Bat Surveys

Metro Parks, Serving Summit County

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Prepared by

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Acknowledgements

People Involved in this Investigation

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Robert Curtis – Technology Support

Introduction

Mist netting studies for the Indiana bat are conducted yearly in Metro Parks, Serving Summit County properties following the guidelines set forth by the United States Fish and Wildlife Service and the Indiana Bat Recovery Plan (Brady et. al., 1983). These surveys are performed to compliment our whole-park ecological inventories and are done so according to the inventory schedule. Surveys have been conducted since 2003. The focus of these surveys is to determine the presence of the Indiana bat, however all species documented are measured and banded.

Natural History

Eleven species of bats are known to inhabit the state of Ohio, including the federally endangered *Myotis sodalis, as well as Myotis lucifigus, Myotis septentrionalis, Myotis leibii, Eptesicus fuscus, Perimyotis subflavus, Lasiurus borealis, Lasiurus cinereus, Lasionycteris noctivagans, Corynorhinus rafinesquii and Nycticeius humeralis*. With the exception of the Lasiurans, these species are migratory hibernators who seek abandoned mines or caves for the winter. Lasiurans migrate south for the winter and remain active. Although recent documentation has found some red bats hibernating in the leaf litter in more northerly states (Mormann, et. al., 2007).

In the spring (late March – April) females leave hibernation in search of suitable habitat to raise their young. They prefer trees with exfoliating bark or cavities which receive moderate sun exposure for their maternity roosts. They often choose trees at the edges of streams or in beaver ponds, standing alone in fields or fence rows, or in a forest clearing over trees in the dense forest.

While high temperatures in the roosting environment are important for all species, some species are less selective and will use artificial structures such as bat houses, barns, and attics (*Eptesicus fuscus* and *Myotis lucifigus*). Recently, *Myotis sodalis* and *Myotis septentrionalis* have also been documented in small numbers using these same artificial structures for their maternity colonies.

Most bats forage over wooded and riparian areas. Larger bats such as Lasiurans who are fast flyers are more likely to forage over large streams or in the open while smaller species prefer the protection of the forest canopy to forage. These smaller species have evolved to fly more slowly and have the maneuverability to forage amongst trees and vegetation. These differences among species also lead them to feed on different sized prey.

Methods

Mist-netting procedures followed guidelines developed by the Indiana Bat Recovery Team and endorsed by the United States Fish and Wildlife Service. Sites were selected as described below. At each site, a tier of low-visibility nylon mist nets was erected

across likely flyways and other areas where bat activity was anticipated. When possible, nets were erected to sufficient height and width to entirely block off the flight corridor. Nets were secured to a rope and pulley system suspended from telescoping poles. Nets were erected during the twilight hours and monitored every 15-20 minutes. All mist nets were constructed of 50-denier/2-ply nylon mesh.

A harp trap is used to capture bats emerging or swarming at cave entrances. Whenever possible, the harp trap and a series of tarps are used to entirely block off the flight corridor into the cave. The harp trap was erected during the twilight hours and monitored every 15-20 minutes.

Surveys to detect the presence of breeding individuals are conducted between May 15 and August 15 each calendar year. Liberty Park (Twinsburg, OH) is surveyed during spring emergence and fall swarming between early April and May 15 and August 15 until late October respectively.

Data Collection

Data collection includes species identification, body weight, forearm measurement, gender, age, and reproductive condition. Smaller species captured are banded with an aluminum alloy wrist band each with a unique ODNR number. Females are banded on the left and males on the right wrist.

Site Descriptions

Only two properties were surveyed in 2010. Both were potential property acquisitions and included Maple Grove Park and Nimisila Creek Preserve. Following guidelines from the United States Fish and Wildlife Service regarding White Nose Syndrome, surveys were not conducted during spring or fall migration at caves at Liberty Park or Camp Christopher. Sand Run Metro Park was the surveyed on one evening for a mist netting demonstration for the public. This site, at Big Bend, has been surveyed a number of times in the past. Species reports for this location are included in the data provided below.

Parks and greenways surveyed were selected to compliment the department's park inventories. Effort in each park met the guidelines set forth by the Indiana Bat Recovery Plan of eight net nights per square kilometer unless otherwise noted. Refer to Appendix A for park maps and specific survey site locations.

Nimisila Creek Preserve (-81.4776, 41.2630)

Nimisila Creek Preserve is approximately 360 acres of privately owned land for sale in northern Stark and southern Summit County. Nimisila Creek borders the property to the north. The preserve is comprised of emergent and scrub/shrub wetlands scoring Category 3 status by Ohio EPA ORAM standards. There are a number of gas well roads

and ATV trails on the property. These access roads were the focus of our mist-netting studies.

Maple Grove Park (-81.5809, 40.9120)

Maple Grove Park is a 293-acre natural area supporting category 3 wetlands, Brandywine Creek, and wet woodlands. Brandywine Creek is a tributary of the Cuyahoga River. The floodplains supporting Brandywine Creek consume the eastern border of the property. Woodlands, including vernal pools and a small bog dominate the western half of the park. Mist netting surveys were conducted on the service drives within the park and near water features.

Results

Overall, four species were recorded in these parks including *Myotis lucifigus*, *Myotis septentrionalis*, *Eptesicus fuscus*, and *Lasiurus Borealis.* Table 1 illustrates species found in each park surveyed. Refer to Appendix B for complete data from each park inventory.

Table 1. Species captured by park during 2010 bat surveys. EPFU= big brown bat, PISU = Tri-colored bat, MYLU= little brown bat, MYSE= northern long-eared bat, LABO= red bat.

	EPFU	MYLU	MYSE	LABO
Maple Grove Park	X		X	X
Nimisila Creek Preserve		X		X
Sand Run Metro Park	X			X

Maple Grove Park

Maple Grove Park was surveyed on two evenings and included 5 net nights. *Eptesicus fuscus, Myotis septentrionalis* and *Lasiurus borealis* were documented. Lactating or pregnant females of all species were recorded for this park. This property has been secured by Metro Parks, Serving Summit County and will be surveyed in more detail in the future.

Nimisila Creek Preserve

Nimisila Creek Preserve was surveyed on two evenings. Six net nights produced two species including *Eptesicus fuscus* and *Lasiurus borealis*. Both netting events were cut short due to wet weather. This site warrants further investigation by the department if it becomes property of Metro Parks.

Sand Run Metro Park, Big Bend Area

Big Bend was surveyed on one evening for a public mist-netting demonstration. *Lasiurus borealis* and *Eptesicus fuscus* were documented during this survey. These species have both been documented numerous times in the past at this location.

Anabat Transects

Bat populations are being subjected two relatively new mortality pressures, white nose syndrome and wind energy development. In an effort to assess the effects of WNS and wind energy development, Anabat transects were initiated throughout the eastern United State by a number of federal, state and local agencies.

Metro Parks completed two approximately 30-mile transect in 2010 (see Appendix C for protocol and Appendix D for transect maps). Our sampling protocol followed the guidelines and protocol established by the Wayne National Forest. The transects passed through MPSSC lands, CVNP lands, small agricultural/rural lands and urban/suburban settings. Each transect was along two-lane roads with open foraging space, corridors through forested areas. Each transect was at least 30 miles in length, as per protocol, and hundreds of echolocation calls were compiled. Three nights of monitoring were conducted.

Anabat files will be sent to Eric Britzke of ACOE for evaluation. Metro Parks will continue these transects next year. Transects will be run more frequently to more adequately cover the maternity season of local species.

White-Nose Syndrome Investigation

As per recommendation of federal and state agencies, Metro Park conducted bi-weekly cave monitoring to search for WNS related activity at the ledges in Liberty Park. Checks included visiting entrances to the caves to determine if bats were staging themselves near the cave entrances too early or if dead bats were present, both indicating a potential problem with WNS. No suspicious bat activity wasdetected in any cave at Liberty Park during this time. Monitoring was conducted January through March.

Outreach

A mist-netting demonstrations was conducted through our Interpretive Department for the public. Thirty-five people were in attendance. Mist netting procedures were demonstrated, native bat biology was discussed and participants were able to view live bats.

Conclusions

Indiana bats were not present at any site surveyed in 2010. Fortunately, white-nosed syndrome was not detected at any caves monitored in Summit County by the Metro Parks. In 2011, cave entrances will be surveyed January-March for unusual bat activity

indicative of WNS such as bats staging themselves near cave entrances or bats flying outside of cave entrances before spring emergence.

New USFWS recommendations suggest trapping should not be conducted at caves during the spring or fall due to the risks of WNS transmission. Therefore, in 2011 caves will not be surveyed. Some acoustic monitoring may be conducted during spring emergence and fall swarming.

In addition to summer mist-netting studies on newly acquired properties, Metro Parks will continue to monitor its acoustic transect for WNS research to contribute to this eastern United States research initiative.

References and Suggested Reading

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