



Nongame and Endangered Wildlife Program

Division of Fish and Wildlife

Indiana Department of Natural Resources

September 1999 - August 2000



Annual Report

What is the Nongame and Endangered Wildlife Program?

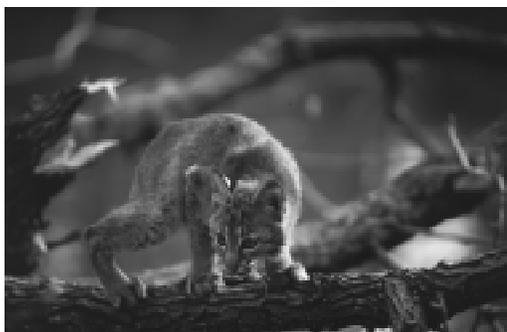
The Nongame and Endangered Wildlife Program is part of the Division of Fish and Wildlife's Habitat and Diversity Protection Unit. The main goal of the Indiana Nongame and Endangered Wildlife Program (NEWP) is to protect and manage more than 550 species of nongame and endangered wildlife in the state. Information on NEWP is available online at www.state.in.us/dnr/fishwild/index2.htm.



Brant Fisher, aquatic biologist, weighs an endangered hellbender.



The loggerhead shrike, an endangered Indiana bird, impales its prey on thorns and barbed wire.



Endangered bobcats are being tracked to help biologists determine their habitat needs and population status in Indiana.

Funding Endangered Wildlife Fund



The state income tax checkoff remains the primary source of income for NEWP and the only checkoff on the state income tax form. As of August 31, 2000, revenue for the Nongame and Endangered Wildlife Fund from the 1999 tax season was \$449,000. Last year's total at this time was \$378,500. Over the last ten years, Hoosiers donated a yearly average of \$397,594 to the fund. Direct donations received during the time frame of this report totaled \$12,273.12, a total that includes a \$10,000 gift from the Eleanor D. Frenzel Charitable Trust.

Land Acquisition

The Nongame and Endangered Wildlife Program and the Division of Fish & Wildlife worked with the Division of Nature Preserves to purchase 129 acres of land in Fulton County. The new addition, named the Judy Burton Nature Preserve, contains a complex of wetlands, upland "islands" of oak and hickory, lake frontage and agricultural fields. This area serves as important nesting habitat for a number of rare birds. A variety of rare species are found here including American bittern, least bittern, broad-winged hawk, marsh wren, sedge wren, Virginia rail, Forster's tern, spotted turtle, Blanding's turtle, northern leopard frog and several rare plants.

CARA

On June 21, 2000, the Conservation and Reinvestment Act (CARA) passed the House of Representatives by a margin of 3 to 1. On July 25, 2000, the Senate Energy and Natural Resources Committee passed CARA by a vote of 13 to 7. Both Senator Richard Lugar and Senator Evan Bayh support CARA. In the House, Indiana Representatives Julia Carson, Baron Hill, Edward Pease, Tim Roemer and Mark Souder all voted for CARA.

Supporters of CARA were there to urge its passage when Congress returned to Washington in September to complete the work of the 106th Congress. Two hundred and five Indiana groups signed a letter to Senator Bayh and Senator Lugar in support of CARA. The Indiana coalition includes conservation groups, land trusts, businesses, birding societies, convention and visitors bureaus, parks departments, city councils, sportsmen's and fishing organizations, recreation groups and historic preservation entities.

This legislation, if passed, would provide approximately \$32 million per year to the Department of Natural Resources. The Division of Fish & Wildlife would receive between \$6 and \$7 million for conservation of a diversity of wildlife and for wildlife-related education and recreation. CARA takes funds derived from off-shore oil and gas royalties and reinvests it in wildlife. Wildlife that otherwise might become endangered will be studied and managed for survival in Indiana.

The Division of Fish and Wildlife continues work on a plan for use of the funds for wildlife conservation and wildlife-related education and recreation in Indiana. Input continues to be sought from a variety of sources including, but not limited to: the Division of Nature Preserves, other Divisions of IDNR, the academic community, Division of Fish and Wildlife professionals and the CARA Coalition. Suggestions and background material provided by a committee from the International Association of Fish and Wildlife Agencies, contributed to the planning process. Such a plan cannot be fully developed, however, until the federal guidelines are written for CARA.

Media & Public Education

Media coverage

Media from around the state covered field projects on bobcats and peregrine falcons. Information on a variety of NEWP programs, including bobcats, lake sturgeon, loggerhead shrikes and raptor nesting, was sent out through the Division of Fish & Wildlife's Wild Bulletin, an Internet listserve, and appeared in newspapers across the state. To subscribe to Wild Bulletin, visit the Division of Fish & Wildlife webpage at www.state.in.us/dnr/fishwild/index2.htm and scroll down to the Wild Bulletin icon.

Educational programs

Education programs on Indiana's endangered wildlife were given throughout the year to schools and organizations. On average, two to three programs were given each month. Training workshops were held in Rochester, Indianapolis and Bloomington for Indiana's Amphibian Monitoring Program (see Research & Surveys for program information).

Restoration Project Updates

River otters

The Indiana river otter reintroduction program was created in 1995 with a goal of restoring extirpated otter populations in six different watersheds in the state. From 1995 to 1999, 303 otters (184M:119F), obtained from Louisiana, were released at 12 sites in portions of northern and southern Indiana. Thirty-seven (28M:9F) of these animals (12 percent) are known to have died since their release. Road-kills and incidental trapping accounted for 76 percent of the known mortalities.

To monitor the post-release status and distribution of otters in Indiana, biologists use aerial winter track surveys, bridge/stream surveys, observations, and biological data obtained from recovered animals. Although most activity remains within 10-15 miles of the original release sites, otters continue to expand their distribution into watersheds not initially targeted for restoration such as the Kankakee River, East Fork of the White River, middle reaches of the Wabash River, and Wildcat Creek. Otters are believed to occupy portions of at least 31 Indiana counties as of December 1999.

Reproduction has been confirmed or is suspected

from 11 of the 12 release sites as well as other watersheds in the state. Otters at several release sites, such as Tippecanoe River State Park, Muscatatuck and Big Oaks National Wildlife Refuges, and Pigeon River Fish and Wildlife Area, produced litters for several successive reproductive seasons.

Future work in Indiana's otter restoration efforts will focus on population modeling and additional surveys to monitor distribution and range expansion. Copies of the 1995-1999 annual reports are available upon request.

Peregrine falcon management

Nesting activity and production by peregrine falcons in Indiana were virtually identical during 1999 and 2000. Eight nesting pairs were documented; five at industrial sites along Lake Michigan, one at a power plant in Jasper County (30 miles south of Lake Michigan), and two in inland urban areas (Indianapolis, Fort Wayne). In addition, a territorial pair was again present at a large propane storage tower in Kokomo, but egg-laying did not occur. Most adults were the same as last year, except for new females at Michigan City and Jasper County where the previous female shifted to a site in East Chicago. All eight nesting attempts were successful with a near-record 23 chicks fledged (one fewer than last year). Banding occurred with all but 2 chicks.

Bald eagle management

Indiana's nesting eagle population continues to increase with extraordinary production occurring during the 2000 season. Five new nests were discovered. Two nests from 1999 were not active this year, resulting in 23 known nesting attempts in 15 counties. Notable was a nest within the city limits of Terre Haute and a Greene County nest along small Richland Creek adjacent to a rural residence.



A record 35 young eagles were born in 2000. At least half of them will return as adults in 4-5 years as to nest in Indiana.

Production from 16 successful nests resulted in 35 eaglets reaching flight stage, besting the previous record of 20 eaglets. A single eaglet was raised at one nest, twins at 11 nests, and triplets at four nests.

After declines the past three years, the 172 bald eagles tallied on the Midwinter Eagle Count in January 2000 approached near record levels and was actually two percent greater than the previous record year for comparable areas surveyed.

Research and Surveys

This section, which discusses NEWP's research and surveys, is meant to provide a quick source of information. More formal reports may be developed. Any information and/or preliminary results provided are subject to further analysis and therefore are not for publication without permission.

Mussels

Endangered mussel monitoring and recovery in the Ohio River

The Ohio River is home to at least 40 species of freshwater mussels. The exotic zebra mussel appeared in the river in 1991 and has continued to increase in number. Zebra mussel infestation rates and native mussel mortality are monitored at four sites along the Indiana border. Over the first five years of this study, native species diversity and density decreased at all four locations, while zebra mussel density peaked in 1997 and has been variable in recent years. At the Rosewood mussel bed (ORM625), native mussel density decreased from 18 live mussels/m² in 1995 to 4.2 live mussels/m² in 1999. The number of live native species found decreased from 16 to 8 species.

Freshwater mussel survey of selected Indiana natural lakes

Several species of freshwater mussels are adapted for life in natural lake habitats. Historical reports indicate that freshwater mussel diversity may have been high in several natural lakes. The present distribution of freshwater mussels in the natural lakes of northern Indiana is unknown. A survey of these habitats was initiated last year and continues through the 2001 field season. To date, more than 100 lakes have been sampled and populations of three special concern species - wavyrayed lampmussel, rayed bean

and purple lilliput - were found. Almost every lake sampled has evidence of mussel presence. Further sampling of these habitats will provide valuable distributional information for several of Indiana's rarer freshwater mussel species.

Fish

Lake sturgeon studies in the East Fork White River

The East Fork White River is the site for an ongoing study of lake sturgeon populations. Over the past five years, 70 different lake sturgeon were captured, ranging in size from 3 to 97 pounds and 2'3" to 6'7" in total length. All sturgeon were captured using a method perfected during the first year of collecting. The most significant find during the past field season was the collection of one very small individual that weighed just under three pounds. This lake sturgeon is probably a spawn from between three to five years ago. This is the first sign of recent reproduction seen during this study.

During the first two years of the study, all captured lake sturgeon came from the same location. The last two field seasons recorded lake sturgeon at new locations farther downstream. Future efforts focus on determining if lake sturgeon are spawning in the East Fork White River. Sampling will continue in other river areas in anticipation of revealing additional lake sturgeon populations.

Endangered darter survey

Currently seven species of darters - bluebreast, spotted, Tippecanoe, harlequin, gilt, spottail, variegate - are endangered in Indiana. The Nongame and Endangered Wildlife Program funded several past surveys to assess the status of these darter species. Recent collections indicate that several of these species are expanding their range within known watersheds, into new watersheds and even into areas from which they were thought to be extirpated. A three year survey, beginning two field seasons ago, was initiated in an attempt to accurately define the current range of each of these seven endangered species. Some of the major finds so far include: Tippecanoe darters from the Wabash River, spotted darters in the East Fork White River, and harlequin darters from the Patoka and Black rivers. These species were not collected in these drainages during previous collection efforts and

represent substantial range expansions. Once the surveys are completed, the endangered status of each species will be reviewed.



The Tippecanoe darter's state status will be reviewed once the survey data is analyzed.

Amphibians & Reptiles

Hellbender survey

NEWP has studied the hellbender, a state endangered amphibian, since 1996. Twelve sampling locations were established in 1998 throughout the length of the Blue River and are used to monitor long-term hellbender population levels. Forty-nine individuals were collected during the 1999 field season as compared to 21 in 1998. Basic information on weight, length, sex and location of capture was collected from all captured individuals. Each individual was also marked for future identification. Several nests were located during sampling, however, juvenile hellbenders were not found.

Spatial ecology of the timber rattlesnake in southern Indiana

The timber rattlesnake is found in restricted areas of southcentral Indiana and is listed as a state endangered species. Except anecdotal observations, little is known about this species' habitat requirements within the state. To determine ecological needs for timber rattlesnakes in Indiana, IUPUI-Fort Wayne, in conjunction with NEWP, began radio telemetry studies in 1996. In 2000, 16 snakes (9M:7F) were radio tracked from April to October. Information gained from the study was used to assess habitat selection and movement patterns for the species.

Rattlesnakes selected habitat in mature deciduous forest, areas close to fallen logs and with increased surface vegetation. Juvenile snakes were also associated with decreased canopy closure. Occasionally, juveniles and female snakes were found in trees at heights up to nine feet.

Timber rattlesnake home range size varied by the sex and age of the snake. Males exhibited the largest home ranges, up to 800 acres. All snakes showed some site fidelity for respective home ranges, with an average of 65 percent seasonal home range overlap. Hibernacula (wintering sites) were at the center of the areas utilized by the snakes. Consequently, they are considered the most sensitive area to human disturbance.

Future studies for this species in Indiana will remain focused on movement patterns but will also focus on population recruitment. In addition, efforts will continue to mark all timber rattlesnakes captured in the study area to gain a better understanding of population demographics. Since 1996, 65 snakes (39M:26F) have been marked, including eight snakes in 2000.

Indiana North American amphibian monitoring program

There has been a growing concern over the past few years that amphibians - frogs, toads and salamanders - are declining throughout the United States. Research showing yearly trends in amphibian populations is lacking. In response, the international Declining Amphibian Populations Task Force (DAPTF) was formed. The North American Amphibian Monitoring Program (NAAMP) was created out of DAPTF to involve states in monitoring their amphibian populations. NAAMP's purpose is to provide a protocol for consistent monitoring methodology and to establish reliable baseline information about amphibian distribution and abundance.

Indiana joined NAAMP in 1999 with a pilot project run by the Indiana University School of Public and Environmental Affairs and the U.S. Fish & Wildlife Service, in consultation with the Indiana DNR's



Sixteen species of frog and toad call Indiana home. Survey volunteers listen and record their calls.

Division of Fish & Wildlife. The program went statewide in 2000 when coordination of the program passed to the Division of Fish & Wildlife's Nongame and Endangered Wildlife Program.

This project relies on volunteers to study Indiana's amphibian

populations and to collect data that can be used for future management decisions.

Indiana's first full year of monitoring focused on conducting frog and toad calling surveys along 56 random routes established by the national office. Three training workshops were conducted; one each in the north, central and southern portions of the state. Once trained, volunteers chose a route and conducted a minimum of three surveys over the course of frog and toad breeding seasons. The workshops resulted in 242 trained volunteers and 43 of the 56 random routes assigned and surveyed in 2000. One goal for spring 2001 is 100 percent coverage of the random routes.

Data sheets from the spring/summer 2000 surveys are being collected and an Indiana Amphibian Program website is being developed. Preparations for the 2001 survey season are underway. Methods for implementing the surveys expand in 2001 with the addition of atlas routes (routes chosen by the volunteers) and a backyard calling survey.

Birds

Survey and management of interior least terns

NEWP personnel have worked with Cinergy staff since 1986 to monitor and manage the only nesting site for least terns in Indiana. Terns nest on gravel dikes and ash disposal areas at the Gibson Power Plant adjacent to the Wabash River in southwestern Indiana. Management consists of restricting access to minimize disturbance and controlling vegetation. Tern decoys are used to entice nesting by least terns and efforts are made to thwart mammalian predators.

After a slow beginning during the early part of the season, least tern numbers and nesting efforts increased from 1999. The breeding population in 2000 peaked at approximately 70 adults. Thirty-nine nesting attempts were noted with 24 nests producing at least one chick. A minimum of 26 chicks reached fledgling stage.

Trailmaster cameras were used at two locations to identify potential predators. The ring-billed gull was the most common species encountered and was suspected of preying on terns. A domestic cat was noted on the center dike and a family of coyotes was observed near the ash disposal area.

Planning continued for the construction of tern

nesting islands as part of a larger wetland development project nearby. The Habitat Conservation Plan developed by Cinergy was finalized and approved by the U.S. Fish and Wildlife Service (USF&WS).

Nongame bird conservation plans

Participation continued in various planning initiatives including Partners in Flight (Neotropical migrant landbirds), the U.S. Shorebird Conservation Plan, the North American Colonial Waterbird Conservation Plan, the USF&WS Ohio River Valley Ecosystem team, and the North American Bird Conservation Initiative. Plans were completed for most of these programs, so the challenge now becomes implementing them. The Lower Mississippi River/Great Lakes Region Joint Venture of the North American Waterfowl Management Plan embraced "all bird" conservation and may be an effective way to achieve implementation in Indiana.

As state co-coordinator for the federal Breeding Bird Survey (BBS), most of the 62 survey routes in Indiana were assigned and successfully completed during 2000. State BBS coordinators met at Patuxent to discuss ways to retain and recruit survey participants.

Survey of loggerhead shrikes

A comprehensive assessment of loggerhead shrike populations in Indiana in 1988-1989 revealed the highest numbers in Daviess and Dubois counties (Burton and Whitehead 1990). During 1999 and 2000, these areas were revisited to determine changes in the population size and distribution of this state endangered bird. Different survey methods were utilized in the recent survey which could hamper comparisons between the two survey results.

Shrikes were located at 44 sites in these two counties during 2000 compared to 88 sites during 1989. When comparing the three areas most frequently visited, more locations with shrikes were found in 2000 in both central Daviess County (35 vs. 27) and southwestern Dubois County (21 vs. 17). In northwestern Dubois County, however, shrikes have been nearly extirpated (2 vs. 40). Site fidelity was not high. Shrikes were detected at 19 percent of Burton and Whitehead's locations. Thirty percent of locations with shrikes in 1999-2000 were the same as in 1988-1989. During 2000, shrikes were found at 54 percent of locations where they were observed in 1999.

Shrikes were typically encountered along gravel roads with utility lines and barbed wire fences. Fencerows consisting of scattered eastern red-cedar and small deciduous trees or shrubs were used for nesting. Human habitations, grazed pastures, mowed hayfields, and corn fields were usually present. Other birds detected at sites with shrikes were mostly common agricultural, shrubland, and grassland species.

Sandhill/Whooping Crane Management

The peak fall population of staging sandhill cranes at Jasper-Pulaski Fish and Wildlife Area was estimated



Adult sandhill crane

at 14,000 in early-mid November 1999. This was one of the lowest counts during the past decade. New nesting locations continue to be reported in the northern third of Indiana. A proposed administrative rule that would remove the sandhill crane from the Indiana list of endangered species is moving forward along with the addition of whooping

cranes to the state list. This is in anticipation of the proposed establishment of a migratory population of whooping cranes in the eastern United States beginning in the fall of 2001. Comments on this proposal were submitted to the U.S. Fish and Wildlife Service. Assistance was given to Operation Migration/Whooping Crane Eastern Partnership in locating stopping points in Indiana for an experimental project to teach whooping cranes (using sandhills as a surrogate in 2000) a migration route from Wisconsin to Florida via ultralight aircraft. State biologists attended and made presentations at the 8th North American Crane Workshop in Albuquerque.

Mammals

Population dynamics of the Allegheny woodrat in Indiana

In 1998, a 4-year study was initiated at two localities to obtain demographic information, e.g., sex and age structure, survival, mortality, for the Allegheny woodrat in Indiana. From July 1998 through August 2000, nongame personnel completed 20 monthly

trapping sessions at the Tobacco Landing and Shelterhouse #2 sites on the limestone cliffs bordering the Ohio River in Harrison County. A total of 45 woodrats (27M:18F) was captured 210 times in 937 trapnights at Tobacco Landing. Thirty-seven woodrats (14M:23F) were captured 166 times in 942 trapnights at Shelterhouse #2. Seasonal fluctuations in populations are evident with the number of individuals taken during each 2-night session ranging from three in March, 1999, to 18 in October, 1999. Juveniles were trapped every month surveys were conducted, except for March and November, indicating multiple litters by resident females. Monthly surveys will continue at the two sites through June 2002 to obtain the necessary data for determining demographic parameters of the Allegheny woodrat in Indiana.

Population study of bobcats in Indiana

From December 1999 to February 2000, nine bobcats (4M:5F) were captured 19 times in 1,876 trapnights during the second field season of a multi-year study of the state endangered bobcat in southcentral Indiana. Two were kittens and were too small to attach radio collars. Radios were attached to the remaining seven cats (3M:4F), including an adult male originally captured in 1998. Radio contact was lost with one female in March 1999, and another female was found dead in early April from unspecified causes. Weekly monitoring of the remaining five radioed cats continued through the summer, and 768 locations (average = 109 per radioed cat) have been obtained through August 1999. One adult female was sighted with three kittens on Crane NWSC. Efforts to determine reproductive status of the other radioed female have proven unsuccessful. Live-trapping efforts to capture additional bobcats for the study are slated to begin in fall 2000.



A radio collar allows DNR biologists to obtain information on this bobcat's movements and habitat use.

Indiana bobcat report database

Bobcats have been listed as a state endangered species since 1970, but evidence suggests that Indiana's bobcat population has increased sharply in the last five years. Excluding the nine animals captured in the radiotelemetry study, 32 confirmed reports of bobcats have been documented in 21 Indiana counties in the last 30 years. Twenty-two (69 percent) of these reports have occurred since 1995. Recent confirmed reports include road-kills in Monroe and Warrick counties and a sighting of a juvenile cat in Twin Swamps Nature Preserve in Posey County.

Management of Indiana bat winter hibernacula

NEWP utilizes a variety of strategies to manage and protect important Indiana bat winter hibernacula. "Indiana Bat Hibernating Colony" warning signs, which define the seasonal closure period from 1 September to 30 April, are posted at 11 caves in southern Indiana. Remote electronic alarm systems, first deployed in 1998, continue to be effective deterrents to unauthorized visitations in three monitored hibernacula. Other management activities include landowner outreach, preventive maintenance at bat gates, monitoring temperature conditions at select roost sites, and use of speloggers to monitor human visitation during the seasonal closure period. Non-game personnel also cooperate with Bat Conservation International in their multi-state study of temperature and humidity conditions at nearly 20 caves throughout the species' range. In August 2000, data from 18 probes in five hibernacula in Indiana were downloaded to assess the role of roost microclimates in the continued decline of Indiana bats throughout their range.

Publications

Berkley, K.A. and S.A. Johnson. In press. Range expansion of the badger (*Taxidea taxus*) in Indiana. Proceedings of the Indiana Academy of Science.

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