

**Post-construction Monitoring Study for the  
Timber Road Wind Farm  
Paulding County, Ohio**

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**Year 3 Draft Report**

**April 1 – May 15 and August 1 – October 15, 2022**



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## **EXECUTIVE SUMMARY**

Paulding Wind Farm II-IV, LLCs, are operating the Timber Road Wind Farm II-IV (collectively, Timber Road Wind Farm [TRWF or Project]). This report details the post-construction monitoring study conducted in 2022, consistent with the Project's Habitat Conservation Plan (HCP) and Incidental Take Permit (ITP; TE68782D) for Indiana and northern long-eared bats (Covered Species). Turbines were operated to feather turbine blades under increased cut-in speeds during spring and fall migration and under manufacturer's cut-in speed during summer per the Project's HCP.

Post-construction fatality monitoring was completed in accordance with the study plan, which was approved by the US Fish and Wildlife Service on March 18, 2022. The study plan was designed to achieve a 25% probability of detecting a single bat carcass ( $g$  of 0.25) for the 134 wind turbines at TRWF (i.e., a study-wide  $g$ ). The overall goal of this post-construction fatality monitoring study was to generate reliable fatality estimates for the Covered Species and to evaluate compliance with the incidental take authorization granted under the Project's ITP. More specifically, the objectives of this study were to estimate take for the Covered Species using the Evidence of Absence (EoA) framework as outlined in the HCP and to determine if adaptive management was necessary to maintain compliance with the Project's ITP.

Standardized carcass searches for bat carcasses were completed at three plot types: 70-m cleared plots, 70-m uncleared plots, and 100-m road and pads. Searches were conducted by two types of searchers: technician and dog-handler team (consisting of one dog trained to detect carcasses and one handler). The frequency of searches varied across seasons, with more searches occurring when take of Covered Species was considered more likely to occur. Searcher efficiency and carcass persistence trials were also conducted during each season to correct for detection and scavenger bias.

No Covered Species were found at the Project. Six hundred seventy bats were found during the study. One tricolored bat, a state-listed endangered species and a proposed federally listed endangered species<sup>1</sup>, was found at the Project on August 12, 2022. One little brown bat, a state-listed endangered species, was found at the Project on September 16, 2022. The most commonly found bat species were the silver-haired bat (41.6%), the eastern red bat (32.2%), the hoary bat (14.2%), and the big brown bat (11.3%). Species composition recorded at the Project was similar to previous studies at the Project and other wind facilities in Ohio and Indiana. One hundred twenty bird carcasses were recorded; no federally or state-listed birds were found.

The  $g$  was 0.25 (90% confidence interval: 0.24–0.26). Based on the data collected to date (2020-2022), the EoA model estimated the mean annual fatality rates were 2.01 Indiana bats and 0.67 northern long-eared bats. The probability that the annual take rate exceeded the expected annual

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<sup>1</sup> The U.S. Fish and Wildlife Service announced the proposed listing of the tricolored bat on September 13, 2022, under the Endangered Species Act.

take rate was zero for Indiana bat and 0.05 for northern long-eared bat. The cumulative take estimates through 2022 were four Indiana bat fatalities and zero northern long-eared bat fatalities. The estimated levels of Indiana bat and northern long-eared bat take were below levels authorized within the ITP. No adaptive management actions are necessary at this time.

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## **REPORT REFERENCE**

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## INTRODUCTION

Paulding Wind Farm II-IV, LLCs, subsidiaries of EDP Renewables North America, LLC (EDPR), are operating the Timber Road Wind Farm II-IV (TRWF or Project) in Paulding County, Ohio. EDPR obtained an Incidental Take Permit (ITP; TE68782D-0, dated May 8, 2020) for the federally listed endangered Indiana bat (*Myotis sodalis*) and the federally listed endangered<sup>2</sup> northern long-eared bat (*M. septentrionalis*; hereafter Covered Species) from the US Fish and Wildlife Service (USFWS). The Project has completed one fall-only season (August 1 – October 15, 2020) and one full season (April 1 – May 15 and August 1 – October 15, 2021) of compliance monitoring. This report presents the results of the third year of compliance monitoring conducted under the ITP from April 1 to May 15 and August 1 to October 15, 2022. The objectives of this study were to estimate take of the Covered Species using the Evidence of Absence (EoA) framework as outlined in the Habitat Conservation Plan (HCP) and determine if adaptive management was necessary to maintain compliance with the Project’s ITP.

## STUDY AREA

The primary land cover type within 100 meters (m; 328 feet [ft]) of the turbines (i.e., within the Permit Area) is cultivated crops, which covers 99.7% of the Permit Area. All other land cover types collectively make up less than 1% of the total land cover (Figure 1; National Land Cover Database 2019). Three phases/wind farms make up the TRWF. Turbine capacities within the TRWF range from 1.8 megawatts (MW) to 4.2 MW, with hub heights ranging from 93 to 105 m; (305 to 345 ft), and rotor diameters ranging from 100 to 150 m (328 to 492 ft; Table 1). TRWF-II became operational in 2012, TRWF-III became operational in 2017, and TRWF-IV became operational in 2020. All turbines are within the migratory range of the Covered Species, and EDPR adjusted turbine operations during the spring and fall migration periods to minimize impacts to the Covered Species (Table 2). Additionally, EDPR adjusted turbine operations for all TRWF-IV turbines by raising the cut-in speed to 6.9 m/second (22.6 ft/second) September 1 –15, 2022, per the Ohio Power Siting Board (OPSB) required Project Mitigation Plan (Timber Road Wind Farm 2021; Table 2).

**Table 1. Phases, turbines, and operational dates of the Timber Road Wind Farm, Paulding County, Ohio.**

| Phase | Turbine Type       | Number of Turbines | Commercial Operational Date | Hub Height (m) | Blade Length (m) |
|-------|--------------------|--------------------|-----------------------------|----------------|------------------|
| II    | Vestas V100 1.8 MW | 55                 | 2012                        | 95             | 50               |
| III   | Gamesa G114 2.1 MW | 48                 | 2017                        | 93             | 57               |
| IV    | Vestas V150 4.2 MW | 24                 | 2020                        | 105            | 75               |
|       | Vestas V136 3.6 MW | 7                  | 2020                        | 105            | 68               |

m = meter, MW = megawatt.

<sup>2</sup> The northern long-eared bat was listed as threatened when the ITP was received. Its status will change to endangered as of March 31, 2023.



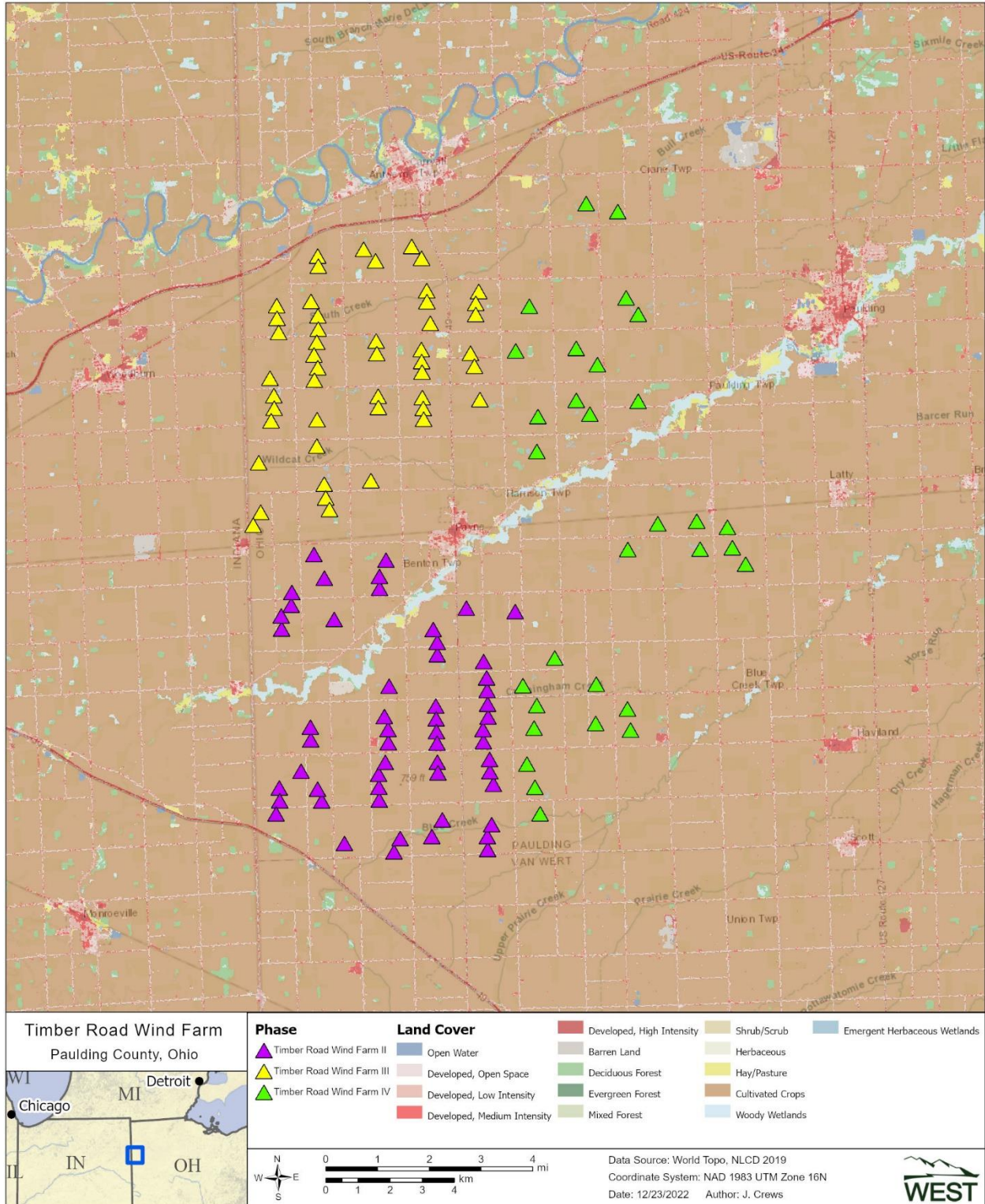


Figure 1. Turbine locations by phase and surrounding land cover at the Timber Road Wind Farm, Paulding County, Ohio.

**Table 2. Seasonal turbine operations regime at the Timber Road Wind Farm, Paulding County, Ohio.**

| <b>Season</b>                                      | <b>Turbines</b> | <b>Time of Day</b>                               | <b>Cut-In Speed (m/s)</b> | <b>Feathering Below Cut-In<sup>1</sup>?</b> | <b>Temperature Threshold<sup>2</sup></b> |
|----------------------------------------------------|-----------------|--------------------------------------------------|---------------------------|---------------------------------------------|------------------------------------------|
| Spring<br>(April 1 – May 15)                       | All             | 0.5 hour before sunset to 0.5 hour after sunrise | 3.5                       | Yes                                         | 10 °C                                    |
| Summer<br>(May 16 – July 31)                       | All             | 0.5 hour before sunset to 0.5 hour after sunrise | 3.0                       | Yes                                         | None                                     |
| Fall<br>(August 1 – October 15)                    | II, III         | 0.5 hour before sunset to 0.5 hour after sunrise | 5.0                       | Yes                                         | 10 °C                                    |
| Fall (August 1 – 31;<br>September 16 – October 15) | IV              | 0.5 hour before sunset to 0.5 hour after sunrise | 5.0                       | Yes                                         | 10 °C                                    |
| Fall<br>(September 1 – 15) <sup>4</sup>            | IV              | 0.5 hour before sunset to 0.5 hour after sunrise | 6.9                       | Yes                                         | 10 °C                                    |
| Winter<br>(October 16 – March 31)                  | All             | Normal turbine operation <sup>3</sup>            |                           |                                             |                                          |

<sup>1</sup> Feathering means that turbine blades will be pitched into the wind such that they spin at less than one rotation per minute.

<sup>2</sup> Turbines will be feathered below cut-in when temperatures are above the threshold of 10 degrees Celsius. In practice, the Project feathered on all nights regardless of temperature.

<sup>3</sup> The manufacturer's cut-in wind speed is 3.0 meters/second (m/s; 9.8 feet/second) across the Project turbines.

<sup>4</sup> Per Ohio Power Siting Board required Project Mitigation Plan.

## **METHODS**

WEST used Project-specific data from previous post-construction monitoring studies at the Project to develop a study plan that targeted a *g* of 0.25 (Matteson et al. 2022) to meet the monitoring commitments in the HCP. WEST submitted a study plan to EDPR on March 3, 2022, and received approval from the USFWS on March 18, 2022 (K. Lott, USFWS, pers. comm.).

### **Standardized Carcass Searches**

#### *Number of Turbines Sampled, Search Frequency, and Plot Size*

Technicians and dog-handler teams conducted standardized carcass searches from April 1 – May 15 and August 1 – October 15, 2022. Search effort varied by season and was designed to maximize effort when the greatest number of Covered Species were expected to occur (Table 3).

In Spring, a technician searched the gravel road and pad areas (road and pad plots) under all 134 turbines to a distance of 100 m from the turbine, on a once weekly search interval (Figure 3).

During the fall, search interval varied by searcher type with technicians searching more turbines at a lower frequency compared to detection dog-handlers (Table 3). A technician searched 86 turbines as 100-m road and pads (Figure 3) and dog-handler teams searched 48 turbines within a 70-m radius of the turbine as either a cleared plot (Figure 4) or uncleared plot (Figure 5). When a turbine search fell outside of the designated search interval (due to maintenance, weather, or other extenuating circumstances) it was given priority and searched as soon as possible.

Corn (*Zea mays*) and other vegetation (e.g., grasses) was to be cut within the 70-m (230 ft) search radius on cleared plots prior to the start of surveys, and, thereafter, maintained as needed to keep vegetation heights low and preserve optimum visibility on the plots. A cross pattern, approximately 1.5-m (4.9-ft) wide, was to be mowed into the soy (*Glycine max*) within the 70-m uncleared plots prior to the start of surveys to aid in detection of bat carcasses by the detection-dog teams. Prior to the start of fall carcass searches, corn stalks were more than 2.0 m (6.6 ft) in height and soy fields were 0.5 m (1.6 ft) in height.

Mowing occurred on most of the 70-m plots prior to the start of surveys and again periodically throughout the fall season. Logistical constraints and plot conditions (e.g., standing water) prevented or delayed mowing that had been planned for 70-m cleared plots at turbines 209, 211, 410, 421, 424, and 426. For the first few surveys, the 70-m cleared plots at turbines 209, 211, 410, 424, and 426 had not been completely mowed and consisted of standing corn, tall corn stubble, mixed grasses/weeds, soy or a combination of crop types and vegetation until they were mowed later in the fall season.

The cross pattern was mowed into all uncleared soy plots, with the exception of Turbine 421. Turbine 421 was not mowed at any point during the fall season due to land access issues, and was, therefore, treated as an uncleared 70-m plot for the duration of the study and for analysis purposes. This resulted in one fewer 70-m cleared plot and one more 70-m uncleared plot than what was in the approved study plan (Table 3).

**Table 3. Search effort by season and plot type at the Timber Road Wind Farm, Paulding County, Ohio.**

| <b>Season</b>                 | <b>Plot Type</b>    | <b>Search Interval</b> | <b>Number of Turbines</b> | <b>Search Team</b> |
|-------------------------------|---------------------|------------------------|---------------------------|--------------------|
| Spring (April 1–May 15)       | 100-m road and pad  | 7.0 days               | 134                       | Technician         |
| Fall<br>(August 1–October 15) | 100-m road and pad  | 7.0 days               | 86                        | Technician         |
|                               | 70-m cleared plot   | 3.5 days               | 27                        | Dog-handler        |
|                               | 70-m uncleared plot | 3.5 days               | 21                        | Dog-handler        |

m = meters.

### *Search Methods*

WEST used two types of search methods: a technician, or human-only visual search, and a dog-handler team, or olfactory search, where the team consisted of one technician/handler and one dog. All personnel were trained to follow the Project’s study plan, including proper handling and reporting of carcasses. Carcass searches were conducted during the day, beginning as early as first light.



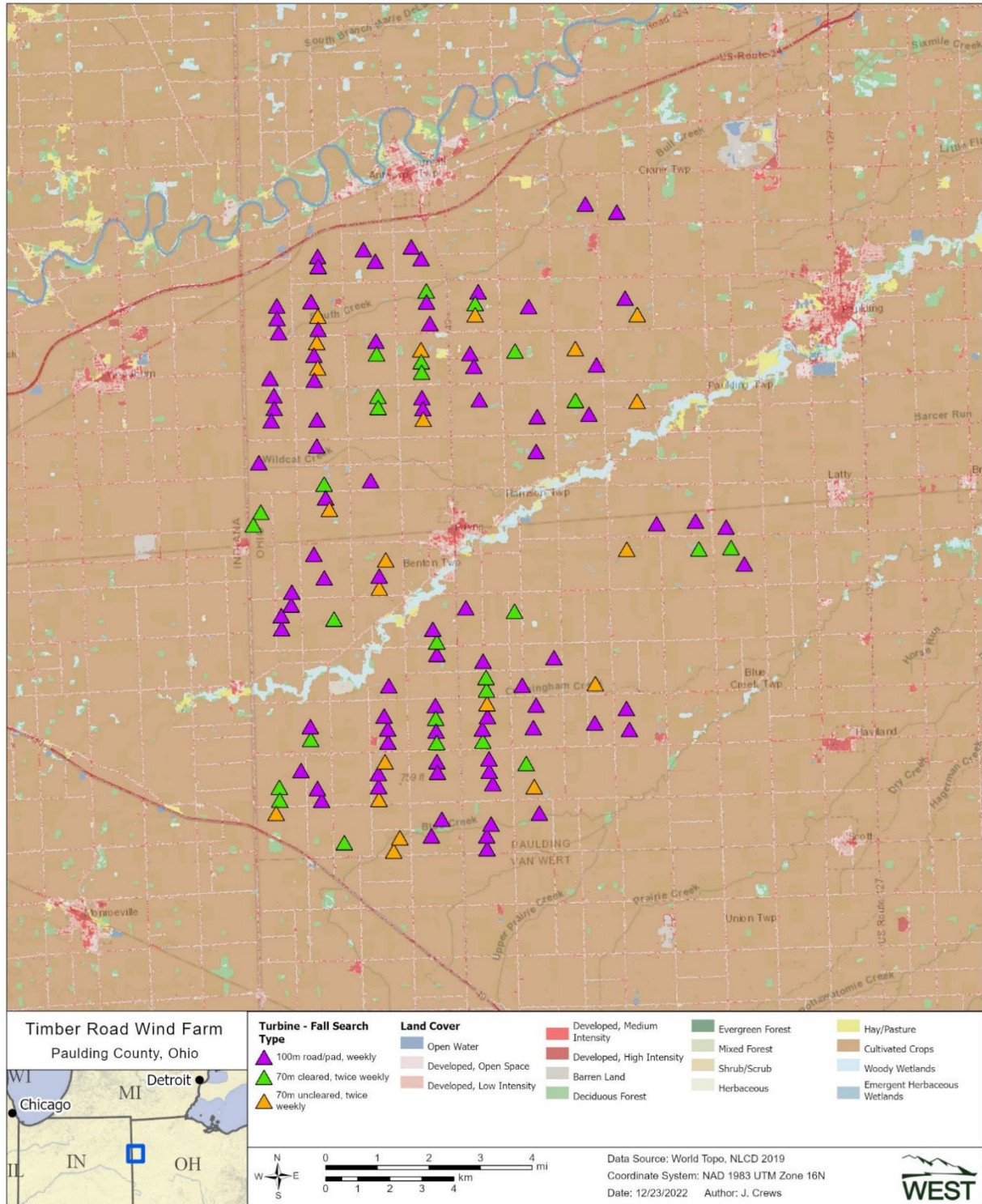


Figure 2. Turbine locations, fall turbine plot types and search intervals, and surrounding land cover at the Timber Road Wind Farm, Paulding County, Ohio. During spring monitoring, all 134 turbines were searched as 100-meter road and pads.

Road and Pad Searches – Technician Searches

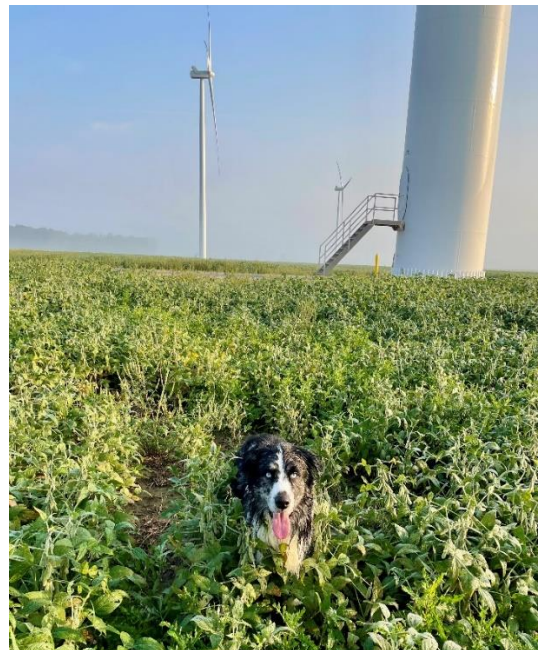
Technicians walked transects spaced five m (16 ft) apart at a rate of approximately 45–60 m per minute (m/min; 148–197 ft/min) on all gravel road and pad areas within 100 m of the turbine. The technicians scanned the area for fatalities on both sides of the transects out to approximately 2.5 m (8.2 ft) to ensure full visual coverage of each search area. Technician searches were only conducted on road and pad plots.



**Figure 3.** Representative photo of conditions on a 100-meter road and pad plot at the Timber Road Wind Farm, Paulding County, Ohio.



**Figure 4.** Representative photo of vegetation conditions in a 70-meter cleared plot at the Timber Road Wind Farm, Paulding County, Ohio.



**Figure 5.** Representative photo of vegetation conditions in a 70-meter uncleared plot at the Timber Road Wind Farm, Paulding County, Ohio.



### Plot Searches – Dog-handler Team

Dog-handler teams searched 70-m cleared and 70-m uncleared plots for carcasses. Prior to each search, handlers determined the survey start points and the number of transects needed to cover the plot after taking into account wind speed and direction, as well as crop row direction and density (when applicable). Handlers oriented the detection dog to start searches perpendicular to the wind to maximize scent detection. Both windspeed and crop density can affect dispersal of the target odor (i.e., bat carcasses) across the search area. To maximize detection rates during an olfactory search, transect width varied with vegetation density, ranging from five to 10 m (16 to 33 ft) apart in densely vegetated areas, to 10–15 m (33–49 ft) in shorter vegetation. Detection dogs were rewarded with either a food reward or a short play session when they correctly alerted to a bird or bat carcass.

### Dog-handler Team Evaluation

Detection dogs were considered candidates for carcass searches if they met temperament, basic obedience, ability to detect bird and/or bat carcasses requirements. Temperament characteristics that are sought after are high-energy dogs, with a high-food or toy drive. Prior to conducting searches at the Project, handlers trained their detection dogs on the scent of bat carcasses following methods derived from search and rescue programs and drug detection (Kay 2012, Helfers 2017). Dogs were initially trained on cotton scent swabs that had been rubbed on or stored in a container with bat carcasses and progressed to bat carcasses at increasing distances over a period of three to four weeks. Once the dog achieved a passing grade of 80% or higher in a scent recognition test, consisting of 10 blind trial lineups using bat carcasses, the dog and handler were evaluated in the field to measure their performance. The detection dog coordinator conducted a 2-day field evaluation of each dog-handler team; after teams achieved a searcher efficiency of 75% or greater for 15–30 bats during evaluation trials, the teams were approved to conduct standardized carcass searches. Because the objective of the study was to document bat carcasses, dogs were not explicitly trained on native bird carcasses; however, all detection dogs alerted on birds in the field, and handlers rewarded bird finds in the field to encourage future alerts to bird carcasses. Breeds used at Project as detection dogs included a Belgian malinois, a chocolate Labrador retriever, and two border collies.

### *Data Collection*

Technicians recorded the date, start and end times, technician name, turbine number, type of search and if any carcasses were found for each scheduled search. When a carcass was found, technicians placed a flag near it and continued the search. After searching the entire plot, the technician returned to record information for each carcass on a carcass information sheet, including the date and time, species, sex and age (when possible), technician name, turbine number, measured distance from turbine, azimuth from turbine, location of carcass using a geographic coordinate system (latitude and longitude), habitat surrounding carcass, carcass condition (e.g., intact, scavenged, dismembered), and estimated time of death (e.g., less than one day, two to three days).

The condition of each carcass found was recorded using the following categories:

- Intact—a carcass that is complete, not badly decomposed, and shows no sign of being fed upon by a predator or scavenger.
- Scavenged—an entire carcass that shows signs of being fed upon by a predator or scavenger, or a portion(s) of a carcass in one location (e.g., wings, skeletal remains, portion of a carcass), or a carcass that has been heavily infested by insects.
- Dismembered—a carcass found in multiple pieces distributed more than 1.0 m (3.3 ft) apart from one another due to scavenging or other reasons.
- Injured—a bat or bird found alive.

For bird carcasses, the following category was also used:

- Feather spot—10 or more feathers (excluding down), or two or more primary feathers at one location indicating predation or scavenging of a bird carcass.

Technicians took digital photographs of each fatality, including any visible injuries, and surrounding habitat. No bird carcasses were collected, but a marker was placed next to each bird carcass to avoid duplicate counting. Bat carcasses were collected under the Project's ITP (TE68782D-0), WEST's Federal Native Endangered and Threatened Species Recovery Permit (TE234121-9), and WEST's State Scientific Collection Permit (SC210040). Technicians placed all bat carcasses in a re-sealable plastic bag labeled with the unique carcass identification number, turbine number, and date, for storage in a freezer on site. Leather gloves covered by nitrile or latex gloves were used to handle all bat carcasses to eliminate possible transmission of rabies or other zoonotic diseases, and to reduce possible human scent bias on any carcasses used later in bias trials. Live, injured bats were recorded and considered fatalities for analysis purposes when observed in search areas, and were handled in accordance with permit conditions (left in place).

Carcasses found in non-search areas (e.g., outside of a plot boundary) or outside of the scheduled study period were recorded as incidental discoveries and documented following the same protocol for those found during standard searches, but were not included in the analysis.

#### *Carcass Identification and Agency Notification*

Identification of bird carcasses was verified by biologists with significant field experience in identification of birds and their feathers. The USFWS and the ODNR were notified within 24 hours of positive identification of any state- or federally listed species. A permitted bat biologist (TE62046D-0) verified the identifications of all bat carcasses via photos at the end of the surveys and WEST staff delivered the carcasses to the ODNR District 1 field office in Columbus, Ohio, on October 19, 2022.

Tissue samples were collected from heavily scavenged or decomposed carcasses that could not be positively identified and had potential to be a Covered Species. WEST submitted these samples to a USFWS-approved laboratory, the East Stroudsburg University Wildlife Genetics Institute, for genetic identification.

## **Bias Trials**

### *Searcher Efficiency Trials*

The objective of the searcher efficiency trials was to estimate the probability that a carcass was found by searchers. Searcher efficiency trials were conducted in the same areas where carcass searches occurred. Technicians conducting carcass surveys did not know when searcher efficiency trials were being conducted or the location of the trial carcasses. Trial carcasses consisted of eastern red bats (*Lasiurus borealis*), hoary bats (*L. cinereus*), big brown bats (*Eptesicus fuscus*), an evening bat (*Nycticeius humeralis*), and silver-haired bats (*Lasionycteris noctivagans*) that had previously been found on site or provided by ODNR. One hundred twenty-five bat carcasses were placed across all season and plot types to account for differences in search conditions by plot type and season.

Multiple trials were conducted in each season to measure potential changes in plot conditions on searcher efficiency over time. Each trial carcass was discreetly marked with a black zip-tie around the upper forelimb for identification as a study carcass after it was found. Carcasses were dropped from waist-height or higher and allowed to land in a random posture. The trial administrator walked in a meandering path and dropped trials for detection dogs the day prior to the next search to allow time for the scent to pool and disperse prior to scheduled searches. For technician search trials, the trial administrator placed carcasses prior to the technician searching the plot, either the night before or the morning of searches depending on work schedules. Technicians did not know when the trial administrator placed carcasses.

Technicians and dog-handler teams had one chance to locate trial carcasses during the first search after carcass placement. The number and location of trial carcasses found during the search were recorded, and the number of trial carcasses available for detection was determined immediately after each trial by the person responsible for distributing the carcasses. Following searches, any carcasses that were not detected were checked to confirm availability. Sixty trial carcasses were left in place and used for carcass persistence trials.

### *Carcass Persistence Trials*

The objective of carcass persistence trials was to estimate the average probability a carcass would persist, or be available for detection, in the field, given the search interval. Carcasses could be removed by scavenging or rendered undetectable by typical farming activities. A minimum of 15 trial carcasses were planned in each season and plot type to incorporate the effects of varying weather and scavenger densities on carcass persistence. No more than two trial carcasses were placed on a plot to avoid potential over-seeding and attracting scavengers.



Technicians monitored the 60 trial carcasses over a 30-day period according to the following schedule, as closely as possible. Carcasses were checked daily for the first four days, then on days 7, 10, 14, 20, and 30. Trial carcasses were monitored until they were completely removed or the trial period ended. Dog-handler teams were used on the 70-m cleared and uncleared plots to determine when carcasses were removed, while technicians determined the status of carcasses placed on 100-m road and pads.

### **Search Area Mapping**

The boundaries of 100-m road and pads had been mapped using sub-meter Global Positioning System units in prior monitoring years. Technicians recorded the boundaries of 100-m road and pads and 70-m cleared plots using an Eos sub-meter Global Positioning System unit. Unsearchable areas within plot boundaries were also mapped. The plot boundaries were used to verify if carcasses were found inside the search areas and to inform the distribution of carcasses around turbines to estimate the number of carcasses that fell inside or outside of search areas. A 72-m (236-ft) radius projection was applied to 70-m uncleared plots. The additional 2.0 m was added to the radius to account for the width of the turbine tower.

### **Quality Assurance and Quality Control**

Quality assurance and quality control measures were implemented at all stages of the study, including in the field, during data entry and analysis, and report writing. Following field surveys, technicians were responsible for inspecting data forms for completeness, accuracy, and legibility. Potentially erroneous data were identified using a series of database queries. Irregular codes or data suspected as questionable were discussed with the technician and/or Project Manager. Errors, omissions, or problems identified in later stages of analysis were traced back to the raw data forms, and appropriate changes and measures were implemented. A Microsoft® SQL database was developed to store, organize, and retrieve survey data. All data forms and electronic data files were retained for reference.

### **Statistical Analysis**

The EoA (Dalthorp et al. 2017) modeling framework was used to estimate take of the Covered Species. EoA was used with data collected in the field to estimate the overall probability of detecting a bat fatality, the take rate of Covered Species, and the number of Covered Species carcasses that occurred. Data used in the EoA model included number of Covered Species fatalities, fatality spatial data from all bats found during surveys, the results of searcher efficacy and carcass persistence trials, the seasonal arrival distribution of bats (described below), and the detection reduction factor ( $k$ ; described below).

#### *Searcher Efficiency Estimation*

Searcher efficiency was estimated separately for technicians and dog-handler teams to account for different modes of detection (i.e., technicians use sight, whereas dogs use scent). EoA uses raw searcher efficiency data (e.g., number of found and available trial carcasses) to inform overall probability of detection. However, to determine if searcher efficiency data should be pooled, or separated by strata such as season and/or plot type, we modeled searcher efficiency using

logistic regression. For both technicians and dog-handler team models, model selection was completed using an information theoretic approach known as AICc, or corrected Akaike Information Criterion (Burnham and Anderson 2002). The best model was selected as the most parsimonious model within two AICc units of the model with the lowest AICc value. Searcher efficiency data were input into the EoA software according to the model selection results.

The change in searcher efficiency between successive searches was defined by a parameter called the detection reduction factor ( $k$ ) that can range from zero to one. When  $k$  is zero, it implies a carcass that was missed on the first search would never be found on subsequent searches. A  $k$  of one implies searcher efficiency remained constant no matter how many times a carcass was missed. Huso et al. (2017) estimated a value of  $k = 0.67$  for bats, and this value was used to calculate bat fatality estimates using EoA per the HCP.

#### *Carcass Persistence Rate Estimation*

Data collected during carcass persistence trials were used to estimate the probability carcasses remained available to be located by the searcher, given the search interval (i.e., the time between scheduled searches). The average probability a carcass persisted was estimated using an interval-censored survival regression with four potential distributions: exponential, loglogistic, lognormal, and Weibull distributions (Kalbfleisch and Prentice 2002, Dalthorp et al. 2018). As with searcher efficiency, carcass persistence models were estimated separately by search team (i.e., plots searched by technicians vs. plots searched by dog-handler teams) to account for different modes of detection. Season was included as a potential covariate for the technician model, and plot type was included as a potential covariate for the dog-handler model. The best model was selected as the most parsimonious model within two AICc units of the model with the lowest AICc value. The parameter estimates of the selected model ( $\alpha$  [shape] and  $\beta$  [scale], including the 95% Confidence Interval [CI] of  $\beta$ ) were used as inputs in the EoA Single Class module.

#### *Area Adjustment*

The search area adjustment accounted for unsearched areas beneath turbines, and was calculated as a probability that ranged from zero to one. The area adjustment was estimated as the product of the proportion of searched area around each turbine and a carcass-density distribution. A truncated weighted maximum likelihood (TWL) modeling approach (Khokan et al. 2013) was used to estimate the carcass-density distribution using site-specific fatality locations. The TWL approach uses weights based on probability of detection and the proportion of area searched in each 1.0-m annulus around the turbine. Due to the variation in turbine sizes (hub heights range from 93–105 m and blade lengths range from 50–75 m [164–246 ft]), separate area adjustments were fit for each turbine by blade length (50-m, 57-m, 68-m, and 75-m), which also had a one to one correspondence with turbine type (Table 1). An additional model was fit with area adjustment pooled across all turbines. Distributions considered were normal, gamma, Gompertz, and Weibull (parameterized according to R Development Core Team [2016] and Yee [2010]). The best model was selected using AICc. The proportion of area searched was calculated in a geographic information system as the amount of area searched divided by the total area searched at each 1.0-m annulus around the turbine.

### *Carcasses Excluded from Analysis*

Carcasses were excluded from analysis when the carcass was discovered outside of the spatial and temporal scope of the survey design. For example, carcasses found outside a designated plot were not included in the analysis because the TWL fitting procedure accounts for unsearched areas. Carcasses found prior to the start of surveys (e.g., a carcass found on a plot in the spring that was estimated to have died prior to April 1) were also excluded because the carcass occurred outside of the study period. Note that carcasses found on a plot incidentally (e.g., found by maintenance personnel) were included in the analysis if that plot had a scheduled search in the future, but within the same season. If a fatality of a Covered Species had been found outside of the spatial or temporal scope of the survey design it would still be excluded from the area correction estimate, but would be included in the EoA fatality estimate following Dalthorp et al. (2020).

### *Covered Species Take and Detection Probability Estimates*

EoA was used to estimate the median cumulative take to-date ( $M^*$ ), mean annual take rate ( $\lambda$ ), and evaluate the probability that the estimated take rate ( $\lambda$ ) exceeded the expected take rate ( $\tau$ ) for Covered Species. Estimates were calculated using the EoA method (Dalthorp et al. 2017), using the Single Class, Multiple Class, and Multiple Years modules of EoA.

The  $g$  was estimated using the bias corrections for searcher efficiency, carcass persistence, and area searched, as well as the assumed seasonality of risk for the Covered Species, which per the HCP, was 11% in the spring and 89% in the fall. The seasonal risk is used to weight the contributions of detection probability from different seasons in the overall  $g$  estimate. Differences in the level of turbine operations within (e.g., turbines down for maintenance for extended periods within a season) and across seasons (e.g., reduced summer risk) were also considered and adjustments for variable turbine operations were not needed for this analysis due to a lack of significant turbine downtime during the study period.

The EoA Single Class module was used to estimate the detection probability in each search stratum. This resulted in alpha ( $\alpha$ ) and beta ( $\beta$ ) parameters that defined the beta distribution of detection probability in each stratum. The EoA Multiple Class module was then used to combine detection probability distributions across strata (i.e., 70-m cleared plots, 70-m uncleared plots, and 100-m road and pads), with weights for each class (“DWP” in the software) defined by the within-season sampling fraction. The beta distribution parameters were set to  $Ba = 0.01$  and  $Bb = 1,000$  (a detection probability of  $10^{-5}$ ) for unsearched areas within each stratum. The results from the Multiple Years module ( $Ba$  and  $Bb$  parameters for the detection probability for the permit term to date) were used to estimate  $M^*$  (the median cumulative take over the life of the permit),  $\lambda$  (the underlying annual take rate over the past three monitoring periods and its 90% CI, and the probability that  $\lambda > \tau$ , where  $\tau$  is the authorized take number divided by the number of years in the permit. Appendix D shows how the compliance metrics were calculated using the EoA Graphical User Interface.

Furthermore, the Multiple Years Module was used to estimate the site-wide, cumulative detection probability for the three monitoring periods in 2020–2022. The EoA Multiple Years Module

requires the input  $\rho$ , which weights the years appropriately for combining beta distribution parameters. The value for  $\rho$  was set to 0.89 for 2020 because the ITP was issued in the fall, meaning about 89% of total annual risk was observed in monitoring data from 2020. In 2021 and 2022, the Project was fully operational for all seasons, so  $\rho$  was set to 1.

### *Adaptive Management Triggers*

The estimates from the EoA analysis were used to test two adaptive management triggers: a short-term test of whether the estimated take rate exceeded the expected take rate and a long-term test of whether permitted take had been met (Dalthorp and Huso 2015). Both the short- and long-term triggers were tested individually for each of the Covered Species.

#### Evidence of Absence Short-term Trigger

The EoA short-term trigger is designed as an early warning signal that the Project may be on the path to exceeding permitted take (T) by the end of the permit term. The short-term trigger is designed to determine if an adaptive management response is needed to prevent the cumulative take estimate from actuating a response to the long-term trigger test. The short-term trigger tests if the estimated annual take rate ( $\lambda$ ) exceeded the expected take rate ( $\tau = T \div \text{years in permit}$ ) at a confidence level of  $\alpha = 0.1$ , per the HCP. The Project's short-term trigger is designed to evaluate a rolling window of six years of post-construction monitoring data. If, within any 6-year rolling window, the estimated take rate exceeds the expected take rate with 90% confidence, the short-term trigger would be met, indicating that the minimization plan in the HCP may need to be adjusted to ensure that the median cumulative take estimate ( $M^*$ ) remains within the permitted limit over the ITP term. Data from three monitoring periods were used in this analysis (2020, 2021, and 2022) along with the values of  $\rho$  listed above (0.89, 1.0, 1.0, respectively). Due to limitations with the EoA graphical user interface, for estimates of  $\lambda$  it was necessary to rescale the EoA-produced estimates to represent three full years of operation and monitoring using the sum of these  $\rho$  values. For adaptive management triggers associated with  $\lambda$ , it was necessary to scale the annual rate threshold ( $\tau$ ) to represent the level of risk in the moving average estimate of  $\lambda$ .

#### Evidence of Absence Long-term Trigger

The EoA long-term trigger is designed to test if the cumulative take to date is equal to or greater than the permitted take (T). Per the HCP, cumulative take to date ( $M^*$ ) was estimated at a confidence level of  $\alpha = 0.5$  (using the median, or 50<sup>th</sup> credible bound, of the posterior distribution of estimated mortality). If the cumulative take to date at  $\alpha = 0.5$  is less than the total permitted take ( $M^* < T$ ), then the Project is in compliance with the ITP. If the cumulative take to date at  $\alpha = 0.5$  is greater than or equal to the total permitted take ( $M^* \geq T$ ), then the take limit has been met and the Project must enact avoidance measures.

## RESULTS

### Standardized Carcass Searches

Two thousand seven hundred ninety-one searches were conducted during the spring and fall monitoring seasons; 53 searches (less than 2%) were missed due to turbine maintenance, weather constraints, and/or safety hazards.

One tricolored bat (*Perimyotis subflavus*), a state-endangered species and proposed federally endangered species, was recorded at Turbine 249 on August 12, 2022 (Figure 6). A federally permitted bat biologist verified positive identification of the species via photographs and ODNR was notified by email within 24 hours of positive identification (on August 13, 2022). One little brown bat (*M. lucifugus*), a state-endangered species, was recorded at Turbine 423 on September 16, 2022 (Figure 6). Positive identification was verified by a federally permitted bat biologist and ODNR was notified by email within 24 hours of positive identification (on September 17, 2022). No other federally or state-listed bat species were found.

Six hundred seventy bat carcasses and 120 bird carcasses were found during surveys and incidentally (Appendix A). The most commonly found bat species were the silver-haired bat (279 carcasses; 41.6%) and the eastern red bat (216 carcasses; 32.2%), followed by the hoary bat (95 carcasses; 14.2%) and the big brown bat (76 carcasses; 11.3%). Two evening bats (0.30%), were also found. Seven heavily scavenged bats (e.g., wing membrane only, bones, or partial carcasses) were sent off for identification via deoxyribonucleic acid (DNA) analysis; four were identified as big brown bats, two were identified as silver-haired bats, and one was identified as a hoary bat.

### Statistical Analysis

#### *Bias Trials*

#### Searcher Efficiency Trials

One hundred twenty-five bats were placed for searcher efficiency trials on 14 separate dates, and 110 were available for searchers to find across all plot types and seasons. The best-fit model for searcher efficiency on 100-m road and pads supported the inclusion of season as a covariate, meaning there was a statistically meaningful difference in searcher efficiency between seasons (Table 4, Appendix B1). The best-fit model for searcher efficiency on 70-m plots did not support the inclusion of plot type as a covariate, meaning there was not a statistically meaningful difference between searcher efficiency on uncleared and cleared plots (Table 4, Appendix B2).

**Table 4. Searcher efficiency results by plot type at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| Season | Plot Type                  | Number Placed | Number Available | Number Found | Percent Found |
|--------|----------------------------|---------------|------------------|--------------|---------------|
| Spring | 100-m Road and Pad         | 26            | 26               | 26           | 100.00        |
| Fall   | 100-m Road and Pad         | 31            | 25               | 20           | 80.00         |
|        | 70-m Cleared and Uncleared | 68            | 59               | 38           | 64.41         |

m = meters.



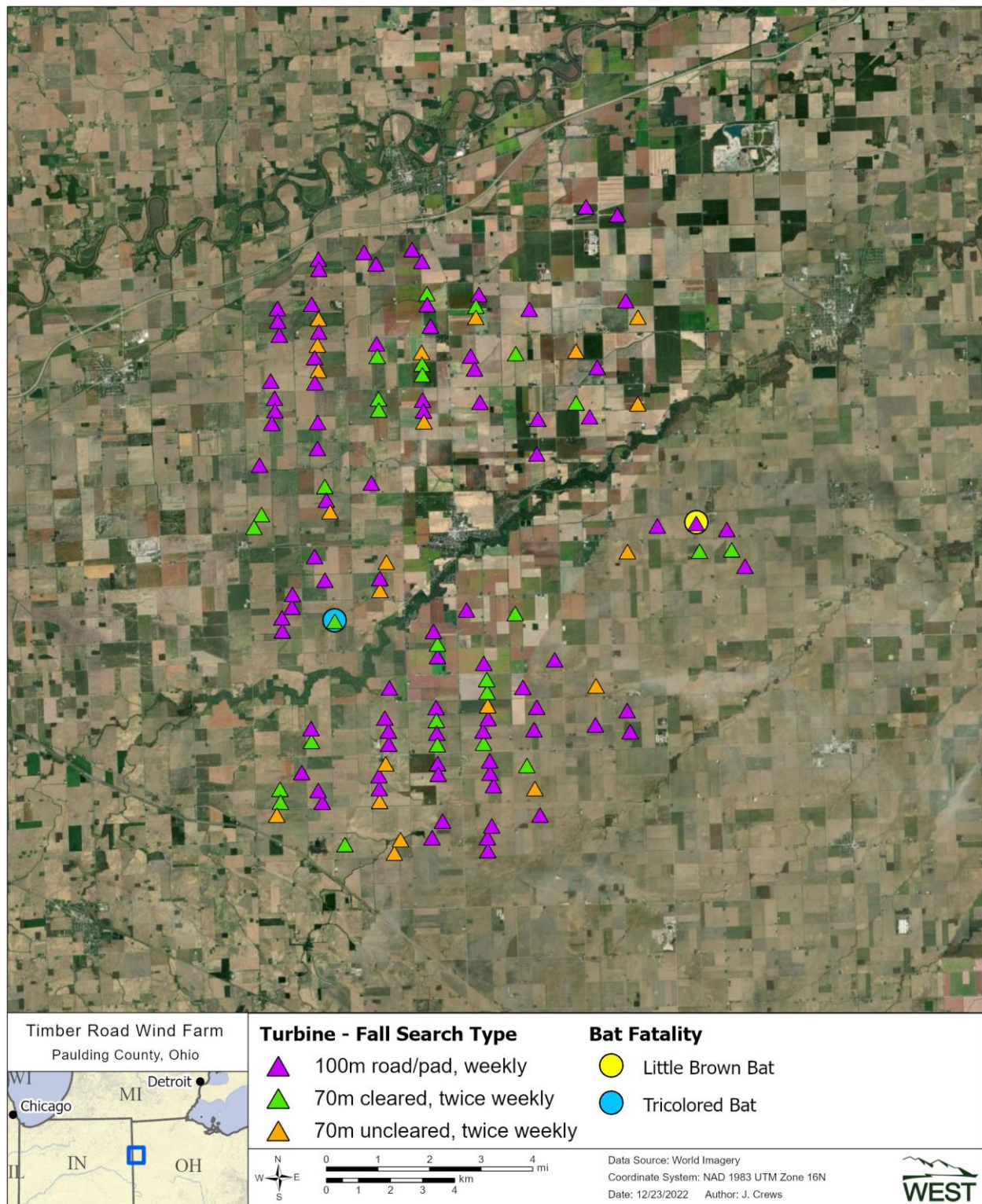


Figure 6. Location of the tricolored bat carcass and the little brown bat carcass that were found during carcass searches (April 1 – May 15 and August 1 – October 15, 2022) at the Timber Road Wind Farm, Paulding County, Ohio.

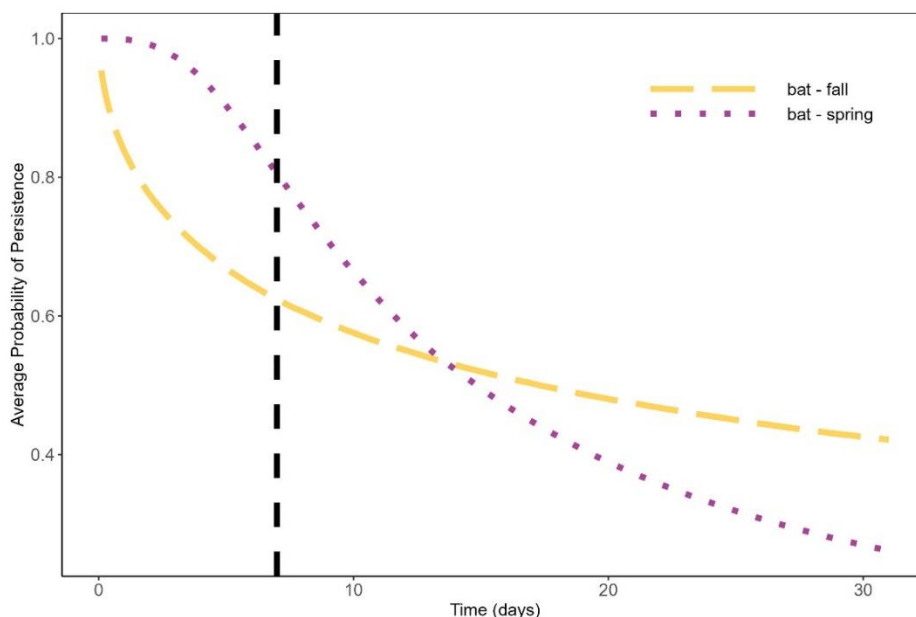
Carcass Persistence Trials

Sixty carcasses were placed to estimate carcass persistence. Thirty carcasses were placed on 100-m road and pad plots, 15 in the spring and 15 in the fall. The best-fit model for carcass persistence on technician-searched (i.e., 100-m road and pad) plots included season as a scale covariate with a loglogistic distribution, which suggests carcass persistence varied by season (Appendix B3). The average probability that a carcass persisted through a 7.0-day search interval was 0.81 (90% CI: 0.71–0.90) in spring and 0.63 (90% CI: 0.57–0.70) in fall on 100-m road and pads. Thirty carcasses were placed to estimate carcass persistence on 70-m plots, 15 on 70-m cleared plots and 15 on 70-m uncleared plots. The best-fit model for carcass persistence on 70-m plots included no covariates with an exponential distribution, which suggests carcass persistence rates did not vary by plot search type (Appendix B4). The average probability that a carcass persisted through a 3.5-day search interval was 0.93 (90% CI: 0.90–0.95) on 70-m plots (Table 5, Figures 7 and 8).

**Table 5. Median carcass persistence probability through the search interval at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

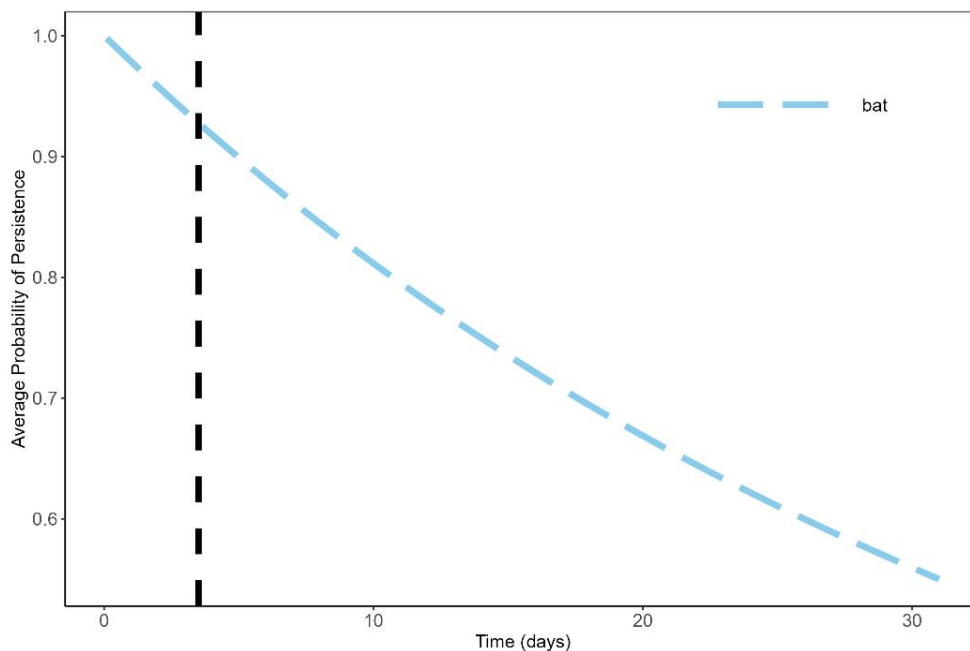
| Season | Plot Type                  | Searcher Type | Search Interval (days) | Median Carcass Persistence Probability | 90% Confidence Interval |
|--------|----------------------------|---------------|------------------------|----------------------------------------|-------------------------|
| Spring | 100-m Road and Pad         | Technician    | 7.0                    | 0.81                                   | 0.71–0.90               |
| Fall   | 100-m Road and Pad         | Technician    | 7.0                    | 0.63                                   | 0.57–0.70               |
|        | 70-m Cleared and Uncleared | Dog-Handler   | 3.5                    | 0.93                                   | 0.90–0.95               |

m = meters.



**Figure 7. The average probability of persistence, in days, for bat carcasses, on 100-meter road and pads at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

Note: The vertical dashed line indicates the 7-day search interval used in this study.



**Figure 8. The average probability of persistence, in days, for bat carcasses, on 70-meter cleared and uncleared plots, at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

Note: The vertical dashed line indicates the 3.5-day search interval used in this study.

### Area Adjustment

Seventy of the 670 bats found during the monitoring season were excluded from modeling the area adjustment for EoA. Eighteen carcasses were excluded from analysis because they were found off plot. Another 52 carcasses were excluded because the estimated times of death were prior to the start of surveys (Appendix C1).

The best-fit model for the distribution of bats with respect to distance from turbine base included blade length as a covariate, suggesting that the distribution of bats varied across turbine types (Appendix C). Therefore, there were multiple TWL adjustments for bats for all plot types. The TWL area adjustment for bats on 100-m road and pads was estimated to range between 0.05–0.19 (Table 6). The TWL area adjustment for bats on 70-m cleared and uncleared plots was estimated to range between 0.76–1.00 (Table 6; Appendix C).



**Table 6. Truncated weighted maximum likelihood search area adjustment estimates by turbine size and plot type for the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| Blade Length (m)* | Plot Type                  | Distribution | Parameter 1 | Parameter 2 | Area Adjustment |
|-------------------|----------------------------|--------------|-------------|-------------|-----------------|
| 50                | 70-m Cleared and Uncleared | normal       | 44.2534     | 16.1923     | 0.93            |
| 50                | 100-m Road and Pad         | normal       | 44.2534     | 16.1923     | 0.05            |
| 57                | 70-m Cleared and Uncleared | Gompertz     | 0.0543      | 0.0020      | 0.76            |
| 57                | 100-m Road and Pad         | Gompertz     | 0.0543      | 0.0020      | 0.08            |
| 68                | 70-m Cleared and Uncleared | Gompertz     | 0.1195      | 0.0004      | 1.00            |
| 68                | 100-m Road and Pad         | Gompertz     | 0.1195      | 0.0004      | 0.06            |
| 75                | 70-m Cleared and Uncleared | Weibull      | 2.1120      | 30.1654     | 1.00            |
| 75                | 100-m Road and Pad         | Weibull      | 2.1120      | 30.1654     | 0.19            |

m = meters.

\* 50-m Blade; n = 238 carcasses; 57-m Blade: n = 222 carcasses; 68-m Blade: n = 50 carcasses; 75-m Blade: n = 90 carcasses.

### Covered Species Take Estimates

No Covered Species carcasses were found during the study. One Indiana bat and zero northern long-eared bats have been found to date under the ITP. The annual probability of detection distribution (*g*) achieved for the 2022 monitoring period had a mean of 0.25 (90% CI: 0.24–0.26; Table 7). Inputs required to run the EoA Single Class module and stratum-specific *g* distribution values and inputs required for the Multiple Class module are described in Appendix D.

**Table 7. Annual probabilities of detection (*g*), *Ba*, *Bb*, and  $\rho$  for the Timber Road Wind Farm, Paulding County, Ohio, from 2020–2022.**

| Year                              | <i>Ba</i> <sup>1</sup> | <i>Bb</i> <sup>1</sup> | $\rho$ <sup>2</sup> | <i>g</i> | 90% CI      |
|-----------------------------------|------------------------|------------------------|---------------------|----------|-------------|
| 2020                              | 323.42                 | 1417.48                | 0.89                | 0.186    | 0.171–0.201 |
| 2021                              | 2632.55                | 5422.38                | 1.00                | 0.327    | 0.318–0.336 |
| 2022                              | 888.45                 | 2,621.54               | 1.00                | 0.253    | 0.241–0.265 |
| Short-term Trigger (Last 3 Years) | 2,694.85               | 7,749.56               | NA                  | 0.258    | 0.251–0.265 |
| Long-term Trigger (Cumulative)    | 2,694.85               | 7,749.56               | NA                  | 0.258    | 0.251–0.265 |

<sup>1</sup> *Ba* and *Bb* are the parameters for the beta distribution used to characterize the probability of detection. The *g* value is the mean of that distribution.

<sup>2</sup>  $\rho$  is the weight in the weighted average that is used to combine the probability of detection distributions across years. CI = confidence interval.

Mean annual take rates based on monitoring from three periods (2020–2022) were estimated to be 2.01 (90% CI: 0.24–5.24) Indiana bats per year and 0.67 (90% CI: 0–2.58) northern long-eared bat per year. The expected average annual take rates reported in the HCP were 10.8 Indiana bats per year and 2.5 northern long-eared bats per year.

Cumulative take under the ITP to-date (2020–2022), *M*<sup>\*</sup>, at  $\alpha = 0.5$  (50<sup>th</sup> credible bound), is estimated to be 4 Indiana bats and zero northern long-eared bats. The total take permitted by the ITP is 276 Indiana bats and 64 northern long-eared bats over the 30-year permit term.

Adaptive Management Triggers

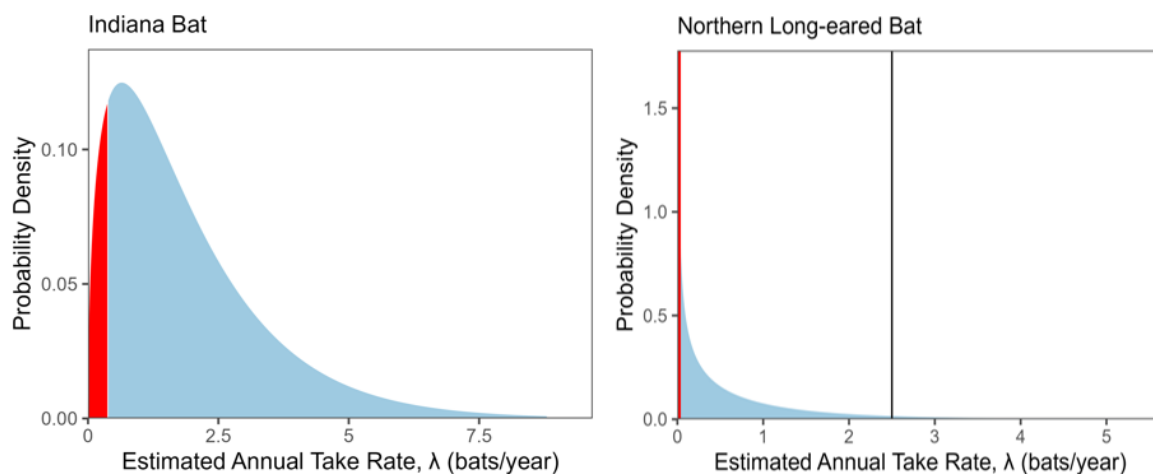
Evidence of Absence Short-term Trigger

The short-term trigger assesses the probability that the estimated take rate exceeded the expected take rate,  $\Pr(\lambda > \tau)$ . At a 90% confidence level ( $\alpha = 0.1$ ),  $\Pr(\lambda > \tau)$  must be greater than or equal to 0.90 for the short-term trigger to fire. For Indiana bat,  $\Pr(\lambda > \tau) = 0$  and northern long-eared bat,  $\Pr(\lambda > \tau) = 0.05$  (Table 8). Neither probability meets or exceeds 0.90, indicating the short-term trigger was not met and no adaptive management actions are necessary (Table 8, Figure 9).

**Table 8. Probability the estimated take rates exceeded the expected take rates for studies conducted within the rolling average interval at the Timber Road Wind Farm, Paulding County, Ohio, Incidental Take Permit Years 1–3 (2020–2022).**

| Species                 | Mean $\lambda$<br>(90% Confidence Interval) | Expected<br>Take Rate ( $\tau$ ) | $\Pr(\lambda > \tau)$ * | Short-Term Trigger<br>Fires at $\alpha = 0.1$ ? |
|-------------------------|---------------------------------------------|----------------------------------|-------------------------|-------------------------------------------------|
| Indiana bat             | 2.01 (0.24–5.25)                            | 10.8                             | 0                       | No                                              |
| Northern long-eared bat | 0.67 (0–2.58)                               | 2.5                              | 0.05                    | No                                              |

\*  $\Pr(\lambda > \tau)$  reads, “the probability that  $\lambda$  (the annual take rate) is greater than  $\tau$  (the expected annual take rate based on the total permitted take, used as a threshold for adaptive management).” If this probability is less than 0.90 (e.g.,  $\alpha = 0.1$  for a 1-sided test), then no adaptive management is triggered because there is not sufficient evidence that the estimated annual take rate is greater than the expected annual take rate.



**Figure 9. Estimated annual take rates ( $\lambda$ ), in bats per year, at the Timber Road Wind Farm, Paulding County, Ohio, Incidental Take Permit Years 1–3 (2020–2022).**

Note: The red region of the posterior distributions shows the region of the lower 10% quantile of the distributions (red region may not be visible when the posterior distribution is skewed heavily toward zero). The black vertical line in the northern long-eared bat panel marks the expected take rate. The expected take rate for the Indiana bat (i.e., 10.8 bats per year) is not shown because it is far to the right of the posterior distribution. The short-term trigger evaluates whether the vertical line falls within or to the left of the red region of the posterior distributions. For both species, the short-term trigger is not met because the black vertical line (expected take rate) is not within or to the left of the red regions. In other words, the probability that estimated take rate is greater than the expected take rate does not exceed 90%.

Evidence of Absence Long-term Trigger

The estimated cumulative take to date,  $M^*$  at  $\alpha = 0.5$  (50<sup>th</sup> credible bound), is below the total permitted take for both Covered Species (Table 9). The long-term trigger was not met and TRWF is in compliance because  $M^* < T$  for both species. Therefore, an avoidance response is not necessary.

**Table 9. Cumulative take estimate to date using Evidence of Absence for studies conducted within the Incidental Take Permit term to date at Timber Road Wind Farm, Paulding County, Ohio, ITP Years 1–3 (2020–2022).**

| Species                                                   | Cumulative take (M*) | Permitted take (T) | Long-term trigger fires at $\alpha = 0.5$ ? |
|-----------------------------------------------------------|----------------------|--------------------|---------------------------------------------|
| Indiana bat (50 <sup>th</sup> credible bound)             | 4                    | 276                | No                                          |
| northern long-eared bat (50 <sup>th</sup> credible bound) | 0                    | 64                 | No                                          |

**CONCLUSIONS**

The post-construction monitoring effort completed in 2022 was consistent with the HCP’s monitoring requirements and the Project’s 2022 study plan. No Covered Species carcasses were found despite a high probability of detection in 2022. Estimates of potential take for the Covered Species were below the levels authorized by the ITP and no adaptive management actions are necessary at this time.

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**Appendix A. Carcasses Found during the 2022 Post-constuction Monitoring Surveys**

**Appendix A. Carcasses found at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| <b>Found Date</b>    | <b>Species</b>    | <b>Distance from Turbine (m)</b> | <b>Turbine</b> | <b>Search Type</b>          | <b>Search Area Type</b> | <b>Physical Condition</b> | <b>Aided Search</b> |
|----------------------|-------------------|----------------------------------|----------------|-----------------------------|-------------------------|---------------------------|---------------------|
| <b>Bat Carcasses</b> |                   |                                  |                |                             |                         |                           |                     |
| 04/26/2022           | silver-haired bat | 66                               | 246            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 04/26/2022           | silver-haired bat | 74                               | 246            | carcass search              | 100-m Road and pad      | scavenged                 | no                  |
| 04/26/2022           | silver-haired bat | 76                               | 253            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 04/27/2022           | eastern red bat   | 69                               | 331            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 04/27/2022           | eastern red bat   | 60                               | 338            | carcass search <sup>2</sup> | 100-m Road and pad      | intact                    | no                  |
| 04/27/2022           | silver-haired bat | 89                               | 347            | carcass search <sup>2</sup> | 100-m Road and pad      | dismembered               | no                  |
| 05/02/2022           | silver-haired bat | 64                               | 237            | carcass search              | 100-m Road and pad      | scavenged                 | no                  |
| 05/04/2022           | silver-haired bat | 41                               | 342            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 05/11/2022           | eastern red bat   | 5                                | 339            | carcass search              | 100-m Road and pad      | injured                   | no                  |
| 05/11/2022           | hoary bat         | 1                                | 319            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 05/11/2022           | silver-haired bat | 48                               | 313            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 05/11/2022           | silver-haired bat | 44                               | 331            | carcass search              | 100-m Road and pad      | scavenged                 | no                  |
| 05/12/2022           | eastern red bat   | 50                               | 407            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 08/01/2022           | big brown bat     | 34                               | 223            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/01/2022           | big brown bat     | 42                               | 304            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/01/2022           | eastern red bat   | 21                               | 222            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/01/2022           | eastern red bat   | 26                               | 225            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/01/2022           | eastern red bat   | 22                               | 240            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/01/2022           | eastern red bat   | 24                               | 244            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/01/2022           | hoary bat         | 48                               | 222            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/01/2022           | hoary bat         | 35                               | 238            | carcass search              | 70-m Cleared            | dismembered               | yes <sup>1</sup>    |
| 08/02/2022           | big brown bat     | 12                               | 239            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/02/2022           | big brown bat     | 16                               | 306            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 08/02/2022           | big brown bat     | 13                               | 312            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 08/02/2022           | eastern red bat   | 30                               | 317            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/02/2022           | eastern red bat   | 82                               | 317            | carcass search <sup>2</sup> | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/02/2022           | eastern red bat   | 4                                | 318            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/02/2022           | eastern red bat   | 25                               | 342            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 08/02/2022           | hoary bat         | 40                               | 312            | carcass search              | 70-m Cleared            | dismembered               | yes <sup>1</sup>    |
| 08/02/2022           | hoary bat         | 27                               | 318            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/02/2022           | hoary bat         | 43                               | 338            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/03/2022           | big brown bat     | 44                               | 424            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/03/2022           | eastern red bat   | 1                                | 336            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 08/03/2022           | eastern red bat   | 9                                | 402            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/03/2022           | eastern red bat   | 60                               | 421            | carcass search              | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |

**Appendix A. Carcasses found at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| <b>Found Date</b> | <b>Species</b>    | <b>Distance from Turbine (m)</b> | <b>Turbine</b> | <b>Search Type</b> | <b>Search Area Type</b> | <b>Physical Condition</b> | <b>Aided Search</b> |
|-------------------|-------------------|----------------------------------|----------------|--------------------|-------------------------|---------------------------|---------------------|
| 08/03/2022        | hoary bat         | 23                               | 321            | carcass search     | 70-m Cleared            | injured                   | yes <sup>1</sup>    |
| 08/03/2022        | hoary bat         | 49                               | 336            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 08/03/2022        | hoary bat         | 31                               | 407            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/03/2022        | hoary bat         | 69                               | 407            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/03/2022        | hoary bat         | 20                               | 424            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 08/03/2022        | silver-haired bat | 55                               | 241            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/04/2022        | big brown bat     | 5                                | 320            | carcass search     | 100-m Road and pad      | scavenged                 | no                  |
| 08/04/2022        | eastern red bat   | 9                                | 334            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/04/2022        | eastern red bat   | 11                               | 337            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/04/2022        | eastern red bat   | 7                                | 341            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/04/2022        | hoary bat         | 16                               | 331            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/04/2022        | hoary bat         | 10                               | 337            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/04/2022        | hoary bat         | 37                               | 341            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/05/2022        | big brown bat     | 12                               | 211            | carcass search     | 70-m Cleared            | dismembered               | yes <sup>1</sup>    |
| 08/05/2022        | big brown bat     | 41                               | 231            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/05/2022        | big brown bat     | 2                                | 403            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/05/2022        | big brown bat     | 17                               | 412            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/05/2022        | eastern red bat   | 48                               | 221            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/05/2022        | eastern red bat   | 44                               | 412            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/05/2022        | eastern red bat   | 4                                | 412            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/05/2022        | eastern red bat   | 8                                | 412            | carcass search     | 100-m Road and pad      | injured                   | no                  |
| 08/05/2022        | eastern red bat   | 74                               | 423            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/05/2022        | hoary bat         | 49                               | 222            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/05/2022        | hoary bat         | 58                               | 304            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/05/2022        | hoary bat         | 4                                | 411            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/05/2022        | hoary bat         | 20                               | 420            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/05/2022        | silver-haired bat | 54                               | 317            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/06/2022        | big brown bat     | 46                               | 338            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/06/2022        | big brown bat     | 40                               | 338            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/06/2022        | big brown bat     | 47                               | 338            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/06/2022        | big brown bat     | 39                               | 407            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 08/06/2022        | big brown bat     | 42                               | 413            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/06/2022        | hoary bat         | 46                               | 308            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 08/06/2022        | hoary bat         | 25                               | 323            | carcass search     | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |
| 08/06/2022        | hoary bat         | 43                               | 324            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 08/06/2022        | hoary bat         | 37                               | 328            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |



**Appendix A. Carcasses found at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| <b>Found Date</b> | <b>Species</b>  | <b>Distance from Turbine (m)</b> | <b>Turbine</b> | <b>Search Type</b> | <b>Search Area Type</b> | <b>Physical Condition</b> | <b>Aided Search</b> |
|-------------------|-----------------|----------------------------------|----------------|--------------------|-------------------------|---------------------------|---------------------|
| 08/06/2022        | hoary bat       | 6                                | 336            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 08/06/2022        | hoary bat       | 43                               | 340            | incidental         | 70-m Uncleared          | injured                   | yes <sup>1</sup>    |
| 08/06/2022        | hoary bat       | 5                                | 407            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/06/2022        | hoary bat       | 21                               | 417            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/06/2022        | hoary bat       | 41                               | 424            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/06/2022        | hoary bat       | 7                                | 426            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/06/2022        | hoary bat       | 33                               | 426            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/08/2022        | big brown bat   | 0                                | 210            | carcass search     | 100-m Road and pad      | injured                   | no                  |
| 08/08/2022        | big brown bat   | 27                               | 317            | carcass search     | 70-m Uncleared          | injured                   | yes <sup>1</sup>    |
| 08/08/2022        | eastern red bat | 49                               | 309            | carcass search     | 70-m Uncleared          | dismembered               | yes <sup>1</sup>    |
| 08/08/2022        | hoary bat       | 23                               | 317            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/09/2022        | big brown bat   | 63                               | 336            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/09/2022        | big brown bat   | 44                               | 413            | carcass search     | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |
| 08/09/2022        | eastern red bat | 8                                | 338            | carcass search     | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |
| 08/09/2022        | hoary bat       | 16                               | 332            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/09/2022        | hoary bat       | 26                               | 402            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/09/2022        | hoary bat       | 31                               | 407            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 08/09/2022        | hoary bat       | 7                                | 413            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/09/2022        | hoary bat       | 61                               | 424            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/09/2022        | hoary bat       | 4                                | 429            | carcass search     | 70-m Uncleared          | injured                   | yes <sup>1</sup>    |
| 08/11/2022        | eastern red bat | 40                               | 230            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/11/2022        | eastern red bat | 45                               | 231            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/11/2022        | eastern red bat | 43                               | 238            | carcass search     | 70-m Cleared            | dismembered               | yes <sup>1</sup>    |
| 08/11/2022        | eastern red bat | 13                               | 315            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/11/2022        | eastern red bat | 9                                | 316            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/11/2022        | eastern red bat | 25                               | 344            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/11/2022        | eastern red bat | 8                                | 344            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/12/2022        | big brown bat   | 29                               | 305            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/12/2022        | big brown bat   | 5                                | 328            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/12/2022        | big brown bat   | 23                               | 402            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/12/2022        | big brown bat   | 33                               | 406            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/12/2022        | big brown bat   | 21                               | 427            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/12/2022        | eastern red bat | 35                               | 305            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/12/2022        | eastern red bat | 6                                | 305            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/12/2022        | eastern red bat | 68                               | 323            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/12/2022        | eastern red bat | 2                                | 403            | carcass search     | 100-m Road and pad      | intact                    | no                  |

**Appendix A. Carcasses found at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| <b>Found Date</b> | <b>Species</b>  | <b>Distance from Turbine (m)</b> | <b>Turbine</b> | <b>Search Type</b>          | <b>Search Area Type</b> | <b>Physical Condition</b> | <b>Aided Search</b> |
|-------------------|-----------------|----------------------------------|----------------|-----------------------------|-------------------------|---------------------------|---------------------|
| 08/12/2022        | eastern red bat | 16                               | 407            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 08/12/2022        | eastern red bat | 31                               | 409            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 08/12/2022        | eastern red bat | 36                               | 411            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 08/12/2022        | eastern red bat | 7                                | 411            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 08/12/2022        | eastern red bat | 28                               | 427            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 08/12/2022        | eastern red bat | 36                               | 430            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 08/12/2022        | evening bat     | 21                               | 407            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/12/2022        | hoary bat       | 48                               | 249            | carcass search              | 70-m Cleared            | feather spot              | yes <sup>1</sup>    |
| 08/12/2022        | hoary bat       | 60                               | 407            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/12/2022        | hoary bat       | 35                               | 407            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/12/2022        | tricolored bat  | 29                               | 249            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/13/2022        | big brown bat   | 42                               | 426            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/13/2022        | eastern red bat | 32                               | 413            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/15/2022        | big brown bat   | 40                               | 230            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/15/2022        | eastern red bat | 9                                | 223            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/15/2022        | eastern red bat | 15                               | 229            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/15/2022        | eastern red bat | 23                               | 233            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 08/15/2022        | eastern red bat | 63                               | 309            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/16/2022        | big brown bat   | 50                               | 323            | carcass search              | 70-m Uncleared          | injured                   | yes <sup>1</sup>    |
| 08/16/2022        | eastern red bat | 6                                | 243            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 08/16/2022        | eastern red bat | 18                               | 252            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 08/16/2022        | eastern red bat | 10                               | 318            | carcass search              | 70-m Cleared            | injured                   | yes <sup>1</sup>    |
| 08/16/2022        | eastern red bat | 6                                | 343            | incidental                  | 100-m Road and pad      | intact                    | no                  |
| 08/16/2022        | hoary bat       | 42                               | 318            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 08/16/2022        | hoary bat       | 41                               | 322            | carcass search <sup>2</sup> | 100-m Road and pad      | intact                    | no                  |
| 08/16/2022        | hoary bat       | 35                               | 413            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/17/2022        | eastern red bat | 35                               | 247            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 08/18/2022        | big brown bat   | 18                               | 241            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 08/18/2022        | eastern red bat | 59                               | 223            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/18/2022        | eastern red bat | 43                               | 402            | incidental                  | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |
| 08/18/2022        | hoary bat       | 43                               | 209            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/18/2022        | hoary bat       | 40                               | 240            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/19/2022        | big brown bat   | 16                               | 401            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 08/19/2022        | big brown bat   | 19                               | 419            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 08/19/2022        | big brown bat   | 74                               | 424            | carcass search <sup>2</sup> | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/19/2022        | eastern red bat | 15                               | 411            | carcass search              | 100-m Road and pad      | scavenged                 | no                  |

**Appendix A. Carcasses found at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| <b>Found Date</b> | <b>Species</b>    | <b>Distance from Turbine (m)</b> | <b>Turbine</b> | <b>Search Type</b> | <b>Search Area Type</b> | <b>Physical Condition</b> | <b>Aided Search</b> |
|-------------------|-------------------|----------------------------------|----------------|--------------------|-------------------------|---------------------------|---------------------|
| 08/19/2022        | eastern red bat   | 16                               | 415            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/19/2022        | eastern red bat   | 9                                | 419            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/19/2022        | eastern red bat   | 6                                | 430            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/19/2022        | hoary bat         | 12                               | 318            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 08/19/2022        | hoary bat         | 38                               | 318            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/19/2022        | hoary bat         | 44                               | 424            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/19/2022        | silver-haired bat | 15                               | 420            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/22/2022        | big brown bat     | 41                               | 220            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/22/2022        | eastern red bat   | 39                               | 201            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/22/2022        | eastern red bat   | 27                               | 309            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/22/2022        | hoary bat         | 44                               | 338            | incidental         | 70-m Uncleared          | scavenged                 | no                  |
| 08/23/2022        | big brown bat     | 57                               | 225            | carcass search     | 70-m Cleared            | injured                   | yes <sup>1</sup>    |
| 08/23/2022        | big brown bat     | 5                                | 424            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/23/2022        | eastern red bat   | 11                               | 223            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 08/23/2022        | eastern red bat   | 44                               | 248            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/23/2022        | hoary bat         | 18                               | 312            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 08/24/2022        | big brown bat     | 40                               | 254            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/24/2022        | big brown bat     | 16                               | 331            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/24/2022        | eastern red bat   | 19                               | 407            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/24/2022        | eastern red bat   | 20                               | 407            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/24/2022        | eastern red bat   | 8                                | 413            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/25/2022        | big brown bat     | 12                               | 311            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/25/2022        | eastern red bat   | 52                               | 244            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/25/2022        | hoary bat         | 7                                | 311            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/26/2022        | big brown bat     | 45                               | 201            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/26/2022        | big brown bat     | 3                                | 403            | carcass search     | 100-m Road and pad      | scavenged                 | no                  |
| 08/26/2022        | big brown bat     | 40                               | 410            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/26/2022        | big brown bat     | 34                               | 411            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/26/2022        | big brown bat     | 20                               | 413            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/26/2022        | big brown bat     | 26                               | 414            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/26/2022        | big brown bat     | 41                               | 418            | carcass search     | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |
| 08/26/2022        | big brown bat     | 30                               | 424            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/26/2022        | big brown bat     | 35                               | 424            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/26/2022        | big brown bat     | 7                                | 424            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 08/26/2022        | big brown bat     | 25                               | 427            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 08/26/2022        | eastern red bat   | 43                               | 204            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |

**Appendix A. Carcasses found at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| <b>Found Date</b> | <b>Species</b>    | <b>Distance from Turbine (m)</b> | <b>Turbine</b> | <b>Search Type</b>          | <b>Search Area Type</b> | <b>Physical Condition</b> | <b>Aided Search</b> |
|-------------------|-------------------|----------------------------------|----------------|-----------------------------|-------------------------|---------------------------|---------------------|
| 08/26/2022        | eastern red bat   | 14                               | 209            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/26/2022        | eastern red bat   | 58                               | 211            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 08/26/2022        | eastern red bat   | 42                               | 218            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/26/2022        | eastern red bat   | 28                               | 221            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/26/2022        | eastern red bat   | 72                               | 249            | carcass search <sup>2</sup> | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/26/2022        | eastern red bat   | 20                               | 249            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/26/2022        | eastern red bat   | 28                               | 413            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/26/2022        | eastern red bat   | 40                               | 418            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/26/2022        | eastern red bat   | 68                               | 426            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/26/2022        | eastern red bat   | 58                               | 429            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/26/2022        | hoary bat         | 64                               | 230            | carcass search              | 70-m Uncleared          | injured                   | yes <sup>1</sup>    |
| 08/26/2022        | hoary bat         | 59                               | 249            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/26/2022        | hoary bat         | 28                               | 413            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/26/2022        | silver-haired bat | 33                               | 409            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 08/26/2022        | silver-haired bat | 59                               | 410            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/26/2022        | silver-haired bat | 49                               | 410            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/26/2022        | silver-haired bat | 54                               | 413            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/27/2022        | big brown bat     | 25                               | 328            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/27/2022        | eastern red bat   | 70                               | 323            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/27/2022        | eastern red bat   | 58                               | 336            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/27/2022        | eastern red bat   | 29                               | 336            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 08/27/2022        | eastern red bat   | 14                               | 338            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/27/2022        | hoary bat         | 30                               | 318            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/27/2022        | hoary bat         | 5                                | 324            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 08/27/2022        | hoary bat         | 5                                | 407            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 08/28/2022        | big brown bat     | 22                               | 240            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/28/2022        | eastern red bat   | 28                               | 238            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/28/2022        | silver-haired bat | 14                               | 223            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 08/28/2022        | silver-haired bat | 26                               | 231            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/28/2022        | silver-haired bat | 40                               | 240            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/29/2022        | big brown bat     | 60                               | 244            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/29/2022        | big brown bat     | 25                               | 249            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/29/2022        | big brown bat     | 14                               | 336            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 08/29/2022        | big brown bat     | 54                               | 340            | carcass search              | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |
| 08/29/2022        | big brown bat     | 18                               | 406            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/29/2022        | eastern red bat   | 63                               | 221            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |

**Appendix A. Carcasses found at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| <b>Found Date</b> | <b>Species</b>    | <b>Distance from Turbine (m)</b> | <b>Turbine</b> | <b>Search Type</b>          | <b>Search Area Type</b> | <b>Physical Condition</b> | <b>Aided Search</b> |
|-------------------|-------------------|----------------------------------|----------------|-----------------------------|-------------------------|---------------------------|---------------------|
| 08/29/2022        | eastern red bat   | 50                               | 305            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/29/2022        | eastern red bat   | 1                                | 340            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/29/2022        | eastern red bat   | 17                               | 406            | carcass search              | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |
| 08/29/2022        | hoary bat         | 12                               | 239            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 08/29/2022        | hoary bat         | 23                               | 406            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/29/2022        | silver-haired bat | 25                               | 244            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/29/2022        | silver-haired bat | 33                               | 249            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/29/2022        | silver-haired bat | 27                               | 309            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/30/2022        | eastern red bat   | 48                               | 318            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/30/2022        | eastern red bat   | 60                               | 319            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 08/30/2022        | eastern red bat   | 17                               | 322            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 08/30/2022        | eastern red bat   | 6                                | 330            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 08/30/2022        | eastern red bat   | 33                               | 335            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 08/30/2022        | eastern red bat   | 13                               | 413            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/30/2022        | eastern red bat   | 17                               | 418            | carcass search              | 70-m Uncleared          | dismembered               | yes <sup>1</sup>    |
| 08/30/2022        | eastern red bat   | 39                               | 418            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/30/2022        | eastern red bat   | 26                               | 426            | carcass search              | 70-m Cleared            | injured                   | yes <sup>1</sup>    |
| 08/30/2022        | eastern red bat   | 76                               | 426            | carcass search <sup>2</sup> | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/30/2022        | eastern red bat   | 73                               | 426            | carcass search <sup>2</sup> | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/30/2022        | eastern red bat   | 24                               | 429            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/30/2022        | hoary bat         | 44                               | 413            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/30/2022        | hoary bat         | 54                               | 429            | carcass search              | 70-m Uncleared          | injured                   | yes <sup>1</sup>    |
| 08/30/2022        | silver-haired bat | 69                               | 418            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/31/2022        | big brown bat     | 20                               | 312            | carcass search              | 70-m Cleared            | dismembered               | yes <sup>1</sup>    |
| 08/31/2022        | big brown bat     | 16                               | 411            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 08/31/2022        | eastern red bat   | 42                               | 338            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/31/2022        | eastern red bat   | 17                               | 409            | carcass search              | 100-m Road and pad      | dismembered               | no                  |
| 09/01/2022        | big brown bat     | 8                                | 304            | carcass search              | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |
| 09/01/2022        | big brown bat     | 9                                | 327            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 09/01/2022        | eastern red bat   | 62                               | 225            | carcass search              | 70-m Cleared            | injured                   | yes <sup>1</sup>    |
| 09/01/2022        | eastern red bat   | 8                                | 240            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/01/2022        | eastern red bat   | 48                               | 248            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/01/2022        | eastern red bat   | 28                               | 248            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/01/2022        | eastern red bat   | 1                                | 248            | carcass search              | 70-m Uncleared          | injured                   | yes <sup>1</sup>    |
| 09/01/2022        | eastern red bat   | 48                               | 316            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 09/01/2022        | eastern red bat   | 79                               | 343            | carcass search              | 100-m Road and pad      | dismembered               | no                  |

**Appendix A. Carcasses found at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| <b>Found Date</b> | <b>Species</b>    | <b>Distance from Turbine (m)</b> | <b>Turbine</b> | <b>Search Type</b>      | <b>Search Area Type</b> | <b>Physical Condition</b> | <b>Aided Search</b> |
|-------------------|-------------------|----------------------------------|----------------|-------------------------|-------------------------|---------------------------|---------------------|
| 09/01/2022        | hoary bat         | 13                               | 315            | carcass search          | 100-m Road and pad      | intact                    | no                  |
| 09/01/2022        | silver-haired bat | 46                               | 223            | carcass search          | 70-m Cleared            | injured                   | yes <sup>1</sup>    |
| 09/01/2022        | silver-haired bat | 69                               | 223            | carcass search          | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/01/2022        | silver-haired bat | 22                               | 248            | carcass search          | 70-m Uncleared          | injured                   | yes <sup>1</sup>    |
| 09/01/2022        | silver-haired bat | 22                               | 305            | incidental              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/01/2022        | silver-haired bat | 6                                | 305            | carcass search          | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/01/2022        | silver-haired bat | 40                               | 309            | carcass search          | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |
| 09/01/2022        | silver-haired bat | 1                                | 310            | carcass search          | 100-m Road and pad      | intact                    | no                  |
| 09/01/2022        | silver-haired bat | 36                               | 317            | carcass search          | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |
| 09/01/2022        | silver-haired bat | 74                               | 327            | carcass search          | 100-m Road and pad      | injured                   | no                  |
| 09/01/2022        | silver-haired bat | 23                               | 344            | carcass search          | 100-m Road and pad      | intact                    | no                  |
| 09/01/2022        | silver-haired bat | 51                               | 344            | carcass search          | 100-m Road and pad      | intact                    | no                  |
| 09/02/2022        | eastern red bat   | 66                               | 204            | carcass search          | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/02/2022        | eastern red bat   | 67                               | 204            | carcass search          | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/02/2022        | eastern red bat   | 45                               | 239            | carcass search          | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/02/2022        | eastern red bat   | 44                               | 239            | carcass search          | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/02/2022        | eastern red bat   | 41                               | 241            | carcass search          | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/02/2022        | eastern red bat   | 33                               | 249            | carcass search          | 70-m Cleared            | dismembered               | yes <sup>1</sup>    |
| 09/02/2022        | hoary bat         | 46                               | 204            | carcass search          | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/02/2022        | hoary bat         | 21                               | 241            | carcass search          | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/02/2022        | silver-haired bat | 49                               | 204            | carcass search          | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/02/2022        | silver-haired bat | 49                               | 230            | carcass search          | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |
| 09/02/2022        | silver-haired bat | 48                               | 239            | carcass search          | 70-m Cleared            | unknown                   | yes <sup>1</sup>    |
| 09/02/2022        | silver-haired bat | 27                               | 326            | carcass search          | 100-m Road and pad      | intact                    | no                  |
| 09/02/2022        | silver-haired bat | 14                               | 336            | carcass search          | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/02/2022        | silver-haired bat | 43                               | 341            | Incidental <sup>2</sup> | 100-m Road and pad      | scavenged                 | yes <sup>1</sup>    |
| 09/02/2022        | silver-haired bat | 3                                | 420            | carcass search          | 100-m Road and pad      | intact                    | no                  |
| 09/02/2022        | silver-haired bat | 26                               | 427            | carcass search          | 100-m Road and pad      | intact                    | no                  |
| 09/03/2022        | big brown bat     | 35                               | 305            | incidental              | 70-m Cleared            | intact                    | no                  |
| 09/03/2022        | big brown bat     | 8                                | 325            | carcass search          | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/03/2022        | big brown bat     | 44                               | 407            | carcass search          | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/03/2022        | eastern red bat   | 46                               | 241            | incidental              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/03/2022        | eastern red bat   | 43                               | 307            | carcass search          | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/03/2022        | eastern red bat   | 53                               | 308            | carcass search          | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/03/2022        | eastern red bat   | 17                               | 312            | carcass search          | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/03/2022        | eastern red bat   | 60                               | 318            | carcass search          | 70-m Cleared            | injured                   | yes <sup>1</sup>    |

**Appendix A. Carcasses found at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| <b>Found Date</b> | <b>Species</b>    | <b>Distance from Turbine (m)</b> | <b>Turbine</b> | <b>Search Type</b> | <b>Search Area Type</b> | <b>Physical Condition</b> | <b>Aided Search</b> |
|-------------------|-------------------|----------------------------------|----------------|--------------------|-------------------------|---------------------------|---------------------|
| 09/03/2022        | eastern red bat   | 37                               | 323            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/03/2022        | eastern red bat   | 44                               | 324            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/03/2022        | eastern red bat   | 38                               | 324            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/03/2022        | eastern red bat   | 43                               | 325            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/03/2022        | eastern red bat   | 16                               | 338            | carcass search     | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |
| 09/03/2022        | eastern red bat   | 20                               | 413            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/03/2022        | evening bat       | 30                               | 413            | carcass search     | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |
| 09/03/2022        | hoary bat         | 44                               | 305            | incidental         | 70-m Cleared            | intact                    | no                  |
| 09/03/2022        | hoary bat         | 42                               | 323            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/03/2022        | silver-haired bat | 6                                | 238            | incidental         | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/03/2022        | silver-haired bat | 30                               | 307            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/03/2022        | silver-haired bat | 43                               | 307            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/03/2022        | silver-haired bat | 47                               | 312            | incidental         | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/03/2022        | silver-haired bat | 29                               | 312            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/03/2022        | silver-haired bat | 21                               | 318            | carcass search     | 70-m Cleared            | injured                   | yes <sup>1</sup>    |
| 09/03/2022        | silver-haired bat | 18                               | 318            | carcass search     | 70-m Cleared            | injured                   | yes <sup>1</sup>    |
| 09/03/2022        | silver-haired bat | 33                               | 319            | carcass search     | 70-m Cleared            | injured                   | yes <sup>1</sup>    |
| 09/03/2022        | silver-haired bat | 40                               | 319            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/03/2022        | silver-haired bat | 34                               | 319            | carcass search     | 70-m Cleared            | injured                   | yes <sup>1</sup>    |
| 09/03/2022        | silver-haired bat | 39                               | 323            | carcass search     | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |
| 09/03/2022        | silver-haired bat | 29                               | 324            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/03/2022        | silver-haired bat | 28                               | 325            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/03/2022        | silver-haired bat | 36                               | 325            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/03/2022        | silver-haired bat | 23                               | 325            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/03/2022        | silver-haired bat | 29                               | 328            | carcass search     | 70-m Uncleared          | injured                   | yes <sup>1</sup>    |
| 09/03/2022        | silver-haired bat | 12                               | 338            | carcass search     | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |
| 09/03/2022        | silver-haired bat | 36                               | 338            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/03/2022        | silver-haired bat | 33                               | 407            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/03/2022        | silver-haired bat | 25                               | 410            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/03/2022        | silver-haired bat | 32                               | 410            | carcass search     | 70-m Cleared            | feather spot              | yes <sup>1</sup>    |
| 09/03/2022        | silver-haired bat | 45                               | 410            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/03/2022        | silver-haired bat | 35                               | 424            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/03/2022        | silver-haired bat | 33                               | 429            | carcass search     | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |
| 09/03/2022        | silver-haired bat | 70                               | 429            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/04/2022        | eastern red bat   | 37                               | 241            | incidental         | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/04/2022        | eastern red bat   | 11                               | 246            | incidental         | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |

**Appendix A. Carcasses found at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| <b>Found Date</b> | <b>Species</b>    | <b>Distance from Turbine (m)</b> | <b>Turbine</b> | <b>Search Type</b>          | <b>Search Area Type</b> | <b>Physical Condition</b> | <b>Aided Search</b> |
|-------------------|-------------------|----------------------------------|----------------|-----------------------------|-------------------------|---------------------------|---------------------|
| 09/04/2022        | silver-haired bat | 30                               | 238            | incidental                  | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/04/2022        | silver-haired bat | 50                               | 241            | incidental                  | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/04/2022        | silver-haired bat | 43                               | 241            | incidental                  | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/04/2022        | silver-haired bat | 47                               | 304            | incidental                  | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/04/2022        | silver-haired bat | 50                               | 304            | incidental                  | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/04/2022        | silver-haired bat | 40                               | 304            | incidental                  | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/04/2022        | silver-haired bat | 2                                | 309            | incidental                  | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/04/2022        | silver-haired bat | 16                               | 317            | incidental                  | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/04/2022        | silver-haired bat | 43                               | 317            | incidental                  | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/05/2022        | big brown bat     | 18                               | 225            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/05/2022        | big brown bat     | 9                                | 336            | incidental                  | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/05/2022        | eastern red bat   | 23                               | 204            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/05/2022        | eastern red bat   | 61                               | 221            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/05/2022        | eastern red bat   | 52                               | 225            | carcass search              | 70-m Cleared            | dismembered               | yes <sup>1</sup>    |
| 09/05/2022        | eastern red bat   | 37                               | 230            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/05/2022        | eastern red bat   | 73                               | 238            | carcass search <sup>2</sup> | 70-m Cleared            | dismembered               | yes <sup>1</sup>    |
| 09/05/2022        | eastern red bat   | 19                               | 336            | incidental                  | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/05/2022        | hoary bat         | 41                               | 221            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/05/2022        | silver-haired bat | 32                               | 204            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/05/2022        | silver-haired bat | 40                               | 218            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/05/2022        | silver-haired bat | 50                               | 218            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/05/2022        | silver-haired bat | 57                               | 223            | carcass search              | 70-m Cleared            | dismembered               | yes <sup>1</sup>    |
| 09/05/2022        | silver-haired bat | 40                               | 223            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/05/2022        | silver-haired bat | 47                               | 223            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/05/2022        | silver-haired bat | 36                               | 230            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/05/2022        | silver-haired bat | 53                               | 230            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/05/2022        | silver-haired bat | 32                               | 240            | carcass search              | 70-m Uncleared          | dismembered               | yes <sup>1</sup>    |
| 09/05/2022        | silver-haired bat | 22                               | 240            | carcass search              | 70-m Uncleared          | dismembered               | yes <sup>1</sup>    |
| 09/05/2022        | silver-haired bat | 26                               | 240            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/05/2022        | silver-haired bat | 70                               | 248            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/05/2022        | silver-haired bat | 47                               | 336            | incidental                  | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | big brown bat     | 26                               | 338            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | eastern red bat   | 11                               | 239            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | eastern red bat   | 26                               | 241            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | eastern red bat   | 37                               | 244            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | eastern red bat   | 12                               | 244            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |



**Appendix A. Carcasses found at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| <b>Found Date</b> | <b>Species</b>    | <b>Distance from Turbine (m)</b> | <b>Turbine</b> | <b>Search Type</b>          | <b>Search Area Type</b> | <b>Physical Condition</b> | <b>Aided Search</b> |
|-------------------|-------------------|----------------------------------|----------------|-----------------------------|-------------------------|---------------------------|---------------------|
| 09/06/2022        | eastern red bat   | 26                               | 244            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/06/2022        | eastern red bat   | 5                                | 249            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | eastern red bat   | 61                               | 249            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | eastern red bat   | 65                               | 249            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | eastern red bat   | 39                               | 249            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | eastern red bat   | 40                               | 307            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/06/2022        | eastern red bat   | 29                               | 312            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/06/2022        | eastern red bat   | 33                               | 318            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | eastern red bat   | 13                               | 318            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/06/2022        | eastern red bat   | 53                               | 319            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/06/2022        | eastern red bat   | 28                               | 323            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | eastern red bat   | 26                               | 336            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | eastern red bat   | 54                               | 336            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | eastern red bat   | 15                               | 406            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | eastern red bat   | 59                               | 406            | carcass search              | 70-m Uncleared          | dismembered               | yes <sup>1</sup>    |
| 09/06/2022        | eastern red bat   | 35                               | 406            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | hoary bat         | 35                               | 317            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | hoary bat         | 54                               | 319            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | silver-haired bat | 48                               | 239            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | silver-haired bat | 40                               | 239            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | silver-haired bat | 40                               | 241            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | silver-haired bat | 59                               | 244            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | silver-haired bat | 40                               | 249            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | silver-haired bat | 28                               | 255            | carcass search              | 100-m Road and pad      | scavenged                 | no                  |
| 09/06/2022        | silver-haired bat | 32                               | 304            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | silver-haired bat | 17                               | 309            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | silver-haired bat | 40                               | 317            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | silver-haired bat | 54                               | 317            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | silver-haired bat | 32                               | 318            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | silver-haired bat | 27                               | 319            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | silver-haired bat | 78                               | 321            | carcass search <sup>2</sup> | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | silver-haired bat | 0                                | 321            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | silver-haired bat | 18                               | 323            | carcass search              | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |
| 09/06/2022        | silver-haired bat | 64                               | 324            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | silver-haired bat | 43                               | 325            | carcass search              | 70-m Cleared            | dismembered               | yes <sup>1</sup>    |
| 09/06/2022        | silver-haired bat | 9                                | 325            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |

**Appendix A. Carcasses found at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| <b>Found Date</b> | <b>Species</b>    | <b>Distance from Turbine (m)</b> | <b>Turbine</b> | <b>Search Type</b>          | <b>Search Area Type</b> | <b>Physical Condition</b> | <b>Aided Search</b> |
|-------------------|-------------------|----------------------------------|----------------|-----------------------------|-------------------------|---------------------------|---------------------|
| 09/06/2022        | silver-haired bat | 23                               | 328            | carcass search              | 70-m Uncleared          | injured                   | yes <sup>1</sup>    |
| 09/06/2022        | silver-haired bat | 19                               | 334            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 09/06/2022        | silver-haired bat | 50                               | 336            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | silver-haired bat | 56                               | 336            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | silver-haired bat | 42                               | 336            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | silver-haired bat | 38                               | 338            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | silver-haired bat | 58                               | 338            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | silver-haired bat | 55                               | 340            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | silver-haired bat | 30                               | 340            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | silver-haired bat | 43                               | 406            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | silver-haired bat | 26                               | 407            | carcass search              | 70-m Cleared            | dismembered               | yes <sup>1</sup>    |
| 09/07/2022        | big brown bat     | 41                               | 429            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/07/2022        | eastern red bat   | 29                               | 421            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/07/2022        | eastern red bat   | 72                               | 426            | carcass search <sup>2</sup> | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/07/2022        | silver-haired bat | 38                               | 235            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 09/07/2022        | silver-haired bat | 57                               | 237            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 09/07/2022        | silver-haired bat | 36                               | 418            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/08/2022        | big brown bat     | 29                               | 204            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/08/2022        | big brown bat     | 38                               | 221            | carcass search              | 70-m Uncleared          | dismembered               | yes <sup>1</sup>    |
| 09/08/2022        | big brown bat     | 24                               | 343            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 09/08/2022        | eastern red bat   | 44                               | 211            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/08/2022        | eastern red bat   | 44                               | 218            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/08/2022        | eastern red bat   | 40                               | 239            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/08/2022        | eastern red bat   | 37                               | 239            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/08/2022        | eastern red bat   | 44                               | 310            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 09/08/2022        | eastern red bat   | 18                               | 310            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 09/08/2022        | eastern red bat   | 40                               | 317            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/08/2022        | eastern red bat   | 10                               | 342            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 09/08/2022        | hoary bat         | 32                               | 209            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/08/2022        | hoary bat         | 15                               | 230            | carcass search              | 70-m Uncleared          | dismembered               | yes <sup>1</sup>    |
| 09/08/2022        | hoary bat         | 60                               | 239            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/08/2022        | hoary bat         | 24                               | 303            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 09/08/2022        | silver-haired bat | 33                               | 209            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/08/2022        | silver-haired bat | 35                               | 239            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/08/2022        | silver-haired bat | 49                               | 244            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/08/2022        | silver-haired bat | 28                               | 310            | carcass search              | 100-m Road and pad      | intact                    | no                  |

**Appendix A. Carcasses found at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| <b>Found Date</b> | <b>Species</b>    | <b>Distance from Turbine (m)</b> | <b>Turbine</b> | <b>Search Type</b>          | <b>Search Area Type</b> | <b>Physical Condition</b> | <b>Aided Search</b> |
|-------------------|-------------------|----------------------------------|----------------|-----------------------------|-------------------------|---------------------------|---------------------|
| 09/08/2022        | silver-haired bat | 3                                | 326            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 09/09/2022        | big brown bat     | 44                               | 225            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/09/2022        | eastern red bat   | 41                               | 225            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/09/2022        | eastern red bat   | 75                               | 229            | carcass search <sup>2</sup> | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/09/2022        | eastern red bat   | 57                               | 229            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/09/2022        | eastern red bat   | 52                               | 238            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/09/2022        | eastern red bat   | 45                               | 240            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/09/2022        | eastern red bat   | 32                               | 323            | carcass search              | 70-m Uncleared          | dismembered               | yes <sup>1</sup>    |
| 09/09/2022        | eastern red bat   | 27                               | 338            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/09/2022        | eastern red bat   | 59                               | 338            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/09/2022        | eastern red bat   | 29                               | 338            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/09/2022        | hoary bat         | 59                               | 246            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/09/2022        | hoary bat         | 47                               | 312            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/09/2022        | hoary bat         | 33                               | 413            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/09/2022        | silver-haired bat | 36                               | 240            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/09/2022        | silver-haired bat | 37                               | 248            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/09/2022        | silver-haired bat | 54                               | 319            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/09/2022        | silver-haired bat | 26                               | 401            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 09/09/2022        | silver-haired bat | 1                                | 405            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 09/09/2022        | silver-haired bat | 15                               | 425            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 09/10/2022        | big brown bat     | 4                                | 406            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/10/2022        | eastern red bat   | 40                               | 336            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/10/2022        | eastern red bat   | 52                               | 336            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/10/2022        | eastern red bat   | 54                               | 336            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/10/2022        | hoary bat         | 53                               | 407            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/10/2022        | silver-haired bat | 40                               | 324            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/10/2022        | silver-haired bat | 62                               | 336            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/10/2022        | silver-haired bat | 26                               | 406            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/10/2022        | silver-haired bat | 36                               | 406            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/10/2022        | silver-haired bat | 18                               | 407            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/12/2022        | eastern red bat   | 66                               | 204            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/12/2022        | eastern red bat   | 32                               | 229            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/12/2022        | eastern red bat   | 36                               | 238            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/12/2022        | eastern red bat   | 30                               | 240            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/12/2022        | eastern red bat   | 30                               | 244            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/12/2022        | hoary bat         | 51                               | 204            | carcass search              | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |

**Appendix A. Carcasses found at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| <b>Found Date</b> | <b>Species</b>    | <b>Distance from Turbine (m)</b> | <b>Turbine</b> | <b>Search Type</b> | <b>Search Area Type</b> | <b>Physical Condition</b> | <b>Aided Search</b> |
|-------------------|-------------------|----------------------------------|----------------|--------------------|-------------------------|---------------------------|---------------------|
| 09/12/2022        | hoary bat         | 26                               | 220            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 09/12/2022        | silver-haired bat | 47                               | 223            | carcass search     | 70-m Cleared            | dismembered               | yes <sup>1</sup>    |
| 09/12/2022        | silver-haired bat | 22                               | 229            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/12/2022        | silver-haired bat | 37                               | 230            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/12/2022        | silver-haired bat | 34                               | 238            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/12/2022        | silver-haired bat | 31                               | 238            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/12/2022        | silver-haired bat | 61                               | 240            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/12/2022        | silver-haired bat | 39                               | 244            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/12/2022        | silver-haired bat | 30                               | 309            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/12/2022        | silver-haired bat | 50                               | 317            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/13/2022        | eastern red bat   | 24                               | 206            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 09/13/2022        | eastern red bat   | 18                               | 307            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/13/2022        | eastern red bat   | 14                               | 307            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/13/2022        | eastern red bat   | 63                               | 318            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/13/2022        | eastern red bat   | 68                               | 319            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/13/2022        | eastern red bat   | 59                               | 338            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/13/2022        | eastern red bat   | 45                               | 413            | carcass search     | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |
| 09/13/2022        | hoary bat         | 21                               | 318            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/13/2022        | hoary bat         | 51                               | 319            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/13/2022        | hoary bat         | 25                               | 323            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/13/2022        | hoary bat         | 21                               | 338            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/13/2022        | silver-haired bat | 9                                | 307            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/13/2022        | silver-haired bat | 31                               | 308            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/13/2022        | silver-haired bat | 50                               | 336            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/14/2022        | silver-haired bat | 19                               | 255            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 09/15/2022        | big brown bat     | 9                                | 306            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 09/15/2022        | eastern red bat   | 31                               | 241            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/15/2022        | eastern red bat   | 16                               | 327            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 09/15/2022        | eastern red bat   | 23                               | 344            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 09/15/2022        | hoary bat         | 47                               | 248            | carcass search     | 70-m Uncleared          | dismembered               | yes <sup>1</sup>    |
| 09/15/2022        | hoary bat         | 2                                | 301            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 09/15/2022        | hoary bat         | 19                               | 304            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/15/2022        | hoary bat         | 8                                | 341            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 09/15/2022        | silver-haired bat | 12                               | 204            | carcass search     | 70-m Uncleared          | injured                   | yes <sup>1</sup>    |
| 09/15/2022        | silver-haired bat | 44                               | 229            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/15/2022        | silver-haired bat | 5                                | 231            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |

**Appendix A. Carcasses found at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| <b>Found Date</b> | <b>Species</b>    | <b>Distance from Turbine (m)</b> | <b>Turbine</b> | <b>Search Type</b> | <b>Search Area Type</b> | <b>Physical Condition</b> | <b>Aided Search</b> |
|-------------------|-------------------|----------------------------------|----------------|--------------------|-------------------------|---------------------------|---------------------|
| 09/15/2022        | silver-haired bat | 13                               | 301            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 09/16/2022        | eastern red bat   | 49                               | 319            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/16/2022        | eastern red bat   | 47                               | 323            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/16/2022        | eastern red bat   | 30                               | 324            | carcass search     | 70-m Cleared            | dismembered               | yes <sup>1</sup>    |
| 09/16/2022        | eastern red bat   | 44                               | 406            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/16/2022        | eastern red bat   | 59                               | 407            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/16/2022        | eastern red bat   | 19                               | 425            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 09/16/2022        | eastern red bat   | 23                               | 426            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/16/2022        | hoary bat         | 48                               | 401            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 09/16/2022        | little brown bat  | 11                               | 423            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 09/16/2022        | silver-haired bat | 53                               | 307            | carcass search     | 70-m Cleared            | injured                   | yes <sup>1</sup>    |
| 09/16/2022        | silver-haired bat | 40                               | 308            | carcass search     | 70-m Cleared            | injured                   | yes <sup>1</sup>    |
| 09/16/2022        | silver-haired bat | 47                               | 319            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/16/2022        | silver-haired bat | 54                               | 323            | carcass search     | 70-m Uncleared          | injured                   | yes <sup>1</sup>    |
| 09/16/2022        | silver-haired bat | 45                               | 413            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/16/2022        | silver-haired bat | 11                               | 420            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 09/16/2022        | silver-haired bat | 11                               | 422            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 09/19/2022        | eastern red bat   | 51                               | 238            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/19/2022        | eastern red bat   | 45                               | 238            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/19/2022        | eastern red bat   | 8                                | 239            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/19/2022        | eastern red bat   | 31                               | 248            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/19/2022        | hoary bat         | 32                               | 218            | carcass search     | 70-m Cleared            | dismembered               | yes <sup>1</sup>    |
| 09/19/2022        | silver-haired bat | 35                               | 204            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/19/2022        | silver-haired bat | 29                               | 218            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/19/2022        | silver-haired bat | 26                               | 229            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/19/2022        | silver-haired bat | 56                               | 230            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/19/2022        | silver-haired bat | 17                               | 230            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/19/2022        | silver-haired bat | 20                               | 238            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/19/2022        | silver-haired bat | 38                               | 239            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/19/2022        | silver-haired bat | 17                               | 241            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/19/2022        | silver-haired bat | 43                               | 244            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/19/2022        | silver-haired bat | 30                               | 249            | carcass search     | 70-m Cleared            | dismembered               | yes <sup>1</sup>    |
| 09/19/2022        | silver-haired bat | 37                               | 249            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/19/2022        | silver-haired bat | 49                               | 305            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/19/2022        | silver-haired bat | 52                               | 317            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/20/2022        | big brown bat     | 54                               | 321            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |

**Appendix A. Carcasses found at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| <b>Found Date</b> | <b>Species</b>    | <b>Distance from Turbine (m)</b> | <b>Turbine</b> | <b>Search Type</b>          | <b>Search Area Type</b> | <b>Physical Condition</b> | <b>Aided Search</b> |
|-------------------|-------------------|----------------------------------|----------------|-----------------------------|-------------------------|---------------------------|---------------------|
| 09/20/2022        | big brown bat     | 35                               | 338            | carcass search              | 70-m Uncleared          | dismembered               | yes <sup>1</sup>    |
| 09/20/2022        | eastern red bat   | 11                               | 312            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/20/2022        | eastern red bat   | 45                               | 318            | carcass search              | 70-m Cleared            | dismembered               | yes <sup>1</sup>    |
| 09/20/2022        | eastern red bat   | 73                               | 321            | carcass search <sup>2</sup> | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/20/2022        | eastern red bat   | 66                               | 328            | carcass search              | 70-m Uncleared          | dismembered               | yes <sup>1</sup>    |
| 09/20/2022        | eastern red bat   | 67                               | 413            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/20/2022        | eastern red bat   | 48                               | 426            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/20/2022        | hoary bat         | 22                               | 336            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/20/2022        | silver-haired bat | 48                               | 250            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 09/20/2022        | silver-haired bat | 60                               | 307            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/20/2022        | silver-haired bat | 47                               | 318            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/20/2022        | silver-haired bat | 57                               | 318            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/20/2022        | silver-haired bat | 35                               | 321            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/20/2022        | silver-haired bat | 8                                | 332            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 09/20/2022        | silver-haired bat | 71                               | 335            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 09/20/2022        | silver-haired bat | 7                                | 336            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/20/2022        | silver-haired bat | 52                               | 336            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/20/2022        | silver-haired bat | 46                               | 336            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/20/2022        | silver-haired bat | 35                               | 337            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 09/20/2022        | silver-haired bat | 43                               | 338            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/20/2022        | silver-haired bat | 63                               | 402            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/20/2022        | silver-haired bat | 35                               | 406            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/20/2022        | silver-haired bat | 35                               | 407            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/20/2022        | silver-haired bat | 59                               | 407            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/20/2022        | silver-haired bat | 35                               | 410            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/20/2022        | silver-haired bat | 27                               | 410            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/20/2022        | silver-haired bat | 21                               | 410            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/20/2022        | silver-haired bat | 54                               | 426            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/21/2022        | eastern red bat   | 12                               | 217            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 09/22/2022        | eastern red bat   | 8                                | 211            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/22/2022        | eastern red bat   | 56                               | 239            | carcass search              | 70-m Cleared            | dismembered               | yes <sup>1</sup>    |
| 09/22/2022        | hoary bat         | 59                               | 209            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/22/2022        | silver-haired bat | 43                               | 204            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/22/2022        | silver-haired bat | 77                               | 204            | carcass search <sup>2</sup> | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/22/2022        | silver-haired bat | 68                               | 204            | carcass search              | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |
| 09/22/2022        | silver-haired bat | 75                               | 221            | carcass search <sup>2</sup> | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |

**Appendix A. Carcasses found at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| <b>Found Date</b> | <b>Species</b>    | <b>Distance from Turbine (m)</b> | <b>Turbine</b> | <b>Search Type</b> | <b>Search Area Type</b> | <b>Physical Condition</b> | <b>Aided Search</b> |
|-------------------|-------------------|----------------------------------|----------------|--------------------|-------------------------|---------------------------|---------------------|
| 09/22/2022        | silver-haired bat | 69                               | 223            | carcass search     | 70-m Cleared            | injured                   | yes <sup>1</sup>    |
| 09/22/2022        | silver-haired bat | 45                               | 223            | carcass search     | 70-m Cleared            | injured                   | yes <sup>1</sup>    |
| 09/22/2022        | silver-haired bat | 37                               | 229            | carcass search     | 70-m Cleared            | injured                   | yes <sup>1</sup>    |
| 09/22/2022        | silver-haired bat | 37                               | 229            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/22/2022        | silver-haired bat | 44                               | 230            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/22/2022        | silver-haired bat | 6                                | 230            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/22/2022        | silver-haired bat | 52                               | 230            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/22/2022        | silver-haired bat | 58                               | 231            | carcass search     | 70-m Uncleared          | injured                   | yes <sup>1</sup>    |
| 09/22/2022        | silver-haired bat | 46                               | 231            | carcass search     | 70-m Uncleared          | dismembered               | yes <sup>1</sup>    |
| 09/22/2022        | silver-haired bat | 51                               | 238            | carcass search     | 70-m Cleared            | injured                   | yes <sup>1</sup>    |
| 09/22/2022        | silver-haired bat | 63                               | 239            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/22/2022        | silver-haired bat | 36                               | 239            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/22/2022        | silver-haired bat | 56                               | 240            | carcass search     | 70-m Uncleared          | injured                   | yes <sup>1</sup>    |
| 09/22/2022        | silver-haired bat | 36                               | 240            | carcass search     | 70-m Uncleared          | injured                   | yes <sup>1</sup>    |
| 09/22/2022        | silver-haired bat | 48                               | 240            | carcass search     | 70-m Uncleared          | dismembered               | yes <sup>1</sup>    |
| 09/22/2022        | silver-haired bat | 55                               | 240            | carcass search     | 70-m Uncleared          | injured                   | yes <sup>1</sup>    |
| 09/22/2022        | silver-haired bat | 29                               | 241            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/22/2022        | silver-haired bat | 40                               | 241            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/22/2022        | silver-haired bat | 44                               | 244            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/22/2022        | silver-haired bat | 65                               | 244            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/22/2022        | silver-haired bat | 60                               | 249            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/23/2022        | hoary bat         | 57                               | 406            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/23/2022        | silver-haired bat | 48                               | 406            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/23/2022        | silver-haired bat | 47                               | 407            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/23/2022        | silver-haired bat | 63                               | 407            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/23/2022        | silver-haired bat | 53                               | 410            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/23/2022        | silver-haired bat | 18                               | 410            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/23/2022        | silver-haired bat | 5                                | 413            | carcass search     | 70-m Uncleared          | dismembered               | yes <sup>1</sup>    |
| 09/23/2022        | silver-haired bat | 27                               | 418            | carcass search     | 70-m Uncleared          | dismembered               | yes <sup>1</sup>    |
| 09/24/2022        | eastern red bat   | 29                               | 326            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 09/26/2022        | eastern red bat   | 35                               | 204            | carcass search     | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |
| 09/26/2022        | hoary bat         | 44                               | 229            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/26/2022        | hoary bat         | 53                               | 238            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/26/2022        | silver-haired bat | 50                               | 204            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/26/2022        | silver-haired bat | 39                               | 204            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/26/2022        | silver-haired bat | 63                               | 204            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |

**Appendix A. Carcasses found at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| <b>Found Date</b> | <b>Species</b>    | <b>Distance from Turbine (m)</b> | <b>Turbine</b> | <b>Search Type</b>          | <b>Search Area Type</b> | <b>Physical Condition</b> | <b>Aided Search</b> |
|-------------------|-------------------|----------------------------------|----------------|-----------------------------|-------------------------|---------------------------|---------------------|
| 09/26/2022        | silver-haired bat | 47                               | 204            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/26/2022        | silver-haired bat | 29                               | 206            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 09/26/2022        | silver-haired bat | 11                               | 206            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 09/26/2022        | silver-haired bat | 63                               | 209            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/26/2022        | silver-haired bat | 55                               | 218            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/26/2022        | silver-haired bat | 46                               | 218            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/26/2022        | silver-haired bat | 33                               | 221            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/26/2022        | silver-haired bat | 12                               | 222            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/26/2022        | silver-haired bat | 26                               | 222            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/26/2022        | silver-haired bat | 44                               | 223            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/26/2022        | silver-haired bat | 49                               | 229            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/26/2022        | silver-haired bat | 38                               | 229            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/26/2022        | silver-haired bat | 36                               | 229            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/26/2022        | silver-haired bat | 63                               | 238            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/26/2022        | silver-haired bat | 65                               | 238            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/26/2022        | silver-haired bat | 56                               | 238            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/26/2022        | silver-haired bat | 77                               | 239            | carcass search <sup>2</sup> | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/26/2022        | silver-haired bat | 39                               | 240            | carcass search              | 70-m Uncleared          | dismembered               | yes <sup>1</sup>    |
| 09/26/2022        | silver-haired bat | 66                               | 241            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/26/2022        | silver-haired bat | 66                               | 244            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/26/2022        | silver-haired bat | 61                               | 244            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/26/2022        | silver-haired bat | 56                               | 249            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/27/2022        | big brown bat     | 19                               | 308            | carcass search              | 70-m Cleared            | dismembered               | yes <sup>1</sup>    |
| 09/27/2022        | hoary bat         | 0                                | 243            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 09/27/2022        | silver-haired bat | 39                               | 251            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 09/27/2022        | silver-haired bat | 66                               | 254            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 09/27/2022        | silver-haired bat | 30                               | 323            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/27/2022        | silver-haired bat | 69                               | 418            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/27/2022        | silver-haired bat | 34                               | 421            | carcass search              | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |
| 09/29/2022        | eastern red bat   | 66                               | 225            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/29/2022        | eastern red bat   | 53                               | 230            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/29/2022        | eastern red bat   | 68                               | 327            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 09/29/2022        | silver-haired bat | 64                               | 211            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/29/2022        | silver-haired bat | 62                               | 229            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/29/2022        | silver-haired bat | 54                               | 239            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/29/2022        | silver-haired bat | 49                               | 241            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |



**Appendix A. Carcasses found at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| <b>Found Date</b>     | <b>Species</b>         | <b>Distance from Turbine (m)</b> | <b>Turbine</b> | <b>Search Type</b>          | <b>Search Area Type</b> | <b>Physical Condition</b> | <b>Aided Search</b> |
|-----------------------|------------------------|----------------------------------|----------------|-----------------------------|-------------------------|---------------------------|---------------------|
| 09/29/2022            | silver-haired bat      | 14                               | 246            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/29/2022            | silver-haired bat      | 35                               | 246            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/30/2022            | eastern red bat        | 41                               | 402            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/30/2022            | silver-haired bat      | 43                               | 307            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/30/2022            | silver-haired bat      | 6                                | 420            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 10/04/2022            | eastern red bat        | 32                               | 338            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 10/04/2022            | silver-haired bat      | 14                               | 319            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 10/04/2022            | silver-haired bat      | 35                               | 319            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 10/04/2022            | silver-haired bat      | 60                               | 321            | carcass search              | 70-m Cleared            | dismembered               | yes <sup>1</sup>    |
| 10/04/2022            | silver-haired bat      | 57                               | 321            | carcass search              | 70-m Cleared            | dismembered               | yes <sup>1</sup>    |
| 10/06/2022            | silver-haired bat      | 55                               | 204            | carcass search              | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |
| 10/06/2022            | silver-haired bat      | 46                               | 221            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 10/06/2022            | silver-haired bat      | 38                               | 221            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 10/06/2022            | silver-haired bat      | 49                               | 222            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 10/06/2022            | silver-haired bat      | 74                               | 239            | carcass search <sup>2</sup> | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 10/06/2022            | silver-haired bat      | 65                               | 239            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 10/06/2022            | silver-haired bat      | 31                               | 304            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 10/07/2022            | hoary bat              | 50                               | 406            | carcass search              | 70-m Uncleared          | dismembered               | yes <sup>1</sup>    |
| 10/07/2022            | silver-haired bat      | 40                               | 402            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 10/07/2022            | silver-haired bat      | 45                               | 410            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 10/07/2022            | silver-haired bat      | 27                               | 429            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 10/10/2022            | silver-haired bat      | 41                               | 218            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 10/11/2022            | silver-haired bat      | 20                               | 254            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| <b>Bird Carcasses</b> |                        |                                  |                |                             |                         |                           |                     |
| 04/07/2022            | golden-crowned kinglet | 59                               | 403            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 04/07/2022            | golden-crowned kinglet | 40                               | 417            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 04/12/2022            | killdeer               | 40                               | 245            | carcass search              | 100-m Road and pad      | injured                   | no                  |
| 04/12/2022            | red-tailed hawk        | 33                               | 335            | carcass search              | 100-m Road and pad      | scavenged                 | no                  |
| 04/21/2022            | golden-crowned kinglet | 30                               | 415            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 04/25/2022            | horned lark            | 27                               | 234            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 05/04/2022            | horned lark            | 17                               | 326            | carcass search              | 100-m Road and pad      | injured                   | no                  |
| 05/04/2022            | mallard                | 8                                | 348            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 05/05/2022            | European starling      | 1                                | 429            | carcass search              | 100-m Road and pad      | injured                   | no                  |
| 05/05/2022            | gray catbird           | 9                                | 305            | carcass search              | 100-m Road and pad      | injured                   | no                  |
| 05/11/2022            | blue jay               | 43                               | 313            | carcass search              | 100-m Road and pad      | injured                   | no                  |
| 05/11/2022            | horned lark            | 45                               | 314            | carcass search              | 100-m Road and pad      | injured                   | no                  |

**Appendix A. Carcasses found at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| <b>Found Date</b> | <b>Species</b>         | <b>Distance from Turbine (m)</b> | <b>Turbine</b> | <b>Search Type</b>          | <b>Search Area Type</b> | <b>Physical Condition</b> | <b>Aided Search</b> |
|-------------------|------------------------|----------------------------------|----------------|-----------------------------|-------------------------|---------------------------|---------------------|
| 05/11/2022        | mallard                | 10                               | 348            | carcass search              | 100-m Road and pad      | dismembered               | no                  |
| 05/11/2022        | unidentified sparrow   | 22                               | 319            | carcass search              | 100-m Road and pad      | dismembered               | no                  |
| 05/12/2022        | red-eyed vireo         | 13                               | 422            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 08/01/2022        | killdeer               | 63                               | 244            | carcass search              | 70-m Cleared            | feather spot              | yes <sup>1</sup>    |
| 08/02/2022        | horned lark            | 14                               | 317            | carcass search              | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |
| 08/05/2022        | horned lark            | 71                               | 225            | carcass search <sup>2</sup> | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/05/2022        | horned lark            | 15                               | 317            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/05/2022        | killdeer               | 63                               | 244            | carcass search              | 70-m Cleared            | dismembered               | yes <sup>1</sup>    |
| 08/06/2022        | horned lark            | 47                               | 418            | carcass search              | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |
| 08/06/2022        | killdeer               | 27                               | 410            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/11/2022        | killdeer               | 9                                | 314            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 08/12/2022        | European starling      | 32                               | 328            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/12/2022        | horned lark            | 41                               | 323            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/16/2022        | horned lark            | 1                                | 407            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/16/2022        | killdeer               | 35                               | 413            | carcass search              | 70-m Uncleared          | injured                   | yes <sup>1</sup>    |
| 08/16/2022        | turkey vulture         | 42                               | 410            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/16/2022        | unidentified passerine | 57                               | 413            | carcass search              | 70-m Uncleared          | feather spot              | yes <sup>1</sup>    |
| 08/18/2022        | American kestrel       | 40                               | 231            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/19/2022        | horned lark            | 45                               | 418            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/19/2022        | killdeer               | 65                               | 413            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 08/22/2022        | killdeer               | 58                               | 222            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/25/2022        | Blackburnian warbler   | 1                                | 346            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 08/25/2022        | killdeer               | 51                               | 417            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/25/2022        | yellow-billed cuckoo   | 40                               | 305            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/26/2022        | Henslow's sparrow      | 0                                | 414            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 08/26/2022        | killdeer               | 34                               | 423            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 08/29/2022        | horned lark            | 47                               | 222            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/29/2022        | horned lark            | 52                               | 239            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 08/29/2022        | killdeer               | 40                               | 324            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 08/29/2022        | tree swallow           | 16                               | 304            | carcass search              | 70-m Uncleared          | injured                   | yes <sup>1</sup>    |
| 08/30/2022        | Canada goose           | 50                               | 308            | carcass search              | 70-m Cleared            | dismembered               | yes <sup>1</sup>    |
| 08/30/2022        | chimney swift          | 5                                | 335            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 08/30/2022        | horned lark            | 23                               | 319            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/01/2022        | chimney swift          | 44                               | 244            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/01/2022        | horned lark            | 49                               | 231            | carcass search              | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |
| 09/02/2022        | horned lark            | 18                               | 241            | carcass search              | 70-m Cleared            | feather spot              | yes <sup>1</sup>    |

**Appendix A. Carcasses found at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| <b>Found Date</b> | <b>Species</b>                | <b>Distance from Turbine (m)</b> | <b>Turbine</b> | <b>Search Type</b> | <b>Search Area Type</b> | <b>Physical Condition</b> | <b>Aided Search</b> |
|-------------------|-------------------------------|----------------------------------|----------------|--------------------|-------------------------|---------------------------|---------------------|
| 09/02/2022        | horned lark                   | 39                               | 321            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/03/2022        | Cape May warbler              | 33                               | 429            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/03/2022        | mourning dove                 | 0                                | 402            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/03/2022        | mourning dove                 | 53                               | 417            | carcass search     | 70-m Cleared            | feather spot              | yes <sup>1</sup>    |
| 09/03/2022        | mourning dove                 | 36                               | 417            | carcass search     | 70-m Cleared            | feather spot              | yes <sup>1</sup>    |
| 09/03/2022        | northern rough-winged swallow | 57                               | 407            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/05/2022        | horned lark                   | 28                               | 209            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/05/2022        | horned lark                   | 25                               | 211            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/05/2022        | horned lark                   | 56                               | 238            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | killdeer                      | 65                               | 305            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/06/2022        | tree swallow                  | 17                               | 304            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/07/2022        | horned lark                   | 46                               | 417            | carcass search     | 70-m Cleared            | feather spot              | yes <sup>1</sup>    |
| 09/08/2022        | killdeer                      | 7                                | 327            | carcass search     | 100-m Road and pad      | scavenged                 | no                  |
| 09/09/2022        | cliff swallow                 | 31                               | 426            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/09/2022        | horned lark                   | 35                               | 229            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/09/2022        | horned lark                   | 11                               | 240            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/09/2022        | horned lark                   | 26                               | 240            | carcass search     | 70-m Uncleared          | feather spot              | yes <sup>1</sup>    |
| 09/09/2022        | killdeer                      | 81                               | 412            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 09/09/2022        | mourning dove                 | 3                                | 225            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/10/2022        | horned lark                   | 22                               | 336            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/10/2022        | unidentified warbler          | 45                               | 324            | carcass search     | 70-m Cleared            | feather spot              | yes <sup>1</sup>    |
| 09/12/2022        | horned lark                   | 12                               | 221            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/12/2022        | horned lark                   | 57                               | 238            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/13/2022        | horned lark                   | 8                                | 243            | carcass search     | 100-m Road and pad      | intact                    | no                  |
| 09/13/2022        | horned lark                   | 9                                | 338            | carcass search     | 70-m Uncleared          | dismembered               | yes <sup>1</sup>    |
| 09/13/2022        | horned lark                   | 45                               | 407            | carcass search     | 70-m Cleared            | injured                   | yes <sup>1</sup>    |
| 09/13/2022        | mourning dove                 | 65                               | 417            | carcass search     | 70-m Cleared            | feather spot              | yes <sup>1</sup>    |
| 09/15/2022        | chimney swift                 | 58                               | 305            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/15/2022        | horned lark                   | 48                               | 222            | carcass search     | 70-m Cleared            | injured                   | yes <sup>1</sup>    |
| 09/15/2022        | horned lark                   | 45                               | 240            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/15/2022        | mourning dove                 | 0                                | 225            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/15/2022        | Wilson's warbler              | 45                               | 238            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/16/2022        | horned lark                   | 43                               | 328            | carcass search     | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/16/2022        | horned lark                   | 62                               | 417            | carcass search     | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/16/2022        | mourning dove                 | 1                                | 308            | carcass search     | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |

**Appendix A. Carcasses found at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| <b>Found Date</b> | <b>Species</b>         | <b>Distance from Turbine (m)</b> | <b>Turbine</b> | <b>Search Type</b>          | <b>Search Area Type</b> | <b>Physical Condition</b> | <b>Aided Search</b> |
|-------------------|------------------------|----------------------------------|----------------|-----------------------------|-------------------------|---------------------------|---------------------|
| 09/19/2022        | chimney swift          | 27                               | 211            | carcass search              | 70-m Cleared            | dismembered               | yes <sup>1</sup>    |
| 09/19/2022        | horned lark            | 41                               | 218            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/19/2022        | horned lark            | 45                               | 229            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/19/2022        | horned lark            | 43                               | 230            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/19/2022        | mourning dove          | 2                                | 241            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/20/2022        | horned lark            | 13                               | 336            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/20/2022        | horned lark            | 29                               | 418            | carcass search              | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |
| 09/22/2022        | common yellowthroat    | 37                               | 209            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/22/2022        | horned lark            | 20                               | 222            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/22/2022        | horned lark            | 37                               | 240            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/23/2022        | tree swallow           | 33                               | 340            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/26/2022        | horned lark            | 27                               | 241            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/26/2022        | horned lark            | 26                               | 305            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/26/2022        | horned lark            | 17                               | 317            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 09/26/2022        | mourning dove          | 1                                | 218            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/27/2022        | house wren             | 35                               | 410            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 09/27/2022        | unidentified empidonax | 63                               | 325            | carcass search              | 70-m Cleared            | dismembered               | yes <sup>1</sup>    |
| 09/29/2022        | horned lark            | 11                               | 204            | carcass search              | 70-m Uncleared          | dismembered               | yes <sup>1</sup>    |
| 09/29/2022        | horned lark            | 45                               | 218            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 09/29/2022        | killdeer               | 28                               | 314            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 09/30/2022        | horned lark            | 29                               | 307            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 10/03/2022        | European starling      | 37                               | 214            | carcass search              | 100-m Road and pad      | intact                    | no                  |
| 10/04/2022        | golden-crowned kinglet | 42                               | 328            | carcass search              | 70-m Uncleared          | intact                    | yes <sup>1</sup>    |
| 10/04/2022        | golden-crowned kinglet | 62                               | 407            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 10/04/2022        | golden-crowned kinglet | 44                               | 413            | carcass search              | 70-m Uncleared          | dismembered               | yes <sup>1</sup>    |
| 10/04/2022        | golden-crowned kinglet | 68                               | 424            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 10/04/2022        | house wren             | 35                               | 410            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 10/05/2022        | ruby-crowned kinglet   | 26                               | 421            | carcass search              | 70-m Uncleared          | scavenged                 | yes <sup>1</sup>    |
| 10/06/2022        | blue-headed vireo      | 6                                | 345            | carcass search              | 100-m Road and pad      | scavenged                 | no                  |
| 10/06/2022        | brown-headed cowbird   | 35                               | 244            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 10/06/2022        | golden-crowned kinglet | 74                               | 223            | carcass search <sup>2</sup> | 70-m Cleared            | dismembered               | yes <sup>1</sup>    |
| 10/06/2022        | horned lark            | 62                               | 240            | carcass search              | 70-m Uncleared          | dismembered               | yes <sup>1</sup>    |
| 10/06/2022        | horned lark            | 27                               | 305            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |

**Appendix A. Carcasses found at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| <b>Found Date</b> | <b>Species</b>         | <b>Distance from Turbine (m)</b> | <b>Turbine</b> | <b>Search Type</b>          | <b>Search Area Type</b> | <b>Physical Condition</b> | <b>Aided Search</b> |
|-------------------|------------------------|----------------------------------|----------------|-----------------------------|-------------------------|---------------------------|---------------------|
| 10/07/2022        | blue-headed vireo      | 40                               | 410            | carcass search              | 70-m Cleared            | intact                    | yes <sup>1</sup>    |
| 10/07/2022        | golden-crowned kinglet | 74                               | 406            | carcass search <sup>2</sup> | 70-m Uncleared          | dismembered               | yes <sup>1</sup>    |
| 10/07/2022        | horned lark            | 14                               | 407            | carcass search              | 70-m Cleared            | scavenged                 | yes <sup>1</sup>    |
| 10/10/2022        | horned lark            | 68                               | 211            | carcass search              | 70-m Cleared            | dismembered               | yes <sup>1</sup>    |

<sup>1</sup> Dog-aided search.

<sup>2</sup> Carcass was found outside the search area.

m = meters.

## **Appendix B. Searcher Efficiency and Carcass Persistence Model Fitting Results**

**Appendix B1. Searcher efficiency models for 100-meter road and pads at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022 (n = 51 carcasses).**

| Covariates    | k Value | AICc  | Delta AICc |
|---------------|---------|-------|------------|
| Season        | 0.67    | 30.28 | 0*         |
| No Covariates | 0.67    | 34.80 | 4.52       |

\* Selected model.

AICc = corrected Akaike Information Criterion.

**Appendix B2. Searcher efficiency models for 70-meter cleared and uncleared plots at the Timber Road Wind Farm, Paulding County, Ohio, from August 1 – October 15, 2022 (n = 59 carcasses).**

| Covariates       | k Value | AICc  | Delta AICc |
|------------------|---------|-------|------------|
| No Covariates    | 0.67    | 78.89 | 0*         |
| Plot Search Type | 0.67    | 79.49 | 0.60       |

\* Selected model.

AICc = corrected Akaike Information Criterion.

**Appendix B3. Carcass persistence models with covariates and distributions for bats on 100-meter road and pads at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022 (n = 30 carcasses).**

| Location Covariates | Scale Covariates | Distribution | AICc   | Delta AICc |
|---------------------|------------------|--------------|--------|------------|
| No Covariates       | Season           | loglogistic  | 115.10 | 0*         |
| No Covariates       | Season           | lognormal    | 115.10 | 0          |
| Season              | Season           | loglogistic  | 117.62 | 2.52       |
| Season              | Season           | lognormal    | 117.68 | 2.58       |
| No Covariates       | Season           | Weibull      | 117.78 | 2.68       |
| Season              | Season           | Weibull      | 120.11 | 5.01       |
| No Covariates       | No Covariates    | loglogistic  | 127.77 | 12.67      |
| No Covariates       | No Covariates    | lognormal    | 128.46 | 13.36      |
| Season              | -                | exponential  | 129.52 | 14.42      |
| Season              | No Covariates    | loglogistic  | 129.89 | 14.79      |
| No Covariates       | No Covariates    | Weibull      | 129.91 | 14.81      |
| No Covariates       | -                | exponential  | 129.98 | 14.88      |
| Season              | No Covariates    | Weibull      | 130.69 | 15.59      |
| Season              | No Covariates    | lognormal    | 130.84 | 15.74      |

\* Selected model.

AICc = Corrected Akaike Information Criterion.

**Appendix B4. Carcass persistence models with covariates and distributions for bats on 70-meter cleared and uncleared plots at the Timber Road Wind Farm, Paulding County, Ohio, from August 1 – October 15, 2022 (n = 30 carcasses).**

| <b>Location Covariates</b> | <b>Scale Covariates</b> | <b>Distribution</b> | <b>AICc</b> | <b>Delta AICc</b> |
|----------------------------|-------------------------|---------------------|-------------|-------------------|
| No Covariates              | No Covariates           | lognormal           | 127.87      | 0                 |
| No Covariates              | -                       | exponential         | 128.06      | 0.19*             |
| No Covariates              | No Covariates           | loglogistic         | 128.57      | 0.70              |
| No Covariates              | PlotSearchTypeBT        | lognormal           | 129.73      | 1.86              |
| PlotSearchTypeBT           | No Covariates           | lognormal           | 130.14      | 2.27              |
| PlotSearchTypeBT           | -                       | exponential         | 130.31      | 2.44              |
| No Covariates              | No Covariates           | Weibull             | 130.35      | 2.48              |
| No Covariates              | PlotSearchTypeBT        | loglogistic         | 130.76      | 2.89              |
| PlotSearchTypeBT           | No Covariates           | loglogistic         | 131.01      | 3.14              |
| PlotSearchTypeBT           | PlotSearchTypeBT        | lognormal           | 132.31      | 4.44              |
| No Covariates              | PlotSearchTypeBT        | Weibull             | 132.73      | 4.86              |
| PlotSearchTypeBT           | No Covariates           | Weibull             | 132.78      | 4.91              |
| PlotSearchTypeBT           | PlotSearchTypeBT        | loglogistic         | 133.42      | 5.55              |
| PlotSearchTypeBT           | PlotSearchTypeBT        | Weibull             | 135.37      | 7.50              |

\* Selected model.

AICc = Corrected Akaike Information Criterion.



## **Appendix C. Truncated Weighted Likelihood Area Adjustment Model Fitting Results**

**Appendix C1. Number and percent (%) of bat carcasses found and total included in the area adjustment calculation for the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| Species           | Included in Area Adjustment |            | Outside Search Area* |            | Outside Study Period* |            | Total      |            |
|-------------------|-----------------------------|------------|----------------------|------------|-----------------------|------------|------------|------------|
|                   | Total                       | %          | Total                | %          | Total                 | %          | Total      | %          |
| silver-haired bat | 270                         | 45.0       | 7                    | 38.9       | 2                     | 3.9        | 279        | 41.6       |
| eastern red bat   | 187                         | 31.2       | 9                    | 50.0       | 20                    | 38.5       | 216        | 32.2       |
| hoary bat         | 76                          | 12.7       | 1                    | 5.6        | 18                    | 34.6       | 95         | 14.2       |
| big brown bat     | 63                          | 10.5       | 1                    | 5.6        | 12                    | 23.1       | 76         | 11.3       |
| evening bat       | 2                           | 0.3        | 0                    | 0          | 0                     | 0          | 2          | 0.3        |
| little brown bat  | 1                           | 0.2        | 0                    | 0          | 0                     | 0          | 1          | 0.2        |
| tricolored bat    | 1                           | 0.2        | 0                    | 0          | 0                     | 0          | 1          | 0.2        |
| <b>Total</b>      | <b>600</b>                  | <b>100</b> | <b>18</b>            | <b>100</b> | <b>52</b>             | <b>100</b> | <b>670</b> | <b>100</b> |

\* Carcasses not included in analysis.

Sums may not equal totals shown due to rounding.

**Appendix C2. Truncated weighted maximum likelihood (TWL) search area adjustment models for the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022. Separate TWL models were fit across turbines with four different blade lengths.**

| 50 m blade | 57 m blade | 68 m blade | 75 m blade | Pooled   | AICc     | Delta AICc |
|------------|------------|------------|------------|----------|----------|------------|
| normal     | Gompertz   | Gompertz   | Weibull    | -        | 24,820.7 | 0*         |
| normal     | Gompertz   | Gompertz   | normal     | -        | 24,826.9 | 6.2        |
| normal     | Gompertz   | Gompertz   | gamma      | -        | 24,833.3 | 12.6       |
| Gompertz   | Gompertz   | Gompertz   | Weibull    | -        | 24,851.9 | 31.2       |
| Weibull    | Gompertz   | Gompertz   | Weibull    | -        | 24,857.1 | 36.4       |
| Gompertz   | Gompertz   | Gompertz   | normal     | -        | 24,858.1 | 37.4       |
| normal     | Gompertz   | Gompertz   | Gompertz   | -        | 24,859.3 | 38.5       |
| Weibull    | Gompertz   | Gompertz   | normal     | -        | 24,863.3 | 42.6       |
| Gompertz   | Gompertz   | Gompertz   | gamma      | -        | 24,864.5 | 43.8       |
| Weibull    | Gompertz   | Gompertz   | gamma      | -        | 24,869.7 | 49.0       |
| -          | -          | -          | -          | Gompertz | 25,696.0 | 875.3      |

\* Selected model.

m = meters.

AICc = corrected Akaike Information Criterion.

Delta AICc = The difference between ranked models.

**Appendix C3. Search area adjustment models for bats found at turbines with 50-meter blades at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| Distribution | AICc     | Delta AICc |
|--------------|----------|------------|
| normal       | 10086.48 | 0*         |
| Gompertz     | 10117.77 | 31.29      |
| Weibull      | 10122.95 | 36.47      |
| gamma        | 10295.70 | 209.22     |

\* Selected model.

AICc = corrected Akaike Information Criterion.

Delta AICc = The difference between ranked models.

**Appendix C4. Search area adjustment models for bats found at turbines with 57-meter blades at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| <b>Distribution</b> | <b>AICc</b> | <b>Delta AICc</b> |
|---------------------|-------------|-------------------|
| Gompertz            | 10092.06    | 0*                |
| normal              | 10282.91    | 190.85            |
| Weibull             | 10366.06    | 274.01            |
| gamma               | 10426.64    | 334.59            |

\* Selected model.

AICc = corrected Akaike Information Criterion.

Delta AICc = The difference between ranked models.

**Appendix C5. Search area adjustment models for bats found at turbines with 68-meter blades at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| <b>Distribution</b> | <b>AICc</b> | <b>Delta AICc</b> |
|---------------------|-------------|-------------------|
| Gompertz            | 2284.86     | 0*                |
| normal              | 2402.64     | 117.78            |
| Weibull             | 2414.88     | 130.03            |
| gamma               | 2560.40     | 275.54            |

\* Selected model.

AICc = corrected Akaike Information Criterion.

Delta AICc = The difference between ranked models.

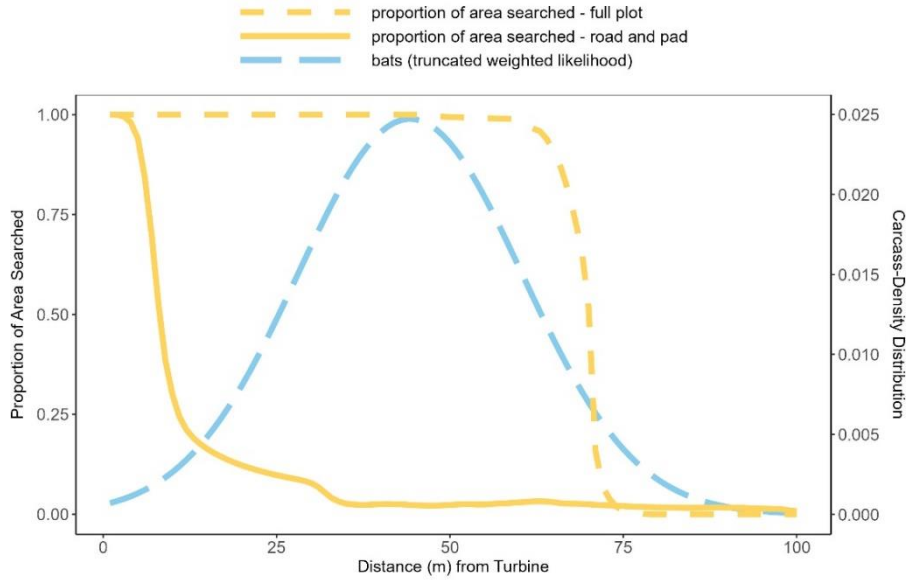
**Appendix C6. Search area adjustment models for bats at turbines with 75-meter blades at the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| <b>Distribution</b> | <b>AICc</b> | <b>Delta AICc</b> |
|---------------------|-------------|-------------------|
| Weibull             | 2351.29     | 0*                |
| normal              | 2357.50     | 6.21              |
| gamma               | 2363.88     | 12.59             |
| Gompertz            | 2389.83     | 38.54             |

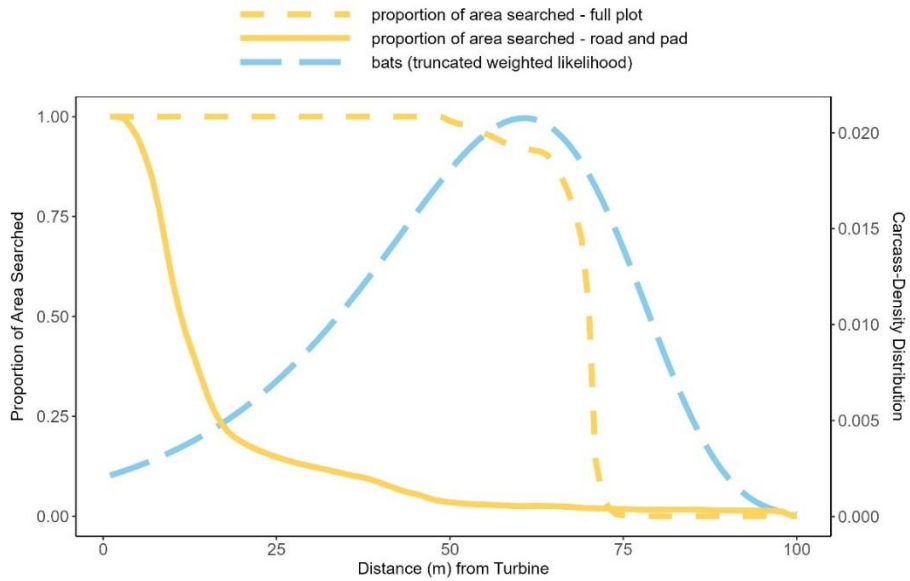
\* Selected model.

AICc = corrected Akaike Information Criterion.

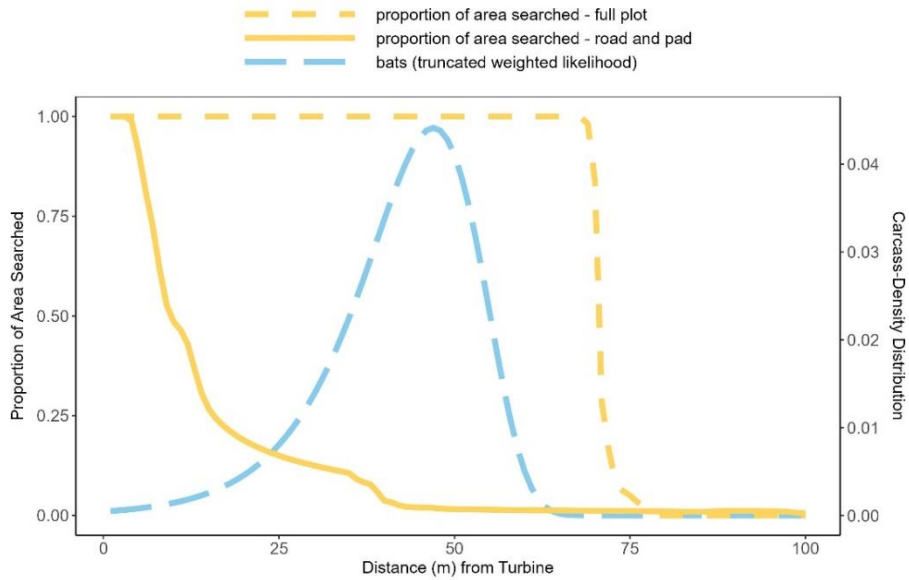
Delta AICc = The difference between ranked models.



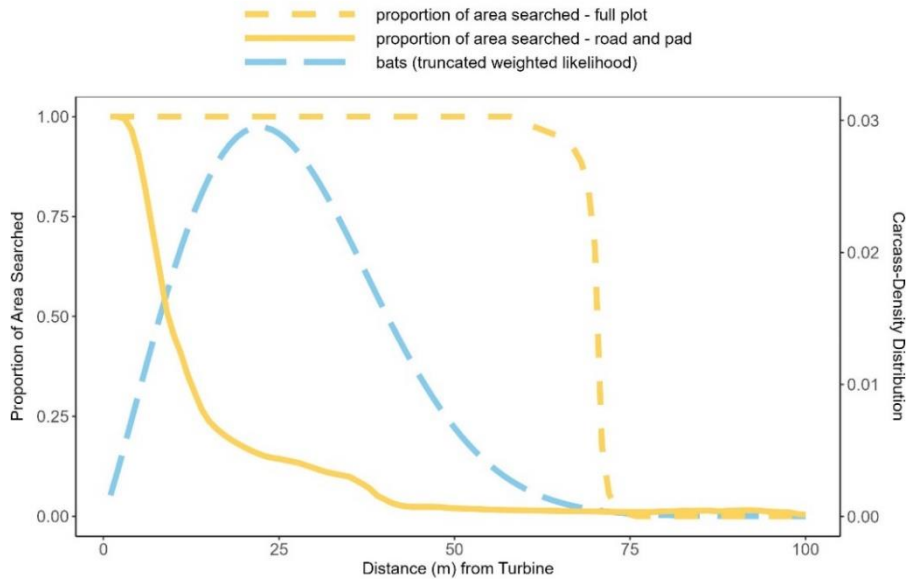
**Appendix C7. Estimated carcass-density distribution for bats found at turbines with 50-meter blades, and proportion of area searched by distance from turbine at Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**



**Appendix C8. Estimated carcass-density distribution for bats found at turbines with 57-meter blades, and proportion of area searched by distance from turbine at Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**



**Appendix C9. Estimated carcass-density distribution for bats found at turbines with 68-meter blades, and proportion of area searched by distance from turbine at Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**



**Appendix C10. Estimated carcass-density distribution for bats found at turbines with 75-meter blades, and proportion of area searched by distance from turbine at Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

**Appendix D. Inputs for Single Class and Multiple Class Modules in Evidence of Absence**

**Appendix D1. Inputs needed to run Evidence of Absence: Single Class Module for the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.\***

| Season | Plot Type                  | Blade Length (m) | Search Interval (days) | Number of Searches | Spatial Coverage (a) | Temporal Coverage | Searcher Efficiency |                 | Carcass Persistence** |                   |
|--------|----------------------------|------------------|------------------------|--------------------|----------------------|-------------------|---------------------|-----------------|-----------------------|-------------------|
|        |                            |                  |                        |                    |                      |                   | Carcasses Available | Carcasses Found | Shape ( $\alpha$ )    | Scale ( $\beta$ ) |
| Spring | 100-m road and pad         | 50               | 7.0                    | 7.0                | 0.05                 | 0.11              | 26                  | 25.5            | 2.81                  | 6.67              |
|        |                            | 57               | 7.0                    | 7.0                | 0.08                 | 0.11              | 26                  | 25.5            | 2.81                  | 6.67              |
|        |                            | 68               | 7.0                    | 7.0                | 0.06                 | 0.11              | 26                  | 25.5            | 2.81                  | 6.67              |
|        |                            | 75               | 7.0                    | 7.0                | 0.19                 | 0.11              | 26                  | 25.5            | 2.81                  | 6.67              |
| Fall   | 100-m road and pad         | 50               | 7.0                    | 12                 | 0.05                 | 0.89              | 25                  | 20              | 0.61                  | 6.67              |
|        |                            | 57               | 7.0                    | 12                 | 0.08                 | 0.89              | 25                  | 20              | 0.61                  | 6.67              |
|        |                            | 68               | 7.0                    | 12                 | 0.06                 | 0.89              | 25                  | 20              | 0.61                  | 6.67              |
|        |                            | 75               | 7.0                    | 12                 | 0.19                 | 0.89              | 25                  | 20              | 0.61                  | 6.67              |
| Fall   | 70-m cleared and uncleared | 50               | 3.5                    | 23                 | 0.93                 | 0.89              | 59                  | 38              | N/A                   | 23.06             |
|        |                            | 57               | 3.5                    | 23                 | 0.76                 | 0.89              | 59                  | 38              | N/A                   | 23.06             |
|        |                            | 68               | 3.5                    | 23                 | 1                    | 0.89              | 59                  | 38              | N/A                   | 23.06             |
|        |                            | 75               | 3.5                    | 23                 | 1                    | 0.89              | 59                  | 38              | N/A                   | 23.06             |

\*  $k$  was assumed to equal 0.67 for all strata, per Huso et al. (2017).

\*\* A loglogistic distribution was assumed for carcass persistence on 100-m road and pads. The 95% upper and lower confidence intervals on  $\beta$  were set to 4.9, 9.09. An exponential distribution was assumed for carcass persistence on 70-m cleared and uncleared plots. The 95% upper and lower confidence intervals on  $\beta$  were set to 15.03, 35.41.

m = meter.

**Appendix D2. Inputs needed to run Evidence of Absence model to combine across plot types within each season: Multiple Class Module for the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| Season | Plot Type                  | Blade Length (m) | Ba     | Bb       | Within-season Sampling Fraction |
|--------|----------------------------|------------------|--------|----------|---------------------------------|
| Spring | 100-m road and pad         | 50               | 170.68 | 4,197.04 | 0.41                            |
|        |                            | 57               | 176.80 | 2,687.09 | 0.36                            |
|        |                            | 68               | 166.01 | 3,306.08 | 0.05                            |
|        |                            | 75               | 146.36 | 830.48   | 0.18                            |
| Fall   | 100-m road and pad         | 50               | 197.59 | 6,960.46 | 0.15                            |
|        |                            | 57               | 213.72 | 4,685.45 | 0.13                            |
|        |                            | 68               | 215.46 | 6,101.72 | 0.02                            |
|        |                            | 75               | 183.02 | 1,538.01 | 0.06                            |
| Fall   | 70-m cleared and uncleared | 50               | 80.32  | 31.44    | 0.26                            |
|        |                            | 57               | 124.72 | 87.63    | 0.23                            |
|        |                            | 68               | 67.30  | 19.72    | 0.03                            |
|        |                            | 75               | 67.47  | 20.19    | 0.12                            |

m = meter.

**Appendix D3. Inputs needed to run Evidence of Absence model to combine across seasons: Multiple Class Module for the Timber Road Wind Farm, Paulding County, Ohio, from April 1 – May 15 and August 1 – October 15, 2022.**

| Season                       | Ba       | Bb        | Weights (DWP) |
|------------------------------|----------|-----------|---------------|
| Spring (April 1 – May 15)    | 514.2877 | 7,106.455 | 0.11          |
| Fall (August 1 – October 15) | 812.8514 | 2,131.578 | 0.89          |

DWP = Density-weighted proportion.

**Appendix D4. Inputs needed to run Evidence of Absence model to combine across years: Multiple Years Module for the Timber Road Wind Farm, Paulding County, Ohio, from 2020–2022.**

| Year | Ba         | Bb        | Weights ( $\rho$ ) |
|------|------------|-----------|--------------------|
| 2020 | 323.4201   | 1,417.479 | 0.89               |
| 2021 | 2,365.4480 | 4,863.686 | 1                  |
| 2022 | 888.4508   | 2,621.541 | 1                  |



EoA, v2.0.7 - Single Class Module

Edit Help

Detection Probability (g)

Search Schedule

Start of monitoring (yyyy-mm-dd)

Formula

Search interval (I)

Number of searches

Custom

span = 182, I (mean) = 7

Spatial coverage (a)

Temporal coverage (v)

Searcher Efficiency

Carcasses available for several searches

95% CIs:  $p \in [0.529, 0.677]$ ,  $k \in [0.645, 0.814]$

$\hat{p} = 0.62$ ,  $\hat{k} = 0.735$

Carcasses removed after one search

Carcasses available

Carcasses found

$\hat{p} = 0.962$ , with 95% CI = [0.834, 0.996]

Factor by which searcher efficiency changes with each search (k)

Persistence Distribution

Use field trials to estimate parameters

Distribution: Lognormal with shape ( $\alpha$ ) = 4.078 and scale ( $\beta$ ) = 1.171

$r = 0.531$  for  $I_r = 7$ , with 95% CIs:  $r \in [0.409, 0.656]$ ,  $\beta \in [0.488, 1.854]$

Enter parameter estimates manually

Parameters

shape ( $\alpha$ )

scale ( $\beta$ )  lwr  upr

$r = 0.812$  for  $I_r = 7$ , with 95% CI:  $r \in [0.691, 0.9]$

Exponential  
Weibull  
**Log-Logistic**  
Lognormal

Fatality estimation (M,  $\lambda$ )

Carcass Count (X)

Credibility level (1 -  $\alpha$ )

One-sided CI (M\*)  Two-sided CI

Estimated detection probability (g)

Summary statistics for estimation of detection probability (g)

=====

Results:

Full site for full year

Estimated g = 0.0385, 95% CI = [0.0328, 0.0447]

Fitted beta distribution parameters for estimated g: Ba = 152.8638, Bb = 3815.3957

Full site for monitored period, 01-Apr-2022 through 20-May-2022

Estimated g = 0.0385, 95% CI = [0.0327, 0.0448]

Fitted beta distribution parameters for estimated g: Ba = 148.8845, Bb = 3716.0879

Temporal coverage (within year) = 1

Searched area for monitored period, 01-Apr-2022 through 20-May-2022

Estimated g = 0.77, 95% CI = [0.641, 0.878]

Fitted beta distribution parameters for estimated g: Ba = 35.9068, Bb = 10.6998

=====

Input:

Search parameters

trial carcasses placed = 26, carcasses found = 25

estimated searcher efficiency:  $p = 0.962$ , 95% CI = [0.834, 0.996]

$k = 0.67$

Search schedule: Search interval (I) = 7, number of searches = 7, span = 49

spatial coverage: 0.05 temporal coverage: 1

-----

Carcass persistence:

Log-Logistic persistence distribution

shape ( $\alpha$ ) = 2.81 and scale ( $\beta$ ) = 6.67

95% CI  $\beta$  = [4.9, 9.09]

$r = 0.812$  for  $I_r = 7$  with 95% CI = [0.691, 0.9]

**Appendix D5. Screen shot of Evidence of Absence (v2.0.7) graphical user interface, Single Class Module inputs for Spring 2022, 100-meter road and pad searches at 55 turbines with a blade length of 50 meters, searched at a 7-day interval.**

EoA, v2.0.7 - Single Class Module

Edit Help

Detection Probability (g)

Search Schedule

Start of monitoring (yyyy-mm-dd) 2022-04-01

Formula

Search interval (I) 7

Number of searches 7

Custom Edit/View

span = 182, l (mean) = 7

Spatial coverage (a) 0.08

Temporal coverage (v) 1

Estimate g

Searcher Efficiency

Carcasses available for several searches

95% CIs:  $p \in [0.529, 0.677]$ ,  $k \in [0.645, 0.814]$

$\hat{p} = 0.62$ ,  $\hat{k} = 0.735$  View Edit

Carcasses removed after one search

Carcasses available 26

Carcasses found 25

$\hat{p} = 0.962$ , with 95% CI = [0.834, 0.996]

Factor by which searcher efficiency changes with each search (k) 0.67

Persistence Distribution

Use field trials to estimate parameters View/Edit

Distribution: Lognormal with shape ( $\alpha$ ) = 4.078 and scale ( $\beta$ ) = 1.171

$r = 0.531$  for  $l_r = 7$ , with 95% CIs:  $r \in [0.409, 0.656]$ ,  $\beta \in [0.488, 1.854]$

Enter parameter estimates manually View

Parameters

shape ( $\alpha$ ) 2.81

scale ( $\beta$ ) 6.67 lwr 4.90 upr 9.09

$r = 0.812$  for  $l_r = 7$ , with 95% CI:  $r \in [0.691, 0.9]$

Fatality estimation (M,  $\lambda$ )

Carcass Count (X) 0 Estimate M

Credibility level (1 -  $\alpha$ ) 0.9 Estimate  $\lambda$

One-sided CI (M\*) Two-sided CI

Close

---

Estimated detection probability (g)

Summary statistics for estimation of detection probability (g)

Results:

Full site for full year

Estimated  $g = 0.0615$ , 95% CI = [0.0524, 0.0713]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 151.9004$ ,  $B_b = 2318.8625$

Full site for monitored period, 01-Apr-2022 through 20-May-2022

Estimated  $g = 0.0615$ , 95% CI = [0.0524, 0.0713]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 151.9004$ ,  $B_b = 2318.8625$

Temporal coverage (within year) = 1

Searched area for monitored period, 01-Apr-2022 through 20-May-2022

Estimated  $g = 0.768$ , 95% CI = [0.643, 0.874]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 38.061$ ,  $B_b = 11.4674$

Input:

Search parameters

trial carcasses placed = 26, carcasses found = 25

estimated searcher efficiency:  $p = 0.962$ , 95% CI = [0.834, 0.996]

$k = 0.67$

Search schedule: Search interval (I) = 7, number of searches = 7, span = 49

spatial coverage: 0.08 temporal coverage: 1

Carcass persistence:

Log-Logistic persistence distribution

shape ( $\alpha$ ) = 2.81 and scale ( $\beta$ ) = 6.67

95% CI  $\beta$  = [4.9, 9.09]

$r = 0.812$  for  $l_r = 7$  with 95% CI = [0.691, 0.9]

**Appendix D6. Screen shot of Evidence of Absence (v2.0.7) graphical user interface, Single Class Module inputs for Spring 2022, 100-meter road and pad searches at 48 turbines with a blade length of 57 meters, searched at a 7-day interval.**

EoA, v2.0.7 - Single Class Module

Edit Help

Detection Probability (g)

Search Schedule

Start of monitoring (yyyy-mm-dd) 2022-04-01

Formula

Search interval (I) 7

Number of searches 7

Custom Edit/View

span = 182, I (mean) = 7

Spatial coverage (a) 0.06

Temporal coverage (v) 1

Estimate g

Searcher Efficiency

Carcasses available for several searches

95% CIs:  $p \in [0.529, 0.677]$ ,  $k \in [0.645, 0.814]$

$\hat{p} = 0.62$ ,  $\hat{k} = 0.735$  View Edit

Carcasses removed after one search

Carcasses available 26

Carcasses found 25

$\hat{p} = 0.962$ , with 95% CI = [0.834, 0.996]

Factor by which searcher efficiency changes with each search (k) 0.67

Persistence Distribution

Use field trials to estimate parameters View/Edit

Distribution: Lognormal with shape ( $\alpha$ ) = 4.078 and scale ( $\beta$ ) = 1.171

$r = 0.531$  for  $l_r = 7$ , with 95% CIs:  $r \in [0.409, 0.656]$ ,  $\beta \in [0.488, 1.854]$

Enter parameter estimates manually View

Parameters

shape ( $\alpha$ ) 2.81

scale ( $\beta$ ) 6.67 lwr 4.90 upr 9.09

$r = 0.812$  for  $l_r = 7$ , with 95% CI:  $r \in [0.691, 0.9]$

Fatality estimation (M,  $\lambda$ )

Carcass Count (X) 0 Estimate M

Credibility level (1 -  $\alpha$ ) 0.9 Estimate  $\lambda$

One-sided CI (M\*) Two-sided CI

Close

Estimated detection probability (g)

Summary statistics for estimation of detection probability (g)

Results:

Full site for full year

Estimated  $g = 0.0464$ , 95% CI = [0.0392, 0.0542]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 141.4586$ ,  $B_b = 2905.239$

Full site for monitored period, 01-Apr-2022 through 20-May-2022

Estimated  $g = 0.0464$ , 95% CI = [0.0392, 0.0542]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 141.4586$ ,  $B_b = 2905.239$

Temporal coverage (within year) = 1

Searched area for monitored period, 01-Apr-2022 through 20-May-2022

Estimated  $g = 0.774$ , 95% CI = [0.64, 0.884]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 33.6067$ ,  $B_b = 9.8214$

Input:

Search parameters

trial carcasses placed = 26, carcasses found = 25

estimated searcher efficiency:  $p = 0.962$ , 95% CI = [0.834, 0.996]

$k = 0.67$

Search schedule: Search interval (I) = 7, number of searches = 7, span = 49

spatial coverage: 0.06 temporal coverage: 1

Carcass persistence:

Log-Logistic persistence distribution

shape ( $\alpha$ ) = 2.81 and scale ( $\beta$ ) = 6.67

95% CI  $\beta \in [4.9, 9.09]$

$r = 0.812$  for  $l_r = 7$  with 95% CI = [0.691, 0.9]

**Appendix D7. Screen shot of Evidence of Absence (v2.0.7) graphical user interface, Single Class Module inputs for Spring 2022, 100-meter road and pad searches at seven turbines with a blade length of 68 meters, searched at a 7-day interval.**

EoA, v2.0.7 - Single Class Module

Edit Help

Detection Probability (g)

Search Schedule

Start of monitoring (yyyy-mm-dd) 2022-04-01

Formula

Search interval (I) 7

Number of searches 7

Custom Edit/View

span = 182, l (mean) = 7

Spatial coverage (a) 0.19

Temporal coverage (v) 1

Estimate g

Searcher Efficiency

Carcasses available for several searches

95% CIs:  $p \in [0.529, 0.677]$ ,  $k \in [0.645, 0.814]$

$\hat{p} = 0.62$ ,  $\hat{k} = 0.735$  View Edit

Carcasses removed after one search

Carcasses available 26

Carcasses found 25

$\hat{p} = 0.962$ , with 95% CI = [0.834, 0.996]

Factor by which searcher efficiency changes with each search (k) 0.67

Persistence Distribution

Use field trials to estimate parameters View/Edit

Distribution: Lognormal with shape ( $\alpha$ ) = 4.078 and scale ( $\beta$ ) = 1.171

$r = 0.531$  for  $l_r = 7$ , with 95% CIs:  $r \in [0.409, 0.656]$ ,  $\beta \in [0.488, 1.854]$

Enter parameter estimates manually View

Parameters

shape ( $\alpha$ ) 2.81

scale ( $\beta$ ) 6.67 lwr 4.90 upr 9.09

$r = 0.812$  for  $l_r = 7$ , with 95% CI:  $r \in [0.691, 0.9]$

Exponential Weibull Log-Logistic Lognormal

Fatality estimation (M,  $\lambda$ )

Carcass Count (X) 0 Estimate M

Credibility level (1 -  $\alpha$ ) 0.9 Estimate  $\lambda$

One-sided CI (M\*) Two-sided CI

Close

Estimated detection probability (g)

Summary statistics for estimation of detection probability (g)

Results:

Full site for full year

Estimated  $g = 0.146$ , 95% CI = [0.124, 0.169]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 139.54$ ,  $B_b = 818.1737$

Full site for monitored period, 01-Apr-2022 through 20-May-2022

Estimated  $g = 0.146$ , 95% CI = [0.124, 0.169]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 139.54$ ,  $B_b = 818.1737$

Temporal coverage (within year) = 1

Searched area for monitored period, 01-Apr-2022 through 20-May-2022

Estimated  $g = 0.767$ , 95% CI = [0.639, 0.874]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 37.0315$ ,  $B_b = 11.2539$

Input:

Search parameters

trial carcasses placed = 26, carcasses found = 25

estimated searcher efficiency:  $p = 0.962$ , 95% CI = [0.834, 0.996]

$k = 0.67$

Search schedule: Search interval (I) = 7, number of searches = 7, span = 49

spatial coverage: 0.19 temporal coverage: 1

Carcass persistence:

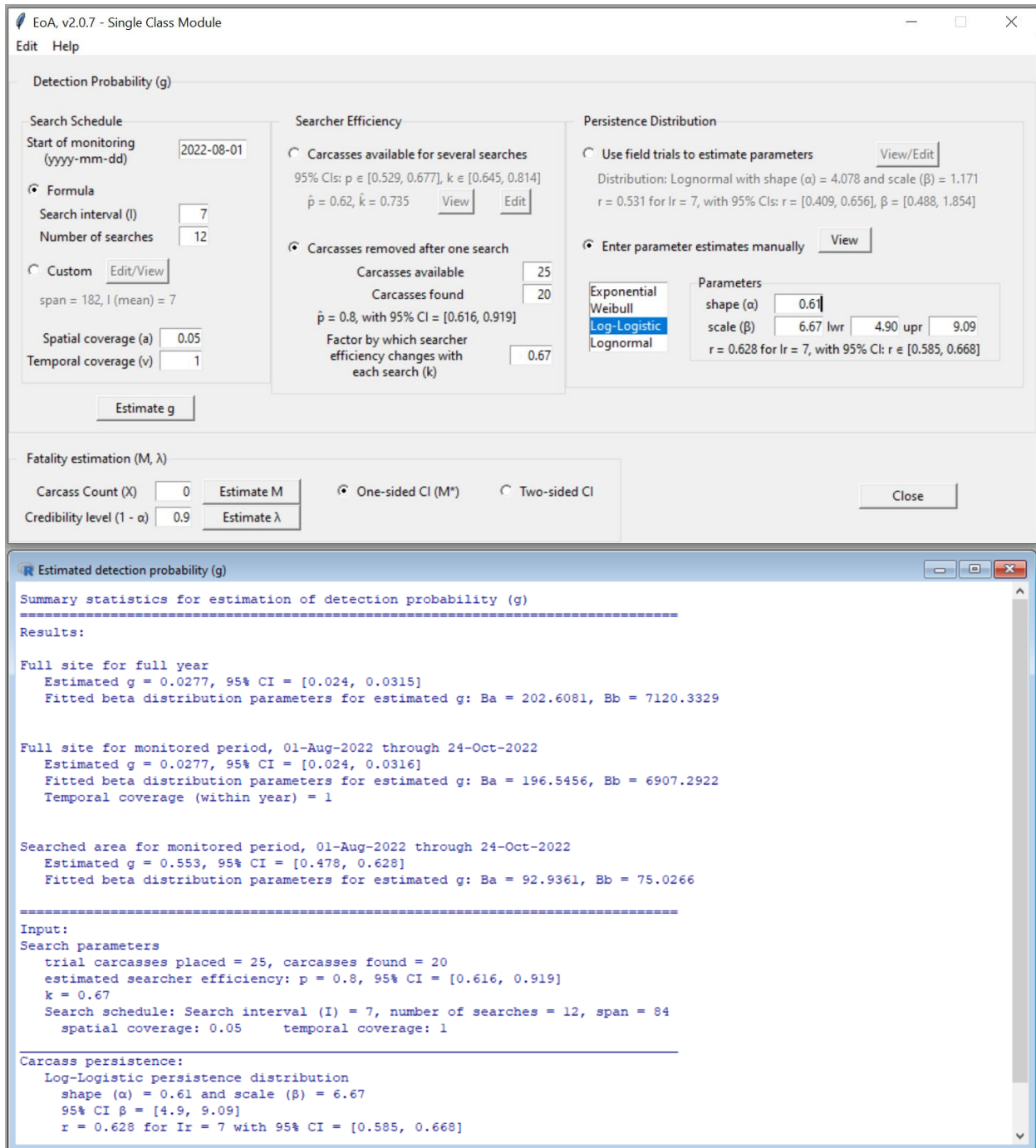
Log-Logistic persistence distribution

shape ( $\alpha$ ) = 2.81 and scale ( $\beta$ ) = 6.67

95% CI  $\beta \in [4.9, 9.09]$

$r = 0.812$  for  $l_r = 7$  with 95% CI = [0.691, 0.9]

Appendix D8. Screen shot of Evidence of Absence (v2.0.7) graphical user interface, Single Class Module inputs for Spring 2022, 100-meter road and pad searches at 24 turbines with a blade length of 75 meters, searched at a 7-day interval.



**Appendix D9. Screen shot of Evidence of Absence (v2.0.7) graphical user interface, Single Class Module inputs for Fall 2022, 100-meter road and pad searches at 35 turbines with a blade length of 50 meters, searched at a 7-day interval.**



EoA, v2.0.7 - Single Class Module

Edit Help

Detection Probability (g)

Search Schedule

Start of monitoring (yyyy-mm-dd) 2022-08-01

Formula

Search interval (I) 7

Number of searches 12

Custom Edit/View

span = 182, I (mean) = 7

Spatial coverage (a) 0.08

Temporal coverage (v) 1

Estimate g

Searcher Efficiency

Carcasses available for several searches

95% CIs:  $p \in [0.529, 0.677]$ ,  $k \in [0.645, 0.814]$

$\hat{p} = 0.62$ ,  $\hat{k} = 0.735$  View Edit

Carcasses removed after one search

Carcasses available 25

Carcasses found 20

$\hat{p} = 0.8$ , with 95% CI = [0.616, 0.919]

Factor by which searcher efficiency changes with each search (k) 0.67

Persistence Distribution

Use field trials to estimate parameters View/Edit

Distribution: Lognormal with shape ( $\alpha$ ) = 4.078 and scale ( $\beta$ ) = 1.171

$r = 0.531$  for  $l_r = 7$ , with 95% CIs:  $r = [0.409, 0.656]$ ,  $\beta = [0.488, 1.854]$

Enter parameter estimates manually View

Parameters

shape ( $\alpha$ ) 0.61

scale ( $\beta$ ) 6.67 lwr 4.90 upr 9.09

$r = 0.628$  for  $l_r = 7$ , with 95% CI:  $r \in [0.585, 0.668]$

Fatality estimation (M,  $\lambda$ )

Carcass Count (X) 0 Estimate M

Credibility level (1 -  $\alpha$ ) 0.9 Estimate  $\lambda$

One-sided CI (M\*) Two-sided CI

Close

---

Estimated detection probability (g)

Summary statistics for estimation of detection probability (g)

Results:

Full site for full year

Estimated  $g = 0.0445$ , 95% CI = [0.039, 0.0504]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 226.7065$ ,  $B_b = 4865.4255$

Full site for monitored period, 01-Aug-2022 through 24-Oct-2022

Estimated  $g = 0.0445$ , 95% CI = [0.039, 0.0504]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 220.4357$ ,  $B_b = 4730.8614$

Temporal coverage (within year) = 1

Searched area for monitored period, 01-Aug-2022 through 24-Oct-2022

Estimated  $g = 0.556$ , 95% CI = [0.485, 0.626]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 105.2397$ ,  $B_b = 83.8776$

Input:

Search parameters

trial carcasses placed = 25, carcasses found = 20

estimated searcher efficiency:  $p = 0.8$ , 95% CI = [0.616, 0.919]

$k = 0.67$

Search schedule: Search interval (I) = 7, number of searches = 12, span = 84

spatial coverage: 0.08 temporal coverage: 1

Carcass persistence:

Log-Logistic persistence distribution

shape ( $\alpha$ ) = 0.61 and scale ( $\beta$ ) = 6.67

95% CI  $\beta = [4.9, 9.09]$

$r = 0.628$  for  $l_r = 7$  with 95% CI = [0.585, 0.668]

Appendix D10. Screen shot of Evidence of Absence (v2.0.7) graphical user interface, Single Class Module inputs for Fall 2022, 100-meter road and pad searches at 31 turbines with a blade length of 57 meters, searched at a 7-day interval.

EoA, v2.0.7 - Single Class Module

Edit Help

Detection Probability (g)

Search Schedule

Start of monitoring (yyyy-mm-dd) 2022-08-01

Formula

Search interval (I) 7

Number of searches 12

Custom Edit/View

span = 182, I (mean) = 7

Spatial coverage (a) 0.06

Temporal coverage (v) 1

Estimate g

Searcher Efficiency

Carcasses available for several searches

95% CIs:  $p \in [0.529, 0.677]$ ,  $k \in [0.645, 0.814]$

$\hat{p} = 0.62$ ,  $\hat{k} = 0.735$  View Edit

Carcasses removed after one search

Carcasses available 25

Carcasses found 20

$\hat{p} = 0.8$ , with 95% CI = [0.616, 0.919]

Factor by which searcher efficiency changes with each search (k) 0.67

Persistence Distribution

Use field trials to estimate parameters View/Edit

Distribution: Lognormal with shape ( $\alpha$ ) = 4.078 and scale ( $\beta$ ) = 1.171

$r = 0.531$  for  $l_r = 7$ , with 95% CIs:  $r = [0.409, 0.656]$ ,  $\beta = [0.488, 1.854]$

Enter parameter estimates manually View

Parameters

shape ( $\alpha$ ) 0.61

scale ( $\beta$ ) 6.67 lwr 4.90 upr 9.09

$r = 0.628$  for  $l_r = 7$ , with 95% CI:  $r \in [0.585, 0.668]$

Fatality estimation (M,  $\lambda$ )

Carcass Count (X) 0 Estimate M

Credibility level (1 -  $\alpha$ ) 0.9 Estimate  $\lambda$

One-sided CI (M\*) Two-sided CI

Close

---

Estimated detection probability (g)

Summary statistics for estimation of detection probability (g)

Results:

Full site for full year

Estimated  $g = 0.0332$ , 95% CI = [0.0288, 0.0379]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 197.8435$ ,  $B_b = 5766.4187$

Full site for monitored period, 01-Aug-2022 through 24-Oct-2022

Estimated  $g = 0.0332$ , 95% CI = [0.0287, 0.0379]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 191.8823$ ,  $B_b = 5592.6882$

Temporal coverage (within year) = 1

Searched area for monitored period, 01-Aug-2022 through 24-Oct-2022

Estimated  $g = 0.553$ , 95% CI = [0.477, 0.628]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 91.3648$ ,  $B_b = 73.9058$

Input:

Search parameters

trial carcasses placed = 25, carcasses found = 20

estimated searcher efficiency:  $p = 0.8$ , 95% CI = [0.616, 0.919]

$k = 0.67$

Search schedule: Search interval (I) = 7, number of searches = 12, span = 84

spatial coverage: 0.06 temporal coverage: 1

Carcass persistence:

Log-Logistic persistence distribution

shape ( $\alpha$ ) = 0.61 and scale ( $\beta$ ) = 6.67

95% CI  $\beta = [4.9, 9.09]$

$r = 0.628$  for  $l_r = 7$  with 95% CI = [0.585, 0.668]

Appendix D11. Screen shot of Evidence of Absence (v2.0.7) graphical user interface, Single Class Module inputs for Fall 2022, 100-meter road and pad searches at four turbines with a blade length of 68 meters, searched at a 7-day interval.

EoA, v2.0.7 - Single Class Module

Edit Help

Detection Probability (g)

Search Schedule

Start of monitoring (yyyy-mm-dd) 2022-08-01

Formula

Search interval (I) 7

Number of searches 12

Custom Edit/View

span = 182, l (mean) = 7

Spatial coverage (a) 0.19

Temporal coverage (v) 1

Estimate g

Searcher Efficiency

Carcasses available for several searches

95% CIs:  $p \in [0.529, 0.677]$ ,  $k \in [0.645, 0.814]$

$\hat{p} = 0.62$ ,  $\hat{k} = 0.735$  View Edit

Carcasses removed after one search

Carcasses available 25

Carcasses found 20

$\hat{p} = 0.8$ , with 95% CI = [0.616, 0.919]

Factor by which searcher efficiency changes with each search (k) 0.67

Persistence Distribution

Use field trials to estimate parameters View/Edit

Distribution: Lognormal with shape ( $\alpha$ ) = 4.078 and scale ( $\beta$ ) = 1.171

$r = 0.531$  for  $l_r = 7$ , with 95% CIs:  $r \in [0.409, 0.656]$ ,  $\beta \in [0.488, 1.854]$

Enter parameter estimates manually View

Parameters

shape ( $\alpha$ ) 0.61

scale ( $\beta$ ) 6.67 lwr 4.90 upr 9.09

$r = 0.628$  for  $l_r = 7$ , with 95% CI:  $r \in [0.585, 0.668]$

Fatality estimation (M,  $\lambda$ )

Carcass Count (X) 0 Estimate M

Credibility level (1 -  $\alpha$ ) 0.9 Estimate  $\lambda$

One-sided CI (M\*) Two-sided CI

Close

---

Estimated detection probability (g)

Summary statistics for estimation of detection probability (g)

Results:

Full site for full year

Estimated  $g = 0.105$ , 95% CI = [0.092, 0.12]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 198.0917$ ,  $B_b = 1680.3792$

Full site for monitored period, 01-Aug-2022 through 24-Oct-2022

Estimated  $g = 0.105$ , 95% CI = [0.092, 0.12]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 198.0917$ ,  $B_b = 1680.3792$

Temporal coverage (within year) = 1

Searched area for monitored period, 01-Aug-2022 through 24-Oct-2022

Estimated  $g = 0.555$ , 95% CI = [0.482, 0.626]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 100.5856$ ,  $B_b = 80.6511$

Input:

Search parameters

trial carcasses placed = 25, carcasses found = 20

estimated searcher efficiency:  $p = 0.8$ , 95% CI = [0.616, 0.919]

$k = 0.67$

Search schedule: Search interval (I) = 7, number of searches = 12, span = 84

spatial coverage: 0.19 temporal coverage: 1

Carcass persistence:

Log-Logistic persistence distribution

shape ( $\alpha$ ) = 0.61 and scale ( $\beta$ ) = 6.67

95% CI  $\beta = [4.9, 9.09]$

$r = 0.628$  for  $l_r = 7$  with 95% CI = [0.585, 0.668]

Appendix D12. Screen shot of Evidence of Absence (v2.0.7) graphical user interface, Single Class Module inputs for Fall 2022, 100-meter road and pad searches at 16 turbines with a blade length of 75 meters, searched at a 7-day interval.



EoA, v2.0.7 - Single Class Module

Edit Help

Detection Probability (g)

Search Schedule

Start of monitoring (yyyy-mm-dd) 2022-08-01

Formula

Search interval (I) 3.5

Number of searches 23

Custom Edit/View

span = 182, l (mean) = 7

Spatial coverage (a) 0.93

Temporal coverage (v) 1

Estimate g

Searcher Efficiency

Carcasses available for several searches

95% CI:  $p \in [0.529, 0.677]$ ,  $k \in [0.645, 0.814]$

$\hat{p} = 0.62$ ,  $\hat{k} = 0.735$  View Edit

Carcasses removed after one search

Carcasses available 59

Carcasses found 38

$\hat{p} = 0.644$ , with 95% CI = [0.517, 0.757]

Factor by which searcher efficiency changes with each search (k) 0.67

Persistence Distribution

Use field trials to estimate parameters View/Edit

Distribution: Lognormal with shape ( $\alpha$ ) = 4.078 and scale ( $\beta$ ) = 1.171

$r = 0.653$  for  $l_r = 3.5$ , with 95% CI:  $r = [0.529, 0.783]$ ,  $\beta = [0.488, 1.854]$

Enter parameter estimates manually View

Exponential

Weibull

Log-Logistic

Lognormal

Parameters

rate 0.0434

scale ( $\beta$ ) 23.06 lwr 15.03 upr 35.41

$r = 0.928$  for  $l_r = 3.5$ , with 95% CI:  $r \in [0.892, 0.952]$

Fatality estimation (M,  $\lambda$ )

Carcass Count (X) 0 Estimate M

Credibility level (1 -  $\alpha$ ) 0.9 Estimate  $\lambda$

One-sided CI (M\*) Two-sided CI

Close

---

Estimated detection probability (g)

Summary statistics for estimation of detection probability (g)

Results:

Full site for full year

Estimated  $g = 0.719$ , 95% CI = [0.636, 0.795]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 86.6334$ ,  $B_b = 33.8572$

Full site for monitored period, 01-Aug-2022 through 20-Oct-2022

Estimated  $g = 0.719$ , 95% CI = [0.636, 0.795]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 86.6334$ ,  $B_b = 33.8572$

Temporal coverage (within year) = 1

Searched area for monitored period, 01-Aug-2022 through 20-Oct-2022

Estimated  $g = 0.773$ , 95% CI = [0.682, 0.853]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 70.2167$ ,  $B_b = 20.5955$

Input:

Search parameters

trial carcasses placed = 59, carcasses found = 38

estimated searcher efficiency:  $p = 0.644$ , 95% CI = [0.517, 0.757]

$k = 0.67$

Search schedule: Search interval (I) = 3.5, number of searches = 23, span = 80.5

spatial coverage: 0.93 temporal coverage: 1

Carcass persistence:

Exponential persistence distribution

scale ( $\beta$ ) = 23.06

95% CI  $\beta = [15.03, 35.41]$  and  $r = 0.928$  for  $l_r = 3.5$  with 95% CI = [0.892, 0.952]

Parameters entered manually

**Appendix D13. Screen shot of Evidence of Absence (v2.0.7) graphical user interface, Single Class Module inputs for Fall 2022, 70-meter full plot searches at 20 turbines with a blade length of 50 meters, searched at a 3.5-day interval.**

EoA, v2.0.7 - Single Class Module

Edit Help

Detection Probability (g)

Search Schedule

Start of monitoring (yyyy-mm-dd) 2022-08-01

Formula

Search interval (I) 3.5

Number of searches 23

Custom Edit/View

span = 182, I (mean) = 7

Spatial coverage (a) 0.76

Temporal coverage (v) 1

Estimate g

Searcher Efficiency

Carcasses available for several searches

95% CIs:  $p \in [0.529, 0.677]$ ,  $k \in [0.645, 0.814]$

$\hat{p} = 0.62$ ,  $\hat{k} = 0.735$  View Edit

Carcasses removed after one search

Carcasses available 59

Carcasses found 38

$\hat{p} = 0.644$ , with 95% CI = [0.517, 0.757]

Factor by which searcher efficiency changes with each search (k) 0.67

Persistence Distribution

Use field trials to estimate parameters View/Edit

Distribution: Lognormal with shape ( $\alpha$ ) = 4.078 and scale ( $\beta$ ) = 1.171

$r = 0.653$  for  $l_r = 3.5$ , with 95% CIs:  $r \in [0.529, 0.783]$ ,  $\beta \in [0.488, 1.854]$

Enter parameter estimates manually View

Parameters

rate 0.0434

scale ( $\beta$ ) 23.06 lwr 15.03 upr 35.41

$r = 0.928$  for  $l_r = 3.5$ , with 95% CI:  $r \in [0.892, 0.952]$

Fatality estimation (M,  $\lambda$ )

Carcass Count (X) 0 Estimate M

Credibility level (1 -  $\alpha$ ) 0.9 Estimate  $\lambda$

One-sided CI (M\*) Two-sided CI

Close

---

Estimated detection probability (g)

Summary statistics for estimation of detection probability (g)

Results:

Full site for full year

Estimated  $g = 0.587$ , 95% CI = [0.518, 0.655]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 117.0389$ ,  $B_b = 82.2068$

Full site for monitored period, 01-Aug-2022 through 20-Oct-2022

Estimated  $g = 0.587$ , 95% CI = [0.518, 0.655]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 117.0389$ ,  $B_b = 82.2068$

Temporal coverage (within year) = 1

Searched area for monitored period, 01-Aug-2022 through 20-Oct-2022

Estimated  $g = 0.773$ , 95% CI = [0.678, 0.856]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 64.4038$ ,  $B_b = 18.9224$

Input:

Search parameters

trial carcasses placed = 59, carcasses found = 38

estimated searcher efficiency:  $p = 0.644$ , 95% CI = [0.517, 0.757]

$k = 0.67$

Search schedule: Search interval (I) = 3.5, number of searches = 23, span = 80.5

spatial coverage: 0.76 temporal coverage: 1

Carcass persistence:

Exponential persistence distribution

scale ( $\beta$ ) = 23.06

95% CI  $\beta = [15.03, 35.41]$  and  $r = 0.928$  for  $l_r = 3.5$  with 95% CI = [0.892, 0.952]

Parameters entered manually

**Appendix D14. Screen shot of Evidence of Absence (v2.0.7) graphical user interface, Single Class Module inputs for Fall 2022, 70-meter full plot searches at 17 turbines with a blade length of 57 meters, searched at a 3.5-day interval.**

EoA, v2.0.7 - Single Class Module

Edit Help

### Detection Probability (g)

**Search Schedule**

Start of monitoring (yyyy-mm-dd)

**Formula**

Search interval (I)

Number of searches

**Custom**

span = 182, l (mean) = 7

Spatial coverage (a)

Temporal coverage (v)

**Searcher Efficiency**

**Carcasses available for several searches**

95% CIs:  $p \in [0.529, 0.677]$ ,  $k \in [0.645, 0.814]$

$\hat{p} = 0.62$ ,  $\hat{k} = 0.735$

**Carcasses removed after one search**

Carcasses available

Carcasses found

$\hat{p} = 0.644$ , with 95% CI = [0.517, 0.757]

Factor by which searcher efficiency changes with each search (k)

**Persistence Distribution**

**Use field trials to estimate parameters**

Distribution: Lognormal with shape ( $\alpha$ ) = 4.078 and scale ( $\beta$ ) = 1.171

$r = 0.653$  for  $l_r = 3.5$ , with 95% CIs:  $r \in [0.529, 0.783]$ ,  $\beta \in [0.488, 1.854]$

**Enter parameter estimates manually**

**Parameters**

rate

scale ( $\beta$ )  lwr  upr

$r = 0.928$  for  $l_r = 3.5$ , with 95% CI:  $r \in [0.892, 0.952]$

---

**Fatality estimation (M,  $\lambda$ )**

Carcass Count (X)    **One-sided CI (M\*)**  **Two-sided CI**

Credibility level (1 -  $\alpha$ )

---

**Estimated detection probability (g)**

Summary statistics for estimation of detection probability (g)

Results:

Full site for full year

Estimated  $g = 0.772$ , 95% CI = [0.677, 0.855]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 64.4907$ ,  $B_b = 19.0228$

Full site for monitored period, 01-Aug-2022 through 20-Oct-2022

Estimated  $g = 0.772$ , 95% CI = [0.677, 0.855]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 64.4907$ ,  $B_b = 19.0228$

Temporal coverage (within year) = 1

Searched area for monitored period, 01-Aug-2022 through 20-Oct-2022

Estimated  $g = 0.772$ , 95% CI = [0.677, 0.855]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 64.4907$ ,  $B_b = 19.0228$

Input:

Search parameters

trial carcasses placed = 59, carcasses found = 38

estimated searcher efficiency:  $p = 0.644$ , 95% CI = [0.517, 0.757]

$k = 0.67$

Search schedule: Search interval (I) = 3.5, number of searches = 23, span = 80.5

spatial coverage: 1      temporal coverage: 1

Carcass persistence:

Exponential persistence distribution

scale ( $\beta$ ) = 23.06

95% CI  $\beta$  = [15.03, 35.41] and  $r = 0.928$  for  $l_r = 3.5$  with 95% CI = [0.892, 0.952]

Parameters entered manually

**Appendix D15. Screen shot of Evidence of Absence (v2.0.7) graphical user interface, Single Class Module inputs for Fall 2022, 70-meter full plot searches at three turbines with a blade length of 68 meters, searched at a 3.5-day interval.**

EoA, v2.0.7 - Single Class Module

Edit Help

Detection Probability (g)

Search Schedule

Start of monitoring (yyyy-mm-dd) 2022-08-01

Formula

Search interval (I) 3.5

Number of searches 23

Custom Edit/View

span = 182, l (mean) = 7

Spatial coverage (a) 1

Temporal coverage (v) 1

Estimate g

Searcher Efficiency

Carcasses available for several searches

95% CIs:  $p \in [0.529, 0.677]$ ,  $k \in [0.645, 0.814]$

$\hat{p} = 0.62$ ,  $\hat{k} = 0.735$  View Edit

Carcasses removed after one search

Carcasses available 59

Carcasses found 38

$\hat{p} = 0.644$ , with 95% CI = [0.517, 0.757]

Factor by which searcher efficiency changes with each search (k) 0.67

Persistence Distribution

Use field trials to estimate parameters View/Edit

Distribution: Lognormal with shape ( $\alpha$ ) = 4.078 and scale ( $\beta$ ) = 1.171

$r = 0.653$  for  $l_r = 3.5$ , with 95% CIs:  $r = [0.529, 0.783]$ ,  $\beta = [0.488, 1.854]$

Enter parameter estimates manually View

Parameters

Exponential rate 0.0434

Weibull scale ( $\beta$ ) 23.06 lwr 15.03 upr 35.41

Log-Logistic

Lognormal  $r = 0.928$  for  $l_r = 3.5$ , with 95% CI:  $r \in [0.892, 0.952]$

Fatality estimation (M,  $\lambda$ )

Carcass Count (X) 0 Estimate M

Credibility level (1 -  $\alpha$ ) 0.9 Estimate  $\lambda$

One-sided CI (M\*) Two-sided CI

Close

---

Estimated detection probability (g)

Summary statistics for estimation of detection probability (g)

Results:

Full site for full year

Estimated  $g = 0.772$ , 95% CI = [0.677, 0.855]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 64.4907$ ,  $B_b = 19.0228$

Full site for monitored period, 01-Aug-2022 through 20-Oct-2022

Estimated  $g = 0.772$ , 95% CI = [0.677, 0.855]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 64.4907$ ,  $B_b = 19.0228$

Temporal coverage (within year) = 1

Searched area for monitored period, 01-Aug-2022 through 20-Oct-2022

Estimated  $g = 0.772$ , 95% CI = [0.677, 0.855]

Fitted beta distribution parameters for estimated  $g$ :  $B_a = 64.4907$ ,  $B_b = 19.0228$

Input:

Search parameters

trial carcasses placed = 59, carcasses found = 38

estimated searcher efficiency:  $p = 0.644$ , 95% CI = [0.517, 0.757]

$k = 0.67$

Search schedule: Search interval (I) = 3.5, number of searches = 23, span = 80.5

spatial coverage: 1 temporal coverage: 1

Carcass persistence:

Exponential persistence distribution

scale ( $\beta$ ) = 23.06

95% CI  $\beta = [15.03, 35.41]$  and  $r = 0.928$  for  $l_r = 3.5$  with 95% CI = [0.892, 0.952]

Parameters entered manually

**Appendix D16. Screen shot of Evidence of Absence (v2.0.7) graphical user interface, Single Class Module inputs for Fall 2022, 70-meter full plot searches at eight turbines with a blade length of 75 meters, searched at a 3.5-day interval.**

EoA, v2.0.7 - Multiple Class Module

Edit Help

Options

Overall

Estimate total mortality (M)

Credibility level (1 -  $\alpha$ )

One-sided CI (M\*)

Two-sided CI

Estimate overall detection probability (g)

Individual classes

Calculate g parameters from monitoring data

Enter g parameters manually

Actions

Add class Calculate Clear Close

| Class      | dwp  | X | Ba     | Bb      | $\hat{g}$ | 95% CI           |
|------------|------|---|--------|---------|-----------|------------------|
| unsearched | 0    | 0 | ---    | ---     | 0         | [0, 0]           |
| 50-m blade | 0.41 | 0 | 185.72 | 4540.52 | 0.0393    | [0.0339, 0.045]  |
| 57-m blade | 0.36 | 0 | 159.33 | 2426.97 | 0.06161   | [0.0527, 0.0712] |
| 68-m blade | 0.05 | 0 | 149.14 | 2957.92 | 0.048     | [0.0408, 0.0558] |
| 75-m blade | 0.18 | 0 | 144.13 | 813.83  | 0.1505    | [0.129, 0.174]   |

Estimated detection probability (g) for multiple classes

Summary statistics for multiple class estimate

=====  
 Input: Detection probability, by search class  
 Search coverage = 1

| Class      | DWP  | X | Ba    | Bb    | ghat  | 95% CI         |
|------------|------|---|-------|-------|-------|----------------|
| unsearched | 0    | 0 | ---   | ---   | 0     | [ 0, 0]        |
| 50-m blade | 0.41 | 0 | 185.7 | 4541  | 0.039 | [0.034, 0.045] |
| 57-m blade | 0.36 | 0 | 159.3 | 2427  | 0.062 | [0.053, 0.071] |
| 68-m blade | 0.05 | 0 | 149.1 | 2958  | 0.048 | [0.041, 0.056] |
| 75-m blade | 0.18 | 0 | 144.1 | 813.8 | 0.150 | [0.129, 0.174] |

=====  
 Results for full site

---

Detection probability  
 Estimated g = 0.068, 95% CI = [0.062, 0.074]  
 Fitted beta distribution parameters for estimated g: Ba = 498.1749, Bb = 6852.6774

Mortality

Test of assumed relative weights (rho)

| Class      | Assumed | Fitted (95% CI) |
|------------|---------|-----------------|
| unsearched | 0.000   | NA              |
| 50-m blade | 0.410   | [0.002, 0.922]  |
| 57-m blade | 0.360   | [0.001, 0.822]  |
| 68-m blade | 0.050   | [0.002, 0.906]  |
| 75-m blade | 0.180   | [0.001, 0.610]  |

p = 1 for likelihood ratio test of H0: assumed rho = true rho

Appendix D17. Screen shot of Evidence of Absence (v2.0.7) graphical user interface, Multiple Class Module inputs for Spring 2022, searches at 134 turbines, searched at a 7-day interval.

EoA, v2.0.7 - Multiple Class Module

Edit Help

Options

Overall

Estimate total mortality (M)

Credibility level (1 -  $\alpha$ )

One-sided CI (M\*)

Two-sided CI

Estimate overall detection probability (g)

Individual classes

Calculate g parameters from monitoring data

Enter g parameters manually

Actions

| Class         | dwp  | X | Ba     | Bb      | $\hat{g}$ | 95% CI           |
|---------------|------|---|--------|---------|-----------|------------------|
| unsearched    | 0    | 0 | ---    | ---     | 0         | [0, 0]           |
| 50-m blade FP | 0.15 | 0 | 85.62  | 33.53   | 0.7186    | [0.635, 0.795]   |
| 57-m blade FP | 0.13 | 0 | 120.81 | 85.18   | 0.5865    | [0.519, 0.653]   |
| 68-m blade FP | 0.02 | 0 | 66.23  | 19.47   | 0.7728    | [0.679, 0.855]   |
| 75-m blade FP | 0.06 | 0 | 69.72  | 20.79   | 0.7703    | [0.679, 0.85]    |
| 50-m blade RP | 0.26 | 0 | 199.39 | 6997.26 | 0.02771   | [0.024, 0.0316]  |
| 57-m blade RP | 0.23 | 0 | 214.49 | 4696.29 | 0.04368   | [0.0381, 0.0496] |
| 68-m blade RP | 0.03 | 0 | 213.12 | 6020.41 | 0.03419   | [0.0298, 0.0388] |
| 75-m blade RP | 0.12 | 0 | 182.18 | 1543.01 | 0.1056    | [0.0915, 0.121]  |

Estimated detection probability (g) for multiple classes

Summary statistics for multiple class estimate

Input: Detection probability, by search class

Search coverage = 1

| Class         | DWP  | X | Ba    | Bb        | ghat  | 95% CI         |
|---------------|------|---|-------|-----------|-------|----------------|
| unsearched    | 0    | 0 | ---   | ---       | 0     | [ 0, 0]        |
| 50-m blade FP | 0.15 | 0 | 85.62 | 33.53     | 0.719 | [0.635, 0.795] |
| 57-m blade FP | 0.13 | 0 | 120.8 | 85.18     | 0.586 | [0.519, 0.653] |
| 68-m blade FP | 0.02 | 0 | 66.23 | 19.47     | 0.773 | [0.679, 0.855] |
| 75-m blade FP | 0.06 | 0 | 69.72 | 20.79     | 0.770 | [0.679, 0.850] |
| 50-m blade RP | 0.26 | 0 | 199.4 | 6997.028  | 0.028 | [0.024, 0.032] |
| 57-m blade RP | 0.23 | 0 | 214.5 | 4696.044  | 0.044 | [0.038, 0.050] |
| 68-m blade RP | 0.03 | 0 | 213.1 | 6020.034  | 0.034 | [0.030, 0.039] |
| 75-m blade RP | 0.12 | 0 | 182.2 | 1543.0106 | 0.106 | [0.092, 0.121] |

Results for full site

Detection probability

Estimated  $g = 0.277$ , 95% CI = [0.261, 0.293]

Fitted beta distribution parameters for estimated  $g$ :  $Ba = 826.8247$ ,  $Bb = 2161.8471$

Mortality

Test of assumed relative weights ( $\rho$ )

| Class         | Assumed | Fitted (95% CI) |
|---------------|---------|-----------------|
| unsearched    | 0.000   | NA              |
| 50-m blade FP | 0.150   | [0.000, 0.125]  |
| 57-m blade FP | 0.130   | [0.000, 0.159]  |
| 68-m blade FP | 0.020   | [0.000, 0.135]  |
| 75-m blade FP | 0.060   | [0.000, 0.122]  |
| 50-m blade RP | 0.260   | [0.002, 0.860]  |

Appendix D18. Screen shot of Evidence of Absence (v2.0.7) graphical user interface, Multiple Class Module inputs for Fall 2022, searches at 134 turbines, searched at a 3.5- and 7-day interval.



EoA, v2.0.7 - Multiple Class Module

Edit Help

Options

Overall

Estimate total mortality (M)

Credibility level (1 -  $\alpha$ )

One-sided CI (M\*)

Two-sided CI

Estimate overall detection probability (g)

Individual classes

Calculate g parameters from monitoring data

Enter g parameters manually

Actions

Add class Calculate Clear Close

| Class      | dwp  | X | Ba      | Bb       | $\hat{g}$ | 95% CI          |
|------------|------|---|---------|----------|-----------|-----------------|
| unsearched | 0    | 0 | ---     | ---      | 0         | [0, 0]          |
| spring     | 0.11 | 0 | 500.286 | 6894.691 | 0.06765   | [0.062, 0.0735] |
| fall       | 0.89 | 0 | 838.056 | 2199.334 | 0.2759    | [0.26, 0.292]   |

---

Estimated detection probability (g) for multiple classes

Summary statistics for multiple class estimate

Input: Detection probability, by search class

Search coverage = 1

| Class      | DWP  | X | Ba    | Bb   | ghat  | 95% CI         |
|------------|------|---|-------|------|-------|----------------|
| unsearched | 0    | 0 | ---   | ---  | 0     | [ 0, 0]        |
| spring     | 0.11 | 0 | 500.3 | 6895 | 0.068 | [0.062, 0.073] |
| fall       | 0.89 | 0 | 838.1 | 2199 | 0.276 | [0.260, 0.292] |

Results for full site

Detection probability

Estimated g = 0.253, 95% CI = [0.239, 0.267]

Fitted beta distribution parameters for estimated g: Ba = 915.9996, Bb = 2704.4879

Mortality

Test of assumed relative weights (rho)

| Class      | Assumed | Fitted (95% CI) |
|------------|---------|-----------------|
| unsearched | 0.000   | NA              |
| spring     | 0.110   | [0.014, 0.999]  |
| fall       | 0.890   | [0.001, 0.980]  |

p = 1 for likelihood ratio test of H0: assumed rho = true rho

Appendix D19. Screen shot of Evidence of Absence (v2.0.7) graphical user interface, Multiple Class Module inputs for 2022, searches at 134 turbines, searched at a 3.5- and 7-day interval.

EoA, v2.0.7 - Multiple Years Module

Edit Help

Past monitoring and operations data

| Year | p    | X | Ba       | Bb       | ĝ      | 95% CI         |
|------|------|---|----------|----------|--------|----------------|
| 2020 | 0.89 | 0 | 323.420  | 1417.48  | 0.1858 | [0.168, 0.204] |
| 2021 | 1    | 0 | 2365.448 | 4863.686 | 0.3272 | [0.316, 0.338] |
| 2022 | 1    | 0 | 916.000  | 2704.488 | 0.253  | [0.239, 0.267] |

Options

Fatalities

Estimate M Credibility level (1 -  $\alpha$ )

Total mortality  One-sided CI ( $M^*$ )  
 Two-sided CI

Project parameters

Total years in project   
Mortality threshold (T)

Track past mortality

Projection of future mortality and estimates

Future monitoring and operations

g and p unchanged from most recent year  
 g and p constant, different from most recent year  
g  95% CI:    $\rho$    
 g and p vary among future years

Average Rate

Estimate average annual fatality rate ( $\lambda$ )

Annual rate threshold ( $\tau$ )   
 Credibility level for CI (1 -  $\alpha$ )   
 Short-term rate ( $\lambda > \tau$ ) Term:   $\alpha$    
 Reversion test ( $\lambda < \rho \tau$ )  $\rho$    $\alpha$

Actions

Mortality over 3 years

Summary statistics for total mortality through 3 years

-----

Results

$M^* = 0$  for  $1 - \alpha = 0.5$ , i.e.,  $P(M \leq 0) \geq 50\%$

Estimated overall detection probability:  $g = 0.258$ , 95% CI = [0.25, 0.266]  
Ba = 2723.7, Bb = 7834.1

Estimated baseline fatality rate:  $\lambda = 0.6707$ , 95% CI = [0.000664, 3.37]

Test of assumed relative weights ( $\rho$ ) and potential bias

| Assumed rho | 95% CI         | Fitted rho |
|-------------|----------------|------------|
| 0.89        | [0.007, 2.807] |            |
| 1           | [0.004, 2.667] |            |
| 1           | [0.006, 2.755] |            |

$p = 1$  for likelihood ratio test of  $H_0$ : assumed rho = true rho  
Quick test of relative bias: 0.938

Posterior distribution of M

| m | p(M = m) | p(M > m) |
|---|----------|----------|
| 0 | 0.5491   | 0.4509   |
| 1 | 0.1688   | 0.2821   |
| 2 | 0.0961   | 0.1860   |
| 3 | 0.0601   | 0.1259   |
| 4 | 0.0393   | 0.0866   |
| 5 | 0.0264   | 0.0602   |
| 6 | 0.0180   | 0.0422   |
| 7 | 0.0124   | 0.0298   |
| 8 | 0.0087   | 0.0211   |
| 9 | 0.0061   | 0.0150   |

Appendix D20. Screen shot of Evidence of Absence (v2.0.7) graphical user interface, Multiple Years Module inputs for northern long-eared bat ITP term-to-date detection probability and cumulative take estimate ( $M^*$ ). Inputs are based on values reported in the main text.



EoA, v2.0.7 - Multiple Years Module

Edit Help

Past monitoring and operations data

| Year | $\rho$ | X | Ba       | Bb       | $\hat{g}$ | 95% CI         |
|------|--------|---|----------|----------|-----------|----------------|
| 2020 | 0.89   | 1 | 323.420  | 1417.48  | 0.1858    | [0.168, 0.204] |
| 2021 | 1      | 0 | 2365.448 | 4863.686 | 0.3272    | [0.316, 0.338] |
| 2022 | 1      | 0 | 916.000  | 2704.488 | 0.253     | [0.239, 0.267] |

Options

Fatalities

Estimate M    Credibility level (1 -  $\alpha$ )

Total mortality     One-sided CI ( $M^*$ )  
 Two-sided CI

Project parameters

Total years in project   
Mortality threshold ( $T$ )

Track past mortality

Projection of future mortality and estimates

Future monitoring and operations

$g$  and  $\rho$  unchanged from most recent year  
  $g$  and  $\rho$  constant, different from most recent year  
  $g$  and  $\rho$  vary among future years

$g$   95% CI:    $\rho$

Average Rate

Estimate average annual fatality rate ( $\lambda$ )

Annual rate threshold ( $\tau$ )   
 Credibility level for CI (1 -  $\alpha$ )

Short-term rate ( $\lambda > \tau$ )    Term:   $\alpha$    
 Reversion test ( $\lambda < \rho \tau$ )     $\rho$    $\alpha$

Actions

Mortality over 3 years

Summary statistics for total mortality through 3 years

-----

Results

$M^* = 4$  for  $1 - \alpha = 0.5$ , i.e.,  $P(M \leq 4) \geq 50\%$

Estimated overall detection probability:  $g = 0.258$ , 95% CI = [0.25, 0.266]  
Ba = 2723.7, Bb = 7834.1

Estimated baseline fatality rate:  $\lambda = 2.012$ , 95% CI = [0.145, 6.27]

Test of assumed relative weights ( $\rho$ ) and potential bias

| Assumed rho | 95% CI         | Fitted rho |
|-------------|----------------|------------|
| 0.89        | [0.444, 2.845] |            |
| 1           | [0.003, 1.751] |            |
| 1           | [0.004, 2.034] |            |

$p = 0.22196$  for likelihood ratio test of  $H_0$ : assumed  $\rho =$  true  $\rho$   
Quick test of relative bias: 0.797

Posterior distribution of M

| m | $p(M = m)$ | $p(M > m)$ |
|---|------------|------------|
| 0 | 0.0000     | 1.0000     |
| 1 | 0.1262     | 0.8738     |
| 2 | 0.1437     | 0.7301     |
| 3 | 0.1348     | 0.5953     |
| 4 | 0.1175     | 0.4778     |
| 5 | 0.0985     | 0.3793     |
| 6 | 0.0807     | 0.2986     |
| 7 | 0.0650     | 0.2336     |
| 8 | 0.0518     | 0.1818     |
| 9 | 0.0409     | 0.1409     |

Appendix D21. Screen shot of Evidence of Absence (v2.0.7) graphical user interface, Multiple Years Module inputs for Indiana bat ITP term-to-date detection probability and cumulative take estimate ( $M^*$ ). Inputs are based on values reported in the main text.

The screenshot displays the 'Multiple Years Module' interface. On the left, a table titled 'Past monitoring and operations data' shows input for years 2020, 2021, and 2022. On the right, the 'Options' panel is configured for a 'Short-term Trigger' test. The 'Average Rate' section is selected, with 'Estimate average annual fatality rate ( $\lambda$ )' chosen. The 'Annual rate threshold ( $\tau$ )' is set to 2.41, and the 'Credibility level for CI (1- $\alpha$ )' is 0.4. The 'Short-term rate ( $\lambda > \tau$ )' option is selected, with a term of 3 and  $\alpha = 0.05$ .

**Past monitoring and operations data**

| Year | p    | X | Ba       | Bb       | g      | 95% CI         |
|------|------|---|----------|----------|--------|----------------|
| 2020 | 0.89 | 0 | 323.420  | 1417.48  | 0.1858 | [0.168, 0.204] |
| 2021 | 1    | 0 | 2365.448 | 4863.686 | 0.3272 | [0.316, 0.338] |
| 2022 | 1    | 0 | 916.000  | 2704.488 | 0.253  | [0.239, 0.267] |

**Options**

**Fatalities**

Estimate M    Credibility level (1 -  $\alpha$ )

Total mortality     One-sided CI (M\*)

Two-sided CI

**Project parameters**

Total years in project

Mortality threshold (T)

Track past mortality

Projection of future mortality and estimates

Future monitoring and operations

g and p unchanged from most recent year

g and p constant, different from most recent year

g  95% CI:   p

g and p vary among future years

**Average Rate**

Estimate average annual fatality rate ( $\lambda$ )

Annual rate threshold ( $\tau$ )

Credibility level for CI (1- $\alpha$ )

Short-term rate ( $\lambda > \tau$ )    Term:   $\alpha$

Reversion test ( $\lambda < \rho \tau$ )     $\rho$    $\alpha$

**Actions**

---

**Short-term Trigger**

Short-term trigger: Test of average fatality rate ( $\lambda$ ) over 3 years  
 Years: 2020 - 2022

=====

**Results**

Estimated overall detection probability: g = 0.258, 95% CI = [0.25, 0.266]  
 Ba = 2723.7, Bb = 7834.1

Estimated annual fatality rate over the past 3 years:  $\lambda = 0.6461$ , 95% CI = [0.00064, 3.25]  
 $P(\lambda > 2.41) = 0.0535$   
 Compliance: Cannot infer  $\lambda > 2.41$  with 95% credibility

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**Input**

Threshold for short-term rate (tau) = 2.41 per year

| Period | rel_wt | X | Ba    | Bb   | ghat  | 95% CI         |
|--------|--------|---|-------|------|-------|----------------|
| 2020   | 0.890  | 0 | 323.4 | 1417 | 0.186 | [0.168, 0.204] |
| 2021   | 1.000  | 0 | 2365  | 4864 | 0.327 | [0.316, 0.338] |
| 2022   | 1.000  | 0 | 916   | 2704 | 0.253 | [0.239, 0.267] |

**Appendix D22. Screen shot of Evidence of Absence (EoA; v2.0.7) graphical user interface (GUI), Multiple Years Module inputs for northern long-eared bat rolling average detection probability and short-term adaptive management trigger test. Inputs are based on values reported in the main text.**

Note that although the weight ( $\rho$ ) column of the Multiple Years Module sums to 2.89, the EoA GUI produces a “year-adjusted  $\lambda$ ”, by calculating the average  $\lambda$  over the number of input rows (years) in the multi-year module of the GUI. Because the  $\rho$  values associated with each year in the GUI are scaled so that a  $\rho$  of 1.0 is equivalent to a typical operations year for the wind farm (but 2020 was not a typical operation year), we would like to calculate the “ $\rho$ -adjusted  $\lambda$ ”. The GUI does not accommodate that calculation. The “ $\rho$ -adjusted  $\lambda$ ”, 0.67, is equivalent to the “year-adjusted  $\lambda$ ”; (0.65 as seen in the output above) divided by  $\rho$  (2.89) times the number of input rows (3).

**Past monitoring and operations data**

| Year | $\rho$ | X | Ba       | Bb       | $\hat{g}$ | 95% CI         |
|------|--------|---|----------|----------|-----------|----------------|
| 2020 | 0.89   | 1 | 323.420  | 1417.48  | 0.1858    | [0.168, 0.204] |
| 2021 | 1      | 0 | 2365.448 | 4863.686 | 0.3272    | [0.316, 0.338] |
| 2022 | 1      | 0 | 916.000  | 2704.488 | 0.253     | [0.239, 0.267] |

**Options**

**Fatalities**

Estimate M    Credibility level (1 -  $\alpha$ )

Total mortality     One-sided CI (M\*)

Two-sided CI

**Project parameters**

Total years in project

Mortality threshold (T)

Track past mortality

Projection of future mortality and estimates

Future monitoring and operations

g and  $\rho$  unchanged from most recent year

g and  $\rho$  constant, different from most recent year

g  95% CI:    $\rho$

g and  $\rho$  vary among future years

**Average Rate**

Estimate average annual fatality rate ( $\lambda$ )

Annual rate threshold ( $\tau$ )

Credibility level for CI (1- $\alpha$ )

Short-term rate ( $\lambda > \tau$ )    Term:   $\alpha$

Reversion test ( $\lambda < \rho \tau$ )     $\rho$    $\alpha$

**Actions**

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**Short-term Trigger**

Short-term trigger: Test of average fatality rate ( $\lambda$ ) over 3 years  
 Years: 2020 - 2022

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**Results**

Estimated overall detection probability:  $g = 0.258$ , 95% CI = [0.25, 0.266]  
 $Ba = 2723.7$ ,  $Bb = 7834.1$

Estimated annual fatality rate over the past 3 years:  $\lambda = 1.939$ , 95% CI = [0.139, 6.04]  
 $P(\lambda > 10.5) = 0.001$   
 Compliance: Cannot infer  $\lambda > 10.5$  with 95% credibility

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**Input**

Threshold for short-term rate ( $\tau$ ) = 10.5 per year

| Period | rel_wt | X | Ba    | Bb   | ghat  | 95% CI         |
|--------|--------|---|-------|------|-------|----------------|
| 2020   | 0.890  | 1 | 323.4 | 1417 | 0.186 | [0.168, 0.204] |
| 2021   | 1.000  | 0 | 2365  | 4864 | 0.327 | [0.316, 0.338] |
| 2022   | 1.000  | 0 | 916   | 2704 | 0.253 | [0.239, 0.267] |

**Appendix D23. Screen shot of Evidence of Absence (EoA; v2.0.7) graphical user interface (GUI), Multiple Years Module inputs for estimation of Indiana bat rolling average detection probability and short-term adaptive management trigger test. Inputs are based on values reported in the main text.**

Note that although the weight ( $\rho$ ) column of the Multiple Years Module sums to 2.89, the EoA GUI produces a “year-adjusted  $\lambda$ ”, by calculating the average  $\lambda$  over the number of input rows (years) in the multi-year module of the GUI. Because the  $\rho$  values associated with each year in the GUI are scaled so that a  $\rho$  of 1.0 is equivalent to a typical operations year for the wind farm (but 2020 was not a typical operation year), we would like to calculate the “ $\rho$ -adjusted  $\lambda$ ”. The GUI does not accommodate that calculation. The “ $\rho$ -adjusted  $\lambda$ ”, 2.01, is equivalent to the “year-adjusted  $\lambda$ ”; (1.94 as seen in the output above) divided by  $\rho$  (2.89) times the number of input rows (3).