Post-construction Monitoring Study for the Ford County Wind Farm Ford County, Illinois

Final Report

April 1 – May 15 and August 1 – October 15, 2023

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WEST

EXECUTIVE SUMMARY

This report presents the results of the second year of the post-construction fatality monitoring conducted within the Project from April 1 – May 15 and August 1 – October 15, 2023. Ford County Wind Farm, LLC (Ford County Wind), a subsidiary of Ørsted Onshore North America, LLC, obtained from the US Fish and Wildlife Service (USFWS) an Incidental Take Permit (ITP; ESPER0041915) for the federally endangered Indiana bat and northern long-eared bat (Covered Species) on April 29, 2022. The study was conducted in accordance with the Project's Study Plan, which was submitted to USFWS on March 29, 2023 (Stucker and Marshall 2023). The results of this study will be used to determine if the level of take of the Covered Species is compliant with the authorized take and to evaluate the need for adaptive management measures.

All turbines are within the migratory range of the Covered Species. Per the Project's Habitat Conservation Plan (HCP), all Project turbines were feathered at wind speeds below the manufacturer's rated cut-in speed, down to a minimum of 3.0 meters per second (m/s; 9.8 feet per second [ft/s]), from sunset to sunrise for the entire bat-active season (March 15 – November 15) when the temperature was above 10 degrees Celsius (°C; 50° Fahrenheit). Additionally, during the fall migration season (August 1 – October 15), all Project turbines were feathered below wind speeds of 5.0 m/s (16.4 ft/s) from sunset to sunrise on nights when temperatures were above 10°C to minimize impacts to migrating Covered Species.

Standardized carcass searches occurred at all turbines in the spring (April 1 – May 15) and fall (August 1 – October 15). Searches were completed at two plot types: full plots and roads and pads and were conducted by two types of searchers: technicians and detection-dog teams (consisting of one dog trained to detect carcasses and one handler). Searcher efficiency and carcass persistence trials were also conducted during each season to correct for detection and scavenger bias.

The results of the 2023 monitoring indicate that no Covered Species were found at the Project. Four hundred seventeen bat carcasses were found during the study. The most commonly found bat species were eastern red bat (57.3%), and silver-haired bat (30.9%), followed by hoary bat (7.7%) and big brown bat (1.9%). The overall *g* value for 2023 was 0.10 (95% confidence interval: 0.09–0.12). Based on data collected to date (2022–2023), the EoA model estimated the median annual fatality rate at the Project was 0.92 Indiana bats and 0.92 northern long-eared bats.

The conclusions of this study are as follows:

- No Covered Species were recorded.
- No adaptive management was triggered; therefore, post-construction monitoring and operational minimization will continue as outlined in the Project's HCP.
- The overall *g* achieved was below the target outlined in the Study Plan
- We recommend Year 3 monitoring account for the current deficit in monitoring effort, in accordance with the HCP. The Study Plan for Year 3 will take the searcher efficiency, carcass persistence, and area corrections measured to date to best reflect site conditions and increase the probability of detection of Covered Species.

STUDY PARTICIPANTS

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REPORT REFERENCE

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INTRODUCTION

This report presents the results of the second year of the post-construction fatality monitoring conducted within the Project from April 1 – May 15 and August 1 – October 15, 2023. Ford County Wind Farm, LLC (Ford County Wind), a subsidiary of Ørsted Onshore North America, LLC, obtained from the US Fish and Wildlife Service (USFWS) an Incidental Take Permit (ITP; ESPER0041915) for the federally endangered Indiana bat (*Myotis sodalis*) and northern long-eared bat (*M. septentrionalis;* hereafter, Covered Species) on April 29, 2022. The study was conducted in accordance with the Project's Study Plan, which was submitted to USFWS on March 29, 2023 (Stucker and Marshall 2023). The results of this study will be used to determine if the level of take of the Covered Species is compliant with the authorized take and to evaluate the need for adaptive management measures.

STUDY AREA

The Project is located in Ford County, Illinois, 1.6 kilometers (1.0 mile) east of Sibley, Illinois (Figure 1). The Project's Permit Area, defined as the geographic area where the impacts of the activities occur for which incidental take coverage is requested, covers 13,806 acres (5,587 hectares; Figure 1). Approximately 99% of the Permit Area is covered by cultivated crops or developed land (Table 1; Figure 1).

The Project became operational in March of 2022 and consists of 43 General Electric 2.82-megawatt wind turbines that have an 89-meter (m; 292-foot [ft]) hub height and a 127-m (417-ft) rotor diameter. All turbines are within the migratory range of the Covered Species. During the spring, summer and fall, the Project adjusted turbine operations to minimize impacts to the Covered Species during migration (Table 2).

Table 1. Land cover types, areas, and percent compositions in the Permit Area of the Ford County Wind Farm in Ford County, Illinois.

Land Cover Class	Area (Acres)	Percent Composition
Cultivated Crops	13,077	94.7
Developed, Low Intensity	388	2.8
Developed, Open Space	195	1.4
Developed, Medium Intensity	60	0.4
Hay/Pasture	46	0.3
Developed, High Intensity	14	0.1
Barren Land	14	0.1
Deciduous Forest	9	0.1
Emergent Herbaceous Wetlands	2	<0.1
Mixed Forest	1	<0.1
Open Water	1	<0.1
Total	**13,806**	**100**

Source: National Land Cover Database 2021.

Sums may not equal total values shown due to rounding.

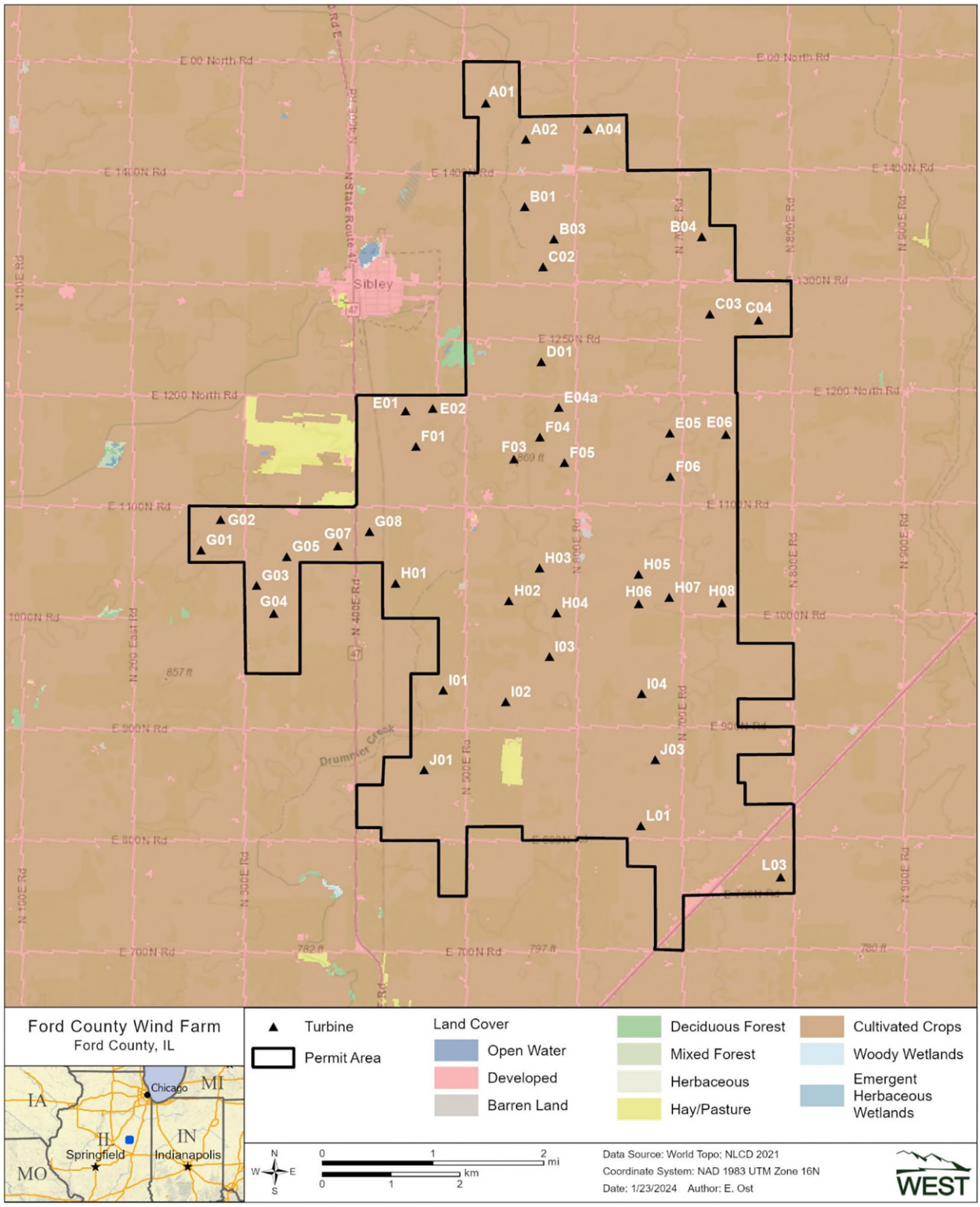

Figure 1. Turbine locations and surrounding land cover at the Ford County Wind Farm in Ford County, Illinois.

Table 2. Seasonal curtailment regime at the Ford County Wind Farm in Ford County, Illinois.

Season	Turbines	Time of Day	Cut-In Speed	Feathering Below Cut-In*?	Temperature Threshold**
March 15 – July 31	All	Sunrise to sunset	3.0 m/s (9.8 ft/s)**	Yes	10° C (50° F)
August 1 – October 15	All	Sunrise to sunset	5.0 m/s (16.4 ft/s)	Yes	10° C (50° F)
October 16 – November 15	All	Sunrise to sunset	3.0 m/s (9.8 ft/s)**	Yes	10° C (50° F)
November 16 – March 14	All	N/A	Manufacturer's setting	No	None

* Feathering means that turbine blades will be pitched into the wind such that they spin at less than one rotation per minute.

** Turbines will be feathered below the manufacturer's rated cut-in speed, unless the manufacturer's rated cut-in speed is less than 3.0 m/s in which case turbines will be feathered below 3.0 m/s.

° = degree; C = Celsius; F = Fahrenheit; ft/s = feet per second; m/s = meters per second.

METHODS

To meet the monitoring commitments in the HCP, WEST conducted the study in accordance with the methodology described in the Study Plan submitted to USFWS on March 29, 2023 (Stucker and Marshall 2023). The Study Plan targeted a *g* of 0.225 using values for searcher efficiency (SEEF), carcass persistence (CP), and area correction from data collected at the Project in 2022 (Stucker et al. 2023). All personnel were trained to follow the Study Plan, including proper handling and reporting of carcasses. As a note, the plan was implemented despite no comments/approval received from USFWS. The following sections describe the details of the 2023 monitoring.

Standardized Carcass Searches

Number of Turbines Sampled, Search Frequency, and Plot Size

Technicians conducted standardized carcass searches from April 1 – May 15 and August 1 – October 15, 2023, and detection-dog teams were added to complete searches from August 1 – October 15, 2023. Search effort varied by season (Table 3; Figure 2) and was designed to maximize effort during the fall migration period when take of the Covered Species was considered most likely to occur.

Table 3. Planned search effort by season and plot type at the Ford County Wind Farm in Ford County, Illinois.

Season	Plot Type	Search Interval	Number of Turbines	Search Team
Spring (April 1 – May 15)	100-m road and pad	7.0 days	35	Technician
	40-m cleared plot	7.0 days	8	Technician
Fall (August 1 – October 15)	100-m road and pad	3.5 days	30	Technician
	70-m cleared plot	3.5 days	6	Detection-dog
	70-m uncleared plot	3.5 days	7	Detection-dog

m = meter.

A clearing search was scheduled prior to the August 1 start of fall season to attempt to remove any carcasses that may have resulted from wind farm operations or other activity prior to the start of the study period. All carcasses found during this round of searches during the final week of July

were excluded from statistical analysis. Turbine search assignments were assigned as planned for the fall season across the road and pads, cleared plots, and uncleared plots (Figures 3–5).

The Study Plan assumed that crops would be maintained to a maximum height of six to eight inches on cleared plots, and that a cross pattern approximately 1.5 m (4.9 ft) wide centered on the turbine and extending to the 70-m plot boundary would be mowed into the soy to assist dog handlers with plot access. However, logistical constraints limited mowing and maintenance of cleared plots. Prior to mowing, all 70-m cleared plots were searched instead as 100-m roads and pads at the beginning of fall (August 1 – August 16). Corn began to sprout and grow on the cleared plots during the fall monitoring period, while in turn, the initial soy plots were all either only stalks remaining or fully harvested by September 25. Therefore, it was determined that the original cleared plots had become similar to uncleared soy conditions, while the original uncleared plots had become similar to cleared plot conditions. Due to the mowing issues, the fall season was grouped into three fall periods: Fall 1 (August 1 – August 16), Fall 2 (August 17 – September 24) and Fall 3 (September 25 – October 15). Cleared and uncleared plot designations were switched for the Fall 3 period to account for the changes in vegetation within the statistical analysis (Table 3).

Search Methods

WEST used two types of search methods: a technician search, which was visual, and searches by a detection-dog team, which were olfactory, where the detection-dog team consisted of one dog-handler and one detection dog. Carcass searches were conducted during the day, beginning as early as first light.

Technician Searches

Technicians walked transects spaced five meters (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 2.5 m (8.2 ft) to ensure full visual coverage of each search area. Additionally, eight turbines were searched in spring by walking five-meter parallel transects across all land within 40 m of turbine bases (40-m plots), using the same search methods as implemented on the road and pad searches.

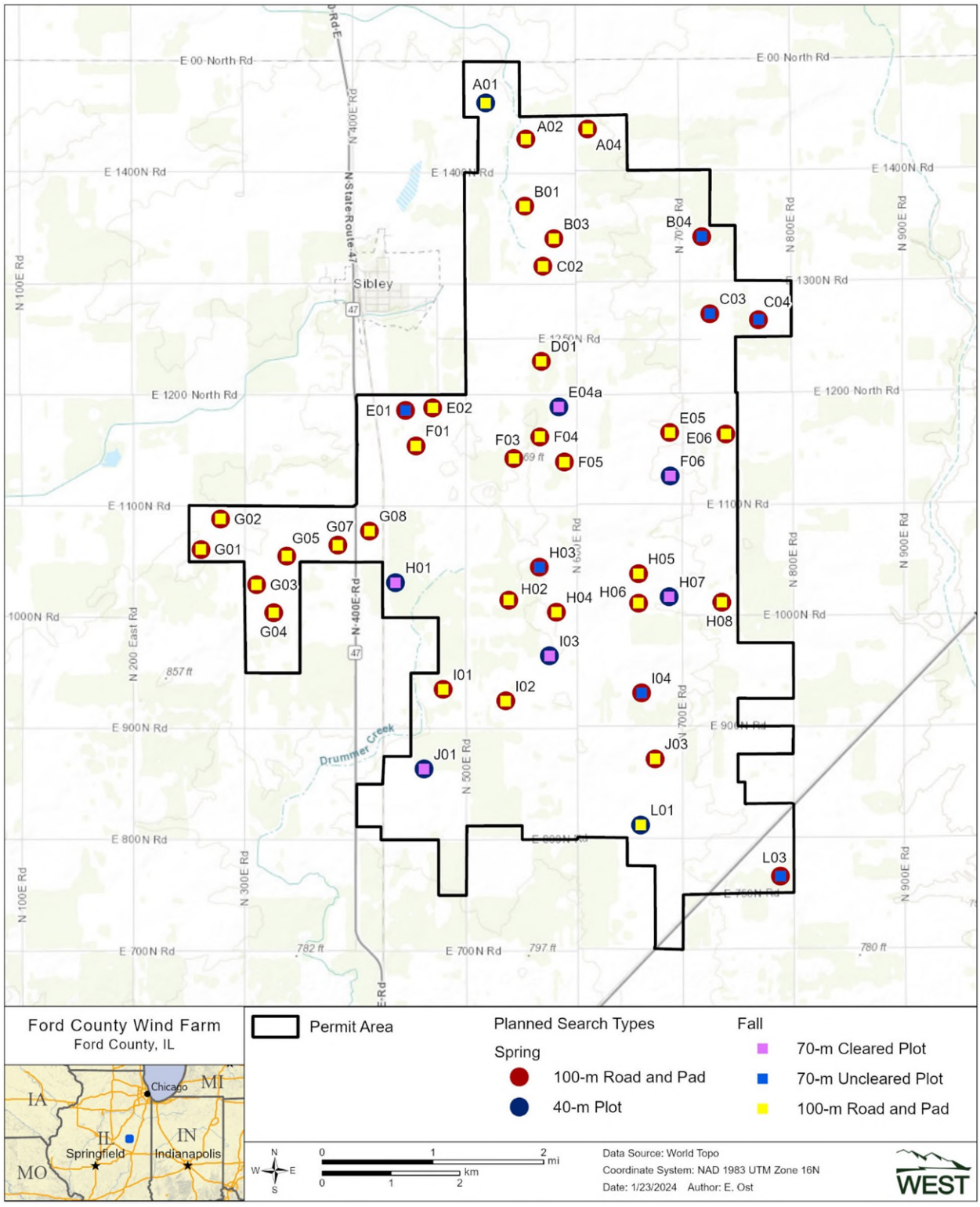

Figure 2. Turbine locations and planned search types per season at the Ford County Wind Farm in Ford County, Illinois.

Figure 3. Representative photo of conditions of a 100-meter road and pad plot at the Ford County Wind Farm in Ford County, Illinois.

Figure 4. Representative photo of the vegetation conditions in a 70-meter cleared plot during Fall 2 (August 17 – September 24) at the Ford County Wind Farm in Ford County, Illinois.

Figure 5. Representative photos of vegetation conditions and dog detection team in a 70-meter uncleared plot of soybeans during Fall 2 at the Ford County Wind Farm in Ford County, Illinois.

Plot Searches – Detection-dog Team

Detection-dog teams searched 70-m cleared and uncleared plots for bat carcasses. Prior to each search, handlers determined the survey start points and the number of transects needed to cover the plot after accounting for 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 wind speed 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 5–10 m (16–33 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 the handler to the presence of a bird or bat carcass.

Detection-dog Team Evaluation

Detection dogs were considered candidates for carcass searches if they met basic temperament and obedience criteria, and demonstrated the trainability to detect bird and/or bat carcasses. Temperament characteristics that are sought after were high-energy, 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). Detection 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 ten 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 two-day field evaluation of each detection-dog team. After teams achieved a SEEF 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. German shepherd (primary) and a border collie (substitute) were used for this Project.

Data Collection

Technicians and dog-handlers recorded the date, start and end times, technician or dog-handler name, turbine number, type of search and if any fatalities 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 or dog-handler returned to record information for each carcass on a fatality data sheet, including:

- date and time
- species
- sex and age (when possible)
- technician or dog-handler name
- turbine number
- measured distance from turbine
- azimuth from turbine
- location of carcass as Universal Transverse Mercator coordinates
- habitat surrounding the carcass
- carcass condition
- estimated time of death (e.g., less than one day, two days)

Although the Covered Species detections were the focal interest of the study, all bird and bat carcasses that were detected were recorded. The condition of each carcass found was recorded using the following categories:

- Intact—a complete carcass, not badly decomposed, and shows no sign of being fed upon by a predator or scavenger
- Scavenged—an entire carcass showing 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—Ten or more feathers (excluding down), or two or more primary feathers at one location indicating predation or scavenging of a bird carcass.

Digital photographs were taken 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 (ESPER0041915), WEST's Federal Native Endangered and Threatened Species Recovery Permit (ES234121), and WEST's State of Illinois Scientific Collection Permit (15704). Technicians placed each 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 and nitrile gloves were used to handle all bat carcasses to eliminate possible transmission of rabies or other diseases. Live, injured bats, if found, would have been recorded and considered fatalities for analysis purposes when observed in search areas, and 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. Carcasses found within the plots but between scheduled searches during the scheduled study period were recorded as incidental discoveries and included in the analysis.

Carcass Identification and Agency Notification

Identification of bird carcasses were verified by biologists with significant field experience in identification of birds and their feathers. A federally permitted bat biologist (ESPER0039249) identified all bat carcasses in hand at the end of the surveys. The USFWS and the Illinois Department of Natural Resources would have been notified within 24 hours of positive identification any state or federally listed species.

Bias Trials

Searcher Efficiency Trials

The objective of the SEEF trials was to estimate the probability searchers found a carcass. SEEF trials were conducted in the same areas where carcass searches occurred. Technicians conducting carcass surveys did not know when SEEF 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*), Seminole bats (*L. seminolus*), and silver-haired bats (*Lasionycteris noctivagans*), that had previously been found on site or were provided by studies at nearby wind facilities. One hundred and twenty-four bat carcasses were placed across all seasons 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 SEEF over time. Each trial carcass was discreetly marked with a black zip-tie and/or a piece of electrical tape 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 or morning prior to the next search to allow time for the scent to pool and disperse prior to scheduled searches.

Searchers had one chance to locate trial carcasses during the first search after carcass placement. The number and location of trial carcasses found during the subsequent search were recorded, and the number of trial carcasses available for detection during each search was determined immediately after each trial by the trial administrator. Following searches, any carcasses that were not detected were checked to confirm availability.

Carcass Persistence Trials

The objective of carcass persistence (CP) trials was to estimate the length of time (in days) a carcass would persist, or be available for detection, in the field. Carcasses could be removed by scavenging or rendered undetectable by typical farming activities. A minimum of 25 trial carcasses were placed in each season and plot type to incorporate the effects of varying weather and scavenger densities on CP. No more than two trial carcasses were placed on a plot to avoid potential over-seeding and attracting scavengers. Sixty searcher efficiency trial carcasses were left in place and used for CP trials, and an additional 17 were dropped independently of searcher efficiency trials, totaling 77 trial carcasses placed across all seasons and plot types.

Technicians monitored the 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 day 7, 10, 14, 21, and 30. Trial carcasses were monitored until they were completely removed, or the trial period ended. Detection-dog teams were used on the 70-m plots to determine when carcasses were removed, whereas technicians determined the status of carcasses placed on 100-m roads and pads.

Search Area Mapping

Technicians recorded the boundaries of 100-m roads and pads, 40-m plots, and 70-m cleared plots in the field using a Juniper Systems Geode sub-meter global positioning satellite 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 radius projection was applied within a geographic information system (GIS) to the 70-m search area for the uncleared plots to map and account for search area beneath turbines within standing crops or high vegetation. The additional 2.0 m (6.6 ft) were 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 by data managers.

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. WEST's Microsoft® SQL database was used to store, organize, and retrieve survey data. All paper 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. To estimate take, EoA used data collected in the field to estimate the overall probability of detecting a bat fatality, the arrival distribution of bats (described below), and the number of Covered Species carcass detections. Data used in the EoA model included number of Covered Species fatalities, fatality spatial data from all bats found during surveys, and the results of SEEF and CP trials.

Searcher Efficiency Estimation

Searcher efficiency was estimated separately for technicians and detection-dog teams to account for different modes of detection (i.e., technicians use sight while dogs use scent). EoA uses raw SEEF data (e.g., number of found and available trial carcasses) to inform overall probability of detection. However, to determine if SEEF data should be pooled, or separated by strata such as season and/or plot type, we modeled SEEF using logistic regression, while accounting for the detection reduction factor *k* (Dalthorp et al. 2018; see description below). For both technician and detection-dog team models, selection was completed using an information theoretic approach using the corrected Akaike Information Criterion (AICc; Burnham and Anderson 2002). The most parsimonious model (fewest parameters) within two AICc units of the top model (lowest AICc value) was selected as the best-supported model. Searcher efficiency values were input into the EoA software according to the model selection results.

The change in SEEF 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 SEEF 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 estimates for the Covered Species in EoA.

Carcass Persistence Rate Estimation

Data collected during CP trials were used to estimate the amount of time in days that carcasses remained available to be located by the technician or detection-dog team. Estimates of CP were used to adjust carcass counts for removal bias. The CP adjustment estimated the average probability a carcass persisted through the search interval (i.e., the time between scheduled searches). The persistence of a carcass was modeled using an interval-censored survival regression using exponential, log-logistic, lognormal, and Weibull distributions (Kalbfleisch and Prentice 2002, Dalthorp et al. 2018). As with SEEF, CP models were estimated separately by search team (i.e., plots searched by technicians vs. plots searched by detection-dog 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 detection-dog model. The most parsimonious model (fewest parameters) within two AICc units of the top model (lowest AICc value) was selected as the best-supported model. The parameter estimates of the selected model (shape and scale, including the 95% confidence interval [CI] of scale) were used as inputs in the EoA Single Class module.

Search Area Adjustment Estimate

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 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 weight-based probability of detection and the proportion of area searched in each 1.0-m annulus around the turbine. Although the spring and fall seasons have the potential to have different carcass density distributions due to differences in turbine operation, there was insufficient sample size in the spring to examine these effects. Therefore, the models pooled data from both turbine operation regimes and seasons. Distributions considered were normal, gamma, Gompertz, and Weibull (parameterized according to R Development Core Team [2016] and Yee [2010]). The best-supported model was selected using AICc. The proportion of area searched was calculated in a GIS as the amount of area searched divided by the total area searched at each 1.0-m annulus around the turbine.

Carcasses Excluded from Area Adjustment

Fatalities were excluded from the area adjustment used in EoA 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 area adjustment accounts for the carcass by adjusting for unsearched areas. Carcasses found prior to the start of surveys (e.g., a carcass found on a plot in the summer that is not searched until the fall) were also excluded because the carcass occurred outside of the study period. Note that carcasses found on a plot incidentally were included in the analysis if that plot had a scheduled search during the next round of surveys.

Covered Species Take and Detection Probability Estimates

EoA was used to estimate the median annual take rate (λ) for the Covered Species and the probability of detection (*g*). Estimates were calculated using the EoA method (Dalthorp et al. 2017), using the Single Class, Multiple Class, and Multiple Year modules of EoA.

The probability of detection (*g*) was estimated using the bias corrections for SEEF, CP, and area searched, as well as the assumed seasonality of risk for the Covered Species, which was 11% in spring and 89% in fall per the Study Plan (Stucker and Marshall 2023). The EoA Single Class module was used to estimate the distribution of detection probability in each search stratum (i.e., plot), with the strata including the 40-m cleared plots, 70-m cleared plots, 70-m uncleared plots, and the 100-m road and pad plots. The area adjustment was included in the Single Class module for each stratum. This resulted in alpha and 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 three plot strata, with weights for each class defined by the sampling fraction and arrival proportions. The EoA Multiple Year module was used to combine detection probability distributions across 2022 and 2023 with weights defined by turbine operations. Per the HCP, adaptive management triggers will not be evaluated using EoA until Year 3; "bat in hand" adaptive management triggers that could apply in Years 1 and 2 are discussed below.

RESULTS

Standardized Carcass Searches

Two hundred and fifty-five searches were completed in the spring season, and 909 searches were completed in the fall season. Three searches were missed in the spring (1.2%) and 37 searches (3.9%) were missed in the fall due to turbine maintenance, weather, and/or safety hazards from road maintenance and agricultural practices.

Four hundred and seventeen (417) bat carcasses and 36 bird carcasses were found during surveys and incidentally (Appendix A). No Covered Species were observed. One black-billed cuckoo (*Coccyzus erythropthalmus*), a state-listed endangered species, was found at turbine H01 on August 26, 2023, and reported to IDNR on August 28, 2023. No other state- or federally listed species were recorded during the ITP monitoring effort. Fifteen (15) bats were found in the spring, nine during summer clearing searches, and 393 bats were found in the fall. The most commonly found bat species were eastern red bat (239 carcasses; 57.3%), and silver-haired bat (129 carcasses; 30.9%), followed by hoary bat (32; 7.7%) and big brown bat (eight; 1.9%). Six eastern red or Seminole bats (1.4%) and three evening bats (*Nycticeius humeralis*; 0.7%) were also found (Appendix A). The majority of bat carcasses were recorded on plots searched by the detection-dog teams.

Statistical Analysis

Bias Trials

Searcher Efficiency Trials

Searcher efficiency trials were conducted on 17 separate dates across all plot types and months of the study and included 124 carcasses placed with 102 carcasses available for search teams to find. Searcher efficiency rates ranged from 72.5% on 70-m plots with dog detection team to 80.6% on technician searched areas (Table 4). The best-supported model for SEEF on 70-m plots did not support the inclusion of plot type as a covariate, meaning there was not a substantial difference between SEEF rates on uncleared and cleared plots (Appendix B). The best-supported model for SEEF on roads and pads and 40-m cleared plots did not support the inclusion of season or plot type as a covariate (Appendix B).

Table 4. Searcher efficiency results for all plot types at the Ford County Wind Farm in Ford County, Illinois, from April 1 – May 15 and August 1 – October 15, 2023.

Search Area Type	# Placed	# Available	# Found	% Found
Road and Pad and 40-meter plots	71	62	50	80.6
70-meter plots*	53	40	29	72.5

* Detection dog aided searches.

Carcass Persistence Trials

Seventy-seven carcasses were placed to estimate CP. The best-fit model for CP rates on technician-searched turbines had a log-logistic distribution and plot search type as a scale covariate, which suggests CP rates varied substantially between road and pad and 40-m cleared plots (Figure 6; Appendix B). The best-fit model for CP rates on dog-searched plots had an exponential distribution and no covariates, which suggests CP rates did not vary substantially between cleared and uncleared 70-m plots (Figure 7). Estimated median removal times for road and pad and 40-m plots were 4.56 days while median removal times for 70-m cleared and uncleared plots were 7.37 days (Appendix B).

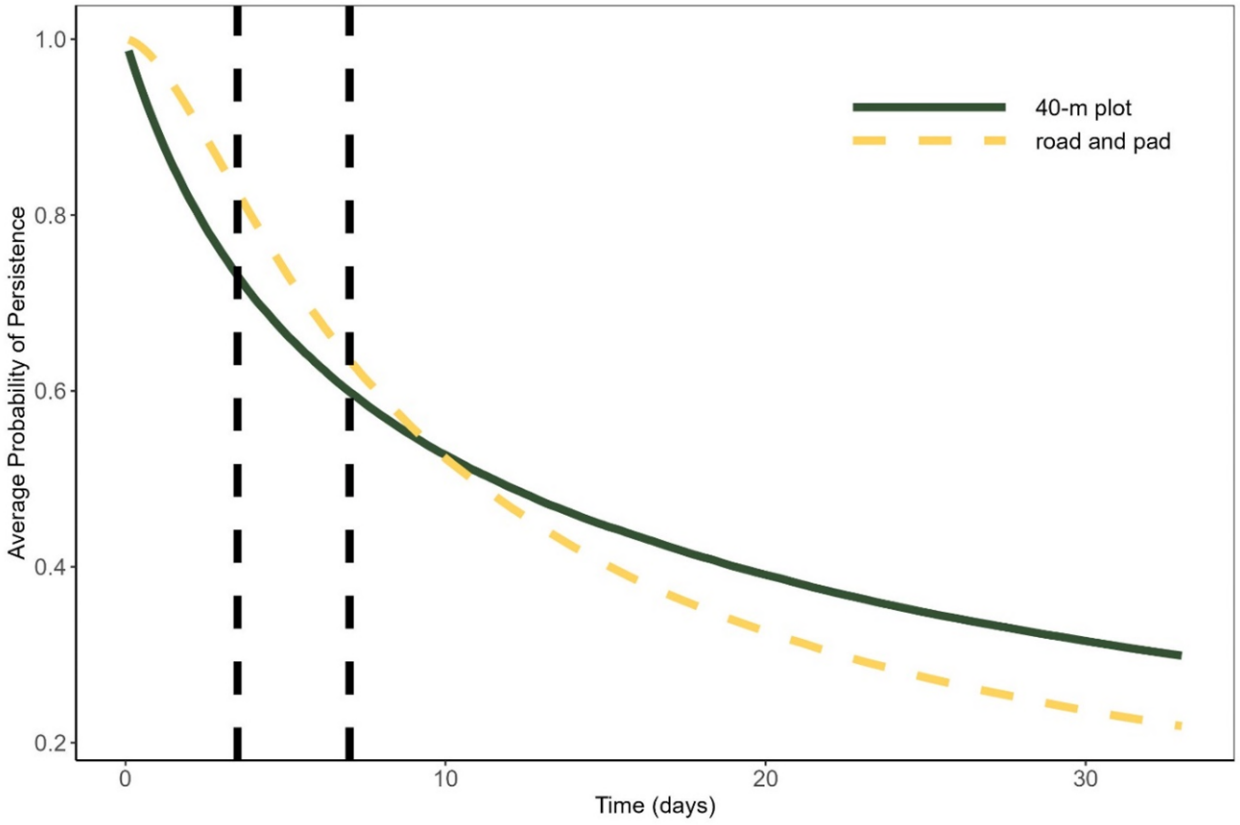

Figure 6. Average probability of carcass persistence as a function of time (days) for bat carcasses placed on technician searched areas at the Ford County Wind Farm in Ford County, Illinois, from April 1 – May 15 and August 1 – October 15, 2023.

Note: Average search interval was 3.5 and 7 days, and is represented by a vertical line on the figure.

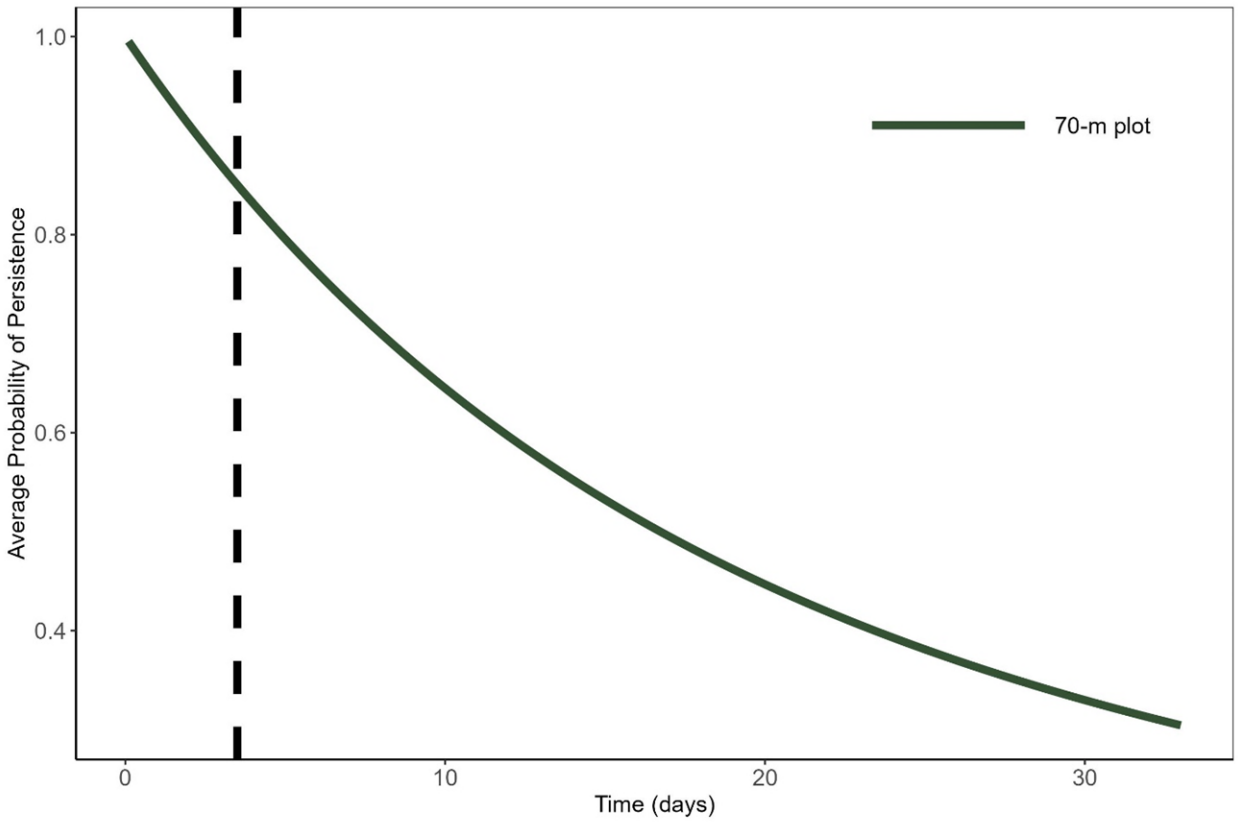

Figure 7. Average probability of carcass persistence as a function of time (days) for bat carcasses placed on dog searched areas at the Ford County Wind Farm in Ford County, Illinois, from April 1 – May 15 and August 1 – October 15, 2023.

Note: Average search interval 3.5 days, and is represented by a vertical line on the figure.

Area Adjustment

Thirty-eight (38) of the 417 bats found were excluded from modeling the area correction for EoA. Six bat carcasses were excluded because they were located outside of the search area, thirty were excluded because they were found during the initial clearing search during summer/fall, and another two were excluded because the time of death was estimated to occur prior to the start of surveys (Appendix B).

The best-fit model for the distribution of bats with respect to distance from turbine base was a Weibull distribution (Figure 8; Appendix B). The estimated TWL area adjustment for bats was 0.53 for 70-m plots, 0.25 for 40-m plots, and 0.03 for roads and pads (Appendix B; Figure 7).

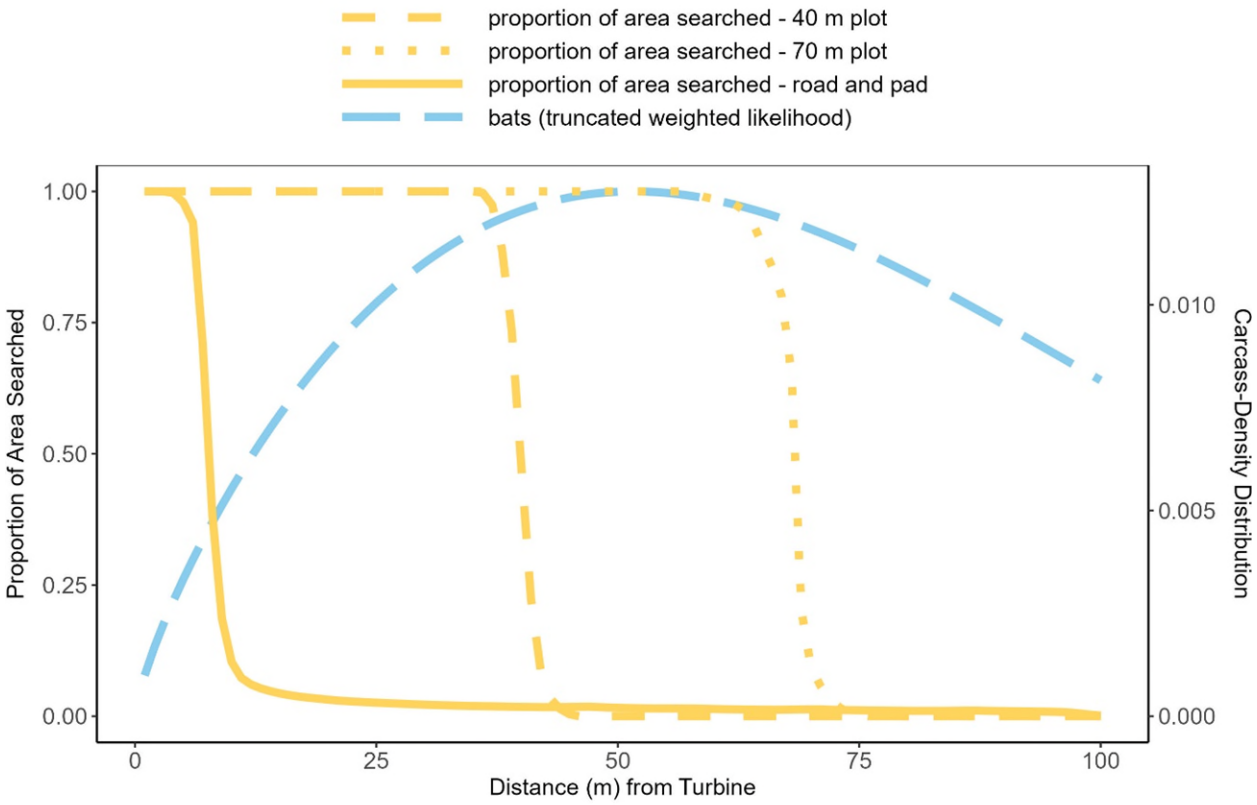

Figure 8. Estimated bat carcass-density distribution, and proportion of area searched by distance from turbine at Ford County Wind Energy Project in Ford County, Illinois, from April 1 – May 15 and August 1 – October 15, 2023.

Evidence of Absence Framework

Indiana Bat and Northern Long-eared Bat Take Estimates

No Covered Species carcasses were found during the study. Furthermore, no Covered Species were found in 2022; thus, the adaptive management triggers as laid out in Table 6.5 of the Project's HCP (two carcasses of either Covered Species in Years 1 and 2, or one Covered Species found in spring or summer of any year) were met and no adaptive management action is necessary. The overall *g* achieved for the 2023 monitoring period had a mean of 0.10 (95% CI: 0.09–0.12). The average overall *g* achieved for the 2022–2023 monitoring years was a mean of 0.123 (95% CI: 0.116–0.131; Table 5). Median annual take rates were estimated to be 0.92 (95% CI: 0.0–10.22) Indiana bats and northern long-eared bats per year from April 1 – May 15 and August 1 – October 15, 2023. 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 C. The average annual take rate will be tested during Year 3, per Table 6.5 of the HCP, to determine what adaptive management thresholds, if any, have been met and therefore what action will occur.

Table 5. Probability of detection (*g*), Ba, and Bb, and *rho* for the Ford County Wind Farm in Ford County, Illinois from 2022–2023.

Year	Ba*	Bb*	*rho*	*g*	95% CI
2022	780.141	4,717.416	1.0	0.142	0.133–0.151
2023	290.134	2,491.22	1.0	0.104	0.093–0.116
Overall	**953.85**	**6,794.071**	**–**	**0.123**	**0.116–0.131**

* 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.

CI = confidence interval.

CONCLUSIONS

The overall *g* achieved for the 2023 monitoring period was below that required to attain an average minimum *g* of 0.2 for Years 1–3. The lower than expected *g* value for 2023 is mainly attributed to a lower than expected search area correction for all plots. Adaptive management triggers will not be formally evaluated using the EoA results until Year 3. No adaptive management actions were triggered by monitoring results because no Covered Species were found in Year 1 or Year 2; therefore, post-construction monitoring and operational minimization will continue as outlined in the Project's HCP. We recommend Year 3 monitoring will be designed to account for the current deficit in monitoring coverage, in accordance with the HCP. The Study Plan for Year 3 will take into account the searcher efficiency, carcass persistence, and area corrections measured at the Project to date to best reflect site conditions and increase the probability of detection of Covered Species.

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Appendix A. Carcasses Found During the 2023 Post-construction Monitoring Surveys at the Ford County Wind Farm in Ford County, Illinois from April 1 – May 15 and August 1 – October 15, 2023.

Appendix A. Complete listing of carcasses found at the Ford County Wind Farm, Ford County, Illinois, from April 1 – May 15 and August 1 – October 15, 2023.

Found Date	Species	Distance from Turbine (m)	Turbine	Search Type	Search Area Type	Physical Condition	Aided Search	Latitude	Longitude
Bats									
04/04/2023	silver-haired bat	13	A01	incidental	40-m plot	intact	no	-88.3628	40.6116
04/06/2023	eastern red bat	73	G07	carcass search	road and pad	intact	no	-88.3879	40.5531
04/10/2023	silver-haired bat	37	F06	carcass search	40-m plot	intact	no	-88.3314	40.5626
04/18/2023	silver-haired bat	1	A01	carcass search	40-m plot	intact	no	-88.3626	40.6117
04/19/2023	eastern red bat	24	I03	carcass search	40-m plot	intact	no	-88.3519	40.5395
04/19/2023	silver-haired bat	13	H01	carcass search	40-m plot	scavenged	no	-88.3781	40.549
04/19/2023	silver-haired bat	35	J01	carcass search	40-m plot	scavenged	no	-88.3736	40.5247
04/27/2023	silver-haired bat	20	J01	carcass search	40-m plot	scavenged	no	-88.3733	40.5246
05/02/2023	hoary bat	13	A01	carcass search	40-m plot	scavenged	no	-88.3626	40.6116
05/03/2023	silver-haired bat	25	I03	carcass search	40-m plot	scavenged	no	-88.3519	40.5395
05/08/2023	silver-haired bat	102	C04	carcass search**	road and pad	scavenged	no	-88.3158	40.5842
05/08/2023	silver-haired bat	49	F03	carcass search	road and pad	scavenged	no	-88.3578	40.5656
05/08/2023	silver-haired bat	97	F03	carcass search	road and pad	scavenged	no	-88.3579	40.566
05/08/2023	silver-haired bat	43	H06	carcass search	road and pad	scavenged	no	-88.3365	40.5465
05/10/2023	silver-haired bat	6	G04	carcass search	road and pad	scavenged	no	-88.3991	40.545
07/27/2023	eastern red bat	20	F05	carcass search	road and pad	intact	no	-88.3493	40.5647
07/28/2023	eastern red bat	3	G01	carcass search	road and pad	intact	no	-88.4113	40.5533
07/28/2023	eastern red bat	13	G07	carcass search	road and pad	intact	no	-88.3881	40.5537
07/28/2023	eastern red bat	3	H02	carcass search	road and pad	intact	no	-88.3587	40.5465
07/28/2023	eastern red bat	18	H03	carcass search	70-m plot	scavenged	yes*	-88.3537	40.5508
07/28/2023	eastern red bat	38	H03	carcass search	70-m plot	scavenged	yes*	-88.3537	40.5512
07/28/2023	eastern red bat	77	I04	carcass search**	70-m plot	scavenged	yes*	-88.3351	40.5344
07/28/2023	eastern red bat	9	I04	carcass search	70-m plot	scavenged	yes*	-88.336	40.5343
07/28/2023	eastern red bat	5	L03	carcass search	70-m plot	intact	yes*	-88.3123	40.5103
07/31/2023	eastern red bat	36	C04	incidental	70-m plot	scavenged	yes*	-88.3155	40.583
07/31/2023	eastern red bat	30	C04	incidental	70-m plot	scavenged	yes*	-88.3161	40.5831
08/01/2023	eastern red bat	1	B04	carcass search	70-m plot	scavenged	yes*	-88.3255	40.5942
08/01/2023	eastern red bat	33	B04	carcass search	70-m plot	scavenged	yes*	-88.3251	40.5941
08/01/2023	eastern red bat	24	B04	carcass search	70-m plot	scavenged	yes*	-88.3253	40.5941
08/01/2023	eastern red bat	29	B04	carcass search	70-m plot	scavenged	yes*	-88.3253	40.5943
08/01/2023	eastern red bat	23	H05	carcass search	road and pad	intact	no	-88.3366	40.5498
08/01/2023	hoary bat	34	H08	carcass search	road and pad	intact	no	-88.3226	40.5463
08/02/2023	big brown bat	56	L03	carcass search	70-m plot	scavenged	yes*	-88.3125	40.5098
08/02/2023	eastern red bat	1	A04	carcass search	road and pad	intact	no	-88.345	40.6083

Appendix A. Complete listing of carcasses found at the Ford County Wind Farm, Ford County, Illinois, from April 1 – May 15 and August 1 – October 15, 2023.

Found Date	Species	Distance from Turbine (m)	Turbine	Search Type	Search Area Type	Physical Condition	Aided Search	Latitude	Longitude
08/02/2023	eastern red bat	5	E02	carcass search	road and pad	intact	no	-88.3717	40.5717
08/02/2023	eastern red bat	5	G05	carcass search	road and pad	scavenged	no	-88.3968	40.5524
08/02/2023	eastern red bat	2	G05	carcass search	road and pad	scavenged	no	-88.3968	40.5524
08/02/2023	eastern red bat	3	H01	carcass search	road and pad	scavenged	no	-88.3782	40.5488
08/02/2023	eastern red bat	6	I03	carcass search	road and pad	scavenged	yes*	-88.3519	40.5392
08/02/2023	eastern red bat	5	I03	carcass search	road and pad	scavenged	yes*	-88.3518	40.5392
08/02/2023	eastern red bat	58	I04	carcass search	70-m plot	scavenged	yes*	-88.3363	40.5339
08/02/2023	eastern red bat	56	I04	carcass search	70-m plot	scavenged	yes*	-88.3364	40.5339
08/02/2023	eastern red bat	38	I04	carcass search	70-m plot	scavenged	yes*	-88.3364	40.5345
08/02/2023	eastern red bat	53	L03	carcass search	70-m plot	scavenged	yes*	-88.3118	40.51
08/02/2023	eastern red bat	30	L03	carcass search	70-m plot	scavenged	yes*	-88.3121	40.5105
08/02/2023	eastern red bat	24	L03	carcass search	70-m plot	scavenged	yes*	-88.3125	40.5104
08/02/2023	hoary bat	14	E02	carcass search	road and pad	intact	no	-88.3717	40.5719
08/02/2023	hoary bat	15	E02	carcass search	road and pad	intact	no	-88.3717	40.5719
08/02/2023	hoary bat	51	F01	carcass search	road and pad	intact	no	-88.374	40.5668
08/03/2023	eastern red bat	41	H03	carcass search	70-m plot	scavenged	yes*	-88.3539	40.551
08/03/2023	eastern red bat	44	I04	carcass search	70-m plot	scavenged	yes*	-88.3363	40.5347
08/03/2023	eastern red bat	47	L03	carcass search	70-m plot	scavenged	yes*	-88.3124	40.5107
08/03/2023	eastern red bat	47	L03	carcass search	70-m plot	scavenged	yes*	-88.3123	40.5107
08/03/2023	eastern red bat	40	L03	carcass search	70-m plot	scavenged	yes*	-88.3124	40.5107
08/04/2023	eastern red bat	9	C04	carcass search	70-m plot	scavenged	yes*	-88.3159	40.5833
08/07/2023	eastern red bat	16	F04	carcass search	road and pad	intact	no	-88.3532	40.5678
08/07/2023	hoary bat	73	C03	carcass search**	70-m plot	scavenged	yes*	-88.3251	40.5841
08/08/2023	eastern red bat	21	I01	carcass search	road and pad	intact	no	-88.3698	40.5349
08/08/2023	eastern red bat	15	L03	carcass search	70-m plot	scavenged	yes*	-88.3123	40.5102
08/08/2023	hoary bat	93	G08	carcass search	road and pad	intact	no	-88.3838	40.5556
08/08/2023	hoary bat	13	I04	carcass search	70-m plot	scavenged	yes*	-88.3361	40.5344
08/08/2023	hoary bat	25	L03	carcass search	70-m plot	scavenged	yes*	-88.3123	40.51
08/11/2023	eastern red bat	45	B04	carcass search	70-m plot	scavenged	yes*	-88.3261	40.5941
08/11/2023	eastern red bat	5	B04	carcass search	70-m plot	dismembered	yes*	-88.3254	40.5941
08/14/2023	eastern red bat	16	A01	carcass search	road and pad	intact	no	-88.3625	40.6115
08/14/2023	eastern red bat	6	A01	carcass search	road and pad	scavenged	no	-88.3626	40.6116
08/14/2023	eastern red bat	27	C04	carcass search	70-m plot	scavenged	yes*	-88.3155	40.5833
08/14/2023	eastern red bat	7	E04a	carcass search	road and pad	scavenged	no	-88.3502	40.5718
08/14/2023	eastern red bat	1	F06	carcass search	road and pad	dismembered	no	-88.331	40.5628
08/15/2023	eastern red bat	32	H03	carcass search	70-m plot	intact	yes*	-88.3533	40.5511

Appendix A. Complete listing of carcasses found at the Ford County Wind Farm, Ford County, Illinois, from April 1 – May 15 and August 1 – October 15, 2023.

Found Date	Species	Distance from Turbine (m)	Turbine	Search Type	Search Area Type	Physical Condition	Aided Search	Latitude	Longitude
08/15/2023	eastern red bat	31	L03	carcass search	70-m plot	scavenged	yes*	-88.3123	40.5106
08/15/2023	eastern red bat	32	L03	carcass search	70-m plot	scavenged	yes*	-88.3122	40.5106
08/15/2023	evening bat	23	F04	carcass search	road and pad	intact	no	-88.3533	40.5677
08/15/2023	hoary bat	3	L01	carcass search	road and pad	intact	no	-88.3362	40.5171
08/16/2023	eastern red bat	20	H05	carcass search	road and pad	intact	no	-88.3365	40.5498
08/16/2023	eastern red bat	6	J03	carcass search	road and pad	intact	no	-88.3337	40.5257
08/17/2023	eastern red bat	77	G01	carcass search	road and pad	scavenged	no	-88.4113	40.5526
08/17/2023	eastern red bat	41	I04	carcass search	70-m plot	scavenged	yes*	-88.3356	40.5342
08/17/2023	eastern red bat	44	J01	carcass search	road and pad	scavenged	yes*	-88.3734	40.5248
08/17/2023	eastern red bat	8	J01	carcass search	road and pad	scavenged	yes*	-88.3734	40.5244
08/17/2023	eastern red bat	30	J01	carcass search	road and pad	scavenged	yes*	-88.3732	40.5242
08/17/2023	eastern red bat	35	L03	carcass search	70-m plot	scavenged	yes*	-88.3119	40.5101
08/17/2023	eastern red bat	25	L03	carcass search	70-m plot	scavenged	yes*	-88.312	40.5103
08/17/2023	eastern red bat	21	L03	carcass search	70-m plot	scavenged	yes*	-88.3119	40.5103
08/17/2023	eastern red bat or Seminole bat	58	I04	carcass search	70-m plot	scavenged	yes*	-88.3365	40.5348
08/17/2023	silver-haired bat	38	I03	carcass search	road and pad	intact	no	-88.3513	40.5392
08/18/2023	big brown bat	4	E01	carcass search	road and pad	scavenged	yes*	-88.3764	40.5715
08/18/2023	eastern red bat	16	B04	carcass search	70-m plot	scavenged	yes*	-88.3254	40.5943
08/18/2023	eastern red bat	42	B04	carcass search	70-m plot	scavenged	yes*	-88.3251	40.5944
08/18/2023	eastern red bat	50	F06	carcass search	road and pad	scavenged	yes*	-88.3316	40.5628
08/18/2023	eastern red bat	50	H07	carcass search	road and pad	scavenged	yes*	-88.3313	40.5474
08/18/2023	silver-haired bat	32	H07	carcass search	road and pad	scavenged	yes*	-88.3309	40.5472
08/21/2023	big brown bat	31	C03	carcass search	70-m plot	scavenged	yes*	-88.3241	40.5843
08/21/2023	eastern red bat	3	C02	carcass search	road and pad	intact	no	-88.3527	40.5903
08/21/2023	eastern red bat	7	C02	carcass search	road and pad	intact	no	-88.3528	40.5903
08/21/2023	eastern red bat	71	C03	carcass search**	70-m plot	scavenged	yes*	-88.3247	40.5846
08/21/2023	eastern red bat	40	C03	carcass search	70-m plot	scavenged	yes*	-88.3246	40.5843
08/21/2023	eastern red bat	50	C04	carcass search	70-m plot	scavenged	yes*	-88.3155	40.5837
08/21/2023	eastern red bat	10	C04	carcass search	70-m plot	scavenged	yes*	-88.3158	40.5833
08/21/2023	eastern red bat	6	D01	carcass search	road and pad	scavenged	no	-88.3532	40.5779
08/21/2023	eastern red bat	30	E01	carcass search	70-m plot	scavenged	yes*	-88.3761	40.5715
08/21/2023	eastern red bat	40	E04a	carcass search	70-m plot	scavenged	yes*	-88.35	40.5722
08/21/2023	eastern red bat	14	F06	carcass search	70-m plot	scavenged	yes*	-88.3311	40.5629
08/21/2023	eastern red bat	2	G02	carcass search	road and pad	intact	no	-88.4083	40.5573
08/21/2023	eastern red bat	6	G03	carcass search	road and pad	intact	no	-88.402	40.5486

Appendix A. Complete listing of carcasses found at the Ford County Wind Farm, Ford County, Illinois, from April 1 – May 15 and August 1 – October 15, 2023.

Found Date	Species	Distance from Turbine (m)	Turbine	Search Type	Search Area Type	Physical Condition	Aided Search	Latitude	Longitude
08/21/2023	eastern red bat	3	G05	carcass search	road and pad	intact	no	-88.3968	40.5524
08/21/2023	eastern red bat	24	H08	carcass search	road and pad	intact	no	-88.3225	40.5463
08/21/2023	eastern red bat	5	I02	carcass search	road and pad	intact	no	-88.3594	40.5334
08/22/2023	eastern red bat	56	H01	carcass search	70-m plot	intact	yes*	-88.3778	40.5494
08/22/2023	eastern red bat	19	H07	carcass search	70-m plot	scavenged	yes*	-88.3312	40.5468
08/22/2023	eastern red bat	34	I04	carcass search	70-m plot	scavenged	yes*	-88.3356	40.5343
08/22/2023	eastern red bat	6	I04	carcass search	70-m plot	scavenged	yes*	-88.3361	40.5343
08/22/2023	eastern red bat	17	I04	carcass search	70-m plot	scavenged	yes*	-88.3362	40.5344
08/22/2023	eastern red bat	46	I04	carcass search	70-m plot	scavenged	yes*	-88.3364	40.5347
08/22/2023	eastern red bat	49	L03	carcass search	70-m plot	intact	yes*	-88.3122	40.5099
08/22/2023	eastern red bat or Seminole bat	49	H02	carcass search	road and pad	intact	no	-88.3587	40.5461
08/22/2023	hoary bat	25	I04	carcass search	70-m plot	scavenged	yes*	-88.3359	40.5346
08/22/2023	silver-haired bat	6	J01	carcass search	70-m plot	scavenged	yes*	-88.3733	40.5245
08/24/2023	big brown bat	19	F03	carcass search	road and pad	intact	no	-88.3578	40.5653
08/24/2023	big brown bat	52	G01	carcass search	road and pad	intact	no	-88.4113	40.5528
08/24/2023	eastern red bat	65	A02	carcass search	road and pad	intact	no	-88.3557	40.6076
08/24/2023	eastern red bat	26	C02	carcass search	road and pad	intact	no	-88.3524	40.5903
08/24/2023	eastern red bat	40	C03	carcass search	70-m plot	scavenged	yes*	-88.3245	40.5843
08/24/2023	eastern red bat	24	F03	carcass search	road and pad	intact	no	-88.3578	40.5653
08/24/2023	eastern red bat	5	G05	carcass search	road and pad	intact	no	-88.3968	40.5524
08/24/2023	eastern red bat	8	G07	carcass search	road and pad	intact	no	-88.388	40.5538
08/24/2023	eastern red bat	1	G08	carcass search	road and pad	intact	no	-88.3826	40.5557
08/25/2023	eastern red bat	53	E01	carcass search	70-m plot	scavenged	yes*	-88.3761	40.5719
08/25/2023	eastern red bat	63	E04a	carcass search	70-m plot	scavenged	yes*	-88.3509	40.5719
08/25/2023	eastern red bat	73	F01	incidental	road and pad	intact	no	-88.3738	40.5668
08/25/2023	eastern red bat	60	F06	carcass search	70-m plot	scavenged	yes*	-88.3305	40.5632
08/25/2023	eastern red bat	28	F06	carcass search	70-m plot	scavenged	yes*	-88.3314	40.5629
08/25/2023	eastern red bat	5	F06	carcass search	70-m plot	scavenged	yes*	-88.3309	40.5628
08/25/2023	eastern red bat	45	F06	carcass search	70-m plot	scavenged	yes*	-88.331	40.5632
08/25/2023	eastern red bat	40	F06	carcass search	70-m plot	scavenged	yes*	-88.3309	40.5631
08/25/2023	eastern red bat	46	F06	carcass search	70-m plot	scavenged	yes*	-88.3307	40.5632
08/25/2023	eastern red bat	118	F06	incidental**	70-m plot	scavenged	yes*	-88.3296	40.5628
08/25/2023	eastern red bat	1	H05	carcass search	road and pad	scavenged	no	-88.3364	40.55
08/25/2023	eastern red bat	55	I03	carcass search	70-m plot	scavenged	yes*	-88.3511	40.5394
08/25/2023	eastern red bat	56	I03	carcass search	70-m plot	scavenged	yes*	-88.3516	40.5397

Appendix A. Complete listing of carcasses found at the Ford County Wind Farm, Ford County, Illinois, from April 1 – May 15 and August 1 – October 15, 2023.

Found Date	Species	Distance from Turbine (m)	Turbine	Search Type	Search Area Type	Physical Condition	Aided Search	Latitude	Longitude
08/25/2023	hoary bat	27	E04a	carcass search	70-m plot	scavenged	yes*	-88.35	40.572
08/25/2023	hoary bat	50	F06	carcass search	70-m plot	scavenged	yes*	-88.3307	40.5632
08/25/2023	hoary bat	21	F06	incidental	70-m plot	scavenged	yes*	-88.3311	40.5629
08/25/2023	hoary bat	33	I03	carcass search	70-m plot	scavenged	yes*	-88.3513	40.5393
08/25/2023	hoary bat	39	I03	carcass search	70-m plot	scavenged	yes*	-88.3514	40.5391
08/26/2023	eastern red bat	60	C02	incidental	road and pad	intact	no	-88.3523	40.5907
08/26/2023	eastern red bat	50	H03	carcass search	70-m plot	scavenged	yes*	-88.353	40.5508
08/26/2023	eastern red bat	41	H07	carcass search	70-m plot	scavenged	yes*	-88.3316	40.5472
08/26/2023	eastern red bat	41	H07	carcass search	70-m plot	intact	yes*	-88.3316	40.5472
08/26/2023	eastern red bat	25	H07	carcass search	70-m plot	intact	yes*	-88.3309	40.5471
08/26/2023	eastern red bat	39	H07	carcass search	70-m plot	intact	yes*	-88.3308	40.5467
08/26/2023	eastern red bat	56	H07	carcass search	70-m plot	intact	yes*	-88.3306	40.5472
08/26/2023	eastern red bat	60	I04	carcass search	70-m plot	scavenged	yes*	-88.3359	40.5349
08/26/2023	eastern red bat	43	I04	carcass search	70-m plot	scavenged	yes*	-88.3358	40.5348
08/26/2023	eastern red bat	56	I04	carcass search	70-m plot	scavenged	yes*	-88.3365	40.5347
08/26/2023	eastern red bat	55	I04	carcass search	70-m plot	scavenged	yes*	-88.3366	40.5346
08/26/2023	eastern red bat	24	I04	carcass search	70-m plot	scavenged	yes*	-88.3362	40.5345
08/26/2023	eastern red bat	12	I04	carcass search	70-m plot	scavenged	yes*	-88.336	40.5345
08/26/2023	eastern red bat	33	J01	carcass search	70-m plot	intact	no	-88.3729	40.5245
08/26/2023	eastern red bat	18	J01	carcass search	70-m plot	intact	yes*	-88.3734	40.5246
08/26/2023	eastern red bat	3	J03	carcass search	road and pad	scavenged	no	-88.3337	40.5257
08/26/2023	eastern red bat	30	L03	carcass search	70-m plot	scavenged	yes*	-88.3124	40.5101
08/26/2023	eastern red bat	43	L03	carcass search	70-m plot	scavenged	yes*	-88.3117	40.5103
08/26/2023	eastern red bat	28	L03	carcass search	70-m plot	scavenged	yes*	-88.3119	40.5104
08/26/2023	eastern red bat	53	L03	carcass search	70-m plot	scavenged	yes*	-88.3121	40.5108
08/26/2023	eastern red bat or Seminole bat	41	L03	carcass search	70-m plot	scavenged	yes*	-88.3118	40.5105
08/26/2023	hoary bat	50	H01	carcass search	70-m plot	intact	yes*	-88.3777	40.5493
08/26/2023	hoary bat	39	H01	carcass search	70-m plot	intact	yes*	-88.3786	40.5486
08/26/2023	hoary bat	3	H08	carcass search	road and pad	scavenged	no	-88.3222	40.5462
08/26/2023	hoary bat	13	J01	carcass search	70-m plot	intact	yes*	-88.3734	40.5243
08/26/2023	hoary bat	64	J01	carcass search	70-m plot	scavenged	yes*	-88.3726	40.5243
08/26/2023	hoary bat	19	L03	carcass search	70-m plot	scavenged	yes*	-88.3124	40.5104
08/26/2023	silver-haired bat	46	H01	carcass search	70-m plot	intact	yes*	-88.3783	40.5493
08/27/2023	silver-haired bat	9	C03	incidental	70-m plot	intact	no	-88.3243	40.5841
08/27/2023	silver-haired bat	28	C03	incidental	70-m plot	intact	no	-88.3245	40.5841

Appendix A. Complete listing of carcasses found at the Ford County Wind Farm, Ford County, Illinois, from April 1 – May 15 and August 1 – October 15, 2023.

Found Date	Species	Distance from Turbine (m)	Turbine	Search Type	Search Area Type	Physical Condition	Aided Search	Latitude	Longitude
08/28/2023	big brown bat	82	G08	carcass search	road and pad	intact	no	-88.3836	40.5557
08/28/2023	eastern red bat	4	A02	carcass search	road and pad	dismembered	no	-88.3557	40.607
08/28/2023	eastern red bat	24	B04	carcass search	70-m plot	scavenged	yes*	-88.3253	40.5943
08/28/2023	eastern red bat	17	B04	carcass search	70-m plot	scavenged	yes*	-88.3254	40.5943
08/28/2023	eastern red bat	26	C04	carcass search	70-m plot	scavenged	yes*	-88.3161	40.5832
08/28/2023	eastern red bat	24	E01	carcass search	70-m plot	scavenged	yes*	-88.3767	40.5714
08/28/2023	eastern red bat	61	E02	carcass search	road and pad	intact	no	-88.3713	40.5722
08/28/2023	eastern red bat	34	E04a	carcass search	70-m plot	scavenged	yes*	-88.3498	40.5717
08/28/2023	eastern red bat	41	E04a	carcass search	70-m plot	scavenged	yes*	-88.35	40.5715
08/28/2023	eastern red bat	67	F06	carcass search	70-m plot	scavenged	yes*	-88.3307	40.5622
08/28/2023	eastern red bat	15	F06	carcass search	70-m plot	intact	yes*	-88.3309	40.563
08/28/2023	eastern red bat	26	F06	carcass search	70-m plot	intact	no	-88.3313	40.5628
08/28/2023	eastern red bat	47	I03	carcass search	70-m plot	scavenged	yes*	-88.3522	40.5396
08/28/2023	eastern red bat	26	I03	carcass search	70-m plot	scavenged	yes*	-88.3515	40.5391
08/28/2023	hoary bat	47	C03	carcass search	70-m plot	scavenged	yes*	-88.3243	40.5844
08/28/2023	hoary bat	42	E01	carcass search	70-m plot	scavenged	yes*	-88.3765	40.5711
08/28/2023	silver-haired bat	80	A01	carcass search	road and pad	intact	no	-88.3626	40.611
08/28/2023	silver-haired bat	9	B04	carcass search	70-m plot	intact	yes*	-88.3255	40.5941
08/28/2023	silver-haired bat	7	D01	carcass search	road and pad	intact	no	-88.3531	40.5778
08/28/2023	silver-haired bat	6	E04a	carcass search	70-m plot	intact	yes*	-88.3501	40.5718
08/28/2023	silver-haired bat	30	E04a	carcass search	70-m plot	intact	yes*	-88.3501	40.5716
08/28/2023	silver-haired bat	7	E05	carcass search	road and pad	intact	no	-88.3311	40.5685
08/28/2023	silver-haired bat	46	E06	carcass search	road and pad	intact	no	-88.322	40.5683
08/28/2023	silver-haired bat	8	F04	carcass search	road and pad	dismembered	no	-88.3533	40.5679
08/28/2023	silver-haired bat	60	F06	carcass search	70-m plot	intact	yes*	-88.3316	40.5626
08/28/2023	silver-haired bat	30	F06	carcass search	70-m plot	intact	yes*	-88.3314	40.5628
08/28/2023	silver-haired bat	24	I03	carcass search	70-m plot	intact	yes*	-88.3519	40.5391
08/28/2023	silver-haired bat	30	I03	carcass search	70-m plot	intact	yes*	-88.3517	40.539
08/29/2023	big brown bat	7	L03	carcass search	70-m plot	scavenged	yes*	-88.3123	40.5103
08/29/2023	eastern red bat	65	H01	carcass search	70-m plot	scavenged	yes*	-88.3789	40.5487
08/29/2023	eastern red bat	50	H01	carcass search	70-m plot	scavenged	yes*	-88.3788	40.5488
08/29/2023	eastern red bat	38	H01	carcass search	70-m plot	scavenged	yes*	-88.378	40.5486
08/29/2023	eastern red bat	18	H01	carcass search	70-m plot	scavenged	yes*	-88.3782	40.549
08/29/2023	eastern red bat	52	H01	carcass search	70-m plot	scavenged	yes*	-88.3781	40.5494
08/29/2023	eastern red bat	28	H03	carcass search	70-m plot	scavenged	yes*	-88.3532	40.5507
08/29/2023	eastern red bat	25	H04	carcass search	road and pad	intact	no	-88.3503	40.5449

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Found Date	Species	Distance from Turbine (m)	Turbine	Search Type	Search Area Type	Physical Condition	Aided Search	Latitude	Longitude
08/29/2023	eastern red bat	13	H07	carcass search	70-m plot	scavenged	yes*	-88.3314	40.547
08/29/2023	eastern red bat	34	H07	carcass search	70-m plot	scavenged	yes*	-88.3313	40.5473
08/29/2023	eastern red bat	37	H07	carcass search	70-m plot	scavenged	yes*	-88.3309	40.5467
08/29/2023	eastern red bat	12	I04	carcass search	70-m plot	scavenged	yes*	-88.336	40.5343
08/29/2023	eastern red bat	55	J01	carcass search	70-m plot	scavenged	yes*	-88.3733	40.5249
08/29/2023	silver-haired bat	41	H01	carcass search	70-m plot	intact	yes*	-88.3781	40.5485
08/29/2023	silver-haired bat	49	H01	carcass search	70-m plot	scavenged	yes*	-88.378	40.5485
08/29/2023	silver-haired bat	11	H01	carcass search	70-m plot	scavenged	yes*	-88.3783	40.5488
08/29/2023	silver-haired bat	28	H02	carcass search	road and pad	intact	no	-88.3589	40.5463
08/29/2023	silver-haired bat	12	H03	carcass search	70-m plot	scavenged	yes*	-88.3536	40.5508
08/29/2023	silver-haired bat	5	H07	carcass search	70-m plot	intact	yes*	-88.3312	40.5469
08/29/2023	silver-haired bat	21	H07	carcass search	70-m plot	scavenged	yes*	-88.3314	40.5468
08/29/2023	silver-haired bat	47	H07	carcass search	70-m plot	intact	yes*	-88.3312	40.5465
08/29/2023	silver-haired bat	22	I04	carcass search	70-m plot	intact	yes*	-88.3362	40.5342
08/29/2023	silver-haired bat	53	J01	carcass search	70-m plot	intact	yes*	-88.3734	40.5239
08/29/2023	silver-haired bat	1	J03	carcass search	road and pad	scavenged	no	-88.3337	40.5257
08/31/2023	eastern red bat	22	B04	carcass search	70-m plot	scavenged	yes*	-88.3254	40.5944
08/31/2023	eastern red bat	19	D01	carcass search	road and pad	scavenged	no	-88.3529	40.5779
08/31/2023	eastern red bat	29	E01	carcass search	70-m plot	scavenged	yes*	-88.3765	40.5712
08/31/2023	eastern red bat	23	E01	carcass search	70-m plot	scavenged	yes*	-88.3766	40.5715
08/31/2023	eastern red bat	50	E04a	carcass search	70-m plot	intact	yes*	-88.3503	40.5714
08/31/2023	eastern red bat	22	E04a	carcass search	70-m plot	dismembered	yes*	-88.3504	40.5719
08/31/2023	silver-haired bat	7	A02	carcass search	road and pad	intact	no	-88.3557	40.6069
08/31/2023	silver-haired bat	47	A04	carcass search	road and pad	intact	no	-88.3451	40.6079
08/31/2023	silver-haired bat	14	A04	carcass search	road and pad	intact	no	-88.345	40.6081
08/31/2023	silver-haired bat	2	A04	carcass search	road and pad	intact	no	-88.345	40.6083
08/31/2023	silver-haired bat	19	C03	carcass search	70-m plot	scavenged	yes*	-88.3239	40.5841
08/31/2023	silver-haired bat	24	E01	carcass search	70-m plot	scavenged	yes*	-88.3767	40.5714
08/31/2023	silver-haired bat	42	E01	carcass search	70-m plot	scavenged	yes*	-88.3769	40.5717
08/31/2023	silver-haired bat	46	E04a	carcass search	70-m plot	intact	yes*	-88.3506	40.5716
08/31/2023	silver-haired bat	5	E05	carcass search	road and pad	intact	no	-88.331	40.5684
08/31/2023	silver-haired bat	67	F06	carcass search	70-m plot	scavenged	yes*	-88.3309	40.5622
08/31/2023	silver-haired bat	42	I03	carcass search	70-m plot	scavenged	yes*	-88.3516	40.5389
08/31/2023	silver-haired bat	45	I03	carcass search	70-m plot	scavenged	yes*	-88.3516	40.5389
08/31/2023	silver-haired bat	22	I03	carcass search	70-m plot	intact	yes*	-88.3519	40.5391
09/01/2023	eastern red bat	33	I04	carcass search	70-m plot	dismembered	yes*	-88.3359	40.5341

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Found Date	Species	Distance from Turbine (m)	Turbine	Search Type	Search Area Type	Physical Condition	Aided Search	Latitude	Longitude
09/01/2023	eastern red bat	38	I04	carcass search	70-m plot	intact	yes*	-88.3364	40.5345
09/01/2023	eastern red bat	19	L03	carcass search	70-m plot	scavenged	yes*	-88.3124	40.5104
09/01/2023	hoary bat	54	I04	carcass search	70-m plot	intact	yes*	-88.3357	40.534
09/01/2023	silver-haired bat	30	H01	carcass search	70-m plot	scavenged	yes*	-88.3781	40.5486
09/01/2023	silver-haired bat	43	H07	carcass search	70-m plot	intact	yes*	-88.3313	40.5466
09/01/2023	silver-haired bat	12	I04	carcass search	70-m plot	intact	yes*	-88.3361	40.5345
09/01/2023	silver-haired bat	57	L03	carcass search	70-m plot	scavenged	yes*	-88.3122	40.5098
09/04/2023	eastern red bat	5	A04	carcass search	road and pad	intact	no	-88.3451	40.6083
09/04/2023	eastern red bat	1	C02	carcass search	road and pad	intact	no	-88.3528	40.5903
09/04/2023	eastern red bat	35	C03	carcass search	70-m plot	scavenged	yes*	-88.3245	40.5843
09/04/2023	eastern red bat	6	E02	carcass search	road and pad	intact	no	-88.3718	40.5718
09/04/2023	eastern red bat	47	F06	carcass search	70-m plot	scavenged	yes*	-88.3316	40.563
09/04/2023	eastern red bat	3	G04	carcass search	road and pad	intact	no	-88.3991	40.5449
09/04/2023	eastern red bat	76	I02	carcass search	road and pad	intact	no	-88.3602	40.5333
09/04/2023	silver-haired bat	46	A02	carcass search	road and pad	intact	no	-88.3557	40.6074
09/04/2023	silver-haired bat	47	E01	carcass search	70-m plot	scavenged	yes*	-88.3764	40.5719
09/04/2023	silver-haired bat	25	E01	carcass search	70-m plot	intact	yes*	-88.3764	40.5717
09/04/2023	silver-haired bat	21	E01	carcass search	70-m plot	scavenged	yes*	-88.3762	40.5716
09/04/2023	silver-haired bat	38	E04a	carcass search	70-m plot	scavenged	yes*	-88.3506	40.5718
09/04/2023	silver-haired bat	26	E04a	carcass search	70-m plot	intact	yes*	-88.3503	40.572
09/04/2023	silver-haired bat	19	E04a	carcass search	70-m plot	intact	yes*	-88.3499	40.5719
09/04/2023	silver-haired bat	28	F06	carcass search	70-m plot	scavenged	yes*	-88.3312	40.5626
09/04/2023	silver-haired bat	52	F06	carcass search	70-m plot	scavenged	yes*	-88.3315	40.5625
09/04/2023	silver-haired bat	7	G03	carcass search	road and pad	intact	no	-88.4019	40.5486
09/04/2023	silver-haired bat	8	G04	carcass search	road and pad	intact	no	-88.3992	40.545
09/05/2023	eastern red bat	52	H01	carcass search	70-m plot	dismembered	yes*	-88.3781	40.5494
09/05/2023	eastern red bat	38	H01	carcass search	70-m plot	scavenged	yes*	-88.3778	40.5489
09/05/2023	eastern red bat	58	I03	carcass search	70-m plot	dismembered	yes*	-88.3525	40.5393
09/05/2023	eastern red bat	46	I04	carcass search	70-m plot	scavenged	yes*	-88.3355	40.5343
09/05/2023	eastern red bat	46	I04	carcass search	70-m plot	scavenged	yes*	-88.3365	40.5341
09/05/2023	eastern red bat	42	J01	carcass search	70-m plot	scavenged	yes*	-88.3729	40.5246
09/05/2023	eastern red bat	29	J01	carcass search	70-m plot	scavenged	yes*	-88.3731	40.5246
09/05/2023	eastern red bat	50	J01	carcass search	70-m plot	scavenged	yes*	-88.3739	40.5247
09/05/2023	eastern red bat or Seminole bat	26	I03	carcass search	70-m plot	scavenged	yes*	-88.352	40.5391
09/05/2023	silver-haired bat	52	H01	carcass search	70-m plot	intact	yes*	-88.3784	40.5494

Appendix A. Complete listing of carcasses found at the Ford County Wind Farm, Ford County, Illinois, from April 1 – May 15 and August 1 – October 15, 2023.

Found Date	Species	Distance from Turbine (m)	Turbine	Search Type	Search Area Type	Physical Condition	Aided Search	Latitude	Longitude
09/05/2023	silver-haired bat	43	H01	carcass search	70-m plot	scavenged	yes*	-88.3782	40.5493
09/05/2023	silver-haired bat	69	H01	carcass search	70-m plot	scavenged	yes*	-88.378	40.5483
09/05/2023	silver-haired bat	49	H01	carcass search	70-m plot	scavenged	yes*	-88.3781	40.5485
09/05/2023	silver-haired bat	44	I03	carcass search	70-m plot	intact	yes*	-88.3519	40.5388
09/05/2023	silver-haired bat	38	I03	carcass search	70-m plot	scavenged	yes*	-88.3522	40.539
09/05/2023	silver-haired bat	12	I03	carcass search	70-m plot	intact	yes*	-88.3517	40.5392
09/05/2023	silver-haired bat	49	I03	carcass search	70-m plot	intact	yes*	-88.3522	40.5396
09/05/2023	silver-haired bat	41	I04	carcass search	70-m plot	scavenged	yes*	-88.3363	40.534
09/05/2023	silver-haired bat	53	J01	carcass search	70-m plot	scavenged	yes*	-88.3735	40.5249
09/05/2023	silver-haired bat	65	J01	carcass search	70-m plot	scavenged	yes*	-88.3733	40.5239
09/05/2023	silver-haired bat	26	J01	carcass search	70-m plot	intact	yes*	-88.373	40.5245
09/05/2023	silver-haired bat	40	J01	carcass search	70-m plot	intact	yes*	-88.373	40.5244
09/05/2023	silver-haired bat	70	J01	carcass search	70-m plot	scavenged	yes*	-88.3736	40.5239
09/05/2023	silver-haired bat	30	J01	carcass search	70-m plot	intact	yes*	-88.3736	40.5244
09/05/2023	silver-haired bat	40	L03	carcass search	70-m plot	scavenged	yes*	-88.3127	40.5102
09/05/2023	silver-haired bat	33	L03	carcass search	70-m plot	scavenged	yes*	-88.3121	40.51
09/06/2023	eastern red bat	7	L01	carcass search	road and pad	scavenged	no	-88.3362	40.5171
09/07/2023	eastern red bat	26	C04	carcass search	70-m plot	scavenged	yes*	-88.3158	40.5835
09/07/2023	eastern red bat	61	F06	carcass search	70-m plot	scavenged	yes*	-88.3304	40.5632
09/07/2023	eastern red bat	44	F06	carcass search	70-m plot	scavenged	yes*	-88.3306	40.5632
09/07/2023	eastern red bat	51	I03	carcass search	70-m plot	intact	yes*	-88.3511	40.5393
09/07/2023	eastern red bat	41	I03	carcass search	70-m plot	scavenged	yes*	-88.3517	40.5397
09/07/2023	eastern red bat	25	I03	carcass search	70-m plot	scavenged	yes*	-88.3521	40.5393
09/07/2023	silver-haired bat	23	E01	carcass search	70-m plot	scavenged	yes*	-88.3765	40.5717
09/07/2023	silver-haired bat	51	E01	carcass search	70-m plot	scavenged	yes*	-88.3761	40.5719
09/07/2023	silver-haired bat	30	F06	carcass search	70-m plot	scavenged	yes*	-88.3306	40.5627
09/08/2023	big brown bat	7	F04	carcass search	road and pad	intact	no	-88.3533	40.568
09/08/2023	eastern red bat	0	A01	carcass search	road and pad	intact	no	-88.3626	40.6117
09/08/2023	eastern red bat	48	H01	carcass search	70-m plot	scavenged	yes*	-88.3779	40.5493
09/08/2023	eastern red bat	37	H03	carcass search	70-m plot	scavenged	yes*	-88.353	40.5509
09/08/2023	eastern red bat	6	H04	carcass search	road and pad	intact	no	-88.3505	40.5449
09/08/2023	eastern red bat	6	H08	carcass search	road and pad	intact	no	-88.3221	40.5462
09/08/2023	eastern red bat	22	I04	carcass search	70-m plot	scavenged	yes*	-88.3358	40.5344
09/08/2023	eastern red bat	58	J01	carcass search	70-m plot	scavenged	yes*	-88.3728	40.5248
09/08/2023	eastern red bat	61	J01	carcass search	70-m plot	scavenged	yes*	-88.3739	40.5248
09/08/2023	eastern red bat	29	J01	carcass search	70-m plot	scavenged	yes*	-88.3731	40.5246

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Found Date	Species	Distance from Turbine (m)	Turbine	Search Type	Search Area Type	Physical Condition	Aided Search	Latitude	Longitude
09/08/2023	eastern red bat	53	L03	carcass search	70-m plot	scavenged	yes*	-88.3125	40.5108
09/08/2023	eastern red bat or Seminole bat	41	J01	carcass search	70-m plot	scavenged	yes*	-88.3736	40.5248
09/08/2023	hoary bat	25	I04	carcass search	70-m plot	scavenged	yes*	-88.3362	40.5346
09/08/2023	silver-haired bat	54	I04	carcass search	70-m plot	scavenged	yes*	-88.3357	40.5339
09/08/2023	silver-haired bat	56	J01	carcass search	70-m plot	scavenged	yes*	-88.374	40.5245
09/11/2023	eastern red bat	18	C03	carcass search	70-m plot	scavenged	yes*	-88.3241	40.5842
09/11/2023	eastern red bat	3	G03	carcass search	road and pad	intact	no	-88.4019	40.5486
09/11/2023	silver-haired bat	6	F06	carcass search	70-m plot	intact	yes*	-88.331	40.5627
09/11/2023	silver-haired bat	44	F06	carcass search	70-m plot	intact	yes*	-88.3315	40.5627
09/11/2023	silver-haired bat	0	I01	carcass search	road and pad	scavenged	no	-88.37	40.5349
09/12/2023	eastern red bat	43	H01	carcass search	70-m plot	scavenged	yes*	-88.3783	40.5493
09/12/2023	eastern red bat	41	H01	carcass search	70-m plot	scavenged	yes*	-88.378	40.5493
09/12/2023	eastern red bat	19	H03	carcass search	70-m plot	scavenged	yes*	-88.3537	40.5508
09/12/2023	eastern red bat	44	H07	carcass search	70-m plot	intact	yes*	-88.3314	40.5474
09/12/2023	eastern red bat	38	I04	carcass search	70-m plot	scavenged	yes*	-88.3356	40.5346
09/12/2023	eastern red bat	43	I04	carcass search	70-m plot	scavenged	yes*	-88.3365	40.5342
09/12/2023	eastern red bat	22	J01	carcass search	70-m plot	scavenged	yes*	-88.3731	40.5246
09/12/2023	eastern red bat	24	J01	carcass search	70-m plot	intact	yes*	-88.3737	40.5245
09/12/2023	eastern red bat	22	J01	carcass search	70-m plot	scavenged	yes*	-88.3734	40.5243
09/12/2023	hoary bat	25	H03	carcass search	70-m plot	scavenged	yes*	-88.3533	40.5507
09/12/2023	silver-haired bat	9	H07	carcass search	70-m plot	scavenged	yes*	-88.3312	40.547
09/12/2023	silver-haired bat	7	H07	carcass search	70-m plot	dismembered	yes*	-88.3311	40.5469
09/12/2023	silver-haired bat	37	H07	carcass search	70-m plot	intact	yes*	-88.3317	40.5469
09/14/2023	eastern red bat	2	E02	carcass search	road and pad	intact	no	-88.3718	40.5718
09/14/2023	eastern red bat	52	E04a	carcass search	70-m plot	scavenged	yes*	-88.3504	40.5723
09/14/2023	eastern red bat	2	F05	carcass search	road and pad	intact	no	-88.3491	40.5646
09/14/2023	eastern red bat	53	F06	carcass search	70-m plot	scavenged	yes*	-88.3304	40.5629
09/14/2023	eastern red bat	52	F06	carcass search	70-m plot	scavenged	yes*	-88.3306	40.5631
09/14/2023	eastern red bat	2	G05	carcass search	road and pad	intact	no	-88.3968	40.5524
09/14/2023	silver-haired bat	3	C04	carcass search	70-m plot	scavenged	yes*	-88.3157	40.5832
09/14/2023	silver-haired bat	53	I03	carcass search	70-m plot	scavenged	yes*	-88.3523	40.5395
09/15/2023	eastern red bat	26	H07	carcass search	70-m plot	scavenged	yes*	-88.3313	40.5472
09/15/2023	silver-haired bat	47	I04	carcass search	70-m plot	scavenged	yes*	-88.3361	40.534
09/15/2023	silver-haired bat	15	L03	carcass search	70-m plot	scavenged	yes*	-88.3121	40.5102
09/15/2023	silver-haired bat	32	L03	carcass search	70-m plot	scavenged	yes*	-88.3124	40.5101

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Found Date	Species	Distance from Turbine (m)	Turbine	Search Type	Search Area Type	Physical Condition	Aided Search	Latitude	Longitude
09/18/2023	eastern red bat	40	E01	carcass search	70-m plot	scavenged	yes*	-88.3759	40.5715
09/18/2023	hoary bat	43	E01	carcass search	70-m plot	scavenged	yes*	-88.3762	40.5718
09/18/2023	silver-haired bat	47	B04	carcass search	70-m plot	scavenged	yes*	-88.3261	40.5942
09/18/2023	silver-haired bat	40	E04a	carcass search	70-m plot	intact	yes*	-88.3501	40.5715
09/18/2023	silver-haired bat	2	G02	carcass search	road and pad	intact	no	-88.4082	40.5573
09/19/2023	eastern red bat	62	I04	carcass search	70-m plot	scavenged	yes*	-88.3352	40.5343
09/19/2023	silver-haired bat	12	I04	carcass search	70-m plot	intact	yes*	-88.3359	40.5343
09/19/2023	silver-haired bat	38	I04	carcass search	70-m plot	scavenged	yes*	-88.3361	40.5347
09/19/2023	silver-haired bat	40	J01	carcass search	70-m plot	scavenged	yes*	-88.3733	40.5241
09/21/2023	hoary bat	52	C03	carcass search	70-m plot	scavenged	yes*	-88.3235	40.5842
09/21/2023	hoary bat	7	F03	carcass search	road and pad	intact	no	-88.3578	40.5652
09/21/2023	silver-haired bat	1	G02	carcass search	road and pad	intact	no	-88.4082	40.5573
09/22/2023	eastern red bat	45	J01	carcass search	70-m plot	scavenged	yes*	-88.3731	40.5241
09/22/2023	eastern red bat	14	L03	carcass search	70-m plot	scavenged	yes*	-88.3121	40.5103
09/22/2023	eastern red bat	40	L03	carcass search	70-m plot	scavenged	yes*	-88.312	40.5107
09/22/2023	silver-haired bat	16	H07	carcass search	70-m plot	scavenged	yes*	-88.3312	40.5472
09/22/2023	silver-haired bat	47	L03	carcass search	70-m plot	scavenged	yes*	-88.3117	40.5102
09/22/2023	silver-haired bat	4	L03	carcass search	70-m plot	injured	yes*	-88.3123	40.5103
09/25/2023	eastern red bat	16	E01	carcass search	70-m plot	scavenged	yes*	-88.3762	40.5714
09/25/2023	eastern red bat	88	I02	carcass search	road and pad	intact	no	-88.3591	40.5325
09/25/2023	eastern red bat	22	I03	carcass search	70-m plot	scavenged	yes*	-88.3519	40.5391
09/26/2023	eastern red bat	43	I04	carcass search	70-m plot	scavenged	yes*	-88.3365	40.5342
09/26/2023	silver-haired bat	19	H03	carcass search	70-m plot	scavenged	yes*	-88.3535	40.551
09/28/2023	eastern red bat	39	B04	carcass search	70-m plot	scavenged	yes*	-88.3251	40.5944
09/28/2023	eastern red bat	5	F04	carcass search	road and pad	intact	no	-88.3534	40.568
09/28/2023	eastern red bat or Seminole bat	46	E01	carcass search	70-m plot	scavenged	yes*	-88.3767	40.5711
09/28/2023	silver-haired bat	5	F04	carcass search	road and pad	intact	no	-88.3533	40.5679
09/28/2023	silver-haired bat	5	F04	carcass search	road and pad	intact	no	-88.3534	40.568
09/28/2023	silver-haired bat	52	I03	carcass search	70-m plot	scavenged	yes*	-88.352	40.5397
09/29/2023	silver-haired bat	44	L03	carcass search	70-m plot	intact	yes*	-88.3126	40.5106
10/02/2023	eastern red bat	27	E01	carcass search	70-m plot	intact	yes*	-88.3763	40.5717
10/02/2023	hoary bat	16	E01	carcass search	70-m plot	scavenged	yes*	-88.3763	40.5716
10/02/2023	silver-haired bat	48	I03	carcass search	70-m plot	scavenged	yes*	-88.3523	40.5392
10/02/2023	silver-haired bat	45	I03	carcass search	70-m plot	scavenged	yes*	-88.3523	40.5392
10/03/2023	eastern red bat	55	I04	carcass search	70-m plot	scavenged	yes*	-88.3359	40.5349

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Found Date	Species	Distance from Turbine (m)	Turbine	Search Type	Search Area Type	Physical Condition	Aided Search	Latitude	Longitude
10/03/2023	eastern red bat	10	J01	carcass search	70-m plot	scavenged	yes*	-88.3733	40.5243
10/03/2023	eastern red bat	35	J01	carcass search	70-m plot	scavenged	yes*	-88.3734	40.5248
10/03/2023	eastern red bat	40	J01	carcass search	70-m plot	scavenged	yes*	-88.3736	40.524
10/03/2023	eastern red bat	48	L03	carcass search	70-m plot	scavenged	yes*	-88.3127	40.5106
10/03/2023	silver-haired bat	33	H03	carcass search	70-m plot	scavenged	yes*	-88.3538	40.551
10/03/2023	silver-haired bat	50	L03	carcass search	70-m plot	scavenged	yes*	-88.3128	40.5102
10/05/2023	eastern red bat	2	C02	carcass search	road and pad	intact	no	-88.3527	40.5903
10/05/2023	eastern red bat	43	C04	carcass search	70-m plot	scavenged	yes*	-88.3161	40.583
10/05/2023	eastern red bat	45	G02	carcass search	road and pad	intact	no	-88.4077	40.5573
10/05/2023	hoary bat	54	C04	carcass search	70-m plot	intact	yes*	-88.3162	40.5836
10/05/2023	silver-haired bat	42	C04	carcass search	70-m plot	scavenged	yes*	-88.3163	40.5833
10/06/2023	eastern red bat	68	H07	carcass search	70-m plot	scavenged	yes*	-88.3319	40.5472
10/06/2023	eastern red bat	59	H07	carcass search	70-m plot	scavenged	yes*	-88.3318	40.5473
10/06/2023	eastern red bat	48	I04	carcass search	70-m plot	scavenged	yes*	-88.3364	40.5346
10/06/2023	eastern red bat	4	J03	carcass search	road and pad	scavenged	no	-88.3337	40.5258
10/06/2023	evening bat	27	H07	carcass search	70-m plot	intact	yes*	-88.3312	40.5467
10/09/2023	eastern red bat	56	I01	carcass search	road and pad	intact	no	-88.3694	40.535
10/09/2023	evening bat	28	I03	carcass search	70-m plot	scavenged	yes*	-88.3517	40.539
10/09/2023	silver-haired bat	59	E04a	carcass search	70-m plot	intact	yes*	-88.3494	40.5718
10/10/2023	eastern red bat	22	I04	carcass search	70-m plot	intact	yes*	-88.336	40.5342
10/10/2023	silver-haired bat	26	H07	carcass search	70-m plot	scavenged	yes*	-88.3313	40.5467
10/12/2023	silver-haired bat	43	E01	carcass search	70-m plot	scavenged	yes*	-88.3761	40.5712
10/12/2023	silver-haired bat	45	E01	carcass search	70-m plot	scavenged	yes*	-88.3762	40.5711
10/12/2023	silver-haired bat	33	E04a	carcass search	70-m plot	scavenged	yes*	-88.3499	40.5716
10/13/2023	eastern red bat	35	B03	carcass search	road and pad	injured	no	-88.3513	40.5939
10/13/2023	eastern red bat	45	I04	carcass search	70-m plot	intact	yes*	-88.3363	40.5348
10/13/2023	silver-haired bat	72	I04	carcass search**	70-m plot	scavenged	yes*	-88.3366	40.5339
10/14/2023	eastern red bat	52	G08	carcass search	road and pad	intact	no	-88.3833	40.5556
10/14/2023	silver-haired bat	90	G03	carcass search	road and pad	intact	no	-88.4031	40.5485
Birds									
04/03/2023	European starling	10	H08	carcass search	road and pad	scavenged	no	-88.3223	40.5463
04/19/2023	song sparrow	42	I03	carcass search	40-m plot	scavenged	no	-88.3513	40.5392
05/02/2023	brown-headed cowbird	30	E04a	carcass search	40-m plot	scavenged	no	-88.3504	40.572
05/10/2023	gray catbird	17	G07	carcass search	road and pad	scavenged	no	-88.3881	40.5536
08/01/2023	European starling	1	H02	carcass search	road and pad	intact	no	-88.3587	40.5466

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Found Date	Species	Distance from Turbine (m)	Turbine	Search Type	Search Area Type	Physical Condition	Aided Search	Latitude	Longitude
08/25/2023	unidentified passerine	72	I03	carcass search	70-m plot	scavenged	yes*	-88.3526	40.5392
08/26/2023	black-billed cuckoo	66	H01	carcass search	70-m plot	scavenged	yes*	-88.3782	40.5483
08/28/2023	unidentified empidonax	38	E04a	carcass search	70-m plot	scavenged	yes*	-88.3499	40.5715
08/29/2023	magnolia warbler	2	I04	carcass search	70-m plot	scavenged	yes*	-88.3361	40.5344
09/05/2023	horned lark	8	J01	carcass search	70-m plot	scavenged	yes*	-88.3733	40.5244
09/05/2023	mourning dove	74	H01	carcass search**	70-m plot	scavenged	yes*	-88.3783	40.5482
09/05/2023	mourning dove	51	H01	carcass search	70-m plot	intact	yes*	-88.3781	40.5484
09/08/2023	bay-breasted warbler	83	G02	carcass search	road and pad	scavenged	no	-88.4072	40.5573
09/11/2023	horned lark	7	E04a	carcass search	70-m plot	scavenged	yes*	-88.3501	40.5719
09/14/2023	killdeer	21	I03	carcass search	70-m plot	scavenged	yes*	-88.3516	40.5392
09/14/2023	mourning dove	39	F06	carcass search	70-m plot	scavenged	yes*	-88.3307	40.5631
09/14/2023	northern parula	13	E04a	carcass search	70-m plot	scavenged	yes*	-88.3502	40.5719
09/15/2023	ovenbird	35	H01	carcass search	70-m plot	scavenged	yes*	-88.3786	40.5489
09/18/2023	American redstart	37	I02	carcass search	road and pad	dismembered	no	-88.3598	40.5333
09/18/2023	Tennessee warbler	47	A01	carcass search	road and pad	intact	no	-88.3625	40.6113
09/18/2023	northern parula	13	E04a	carcass search	70-m plot	scavenged	yes*	-88.3502	40.572
09/19/2023	American redstart	17	H01	carcass search	70-m plot	intact	yes*	-88.3784	40.5489
09/19/2023	Philadelphia vireo	77	H02	carcass search	road and pad	intact	no	-88.3588	40.5458
09/19/2023	barn swallow	67	H01	carcass search	70-m plot	scavenged	yes*	-88.3782	40.5483
09/19/2023	northern waterthrush	41	I04	carcass search	70-m plot	scavenged	yes*	-88.3358	40.534
09/22/2023	turkey vulture	35	H07	carcass search	70-m plot	scavenged	yes*	-88.3312	40.5473
09/22/2023	yellow-throated warbler	56	L03	carcass search	70-m plot	scavenged	yes*	-88.3118	40.5099
09/26/2023	Tennessee warbler	46	J01	carcass search	70-m plot	scavenged	yes*	-88.3734	40.5249
09/26/2023	brown creeper	4	I04	carcass search	70-m plot	scavenged	yes*	-88.3361	40.5344
10/03/2023	mourning dove	10	L03	carcass search	70-m plot	scavenged	yes*	-88.3124	40.5102
10/03/2023	northern parula	56	L03	carcass search	70-m plot	scavenged	yes*	-88.3127	40.5107
10/05/2023	red-tailed hawk	66	E01	carcass search	70-m plot	scavenged	yes*	-88.3767	40.5709
10/10/2023	Philadelphia vireo	2	J01	carcass search	70-m plot	scavenged	yes*	-88.3734	40.5245
10/12/2023	golden-crowned kinglet	27	C04	carcass search	70-m plot	scavenged	yes*	-88.3155	40.5831

Appendix A. Complete listing of carcasses found at the Ford County Wind Farm, Ford County, Illinois, from April 1 – May 15 and August 1 – October 15, 2023.

Found Date	Species	Distance from Turbine (m)	Turbine	Search Type	Search Area Type	Physical Condition	Aided Search	Latitude	Longitude
10/13/2023	black-throated green warbler	39	L03	carcass search	70-m plot	scavenged	yes*	-88.3118	40.5105
10/14/2023	golden-crowned kinglet	93	G04	carcass search	road and pad	dismembered	no	-88.4002	40.5449

* Detection dog aided search.

** Carcass was found outside the search area.

m = meter.

Appendix B. Searcher Efficiency, Carcass Persistence and Truncated Weighted Likelihood Area Adjustment Estimate Model Fitting Results

Appendix B1. Searcher efficiency models for bats on technician searched locations from the Ford County Wind Farm in Ford County, Illinois, from April 1 – May 15 and August 1 – October 15, 2023 (n = 62).

Covariates	k Value	AICc	Delta AICc
No Covariates	k fixed at 0.67	62.99	0*
Season	k fixed at 0.67	64.54	1.55
Plot Search Type	k fixed at 0.67	64.88	1.89
Season + Plot Search Type	k fixed at 0.67	65.49	2.50

* Selected model.

AICc = Corrected Akaike Information Criterion.

Delta AICc = Change in AICc.

Appendix B2. Searcher efficiency models for bats on 70-meter plots from the Ford County Wind Farm in Ford County, Illinois, from April 1 – May 15 and August 1 – October 15, 2023 (n = 40).

Covariates	k Value	AICc	Delta AICc
No Covariates	k fixed at 0.67	49.16	0*
Plot Search type	k fixed at 0.67	51.25	2.09

* Selected model.

AICc = Corrected Akaike Information Criterion.

Delta AICc = Change in AICc.

Appendix B3. Carcass persistence models with covariates and distributions for bats on detection-dog searched turbines at the Ford County Wind Farm in Ford County, Illinois, from April 1 – May 15 and August 1 - October 15, 2023 (n = 26).

Location Covariates	Scale Covariates	Distribution	AICc	Delta AICc
No Covariates	No Covariates	Weibull	122.36	0
No Covariates	–	exponential	122.53	0.17*
No Covariates	No Covariates	lognormal	125.27	2.91
No Covariates	Plot Search Type	Weibull	125.85	3.49
No Covariates	No Covariates	loglogistic	126.11	3.75
Plot Search Type	–	exponential	126.59	4.23
Plot Search Type	No Covariates	Weibull	127.24	4.88
No Covariates	Plot Search Type	lognormal	128.93	6.57
No Covariates	Plot Search Type	loglogistic	129.97	7.61
Plot Search Type	No Covariates	lognormal	130.62	8.26
Plot Search Type	No Covariates	loglogistic	131.3	8.94
Plot Search Type	Plot Search Type	Weibull	132.22	9.86
Plot Search Type	Plot Search Type	lognormal	135.41	13.05
Plot Search Type	Plot Search Type	loglogistic	136.17	13.81

* Selected model.

AICc = Corrected Akaike Information Criterion.

Delta AICc = Change in AICc.

Appendix B4. Carcass persistence models with covariates and distributions for bats on technician searched turbines at the Ford County Wind Farm in Ford County, Illinois, from April 1 – May 15 and August 1 – October 15, 2023 (n = 51).

Location Covariates	Scale Covariates	Distribution	AICc	Delta AICc
Plot Search Type	Season + Plot Search Type	loglogistic	208.86	0
No Covariates	Season + Plot Search Type	loglogistic	208.91	0.05
Plot Search Type	Season + Plot Search Type	lognormal	209.67	0.81
No Covariates	Season + Plot Search Type	lognormal	210.1	1.24
Plot Search Type	Plot Search Type	loglogistic	210.5	1.64
No Covariates	Plot Search Type	loglogistic	210.56	1.7*
Plot Search Type	No Covariates	loglogistic	210.7	1.84
Plot Search Type	Plot Search Type	lognormal	211.19	2.33
Season + Plot Search Type	Season + Plot Search Type	loglogistic	211.3	2.44
Season	Season + Plot Search Type	loglogistic	211.36	2.5
No Covariates	Plot Search Type	lognormal	211.38	2.52
Plot Search Type	No Covariates	lognormal	211.49	2.63
No Covariates	No Covariates	loglogistic	211.6	2.74
Season + Plot Search Type	Season + Plot Search Type	lognormal	211.78	2.92
No Covariates	No Covariates	lognormal	211.78	2.92
Season	Season + Plot Search Type	lognormal	212.43	3.57
Season + Plot Search Type	Plot Search Type	loglogistic	212.8	3.94
Season + Plot Search Type	No Covariates	loglogistic	212.89	4.03
Season + Plot Search Type	Plot Search Type	lognormal	213.21	4.35
No Covariates	Season	loglogistic	213.42	4.56
Season + Plot Search Type	No Covariates	lognormal	213.46	4.6
No Covariates	Season	lognormal	213.64	4.78
No Covariates	–	exponential	213.74	4.88
No Covariates	Plot Search Type	Weibull	213.75	4.89
Season	No Covariates	loglogistic	213.76	4.9
Season	No Covariates	lognormal	214.01	5.15
No Covariates	No Covariates	Weibull	214.05	5.19
Season + Plot Search Type	Season	loglogistic	214.61	5.75
No Covariates	Season + Plot Search Type	Weibull	214.67	5.81
Plot Search Type	Plot Search Type	Weibull	214.78	5.92
Season + Plot Search Type	Season	lognormal	215.38	6.52
Plot Search Type	–	exponential	215.59	6.73
Season	Season	loglogistic	215.71	6.85
Season	–	exponential	215.75	6.89
Plot Search Type	Season + Plot Search Type	Weibull	215.8	6.94
Plot Search Type	No Covariates	Weibull	215.87	7.01
Season	Season	lognormal	215.98	7.12
Season	No Covariates	Weibull	216.18	7.32
No Covariates	Season	Weibull	216.24	7.38
Season	Season + Plot Search Type	Weibull	217.12	8.26
Season + Plot Search Type	Plot Search Type	Weibull	217.23	8.37
Season + Plot Search Type	–	exponential	217.83	8.97
Season + Plot Search Type	No Covariates	Weibull	218.23	9.37
Season + Plot Search Type	Season + Plot Search Type	Weibull	218.34	9.48
Season	Season	Weibull	218.51	9.65
Season + Plot Search Type	Season	Weibull	220.67	11.81

* Selected model.

AICc = Corrected Akaike Information Criterion.

Delta AICc = Change in AICc.

Appendix B5. Carcass persistence top models with covariates, distributions, and model parameters for the Ford County Wind Farm in Ford County, Illinois, from April 1 – May 15 and August 1 – October 15, 2023.

Aided Search Type	Search Area Type	Distribution	Predicted Median Removal Times (days)	Parameter 1	Parameter 2
yes*	All	exponential*	7.37	rate = 0.094	–
none	40-meter plot	loglogistic**	4.56	shape = 1.053	scale = 1.517
none	road and pad	loglogistic**	4.56	shape = 0.593	scale = 1.517

* Parameterization follows the base R parameterization for this distribution. Exponential models do not have a scale parameter.

** Parameterization follows the FAdist parameterization for this distribution.

Appendix B6. Number and percent (%) of bat carcasses by species included and excluded from analysis at the Ford County Wind Farm in Ford County, Illinois, from April 1 – May 15 and August 1 – October 15, 2023.

Species	Included in Fatality Estimate		Outside Search Area*		Outside Study Period*		Clearing Search*,[1]		Total	
	Total	%	Total	%	Total	%	Total	%	Total	%
eastern red bat	209	55.15	3	50	26	86.67	1	50	239	57.3
silver-haired bat	126	33.25	2	33.33	1	3.33	0	0	129	30.9
hoary bat	29	7.65	1	16.67	2	6.67	0	0	32	7.7
big brown bat	6	1.58	0	0	1	3.33	1	50	8	1.9
eastern red bat or Seminole bat	6	1.58	0	0	0	0	0	0	6	1.4
evening bat	3	0.79	0	0	0	0	0	0	3	0.7
Overall Bats	**379**	**100**	**6**	**100**	**30**	**100**	**2**	**100**	**417**	**100**

* Carcasses not included in analysis.

[1] Carcasses found during first search of 70-meter cleared plot and removed from analysis due to being treated as a clearing search by analysis.

Appendix B7. Search area adjustment models for bats from the Ford County Wind Farm in Ford County, Illinois, from April 1 – May 15 and August 1 – October 15, 2023.

Distribution	AICc	Delta AICc
Weibull	38,017.58	0*
gamma	38,033.40	15.82
normal	38,050.30	32.72
Gompertz	38,096.86	79.28

* Selected model.

Appendix B8. Truncated weighted maximum likelihood search area adjustment estimates for the Ford County Wind Farm in Ford County, Illinois, from April 1 – May 15 and August 1 – October 15, 2023 (n = 378).

Search Area Type	Distribution	Parameter 1	Parameter 2	Area Adjustment
Road and pad	Weibull	1.7571	83.3148	0.03
40-meter plot	Weibull	1.7571	83.3148	0.25
70-meter plot	Weibull	1.7571	83.3148	0.53

Appendix C. Inputs for Single Class, Multiple Class, and Multiple Year Modules in Evidence of Absence for 2023

Appendix C1. Inputs needed to run Evidence of Absence (EoA): Single Class Module for the Ford County Wind Farm in Ford County, Illinois, from April 1 – May 15, and August 1 – October 15, 2023.

					Searcher Efficiency		Carcass Persistence*			
Season	Plot Type	Search interval (I)	Number of searches**	Spatial Coverage (a)	Carcasses available	Carcasses found	Shape (α)	Scale (β)	Scale Lower Limit (β)	Scale UpperLimit (β)
Spring	Full plot	7.0	7	0.25	40	29	0.95	4.56	3.31	6.29
Spring	Road and pad	7.0	7	0.03	62	50	1.69	4.56	3.31	6.29
Fall 2	Full plot	3.5	7	0.53	40	29	–	10.63	7.16	15.78
Fall 2	Road and pad	3.5	7	0.03	62	50	1.69	4.56	3.31	6.29
Fall 3	Full plot	3.5	17	0.53	40	29	–	10.63	7.16	15.78
Fall 3	Road and pad	3.5	17	0.03	62	50	1.69	4.56	3.31	6.29

* A Log-logistic distribution was used for technician searched plot type carcass persistence distribution and an exponential distribution was used for dog-aided plot type carcass persistence distribution.

** Includes one additional search beyond what was conducted in the field to account for the EoA graphical user interface assumption that a clearing search is included in the number of searches.

Note: Fall 1 consisted of clearing searches prior to the fall study timeframe and was not included in the analysis.

Appendix C2. Inputs needed to run Evidence of Absence: Multiple Class Module for the calculation of seasonal detection probabilities at Ford County Wind Farm in Ford County, Illinois, from April 1 – May 15 and August 1 – October 15, 2023.

Season	Plot Type	Ba	Bb	Within-season Sampling Fraction (DWP)
Spring	40-meter plot	102.48	761.46	0.19
Spring	road and pad	98.64	7,234.98	0.81
Fall 2	70-meter plot	107.36	180.63	0.14
Fall 2	road and pad	206.29	1,1315.14	0.86
Fall 3	70-meter plot	115.34	188.13	0.3
Fall 3	road and pad	210.43	1,1435.59	0.7

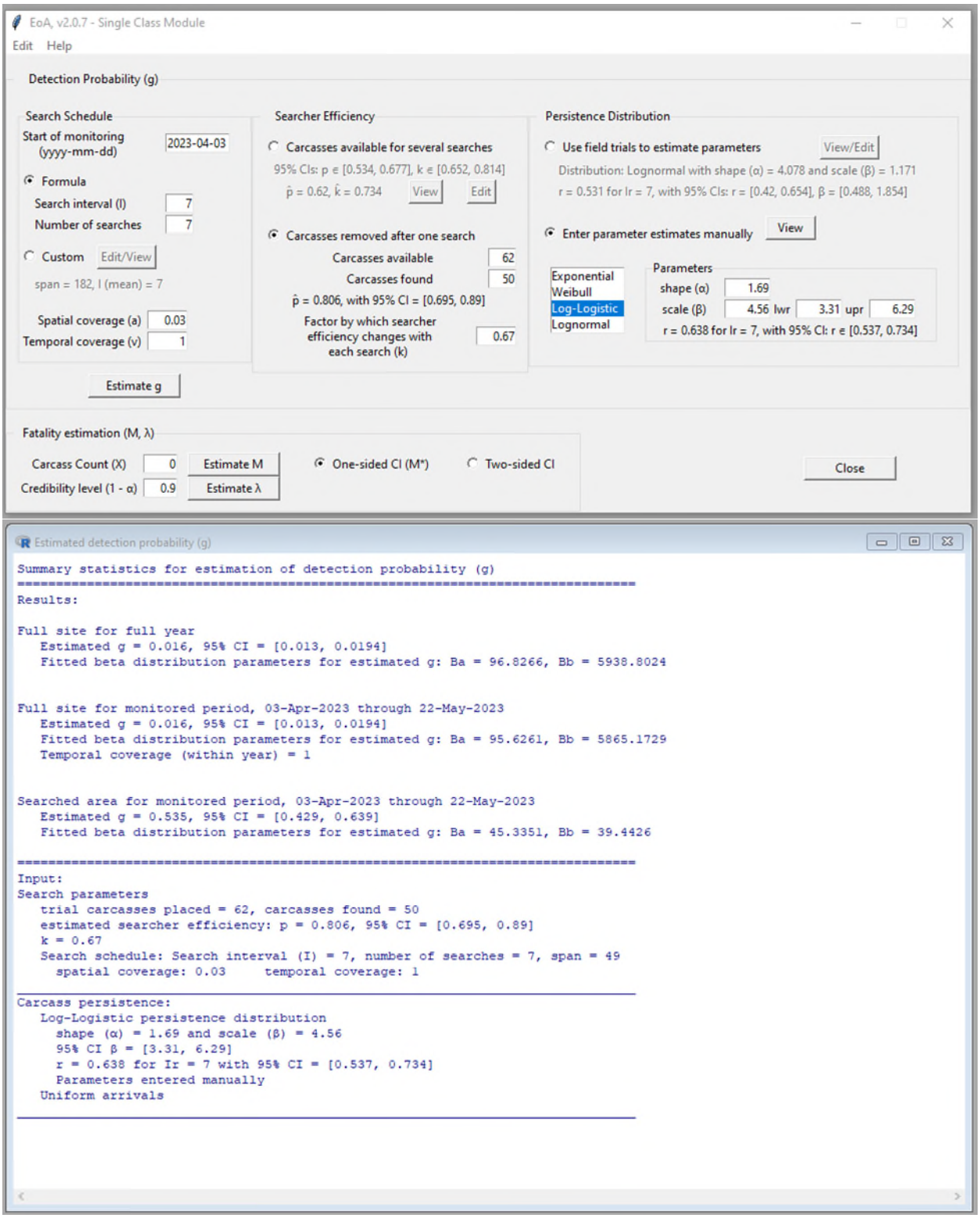
Note: Fall 1 consisted of clearing searches prior to the fall study timeframe and was not included in the analysis.

Appendix C3. Inputs needed to run Evidence of Absence: Multiple Class Module for the classification of the annual detection probability at Ford County Wind Farm in Ford County, Illinois, from April 1 – May 15, and August 1 – October 15, 2023.

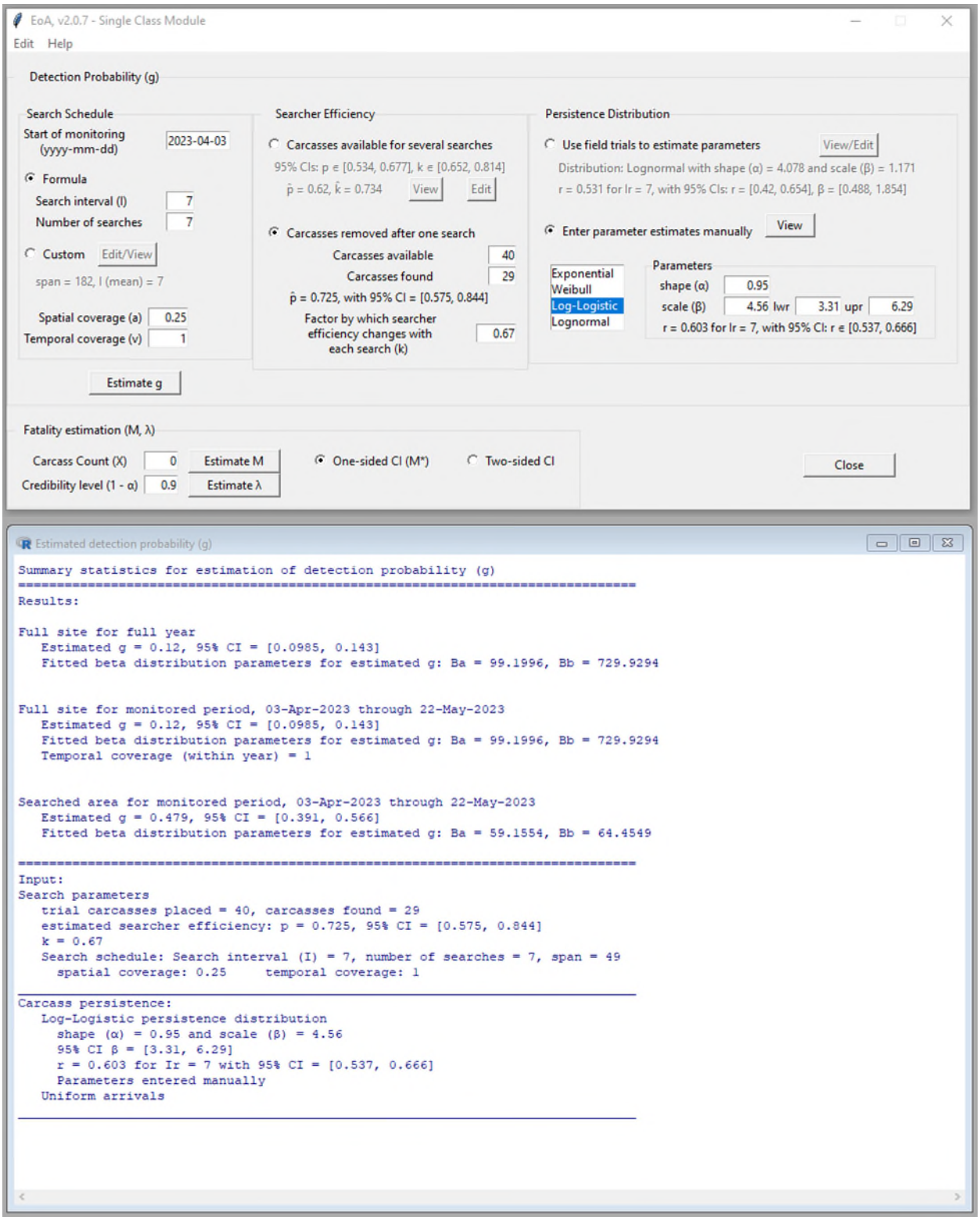
Season	Ba	Bb	Weights (ρ)
Spring	195.81	5,734.796	0.11
Fall 2	251.032	3,472.236	0.213
Fall 3	198.36	1,357.232	0.677

Appendix C4. Inputs needed to run Evidence of Absence: Multiple Years Module for the Ford County Wind Farm in Ford County, Illinois, from 2022 and 2023.

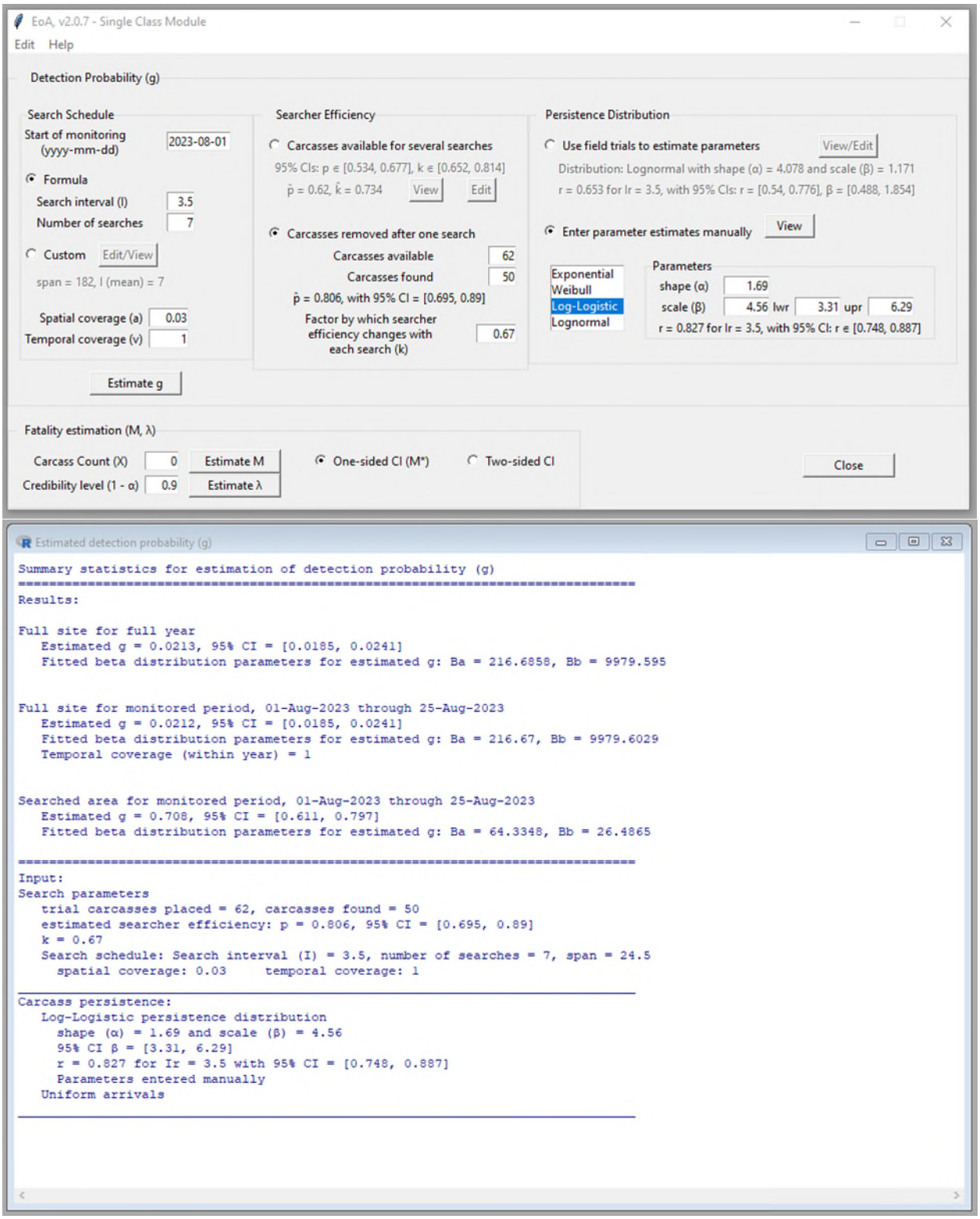
Year	*g*	90% Confidence Interval	Ba	Bb	Weights (ρ)
2022	0.141	(0.134–0.149)	780.12	4717.41	1.0
2023	0.104	(0.093-0.116)	290.134	2,491.22	1.0



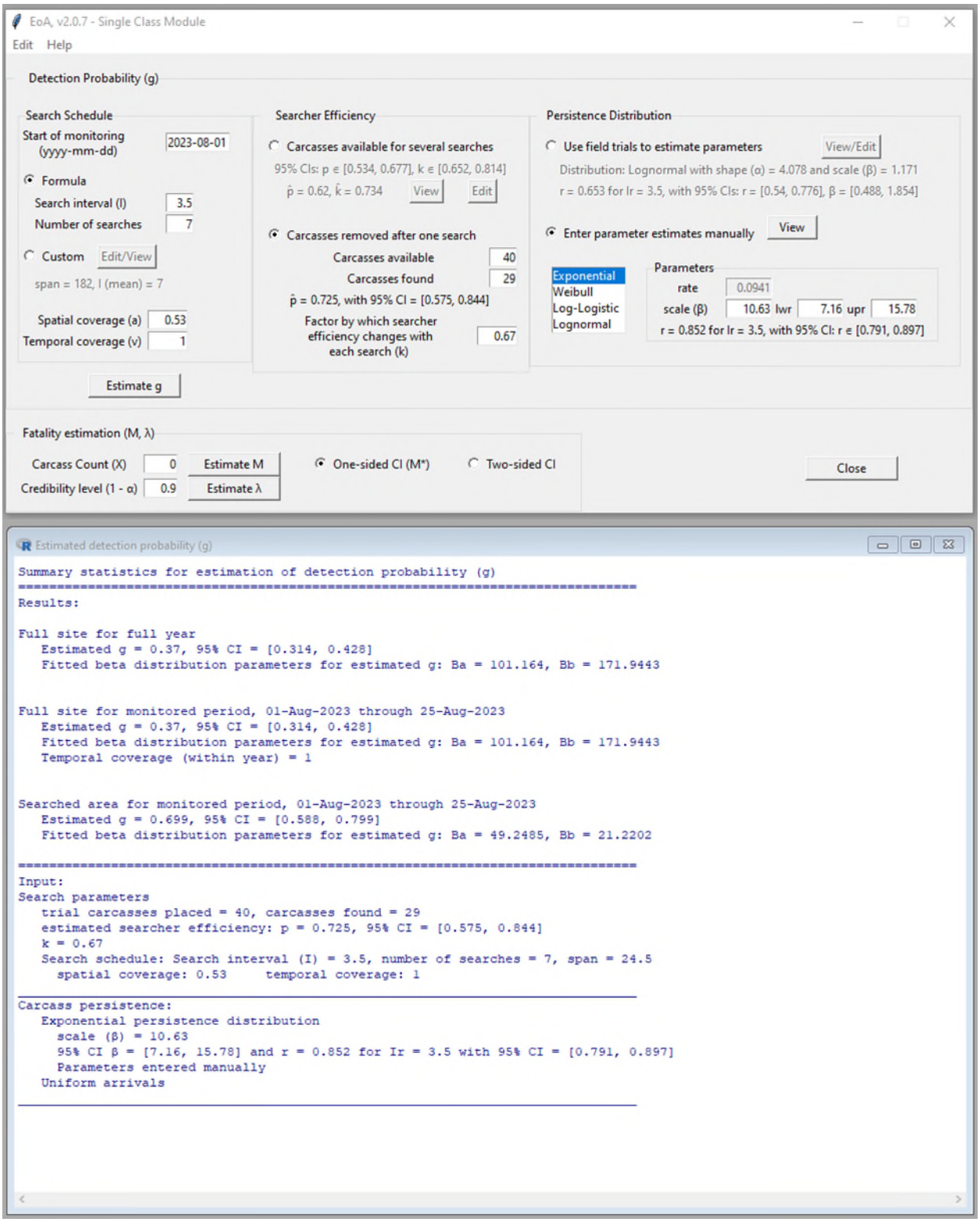
Appendix C5. Screen shot of Evidence of Absence (v2.0.7) graphical user interface, Single Class Module inputs for Spring 2023, 100-meter road and pad searches at 35 turbines searched at a 7-day interval.



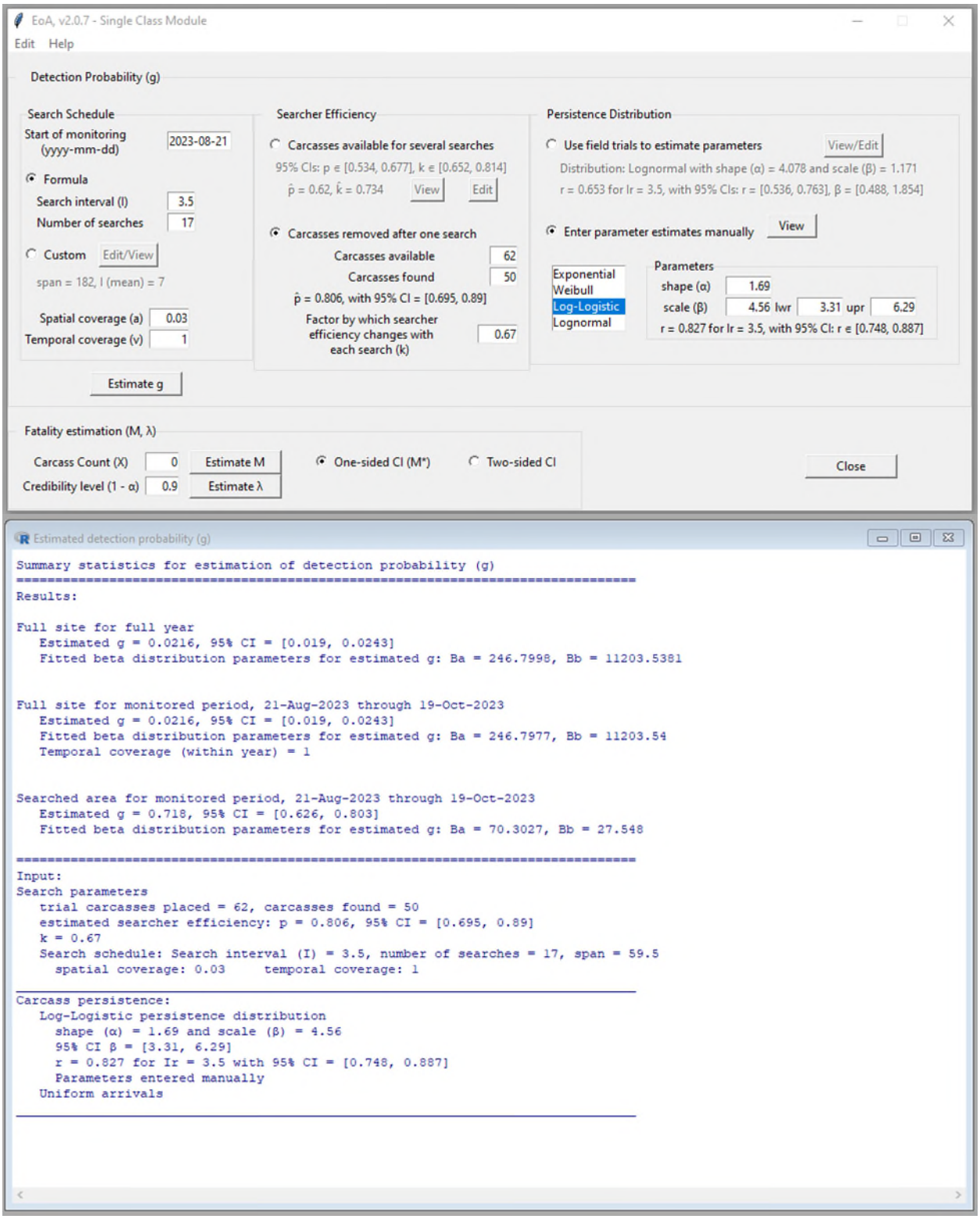
Appendix C6. Screen shot of Evidence of Absence (v2.0.7) graphical user interface, Single Class Module inputs for Spring 2023, 40-meter plot searches at eight turbines searched at a 7-day interval.



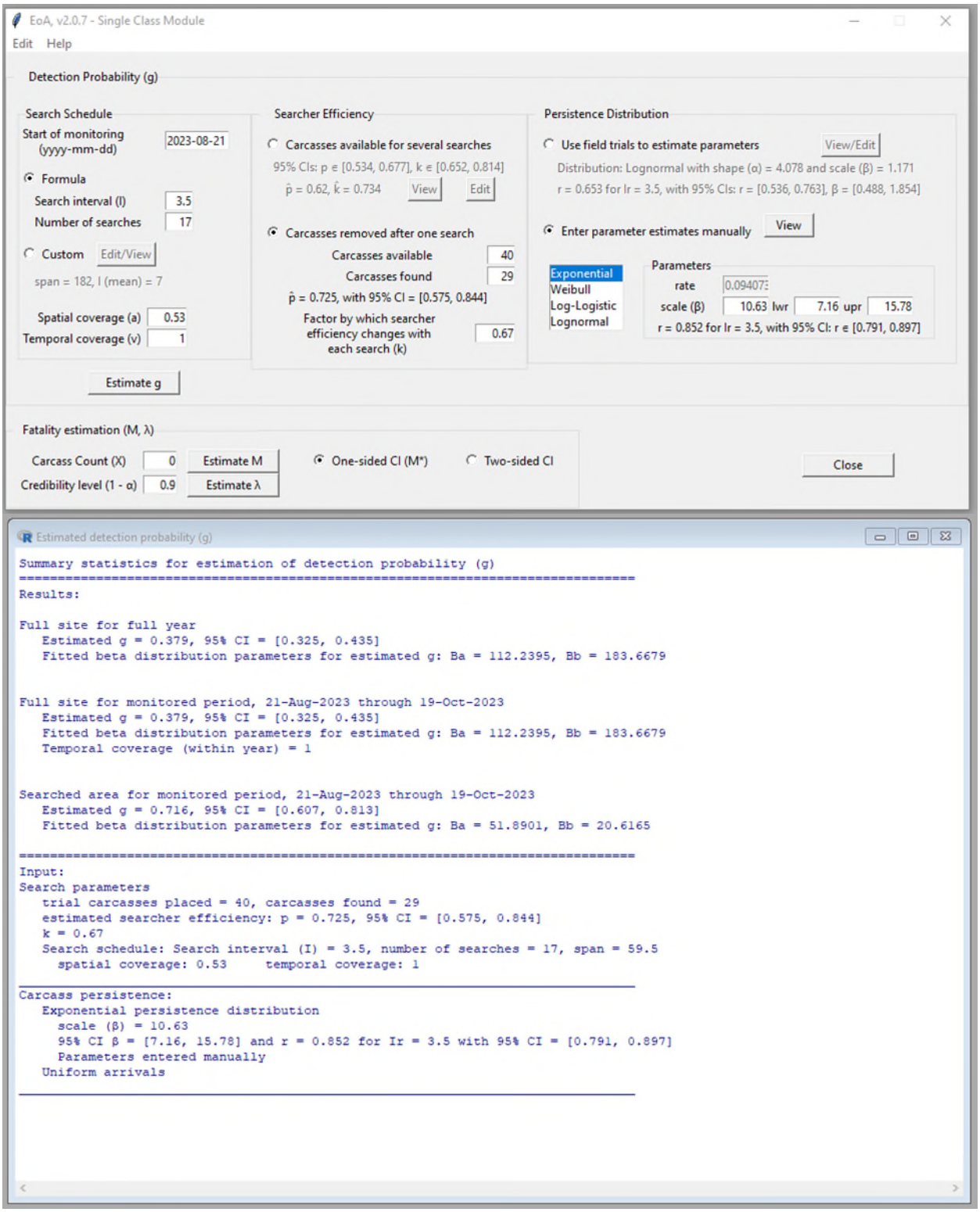
Appendix C7. Screen shot of Evidence of Absence (v2.0.7) graphical user interface, Single Class Module inputs for Fall-2 2023, 100-meter road and pad searches at 37 turbines searched at a 3.5-day interval.



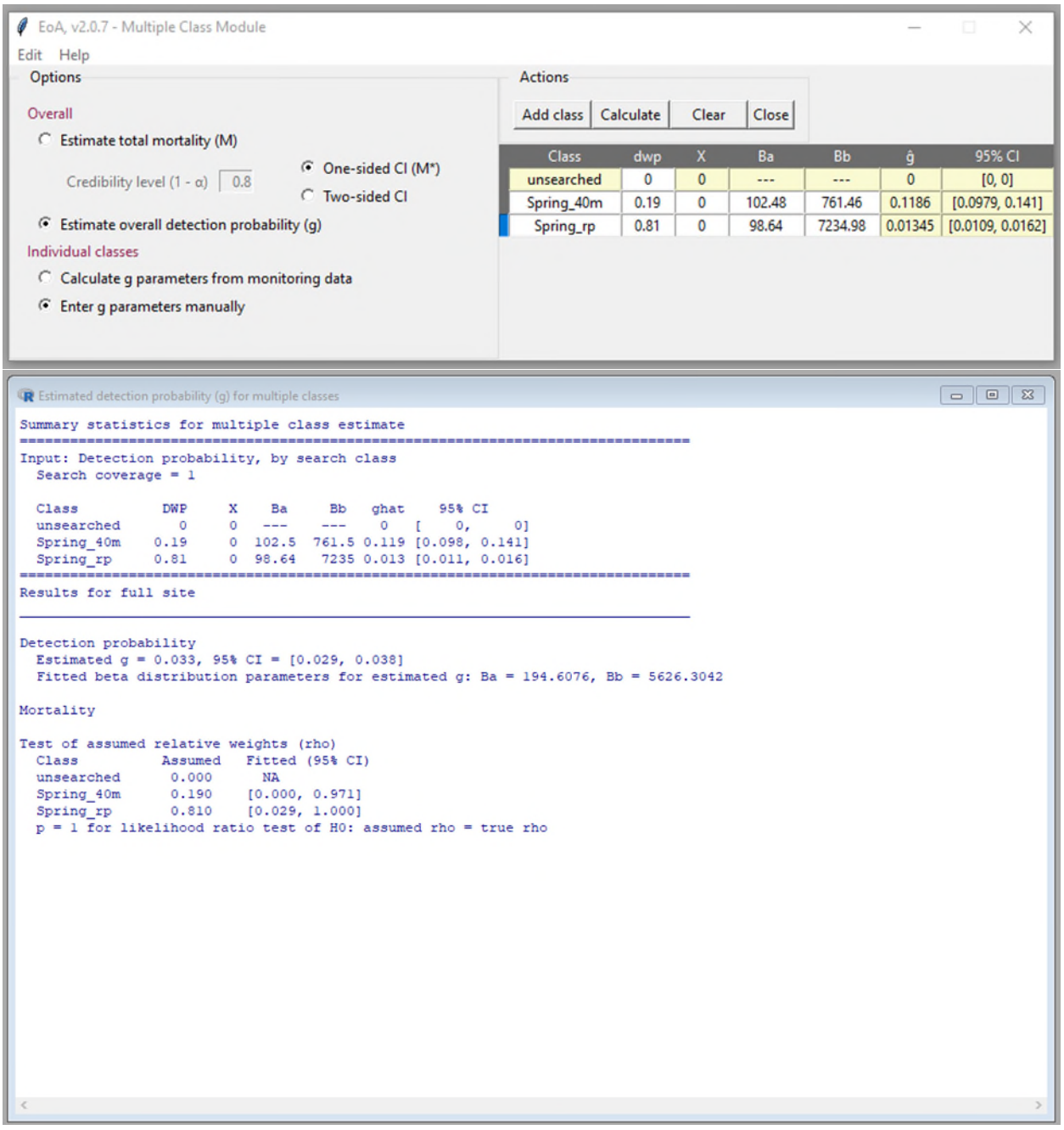
Appendix C8. Screen shot of Evidence of Absence (v2.0.7) graphical user interface, Single Class Module inputs for Fall-2 2023, 70-meter plot searches at six turbines searched at a 3.5-day interval.



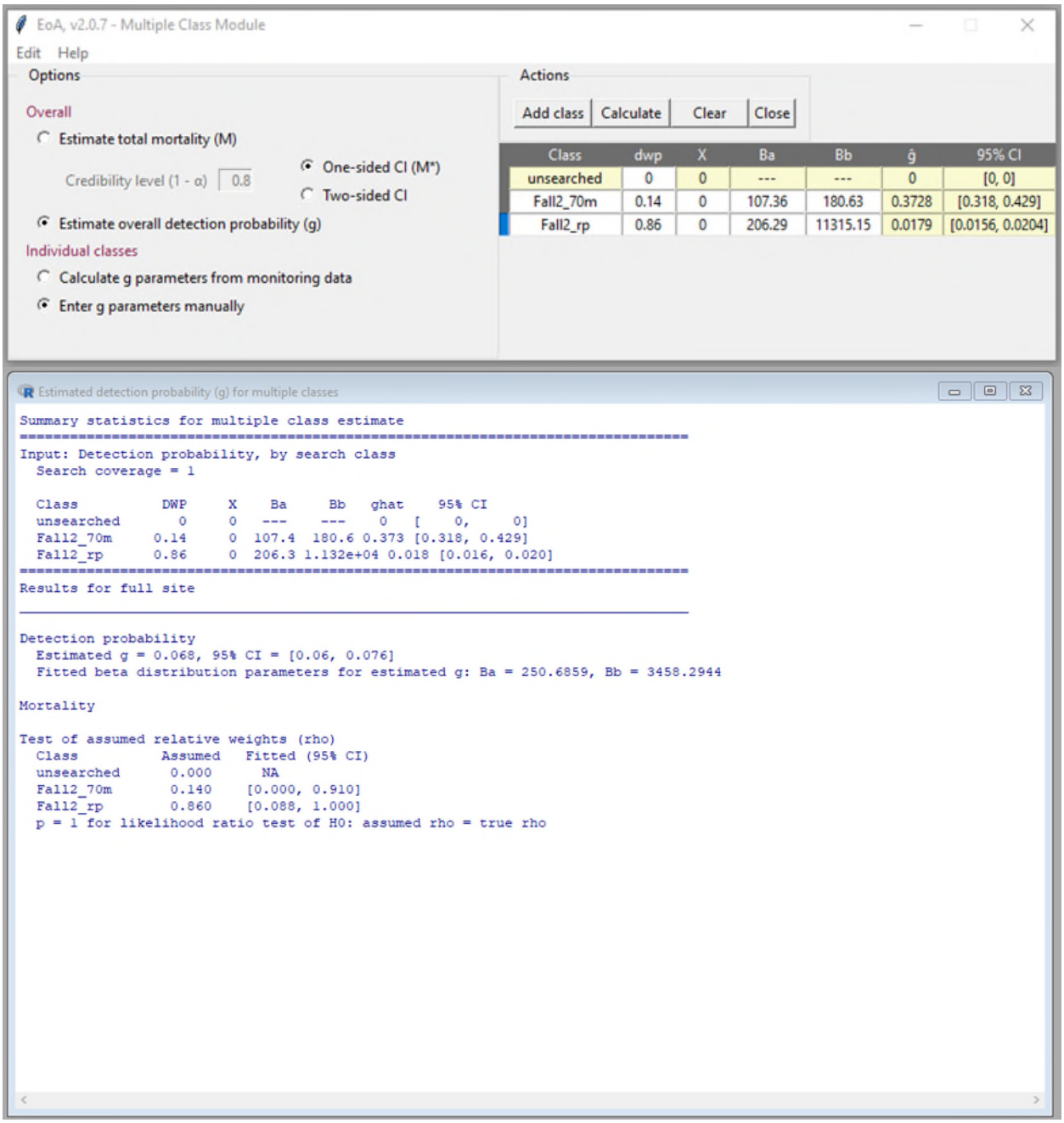
Appendix C9. Screen shot of Evidence of Absence (v2.0.7) graphical user interface, Single Class Module inputs for Fall-3 2023, 100-meter road and pad searches at 30 turbines searched at a 3.5-day interval.



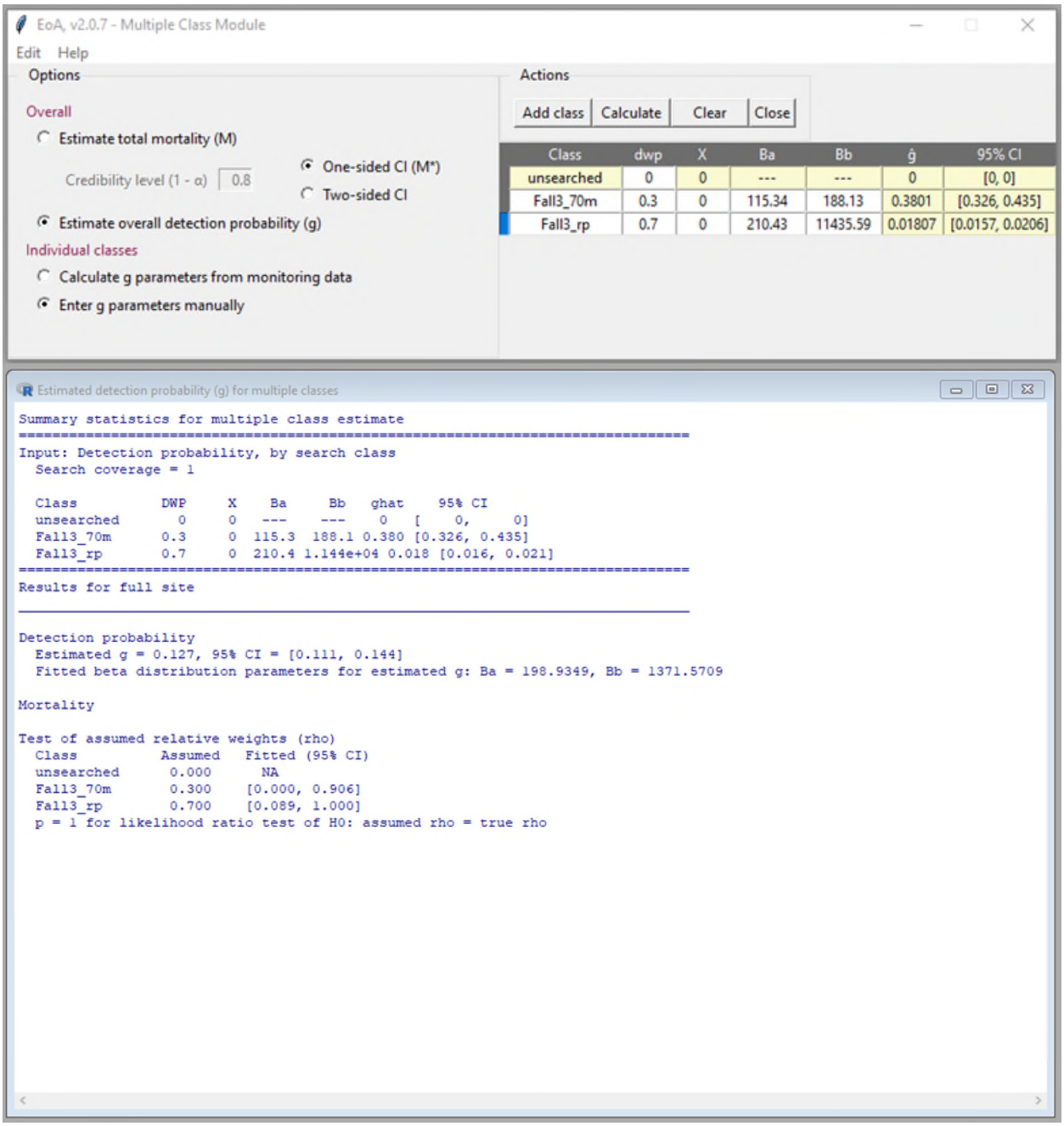
Appendix C10. Screen shot of Evidence of Absence (v2.0.7) graphical user interface, Single Class Module inputs for Fall-3 2023, 70-meter plot searches at 13 turbines searched at a 3.5-day interval.



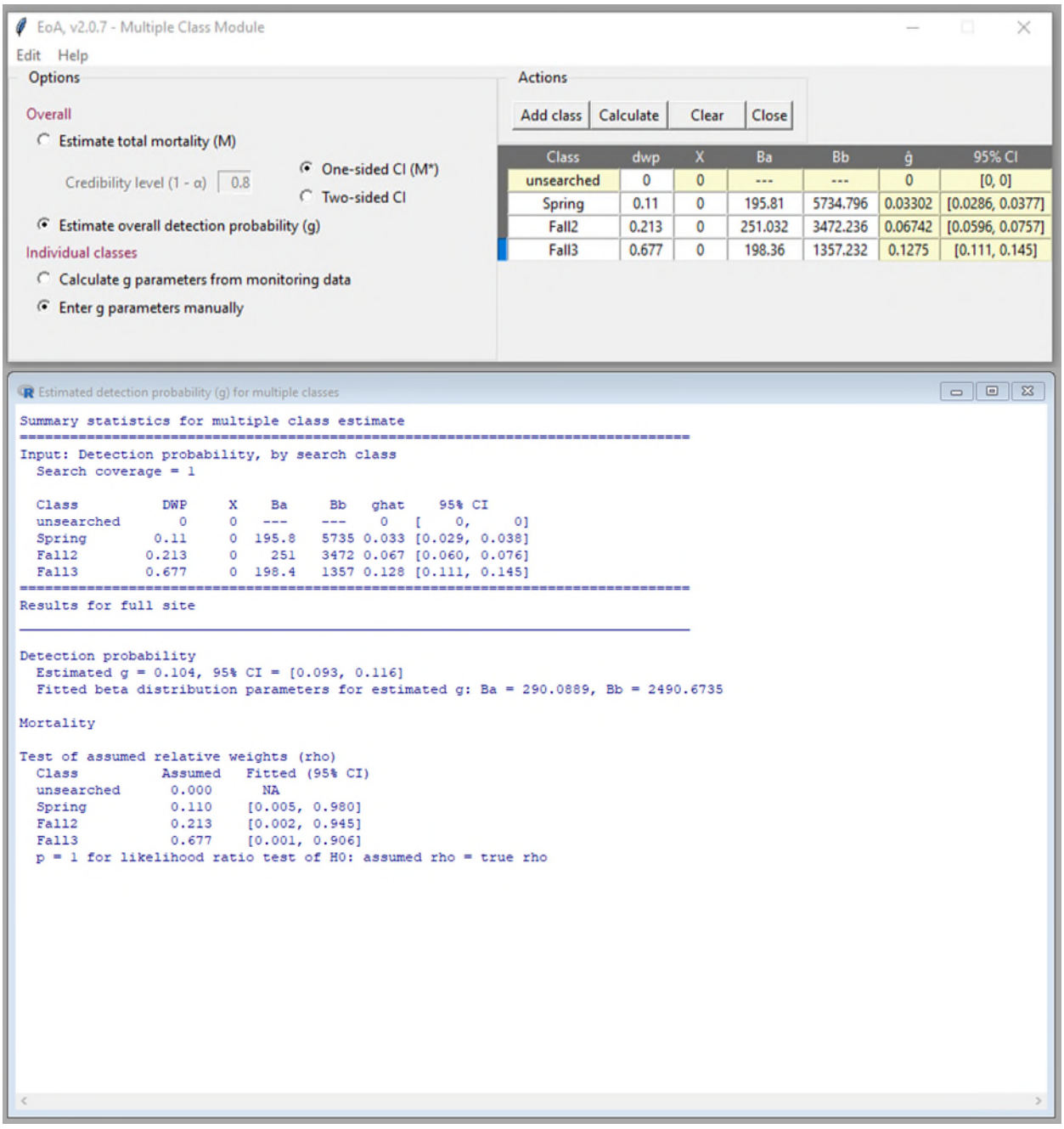
Appendix C11. Screen shot of Evidence of Absence (v2.0.7) graphical user interface, Multiple Class Module inputs for Spring 2023 searched at a 7-day interval.



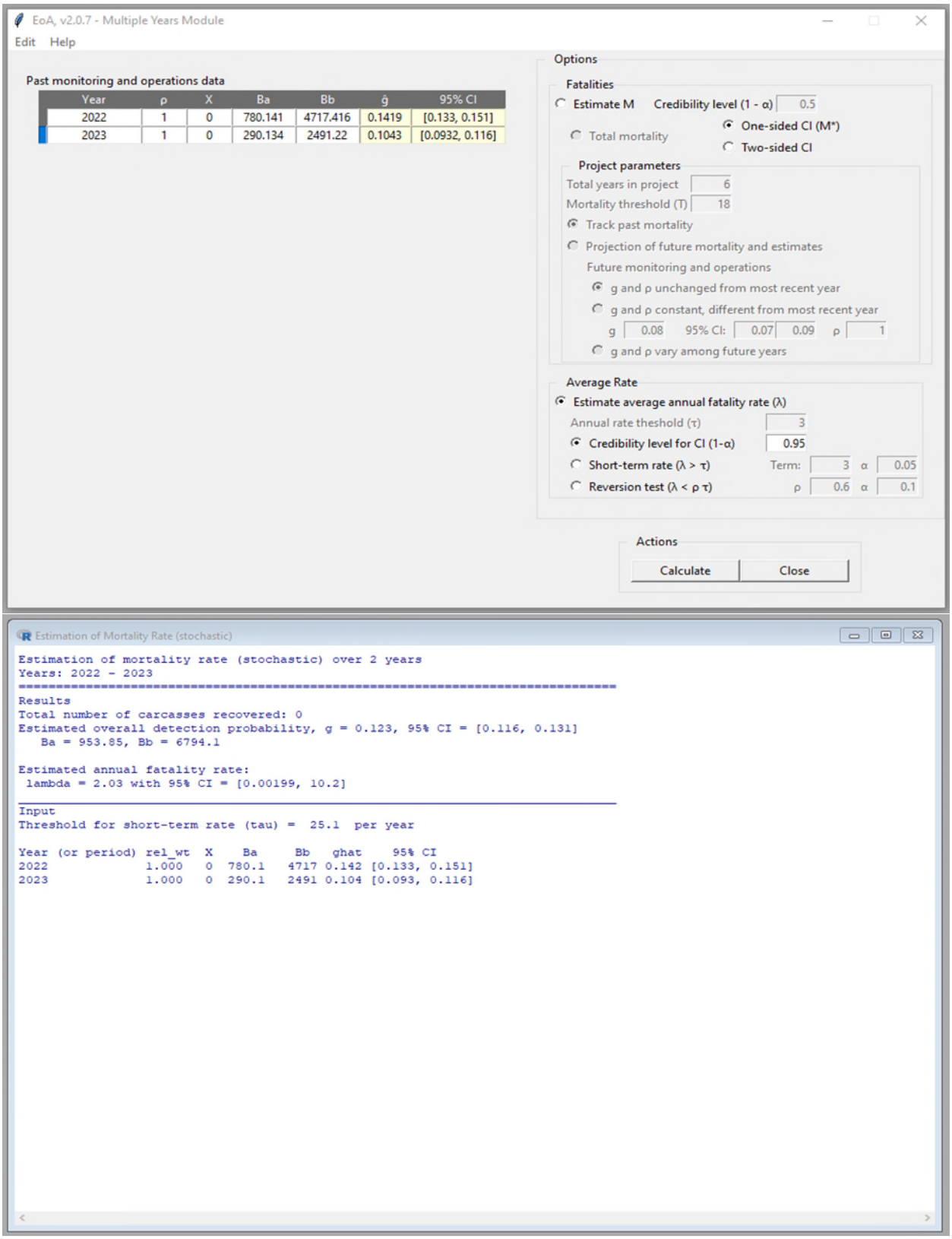
Appendix C12. Screen shot of Evidence of Absence (v2.0.7) graphical user interface, Multiple Class Module inputs for Fall-2 2023 searched at a 3.5-day interval.



Appendix C13. Screen shot of Evidence of Absence (v2.0.7) graphical user interface, Multiple Class Module inputs for Fall-3 2023 searched at a 3.5-day interval.



Appendix C14. Screen shot of Evidence of Absence (v2.0.7) graphical user interface, Multiple Class Module inputs for Spring and Fall 2023 searched at a 7-day interval in the spring and a 3.5-day interval in the fall.



Appendix C15. Screen shot of Evidence of Absence (v2.0.7) graphical user interface, Multiple Years Module inputs for 2022 and 2023.