

Exhibit K

Summer 2011 Bat Mist-Netting Report



**Greenwich Wind Project
Huron County, Ohio**

Inventory of Bat Species within the
Greenwich Wind Project Area with
Focus on the Federally Endangered
Indiana Bat (*Myotis sodalis*)

August 2011

Executive Summary

WindLab Developments USA, Ltd. (WindLab) retained Stantec Consulting Services Inc. (Stantec) to complete bat surveys within its Huron County, Ohio project area. The goal of the survey was to document all bat species occurring within the project area with specific focus placed on attempting to identify the occurrence of the federally endangered Indiana bat (*Myotis sodalis*). Summer mist net surveys followed methodologies outlined by the USFWS's "Indiana Bat (*Myotis sodalis*) Draft Recovery Plan: First Revision," dated April 2007, as well as the protocol for mist-netting outlined in the ODNR Cooperative Agreement document "On-Shore Bird and Bat Pre- and Post-Construction Monitoring Protocol for Commercial Wind."

A total of 102 bats, representing five species, was captured during summer mist net surveys. Bats were captured at all 15 mist net sites. No federally endangered bats were captured during mist netting surveys. Two species were relatively abundant: big brown bat (n=52, 51%) and northern bat (n=25, 25%). These two species represented 75 percent of all bat captures (N=77; see Table 3). The remaining 25 percent was distributed among little brown bat (n=15, 15%), eastern red bat (n=8, 8%), and tri-colored bat (n=2, 2%). The complement of species captured during summer mist netting (5 species) and number of total bats captured (102 individuals) was typical for the geographic location and type of habitat sampled.

Although it is not possible to determine with absolute certainty the absence of the Indiana bat, the lack of Indiana bat captures at mist net site locations suggests their probable absence during the summer reproductive season in the project area. These results suggest that the project is not likely to adversely affect the Indiana bat during the summer maternity period.

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1.0 Introduction

WindLab Developments USA, Ltd. (WindLab) is evaluating the potential development of a wind project to be located in Greenwich Township, Huron County, Ohio (Appendix A – Figure 1). Turbine locations as well as a project layout of infrastructure and transmission alignments have not been identified at this time. As part of the Ohio Power Siting Board (OPSB) permitting process to receive a Certificate of Environmental Compatibility and Public Need, WindLab is required to consult with the Ohio Department of Natural Resources (ODNR) and the U.S. Fish and Wildlife Service (USFWS).

As part of the project planning process, WindLab retained Stantec Consulting Services Inc. (Stantec) to complete bat surveys within the project area. The goal of the survey was to document all bat species occurring within the project area. Specific focus was placed on attempting to identify the occurrence of the federally endangered Indiana bat (*Myotis sodalis*). Summer mist net surveys followed methodologies outlined by the USFWS's "Indiana Bat (*Myotis sodalis*) Draft Recovery Plan: First Revision," dated April 2007, as well as the protocol for mist-netting outlined in the ODNR Cooperative Agreement document "On-Shore Bird and Bat Pre- and Post-Construction Monitoring Protocol for Commercial Wind."

1.1 PROJECT SETTING

The project is located in the Till Plains Physiographic Region. Elevations in this area range between 582 and 1,205 feet above sea level. The average rainfall for the area is 30.2 inches annually. The geologic strata of the Till Plains consist of two similar bedrock formations from the Devonian period. The Lower and Upper Devonian-age rock are generally fragmented sedimentary rocks that are mainly limestone and dolomite with some shale and some sandstone (Ohio Division of Geological Survey 1998).

Most of Ohio, including Huron County, is part of the Beech-Maple Forest Region (Braun 1950). The Beech-Maple Forest Region is dominated by beech (*Fagus grandifolia*) and sugar maple (*Acer saccharum*); however, extensive tracts of elm-ash-maple (*Ulmus* spp., *Fraxinus* spp., *Acer* spp.) type forests occur in depressions and areas between glacial moraine flats, reaching into the area of the Great Black Swamp in Northwestern Ohio. The bogs and prairies that are scattered throughout the area increase the vegetation diversity of the Beech-Maple Region (Braun 1961).

According to the US Geologic Survey soil survey for Huron County, the area has primarily hydric, slow draining soils (Ernst and Martin 1994). Additionally, these soils are considered prime farmland when drained. Small (<10 acres) to large (299 acres) woodlots occur throughout the study area in low lying areas. These woodlots are generally the slowest draining areas where water collects during spring rains.

The majority of the landscape in the study area is cultivated land (5,668 acres; 62.8%). Deciduous forest comprise the next highest land use acreage with 1,725 acres (19.1%). Many of the forested areas are large (>50 acres) woodlots. Fragmented woodlots that have been difficult to drain throughout the study area also add to this acreage. Table 2 shows the breakdown in land uses and area within the project boundaries.

Table 1. Land use area and percent total for project area*

Land Use	Area (acres)	Percent of Project Area
Agriculture	5,668	62.8
Deciduous Forest	1,725	19.1
Evergreen Forest	7	0.1
Mixed Forest	1.5	>0.1
Wetlands	38	0.4
Open Water	12	0.1
Scrub/Shrub	22	0.2
Hay-Pasture	1,011	11.2
Developed	143	1.6
Developed – Open Space	404	4.5
Total	9,031.5	

*Information from 2011 Critical Issues Analysis for Greenwich Wind Project

1.2 REGULATORY SETTING

Wind power projects are permitted by the Ohio Power Siting Board (OPSB). The OPSB has jurisdiction for all wind-powered electric generation facilities consisting of wind turbines and associated facilities with a single interconnection to the electrical grid and designed for, or capable of, operation at an aggregate capacity of 5MW or more. Wind projects are required to receive a Certificate of Environmental Compatibility and Public Need. The OPSB consists of representatives from the Public Utilities Commission of Ohio (PUCO), Ohio Environmental Protection Agency (OEPA), Ohio Departments of Agriculture, Development, Health, and Natural Resources, and a public member. Rules for the wind facility certification process are outlined in the Ohio Administrative Code¹.

Coordination with both the ODNR and USFWS is necessary to ensure that no take of federally listed species occur as a result of the project. If take may occur, the USFWS may require additional consultation under the Endangered Species Act.

The federal Endangered Species Act (ESA) [16 U.S.C.1531 *et seq.*] became law in 1973 and provides for the listing, conservation, and recovery of endangered and threatened species. The

¹ CHAPTER 4906-17 – Applications for Certificates for Electric Generating Wind Facilities (DOC)

USFWS is the agency responsible for protecting and monitoring populations of listed endangered species. Section 7(a) (2) of ESA states that each federal agency shall insure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species, or result in destruction or adverse modification of designated critical habitat. A federal action is defined as “...all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by federal agencies in the United States or upon the high seas” (USFWS and NMFS 1998).

Section 9 of ESA prohibits the take of listed species. Take is defined by ESA as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect.” The definition of harm includes adverse habitat modification. Actions of federal agencies that do not result in jeopardy or adverse modification, but that could result in a take, must be addressed under Section 7 or 10 of the Endangered Species Act.

1.3 RESOURCE SETTING

The USFWS Ohio Field Office considers all 88 counties of Ohio to lie within the range of the Indiana bat. Most records of reproductive Indiana bats are from the western portion of the state; however, summer (nonreproductive) occurrences are more widely distributed (USFWS 2007). The known summer distribution (i.e. records exist) of the Indiana bat in Ohio does not include Huron County. However, recent survey efforts in the region have resulted in new records for neighboring Seneca and Crawford counties, which have land uses and forest distribution similar to those found in the project area (personal communication, Keith Lott, USFWS).

Based upon normal geographical range, nine species of bat may occur in Ohio; however, 11 have been documented (Brack et al. 2010). These are the big brown bat (*Eptesicus fuscus*), little brown bat (*Myotis lucifugus*), northern bat (*Myotis septentrionalis*), Indiana bat, tricolored bat (*Perimyotis subflavus*), hoary bat (*Lasiurus cinereus*), eastern red bat (*L. borealis*), silver-haired bat (*Lasionycteris noctivagans*), and evening bat (*Nycticeius humeralis*). These bats, in general, are considered tree bats, roosting in foliage, under sloughing bark, or tree cavities during the summer maternity season. During fall they generally migrate southward. Some hibernate in caves, mines, or other structures (i.e. hibernaculum) while others may migrate far enough south to continue roosting in trees. The closest known hibernaculum to the project area is the Lewisburg Mine in Preble County, Ohio. This mine is approximately 175 miles from the project area. In 2009, the mine supported approximately 25,000 bats representing five species including approximately 9,000 Indiana bats (Kudlu et al. 2009).

2.0 Methodology

2.1 MIST NETTING GUIDELINES

Efforts to survey for endangered bats are difficult to standardize because of the great deal of variability that exists in a field situation. However, a number of practices used for summer surveys for Indiana bats have become relatively standardized through implementation of netting guidelines provided by USFWS in the most recent revision of the Indiana Bat Recovery Plan (USFWS 2007). Those guidelines, a summary of which follows, were employed for this survey as well as guidelines provided in the ODNR Cooperative Agreement Addendum (ODNR 2009). Protocols exceeding USFWS guidelines were also implemented. Great care was observed to ensure both USFWS and ODNR netting requirements were met during the study.

USFWS Netting Guidelines (2007 Agency Draft)

1. **Netting Season:** 15 May to 15 August, when Indiana bats occupy summer habitat.
2. **Equipment (Mist Nets):** constructed of the finest, lowest visibility mesh commercially available – monofilament or black nylon – with the mesh size approximately 1½ inch (1¼ – 1¾) (38 mm).
3. **Net Placement:** mist nets extend approximately from water or ground level to tree canopy and are bounded by foliage on the sides. Net width and height are adjusted for the fullest coverage of the flight corridor at each site. A “typical” net set consists of nets “stacked” on top of one another with heights from up to 8 m (30 ft); width may vary up to 18 m (60 ft).
4. **Net Site Spacing:**
 - ◆ Streams – one net site per 1 km (0.6 mi)
 - ◆ Land Tracts – two net sites per 1 square km (250 acres)
5. **Minimum Level of Effort Per Net Site:**
 - ◆ Two net locations (sets) per net site, with locations (sets) at least 30 m (100 feet) apart
 - ◆ Two (calendar) nights of netting
 - ◆ At least four net–nights (1 net–night = 1 net set deployed for 1 night); typically, two net sets are deployed at one site for two nights, resulting in four net–nights
 - ◆ Sample Period: begin at dusk and net for 5 hours (approximately 0200h)
 - ◆ Nets are monitored at approximately 10-minute intervals
 - ◆ No disturbance near the nets between checks
6. **Weather Conditions:** net only if the following weather conditions are met:
 - ◆ No precipitation
 - ◆ Temperature $\geq 10^{\circ}\text{C}$ (50°F)
 - ◆ No strong winds
7. **Moonlight:** avoid net sets with direct exposure to a moon ½ -full or greater – typically by utilizing forest canopy cover

Protocols that were different or exceeded the USFWS guidelines included: netting season from June 15 to July 31; four net locations (sets) per net site, with at least one set being at least 7.5 m high; and two non-consecutive calendar nights of survey. Additionally, two netting sites are required for each square kilometer of forested area within the project area.

2.2 MIST NET SITE SELECTION

Site selection is based upon an expectation of greatest bat activity and an effort to provide survey coverage of the project area. Mist net site selection includes consideration of habitat characterizations described for the Indiana bat in the draft recovery plan (USFWS 2007) and other unpublished research and literature (Brack 1983, Gardner et al. 1991, Garner and Gardner 1992, Kitchell 2002, Schultes and Elliot 2002, and Kiser and MacGregor 2004). Net placement is based upon a variety of characteristics including canopy cover, presence of a flight corridor, water, and forest conditions near the site. General habitat types selected included the following characteristics:

- Large trees (>16 inches dbh) for maternity roosts
- An open canopy, apparently important for warming roost sites
- An open, uncluttered understory, used for travel and forage

Nets were typically set to maximize coverage of flight paths used by Indiana bats along suitable travel corridors. Riparian corridors often provide successful mist net sites. However, upland corridors (e.g., trails or logging roads) also provide suitable sites (Brown and Brack 2002). In upland areas, road ruts or other areas of standing water frequently facilitate capture of bats, including the Indiana bat. The actual location and orientation of each net was determined in the field.

2.3 BAT CAPTURES

Bats were identified to species using a combination of morphological characteristics: ear and tragus, calcar, pelage, size/weight, length of right forearm, and overall appearance of the animal. The species, sex, reproductive condition, age, weight, length of right forearm, and time and location, and net site of capture were recorded for all bats. Age (adult or juvenile) of bats was determined by examining epiphyseal-diaphyseal fusion (calcification) of long bones in the wing. Weight was measured to 0.1 grams using a Pesola spring scale. Length of the right forearm of each bat was measured to the nearest 1.0 mm using a dial caliper or ruler. The reproductive condition of captured bats was classified as non-descended male, descended male, non-reproductive female, pregnant female (based on gentle abdominal palpation), lactating female, or post-lactating female.

When available, bands provided by ODNR were placed on captured bats. Each band had a unique number to identify individual bats. Bands were placed on forearms of captured bats prior to their release at the mist net site. In general, bands were placed on the right forearm for males and left forearm for females. Bat processing and data collection was typically completed

within 15 minutes of the time the bat was removed from the net. Bats were caught live and released unharmed near the point of capture after processing.

2.4 WEATHER CONDITIONS

Weather conditions were monitored each night of the survey. Conditions recorded include: temperature, wind speed (using the Beaufort scale), percent cloud cover, and moon phase (if visible). Electronic thermometers were used to record temperature, wind speed was determined by use of the Beaufort wind scale, cloud cover and moon phase was visually estimated.

2.5 WHITE-NOSE SYNDROME DECONTAMINATION

Due to concerns over White Nose Syndrome (WNS), equipment was decontaminated following USFWS protocols. Due to the potential spread of White Nose Syndrome (WNS), mist nets, poles, ropes, and morphometric measuring instruments used for this survey were either newly purchased or had not been used at locations where WNS is known to occur prior to the survey.

Mist nets, mist netting ropes, and cloth holding bags were submersed in a solution of Lysol® IC Quaternary Disinfectant Cleaner (Lysol® IC) for a period of time no shorter than 10 minutes and then rinsed between mist net sites. Mist net poles were sprayed with a Lysol® IC solution and left to sit for a period of no shorter than 10 minutes between mist net sites. After the 10 minute period they were sprayed down a second time and wiped down to remove any remaining soil or debris.

Vehicles were periodically taken to a self-serve car wash where the entire exterior could be power-washed to remove any dust and soil from the vehicle. Tires, roof-racks, and the beds of trucks received the most attention while cleaning.

During mist netting, bats extracted from nets were placed in disposable paper bags. Bags were used for only one bat and then placed in a 2-gallon sealable Ziplock® bag after use. Cloth holding bags used at some locations were only used once per night and not used again until decontamination protocols mentioned above were taken.

Disposable Nitrile® gloves were worn for handling individual bats and changed between bats. Disposable gloves were placed over leather handling gloves and disposed of in a 2-gallon sealable Ziplock® bag after use. Bat handlers also used Germ-X® between bats for added precaution. Additionally, disposable sandwich bags were used to weigh bats in and disposed of after each bat.

Equipment such as rulers, calipers, and scales were wiped down after each bat with Lysol® wipes and discarded between uses. A new wipe was used after each bat to ensure cleanliness. All nightly disposable items were sealed up in a 2-gallon Ziplock® baggie and disposed of in an appropriate trash receptacle.

3.0 Results

3.1 MIST NET LOCATIONS

The 15 mist net sites surveyed fell into two categories: upland forest fragments (n=12, 80%) and riparian/impoundment (n=3, 20%; Table 2). Upland mist net sites were generally surrounded by agricultural fields while the riparian areas generally consisted of a collection ditch in which the fields drained. One pond, mist net site 14 (MS14) was netted within the project area. Mist net sites were spread throughout the project area where landowner permissions were granted (Appendix A – Figure 1). All forested areas were scouted thoroughly; however, most provided little in the way of travel corridors (e.g., trails, roads, interior openings) in which net sites could be established. As such, many net sites focused on potential entrance and exit points to the woodlots.

Table 2. Mist net site identification, survey dates, surveyor, general habitat type, summary of bats captured and species diversity during summer mist netting in Huron County, Ohio.

Site Number	Survey Dates	Surveyor ^{1,2}	General Habitat Type	No. Bats Captured	No. Species Captured
MS-1	21 and 23 June	Adams	Upland	8	2
MS-2	26 and 30 June	O'Mahoney	Upland	3	1
MS-3	22 and 24 June	Adams	Upland	27	4
MS-4	26 and 30 June	Adams	Creek	16	4
MS-5	27 and 29 June	Adams	Upland	7	2
MS-6	27 and 29 June	O'Mahoney	Upland	3	3
MS-7	21 and 23 June	Schwierjohann	Upland	5	2
MS-8	22 and 24 June	Schwierjohann	Upland	4	2
MS-9	22 and 24 June	O'Mahoney	Upland	7	2
MS-10	21 and 23 June	O'Mahoney	Stream (branch of Vermillion River)	2	2
MS-11	25 and 27 June	Schwierjohann	Upland	2	1
MS-12	26 and 29 June	Schwierjohann	Upland	1	1
MS-13	28 and 30 June	Schwierjohann	Upland	8	2
MS-14	25 and 28 June	O'Mahoney	Pond	1	1
MS-15	25 and 28 June	Adams	Upland	8	1

¹ – Adams and O'Mahoney: Copperhead Consulting

² – Schwierjohann: Stantec Consulting Services Inc

Mist net site conditions were similar to those described by Braun (1950). Common species of trees include white ash, American elm, American beech, hickory spp., black walnut, red maple, silver maple, cottonwood, and black locust. Woodlots were generally densely vegetated with

some opening where vernal pools persist in the spring (MS01, MS02, and MS03). Other woodlots were maintained by logging and allowed to mature provided the occasional subcanopy foraging opportunity for bats (MS11, MS12, and MS13). In general, mist net sites were located along suspected travel corridors where conditions were good for capturing bats (i.e. funnel effect, road ruts with water for drinking).

3.2 BAT CAPTURE

A total of 102 bats, representing five species, was captured during summer mist net surveys in southern Huron county, Ohio. No federally endangered bats were captured during mist netting surveys. Bats were captured at all 15 mist net sites. Two species were relatively abundant: big brown bat (n=52, 51%) and northern bat (n=25, 25%). These two species represented 75 percent of all bat captures (N=77; see Table 3). The remaining 25 percent was distributed among little brown bat (n=15, 15%), eastern red bat (n=8, 8%), and tri-colored bat (n=2, 2%).

Table 3. Total bats captured by species, sex, reproductive condition, and age during mist netting in Huron County, Ohio.

Species	Adult Male	Adult Female ¹				Juvenile		Escape ²	Total
		P	L	PL	NR	Male	Female		
Big Brown Bat (<i>Eptesicus fuscus</i>)	18	3	29	0	1	0	0	1	52
Little Brown Bat (<i>Myotis lucifugus</i>)	9	1	5	0	0	0	0	0	15
Northern Bat (<i>M. septentrionalis</i>)	9	4	9	0	2	0	0	1	25
Eastern Red Bat (<i>Lasiurus borealis</i>)	3	2	2	0	0	0	0	1	8
Tri-colored Bat (<i>Perinyotis subflavus</i>)	0	1	1	0	0	0	0	0	2
Total	39	11	46	0	3	0	0	3	102

¹ P = pregnant; L = lactating; PL = Post lactating; NR = non-reproductive

² Escape = escaped from net or hand before processing was complete

Sixty percent of all species captured were female while 39 percent were male (Table 3). Surveys were conducted during mid to late June and therefore no juveniles had become volant. Forty-six percent of captures were lactating females and 11 percent were pregnant. No post-lactating females were captured thus further indicating that young of the year were not yet volant. Three female bats (1 big brown and 2 northern bats) were found not to be reproductive (not pregnant, lactating, or post lactating) during field efforts. This condition is not uncommon as either mating was unsuccessful prior to hibernation or other environmental/ physical

conditions may have caused the fetus to abort. Nightly Bat Survey Summary Forms and Bat Survey Forms are provided in Appendix B.

3.3 WEATHER CONDITIONS

In general, weather was typical of summer months in north-central Ohio. Days were usually warm, humid, and sometimes cloudy. Temperatures were within normal averages. Nighttime highs and lows varied and with approaching weather systems (Table 4). Weather conditions were favorable for surveying for Indiana bats during the entire survey period (June 21 to June 30). Site specific weather conditions including temperature, wind speed, and cloud cover are located on each mist net site Bat Capture Data Sheet in Appendix A.

Table 4. High, low, and average of local temperatures for summer mist netting in Huron County, Ohio.

Survey Date 2011	Average Temperature °F (°C)		
	High	Low	Average
June 21	78.6 (25.9)	68.0 (20.0)	73.3 (22.9)
June 22	75.2 (24.0)	65.4 (18.6)	70.3 (21.3)
June 23	74.1 (23.4)	63.3 (17.4)	68.7 (20.4)
June 24	63.1 (17.3)	59.6 (15.3)	61.4 (16.3)
June 25	70.7 (21.5)	55.4 (13.0)	63.1 (17.3)
June 26	74.1 (23.4)	56.2 (13.4)	65.2 (18.4)
June 27	77.0 (25.0)	66.3 (19.1)	71.7 (22.1)
June 28	79.0 (26.1)	56.5 (13.6)	67.8 (19.9)
June 29	74.4 (23.6)	54.2 (12.3)	64.3 (17.9)
June 30	74.0 (23.3)	62.8 (17.1)	68.4 (20.2)

4.0 Discussion

The objective of this survey was to inventory the bats occurring within the project area during the summer maternity season. A secondary objective was to assess the presence, or probable absence, of Indiana bats using summer habitat within the project area. To effectively investigate the project area, we used guidelines recommended by the USFWS in the most recent (2007 Agency Draft) revision of the Indiana Bat Recovery Plan as well as guidelines provided in the ODNR Cooperative Agreement Addendum (ODNR 2009). Mist netting was conducted during the Indiana bat maternity period, which may have helped reduce any seasonal bias. Weather restrictions were also followed, as well as conducting mist netting in areas with potentially suitable habitat for the Indiana bat.

The deciduous hardwood forests and riparian corridors within the project area provided potentially suitable habitat for Indiana bats. Mist net sites distributed within the project area could be divided into two habitat types: upland woodlots and riparian areas /impoundments. Both habitats were similar in form and generally provided some large trees (>16 inches dbh) for

maternity roosts, moderate-to-high subcanopy clutter, and moderate-to-closed canopy closure. Although subcanopy clutter and canopy closure were not ideal (ideal = low subcanopy clutter and open canopy closure), the habitat was sufficient to support Indiana bats.

Indiana bats, including reproductive females, have been caught in previous years in neighboring counties, suggesting that they could be present within Huron County and the project area. Biologists selected areas most likely to be used by Indiana bats, as well as other species, in the best available areas in the project area. Areas to the east of the project along the Vermillion River may provide more suitable forest stands conducive for maternity sites, better foraging areas, located closer to permanent water sources, or any combination of these habitat parameters.

The complement of species captured during summer mist netting (5 species) and number of total bats captured (102 individuals) was typical for the geographic location and type of habitat sampled. The capture of two species, big brown bats and northern bats, were notably higher than other species.

5.0 Conclusion

No federally endangered Indiana bats were captured during mist net surveys at 15 sites at the Greenwich Wind Project. The mist-netting survey was designed in accordance with the ODNR and the USFWS guidelines to maximize the chances of capturing Indiana bats. A total of 15 mist net sites were located throughout the project area. The placement of mist net sites was relatively evenly distributed throughout the study area.

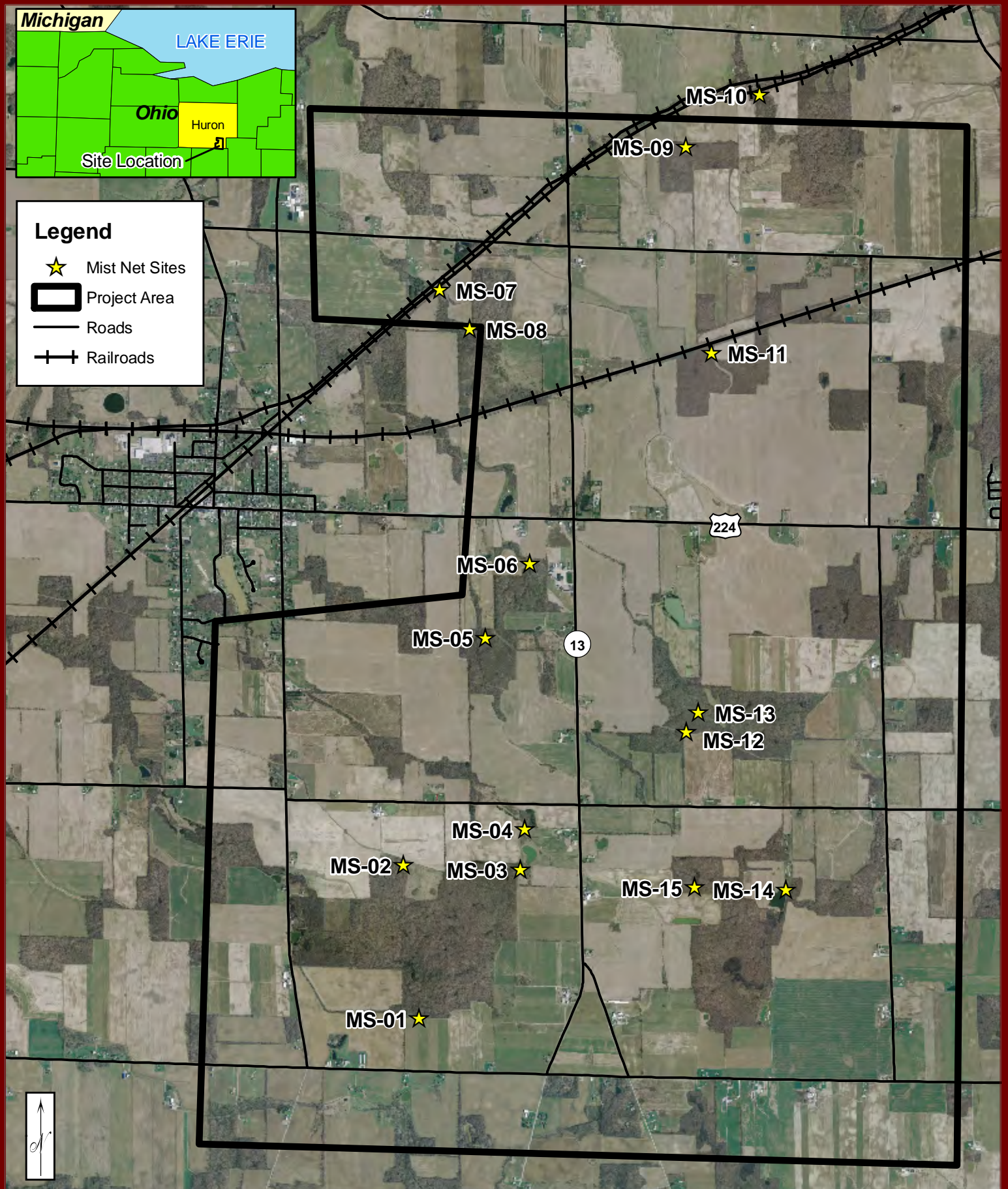
Despite the sampling effort, no Indiana bats were captured within project area. Although it is not possible to determine with absolute certainty the absence of Indiana bats within the project area, the lack of Indiana bat captures at mist net site locations suggests their probable absence during the summer reproductive season in the project area. This may be due to the differences in the availability of habitat for roosting and/or foraging activities (i.e., forest cover, water source, habitat connectivity, food sources). These results indicate that the project is not likely to adversely affect the Indiana bat during the summer maternity period.

6.0 Literature Cited

- Brack, V. Jr., D.W. Sparks, J.O Whitaker, Jr., B.L. Walters, and A. Boyer. 2010. Bats of Ohio. Publication Number 4, Indiana State University, Terra Haute, Indiana, 92 pp.
- Brack, V., Jr. 1983. The nonhibernating ecology of bats in Indiana with emphasis on the endangered Indiana bat, *Myotis sodalis*. Ph.D. dissertation, Purdue University, West Lafayette, Indiana.
- Braun, L. 1950. Deciduous Forests of Eastern North America. The Blackburn Press: New Jersey, 596 pp.
- Braun, L. 1961. The Woody Plants of Ohio. The Ohio State University Press: Ohio, 362 pp.
- Brown, R. J., and V. Brack, Jr. 2003. An unusually productive net site over an upland road used as a travel corridor. *Bat Research News*; 44(4): 187-188.
- Ernst, J. E., and N. H. Martin. 1994. Soil Survey of Huron County, Ohio. Ohio Department of Natural Resources, Division of Soil and Water Conservation and U.S. Department of Agriculture, Soil Conservation Service, 184 pp.
- Gardner, J. E., J. D. Garner, and J. E. Hofmann. 1991. Summer roost selection and roosting behavior of *Myotis sodalis* (Indiana bat) in Illinois. Unpublished report. Illinois Natural History Survey, Champaign, Illinois.
- Garner, J. D., and J. E. Gardner. 1992. Determination of Summer Distribution and habitat Utilization of the Indiana Bat (*Myotis sodalis*) in Illinois. Unpublished report. Illinois Natural History Survey, Champaign, Illinois.
- Kiser, J. D., and J.R. MacGregor. 2004. Indiana bat (*Myotis sodalis*) Mist net Surveys for Coal Mining Activities. Pp. 45 – 62 in *The Indiana Bat and Coal Mining: A Technical Interactive Forum* (K. Vories and A. Harrington, eds.). U.S. Department of Interior, Alton, Illinois. 224 pp.
- Kitchell, M. E. 2002. Roost Selection and Landscape Movements of Female Indiana Bats at the Great Swamp National Wildlife Refuge, New Jersey. Unpublished Master's Thesis, Virginia Polytechnic Institute and State University, Blacksburg, Virginia. 174 pp.
- Kudlu, P., A. Mann, J. Duffy, and V. Brack, Jr. 2009. A 2009 Winter Census of Bats of the Lewisburg Limestone Mine, Preble County, Ohio. Final report submitted to Ohio Department of Natural Resources, Division of Wildlife, Columbus, Ohio.

- (ODGS) Ohio Division of Geological Survey. 1998. Physiographic regions of Ohio: Ohio Department of Natural Resources, Division of Geological Survey, page-size map with text, 2 p.
- (ODNR) Ohio Department of Natural Resources. 2009. On-Shore Bird and Bat Pre- and Post-Construction Monitoring Protocol for Commercial Wind. 40 pp PDF available online at: http://www.dnr.state.oh.us/Home/wild_resourcessubhomepage/ResearchandSurveys/WildlifeWind/tabid/21467/Default.aspx.
- Schultes, K. L., and C. Elliott. 2002. Roost Tree Selection by Indiana Bats and Northern Bats on the Wayne National Forest, Ohio. Unpublished Master's Thesis, Eastern Kentucky University, Richmond, Kentucky. 105 pp.
- (USFWS) U.S. Fish and Wildlife Service. 2007. Indiana Bat (*Myotis sodalis*) Draft Recovery Plan: First Revision. U.S. Fish and Wildlife Service, Ft. Snelling, Minnesota, 258 pp.

Appendix A - Figure



Geographic Information Systems

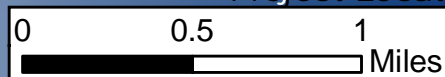
Source: Windlab, August 2011

Base Map:
Roads: Ohio Geographically Referenced Program (OGRIP), 2008;
Railroads: National Atlas of the United States, 2005;
Ohio Statewide Imagery Program (OSIP), 2006

Project Number: 175630014

11687 Lebanon Road, Cincinnati, OH 45241 Phone 513.842.8200 www.stantec.com

Project Location and Mist Net Sites



Greenwich Wind Project
Huron County, Ohio



Stantec

Appendix B – Survey Data Sheets

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: Greenwich Wind Project WLM5-1 Date: 23 Jun 2011

Surveyors: JJA, CDS

Survey Type: Hibernacula Summer

Site description: Field edge and wooded access rd to mature woodlot

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	2105	20.3	1.5	85.1
End	0225	17.4	2	90.1

Notes: Light rain started falling @ 2215 nets closed 5min, will add 5m to end of survey

Trap type and location

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets)	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
1	Mist Net	12m x 8m (3 high)	0374008	4539454
2		6m x 6m (2 high)	0373973	4539480
3			0373969	4539504
4			0373982	4539538
5				
6				
7				

Total net area: 201 m²

Notes: MS01

FORM WD04 OHIO DEPARTMENT OF NATURAL RESOURCES
6/27/08 DIVISION OF WILDLIFE

Project Name: Greenwich Wind Project

Date: 23 Jun 2011

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown	2	2			4
Evening					
Silver-haired					
Eastern red					
Hoary					
Tri-colored bat					
Little brown					
Northern		1			1
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					5

Notes:

FORM WD04 OHIO DEPARTMENT OF NATURAL RESOURCES
6/27/08 DIVISION OF WILDLIFE

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: Greenwich Wind Project Site WMS-1 Date: 21 Jun 2011

Surveyors: JJA, CDS

Survey Type: Hibernacula Summer

Site description: Field edge and woodlot access road West of
SR 13 North of Bagline Rd

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	2100	23.2	4	100%
End	2045	20.3	4	85%

Notes: Rained until 2045

Trap type and location

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets)	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
1	Mist Net	12m x 8m (3 high)	0374008	4539454
2		6m x 6m (2 high)	0373973	4539480
3			0373969	4539504
4			0373982	4539538
5				
6				
7				

Total net area: 204 m²

Notes: MSO1

Project Name: Greenwich Wind Project

Date: 21 Jun 2011

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown	2	-	-	-	2
Evening					
Silver-haired					
Eastern red					
Hoary					
Tri-colored bat					
Little brown					
Northern	1	-	-	-	1
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					3

Notes:

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: WLMS-2

Date: 26 June 2011

Surveyors: Jessica O'Mahony, William Garcia

Survey Type: Hibernacula

Summer

Site description: Forested wood lot with trails. Surrounded by corn and Beans field and Pasture. Dominant veg - red maple, hickory, birch & beech.

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	<u>2105</u>	<u>23.4</u>	<u>1</u>	<u>20%</u>
End	<u>0205</u>	<u>16.3</u>	<u>1</u>	<u>0%</u>

Notes: _____

Trap type and location

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets)	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
<u>1</u>	<u>Mist net</u>	<u>2h x 12m</u>	<u>03 73 894</u>	<u>45 40 576</u>
<u>2</u>	<u>Mist net</u>	<u>2h x 6m</u>	<u>03 73 863</u>	<u>45 40 579</u>
<u>3</u>	<u>Mist net</u>	<u>2h x 6m</u>	<u>03 73 849</u>	<u>45 40 533</u>
<u>4</u>	<u>Mist net</u>	<u>3h x 6m</u>	<u>03 73 820</u>	<u>45 40 506</u>
<u>5</u>				
<u>6</u>				
<u>7</u>				

Total net area: 172.5 m²

Notes: Net 4 across small stream w/ little water except a few puddles.
MSD2

Project Name: WLMS - 2

Date: 26 June 2011

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown	1	1			2
Evening					
Silver-haired					
Eastern red					
Hoary					
Tri-colored bat					
Little brown					
Northern					
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					2

Notes:

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: WUMS-2

Date: 30 June 2011

Surveyors: Jessica O'mahony & William Garcia

Survey Type: Hibernacula

Summer

Site description: Forested woodlot with trails. surrounded by corn & bean fields, and pastures. dominant veg. - red maple, butternut hickory, birch & beech.

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	21:05	21.9°	3	0%
End	02:06	17.4°	1	15%

Notes: _____

Trap type and location

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets)	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
1	mist net	3h x 12m	03 73 894	45 40 576
2	mist net	2h x 6m	03 73 863	45 40 579
3	mist net	2h x 6m	03 73 849	45 40 533
4	mist net	2h x 6m	03 73 820	45 40 506
5				
6				
7				

Total net area: 172.5 m²

Notes: increased net 1 height after observing bat flight heights on night 1.

MS02

FORM WD04 OHIO DEPARTMENT OF NATURAL RESOURCES
6/27/08 DIVISION OF WILDLIFE

Project Name: WLMS-2

Date: 30 June 2011

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown	1				1
Evening					
Silver-haired					
Eastern red					
Hoary					
Tri-colored bat					
Little brown					
Northern					
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					1

Notes:

11
135-00
105-00
180-00
100-00
Total
420
+ 5
x 9
378
42.5
x 10
425
Total
845

5.0

Date: 30 June 2011

[illegible]

Species code: Big brown (EPTU), Silver-haired (LANO), Red (LABO), Hoary (LACI), Tri-colored (PESU), Rafinesque's big-eared (CORO)^{1,2}, Little brown (MYLU), Northern (MYSE), Small-footed (MYLE)¹, and Indiana (MYSO)^{1,2}. Radio-telemetry, and documentation photographs required¹. Banding required².

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: Greenwich Wind Project MLMS-3 Date: 22 Jun 2011

Surveyors: JJA, CDS

Survey Type: Hibernacula Summer


Site description: Wood lot bordered by agriculture

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	2105	24.0	2.5	60.1
End	0210	19.1	<1	20.1

Notes: Brief shower around 2230, nets were closed for 5 min, extended night an extra 5 min to make up for time nets were closed

Trap type and location

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets)	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
1	Mist Net	8x12 3 stacked	0374747	4540542
2		6x6 2 stacked	0374722	4540565
3		6x9 2 stacked	0374672	4540557
4		6x6 2 stacked	0374703	4540529
5				
6				
7				

Total net area: 222 m²

Notes: MS03

FORM WD04 OHIO DEPARTMENT OF NATURAL RESOURCES
6/27/08 DIVISION OF WILDLIFE

Project Name: Greenwich Wind Project
WLMS-3

Date: 22 Jun 2011

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown	0	9	0	0	9
Evening	2	2	0	0	2
Silver-haired					
Eastern red	0	2	0	0	2
Hoary					
Tri-colored bat					
Little brown	7	2	0	0	9
Northern	1	1	0	0	2
Small-footed		1			1
Indiana					
Rafinesque's big-eared					
Other:					
Total:					22

Notes:

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE

Project Name: Greenwich wind project

BAT SURVEY FORM

Date: 22 Jun 2011

MS03

Species	Time (military)	Sex	Reproductive status	Measurements (millimeters and grams)				Net #	Recapture/Band #
				Forearm	Ear	Tragus	Weight		
EPFU	2115	F	Lac	47	12	4	17.5	2	
LABO	2115	F	Lac	42	11	4	12.5	1	
EPFU	2115	F	Lac	45	11	4	15.5	4	
EPFU	2133	F	Lac	44	12	6	15.0	4	
MYSE	2153	M	NR	34	17	7.5	7.5	2	
MYLU	2153	M	NR	36	12	6	6.5	2	
MYLU	2224	M	NR	37	11	5	7.0	2	
MYLU	2224	M	NR	36	11	5	6.5	2	
MYLU	2230	M	NR	37	11	7	6.5	2	
MYSE	2235	F	Lac	35	17	8.5	9	3	
EPFU	2240	F	Lac	46	12	6	19.5	1	
MYLU	2244	M	NR	36	11	5	7.5	2	
EPFU	2257	F	Lac	44	10	6	15.5	1	
EPFU	2257	F	Pg	49	19	6	22	1	
EPFU	2257	F	Lac	44	11	6	20.5	1	
MYLU	2257	M	NR	38	11	5	7.5	4	
MYLU	2257	F	Lac	34	10	5	7.5	4	

Species code: Big brown (EPFU), Silver-haired (LANO), Red (LABO), Hoary (LACI), Tri-colored (PESU), Rafinesque's big-eared (CORO)^{1,2}, Little brown (MYLU), Northern (MYSE), Small-footed (MYLE)¹, and Indiana (MYSO)^{1,2}.
Radio-telemetry, and documentation photographs required¹. Banding required².

Site WLM5-3

→

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: Greenwich Wind Project WMS-3 Date: 24 Jun 2011

Surveyors: JJA, COS

Survey Type: Hibernacula Summer

Site description: Mature woodlot bordered by Ag. fields

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	2105	17.0	2	55.1
End	0205	16.0	1	85.1

Notes: _____

Trap type and location

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets)	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
1	Mist Net	8x12 3 stacked	0374747	4540542
2		6x6 2 stacked	0374722	4540565
3		6x9 2 stacked	0374672	4540557
4	└	6x6 2 stacked	0374703	4540524
5				
6				
7				

Total net area: 222 m²

Notes: MS03

FORM WD04 OHIO DEPARTMENT OF NATURAL RESOURCES
6/27/08 DIVISION OF WILDLIFE

Project Name: Greenwich Wind Project
WLMs-3

Date: 24 Jun 2011

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown	1	1			2
Evening					
Silver-haired					
Eastern red					
Hoary					
Tri-colored bat					
Little brown	1	1			2
Northern		1			1
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					5

Notes:

Date: 24 Jun 2011

M503

[illegible][illegible]

Species code: Big brown (EPU), Silver-haired (LANO), Red (LABO), Hoary (LACI), Tri-colored (PESU), Rafinesque's big-eared (CORO)^{1,2}, Little brown (MYLU), Northern (MYSE), Small-footed (MYLE)¹, and Indiana (MYSO)^{1,2}.
Radio-telemetry, and documentation photographs required¹. Banding required².

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: Greenwich Wind Project WMS-4 Date: 26 Jun 2011

Surveyors: JJA, CDS

Survey Type: Hibernacula Summer

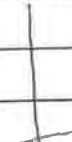
Site description: Creek and Riparian Area

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	2106	18.4	1	15%
End	0206	14.5	1	0%

Notes: _____

Trap type and location

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets)	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
1	Mist Net	Height 3m 8m x 9m 3high	0374781	4540836
2		6 x 6 2high	0374810	4540834
3		6 x 12 2high	0374800	4540878
4		6 x 6 2high	0374826	4540870
5				
6				
7				

Total net area: 216 m²

Notes: M504

FORM WD04 OHIO DEPARTMENT OF NATURAL RESOURCES
6/27/08 DIVISION OF WILDLIFE

Project Name: Greenwich Wind Project
WLMS-4

Date: 26 Jan 2011

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown	4	3			7
Evening					
Silver-haired					
Eastern red	1				1
Hoary					
Tri-colored bat		1			1
Little brown	1	1			2
Northern					
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					11

Notes:

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: Greenwich Wind Project
WLM5-4

Date: 30 Jun 2011

Surveyors: JJA, CDS

Survey Type: Hibernacula

Summer


Site description: _____

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	<u>2106</u>	<u>21.7</u>	<u>.5</u>	<u>15%</u>
End	<u>0210</u>	<u>17.1</u>	<u>1</u>	<u>0%</u>

Notes: _____

Trap type and location

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets) Height Length	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
<u>1</u>	<u>Mist Net</u>	<u>6m x 9 3high</u>	<u>0374781</u>	<u>4540836</u>
<u>2</u>		<u>6x6 2high</u>	<u>0374810</u>	<u>4540834</u>
<u>3</u>		<u>6x12 2high</u>	<u>0374800</u>	<u>4540878</u>
<u>4</u>		<u>6x6 2high</u>	<u>0374828</u>	<u>4540870</u>
<u>5</u>				
<u>6</u>				
<u>7</u>				

Total net area: 216 m²

Notes: M504

FORM WD04 OHIO DEPARTMENT OF NATURAL RESOURCES
6/27/08 DIVISION OF WILDLIFE

Project Name: Greenwich Wind

Date: 30 Jun 2011

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown		2			2
Evening					
Silver-haired					
Eastern red	1	1			2
Hoary					
Tri-colored bat					
Little brown		1			1
Northern					
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					5

Notes:

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: Greenwich Wind Project WMS-5 Date: 27 Jun 2011

Surveyors: JJA, CDS

Survey Type: Hibernacula Summer

Site description: Woodlot that was logged within last 5 yrs surrounded by ag fields canopy dominated by Black Walnut, Cottonwood, White Ash,

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	2106	21.8	4	90%
End	0210		1	0%

Notes: _____

Trap type and location

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets)	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
1	Mist Net	6m x 9m ^{2h:35}	0374492	4542235
2	↓	6m x 6m ^{2h:50}	0374484	4542275
3	↓	8m x 12m ^{3h:05}	0374504	4542298
4	↓	6m x 9m ^{2h:55}	0374548	4542298
5				
6				
7				

Total net area: 222m²

Notes: M505

Project Name: Greenwich Wind

Date: 27 Jan 2011

WLM 5-5

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown	1	5			6
Evening					
Silver-haired					
Eastern red					
Hoary					
Tri-colored bat					
Little brown					
Northern	1				1
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					7

Notes:

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: Greenwich Wind Project WMS-5 Date: 29 Jun 2011

Surveyors: JJA; COS

Survey Type: Hibernacula Summer

Site description: See 27 Jun Data Sheet

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	2106	21.8	.5	0
End	0208	14.6	0	0

Notes: _____

Trap type and location

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets) <small>Height Length (m)</small>	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
1	Mist Net —	6 x 9 2 high	0374492	4542235
2		6 x 6 2 high	0374484	4542275
3		8 x 12 3 high	0374504	4542298
4		6 x 9 2 high	0374548	4542298
5				
6				
7				

Total net area: 222m²

Notes: MSOS

FORM WD04 OHIO DEPARTMENT OF NATURAL RESOURCES
6/27/08 DIVISION OF WILDLIFE

Project Name: Greenwich Wind
WLMS-5

Date: 29 Jun 2011

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown					
Evening					
Silver-haired					
Eastern red					
Hoary					
Tri-colored bat					
Little brown					
Northern					
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					0

Notes:

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: WLMS-6

Date: 27 June 2011

Surveyors: Jessica O'mahony & William Garcia

Survey Type: Hibernacula

Summer

Site description: Forested trails, stream, and edge. Woodlot surrounded by crop land. Dominant veg: Maple, Elm, Locust

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	21:05	23.1°	3	65%
End	02:05	20.1°F	2	10%

Notes: _____

Trap type and location

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets)	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
1	mist net	2h x 9m	03 74 824	45 42 808
2	mist net	3h x 9m	03 74 807	45 42 782
3	mist net	2h x 6m	03 74 853	45 42 768
4	mist net	2h x 6m	03 74 891	45 42 771
5				
6				
7				

photos
16/17
01/02
03
04/05

Total net area: 172.5 m²

Notes: stream veg. too dense & canopy too low to net.

M506

FORM WD04 OHIO DEPARTMENT OF NATURAL RESOURCES
6/27/08 DIVISION OF WILDLIFE

Project Name: WILMS - 10

Date: 27 June 2011

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown	1				1
Evening					
Silver-haired					
Eastern red	1				1
Hoary					
Tri-colored bat					
Little brown					
Northern	1				1
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					3

Notes:

Date: 27 JUNE 2011

[illegible]

Species code: Big brown (EPFU), Silver-haired (LANO), Red (LABO), Hoary (LACI), Tricolored (PESU), Rafinesque's big-eared (CORO)^{1,2}, Little brown (MYLU), Northern (MYSE), Small-footed (MYLE)¹, and Indiana (MYSO)^{1,2}. Radio-telemetry, and documentation photographs required¹. Banding required².

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: WLMS-6

Date: 29 June 2011

Surveyors: Jessica O'mahony & William Garcia

Survey Type: Hibernacula Summer

Site description: Forested trails, stream, and edge woodlot
Surrounded by cropland. Dominant veg. Maple, Elm, Locust

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	21:05	19.3°	1	Ø
End	02:05	12.4°	Ø	Ø

Notes: _____

Trap type and location

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets)	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
1	mist nets	2h x 9m	03 74 824	45 42 808
2	mist nets	3h x 9m	03 74 807	45 42 782
3	mist nets	2h x 6m	03 74 853	45 42 768
4	mist nets	2h x 6m	03 74 891	45 42 771
5				
6				
7				

Photos
16/17
01/02
03
04/05

Total net area: 192.5 m²

Notes: Stream veg too dense and canopy too low for net

M306

FORM WD04 OHIO DEPARTMENT OF NATURAL RESOURCES
6/27/08 DIVISION OF WILDLIFE

Project Name: WLM5-10

Date: 29 June 2011

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown					
Evening					
Silver-haired					
Eastern red					
Hoary					
Tri-colored bat					
Little brown					
Northern					
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					0

Notes:

Date: 29 June 2011

[illegible]

Species code: Big brown (EPFU), Silver-haired (LANO), Red (LABO), Hoary (LACI), Tri-colored (PESU), Rafinesque's big-eared (CORO)^{1,2}, Little brown (MYLU), Northern (MYSE), Small-footed (MYLE)¹, and Indiana (MYSO)^{1,2}.
Radio-telemetry, and documentation photographs required¹. Banding required².

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: WINDLAB - Greenwell, OH Date: 21 June 2011

Surveyors: J. Schwinschann & L. Johnson (STANTEC)

Survey Type: Hibernacula

Summer


Site description: forested service road along RR tracks; numerous water filled road cuts

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	2050	22.0 23.1	1-3	100
End	0220	60 20.0	1-3	70

Notes: Light rain delays opening of nets

Trap type and location

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets)	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
1		9m x 6m / 2 tiers	410244.1	822947.7
2		6m x 6m / 2 tiers	410245.1	822946.3
3		6m x 6m / 3 tiers	410246.7	822943.8
4		6m x 6m / 2 tiers	410247.9	822942.1
5				
6				
7				

Total net area: ~180 m²

Notes: MS07

FORM WD04 OHIO DEPARTMENT OF NATURAL RESOURCES
6/27/08 DIVISION OF WILDLIFE

Project Name: Winolas-Greenwich, OH

Date: 21 June 2011

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown		✓			1
Evening					
Silver-haired					
Eastern red *	UNKNOWN				1
Hoary					
Tri-colored bat					
Little brown					
Northern					
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					2

Notes: * Escaped from net. Assuming ADULT AS NO JUVENILES
were captured yet this season (personally).

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: WINDLAB; GREENWICH, OH

Date: 23 JUNE 2011

Surveyors: J. SCHWENDEHANN & L. JOHNSON (STANTEC)

Survey Type: Hibernacula

Summer

Site description: See 21 JUNE DATA SHEET

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	2030	21.3	1-3	70%
End	0205	18.3	1-3	90%

Notes: _____

Trap type and location

See 21 JUNE DATA SHEET

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets)	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
1				
2				
3				
4				
5				
6				
7				

Total net area: ~180m²

Notes: MS07

FORM WD04 OHIO DEPARTMENT OF NATURAL RESOURCES
6/27/08 DIVISION OF WILDLIFE

Project Name: Winklab, Greenwich, OH

Date: 23 June 2011

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown		2			2
Evening					
Silver-haired					
Eastern red					
Hoary					
Tri-colored bat					
Little brown					
Northern	1				1
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					3

Notes:

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: WINDLBS, Greenwicket, OH

Date: 22 June 2011

Surveyors: J. Schwiening & L. Johnson

Survey Type: Hibernacula

Summer

Site description: SW Portion of Project Area; Field & woodlot ^{stream} just south of WILMS-7 & ALPINE RD.

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	2040	23.8	8-12	45%
End	0220	18.6	0	20%

Notes: Closed nets from 2230-2239 due to light rain

Trap type and location

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets)	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
1	Mist net	9m x 9m / 3 tiers	410231.0	822940.6
2		6m x 6m / 2 tiers	410228.9	822942.3
3		6m x 6m / 2 tiers	410228.7	822940.3
4		6m x 3m / 1 tier	410228.9	822938.8
5				
6				
7				

Total net area: ~171m²

Notes: MS08

FORM WD04 OHIO DEPARTMENT OF NATURAL RESOURCES
6/27/08 DIVISION OF WILDLIFE

Project Name: Winklab, Greenwich, OH

Date: 22 June 2011

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown	1	1			2
Evening					
Silver-haired					
Eastern red					
Hoary					
Tri-colored bat					
Little brown					
Northern	1				1
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					3

Notes:

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: WingLab; Greenwich, OH

Date: 24 June 2011

Surveyors: J. Schwiebert & L. Johnson

Survey Type: Hibernacula

Summer

Site description: See 22 June 2011 Data Sheet

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	2030	16.4	0	30 %
End	0200	15.4	1-3	100 %

Notes: _____

Trap type and location

See 22 June 2011 for net counts.

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets)	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
1				
2				
3				
4				
5				
6				
7				

Total net area: ~17/m²

Notes: MS08

FORM WD04 OHIO DEPARTMENT OF NATURAL RESOURCES
6/27/08 DIVISION OF WILDLIFE

Project Name: Wimlab, Green with, OH

Date: 24 June 2011

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown					
Evening					
Silver-haired					
Eastern red					
Hoary					
Tri-colored bat					
Little brown					
Northern		1			1
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					1

Notes:

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE

BAT SURVEY FORM

Project Name: WinLabs - Guestwork, OH

M508

Date: 24 June 2011

[illegible]

Species code: Big brown (EPFU), Silver-haired (LANO), Red (LABO), Hoary (LACI), Tri-colored (PEST), Rafinesque's big-eared (CORO)^{1,2}, Little brown (MYLU), Northern (MYSE), Small-footed (MYLE)¹, and Indiana (MYSO)^{1,2}.
Radio-telemetry, and documentation photographs required¹. Banding required².

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: WLMs-~~1~~9 *

Date: 22 June 2011

Surveyors: Jessica O'mahony & William Garcia

Survey Type: Hibernacula Summer

Site description: Forested trails through woodlot bordered by corn fields.
dominant veg - red maple, elm, beech

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	2105	23.4°	2	40%
End	0215	19.9°	1	10%

Notes: _____

Trap type and location

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets)	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
1	mist net	3h x 9m	03 75 957	45 45 819
2	mist net	2h x 6m	03 75 932	45 45 788
3	mist net	2h x 6m	03 75 859	45 45 782
4	mist net	2h x 6m	03 75 838	45 45 822
5				
6				
7				

Total net area: 157.5 m²

Notes: MS09

87.5
90

* corrected mist net site by stantec

FORM WD04 OHIO DEPARTMENT OF NATURAL RESOURCES
6/27/08 DIVISION OF WILDLIFE

Project Name: WLM5-X9*

Date: 22 June 2011

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown					
Evening					
Silver-haired					
Eastern red					
Hoary					
Tri-colored bat					
Little brown					
Northern	/	///			4
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					4

Notes: Small rain passing through, close nets at 2240 and open them at 2250/2300.

* corrected mist net site by stantec

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: WLMS-~~7~~ 9*

Date: 24 June 2011

Surveyors: Jessica O'Mahony, William Garcia

Survey Type: Hibernacula

Summer

Site description: Forested trails through wood lot bordered by corn fields, Dominant veg - Red maple, Elm, Beech

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	2106	17.3°	0	90%
End	0206	15.9°	1	100%

Notes: _____

Trap type and location

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets)	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
1	mist net	3h x 9m	03 75 957	45 45 819
2	mist net	2h x 6m	03 75 932	45 45 788
3	mist net	2h x 6m	03 75 859	45 45 782
4	mist net	2h x 6m	03 75 838	45 45 822
5				
6				
7				

Total net area: 157.5 m²

Notes: MS09

* corrected mist net site by stantec

FORM WD04 OHIO DEPARTMENT OF NATURAL RESOURCES
6/27/08 DIVISION OF WILDLIFE

Project Name: WLMS-~~X~~ 9*

Date: 24 June 2011

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown	1				1
Evening					
Silver-haired					
Eastern red					
Hoary					
Tri-colored bat					
Little brown		11			2
Northern					
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					3

Notes:

* corrected mist net site by stantee

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: WLMS-10 Date: 21st June 2011

Surveyors: Jessica O'Mahony, William Garcia

Survey Type: Hibernacula Summer

Site description: Road corridor (old rail bed) & small forested stream.
dominant veg - Birch, Elm, cottonwood

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	2115	25.9°	2	100%
End	0215	19.3°	1	40%

Notes: delayed start due to storm w/ heavy lightening, rain and wind.

Trap type and location

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets)	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
1	mist net	3h x 6m	4546307	17T 0376564
2	mist net	2h x 9m	4546248	0376537
3	mist net	2h x 6m	4546314	0376433
4	mist net	2h x 6m	4546325	0376413
5				
6				
7				

Total net area: 150.0 m²

Notes: Stream on far side of rr tracks not nettable - too cluttered.
MS10

FORM WD04 OHIO DEPARTMENT OF NATURAL RESOURCES
6/27/08 DIVISION OF WILDLIFE

Project Name: WLM5-10

Date: 21st June 2011

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown					
Evening					
Silver-haired					
Eastern red					
Hoary					
Tri-colored bat					
Little brown					
Northern					
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					0

Notes: Lots of noise from trains going through rail road. Also open nets at 2115 due to very big storm passing through. Still some lightning when open

BAT SURVEY FORM

Project Name: WLMs-10

ms10

Date: 21st June 2011

[illegible]

Species code: Big brown (EPFU), Silver-haired (LANO), Red (LABO), Hoary (LACI), Tri-colored (PESU), Rafinesque's big-eared (CORO)^{1,2}, Little brown (MYLU), Northern (MYSE), Small-footed (MYLE)¹, and Indiana (MYSO)^{1,2}.
Radio-telemetry, and documentation photographs required¹. Banding required².

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: WLMS-10

Date: 23 June 2011

Surveyors: Jessica O'Mahony, William Garcia

Survey Type: Hibernacula Summer

Site description: Road corridor (old rail bed) and small forested stream. Dominant veg - Birch, cottonwood, Elm

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	2105	23.4°	1	80%
End	0205	17.4°	1	20%

Notes: _____

Trap type and location

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets)	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
1	Mist net	3h x 6m	4546307	0376564
2	Mist net	2h x 9m	4546248	0376537
3	mist net	2h x 6m	4546314	0376433
4	Mist net	2h x 6m	4546325	0376413
5				
6				
7				

Total net area: 150.0 m²

Notes: Stream on far side of rt track not reliable - too cluttered.

MS10

FORM WD04 OHIO DEPARTMENT OF NATURAL RESOURCES
6/27/08 DIVISION OF WILDLIFE

Project Name: WLMS-10

Date: 23 June 2011

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown	1				1
Evening					
Silver-haired					
Eastern red					
Hoary					
Tri-colored bat	1				
Little brown		1			1
Northern					
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					2

Notes:

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: W. Vol. B. Greenbelt, OH

Date: 25 June 2011

Surveyors: J. Schwenk

Survey Type: Hibernacula

Summer

Site description: Very nice mature Beech/Maple Forest. Few Rock Trees AND
Netting corridor. North Central portion of project area

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	0000 2030	18.4	0	50%
End	0220	13.3	0	0%

Notes: ~~W. Vol. B. Greenbelt, OH~~

Trap type and location

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets)	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
1	MIST NET	12m x 9m / 3 tiers	41 02 26.3	82 28 24.9
2	├	9m x 6m / 2 tiers	41 02 27.0	82 28 26.6
3		9m x 6m / 2 tiers	41 02 26.6	82 28 28.2
4		6m x 6m / 1 tier	41 02 26.1	82 28 30.1
5				
6				
7				

Total net area: ~252 m²

Notes: MS11

FORM WD04 OHIO DEPARTMENT OF NATURAL RESOURCES
6/27/08 DIVISION OF WILDLIFE

Project Name: WingLab; Greenbelt, OH

Date: 25 June 2011

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown					
Evening					
Silver-haired					
Eastern red					
Hoary					
Tri-colored bat					
Little brown					
Northern		2			2
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					2

Notes:

Captured & Released Luna moth

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE

BAT SURVEY FORM

Project Name: Wobles, Greenville, OH

MS 11

Date: 25 June 2011

[illegible]

Species code: Big brown (EPFU), Silver-haired (LANO), Red (LABO), Hoary (LACI), Tri-colored (PESU), Rafinesque's big-eared (CORO)^{1,2}, Little brown (MYLU), Northern (MYSE), Small-footed (MYLE)¹, and Indiana (MYSO)^{1,2}.
Radio-telemetry, and documentation photographs required¹. Banding required².

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: Winona, Greenbelt, OH

Date: 27 June 2011

Surveyors: J. Schwendman

Survey Type: Hibernacula

Summer

Site description: See 25 June DATA SHEET

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	2100	25	4-7	70%
End	0220	19.1	1-3	0%

Notes: LATE START DUE TO TRAIN PASSING ON RR TRACKS; BUCKLES ADJUST TO SITE

Trap type and location

See 25 June DATA SHEET

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets)	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
1				
2				
3				
4				
5				
6				
7				

Total net area: ~252 m²

Notes: MS11

FORM WD04 OHIO DEPARTMENT OF NATURAL RESOURCES
6/27/08 DIVISION OF WILDLIFE

Project Name: Winolas, Greenwich, OH

Date: 27 June 2011

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown					
Evening					
Silver-haired					
Eastern red					
Hoary					
Tri-colored bat					
Little brown					
Northern					
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					

Notes:

DIVISION OF WILDLIFE

Date: 27 Jun 2011

[illegible]

Species code: Big brown (EPFU), Silver-haired (LANO), Red (LABO), Hoary (LACI), Tri-colored (PESU), Rafinesque's big-eared (CORO)^{1,2}, Little brown (MYLU), Northern (MYSE), Small-footed (MYLE)¹, and Indiana (MYSO)^{1,2}. Radio-telemetry, and documentation photographs required¹. Banding required².

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: Winkab; Greenbelt, OH

Date: 26 June 2011

Surveyors: J. Schwienjohn

Survey Type: Hibernacula

Summer

Site description: Forested lot with trails; stream to east of net site.


Central portion of project area

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	<u>2035</u>	<u>20.8</u>	<u>0</u>	<u>0</u>
End	<u>0210</u>	<u>13.4</u>	<u>0</u>	<u>0</u>

Notes: _____

Trap type and location

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets)	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
1	<u>M. ST net</u>	<u>6m x 6m / 2 tier</u>	<u>41 00 56.6</u>	<u>82 28 30.8</u>
2		<u>6m x 6m / 2 tier</u>	<u>41 00 57.8</u>	<u>82 28 26.7</u>
3		<u>6m x 3m / 1 tier</u>	<u>41 00 59.0</u>	<u>82 28 30.0</u>
4		<u>9m x 9m / 3 tier</u>	<u>41 01 00.0</u>	<u>82 28 31.1</u>
5				
6				
7				

Total net area: ~171m²

Notes: MS 12

FORM WD04 OHIO DEPARTMENT OF NATURAL RESOURCES
6/27/08 DIVISION OF WILDLIFE

Project Name: Windsor, Greenwich, OH

Date: 26 June 2011

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown	1				1
Evening					
Silver-haired					
Eastern red					
Hoary					
Tri-colored bat					
Little brown					
Northern					
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					1

Notes:

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE

BAT SURVEY FORM

Project Name: Widals - Gnewick, Olt

MS12

Date: 26 June 2011

[illegible]

Species code: Big brown (EPFU), Silver-haired (LANO), Red (LABO), Hoary (LACU), Tri-colored (PESU), Rafinesque's big-eared (CORO)^{1,2}, Little brown (MYLU), Northern (MYSE), Small-footed (MYLE)¹, and Indiana (MYSO)^{1,2}.
Radio-telemetry, and documentation photographs required¹. Banding required².

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: Winolet, Greenwood, OH

Date: 29 June 2011

Surveyors: J. Schwentner

Survey Type: Hibernacula

Summer

Site description: See 26 June Data Sheet

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	2030	23.6	0	0
End	0210	16.1	0	0

Notes: _____

Trap type and location

See 26 June Data Sheet

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets)	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
1				
2				
3				
4				
5				
6				
7				

Total net area: ~17/m²

Notes: MS 12

FORM WD04 OHIO DEPARTMENT OF NATURAL RESOURCES
6/27/08 DIVISION OF WILDLIFE

Project Name: Winklab; Greenwich, OH

Date: 29 June 2011

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown					
Evening					
Silver-haired					
Eastern red					
Hoary					
Tri-colored bat					
Little brown					
Northern					
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					

Notes:

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE

BAT SURVEY FORM

Project Name: Wojas - Gewinn mit Olf

ms 12

Date: 29 June 2011

[illegible]

Species code: Big brown (EPFU), Silver-haired (LANO), Red (LABO), Hoary (LACI), Tri-colored (PESU), Rafinesque's big-eared (CORO)^{1,2}, Little brown (MYLU), Northern (MYSE), Small-footed (MYLE)¹, and Indiana (MYSO)^{1,2}.
Radio-telemetry, and documentation photographs required¹. Banding required².

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: WINDLAB, Greenbelt, OH

Date: 28 June 2011

Surveyors: J. Schwiebert

Survey Type: Hibernacula

Summer

Site description: WOODLOT W/ SMALL STREAM. CENTRAL PORTION OF PROJECT AREA

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	2030	26.1	0	0
End	0200	16.1	0	0

Notes: _____

Trap type and location

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets)	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
1	MIST NET	6m x 9m / 3 ftia	41 01 01.1	82 28 27.2
2	↓	9m x 6m / 2 ftia	41 01 02.7	82 28 27.3
3		6m x 6m / 2 ftia	41 01 03.7	82 28 26.8
4		6m x 6m / 2 ftia	41 01 04.4	82 28 28.7
5				
6				
7				

Total net area: ~180 m²

Notes: MS 13

FORM WD04 OHIO DEPARTMENT OF NATURAL RESOURCES
6/27/08 DIVISION OF WILDLIFE

Project Name: WinoLab, Greenwich, OH

Date: 28 June 2011

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown					
Evening					
Silver-haired					
Eastern red					
Hoary					
Tri-colored bat					
Little brown					
Northern	UNK-1	3			4
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					4

Notes:

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: WINDLAB, GREENWICH, OH

Date: 30 June 2011

Surveyors: J. Schwiekhahn

Survey Type:

Hibernacula

Summer

Site description: See 28 June DATA SHEET

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	2030	23.3	0	40%
End	0200	19.3	0	0

Notes: _____

Trap type and location

See 28 June DATA SHEET

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets)	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
1				
2				
3				
4				
5				
6				
7				

Total net area: ~180 m²

Notes: MS 13

FORM WD04 OHIO DEPARTMENT OF NATURAL RESOURCES
6/27/08 DIVISION OF WILDLIFE

Project Name: Winkles, Greenwich, OH

Date: 30 June 2011

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown					
Evening					
Silver-haired					
Eastern red					
Hoary					
Tri-colored bat		1			1
Little brown					
Northern	1	2			3
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					4

Notes:

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: WLM5-14

Date: 25 June 2011

Surveyors: Jessica O'mahony & William Garcia

Survey Type: Hibernacula Summer

Site description: Large pond and forested trail along edge of
Pond leading to woodlot on Rural Pigeon Hunters Inc property
dominant veg - willow, locust & ash.

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	2105	21.5°	1	20%
End	0205	15.6	1	20%

Notes: _____

Trap type and location

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets)	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
1	mist net	3h x 9m	03 76 688	45 40 390
2	mist net	2h x 6m	03 76 685	45 40 340
3	mist net	2h x 6m	03 76 655	45 40 248
4	mist net	2h x 6m	03 75 383	45 41 516
5				
6				
7				

Total net area: 157.5 m²

Notes: M514

photo
134
135
136/37
138

FORM WD04 OHIO DEPARTMENT OF NATURAL RESOURCES
6/27/08 DIVISION OF WILDLIFE

Project Name: WLMs-14

Date: 25 June 2011

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown					
Evening					
Silver-haired					
Eastern red		1			1
Hoary					
Tri-colored bat					
Little brown					
Northern					
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					1

Notes:

Date: 25 June 2011

[illegible]

Species code: Big brown (EPTU), Silver-haired (LANO), Red (LABO), Hoary (LACI), Tri-colored (PESU), Rafinesque's big-eared (CORO)^{1,2}, Little brown (MYLU), Northern (MYSE), Small-footed (MYLE)¹, and Indiana (MYSO)^{1,2}. Radio-telemetry, and documentation photographs required¹. Banding required².

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: WLM 5-14

Date: 28 June 2011

Surveyors: Jessica O'Mahony, William Garcia

Survey Type: Hibernacula Summer

Site description: Large Pond and Forested Yail along edge

of Pond leading to woodlot on Rural coon hunters in property
Dominant veg- Willow, Locust & Ash.

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	21:05	20.9°	2	0%
End	21:06	13.6°	0	0

Notes: _____

Trap type and location

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets)	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
1	mist nets	3h x 9m	03 76 688	45 40 396
2	mist nets	2h x 6m	03 76 685	45 40 340
3	mist nets	2h x 6m	03 76 655	45 40 248
4	mist nets	2h x 6m	03 75 383	45 41 516
5				
6				
7				

Total net area: 157.5 m²

Notes: MS14

FORM WD04 OHIO DEPARTMENT OF NATURAL RESOURCES
6/27/08 DIVISION OF WILDLIFE

Project Name: WLM S -14

Date: 28 June 2011

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown					
Evening					
Silver-haired					
Eastern red					
Hoary					
Tri-colored bat					
Little brown					
Northern					
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					0

Notes:

Date: 28 June 2011

[illegible]

Species code: Big brown (EPTU), Silver-haired (LANO), Red (LABO), Hoary (LACI), Tri-colored (PESU), Rafinesque's big-eared (CORO)^{1,2}, Little brown (MYLU), Northern (MYSE), Small-footed (MYLE)¹, and Indiana (MYSO)^{1,2}.
Radio-telemetry, and documentation photographs required¹. Banding required².

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: Greenwich Wind Project
WLMs - 15
Surveyors: JJA, LDS

Date: 25 Jun

Survey Type: Hibernacula Summer

Site description: Edge of corn field and along wet drain leading into mature wood lot dominated by cottonwood + green ash

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	<u>2106</u>	<u>20.5</u>	<u>.5</u>	<u>60%</u>
End	<u>0206</u>	<u>13.6</u>	<u>.5</u>	<u>0%</u>

Notes: _____

Trap type and location

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets)	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
1	<u>Mist Net</u>	<u>6x6 2 stacked</u>	<u>0376021</u>	<u>4540413</u>
2	<u>L</u>	<u>6x6 2 stacked</u>	<u>0376023</u>	<u>4540383</u>
3	<u>L</u>	<u>9x6 3 stacked</u>	<u>0376041</u>	<u>4540354</u>
4	<u>L</u>	<u>9x6 2 stacked</u>	<u>0376003</u>	<u>4540362</u>
5				
6				
7				

Total net area: 198 m²

Notes: MS 15

1
36
36
72
54

FORM WD04 OHIO DEPARTMENT OF NATURAL RESOURCES
6/27/08 DIVISION OF WILDLIFE

Project Name: Greenwich Wind Project
WLMS-15

Date: 25 Jun 2011

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown		5			5
Evening					
Silver-haired					
Eastern red					
Hoary					
Tri-colored bat					
Little brown					
Northern					
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					5

Notes: All bats captured within 2.5 hrs of sunset

BAT SURVEY FORM

Project Name: Greenwich Wind Project

WLM5-15

PM 5:15

Date: 25 Jun 2011

[illegible]

Species code: Big brown (EPU), Silver-haired (LANO), Red (LABO), Hoary (LACI), Tri-colored (PESU), Rafinesque's big-eared (CORO)^{1,2}, Little brown (MYLU), Northern (MYSE), Small-footed (MYLE)¹, and Indiana (MYSO)^{1,2}.
Radio-telemetry, and documentation photographs required¹. Banding required².

NIGHTLY BAT SURVEY SUMMARY FORM

Project Name: WLM5-15

Date: 28 Jun 2011

Surveyors: JJA, CDS

Survey Type: Hibernacula

Summer

Site description: _____

Time and Weather

	Time	Temp (°C)	Wind speed (m/s)	Cloud cover (%)
Start	2106	22.5	3	15
End	0210	13.7	1	0%

Notes: _____

Trap type and location

Set #	Trap type (harp trap or mist net)	Size (note if stacked mist nets)	Location (UTM NAD83 Zone 17N)	
			Easting	Northing
1	Mist Net	6x6 2 high	0376021	4540413
2	├	6x6 2 high	0376023	4540383
3		9x8 3 high	0376041	4540354
4		9x6 2 high	0376063	4540632
5				
6				
7				

Total net area: 198 m²

Notes: MS15

FORM WD04 OHIO DEPARTMENT OF NATURAL RESOURCES
6/27/08 DIVISION OF WILDLIFE

Project Name: Greenwich Wind

Date: 28 Jun 2011

WMS-15

Capture summary

Species	Adult		Juvenile		Subtotal
	Male	Female	Male	Female	
Big brown	1	2			3
Evening					
Silver-haired					
Eastern red					
Hoary					
Tri-colored bat					
Little brown					
Northern					
Small-footed					
Indiana					
Rafinesque's big-eared					
Other:					
Total:					3

Notes:

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

12/24/2013 11:01:30 AM

in

Case No(s). 13-0990-EL-BGN

Summary: Application Of 6011 Greenwich Windpark, LLC - Exhibit K electronically filed by
Teresa Orahod on behalf of Sally Bloomfield