2007 Bat Survey Report

Big Brown Bat, photo by Bob Dodd

Prepared by:

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Introduction

Throughout the Metro Parks, bat surveys are conducted each year to compliment the EARTH based ecological inventories. In part, these surveys are conducted to determine the presence of the federally endangered Indiana bat (*Myotis sodalis*). Indiana bats are migratory cave hibernators. They utilize caves or abandon mines with stable temperatures ranging between 3 and 6° Celsius from October through April or May. By the end of May, Indiana bats have dispersed and are foraging over wooded areas in riparian and floodplain forests near small to medium sized streams (Humphries *et al*., 1977), and have migrated as far as 300 miles from their hibernation site (Jeromy Applegate, pers. comm.). Females form maternity colonies in trees with exfoliating bark, snags or cavities. The proximity of a tree to direct sunlight is another element that factors into roost tree selection. The Indiana bat has been on the endangered species list since 1967. Fall swarming and reproduction of Indiana bats has been documented in Summit County, OH (Perdicas, 2004).

In 2007, two Metro Parks were surveyed including Cascade Valley and Goodyear Heights (see Appendix A for maps). The caves of Liberty Park were surveyed in the fall for migrating bats.

Metro Park participated in the Crown Point Ecology Bio Blitz and conducted a bat survey there on July 6. Crown Point Ecology Center was surveyed on July 6 for their 24-hour bio blitz. Crown Point, in Bath, Ohio is 130-acre historical farmstead used, in part, for a Community Supported Agriculture program.

Furthermore, we conducted one survey night at Kingsville Swamp in Ashtabula County. Kingsville Swamp is a 45 acre nature preserve managed by the Cleveland Museum of Natural History. Our survey was conducted in cooperation with the museum.

We also conducted one net night at the cave in Camp Christopher as a demonstration for the Natural Areas Conference held in Cleveland Ohio. Fall swarming surveys have been conducted at Camp Christopher in previous years to determine the presence of hibernacula in the sandstone ledges.

An emergence survey was conducted in Clinton, OH for the PPG Phase II Towpath Trail construction. Construction was set to impact wooded and wetland areas that harbored trees suitable for use by Indiana bats.

Mist-netting procedures followed guidelines developed by the Indiana Bat Recovery Team (Brady, *et al.* 1983) and endorsed by the U. S. Fish and Wildlife Service. Tiers of low visibility, nylon, mist nets were erected over potential flight corridors. Sampling effort met or exceeding USFWS standards of eight net nights per square kilometer in the three Metro Parks surveyed. Belwood, 1998 was used for identification and nomenclature.

A harp trap was used at the caves in Liberty Park, Camp Christopher, and the Cleveland Clinic Site. At all sites, the harp trap was placed at the cave entrance. Tarps were placed around the harp trap to close off as much of the flyway in and out of the cave as possible.

Results & Discussion

A total of 401 bats of five species were captured during the 2007 surveys including: Eastern pipistrelle (*Pipistrellus subflavus*), little brown (*Myotis lucifigus*), big brown (*Eptesicus fuscus*), northern long-eared (*Myotis septentrionalis*) and red bats (Lasurius borealis). Table 1 illustrates the results of the 2007 capture season by park surveyed.

Cascade Valley and Goodyear Heights Metro Parks
Cascade Valley and Goodyear Heights Metro Parks were surveyed during the summer breeding season in conjunction with the park inventory schedule. Big brown, little brown, northern long-eared and red bats were captured in both parks. Big browns were the most common species captured followed by little brown and northern long-eared bats.

Crown Point Ecology Center
Crown Point Ecology Center was surveyed on one night for their bio blitz. Most of their 130-acre property is agricultural land. We surveyed a small, 26 acre woodlot. Three nets produced eight big brown bats. Male and lactating females were captured.

Kingsville Swamp
Kingsville Swamp, located in Ashtabula County was surveyed on one summer evening for the Cleveland Museum of Natural History. The 45-acre nature preserve is adequately wooded, however good netting locations were sparse. Nevertheless, three species including big brown, little brown and northern long-eared bats were captured.

Camp Christopher
One evening was spent at Camp Christopher during fall swarming to conduct a mist-netting demonstration for the participants of the Natural Areas Conference. The harp trap was used in the cave entrance and only four little brown bats were captured. Other species including big browns and northern long-eared bats were expected. However, the weather was poor that evening.

Liberty Park
The caves at Liberty Park were surveyed for fall swarming activity from September 9 through October 24. Two hundred and sixty four bats were captured of four species including: eastern pipistrelles, big brown, little brown and northern long-eared bats.

Only one big brown bat was captured during the survey period. This is interesting because big browns have been our most common species captured during the summer season for the last two years. This species is either not hibernating in Liberty Park in large numbers, or we aren't capturing them during fall swarming activity. Big brown bats tolerate the most changes in temperature and humidity because of their larger size. Smaller species such as little browns and northern long-eared bats are the most common species hibernating in Liberty Park suggesting that the caves must maintain relatively stable temperature and humidity.

Cleveland Clinic
Cleveland Clinic plans to develop 82 acres in Twinsburg, Ohio. This site has sandstone outcroppings. During field reconnaissance park staff identified one potential hibernacula location. The site was monitoring for fall swarming activity six times from mid September through October. No bats were observed at or near the cave entrance during this time.

Table 1. Bat Species Captured at Site Surveyed by Metro Parks, Serving Summit County in 2007 (complete database in Appendix C).

	Big Brown	Little Brown	N. Long-eared	Eastern Pipistrelle	Red
Camp Christopher		4			
Cascade Valley	37	26	7		1
Crown Point	8				
Goodyear Heights	25	11	6		1
Kingsville Swamp	1	8	2		
Liberty Park	1	148	111	4	
Total	72	197	126	4	2

PPG Phase II Towpath Trail Construction

An emergence survey was conducted in Clinton for the PPG Phase II Towpath Trail construction. Six trees (see Appendix B for photographs), suitable for bat maternity colonies, were observed by five individuals on two consecutive nights for emergence. No bats were observed emerging from any of the six trees during the observation period. The trees were felled within 24 hours of the last emergence survey.

Demonstrations

Mist netting demonstrations were conducted for park volunteers, City of Twinsburg and the Cleveland Museum of Natural History. Metro Parks also conducted a demonstration for the National Natural Areas Conference hosted in Cleveland this year. This demonstration was a field trip for conference participants and included dinner, a presentation on the bats of Ohio, and trapping at the cave in Camp Christopher. The field trip was well attended and received by its participants.

Conclusions

No Indiana bats were captured during the 2007 netting season. Surveys will be conducted at Pond Brook South, Clinton Towpath properties and along the Towpath and Bike and Hike Trails. Fall swarming studies will continue in Liberty Park in the fall.

Additionally, a new cave was acquired by the parks through the acquisition of the Free Indeed Farm. This cave is part of the south ledges of Liberty Park and is the southern most crevice that exists in this sandstone outcropping. This site will be surveyed in the early spring to determine if it is a hibernacula location.

Literature Cited

Humphry, Steven R., A.R. Richter and C. James. 1977. *Summer habitat and ecology of the Indiana bat (Myotis sodalis)*. J. Mamm. 58:334-346.

Brady, J.T., R.K. LaVal, T.H. Kunz, M.D. Tuttle, D.E. Wilson, and R.L. Clawson. 1983. *Recovery Plan for the Indiana Bat.* U.S. Fish and Wildlife Service. 80 pp.

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