *German Methodist Cemetery Prairie; Cressmoor Prairie; Smith Cemetery Prairie; Biesecker Prairie*  
Gravel Prairie: *Wabash Breaks*  
Black Soil Prairie: *German Methodist Cemetery Prairie; Cressmoor Prairie; Biesecker Prairie*  
*Gravel Prairie: Wabash Breaks*

### **Geologic Features**

Natural Bridges/Arches: *Portland Arch; Yellow Birch Ravine*  
Waterfalls: *Clifty Canyon; Hathaway Ross Run; Anderson Falls*  
Karst: *Orangeville Rise of the Lost River*  
Rock Columns: *Jug Rock*  
Backbones: *Pine Hills*

## **Gap Analysis ~ Protecting Natural Communities**

There are nature preserves in every natural region in Indiana except the Black Swamp Natural Region, (Appendix B-Map 2). A natural region is a major, generalized unit of the landscape where a distinctive assemblage of natural features is present. It is part of a classification system that integrates several

natural features, including climate, soils, glacial history, topography, exposed bedrock, presettlement vegetation, species composition, physiography, and flora and fauna distribution to identify a natural region. A section is a subunit of a Natural Region where sufficient differences are evident such that recognition is warranted. The map (Appendix B, Map 2) illustrates the twelve natural regions and twenty-five sections determined in 1984 (Homoya, et al., 1984).

A natural community is a group of organisms, flora and fauna, that are interrelated with each other and their environment. They are identified by such natural features as soil moisture and reaction, substrate, species composition, vegetation structure and topographic position. Some natural community types can be distributed across multiple regions, for example mesic prairies or upland forests. This distribution may represent the limits of these communities that provide habitat for species not commonly found in a natural region or section.

The Division of Nature Preserves and Indiana Natural Heritage Data Center (INHDC) are responsible for tracking, monitoring, and recording Indiana's natural communities, and the endangered, threatened, and rare (ETR) plants, vertebrate and invertebrate animals. The number of native populations of a plant is used to assign the ranking of ETR; endangered has 1 – 5 populations, threatened has 6 – 10 populations, and rare has 11 – 20 populations. Botanists and ecologists scour the state every year, searching for new and previously known populations of ETR plants. When field scientists from around the state return from their searches, they bring with them "records" of their findings which are added to the Indiana Natural Heritage Database's 16,000+ existing records. The DNP seeks to protect and/or purchase lands supporting natural communities with populations of ETR plants.

The Division undertook a gap analysis last year to identify the 'gaps' that have not yet been protected. In 2011, the Indiana Heritage Trust Foundation partnered with ACRES Land Trust to acquire a property in the Black Swamp Natural Region along the Maumee River in Allen County. While this property has not yet been dedicated, it does close a significant gap for the Division being the first nature preserve in the Black Swamp Natural Region (Appendix B). The natural features include a natural spring, upland forest, bottomland forest with wetlands, flatwoods, and riparian habitat along the Maumee River that provides nesting for migratory birds. This will be on the inventory list for 2012 to more clearly identify community types.

## **2011 Nature Preserve Dedications**

**2,362.6 Total Acres**

There were 10 dedications in 2011 for seven new preserves and three additions to existing preserves for a total of 2,362.6 acres. Among those new preserves, protection has included 10 high quality natural communities, 39 Plants that are endangered, threatened, rare, or on the watch list, 9 birds and 6 mussels that are state endangered or of special concern, 3 mammals of the same ranking, 1 herptile, and 1 fish of state endangered ranking.

### **Seven New Preserves 2011.**

**1,403.91 acres**

#### **Allee Woods Nature Preserve**

This 162 acre preserve, located near the town of Annapolis, in Parke County, contains deeply dissected ravines, sandstone canyons, stands of hemlock trees, and old growth mesic upland forest. It is considered one of Indiana's highest quality natural areas and was included in "Natural Areas in Indiana and Their Preservation" by Lindsey, Schmelz and Nichols, and given a number 1 priority rating. Allee

Woods was donated to Wabash College in 1957 by the heirs of Dr. Warder C. Allee, an eminent ecologist and author. The preserve is also within the project boundaries of Governor Daniels' Healthy Rivers Initiative Conservation Project. Its immediate neighbors are Mossy Point Nature Preserve, owned by the Central Indiana Land Trust (CILTI) on the south, and Division of Forestry owns property on its north and east boundary. This preserve is owned and managed by Wabash College; visitor permission must be obtained from Wabash College.

### **Bluffs of Fall Creek Nature Preserve**

This 153.25 acre preserve, located in the northwest corner of the Fort Harrison State Park within Marion County, protects the stream corridor of the Fall Creek Valley and an important block of forested habitat in Indiana's Central Till Plain. It consists of topography that has heavily dissected slopes and ravine forests along with the floodplains of Fall Creek and its confluence with Mud Creek. These community types along with their expected component flora and fauna contain many species that are area-sensitive forest interior plants and animals dependent upon large, unfragmented forest ecosystems. This site is utilized as nesting habitat by neotropical migrant birds, potential bat habitat, and several species of mussels of high conservation value. This tract is owned and managed by the DNR Division of State Parks and Reservoirs.

### **Chinquapin Ridge Nature Preserve**

This nature preserve is a 119.93 acres property in the northeast corner of the Fort Harrison State park within Marion County that protects the stream corridor of the Fall Creek Valley and an important block of forested habitat in Indiana's Central Till Plain. It has topography consisting of heavily dissected slopes and ravine forests along with the floodplains of Fall Creek and its confluence with Indian Creek. These community types along with their expected component flora and fauna contain many species that are area-sensitive forest interior plants and animals dependent upon large, unfragmented forest ecosystems. This preserve has a high conservation value as a nesting site and contains a heron rookery; also, this stretch of Fall Creek is home to several species of mussels. This tract is owned and managed by the DNR Division of State Parks and Reservoirs.

### **Harmonie Hills Nature Preserve**

This preserve is 334.79 acres located within the boundaries of Harmonie State Park, near New Harmony, Indiana. It contains one of the largest tracts of mature mesic upland forest in the Southwestern Lowlands Natural Region and protects several fish species in Road Brook, along with unusual plant species. This tract is owned and managed by the DNR Division of State Parks and Reservoirs.

### **Lawrence Creek Nature Preserve**

This preserve of 232.35 acres in the southwest corner of the Fort Harrison State Park within Marion County protects the Lawrence Creek drainage, an important part of the Fall Creek watershed and along with a block of forested habitat in Indiana's Central Till Plain. It consists of heavily dissected slopes with ravine forests along the botanically-rich Lawrence Creek drainage with a small area of till plain flatwoods within the unit along with their expected component flora and fauna. Many of these species are area-sensitive forest interior plants and animals dependent upon large, unfragmented forest ecosystems and the site is utilized as nesting habitat for a suite of neotropical migrant birds. This tract is owned and managed by the DNR Division of State Parks and Reservoirs.

### **Wabash Border Nature Preserve**

This preserve is 254.62 acres located within the boundaries of Harmonie State Park, near New Harmony, Indiana and protects a mature dry-mesic upland forest and mesic ravine forest, and wet floodplain forest bordering the Wabash River, and contains several rare plants. This tract is owned and managed by the DNR Division of State Parks and Reservoirs.

### **Warbler Woods Nature Preserve**

This preserve is 136.2 acres in the center of Fort Harrison State Park within Marion County and protects the stream corridor of the Fall Creek Valley and an important block of forested habitat in Indiana's Central Till Plain. It consists of topography that is highly dissected with gentle slopes, mesic floodplain forests and flatwoods forest within the unit along with their expected component flora and fauna. Many of these species are area-sensitive forest interior plants and animals dependent upon large, unfragmented forest ecosystems. There is also a high quality herbaceous layer with spring ephemerals. This site is utilized as nesting habitat by neotropical migrant birds, while the riparian areas are home to several important species of mussels. This tract is owned and managed by the DNR Division of State Parks and Reservoirs.

## **Three Additions to Existing Preserves 958.69 acres**

### **Boot Lake Nature Preserve Addition**

This preserve addition of 75.53 acres in the northwest corner of Elkhart County, 2.5 miles from the City of Elkhart, protects two rare types of wetlands known as hydric peaty muck flats and hydric peaty sand flats which support disjunct Atlantic Coastal Plain plants, also buttonbush swamps, associated upland woodlands and fields, and a prairie restoration. This nature preserve will ensure protection and preservation of significant natural resources as well as animal and plant species sharing the same watershed and wetland associated uplands. The preserve is owned by the City of Elkhart and is under the administration of the Director of Public Works and Utilities for the City of Elkhart.

### **Conrad Savanna Nature Preserve Addition**

This preserve addition is 140 acres located immediately to the south of the existing Conrad Savanna Nature Preserve, just west of US 41, and protects a tract that contains black oak sand savanna and sand prairie, as well as some former agricultural fields. This addition to the existing Nature Preserve makes it one of the largest black oak savanna complexes remaining in Indiana. The topography consists of rolling sand dunes and sand flats. Savannas are characterized by widely spaced, open-grown trees, with very little woody understory. The widely spaced trees create an openness that allows grasses, sedges, and wildflowers common to sand prairies to be a major component of the flora. Fires are a normal part of the existence of savannas, and they are responsible for maintaining the open character of these natural communities. Prescribed burning is undertaken by DNR to maintain this habitat. It is owned and managed by the DNR Division of Nature Preserves.

### **Fourteenmile Creek Nature Preserve Addition**

This preserve addition is 743.16 acres located within the boundaries of Charlestown State Park, near Charlestown and adjacent to the original Fourteenmile Creek Nature Preserve of 858.63 acres. The topography contains a much dissected landscape comprised of deep ravines, sinkholes on relatively level uplands, and caves, with tributaries to Fourteen Mile Creek and frontage on the Ohio River. The high quality natural communities found here include limestone glades, caves, and mesic upland forest. A

number of plants of high conservation value along with cave invertebrates have been documented on the nature preserve. It is owned and under the administration of the DNR Division of State Parks and Reservoirs.

## Indiana Heritage Trust Program

The Indiana Heritage Trust (IHT) Program is the primary program that funds land acquisition for the Division of Nature Preserves and our partners. This unique program is funded through the purchase of Indiana’s environmental license plate: the bald eagle and sun on the blue background. This program funds much of the land acquisition for DNR’s Divisions of State Parks and Reservoirs, Forestry, Fish and Wildlife, Outdoor Recreation, Museum and Historic Sites, and Nature Preserves.

### Land Acquisition

In 2011, the Division of Nature Preserves forged IHT partnerships with a number of partners to help acquire seven parcels of ground with significant features. Those sites, the ecologic types of features they contain, their locations and sizes, and the partners involved, are shown in the following Table 2.

### Healthy Rivers Initiative

Governor Daniels initiated this large scale land conservation project in several project areas: the Muscatatuck River, the Wabash River, and Sugar Creek. A partnership of DNR, NRCS, TNC and other partners are working with landowners to protect significant natural lands and natural areas.

### Other Land Protection Initiatives: Mitigation

Home Depot acquired one of the last remaining unprotected prairies in Indiana and donated it to DNP as mitigation for filling ‘dune and swale wetlands’ in Lake County. The tract is located in Highland and valued at \$360,000.

**Table 2. Indiana Heritage Trust partners, the ecological features, county of location and acreage of protected sites.**

Site	Partners	Ecological Feature	County	Acreage
Eagle Marsh Addition	Little River Conservancy, TNC	Forested Wetland	Allen	11
Ambler Flatwoods Addition	Heinze Land Trust, TNC	Boreal Flatwoods	LaPorte	40
Blue Cast Springs	ACRES Land Trust	Upland Forest, Bottomland Forest, Spring, Heron Rookery	Allen	83
Shalom Woods	CILTI	Upland Forest (dry, dry-mesic, mesic), Bottomland Forest	Morgan	68

*TNC: The Nature Conservancy; CILTI: Central Indiana Land Trust Incorporated;*

## IV. NATURE PRESERVE MANAGEMENT

Managing and caring for a nature preserve is one of the most important functions of the Division of Nature Preserves. The eight regional ecologists are kept busy with this work all across Indiana (Appendix A, Map 1). They care for numerous preserves found within large geographic areas covering many counties, working with many partners. This report deals primarily with what they have accomplished on nature preserves they are directly responsible for, and including preserves where they have worked with partners.

Regional ecologists are trained in many areas, including prescribed burning, chain saw use and safety, herbicide application, and use of heavy equipment. Stewardship activities include eradicating invasive species, woody species control, and restoration of native ecosystems. Collectively, in 2011 the regionals have conducted stewardship activities on over 3,800 acres and maintained over 23 miles of fire lanes (Table 3).

They also supervised seasonal work crews, and installed trails and boardwalks, parking lots, signs and fences. Restoration includes streambank stabilization, reconstructing presettlement natural communities, and long-term planning incorporating the native planting of wetlands, trees, prairie, and riparian systems. Monitoring of these systems and the invasive pressures are key to long-term success of rare species and the natural communities upon which they depend. They are also heavily involved with conservation planning and public outreach. Conservation planning has contributed to multiple partner projects and provided technical assistance to partner DNR divisions and agencies.

**Table 3. Stewardship activities and acreage.**

Invasive Species Controlled		Woody Species Controlled	
Acreage	Properties	Acreage	Properties
3,432.90	136	1,228.70	26

### Invasive Species Control

Numerous invasive species continue to invade natural areas and the list of species of concern seems to grow every year. Control does not mean eradicate, control means to maintain invasive species at a level where they do not threaten the natural communities of the preserve. Complete eradication is practically impossible and prohibitively expensive unless the population to be controlled is relatively small.

Sometimes, a species is an extreme threat and risk outweighs cost, for example the woolly adelgid and the threat to native hemlock stands. Fortunately, woolly adelgid has not yet been found in Indiana's hemlock stands.

This year, regional ecologists aimed eradication and control efforts at 3,432.90 acres on 136 properties for the following species, at numerous nature preserves: garlic mustard, Canada thistle, glossy buckthorn, bush honeysuckle, Japanese honeysuckle, teasel, phragmites, white sweet clover, yellow sweet clover, autumn olive, knapweed, crown vetch, sericea lespedeza, Japanese stiltgrass, reed canary grass, moneywort, bouncing bet, tree-of-heaven, brome grass, ground ivy, privet, purple loosestrife, oriental bittersweet, multiflora rose, amur cork tree, tall fescue, Johnson grass, scurf pea, burning bush, hybrid cattail and Japanese chaff flower.

## **Emerald Ash Borer**

The spread of emerald ash borer is having the following effects on nature preserve management. Death of ash trees will change the composition (no more ash) and openness of the forest canopy. Where invasive shrubs, such as multiflora rose, are present in small quantities, increasing light reaching the forest floor will favor these species in the short run. We are increasing efforts to control those species so they do not fill in the gaps before the native species have a chance. Planning is underway to start that work at Potawatomi NP in Pokagon State Park in 2012. Where ash trees are near heavily used areas and structures they have to be felled for safety. Where ash is not in heavily used areas they are being left to fall on their own. Ash trees are dying in large quantities at Binkley Bog, Olin Lake, Crooked Lake and Lagrange County Nature Preserves. A systematic survey would be sure to turn up many more preserves.

## **Woody Species Control**

Woody succession of and invasion into prairies, glades, wetlands, and other types of natural communities continually needs to be addressed. Typically, this is done by prescribed fire, mowing, and applying herbicide to cut stems. The regional ecologists did woody control work on at least 1,828.70 acres on 26 nature preserves. The typical species of concern vary from region to region but primarily include autumn olive, honeysuckle, mulberry, locust, glossy buckthorn, cedar, sassafras, black cherry, aspen, cottonwood, and in certain areas redbud, river birch and shagbark hickory.

## **Prescribed Burns**

Historically, Indiana's natural areas burned frequently due in part to natural causes such as lightning strikes, especially savannas and grasslands. Soil samples and tree-ring analyses reveal that Indiana's grasslands burned, on average, every two years, while savannas appear to have burned at least once every three to five years. There is strong evidence that Native Americans encouraged habitat productivity by deliberately setting fire to their hunting and gathering grounds.

European settlement altered the natural fire cycle by replacing native plants with cultivated crops as well as suppressing wildfires. Because fire is a critical component to healthy Indiana ecosystems maintaining an early successional state and what is known as "nutrient cycling", the face of natural areas has changed in its absence. The Division of Nature Preserves, charged with maintaining the ecological integrity of some of Indiana's most valuable natural areas, employs a system of prescribed burning mimicking regenerative, pre-settlement fires.

To ensure the utmost safety, Division of Nature Preserves staff undergoes extensive controlled-burn training through the US Forest Service, National Park Service, and the Indiana Division of Forestry.

The Fall 2011 and Spring 2012 burn season was challenging due to the unusual weather patterns. Our plans were ambitious, and called for burning over 2,200 acres on 40 separate burn blocks at 24 different properties. As is normal, the fall burn season was extremely poor with only one small burn getting done. The mild winter with little snow got us off to an early start in 2012, and three different burn blocks were burned on January 10th! In February, we completed the landscape burn (220 acres) at Leavenworth Barrens.

During a nice string of weather during the last half of March several more burns were accomplished. Unfortunately, the hot weather in early March had put spring ahead enough that the burn season was called off almost three weeks earlier than normal due to early emergence of many animals such as box turtles and glass lizards.

Although it was a disappointing burn season in many ways, it was not without positive attributes. Cooperation among different DNR Divisions continues to be an excellent story. And cooperation with our partners, both within government agencies and with our partner land trusts is also great. Here are two examples of the great cooperation enjoyed this burn season: 1) The Leavenworth Barrens landscape burn had individuals on it from Nature Preserves, Fire Headquarters, Harrison-Crawford State Forest, Clark State Forest, Jackson-Washington State Forest, Charlestown State Park, and The Nature Conservancy, and 2) The Dunes Prairie burn had folks from Nature Preserves, Fire Headquarters, Indiana Dunes State Park, Tippecanoe River State Park, Indiana Dunes National Lakeshore, Shirley Heinze Land Trust and Portage Parks. Pulling together such diverse crews and then executing successful burns require a lot of coordination, but it results in some excellent teamwork and in getting important management completed.

Another success story for Division of Nature Preserves is our large source of “in house” fire-trained staff, including full time, part time and intermittent employees. A good example of the potential of this resource was evident on the Conrad Savanna burn where a crew of 11 was entirely made up of DNP staff.

#### **SUMMARY:**

Burns done with DNP in charge, or DNP oversight: 28 blocks, 16 properties, 997 acres  
Burns done by others, through contract: 4 properties, 33 acres

**TOTAL ACRES BURNED: 1030**

### **DNP SECURES PITTMAN-ROBERTSON WILDLIFE RESTORATION GRANT**

Thanks to the Division of Fish and Wildlife, the Division of Nature Preserves received a Pittman-Robertson grant which started in April, 2010 and will run through June, 2012. The grant, entitled “**Wildlife Restoration Activities on Natural Areas**”, focused on wildlife habitat restoration activities, including prescribed burning as well as invasive species and woody plant succession control methods on several nature preserves where hunting is permitted as part of the preserves’ management plans.

With roughly one half of the grant completed, there have been more than 2,000 acres of wildlife habitat that have benefitted from prescribed fire and invasive species/woody plant succession control activities; these activities having been completed on 26 nature preserves. Grant funds have helped DNP significantly offset budget shortfalls, helped DFW meet grant match goals, and helped restore some very important natural areas throughout the state.

### **Restoration Projects**

There were a variety of restoration projects taking place across the state. Regional ecologists were very busy with new and ongoing restoration projects on nature preserves. Some of these projects are in conjunction with our partners. The following is a brief listing of those projects.

## **Northeast Region**

'Stewardship cluster' working with staff from State Parks and Reservoirs and Fish and Wildlife, along with several partner non-profits, assisted with a grant proposal to EPA for GLRI funds to conduct natural area restorations at state-owned properties and nature preserves owned by land trusts in NE Indiana and SW Michigan, saving thousands of dollars and restoring hundreds of acres at Pokagon, Pigeon River, and many nature preserves.

Staff removed a number of trees from the wetland at the Trine Recreation Area and Pokagon State Park. This resulted in connecting two small fens and restoring them to their original size.

Worked with President of the Tri Lakes Association to salvage and move a floating boardwalk from a closing camp to Elkhart Bog Nature Preserve. This will improve public access and safety to the preserve.

Two truckloads of trash were removed from Pipewort Pond Nature Preserve with the help of staff and volunteers from Bethany Christian High School and the Elkhart County Parks staff.

## **Southwest Region**

White wild indigo seedlings were reintroduced into Flint and Perseverance Barrens.

Native seeds were collected at Leavenworth Barrens and prepared for planting in spring of 2012 for fifteen acres of restoration.

Seeds from 10 appropriate species were collected and introduced into Prairie Creek Barrens to increase diversity.

Beaver dams were controlled at Twin Swamps.

The buffer around Hemmer Woods Nature Preserve was planted in trees. The regional ecologist also received mine safety training to enable him to safely work within 300 feet of an active mine, thus allowing future stewardship activities at Hemmer Woods.

## **East Central Region**

Sedge meadow / wet meadow seed mix and plugs were planted on 85 acres of six separate sites.

Problem areas were repaired on three Wetland Restoration Program projects.

## **Southeast Region**

Volunteers planted 400 trees at Calli Nature Preserve, Jennings County. The trees had been donated by a consultant forester. The value of this project exceeded \$1000.

Staff worked with partners from The Nature Conservancy to install access to a kudzu infestation at Minton Nature Preserve in Floyd County. This allowed the contractor to begin eradication of the kudzu. This effort was valued at \$5,000.

FEMA approved the road and culvert rebuild project at Minton Nature Preserve, Floyd County. DNR was reimbursed at least \$5,000 for our cost in replacing the flood damages.

## **Grand Calumet Region**

US Army Corps of Engineers let a contract to restore nearly 150 acres at Calumet Prairie, Lake County, as part of the Great Lakes Restoration Initiative (GLRI).

Staff participated in restoration of Hobart Marsh, Roxanna Marsh, Calumet Prairie, BP Wetlands, and DuPont Natural Area including attendance of meetings, providing technical advice for the projects, and monitoring results of restorations.

## **Central Region**

A 30 acre former field was reforested at Big Walnut Nature Preserve.

The re-use authority for the Newport Chemical Depot partnered with DNR and other partners to conserve 1,700 acres of high quality forest. Portions of the area will be restored to prairie and wetland communities.

Prophetstown Fen wetland mitigation –46 acres of hydric soils were restored into fen and marsh wetlands, in cooperation with INDOT, IDEM, and DNR.

## **Northwest Region**

NIPSCO's GoGreen program offered to donate \$10.00 to The Nature Conservancy for each customer who chose to go paperless for monthly billing. The resultant funds, \$50,000, were to be used in the service area of customer donation and towards a visible conservation effort. The project chosen was restoration of a portion of Hoosier Prairie. Thirteen acres of brush removal and treatment was conducted in 2011 with a follow-up treatment in the spring of 2012.

## **Mitchell's Satyr Butterfly**

Mitchell's satyr butterfly is a federally endangered butterfly with the bulk of its populations restricted to southern Michigan. Indiana historically had several sites, but is down to one known site on privately owned property in Lagrange County. The butterflies are generally found in sedge dominated prairie fen natural communities. Those communities are rare and declining in the lower Great Lakes region.

A group called the Mitchell's Satyr Working Group meets once a year in the spring in Lansing, Michigan. The group is a diverse group representing federal and state agencies, land trusts, universities, and others interested in the fate of this butterfly. Those meetings were attended by staff as a representative of Indiana DNR in 2011.

The Working Group is interested in doing introductions and/or re-introductions of the butterfly into suitable habitat in Michigan and Indiana to see if populations can be successfully expanded. The Toledo Zoo will raise butterflies in controlled conditions for release as adults into suitable habitats. They have been successfully doing this with Karner blue butterflies for approximately ten years now, and they have successfully raised Mitchell's satyrs in preparation for doing releases of them in the future. Plans are progressing for releases in Michigan and Indiana, and it is hoped that the first release can be done in 2013 with at least one release site being in Indiana. Some members of the working group plan to scout out a few suitable sites in Indiana during the summer of 2012 in order to help with selection of a site for release.

## **Monitoring and Management**

### **Deer Monitoring**

Deer exclosures have been installed in a number of nature preserves and state parks. Regional ecologists monitor them annually, comparing deer browse on vegetation inside and outside the exclosure to determine whether deer browse on vegetation is excessive. Many nature preserves are open to deer hunting, which has resulted in recovery of vegetation that has been over-browsed by deer. Monitoring helps document these changes.

2011 Deer Hunts were held at: Twin Swamps, Wabash Lowlands, Section Six Flatwoods, and Conrad Savanna, as well as many nature preserves within State Parks, Forests, and Fish and Wildlife Areas.

### **Hogweed Monitoring and Eradication**

Giant hogweed (*Heracleum mantegazzianum*), a member of the carrot family, is an invasive species introduced to North America from the Caucasus region of Eurasia in the early 1900's. It escaped from cultivation and invades rich moist soils along roadside ditches, stream banks, and open woodlands. It is a public health hazard, as it can cause severe skin irritation. It has been declared a federal noxious weed, unlawful to propagate, transport or sell, but it is spreading on its own. With the assistance of a grant from USDA, DNP staff spent 287.25 hours monitoring the state, looking for populations, and when discovered, to eradicate it. In 2011, staff worked on its removal from several populations in northern Indiana.

### **Eastern Hemlock Monitoring**

Eastern hemlock is a rare coniferous species known from only a few populations in Indiana. White-tailed deer favor this species, and deer browsing has caused its decline in certain areas. Additionally, the woolly adelgid, an invasive insect pest, has decimated hemlock populations in the southeastern United States. DNP ecologists, and many of our partners, annually monitor hemlock populations, to ascertain whether the woolly adelgid has arrived in Indiana. It has been detected in one area in Northwest Indiana in a residential yard. Early detection is hoped to eradicate it before it is able to destroy our native hemlock populations.

## **Technical Assistance**

One of the services that regional ecologists provide is technical assistance to our partners on their own projects. The following is a brief listing of some of those projects where assistance was rendered:

1. Contacted and presented Wetland Restoration Enhancement Program process to area landowners
2. Met with landowners for potential pothole areas to protect
3. Answered information requests from the public
4. Assisted partners by identifying needs and location of trails and structures
5. Advised ACRES Land Trust on brush control contract at Clock Creek
6. Advised Gene Stratton Porter naturalist on plant ID materials
7. Advised Indy Parks on cattail control
8. Consulted with Angola Tree Board, Stueben County 101 Lakes, TNC, NICHES
9. Advised District Wildlife Biologist on wild plum control

10. Advised consultant on Teibel wetland
11. Advised NIPSCO on possible wetland fill
12. Coordinated with NIPSCO on culvert issue at Hoosier Prairie
13. Ft Harrison – Lawrence Creek trails issues ongoing met with SPR and HMBA onsite
14. Represented DNP in multiple meetings with various groups
15. Bedford Parks, invasive species workshop
16. Wetland's Class test with staff from Ball State University
17. Assisted Merry Lea Environmental Learning Center with non-native Phragmites Identification
18. Consulted with Eagle Marsh on brush control mowing
19. Worked with MHS for display area about wetland science for visitors
20. Advised Salamonie Wildlife Biologist on brush control
21. Worked with Taylor University to develop a new GIS map for purple loosestrife eradication
22. Supported national efforts to develop a biological control for garlic mustard

## Conservation Planning

Regional ecologists with DNP were involved with a number of partnerships and projects in 2011; some of these included:

1. Re-use of the decommissioned Newport Chemical Depot in Vermillion County, where a portion of the property is being recommended for conservation use. This project secured a 1,700 acre conservation area and a larger Bat Protection Zone.
2. The Sugar Creek Corridor, in Parke County, which is included in Governor Daniels' Healthy River Initiative.
3. The Muscatatuck River Corridor, in Scott, Washington, and Jackson Counties, which is included in Governor Daniels' Healthy River Initiative.
4. NiSource Habitat Conservation Plans, helping to conserve and mitigate for impacts to endangered species. John Bacone, Division Director, is an Advisory Board Member.
5. Home Depot acquired one of the last remaining unprotected prairies in Indiana and donated it to the Department, as mitigation for filling 'dune and swale wetlands" in Lake County. The tract is located in Highland.
6. Staff participated in restoration of Hobart Marsh, Roxanna Marsh, Calumet Prairie, BP Wetlands, and DuPont Natural Area. This included attendance of meetings, providing technical advice for the projects, and monitoring results of restorations.
7. Celery bog restoration planning with West Lafayette Parks staff.
8. Marott Park worked with Indy Parks to build justification and met with a landscape architect and consultant onsite to go over problems and provide design restrictions and parameters for a large restoration project.

9. Met with staff from State Parks and Michigan DNR regarding possible introduction of the federally endangered Mitchell's satyr butterfly into fens at Pokagon, Trine, and Marsh Lake nature preserves.

## **Personnel changes during 2011**

- current for 2012

Derek Nimetz has moved to the Coastal Regional Ecologist position, formerly filled by John Ervin.

Emily Stork started as the Grand Calumet Regional Ecologist.

Robin Wilson accepted the Protection Director position, formerly filled by Ben Eddy.

Charlotte Lemieux accepted and left the Operations Manager position with the Lake Michigan Coastal Program, the position will be filled soon.

Jenny Orsburn LMCP Grants Specialist has moved to be Director of Portage Parks. The Grants Specialist position was filled by Maggie Byrne.

## **Awards and Honors**

Central Regional Ecologist, Tom Swinford was awarded the Employee of the Year from the Bureau of Land Management for his work with the Newport Re-Use Authority.

East Central Regional Ecologist, Ken Brunswick received the Ducks Unlimited Conservationist of the Year award for his efforts throughout the region.

## COASTAL PROGRAM

### LAKE MICHIGAN COASTAL PROGRAM - LMCP

The U.S. Congress makes available to states and territories with approved coastal zone management programs, funds for competitive grants for community-based coastal activities. Funding and oversight are provided by the National Oceanic and Atmospheric Administration (NOAA), Office of Ocean and Coastal Resource Management (OCRM). Projects must be consistent with the goals and objectives of the Coastal Zone Management (CZM) Act of 1972 (CZMA, 16 U.S.C. §1451 et seq.) and meet the requirements of the CZM Program administered by OCRM.

The Vision of the LMCP is to provide technical, financial and programmatic assistance to ensure that the Lake Michigan coastal area is thriving for future generations. In so doing the LMCP staff participated in a number of events, oversaw projects, and provided funding to empower partner initiatives.

#### Coordination, Education, and Training Events Sponsored by LMCP:

Measure	Number	Participants
Coordination	69	132
Education	91	1,779
Training	7	81

#### Funding Expended in 2011 by Category:

Category	Amount
Government Coordination	\$343,000
Public Access	\$323,000
Coastal Habitat	\$630,000
Coastal Dependent Uses/Development	\$235,000
Coastal Hazards	\$91,000

#### Lake Michigan Coastal Program (LMCP) Assists with Two Meetings of Regional Importance

The summer and fall of 2011 was busy for the LMCP staff. They provided support to the Coastal Zone 2011 Conference in Chicago July 17-21. The CZ11 conference drew over 1,100 coastal managers and practitioners. Program staff hosted a field trip to the Indiana Dunes region on Sunday for 25 of our colleagues. In addition, program staff served as session presenters, reviewers, and onsite photographers.





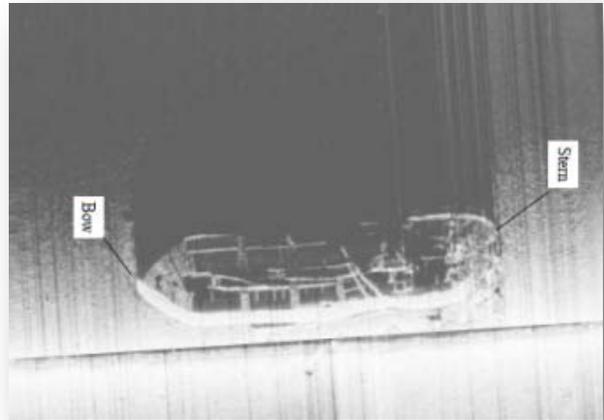
The LMCP staff partnered with Indiana Department of Environmental Management staff, Illinois Indiana Sea Grant, USGS, Save the Dunes, Shirley Heinze Land Trust, and the Michigan City LaPorte County Tourism Bureau to host the 2011 State of Lake Michigan and Great Lakes Beach Association Joint Conference in Michigan City. The conference drew 325 attendees to the Blue Chip Hotel and Stardust Conference Center. LMCP staff hosted the event, presented sessions, and led field trips to various sites in the coastal area.

Each year a substantial portion of our total federal award is set aside for the Coastal Grants Program. The LMCP Coastal Advisory Board hosts a public input session each year to set priorities for grant projects. The program developed an online mapping tool that includes a majority of projects funded to date. Over the past two years the program staff developed project fact sheets for each of the list projects. This outreach effort is geared towards showing program success and helping inform the public of the types of projects funded over the past ten years. The map is located at: <http://www.in.gov/dnr/lakemich/6044.htm>

The screenshot shows the Indiana Department of Natural Resources (DNR) website. The main heading is "Indiana Department of Natural Resources DNR". The page is titled "Coastal Grants". Below the heading, there is a map of the Lake Michigan coast showing various project locations marked with colored dots. A legend on the left identifies the project types: Education/Outreach (purple), Land Acquisition (orange), Low Cost Construction (blue), and Planning/Coordination/Management (yellow). The map includes labels for cities like Chicago, Hammond, and Evanston, and counties like Berrien, LaPorte, and Porter. A "Print Map" button is visible at the bottom left of the map area.

## Rediscovering the past – Indiana’s Underwater Archaeological Resources of Lake Michigan

The Lake Michigan Coastal Program develops a program assessment and improvement strategy every five years. The 2006-2010 strategy identified underwater archaeological resources as a priority. Program staff worked with Division of Historic Preservation and Archaeology, Division of Law Enforcement, State Museum and Historic Sites, Dunes State Park, and the Natural Resources Commission in developing the scope of work addressing underwater archaeological resources – A.K.A. – Shipwrecks. The LMCP contracted with Commonwealth Cultural Resources Group (CCRG) to reassess known shipwrecks and search for additional unknown wrecks in the 261 square miles of Indiana’s Lake Michigan.



## Appendix A: Division Staff

### Nature Preserves Management

John Bacone	Division Director
Lee Casebere	Assistant Director
Cary Floyd	Operations Director
Leah Kopp	Office Manager

### Natural Heritage Data Center

Cloyce Hedge	Natural Heritage Coordinator
Ron Hellmich	Heritage Data Manager
Roger Hedge	Heritage Ecologist
Mike Homoya	Heritage Botanist
Robin Wilson	Protection Director

### Natural Heritage Seasonal Staff

Katie Bacone  
Breana Sowers

### Regional Ecologists \*

Tom Swinford	<b>Central</b>
Brian Abrell	<b>Southwest</b>
Rich Dunbar	<b>Northeast</b>
Tom Post	<b>Northwest</b>
Ken Brunswick	<b>East Central</b>
Derek Nimetz	<b>Coastal</b>
Jason Larson	<b>Southeast</b>
Emily Stork	<b>Grand Calumet</b>

### Regional Ecologist Seasonal Staff

Phillip Bieberich	Tina McClure
Michael Everidge	Paul Osborn
Curtis Greer	John Petzl
Sandra Greer	Joshua Purvis
Brian Grieger	Nathan Simons
Joshua Grubaugh	Dallas Trump
David Holliday	Thomas Walstra
Timothy Keller	Matthew Wise

\*See Appendix B, Map 1: Regionals Service Area

### Lake Michigan Coastal Program

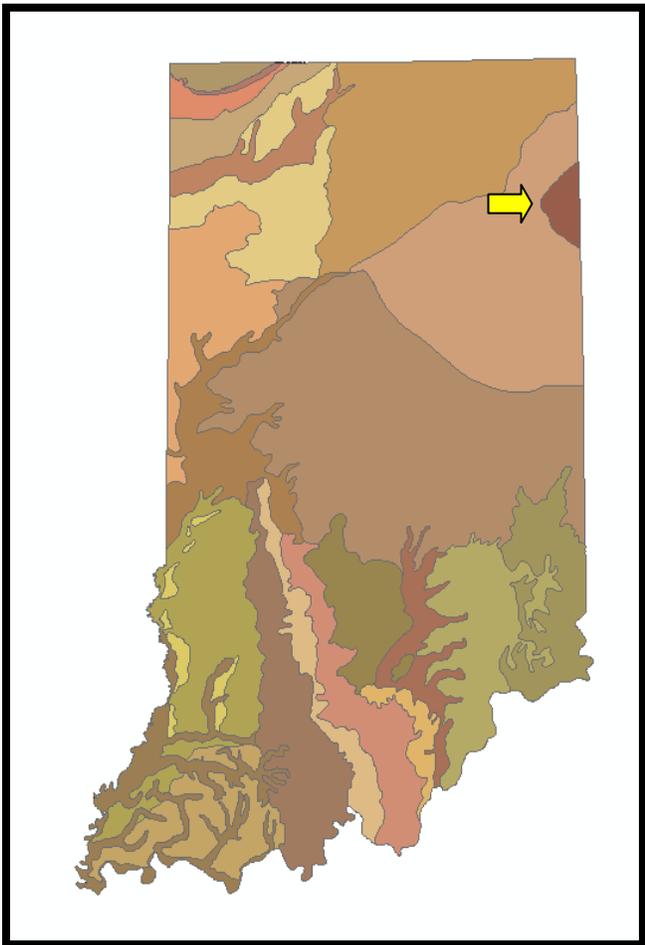
Mike Molnar	Program Manager
<i>Open</i>	Operations Manager
Maggie Byrne	Grants Specialist
Sergio Mendoza	Coastal Resources Planner
Colin Highlands	Coastal Nonpoint Coordinator

### LMCP Seasonal Staff

*Open*

## Appendix B:

Map 1. Geographic area of the Eight Regional Ecologists for the Division of Nature Preserves.



Map 2. Natural Regions of Indiana  
– Black Swamp Region.

## Appendix C: Owners of Nature Preserves

### County and City Partners

Allen County Parks and Recreation  
Bartholomew County Parks and Recreation  
Bloomington Parks Board  
City of Elkhart  
Evansville Park Board  
Ft. Wayne Park Board  
Town of Fishers  
Harrison County Parks and Recreation  
Indy Parks  
Jennings County Community Foundation  
LaGrange County Parks Board  
LaGrange County Parks and Recreation  
Lake County Parks and Recreation  
LaPorte County Parks and Recreation  
LaPorte County Conservation Trust  
City of Marion Schools  
Muncie YMCA  
St. Joseph County Parks and Recreation  
Steuben County Parks and Recreation  
Terre Haute Park Board  
Town of DeMotte  
Vigo County Parks and Recreation

### Federal Partners

U.S. Fish and Wildlife Service

### For Profit Partners

Chicago South Shore Railroad

### University Partners

Goshen College  
Indiana State University  
Purdue University  
Wabash College

### State Partners

DNR Forestry  
DNR Fish and Wildlife  
DNR State Museum and Historic Sites  
DNR State Parks and Reservoirs  
State Board of Health

### Land Trust and Non-Profit Partners

ACRES Land Trust, Inc.  
Central Indiana Land Trust (CILTI)  
Indiana Karst Conservancy  
Izaak Walton League  
Niches Land Trust  
Shirley Heinze Land Trust  
Sycamore Land Trust  
The Nature Conservancy (TNC)  
Whitewater Valley Land Trust  
Oak Heritage Conservancy  
Sycamore Trails RC&D  
Ouabache Land Trust