



STATE WILDLIFE GRANT—INDIANA

Summer Bat Communities on DFW Properties



Bats are commonly captured in mist nets placed over natural flyways such as streams. (Photo by Jeremy Sheets)

CURRENT STATUS

First year of a three-year project

FUNDING SOURCES AND PARTNERS

State Wildlife Grant Program (T7R23)

Orbis Environmental Consulting

PROJECT PERSONNEL

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BACKGROUND AND OBJECTIVES

Bats are important predators of nocturnal flying insects, including many forestry and agricultural pests. Many species of bats have suffered population declines due to factors including wind-energy development, environmental contaminants and loss of habitat. The fungal disease white-nose syndrome (WNS) alone has killed

millions of bats since 2006. The objective of this project is to provide baseline data of bats that occur on Indiana Division of Fish & Wildlife (DFW) properties throughout the state during the summer maternity season. Information from this project will be used to protect critical resources, establish data to compare with those of future surveys and monitoring programs, and inform management practices for bats on DFW properties.

METHODS

Mist-net surveys were conducted during the three-month Indiana bat summer maternity season (May 15–Aug. 15). Each net site consisted of at least three sets of mist nets of varying lengths strung between poles and placed in natural flyways (streams, forest edges). Bats were netted on two consecutive nights beginning at sunset and continuing for at least five hours each night. Nets were checked every 10 minutes to reduce stress on captured bats. Each bat was identified to species and sex, examined for reproductive condition, and assigned an age



An adult hoary bat, the largest bat species in Indiana. (Photo by Jeremy Sheets)

class (juvenile or adult). Other characteristics noted for each individual included body weight and right forearm length as measures of size. A wing-damage index was used to determine if bats had been infected with WNS.

PROGRESS TO DATE

In 2017, 16 net sites were sampled on eight DFW properties (Ashcraft Cave, Swamper Bend Wildlife Diversity Area, Randolph County Wildlife Management Area, Wilbur Wright Fish & Wildlife Area (FWA), Little Chapman Lake, Pisgah Marsh Nongame Area/Durham Lake Wildlife Conservation Area, Blue Heron Rookery Nongame Area, and Manitou Lake/Manitou Islands Wetland Conservation Area.

A total 218 bats of six species were captured, including

168 big brown bats, 26 eastern red bats, nine Indiana bats (federal & state endangered), eight evening bats (state endangered), three hoary bats, and one silver-haired bat. The Pisgah Marsh/Durham Lake complex in northeast Indiana yielded the most bats, whereas species diversity was greatest at Swamper Bend along the White River in southern Knox County. Three species that have been greatly affected by WNS (little brown bat, northern long-eared bat, tri-colored bat) were not captured.

COST: \$123,077 FOR THE COMPLETE THREE-YEAR PROJECT



Key characteristics to identify the endangered Indiana bat include short toe hairs and a keeled calcar. The calcar is a short spur of cartilage that runs from the inner side of ankle along the outer edge of the wing membrane between the tail and the hind leg. (Photo by Jeremy Sheets)

DFW Property	County	Net Sites	Hoary	Big Brown	Silver-haired	Eastern Red	Evening	Indiana	Unknown	Total
Ashcraft Cave	Greene	1	0	0	0	1	0	0	0	1
Heron Rookery	St. Joseph	1	1	6	0	0	0	0	0	7
Little Chapman Lake	Kosciusko	1	0	14	0	1	0	0	0	15
Manitou Lake & Wetlands WCA	Fulton	1	0	23	0	4	0	0	0	27
Pisgah Marsh/Durham Lake	Kosciusko Whitley	3	0	62	0	4	0	1	0	67
Randolph County WMA	Randolph	3	1	24	0	5	0	4	2	36
Swamper Bend FWA	Knox	1	1	6	1	0	8	4	0	20
Wilbur Wright FWA	Henry	5	0	33	0	11	0	0	1	45
Total		16	3	168	1	26	8	9	3	218

A total of 218 bats of six species were captured on eight DFW properties in 2017. The big brown bat and eastern red bat accounted for, respectively, 77% and 12% of all bats captured.