Division of Nature Preserves

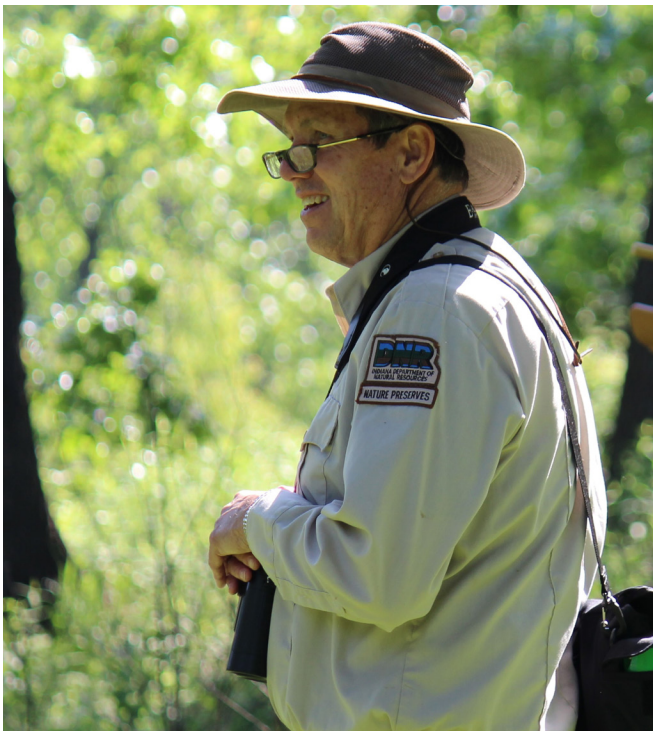
2020 Annual Report

DNR
Indiana Department
of Natural Resources

Table of Contents

Final Thoughts

Roger Hedge



My last full year of work with DNR in 2020 was a memorable one with COVID-19 as a backdrop. Despite the pandemic, I was fortunate to spend a great deal of my time in the field surveying for rare plants and significant natural communities.

My full-time career in DNR began in February 1981 when I was hired as the park naturalist at Spring Mill State Park in the heart of Indiana's karst country, a landscape punctuated by sinkholes and caves. In addition to these natural features, the park preserves a unique old growth forest, Donaldson Woods Nature Preserve, as well as other interesting cultural history, including the Grissom Memorial and the Pioneer Village, which has a functioning water-powered grist mill. After a brief stint there, I went to Jasonville to work as a reclamation specialist with the Division of Reclamation. In that position I served as an inspector of active surface mining operations in southwest Indiana. This was quite a departure from being a state park naturalist, and although it was a new learning experience enforcing environmental regulations and working with the coal industry, I knew that someday I would return to a career in the natural sciences.

In 1985 I took a new position in central office in Indianapolis. Although this new role was in the Division of Outdoor Recreation, my actual job was the DNR coordinator of environmental reviews, heading the process of handling reviews of environmental impact statements and assessments, floodway and lake permit applications, and similar projects. I hoped that working in our central office could ultimately lead to a field biology position with a greater emphasis in the natural sciences. In 1989 that goal was realized when I made my final career move as an Indiana Natural Heritage Data Center ecologist in the Division of Nature Preserves. A large part of my work, and perhaps the most rewarding, was surveying for rare plants, animals, and natural communities statewide. Collecting this critical data directs our priorities on areas that need protection.

During my 31 years in Nature Preserves many people have asked me which nature preserve is my favorite. That's not an easy question to answer. I've been blessed to work all over the state and see Indiana's finest natural areas. When I started as a seasonal naturalist in the Division of State Parks more than 40 years ago, I worked at Turkey Run and Shades state parks and became familiar with the beautiful natural areas there. Pine Hills, Indiana's first dedicated state nature preserve, which is next to Shades, has always held a special place in my heart. Its impressive cliffs and deep ravines are rich with a varied and interesting plant and animal life. Posey County's Twin Swamps Nature Preserve is another remarkable site and supports Indiana's highest quality bald cypress swamp. Northern Indiana's dunes and wetlands and the many unusual plants and animals there is another special region of the state for me. The dune and swale complexes in northwest Indiana are near the top of my list as are the inland coastal plain marshes at Coastal Plain Ponds Nature Preserve in Jasper-Pulaski Fish & Wildlife Area. I guess I can't pick a single site as my favorite. I'm just glad I've been able to explore some of these fabulous natural areas and had a hand in helping protect them.

Aside from the benefits of working in these special places, I've also been blessed to work with some of the finest naturalists and field biologists in the Midwest. I'm grateful to have been able to work closely with everyone in our small division. Without such dedicated and helpful staff and the many land trusts throughout the state, we wouldn't be where we are today. We have nearly 300 dedicated state nature preserves that protect the state's most significant biological resources. An added benefit is that all Hoosiers today and tomorrow can enjoy these treasured places. Even with my long career in Nature Preserves, I have not visited all of them. I hope to rectify that in my retirement years.

Director Address

Ron Hellmich

2020 was different, but with five dedications, trail improvements, work with our partners, surveys, finding neat places, and work on getting those protected, the Division of Nature Preserves moved forward.

The pandemic forced people to search for different activities. Visiting nature preserves was something that allowed for a safe activity as people could still maintain social distancing. Many of the state's nature preserves saw a dramatic increase in visitation. We are happy that people found peace there. Nature Preserves staff took extra care to make sure the parking areas and trails were ready. In the middle of this, trail improvements were made such as new trail structures at Portland Arch Nature Preserve, replacing much of the older structures that were nearing 25 years old.

Heritage surveys found natural areas at Winamac Fish & Wildlife Area along with the rediscovery of a plant species thought extirpated from the state. Moth surveys at Shrader-Weaver Woods Nature Preserve and Duning Woods Nature Preserve increased our knowledge of the importance of these forests in Indiana as close to 280 species of moths were found at each preserve.

The LMCP continued to spread the word about the importance of the lake's resources and worked with many partners to improve the communities in the coastal area.

Visit a nature preserve, a perfect way to enjoy getting outside.

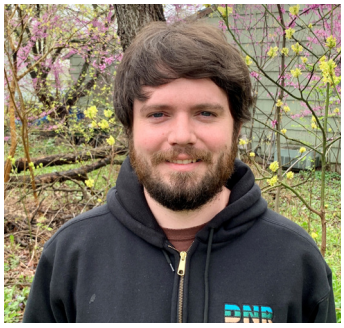
Heritage Coordinator Address

The Indiana Natural Heritage Data Center was not only able to adapt and change during the global pandemic year of 2020, but also make great achievements. Like all others, we scrambled in the first quarter to move all our employees to remote working environments and dealt with setting up connections and virtual meetings. After the first few scratches and bumps we progressed into a very productive year with some exceptional accomplishments. We discovered early on that with the availability of video conferencing software, we were able to communicate better and more frequently. Weekly sharing of activities and achievements fostered a deeper cohesion and synergetic environment. The ability to remotely talk face-to-face enabled the team to work closely together and produce collaborative projects that had been less frequent in the past due to field work and differing office assignments.

Outside of the office we had more than 100 staff field workdays that allowed even the office personnel to participate. While maintaining social distance, 53 natural communities were surveyed and over 300 element occurrences were submitted (new and updates) by the Heritage botanist and ecologist. This field work also led to the discovery of multiple new-to-the-state plant species and re-discovery of one (Coleataenia longifolia ssp. longifolia) that had previously been deemed extirpated. With creative scheduling and planning, the augmentation of the only known extant Indiana population of Solidago squarrosa (stout-ragged goldenrod) was able to proceed during autumn after being delayed from the spring. Eleven virtual presentations allowed community outreach to continue to spread the knowledge of rare plants and Indiana's high quality natural areas to citizens around the state even though division-sponsored hikes were canceled. Just like in an ecosystem where increased biodiversity promotes resilience, the many differing facets of the Heritage Program personnel enabled us to use each other's talents and abilities to persevere and have a successful year.

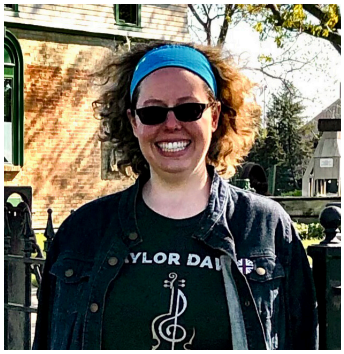
New Staff

Matt Beatty



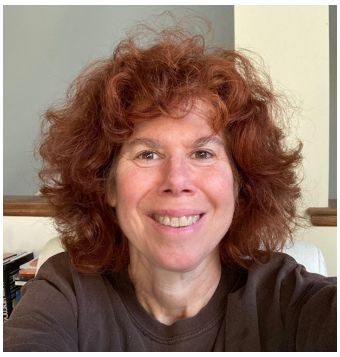
Hello, I'm the new regional ecologist for the Kankakee Region, where I'll be based out of Jasper-Pulaski FWA. I grew up in South Bend (for the most part), and after leaving the state for my undergraduate education at Whitman College in Washington, I moved to northwest Indiana where I have lived and worked for the past eight years. The first four years were spent in environmental interpretation and education, first with Dunes Learning Center in Indiana Dunes National Park and then as a seasonal interpreter at the Indiana Dunes State Park. For the past four years I have worked as a conservation practitioner with The Nature Conservancy, where I worked on restoring high quality remnant dune and swale habitat in the Grand Calumet region of northern Lake County, including state dedicated nature preserves like Ivanhoe Dune & Swale and Pine Station nature preserves. As a conservation practitioner I worked with field crews, participated in conservation planning efforts, and conducted bird and butterfly surveys. I live in Valparaiso with my wife Madison and 7-month old daughter Julia. I look forward to getting to know the division better as I continue the important work of stewarding the nature preserves in my region.

Ashley Sharkey



Hello, I am the new special projects coordinator with the Lake Michigan Coastal Program (LMCP). I am a transplant from INDOT, where I worked as an environmental manager for the La Porte District for four years. I have worked in a wide variety of fields including education and health care. I received my bachelor's degree from Ball State University in Geography (meteorology/climatology) and Natural Resources and Environmental Management (emergency response and management). Currently I am working on obtaining my master's degree in emergency epidemiology. When I am not studying, I am rescuing former racing greyhounds, chasing storms to collect data for the National Weather Service, working on my historical novel about Harriet Colfax and the old Michigan City lighthouse, or listening to professional Japanese baseball. I also volunteer with a local search and rescue team as well as a hazmat emergency response team. I am very excited for this new opportunity and appreciate all the love and support my family and friends have provided me for this journey.

Sheri Moor



Hello! I'm the new grant specialist with the Lake Michigan Coastal Program, and I am thrilled to have the opportunity to take on this new role within DNR to serve the residents, communities, and natural areas of northwest Indiana. Previously, I served under the Grand Calumet regional ecologist, Emily Stork, as field supervisor of the restoration crew, working to enhance the integrity and resilience of the region's high-quality dune and swale habitat in collaboration with our partners at The Nature Conservancy. Though I'm originally from the east coast, where I developed my love of the outdoors, I moved to the Midwest for graduate school, completing master's degrees in water resources management and botany at the University of Wisconsin-Madison.

This new position within the Division of Nature Preserves, which I started in November 2020, puts me at the center of a rich array of diverse, talented, and energetic individuals in northwest Indiana—public employees, scholars, and non-profit partners—each doing what they do best to conserve and protect the ecological, historical, and cultural resources of the Lake Michigan watershed. I so look forward to working together with this team to intelligently leverage the program's federal grant resources to protect our natural areas and foster sustainability in our region.

Executive Summary

In March 1967, the Indiana General Assembly passed the Nature Preserves Act, creating the Division of Nature Preserves and charging it with finding, protecting, and managing the Indiana's remaining natural areas. Since then, working with partners, 291 nature preserves have been dedicated, encompassing more than 54,000 acres. Nature preserves are owned by numerous DNR divisions, land trusts, city/county park boards, colleges, and universities.

The Division of Nature Preserves (DNP) finds examples of Indiana's natural communities, coastal resources, and rarest species and works to preserve them for the benefit of present and future generations. DNP comprises four primary components: nature preserve protection, nature preserve management, the Indiana Natural Heritage Data Center, and the Lake Michigan Coastal Program (LMCP). The division is funded by a variety of sources including trust funds, grants, and general funds. Approximately one-third of the full-time staff is paid by non-general fund sources, and all of the remaining staff receives a portion of their funding from non-general fund sources. Division staff work from nine locations scattered around the state, including the central office in Indianapolis.

Division staff was involved with numerous publications and outreach activities. These included 30 presentations, 79 partner projects, 65 technical assists to partners, 39 interagency projects, 22 outreach activities and multiple projects to improve access and trails for visitors. The division hosted 10 hikes at nature preserves throughout the state. DNP staff also attended more than 150 meetings and wrote several articles. The LMCP coordinates the Septic System Maintenance and Care Awareness effort.

During 2020, the Indiana Heritage Data Center had more than 100 staff field workdays that allowed even the office personnel to participate. While maintaining social distance, 53 natural communities were surveyed and over 300 element occurrences were submitted (new and updates) by the Heritage botanist and ecologist. This field work also led to the discovery of multiple new-to-the-state plant species and re-discovery of one (Coleataenia longifolia ssp. longifolia) that had previously been deemed extirpated. With creative scheduling and planning, the augmentation of the only known extant Indiana population of Solidago squarrosa (stout-ragged goldenrod) was able to proceed during autumn after being delayed from the spring.

The Natural Heritage Database now contains 19,970 element occurrences (rare plants, animals, natural communities), and during 2020 a total of 921 new records were entered and 1,462 more were updated. Staff answered 1,108 information requests, conducted 1,141 environmental reviews, and reviewed 108 floodway permit applications, 156 public lake permit applications, and 10 coal permit applications.

The certified ginseng harvest was 2,502 pounds and 9 ounces. A total of 17 ginseng dealers were licensed.

Regional ecologists managed and performed habitat restoration and invasive species control at numerous sites across the state. This year also featured a productive burn season, as regional ecologists performed prescribed burns on high- priority sites across the state with the help of the efficient mobilization of crews and assistance from partners and other divisions. Habitat restoration and invasive species control were continued in 2020. A total of 6,894 acres were treated, including prescribed burn acres and contracts at 79 sites.

There is at least one nature preserve in every natural region in Indiana. Nature preserves contain at least one example of all but two of the 81 natural community types known to occur in the state. Of the 247 state-endangered plants, there is at least one protected example of 222 of them. All but 10 of the 194 state-threatened plant species have at least one population protected.

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. There were multiple additions to existing nature preserves dedicated in 2020 along with two new stand-alone preserves, comprising a total of 217.64 acres. This brings the total number of dedicated acres to 54,358.82.

Introduction

The Division of Nature Preserves is made up of four components: the nature preserve program, preserve management program, the Natural Heritage Data Center, and the Lake Michigan Coastal Program (LMCP). 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 creating parking and trails where appropriate. The Natural Heritage Data Center collects and manages state-wide biodiversity data and tracks occurrences of rare species and high-quality natural communities. These information resources are used to guide conservation in multiple ways and aid both governmental agencies and private enterprise in their decision making. The species and community data provide a basis to inform projects during the planning phase by being used in environmental reviews and permit applications. The LMCP 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, and serving as a central clearinghouse for natural resource conservation and planning.

Mission

The Indiana Legislature passed the Nature Preserves Act in 1967 creating the DNP, 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, DNP staff has worked with DNR colleagues as well as with partners throughout Indiana, to catalog Indiana's flora, fauna, and natural areas, striving to set up a system of nature preserves that includes examples of all of the natural areas and rare species habitats that occur in Indiana. While not complete, much progress has been made. At least one example of 79 out of 81 types of natural communities found in Indiana at the time of settlement is included in Indiana's nature preserve system. Ninety percent of the 423 plants considered endangered, threatened, or rare have viable populations in Indiana nature preserves.

The DNP mission 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. DNP also manages and maintains viable populations of endangered, threatened, and rare species. These activities are conducted for the benefit of the natural communities and their representative species, as well as for the benefit of present and future generations.

The purpose of the Indiana LMCP 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 LMCP relies upon existing laws and programs as the basis for achieving its purposes.

Funding

For several years, the division's operating budget was funded solely through Indiana's General Fund, and its Capital Funds alternately were either from the Cigarette Tax or the General Fund. Starting in the 1980s, as new staff positions were added to meet increasing demands, they were paid for with alternate funding sources. Currently, roughly 38% of division staff is paid through a variety of non-General Fund sources: INHPC Endowment, Coastal Program, Natural Resources Damages Account, Lands Unsuitable, and Pittman- Robertson; the remaining 62% are paid with General Fund monies (Figure 1). For General Fund paid staff, all have a portion of their salaries paid by non-state funds. These funds come from Office of Surface Mining, U.S. 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 enhances taxpayer funds enabling more natural resource work to be accomplished with less state funding.

The responsibilities of purchasing and operations include everything from making small repairs, training, and snowplowing using claim vouchers to making purchase requests for buying larger equipment such as UTVs, mowers and some contracts. Most Quantity Purchase Agreements or (QPAs), were completed using requisitions, and these included purchases from Fastenal, NAPA, Goodyear, and Blackjack uniforms.

Public Relations and Outreach Activities

Divisional public relations efforts are divided into six broad categories: presentations, partner projects, technical support, inter-agency projects, public access projects, and outreach activities.

Nature Preserves staff made 30 presentations to a variety of partners, with the majority given to non-profit environmental groups. Those groups included our partner land trusts, wildflower groups, and community organizations. Topics included conservation design, multi-use trail design, Indiana wildflowers, and invasive species control.

Nature Preserves regional ecologists were involved in 79 partner projects that included land trusts, counties, park boards, non-profit groups, and commercial entities. These included habitat restoration, public dedications of nature preserves, trail construction and maintenance, invasive species management, and monitoring of endangered, threatened, or rare species.

A total of 65 partner projects received technical assistance with their own projects from DNP staff. The bulk of these were for grants for removal or monitoring of invasive species from all sectors of partnerships. DNP staff also provided comments on restoration plans, mitigation projects, streambank stabilization, and erosion control. There were also several large projects with industry that dealt with construction and installation of infrastructure like new rail lines, culverts, and sewer and power line placement.

There were at least 39 inter-agency projects.

DNP staff also worked with various state agency personnel on invasive species control, placement of trails, rare plant surveys, forestry inventory, prescribed burns, breeding bird counts, deer monitoring and reduction, and storm damage clean-up on several properties.

There were 22 outreach activities and events in 2020.

DNP staff led more than 10 hikes on nature preserves, attended more than 150 meetings, wrote several articles, answered numerous public requests for information, and planned to participate at the Indiana State Fair before it was canceled.

A total of 17 public access projects were completed. These include activities that most directly affect a visitor's experience in a nature preserve: improvement to trails systems, parking lots, and installation of signs at several preserves. All trail structures, boardwalk systems, and access roads were maintained, hunter registration stations were staffed, and deer reduction hunts were held. 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 dnr.IN.gov/naturepreserves for our information and maps.

Indiana Natural Heritage Data Center

The Indiana Natural Heritage Data Center collects and manages biodiversity information concerning rare plants and animals and high-quality natural communities throughout the state. To continually update our knowledge base, our division botanist and ecologists conduct field surveys to locate and monitor these imperiled plants and communities. Additional biologists, conservation groups, and citizen scientists submit species records that are vetted and then managed using the program's Biotics software. The products of the biodiversity data are used to inform and aid conservation activities throughout the state by public and private entities. One of the ways the data is used is in the DNR environmental regulatory process to help avoid or minimize impacts to significant natural communities, state-ranked species, and nature preserves.

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

EOs in database – 19,970	New records entered – 921	EO records updated – 1,462
Information requests – 1,108	Environmental Reviews – 1,141	Coal mine permit reviews – 10
Public Lake – 156	Floodway Permit – 108	Research and Collecting Permits – 53

Rare Plant Inventory and Monitoring Highlights

Federally Listed Plants

Asclepias meadii (Mead's Milkweed): Federally Threatened

The only Indiana occurrence for this species is in a nature preserve in the northwestern part of the state where it was introduced several years ago. Recent studies at this site have tracked the relative survivorship of seedlings in the solitary population in burned and unburned sites, providing empirical data of significantly higher rates of survivorship among areas experiencing prescribed burn conditions (60% vs. 5%). A survey in June 2020 documented the presence of eight vegetative plants (1 browsed).

Helenium virginicum (Virginia Sneezeweed): Federally Threatened

The only Indiana occurrence for this species is in a former mitigation wetland in Hamilton County. A July 2020 survey documented 47 individuals. During the monitoring visit, leaf samples were collected and later sent to Dr. John Knox to determine if the Indiana population is genetically more closely related to Virginia or Missouri populations (the only other places where it occurs), or if it is different altogether, in an attempt to determine the origin of the population. Note: this species is in the process of being removed from the federal list of threatened and endangered species.

Physaria globosa (Globe Bladderpod): Federally Threatened

In Indiana this native mustard is known from a single site in the far southwestern corner of the state. The site has been managed for a number of years in an attempt to encourage the population. It has generally responded well to management efforts that result in removing vegetation competition. The population was monitored in May 2020, when plants were in bud, flower, and starting to produce fruit. During the survey, a small, previously undocumented subpopulation was located along an adjacent road.

Platanthera leucophaea (Eastern-Prairie Fringed Orchid): Federally Threatened

The lone, precarious occurrence of this species in Indiana is monitored annually. In June 2020, a single individual was found in bud. It had been an extremely dry season at the site, and the plant appeared to be drying out and might not have flowered in 2020. Coordination with the USFWS is ongoing and a historical review has been completed to assess a potential reintroduction plan based on a site suitability study.

Schoenoplectiella hallii (Hall's Bulrush): Federal Candidate

This is a very rare sedge throughout its United States range, and it is represented by only four extant occurrences in Indiana (three near Lake Michigan and one in the southwestern portion of the state). Two of the northwest Indiana occurrences were qualitatively monitored in July 2020 when plants were in flower and fruit.

Solidago shortii (Short's Goldenrod): Federally Endangered

The single population of Short's Goldenrod in Indiana continues to be stable and in good condition as of a September 2020 site inspection when plants were observed in flower. Evidence of flooding was noted at the site, as sediment was observed on vegetation and the limestone ledge; this may reduce competition from other vegetation and positively impact Short's Goldenrod. Seed from this population was collected by staff for long term storage in the fall of 2014.

Trifolium stoloniferum (Running Buffalo Clover): Federally Endangered

Indiana has several populations of this Federally Endangered clover, all in the southeastern portion of the state. One population was monitored in May 2020, where plants were observed in bud, flower, and fruit. This species requires disturbance (naturally at this site via occasional flooding, and too much shade has proven detrimental. Note: this species is in the process of being removed from the federal list of threatened and endangered species.

State Listed Plants

Carex chordorrhiza (Creeping Sedge): State Endangered

Creeping Sedge is unique in that it spreads by stolons, with new growth arising from the nodes of the senesced, previous year stems that creep through sphagnum moss. Prior to the discovery of a new occurrence of this species in Kosciusko County in 2020, there were four records of this interesting bog sedge known from the state. Of these, two were possibly extirpated, one was considered historical, and the fourth has not been observed since 1989, when its numbers at that location had declined by over 90% from the previous time it had been surveyed. This new discovery may represent our only extant occurrence, and the most southern extant occurrence of this more northern, circumboreal species in the United States.

Coleataenia longifolia ssp. longifolia (Long-leaved Panic-grass): State Endangered

A coastal plain disjunct, this grass had previously been reported from a single location in the state, in Starke County, where it was last documented in the mid-1940s. There, specimens were collected by a number of botanists. The site has since been manipulated, and more recent surveys have not located it at this site. During 2020 surveys at Winamac Fish & Wildlife Area in Pulaski County, Long-leaved Panic-grass was discovered at two locations in inland coastal plain marsh communities. As a result of these discoveries, the status of this species has been changed from extirpated to endangered in Indiana.

Dryopteris celsa (Log Fern): State Endangered

Log fern has a spotty distribution in the United States, with most occurrences in the southeastern part of the country. It was collected by Charles Deam in a swampy forest in LaPorte County in 1929, and again by Michael Homoya at this location in 1995, but had not been monitored since. The only known location for this large fern in Indiana was surveyed in 2020 and resulted in the documentation of this species for the first time in 25 years.

Echinacea simulata (Wavyleaf Purple Coneflower): State Watch List

This attractive species had been hanging out in plain sight at a glade in Harrison County, hidden under the name of the more common Echinacea pallida (Pale Purple Coneflower), from which it differs by having bright yellow pollen (usually white in the latter) and broader ray flowers. After a tip from Homoya, a survey was conducted at this location in 2020, and Wavyleaf Purple Coneflower was collected for the first time in Indiana. The protection status of this species in Indiana will soon be changed to endangered.

Eleocharis atropurpurea (Purple Spikerush): No Status

The truly amazing discovery of this "belly plant" was made in Porter County by botanists Nathanael Pilla, Brad Slaughter, and Doug Botka in 2020, the first observation and documentation of this tiny and presumably overlooked sedge in Indiana. Later in the season, the Indiana Natural Heritage Data Center team documented this species in moist to wet sand in Lake County. It was also documented at another Porter County location in 2020. All of these sites are within 10 miles of one another and within 2 miles of the shores of Lake Michigan. The protection status of this species in Indiana will soon be changed to endangered.

Eriophorum tenellum (Few-nerved Cotton-grass): No Status

A more northern species of bogs, Few-nerved Cotton-grass was documented for the first time ever in Indiana in 2020 in a bog in LaPorte County. This attractive sedge is similar to the state threatened Eriophorum gracile (Slender Cotton-grass), and its true identity as a new species for Indiana was not realized until the collection was closely examined, noting the longer leaves and bract. The protection status of this species in Indiana will soon be changed to endangered.

Hibiscus moscheutos ssp. lasiocarpos (Hairy-fruited Hibiscus): State Endangered

Despite being a large and showy plant, Hairy-fruited Hibiscus had not been documented in Indiana since 1985. While driving roads and watching wet to moist areas along roadsides in Knox County in the vicinity of where it was last collected by Kay (McCrary) Yatskievych, a population of this southern subspecies was observed and then documented along a ditch near an agricultural field. This may represent Indiana's only extant occurrence of this poorly understood taxon.

Juncus militaris (Bayonet Rush): State Endangered

Prior to September 2020, Bayonet Rush, a coastal plain disjunct with the core of its geographical range from Newfoundland to Delaware, was only known in Indiana from two nearby locations in Porter County (one historical, one extirpated) and from one extant population in St. Joseph County. The surprising discovery of this species at Winamac Fish & Wildlife Area in Pulaski County, in an excavated pond within a former inland coastal plain marsh, added a second extant occurrence for the state.

Persicaria setacea (Swamp Smartweed): State Endangered

Swamp Smartweed is generally a more southern/southeastern species, with few verified occurrences near the Great Lakes. Many past reports for Indiana seem to be based on misidentifications. This inconspicuous smartweed was discovered in Jefferson County in 2020 along a drainage between beaver ponds. This population likely represents Indiana's only known extant occurrence of this species.

Phemeranthus rugospermus (Prairie Fame-flower): State Endangered

At the suggestion of the Indiana Natural Heritage Data Center, University of Notre Dame student Michael Piotrowski took on a senior capstone project in 2020 to review accessible known occurrences of Prairie Fame-flower in Indiana to update the status of this declining, more western species in the state. In addition to an extant population in Jasper County in a monitoring plot established in 2010 and monitored regularly by Tom Post, a Lake County population not seen since 1989 and thought to be extirpated was relocated and monitored. The flowers of this attractive and interesting plant open in the late afternoon/evening.

Solidago squarrosa (Stout-ragged Goldenrod): State Endangered

Indiana's only known occurrences of this more northeastern Appalachian species are from Clark and Scott counties. Indiana Natural Heritage Data Center and Division of Nature Preserves staff determined that populations were on the decline. In an effort to save the species, seedlings were propagated from the few remaining Indiana plants in the wild, and minor habitat maintenance was conducted to open the canopy and subcanopy in a few places. Young plants from the propagation effort were planted at multiple sites in 2019 and again in 2020 where they were previously known to occur. Continued monitoring of these plantings in 2020 suggests that the restoration efforts so far have been successful.

Ginseng

There was a total of 2,502 lbs. and 9 oz. of wild ginseng certified in Indiana this year. Just 1 pound of cultivated ginseng was reported. Of this, 1,836 lbs. and 14 oz. were dry and 665 lbs. and 5 oz (converted dry) were wet/green. Gross wet/green weight was 2,080 lbs. and 5 oz. This season, Indiana had 17 dealers.

Nature Preserve Dedication and Land Acquisition

As 2020 closed, there were 291 nature preserves dedicated under state law, Indiana Code 14-31-1. This represents 54,358.82 acres spread throughout Indiana. We work closely with many others in dedicating significant natural areas, including DNR divisions, local land trusts, local county park systems, and colleges and universities. The first dedicated nature preserve was Pine Hills Nature Preserve, which is next to Shades State Park, and was dedicated in 1969. Since then, the nature preserve system has grown to be the most widely distributed system of protected lands in the state. A total of 71 counties contain a nature preserve. For more than any other reason, nature preserves are set aside to protect the plants, animals, and natural communities that are found on them, providing protection in perpetuity for the benefit of future generations. Visitation is allowed to the extent that the features can tolerate it without deterioration.

Patoka Hill Nature Preserve – DNR State Parks – 26.79 acres

This 26.79-acre property contains one of Indiana's finest paleontological sites. It's located within the Crawford Upland Section of the Shawnee Hills Natural Region near the southeastern region of Patoka Lake.

This nature preserve consists of predominantly upland forest with smaller early successional areas and tree plantings. It features dramatic limestone outcrops and a small but highly significant cave. The deep pit in the back of the cave became the permanent grave of many ice age animals, including the largest collection of excavated peccary remains in North America. Since 1987, the Indiana State Museum has been excavating the cave to examine and understand the paleontological features. Scientists have gained information about Indiana's past climate, plants, and animals during the latter part of the ice age from their work at this site.

This tract is owned and managed by the DNR Division of State Parks.

Canyon Forest Nature Preserve – Sycamore Land Trust – 68 acres

This site protects 68 acres located in Greene County. The property contains a mesic/dry mesic upland forest community in and above scenic ravines with large sandstone outcrops, intermittent creeks, and several waterfalls. There is onsite parking for this property that gives access 1.6 miles of trail rated moderate.

The forest downslope from the ridge and in the ravines has been undisturbed for a long time and is particularly high quality. Orchids and ferns are found on the property as well as an uncommon Lycopodium (club moss). Several songbirds can also be seen and heard, including the scarlet and summer tanagers.

It is owned and under the administration of the Sycamore Land Trust.

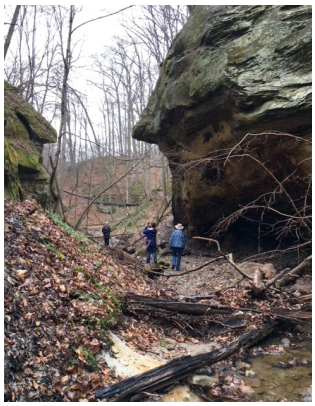
Blossom Hollow Addition Nature Preserve – Central Indiana Land Trust

This preserve protects 40 acres in the southwest corner of Johnson County near the Brown County line, approximately 4 miles south of Trafalgar and 4.5 miles east of Morgantown. This property is just south of Lamb Lake and is largely influenced topographically by the feature know as Blossom Hollow, a large ravine system created by a tributary to Indian Creek.

This site is almost entirely forested with a high-quality mix of upland and bottom land forests. The extensive upland forest consists primarily of an oak-hickory community. The topography is rugged with steep slopes and is part of the northern extension of the Brown County Hills that spills over into Johnson County.

It is owned and under the administration of the Central Indiana Land Trust, Inc.

Mossy Point Addition Nature Preserve – Central Indiana Land Trust

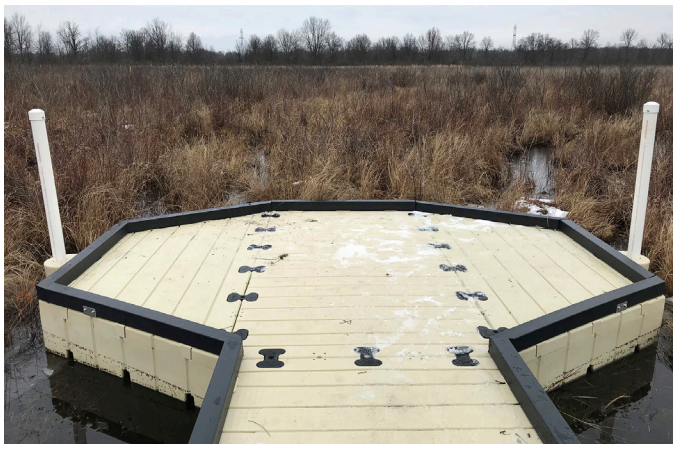


Mossy Point Addition Nature Preserve protects 25.73 acres along cool, clear Sugar Creek and is characterized by high, dramatic ridges intersected by deep ravines cut out by water rushing down to the creek. The high, dry ridges support stands of white oak and shagbark hickory, while the rocky points extending down to Sugar Creek, feature a riparian microclimate wet and cool enough to support one of the southernmost populations of relict eastern hemlock. Beneath the hemlocks are such uncommon plants as witch hazel, partridgeberry, and ginseng.

The Sugar Creek Valley is a breeding ground for critical populations of wood thrush, cerulean warbler, worm-eating warbler, Louisiana waterthrush, and Kentucky warbler. During the winter months, massive bald eagle roosts can be seen in this stretch of Sugar Creek. This dedication will help protect this important habitat.

It is owned and under the administration of the Central Indiana Land Trust, Inc.

Elkhart Bog Addition Nature Preserve – DNR Nature Preserves



This addition to Elkhart Bog Nature Preserve in Elkhart County adds 57.12 acres to the existing 159 acres previously dedicated. This expands the area of protected bog and associated rare species by adding additional bog habitat as well as dry forest and restored sand prairie.

Elkhart Bog is a large wetland formed on top of an old glacial lake. A mat of sedges and sphagnum moss grew across the top of the glacial lake, creating a floating mat of peat, plants, and plant roots.

It is owned and under the administration of the Division of Nature Preserves.

Nature Preserve Program

The work done to maintain the long-term viability and ecological health of our nature preserve system is one of the most important functions of the DNP. Toward this fundamental goal, the division maintains eight regional field offices that oversee our statewide system of preserves. (Appendix C, Map 1). They care for numerous preserves found across large geographic areas covering many counties.

Habitat restoration and invasive species control were continued in 2020. A total of 6,894 acres were treated at 79 sites, this number includes prescribed burn acres and contracts.

These regional field offices serve as a base of operations for our ecologists, along with their staff and equipment. DNP regional ecologists perform an array of work including ecological restoration, public land management, conservation planning, monitoring and inspections, environmental reviews, and botanical and natural areas inventory. They also provide many community services, including technical consultation and environmental education. Importantly, the regional ecologists also maintain safe public access to our unique and growing DNP trail system.

Regional ecologists integrate expertise in many fields and decades of experience, working in natural areas to offer innovative management to Indiana's nature preserve system. They have expertise in subjects such as conservation biology, forest health issues, wildland firefighting, public speaking, wetland restoration, and recreational trail design and installation among other subjects.

Regional ecologists also supervise and manage a specialized team of stewardship staff, who perform the daily work of property management and controlling invasive species. Staff members are experienced with heavy equipment, chainsaws, herbicide application, wildland firefighting, trail maintenance, and safety.

This report addresses nature preserves on public lands that are owned by the DNR, as well as those owned by our private and local government partners.

Regional ecologists work with the private sector to place mitigation projects on existing conservation lands, including nature preserves. Mitigations are required to replace wetlands and forests affected by development. This provides valuable restoration funding for public lands while helping the private sector fulfill the requirements of regulatory permits and settlements. This effort is resulting in significant enhancements at several nature preserves.

Regional staff are heavily involved with land protection, conservation planning, and community outreach. They provide technical assistance to their communities, partner land trusts, federal and municipal agencies, and other DNR divisions and agencies.

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 at which 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.

This year regional ecologists aimed their invasive eradication efforts at 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, 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.

Invasive Species Management

DNP staff are involved across the state leading efforts to control invasive plants that cause extensive degradation of our natural habitats, including forests, prairies, and wetlands. With decades of experience in habitat restoration and invasive weed control, the DNP is a recognized authority on early detection of invasives as well as the techniques used to control them and restore healthy native habitats.

DNP staff collaborate with many partner organizations seeking to develop and implement their own successful strategies and programs to control invasive weeds on nature preserves across Indiana. Technical assistance, edu-

cational materials, and site assessments promoting early detection and effective control measures are important aspects of the division's work.

Southeast regional ecologist Jason Larson serves on the leadership of the Southern Indiana Conservation Weed Management Area (SICWMA). Such groups are being formed across the U.S. as landowners, private groups and government agencies look for more effective ways to limit the growing economic and environmental damage caused by invasive species. These community coalitions work through sharing knowledge, people, and other resources to improve public education, prevention and eradication/containment programs across a given geographic area.

Coastal regional ecologist Derek Nimetz serves on the steering committee of the Indiana Coastal Weed Management Area, providing technical assistance to northwest Indiana coastal communities on limiting the spread of invasive species.

Mitigation Projects on Natural Areas

The DNP works with diverse partners and funding sources to deliver effective conservation in Indiana. Mitigation funds are increasingly being used for habitat restoration, providing an important opportunity to further protect nature preserves in need.

When wetland, stream, or forest habitats must be impacted or destroyed due to infrastructure needs or other development, federal law (under the Clean Water Act or United States Fish and Wildlife Service) requires that the lost habitat be mitigated through the construction and restoration of similar habitat within the geographic area. The DNP then works closely with industry and regulators in a mutually beneficial process of performing these needed mitigations on DNR-owned public conservation lands.

Through these collaborations, the division is able to perform reforestation projects and restore and enhance impaired wetlands while providing future stewardship of the mitigation projects.

A number of conservation lands have benefited from significant restoration projects conducted via DNP staff and consultants, helping private-sector entities fulfill regulatory requirements. These projects are helping to improve biodiversity at significant savings to the division.

Pittman-Robertson Wildlife Restoration Grant

Thanks to the Division of Fish & Wildlife, the DNP received a continuation of a Pittman-Robertson grant that started in July 2018 and ended in June 2020. The grant, titled "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 their management plans.

The grant funded activities at several nature preserves, including prescribed fire or mechanical control of invasives and woody-plant succession for the two-year grant's duration. Grant funds significantly helped DNP offset budget shortfalls, helped DFW meet grant match goals, and helped to restore some important natural areas throughout the state.

Prescribed Burn Program

The DNP's prescribed burn program is one of the oldest prescribed fire programs in the state. We have been safely and effectively using prescribed fire to manage Indiana ecosystems for more than 30 years. These fires range in size from those on tiny prairie remnants to landscape-scale fires covering hundreds of acres.

Prescribed fire is a land management tool that provides benefits that no other technique offers. It is crucial for maintaining rare and declining habitats that are considered to depend upon periodic fires. Our carefully planned and managed prescribed burns maintain such natural processes as plant germination, forest succession, and control of weedy and invasive species in Indiana's prairies, oak woodlands, and wetlands.

While healthy native habitats are the primary goal of DNP's prescribed burn program, prescribed fire is also an important part of reducing hazardous fuel loads of woody debris and brush on our public lands.

DNP ecologists spend much time training and planning for the application of prescribed fire. This effort includes several disciplines such as ecology, weather, wildland firefighting, incident command, communications, and logistics. A profound knowledge of fire ecology informs our planning and use of fire. Important ecological factors include

targeted native plant and animal communities, seasonal timing of prescribed burns, fire return intervals, and forest regeneration (e.g., oaks). Much planning and consideration goes into sensitive species such as Eastern box turtle (Terrapene c. carolina), Eastern massassauga (Sistrurus c. catenatus), and Indiana bat (Myotis sodalis).

Crucial to the continued success and growth in our prescribed burn program is cooperation among partners to field effective wildland fire crews. DNP staff frequently works within multi-divisional DNR prescribed burn teams that include representatives from the divisions of Forestry, State Parks, and Fish & Wildlife. Collaboration with non-DNR partners such as municipalities (city and county), as well as non-profit conservation groups (e.g., The Nature Conservancy, Shirley Heinze Land Trust, ACRES, and NICHES), enable us to assemble larger, more capable crews, and the interaction contributes to exchange of ideas and crew cohesion.

The most important work our ecologists do involves managing their staff of 20 part-time and intermittent stewardship employees who are trained and experienced in conducting prescribed burns. Having this capacity, along with our partners' support, enables us to safely conduct multiple prescribed burns simultaneously during a given window of ideal prescribed burn weather.

Summary

The DNP performed prescribed fire on a combined 475 acres at 27 priority sites. Historically, this was the lowest acreage of burns performed in the last five years due to challenges and unfavorable burn conditions.

Regional Highlights

Southwest Region

A forest stand improvement contract was finished on 65 acres at Twin Swamps Nature Preserve and 100 acres of Section Six Nature Preserve. An additional 195 acres will be treated at Wabash Lowlands Nature Preserve. The contracts are focused on the restoration of an open canopy that will promote a robust and diverse herbaceous and shrub layer. A 300-foot elevated boardwalk at Twin Swamps Nature Preserve has been planned, and construction has started.

Deer reduction hunts were conducted at Bloomfield Barrens Nature Preserve and Bluffs of Beaver Bend Nature Preserve. These hunts will help reduce deer browse damage.

Work has concluded to remove 14 acres of River Birch at Prairie Creek Barrens Nature Preserve. This contract helps restore the wet sand prairie to a natural open state and help with the implementation of prescribed fire to maintain it.

Southeast Region

A presentation on landscaping with native plants hosted on Zoom by the Bartholomew County Master Gardeners was attended by 20 participants.

A 275-acre habitat improvement contract was completed at Outbrook Ravine and Clark State Forest. This work benefits oak-hickory forest. A Solidago squarrosa reintroduction was also completed at Outbrook Ravine, and a total of 350 plants were planted with the help of DNP staff and volunteers.

A 566-habitat improvement and invasive species removal contract was completed at Brock Sampson Nature Preserve and Sherman Minton Nature Preserve. This work benefits oak-hickory forest and siltstone glades.

Central Region

A 76-acre forest stand management contract is near completion at Portland Arch Nature Preserve. This is a vital step in continuing to restore the open oak woodland and savanna dominance to the Portland Arch uplands, according to historic survey records. Construction repairs, siding, and roofing contracts were completed at the Big Walnut maintenance headquarters and storage.

DNP also completed removal and replacement of trail structure in Portland Arch Bear Creek Canyon. This work used thermally modified wood as a more environmentally friendly alternative to treated boards.

The division completed the second round of treatment for ash trees within the killing wave of EAB. This work focused on black ash stands, of which almost all mature individuals within stands, region-wide, experienced near 100% mortality. Over 550 acres throughout the Central Region were treated, primarily targeting invasive species for restoration and habitat improvement purposes.

East Central Region

A new fence and gate have been installed at Shrader-Weaver Nature Preserve. A total of 1,147 acres covering 13 sites was managed by DNP staff for invasive species. Also, a contract targeting 95 acres of invasive shrubs has begun at Shrader-Weaver. Botanical plant inventories occurred at Bell-Croft Woods Nature Preserve and White Oak Cemetery, and a salamander survey was conducted at Bell-Croft Woods. Deer reduction hunts took place at Limberlost Swamp and Shrader-Weaver. These are the first reduction hunts to occur at these preserves.

Northeast Region

The Northeast Regional Crew completed 709 acres of habitat restoration focusing on northern wetlands, bogs, fens, oak woodlands, and savannas across northeast Indiana. This included large areas of invasive hybrid cattail being controlled in marsh and sedge meadow habitats on high-quality nature preserves.

At Crooked Lake Nature Preserve several large and abandoned concrete commercial buildings were removed, and the area around those buildings was restored. A pollinator planting was also added. The completed project returned a natural shoreline to one of Indiana's cleanest and deepest lakes, home of the State Endangered fish cisco.

Elkhart Bog floating boardwalk installation has been completed. This offers visitors access to a rare wetland habitat: an Indiana acid bog to see purple pitcher plants, sphagnum moss, and many uncommon wetland plants and wildlife. An effective deer reduction hunt was held at Olin Lake, offering hunters an opportunity to help us reduce our large white-tailed deer population at this northeast Indiana nature preserve. Native vegetation was being heavily browsed, affecting ecosystem health.

Coastal Region

During 2020, the Division of Nature Preserves completed 47 acres of invasive woody plant control at McCloskey's Savanna Addition in Lake County. Funding for this restoration project was provided by the National Oceanic and Atmospheric Administration (NOAA) and the LMCP. This project involved two contracts to control invasive woody vegetation and approximately 10 acres of native prairie and wetland plant seeds were installed within the project area.

At Moraine Addition Nature Preserve in Porter County, 25 acres of reed canary grass (Phalaris arundinacea) were controlled within a section of Suman Fen. This was the first year of a three-year deferred maintenance project. Two herbicide applications were implemented to get the initial control of the invasive reed canary grass. The DNP initiated a floristic inventory contract funded in part by NOAA and the LMCP. More than 715 vascular plant species were identified. This project will be completed during 2021.

Springfield Fen Nature Preserve, in LaPorte County, received two restoration contracts during 2020. During the winter and spring months, invasive woody vegetation was controlled within a 16-acre area of the property. During the summer, a contractor was hired to control more than 20 acres of invasive common reed and cattails to improve fen and marsh habitats.

Grand Calumet Region

Along with our partners with the Indiana Department of Environmental Management's (IDEM) Remedial Action program, The Nature Conservancy (TNC), and Lake County Parks and Recreation Department, DNP staff met in January 2020 with the USEPA Great Lakes National Program Office to describe progress on the October 2015–September 2020 Dune and Swale Habitat Restoration grant, as well as to discuss portions of the project area that were going to need more time for restoration actions and recovery before they could be considered restored. As a result, this project has been successfully extended. DNP staff worked with an interagency team, including The Nature Conservancy (TNC), Lake County Parks and Recreation Department, and a consultant to revise, refine, and implement assessment protocols for upland and wetland habitats of the dune and swale and other critical riverine and near lakeshore habitats throughout the Grand Calumet River Area of Concern (AOC). Work was completed with the USGS to learn more about ground and surface water hydrology that sustains and impacts the unique assemblage of natural communities of the dune and swale.

The Lake George Branch Wetlands Restoration project was a success. It was initiated in August 2013 in part with grant funding from Sustain Our Great Lakes (SOGL) and the National Fish and Wildlife Foundation (NFWF) and

concluded in October 2020. For the past four years the project has been funded by the USEPA Great Lakes Restoration Initiative (GLRI) as a management action that contributes to the removal of the Beneficial Use Impairment (BUI) for Degradation of Fish and Wildlife Habitat in the Grand Calumet River Area of Concern (AOC). During the total restoration period, we were able to oversee the transformation of wetlands almost entirely infested with the invasive Phragmites australis into wetlands with much greater structural and compositional diversity and native plant cover. These near-shore habitats are important for migratory birds, including declining marsh bird species that now are able to use these improved habitats for breeding.

LMCP filled the following position within the program: Grant Specialist, Sheri Moor

Overview

The LMCP launched nine coastal grant projects in its 2020 funding year. These initiatives span a broad array of endeavors from improving access to public lands, to protecting rare habitats through ecological restoration and land acquisition, to supporting outdoor education opportunities for our region's public schools, and are financed by pass-through dollars from our federal partners at NOAA combined with a local one-to-one match from municipalities, state funds, and non-profits.

2020 funding is supporting the Town of Porter in the construction of an environmentally friendly walkway for residents to more safely access the shoreline of Lake Pratt, as well as the planners of Portage Township in their design of a trail link to connect South Haven with the Prairie-Duneland Trail. Two non-profit organizations, Shirley Heinze Land Trust and Dunes Learning Center, are employing 2020 coastal grant funds to better educate their volunteers and to promote outdoor science inquiry among local, underserved middle school students, respectively.

In Lake and Porter counties, other 2020 grant highlights include three restoration and land acquisition projects that will lead to the long-term protection of over 70 acres of high-quality natural areas and their threatened flora and fauna. Additionally, engineers from Purdue University will be studying coastal erosion patterns to assist Indiana's Lake Michigan communities in planning for a sustainable future, and at Indiana Dunes State Park, 2020 funds will be used to construct an ADA-compliant platform to allow all visitors to reach the beach during the busy summer season.

6217 Coastal Nonpoint Source Pollution Program

Septic System Maintenance and Care Awareness

In 2020, the LMCP continued to implement a Section 319 Grant from the EPA. These funds address the need for greater state focus on local nonpoint source pollution efforts and help meet outstanding 6217 Program management measures such as Onsite Sewage Disposal Systems. Once again, LMCP received a Governor's Proclamation for Septic Awareness Week.

Section 6217 Submission

Indiana officially submitted its 6217 OSDS Measure to NOAA and EPA for review and approval. This submission is a requirement by NOAA to maintain a fully funded coastal program as well as a State Nonpoint Source Pollution program implemented by IDEM. This is the final management measure for Indiana to receive final program approval.

Section 309 Program Enhancement

Staff submitted the 2021-2025 Section 309 Program Enhancement Plan to NOAA for review and approval. Once approved, the LMCP will receive match free funding to implement the strategies. The following strategies were included in the submission:

Coastal Hazards

Respond to state and local needs regarding Coastal Resiliency in Indiana by continuing the Indiana Coastal Atlas. Assess structures, study erosion rates, develop Living on the Indiana Shoreline, and incorporate historical imagery into the Coastal Atlas.

Wetlands

Complete an inventory of historical wetland data, digitize data, and incorporate the data into the coastal atlas.

Coastal Ecosystems Poster - Prairie

Work was completed on the latest coastal ecosystems poster in the series. Artist Barb Labus and the working group of Tom Swinford, Tom Post, Paul Labus, and Derek Nimetz guided the artwork with the poster artwork headed to the printer at the end of the year.

[Insert photo – Poster]

Wetlands Mapping and Functional Assessment

The LMCP, working with Ducks Unlimited, began work on its Section 309 Wetlands Mapping and Functional Assessment Project. The project is a dual effort to update the National Wetlands Inventory for Northwest Indiana and to better understand the functionality and health of wetlands in the coastal program area. As a result, decision-makers, land managers, and stakeholders will be equipped with information that will allow them to protect, plan for, and use these important habitats. With the help of the LMCP mapping review team, which included DNP assistant director Tom Swinford, the staff at Ducks Unlimited completed the mapping phase of the project, with the functional assessment phase expected to be completed in 2021.

Improving Communication about Changing Lake Levels in the Chicago Metropolitan Area Workshop

Over the course of 2020, the LMCP assisted in the development and execution of the Illinois-Indiana Sea Grant's "Improving Communication about Changing Lake Levels in the Chicago Metropolitan Area" Workshop, along with representatives from the Illinois Coastal Management Program, NOAA, U.S. Army Corps of Engineers, and the Midwestern Regional Climate Center. The workshop took place during four days in October, three-hour sessions per day, and had 25-40 participants consisting of coastal experts, scientists, and stakeholders in any given session. During these sessions, there were informational presentations, in-depth guided discussion, and breakout sessions that focused on the short- and long-term risks and impacts of water level variability, data that could assist in communicating these impacts, and the identification of informational needs that would facilitate communication about changing lake levels. The workshop resulted in prioritized lists of data needs, communication products, and emerging issues that will help to guide efforts related to lake level variability moving forward.

Appendix A: Division Staff Through 2020

Nature Preserves Management

Ronald Hellmich	*Division Director (replaced John Bacone)*
Tom Swinford	*Assistant Director*
Laura Minzes	*Operations Director*
Gail Riggs	*Office Manager*
Cathy Zajdel	*Administrative Support*

Natural Heritage Data Center

Teresa Clark	*Natural Heritage Coordinator*
Taylor Davis	*Heritage Data Manager*
Matt Wyrick	*Protection Director*
Roger Hedge	*Heritage Ecologist*
Scott Namestnik	*Heritage Botanist*

Regional Ecologists

Andrew Reuter	*Central*
Ryan Keller	*Southwest*
Rich Dunbar	*Northeast*
Vacant	*Northwest*
Taylor Lehman	*East Central*
Derek Nimetz	*Coastal*
Jason Larson	*Southeast*
Emily Stork	*Grand Calumet*

Lake Michigan Coastal Program

Jenny Orsburn	*Program Manager*
Sheri Moor	*Grant Specialist (replaced Sarah Nimitz)*
Kathryn Vallis	*Coastal Resource Planner*
Vacant	*Special Projects Coordinator*
Grace Roman	*Grant Assistant*
Kacey Alexander	*Operations Manager*

Appendix B: Owners of Nature Preserves

County and City Partners

Allen County Parks and Recreation
Bartholomew County Parks and Recreation
Bloomington Parks Board
Elkhart County Parks
Evansville Park Board
Fort Wayne Park Board
Town of Fishers
Harrison County Parks and Recreation Indy Parks
Jennings County Community Foundation
LaGrange County Parks Board
Lake County Parks and Recreation
LaPorte County Parks and Recreation
LaPorte County Conservation Trust
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

University Partners

Goshen College
Indiana State University
Purdue University
Wabash College

State Partners

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

Land Trust and Non-Profit Partners

ACRES Land Trust, Inc.
Central Indiana Land Trust, Inc. (CILTI)
Indiana Karst Conservancy
Izaak Walton League
NICHES Land Trust
Red-Tail Land Conservancy, Inc.
Save the Dunes
Shirley Heinze Land Trust
Sycamore Land Trust (SLT)
The Nature Conservancy (TNC)
Whitewater Valley Land Trust
Oak Heritage Conservancy
Ouabache Land Conservancy

Appendix C:
Nature Preserves Regional Ecologist Districts