

# DRAFT

# **Gunn's Hill Wind Farm 2017 Post-Construction Mortality Monitoring Report**

Prepared for: Prowind Canada Inc. 19 Bold Street, Unit 2B Hamilton, ON L8P 1T3



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# DRAFT

# Gunn's Hill Wind Farm 2017 Post-construction Mortality Monitoring Report

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#### **Executive Summary**

Natural Resource Solutions Inc. was retained to conduct 3 years of post-construction monitoring at the operational Gunn's Hill Wind Farm, located within the Township of Norwich and the City of Woodstock, Oxford County, Ontario. This wind energy project has a generating capacity of 18MW and consists of 10 turbines situated in an agricultural landscape dominated by row crops. Occasional wooded habitats, wetlands, and aquatic features are also present in the areas surrounding the project infrastructure. This report provides the detailed methods and results from the first year of post-construction monitoring for bird and bat mortality conducted at the Gunn's Hill Wind Farm in 2017.

During twice-weekly searches from May 1 to October 31, 2017, a total of 7 bird mortalities were documented within the search areas around the 10 turbines. Observed bird mortalities consisted mostly of landbird species that are considered common in the province. Using appropriate correction factors, an estimated bird mortality rate of 1.03 birds/turbine/year (0.57 birds/MW/year), as calculated by turbine group, was determined for the Gunn's Hill Wind Farm. This is below the provincial threshold of 14 birds/turbine/year at turbine groups. No significant bird mortality events were documented.

During twice-weekly searches from May 1 to October 31, 2017, and once-weekly searches in November, a single raptor mortality was documented. This raptor, a red-tailed hawk (*Buteo jamaicensis*), is considered a common species in the province. This resulted in an estimated raptor mortality rate of 0.10 raptors/turbine/year or (0.06 raptors/MW/year). This is below the provincial threshold of 0.20 raptors/turbine/year.

During twice-weekly searches from May 1 to October 31, 2017, a total of 68 bat mortalities were documented within the search areas around the 10 turbines. Bat mortalities of both long-distance migratory and resident species were documented, including mortalities of hoary bat (*Lasiurus cinereus*), silver-haired bat (*Lasionycteris noctivagans*), eastern red bat (*Lasiurus borealis*), and big brown bat (*Eptesicus fuscus*). The first 3 species above are considered long-distance migratory species which overwinter outside of Ontario, and combined to account for 84% of the total bat mortality observations at the Gunn's Hill Wind Farm in 2017. Using appropriate correction factors, an estimated bat mortality rate of 10.81 bats/turbine/year (5.99 bats/MW/year) was determined for the Gunn's Hill Wind Farm. This is above the provincial threshold of 10 bats/turbine/year.

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#### 1.0 Introduction

Natural Resource Solutions Inc. (NRSI) was retained to conduct the first year of postconstruction monitoring at the operational Gunn's Hill Wind Farm (Gunn's Hill WF), which is located within the Township of Norwich and the City of Woodstock, Ontario. The Gunn's Hill WF consists of 10 operational wind energy generating turbines with a total nameplate capacity of 18MW. The project area and turbine locations can be seen on Map 1.

Post-construction monitoring at the Gunn's Hill WF in 2017 included bird, bat, and raptor mortality monitoring, searcher efficiency trials, scavenger removal trials, and visibility class mapping of substrates searched. These surveys were conducted in accordance with provincial guidelines and approval conditions of the project to assess the potential impacts of this wind energy generating facility on local and migratory birds and bats.

The purpose of this report is to provide the detailed methods and results from the first year of post-construction mortality monitoring conducted at the Gunn's Hill WF.

For the purposes of this report, NRSI will frequently use the terms 'mortality' and 'carcass'. The term 'mortality' will refer to dead birds and bats that were found in the vicinity of turbines at the Gunn's Hill WF. The term 'carcass' will refer to dead birds and bats that have been placed beneath wind turbines by NRSI staff for the purposes of searcher efficiency and/or scavenger removal trials.

In addition, an environmental monitor from Haudenosaunee Development Institute (HDI) was retained by Prowind Canada Inc. This HDI environmental monitor accompanied the NRSI biologist during the monitoring surveys and assisted with the searches from May to October, and as a result, they are referred to herein as the "search team", where applicable.

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# 2.0 Mortality Monitoring Methodology

#### 2.1 Mortality Monitoring

#### 2.1.1 Sample Locations

For wind energy projects consisting of less than 10 turbines, all turbines are required to be monitored (OMNR 2011a, OMNR 2011b). In accordance with these requirements, mortality monitoring was conducted at all 10 turbines in 2017, following the monitoring period and search frequency described below.

# 2.1.2 Monitoring Period and Search Frequency

The search team conducted twice-weekly (3 and 4 day intervals) mortality monitoring at each of the 10 turbines during the entire monitoring period of May 1 to October 31, 2017. Raptor mortality monitoring was conducted by NRSI biologists once-weekly at all turbines throughout the month of November.

As a result of turbine maintenance, some turbines could not be searched on particular dates. These relatively minor adjustments to the monitoring protocol are not expected to impact the results or conclusions presented in this report. The dates when turbines were not able to be searched are listed below in Table 1.

Date (2017)	Turbine(s)	Rationale
May 19	T10	Turbine Maintenance
June 20	T07	Turbine Maintenance
June 27	T06	Turbine Maintenance

#### Table 1. Summary of Regular Search Days When Turbines Could Not be Searched (2017)

#### 2.1.3 Sample Area and Survey Duration

Mortality searches were conducted within a 50m radius of each turbine base, using circular transects of increasing diameter around the turbine base, spaced approximately 5m apart. In order to maintain a consistent search effort, mortality searches followed a consistent search time of 20 minutes per turbine throughout the monitoring season. As a team consisting of 2 searchers conducted the surveys from May 1 to October 31, this search time is equivalent to 40 minutes per turbine of person-effort during each search event during the monitoring period.

#### 2.1.4 Data Collection

During each visit to conduct mortality searches, all appropriate information was documented, including weather conditions, date, time and observers. The mortality monitoring data sheet has been provided in Appendix I.

In addition to general information collected on each visit, a variety of specific information was recorded upon encountering any mortality. This detailed information, as shown on the data sheet provided in Appendix I, included species (if identifiable), sex, condition code, estimated time since death, any apparent injuries, direction and distance from turbine base, substrate type and visibility class, and a unique mortality identification number for future reference. Specific UTM coordinates and photographs were also taken for each specimen to allow for further analysis, if necessary.

#### 2.2 Scavenger Removal Trials

Scavenger removal trials were conducted in each of the spring, summer and fall seasons of mortality monitoring. For the purposes of this monitoring program, the spring monitoring season is defined as the months of May and June, the summer monitoring season is July and August, and the fall season is September and October. A minimum of 10 carcasses were placed in each monitoring season. No more than 5 carcasses were placed at one time and no more than 1 carcass was placed at any single turbine during each placement event. These measures were taken to avoid bias in the trial resulting from saturation of carcasses available to scavengers. Carcasses were placed throughout the range of habitats and substrate types being searched during each season. Species, UTM coordinates, direction and distance from turbine base, substrate and visibility class were all noted on a data sheet during the placement of each specimen. The scavenger removal data sheet has been provided in Appendix I.

Carcasses placed included both bird and bat specimens, with each trial consisting of at least one-third representation of each of bird and bat carcasses. Bird carcasses included species commonly encountered in this region of the province and ranged in size from very small to moderately-sized carcasses. Long-distance migratory bat carcasses were used in each seasonal scavenger removal trial and included hoary bat (*Lasiurus cinereus*), eastern red bat (*Lasiurus borealis*) and silver-haired bat

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(*Lasionycteris noctivagans*). Carcasses used in scavenger removal trials were obtained from the Royal Ontario Museum and/or were collected from operational wind energy facilities within Ontario. A list of all of the bird and bat species used during scavenger removal trials has been provided in Appendix II.

During each scavenger removal trial, the bird and bat carcasses were left for up to 14 days and were checked at the same frequency as mortality searches, or approximately twice per week, to note any scavenging or signs of scavenger presence. Following the completion of the scavenger removal trials after 14 days, all remaining test carcasses were retrieved and disposed of appropriately.

#### 2.3 Searcher Efficiency Trials

In conjunction with mortality searches, NRSI conducted searcher efficiency trials on searchers, or search teams, that conducted mortality searches at the Gunn's Hill WF. Similar to scavenger removal trials, searcher efficiency trials must be conducted at least once per season, and on each searcher/search team and in each visibility class that was searched during that season. In order to obtain more accurate results and to account for seasonal changes in groundcover, weather, or soil saturation, NRSI conducted monthly searcher efficiency trials from May to October. During each trial, searchers were tested without their knowledge through the placement of a minimum of 10 test carcasses per visibility class searched (class 1) with no more than 3 carcasses placed on any one date. Carcasses were placed randomly within the search radius of each of the 10 turbines at the Gunn's Hill WF. Distance and direction from turbine base, visibility class and substrate type, and UTM coordinates were recorded for each test carcasses placed. Each found specimen was later compared to the total number of carcasses placed within the project area, the locations of their placement, and species placed. The data sheet used for searcher efficiency trials can be seen in Appendix I.

In order to discreetly mark carcasses while minimizing human influence, NRSI marked the trial carcasses by using a combination of identifying the UTM coordinates, distance and direction from the turbine, species, and location on a field map. Each of these steps is used to clearly mark the location and attributes of the trial carcass for future reference,

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should there be any uncertainty about whether or not the observed carcass is a turbinerelated fatality.

Searcher efficiency carcasses included both bird and bat specimens, with each trial consisting of at least one-third representation of each of bird and bat carcasses. Bird carcasses included species commonly encountered in this region of the province and varied in size from very small to moderate-sized carcasses. Bat carcasses used during searcher efficiency trials consisted of the 3 long-distance migratory species known to occur within Ontario, including hoary bat, eastern red bat, and silver-haired bat. Carcasses used in searcher efficiency trials were obtained from the Royal Ontario Museum and/or were collected from operational wind energy facilities within Ontario. A list of all of the bird and bat species used during searcher efficiency trials has been provided in Appendix III.

#### 2.4 Proportion of Area Searched

Following Ministry of Natural Resources and Forestry (MNRF) guidelines, visibility class maps were completed by searchers at a minimum frequency of once per season (OMNR 2011a, OMNR 2011b). Due to the potential for changing conditions, NRSI completed visibility class maps once per month from May to October to provide additional information to support whether more frequent searcher efficiency trials were warranted, and ultimately to increase the accuracy of the estimated mortality rates.

Visibility class mapping was completed for the full 50m search radius at each turbine. This mapping categorized habitats according to visibility classes recommended by the MNRF (OMNR 2011a, OMNR 2011b). These include visibility classes 1 through 4, in addition to areas which may be deemed "unsearchable", such as wooded areas, areas deemed safety hazards, or other areas where searching was not possible. Mapping of these visibility classes within each turbine's search radius was conducted and calculated as per a repeatable methodology using a combination of these visibility class field maps, review of aerial photographs, and Geographic Information System (GIS) software. The data sheet used to record visibility class mapping has been provided in Appendix I. In order to help increase the accuracy of searcher efficiency rates and minimize the influence of the proportion of area searched on the bird and bat mortality estimates, the 50m search radii at each of the 10 turbines were maintained at visibility class 1 through occasional plowing for the duration of the monitoring year (May through November), when necessary. When small and temporary areas of other visibility classes were present, they were searched thoroughly until scheduled vegetation maintenance could occur. As a result, the majority of the 50m radius at each turbine was searched for the duration of the 2017 monitoring period. Some areas were determined to be visibility classes 2-4). In these cases, the appropriate proportion of area searched was calculated and used for final mortality estimates. Visibility class maps of each turbine in each month are provided in Appendix VII.

Maintenance of the 50m search radius was only completed when necessary to maintain appropriate visibility and it also followed a strict schedule developed by NRSI that ensured the maintenance activities were completed in a manner to minimize or eliminate any potential negative influence on the mortality monitoring, searcher efficiency trials and scavenger removal trials. The maintenance of the search areas is expected to increase the accuracy of the final estimated mortality rates at the Gunn's Hill WF.

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#### 3.0 Scavenger Removal Trial Results

Scavenging activity at the Gunn's Hill WF was low to moderate throughout the monitoring seasons, with a slight increase in scavenging activity documented during the summer trial. Table 2 shows the results from each season's scavenger removal trials conducted at the Gunn's Hill WF. Details on the date placed, species, distance and direction from turbine, visibility class, dates checked and by whom, UTM coordinates, and whether the carcass was scavenged have been provided in Appendix II.

 Table 2. Number of Carcasses Remaining During Scavenger Removal Trials at the Gunn's

 Hill WF (2017)

Number of Carcasses Remaining					
Spring Trial (May/June)					
Turbine	Visit 0	Visit 1	Visit 2	Visit 3	Visit 4
T01	1	1	1	0	0
Т03	1	1	0	0	0
T04	2	2	2	2	2
Т06	2	2	2	2	1
T07	2	1	1	1	1
Т08	2	2	1	0	0
Т09	2	2	2	2	2
T10	2	2	2	2	2
Total	14	13	11	9	8
Summer Tr	ial (July//	August)			
Turbine	Visit 0	Visit 1	Visit 2	Visit 3	Visit 4
T01	2	2	1	1	0
T02	2	1	1	1	1
T03	2	1	1	0	0
T04	1	1	0	0	0
T05	2	2	1	1	1
Т06	1	0	0	0	0
T07	1	1	0	0	0
T08	1	0	0	0	0
Т09	2	1	1	1	1
T10	1	1	1	0	0
Total	15	10	6	4	3
Fall Trial (September/October)					
Turbine	Visit 0	Visit 1	Visit 2	Visit 3	Visit 4
T01	1	1	1	1	1
T02	1	0	0	0	0
T04	2	2	2	2	1
T05	1	1	1	1	0

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	Number of Carcasses Remaining				
Т06	1	0	0	0	0
Т07	1	0	0	0	0
T08	1	1	0	0	0
Т09	1	1	1	1	1
T10	1	1	1	1	1
Total	10	7	6	6	4

To address the scavenger removal rates for each of the specific monitoring periods,

NRSI has used the equation recommended by the MNRF:

 $Sc = \frac{n_{visit1} + n_{visit2} + n_{visit3}...}{n_{visit0} + n_{visit1} + n_{visit2}...}$ 

Sc: proportion of carcasses not removed by scavengers  $n_{visit0}$ : total number of carcasses placed  $n_{visit1} - n_{visit3}$ ...: numbers of carcasses remaining on visits 1 through 3 etc.

Using the scavenger removal results seen in Table 2 and the equation provided by the MNRF, the seasonal scavenger removal rates have been determined as follows:

Sc <sub>Spring</sub>	= (13 + 11 + 9 + 8) / (14 +13 + 11 + 9) = 41 / 47 = <b>0.87</b>
Sc <sub>Summer</sub>	= (10 + 6 + 4 + 3) / (15 + 10 + 6 + 4) = 23 / 35 = <b>0.66</b>
Sc <sub>Fall</sub>	= (7 + 6 + 6 + 4) / (10 + 7 + 6 + 6) = 23 / 29 = <b>0.79</b>

The above scavenger removal rates represent the proportion of carcasses still remaining from one visit to the next. These scavenger values generally represent low to moderate scavenging activity throughout the year. The above scavenger removal rates will be used to calculate the estimated avian and bat mortality rates in Sections 6.0 and 8.0.

#### 4.0 Searcher Efficiency Trial Results

Searcher efficiency rates at the Gunn's Hill WF were high throughout the 2017 monitoring season. Results of the monthly searcher efficiency trials are summarized in Table 3 below. Details on the searcher, species, distance and direction from turbine, habitat, substrate, visibility class, UTM coordinates, and whether the carcass was found or scavenged have been provided in Appendix III.

able 5. Results of Searcher Enclency mais at the Guillis min with (2017)					
Searcher	Carcasses Found	Carcasses Placed	Carcasses Scavenged	Searcher Efficiency (Se)	Proportion of Turbines Searched
May 2017					
Search Team A	9	10	0	0.90	0.78
Searcher A <sup>1</sup>	N/A	N/A	N/A	0.90	0.11
Search Team B <sup>1</sup>	N/A	N/A	N/A	0.90	0.11
June 2017					
Search Team A	9	10	0	0.90	0.89
Search Team B <sup>1</sup>	N/A	N/A	N/A	0.90	0.11
July 2017					
Search Team A	9	11	1	0.90	1.00
August 2017					
Search Team A	10	11	0	0.91	0.89
Search Team C <sup>1</sup>	N/A	N/A	N/A	0.91	0.11
September 2017					
Search Team A	9	11	1	0.90	1.00
October 2017					
Search Team A	8	10	0	0.80	1.00

#### Table 3 Results of Searcher Efficiency Trials at the Gunn's Hill WE (2017)

<sup>1</sup>This searcher/search team searched on no more than 1 day in the identified month and therefore could not be properly tested for searcher efficiency following MNRF guidelines (i.e. 4 search days are required for proper testing in 1 visibility class as no more than 3 carcasses can be placed at a time). In these circumstances, the average result obtained by the regular search team in each month was used for these searchers/search teams.

Based on the information collected during detailed searcher efficiency trials and equations recommended by the MNRF, searcher efficiency (SeO) was calculated for each of the monitoring months as follows:

Se =	number of test of	<u>number of test carcasses found</u> carcasses placed – number of test carcasses scavenged
SeO =	Se <sub>A</sub> (proport	ion of turbines searched) + Se <sub>B</sub> (proportion of turbines searched)
	SeO <sub>May</sub>	= 0.90 (0.78) + 0.90 (0.11) + 0.90 (0.11) = <b>0.90</b>

SeO <sub>May</sub>	= 0.90(0.78) + 0.90(0.11) + 0.90(0.11) = 0
SeO <sub>June</sub>	= 0.90 (0.89) + 0.90 (0.11) = <b>0.90</b>

SeO <sub>July</sub>	= 0.90 (1.00) = <b>0.90</b>
SeO <sub>August</sub>	= 0.91 (0.89) + 0.91 (0.11) = <b>0.91</b>
SeO <sub>September</sub>	= 0.90 (1.00) = <b>0.90</b>
SeO <sub>October</sub>	= 0.80 (1.00) = <b>0.80</b>

These searcher efficiency values represent high searcher efficiency rates, largely due to the steps taken to keep the search areas in low visibility classes (i.e. clear and more easily searched) to increase the accuracy of the estimated mortality rate. These values will be used to calculate the estimated avian and bat mortality rates in Sections 6.0 and 8.0.

# 5.0 Proportion of Area Searched

Visibility class mapping was completed every month within the 50m search radius of each of the 10 turbines in order to reflect changes in groundcover and resulting visibility classes. All visibility class maps have been provided in Appendix VII.

Visibility class mapping was used in combination with GIS software to determine the proportion of area in visibility class 1 at each turbine. During the 2017 monitoring program, NRSI biologist searched all areas of visibility class 1, which is reflected in the proportion of area searched ( $P_s$ ) calculated for all 10 turbines during each monitoring month, as shown in Table 4. The  $P_s$  values will be used to calculate the estimated avian and bat mortality rates in Sections 6.0 and 8.0.

Month	Visibility Class(es) Searched	Total Searched Area (m²)	Total Search Radius (m²)	Proportion of Area Searched (Ps)
May	1	78,025	78,500	0.99
June	1	78,025	78,500	0.99
July	1	77,891	78,500	0.99
August	1	78,025	78,500	0.99
September	1	78,025	78,500	0.99
October	1	78,025	78,500	0.99

Table 4. Proportion of Area Searched at the Gunn's Hill WF (2017)

#### 6.0 Avian Mortality Results

#### 6.1 Avian Mortalities

During the 2017 mortality monitoring period at the Gunn's Hill WF, searchers found 7 bird mortalities within the 50m search radius of the turbines. The majority of the mortalities that could be identified to the species level were confirmed to be small landbirds, generally representing a variety of common species for this area of the province. The most commonly observed mortalities were of golden-crowned kinglet (*Regulus satrapa*) (n=3). One bird mortality could not be identified to the species level due to scavenging activity, but was identified as a passerine species.

A complete list of all avian mortalities observed during the mortality searches has been provided in Appendix IV.

#### 6.2 Temporal Distribution of Avian Mortalities

Bird mortalities were primarily observed during the spring (May) and fall (October) migration periods. Mortality was highest in the month of October (n=4) and consisted entirely of kinglet species (*Regulus* spp.). The maximum number of avian mortalities that occurred during a single monitoring event was 2. The distribution of avian mortalities by month is shown in Figure 1 below.



Figure 1. Bird Mortalities Observed by Month at the Gunn's Hill WF (2017)

#### 6.3 Spatial Distribution of Avian Mortalities

Avian mortalities were observed at 5 of the 10 turbines (see Figure 2 below). The highest number of mortalities observed at a single turbine was 2, which occurred at each of turbines T07 and T09. Turbine maps identifying the location of each observed mortality have been provided in Appendix VI.





# 6.4 Corrected (Estimated) Avian Mortality

In accordance with the *Bird and Bird Habitats: Guidelines for Wind Power Projects* (OMNR 2011b), estimated avian mortality rates have been presented by individual turbines or turbine group. Given the small size of the Gunn's Hill WF (10 turbines), the entire facility has been considered a single turbine group for the purpose of establishing estimated mortality rates.

Based on the field observations at the Gunn's Hill WF, NRSI biologists have compiled the searcher efficiency trial results, scavenger removal trial results, proportion of area searched, and direct mortality observations into an equation that will be used to estimate the total avian mortality at the Gunn's Hill WF in 2017. The equation recommended by the MNRF is found below:

#### $C = c / (Se*Sc*P_s)$

- C: Corrected (Estimated) Mortality Rate
- c: actual observed mortalities
- Se: overall searcher efficiency
- Sc: proportion of remaining carcasses
- P<sub>S</sub>: proportion of area searched

Using the equation and variables described above, the estimated avian mortality rates by month have been presented below:

С <sub>Мау</sub>	= 2 / (0.90*0.87*0.99) = 2 / 0.7752 = <b>2.58 birds</b> = <b>0.26 birds/turbine</b> (0.14 birds/MW)
C <sub>June</sub>	= 1 / (0.90*0.87*0.99) = 1 / 0.7752 = <b>1.29 birds</b> = <b>0.13 birds/turbine</b> (0.07 birds/MW)
C <sub>July</sub>	= 0 / (0.90*0.66*0.99) = 0 / 0.5881 = <b>0.00 birds</b> = <b>0.00 birds/turbine</b> (0.00 birds/MW)
C <sub>August</sub>	= 0 / (0.91*0.66*0.99) = 0 / 0.5946 = <b>0.00 birds</b> = <b>0.00 birds/turbine</b> (0.00 birds/MW)
CSeptember	= 0 / (0.90*0.79*0.99) = 0 / 0.7039 = <b>0.00 birds</b> = <b>0.00 birds/turbine</b> (0.00 birds/MW)
$C_{\text{October}}$	= 4 / (0.80*0.79*0.99) = 4 / 0.6257 = <b>6.39 birds</b> = <b>0.64 birds/turbine</b> (0.36 birds/MW)

#### 6.5 Summary

A total of 7 avian mortalities were documented at the Gunn's Hill WF in 2017. Avian mortalities were found at 5 out of 10 turbines, ranging from 0 to 2 mortalities per turbine. Mortalities were primarily observed during the spring (May) and fall (October) migration periods.

Using the appropriate variables and equations recommended by the MNRF, the corrected (estimated) avian mortality at the Gunn's Hill WF in 2017 was calculated. Table 5 shows the monthly estimated mortality rates as well as the overall estimated avian mortality rate at the Gunn's Hill WF, as calculated by turbine group.

 Table 5. Corrected Bird Mortality Rates Based on Mortality Monitoring at the Gunn's Hill

 WF (2017)

Month (2017)	Observed Avian Mortalities	Corrected Mortality (birds/turbine group)	Corrected Mortality (birds/MW)
Мау	2	0.26	0.14
June	1	0.13	0.07
July	0	0.00	0.00
August	0	0.00	0.00
September	0	0.00	0.00
October	4	0.64	0.36
TOTAL	7	1.03	0.57

Based on the information collected during the 2017 post-construction monitoring period, the anticipated impact of this facility on birds is characterized by an estimated mortality rate of **1.03 birds/turbine/year** (0.57 birds/MW/year), as calculated by turbine group.

# 7.0 Raptor Mortality Results

#### 7.1 Raptor Mortalities

Mortality searches for raptors were conducted twice-weekly from May to October in conjunction with avian and bat mortality searches and once-weekly in November at each of the 10 turbines. These searches resulted in the documentation of 1 raptor mortality at the Gunn's Hill WF, a red-tailed hawk (*Buteo jamaicensis*), which was observed in June at turbine T04. Red-tailed hawk is not a tracked raptor species in Ontario (MNRF 2017a).

Further details regarding the single raptor mortality are provided in Appendix IV, and turbine maps identifying the location of this mortality are provided in Appendix VI.

# 7.2 Corrected (Estimated) Raptor Mortality

Using assumed searcher efficiency and scavenger removal values of 1.00, and the proportion of area searched for the month of June (when the observation occurred), the estimated raptor mortality rate is as follows:

C<sub>June</sub> = 1 / (1.00\*1.00\*0.99) = 1 / 0.99 = **1.01 raptors** 

Using the appropriate variables, the estimated raptor mortality at the Gunn's Hill WF is a total of 1.01 raptors. This number corresponds to a value of **0.10 raptors/turbine/year** or 0.06 raptors/MW/year.

# 8.0 Bat Mortality Results

#### 8.1 Bat Mortalities

During the 2017 post-construction mortality monitoring period at the Gunn's Hill WF, searchers observed 68 bat mortalities within the 50m search radius of the turbines. Bat mortalities represented 4 different species, including 3 long-distance migratory species (hoary bat, eastern red bat, and silver-haired bat), as well as the resident species big brown bat (*Eptesicus fuscus*). The most abundant species observed was hoary bat (n=32), followed by silver-haired bat (n=20), big brown bat (n=11), and eastern red bat (n=5). Observed mortalities of the 3 long-distance migratory bat species combine to represent 84% of all documented mortalities.

In addition, 1 live hoary bat was encountered while completing mortality monitoring. This bat showed no visible signs of injury and appeared to behave normally. As a result, the bat was moved outside of the 50m search radius and placed on a nearby tree. Given that there was no indication of injury, this bat is assumed to have recovered, and as a result, it has not been included in the calculation of estimated mortality rates below.

A detailed examination of bat mortalities at the Gunn's Hill WF has been included in the following sections. Detailed information regarding each bat mortality observed during mortality searches has been provided in Appendix V.

#### 8.2 Temporal Distribution of Bat Mortalities

Bat mortalities were observed between mid-May and mid-October, but were most abundantly observed during the months of July through September (84% of all bat mortalities; Figure 3). The monitoring day with the highest number of mortalities observed was September 1 (n=6).



Figure 3. Bat Mortalities Observed by Date at the Gunn's Hill WF (2017)

Patterns of bat mortalities appear to be consistent with the expected migratory time periods for these species, with increases in bat mortalities during the mid-summer to early fall. Overall, bat mortality was concentrated during the months of July through September, corresponding to the anticipated peak periods of summer swarming and fall migration of bats.

# 8.3 Spatial Distribution of Bat Mortalities

Bat mortalities were observed at all 10 turbines at the Gunn's Hill WF in 2017 (see Figure 4 below). The number of mortalities observed at each turbine varied, ranging from 2 mortalities at turbine T03 to 11 mortalities at turbine T01 (Figure 4).



Figure 4. Bat Mortalities Observed by Turbine at the Gunn's Hill WF (2017)

Distance and direction of bat mortalities from each of the turbine bases were also documented for each observed mortality. Bat mortalities were found throughout the search areas, ranging in distance from <1m to 49m from the turbine base, and averaging a distance of approximately 30m from the turbine base. The overall distribution of mortalities by distance class can be seen in Figure 5 below. Maps identifying the location of each observed mortality by turbine are provided in Appendix VI.





#### 8.4 Corrected (Estimated) Bat Mortality

Based on the field observations at the Gunn's Hill WF, NRSI biologists have compiled the searcher efficiency trials, scavenger removal trials, proportion of area searched, and direct mortality values in an equation that will be used to estimate the total bat mortality at the Gunn's Hill WF in 2017. The equation recommended by the MNRF is found below:

#### $C = c / (Se^*Sc^*P_s)$

C:	Corrected (Estimated) Mortality Rate
C:	actual observed mortalities
Se:	overall searcher efficiency
Sc:	proportion of remaining carcasses
Ps:	proportion of area searched

Using the equation and variables described above, the estimated bat mortality rates (by month) have been presented below:

$C_{\text{May}}$	= 2 / (0.90*0.87*0.99) = 2 / 0.7752 = <b>2.58 bats</b> = <b>0.26 bats/turbine</b> (0.14 bats/MW)
C <sub>June</sub>	= 4 / (0.90*0.87*0.99) = 4 / 0.7752 = <b>5.16 bats</b>

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#### = 0.52 bats/turbine (0.29 bats/MW)

C <sub>July</sub>	= 21 / (0.90*0.66*0.99) = 21 / 0.5881 = <b>35.71 bats</b> = <b>3.57 bats/turbine</b> (1.98 bats/MW)
C <sub>August</sub>	= 21 / (0.91*0.66*0.99) = 21 / 0.5946 = <b>35.32 bats</b> = <b>3.53 bats/turbine</b> (1.96 bats/MW)
CSeptember	= 15 / (0.90*0.79*0.99) = 15 / 0.7039 = <b>21.31 bats</b> = <b>2.13 bats/turbine</b> (1.18 bats/MW)
C <sub>October</sub>	= 5 / (0.80*0.79*0.99) = 5 / 0.6257 = <b>7.99 bats</b> = <b>0.80 bats/turbine</b> (0.44 bats/MW)

#### 8.5 Summary

A total of 68 bat mortalities were documented at the Gunn's Hill WF in 2017. Mortalities included all 3 of Ontario's long-distance migratory bat species, including hoary bat, silver-haired bat, and eastern red bat, which combined to represent 84% of the total bat mortalities observed. Big brown bat, a resident species known to over-winter in Ontario, was also observed. Bat mortalities were most abundant during the months of July through September, when 84% of all bat mortalities occurred. Bat mortalities ranged from 2 to 11 mortalities at each turbine.

Using the appropriate variables and recommended equations provided by the MNRF, NRSI has determined the corrected (estimated) bat mortality at the Gunn's Hill WF in 2017. Each of the corrected monthly bat mortality rates and the corrected annual bat mortality rate for the Gunn's Hill WF are provided in Table 6.

Table 6.	Corrected	Bat Mortali	ty Rates	Based on	Mortal	ity Moni	toring	at the G	unn's H	ill
WF (201)	7)		-			-	-			
										1

Month (2017)	Observed Bat Mortalities	Corrected Mortality (bats/turbine)	Corrected Mortality (bats/MW)
Мау	2	0.26	0.14
June	4	0.52	0.29
July	21	3.57	1.98
August	21	3.53	1.96
September	15	2.13	1.18
October	5	0.80	0.44
TOTAL	68	10.81	5.99

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Based on the information collected during the 2017 post-construction monitoring period, the anticipated impact of this facility on bats is characterized by a corrected mortality rate of **10.81 bats/turbine/year** (5.99 bats/MW/year).

# 9.0 Mortality Thresholds and Notifications

In accordance with the appropriate MNRF guidelines, project approval conditions, and other commitments made as part of the monitoring program, several mortality thresholds and notification requirements for the Gunn's Hill WF have been established. The status of each threshold and confirmation of notifications, where applicable, have been described in the following sections.

# 9.1 Annual Bird Mortality

The annual bird mortality threshold for the Gunn's Hill WF is 14 birds/turbine/year, calculated by individual turbine or turbine group. Based on an estimated rate of 1.03 birds/turbine/year, as calculated by turbine group, the Gunn's Hill WF remains below this threshold. Since the results are below the established threshold, no notification is required.

# 9.2 Annual Raptor Mortality

The annual raptor mortality threshold for the Gunn's Hill WF is 0.2 raptors/turbine/year (or 0.1 raptors/turbine/year for provincially tracked raptors). Based on an estimated rate of 0.10 raptors/turbine/year and no mortalities of provincially tracked raptors, the Gunn's Hill WF remains below these thresholds. Since the results are below the established thresholds, no notification is required.

# 9.3 Annual Bat Mortality

The annual bat mortality threshold for the Gunn's Hill WF is 10 bats/turbine/year. Based on an estimated rate of 10.81 bats/turbine/year, the Gunn's Hill WF has exceeded this threshold. The submission of this report to the MNRF will satisfy the requirement to notify the MNRF within 3 months of the completion of the annual mortality monitoring activities.

# 9.4 Significant Bird Mortality Event

Significant bird mortality events have been defined by the MNRF as single-day mortality events with 10 or more birds at any one turbine or 33 or more birds (including raptors) at multiple turbines. Neither of these single-day mortality events was observed at the

Gunn's Hill WF during the 2017 monitoring year. As no significant bird mortality event occurred, no notification is required.

#### 9.5 Species at Risk Mortality Event

Any Species at Risk (SAR; MNRF 2017b) mortality documented during post-construction mortality monitoring at the Gunn's Hill WF requires formal notification to the MNRF within 24 hours (or next business day) of a confirmed species identification (Prowind Canada Inc. 2013). In accordance with the *Post-Construction Environmental Effects Monitoring Plan: Birds and Bats* (Prowind Canada Inc. 2013), notification was sent to the MNRF within 24 hours following confirmed identification of a SAR mortality at the Gunn's Hill WF, as applicable.

#### **10.0 Summary and Conclusions**

NRSI was retained to conduct post-construction monitoring at the operational Gunn's Hill WF. The Gunn's Hill WF consists of 10 operational wind energy generating turbines with a total nameplate capacity of 18MW.

Post-construction monitoring at the Gunn's Hill WF in 2017 included bird, bat, and raptor mortality monitoring, searcher efficiency trials, scavenger removal trials, and visibility class mapping. These surveys were conducted to assess the potential impacts of this wind energy generating facility on local and migratory birds and bats.

A total of 7 avian mortalities were documented at the Gunn's Hill WF during the 2017 monitoring period. Given the number of observed avian mortalities, searcher efficiency rates, scavenger removal rates, proportion of area searched, and equations recommended by the MNRF, a total corrected (estimated) avian mortality rate of **1.03 birds/turbine/year** (0.57 birds/MW/year), as calculated by turbine group, has been determined for the Gunn's Hill WF. This estimated mortality rate is below the threshold level of 14 birds/turbine/year established by the MNRF guidelines. No significant bird mortality events of 10 or more birds at any one turbine or 33 or more birds (including raptors) at multiple turbines on a single survey date were observed.

A single raptor mortality was documented at the Gunn's Hill WF during the 2017 monitoring period. Based on the observed raptor mortality, a corrected (estimated) raptor mortality rate of **0.10 raptors/turbine/year** (0.06 raptors/MW/year) has been determined for the Gunn's Hill WF. This raptor mortality rate is below the provincial threshold level of 0.20 raptors/turbine/year established by the MNRF guidelines.

A total of 68 bat mortalities were documented during the 2017 mortality monitoring period at the Gunn's Hill WF. Long-distance migratory bat species were the most commonly observed mortalities at the project. Based on the number of observed bat mortalities, searcher efficiency rates, scavenger removal rates, proportion of area searched, and equations recommended by the MNRF, a total corrected (estimated) bat mortality rate of **10.81 bats/turbine/year** (5.99 bats/MW/year) has been determined for

the Gunn's Hill WF. The estimated bat mortality rate exceeds the provincial threshold level of 10 bats/turbine/year established by the MNRF guidelines.

#### 11.0 References

- Ministry of Natural Resources and Forestry (MNRF). 2017a. Species Lists: Birds. Natural Heritage Information Centre (NHIC). Queen's Printer for Ontario. Available at: https://www.ontario.ca/page/get-natural-heritage-information
- Ministry of Natural Resources and Forestry (MNRF). 2017b. Species at Risk in Ontario (SARO) List. Available at: http://www.ontario.ca/environment-and-energy/species-risk-ontario-list
- Ontario Ministry of Natural Resources (OMNR). 2011a. Bats and Bat Habitats: Guidelines for Wind Power Projects. First edition. July 2011.
- Ontario Ministry of Natural Resources (OMNR). 2011b. Bird and Bird Habitats: Guidelines for Wind Power Projects. First Edition. December 2011.
- Prowind Canada Inc. 2013. Gunn's Hill Wind Farm Post-construction Environmental Effects Monitoring Plan: Birds and Bats. June 2013.

Maps



Appendix I Post-construction Monitoring Data Sheets

#### **Bird and Bat Mortality Search Summary**

Date (dd/mm/yy):///	Observer(s):		Project Name:	Project No:
Start Time (24hrs):hrs	6	Dog Used? Y N	Days	s Since Last Search ( <i>i.e. Mon to Thurs</i> = 3 days):day
<b>WEATHER</b> Temp:°C Visibility: Hiah Medium Low	Cloud Cover: % Precip: None Rain	Wind Speed:	 Weather Comments:	Wind Direction (from): (use N,SW, etc.)
		Sign	ficant Weather before visit?_	·
COMMENTS (ex. wildlife notes, la	andowner interactions, turbine n	naintenance, unsearchable area	s, etc.)	

SEARC	EARCH RESULTS															
Sched	Scheduled Search Mortality Results. Enter "None" if no mortalities found.															
Turbine #	Start Time (24hr)	End Time (24hr)	Sample ID (PROJ#- DDMMYY-TXX- Mortality No.)	Species Found	Bat FA (mm)	Sex (M/F)	U	ГМ Nacifician	Dist. from Turbine	Dir. from Turbine (°)	сс	Est. Time Since Death	Injuries	Substrate/Habitat	VC	Photo No.(s)
	(=)	()			()		Easting	Northing	(m)	( )		(hrs)				

CC = Condition Codes: I: Injured or Dying, F: Fresh, E: Early Decomposition, M: Moderate Decomposition, A: Advanced Decomposition, C: Complete Decomposition, S: Scavenged

Injuries: Describe any injuries to the bird carcass (e.g. none observed, broken neck, broken left wing, decapitated, laceration etc.)

Substrate/Habitat Types: The material upon which the carcass was found (ex. gravel, soy, corn, open soil, mud, standing water, concrete etc.)

VC = Visibility Class Codes: Class 1: >90% bare ground, <15cm tall Class 2: >25% bare ground, <15cm tall Class 3: < 25% bare ground, <25% >30cm tall Class 4: little or no bare ground, >25% >30cm tall

FA (mm) = Forearm Length (mm): Measure the length of the leading edge of the wing between the wrist and the elbow (mm)
### Page \_\_\_\_ of \_\_\_\_

# Scavenger Removal Data Form

# Project Name:\_\_\_\_\_

Project #: \_\_\_\_\_

0         0         1	Visit #	/isit #DayDate00		Obs.	Temp (°C)	Wind Speed	Wind Direction	Precip.	Visibility	Cloud Cover (%)	Cloud Height
1         Image: Speciment 1:	0	0									
2         3         4         1 <th1< th=""> <th1< th=""> <th1< th=""> <th1< th=""></th1<></th1<></th1<></th1<>	1										
3         4         1	2										
4         Specimen 1:         Species Dist: Dir: UTM:           Turbine No         Specimen 1:         Specimen 2:         Specimen 1:         Dist: Dir: UTM:           Specimen 2:         Specimen 1         Specimen 2         Specimen 2         Specimen 2           N         Image: Specime 1         Specimen 1         Specimen 2         Specimen 2           N         Image: Specime 1         Scavenging No.(s)         Present Signs of Scavenging No.(s)         Photo Scavenging No.(s)           Turbine No         Specimen 1:         Specime 1:         Specime 1:         Specime 1:           Specimen 1:         Specime 2         Dist:         Dir:         UTM:	3										
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Turbine No.         Specimen 1:         SpeciesNotes:         UTM:           Specimen 2:         Specimen 1:         Notes:         Notes:         Notes:           N         Day         Time         Specimen 1:         Notes:         UTM:											
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N         Day         Time         Specimen 1         Specimen 2           Present         Signs of Scavenging         Photo No.(s)         Present         Signs of Scavenging         Photo No.(s)           Image: Species in the system         Image: Species intervent in				She	cimen z.	Visibility C	lass: N	otes:	01101.		
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Turbine No.         Specimen 1:         Species Dist: Dir: UTM:           Visibility Class:         Notes:											
Specimen 2:       Species Dist: Dir: UTM:         Visibility Class: Notes:         N       Specimen 1       Specimen 2         Day       Time       Signs of Photo Scavenging       Photo No.(s)       Present       Signs of Scavenging       No.(s)         Image: Comparison of the second seco	Turbine I	No		Spe	cimen 1:	Species Visibility Cl	Dis ass: No	t: Dir: btes:	UTM:		
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Scavenging     No.(s)     Scavenging     No.(s)	1			Day	Time	Present	Signs of	Photo	Present	Signs of	Photo
			N.				Scavengir	ng No.(s	)	Scavenging	No.(s)
		<b>A</b> •									
		*									
			a de la constance de								

Searcher Efficiency	Data Forr	m			Project #:			
Date:	Time:	hrs				Searc	cher:	Placed By:
Condition of Carcasses:	Fresh	Thawed		Carcasses marked (and	d how)?			
WEATHER Temp: °C	*Wind	d Speed:		Wind Direction (from): _		Visibility:	High Medium	Low
Cloud Cover (%):	Cloud	d Height: H	High Medium	Low	Precipitation:	Rain Fog	Snow None	
	•							

Additional Weather or Other Comments: \_\_\_\_\_

	Time Placed (24hr)	Turbine #	Species	Distance From Turbine	Direction from Turbine	Habitat/ Substrate	Visibility Class	UTM	Found By Searcher (Y/N)	Found After Search (Y/N)
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

\*Beaufort Wind Scale: 0 calm; 1 smoke drifts; 2 wind felt on face; 3 leaves in motion; 4 small branches move; 5 small trees sway; 6 large branches move; 7 whole trees in motion; 8 twigs break off and hard to walk; 9 light structural damage; 10 tree uprooted

Placement Location Sketches (Draw access road for each sketch)

N 🕈

1	2	3	4	5	6	7	8	9	10
x	x	x	×	×	×	x	x	×	×
T#									



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Appendix II Scavenger Removal Trial Results

#### Appendix II 1875A Gunn's Hill Wind Farm Scavenger Removal Trial Results 2017

#### Spring (May/June) 2017 Scavenger Removal Trial

Carcass	Turhine	Species	ecies Distance from Direction from UTM Visibility Class Test Day Turbine Base (m) Turbine Base (°)		Test Day	Date	Carcass	Signs of Scavenging	Tester		
Number	ruibille	Species	Turbine Base (m)	Turbine Base (°)	OTW	visibility class	Test Day	Date	Present	Signs of Scavenging	rester
1	T04	Golden-crowned Kinglet	37	355	17T 525547 4768628	1	Day 0	05-May-17	Y	Carcass placed	Search Team A
							Day 4	09-May-17	Y	Coyote tracks ~15m away	Search Team A
							Day 7	12-May-17	Y	None	Search Team B
							Day 11	16-May-17	Y	None	Search Team A
							Day 14	19-May-17	Y	None	Search Team A
2	T06	Silver-haired Bat	35	220	17T 526635 4770313	1	Day 0	05-May-17	Y	Carcass placed	Search Team A
							Day 4	09-May-17	Y	None	Search Team A
							Day 7	12-May-17	Y	None	Search Team B
							Day 11	16-May-17	Y	None	Search Team A
2	707		-	220	477 52674 4770200		Day 14	19-May-17	Y	Partially scavenged	Search Team A
3	107	Sliver-haired Bat	/	230	1/1 5269/4 47/0298	1	Day 0	05-IVIay-17	Y	Carcass placed	Search Team A
							Day 4	09-IVIay-17	Y	None	Search Team A
							Day 7	12-Iviay-17	ř	None	Search Team B
							Day 11	16-Iviay-17	ř	None	Search Team A
4	TOP	For Coorrow	41	20	177 527124 4768006	1	Day 14	19-May-17	ř	None	Search Team A
4	108	Fox Sparrow	41	30	1/1 52/134 4/68906	1	Day 0	05-Iviay-17	ř	Carcass placed	Search Team A
							Day 4	12 May 17	t V	None	Search Team A
							Day 7	12-IVIdy-17	T	None	Search Team B
							Day 11 Day 14	10-Iviay-17	N	Carcass removed	Search Team A
-	T00	Silver baired Bat	21	210	177 527420 4768061	1	Day 14	19-Ivlay-17	N	N/A Carsass placed	Search Team A
5	109	Silver-haired Bat	31	310	1/1 52/439 4/68961	1	Day 0	12-IVIay-17	ř	Carcass placed	Search Team A
							Day 4	10-Ividy-17	t V	None	Search Team A
							Day 7	19-IVIdy-17	t V	None Nano decomposing	Search Team A
							Day 11 Day 14	25-IVIdy-17	t V	None; decomposing	Search Team A
6	T01	Magnolia Warbler	46	205	17T 522250 4760040	1	Day 14	20-IVIdy-17	f V	Carsase placed	Search Team A
0	101		45	203	1/1 323233 4703340	1	Day 3	10-Way-17	v	None	Search Team A
							Day 3	19-1viay-17	I V	Corrects moved by plough	Search Team A
							Day 7	23-IVIay-17	Y	Carcass moved by plough	Search Team A
							Day 10	26-IVIay-17	N	Carcass removed	Search Team A
7	T02	Dubu many ad Kinalat	22	25	177 522000 4700020	1	Day 14	30-IVIay-17	N	N/A	Search Team A
/	103	Ruby-crowned Kinglet	23	35	1/1 523880 4769930	1	Day 0	16-Iviay-17	ř	Carcass placed	Search Team A
							Day 3	19-Iviay-17	Y	None; decomposing	Search Team A
							Day 7	25-IVIdy-17	IN N	carcass removed; only a rew reachers remain	Search Team A
							Day 10 Day 14	20-Ividy-17	IN N	N/A	Search Team A
0	T00	Factorn Rod Pat	0	15	177 527442 4769049	1	Day 14	30-IVIdy-17	N	N/A	Search Team A
٥	109	Eastern Reu Bat	٥	15	1/1 52/442 4/06946	I	Day 0	10-Ividy-17	t V	Carcass placed	Search Team A
							Day 5	19-IVIdy-17	t V	None	Search Team A
							Day 7	25-IVIdy-17	t V	None	Search Team A
1							Day 10	20-IVIdy-17	T	None	Search Team A
0	T10	Coldon arounod Kinglat	20	220	177 520121 4760172	1	Day 14	50-IVIAy-17	۲ ۷	None Carcase placed	Search Team A
9	110	Golden-crowned Kinglet	38	220	1/1 528131 4/091/3	Ţ	Day 0	10 May 17	ř	Carcass placed	Search Team A
1							Day 3	19-IVIAY-17	ř	None None decomposing	Search Team A
1							Day /	23-IVIAY-17	ř	None; decomposing	Search Team A
1							Day 10	20-IVI0Y-17	ř	None; decomposing	Search Team A
L							Day 14	30-IVIAY-17	Y	None; decomposing	Search Team A

Carcass	Turbine	Species	Distance from	Direction from	UTM	Visibility Class	Test Day	Date	Carcass	Signs of Scavenging	Tester
10	T04	Tree Swallow	30	130	17T 525551 4768659	1	Day 0	02-Jun-17	Y	Carcass placed	Search Team B
							Day 4	06-lun-17	Y	None	Search Team A
							Day 7	09-Jun-17	Ŷ	None	Search Team A
							Day 11	13-Jun-17	Ŷ	None	Search Team A
							Dav 14	16-Jun-17	Ŷ	None	Search Team A
11	T06	Hoary Bat	21	330	17T 526648 4770360	1	Day 0	2-Jun-17	Y	Carcass placed	Search Team B
		,					Day 4	6-Jun-17	Y	None	Search Team A
							Day 7	9-Jun-17	Y	None	Search Team A
							Day 11	13-Jun-17	Y	None	Search Team A
							Day 14	16-Jun-17	N	Carcass removed; coyote tracks	Search Team A
12	T07	Golden-crowned Kinglet	41	260	17T 526942 4770280	1	Day 0	2-Jun-17	Y	Carcass placed	Search Team B
							Day 4	6-Jun-17	N	Carcass removed; only a few feathers remain	Search Team A
							Day 7	9-Jun-17	N	N/A	Search Team A
							Day 11	13-Jun-17	N	N/A	Search Team A
							Day 14	16-Jun-17	N	N/A	Search Team A
13	T08	Eastern Red Bat	14	350	17T 527110 4768880	1	Day 0	2-Jun-17	Y	Carcass placed	Search Team B
							Day 4	6-Jun-17	Y	None	Search Team A
							Day 7	9-Jun-17	N	Carcass removed	Search Team A
							Day 11	13-Jun-17	N	N/A	Search Team A
							Day 14	16-Jun-17	N	N/A	Search Team A
14	T10	Ruby-crowned Kinglet	40	150	17T 528180 4769169	1	Day 0	2-Jun-17	Y	Carcass placed	Search Team B
							Day 4	6-Jun-17	Y	None	Search Team A
							Day 7	9-Jun-17	Y	None	Search Team A
							Day 11	13-Jun-17	Y	None	Search Team A
							Day 14	16-Jun-17	Y	None	Search Team A

#### Summer (July/August) 2017 Scavenger Removal Trial

Carcass	Turking	Currier	Distance from	Direction from	1175.4		Test Davi	Data	Carcass	Cines of Community	Tester
Number	Turbine	Species	Turbine Base (m)	Turbine Base (°)	UTIVI	VISIDILITY Class	Test Day	Date	Present	Signs of Scavenging	Tester
1	T01	Golden-crowned Kinglet	34	160	17T 523287 4769947	1	Day 0	04-Jul-17	Y	Carcass placed	Search Team A
							Day 3	07-Jul-17	Y	None	Search Team A
							Day 7	11-Jul-17	N	Carcass removed	Search Team A
							Day 10	14-Jul-17	N	N/A	Search Team A
							Day 14	18-Jul-17	N	N/A	Search Team A
2	T02	Silver-haired Bat	30	155	17T 523806 4770184	1	Day 0	04-Jul-17	Y	Carcass placed	Search Team A
							Day 3	07-Jul-17	Y	None	Search Team A
							Day 7	11-Jul-17	Y	None	Search Team A
							Day 10	14-Jul-17	Y	None	Search Team A
							Day 14	18-Jul-17	Y	None	Search Team A
3	T03	Magnolia Warbler	19	275	17T 523858 4769897	1	Day 0	04-Jul-17	Y	Carcass placed	Search Team A
							Day 3	07-Jul-17	Y	None	Search Team A
							Day 7	11-Jul-17	Y	Many feathers remain	Search Team A
							Day 10	14-Jul-17	N	Carcass removed	Search Team A
							Day 14	18-Jul-17	N	N/A	Search Team A
4	T09	Tree Swallow	11	40	17T 527297 4769046	1	Day 0	04-Jul-17	Y	Carcass placed	Search Team A
							Day 3	07-Jul-17	Y	None	Search Team A
							Day 7	11-Jul-17	Y	None; decomposing	Search Team A
							Day 10	14-Jul-17	Y	None; decomposing	Search Team A
							Day 14	18-Jul-17	Y	None; decomposing	Search Team A
5	T05	Eastern Red Bat	44	240	17T 525884 4768509	1	Day 0	07-Jul-17	Y	Carcass placed	Search Team A
							Day 4	11-Jul-17	Y	None	Search Team A
							Day 7	14-Jul-17	Y	None	Search Team A
							Day 11	18-Jul-17	Y	None; decomposing	Search Team A
							Day 14	21-Jul-17	Y	None; decomposing	Search Team A

Carcass Number	Turbine	Species	Distance from Direction from UTN Turbine Base (m) Turbine Base (*) 29 230 17T 523766 477		UTM	Visibility Class	Test Day	Date	Carcass Present	Signs of Scavenging	Tester
6	T02	Ruby-crowned Kinglet	29	230	17T 523766 4770196	1	Day 0	01-Aug-17	Y	Carcass placed	Search Team A
							Day 3	04-Aug-17	N	Carcass removed; only a few feathers remain	Search Team A
							Day 7	08-Aug-17	N	N/A	Search Team A
							Day 10	11-Aug-17	N	N/A	Search Team C
							Day 14	15-Aug-17	N	N/A	Search Team A
7	T04	Hoary Bat	48	185	17T 525522 4768554	1	Day 0	01-Aug-17	Y	Carcass placed	Search Team A
							Day 3	04-Aug-17	Y	None	Search Team A
							Day 7	08-Aug-17	N	Carcass removed	Search Team A
							Day 10	11-Aug-17	N	N/A	Search Team C
							Day 14	15-Aug-17	N	N/A	Search Team A
8	T06	Nashville Warbler	24	70	17T 526678 4770346	1	Day 0	01-Aug-17	Y	Carcass placed	Search Team A
							Day 3	04-Aug-17	N	Carcass removed; only one feather remains	Search Team A
							Day 7	08-Aug-17	N	N/A	Search Team A
							Day 10	11-Aug-17	N	N/A	Search Team C
							Day 14	15-Aug-17	N	N/A	Search Team A
9	T08	Silver-haired Bat	32	350	17T 527103 4768903	1	Day 0	01-Aug-17	Y	Carcass placed	Search Team A
							Day 3	04-Aug-17	N	Carcass removed	Search Team A
							Day 7	08-Aug-17	N	N/A	Search Team A
							Day 10	11-Aug-17	N	N/A	Search Team C
							Day 14	15-Aug-17	N	N/A	Search Team A
10	T10	Magnolia Warbler	13	30	17T 528160 4769218	1	Day 0	01-Aug-17	Y	Carcass placed	Search Team A
							Day 3	04-Aug-17	Y	None	Search Team A
							Day 7	08-Aug-17	Y	None	Search Team A
							Day 10	11-Aug-17	N	Carcass removed	Search Team C
							Day 14	15-Aug-17	N	N/A	Search Team A
11	T01	Hoary Bat	35	305	17T 523560 4770009	1	Day 0	15-Aug-17	Y	Carcass placed	Search Team A
							Day 3	18-Aug-17	Y	None	Search Team A
							Day 7	22-Aug-17	Y	None	Search Team A
							Day 10	25-Aug-17	Y	Carcass moved; signs of digging near carcass	Search Team A
							Day 14	29-Aug-17	N	Carcass removed	Search Team A
12	T03	Red-eyed Vireo	36	35	17T 523904 4769928	1	Day 0	15-Aug-17	Y	Carcass placed	Search Team A
							Day 3	18-Aug-17	N	Carcass removed	Search Team A
							Day 7	22-Aug-17	N	N/A	Search Team A
							Day 10	25-Aug-17	N	N/A	Search Team A
							Day 14	29-Aug-17	N	N/A	Search Team A
13	T05	Silver-haired Bat	41	340	17T 525904 4768577	1	Day 0	15-Aug-17	Y	Carcass placed	Search Team A
							Day 3	18-Aug-17	Y	None	Search Team A
							Day 7	22-Aug-17	N	Carcass removed	Search Team A
							Day 10	25-Aug-17	N	N/A	Search Team A
							Day 14	29-Aug-17	N	N/A	Search Team A
14	T07	Hoary Bat	17	210	17T 526975 4770284	1	Day 0	15-Aug-17	Y	Carcass placed	Search Team A
							Day 3	18-Aug-17	Y	None	Search Team A
1							Day 7	22-Aug-17	Ν	Carcass removed	Search Team A
							Day 10	25-Aug-17	Ν	N/A	Search Team A
							Day 14	29-Aug-17	Ν	N/A	Search Team A
15	T09	Nashville Warbler	26	235	17T 527423 4768915	1	Day 0	15-Aug-17	Y	Carcass placed	Search Team A
							Day 3	- 18-Aug-17	N	Carcass removed; small paw prints	Search Team A
							Day 7	- 22-Aug-17	Ν	N/A	Search Team A
							Day 10	25-Aug-17	N	N/A	Search Team A
							Day 14	29-Aug-17	N	N/A	Search Team A
L							201 1	/	••		Scaren ream A

#### Fall (September/October) 2017 Scavenger Removal Trial

Carcass Number	Turbine	Species	Distance from Turbine Base (m)	Direction from Turbine Base (°)	UTM	Visibility Class	Test Day	Date	Carcass Present	Signs of Scavenging	Tester
1	T02	Hoary Bat	48	115	17T 523835 4770189	1	Day 0	01-Sep-17	Y	Carcass placed	Search Team A
							Day 4	05-Sep-17	N	Carcass removed	Search Team A
							Day 7	08-Sep-17	N	N/A	Search Team A
							Day 11	12-Sep-17	N	N/A	Search Team A
							Day 14	15-Sep-17	N	N/A	Search Team A
2	T04	White-throated Sparrow	35	70	17T 525570 4768618	1	Day 0	01-Sep-17	Y	Carcass placed	Search Team A
							Day 4	05-Sep-17	Y	None	Search Team A
							Day 7	08-Sep-17	Y	None	Search Team A
							Day 11	12-Sep-17	Y	None	Search Team A
							Day 14	15-Sep-17	Ν	Carcass removed; only a few feathers remain; coyote tracks	Search Team A
3	T08	Nashville Warbler	13	250	17T 527100 4768853	1	Day 0	01-Sep-17	Y	Carcass placed	Search Team A
							Day 4	05-Sep-17	Y	None	Search Team A
							Day 7	08-Sep-17	N	Carcass removed; one feather remains	Search Team A
							Day 11	12-Sep-17	N	N/A	Search Team A
							Day 14	15-Sep-17	N	N/A	Search Team A
4	T10	Hoary Bat	23	280	17T 528132 4769199	1	Day 0	01-Sep-17	Y	Carcass placed	Search Team A
							Day 4	05-Sep-17	Y	None	Search Team A
							Day 7	08-Sep-17	Y	None	Search Team A
							Day 11	12-Sep-17	Y	None	Search Team A
							Day 14	15-Sep-17	Y	None	Search Team A
5	T06	Silver-haired Bat	41	115	17T 523878 4769874	1	Day 0	15-Sep-17	Y	Carcass placed	Search Team A
							Day 4	19-Sep-17	N	Carcass removed	Search Team A
							Day 7	22-Sep-17	N	N/A	Search Team A
							Day 11	26-Sep-17	N	N/A	Search Team A
							Day 14	29-Sep-17	N	N/A	Search Team A
6	T01	Hoary Bat	22	310	17T 523260 4769991	1	Day 0	03-Oct-17	Y	Carcass placed	Search Team A
							Day 3	06-Oct-17	Y	None	Search Team A
							Day 7	10-Oct-17	Y	None	Search Team A
							Day 10	13-Oct-17	Y	None	Search Team A
							Day 14	17-Oct-17	Y	None	Search Team A
7	T04	Tree Swallow	13	325	17T 525523 4768613	1	Day 0	03-Oct-17	Y	Carcass placed	Search Team A
							Day 3	06-Oct-17	Y	None	Search Team A
							Day 7	10-Oct-17	Y	None	Search Team A
							Day 10	13-Oct-17	Y	None	Search Team A
							Day 14	17-Oct-17	Y	None	Search Team A
8	T05	Eastern Red Bat	31	50	17T 525942 4768553	1	Day 0	03-Oct-17	Y	Carcass placed	Search Team A
							Day 3	06-Oct-17	Y	None	Search Team A
							Day 7	10-Oct-17	Y	None	Search Team A
							Day 10	13-Oct-17	Y	None	Search Team A
							Day 14	17-Oct-17	N	Carcass removed	Search Team A
9	T07	Dark-eyed Junco	20	160	17T 526984 4770283	1	Day 0	03-Oct-17	Y	Carcass placed	Search Team A
							Day 3	06-Oct-17	N	Carcass removed	Search Team A
							Day 7	10-Oct-17	N	N/A	Search Team A
							Day 10	13-Oct-17	N	N/A	Search Team A
							Day 14	17-Oct-17	N	N/A	Search Team A
10	T09	Silver-haired Bat	45	300	17T 527394 4768955	1	Day 0	03-Oct-17	Y	Carcass placed	Search Team A
							Day 3	06-Oct-17	Y	None	Search Team A
							Day 7	10-Oct-17	Y	None	Search Team A
							Day 10	13-Oct-17	Y	None	Search Team A
							Day 14	17-Oct-17	Y	None	Search Team A

Appendix III Searcher Efficiency Trial Results

#### Appendix III 1875A Gunn's Hill Wind Farm Searcher Efficiency Trial Results 2017

norm         norm <th< th=""><th>Date</th><th>Searcher</th><th>No</th><th>Turbine</th><th>Species</th><th>Distance</th><th>Direction (°)</th><th>General Habitat</th><th>Visibility</th><th>U</th><th>тм</th><th>Found</th><th>Scavenged</th></th<>	Date	Searcher	No	Turbine	Species	Distance	Direction (°)	General Habitat	Visibility	U	тм	Found	Scavenged
HAMP, PT         Search Tem         1 <th1< th="">         1         1</th1<>	Date	Searcher	NU.	Turbine	Species	(m)	Direction ()	General Habitat	Class	Easting	Northing	(Y/N)	(Y/N)
Barty, To         A         2         30.         210         Entropy of the stand of the sta		Search Team	1	T05	Eastern Red Bat	6	60	Gravel	1	525922	4768539	N	N
Barry Tom         Barry Tom <t< td=""><td>16-May-17</td><td>A</td><td>2</td><td>T04</td><td>Red-eyed Vireo</td><td>33</td><td>210</td><td>Bare soil</td><td>1</td><td>525498</td><td>4768600</td><td>Y</td><td>-</td></t<>	16-May-17	A	2	T04	Red-eyed Vireo	33	210	Bare soil	1	525498	4768600	Y	-
Intro         Nome         Image         Nome         Nome         Nome         Nome         Nome         No         No           2 May 17         Nome         0         100         Nome         1         2000         Y         -           2 May 17         Nome         0         100         Nome         1         2000         Y         -           2 May 17         Nome         0         100         100         Nome         1         2000         Y         -           2 May 17         Nome         0         100         100         100         1         2000         Y         -           2 May 17         Nome         Nome         100		O	3	106	Hoary Bat	24	350	Bare soil	1	526656	4770367	Y	-
Aber 17         Source 1         Source 1         Source 2         Provide Name	19-May-17	Search Team	4	T00	Magnalia Warblar	44	250	Bare soil	1	527134	4769020	ř V	-
Schwit Tes         7         703         Merry Set         77         80         Bere oil         1         33565         77000         70000         70000		A	5	T09	Pine Warbler	41	250	Bare soil	1	523838	4708930	ř Y	-
Λ         0         780         770	23-Mav-17	Search Team	7	T02	Hoary Bat	27	20	Bare soil	1	523886	4769925	Ý	-
Bashi, Tan         Bos, Tan         To         To <thto< th="">         To         To</thto<>		A	8	T06	Tree Swallow	14	190	Bare soil	1	526649	4770331	Y	-
Order         N         10         Toto Port (Figure 3)         34         358         Ber and         1         157.22         279.355         V         -           Date         Search Tan         2         Tota Port (Figure 3)         Description (Figure 3)         General Habitation (Figure 3)         V         -         -         Constant (Figure 3)         V         -         -           13.30/17         Search Tan         6         Tota         Hame Swellow         433         203         Constant (Figure 3)         V         -	00 14 47	Search Team	9	T06	Tree Swallow	28	170	Bare soil	1	526654	4770314	Y	-
Bencher         No.         Interime         Species         Description ()         Descripion ()         Descripion ()         Descript	26-May-17	А	10	T09	Hoary Bat	34	356	Bare soil	1	527412	4768960	Y	-
											<b>T</b> 14		
	Date	Searcher	No.	Turbine	Species	Distance (m)	Direction (°)	General Habitat	Visibility	Fasting	Northing	Found (Y/N)	Scavenged (Y/N)
Superior         Search         No         N			1	T06	Hoary Bat	33	60	Bare soil	1	526684	4770360	Y	-
Λ         3         10         Isarpia         23         17         General         1         1.8 <td>6-Jun-17</td> <td>Search Team</td> <td>2</td> <td>T09</td> <td>Nashville Warbler</td> <td>14</td> <td>20</td> <td>Bare soil</td> <td>1</td> <td>527446</td> <td>4768954</td> <td>N</td> <td>N</td>	6-Jun-17	Search Team	2	T09	Nashville Warbler	14	20	Bare soil	1	527446	4768954	N	N
13.Jun 17         Seach Team         44         164         163         165         176         18.2000         43         18.2000         43         18.2000         43         18.2000         43         19.2000         1         1         19.2000         1         1         19.2000         1         1         19.2000         1         1         19.2000         1 <th1< th="">         1         1</th1<>		A	3	T10	Hoary Bat	23	175	Gravel	1	528149	4769181	Y	-
NumberA5105Tree Surpluy4320Bare off16021477003V-20.hr/h610Magral Warker44270Bare off16022477017V-20.hr/h67100Magral Warker40270General16022477017V-20.hr/h67100Magral Warker620Bare off15200477017V-20.hr/h67100Magral Warker11200Bare off15200477017V-7.hr/h770Magral Warker11100Bare off15200477005V10.hr/h2300Magral Warker14100General15200447005V11.hr/h370Marp Bat730Growth15200447005V11.hr/h3100Magral Warker3330Growth15271447005V11.hr/h7100America Warker33100Growth15271447005V11.hr/h7100America Warker33100Growth15271447005V11.hr/h7100America Warker10200Growth1 <td< td=""><td>12 Jun 17</td><td>Search Team</td><td>4</td><td>T04</td><td>Eastern Red Bat</td><td>23</td><td>70</td><td>Bare soil</td><td>1</td><td>525557</td><td>4768614</td><td>Y</td><td>-</td></td<>	12 Jun 17	Search Team	4	T04	Eastern Red Bat	23	70	Bare soil	1	525557	4768614	Y	-
Bouch Tam         Bouch Tam         B         TO         Magnala Wather         44         210         Bare nol         1         52335         476800         V            23-Juri T         Barch Tam         B         TO         Skyrthan Singer S	13-Juli-17	A	5	T05	Tree Swallow	43	280	Bare soil	1	525874	4768533	Y	-
20-Jun 1         Outs A         To         Observation of the second of the se		Search Team	6	T01	Magnolia Warbler	44	210	Bare soil	1	523245	4769950	Y	-
Image: search Team         Image:	20-Jun-17	A	7	T02	Silver-haired Bat	7	100	Gravel	1	523802	4770217	Y	-
21-Jun 7         Search Tem         B         TOD         Magnala Valeder         260         Serve sol         1         Common Field         Common Field <thcommon field<="" th=""> <thc< td=""><td></td><td></td><td>8</td><td>T03</td><td>Hermit Thrush</td><td>32</td><td>10</td><td>Bare soil</td><td>1</td><td>523864</td><td>4769932</td><td>Y</td><td>-</td></thc<></thcommon>			8	T03	Hermit Thrush	32	10	Bare soil	1	523864	4769932	Y	-
A         No.         Turbin         Species         Dise         Species         Dis         Species         Dist         Dis         Species         Dist         Dist         Dise         Dis         Dis         Dis         Dis         Dis         Dis         Dis         Dis         Dis <thdis< th=""></thdis<>	23-Jun-17	Search Team	9	T07	Magnolia Warbler	26	20	Bare soil	1	526971	4770328	Y	-
Date         Sarcher         No.         Turbine         Species         Distance Distance Distance         Distance Distance         Distance         Dis		A	10	105	Hermit Thrush	11	290	Bare soil	1	525906	4768538	Ŷ	-
Date         Search         No.         Turble         Species         (m)         Differior (f)         General lability         Class         Eating         Avering         (NN)         (NN)           7bl/1         Semich Tem         1         1023         Magnality Marater         1         102         1         52377         4770214         V         -           14bl/1         A         Tois         Magnality Marater         1         100         Garwei         1         52576         4770355         V         -           19bl/17         A         6         Tois         Amarcan Woodcock         26         100         Bare soil         1         52578         4770176         V         -           21bl/17         Search Tem         7         Tois         Amarcan Woodcock         26         100         Bare soil         1         25718         478805         N         N           25bl/17         Search Tem         N         Turbic         Species         Distance         Bare soil         1         52578         478985         V         -         -         -         -         -         -         -         -         -         -         -	_					Distance			Visibility	U	тм	Found	Scavenged
T.A.b.17         Search Team         1         To2         Heary Bat         14         190         Gravel         1         6.23797         4.770214         Y         -           14-JUH1         Search Team         2         103         Magnole Watter         16         10         Bare soil         1         6.2382         270693         Y         -           15-JUH7         Search Team         5         100         Hoary Bat         33         330         East eod         1         6.23781         271076         Y         -           21-JUH7         Search Team         7         103         American Woodcolc         23         110         Bars soil         1         6.27181         4708850         N         Y         -           25-JUH7         Search Team         9         107         Nashvile Watter         46         240         Bars soil         1         5.29213         470828         N         N           25-JUH7         Search Team         N         Torice         Search         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N	Date	Searcher	No.	Turbine	Species	(m)	Direction (°)	General Habitat	Class	Easting	Northing	(Y/N)	(Y/N)
Totart         Λ         I         Totar         Transpon         Totar         Totar <thtotar< th=""> <thtotar< th="">         Tota</thtotar<></thtotar<>	7 Jul 17	Search Team	1	T02	Hoopy Pot	14	100	Gravel	1	522707	4770214	v	
House Train A         2         100         Magnelia Waber         18         10         Barr soil         1         623862         470959         Y         -           18-Jul-17 A         A         100         Heary Bat         38         530         Bair soil         1         52714         4705860         Y         -           18-Jul-17 A         A         6         110         Heary Bat         38         530         Bair soil         1         52716         4705860         Y         -           18-Jul-17 A         A         6         110         Heary Bat         14         150         Bars soil         1         52316         470586         Y         -           25-Jul-17 A         A         100         American Woodcock         200         Earnel         1         62713         470588         Y         -           10         100         Nashville Waber         10         320         Bars soil         1         62713         470588         Y         -           10         A         100         Heary Bat         33         250         Bars soil         1         62713         470585         Y         -           10	7-Jui-17	A		102	Hoary Bat	14	190	Glavel		525191	4770214	I	-
Ha,Jul-17         Amit, Ami		Search Team	2	T03	Magnolia Warbler	18	10	Bare soil	1	523882	4769939	Y	-
Beach         A         109         Heary Bat         38         330         Bars Soll         1         52/142         4769890         Y         -           18-Jul-17         A         6         T102         Heau Jay         37         100         Bars Soll         1         52/316         477116         Y         -           21-Jul-17         Search Team         0         T100         Amentan Woodcook         28         100         Bars Soll         1         52/316         4778117         Y         -           25-Jul-17         Search Team         0         T07         Nathrife Wather         48         200         Bars Soll         1         527126         Y         -         -           25-Jul-17         Searcher         No.         T06         Nathrife Wather         30         250         Bars Soll         1         527127         770887         Y         -           10         T01         Hoay Bat         33         250         Bars Soll         1         52312         476983         Y         -           15         Aug-17         A         1         T01         Hoay Bat         31         150         Bars Soll         1         5	14-Jul-17	A	3	T06	Hoary Bat	7	180	Gravel	1	526661	4770326	Y	-
18-bit /1         Search feam         5         102         Holy 3a         130         Ball 500         11         52/18         47/01/6         V         -           21-ult 17         Bearch Team         7         108         Ametican Woodcock         28         150         Bare soil         1         52/18         47/8950         N         V           25-ult 17         A         8         107         Hemit Throin         52/20         Greenet         11         52/718         47/8050         N         V           25-ult 17         A         8         108         Nametrican Woodcock         20         Bare soil         1         52/718         47/8020         N         N           26-ult 1         A         10         108         Nametrican Woodcock         20         Bare soil         1         52/81         47/8020         N         N           6-Aug 17         A         10         108         Nametrican Woodcock         200         Bare soil         1         52/81         47/8020         N         N         N           6-Aug 17         A         53         701         Red-syst Wree         15         130         Bare soil         1         52/816 <td></td> <td></td> <td>4</td> <td>109</td> <td>Hoary Bat</td> <td>35</td> <td>330</td> <td>Bare soil</td> <td>1</td> <td>527412</td> <td>4768980</td> <td>Y</td> <td>-</td>			4	109	Hoary Bat	35	330	Bare soil	1	527412	4768980	Y	-
And-Tr         Barro Team         Insol Family Famil	18-Jul-17	Search Team	5	102 T10	Blue Jay	37	190	Bare soil	1	523798	4770176	Y	-
21.Jul.17         Search Team         1         1000         American Model         200         Loss         Consuma         1         2.27.Jul.17         Search Team         7         1000         Mashinik Warber         46         240         Baars soil         1         2.27.Jul.17         American Mashinik Warber         46         240         Baars soil         1         2.27.Jul.17         American Mashinik Warber         30         1         2.27.Jul.17         American Mashinik Warber         30         1.201         2.27.Jul.17         American Mashinik Warber         30         1.201         Mashinik Warber         30         1.22.Jul.17         American Mashinik Warber         30         1.201         Mashinik Warber         2.00         Mashinik Warber         30         1.22.Jul.17         Mashinik Warber         30         Mashinik Warber         30         1.22.Jul.17         Mashinik Warber         Mashinik Warber         Mashinik Warber         30         Dase soil         1         52.201.Jul.17         Mashinik Warber         Mashinik Warber         Same Soil         1         52.202.Jul.17         Mashinik Warber		A Search Team	6	T 10	Hoary Bai	14	150	Bare soil	1	520100	4769950	T N	-
Search Team         9         197         Nashville Wardner         46         240         Bare soil         11         280305         4770228         N         N           25-Jul-17         A         10         100         Nashville Wardner         30         120         Bare soil         11         2010         2010         Bare soil         1         22012         4789222         Y         -           Date         Search Team         1         Turkine         Species         Direction (*)         General Habitat         Visibility         UTM         Found         Search Team         1         Tor         Hoary Bat         33         250         Bare soil         1         Scatter         N	21-Jul-17	A	8	T08	Hermit Thrush	20	280	Gravel	1	527430	4768935	Y	1
25-Jul-17         Search Team         10         T00         Nashvilk Wartier         30         120         Bare soil         1         527137         4788862         V         V           Date         Searcher         No.         Turbine         Species         Direction (n)         General Habitat         Valibility         Easing         Northing         Cynn           B-Aug-17         Search Team         1         T01         Heary But         33         250         Bare soil         1         523253         4769869         Y         -           B-Aug-17         Search Team         4         T03         Heary But         33         250         Bare soil         1         523253         4769689         Y         -           15.Aug-17         Search Team         4         T03         Heary But         31         135         Bare soil         1         523054         4769689         Y         -           18.Aug-17         Search Team         6         T01         Heary But         29         83         Bare soil         1         52300         4769689         Y         -         -         -         -         -         -         -         -         -         - <td></td> <td></td> <td>9</td> <td>T07</td> <td>Nashville Warbler</td> <td>46</td> <td>240</td> <td>Bare soil</td> <td>1</td> <td>526935</td> <td>4770288</td> <td>N</td> <td>N</td>			9	T07	Nashville Warbler	46	240	Bare soil	1	526935	4770288	N	N
A         11         T10         Purple Martin         16         350         Bare soil         1         528162         4769222         Y            Date         Search Team A         No.         Turbine         Species         Distance (m)         Direction (n)         General Habitat         Value (lass         Easting         Not. Mile (NN)         Search(N)         No         Search(N)         No         No         Search(N)         No         Search(N)         No         No <th< td=""><td>25-Jul-17</td><td>Search Team</td><td>10</td><td>T08</td><td>Nashville Warbler</td><td>30</td><td>120</td><td>Bare soil</td><td>1</td><td>527137</td><td>4768862</td><td>Y</td><td>-</td></th<>	25-Jul-17	Search Team	10	T08	Nashville Warbler	30	120	Bare soil	1	527137	4768862	Y	-
Date         Searcher         No.         Turbine         Species         Distance (m)         Direction (n)         General Habitat         Usibility (Liss         Easting Hart         Northing (YN)         Source (YN)           8-Aug-17         Search Team 3         1         1         TOT         Red-eyed Visco         15         130         Bare soil         1         52235         4769692         Y         -           15-Aug-17         Search Team 4         4         TO3         Hoary Bat         31         155         Bare soil         1         522555         4768692         Y         -           18-Aug-17         Search Team 4         6         TOT         Hoary Bat         29         83         Bare soil         1         525555         4768692         Y         -           18-Aug-17         Search Team A         6         TO1         Hoary Bat         29         83         Bare soil         1         52300         4769581         Y         -           18-Aug-17         Search Team 7         TOS         Red-syed Vireo         23         90         Bare soil         1         52300         4770591         Y         -           25-Aug-17         A         10         TO7		A	11	T10	Purple Martin	16	350	Bare soil	1	528162	4769222	Y	-
Date         Search         No.         Turbine         Species         Distance (n)         Direction (n) (n)         General Habitat         UTM         Found (n)         Search (n)           8-Aug-17         Bearch Team (A         1         TOI         Hoary Bat         33         250         Bare soil         1         52263         4769958         Y         -           15         Aug-17         Bearch Team (A         1         TOI         Hoary Bat         31         155         Bare soil         1         52205         4769858         Y         -           16         Aug-17         A         TOI         Hoary Bat         29         83         Bare soil         1         52305         4768055         Y         -           18         Aug-17         A         TOI         Hoary Bat         29         83         Bare soil         1         52305         4768556         Y         -           18         Aug-17         A         10         TOI         Hoary Bat         29         20         Bare soil         1         52695         4768556         Y         -         -           25         Auge-17         A         1         TOS         Muhtehrhoat						10 000			•	•	•	•	
Baugart Part A         Search Team A         1         T01         Hoary Bat         33         250         Bare soil         1         Statuling         Noting         No													
Backup 17 A         Search Team A         2         107 A         Red-synd Vireo         155 bit         130 bit         Bare soil         1         528988 bit 37239         477029 bit 378825         V V	Date	Searcher	No.	Turbine	Species	Distance (m)	Direction (°)	General Habitat	Visibility	L	TM	Found (Y/N)	Scavenged (Y/N)
A         3         T08         Nashville Warbler         45         180         Bare soil         1         527134         479825         N         N           15-Aug-17         Search Team A         4         T03         Hoary Bat         31         135         Bare soil         1         52300         479889         Y         -           18-Aug-17         Search Team A         6         T01         Hoary Bat         29         83         Bare soil         1         52300         4769891         Y         -           18-Aug-17         Search Team A         6         T01         Hoary Bat         29         83         Bare soil         1         52300         4769981         Y         -           25-Aug-17         Search Team A         7         T05         Red-yed Viteo         23         20         Bare soil         1         526961         477029         Y         -           25-Aug-17         Search Team A         1         T05         Nashville Varbler         11         250         Bare soil         1         52694         477029         Y         -           25-Aug-17         A         3         T10         Sopcles         Distance (m)         Dist	Date	Searcher	<b>No</b> .	Turbine	Species Hoary Bat	Distance (m)	Direction (°)	General Habitat	Visibility Class	Easting	TM Northing 4769958	Found (Y/N)	Scavenged (Y/N)
15 Aug.17         Search Team         4         103         Heary Bat         31         135         Bare soil         1         52305         4769895         Y         -           18 Aug.17         Search Team         6         T01         Hoary Bat         29         63         Bare soil         1         52555         4768956         Y         -           18 Aug.17         Search Team         7         T05         Red-wyed Vireo         23         50         Bare soil         1         52555         4768956         Y         -           25 Aug.17         A         10         T07         Nashvile Warbler         10         100         Bare soil         1         526651         4770299         Y         -           25 Aug.17         A         9         T06         White-throated Sparrow         43         280         Bare soil         1         526651         4770299         Y         -           25 Aug.17         Na         T06         White-throated Sparrow         23         290         Bare soil         1         540384         4814825         Y         -           12 Sep.17         Search Team         1         T05         White-throated Sparrow         7 <td>Date 8-Aug-17</td> <td>Searcher Search Team</td> <td><b>No.</b></td> <td>Turbine T01 T07</td> <td>Species Hoary Bat Red-eved Vireo</td> <td>Distance (m) 33 15</td> <td>Direction (°) 250 130</td> <td>General Habitat Bare soil Bare soil</td> <td>Visibility Class 1</td> <td>Easting 523253 526998</td> <td>TM Northing 4769958 4770279</td> <td>Found (Y/N) Y</td> <td>Scavenged (Y/N)</td>	Date 8-Aug-17	Searcher Search Team	<b>No.</b>	Turbine T01 T07	Species Hoary Bat Red-eved Vireo	Distance (m) 33 15	Direction (°) 250 130	General Habitat Bare soil Bare soil	Visibility Class 1	Easting 523253 526998	TM Northing 4769958 4770279	Found (Y/N) Y	Scavenged (Y/N)
IB-Aug-I7         A         5         Tod         Nashvile Warbler         15         40         Bare soil         1         525555         4768005         Y         -           18-Aug-I7         A         6         T01         Hoary Bat         29         83         Bare soil         1         52300         4768905         Y         -           18-Aug-I7         A         7         TOS         Red-eyed Vireo         23         50         Bare soil         1         52300         4768956         Y         -           25-Aug-I7         A         7         TOS         Red-eyed Vireo         23         50         Bare soil         1         526956         4770291         Y         -           25-Aug-I7         A         7         TOS         White-throated Sparrow         23         200         Bare soil         1         527432         4770298         Y         -           B-Sep-I7         A         1         TOS         Ruby-crowned Kinglet         46         120         Bare soil         1         527432         4788928         Y         -           B-Sep-I7         A         1         TOS         Ruby-crowned Kinglet         46         120	Date 8-Aug-17	Searcher Search Team A	No. 1 2 3	Turbine           T01           T07           T08	Species Hoary Bat Red-eyed Vireo Nashville Warbler	Distance (m) 33 15 45	Direction (°) 250 130 180	General Habitat Bare soil Bare soil Bare soil	Visibility Class 1 1 1	<b>Easting</b> 523253 526998 527134	TM Northing 4769958 4770279 4768825	Found (Y/N) Y Y N	Scavenged (Y/N) - - N
Beach Team         6         T01         Honry Bat         29         83         Bare soil         1         52300         A 769981         Y            18-Aug-17         A         7         T05         Red-eyel Viroo         23         50         Bare soil         1         52300         4769981         Y            25-Aug-17         B         T06         White-Increated Sparow         43         280         Bare soil         1         526954         4770291         Y            10         T07         Hoary Bat         29         320         Bare soil         1         526954         4770298         Y            10         T07         Hoary Bat         29         320         Bare soil         1         526954         4770298         Y            10         T07         Hoary Mather         11         200         Bare soil         1         527432         4768928         Y            8-sep17         A         1         T05         White-Incated Sparow         23         200         Bare soil         1         52714         476847         N         Y            12	Date 8-Aug-17	Searcher Search Team A Search Team	No. 1 2 3 4	Turbine           T01           T07           T08           T03	Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat	Distance (m) 33 15 45 31	Direction (°) 250 130 180 135	General Habitat Bare soil Bare soil Bare soil Bare soil	Visibility Class 1 1 1 1 1	Easting 523253 526998 527134 523905	Northing           4769958           4770279           4768825           4769889	Found (Y/N) Y Y N Y	Scavenged (Y/N) - - N -
18-Aug-17         Search Team A         7         T05         Red-eyed Viceo         23         50         Bare soil         1         52528         4788556         Y         -           25-Aug-17         Search Team A         9         T06         White-throated Sparrow         43         280         Bare soil         1         526966         4770298         Y         -           25-Aug-17         Search Team A         9         T06         White-throated Sparrow         43         280         Bare soil         1         526964         4770298         Y         -           11         T07         Hoary Bat         29         320         Bare soil         1         52742         4786928         Y         -           8         T07         No.         Turbine         Species         Distance (m)         Direction (r)         General Habitat         Visibility         Easting         Northing         Kiney         - <t< td=""><td>Date 8-Aug-17 15-Aug-17</td><td>Searcher Search Team A Search Team A</td><td>No. 1 2 3 4 5</td><td>Turbine           T01           T07           T08           T03           T04</td><td>Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Nashville Warbler</td><td>Distance (m) 33 15 45 31 15</td><td>Direction (°) 250 130 180 135 40</td><td>General Habitat Bare soil Bare soil Bare soil Bare soil Bare soil</td><td>Visibility Class 1 1 1 1 1 1 1</td><td>Easting 523253 526998 527134 523905 525555</td><td>Northing           4769958           4770279           4768825           4769889           4768605</td><td>Found (Y/N) Y Y N Y Y</td><td>Scavenged (Y/N) - N - -</td></t<>	Date 8-Aug-17 15-Aug-17	Searcher Search Team A Search Team A	No. 1 2 3 4 5	Turbine           T01           T07           T08           T03           T04	Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Nashville Warbler	Distance (m) 33 15 45 31 15	Direction (°) 250 130 180 135 40	General Habitat Bare soil Bare soil Bare soil Bare soil Bare soil	Visibility Class 1 1 1 1 1 1 1	Easting 523253 526998 527134 523905 525555	Northing           4769958           4770279           4768825           4769889           4768605	Found (Y/N) Y Y N Y Y	Scavenged (Y/N) - N - -
Lem         8         T07         Nashville Warbler         10         190         Bare soil         1         52868         4770291         Y         -           25-Aug-17         Search Team         9         T06         White-Honded Sparrow         43         280         Bare soil         1         526651         4770298         Y         -           10         T07         Hoary Bat         29         320         Bare soil         1         526651         4770298         Y         -           10         T07         Hoary Bat         29         320         Bare soil         1         526651         4770298         Y         -           0ate         Searcher         No.         Turbine         Spaces         Discion (')         General Habitat         100484         4814825         Y         -           8-Sep-17         Search Team         1         T05         White-thorated Sparrow         23         290         Bare soil         1         528154         476847         N         Y         -           12-Sep-17         Search Team         4         T04         Silver-haired Bat         46         25         Bare soil         1         527144         4768631	Date 8-Aug-17 15-Aug-17	Searcher Search Team A Search Team A	No. 1 2 3 4 5 6	Turbine           T01           T07           T08           T03           T04	Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Nashville Warbler Hoary Bat	Distance (m) 33 15 45 31 15 29	Direction (°) 250 130 180 135 40 83	General Habitat Bare soil Bare soil Bare soil Bare soil Bare soil Bare soil	Visibility Class 1 1 1 1 1 1 1 1 1 1	Easting 523253 526998 527134 523905 525555 523300	Northing           4769958           4770279           4768825           4769889           4768605           4769981	Found (Y/N) Y N Y Y Y	Scavenged (Y/N) - N - - - -
Search Team         9         To6         White-throated Sparrow         43         280         Bare soil         1         526651         4770299         Y         -           25-Aug-17         10         T07         Hoany Bat         29         320         Bare soil         1         526945         4770298         Y         -           Date         Searcher         No.         Turbine         Species         Distance (m)         Direction (?)         General Habitat         Visibility (Lass         UTM         Found Easting         Northing         (YA)         Scavenged (YA)           8-Sep-17         Search Team         1         T05         White-throated Sparrow         23         290         Bare soil         1         527154         4768928         Y         -           8-Sep-17         Search Team         1         T05         White-throated Sparrow         23         290         Bare soil         1         527154         4768651         Y         -           12-Sep-17         Search Team         4         T04         Silver-haired Bat         46         25         Bare soil         1         52314         4768651         Y         -           12-Sep-17         Search Team         7	Date 8-Aug-17 15-Aug-17 18-Aug-17	Search Team A Search Team A Search Team A	No. 1 2 3 4 5 6 7	Turbine           T01           T07           T08           T03           T04           T01           T05	Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Nashville Warbler Hoary Bat Red-eyed Vireo	Distance (m)           33           15           45           31           15           29           23	Direction (°) 250 130 180 135 40 83 50	General Habitat Bare soil Bare soil Bare soil Bare soil Bare soil Bare soil Bare soil	Visibility Class 1 1 1 1 1 1 1 1 1 1	Easting           523253           526998           527134           523905           525555           523300           525925	Northing           4769958           4770279           4768825           4769889           4768605           4769981           4768556	Found (Y/N) Y N Y Y Y Y	Scavenged (Y/N) - - N - - - - -
2b-Aug-17         A         10         TO7         Hoary Bat         29         320         Bare soil         1         526445         4770298         Y         -           Date         Searcher         No.         Turbine         Species         Distance (m)         Direction (°)         General Habitat         Visibility         Turbine         Found (YN)         Scavenged (YN)           B-Sep-17         A         1         TO5         White-throated Sparrow         23         290         Bare soil         1         540384         4814825         Y         -           B-Sep-17         A         1         TO5         White-throated Sparrow         23         290         Bare soil         1         540384         4814825         Y         -           12-Sep-17         A         4         TO4         Silver-haired Bat         16         330         Bare soil         1         525541         4786651         Y         -           12-Sep-17         Search Team A         4         TO4         Purple Matrin         35         5         Bare soil         1         523718         479029         Y         -           15-Sep-17         Search Team A         10         TO4         Hoa	Date           8-Aug-17           15-Aug-17           18-Aug-17	Searcher Search Team A Search Team A	No. 1 2 3 4 5 6 7 8	Turbine           T01           T07           T08           T03           T04           T01           T05           T07	Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler	Distance (m) 33 15 45 31 15 29 23 10	Direction (*) 250 130 180 135 40 83 50 190	General Habitat Bare soil Bare soil Bare soil Bare soil Bare soil Bare soil Bare soil Bare soil	Visibility Class 1 1 1 1 1 1 1 1 1 1	Easting           523253           526998           527134           523905           525555           523300           525925           526986	Northing           4769958           4770279           4768825           4769889           476805           4768981           4768556           4770291	Found (Y/N) Y Y N Y Y Y Y Y	Scavenged (Y/N) - - N - - - - - - -
Date         Searcher         No.         Turbine         Species         Direction (*) (*)         General Habitat         Visibility (Class)         UTM (Class)         Found (*)         Scavenged (*)           B-Sep-17         Search Team A         1         T05         White-throated Sparrow         23         290         Bare soil         1         540384         4814825         Y         -           B-Sep-17         Search Team A         1         T05         White-throated Sparrow         23         290         Bare soil         1         540384         4814825         Y         -           12-Sep-17         Search Team A         4         T04         Silver-haired Bat         46         25         Bare soil         1         52541         4768661         Y         -           12-Sep-17         Search Team A         4         T04         Silver-haired Bat         47         100         Bare soil         1         52737         4769661         Y         -           15-Sep-17         Search Team A         7         T01         Nashville Warbler         47         100         Bare soil         1         52377         4769970         Y         -           19-Sep-17         Search Team A         10	Date 8-Aug-17 15-Aug-17 18-Aug-17	Searcher Search Team A Search Team A Search Team	No. 1 2 3 4 5 6 7 8 9	Turbine           T01           T07           T08           T03           T04           T01           T05           T07           T06           T07	Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow	Distance (m) 33 15 45 31 15 29 23 10 43	Direction (°) 250 130 180 135 40 83 50 190 280	General Habitat Bare soil Bare soil Bare soil Bare soil Bare soil Bare soil Bare soil Bare soil Bare soil	Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1	Easting 523253 526998 527134 523905 525555 523300 525925 526986 526651	Northing           4769958           4770279           4768825           4769889           4768605           4769981           4768556           4770291           4770292	Found (Y/N) Y Y Y Y Y Y Y	Scavenged (Y/N) - - N - - - - - - - - - -
Date         Searcher         No.         Turbine         Species         Distance (m)         Direction (*)         General Habitat         Visibility (Class         UTT         Found (VN)         Scavenged (VN)           8-Sep-17         Search Team A         1         TOS         White-throated Sparrow         23         290         Bare soil         1         540384         4814825         Y         -           8-Sep-17         A         3         T10         Silver-haired Bat         46         120         Bare soil         1         522154         4768847         N         Y         -           12-Sep-17         A         4         TO4         Silver-haired Bat         46         25         Bare soil         1         52541         4768651         Y         -           12-Sep-17         A         6         T10         Purple Martin         35         5         Bare soil         1         52314         4769970         Y         -           15-Sep-17         Search Team A         9         T03         White-throated Sparrow         25         180         Bare soil         1         52376         4769970         Y         -           19-Sep-17         A         10 <t< td=""><td>Date 8-Aug-17 15-Aug-17 18-Aug-17 25-Aug-17</td><td>Searcher Search Team A Search Team A Search Team A</td><td>No. 1 2 3 4 5 6 7 8 9 10 11</td><td>Turbine           T01           T07           T08           T03           T04           T01           T05           T07           T06           T07           T06           T07</td><td>Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat</td><td>Distance (m) 33 15 45 31 15 29 23 10 43 29 23</td><td>Direction (*) 250 130 180 135 40 83 50 190 280 320 260</td><td>General Habitat Bare soil Bare soil Bare soil Bare soil Bare soil Bare soil Bare soil Bare soil Bare soil Bare soil</td><td>Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</td><td>Easting 523253 526998 527134 523905 525555 523300 525925 526986 526651 526945 526945</td><td>Northing           4769958           4770279           4768825           4769889           4768805           4769881           4768556           4770298           4770299           4768029</td><td>Found (Y/N)           Y</td><td>Scavenged (Y/N) - - - - - - - - - - - - -</td></t<>	Date 8-Aug-17 15-Aug-17 18-Aug-17 25-Aug-17	Searcher Search Team A Search Team A Search Team A	No. 1 2 3 4 5 6 7 8 9 10 11	Turbine           T01           T07           T08           T03           T04           T01           T05           T07           T06           T07           T06           T07	Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat	Distance (m) 33 15 45 31 15 29 23 10 43 29 23	Direction (*) 250 130 180 135 40 83 50 190 280 320 260	General Habitat Bare soil Bare soil Bare soil Bare soil Bare soil Bare soil Bare soil Bare soil Bare soil Bare soil	Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Easting 523253 526998 527134 523905 525555 523300 525925 526986 526651 526945 526945	Northing           4769958           4770279           4768825           4769889           4768805           4769881           4768556           4770298           4770299           4768029	Found (Y/N)           Y	Scavenged (Y/N) - - - - - - - - - - - - -
Uster         Searcher         No.         Turbine         Spectal         (m)         Direction (r)         General Habitat         Class         Easing         Northing         (Y/N)           8-Sep-17         -         T05         White-throated Sparrow         23         290         Bare soil         1         540384         4814825         Y         -           8-Sep-17         A         1         T05         White-throated Sparrow         23         290         Bare soil         1         540384         4814825         Y         -           12-Sep-17         A         4         T04         Silver-haired Bat         16         330         Bare soil         1         528511         4768868         N         N           12-Sep-17         A         4         T04         Silver-haired Bat         13         340         Bare soil         1         52818         4768968         N         N           15-Sep-17         R         7         T01         Nastville Warbler         47         100         Bare soil         1         52387         476970         Y         -           15-Sep-17         A         8         T02         Silver-haired Bat         13         340 <th>Date           8-Aug-17           15-Aug-17           18-Aug-17           25-Aug-17</th> <th>Searcher Search Team A Search Team A Search Team A</th> <th>No. 1 2 3 4 5 6 7 8 9 10 11</th> <th>Turbine           T01           T07           T08           T03           T04           T01           T05           T07           T06           T07           T06           T07</th> <th>Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat Nashville Warbler</th> <th>Distance (m) 33 15 45 31 15 29 23 10 43 29 11</th> <th>Direction (°) 250 130 180 135 40 83 50 190 280 320 250</th> <th>General Habitat Bare soil Bare soil</th> <th>Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</th> <th>Easting 523253 526998 527134 523905 525555 523300 525925 526986 526651 526945 526945 527432</th> <th>Northing           4769958           4770279           4768825           4769889           4768805           4769881           4768556           4770291           4770298           4768928</th> <th>Found (Y/N) Y Y Y Y Y Y Y Y Y</th> <th>Scavenged (Y/N) - - - - - - - - - - - - - -</th>	Date           8-Aug-17           15-Aug-17           18-Aug-17           25-Aug-17	Searcher Search Team A Search Team A Search Team A	No. 1 2 3 4 5 6 7 8 9 10 11	Turbine           T01           T07           T08           T03           T04           T01           T05           T07           T06           T07           T06           T07	Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat Nashville Warbler	Distance (m) 33 15 45 31 15 29 23 10 43 29 11	Direction (°) 250 130 180 135 40 83 50 190 280 320 250	General Habitat Bare soil	Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Easting 523253 526998 527134 523905 525555 523300 525925 526986 526651 526945 526945 527432	Northing           4769958           4770279           4768825           4769889           4768805           4769881           4768556           4770291           4770298           4768928	Found (Y/N) Y Y Y Y Y Y Y Y Y	Scavenged (Y/N) - - - - - - - - - - - - - -
Search Team A         1         TO5         White-throated Sparrow         23         290         Bare soil         1         543384         4814825         Y         -           2         T08         Ruby-crowned Kinglet         46         120         Bare soil         1         527154         4768847         N         Y           12-Sep-17         Search Team A         4         TO4         Silver-haired Bat         46         25         Bare soil         1         528151         4768847         Y         -           12-Sep-17         A         4         TO4         Silver-haired Bat         46         25         Bare soil         1         52814         4769243         Y         -           15-Sep-17         A         7         TO1         Nashville Warbler         47         100         Bare soil         1         523327         476970         Y         -           15-Sep-17         A         10         TO4         Hoary Bat         21         45         Bare soil         1         523787         4770229         Y         -           19-Sep-17         Search Team A         10         TO4         Hoary Bat         21         45         Bare soil <td< td=""><td>Date 8-Aug-17 15-Aug-17 18-Aug-17 25-Aug-17</td><td>Searcher Search Team A Search Team A Search Team A Search Team</td><td>No. 1 2 3 4 5 6 7 8 9 10 11</td><td>Turbine           T01           T07           T08           T03           T04           T01           T05           T07           T06           T07           T09</td><td>Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat Nashville Warbler</td><td>Distance (m) 33 15 45 31 15 29 23 10 43 29 11 29 11 Distance</td><td>Direction (*) 250 130 180 135 40 83 50 190 280 320 250</td><td>General Habitat Bare soil Bare soil</td><td>Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</td><td>Leasting 523253 526998 527134 523905 525555 523300 525925 526986 526945 526945 527432</td><td>Northing           4769958           4770279           4768825           4769889           4768805           4769881           4768556           4770291           4770298           4768928           4768928</td><td>Found (Y/N) Y Y Y Y Y Y Y Y Y Y Found</td><td>Scavenged (Y/N) - - N - - - - - - - - - - - - - - - -</td></td<>	Date 8-Aug-17 15-Aug-17 18-Aug-17 25-Aug-17	Searcher Search Team A Search Team A Search Team A Search Team	No. 1 2 3 4 5 6 7 8 9 10 11	Turbine           T01           T07           T08           T03           T04           T01           T05           T07           T06           T07           T09	Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat Nashville Warbler	Distance (m) 33 15 45 31 15 29 23 10 43 29 11 29 11 Distance	Direction (*) 250 130 180 135 40 83 50 190 280 320 250	General Habitat Bare soil	Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Leasting 523253 526998 527134 523905 525555 523300 525925 526986 526945 526945 527432	Northing           4769958           4770279           4768825           4769889           4768805           4769881           4768556           4770291           4770298           4768928           4768928	Found (Y/N) Y Y Y Y Y Y Y Y Y Y Found	Scavenged (Y/N) - - N - - - - - - - - - - - - - - - -
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Date 8-Aug-17 15-Aug-17 18-Aug-17 25-Aug-17 Date	Searcher Search Team A Search Team A Search Team A Search Team A Searcher	No. 1 2 3 4 5 6 7 8 9 10 11 No.	Turbine           T01           T07           T08           T03           T04           T01           T05           T07           T06           T07           T06           T07           T09           Turbine	Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat Nashville Warbler Species	Distance (m)           33           15           45           31           15           29           23           10           43           29           11           Distance (m)	Direction (°) 250 130 180 135 40 83 50 190 280 320 250 Direction (°)	General Habitat Bare soil Bare soil	Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	U Easting 523253 526998 527134 523905 525555 523300 525925 526986 526986 526651 526945 526945 527432 U U Easting	TM           4769958           4770279           4768825           4768829           4768805           47698981           4768556           4770291           4770292           4770298           4768988           4770298           4768928           TM           Northing	Found (Y/N) Y Y Y Y Y Y Y Y Y Found (Y/N)	Scavenged (Y/N) - - - - - - - - - - - - - - - - - - -
12-Sep-17         Search Team A         4         T04         Sliver-haired Bat         16         330         Bare soil         1         528151         4768226         Y         -           12-Sep-17         Search Team A         5         T08         White-throated Sparrow         7         210         Gravel         1         525541         4768268         N         N           15-Sep-17         Search Team A         7         T01         Purple Martin         35         5         Bare soil         1         523127         4769870         Y         -           15-Sep-17         Search Team A         7         T01         Nashville Warbler         47         100         Bare soil         1         523127         4769873         Y         -           19-Sep-17         Search Team A         10         T04         Hoary Bat         21         45         Bare soil         1         523767         4769873         Y         -           19-Sep-17         Search Team A         10         T04         Hoary Bat         21         45         Bare soil         1         52546         476828         Y         -           11         T08         Ruby-crowned Kinglet         15	Date 8-Aug-17 15-Aug-17 18-Aug-17 25-Aug-17 Date	Searcher Search Team A Search Team A Search Team A Search Team	No. 1 2 3 4 5 6 7 8 9 10 11 No. 1	Turbine           T01           T07           T08           T03           T04           T05           T07           T06           T07           T06           T07           T09           Turbine           T05	Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat Nashville Warbler Species White-throated Sparrow	Distance (m)           33           15           31           15           23           10           43           29           11           Distance (m)           23	Direction (°) 250 130 180 135 40 135 50 190 280 320 250 Direction (°) 290	General Habitat Bare soil	Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	U Easting 523253 526998 527134 523905 525955 525925 526986 526986 526651 526945 526945 527432 U U Easting 540384	TM           Northing           476925           4770279           476825           4768825           4769889           4768605           47698605           4770291           4770299           4770298           4769828           TM           Northing           4814825	Found (Y/N) Y Y Y Y Y Y Y Y Y Found (Y/N) Y	Scavenged (Y/N) - - N - - - - - - - - - - - - - - - -
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Date 8-Aug-17 15-Aug-17 18-Aug-17 25-Aug-17 Date 8-Sep-17	Searcher Search Team A Search Team A Search Team A Search Team A	No. 1 2 3 4 5 6 7 8 9 10 11 No. 1 2	Turbine           T01           T07           T08           T03           T04           T05           T07           T06           T07           T06           T07           T06           T07           T09           Turbine           T05           T08	Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat Nashville Warbler Species White-throated Sparrow Ruby-crowned Kinglet	Distance (m)           33           15           31           15           29           23           10           43           29           11           Distance (m)           23           46	Direction (°) 250 130 180 135 40 83 50 190 280 320 250 Direction (°) 290 120	General Habitat Bare soil	Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Lasting 523253 526998 527134 523905 525555 523300 525925 526986 526945 526945 527432 L Lasting 540384 527154	TM           Northing           4769958           4770279           4768825           4768826           4769889           47688605           47698605           47698604           4768856           4770291           4770298           4768828           TM           Northing           4814825           4768847	Found (Y/N) Y Y Y Y Y Y Y Y Y Y Y Y Y N N	Scavenged (Y/N) - - N - - - - - - - - - - - - - - - -
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Date 8-Aug-17 15-Aug-17 18-Aug-17 25-Aug-17 Date 8-Sep-17	Searcher Search Team A Search Team A Search Team A Search Team A	No. 1 2 3 4 5 6 7 8 9 10 11 1 2 3 4 1 2 3 1 1 2 3 1 1 1 1 1 1 1 1 1 1 1 1 1	Turbine           T01           T07           T08           T03           T04           T05           T07           T06           T07           T06           T07           T09           Turbine           T05           T08           T09	Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat Nashville Warbler Species White-throated Sparrow Ruby-crowned Kinglet Silver-haired Bat	Distance (m) 33 15 45 31 15 29 23 10 43 29 11 0 istance (m) 23 46 46 16	Direction (°) 250 130 180 135 40 83 50 190 280 320 250 Direction (°) 290 120 330 55	General Habitat Bare soil	Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Lasting 523253 526998 527134 523905 525555 523905 525925 526945 526945 526945 526945 527432 Lasting 540384 527154 527154	TM           4760958           4770279           4768825           4768825           47698689           4768864           4769864           4769864           4769828           4768828           4768828           4768565           4770291           4770298           4768568           4768928           TM           Northing           4814825           4768847           4768264	Found (Y/N) Y Y Y Y Y Y Y Y Y Y Y Y Y N Y Y	Scavenged (Y/N) - - N - - - - - - - - - - - - - - - -
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Date           8-Aug-17           15-Aug-17           18-Aug-17           25-Aug-17           Date           8-Sep-17           12-Sep-17	Searcher Search Team A Search Team A Search Team A Search Team A Searcher Search Team	No. 1 2 3 4 5 6 7 8 9 10 11 1 2 3 4 5 5 6 7 8 9 10 11 2 3 4 5 5 5 5 5 5 5 5 5 5 5 5 5	Turbine           T01           T07           T08           T03           T04           T01           T05           T07           T06           T07           T06           T07           T06           T07           T06           T07           T08           T10           T08           T10           T09	Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat Nashville Warbler Species White-throated Sparrow Ruby-crowned Kinglet Silver-haired Bat Silver-haired Bat	Distance (m)           33           15           45           31           15           29           23           10           43           29           11           Distance (m)           23           46           16           46           16           46	Direction (°) 250 130 180 135 40 83 50 190 280 320 250 Direction (°) 290 120 330 25 210	General Habitat Bare soil	Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Lasting 523253 526998 527134 523905 525555 525925 526986 526945 526945 527432 L Easting 540384 527154 528151 528541	TM           Northing           4769958           4770279           4768825           4768825           4768893           4768855           476984           4770291           4770291           4770291           4770291           4770292           4770298           4768928           TM           Northing           4814825           4768821           4768827           4768828	Found (Y/N) Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y N Y	Scavenged (Y/N) - - N - - - - - - - - - - - - - - - -
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Date           8-Aug-17           15-Aug-17           18-Aug-17           25-Aug-17           Date           8-Sep-17           12-Sep-17	Searcher Search Team A Search Team A Search Team A Search Team A Search Team A	No. 1 2 3 4 5 6 7 8 9 10 11 10 11 2 3 4 5 6 6 7 8 9 10 11 2 6 6 7 8 9 9 10 11 10 10 10 10 10 10 10 10	Turbine           T01           T07           T08           T033           T04           T01           T05           T07           T06           T07           T06           T07           T09           Turbine           T05           T05           T05           T05           T05           T05           T05           T05           T06           T07           T09	Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat Nashville Warbler Species White-throated Sparrow Ruby-crowned Kinglet Silver-haired Bat Silver-haired Bat White-throated Sparrow Purple Martin	Distance (m)           33           15           45           31           15           29           23           10           43           29           11           Distance (m)           23           46           7           25	Direction (°) 250 130 180 135 40 83 50 190 280 320 250 Direction (°) 290 120 330 25 25 210 5	General Habitat Bare soil	Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Lasting 523253 526998 527134 523905 525555 526986 525925 526986 526945 526945 526945 527432 Lasting 540384 527154 528151 528115 525541	TM Northing 4769958 4770279 4768825 4769889 4768605 4769881 4769851 4769851 4770291 4770299 4770299 4770298 4770299 4770298 47768928 TM Northing 4814825 4768847 47682651 4768868 4768868	Found (Y/N) Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	Scavenged (Y/N) - - N - - - - - - - - - - - - - - - -
A         9         T03         White-throated Sparrow         25         180         Bare soil         1         523879         4769873         Y         -           19-Sep-17         Search Team         10         T04         Hoary Bat         21         45         Bare soil         1         523879         4769873         Y         -           19-Sep-17         A         10         T04         Hoary Bat         21         45         Bare soil         1         52546         4768628         Y         -           11         T08         Ruby-crowned Kinglet         15         260         Bare soil         1         527096         4768863         Y         -           Date         Searcher         No.         Turbine         Species         Distance (m)         Direction (°)         General Habitat         Visibility Class         T         Found Easting         Scavenged (Y/N)         Y         -           3-Oct-17         Search Team A         1         T06         Eastern Red Bat         28         160         Bare soil         1         526865         4770283         Y         -           3-Oct-17         A         10         Chesthut-sided Warbler         47         150	Date           8-Aug-17           15-Aug-17           18-Aug-17           25-Aug-17           Date           8-Sep-17           12-Sep-17	Searcher Search Team A Search Team A Search Team A Search Team A Search Team A	No.           1           2           3           4           5           6           7           8           9           10           11           No.           1           2           3           4           5           6           7	Turbine           T01           T07           T08           T03           T04           T05           T07           T06           T07           T06           T07           T06           T07           T09           Turbine           T05           T08           T09           Turbine           T05           T06           T07           T08           T01	Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat Species White-throated Sparrow Ruby-crowned Kinglet Silver-haired Bat Silver-haired Bat White-throated Sparrow Purple Martin Nashville Warbler	Distance (m) 33 15 45 31 15 29 23 10 43 29 23 10 43 29 11 Distance (m) 23 46 16 16 46 7 7 35 47	Direction (°) 250 130 130 135 40 135 40 83 50 190 280 320 250 Direction (°) 290 120 330 25 210 5 100	General Habitat Bare soil	Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Lesting 523253 526998 527134 523905 525555 526986 526945 526945 526945 526945 526945 526945 526945 526945 526945 526941 Lesting 540384 527154 525541 525541 525541	TM Northing 4769958 4770279 4768825 4769889 47688605 4769889 4768568 4770291 4770298 4770299 4770298 4770298 4770298 4770298 4770298 4770298 4770298 4770298 4770298 4768868 4768868 4768868 4768868 4769243 4769245 476945 476945 476945 476945 476956 476956 476956 4769566 4769	Found (Y/N) Y Y Y Y Y Y Y Y Y Y Y Y Y Y N Y Y N Y Y Y Y Y	Scavenged (Y/N) - - N - - - - - - - - - - - - - - - -
19-Sep-17         Search Team A         10         T04         Hoary Bat         21         45         Bare soil         1         52546         4768628         Y         -           11         T08         Ruby-crowned Kinglet         15         260         Bare soil         1         527096         4768683         Y         -           Date         Search ream A         No.         Turbine         Species         Distance (m)         Direction (*)         General Habitat         Visibility Class         Turbine         Found (Y/N)         Scaenged (Y/N)           3-Oct-17         Search Team A         1         T06         Eastern Red Bat         28         160         Bare soil         1         526866         4770314         Y         -           3-Oct-17         Search Team A         1         T06         Eastern Red Bat         28         160         Bare soil         1         526866         4770314         Y         -           3         T10         Chestnut-sided Warbler         47         150         Bare soil         1         526865         4770283         Y         -           13-Oct-17         Search Team A         4         T08         Hoary Bat         19         60	Date 8-Aug-17 15-Aug-17 18-Aug-17 25-Aug-17 Date 8-Sep-17 12-Sep-17 15-Sep-17	Searcher Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team	No. 1 2 3 4 5 6 7 8 9 10 11 1 2 No. 1 1 2 3 4 5 6 7 8 9 7 8 7 8	Turbine           T01           T07           T08           T03           T04           T05           T07           T06           T07           T06           T07           T06           T07           T06           T07           T08           T09           T09           T09           T08           T10           T04           T08           T10           T04           T08           T10           T07           T02	Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat Nashville Warbler Silver-haired Bat Silver-haired Bat White-throated Sparrow	Distance (m) 33 45 45 31 15 29 23 10 43 29 11 11 Distance (m) 23 46 16 16 46 7 35 47 7 35 47	Direction (°) 250 130 180 135 40 135 40 83 50 190 280 320 250 Direction (°) 290 120 330 25 210 5 100 340	General Habitat Bare soil	Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	U Easting 523253 526998 527134 523905 525925 526986 526945 526945 526945 527432 U U Easting 540384 527154 525541 525541 525541 525541 525541	TM           Northing           4760958           4770279           4768825           4768825           4769889           4768856           4770291           4770291           4770291           4770298           4768828           TM           Northing           4814825           4768828           4768828           4768851           4768851           4768851           4768852           4768924           4768925           4768926           4768927           4768928           4768929           4768921           4768920           4768921           4768924           4768920           4769970           4770229	Found (Y/N) Y Y Y Y Y Y Y Y Y Y Y N Y Y N Y Y Y Y	Scavenged (Y/N) - - - - - - - - - - - - - - - - - - -
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Date           8-Aug-17           15-Aug-17           18-Aug-17           25-Aug-17           Date           8-Sep-17           12-Sep-17           15-Sep-17	Searcher Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team	No.           1           2           3           4           5           6           7           8           9           10           11           2           3           4           5           6           7           8           9	Turbine           T01           T07           T08           T03           T04           T05           T07           T06           T07           T06           T07           T06           T07           T06           T07           T08           T09           Turbine           T05           T08           T10           T08           T10           T08           T10           T08           T10           T03	Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat Silver-haired Bat Silver-hairedBat Silver-hairedBat Silver-hairedBat Silv	Distance (m)           33           15           31           15           29           23           10           43           29           11           Distance (m)           23           46           16           46           7           35           47           13           25	Direction (°) 250 130 180 135 40 135 40 135 50 190 280 320 250 Direction (°) 290 120 330 25 210 5 100 340 180	General Habitat Bare soil	Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Lasting 523253 526998 527134 523905 525925 526926 526926 526925 526945 526945 526945 527432 L Lasting 540384 527154 528151 525541 527119 528148 523327 523787 523878	TM           Northing           4760958           4770279           4768825           4768826           47698605           47698605           4769828           4769828           4769828           4769888           4769586           4770291           4770298           4768556           4768928           TM           Northing           4814825           47688568           47689268           47689288           47689297           4770298           4768970           4769273	Found (Y/N) Y Y Y Y Y Y Y Y Y Y Y N Y Y N Y Y Y Y	Scavenged (Y/N) - - - - - - - - - - - - - - - - - - -
DateSearcherNo.TurbineSpeciesDistance (m)Direction (*)General HabitatVisibility Class $\overline{UTM}$ Found (Y/N)Scavenged (Y/N)3-Oct-17 $A$ 1T06Eastern Red Bat28160Bare soil1526664770314Y3-Oct-17 $A$ 2T07Horned Lark18170Bare soil1526864770283Y3T10Chestnut-sided Wabler47150Bare soil15281814769169NN13-Oct-17 $A$ 709Blackburnian Warbler35200Bare soil15274324768904Y13-Oct-17 $A$ 709Blackburnian Warbler35200Bare soil15281814769169NN10CT09Blackburnian Warbler35200Bare soil15281284768904Y20-Oct-17Search Team A7T01Hoary Bat35160Bare soil162874324769223Y20-Oct-17Search Team A9T03Magnolia Warbler6190Gravel15238754769895Y-24-Oct-17Search Team A10T05Silver-haired Bat17320Bare soil15259044768549Y-24-Oct-17Search Team A10T05Silver-haired Bat17320<	Date 8-Aug-17 15-Aug-17 18-Aug-17 25-Aug-17 Date 8-Sep-17 12-Sep-17 15-Sep-17	Searcher Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team	No.           1           2           3           4           5           6           7           8           9           10           11           2           3           4           5           6           7           8           9           10	Turbine           T01           T07           T08           T03           T04           T05           T07           T06           T07           T08           T07           T09           Turbine           T05           T07           T08           T10           T04           T08           T10           T01           T02           T03           T04	Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat Nashville Warbler Silver-haired Bat White-throated Sparrow Purpie Martin Nashville Warbler Silver-haired Bat White-throated Sparrow Purpie Martin Nashville Warbler Silver-haired Bat White-throated Sparrow Hoary Bat	Distance (m)           33           35           15           45           31           15           29           23           10           43           29           11           Distance (m)           23           46           7           35           47           13           25           21	Direction (°) 250 130 180 135 40 83 50 190 280 320 250 Direction (°) 290 120 330 25 210 5 100 340 180 45	General Habitat Bare soil	Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Lesting 523253 526998 527134 525955 525998 525925 526986 526651 526945 527432 Lesting 540384 527154 528151 528151 528148 528151 528148 528327 5283879 525546	TM           Northing           4769958           4770279           4768825           4768826           4769889           4768826           4769828           4770291           4770291           4770291           4770293           4768856           4768826           770298           4770298           4768828           7686828           7686847           4768868           4768286           4769291           4768928           4768928           4769920           4768928           4768928           4768928           4768928           4768928           4768928           4768928           4768928           4768928           4768928           4768928           4768928           4768928           4768928           4768928           4768928           4768928           4768928	Found (Y/N) Y Y N Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	Scavenged (Y/N) - - N - - - - - - - - - - - - - - - -
Date DateSearch real ANo.TurbineSpeciesSpecies (m)Direction (°) (m)General HabitatVisibility (classTurbine (m)Four (V/N)Scavenged (V/N)3-Oct-17Search Team A1T06Eastern Red Bat28160Bare soil1526664770314Y-3-Oct-17A2T07Horned Lark18170Bare soil15269854770283Y-3T10Chestnut-sided Warbler47150Bare soil15281814769169NN13-Oct-17AT08Hoary Bat1960Gravel15274324768904Y-13-Oct-17AT09Blackburnian Warbler35200Bare soil15274324768904Y-10T09Blackburnian Warbler35160Bare soil1528181476923Y-20-Oct-17Search Team A8T02Yellow-bellied Sapsucker15340Bare soil15238754769815NN24-Oct-17Search Team A10T05Silver-haired Bat17320Bare soil15238754768959Y-24-Oct-17Search Team A10T05Silver-haired Bat17320Bare soil15259044768549Y-24-Oct-17Search Team A10T05Silver-hai	Date 8-Aug-17 15-Aug-17 18-Aug-17 25-Aug-17 Date 8-Sep-17 12-Sep-17 19-Sep-17	Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A	No. 1 2 3 4 5 6 7 8 9 10 11 1 2 3 4 5 6 7 8 9 9 10 11 2 3 4 5 6 7 8 9 9 10 11 1 2 10 10 10 10 10 10 10 10 10 10	Turbine           T01           T07           T08           T03           T04           T05           T07           T05           T07           T06           T07           T06           T07           T09           Turbine           T05           T07           T08           T10           T04           T08           T10           T01           T02           T03           T04           T03           T04           T08           T04           T08	Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat Nashville Warbler Silver-haired Bat Silver-haired Bat White-throated Sparrow Purple Martin Nashville Warbler Silver-haired Bat White-throated Sparrow Purple Martin Nashville Warbler Silver-haired Bat White-throated Sparrow Purple Martin Nashville Warbler Silver-haired Bat White-throated Sparrow Hoary Bat Ruby-crowned Kinglet	Distance (m)           33           15           45           31           15           29           23           10           43           29           11           Distance (m)           23           46           7           35           46           7           35           21           15	Direction (°) 250 130 180 135 40 83 50 190 280 320 250 Direction (°) 290 120 330 25 210 5 100 340 180 45 260	General Habitat Bare soil	Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Lesting 523253 526998 527134 523905 525925 526986 525925 526985 526945 526945 526945 527432 Lesting 540384 527154 528151 528551 528551 523277 523379 525546 527096	TM Northing 4769958 4770279 4770279 47708285 4769889 4768856 4770291 4770299 4770298 4770298 4770298 4770298 4770298 4770298 4770298 4770299 4770289 4770289 4770289 4770289 4770289 47708873 47708875 47708875 47708875 47708875 47708875 47708875 47708875 47708875 47708875 47708875 47708875 47708875 47708875 47708875 47708875 47708875 4770875 4770875 4770875 4770875 4770875 47708	Found (Y/N) Y N Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	Scavenged (Y/N) - - N - - - - - - - - - - - - - - - -
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Date 8-Aug-17 15-Aug-17 18-Aug-17 25-Aug-17 Date 8-Sep-17 12-Sep-17 15-Sep-17 19-Sep-17	Searcher Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A	No.           1           2           3           4           5           6           7           8           9           10           11           2           3           4           5           6           7           8           9           10           11           2           3           4           5           6           7           8           9           10           11	Turbine           T01           T07           T08           T033           T04           T05           T07           T06           T07           T09           Turbine           T05           T07           T09           Turbine           T05           T06           T01           T04           T08           T10           T04           T03           T04           T05           T07           T09	Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat Nashville Warbler Silver-haired Sparrow Ruby-crowned Kinglet Silver-haired Bat Silver-haired Bat Silver-haired Bat Silver-haired Bat White-throated Sparrow Purple Martin Nashville Warbler Silver-haired Bat White-throated Sparrow Hoary Bat Ruby-crowned Kinglet	Distance (m)           33           15           45           31           15           29           11           Distance (m)           23           46           7           35           46           7           35           21           15	Direction (°) 250 130 130 180 135 40 83 50 190 280 320 250 Direction (°) 290 120 330 25 210 5 100 340 180 45 45 260	General Habitat Bare soil	Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Lesting 523253 526998 527134 523905 525925 526986 526945 526945 526945 526945 526945 526945 527432 Lesting 540384 527154 528151 528151 528148 523277 523377 523377 523379	TM 4769958 4770279 4768825 4769889 4768825 4769889 4768856 4770291 4769281 4770299 4770298 4770298 4770298 4770298 4770298 4770298 4770298 4770298 4770299 4770299 4770299 4770299 4770299 4770299 4770299 4770299 4770299 4770299 4768868 4768928 4768868 4768928 4768868 4768868 4768868 4768868 4768868 4768868	Found (Y/N) Y N Y Y Y Y Y Y Y Y Y Y Y N Y Y Y Y Y	Scavenged (Y/N) - - N - - - - - - - - - - - - - - - -
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$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Date           8-Aug-17           15-Aug-17           18-Aug-17           25-Aug-17           Date           8-Sep-17           12-Sep-17           19-Sep-17           Date	Searcher Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team	No.           1           2           3           4           5           6           7           8           9           10           11           2           3           4           5           6           7           8           9           10           11           2           3           4           5           6           7           8           9           10           11           No.           4	Turbine           T01           T07           T08           T03           T04           T05           T07           T06           T07           T06           T07           T06           T07           T09           Turbine           T05           T08           T10           T04           T08           T10           T04           T08           T10           T02           T03           T04           T08           T04           T08           T04           T08           T04	Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat Species White-throated Sparrow Ruby-crowned Kinglet Silver-haired Bat White-throated Sparrow Purple Martin Nashville Warbler Silver-haired Bat Silver-haired B	Distance (m)           33           15           31           15           29           23           10           43           29           11           Distance (m)           23           46           16           46           7           35           47           13           25           21           15           Distance (m)	Direction (°) 250 130 180 135 40 135 40 135 20 280 320 250 Direction (°) 290 120 330 225 210 5 100 340 180 45 260 Direction (°) 160	General Habitat Bare soil	Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	U Easting 523253 526998 527134 523905 525925 526925 526986 526651 526945 526945 527432 U Easting 525541 527546 527546 523787 523787 523787 525546 527096	TM           Northing           4760958           4770279           4768825           4769889           4768826           4769889           4768856           4770291           4770291           4770298           4768586           4770299           4768582           TM           Northing           4814825           4768928           4768928           4768921           4768929           4768921           4768864           4768920           4768921           47689220           4768923           47689243           4769970           4770229           4768863           4768638           4768638           4768638           4768638           4768638           4768638           4768638           4768638           4768638           4768638           4768638           4768638           4768638           4768638           47686	Found (Y/N) Y Y Y Y Y Y Y Y Y Y Y N Y Y Y Y Y Y Y	Scavenged (Y/N) - - N - - - - - - - - - - - - - - N - - - - N -
13-Oct-17         Search Team A         4         T08         Hoary Bat         19         60         Gravel         1         527128         4768875         Y         -           13-Oct-17         A         T09         Blackburnian Warbler         35         200         Bare soil         1         527128         4768875         Y         -           20-Oct-17         Search Team A         T01         Tennessee Warbler         34         310         Bare soil         1         528120         4768923         Y         -           20-Oct-17         Search Team A         7         T01         Hoary Bat         35         160         Bare soil         1         628120         4769223         Y         -           24-Oct-17         Search Team A         7         T01         Hoary Bat         35         160         Bare soil         1         523766         4770232         Y         -           24-Oct-17         Search Team A         9         T03         Magnolia Warbler         6         190         Gravel         1         523875         4769895         Y         -           24-Oct-17         Search Team A         10         T05         Silver-haired Bat         17	Date           8-Aug-17           15-Aug-17           18-Aug-17           25-Aug-17           Date           8-Sep-17           12-Sep-17           19-Sep-17           19-Sep-17           3-Oct-17	Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team	No.           1           2           3           4           5           6           7           8           9           10           11           2           3           4           5           6           7           8           9           10           11           No.           1           2	Turbine           T01           T07           T08           T03           T04           T05           T07           T06           T07           T06           T07           T06           T07           T06           T07           T08           T09           Turbine           T05           T08           T10           T04           T03           T04           T03           T04           T03           T04           T08           T04           T08           T04           T08           T07	Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat Silver-haired Bat Silver-haired Bat White-throated Sparrow Purple Martin Nashville Warbler Silver-haired Bat White-throated Sparrow Purple Martin Nashville Warbler Silver-haired Bat White-throated Sparrow Purple Martin Nashville Warbler Silver-haired Bat White-throated Sparrow Hoary Bat Ruby-crowned Kinglet Silver-haired Bat Hoary Bat Ruby-crowned Kinglet Silver-haired Bat Homed Lark	Distance (m)           33           15           45           31           15           29           23           10           43           29           23           10           43           29           11           Distance (m)           23           46           16           46           16           46           16           25           21           15           Distance (m)           28	Direction (°) 250 130 180 135 40 135 40 83 50 190 280 320 250 Direction (°) 290 120 330 25 210 5 100 340 180 45 260 Direction (°) 160 170	General Habitat Bare soil	Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Lesting 523253 526998 527134 523905 525925 526986 526945 526945 527432 L Lesting 527432 L Lesting 527432 527432 L Lesting 527546 52796	TM           Northing           4760958           4770279           4768825           4768826           47688605           4769868           4768564           4770291           4770291           4770291           4770292           4768556           4769828           TM           Northing           4768568           4769823           4768656           4769226           4768863           4768683           4768863           4768863           TM           Northing           4768863           4768863           4768863           4768863           47697014           4770284	Found (Y/N) Y Y Y Y Y Y Y Y Y Y Y N Y Y N Y Y Y Y	Scavenged (Y/N) - - - - - - - - - - - - - - - - - - -
13-Oct-17         Search Team A         5         T09         Blackburnian Warbler         35         200         Bare soil         1         527432         4768904         Y            20-Oct-17         Search Team A         7         T01         Tonessee Warbler         34         310         Bare soil         1         528120         4768923         Y            20-Oct-17         Search Team A         7         T01         Hoary Bat         35         160         Bare soil         1         622839         4760815         N         N           9         T02         Yellow-bellied Sapsucker         15         340         Bare soil         1         52375         4769895         Y            24-Oct-17         Search Team A         10         T05         Silver-haired Bat         17         320         Bare soil         1         525904         4768549         Y	Date           8-Aug-17           15-Aug-17           18-Aug-17           25-Aug-17           Date           8-Sep-17           12-Sep-17           19-Sep-17           3-Oct-17	Searcher Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team	No.           1           2           3           4           5           6           7           8           9           10           11           2           3           4           5           6           7           8           9           10           11           2           3           10           11           2           3	Turbine           T01           T07           T08           T03           T04           T05           T07           T06           T07           T08           T07           T09           Turbine           T05           T07           T08           T10           T04           T08           T10           T01           T02           T03           T04           T08           T04           T08           T04           T08           T04           T08           T04           T08           T04           T05           T04           T05           T04           T05           T04           T05           T04           T05           T06           T07           T06           T07           T06           T07           T08 </td <td>Species Hoary Bat Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat Nashville Warbler Silver-haired Bat Silver-haired Bat White-throated Sparrow Purple Martin Nashville Warbler Silver-haired Bat White-throated Sparrow Hoary Bat Ruby-crowned Kinglet Chestnut-sided Warbler</td> <td>Distance (m)           33           15           45           31           15           29           23           10           43           29           11           Distance (m)           23           46           7           35           47           13           25           21           15           Distance (m)           28           18           47</td> <td>Direction (°) 250 130 180 135 40 83 50 190 280 320 250 Direction (°) 290 120 330 25 210 5 100 340 180 45 260 Direction (°) 160 170 150</td> <td>General Habitat Bare soil Bare soil</td> <td>Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</td> <td>Lesting 523253 526998 527134 525955 526998 525925 526986 526945 526945 526945 527432 Lesting 526945 527432 Lesting 527154 528151 528148 523327 523787 523787 525546 525546 527096 Lesting 525546 5256985 5256985</td> <td>TM           Northing           4760958           4770279           4768825           4768826           4768826           47698605           4769586           4770291           4770291           4770291           4770291           4770298           4768526           4768928           TM           Northing           4814825           4768863           4768926           4768928           4768628           4768963           4768964           47689651           47689624           47689623           4769863           4768863           TM           Northing           4769863           4769863           TM           Northing           47701314           4769163           4769164           4769163</td> <td>Found (Y/N) Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y</td> <td>Scavenged (Y/N) - - - - - - - - - - - - - - - - - - -</td>	Species Hoary Bat Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat Nashville Warbler Silver-haired Bat Silver-haired Bat White-throated Sparrow Purple Martin Nashville Warbler Silver-haired Bat White-throated Sparrow Hoary Bat Ruby-crowned Kinglet Chestnut-sided Warbler	Distance (m)           33           15           45           31           15           29           23           10           43           29           11           Distance (m)           23           46           7           35           47           13           25           21           15           Distance (m)           28           18           47	Direction (°) 250 130 180 135 40 83 50 190 280 320 250 Direction (°) 290 120 330 25 210 5 100 340 180 45 260 Direction (°) 160 170 150	General Habitat Bare soil	Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Lesting 523253 526998 527134 525955 526998 525925 526986 526945 526945 526945 527432 Lesting 526945 527432 Lesting 527154 528151 528148 523327 523787 523787 525546 525546 527096 Lesting 525546 5256985 5256985	TM           Northing           4760958           4770279           4768825           4768826           4768826           47698605           4769586           4770291           4770291           4770291           4770291           4770298           4768526           4768928           TM           Northing           4814825           4768863           4768926           4768928           4768628           4768963           4768964           47689651           47689624           47689623           4769863           4768863           TM           Northing           4769863           4769863           TM           Northing           47701314           4769163           4769164           4769163	Found (Y/N) Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	Scavenged (Y/N) - - - - - - - - - - - - - - - - - - -
Image: Constraint of the system         6         T10         Tennessee Warbler         34         310         Bare soil         1         528120         4769223         Y            20-Oct 17         F         T01         Hoary Bat         35         160         Bare soil         1         622839         476923         Y            20-Oct 17         Search Team         7         T01         Hoary Bat         35         160         Bare soil         1         622839         4760815         N         N           20-Oct 17         A         T02         Yellow-bellied Sapsucker         15         340         Bare soil         1         52376         4770232         Y            24-Oct 17         Search Team         10         T05         Silver-haired Bat         17         320         Bare soil         1         525904         4768549         Y	Date           8-Aug-17           15-Aug-17           18-Aug-17           25-Aug-17           Date           8-Sep-17           12-Sep-17           19-Sep-17           Date           3-Oct-17	Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A	No.           1           2           3           4           5           6           7           8           9           10           11           2           3           4           5           6           7           8           9           10           11           2           3           4	Turbine           T01           T07           T08           T03           T04           T05           T07           T06           T07           T06           T07           T09           Turbine           T05           T07           T09           Turbine           T04           T08           T10           T04           T08           T01           T02           T03           T04           T05           T07           T08	Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat Nashville Warbler Silver-haired Bat Silver-haired Bat Silver-haired Bat White-throated Sparrow Purple Martin Nashville Warbler Silver-haired Bat White-throated Sparrow Hoary Bat Silver-haired Bat White-throated Sparrow Hoary Bat Silver-haired Bat White-throated Sparrow Hoary Bat Kuby-crowned Kinglet Species Eastern Red Bat Horned Lark Chestnut-sided Warbler Hoary Bat	Distance (m)           33           35           15           45           31           15           29           23           10           43           29           11           Distance (m)           23           46           7           35           21           16           46           7           35           21           15           Distance (m)           28           18           47           19	Direction (°) 250 130 130 180 135 40 83 50 190 280 280 2250 Direction (°) 290 120 330 255 210 5 100 340 180 45 260 Direction (°) 160 170 150 60	General Habitat Bare soil	Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Lessting 523253 526998 527134 523905 525925 526986 525925 526986 526945 527432 Lessting 540384 527154 528151 528551 523877 523787 523787 523787 523787 523787 523787 523787 523879 525546 527096	TM           Northing           4760958           4770279           4770279           4770279           4768825           4769881           4768556           4770291           4769826           4770298           4770298           4770298           4770298           4770298           4770298           476826           476886           476826           476826           476826           4768868           4768868           4768868           4768868           4768868           4768868           4768868           4768868           4768868           4768869           4768861           4768863           4768861	Found (Y/N) Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	Scavenged (Y/N) - - N - - - - - - - - - - - - - - - -
20-Oct-17         Search Team A         7         T01         Hoary Bat         35         160         Bare soil         1         622839         4760815         N         N           20-Oct-17         A         TO2         Yellow-bellied Sapsucker         15         340         Bare soil         1         52376         4770232         Y            24-Oct-17         Search Team A         10         T05         Silver-haired Bat         17         320         Bare soil         1         525904         4768549         Y	Date           8-Aug-17           15-Aug-17           18-Aug-17           25-Aug-17           Date           8-Sep-17           12-Sep-17           19-Sep-17           19-Sep-17           3-Oct-17           13-Oct-17	Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team	No.           1           2           3           4           5           6           7           8           9           10           11           2           3           4           5           6           7           8           9           10           11           2           3           4           5           6           7           8           9           100           111           No.           1           2           3           4           5	Turbine           T01           T07           T08           T03           T04           T05           T07           T06           T07           T09           Turbine           T05           T07           T09           Turbine           T05           T07           T09           Turbine           T04           T08           T01           T02           T03           T04           T08           Turbine           T06           T07           T08           Turbine           T06           T07           T08           T07           T08           T07           T08           T09	Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat Silver-haired Bat Silver-haired Bat White-throated Sparrow Purple Martin Nashville Warbler Silver-haired Bat White-throated Sparrow Hoary Bat Ruby-crowned Kinglet Silver-haired Bat Horad Lark Chestnut-sided Warbler Hoary Bat Blackburnian Warbler	Distance (m)           33           15           31           15           29           23           10           43           29           11           Distance (m)           23           46           7           35           21           15           Distance (m)           25           21           15           Distance (m)           28           18           47           19           35	Direction (°) 250 130 180 135 40 83 50 190 280 220 250 Direction (°) 290 120 5 210 5 210 5 210 5 100 340 180 45 260 Direction (°) 160 170 150 60 200	General Habitat Bare soil	Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Lesting 523253 526998 527134 523905 525925 525925 526986 526651 526945 526945 527432 Lesting 526945 527154 528151 528148 523327 523787 523787 523787 523787 523787 523787 523787 523787 523879 525546 527096	TM           Northing           476925           4770279           476825           4769858           47698605           4769889           4768256           4769288           4769288           4770291           4770298           4770298           4770298           4769268           4769287           4768868           4769264           4768868           4769297           4770229           4768868           4768868           4768868           4768868           4768868           4768868           4768868           4768868           4768868           4768863           4768863           4768864           4768865           4768863           4768864           4768865           4768864           4768865           4768864           4768865           4768864           4768865           4768864           4768865           4768	Found (Y/N) Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	Scavenged (Y/N) - - - - - - - - - - - - - - - - - - -
20-Oct-1/         A         8         TO2         Yellow-bellied Sapsucker         15         340         Bare soil         1         523786         4770232         Y         -           24-Oct-17         A         9         T03         Magnolia Warbler         6         190         Gravel         1         523786         4770232         Y         -           24-Oct-17         Search Team A         10         T05         Silver-haired Bat         17         320         Bare soil         1         525904         4768549         Y         -	Date           8-Aug-17           15-Aug-17           18-Aug-17           25-Aug-17           Date           8-Sep-17           15-Sep-17           19-Sep-17           19-Sep-17           13-Oct-17           13-Oct-17	Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A	No.           1           2           3           4           5           6           7           8           9           10           11           2           3           4           5           6           7           8           9           10           11           2           3           4           5           6           7           8           9           10           11           2           3           4           5           6	Turbine           T01           T07           T08           T03           T04           T05           T07           T06           T07           T06           T07           T06           T07           T08           T09           Turbine           T05           T08           T10           T04           T08           T10           T04           T02           T03           T04           T08           T10           T04           T08           T07           T08           T09           T09           T00           T00 </td <td>Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat Species White-throated Sparrow Ruby-crowned Kinglet Silver-haired Bat White-throated Sparrow Purple Martin Nashville Warbler Silver-haired Bat White-throated Sparrow Hoary Bat Ruby-crowned Kinglet Silver-haired Bat White-throated Sparrow Furple Martin Nashville Warbler Silver-haired Bat White-throated Sparrow Hoary Bat Ruby-crowned Kinglet Silver-haired Bat Horned Lark Chestnut-sided Warbler Hoary Bat Backburnian Warbler</td> <td>Distance (m)           33           15           31           15           29           23           10           43           29           11           Distance (m)           23           46           16           46           7           35           21           15           Distance (m)           28           18           47           19           35           34</td> <td>Direction (°) 250 130 180 135 40 135 50 190 280 220 250 Direction (°) 290 120 330 25 210 5 100 340 180 45 260 Direction (°) 160 170 150 60 200 310</td> <td>General Habitat Bare soil Bare soil</td> <td>Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</td> <td>U Easting 523253 526998 527134 523905 525925 526986 526651 526945 526945 527432 U Easting 525541 525541 525541 525546 523787 523787 523879 525546 527096 U Easting 526666 526985 526985 526985</td> <td>TM           Northing           476925           4770279           4768825           4769889           476825           4769889           476826           4770291           4770292           4770298           4770298           4770299           4768926           4768928           TM           Northing           4814825           4768926           4768927           4768828           4768929           4768868           4768920           4768921           4768868           4768929           4768920           4768868           4768920           4768868           4768921           4768868           4768868           4768868           4768868           4768868           4768868           4768868           4768868           4768868           4768868           4768868           4768868           4768868           4768868<td>Found (Y/N) Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y</td><td>Scavenged (Y/N) - - N - - - - - - - - - - - - - - - -</td></td>	Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat Species White-throated Sparrow Ruby-crowned Kinglet Silver-haired Bat White-throated Sparrow Purple Martin Nashville Warbler Silver-haired Bat White-throated Sparrow Hoary Bat Ruby-crowned Kinglet Silver-haired Bat White-throated Sparrow Furple Martin Nashville Warbler Silver-haired Bat White-throated Sparrow Hoary Bat Ruby-crowned Kinglet Silver-haired Bat Horned Lark Chestnut-sided Warbler Hoary Bat Backburnian Warbler	Distance (m)           33           15           31           15           29           23           10           43           29           11           Distance (m)           23           46           16           46           7           35           21           15           Distance (m)           28           18           47           19           35           34	Direction (°) 250 130 180 135 40 135 50 190 280 220 250 Direction (°) 290 120 330 25 210 5 100 340 180 45 260 Direction (°) 160 170 150 60 200 310	General Habitat Bare soil	Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	U Easting 523253 526998 527134 523905 525925 526986 526651 526945 526945 527432 U Easting 525541 525541 525541 525546 523787 523787 523879 525546 527096 U Easting 526666 526985 526985 526985	TM           Northing           476925           4770279           4768825           4769889           476825           4769889           476826           4770291           4770292           4770298           4770298           4770299           4768926           4768928           TM           Northing           4814825           4768926           4768927           4768828           4768929           4768868           4768920           4768921           4768868           4768929           4768920           4768868           4768920           4768868           4768921           4768868           4768868           4768868           4768868           4768868           4768868           4768868           4768868           4768868           4768868           4768868           4768868           4768868           4768868 <td>Found (Y/N) Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y</td> <td>Scavenged (Y/N) - - N - - - - - - - - - - - - - - - -</td>	Found (Y/N) Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	Scavenged (Y/N) - - N - - - - - - - - - - - - - - - -
24-Oct-17         Search Team A         10         T05         Silver-haired Bat         17         320         Bare soil         1         525904         4769895         Y         -	Date           8-Aug-17           15-Aug-17           18-Aug-17           25-Aug-17           Date           8-Sep-17           12-Sep-17           19-Sep-17           19-Sep-17           13-Oct-17           13-Oct-17	Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team	No.           1           2           3           4           5           6           7           8           9           10           11           2           3           4           5           6           7           8           9           10           11           1           2           3           4           5           6           7           3           4           5           6           7	Turbine           T01           T07           T08           T03           T04           T05           T07           T06           T07           T06           T07           T06           T07           T06           T07           T08           T09           T09           T09           T08           T10           T04           T05           T07           T06           T07           T08           T07           T00      T08	Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat Species White-throated Sparrow Ruby-crowned Kinglet Silver-haired Bat White-throated Bat White-throated Bat White-throated Bat White-throated Bat Ruby-crowned Kinglet Silver-haired Bat White-throated Bat Hoary Bat Ruby-crowned Kinglet Silver-haired Bat Horned Lark Chestnut-sided Warbler Hoary Bat Bilackburnian Warbler Tennessee Warbler Hoary Bat	Distance (m)           33           15           45           31           15           29           23           10           43           29           11           Distance (m)           23           46           16           46           7           35           47           13           25           21           15           Distance (m)           28           18           47           19           35           34           35	Direction (°) 250 130 180 135 40 135 40 280 320 250 Direction (°) 290 120 330 25 210 5 100 340 180 45 260 Direction (°) 160 170 150 60 200 310 160	General Habitat Bare soil	Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Lesting 523253 526998 527134 523905 525925 526986 526945 526945 526945 526945 527432 U Lesting 525541 525541 525541 523787 525546 527096 525546 527096 U Lesting 526866 527096	TM           Northing           4760958           4770279           4768825           4768826           4768826           4769889           4768856           4770291           4770291           4770298           4768526           4770298           4770298           4768564           4768928           TM           Northing           4814825           4768861           4768863           4769204           4768863           4768863           4768863           4768863           4768863           4768863           4770283           4768863           4769264           4768863           4768863           4768863           4768863           4768863           4768863           4768863           4768863           4768863           4768863           4769104           4770283           4768904           4768904           476825<	Found (Y/N) Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	Scavenged (Y/N) - - N - - - - - - - - - - - - - - - -
24-Oct-17 A 10 T05 Silver-haired Bat 17 320 Bare soil 1 525904 4768549 Y -	Date           8-Aug-17           15-Aug-17           18-Aug-17           25-Aug-17           Date           8-Sep-17           12-Sep-17           19-Sep-17           19-Sep-17           13-Oct-17           13-Oct-17	Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A Search Team A	No.           1           2           3           4           5           6           7           8           9           10           11           2           3           4           5           6           7           8           9           10           11           2           3           4           5           6           7           8           9           10           11           2           3           4           5           6           7           8           9           10           11           2           3           4           5           6           7           8           9           9           10           11      2	Turbine           T01           T07           T08           T03           T04           T05           T07           T06           T07           T08           T07           T06           T07           T08           T07           T09           Turbine           T04           T08           T10           T04           T08           T10           T04           T05           T07           T06           T07           T08           T10           T04           T08           T07           T08           T09           T00           T08           T09           T01           T08           T09           T01           T02           T01           T02           T01           T02	Species Hoary Bat Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat Nashville Warbler Silver-haired Bat Silver-haired Bat White-throated Sparrow Purple Martin Nashville Warbler Silver-haired Bat White-throated Sparrow Hoary Bat Ruby-crowned Kinglet Silver-haired Bat Horned Lark Chestnut-sided Warbler Hoary Bat Blackburnian Warbler Tennessee Warbler Hoary Bat Yellow-bellied Sapsucker	Distance (m)           33           15           45           31           15           29           23           10           43           29           11           Distance (m)           23           46           7           35           25           21           15           Distance (m)           28           18           47           19           35           35           15	Direction (°) 250 130 180 135 40 83 50 190 280 220 250 Direction (°) 290 120 330 25 210 5 100 340 180 45 260 Direction (°) 160 170 150 60 200 310 160 340	General Habitat Bare soil	Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Lesting 523253 526998 527134 525955 526998 525925 526986 526955 526945 527432 Lesting 526945 527154 527154 527154 528151 528151 528154 528155 528154 528154 528154 528154 528154 528154 528155	TM           Northing           4768958           4770279           4768826           4768856           4769869           4768856           4770291           4769826           4770291           4770298           4770298           4770298           4770298           4770298           4768928           TM           Northing           4814825           4768868           4769820           4768921           4768264           4768923           4768868           4768868           4768863           TM           Northing           4768863           47689210 <tr< td=""><td>Found (Y/N) Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y</td><td>Scavenged (Y/N) - - N - - - - - - - - - - - - - - - -</td></tr<>	Found (Y/N) Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	Scavenged (Y/N) - - N - - - - - - - - - - - - - - - -
	Date           8-Aug-17           15-Aug-17           18-Aug-17           25-Aug-17           Date           8-Sep-17           12-Sep-17           19-Sep-17           3-Oct-17           13-Oct-17           20-Oct-17	Search Team A Search Team A	No.           1           2           3           4           5           6           7           8           9           10           11           2           3           4           5           6           7           8           9           10           11           2           3           4           5           6           7           8           9           10           11           2           3           4           5           6           7           8           9           9	Turbine           T01           T07           T08           T03           T04           T05           T07           T06           T07           T06           T07           T06           T07           T09           Turbine           T04           T05           T07           T09           Turbine           T04           T02           T03           T04           T08           T10           T01           T02           T03           T04           T05           T06           T07           T08           T07           T08           T07           T08           T09           T01           T02           T03           T01           T02           T03           T01           T02           T03	Species Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler Hoary Bat Red-eyed Vireo Nashville Warbler White-throated Sparrow Hoary Bat Nashville Warbler Silver-haired Sparrow Purple Martin Nashville Warbler Silver-haired Bat White-throated Sparrow Purple Martin Nashville Warbler Silver-haired Bat White-throated Sparrow Hoary Bat Ruby-crowned Kinglet Silver-haired Bat Horned Lark Chestnut-sided Warbler Hoary Bat Yellow-bellied Sapsucker Magnolia Warbler	Distance (m)           33           15           45           31           15           29           23           10           43           29           11           Distance (m)           23           46           7           35           21           Distance (m)           28           18           47           13           25           21           Distance (m)           28           18           47           13           25           21           Distance           (m)           35           34           35           34           35           15           6	Direction (°) 250 130 130 180 135 40 83 50 190 280 320 250 Direction (°) 290 120 330 25 210 5 100 340 180 45 260 Direction (°) 160 170 150 60 200 310 160 160 340 180	General Habitat Bare soil	Visibility Class 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Lessting 523253 526998 527134 523905 525925 526986 525925 526986 526945 527432 Lessting 540384 527154 525541 525541 523717 523787 5233879 5235546 5233879 525546 5233879 525546 5233879 525546 527038 527038	TM           Northing           4760958           4770279           4768825           4769881           4768826           4769881           4768826           4770291           4769826           4770298           4770298           4770298           4770298           4770298           4768826           4768826           4768868           4768263           4768868           4768868           4768868           4768868           4768868           4768868           4768868           4768863           4768863           4768864           4768865           4768867           4768868           4768869           4768869           4768861           4768862           4768863           4768864           4768865           4768865           4768865           4768865           4768865           4768865           4768865           476	Found (Y/N) Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	Scavenged (Y/N) - - N - - - - - - - - - - - - - - - -

Appendix IV Avian Mortalities 
 Visibility Class:
 1 ≥90% bare ground, vegetation ≤15cm tall

 2
 ≥25% bare ground, vegetation ≤15cm tall

 3
 ≤25% bare ground, ≥25% of vegetation is >30cm tall

 4
 little or no bare ground, ≥ 25% of vegetation is >30cm tall

Condition Code: I Injured or dying F Freshly dead E Early decomposition M Moderate decomposition A datanced decomposition C Complete decomposition

S Scavenged

Date	Turbine	Start Time	End Time	Dog Used (Y/N)	Days Since Last Search	Temp. (°C)	Cloud Cover (%)	Precipitation	Wind Speed (Beaufort Scale)	Wind Direction	Species	Sample ID	Sex (M/F/U)	Easting	Northing	Distance from Turbine (m)	Direction from Turbine (°)	Condition Code	Estimated Time Since Death (hrs)	Observed Injuries	Substrate/ Habitat	Visibility Class
19-May-17	T07	13:17	13:37	N	3	10	80	None	3	NW	Passerine species	1875-190517-T07-01	U	527014	4770343	50	50	s	Unknown	Only feathers remain	Bare soil	1
30-May-17	T09	12:45	13:05	N	4	16	10	None	2 - 5	SW	Common Nighthawk	1875-300517-T09-01	U	527469	4768983	50	30	F	12	Broken neck	Bare soil	1
16-Jun-17	T07	11:47	12:07	N	3	26	10	None	1 - 2	SW	Horned Lark	1875-160617-T07-01	U	526985	4770315	22	10	F	6	Broken neck	Bare soil	1
10-Oct-17	T02	9:19	9:39	Ν	4	23	20	Fog	1	NW	Ruby-crowned Kinglet	1875-101017-T02-01	м	523805	4770205	19	125	F	14	Broken tail and neck	Gravel	1
13-Oct-17	T08	12:22	12:52	Ν	3	19	100	Rain	2	sw	Golden-crowned Kinglet	1875-131017-T08-01	U	527138	4768835	41	140	F	24	Only wing remains	Bare soil	1
13-Oct-17	T09	13:13	13:33	Ν	3	19	100	Rain	2	sw	Golden-crowned Kinglet	1875-131017-T09-01	м	527397	4768931	47	260	E	48	Broken tail	Bare soil	1
27-Oct-17	T01	8:49	9:09	N	3	17	70	None	3	s	Golden-crowned Kinglet	1875-271017-T01-01	м	523311	4770011	41	55	E	48	Broken neck	Bare soil	1

#### 2017 Raptor Mortalities

Visibility Class: 1 ≥90% bare ground, vegetation ≤15cm tall 2 3

Condition Code: I Injured or dying F Freshly dead

Date	Turbine	Start Time	End Time	Dog Used (Y/N)	Days Since Last Search	Temp. (°C)	Cloud Cover (%)	Precipitation	Wind Speed (Beaufort Scale)	Wind Direction	Species	Sample ID	Sex (M/F/U)	Easting	Northing	Distance from Turbine (m)	Direction from Turbine (°)	Condition Code	Estimated Time Since Death (hrs)	Observed Injuries	Substrate/ Habitat	Visibility Class
16-Jun-17	T04	9:45	10:05	N	3	26	10	None	1 - 2	SW	Red-tailed Hawk	1875-160617-T04-01	U	525543	4768556	48	170	F	24	Broken tail; bloated	Bare soil	1

≥25% bare ground, vegetation ≤ 15cm tail ≥25% bare ground, vegetation ≤15cm tall ≈25% bare ground, ≥25% of vegetation is >30cm tall little or no bare ground, ≥ 25% of vegetation is >30cm tall

4

- F Freshly dead E Early decomposition M Moderate decomposition A Advanced decomposition C Complete decomposition S Scavenged

Appendix V Bat Mortalities Visibility Class:

 1
 ≥90% bare ground, vegetation ≤15cm tall

 2
 ≥25% bare ground, ≥25% of vegetation is >30cm tall

 3
 ≤25% bare ground, ≥25% of vegetation is >30cm tall

 4
 little or no bare ground, ≥ 25% of vegetation is >30cm tall

Date	Turbine	Start Time	End Time	Dog Used (Y/N)	Days Since Last Search	Temp. (°C)	Cloud Cover (%)	Precipitation	Wind Speed (Beaufort Scale)	Wind Direction	Species	Sample ID	Bat FA (mm)	Sex (M/F/U)	Easting	Northing	Distance from Turbine (m)	Direction from Turbine (°)	Condition Code	Estimated Time Since Death (hrs)	Observed Injuries	Substrate/ Habitat	Visibility Class
19-May-17	T09	12:14	12:34	Ν	3	10	80	None	3	NW	Silver-haired Bat	1875-190517-T09-02	40	U	527456	4768950	14	60	E	36	Laceration to back	Bare soil	1
23-May-17	T05	12:22	12:42	N	4	17	40	None	2 - 3	SW	Silver-haired Bat	1875-230517-T05-01	43	U	525954	4768572	48	50	F	16	None apparent	Bare soil	1
6-Jun-17	T05	10:59	11:19	Ν	4	13	100	Rain	2 - 3	N	Hoary Bat	1875-060617-T05-01	50	U	525907	4768550	15	320	F	12	None apparent	Bare soil	1
13-Jun-17	T02	9:13	9:33	Ν	4	29	70	None	2	SE	Silver-haired Bat	1875-130617-T02-01	40	U	523835	4770229	41	80	Е	36	Broken pelvic bone	Bare soil	1
13-Jun-17	T07	12:37	12:57	Ν	4	29	70	None	2	SE	Silver-haired Bat	1875-130617-T07-01	41	U	526982	4770321	20	10	F	12	Ruptured abdomen	Bare soil	1
23-Jun-17	T06	11:40	12:00	N	3	18	100	None	1	s	Big Brown Bat	1875-230617-T06-01	44	U	526687	4770352	33	65	А	84	Broken wing	Bare soil	1
4-Jul-17	тоз	10:18	10:38	Ν	4	20	0	None	1	NE	Hoary Bat	1875-040717-T03-01	50	U	523865	4769882	21	230	F	8	Laceration to back	Bare soil	1
7-Jul-17	T01	8:41	9:01	Ν	3	22	100	Rain	1 - 4	w	Big Brown Bat	1875-070717-T01-01	44	U	523251	4769987	27	270	м	65	Laceration to back	Bare soil	1
11-Jul-17	T04	10:23	10:43	Ν	4	25	70	None	1	w	Hoary Bat	1875-110717-T04-01	52	U	525563	4768602	25	105	F	8	Broken uropotagium	Bare soil	1
14-Jul-17	T04	10:26	10:46	Ν	3	20	100	Fog	1	NW	Big Brown Bat	1875-140717-T04-01	43	U	525548	4768594	12	130	F	10	Broken uropotagium	Bare soil	1
18-Jul-17	T07	12:07	12:27	Ν	4	27	20	None	1	w	Hoary Bat	1875-180717-T07-01	54	U	527011	4770285	26	110	F	8	Broken uropotagium	Bare soil	1
18-Jul-17	T08	12:46	13:06	N	4	27	20	None	1	w	Hoary Bat	1875-180717-T08-01	55	F	527121	4768867	5	60	F	9	None apparent	Gravel	1
18-Jul-17	T10	13:52	14:12	N	4	27	20	None	1	w	Hoary Bat	1875-180717-T10-01	55	U	528170	4769173	38	150	F	12	None apparent	Bare soil	1
18-Jul-17	T10	13:52	14:12	N	4	27	20	None	1	w	Hoary Bat	1875-180717-T10-02	51	F	528162	4769213	8	70	F	12	None apparent	Gravel	1
18-Jul-17	T10	13:52	14:12	N	4	27	20	None	1	w	Big Brown Bat	1875-180717-T10-03	43	U	528169	4769195	21	125	А	104	None apparent	Bare soil	1
21-Jul-17	T05	10:42	11:02	N	3	27	20	None	2	N	Hoary Bat	1875-210717-T05-01	55	U	525935	4768530	18	120	F	8	Broken uropotagium	Bare soil	1
21-Jul-17	T06	11:20	11:40	N	3	27	20	None	2	N	Hoary Bat	1875-210717-T06-01	56	U	526628	4770347	27	280	F	10	None apparent	Bare soil	1
21-Jul-17	T07	11:58	12:18	N	3	27	20	None	2	N	Hoary Bat	1875-210717-T07-01	52	U	526967	4770338	38	350	E	34	Broken wing	Bare soil	1
21-Jul-17	T08	12:38	12:58	N	3	27	20	None	2	N	Hoary Bat	1875-210717-T08-01	55	U	527144	4768837	38	130	F	10	None apparent	Bare soil	1
21-Jul-17	T10	13:51	14:11	N	3	27	20	None	2	N	Hoary Bat	1875-210717-T10-01	55	U	528188	4769211	33	80	А	82	None apparent	Bare soil	1
25-Jul-17	T01	8:42	9:02	N	4	19	30	None	1 - 3	NE	Hoary Bat	1875-250717-T01-01	53	U	523298	4769946	38	150	E	32	None apparent	Bare soil	1
25-Jul-17	T06	11:11	11:31	N	4	19	30	None	1 - 3	NE	Hoary Bat	1875-250717-T06-01	50	U	526657	4770298	46	180	F	10	None apparent	Bare soil	1
25-Jul-17	т09	12:41	13:01	N	4	19	30	None	1 - 3	NE	Hoary Bat	1875-250717-T09-01	54	U	527410	4768913	44	240	F	10	Broken wing	Bare soil	1
25-Jul-17	T10	13:16	13:36	N	4	19	30	None	1 - 3	NE	Hoary Bat	1875-250717-T10-01	50	U	528148	4769194	12	230	F	10	None apparent	Gravel	1
28-Jul-17	T05	8:56	9:16	N	3	20	90	None	1 - 4	NE	Hoary Bat	1875-280717-T05-01	54	U	525968	4768545	45	50	E	30	None apparent	Bare soil	1
28-Jul-17	T06	9:30	9:50	N	3	20	90	None	1 - 4	NE	Hoary Bat	1875-280717-T06-01	58	U	526674	4770353	22	55	E	30	Broken right wing	Bare soil	1
28-Jul-17	T10	11:25	11:45	N	3	20	90	None	1 - 4	NE	Big Brown Bat	1875-280717-T10-01	43	F	528131	4769233	28	335	Е	30	Laceration to abdomen	Bare soil	1
1-Aug-17	T02	9:07	9:27	N	4	28	20	None	1 - 2	w	Big Brown Bat	1875-010817-T02-01	44	U	523787	4770191	24	200	F	10	Laceration to back	Bare soil	1
1-Aug-17	T07	11:56	12:16	Ν	4	28	20	None	1 - 2	w	Hoary Bat	1875-010817-T07-01	56	U	527010	4770272	36	135	F	12	Broken left wing	Bare soil	1
1-Aug-17	T08	12:34	12:54	Ν	4	28	20	None	1 - 2	w	Hoary Bat	1875-010817-T08-01	55	U	527092	4768830	42	215	F	12	Both wings broken	Bare soil	1
4-Aug-17	T01	8:40	9:00	Ν	3	23	100	Rain	3 - 6	s	Big Brown Bat	1875-040817-T01-01	42	U	523290	4770031	49	25	F	8	Crushed skull	Bare soil	1
4-Aug-17	T05	10:44	11:04	Ν	3	23	100	Rain	3 - 6	s	Hoary Bat	1875-040817-T05-01	50	U	525941	4768558	27	45	Е	30	None apparent	Bare soil	1

Date	Turbine	Start Time	End Time	Dog Used (Y/N)	Days Since Last Search	Temp. (°C)	Cloud Cover (%)	Precipitation	Wind Speed (Beaufort Scale)	Wind Direction	Species	Sample ID	Bat FA (mm)	Sex (M/F/U)	Easting	Northing	Distance from Turbine (m)	Direction from Turbine (°)	Condition Code	Estimated Time Since Death (hrs)	Observed Injuries	Substrate/ Habitat	Visibility Class
4-Aug-17	T10	13:16	13:36	N	3	23	100	Rain	3 - 6	s	Hoary Bat	1875-040817-T10-01	52	U	528189	4769198	46	100	E	32	Laceration to abdomen	Bare soil	1
4-Aug-17	T10	13:16	13:36	N	3	23	100	Rain	3 - 6	s	Big Brown Bat	1875-040817-T10-02	42	U	528198	4769219	47	75	м	56	Only wing and spine remain	Bare soil	1
8-Aug-17	T07	12:05	12:25	N	4	25	50	None	1 - 2	NW	Hoary Bat	1875-080817-T07-01	55	U	527005	4770296	24	90	А	80	Laceration to back	Bare soil	1
11-Aug-17	T04	10:05	10:25	N	3	21	95	None	2	w	Hoary Bat	1875-110817-T04-01	55	U	525500	4768597	41	265	А	80	None apparent	Bare soil	1
15-Aug-17	T07	12:10	12:30	N	4	25	80	Rain	1	SW	Hoary Bat	1875-150817-T07-01	52	м	526974	4770322	24	340	E	36	None apparent	Bare soil	1
15-Aug-17	T07	12:10	12:30	N	4	25	80	Rain	1	SW	Eastern Red Bat	1875-150817-T07-02	41	U	526970	4770286	19	235	E	36	None apparent	Bare soil	1
15-Aug-17	T08	13:00	13:20	N	4	25	80	Rain	1	SW	Hoary Bat	1875-150817-T08-01	52	м	527132	4768873	24	80	F	12	Broken left wing	Gravel	1
18-Aug-17	T01	8:46	9:06	N	3	24	80	None	3 - 5	SW	Big Brown Bat	1875-180817-T01-01	44	м	523266	4769981	13	305	F	11	Laceration to back	Bare soil	1
18-Aug-17	т09	12:50	13:10	N	3	24	80	None	3 - 5	SW	Hoary Bat	1875-180817-T09-01	55	F	527396	4768949	42	300	F	12	Blood in nose	Bare soil	1
18-Aug-17	T05	13:55	14:15	N	3	24	80	None	3 - 5	SW	Hoary Bat	1875-180817-T05-01	55	F	525898	4768549	26	315	F	12	Broken left wing	Bare soil	1
22-Aug-17	T01	8:31	8:51	N	4	23	100	Rain	3 - 6	SW	Silver-haired Bat	1875-220817-T01-01	40	м	523268	4770008	35	345	E	30	None apparent	Bare soil	1
22-Aug-17	т03	9:29	9:49	N	4	23	100	Rain	3 - 6	SW	Silver-haired Bat	1875-220817-T03-01	40	м	523925	4769908	47	80	м	50	Laceration to head	Bare soil	1
22-Aug-17	T05	10:33	10:53	N	4	23	100	Rain	3 - 6	SW	Big Brown Bat	1875-220817-T05-01	44	F	525922	4768540	<1	50	F	8	None apparent	Gravel	1
25-Aug-17	T01	8:56	9:16	N	3	21	10	None	1	N	Hoary Bat	1875-250817-T01-01	55	U	523303	4770021	43	30	F	8	None apparent	Bare soil	1
25-Aug-17	T08	12:42	13:07	N	3	21	10	None	1	N	Eastern Red Bat	1875-250817-T08-01	42	U	527128	4768871	13	60	E	34	None apparent	Gravel	1
25-Aug-17	т09	13:15	13:35	N	3	21	10	None	1	N	Eastern Red Bat	1875-250817-T09-01	42	F	527443	4768912	26	175	F	14	None apparent	Bare soil	1
1-Sep-17	T01	8:44	9:04	N	3	18	70	None	1 - 3	NE	Eastern Red Bat	1875-010917-T01-01	40	F	523281	4769962	21	180	F	8	Laceration to back	Bare soil	1
1-Sep-17	T01	8:44	9:04	N	3	18	70	None	1 - 3	NE	Silver-haired Bat	1875-010917-T01-02	39	м	523293	4769993	17	50	F	11	None apparent	Bare soil	1
1-Sep-17	T01	8:44	9:04	N	3	18	70	None	1 - 3	NE	Eastern Red Bat	1875-010917-T01-03	40	F	523243	4770012	49	320	E	34	Laceration to back	Bare soil	1
1-Sep-17	т06	11:40	12:00	N	3	18	70	None	1 - 3	NE	Big Brown Bat	1875-010917-T06-01	44	F	526625	4770311	48	240	F	11	None apparent	Bare soil	1
1-Sep-17	T07	12:19	12:39	N	3	18	70	None	1 - 3	NE	Silver-haired Bat	1875-010917-T07-01	39	м	526954	4770267	46	225	F	12	None apparent	Bare soil	1
1-Sep-17	T08	12:58	13:18	N	3	18	70	None	1 - 3	NE	Silver-haired Bat	1875-010917-T08-01	40	F	527072	4768861	39	270	E	34	None apparent	Bare soil	1
5-Sep-17	T02	9:11	9:31	N	4	20	80	Rain/Fog	2 - 4	w	Silver-haired Bat	1875-050917-T02-01	44	F	523818	4770201	26	140	F	10	None apparent	Bare soil	1
5-Sep-17	T04	10:24	10:44	N	4	20	80	Rain/Fog	2 - 4	w	Silver-haired Bat	1875-050917-T04-01	41	м	525561	4768596	30	90	F	10	None apparent	Gravel	1
8-Sep-17	T01	8:51	9:11	N	3	15	80	Rain	2	NW	Silver-haired Bat	1875-080917-T01-01	41	м	523298	4769966	23	120	E	30	None apparent	Bare soil	1
12-Sep-17	T04	10:19	10:39	N	4	24	10	None	0 - 1	s	Silver-haired Bat	1875-120917-T04-01	40	F	525499	4768615	32	305	F	10	None apparent	Bare soil	1
12-Sep-17	T04	10:19	10:39	N	4	24	10	None	0 - 1	s	Silver-haired Bat	1875-120917-T04-02	39	U	525534	4768569	35	185	E	30	None apparent	Bare soil	1
12-Sep-17	T05	11:09	11:29	N	4	24	10	None	0 - 1	s	Silver-haired Bat	1875-120917-T05-01	39	м	525896	4768528	25	275	F	10	None apparent	Bare soil	1
19-Sep-17	T05	10:42	11:02	N	4	27	70	None	0 - 1	SE	Hoary Bat	1875-190917-T05-01	52	F	525895	4768547	25	300	E	30	Laceration to back	Bare soil	1
19-Sep-17	т09	13:06	13:26	N	4	27	70	None	0 - 1	SE	Silver-haired Bat	1875-190917-T09-01	41	F	527416	4768961	33	320	E	30	None apparent	Bare soil	1
26-Sep-17	T04	8:54	9:14	N	4	31	10	None	0 - 1	SW	Silver-haired Bat	1875-260917-T04-01	40	U	525553	4768619	21	60	E	30	Laceration to abdomen	Bare soil	1
3-Oct-17	T04	10:30	10:50	N	4	27	10	Fog	2 - 4	s	Silver-haired Bat	1875-031017-T04-01	41	м	525496	4768624	43	310	F	10	Laceration to abdomen	Bare soil	1
6-Oct-17	T05	9:19	9:39	N	3	16	90	Rain	0	NW	Silver-haired Bat	1875-061017-T05-01	40	м	525935	4768555	21	40	м	55	Laceration to back	Bare soil	1
6-Oct-17	T08	10:50	11:10	N	3	16	90	Rain	0	NW	Silver-haired Bat	1875-061017-T08-01	42	F	527131	4768855	26	125	E	30	None apparent	Bare soil	1
6-Oct-17	T09	11:19	11:39	N	3	16	90	Rain	0	NW	Hoary Bat	1875-061017-T09-01	55	F	527443	4768913	24	170	F	10	None apparent	Bare soil	1
17-Oct-17	T01	8:46	9:06	N	4	18	20	None	3 - 5	w	Hoary Bat	1875-171017-T01-01	55	м	523292	4770017	42	20	F	10	Broken right wing; laceration to back	Bare soil	1

Appendix VI Locations of Bird and Bat Mortalities



Path: X:\1875\_GunnsHillWindFarm\NRSI\_1875A\_AppendixVI\_TurbineMortalities\_1K\_2018\_01\_09\_LEH.mxd









Path: X:\1875\_GunnsHillWindFarm\NRSI\_1875A\_AppendixVI\_TurbineMortalities\_1K\_2018\_01\_09\_LEH.mxd







Path: X:\1875\_GunnsHillWindFarm\NRSI\_1875A\_AppendixVI\_TurbineMortalities\_1K\_2018\_01\_09\_LEH.mxd





Appendix VII Visibility Class Mapping



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Page  $\int_{-\infty}^{-\infty}$  of  $\underline{3}$ 

Project Name: Gunn's Hill Pro

Project #: <u>1875</u>A Turbine #: <u>0</u>]







VISIBILITY CLASSES		
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall	
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall	
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall	
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall	
Not Searchable	Dense shrubs, woods, or other unsearchable habitats	*********

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Page 2 of 3

#### **Visibility Class Map** Project Name: Gunn's Hill Project #: 1875A Turbine #: 02 Date (DD/MM/YY): 03/ 10/17 Photo Numbers (from turbine base) Photo Numbers (from turbine base) Date (DD/MM/YY): 05/09/17 <u>2418</u> 2419 Facing North: Facing North: 2258 Facing East: Facing East: 1750 Observer: Shelby A Observer: Shelby H. Henry A 2420 Facing South: Facing South: 2260 Facing West: 2421 Facing West: 2261 Monthly/Seasonal (sketch habitat and visibility classes) (sketch habitat and visibility classes) Monthly/Seasonal Ν Ν Linear Transect Width: Linear Transect Width: 358 158° Tm 7m bare ground moun bare ground 50m 3dm 20m 40m 50m 30m 20m 40m ~25m 25W ivcl gravel access road ground - VCI gravel access road. around bare Joa 7m General Habitat Description: 148farmbnd, wooded to NENW 142 General Habitat Description: farmland, wooded NE, NW 148

VISIBILIT I CLASSES	
Class 1 ≥ 90% bare ground; vegetation ≤ 15cm tall	
Class 2 $\geq$ 25% bare ground; vegetation $\leq$ 15cm tall	
Class 3 ≤ 25% bare ground; less than 25% of veg. > 30cm tall	
Class 4 Little or no bare ground; more than 25% of veg. > 30cm tall	
Not Searchable Dense shrubs, woods, or other unsearchable habitats	



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Page 1 of 3

Project #: <u>1875</u>A Turbine #: <u>03</u>



Page 2 of 3

Project Name: Gunn's Hill

Project #: <u>1875A</u> Turbine #: <u>03</u>




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Dense shrubs, woods, or other unsearchable habitats

Class 4 Not Searchable Little or no bare ground; more than 25% of veg. > 30cm tall



· · · ·	
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats



Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

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Project #: 1815A Turbine #: 05 Project Name: Gunn's Hill Date (DD/MM/YY): 04/08/17 Photo Numbers (from turbine base) Facing North: \_\_\_\_2036\_\_\_ Photo Numbers (from turbine base) Date (DD/MM/YY): 01/07/14 Facing North: 1772 2037 Facing East: 1773 Facing East: Observer: Shelby H. Henry A. Observer: Shelby H. Henry A Facing South: 1774 Facing South: 1775 Facing West: Facing West: 2039 Monthly/Seasonal (sketch habitat and visibility classes) (sketch habitat and visibility classes) Ν Monthly/Seasonal 弦Linear Transect Width: \_\_\_う Linear Transect Width m 24/0 346 360 TM. JM VCI grave access roa MSM ~15m-VCI-arave road access Sm bare ground Jonnyg 50m 40m 3dm 20m 5Qm 30m 40m 20m mound Yoor' General Habitat Description: Com field, hedgerow Corn field, hedgerow

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

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Project Name: Gunn's Hill

Project #: <u>1875A</u> Turbine #: <u>05</u>



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats



Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	$\geq$ 25% bare ground; vegetation $\leq$ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats



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Little or no bare ground; more than 25% of veg. > 30cm tall Dense shrubs, woods, or other unsearchable habitats

Class 4

Not Searchable

Project Name: Gunn's Hill

Project #: <u>1875</u> Turbine #: <u>06</u>



Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall	
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall	
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall	
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall	
Not Searchable	Dense shrubs, woods, or other unsearchable habitats	
		***************************************

#### Visibility Class Map Project #: <u>18757</u> Turbine #: <u><u></u> Degree of Slope <u>2</u> degrees Slope Orientation <u>SW</u> (e.g. SSW)</u> Project Name: Gunn's Hill Photo Numbers (from turbine base) Facing North: \_\_/583,\_\_ Date (DD/MM/YY): 02/06/17 Photo Numbers (from turbine base) Date (DD/MM/YY): 09/05/17 1435 Facing North: Facing North: Facing East: Facing East: 1584 1436 Observer: Shelby H. Karl H Observer: Shellar H. Henry A. Facing South: Facing South: 85 1437 Facing West: Facing West: 1438 1586 Monthly/Seasonal (sketch habitat and visibility classes) (sketch habitat and visibility classes) Ν Monthly/Seasonal Ν Linear Transect Width: 5 Linear Transect Width: \_ 🕤 m 330° 330 320° 55 VCI gravel access road 5N NCI gravel access road 1/200 44.05 bore ground bare dround ЪM 50m 3dm 20m 40m 5Qm 30m 40m 20m + soil mounds from the General Habitat Description: General Habitat Description: farmland dramage work tarmland, hedgerow N VISIBILITY CLASSES

Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Project Name: Gunn's Hill Project #: 1875A Turbine #: \_\_\_\_\_ Date (DD/MM/YY): 03/ 10/ 17 Photo Numbers (from turbine base)Facing North:2445Facing East:2446Facing South:2447 Photo Numbers (from turbine base) Date (DD/MM/YY): <u>12 / 09 / 17</u> 2323 Facing North: Facing East: Observer: Shelby H. Henry A. Observer: Shelby H. Henry A. Facing South: <u>2325</u> Facing West: 2446 Facing West: 2326 Monthly/Seasonal (sketch habitat and visibility classes) (sketch habitat and visibility classes) Ν Monthly/Seasonal Ν Linear Transect Width: 5 Linear Transect Width: 5 330° 330° 32° 320° 5M SM VCT VCI gravet access road grave access road 1/10 110 pare ground 8m 50m 3dm 20m 40m 50m 30m 20m bare ground 40m baire ground bare ground General Habitat Description: soy Dean fields, hedgerow N General Habitat Description: scybean fields, hedgerow N

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats



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Dense shrubs, woods, or other unsearchable habitats

Not Searchable

Project Name: Guno's Hill Project

Project #: <u>18757</u> Turbine #: <u>08</u>



Project Name: Gunn's Hill

Project #: <u>1875A</u> Turbine #: <u>08</u>



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats



Little of no bare ground, more than 25% of veg. > 30cm tail
Dense shrubs, woods, or other unsearchable habitats

Not Searchable

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VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Project Name: Gunvis Hill

Project #: 1875A Turbine #: 09\_\_\_



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats





