



STATE WILDLIFE GRANT—INDIANA

Summer Bat Communities on DFW Properties



Natural flyways, such as this waterfall at Splinter Ridge FWA, are ideal sites to place mist nets. (Photo by Megan Martin)

CURRENT STATUS

Second 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 pest species. 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 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 (*Myotis sodalis*) summer maternity season (May 15–August 15). Each net site consisted



An endangered Indiana bat captured on Crosley FWA. (Photo by Megan Martin)



The evening bat is a medium-sized brown bat that resembles a smaller version of the more common big brown bat. (Photo by Megan Martin)



The tri-colored bat is one of the smallest bats in Indiana. Its fur has three color bands, with a dark base, a light middle, and an intermediate shade tip. The pinkish forearms contrast with the black wing membrane. (Photo by Megan Martin)

of at least three sets of mist nets of varying lengths strung between poles and placed in natural flyways such as stream corridors and 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 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 215 bats of six species were captured, including 168 big brown bats (*Eptesicus fuscus*), 26 eastern red bats (*Lasiorus borealis*; state special concern), nine Indiana bats (federal & state endangered), eight evening bats (*Nycticeius humeralis*; state endangered), three hoary bats (*L. cinereus*; state special concern), and one silver-haired bat (*Lasionycteris noctivagans*; state special concern). 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.

In 2018, 15 net sites were sampled on three DFW FWAs: Hovey Lake, Splinter Ridge, and Crosley. A total of 89 bats of five species were captured, including 40 eastern red bats, 39 big brown bats, five evening bats, three Indiana bats and two tri-colored bats (*Perimyotis subflavus*; state endangered). Crosley FWA in Jennings County yielded the most captures and also added a new species, the tri-colored bat, to the project. Hovey Lake FWA in Posey County produced the most captures of evening bats and most bats per net-night.

Two species that have been greatly affected by WNS, the little brown bat (*M. lucifugus*) and northern long-eared bat (*M. septentrionalis*), were not captured in either 2017 or 2018. Field work in 2019 will conclude the three-year project with netting planned at LaSalle, Roush, Deer Creek, and Wabashiki FWAs.

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