

USACE Natural Resource Management Mammals



Indiana Bat

FAST FACTS

REASONS FOR CURRENT STATUS: The Indiana Bat was listed by the U.S. Fish and Wildlife Service (USFWS) as an endangered species in 1967. Listing was the result of a large population decline due to disturbance of hibernating bats by humans. NatureServe lists the status of the species as Imperiled, with many states categorized as Critically Imperiled.

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Imperiled

In 2019, the USFWS published a population status update estimating the range-wide population at 537,000 bats occurring in 16 states. The three most populous states were Missouri, Indiana, and Illinois. States with the largest net loss of Indiana bats since 2007 include Pennsylvania (1,027 or -99%), West Virginia (-14,125 or -96%), New York (-39,367 or -75%), and Tennessee (-6,509 or -73%).

MANAGEMENT AND PROTECTION: As noted by its listing, Indiana bats are extremely vulnerable to human disturbance because they hibernate in large numbers in only a few caves. Other threats that have contributed to the species' decline include commercialization of caves, loss of summer habitat, pesticides and other contaminants, and over the past 10 years, the disease white-nose syndrome.

HABITAT NEEDS: Indiana bats occupy two different habitat types.

- Winter habitat for this hibernating species consists of caves or mines with small cracks and crevices that maintain constant temperatures, high humidity, and no air current. The USFWS advises that human disturbance by entrance into such places during species hibernation can arouse the bat resulting in additional use of energy reserves potentially causing death. Any structures installed at entrances to minimize human entry should be constructed in a manner that does not alter the cave or mine microclimate or disrupt entry and exit for the species.
- As noted by the USFWS, summer habitat includes small to medium size river and stream corridors with well developed riparian woods.

Appearance: Indiana bats are considered to be quite small, weighing only one-quarter of an ounce (about the weight of three pennies). (USFWS) Despite their small body size of 3.5 inches, they have a wingspan of 9 to 11 inches.

Their fur is dark-brown to black. Having a similar appearance to both little brown bats and northern long-eared bats. The species can be differentiated by the length of their feet. (National Wildlife Federation)

Photos: USFWS

Natural Resource
Management (NRM)

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USACE NATURAL RESOURCE MANAGEMENT ROLE: According to the Engineering Research and Development Center's Threatened and Endangered Species Team Cost Estimates, the USACE has expended over \$6,739,133 since 2006 on efforts related to the Indiana bat. The costs associated with this species have been incurred by multiple business lines including Navigation, Regulatory, Planning and Program Management, Flood Risk Management, and Environmental Stewardship.

WHAT IS USACE NRM DOING: Because of the range associated with the Indiana Bat, nearly 80 projects with a NRM mission spread across 13 USACE districts reported the potential, rare, and occasional occurrence of the species during the FY20 NRM Assessment.

The Rivers Project Office, St. Louis District, has conducted bat surveys since 2010 on a reoccurring basis to monitor species presence. The importance of the surveys and results have been shared to enhance public understanding of the plight of the Indiana and other bat species. As noted, the surveys help USACE make better decisions when planning projects and developing management objectives.



One Important Aspect of Wildlife Management Along Our Rivers

To better understand the composition of ecological habitats in their management of public lands, the Army Corps of Engineers inventories a variety of animal species - including bats.

According to Charlie Deutsch, supervisory wildlife biologist at the St. Louis District's Rivers Project, to better understand which species are using the lands along the rivers they, along with natural resource managers from other agencies, monitor bats on a regular basis using field surveys. This monitoring helps the Corps make better decisions when planning projects and developing management objectives. For example, Deutsch said, some bats favor more open forest communities. If there is a significant number of those bats, foresters and biologists may utilize timber stand improvement techniques in order to thin the forest in an attempt to provide a better habitat.

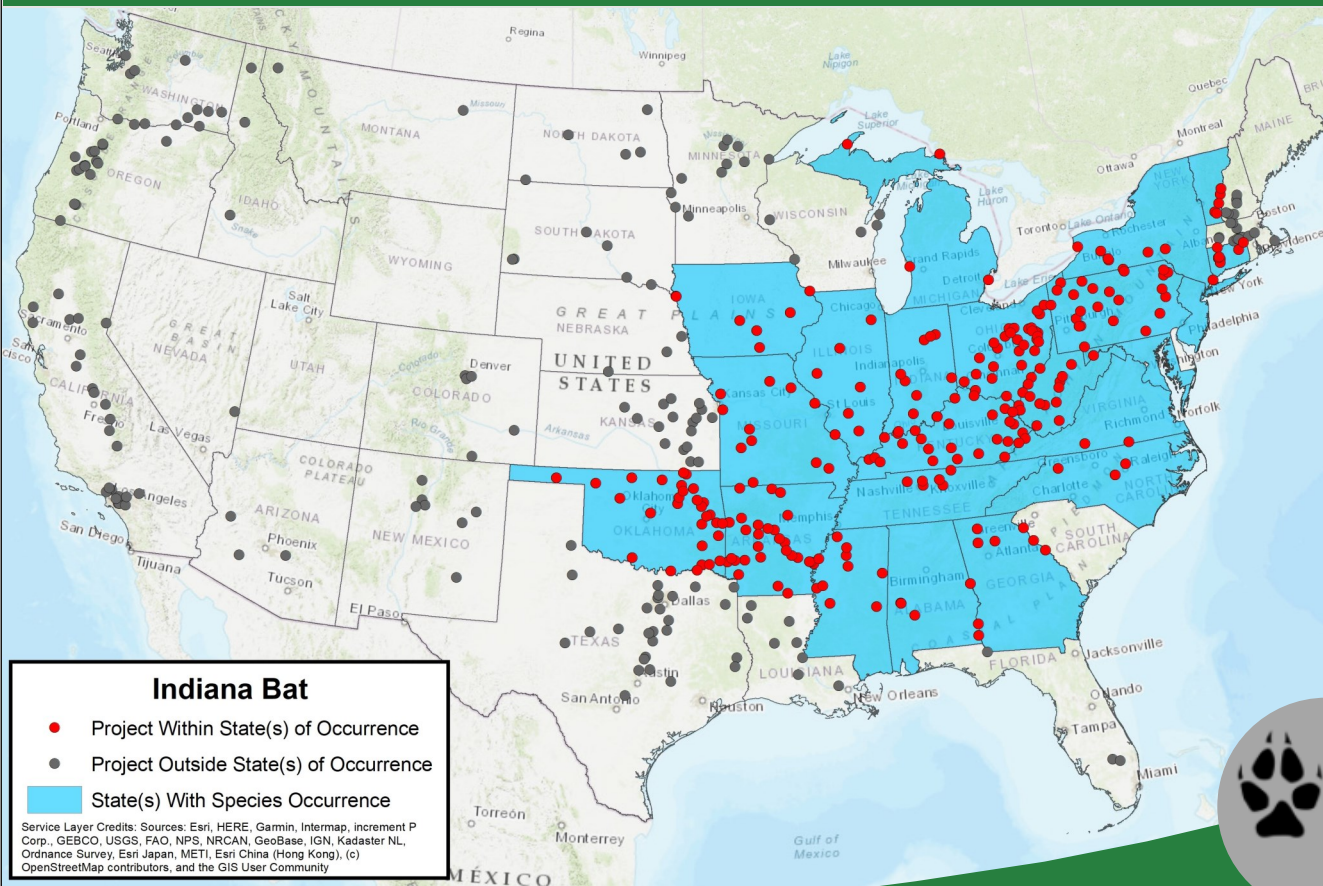
CLOCKWISE, FROM LEFT: Male Little Brown Bat from Fuller Lake. Close up of bat feet. Indiana bat from Batchtown Landing. reserves during cold weather. According to McGuire, since it was first documented in New York during the winter of 2006-2007, WNS has killed more than 5.5 million bats in the northeastern United States and eastern Canada. In some areas, 90 to 100 percent of bat populations have died as the disease has rapidly spread across the eastern and midwestern United States, according to a USFWS fact sheet.

This year, SCI Engineering caught a total of six Indiana Bats by placing three "mist" nets that are made of nylon mesh and suspended between two poles. The nets were placed at various sites for two nights each, over three weeks in June. The researchers also caught a variety of other bat species, including Little Brown Bat, Red Bat, Big Brown Bat, Evening Bat and Tri-Colored Bat. Some bats were then tagged with a radio telemetry tracking tag, which enabled the biologists to "follow" them to their "day roost tree," where the bats perch to sleep. Devices at each mist net site recorded bat calls in the immediate area, allowing the researchers to document additional species of bats that might not be physically caught. The team could then determine which bats were present through listening for the frequency and duration of the calls.

All the data collected will be shared through a science support partnership organized by the USFWS and the U.S. Geological Survey. The goal of the partnership is to improve the understanding of bat populations and the impact upon bats coming from extreme loss of roosting and foraging habitat. Data will be used to help improve the habitat of Indiana Bats and help everyone avoid negatively impacting the species through poor management practices.

"When many people think of wildlife, they may think of deer and turkey, but there are all these other species to consider, including bats," Deutsch said. "They are all part of the bigger ecosystem and support the food web." Bats consume a lot of pests and are a benefit to the economy because

Photo Above: The publication, "Our Mississippi" features an article on USACE efforts to monitor Indiana bat populations at the St. Louis District's Rivers Project Office.



Mammals
Source: Map provided by Ashleigh Boss, ORISE Fellow, Institute for Water Resources

