Post-construction Monitoring Study for the California Ridge Wind Farm Champaign and Vermilion Counties, Illinois

Year 2 Final Report

April 1 – October 15, 2022

Prepared for:

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WEST

EXECUTIVE SUMMARY

California Ridge Wind Energy, LLC, is operating the California Ridge Wind Farm (Project) in Champaign and Vermilion counties, Illinois. The Project became operational in 2012 and consists of 134 turbines, each with a capacity of 1.6 megawatts (MW) that have a 100-meter (m; 328-foot [ft]) hub height and a 100-m blade length. This report details the post-construction monitoring (PCM) studies conducted in spring, summer and fall 2022, consistent with Section 7.3 of the Project's Habitat Conservation Plan (HCP) and United States Fish and Wildlife Service (USFWS) Incidental Take Permit (ITP; ESPER0018464) for the federally endangered Indiana bat, federally threatened northern long-eared bat[1], as well as two species that were not protected by the federal Endangered Species Act at the time of the ITP issuance; little brown bat and tricolored bat[2] (collectively, Covered Species).

Western EcoSystems Technology, Inc. (WEST), followed PCM methods outlined in the Project's HCP, which targeted a probability of detection (*g*) of 0.213 for all Covered Species. The objectives of this study were to produce estimates of bat mortality as outlined in the HCP, and to evaluate the need for adaptive management measures.

The second-year intensive full year PCM was completed by WEST from April 1 – October 15, 2022. Standardized carcass searches were completed for bat carcasses at three plot types: road and pads, cleared plots, and uncleared plots. Across spring, summer, and fall, technicians searched road and pad plots at 94 turbines to a distance of 95 m (311 ft) from the turbine twice per week. Dog-handler teams searched cleared and uncleared plots at 40 turbines within a 60-m (197-ft) radius (26 turbines where crops were regularly mowed, and 14 turbines where soybean was planted and crops were not mowed) twice per week. Searcher efficiency and carcass persistence trials were also conducted during each season to correct for detection and scavenger bias.

Two Covered Species were found at the Project: one Indiana bat was recorded at the Project on August 22, 2022, and one little brown bat was recorded at the Project on September 7, 2022. 771 bats were found during the study. Three black-billed cuckoos, a state-threatened species, were also recorded at the Project on May 24, June 6, and August 2, 2022.

The most commonly found species were eastern red bat (41.8%) and silver-haired bat (35.4%), followed by hoary bat (12.0%), big brown bat (3.6%), evening bat (2.9%), unidentified *Lasiurus* bat (1.7%), eastern red or Seminole bat (1.6%), unidentified non-*Myotis* (0.5%), unidentified bat

[1] On November 29, 2022, the USFWS published the final rule to list the northern long-eared bat as endangered under the Endangered Species Act. The effective date of the final rule will take effect March 31, 2023.

[2] On September 14, 2022, the USFWS proposed to list the tricolored bat as endangered under the Endangered Species Act. The final listing decision is expected in late 2023.

(0.2%), and Indiana bat and little brown bat (0.1%, each). The overall bat fatality rate, calculated using a generalized estimator of fatality (commonly, GenEst), was 17.70 bats per MW (90% Confidence Interval [CI]: 14.91–20.70).

The overall *g* was 0.194 (90% CI: 0.186–0.202) for Indiana bat and northern long-eared bat and 0.190 (90% CI: 0.184-0.195) for little brown bat and tricolored bat. No adaptive management triggers were met as the number of Covered Species carcasses recorded under the ITP to date (one Indiana bat and one little brown bat) were below the adaptive management triggers for the initial five years of the ITP.

STUDY PARTICIPANTS

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REPORT REFERENCE

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INTRODUCTION

California Ridge Wind Energy, LLC (California Ridge) is operating the California Ridge Wind Farm (Project) in Champaign and Vermilion counties, Illinois. The Project became operational in 2012 and consists of 134 General Electric 1.6-100wind turbines that have a 100-meter (328-foot [ft]) hub height and a 100-m blade length. California Ridge obtained a United States Fish and Wildlife Service (USFWS) Incidental Take Permit (ITP; ESPER0018464) for the federally endangered Indiana bat (*Myotis sodalis*), federally threatened northern long-eared bat[3] (*M. septentrionalis*), as well as two species that were not protected by the federal Endangered Species Act at the time of the ITP issuance; little brown bat (*M. lucifugus*) and tricolored bat[4] (*Perimyotis subflavus*; collectively, Covered Species) dated August 6, 2021. California Ridge also obtained Incidental Take Authorization (ITA) from the Illinois Department of Natural Resources (IDNR) for Indiana and northern long-eared bat on January 20, 2022. Both the USFWS ITP and IDNR ITA require the Project to minimize impacts to Covered Species and conduct post-construction monitoring (PCM).

Western EcoSystems Technology, Inc. (WEST) completed the second-year intensive full year PCM in accordance with Section 7.3 of the Project's Habitat Conservation Plan (HCP; Stantec 2021). The objectives of this study were to produce estimates of bat mortality and evaluate the need for adaptive management measures. This report presents the results of the 2022 year of monitoring conducted at the Project from April 1 – October 15.

STUDY AREA

According to the National Land Cover Dataset (NLCD; 2019), the primary land cover type within the Permit Area (a 1.0-kilometer [0.6-mile] buffer around the outermost turbines) is cultivated crops (95.2%), followed by developed areas (4.2%; Figure 1). The remaining land cover types make up less than 1.0% of the area individually.

All turbines are within the migratory range of the Indiana bat, northern long-eared bat, little brown bat, and tricolored bat, and little brown bat and tricolored bat may also occur at the Project during the summer maternity season. California Ridge adjusted turbine operations during the spring (April 1-May 15), summer (May 16 – July 31), and fall (August 1 – October 15) to minimize impacts to the Covered Species (Table 1).

[3] On November 29, 2022, the USFWS published the final rule to list the northern long-eared bat as endangered under the Endangered Species Act. The status change will take effect on January 30, 2023.

[4] On September 14, 2022, the USFWS proposed to list the tricolored bat as endangered under the Endangered Species Act. The final listing decision is expected in late 2023.

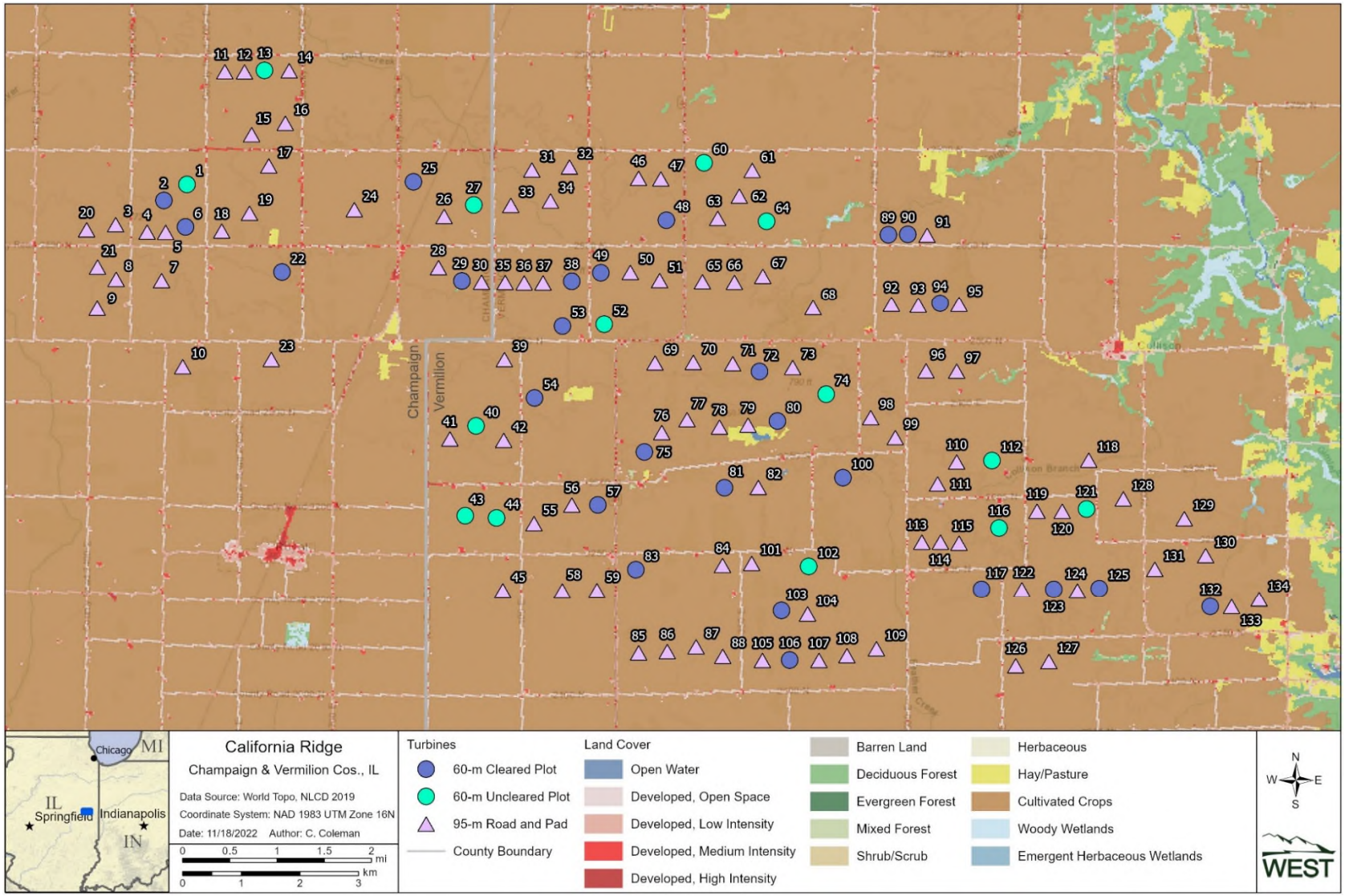


Figure 1. Turbines by plot type and surrounding land cover at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois.

Table 1. Seasonal curtailment regime at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois.

Season	Turbines	Time of Day	Cut-In Speed[1]	Feathering Below Cut-In[2]?	Temperature Threshold[3]
Spring: April 1 – May 15	All	Sunset to sunrise	3.0 m/s	Yes	None
Summer: May 16 – July 31	All	Sunset to sunrise	3.0 m/s	Yes	None
Fall: August 1 – October 15	All	Sunset to sunrise	5.0 m/s	Yes	Above 10°C (50°F)

1. The manufacturer's cut-in wind speed is 3.0 meters per second (m/s; 9.8 feet [ft]/s) across the Project turbines.
2. Feathering means that turbine blades will be pitched into the wind such that they spin at less than one rotation per minute.
3. Turbines will be feathered below cut-in when temperatures are above the threshold.

C = Celsius; F = Fahrenheit.

METHODS

WEST followed PCM methods outlined in the Project's HCP, which targeted a probability of detection (*g*) of 0.213 for all Covered Species to meet the monitoring commitments.

Standardized Carcass Searches

Number of Turbines Sampled, Search Frequency, and Plot Size

Technicians and dog-handler teams conducted standardized carcass searches from April 1 – October 15. Searches were delayed by approximately two weeks due to contracting and start-up logistics; this delay was addressed by the analysis (see Detection Probability Estimates Section below). Search effort remained constant between seasons (Table 2, Figure 1), consistent with Section 7.3 of the Project's HCP.

Table 2. Search effort by season and plot type at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois.

Season	Search Team	Plot Type	Number of Plots	Search Interval
All (spring [4/1-5/15], summer [5/16-7/31], fall [8/1-10/15])	Dog-handler Team	uncleared plots – 60 m	14	twice/week (every 3.5 days)
	Dog-handler Team	cleared plots – 60 m	26	
	Technicians	road and pads – 95 m	94	

m = meters

A technician searched the gravel road and pad areas under 94 turbines to a distance of 95 m (312 ft) from the turbine (95-m road and pads) twice per week during all seasons (April 1 – October 15; Table 2, Figure 2). Dog-handler teams searched 40 turbines within a 60-m (197-ft) radius (26 turbines where crops were regularly mowed [60-m cleared plots], and 14 turbines where soybean [*Glycine max*] was planted and crops were not mowed [60-m uncleared plots]) twice per week (Table 2, Figures 3 and 4) during spring, summer and fall.

During the fall, vegetation at the 60-m cleared plots was mowed and maintained by Project staff within 10 to 15 centimeters (four to six inches) in height to enhance detectability of carcasses. The 60-m uncleared plots were vegetated with soybeans and were not mowed during surveys.

Figure 2. Representative photo of conditions of a 95-m road and pad plot.

Figure 3. Representative photo of vegetation conditions in a 60-m cleared plot.

Figure 4. Representative photo of vegetation conditions in a 60-m uncleared plot.

Search Methods

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

95-m Road and Pad Searches – Technician Searches

During 95-m road and pad searches, the technician started at 95 m from the turbine and walked the access road at a rate of approximately 45–60 m per minute (m/min; 148–197 ft/min) toward the turbine, around the turbine along the gravel pad, and back towards their vehicle. The technician searched out to 2.5 m (8.2 ft) on each side as they walked until the entire road/access pad was searched to ensure full visual coverage of each search area. Technician searches were only conducted for 95-m road and pad plots.

60-meter cleared and uncleared plot Searches – Dog-handler Team

Dog-handler teams searched 60-m cleared plots and 60-m 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 taking into account wind speed and direction, as well as crop row direction and density (when applicable). Handlers oriented the detection dog to start searches perpendicular to the wind to maximize scent detection. Both 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 five to 10 m (16 to 33 ft) apart in densely vegetated areas, to 10–15 m (33–49 ft) in shorter vegetation. Detection dogs were rewarded with either a food reward or a short play session when they correctly alerted to a bird or bat carcass.

Dog-handler Team Evaluation

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

Data Collection

Technicians and dog-handlers recorded the date, search start and end times, technician or dog-handler name, turbine number, type of search, and if any fatalities were found during each scheduled search. When a fatality was found, technicians or dog-handlers 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 fatality on a fatality data sheet, including the date and time, species, sex and age (when possible), technician name or dog-handler name, turbine number, measured distance from turbine, azimuth from turbine, location of carcass as Universal Transverse Mercator coordinates, habitat surrounding carcass, carcass condition, and estimated time of death (e.g., 0–1 days, 2–3 days, 4–7 days, 8–14 days, 15–30 days, or more than 30 days).

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

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

For bird carcasses, the following category was also used:

- Feather spot—10 or more feathers (excluding down), or two or more primary feathers at one location (i.e., scattered within a 1.0-m radius) indicating predation or scavenging of a bird carcass.

Technicians took digital photographs of each fatality, including any visible injuries, and surrounding habitat. No bird carcasses were collected, but bird carcasses were marked to avoid duplicate counting. Bat carcasses were collected under the Project's USFWS ITP ESPER0018464, WEST's Federal Native Endangered and Threatened Species Recovery Permit TE234121-9, WEST's State Endangered and Threatened Species Scientific Permit 1531, and individual salvage permits: NH22.6668, NH22.6686, NH22.6685, NH22.6689, NH22.6824, NH22.6823, NH22.6418, NH22.6687, and NH22.6801. Technicians placed all bat carcasses in a re-sealable plastic bag labeled with the unique carcass identification number, turbine number, and date, for storage in a freezer on site. Leather and rubber gloves were used to handle all bat carcasses to eliminate possible transmission of rabies or other diseases. Live, injured bats were recorded and considered fatalities for analysis purposes when observed in search areas, and were handled in accordance with permit conditions (left in place).

Bird and bat 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 analysis.

Carcass Identification and Agency Notification

Field identification of bird carcasses were verified by biologists with extensive field experience in identification of birds and their feathers. A federally permitted bat biologist (Meredith Hoggatt ESPER0039249; Pallavi Sirajuddin TE62046D-0) identified all bat carcasses via photos and/or in hand at the end of the surveys. The USFWS and the Illinois Department of Natural Resources were notified within 24 hours of positive identification any state- or federally listed species.

Tissue samples were collected from heavily scavenged or decomposed bat carcasses that could not be positively identified and had potential to be a Covered Species were submitted to the East

Stroudsburg University Wildlife Genetics Institute for identification via deoxyribonucleic acid (DNA) analysis.

Bias Trials

Searcher Efficiency Trials

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

Multiple trials were conducted in each season to measure potential changes in plot conditions on searcher efficiency over time. Each trial carcass was discreetly marked with a black zip-tie and/or a piece of electrical tape around the upper forelimb for identification as a study carcass after it is 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 dog-handler teams the day prior to the next search to allow time for the scent to pool and disperse prior to scheduled searches.

Technicians 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 responsible for distributing the carcasses. Following searches, any carcasses that were not detected were checked to confirm availability. One hundred twenty-seven trial carcasses were left in place and used for carcass persistence trials.

Carcass Persistence Trials

The objective of carcass persistence trials was to estimate the 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 15 trial carcasses were placed in each season and plot type to incorporate the effects of varying weather and scavenger densities on carcass persistence. No more than three trial carcasses were placed on a plot to avoid potential over-seeding and attracting scavengers.

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 seven days, then on days 10, 14, 21, and 30. Trial carcasses were monitored until they were completely removed or the trial period ended and then they were picked up. Dog-handler teams were used on the 60-m

cleared plots and 60-m uncleared plots to determine when carcasses were removed, while technicians determined the status of carcasses placed on 95-m road and pads.

Search Area Mapping

Technicians recorded the boundaries of 95-m road and pads and 60-m cleared plots using a Trimble R1 GNSS Receiver 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 60-m radius projection was applied to 60-m uncleared plots using a geographic information system (GIS).

Quality Assurance and Quality Control

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

Statistical Analysis

The Evidence of Absence (EoA; Dalthorp et al. 2017) modeling framework was used to estimate the probability of detecting each Covered Species. Additionally, per the Project's HCP, the all-bat fatality estimate was calculated using GenEst (a generalized estimator of fatality; Dalthorp et al. 2018, Simonis et al. 2018).

Bias Trials

Searcher Efficiency Estimation

Searcher efficiency was estimated separately for technicians and dog-handler teams to account for different modes of detection (i.e., technicians use sight while dogs use scent). Searcher efficiency was modeled using logistic regression, while accounting for the detection reduction factor (*k*; Dalthorp et al. 2018). For both technicians and dog-handler team models, selection was completed using an information theoretic approach known as AICc, or corrected Akaike Information Criterion (Burnham and Anderson 2002). The best-supported model was selected as the most parsimonious model within two AICc units of the model with the lowest AICc value.

The results of searcher efficiency model selection are used differently in GenEst and EoA. The best-supported logistic regression models were used with GenEst to estimate the all-bat fatality rate. EoA uses raw searcher efficiency data (e.g., number of found and available trial carcasses) to inform overall probability of detection. However, the model selection results were used to determine if searcher efficiency data should be pooled, or separated by strata such as season

and plot type (for dog-handler teams), prior to inputting searcher efficiency data were input into the EoA software according to the model selection results.

Carcass Persistence Rate Estimation

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

Detection Reduction Factor

The change in searcher efficiency between successive searches was defined by a parameter called the detection reduction factor (*k*) that ranged from zero to one. When *k* is zero it implied that a carcass is missed on the first search and that carcass would never be found. A *k* of one implied searcher efficiency remained constant no matter how many times a carcass is missed. The detection reduction factor was a required parameter for GenEst; however, data were not collected to estimate *k*. A value for *k* of 0.8 was assumed for bats per the HCP.

Search Area Adjustment

The search area adjustment accounted for unsearched areas beneath turbines and was calculated as a probability that ranged from zero to one. For example, an area adjustment of 0.75 meant that an estimated 75% of carcasses fell within the search area. Unsearched areas were due to survey obstacles such as terrain, or areas where carcasses fell outside the search area (e.g., a carcass landed 70 m [230 ft] away from the turbine on a plot searched out to 60 m from the turbine base). The area adjustment was estimated as the product of the relative proportion of searched area around each turbine and a carcass-density distribution. The carcass-density distribution predicts the likelihood a carcass fell a given distance from the turbine base.

The method used to estimate the carcass-density distribution was specified in Section 7.3.3.3 of the HCP which states:

> "GenEst does not currently have a module for estimating the area adjustment, but it may become available during the permit term. Meanwhile, the area adjustment will be calculated using density-weighted proportions, placing each carcass found into a 10-meter distance band, and calculating the percent of each distance band that was searched site-wide, and the weighted searcher efficiency for that distance band. If other methods for

> modeling search area adjustment become available during the permit term, California Ridge will seek written USFWS approval to use them in fatality estimates."

The method outlined above corresponds to an adaptation of the "Cake Method" described in Maurer et al. (2020) in which the number of fatalities found in a 10-m concentric annulus around the turbine is divided by the probability of detection and the proportion of area searched in each 10-m annulus to develop an "effective number of carcasses" within each annulus (Maurer et al. 2020). The effective number of carcasses within each annulus is divided by the sum of effective number of carcasses in all annuli to calculate the relative carcass density within each 10-m annulus. This method is not able to account for carcasses that may occur beyond the maximum search radius. Although the HCP specifies that a 'weighted searcher efficiency,' will be used in the calculation of density weighted proportion, the quantity that is relevant to the effective number of carcasses is actually the carcass detection probability (which includes the searcher efficiency as a component). For this study, the detection probability for each carcass was multiplied by the proportion of searched area within each annulus and used as the overall probability of detection as in Maurer et al. (2020).

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-m annulus around the turbine. The area adjustment was estimated by combining the carcass-density for each 10-m annulus with the proportion of area searched for each 10-m annulus for each plot type across the search area and summarizing across the distances.

Carcasses Excluded from Area Correction Calculations

Fatalities were excluded from the area correction estimate 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 during plot setup prior to the spring season) 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.

Detection Probability Estimates

Estimates of the probability of detecting each Covered Species were calculated using the EoA method using the Single Class, Multiple Class, and Multiple Years modules of EoA.

The probability of detection (*g*) was estimated using the bias corrections for searcher efficiency, carcass persistence, and area searched, and the assumed seasonality of risk for the Covered Species. The seasonality of risk (expressed as relative proportion of the species arriving at the Project in each season) per the HCP, was 0.017 in the spring, zero in the summer, and 0.983 in the fall for Indiana bat and northern long-eared bat, and 0.065 in the spring, 0.255 in the summer, and 0.680 in the fall for little brown bat and tricolored bat.

The EoA Single Class module was used to estimate detection probability in each search stratum. For each stratum, an alpha (α, defined Ba in EoA) and beta (β, defined Bb in EoA) parameters are estimated that define the beta distribution of detection probability in each stratum. A beta distribution with parameters set to Ba = 0.01 and Bb = 1,000 was used to indicate the unsearched time period in the spring (April 1–April 17, 2022), and the risk assigned to spring was distributed proportionally to the proportion of the entire season in the searched and unsearched periods respectively. The EoA Multiple Class module was then used to combine detection probability distributions across strata (60-m cleared plots, 60-m uncleared plots, and 95-m roads and pads), with weights for each class defined by the sampling fraction and seasonality of risk. The Multiple Years module was used to estimate the cumulative beta distribution of detection probability for all years at the project (Ba and Bb parameters for the detection probability to date). The Multiple Years module requires the beta distribution parameters for detection probability in each year and weights (ρ), which were all assumed to be one because there were no changes in facility operations (such as cut-in speed) during spring that would have resulted in different weights. Appendix A shows how the detection probabilities were calculated using the EoA Graphical User Interface[5].

Fatality Rate Estimation

Carcasses included in the fatality rate estimation were found within the search areas (plots) and had an estimated time of death within the study period. Fatality estimates were calculated for all bats by season and by study period. To obtain an overall estimate of fatality, each carcass included in the analysis was adjusted for searcher efficiency, carcass persistence, a detection reduction factor (also referred to as "*k*"; see above), and a search area adjustment. Estimates and 90% CIs were calculated using a parametric bootstrap (Dalthorp et al. 2018) for each individual category listed above, assuming more than five fatalities were detected. Overall fatality estimates were calculated using a weighted average by plot type (i.e., 60-m cleared and uncleared plots and 95-m road and pad plots) within season, and summing estimates across season. The relative number of turbines sampled within each plot type was used to weight each plot type estimate within each season, resulting in an overall estimate by season. The overall estimates for each season could then be summed to generate an overall estimate for the entire study period.

Assessment of Adaptive Management Triggers

As specified in the Project's HCP, the need for adaptive management during the initial five years of the ITP is based upon the number of Covered Species carcasses found during compliance monitoring. Adaptive management would only be triggered by discovery of two or more Indiana bat carcasses, four or more northern long-eared bat carcasses, nine or more little brown bat carcasses, or 13 or more tricolored bat carcasses during years one through five of PCM.

Covered Species Take Estimates

Section 7.3.3.5 of the Project's HCP specifies Covered Species take estimates to be calculated and reported using the Multiple Years Module; however, these estimates are not used to assess

[1] There may be very minor differences between screen shots and the results in the main text because EoA is a stochastic estimator, leading to slightly different estimates each time the modules are run.

compliance during the initial five years of the ITP. These estimates include the median cumulative take to-date (M^*), the median cumulative take within the current monitoring year (M^*_{2022}), the projected mortality ($M_{Projected}$), and the mean annual take rate (λ) for each of the Covered Species and are presented in Appendix B.

RESULTS

Standardized Carcass Searches

A total of 6,693 searches were completed at the Project across all seasons (Spring = 1,011; Summer = 2,890; Fall = 2,793). Two hundred seventy-eight searches (4.2%) were missed due to turbine maintenance, weather constraints, plot conditions, and/or safety hazards.

Overall Carcasses

Seven hundred seventy-one bat carcasses were found during carcass searches (Appendix C1). An additional 56 bat carcasses were found outside the search areas, outside the study period (died prior to the study period), or found during plot setup, prior to the study starting; therefore, these carcasses were not included in analysis (Appendix C2). One hundred eighty-three bird carcasses were found during surveys (Appendix C1); however, no birds were included in the analysis.

Species Composition

Seven bat species were recorded during surveys (Appendix C). The most commonly found species were eastern red bat (346 carcasses; 41.8%) and silver-haired bat (293; 35.4%), followed by hoary bat (99; 12.0%), big brown bat (30; 3.6%), evening bat (24; 2.9%), unidentified *Lasiurus* bat (14; 1.7%), eastern red or Seminole bat (*L. seminolus*; 13; 1.6%), unidentified non-*Myotis* (four; 0.5%), and unidentified bat (two; 0.2%). One Indiana bat (0.1%) and one little brown bat (0.1%) were also found. Twenty-three heavily scavenged or degraded bat carcasses (e.g., wing membrane only, bones, or partial carcasses) were found during surveys and sent for identification via DNA analysis; they were identified as 13 silver-haired bats, four big brown bats, three hoary bats, and two eastern red bats. The results from one bat carcass were inconclusive based on the DNA analysis due to the amount of bacteria contaminating the sample. An additional live bat was discovered during a scheduled search that was not identified as it flew away before photographs could be taken (Appendix C).

Two Covered Species were found at the Project (Figure 5). One Indiana bat was recorded at the Project on August 22, 2022, at Turbine 116. One little brown bat was recorded at the Project on September 7, 2022, at Turbine 106. Three black-billed cuckoos (*Coccyzus erythropthalmus*), a state-threatened species, were also recorded at the Project (Figure 5). Two were found incidentally at turbines 40 and 54 on May 24 and June 6, 2022, respectively. The third was found at Turbine 40 on August 2, 2022, during a scheduled search.

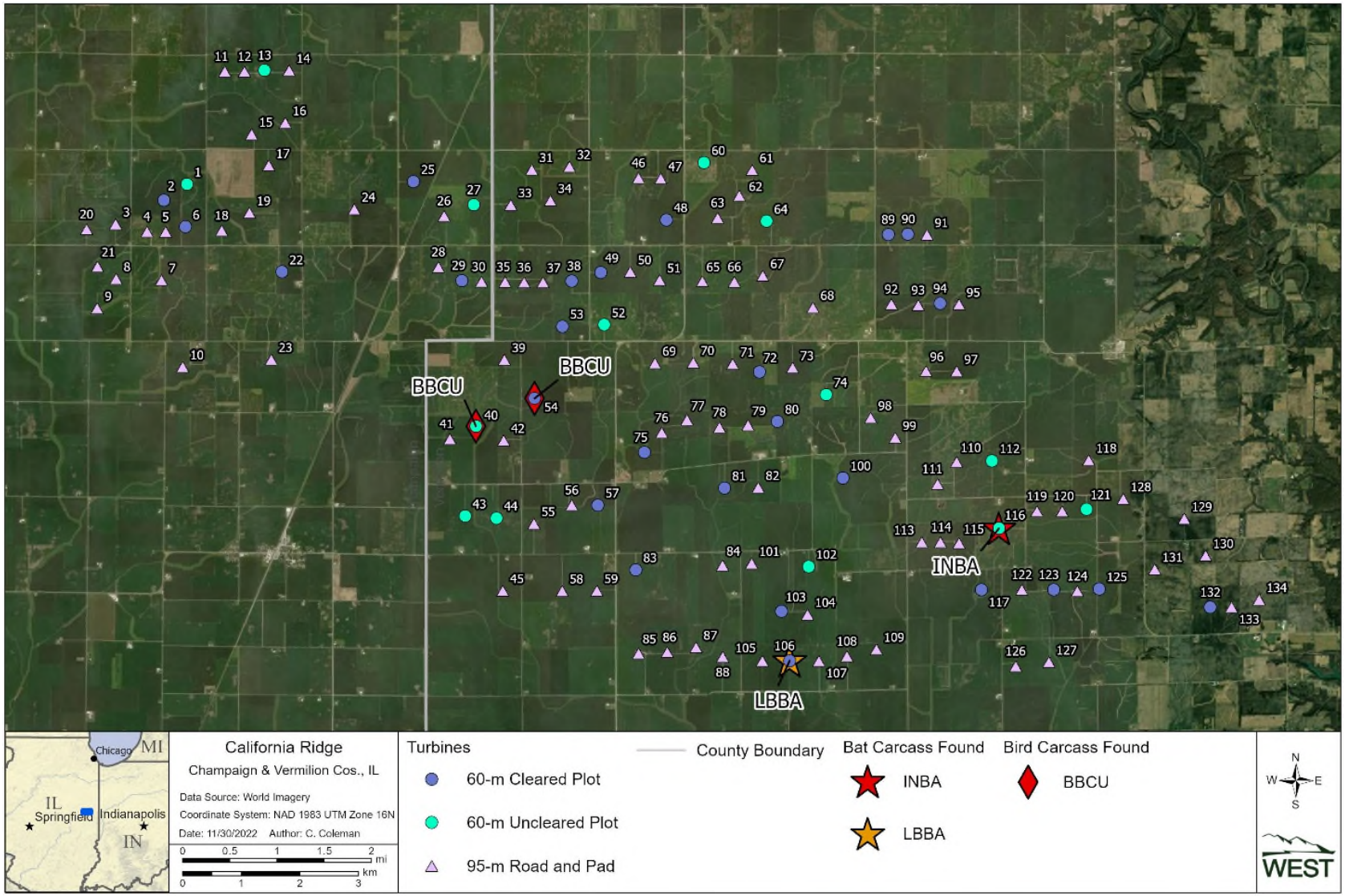


Figure 5. Location of Covered Species and black-billed cuckoo (BBCU) carcasses at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Note: INBA = Indiana bat; LBBA = little brown bat

Timing and Distribution of Bat Fatalities

The composition of bat fatalities varied by season; silver-haired bats were the most commonly found species found during the spring and fall, while eastern red bats were the most commonly found species during summer (Table 3). Fewer bat species were found during the spring than any other season. The majority of bat carcasses were found between mid-July and late September (Figures 6 and 7; Appendix C).

Table 3. Species composition, by season, for bat carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

	Spring		Summer		Fall	
Species	**# of Carcasses**	**%**	**# of Carcasses**	**%**	**# of Carcasses**	**%**
eastern red bat	10	30.3	174	60.8	162	31.9
silver-haired bat	13	39.4	46	16.1	234	46.1
hoary bat	3	9.1	37	12.9	59	11.6
big brown bat	0	0	8	2.8	22	4.3
evening bat	7	21.2	11	3.8	6	1.2
little brown bat	0	0	0	0	11	2.2
Indiana bat	0	0	0	0	1	0.2
eastern red or Seminole bat	0	0	2	0.7	1	0.2
unidentified *Lasiurus* bat	0	0	7	2.4	7	1.4
unidentified non-*Myotis* bat	0	0	1	0.3	3	0.6
unidentified bat	0	0	0	0	2	0.4
Total[1]	**33**	**100**	**286**	**100**	**508**	**100**

[1.] Sums may not equal total values shown due to rounding.

m = meters.

Bat carcasses were found at 86 of the 134 study turbines. The most bat carcasses were found at Turbine 132 (36 carcasses), followed by Turbine 2 (32), Turbine 90 (29), Turbine 48 (27), and Turbine 38 (26). The remaining 81 turbines each had 24 or fewer bat carcasses (Figure 8).

Statistical Analysis

Bias Trials

Searcher Efficiency Trials

Two hundred three bats were placed for searcher efficiency trials on 13 separate dates across all plot types during the study and 175 were available for search teams to find. Overall searcher efficiency rates were 89.8% for 60-m plots and 82.1% for 95-m road and pads (Table 4). Models were fit for each plot type to determine which explanatory variable provided the best model for estimating searcher efficiency. For 60-m plots, model section indicated that searcher efficiency did not vary by plot type (cleared or uncleared) or season (Appendix D1). For 95-m road and pads, model selection indicated that searcher efficiency did not vary by season (Appendix D2).

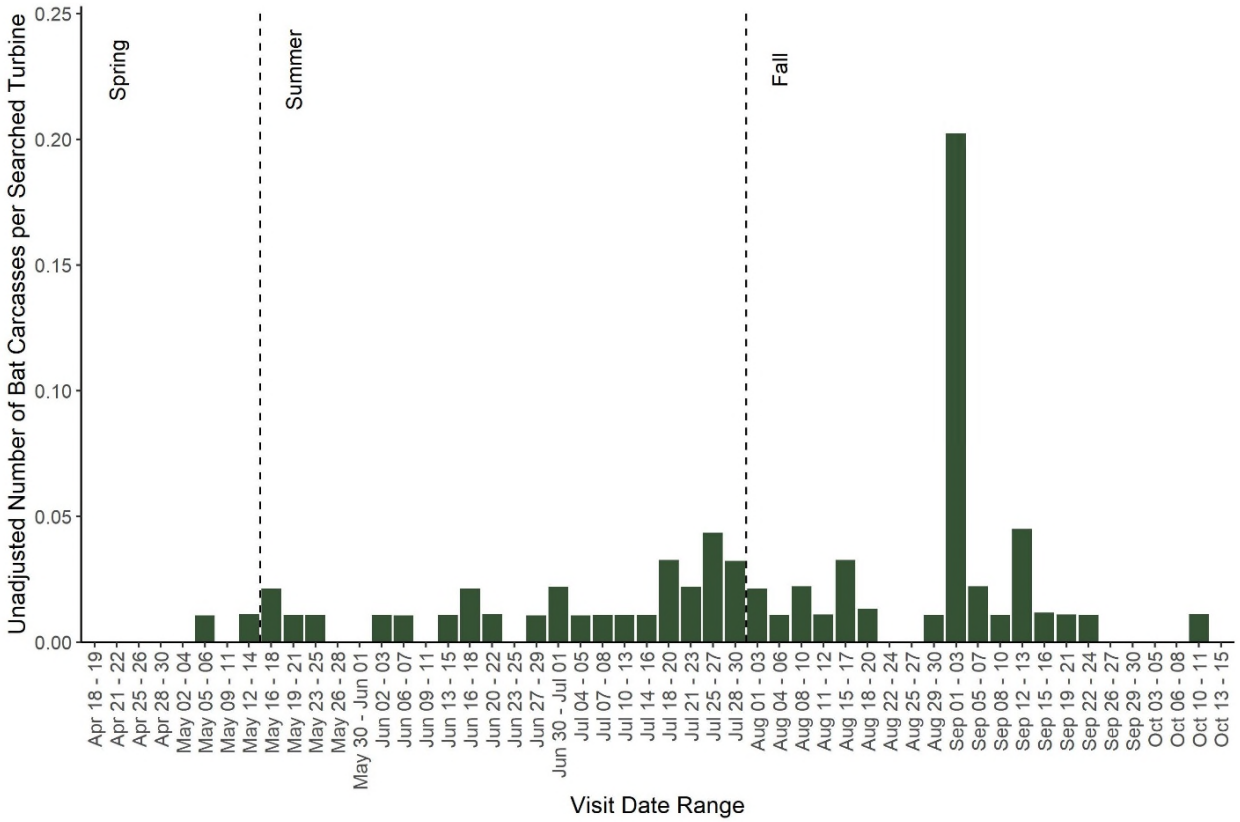


Figure 6. Timing of bat carcasses found on roads and pads for carcasses included in the GenEst fatality estimates at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

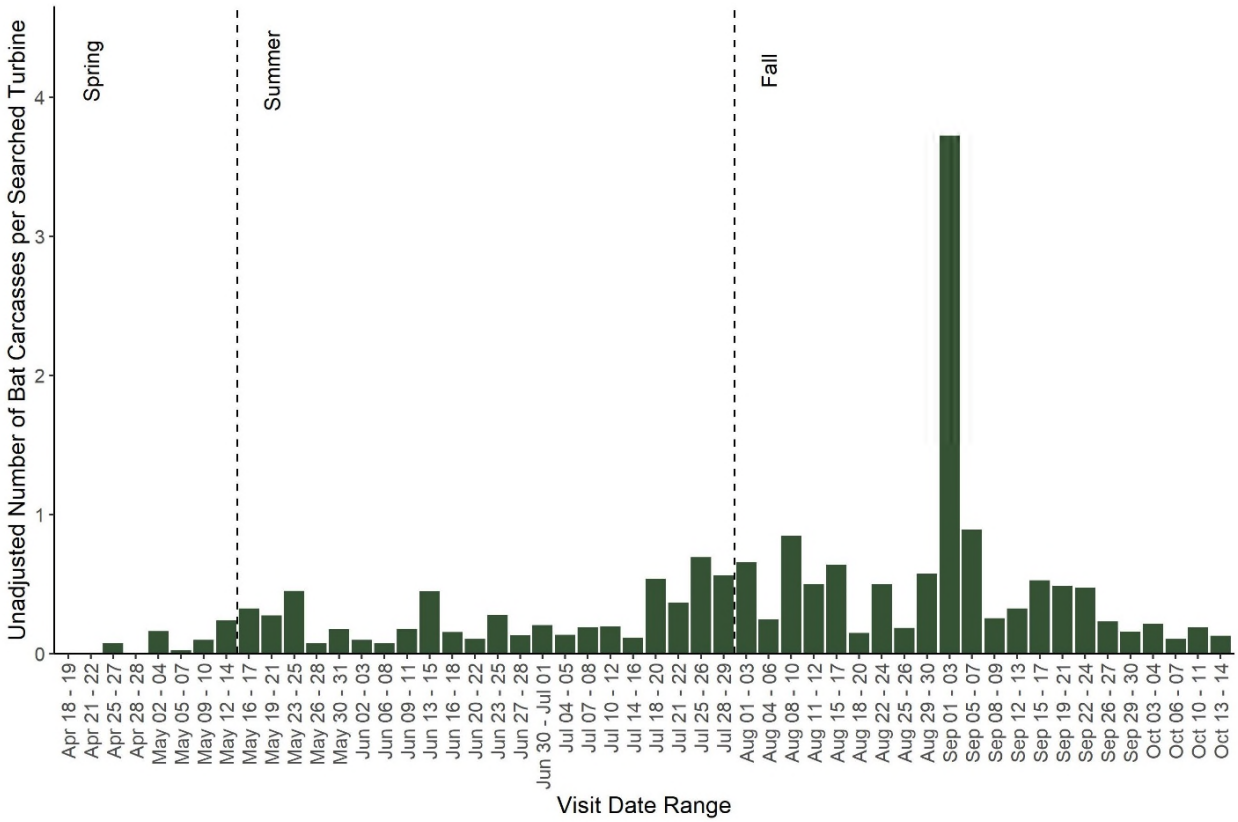


Figure 7. Timing of bat carcasses found on 60-meter plots for carcasses included in the GenEst fatality estimates at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

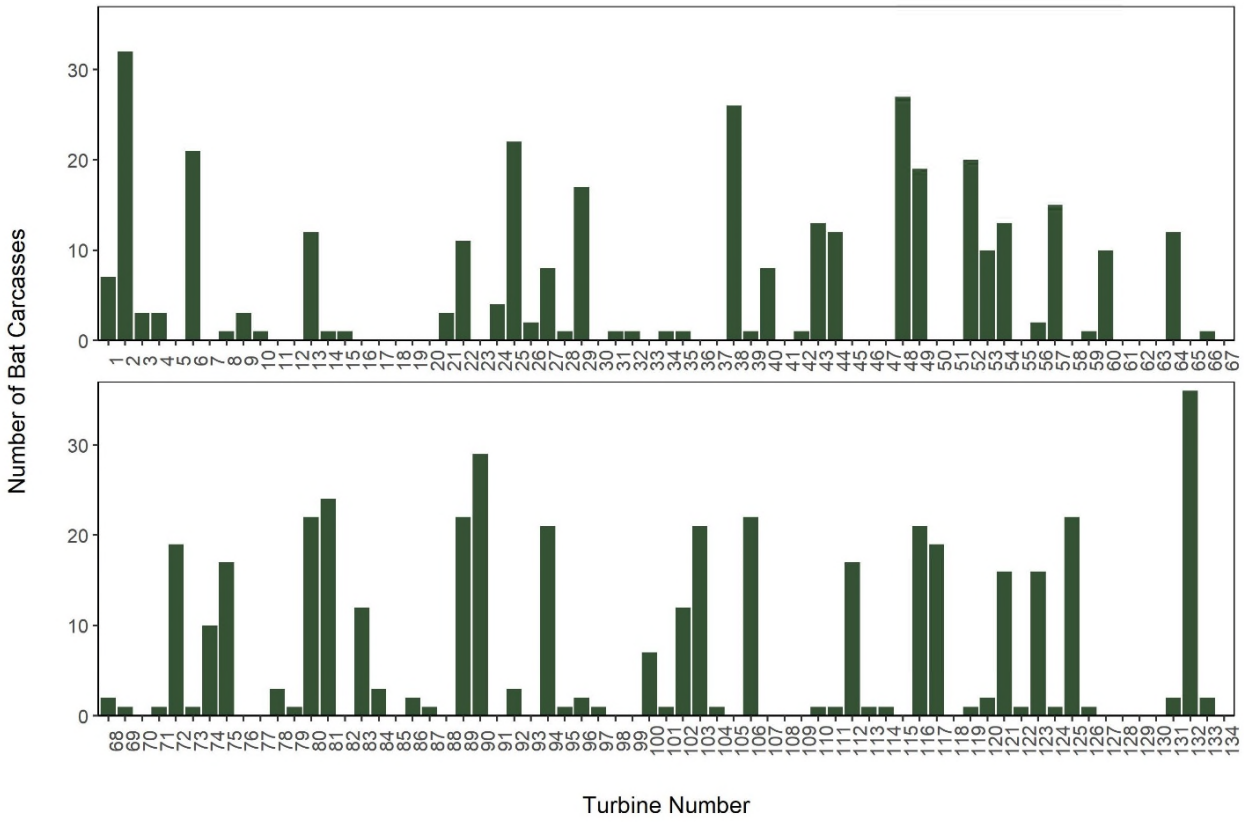


Figure 8. Bat carcasses found on roads and pads and 60-meter plots for carcasses included in the GenEst fatality estimates at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Table 4. Searcher efficiency results by plot type at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois from April 1 – October 15, 2022.

Plot Type	Number Placed	Number Available	Number Found	% Found
60-m Plot	**123**	**108**	**97**	**89.8**
95-m road and pad	**80**	**67**	**55**	**82.1**

Carcass Persistence Trials

One hundred twenty-seven carcasses were placed to estimate carcass persistence. The best-fit model for carcass persistence on both 60-m plots and 95-m road and pads had a Weibull distribution and did not include any covariates, which suggests carcass persistence did not vary by plot type (cleared or uncleared 60-m plots) or season (Appendix D3 and D4). The average probability of a carcass persisting through the 3.5-day search interval was 0.85 (90% CI: 0.79, 0.90) on 60-m plots and 0.80 (90% CI: 0.72, 0.87) on 95-m roads and pads (Figure 9). Estimated median carcass persistence times for the 3.5-day search interval were 18.05 days on 60-m plots and 8.47 days on 95-m road and pads (Figure 9; Appendix D5).

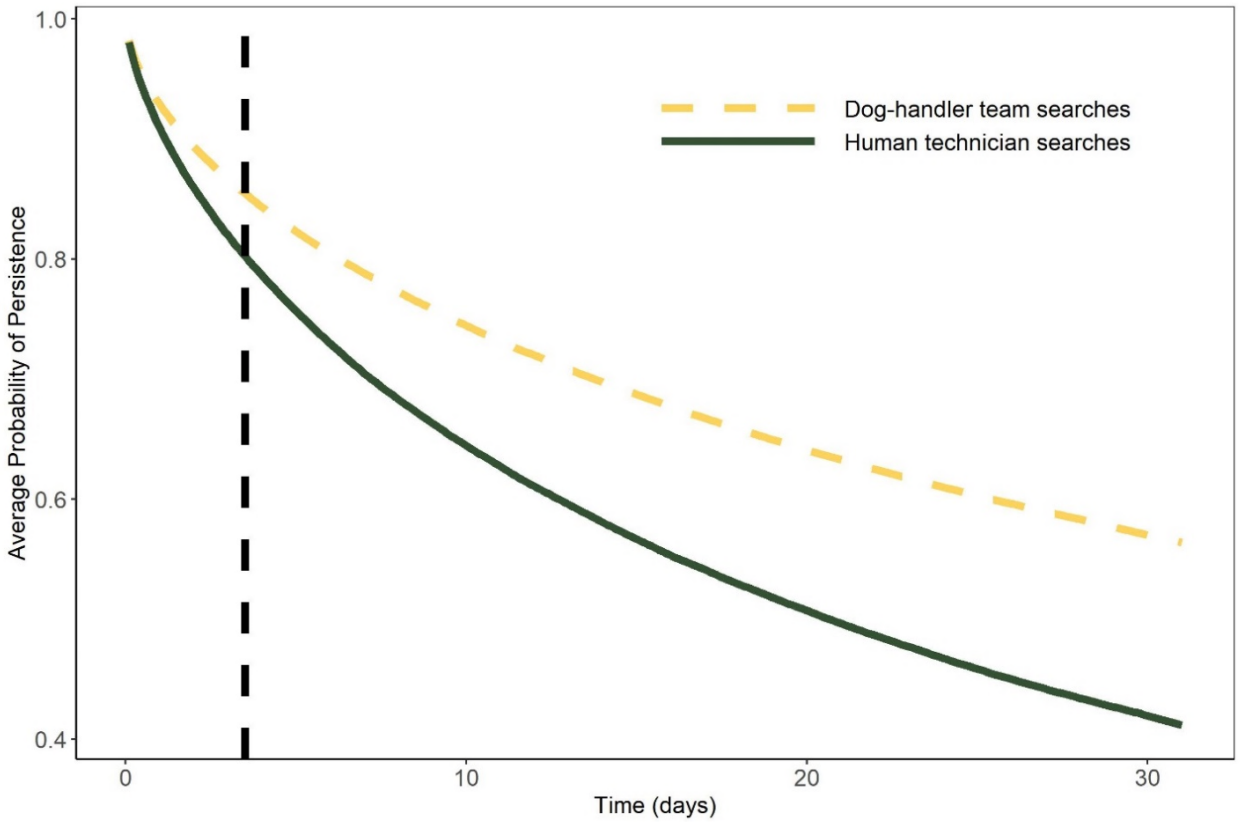


Figure 9. The average probability of persistence, in days, at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022. The vertical dashed line indicates the 3.5 day search interval.

Search Area Adjustment

Fifty-six of the 827 bats found were excluded from modeling the carcass-density because they were found outside of the search area or because their estimated time of death was prior to the start of surveys. Seven hundred sixty-two fatalities (98.8% of the included fatalities) fell within 60 m of the base of the turbine (Table 5). The mean area adjustment was 0.71 for 60-m plots and 0.04 for roads and pads (Table 6, Figure 10). In other words, an average of 71% of bats fell within the search areas of the 60-m plots and 4% of bats fell within the search areas of roads and pads.

Table 5. Results of relative carcass-density estimation using the using the "Cake Method" (Maurer et al. 2020), at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

10-meter (m) Annulus	Number of Carcasses	Average Detection Probability	Proportion of 10-m Annulus Searched	Relative Carcass Density
10	52	0.795	0.695	0.024
20	77	0.821	0.350	0.068
30	129	0.825	0.323	0.123
40	166	0.825	0.317	0.161
50	192	0.832	0.315	0.186
60	146	0.827	0.289	0.155
70	4	0.782	0.023	0.055

Table 5. Results of relative carcass-density estimation using the using the "Cake Method" (Maurer et al. 2020), at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

10-meter (m) Annulus	Number of Carcasses	Average Detection Probability	Proportion of 10-m Annulus Searched	Relative Carcass Density
80	2	0.740	0.008	0.085
90	3	0.770	0.007	0.145
100	0	0	0.005	0

Table 6. Area adjustment estimates for the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022. Estimates were calculated using the "Cake Method" (Maurer et al. 2020).

Size Class	Search Area Type	Area Adjustment
Bat	60-meter plot	0.71
	95-meter road and pad	0.04

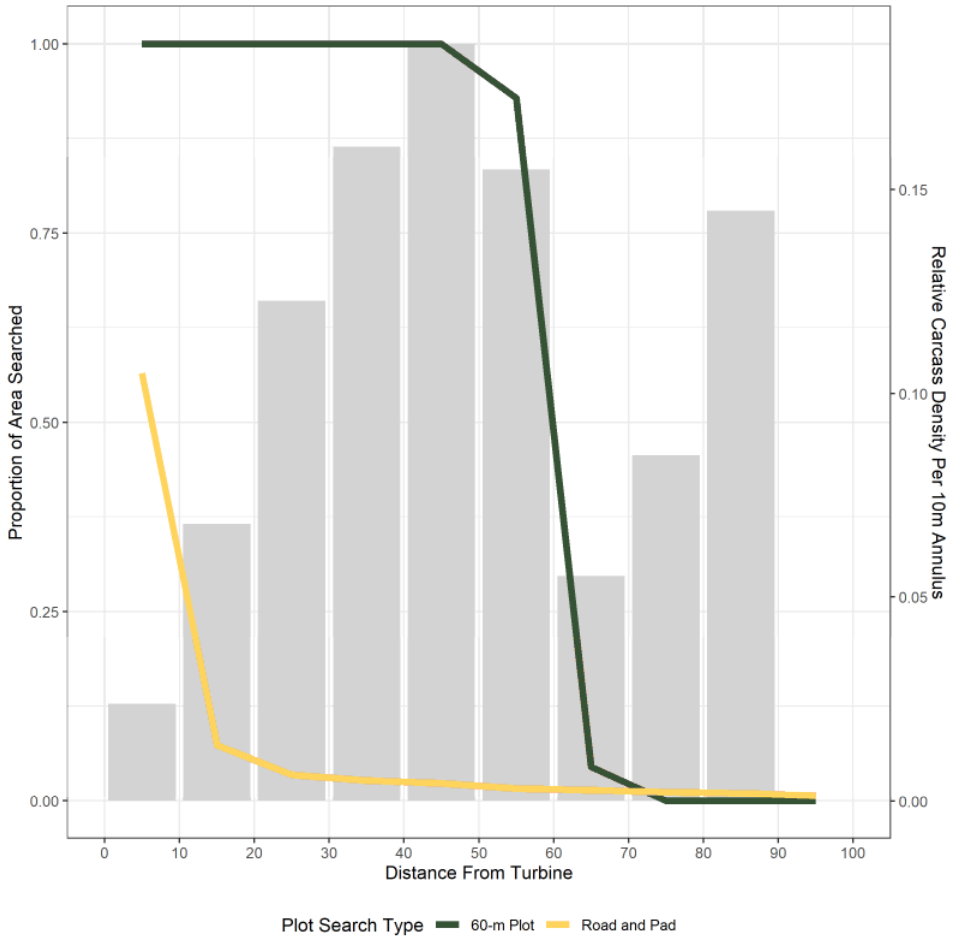


Figure 10. Density of bat carcasses per area searched at all 60-meter (m) plots and 95-m road and pads at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Detection Probability Estimates

The overall probability of detection achieved for the 2022 monitoring period was 0.194 (90% CI: 0.186–0.202) for Indiana bat and northern long-eared bat and 0.190 (90% CI: 0.184–0.195) for little brown bat and tricolored bat (Table 7). The cumulative *g* over the past two years of monitoring was 0.103 (90% CI: 0.099–0.108) for Indiana bat and northern long-eared bat and 0.099 (90% CI: 0.096–0.102) for little brown bat and tricolored bat (Table 7). Differences in the arrival proportions used for Indiana bat/northern long-eared bat and little brown bat/tricolored bat (see *Methods*) resulted in slightly different *g* distributions for these species. 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 A.

Table 7. Probability of detection (g), Ba, and Bb for the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from July 19 – October 14, 2021, and April 1 – October 15, 2022.

Metric	Species Group	Ba*	Bb*	*g*	90% CI
g value for 2021	INBA/NLEB	29.295	2,295.992	0.013	0.009-0.017
	LBBA/TRBA	27.782	3,157.140	0.009	0.006-0.012
g value for 2022	INBA/NLEB	1,200.049	4,992.981	0.194	0.186-0.202
	LBBA/TRBA	2,547.059	10,889.440	0.190	0.184-0.195
Cumulative g value for ITP Monitoring to Date	INBA/NLEB	1,249.347	10,858.34	0.103	0.099-0.108
	LBBA/TRBA	2,503.57	22,748.59	0.099	0.096-0.102

ITP = Incidental Take Permit; INBA = Indiana bat; NLEB = northern long-eared bat; LBBA = little brown bat; TRBA = tricolored bat.

* = α and β parameters of beta distribution describing detection probability as defined in EoA

Adjusted Overall Bat Fatality Estimates

The overall bat fatality estimate for the study was 17.70 bats per MW (90% CI: 14.91–20.70). Among seasons, the highest fatality rate occurred in the fall (10.13 bats per MW, 90% CI: 8.32–12.26; Table 8). Inputs used to calculate fatality estimates are presented in Appendix E.

Table 8. Seasonal and overall bat fatality rates per turbine and megawatt (MW) using GenEst for studies conducted at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Season	Bat Fatality Estimate per Turbine	90% Confidence Interval	Bat Fatality Estimate per MW	90% Confidence Interval
Spring	1.23	0.61–2.18	0.77	0.38–1.36
Summer	10.74	8.42–13.46	6.71	5.26–8.41
Fall	16.20	13.31–19.61	10.13	8.32–12.26
Overall	**28.33**	**23.85–33.11**	**17.70**	**14.91–20.70**

Assessment of Adaptive Management Triggers

During years one and two of PCM at the Project one Indiana bat carcass and one little brown bat carcass were recorded. No northern long-eared bat or tricolored bat carcasses were recorded. No

adaptive management triggers were met as the number of carcasses recorded were below the adaptive management triggers for the initial five years of the ITP for all Covered Species (Table 9).

Table 9. Summary of adaptive management evaluations based upon the results from the first two years of compliance monitoring at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Compliance Metric	Species	Adaptive Management Trigger	Number of Carcasses Discovered	Adaptive Management Required?
Number of Covered Species found during initial five years	Indiana bat	2	1	No
	northern long-eared bat	4	0	No
	little brown bat	9	1	No
	tricolored bat	13	0	No

CONCLUSIONS

The compliance monitoring effort completed in 2022 was consistent with the HCP's monitoring requirements. One Indiana bat carcass and one little brown bat carcass, both HCP Covered Species, were recorded in 2022. Although Covered Species carcasses were found at the Project, the number of Covered Species carcasses found during the initial two years of ITP monitoring were below the levels authorized by the ITP in years one through five and no adaptive management actions were triggered.

REFERENCES

Burnham, K. P. and D. R. Anderson. 2002. Model Selection and Multimodel Inference: A Practical Information-Theoretic Approach. Second Edition. Springer, New York, New York.

Dalthorp, D., M. M. P. Huso, and D. Dail. 2017. Evidence of Absence (V2.0) Software User Guide. US Geological Survey (USGS) Data Series 1055. USGS, Reston, Virginia. 109 pp. doi: 10.3133/ds1055. Available online: https://pubs.usgs.gov/ds/1055/ds1055.pdf

Dalthorp, D. H., L. Madsen, M. M. Huso, P. Rabie, R. Wolpert, J. Studyvin, J. Simonis, and J. M. Mintz. 2018. GenEst Statistical Models—a Generalized Estimator of Mortality. US Geological Survey Techniques and Methods, Volume 7, Chapter A2. 13 pp. doi: 10.3133/tm7A2. Available online: https://pubs.usgs.gov/tm/7a2/tm7a2.pdf

Esri. 2022. World Imagery and Aerial Photos (World Topo). ArcGIS Resource Center. Environmental Systems Research Institute (Esri), producers of ArcGIS software, Redlands, California. Accessed December 2022. Available online: https://www.arcgis.com/home/webmap/viewer.html?useExisting=1&layers=10df2279f9684e4a9f6a7f08febac2a9

Helfers, F. 2017. The Nose Work Handler - Foundation to Finesse. Dogwise Publishing, Wenatchee, WA. 144 pp.

Kalbfleisch, J. D. and R. L. Prentice. 2002. The Statistical Analysis of Failure Time Data. John Wiley & Sons, Hoboken, New Jersey.

Kay, D. 2012. Super Sniffer Drill Book - a Workbook for Training Detector Dogs. Coveran Publishing House, 86 pp.

Maurer, J. D., M. Huso, D. Dalthorp, L. Madsen, and C. Fuentes. 2020. Comparing Methods to Estimate the Proportion of Turbine-Induced Bird and Bat Mortality in the Search Area under a Road and Pad Search Protocol. Environmental and Ecological Statistics 27: 769-801. doi: 10.1007/s10651-020-00466-0.

National Land Cover Database (NLCD). 2019. National Land Cover Database 2019 - Landcover & Imperviousness (NLCD2019). Available online: https://www.mrlc.gov/data. *As cited* includes:

Homer, C., J. Dewitz, S. Jin, G. Xian, C. Costello, P. Danielson, L. Gass, M. Funk, J. Wickham, S. Stehman, R. Auch, and K. Riitters. 2020. Conterminous United States Land Cover Change Patterns 2001–2016 from the 2016 National Land Cover Database. ISPRS Journal of Photogrammetry and Remote Sensing 162(5): 184-199. doi: 10.1016/j.isprsjprs.2020.02.019.

Jin, S., C. Homer, L. Yang, P. Danielson, J. Dewitz, C. Li, Z. Zhu, G. Xian, and D. Howard. 2019. Overall Methodology Design for the United States National Land Cover Database 2016 Products. Remote Sensing. 2971. doi: 10.3390/rs11242971.

Wickham, J., S. V. Stehman, D. G. Sorenson, L. Gass, and J. A. Dewitz. 2021, Thematic Accuracy Assessment of the NLCD 2016 Land Cover for the Conterminous United States: Remote Sensing of Environment 257: 112357. doi: 10.1016/j.rse.2021.112357.

and

Yang, L., S. Jin, P. Danielson, C. Homer, L. Gass, S. M. Bender, A. Case, C. Costello, J. Dewitz, J. Fry, M. Funk, B. Granneman, G. C. Liknes, M. Rigge, and G. Xian. 2018. A New Generation of the United States National Land Cover Database: Requirements, Research Priorities, Design, and Implementation Strategies. ISPRS Journal of Photogrammetry and Remote Sensing 146: 108-123. doi: 10.1016/j.isprsjprs.2018.09.006.

Simonis, J., D. H. Dalthorp, M. M. Huso, J. M. Mintz, L. Madsen, P. Rabie, and J. Studyvin. 2018. GenEst User Guide—Software for a Generalized Estimator of Mortality. US Geological Survey Techniques and Methods, Volume 7, Chapter C19, 72 pp. doi: 10.3133/tm7C19. Available online: https://pubs.usgs.gov/tm/7c19/tm7c19.pdf

Stantec Consulting Services, Inc. (Stantec). 2021. California Ridge Wind Energy Project Final Habitat Conservation Plan for Indiana Bat, Northern Long-Eared Bat, Little Brown Bat, and Tricolored Bat. Prepared for California Ridge Wind Energy, LLC. Prepared by Stantec, Independence, Iowa. July 31, 2021.

Appendix A. Inputs for Single Class and Multiple Class Modules in Evidence of Absence for the 2022 Post-construction Monitoring at the California Ridge Wind Farm, Champaign and Vermilion Counties, Illinois, from April 1 – October 15, 2022

Appendix A1. Inputs needed to run Evidence of Absence (EoA): Single Class Module for the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.[1]

Species Group	Season	Plot Type	Search Interval (l)	Number of Searches[2]	Spatial Coverage (a)	Searcher Efficiency		Carcass Persistence[3]	
						Carcasses Available	Carcasses Found	Shape (α)	Scale (β)
INBA/NLEB	Spring	60-meter	3.5	8	0.71	108	97	0.61	32.95
		95-m road and pad	3.5	9	0.04	67	55	0.68	14.50
	Summer	60-meter	3.5	22	0.71	108	97	0.61	32.95
		95-m road and pad	3.5	23	0.04	67	55	0.68	14.50
	Fall	60-meter	3.5	22	0.71	108	97	0.61	32.95
		95-m road and pad	3.5	22	0.04	67	55	0.68	14.50
LBBA/TRBA	Spring	60-meter	3.5	8	0.71	108	97	0.61	32.95
		95-m road and pad	3.5	9	0.04	67	55	0.68	14.50
	Summer	60-meter	3.5	22	0.71	108	97	0.61	32.95
		95-m road and pad	3.5	23	0.04	67	55	0.68	14.50
	Fall	60-meter	3.5	22	0.71	108	97	0.61	32.95
		95-m road and pad	3.5	22	0.04	67	55	0.68	14.50

[1] Inputs in each row apply to both species identified.

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

[3] A log-logistic distribution was used for carcass persistence distribution.

INBA = Indiana Bat; NLEB = northern long-eared bat; LBBA = little brown bat; TRBA = tricolored bat.

Appendix A2. Indiana bat/northern long-eared bat species group inputs needed to run Evidence of Absence: Multiple Class Module* for the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.[1]

Season	Plot Type	Ba	Bb	Sampling Fraction	Within Season Risk Fraction	Within-Season Weights (ρ)
Spring	60-m unsearched	0.01	1000	0.3	0.39	0.115
	95-m unsearched	0.01	1000	0.7	0.39	0.271
	60-m	544.62	396.13	0.3	0.61	0.183
	95-m road and pad	458.59	16,411.86	0.7	0.61	0.430
Summer	60-m	504.27	352.13	0.3	1.00	0.300
	95-m road and pad	440.78	15588.05	0.7	1.00	0.700
Fall	60-m	502.96	351.24	0.3	1.00	0.300
	95-m road and pad	415.7	14678.82	0.7	1.00	0.700

[1.] The inputs in each row apply to both species identified.

m = meters

*Module was run twice, once using the INBA/NLEB inputs and once using the LBBA/TRBA inputs.

Appendix A3. Little brown bat/tricolored bat species group inputs needed to run Evidence of Absence: Multiple Class Module for the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.[1]

Season	Plot Type	Ba	Bb	Sampling Fraction	Within Season Risk Fraction	Within-Season Weights (ρ)
Spring	60-m unsearched	0.01	1,000	0.3	0.39	0.115
	95-m unsearched	0.01	1,000	0.7	0.39	0.271
	60-m	518.09	372.8	0.3	0.61	0.183
	95-m road and pad	364.06	13,059.14	0.7	0.61	0.430
Summer	60-m	654.45	461.65	0.3	1.00	0.300
	95-m road and pad	404.55	14,262.55	0.7	1.00	0.700
Fall	60-m	605.26	425.57	0.3	1.00	0.300
	95-m road and pad	422.6	14,934.03	0.7	1.00	0.700

1. The inputs in each row apply to both species identified.

m = meters

Appendix A4. Indiana bat/northern long-eared species group inputs needed to run Evidence of Absence: Multiple Class Module for the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Season	Ba	Bb	Weights (ρ)
Spring	1,586.719	11,841.646	0.017
Summer	1,178.538	4,863.386	0.000
Fall	1,173.490	4,841.885	0.983

Appendix A5. Little brown bat/tricolored bat species group inputs needed to run Evidence of Absence: Multiple Class Module for the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

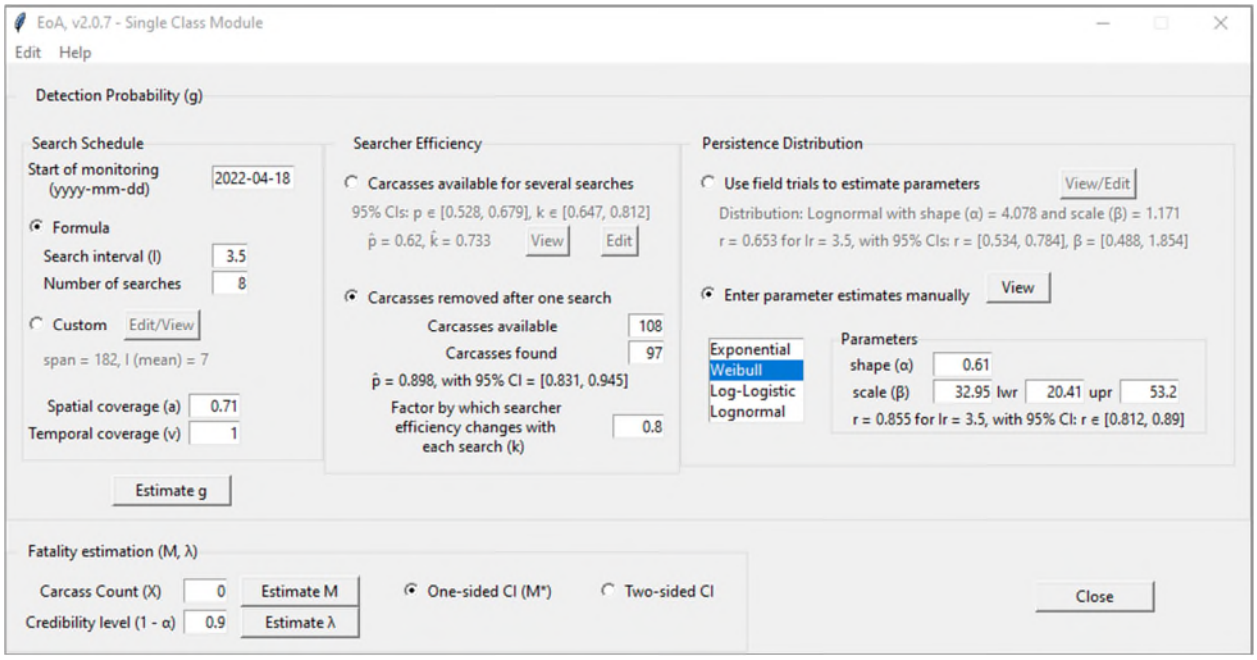
Season	Ba	Bb	Weights (ρ)
Spring	1,294.047	9,653.619	0.065
Summer	1,503.320	6,230.428	0.255
Fall	1,399.158	5,791.656	0.680

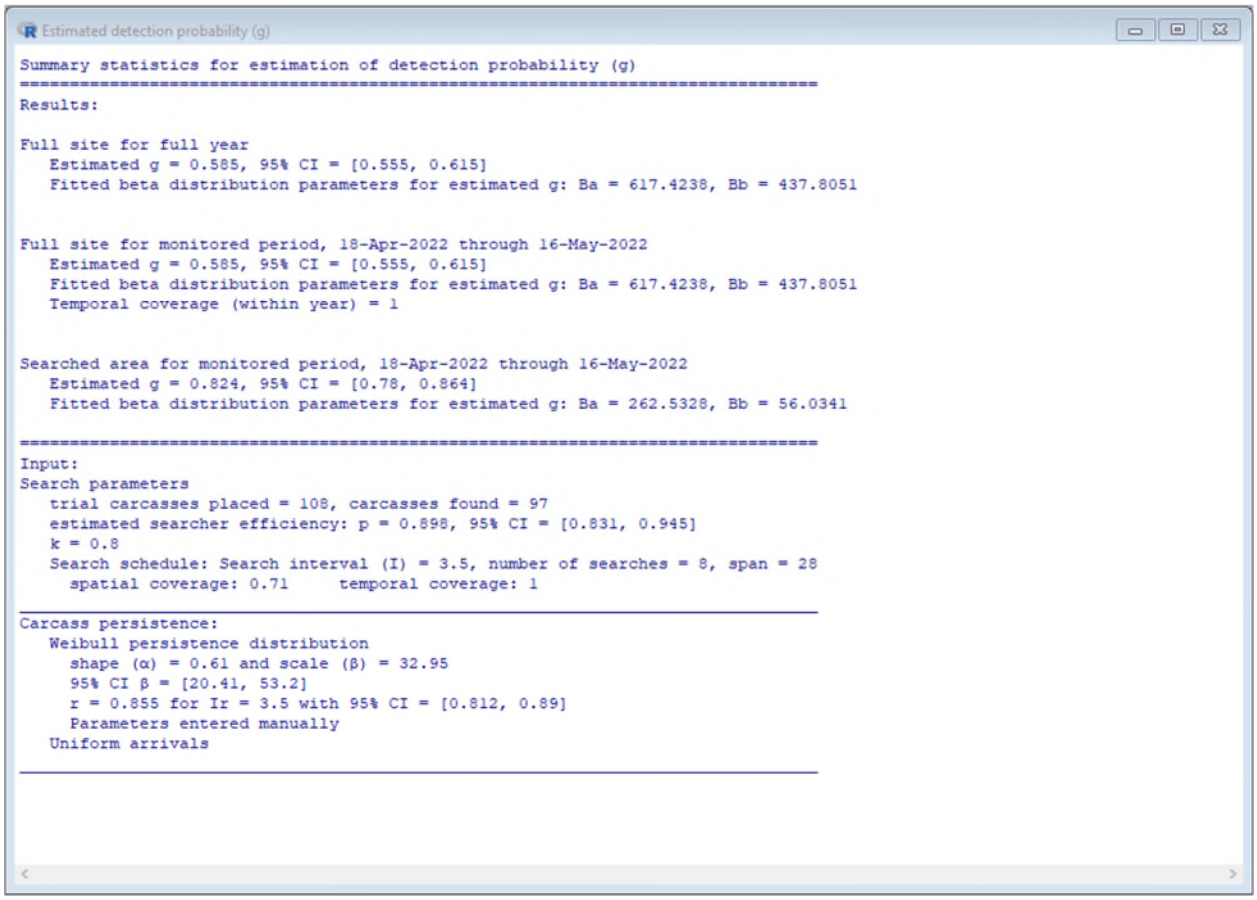
Appendix A6. Indiana bat/northern long-eared species group inputs needed to run Evidence of Absence: Multiple Years Module for the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois.

Year	*g*	90% Confidence Interval	Ba	Bb	Weights (ρ)
2021	0.013	(0.009–0.017)	29.295	22,95.992	1.0
2022	0.194	(0.186-0.202)	1,200.049	4,992.981	1.0

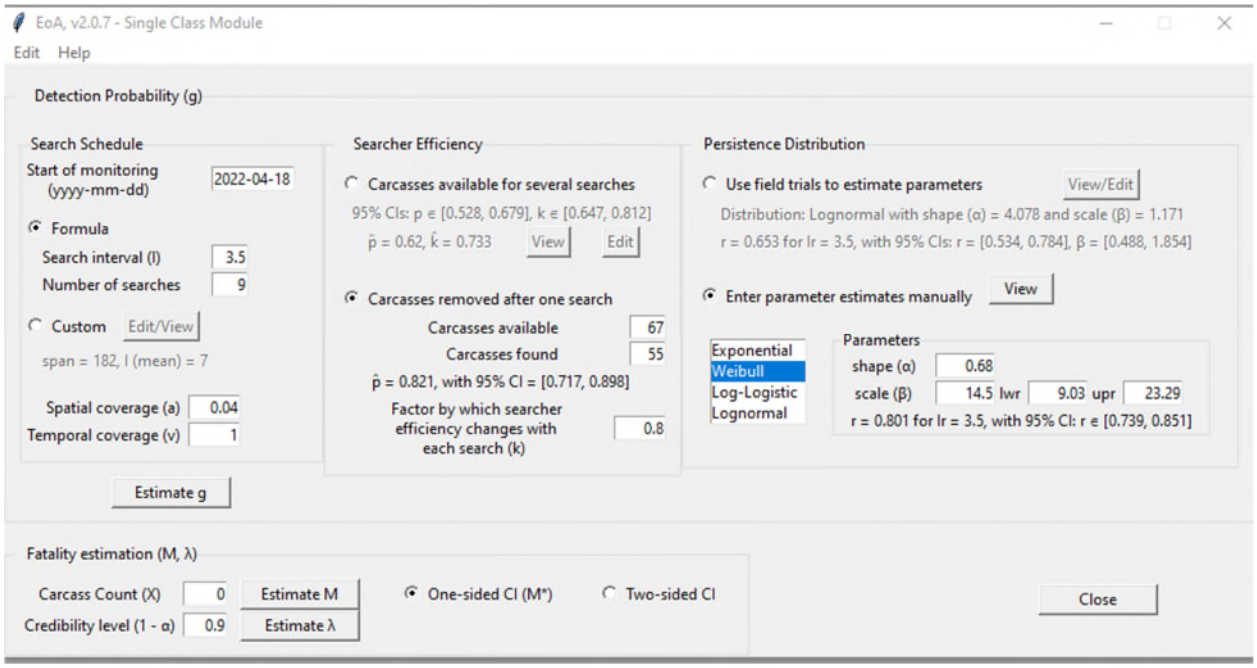
Appendix A7. Little brown bat/tricolored bat species group inputs needed to run Evidence of Absence: Multiple Years Module for the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois.

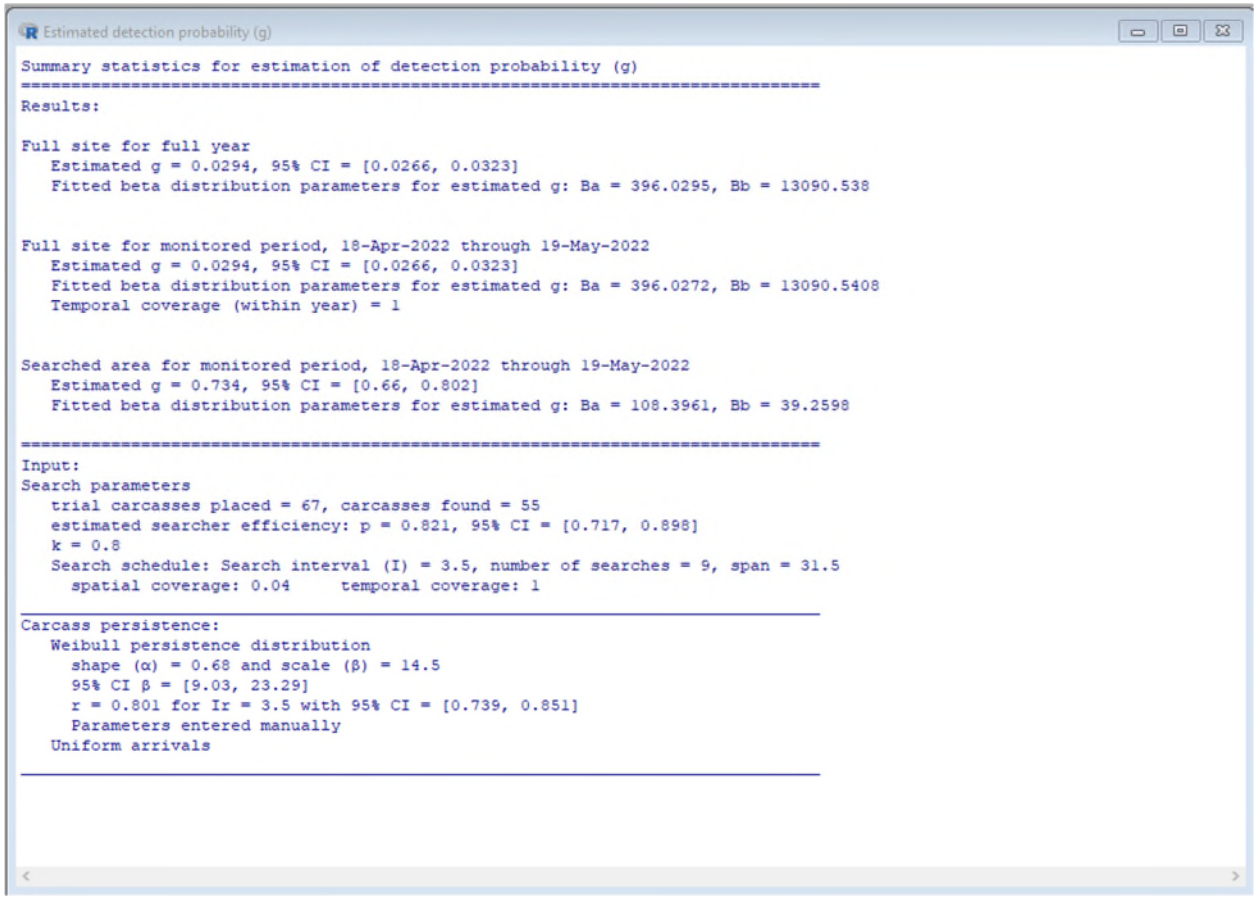
Year	*g*	90% Confidence Interval	Ba	Bb	Weights (ρ)
2021	0.009	(0.006–0.012)	27.782	3,157.140	1.0
2022	0.190	(0.184-0.195)	2,547.059	10,889.440	1.0



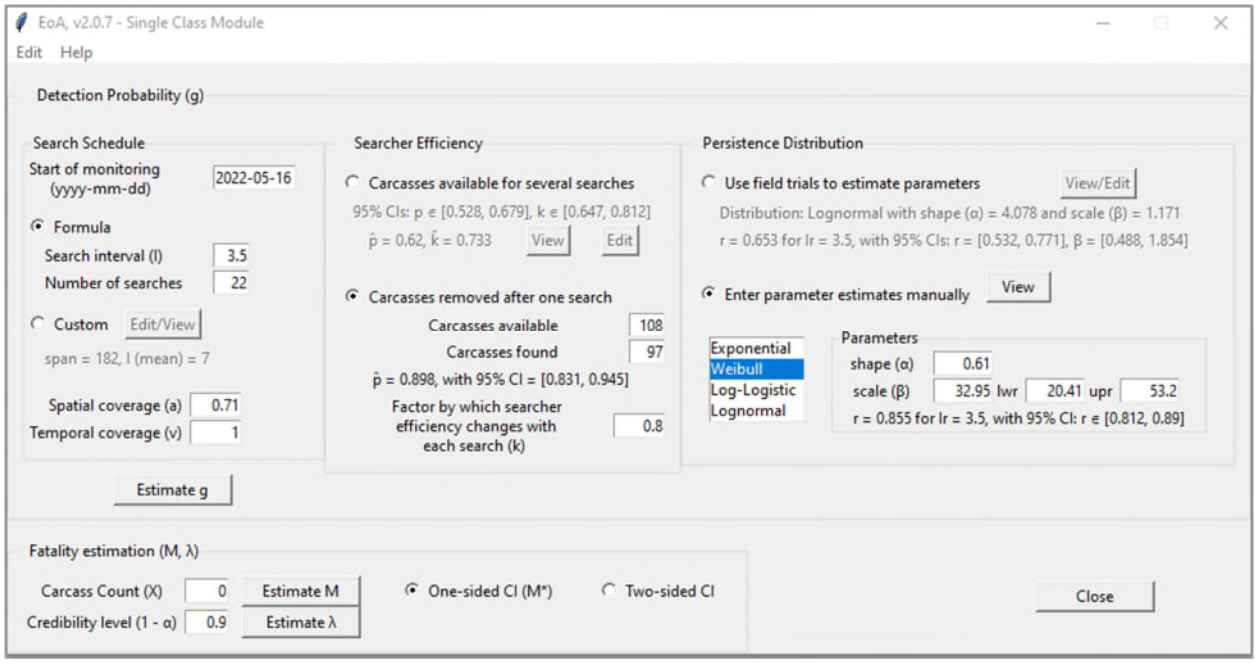


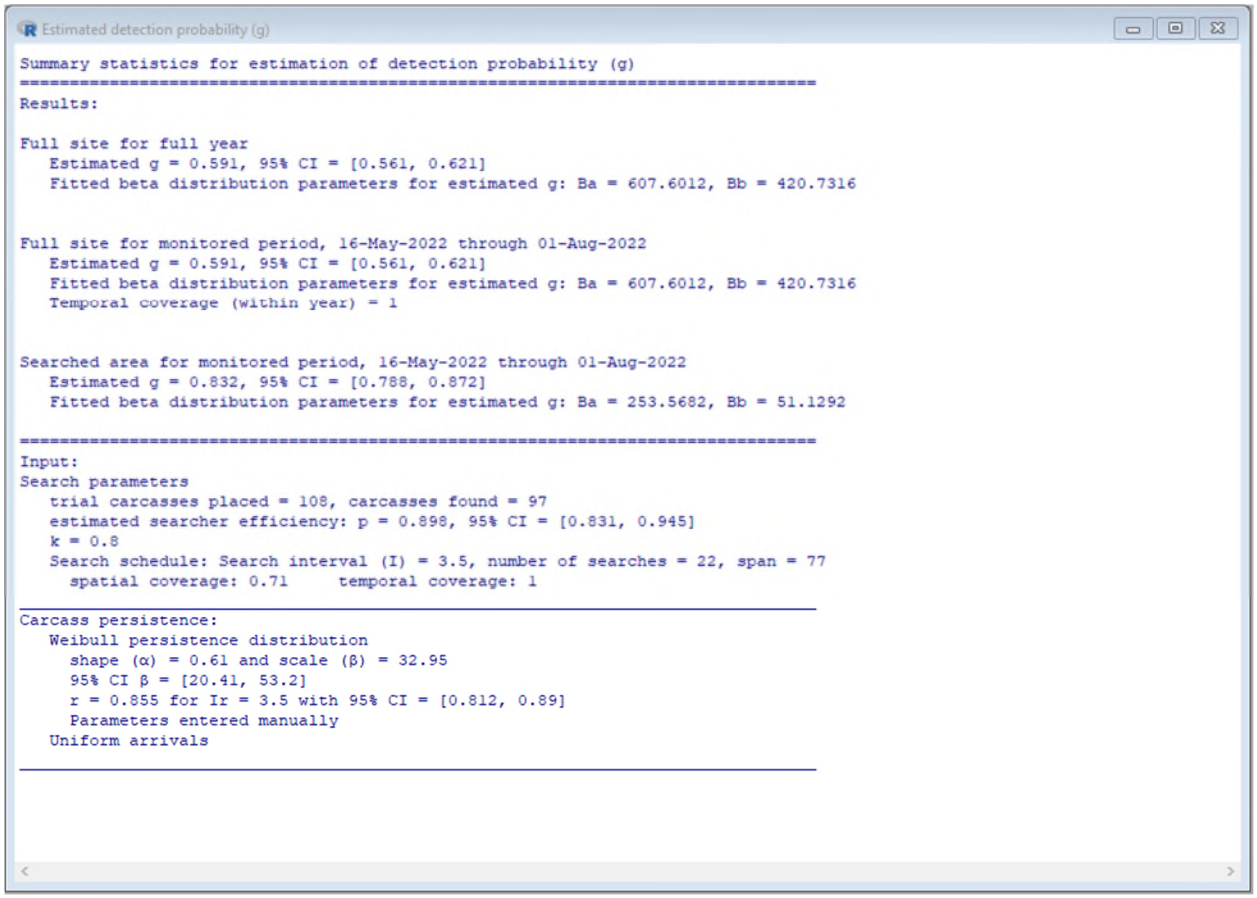
Appendix A8. Screenshot of Evidence of Absence (v2.0.7) graphical user interface, Single Class Module inputs for Spring 2022, 60-meter plot searches.



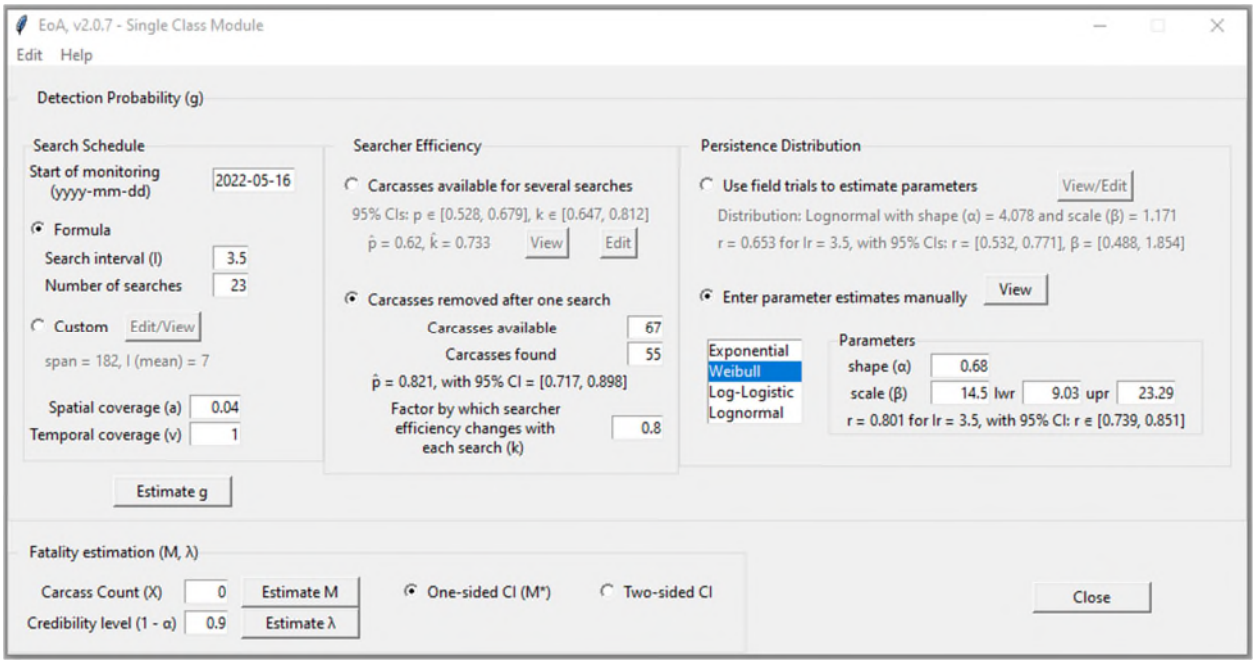


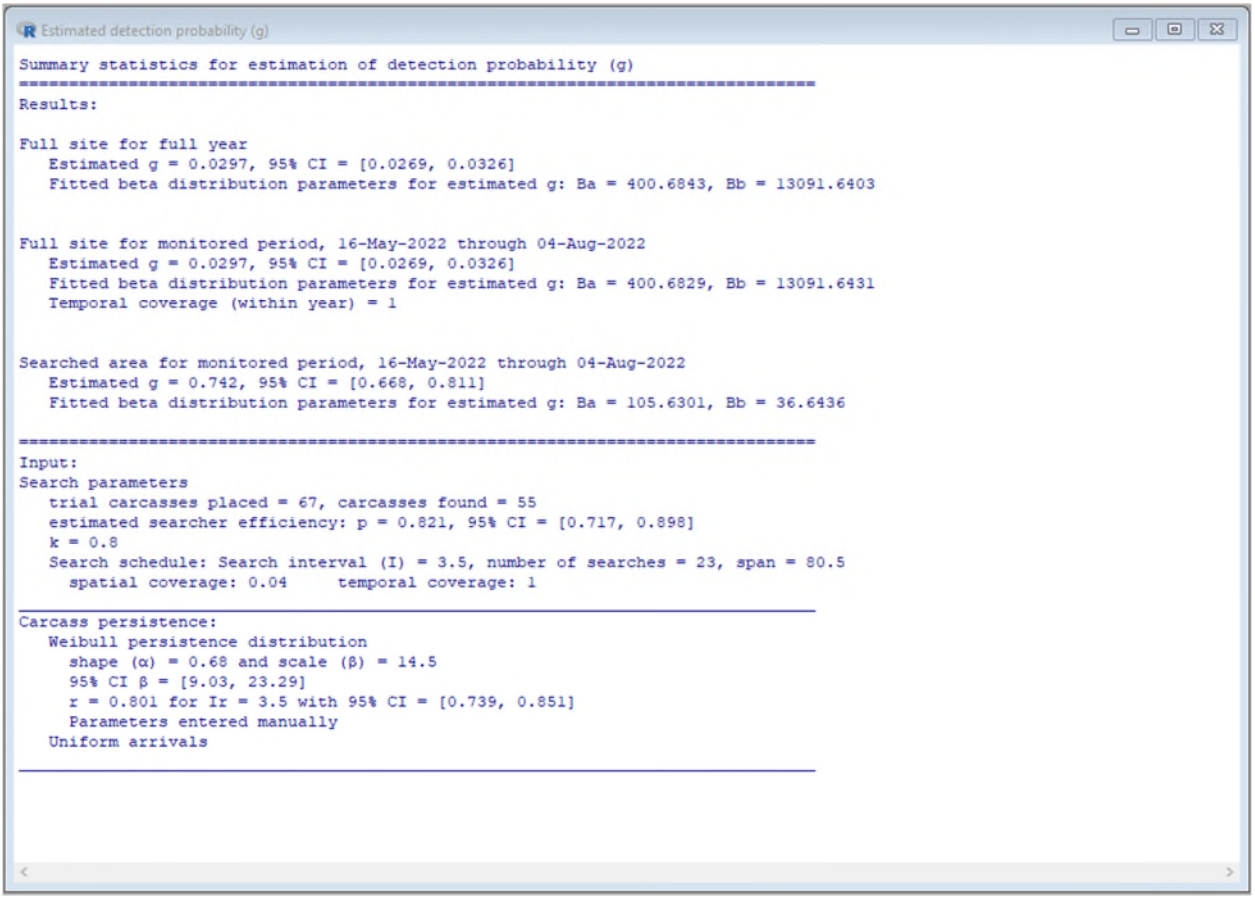
Appendix A9. Screenshot of Evidence of Absence (v2.0.7) graphical user interface, Single Class Module inputs for Spring 2022, road and pad searches.



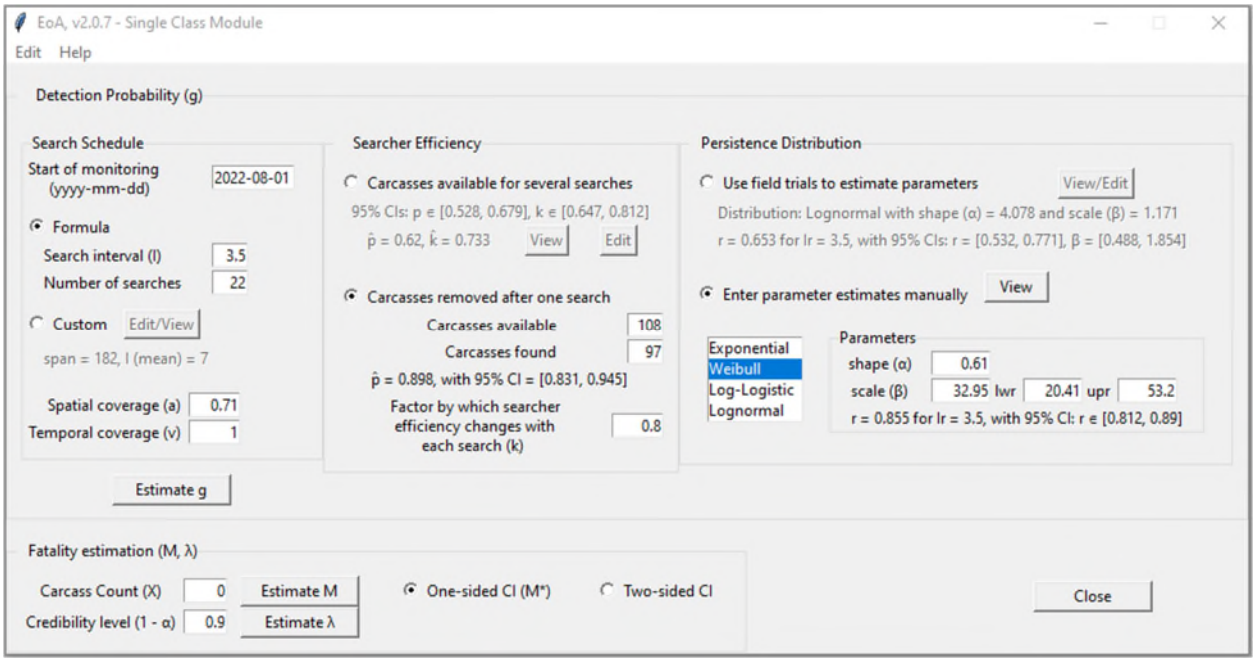


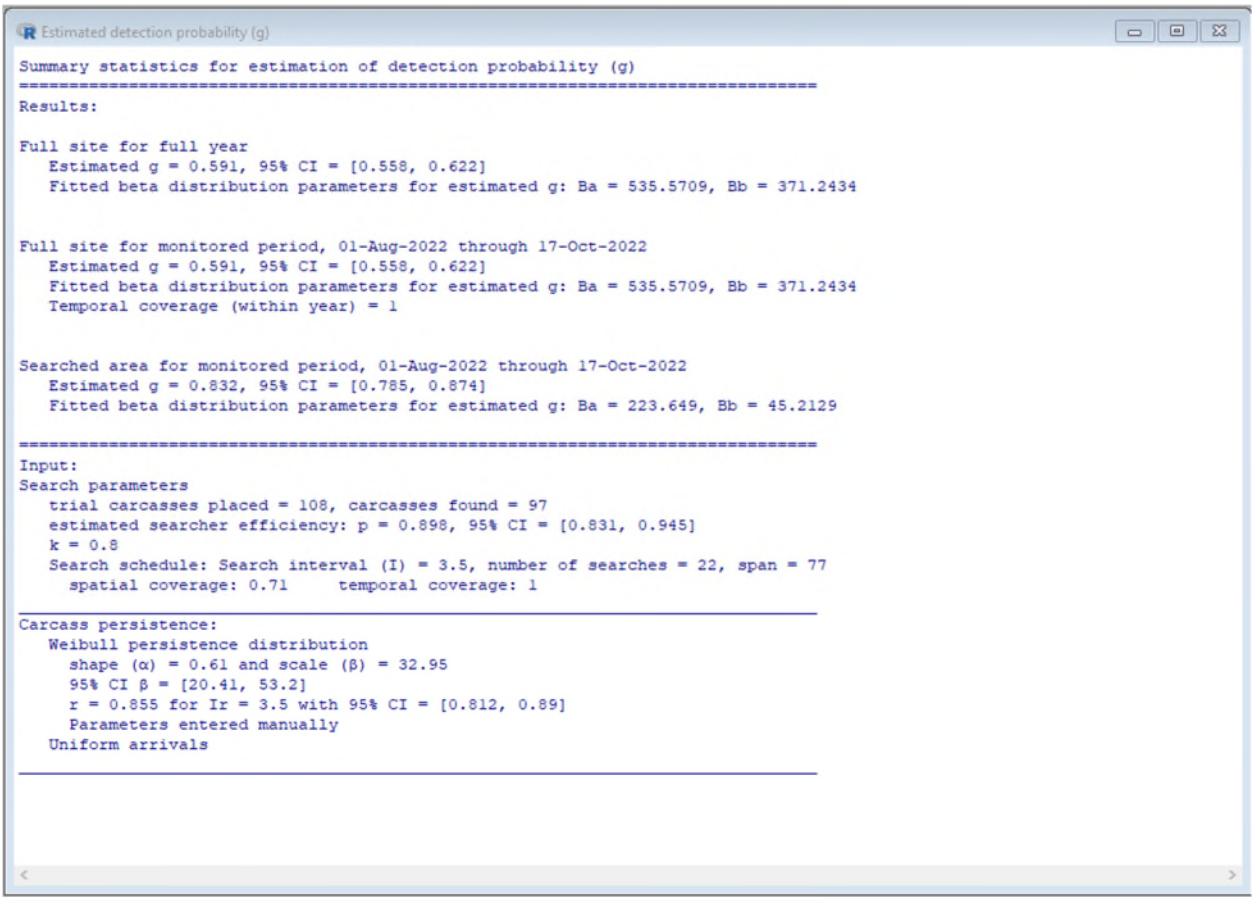
Appendix A10. Screenshot of Evidence of Absence (v2.0.7) graphical user interface, Single Class Module inputs for Summer 2022, 60-meter plot searches.



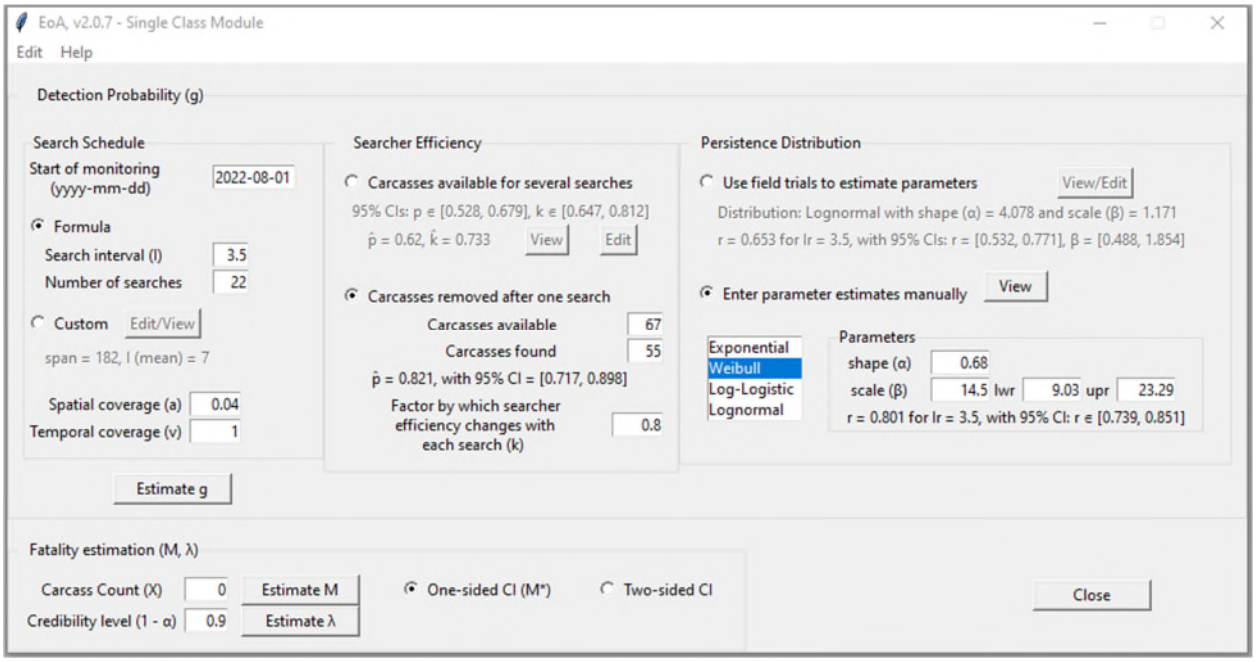


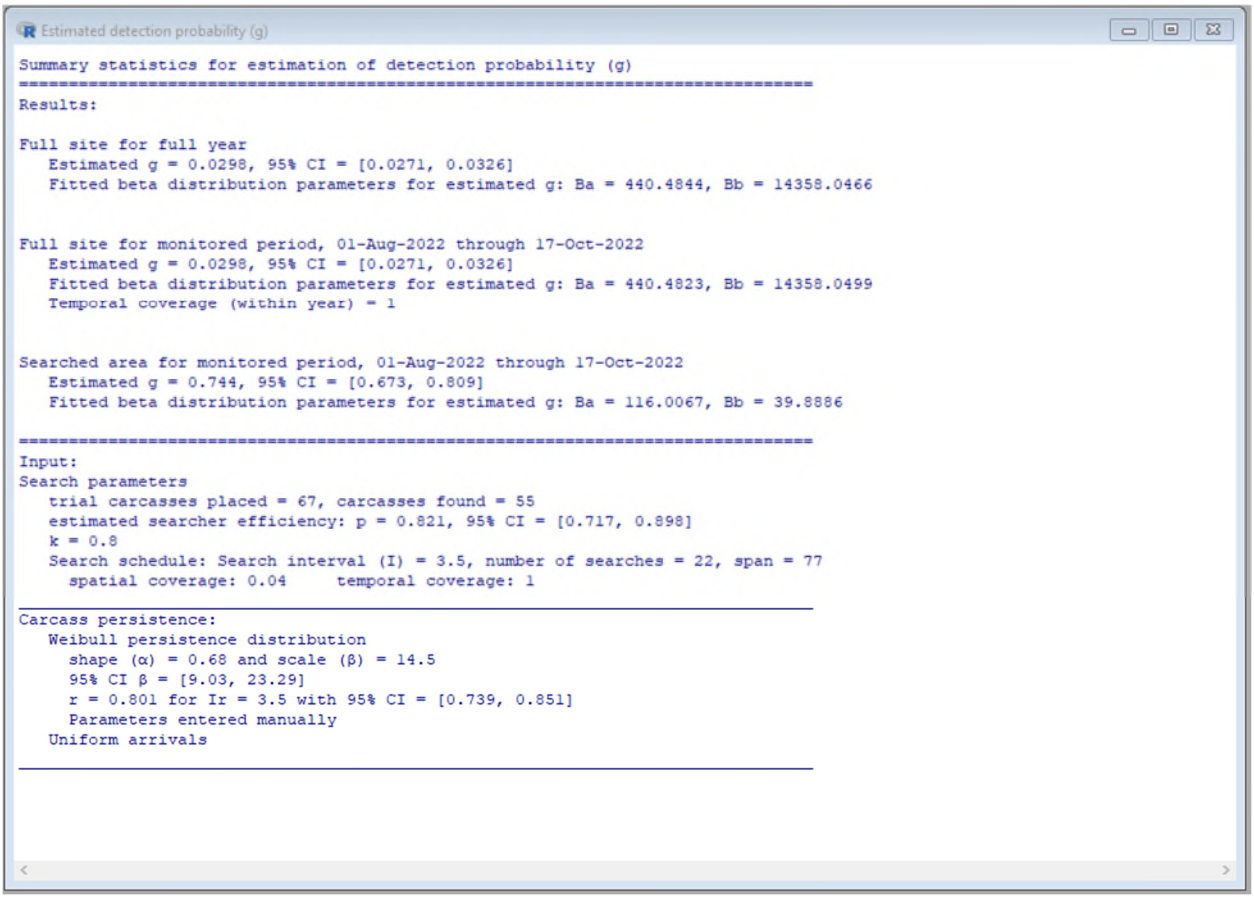
Appendix A11. Screenshot of Evidence of Absence (v2.0.7) graphical user interface, Single Class Module inputs for Summer 2022, road and pad searches.



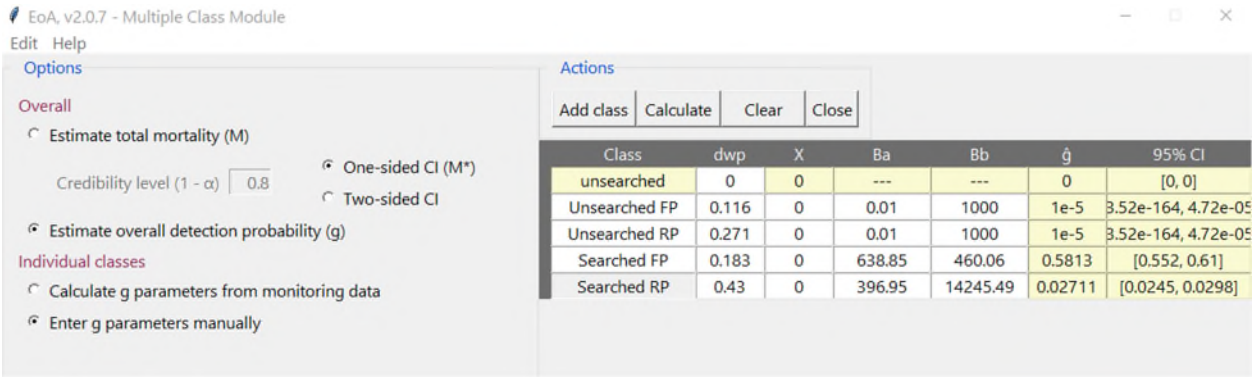


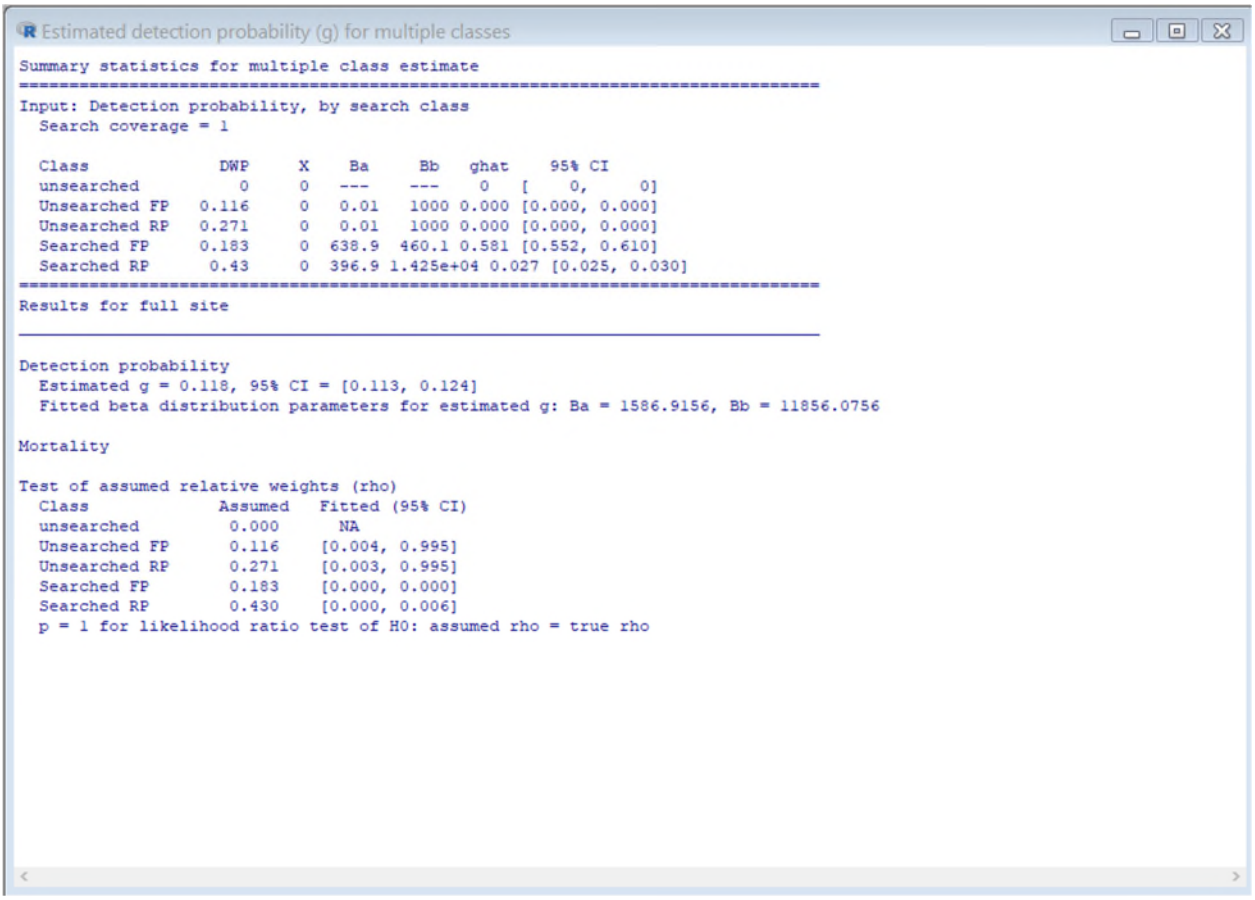
Appendix A12. Screenshot of Evidence of Absence (v2.0.7) graphical user interface, Single Class Module inputs for Fall 2022, 60-meter plot searches.



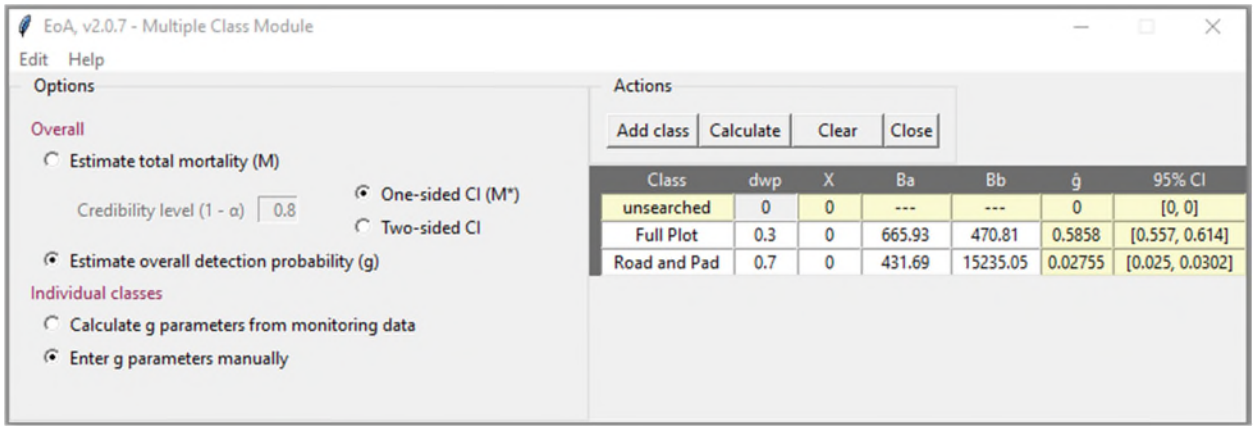


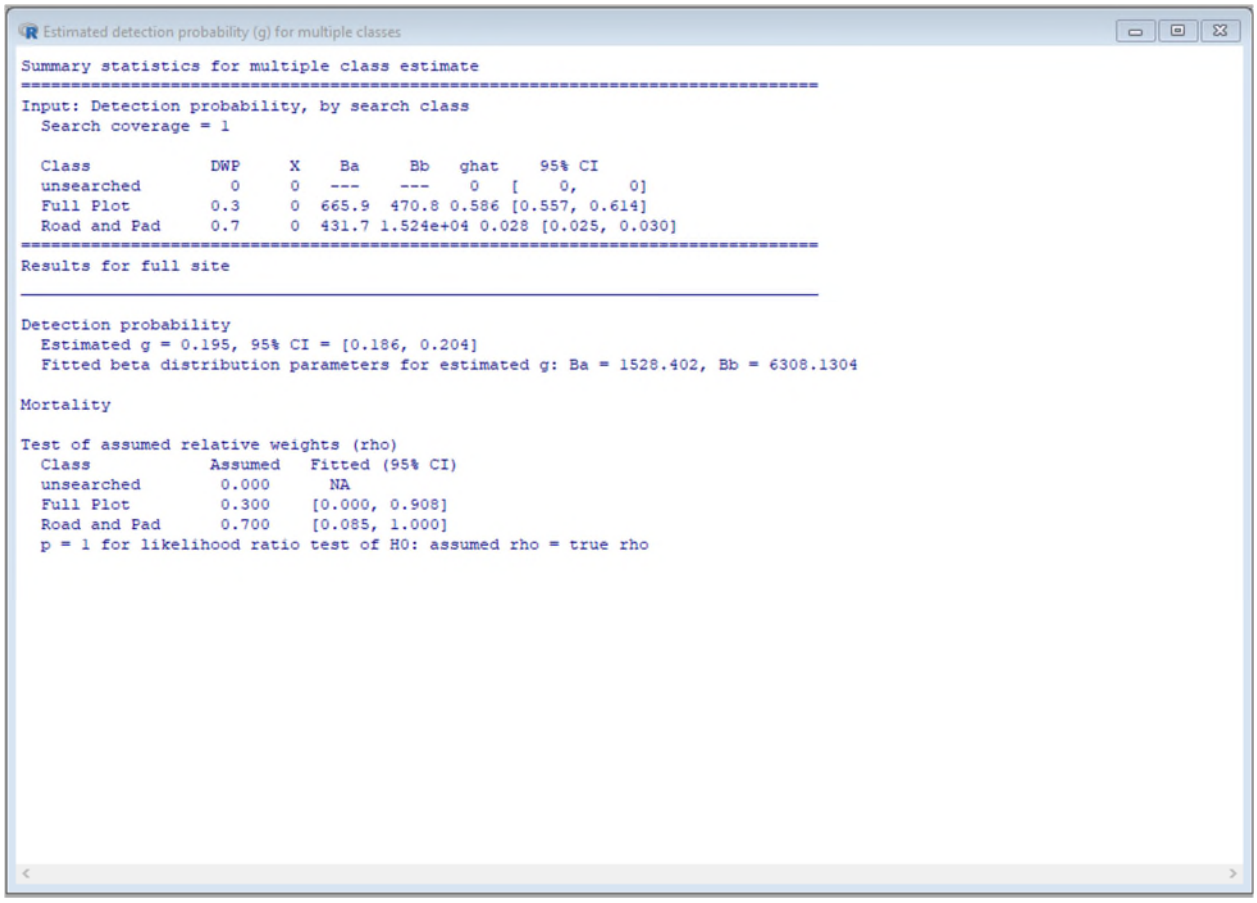
Appendix A13. Screenshot of Evidence of Absence (v2.0.7) graphical user interface, Single Class Module inputs for Fall 2022, road and pad searches.



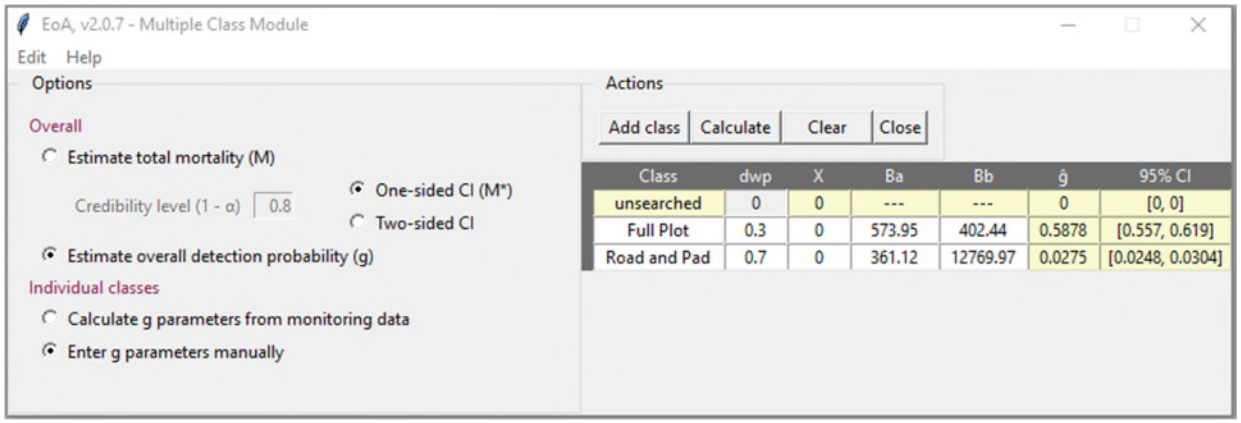


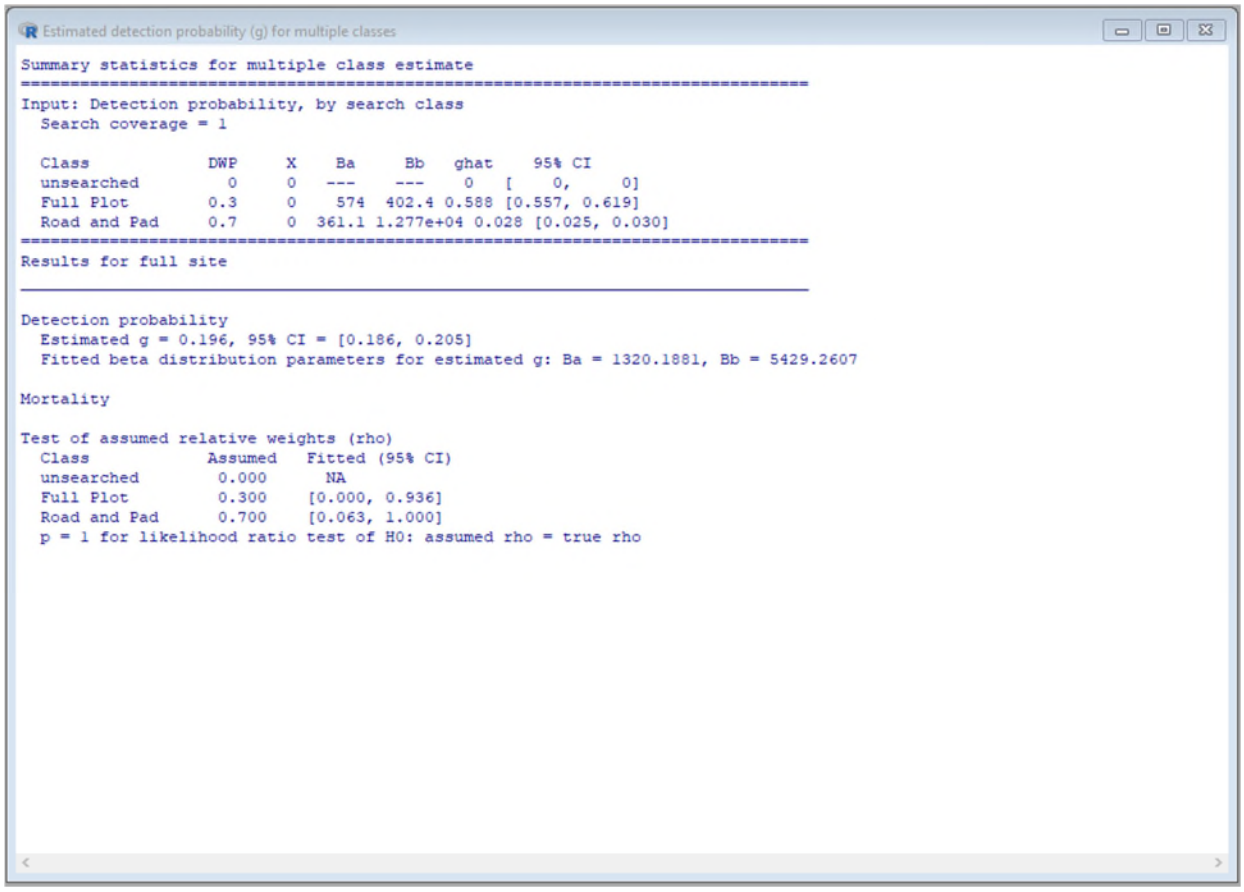
Appendix A14. Screenshot of Evidence of Absence (v2.0.7) graphical user interface, Multiple Class Module inputs for spring plot types 2022 for Indiana and northern long-eared bats. Beta distribution parameter values used for little brown and tricolored bats vary only slightly due to stochastic changes between model runs (see Appendix A3 for parameters used).



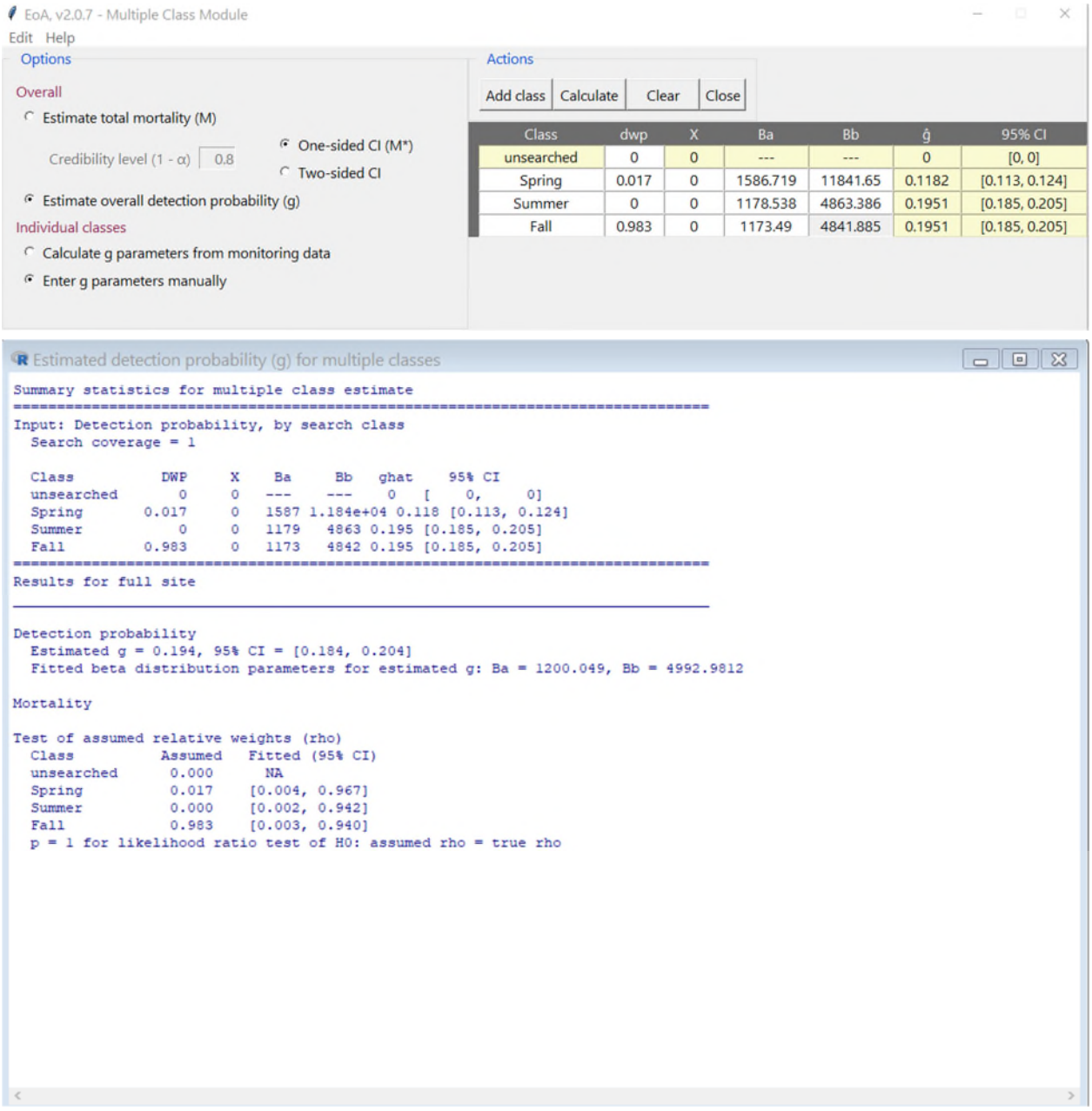


Appendix A15. Screenshot of Evidence of Absence (v2.0.7) graphical user interface, Multiple Class Module inputs for summer plot types 2022 for Indiana and northern long-eared bats. Beta distribution parameter values used for little brown and tricolored bats vary only slightly due to stochastic changes between model runs (see Appendix A3 for parameters used).

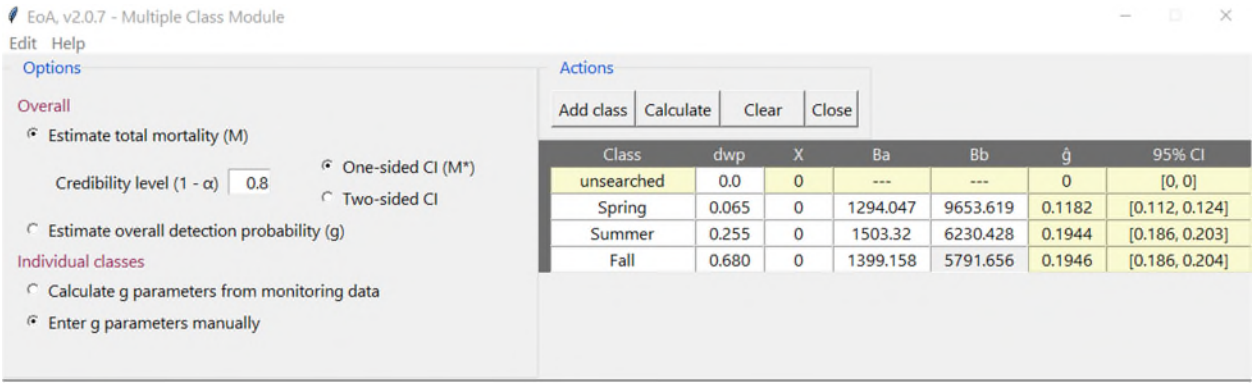


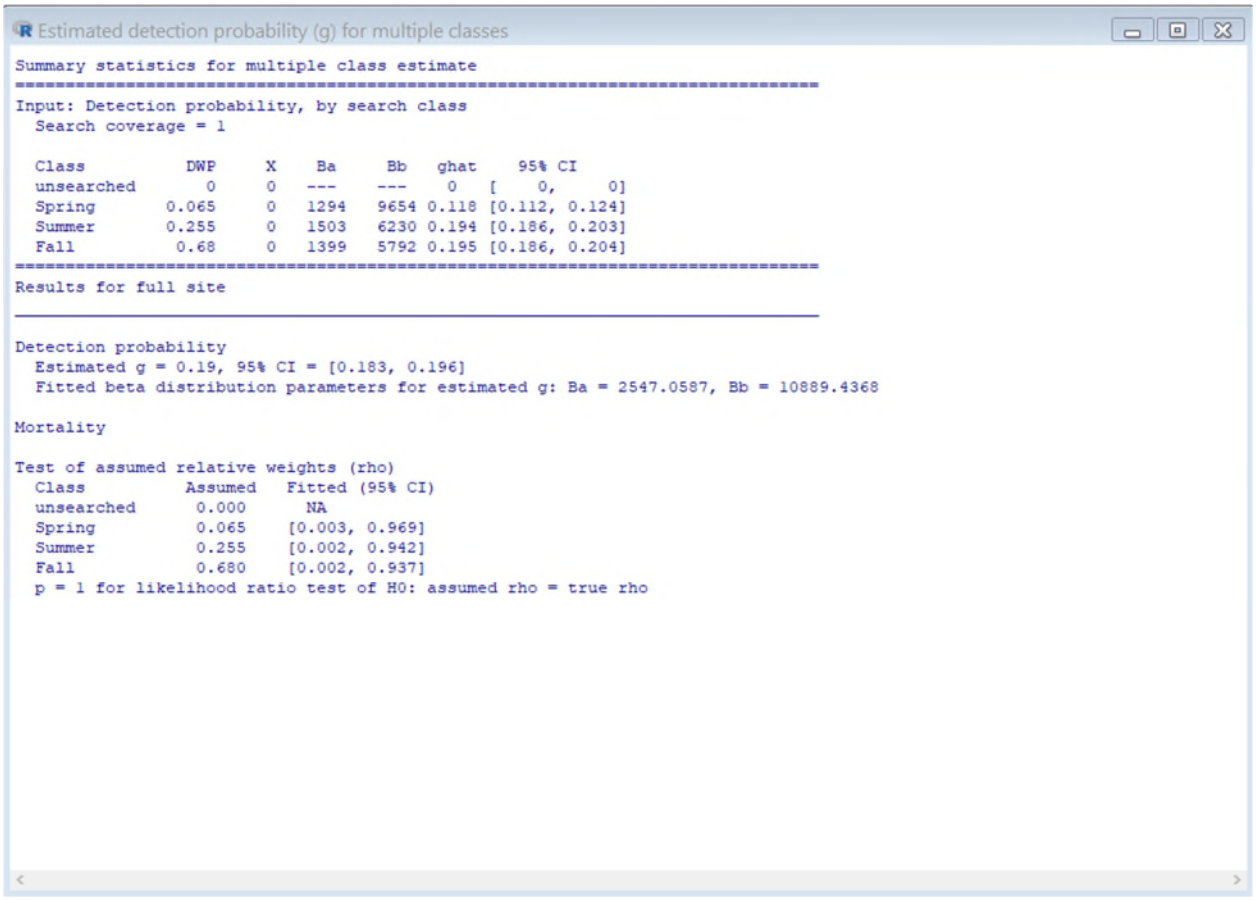


Appendix A16. Screenshot of Evidence of Absence (v2.0.7) graphical user interface, Multiple Class Module inputs for fall plot types 2022 for Indiana and northern long-eared bats. Beta distribution parameter values used for little brown and tricolored bats vary only slightly due to stochastic changes between model runs (see Appendix A3 for parameters used).

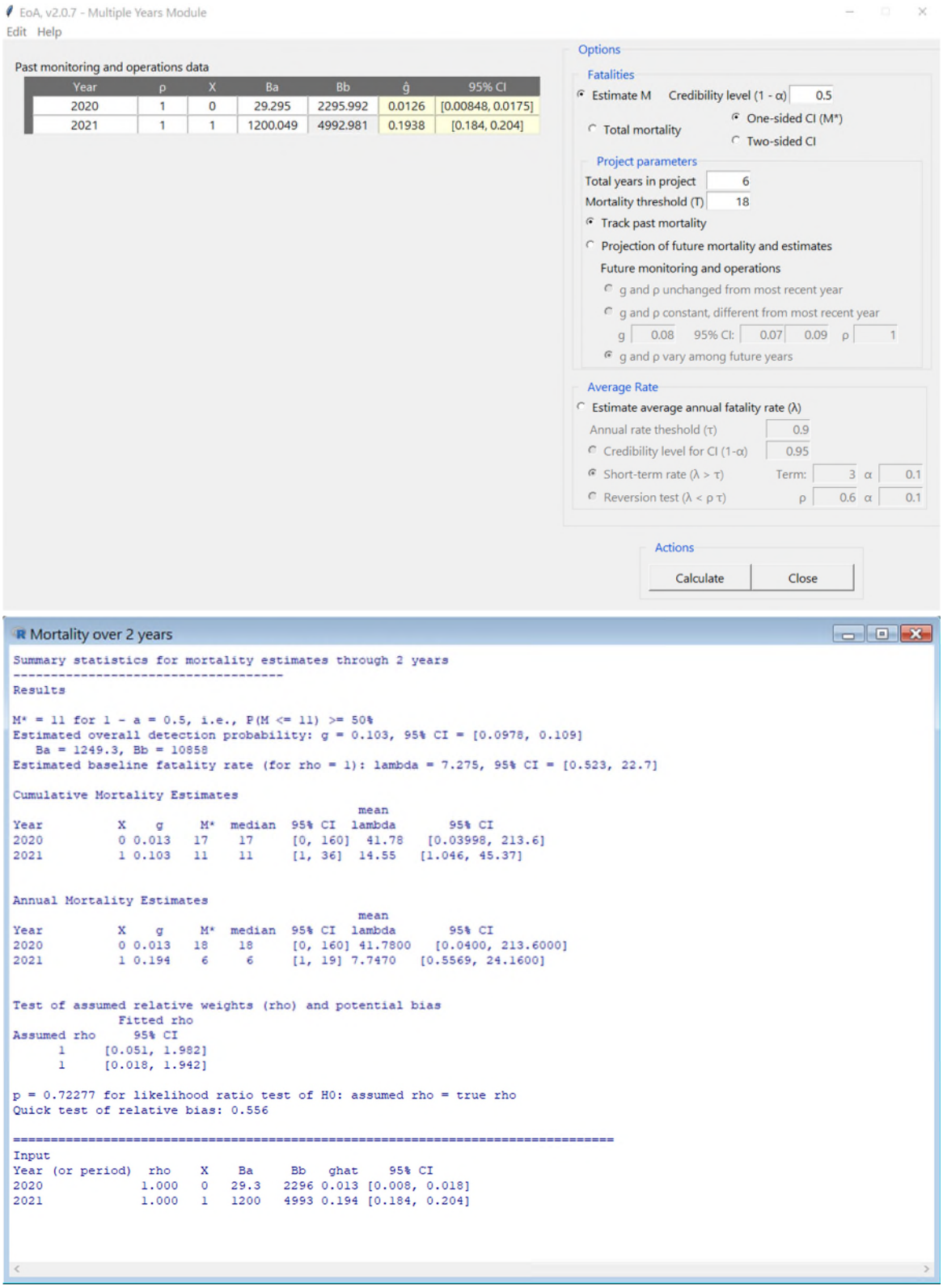


Appendix A17. Screenshot of Evidence of Absence (v2.0.7) graphical user interface, Multiple Class Module inputs for seasons 2022 for Indiana and northern long-eared bats.

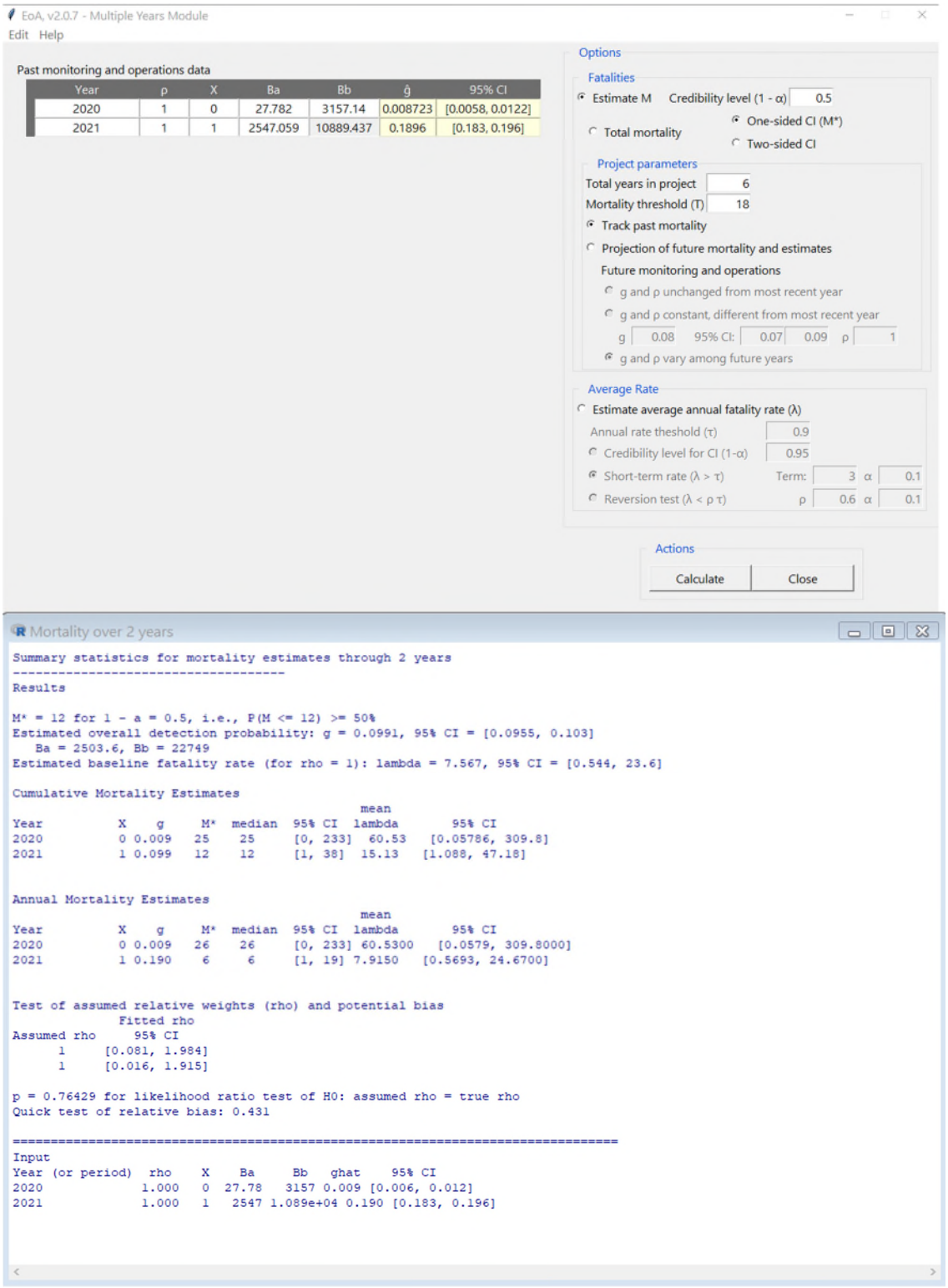




Appendix A18. Screenshot of Evidence of Absence (v2.0.7) graphical user interface, Multiple Class Module inputs for seasons 2022 for little brown and tricolored bats.



Appendix A19. Screen shot of Evidence of Absence (v2.0.7) graphical user interface (EoA GUI), Multiple Years Module inputs for estimation of cumulative detection probability, annual fatality rate (λ), cumulative mortality (M*) for 2021 and 2022 for Indiana bats.



Appendix A20. S Screen shot of Evidence of Absence (v2.0.7) graphical user interface (EoA GUI), Multiple Years Module inputs for estimation of cumulative detection probability, annual fatality rate (λ), cumulative mortality (M*) for 2021 and 2022 for northern long-eared bats.

Appendix B. Covered Species Evidence of Absence Take Estimates for the California Ridge Wind Farm, Champaign and Vermilion Counties, Illinois

INTRODUCTION

Although the adaptive management triggers during the initial five years of the ITP are based solely on the number of Covered Species carcasses found, Evidence of Absence (EoA) was used to estimate additional metrics related to take of Covered Species as specified in Section 7.3.3.5 the HCP, including the mean annual take rate (λ), the median cumulative take to-date (M^*), the median cumulative take within the current monitoring year (M^*_{2022}), and the projected mortality ($M_{projected}$) for each of the Covered Species.

METHODS

The EoA Multiple Years Module was used with the number of fatalities to-date and the probability of detection to-date (i.e., from 2021 and 2022) for each Covered Species to the mean annual take rate (λ) and cumulative take to-date (M^*). The Multiple Years Module was used with the number of fatalities and the probability of detection specific to the 2022 monitoring year for each Covered Species to estimate cumulative annual take (M^*_{2022}). Per the HCP, M^*_{2022} and M^* were estimated at a confidence level of $\alpha = 0.5$ (using the median, or 50th credible bound, of the posterior distribution of estimated mortality).

The EoA Multiple Years Module was used in a Monte Carlo simulation approach to project future cumulative mortality ($M_{Projected}$) based on data collected to date. Current estimated take was simulated as 1,000 samples from the posterior distribution for cumulative take to date (M^* from EoA). Future take was simulated using 1,000 samples from the posterior distribution of the annual take rate that was estimated using the previous two years of data (2021–2022). Each of the 1,000 annual take rate samples were extrapolated to the remaining 18 years of the permit term and mortality in each year was sampled from a Poisson distribution with the annual take rate specified as the rate parameter. Simulated mortality in each year were summed over the 18 projected years, resulting in 1,000 realizations of projected mortality from year 2022 to the end of the permit term. The vector of current take estimate samples and the vector of projected mortality samples were summed element-wise to generate a 1,000 sample distribution of cumulative mortality at the end of the permit term. The median of this distribution was reported as the estimate of projected mortality.

RESULTS

Mean annual take rates were estimated to be 7.27 Indiana bats (90% CI: 0.85-18.96), 2.42 northern long-eared bats (90% CI: 0.01-9.32), 7.57 little brown bats (90% CI: 0.89-19.72), and 2.52 tricolored bats (90% CI: 0.01-9.69) per year (Appendix B1). Cumulative take to-date, M^* at $\alpha = 0.5$ (50th credible bound), was estimated to be eleven Indiana bats, twelve little brown bats, two northern long-eared bats, and two tricolored bats (Appendix B2). Cumulative annual take, M^*_{2022} at $\alpha = 0.5$ (50th credible bound), was estimated to be six Indiana bats, six little brown bats, one northern long-eared bat, and one tricolored bat (Appendix B3).

The cumulative median 20-year mortality projection at a 50% credible interval was 121 Indiana bat fatalities, 25 northern long-eared bat fatalities, 117.5 little brown bat fatalities and 27 tricolor bat fatalities (Appendix B4), which are below the permitted take of individuals of each of these three species described within the Project's HCP.

Appendix B1. Estimated annual take rates for studies conducted at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, Incidental Take Permit Years 1–2 (2021–2022).

Species	Mean Annual Take Rate λ (90% CI)
Indiana bat	7.27 (0.85-18.96)
northern long-eared bat	2.42 (0.01-9.32)
little brown bat	7.57 (0.89-19.72)
tricolored bat	2.52 (0.01-9.69)

CI = Confidence Interval.

Appendix B2. Cumulative take estimate using Evidence of Absence for studies conducted within the Incidental Take Permit (ITP) term, to date, at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, ITP Years 1–2 (2021–2022).

Species	Cumulative take (M*)	Permitted take (T)
Indiana bat	11	100
northern long-eared bat	2	280
little brown bat	12	460
tricolored bat	2	240

Appendix B3. Cumulative take estimate for studies conducted within the 2022 monitoring period using Evidence of Absence for the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Species	Cumulative take (M^*_{2022})	Permitted take (T)
Indiana bat	6	100
northern long-eared bat	1	280
little brown bat	6	460
tricolored bat	1	240

The cumulative median 20-year mortality projection at a 50% credible interval was 25 northern long-eared bat fatalities, 118 little brown bat fatalities and 25 tricolor bat fatalities (Appendix B4), which are below the permitted take of individuals of each of these three species described within the Project's HCP. The cumulative median 20-year mortality projection was 116 Indiana bat fatalities, which was greater than the permitted take of 100 Indiana bats.

Appendix B4. Cumulative median 20-year projected bat mortalities using Evidence of Absence (EoA) for studies conducted at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois.

Estimate Type	Carcass Count	Permitted Take (T)	Cumulative Median Projected Mortalities (20 years; $M_{projected}$)
EoA – Indiana bat (α = 0.5)	1	100	121
EoA – northern long-eared bat (α = 0.5)	0	280	25
EoA – little brown bat (α = 0.5)	1	460	118
EoA – tricolored bat (α = 0.5)	0	240	27

Appendix C. Carcasses Found during the 2022 Post-construction Monitoring at the California Ridge Wind Farm, Champaign and Vermilion Counties, Illinois, from April 1 – October 15, 2022

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
Bat Carcasses							
04/18/2022	silver-haired bat	32	75	carcass search	60-m cleared	scavenged	yes*
04/21/2022	hoary bat	40	125	carcass search	60-m cleared	scavenged	yes*
04/25/2022	hoary bat	55	64	carcass search	60-m uncleared (soy)	scavenged	yes*
04/26/2022	eastern red bat	23	89	carcass search	60-m cleared	scavenged	yes*
04/26/2022	hoary bat	52	74	carcass search	60-m uncleared (soy)	scavenged	yes*
05/02/2022	eastern red bat	40	103	carcass search	60-m cleared	scavenged	yes*
05/02/2022	eastern red bat	8	123	carcass search	60-m cleared	scavenged	yes*
05/02/2022	eastern red bat	32	44	carcass search	60-m uncleared (soy)	scavenged	yes*
05/02/2022	silver-haired bat	56	102	carcass search	60-m uncleared (soy)	intact	yes*
05/02/2022	silver-haired bat	47	13	carcass search	60-m uncleared (soy)	scavenged	yes*
05/02/2022	silver-haired bat	28	27	carcass search	60-m uncleared (soy)	scavenged	yes*
05/05/2022	silver-haired bat	56	24	carcass search	95-m road and pad	intact	no
05/06/2022	eastern red bat	55	90	carcass search	60-m cleared	scavenged	yes*
05/06/2022	silver-haired bat	64	89	carcass search**	60-m cleared	intact	yes*
05/09/2022	eastern red bat	70	13	carcass search**	60-m uncleared (soy)	scavenged	yes*
05/09/2022	evening bat	29	116	carcass search	60-m uncleared (soy)	scavenged	yes*
05/09/2022	silver-haired bat	72	22	carcass search**	60-m cleared	scavenged	yes*
05/10/2022	eastern red bat	42	72	carcass search	60-m cleared	intact	yes*
05/10/2022	silver-haired bat	31	49	carcass search	60-m cleared	scavenged	yes*
05/10/2022	silver-haired bat	47	90	carcass search	60-m cleared	scavenged	yes*
05/12/2022	eastern red bat	48	106	carcass search	60-m cleared	scavenged	yes*
05/12/2022	eastern red bat	34	81	carcass search	60-m cleared	feather spot	yes*
05/12/2022	evening bat	37	106	carcass search	60-m cleared	scavenged	yes*
05/12/2022	evening bat	57	48	carcass search	60-m cleared	scavenged	yes*
05/12/2022	silver-haired bat	38	32	carcass search	95-m road and pad	intact	no
05/12/2022	silver-haired bat	65	60	carcass search**	60-m uncleared (soy)	scavenged	yes*
05/13/2022	eastern red bat	55	117	carcass search	60-m cleared	scavenged	yes*
05/13/2022	evening bat	51	116	carcass search	60-m uncleared (soy)	scavenged	yes*
05/13/2022	evening bat	63	117	carcass search**	60-m cleared	scavenged	yes*
05/13/2022	evening bat	53	123	carcass search	60-m cleared	scavenged	yes*
05/13/2022	evening bat	57	54	carcass search	60-m cleared	scavenged	yes*
05/14/2022	silver-haired bat	44	43	carcass search	60-m uncleared (soy)	scavenged	yes*
05/14/2022	silver-haired bat	73	57	carcass search**	60-m cleared	scavenged	yes*
05/16/2022	eastern red bat	63	103	carcass search**	60-m cleared	scavenged	yes*
05/16/2022	eastern red bat	33	117	carcass search	60-m cleared	intact	yes*

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
05/16/2022	eastern red bat	49	22	carcass search	60-m cleared	scavenged	yes*
05/16/2022	evening bat	31	71	carcass search	95-m road and pad	scavenged	no
05/16/2022	evening bat	77	81	carcass search**	60-m cleared	scavenged	yes*
05/16/2022	hoary bat	18	27	carcass search	60-m uncleared (soy)	scavenged	yes*
05/16/2022	silver-haired bat	45	116	carcass search	60-m uncleared (soy)	scavenged	yes*
05/16/2022	silver-haired bat	45	2	carcass search	60-m cleared	scavenged	yes*
05/17/2022	eastern red bat	46	43	carcass search	60-m uncleared (soy)	scavenged	yes*
05/17/2022	eastern red bat	47	64	carcass search	60-m uncleared (soy)	scavenged	yes*
05/17/2022	eastern red bat	10	72	carcass search	60-m cleared	scavenged	yes*
05/17/2022	eastern red bat	31	72	carcass search	60-m cleared	scavenged	yes*
05/17/2022	eastern red bat	55	94	carcass search	60-m cleared	scavenged	yes*
05/17/2022	evening bat	41	44	carcass search	60-m uncleared (soy)	scavenged	yes*
05/17/2022	silver-haired bat	69	56	carcass search	95-m road and pad	scavenged	no
05/17/2022	silver-haired bat	30	89	carcass search	60-m cleared	scavenged	yes*
05/17/2022	unidentified *Lasiurus* bat	58	90	carcass search	60-m cleared	scavenged	yes*
05/19/2022	big brown bat	47	80	carcass search	60-m cleared	scavenged	yes*
05/19/2022	eastern red bat	38	125	carcass search	60-m cleared	intact	yes*
05/19/2022	evening bat	47	116	carcass search	60-m uncleared (soy)	intact	yes*
05/19/2022	evening bat	46	123	carcass search	60-m cleared	scavenged	yes*
05/19/2022	evening bat	67	13	carcass search**	60-m uncleared (soy)	scavenged	yes*
05/19/2022	silver-haired bat	22	6	carcass search	60-m cleared	intact	yes*
05/20/2022	big brown bat	41	38	carcass search	60-m cleared	scavenged	yes*
05/20/2022	eastern red bat	52	35	carcass search	95-m road and pad	scavenged	no
05/20/2022	eastern red bat	33	53	carcass search	60-m cleared	scavenged	yes*
05/20/2022	evening bat	59	83	carcass search	60-m cleared	intact	yes*
05/20/2022	silver-haired bat	42	48	carcass search	60-m cleared	scavenged	yes*
05/20/2022	silver-haired bat	49	48	carcass search	60-m cleared	scavenged	yes*
05/20/2022	unidentified *Lasiurus* bat	58	52	carcass search	60-m uncleared (soy)	scavenged	yes*
05/22/2022	evening bat	57	101	incidental	95-m road and pad	scavenged	no
05/22/2022	hoary bat	37	13	incidental	60-m uncleared (soy)	scavenged	yes*
05/23/2022	eastern red bat	43	102	carcass search	60-m uncleared (soy)	scavenged	yes*
05/23/2022	eastern red bat	52	121	carcass search	60-m uncleared (soy)	scavenged	yes*
05/23/2022	eastern red bat	38	123	carcass search	60-m cleared	scavenged	yes*
05/23/2022	eastern red bat	46	6	carcass search	60-m cleared	scavenged	yes*
05/23/2022	eastern red bat	41	81	carcass search	60-m cleared	scavenged	yes*
05/23/2022	eastern red bat	28	81	carcass search	60-m cleared	scavenged	yes*

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
05/23/2022	hoary bat	34	117	carcass search	60-m cleared	intact	yes*
05/23/2022	silver-haired bat	12	103	carcass search	60-m cleared	intact	yes*
05/23/2022	silver-haired bat	55	132	carcass search	60-m cleared	scavenged	yes*
05/24/2022	eastern red bat	66	52	carcass search**	60-m uncleared (soy)	scavenged	yes*
05/24/2022	eastern red bat	51	52	carcass search	60-m uncleared (soy)	scavenged	yes*
05/24/2022	eastern red bat	37	52	carcass search	60-m uncleared (soy)	scavenged	yes*
05/24/2022	eastern red bat	8	74	carcass search	60-m uncleared (soy)	scavenged	yes*
05/24/2022	hoary bat	20	29	carcass search	60-m cleared	scavenged	yes*
05/24/2022	hoary bat	57	60	carcass search	60-m uncleared (soy)	scavenged	yes*
05/24/2022	hoary bat	31	74	carcass search	60-m uncleared (soy)	scavenged	yes*
05/24/2022	silver-haired bat	59	44	carcass search	60-m uncleared (soy)	scavenged	yes*
05/24/2022	silver-haired bat	24	72	carcass search	60-m cleared	intact	yes*
05/24/2022	silver-haired bat	64	74	carcass search**	60-m uncleared (soy)	scavenged	yes*
05/25/2022	eastern red bat	15	22	incidental	60-m cleared	intact	yes*
05/26/2022	eastern red bat	56	106	carcass search	60-m cleared	scavenged	yes*
05/26/2022	eastern red bat or Seminole bat	75	103	carcass search**	60-m cleared	scavenged	yes*
05/26/2022	silver-haired bat	75	102	carcass search**	60-m uncleared (soy)	scavenged	yes*
05/28/2022	hoary bat	45	75	carcass search	60-m cleared	scavenged	yes*
05/30/2022	eastern red bat	42	125	carcass search	60-m cleared	scavenged	yes*
05/30/2022	eastern red bat	32	132	carcass search	60-m cleared	scavenged	yes*
05/30/2022	eastern red bat	56	80	carcass search	60-m cleared	intact	yes*
05/30/2022	silver-haired bat	12	1	carcass search	60-m uncleared (soy)	scavenged	yes*
05/30/2022	unidentified *Lasiurus* bat	21	132	carcass search	60-m cleared	scavenged	yes*
05/31/2022	eastern red bat	55	57	carcass search	60-m cleared	scavenged	yes*
05/31/2022	eastern red bat	90	60	carcass search**	60-m uncleared (soy)	scavenged	yes*
05/31/2022	evening bat	10	48	carcass search	60-m cleared	scavenged	yes*
05/31/2022	evening bat	62	60	carcass search**	60-m uncleared (soy)	scavenged	yes*
05/31/2022	silver-haired bat	67	72	carcass search**	60-m cleared	scavenged	yes*
05/31/2022	silver-haired bat	78	90	carcass search**	60-m cleared	scavenged	yes*
06/02/2022	eastern red bat	60	102	carcass search	60-m uncleared (soy)	scavenged	yes*
06/02/2022	hoary bat	0	120	carcass search	95-m road and pad	injured	no
06/02/2022	silver-haired bat	77	117	carcass search**	60-m cleared	scavenged	yes*
06/02/2022	silver-haired bat	85	22	carcass search**	60-m cleared	scavenged	yes*
06/03/2022	eastern red bat	64	40	carcass search**	60-m uncleared (soy)	scavenged	yes*
06/03/2022	eastern red bat	47	43	carcass search	60-m uncleared (soy)	scavenged	yes*
06/03/2022	eastern red bat	63	44	carcass search**	60-m uncleared (soy)	scavenged	yes*

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
06/03/2022	eastern red bat	30	49	carcass search	60-m cleared	scavenged	yes*
06/03/2022	eastern red bat	25	54	carcass search	60-m cleared	intact	yes*
06/06/2022	eastern red bat	43	106	carcass search	60-m cleared	scavenged	yes*
06/07/2022	eastern red bat	44	126	carcass search	95-m road and pad	intact	no
06/07/2022	eastern red bat	32	49	carcass search	60-m cleared	scavenged	yes*
06/07/2022	eastern red bat	27	74	carcass search	60-m uncleared (soy)	intact	yes*
06/08/2022	hoary bat	9	13	incidental	60-m uncleared (soy)	scavenged	yes*
06/09/2022	eastern red bat	25	80	carcass search	60-m cleared	intact	yes*
06/09/2022	silver-haired bat	56	106	carcass search	60-m cleared	scavenged	yes*
06/09/2022	silver-haired bat	51	123	carcass search	60-m cleared	scavenged	yes*
06/10/2022	big brown bat	29	46	incidental**	95-m road and pad	scavenged	no
06/10/2022	eastern red bat	36	90	carcass search	60-m cleared	scavenged	yes*
06/10/2022	silver-haired bat	15	43	carcass search	60-m uncleared (soy)	intact	yes*
06/10/2022	silver-haired bat	59	90	carcass search	60-m cleared	scavenged	yes*
06/13/2022	big brown bat	38	103	carcass search	60-m cleared	scavenged	yes*
06/13/2022	eastern red bat	20	102	carcass search	60-m uncleared (soy)	scavenged	yes*
06/13/2022	eastern red bat	25	81	carcass search	60-m cleared	scavenged	yes*
06/13/2022	eastern red bat	17	83	carcass search	60-m cleared	scavenged	yes*
06/13/2022	hoary bat	60	102	carcass search	60-m uncleared (soy)	scavenged	yes*
06/13/2022	silver-haired bat	27	100	carcass search	60-m cleared	scavenged	yes*
06/13/2022	silver-haired bat	18	117	carcass search	60-m cleared	scavenged	yes*
06/13/2022	silver-haired bat	48	132	carcass search	60-m cleared	scavenged	yes*
06/13/2022	silver-haired bat	22	132	carcass search	60-m cleared	scavenged	yes*
06/13/2022	unidentified *Lasiurus* bat	48	132	carcass search	60-m cleared	scavenged	yes*
06/14/2022	eastern red bat	19	75	carcass search	60-m cleared	scavenged	yes*
06/14/2022	eastern red bat	6	89	carcass search	60-m cleared	scavenged	yes*
06/14/2022	silver-haired bat	17	40	carcass search	60-m uncleared (soy)	scavenged	yes*
06/14/2022	silver-haired bat	30	49	carcass search	60-m cleared	scavenged	yes*
06/14/2022	silver-haired bat	20	49	carcass search	60-m cleared	scavenged	yes*
06/14/2022	silver-haired bat	22	74	carcass search	60-m uncleared (soy)	scavenged	yes*
06/15/2022	eastern red bat	24	48	carcass search	60-m cleared	scavenged	yes*
06/15/2022	silver-haired bat	18	113	carcass search	95-m road and pad	scavenged	no
06/16/2022	eastern red bat	65	81	carcass search**	60-m cleared	scavenged	yes*
06/16/2022	silver-haired bat	49	132	carcass search	60-m cleared	scavenged	yes*
06/17/2022	eastern red bat	41	26	carcass search	95-m road and pad	scavenged	no
06/17/2022	eastern red bat	18	44	carcass search	60-m uncleared (soy)	scavenged	yes*

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
06/17/2022	eastern red bat	43	92	carcass search**	95-m road and pad	scavenged	no
06/17/2022	hoary bat	48	54	carcass search	60-m cleared	scavenged	yes*
06/17/2022	silver-haired bat	32	44	carcass search	60-m uncleared (soy)	scavenged	yes*
06/17/2022	silver-haired bat	42	44	carcass search	60-m uncleared (soy)	scavenged	yes*
06/17/2022	silver-haired bat	43	74	carcass search	60-m uncleared (soy)	scavenged	yes*
06/17/2022	silver-haired bat	40	95	carcass search	95-m road and pad	scavenged	no
06/18/2022	eastern red bat	64	106	carcass search**	60-m cleared	scavenged	yes*
06/21/2022	eastern red bat	28	49	carcass search	60-m cleared	scavenged	yes*
06/21/2022	eastern red bat	40	60	carcass search	60-m uncleared (soy)	scavenged	yes*
06/21/2022	eastern red bat	25	86	carcass search	95-m road and pad	intact	no
06/22/2022	eastern red bat	35	1	carcass search	60-m uncleared (soy)	scavenged	yes*
06/22/2022	eastern red bat	78	13	carcass search**	60-m uncleared (soy)	scavenged	yes*
06/22/2022	eastern red bat	38	52	incidental	60-m uncleared (soy)	scavenged	yes*
06/22/2022	eastern red bat	31	6	carcass search	60-m cleared	scavenged	yes*
06/23/2022	eastern red bat	62	106	carcass search**	60-m cleared	scavenged	yes*
06/23/2022	eastern red bat	83	116	carcass search**	60-m uncleared (soy)	scavenged	yes*
06/23/2022	eastern red bat	54	125	carcass search	60-m cleared	scavenged	yes*
06/23/2022	silver-haired bat	96	123	carcass search**	60-m cleared	scavenged	yes*
06/23/2022	silver-haired bat	11	123	carcass search	60-m cleared	scavenged	yes*
06/23/2022	silver-haired bat	65	123	carcass search**	60-m cleared	scavenged	yes*
06/23/2022	silver-haired bat	56	40	incidental	60-m uncleared (soy)	scavenged	yes*
06/24/2022	eastern red bat	82	52	carcass search**	60-m uncleared (soy)	scavenged	yes*
06/24/2022	eastern red bat	45	52	carcass search	60-m uncleared (soy)	scavenged	yes*
06/24/2022	eastern red bat	40	57	carcass search	60-m cleared	scavenged	yes*
06/24/2022	silver-haired bat	56	52	carcass search	60-m uncleared (soy)	scavenged	yes*
06/24/2022	unidentified non-*Myotis*	57	43	carcass search	60-m uncleared (soy)	scavenged	yes*
06/25/2022	eastern red bat	58	89	carcass search	60-m cleared	scavenged	yes*
06/25/2022	eastern red bat	35	90	carcass search	60-m cleared	scavenged	yes*
06/26/2022	eastern red bat	35	52	incidental	60-m uncleared (soy)	scavenged	yes*
06/27/2022	eastern red bat	82	106	carcass search**	60-m cleared	scavenged	yes*
06/27/2022	eastern red bat	38	13	carcass search	60-m uncleared (soy)	scavenged	yes*
06/27/2022	eastern red bat	24	21	carcass search	95-m road and pad	intact	no
06/27/2022	eastern red bat	52	22	carcass search	60-m cleared	scavenged	yes*
06/27/2022	hoary bat	39	123	carcass search	60-m cleared	intact	yes*
06/27/2022	silver-haired bat	89	112	carcass search**	60-m uncleared (soy)	scavenged	yes*
06/27/2022	silver-haired bat	25	125	carcass search	60-m cleared	scavenged	yes*

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
06/28/2022	silver-haired bat	70	40	carcass search**	60-m uncleared (soy)	scavenged	yes*
06/30/2022	eastern red bat	30	100	carcass search	60-m cleared	intact	yes*
06/30/2022	eastern red bat	47	103	carcass search	60-m cleared	scavenged	yes*
06/30/2022	eastern red bat	54	112	carcass search	60-m uncleared (soy)	scavenged	yes*
06/30/2022	eastern red bat	32	12	carcass search**	95-m road and pad	scavenged	no
06/30/2022	eastern red bat	32	123	carcass search	60-m cleared	scavenged	yes*
06/30/2022	eastern red bat	31	24	carcass search	95-m road and pad	dismembered	no
06/30/2022	eastern red bat	28	9	carcass search	95-m road and pad	scavenged	no
06/30/2022	silver-haired bat	51	123	carcass search	60-m cleared	scavenged	yes*
06/30/2022	unidentified *Lasiurus* bat	56	13	carcass search	60-m uncleared (soy)	scavenged	yes*
07/01/2022	eastern red bat	70	89	carcass search**	60-m cleared	scavenged	yes*
07/01/2022	hoary bat	23	54	carcass search	60-m cleared	intact	yes*
07/01/2022	unidentified *Lasiurus* bat	53	90	carcass search	60-m cleared	scavenged	yes*
07/04/2022	big brown bat	8	87	carcass search	95-m road and pad	scavenged	no
07/04/2022	eastern red bat	4	103	carcass search	60-m cleared	scavenged	yes*
07/04/2022	eastern red bat	46	106	carcass search	60-m cleared	scavenged	yes*
07/04/2022	eastern red bat	7	123	carcass search	60-m cleared	scavenged	yes*
07/05/2022	eastern red bat	59	43	carcass search	60-m uncleared (soy)	scavenged	yes*
07/05/2022	eastern red bat	66	60	carcass search**	60-m uncleared (soy)	scavenged	yes*
07/05/2022	eastern red bat	18	74	carcass search	60-m uncleared (soy)	scavenged	yes*
07/07/2022	eastern red bat	47	100	carcass search	60-m cleared	scavenged	yes*
07/07/2022	eastern red bat	14	117	carcass search	60-m cleared	scavenged	yes*
07/07/2022	eastern red bat	45	117	carcass search	60-m cleared	scavenged	yes*
07/07/2022	eastern red bat	38	119	carcass search	95-m road and pad	intact	no
07/07/2022	eastern red bat	52	80	carcass search	60-m cleared	scavenged	yes*
07/07/2022	eastern red bat	16	90	carcass search	60-m cleared	scavenged	yes*
07/07/2022	hoary bat	45	54	carcass search	60-m cleared	scavenged	yes*
07/08/2022	eastern red bat	3	64	carcass search	60-m uncleared (soy)	scavenged	yes*
07/10/2022	eastern red bat	48	102	carcass search	60-m uncleared (soy)	scavenged	yes*
07/10/2022	eastern red bat	38	83	carcass search	60-m cleared	scavenged	yes*
07/11/2022	eastern red bat	12	120	carcass search	95-m road and pad	injured	no
07/11/2022	eastern red bat	13	132	carcass search	60-m cleared	scavenged	yes*
07/11/2022	eastern red bat	55	2	carcass search	60-m cleared	scavenged	yes*
07/11/2022	eastern red bat	27	22	carcass search	60-m cleared	scavenged	yes*
07/11/2022	eastern red bat	59	6	carcass search	60-m cleared	scavenged	yes*
07/12/2022	eastern red bat	35	44	carcass search	60-m uncleared (soy)	scavenged	yes*

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
07/14/2022	eastern red bat	34	116	carcass search	60-m uncleared (soy)	scavenged	yes*
07/14/2022	eastern red bat	52	13	carcass search	60-m uncleared (soy)	scavenged	yes*
07/14/2022	eastern red bat	2	24	carcass search	95-m road and pad	scavenged	no
07/15/2022	eastern red bat	60	64	carcass search	60-m uncleared (soy)	scavenged	yes*
07/16/2022	eastern red bat	34	106	carcass search	60-m cleared	scavenged	yes*
07/18/2022	eastern red bat	31	102	carcass search	60-m uncleared (soy)	scavenged	yes*
07/18/2022	eastern red bat	17	103	carcass search	60-m cleared	scavenged	yes*
07/18/2022	eastern red bat	52	103	carcass search	60-m cleared	scavenged	yes*
07/18/2022	eastern red bat	18	103	carcass search	60-m cleared	scavenged	yes*
07/18/2022	eastern red bat	9	111	carcass search	95-m road and pad	intact	no
07/18/2022	eastern red bat	28	116	carcass search	60-m uncleared (soy)	scavenged	yes*
07/18/2022	eastern red bat	28	117	carcass search	60-m cleared	scavenged	yes*
07/18/2022	eastern red bat	21	123	carcass search	60-m cleared	scavenged	yes*
07/18/2022	eastern red bat	13	125	carcass search	60-m cleared	scavenged	yes*
07/18/2022	eastern red bat	7	13	carcass search	60-m uncleared (soy)	scavenged	yes*
07/18/2022	eastern red bat	38	132	carcass search	60-m cleared	scavenged	yes*
07/18/2022	eastern red bat	42	2	carcass search	60-m cleared	scavenged	yes*
07/18/2022	eastern red bat	41	6	carcass search	60-m cleared	scavenged	yes*
07/18/2022	evening bat	32	116	carcass search	60-m uncleared (soy)	scavenged	yes*
07/18/2022	hoary bat	59	132	carcass search	60-m cleared	scavenged	yes*
07/18/2022	hoary bat	14	2	carcass search	60-m cleared	intact	yes*
07/18/2022	hoary bat	6	84	carcass search	95-m road and pad	scavenged	no
07/19/2022	big brown bat	34	90	carcass search	60-m cleared	scavenged	yes*
07/19/2022	eastern red bat	47	48	carcass search	60-m cleared	scavenged	yes*
07/19/2022	eastern red bat	46	54	carcass search	60-m cleared	scavenged	yes*
07/19/2022	eastern red bat	28	75	carcass search	60-m cleared	scavenged	yes*
07/19/2022	eastern red bat	25	90	carcass search	60-m cleared	scavenged	yes*
07/19/2022	hoary bat	21	89	carcass search	60-m cleared	scavenged	yes*
07/20/2022	eastern red bat	5	73	carcass search	95-m road and pad	intact	no
07/21/2022	eastern red bat	64	1	carcass search**	60-m uncleared (soy)	scavenged	yes*
07/21/2022	eastern red bat	37	103	carcass search	60-m cleared	scavenged	yes*
07/21/2022	eastern red bat	25	103	carcass search	60-m cleared	scavenged	yes*
07/21/2022	eastern red bat	47	123	carcass search	60-m cleared	scavenged	yes*
07/21/2022	eastern red bat	49	125	carcass search	60-m cleared	scavenged	yes*
07/21/2022	eastern red bat	32	132	carcass search	60-m cleared	scavenged	yes*
07/21/2022	eastern red bat	45	25	carcass search	60-m cleared	scavenged	yes*

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
07/21/2022	eastern red bat	82	84	carcass search	95-m road and pad	intact	no
07/21/2022	hoary bat	11	116	carcass search	60-m uncleared (soy)	scavenged	yes*
07/21/2022	hoary bat	20	2	carcass search	60-m cleared	scavenged	yes*
07/22/2022	eastern red bat	44	29	carcass search	60-m cleared	scavenged	yes*
07/22/2022	eastern red bat	30	43	carcass search	60-m uncleared (soy)	scavenged	yes*
07/22/2022	eastern red bat	52	43	carcass search	60-m uncleared (soy)	scavenged	yes*
07/22/2022	eastern red bat	29	57	carcass search	60-m cleared	scavenged	yes*
07/22/2022	eastern red bat	49	64	carcass search	60-m uncleared (soy)	scavenged	yes*
07/22/2022	eastern red bat	29	72	carcass search	60-m cleared	scavenged	yes*
07/22/2022	hoary bat	41	42	carcass search	95-m road and pad	scavenged	no
07/25/2022	eastern red bat	29	103	carcass search	60-m cleared	scavenged	yes*
07/25/2022	eastern red bat	74	112	carcass search**	60-m uncleared (soy)	scavenged	yes*
07/25/2022	eastern red bat	50	117	carcass search	60-m cleared	scavenged	yes*
07/25/2022	eastern red bat	53	123	carcass search	60-m cleared	scavenged	yes*
07/25/2022	eastern red bat	43	125	carcass search	60-m cleared	scavenged	yes*
07/25/2022	eastern red bat	53	14	carcass search	95-m road and pad	intact	no
07/25/2022	eastern red bat	59	80	carcass search	60-m cleared	scavenged	yes*
07/25/2022	eastern red bat	42	81	carcass search	60-m cleared	scavenged	yes*
07/25/2022	eastern red bat	21	81	carcass search	60-m cleared	scavenged	yes*
07/25/2022	eastern red bat	59	81	carcass search	60-m cleared	scavenged	yes*
07/25/2022	eastern red bat	48	81	carcass search	60-m cleared	scavenged	yes*
07/25/2022	eastern red bat or Seminole bat	30	112	carcass search	60-m uncleared (soy)	scavenged	yes*
07/25/2022	hoary bat	41	100	carcass search	60-m cleared	scavenged	yes*
07/25/2022	hoary bat	39	103	carcass search	60-m cleared	scavenged	yes*
07/25/2022	hoary bat	16	106	carcass search	60-m cleared	scavenged	yes*
07/25/2022	hoary bat	25	116	carcass search	60-m uncleared (soy)	scavenged	yes*
07/25/2022	hoary bat	38	121	carcass search	60-m uncleared (soy)	scavenged	yes*
07/25/2022	hoary bat	57	6	carcass search	60-m cleared	intact	yes*
07/26/2022	eastern red bat	42	38	carcass search	60-m cleared	injured	yes*
07/26/2022	eastern red bat	41	40	carcass search	60-m uncleared (soy)	scavenged	yes*
07/26/2022	eastern red bat	51	40	carcass search	60-m uncleared (soy)	scavenged	yes*
07/26/2022	eastern red bat	42	48	carcass search	60-m cleared	intact	yes*
07/26/2022	eastern red bat	33	48	carcass search	60-m cleared	intact	yes*
07/26/2022	eastern red bat	41	54	carcass search	60-m cleared	scavenged	yes*
07/26/2022	eastern red bat	55	60	carcass search	60-m uncleared (soy)	scavenged	yes*
07/26/2022	eastern red bat	59	75	carcass search	60-m cleared	scavenged	yes*

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
07/26/2022	eastern red bat	27	81	incidental	60-m cleared	scavenged	yes*
07/26/2022	eastern red bat	48	81	incidental	60-m cleared	scavenged	yes*
07/26/2022	eastern red bat	45	94	carcass search	60-m cleared	scavenged	yes*
07/26/2022	hoary bat	21	57	carcass search	60-m cleared	scavenged	yes*
07/26/2022	hoary bat	37	89	carcass search	60-m cleared	intact	yes*
07/27/2022	big brown bat	2	68	carcass search	95-m road and pad	scavenged	no
07/27/2022	hoary bat	24	9	carcass search	95-m road and pad	scavenged	no
07/27/2022	hoary bat	38	97	carcass search	95-m road and pad	intact	no
07/28/2022	eastern red bat	36	112	carcass search	60-m uncleared (soy)	scavenged	yes*
07/28/2022	eastern red bat	26	116	carcass search	60-m uncleared (soy)	scavenged	yes*
07/28/2022	eastern red bat	42	125	carcass search	60-m cleared	scavenged	yes*
07/28/2022	eastern red bat	51	125	carcass search	60-m cleared	intact	yes*
07/28/2022	eastern red bat	42	132	carcass search	60-m cleared	scavenged	yes*
07/28/2022	eastern red bat	56	25	carcass search	60-m cleared	scavenged	yes*
07/28/2022	eastern red bat	31	75	incidental	60-m cleared	injured	yes*
07/28/2022	eastern red bat	20	81	carcass search	60-m cleared	scavenged	yes*
07/28/2022	hoary bat	15	2	carcass search	60-m cleared	scavenged	yes*
07/28/2022	hoary bat	110	78	carcass search**	95-m road and pad	intact	no
07/28/2022	silver-haired bat	23	27	carcass search	60-m uncleared (soy)	scavenged	yes*
07/29/2022	big brown bat	35	52	carcass search	60-m uncleared (soy)	scavenged	yes*
07/29/2022	eastern red bat	19	21	carcass search	95-m road and pad	intact	no
07/29/2022	eastern red bat	13	26	carcass search	95-m road and pad	intact	no
07/29/2022	eastern red bat	27	38	carcass search	60-m cleared	scavenged	yes*
07/29/2022	eastern red bat	13	48	carcass search	60-m cleared	scavenged	yes*
07/29/2022	eastern red bat	1	52	carcass search	60-m uncleared (soy)	scavenged	yes*
07/29/2022	eastern red bat	54	74	carcass search	60-m uncleared (soy)	scavenged	yes*
07/29/2022	hoary bat	37	48	carcass search	60-m cleared	scavenged	yes*
07/29/2022	hoary bat	26	90	carcass search	60-m cleared	scavenged	yes*
07/29/2022	hoary bat	9	90	carcass search	60-m cleared	scavenged	yes*
07/29/2022	hoary bat	34	94	carcass search	60-m cleared	scavenged	yes*
07/29/2022	unidentified *Lasiurus* bat	46	60	carcass search	60-m uncleared (soy)	scavenged	yes*
07/30/2022	eastern red bat	6	133	carcass search	95-m road and pad	scavenged	no
08/01/2022	big brown bat	10	103	carcass search	60-m cleared	scavenged	yes*
08/01/2022	big brown bat	32	103	carcass search	60-m cleared	scavenged	yes*
08/01/2022	big brown bat	6	25	carcass search	60-m cleared	scavenged	yes*
08/01/2022	eastern red bat	26	103	carcass search	60-m cleared	scavenged	yes*

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
08/01/2022	eastern red bat	28	106	carcass search	60-m cleared	scavenged	yes*
08/01/2022	eastern red bat	71	13	carcass search**	60-m uncleared (soy)	scavenged	yes*
08/01/2022	eastern red bat	38	25	carcass search	60-m cleared	scavenged	yes*
08/01/2022	eastern red bat	57	6	carcass search	60-m cleared	scavenged	yes*
08/01/2022	eastern red bat	14	81	carcass search	60-m cleared	scavenged	yes*
08/01/2022	eastern red bat	52	81	carcass search	60-m cleared	scavenged	yes*
08/01/2022	eastern red bat	10	9	carcass search	95-m road and pad	scavenged	no
08/01/2022	hoary bat	41	103	carcass search	60-m cleared	scavenged	yes*
08/01/2022	hoary bat	5	110	carcass search	95-m road and pad	intact	no
08/01/2022	hoary bat	35	25	carcass search	60-m cleared	scavenged	yes*
08/01/2022	hoary bat	19	6	carcass search	60-m cleared	scavenged	yes*
08/02/2022	big brown bat	49	48	carcass search	60-m cleared	intact	yes*
08/02/2022	hoary bat	46	40	carcass search	60-m uncleared (soy)	scavenged	yes*
08/02/2022	hoary bat	15	54	carcass search	60-m cleared	scavenged	yes*
08/02/2022	hoary bat	49	57	carcass search	60-m cleared	scavenged	yes*
08/03/2022	big brown bat	43	44	carcass search	60-m uncleared (soy)	scavenged	yes*
08/03/2022	big brown bat	20	89	carcass search	60-m cleared	scavenged	yes*
08/03/2022	eastern red bat	22	44	carcass search	60-m uncleared (soy)	scavenged	yes*
08/03/2022	eastern red bat	15	72	carcass search	60-m cleared	scavenged	yes*
08/03/2022	eastern red bat	30	72	carcass search	60-m cleared	scavenged	yes*
08/03/2022	eastern red bat	29	94	carcass search	60-m cleared	scavenged	yes*
08/03/2022	hoary bat	26	72	carcass search	60-m cleared	scavenged	yes*
08/03/2022	hoary bat	21	90	carcass search	60-m cleared	scavenged	yes*
08/03/2022	hoary bat	23	90	carcass search	60-m cleared	scavenged	yes*
08/04/2022	eastern red bat	54	117	carcass search	60-m cleared	scavenged	yes*
08/04/2022	eastern red bat	48	121	carcass search	60-m uncleared (soy)	scavenged	yes*
08/04/2022	eastern red bat	30	121	carcass search	60-m uncleared (soy)	scavenged	yes*
08/04/2022	eastern red bat	23	121	carcass search	60-m uncleared (soy)	scavenged	yes*
08/04/2022	eastern red bat	10	4	carcass search	95-m road and pad	scavenged	no
08/04/2022	hoary bat	16	100	carcass search	60-m cleared	scavenged	yes*
08/04/2022	hoary bat	49	112	carcass search	60-m uncleared (soy)	scavenged	yes*
08/04/2022	hoary bat	12	117	carcass search	60-m cleared	scavenged	yes*
08/04/2022	hoary bat	45	125	carcass search	60-m cleared	scavenged	yes*
08/04/2022	unidentified *Lasiurus* bat	50	102	carcass search	60-m uncleared (soy)	scavenged	yes*
08/08/2022	big brown bat	38	13	carcass search	60-m uncleared (soy)	scavenged	yes*
08/08/2022	big brown bat	20	80	carcass search	60-m cleared	scavenged	yes*

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
08/08/2022	eastern red bat	36	1	carcass search	60-m uncleared (soy)	scavenged	yes*
08/08/2022	eastern red bat	39	13	carcass search	60-m uncleared (soy)	scavenged	yes*
08/08/2022	eastern red bat	26	2	carcass search	60-m cleared	scavenged	yes*
08/08/2022	eastern red bat	32	25	carcass search	60-m cleared	scavenged	yes*
08/08/2022	eastern red bat	43	27	carcass search	60-m uncleared (soy)	scavenged	yes*
08/08/2022	eastern red bat	82	66	carcass search	95-m road and pad	intact	no
08/08/2022	eastern red bat	31	80	carcass search	60-m cleared	scavenged	yes*
08/08/2022	eastern red bat	56	81	carcass search	60-m cleared	scavenged	yes*
08/08/2022	silver-haired bat	21	1	carcass search	60-m uncleared (soy)	scavenged	yes*
08/08/2022	unidentified non-*Myotis*	16	13	carcass search	60-m uncleared (soy)	scavenged	yes*
08/09/2022	eastern red bat	45	43	carcass search	60-m uncleared (soy)	scavenged	yes*
08/09/2022	eastern red bat	40	48	carcass search	60-m cleared	scavenged	yes*
08/09/2022	eastern red bat	43	57	carcass search	60-m cleared	scavenged	yes*
08/09/2022	eastern red bat	58	57	carcass search	60-m cleared	scavenged	yes*
08/09/2022	eastern red bat	41	68	carcass search	95-m road and pad	intact	no
08/09/2022	eastern red bat	51	72	carcass search	60-m cleared	scavenged	yes*
08/09/2022	eastern red bat	37	75	carcass search	60-m cleared	scavenged	yes*
08/09/2022	eastern red bat	52	89	carcass search	60-m cleared	scavenged	yes*
08/09/2022	eastern red bat	31	94	carcass search	60-m cleared	scavenged	yes*
08/09/2022	eastern red bat	39	94	carcass search	60-m cleared	scavenged	yes*
08/09/2022	eastern red bat or Seminole bat	61	49	carcass search	60-m cleared	scavenged	yes*
08/09/2022	hoary bat	55	74	carcass search	60-m uncleared (soy)	scavenged	yes*
08/09/2022	hoary bat	33	90	carcass search	60-m cleared	scavenged	yes*
08/09/2022	unidentified *Lasiurus* bat	30	29	carcass search	60-m cleared	scavenged	yes*
08/09/2022	unidentified *Lasiurus* bat	34	94	carcass search	60-m cleared	scavenged	yes*
08/10/2022	eastern red bat	53	116	carcass search	60-m uncleared (soy)	scavenged	yes*
08/10/2022	eastern red bat	49	116	carcass search	60-m uncleared (soy)	scavenged	yes*
08/10/2022	eastern red bat	53	117	carcass search	60-m cleared	scavenged	yes*
08/10/2022	eastern red bat	66	123	carcass search**	60-m cleared	scavenged	yes*
08/10/2022	eastern red bat	13	125	carcass search	60-m cleared	scavenged	yes*
08/10/2022	eastern red bat	17	132	carcass search	60-m cleared	intact	yes*
08/10/2022	eastern red bat	9	132	carcass search	60-m cleared	scavenged	yes*
08/10/2022	hoary bat	21	112	carcass search	60-m uncleared (soy)	scavenged	yes*
08/10/2022	hoary bat	53	117	carcass search	60-m cleared	scavenged	yes*
08/11/2022	big brown bat	51	123	carcass search	60-m cleared	scavenged	yes*
08/11/2022	big brown bat	0	59	carcass search	95-m road and pad	intact	no

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
08/11/2022	eastern red bat	44	106	carcass search	60-m cleared	scavenged	yes*
08/11/2022	eastern red bat	43	116	carcass search	60-m uncleared (soy)	scavenged	yes*
08/11/2022	eastern red bat	29	121	carcass search	60-m uncleared (soy)	intact	yes*
08/11/2022	eastern red bat	47	121	carcass search	60-m uncleared (soy)	intact	yes*
08/11/2022	eastern red bat	46	132	carcass search	60-m cleared	scavenged	yes*
08/11/2022	eastern red bat	46	25	carcass search	60-m cleared	scavenged	yes*
08/11/2022	eastern red bat	62	6	carcass search**	60-m cleared	scavenged	yes*
08/11/2022	eastern red bat or Seminole bat	40	106	carcass search	60-m cleared	scavenged	yes*
08/11/2022	hoary bat	29	100	carcass search	60-m cleared	scavenged	yes*
08/11/2022	hoary bat	52	80	carcass search	60-m cleared	scavenged	yes*
08/12/2022	big brown bat	54	38	carcass search	60-m cleared	scavenged	yes*
08/12/2022	big brown bat	56	54	carcass search	60-m cleared	scavenged	yes*
08/12/2022	eastern red bat	37	49	carcass search	60-m cleared	scavenged	yes*
08/12/2022	eastern red bat	55	54	carcass search	60-m cleared	scavenged	yes*
08/12/2022	eastern red bat or Seminole bat	21	38	carcass search	60-m cleared	scavenged	yes*
08/12/2022	evening bat	16	90	carcass search	60-m cleared	scavenged	yes*
08/12/2022	hoary bat	32	38	carcass search	60-m cleared	scavenged	yes*
08/12/2022	hoary bat	41	49	carcass search	60-m cleared	scavenged	yes*
08/12/2022	hoary bat	38	57	carcass search	60-m cleared	scavenged	yes*
08/15/2022	eastern red bat	62	112	carcass search**	60-m uncleared (soy)	scavenged	yes*
08/15/2022	eastern red bat	34	116	carcass search	60-m uncleared (soy)	scavenged	yes*
08/15/2022	eastern red bat	57	121	carcass search	60-m uncleared (soy)	intact	yes*
08/15/2022	eastern red bat	27	121	carcass search	60-m uncleared (soy)	intact	yes*
08/15/2022	eastern red bat	39	125	carcass search	60-m cleared	scavenged	yes*
08/15/2022	eastern red bat	42	132	carcass search	60-m cleared	scavenged	yes*
08/15/2022	eastern red bat	45	2	carcass search	60-m cleared	scavenged	yes*
08/15/2022	hoary bat	30	112	carcass search	60-m uncleared (soy)	scavenged	yes*
08/15/2022	hoary bat	15	122	carcass search	95-m road and pad	scavenged	no
08/15/2022	hoary bat	44	123	carcass search	60-m cleared	scavenged	yes*
08/15/2022	hoary bat	45	125	carcass search	60-m cleared	scavenged	yes*
08/15/2022	hoary bat	36	125	carcass search	60-m cleared	intact	yes*
08/15/2022	silver-haired bat	17	121	carcass search	60-m uncleared (soy)	scavenged	yes*
08/16/2022	eastern red bat	31	103	carcass search	60-m cleared	scavenged	yes*
08/16/2022	eastern red bat	66	39	carcass search	95-m road and pad	intact	no
08/16/2022	eastern red bat	6	56	carcass search	95-m road and pad	scavenged	no
08/16/2022	eastern red bat	7	57	carcass search	60-m cleared	scavenged	yes*

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
08/16/2022	eastern red bat	40	80	carcass search	60-m cleared	scavenged	yes*
08/16/2022	eastern red bat	54	94	carcass search	60-m cleared	intact	yes*
08/16/2022	eastern red bat	59	94	carcass search	60-m cleared	scavenged	yes*
08/16/2022	eastern red bat	44	94	carcass search	60-m cleared	scavenged	yes*
08/16/2022	hoary bat	53	106	carcass search	60-m cleared	scavenged	yes*
08/17/2022	eastern red bat	43	38	carcass search	60-m cleared	intact	yes*
08/17/2022	eastern red bat	50	38	carcass search	60-m cleared	scavenged	yes*
08/17/2022	eastern red bat	29	48	carcass search	60-m cleared	scavenged	yes*
08/17/2022	eastern red bat	38	49	carcass search	60-m cleared	scavenged	yes*
08/17/2022	hoary bat	43	48	carcass search	60-m cleared	scavenged	yes*
08/17/2022	hoary bat	39	48	carcass search	60-m cleared	dismembered	yes*
08/17/2022	silver-haired bat	51	48	carcass search	60-m cleared	scavenged	yes*
08/18/2022	eastern red bat	83	79	carcass search	95-m road and pad	scavenged	no
08/18/2022	eastern red bat	47	80	carcass search	60-m cleared	scavenged	yes*
08/18/2022	hoary bat	34	112	carcass search	60-m uncleared (soy)	scavenged	yes*
08/18/2022	silver-haired bat	27	80	carcass search	60-m cleared	scavenged	yes*
08/19/2022	eastern red bat	42	29	carcass search	60-m cleared	scavenged	yes*
08/19/2022	eastern red bat	39	52	carcass search	60-m uncleared (soy)	scavenged	yes*
08/20/2022	eastern red bat	41	89	carcass search	60-m cleared	scavenged	yes*
08/22/2022	eastern red bat	56	117	carcass search	60-m cleared	scavenged	yes*
08/22/2022	eastern red bat	49	121	carcass search	60-m uncleared (soy)	scavenged	yes*
08/22/2022	eastern red bat	51	125	carcass search	60-m cleared	scavenged	yes*
08/22/2022	eastern red bat	47	132	carcass search	60-m cleared	scavenged	yes*
08/22/2022	eastern red bat	46	80	carcass search	60-m cleared	scavenged	yes*
08/22/2022	eastern red bat or Seminole bat	49	102	carcass search	60-m uncleared (soy)	scavenged	yes*
08/22/2022	hoary bat	59	106	carcass search	60-m cleared	scavenged	yes*
08/22/2022	hoary bat	51	112	carcass search	60-m uncleared (soy)	scavenged	yes*
08/22/2022	hoary bat	47	125	carcass search	60-m cleared	scavenged	yes*
08/22/2022	hoary bat	31	83	carcass search	60-m cleared	scavenged	yes*
08/22/2022	Indiana bat	2	116	carcass search	60-m uncleared (soy)	scavenged	yes*
08/22/2022	unidentified *Lasiurus* bat	21	106	carcass search	60-m cleared	scavenged	yes*
08/23/2022	big brown bat	23	2	carcass search	60-m cleared	intact	yes*
08/23/2022	eastern red bat	53	25	carcass search	60-m cleared	scavenged	yes*
08/23/2022	eastern red bat	32	38	carcass search	60-m cleared	scavenged	yes*
08/23/2022	eastern red bat	40	6	carcass search	60-m cleared	scavenged	yes*
08/23/2022	hoary bat	24	53	carcass search	60-m cleared	scavenged	yes*

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
08/23/2022	unidentified *Lasiurus* bat	49	49	carcass search	60-m cleared	scavenged	yes*
08/24/2022	eastern red bat	43	72	carcass search	60-m cleared	scavenged	yes*
08/24/2022	eastern red bat	37	72	carcass search	60-m cleared	scavenged	yes*
08/25/2022	eastern red bat	18	6	carcass search	60-m cleared	scavenged	yes*
08/25/2022	evening bat	39	112	carcass search	60-m uncleared (soy)	scavenged	yes*
08/25/2022	hoary bat	37	116	carcass search	60-m uncleared (soy)	scavenged	yes*
08/26/2022	eastern red bat	28	38	carcass search	60-m cleared	scavenged	yes*
08/26/2022	eastern red bat	22	94	carcass search	60-m cleared	scavenged	yes*
08/26/2022	evening bat	35	75	carcass search	60-m cleared	scavenged	yes*
08/26/2022	hoary bat	47	94	carcass search	60-m cleared	scavenged	yes*
08/29/2022	big brown bat	15	123	carcass search	60-m cleared	scavenged	yes*
08/29/2022	big brown bat	47	2	carcass search	60-m cleared	scavenged	yes*
08/29/2022	eastern red bat	59	125	carcass search	60-m cleared	scavenged	yes*
08/29/2022	eastern red bat	30	125	carcass search	60-m cleared	scavenged	yes*
08/29/2022	eastern red bat	34	132	carcass search	60-m cleared	scavenged	yes*
08/29/2022	eastern red bat	34	132	carcass search	60-m cleared	scavenged	yes*
08/29/2022	eastern red bat	40	2	carcass search	60-m cleared	intact	yes*
08/29/2022	eastern red bat	40	22	carcass search	60-m cleared	scavenged	yes*
08/29/2022	eastern red bat	52	24	carcass search	95-m road and pad	scavenged	no
08/29/2022	eastern red bat	17	25	carcass search	60-m cleared	scavenged	yes*
08/29/2022	eastern red bat	51	25	carcass search	60-m cleared	scavenged	yes*
08/29/2022	eastern red bat	48	27	carcass search	60-m uncleared (soy)	scavenged	yes*
08/29/2022	eastern red bat	21	6	carcass search	60-m cleared	scavenged	yes*
08/29/2022	eastern red bat	38	6	carcass search	60-m cleared	scavenged	yes*
08/29/2022	eastern red bat	54	80	carcass search	60-m cleared	scavenged	yes*
08/29/2022	eastern red bat	34	81	carcass search	60-m cleared	intact	yes*
08/29/2022	hoary bat	27	106	carcass search	60-m cleared	scavenged	yes*
08/30/2022	eastern red bat	40	121	carcass search	60-m uncleared (soy)	scavenged	yes*
08/30/2022	eastern red bat	6	40	carcass search	60-m uncleared (soy)	scavenged	yes*
08/30/2022	eastern red bat	49	89	carcass search	60-m cleared	scavenged	yes*
08/30/2022	hoary bat	44	48	carcass search	60-m cleared	scavenged	yes*
08/30/2022	hoary bat	30	90	carcass search	60-m cleared	scavenged	yes*
08/30/2022	silver-haired bat	59	90	carcass search	60-m cleared	scavenged	yes*
08/30/2022	unidentified *Lasiurus* bat	37	29	carcass search	60-m cleared	scavenged	yes*
09/01/2022	big brown bat	26	80	carcass search	60-m cleared	scavenged	yes*
09/01/2022	big brown bat	14	83	carcass search	60-m cleared	scavenged	yes*

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
09/01/2022	eastern red bat	40	100	carcass search	60-m cleared	scavenged	yes*
09/01/2022	eastern red bat	38	106	carcass search	60-m cleared	scavenged	yes*
09/01/2022	eastern red bat	51	13	carcass search	60-m uncleared (soy)	intact	yes*
09/01/2022	eastern red bat	45	132	carcass search	60-m cleared	intact	yes*
09/01/2022	eastern red bat	38	2	carcass search	60-m cleared	scavenged	yes*
09/01/2022	eastern red bat	28	2	carcass search	60-m cleared	scavenged	yes*
09/01/2022	eastern red bat	57	6	carcass search	60-m cleared	scavenged	yes*
09/01/2022	eastern red bat	52	78	carcass search	95-m road and pad	scavenged	no
09/01/2022	eastern red bat	51	83	carcass search	60-m cleared	scavenged	yes*
09/01/2022	eastern red bat	33	86	carcass search	95-m road and pad	scavenged	no
09/01/2022	evening bat	26	80	carcass search	60-m cleared	scavenged	yes*
09/01/2022	hoary bat	21	121	carcass search	60-m uncleared (soy)	scavenged	yes*
09/01/2022	hoary bat	36	132	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	57	102	carcass search	60-m uncleared (soy)	scavenged	yes*
09/01/2022	silver-haired bat	52	112	incidental	60-m uncleared (soy)	scavenged	yes*
09/01/2022	silver-haired bat	59	112	carcass search	60-m uncleared (soy)	intact	yes*
09/01/2022	silver-haired bat	44	112	incidental	60-m uncleared (soy)	dismembered	yes*
09/01/2022	silver-haired bat	14	114	carcass search	95-m road and pad	intact	no
09/01/2022	silver-haired bat	24	116	carcass search	60-m uncleared (soy)	intact	yes*
09/01/2022	silver-haired bat	35	124	carcass search	95-m road and pad	intact	no
09/01/2022	silver-haired bat	13	125	carcass search	60-m cleared	intact	yes*
09/01/2022	silver-haired bat	33	13	carcass search	60-m uncleared (soy)	scavenged	yes*
09/01/2022	silver-haired bat	37	132	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	27	132	carcass search	60-m cleared	intact	yes*
09/01/2022	silver-haired bat	36	132	carcass search	60-m cleared	intact	yes*
09/01/2022	silver-haired bat	22	132	carcass search	60-m cleared	intact	yes*
09/01/2022	silver-haired bat	29	132	carcass search	60-m cleared	intact	yes*
09/01/2022	silver-haired bat	19	132	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	40	2	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	4	2	carcass search	60-m cleared	intact	yes*
09/01/2022	silver-haired bat	53	2	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	29	2	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	50	2	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	25	2	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	31	2	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	45	2	carcass search	60-m cleared	intact	yes*

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
09/01/2022	silver-haired bat	47	2	carcass search	60-m cleared	intact	yes*
09/01/2022	silver-haired bat	17	2	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	48	2	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	46	2	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	42	2	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	36	25	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	24	25	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	30	25	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	51	25	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	25	25	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	27	25	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	29	44	carcass search	60-m uncleared (soy)	scavenged	yes*
09/01/2022	silver-haired bat	25	6	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	57	6	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	39	6	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	46	6	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	3	78	carcass search	95-m road and pad	scavenged	no
09/01/2022	silver-haired bat	34	78	carcass search	95-m road and pad	scavenged	no
09/01/2022	silver-haired bat	31	80	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	36	80	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	38	81	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	37	81	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	34	81	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	33	83	carcass search	60-m cleared	scavenged	yes*
09/01/2022	silver-haired bat	22	83	carcass search	60-m cleared	scavenged	yes*
09/01/2022	unidentified bat	47	112	carcass search	60-m uncleared (soy)	injured	yes*
09/02/2022	big brown bat	41	29	carcass search	60-m cleared	scavenged	yes*
09/02/2022	big brown bat	44	75	carcass search	60-m cleared	scavenged	yes*
09/02/2022	eastern red bat	7	131	carcass search	95-m road and pad	scavenged	no
09/02/2022	eastern red bat	47	38	carcass search	60-m cleared	scavenged	yes*
09/02/2022	eastern red bat	34	48	carcass search	60-m cleared	scavenged	yes*
09/02/2022	eastern red bat	28	48	carcass search	60-m cleared	scavenged	yes*
09/02/2022	eastern red bat	24	49	carcass search	60-m cleared	scavenged	yes*
09/02/2022	eastern red bat	37	52	carcass search	60-m uncleared (soy)	scavenged	yes*
09/02/2022	eastern red bat	33	52	carcass search	60-m uncleared (soy)	scavenged	yes*
09/02/2022	eastern red bat	34	60	carcass search	60-m uncleared (soy)	scavenged	yes*

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
09/02/2022	eastern red bat	46	64	carcass search	60-m uncleared (soy)	scavenged	yes*
09/02/2022	eastern red bat	44	72	carcass search	60-m cleared	scavenged	yes*
09/02/2022	eastern red bat	48	89	carcass search	60-m cleared	scavenged	yes*
09/02/2022	eastern red bat or Seminole bat	42	48	carcass search	60-m cleared	scavenged	yes*
09/02/2022	hoary bat	29	72	carcass search	60-m cleared	scavenged	yes*
09/02/2022	hoary bat	43	94	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	5	131	carcass search	95-m road and pad	scavenged	no
09/02/2022	silver-haired bat	10	15	carcass search	95-m road and pad	scavenged	no
09/02/2022	silver-haired bat	26	29	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	51	29	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	32	29	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	50	29	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	46	29	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	38	29	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	51	29	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	57	29	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	39	3	carcass search	95-m road and pad	scavenged	no
09/02/2022	silver-haired bat	7	3	carcass search	95-m road and pad	scavenged	no
09/02/2022	silver-haired bat	26	31	carcass search	95-m road and pad	scavenged	no
09/02/2022	silver-haired bat	53	38	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	63	38	carcass search**	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	41	38	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	45	38	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	38	38	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	38	38	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	17	38	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	47	38	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	71	4	carcass search	95-m road and pad	scavenged	no
09/02/2022	silver-haired bat	11	48	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	7	48	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	47	48	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	57	49	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	30	49	carcass search	60-m cleared	feather spot	yes*
09/02/2022	silver-haired bat	43	49	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	48	49	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	36	49	carcass search	60-m cleared	scavenged	yes*

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
09/02/2022	silver-haired bat	46	52	carcass search	60-m uncleared (soy)	scavenged	yes*
09/02/2022	silver-haired bat	41	52	carcass search	60-m uncleared (soy)	scavenged	yes*
09/02/2022	silver-haired bat	11	52	carcass search	60-m uncleared (soy)	scavenged	yes*
09/02/2022	silver-haired bat	25	52	carcass search	60-m uncleared (soy)	feather spot	yes*
09/02/2022	silver-haired bat	40	60	carcass search	60-m uncleared (soy)	scavenged	yes*
09/02/2022	silver-haired bat	42	60	carcass search	60-m uncleared (soy)	scavenged	yes*
09/02/2022	silver-haired bat	51	64	carcass search	60-m uncleared (soy)	scavenged	yes*
09/02/2022	silver-haired bat	18	64	carcass search	60-m uncleared (soy)	scavenged	yes*
09/02/2022	silver-haired bat	43	72	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	43	72	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	37	72	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	54	75	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	41	75	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	15	75	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	29	75	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	32	8	carcass search	95-m road and pad	scavenged	no
09/02/2022	silver-haired bat	40	89	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	25	89	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	9	89	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	49	89	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	18	89	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	48	89	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	54	89	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	33	89	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	39	89	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	46	90	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	45	90	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	34	90	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	34	90	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	40	90	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	47	90	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	49	92	carcass search	95-m road and pad	scavenged	no
09/02/2022	silver-haired bat	30	92	carcass search	95-m road and pad	scavenged	no
09/02/2022	silver-haired bat	34	92	carcass search	95-m road and pad	scavenged	no
09/02/2022	silver-haired bat	8	94	carcass search	60-m cleared	scavenged	yes*
09/02/2022	silver-haired bat	25	96	carcass search	95-m road and pad	scavenged	no

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
09/02/2022	unidentified *Lasiurus* bat	42	52	carcass search	60-m uncleared (soy)	scavenged	yes*
09/03/2022	silver-haired bat	47	112	incidental	60-m uncleared (soy)	dismembered	yes*
09/03/2022	silver-haired bat	50	112	incidental	60-m uncleared (soy)	dismembered	yes*
09/03/2022	silver-haired bat	24	43	carcass search	60-m uncleared (soy)	scavenged	yes*
09/03/2022	silver-haired bat	33	43	carcass search	60-m uncleared (soy)	scavenged	yes*
09/03/2022	silver-haired bat	30	43	carcass search	60-m uncleared (soy)	scavenged	yes*
09/03/2022	silver-haired bat	36	54	carcass search	60-m cleared	scavenged	yes*
09/03/2022	silver-haired bat	0	54	carcass search	60-m cleared	scavenged	yes*
09/03/2022	silver-haired bat	32	57	carcass search	60-m cleared	scavenged	yes*
09/03/2022	silver-haired bat	46	57	carcass search	60-m cleared	scavenged	yes*
09/03/2022	silver-haired bat	48	57	carcass search	60-m cleared	scavenged	yes*
09/04/2022	silver-haired bat	49	106	incidental	60-m cleared	scavenged	yes*
09/05/2022	eastern red bat	44	132	carcass search	60-m cleared	scavenged	yes*
09/05/2022	eastern red bat	32	132	carcass search	60-m cleared	scavenged	yes*
09/05/2022	eastern red bat	52	132	carcass search	60-m cleared	scavenged	yes*
09/05/2022	hoary bat	36	125	carcass search	60-m cleared	scavenged	yes*
09/05/2022	hoary bat	6	34	carcass search	95-m road and pad	intact	no
09/05/2022	silver-haired bat	36	112	carcass search	60-m uncleared (soy)	scavenged	yes*
09/05/2022	silver-haired bat	48	132	carcass search	60-m cleared	scavenged	yes*
09/05/2022	silver-haired bat	15	132	carcass search	60-m cleared	scavenged	yes*
09/06/2022	eastern red bat	43	38	carcass search	60-m cleared	intact	yes*
09/06/2022	eastern red bat	25	38	carcass search	60-m cleared	intact	yes*
09/06/2022	eastern red bat	53	38	carcass search	60-m cleared	intact	yes*
09/06/2022	eastern red bat	46	38	carcass search	60-m cleared	scavenged	yes*
09/06/2022	eastern red bat	57	48	carcass search	60-m cleared	scavenged	yes*
09/06/2022	eastern red bat	37	53	carcass search	60-m cleared	scavenged	yes*
09/06/2022	eastern red bat	30	57	carcass search	60-m cleared	scavenged	yes*
09/06/2022	hoary bat	13	53	carcass search	60-m cleared	scavenged	yes*
09/06/2022	silver-haired bat	51	53	carcass search	60-m cleared	scavenged	yes*
09/06/2022	silver-haired bat	48	53	carcass search	60-m cleared	scavenged	yes*
09/06/2022	silver-haired bat	21	53	carcass search	60-m cleared	scavenged	yes*
09/06/2022	silver-haired bat	0	69	carcass search	95-m road and pad	scavenged	no
09/07/2022	eastern red bat	36	103	carcass search	60-m cleared	scavenged	yes*
09/07/2022	eastern red bat	21	25	carcass search	60-m cleared	scavenged	yes*
09/07/2022	eastern red bat	37	81	carcass search	60-m cleared	scavenged	yes*
09/07/2022	eastern red bat	52	94	carcass search	60-m cleared	scavenged	yes*

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
09/07/2022	little brown bat	28	106	carcass search	60-m cleared	scavenged	yes*
09/07/2022	silver-haired bat	27	22	carcass search	60-m cleared	scavenged	yes*
09/07/2022	silver-haired bat	46	22	carcass search	60-m cleared	scavenged	yes*
09/07/2022	silver-haired bat	20	25	carcass search	60-m cleared	scavenged	yes*
09/07/2022	silver-haired bat	60	80	carcass search	60-m cleared	scavenged	yes*
09/07/2022	silver-haired bat	36	94	carcass search	60-m cleared	scavenged	yes*
09/08/2022	eastern red bat or Seminole bat	22	1	carcass search	60-m uncleared (soy)	scavenged	yes*
09/08/2022	eastern red bat or Seminole bat	47	22	carcass search	60-m cleared	scavenged	yes*
09/08/2022	silver-haired bat	42	2	carcass search	60-m cleared	scavenged	yes*
09/08/2022	silver-haired bat	47	22	carcass search	60-m cleared	scavenged	yes*
09/08/2022	silver-haired bat	59	22	carcass search	60-m cleared	scavenged	yes*
09/08/2022	silver-haired bat	14	3	carcass search	95-m road and pad	scavenged	no
09/08/2022	silver-haired bat	29	6	carcass search	60-m cleared	scavenged	yes*
09/09/2022	eastern red bat	34	72	carcass search	60-m cleared	scavenged	yes*
09/09/2022	eastern red bat	13	90	carcass search	60-m cleared	scavenged	yes*
09/09/2022	silver-haired bat	1	64	carcass search	60-m uncleared (soy)	scavenged	yes*
09/09/2022	silver-haired bat	56	74	carcass search	60-m uncleared (soy)	scavenged	yes*
09/10/2022	eastern red bat or Seminole bat	51	29	incidental	60-m cleared	scavenged	yes*
09/12/2022	eastern red bat	11	132	carcass search	60-m cleared	scavenged	yes*
09/12/2022	eastern red bat	12	132	carcass search	60-m cleared	scavenged	yes*
09/12/2022	eastern red bat	41	4	carcass search	95-m road and pad	scavenged	no
09/12/2022	eastern red bat	44	80	carcass search	60-m cleared	scavenged	yes*
09/12/2022	hoary bat	8	104	carcass search	95-m road and pad	scavenged	no
09/12/2022	silver-haired bat	4	102	carcass search	60-m uncleared (soy)	scavenged	yes*
09/12/2022	silver-haired bat	43	132	carcass search	60-m cleared	scavenged	yes*
09/12/2022	silver-haired bat	76	28	carcass search	95-m road and pad	intact	no
09/12/2022	silver-haired bat	26	83	carcass search	60-m cleared	intact	yes*
09/13/2022	hoary bat	36	40	carcass search	60-m uncleared (soy)	scavenged	yes*
09/13/2022	silver-haired bat	44	52	carcass search	60-m uncleared (soy)	scavenged	yes*
09/13/2022	silver-haired bat	31	57	carcass search	60-m cleared	scavenged	yes*
09/13/2022	silver-haired bat	36	72	carcass search	60-m cleared	intact	yes*
09/13/2022	silver-haired bat	50	90	carcass search	60-m cleared	intact	yes*
09/13/2022	silver-haired bat	22	94	carcass search	60-m cleared	intact	yes*
09/13/2022	silver-haired bat	2	96	carcass search	95-m road and pad	intact	no
09/15/2022	hoary bat	46	75	carcass search	60-m cleared	scavenged	yes*
09/15/2022	silver-haired bat	36	1	carcass search	60-m uncleared (soy)	intact	yes*

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
09/15/2022	silver-haired bat	37	103	carcass search	60-m cleared	scavenged	yes*
09/15/2022	silver-haired bat	29	106	carcass search	60-m cleared	scavenged	yes*
09/15/2022	silver-haired bat	38	116	carcass search	60-m uncleared (soy)	scavenged	yes*
09/15/2022	silver-haired bat	58	116	carcass search	60-m uncleared (soy)	scavenged	yes*
09/15/2022	silver-haired bat	55	22	carcass search	60-m cleared	scavenged	yes*
09/15/2022	silver-haired bat	57	25	carcass search	60-m cleared	scavenged	yes*
09/15/2022	silver-haired bat	34	27	carcass search	60-m uncleared (soy)	intact	yes*
09/15/2022	silver-haired bat	44	6	carcass search	60-m cleared	dismembered	yes*
09/15/2022	silver-haired bat	18	75	carcass search	60-m cleared	scavenged	yes*
09/15/2022	silver-haired bat	46	75	carcass search	60-m cleared	scavenged	yes*
09/15/2022	silver-haired bat	53	75	carcass search	60-m cleared	scavenged	yes*
09/15/2022	silver-haired bat	18	81	carcass search	60-m cleared	scavenged	yes*
09/15/2022	silver-haired bat	6	83	carcass search	60-m cleared	scavenged	yes*
09/15/2022	silver-haired bat	2	84	carcass search	95-m road and pad	intact	no
09/16/2022	eastern red bat	45	49	carcass search	60-m cleared	intact	yes*
09/16/2022	silver-haired bat	39	38	carcass search	60-m cleared	scavenged	yes*
09/16/2022	silver-haired bat	57	38	carcass search	60-m cleared	scavenged	yes*
09/16/2022	silver-haired bat	48	53	carcass search	60-m cleared	scavenged	yes*
09/17/2022	silver-haired bat	17	44	carcass search	60-m uncleared (soy)	scavenged	yes*
09/19/2022	eastern red bat	39	132	carcass search	60-m cleared	scavenged	yes*
09/19/2022	eastern red bat	38	25	carcass search	60-m cleared	scavenged	yes*
09/19/2022	eastern red bat	40	81	carcass search	60-m cleared	intact	yes*
09/19/2022	silver-haired bat	54	102	carcass search	60-m uncleared (soy)	scavenged	yes*
09/19/2022	silver-haired bat	45	103	carcass search	60-m cleared	intact	yes*
09/19/2022	silver-haired bat	46	106	carcass search	60-m cleared	intact	yes*
09/19/2022	silver-haired bat	43	117	carcass search	60-m cleared	scavenged	yes*
09/19/2022	silver-haired bat	30	121	carcass search	60-m uncleared (soy)	scavenged	yes*
09/19/2022	silver-haired bat	11	81	carcass search	60-m cleared	scavenged	yes*
09/19/2022	silver-haired bat	62	81	carcass search**	60-m cleared	scavenged	yes*
09/19/2022	silver-haired bat	44	81	carcass search	60-m cleared	scavenged	yes*
09/20/2022	big brown bat	2	133	carcass search	95-m road and pad	scavenged	no
09/20/2022	eastern red bat	42	2	carcass search	60-m cleared	scavenged	yes*
09/20/2022	hoary bat	44	1	carcass search	60-m uncleared (soy)	scavenged	yes*
09/20/2022	hoary bat	54	38	carcass search	60-m cleared	scavenged	yes*
09/20/2022	hoary bat	44	72	carcass search	60-m cleared	scavenged	yes*
09/20/2022	silver-haired bat	51	52	carcass search	60-m uncleared (soy)	scavenged	yes*

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
09/20/2022	silver-haired bat	50	54	carcass search	60-m cleared	scavenged	yes*
09/20/2022	silver-haired bat	44	60	carcass search	60-m uncleared (soy)	dismembered	yes*
09/20/2022	silver-haired bat	11	94	carcass search	60-m cleared	dismembered	yes*
09/20/2022	unidentified non-*Myotis*	40	27	carcass search	60-m uncleared (soy)	scavenged	yes*
09/22/2022	big brown bat	15	117	carcass search	60-m cleared	dismembered	yes*
09/22/2022	big brown bat	21	117	carcass search	60-m cleared	scavenged	yes*
09/22/2022	eastern red bat	50	106	carcass search	60-m cleared	scavenged	yes*
09/22/2022	eastern red bat	54	125	carcass search	60-m cleared	scavenged	yes*
09/22/2022	eastern red bat	77	32	incidental**	95-m road and pad	scavenged	no
09/22/2022	eastern red bat or Seminole bat	44	116	carcass search	60-m uncleared (soy)	scavenged	yes*
09/22/2022	eastern red bat or Seminole bat	59	121	carcass search	60-m uncleared (soy)	scavenged	yes*
09/22/2022	hoary bat	68	81	carcass search**	60-m cleared	scavenged	yes*
09/22/2022	hoary bat	14	83	carcass search	60-m cleared	scavenged	yes*
09/22/2022	silver-haired bat	5	21	carcass search	95-m road and pad	intact	no
09/22/2022	silver-haired bat	60	80	carcass search	60-m cleared	intact	yes*
09/22/2022	silver-haired bat	60	81	carcass search	60-m cleared	scavenged	yes*
09/23/2022	eastern red bat	55	57	carcass search	60-m cleared	scavenged	yes*
09/23/2022	eastern red bat	45	94	carcass search	60-m cleared	scavenged	yes*
09/23/2022	silver-haired bat	44	48	carcass search	60-m cleared	scavenged	yes*
09/23/2022	silver-haired bat	39	48	carcass search	60-m cleared	scavenged	yes*
09/23/2022	silver-haired bat	37	49	carcass search	60-m cleared	intact	yes*
09/23/2022	silver-haired bat	51	53	carcass search	60-m cleared	intact	yes*
09/23/2022	silver-haired bat	25	53	carcass search	60-m cleared	scavenged	yes*
09/23/2022	silver-haired bat	59	75	carcass search	60-m cleared	intact	yes*
09/24/2022	silver-haired bat	50	2	carcass search	60-m cleared	scavenged	yes*
09/24/2022	silver-haired bat	39	6	carcass search	60-m cleared	scavenged	yes*
09/26/2022	eastern red bat	58	112	carcass search	60-m uncleared (soy)	scavenged	yes*
09/26/2022	eastern red bat	29	80	carcass search	60-m cleared	scavenged	yes*
09/26/2022	evening bat	50	117	carcass search	60-m cleared	intact	yes*
09/26/2022	silver-haired bat	64	116	carcass search**	60-m uncleared (soy)	scavenged	yes*
09/26/2022	silver-haired bat	59	2	carcass search	60-m cleared	intact	yes*
09/26/2022	silver-haired bat	59	25	carcass search	60-m cleared	scavenged	yes*
09/26/2022	silver-haired bat	5	27	carcass search	60-m uncleared (soy)	intact	yes*
09/27/2022	silver-haired bat	49	29	carcass search	60-m cleared	scavenged	yes*
09/27/2022	silver-haired bat	46	38	carcass search	60-m cleared	intact	yes*
09/27/2022	silver-haired bat	23	64	carcass search	60-m uncleared (soy)	scavenged	yes*

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
09/29/2022	eastern red bat	56	6	carcass search	60-m cleared	scavenged	yes*
09/29/2022	silver-haired bat	59	2	carcass search	60-m cleared	intact	yes*
09/29/2022	silver-haired bat	54	2	carcass search	60-m cleared	scavenged	yes*
09/29/2022	silver-haired bat	65	25	carcass search**	60-m cleared	scavenged	yes*
09/29/2022	silver-haired bat	111	6	carcass search**	60-m cleared	scavenged	yes*
09/29/2022	unidentified non-*Myotis*	70	6	carcass search**	60-m cleared	scavenged	yes*
09/30/2022	silver-haired bat	48	44	carcass search	60-m uncleared (soy)	scavenged	yes*
09/30/2022	silver-haired bat	42	90	carcass search	60-m cleared	scavenged	yes*
09/30/2022	unidentified bat	63	94	carcass search	60-m cleared	scavenged	yes*
10/03/2022	silver-haired bat	47	103	carcass search	60-m cleared	scavenged	yes*
10/03/2022	silver-haired bat	19	121	carcass search	60-m uncleared (soy)	intact	yes*
10/03/2022	silver-haired bat	43	25	carcass search	60-m cleared	scavenged	yes*
10/03/2022	silver-haired bat	44	80	carcass search	60-m cleared	scavenged	yes*
10/04/2022	eastern red bat	51	90	carcass search	60-m cleared	scavenged	yes*
10/04/2022	silver-haired bat	30	48	carcass search	60-m cleared	scavenged	yes*
10/04/2022	silver-haired bat	57	60	carcass search	60-m uncleared (soy)	scavenged	yes*
10/04/2022	silver-haired bat	31	89	carcass search	60-m cleared	scavenged	yes*
10/06/2022	eastern red bat	63	116	carcass search**	60-m uncleared (soy)	scavenged	yes*
10/07/2022	hoary bat	30	64	carcass search	60-m uncleared (soy)	scavenged	yes*
10/07/2022	silver-haired bat	29	64	carcass search	60-m uncleared (soy)	scavenged	yes*
10/07/2022	silver-haired bat	57	89	carcass search	60-m cleared	dismembered	yes*
10/07/2022	silver-haired bat	39	90	carcass search	60-m cleared	intact	yes*
10/10/2022	hoary bat	36	106	carcass search	60-m cleared	intact	yes*
10/10/2022	silver-haired bat	30	10	carcass search	95-m road and pad	scavenged	no
10/10/2022	silver-haired bat	46	117	carcass search	60-m cleared	scavenged	yes*
10/10/2022	silver-haired bat	54	117	carcass search	60-m cleared	scavenged	yes*
10/10/2022	silver-haired bat	109	6	incidental**	60-m cleared	scavenged	yes*
10/10/2022	silver-haired bat	51	83	carcass search	60-m cleared	intact	yes*
10/11/2022	eastern red bat	18	43	carcass search	60-m uncleared (soy)	intact	yes*
10/11/2022	silver-haired bat	55	60	carcass search	60-m uncleared (soy)	intact	yes*
10/11/2022	silver-haired bat	26	94	carcass search	60-m cleared	scavenged	yes*
10/13/2022	silver-haired bat	53	116	carcass search	60-m uncleared (soy)	intact	yes*
10/13/2022	silver-haired bat	36	125	carcass search	60-m cleared	dismembered	yes*
10/14/2022	eastern red bat or Seminole bat	57	52	carcass search	60-m uncleared (soy)	scavenged	yes*
10/14/2022	evening bat	11	29	carcass search	60-m cleared	scavenged	yes*
10/14/2022	silver-haired bat	27	40	carcass search	60-m uncleared (soy)	intact	yes*

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
Bird Carcasses							
04/18/2022	chipping sparrow	50	74	carcass search	60-m uncleared (soy)	scavenged	yes*
04/18/2022	golden-crowned kinglet	65	80	carcass search**	60-m cleared	scavenged	yes*
04/18/2022	turkey vulture	54	92	carcass search	95-m road and pad	scavenged	no
04/18/2022	unidentified passerine	60	100	carcass search	60-m cleared	scavenged	yes*
04/19/2022	house wren	95	102	carcass search**	60-m uncleared (soy)	scavenged	yes*
04/21/2022	killdeer	30	1	carcass search	60-m uncleared (soy)	feather spot	yes*
04/22/2022	common grackle	29	54	carcass search	60-m cleared	scavenged	yes*
04/22/2022	golden-crowned kinglet	32	89	carcass search	60-m cleared	scavenged	yes*
04/22/2022	killdeer	28	52	carcass search	60-m uncleared (soy)	scavenged	yes*
04/22/2022	unidentified passerine	61	44	carcass search**	60-m uncleared (soy)	scavenged	yes*
04/22/2022	white-throated sparrow	40	40	carcass search	60-m uncleared (soy)	scavenged	yes*
04/26/2022	house sparrow	75	2	carcass search**	60-m cleared	scavenged	yes*
04/26/2022	house sparrow	41	74	carcass search	60-m uncleared (soy)	scavenged	yes*
04/26/2022	killdeer	29	52	carcass search	60-m uncleared (soy)	scavenged	yes*
04/26/2022	mourning dove	1	124	carcass search	95-m road and pad	feather spot	no
04/26/2022	mourning dove	0	43	carcass search	60-m uncleared (soy)	feather spot	yes*
04/26/2022	yellow-throated vireo	38	38	carcass search	60-m cleared	scavenged	yes*
05/02/2022	unidentified small bird	40	44	carcass search	60-m uncleared (soy)	scavenged	yes*
05/02/2022	white-throated sparrow	59	100	carcass search	60-m cleared	scavenged	yes*
05/05/2022	unidentified dove	44	27	carcass search	60-m uncleared (soy)	scavenged	yes*
05/06/2022	Swainson’s thrush	61	49	carcass search**	60-m cleared	scavenged	yes*
05/06/2022	unidentified small bird	42	133	carcass search	95-m road and pad	feather spot	no
05/06/2022	unidentified warbler	62	89	carcass search**	60-m cleared	scavenged	yes*
05/09/2022	gray catbird	52	125	carcass search	60-m cleared	scavenged	yes*
05/09/2022	Swainson’s thrush	12	22	carcass search	60-m cleared	scavenged	yes*
05/10/2022	golden-crowned kinglet	56	89	carcass search	60-m cleared	scavenged	yes*
05/10/2022	gray catbird	33	48	carcass search	60-m cleared	scavenged	yes*
05/10/2022	gray catbird	24	48	carcass search	60-m cleared	scavenged	yes*
05/10/2022	gray catbird	33	90	carcass search	60-m cleared	scavenged	yes*
05/10/2022	horned lark	61	49	carcass search**	60-m cleared	scavenged	yes*
05/10/2022	yellow warbler	56	49	carcass search	60-m cleared	scavenged	yes*
05/11/2022	red-eyed vireo	35	99	carcass search**	95-m road and pad	intact	no
05/12/2022	hermit thrush	21	81	carcass search	60-m cleared	scavenged	yes*
05/12/2022	unidentified small bird	46	48	carcass search	60-m cleared	scavenged	yes*
05/12/2022	yellow-billed cuckoo	46	100	carcass search	60-m cleared	scavenged	yes*

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
05/12/2022	yellow-rumped warbler	26	83	carcass search	60-m cleared	scavenged	yes*
05/13/2022	gray catbird	35	90	carcass search	60-m cleared	feather spot	yes*
05/13/2022	yellow-rumped warbler	37	112	carcass search	60-m uncleared (soy)	scavenged	yes*
05/16/2022	blackpoll warbler	80	106	carcass search**	60-m cleared	scavenged	yes*
05/16/2022	unidentified thrush	13	22	carcass search	60-m cleared	scavenged	yes*
05/18/2022	unidentified thrush	74	22	incidental**	60-m cleared	scavenged	yes*
05/19/2022	gray catbird	48	121	carcass search	60-m uncleared (soy)	scavenged	yes*
05/19/2022	mourning dove	46	125	carcass search	60-m cleared	intact	yes*
05/19/2022	turkey vulture	17	24	incidental**	95-m road and pad	scavenged	no
05/20/2022	unidentified small bird	34	52	carcass search	60-m uncleared (soy)	scavenged	yes*
05/23/2022	gray catbird	115	112	carcass search**	60-m uncleared (soy)	scavenged	yes*
05/23/2022	gray catbird	85	121	incidental**	60-m uncleared (soy)	scavenged	yes*
05/23/2022	unidentified passerine	53	81	carcass search	60-m cleared	scavenged	yes*
05/23/2022	yellow-billed cuckoo	51	1	carcass search	60-m uncleared (soy)	scavenged	yes*
05/23/2022	yellow-billed cuckoo	87	83	carcass search**	60-m cleared	scavenged	yes*
05/24/2022	black-billed cuckoo	78	40	carcass search**	60-m uncleared (soy)	scavenged	yes*
05/24/2022	killdeer	17	96	carcass search	95-m road and pad	dismembered	no
05/24/2022	unidentified small bird	44	54	carcass search	60-m cleared	scavenged	yes*
05/30/2022	horned lark	14	106	carcass search	60-m cleared	scavenged	yes*
05/30/2022	red-eyed vireo	52	125	carcass search	60-m cleared	scavenged	yes*
05/30/2022	yellow-rumped warbler	35	112	carcass search	60-m uncleared (soy)	scavenged	yes*
05/31/2022	brown-headed cowbird	60	72	carcass search	60-m cleared	scavenged	yes*
06/02/2022	common yellowthroat	58	6	carcass search	60-m cleared	scavenged	yes*
06/02/2022	red-winged blackbird	33	102	carcass search	60-m uncleared (soy)	scavenged	yes*
06/02/2022	unidentified small bird	39	79	carcass search	95-m road and pad	scavenged	no
06/02/2022	yellow-billed cuckoo	72	112	carcass search**	60-m uncleared (soy)	scavenged	yes*
06/02/2022	yellow-billed cuckoo	96	123	carcass search**	60-m cleared	scavenged	yes*
06/02/2022	yellow-billed cuckoo	93	9	carcass search**	95-m road and pad	intact	no
06/03/2022	dickcissel	93	60	carcass search**	60-m uncleared (soy)	scavenged	yes*
06/03/2022	yellow-billed cuckoo	89	49	carcass search**	60-m cleared	scavenged	yes*
06/06/2022	black-billed cuckoo	87	54	carcass search**	60-m cleared	scavenged	yes*
06/06/2022	gray catbird	20	20	carcass search	95-m road and pad	feather spot	no
06/07/2022	gray catbird	48	29	carcass search	60-m cleared	feather spot	yes*
06/09/2022	horned lark	23	2	carcass search	60-m cleared	scavenged	yes*
06/09/2022	unidentified passerine	51	123	carcass search	60-m cleared	scavenged	yes*
06/09/2022	yellow-billed cuckoo	69	1	carcass search**	60-m uncleared (soy)	scavenged	yes*

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
06/10/2022	killdeer	32	52	carcass search	60-m uncleared (soy)	scavenged	yes*
06/10/2022	ring-necked pheasant	1	74	carcass search	60-m uncleared (soy)	scavenged	yes*
06/17/2022	unidentified small bird	28	44	carcass search	60-m uncleared (soy)	feather spot	yes*
06/17/2022	yellow-billed cuckoo	71	112	incidental**	60-m uncleared (soy)	scavenged	yes*
06/20/2022	red-winged blackbird	57	112	carcass search	60-m uncleared (soy)	scavenged	yes*
06/22/2022	ring-necked pheasant	0	74	carcass search	60-m uncleared (soy)	intact	yes*
06/22/2022	turkey vulture	54	92	carcass search	95-m road and pad	dismembered	no
06/23/2022	yellow-rumped warbler	83	112	carcass search**	60-m uncleared (soy)	scavenged	yes*
07/01/2022	common grackle	12	48	carcass search	60-m cleared	scavenged	yes*
07/05/2022	ring-necked pheasant	5	96	carcass search	95-m road and pad	intact	no
07/08/2022	killdeer	71	57	carcass search**	60-m cleared	feather spot	yes*
07/10/2022	killdeer	13	83	carcass search	60-m cleared	feather spot	yes*
07/18/2022	unidentified small bird	5	8	carcass search	95-m road and pad	feather spot	no
07/19/2022	American robin	51	57	carcass search	60-m cleared	scavenged	yes*
07/19/2022	killdeer	26	89	carcass search	60-m cleared	intact	yes*
07/26/2022	unidentified swallow	35	54	carcass search	60-m cleared	injured	yes*
07/28/2022	killdeer	63	6	carcass search**	60-m cleared	scavenged	yes*
07/29/2022	killdeer	52	94	carcass search	60-m cleared	feather spot	yes*
08/01/2022	barn swallow	32	83	carcass search	60-m cleared	scavenged	yes*
08/01/2022	killdeer	63	103	carcass search**	60-m cleared	scavenged	yes*
08/02/2022	black-billed cuckoo	36	40	carcass search	60-m uncleared (soy)	scavenged	yes*
08/08/2022	dickcissel	34	80	carcass search	60-m cleared	scavenged	yes*
08/08/2022	killdeer	63	25	carcass search**	60-m cleared	feather spot	yes*
08/08/2022	unidentified large bird	36	6	carcass search	60-m cleared	scavenged	yes*
08/10/2022	killdeer	13	125	carcass search	60-m cleared	scavenged	yes*
08/11/2022	unidentified small bird	34	83	carcass search	60-m cleared	feather spot	yes*
08/15/2022	cliff swallow	44	121	carcass search	60-m uncleared (soy)	scavenged	yes*
08/16/2022	mourning dove	4	103	carcass search	60-m cleared	injured	yes*
08/16/2022	unidentified small bird	57	57	carcass search	60-m cleared	scavenged	yes*
08/19/2022	unidentified passerine	33	25	carcass search	60-m cleared	scavenged	yes*
08/22/2022	horned lark	63	80	carcass search**	60-m cleared	scavenged	yes*
08/23/2022	horned lark	22	38	carcass search	60-m cleared	scavenged	yes*
08/24/2022	killdeer	30	94	carcass search	60-m cleared	feather spot	yes*
08/24/2022	ruby-throated hummingbird	19	89	carcass search	60-m cleared	scavenged	yes*
08/25/2022	ring-necked pheasant	52	1	carcass search	60-m uncleared (soy)	scavenged	yes*
08/25/2022	unidentified large bird	45	2	carcass search	60-m cleared	dismembered	yes*

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
08/29/2022	Cooper's hawk	8	78	carcass search	95-m road and pad	intact	no
08/29/2022	orchard oriole	50	106	carcass search	60-m cleared	scavenged	yes*
08/30/2022	killdeer	41	90	carcass search	60-m cleared	feather spot	yes*
08/30/2022	killdeer	36	94	carcass search	60-m cleared	feather spot	yes*
08/30/2022	mourning dove	2	62	carcass search	95-m road and pad	scavenged	no
09/01/2022	mourning dove	1	103	carcass search	60-m cleared	scavenged	yes*
09/01/2022	mourning dove	1	82	carcass search	95-m road and pad	intact	no
09/02/2022	killdeer	54	94	carcass search	60-m cleared	feather spot	yes*
09/02/2022	unidentified warbler	46	48	carcass search	60-m cleared	scavenged	yes*
09/05/2022	killdeer	48	123	carcass search	60-m cleared	scavenged	yes*
09/05/2022	unidentified large bird	43	112	carcass search	60-m uncleared (soy)	scavenged	yes*
09/05/2022	unidentified small bird	48	123	carcass search	60-m cleared	feather spot	yes*
09/07/2022	American robin	33	106	carcass search	60-m cleared	scavenged	yes*
09/07/2022	Blackburnian warbler	34	81	carcass search	60-m cleared	scavenged	yes*
09/08/2022	horned lark	23	81	carcass search	60-m cleared	scavenged	yes*
09/08/2022	mourning dove	5	6	carcass search	60-m cleared	scavenged	yes*
09/08/2022	unidentified small bird	17	2	carcass search	60-m cleared	feather spot	yes*
09/08/2022	unidentified warbler	30	22	carcass search	60-m cleared	scavenged	yes*
09/09/2022	black-and-white warbler	54	49	carcass search	60-m cleared	scavenged	yes*
09/09/2022	killdeer	45	94	carcass search	60-m cleared	feather spot	yes*
09/09/2022	unidentified flycatcher	53	49	carcass search	60-m cleared	scavenged	yes*
09/12/2022	hooded warbler	36	83	carcass search	60-m cleared	scavenged	yes*
09/12/2022	pine warbler	26	103	carcass search	60-m cleared	scavenged	yes*
09/12/2022	unidentified small bird	20	123	carcass search	60-m cleared	scavenged	yes*
09/13/2022	unidentified small bird	58	106	carcass search	60-m cleared	feather spot	yes*
09/15/2022	horned lark	9	2	carcass search	60-m cleared	scavenged	yes*
09/15/2022	unidentified thrush	14	2	carcass search	60-m cleared	dismembered	yes*
09/16/2022	American redstart	40	74	carcass search	60-m uncleared (soy)	dismembered	yes*
09/17/2022	red-breasted nuthatch	23	44	carcass search	60-m uncleared (soy)	scavenged	yes*
09/19/2022	horned lark	8	123	carcass search	60-m cleared	scavenged	yes*
09/19/2022	Savannah sparrow	7	103	carcass search	60-m cleared	scavenged	yes*
09/20/2022	red-eyed vireo	47	38	carcass search	60-m cleared	intact	yes*
09/20/2022	unidentified warbler	13	2	carcass search	60-m cleared	dismembered	yes*
09/21/2022	common yellowthroat	65	74	carcass search**	60-m uncleared (soy)	scavenged	yes*
09/22/2022	mourning dove	1	59	carcass search	95-m road and pad	intact	no
09/22/2022	red-eyed vireo	4	87	carcass search	95-m road and pad	intact	no

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
09/22/2022	unidentified passerine	37	80	carcass search	60-m cleared	scavenged	yes*
09/23/2022	red-breasted nuthatch	18	29	carcass search	60-m cleared	intact	yes*
09/23/2022	red-eyed vireo	56	49	carcass search	60-m cleared	intact	yes*
09/23/2022	red-eyed vireo	26	49	carcass search	60-m cleared	scavenged	yes*
09/26/2022	common yellowthroat	83	4	carcass search	95-m road and pad	intact	no
09/26/2022	mourning dove	1	17	carcass search	95-m road and pad	scavenged	no
09/26/2022	red-eyed vireo	2	87	carcass search	95-m road and pad	intact	no
09/26/2022	sedge wren	57	2	carcass search	60-m cleared	intact	yes*
09/26/2022	yellow-throated warbler	74	19	carcass search	95-m road and pad	dismembered	no
09/27/2022	killdeer	32	54	carcass search	60-m cleared	scavenged	yes*
09/27/2022	yellow-bellied sapsucker	60	42	carcass search	95-m road and pad	intact	no
09/27/2022	yellow-rumped warbler	28	94	carcass search	60-m cleared	scavenged	yes*
09/29/2022	American redstart	89	13	incidental**	60-m uncleared (soy)	intact	yes*
09/29/2022	blue jay	4	59	carcass search	95-m road and pad	feather spot	no
09/29/2022	red-eyed vireo	39	123	carcass search	60-m cleared	scavenged	yes*
09/29/2022	ring-necked pheasant	27	27	carcass search	60-m uncleared (soy)	feather spot	yes*
09/29/2022	sedge wren	66	117	carcass search**	60-m cleared	scavenged	yes*
09/30/2022	Blackburnian warbler	56	94	carcass search	60-m cleared	scavenged	yes*
09/30/2022	yellow-breasted chat	58	48	carcass search	60-m cleared	intact	yes*
10/03/2022	ruby-throated hummingbird	1	24	carcass search	95-m road and pad	intact	no
10/03/2022	yellow-throated vireo	40	2	carcass search	60-m cleared	scavenged	yes*
10/04/2022	golden-crowned kinglet	36	53	carcass search	60-m cleared	intact	yes*
10/04/2022	unidentified small bird	40	29	carcass search	60-m cleared	feather spot	yes*
10/04/2022	unidentified small bird	40	40	carcass search	60-m uncleared (soy)	dismembered	yes*
10/04/2022	yellow-throated vireo	33	74	carcass search	60-m uncleared (soy)	scavenged	yes*
10/06/2022	American redstart	71	55	carcass search	95-m road and pad	scavenged	no
10/07/2022	golden-crowned kinglet	53	54	carcass search	60-m cleared	intact	yes*
10/07/2022	red-eyed vireo	50	29	carcass search	60-m cleared	scavenged	yes*
10/07/2022	ruby-throated hummingbird	37	54	carcass search	60-m cleared	intact	yes*
10/10/2022	ovenbird	75	13	carcass search**	60-m uncleared (soy)	scavenged	yes*
10/10/2022	Philadelphia vireo	36	27	carcass search	60-m uncleared (soy)	scavenged	yes*
10/10/2022	sedge wren	59	79	carcass search	95-m road and pad	scavenged	no
10/10/2022	yellow-rumped warbler	86	27	carcass search**	60-m uncleared (soy)	scavenged	yes*
10/11/2022	golden-crowned kinglet	60	42	carcass search	95-m road and pad	scavenged	no
10/11/2022	ruby-crowned kinglet	37	94	carcass search	60-m cleared	scavenged	yes*
10/11/2022	unidentified warbler	31	64	carcass search	60-m uncleared (soy)	scavenged	yes*

Appendix C1. Carcasses found at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Found Date	Common Name	Distance from Turbine (m)	Search Location	Search Type	Search Area Type	Physical Condition	Aided Search
10/11/2022	yellow-bellied sapsucker	49	40	carcass search	60-m uncleared (soy)	scavenged	yes*
10/13/2022	bay-breasted warbler	4	80	carcass search	60-m cleared	injured	yes*
10/13/2022	yellow-throated warbler	37	2	carcass search	60-m cleared	scavenged	yes*
10/14/2022	yellow-throated vireo	22	94	carcass search	60-m cleared	scavenged	yes*

* = Dog aided search

** = Carcass was found outside the search area

m = meters

Appendix C2. Number and percent (%) of bat carcasses included and excluded from analysis for the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

	Included in Area Adjustment		Outside Search Area*		Outside Study Period*		Total	
Species	**Total**	**%**	**Total**	**%**	**Total**	**%**	**Total**	**%**
eastern red bat	321	41.63	25	46.30	0	0	346	41.84
silver-haired bat	272	35.28	20	37.04	1	50.00	293	35.43
hoary bat	96	12.45	2	3.70	1	50.00	99	11.97
big brown bat	29	3.76	1	1.85	0	0	30	3.63
evening bat	20	2.59	4	7.41	0	0	24	2.90
unidentified *Lasiurus* bat	14	1.82	0	0	0	0	14	1.69
eastern red bat or Seminole bat	12	1.56	1	1.85	0	0	13	1.57
unidentified non-*Myotis*	3	0.39	1	1.85	0	0	4	0.48
unidentified bat	2	0.26	0	0	0	0	2	0.24
Indiana bat	1	0.13	0	0	0	0	1	0.12
little brown bat	1	0.13	0	0	0	0	1	0.12
Overall Bats	**771**	**100**	**54**	**100**	**2**	**100**	**827**	**100**

* Carcasses not included in analysis.

Appendix D. Searcher Efficiency and Carcass Persistence Model Fitting Results for the 2022 Post-construction Monitoring at the California Ridge Wind Farm, Champaign and Vermilion Counties, Illinois, from April 1 – October 15, 2022

Appendix D1. Searcher efficiency models for 60-meter plots at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022 (n = 108).

Covariates	*k* Value	AICc	Delta AICc
No Covariates	*k* fixed at 0.8	73.13	0*
Season	*k* fixed at 0.8	74.15	1.02
Plot Cover	*k* fixed at 0.8	74.87	1.74
Plot Cover + Season	*k* fixed at 0.8	76.08	2.95
Plot Cover * Season	*k* fixed at 0.8	80.26	7.13

* Selected model.

AICc = Corrected Akaike Information Criterion.

Delta AICc = Change in AICc

Appendix D2. Searcher efficiency models for 95-meter (m) road and pads at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022 (n = 67).

Covariates	*k* Value	AICc	Delta AICc
No Covariates	*k* fixed at 0.8	65.05	0*
Season	*k* fixed at 0.8	67.96	2.91

* Selected model.

AICc = Corrected Akaike Information Criterion.

Delta AICc = Change in AICc

Appendix D3. Carcass persistence models with covariates and distributions for 60-meter plots at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022 (n = 80).

Location Covariates	Scale Covariates	Distribution	AICc	Delta AICc
No Covariates	No Covariates	Weibull	332.91	0*
No Covariates	No Covariates	log-logistic	334.27	1.36
PlotCover	No Covariates	Weibull	334.38	1.47
No Covariates	PlotCover	Weibull	334.44	1.53
PlotCover	Season	Weibull	335.02	2.11
No Covariates	No Covariates	lognormal	335.13	2.22
No Covariates	PlotCover	log-logistic	335.28	2.37
No Covariates	Season	Weibull	335.40	2.49
PlotCover	PlotCover	Weibull	335.47	2.56
PlotCover	No Covariates	log-logistic	336.21	3.30
No Covariates	PlotCover	lognormal	336.42	3.51
PlotCover	PlotCover + Season	Weibull	336.87	3.96
No Covariates	Season	log-logistic	336.91	4.00
PlotCover	PlotCover	log-logistic	337.06	4.15
Season	No Covariates	Weibull	337.09	4.18
PlotCover	No Covariates	lognormal	337.10	4.19
PlotCover	Season	log-logistic	337.12	4.21
No Covariates	PlotCover + Season	Weibull	337.21	4.30
No Covariates	PlotCover + Season	log-logistic	337.74	4.83
No Covariates	Season	lognormal	338.06	5.15
Season	No Covariates	log-logistic	338.13	5.22
PlotCover	PlotCover	lognormal	338.13	5.22
Season	PlotCover	Weibull	338.42	5.51
PlotCover	PlotCover + Season	log-logistic	338.50	5.59

Appendix D3. Carcass persistence models with covariates and distributions for 60-meter plots at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022 (n = 80).

Location Covariates	Scale Covariates	Distribution	AICc	Delta AICc
PlotCover + Season	Season	Weibull	338.62	5.71
PlotCover + Season	No Covariates	Weibull	338.71	5.80
PlotCover + Season	PlotCover	Weibull	338.90	5.99
Season	PlotCover	log-logistic	338.92	6.01
No Covariates	PlotCover + Season	lognormal	338.92	6.01
PlotCover	Season	lognormal	338.96	6.05
Season	No Covariates	lognormal	339.00	6.09
PlotCover + Season	PlotCover + Season	Weibull	339.29	6.38
Season	PlotCover	lognormal	339.75	6.84
Season	Season	Weibull	339.83	6.92
PlotCover	PlotCover + Season	lognormal	340.10	7.19
PlotCover + Season	No Covariates	log-logistic	340.24	7.33
PlotCover + Season	PlotCover	log-logistic	340.78	7.87
PlotCover + Season	No Covariates	lognormal	341.16	8.25
Season	PlotCover + Season	Weibull	341.23	8.32
Season	Season	log-logistic	341.25	8.34
Season	PlotCover + Season	log-logistic	341.47	8.56
PlotCover + Season	PlotCover	lognormal	341.59	8.68
PlotCover + Season	Season	log-logistic	341.71	8.80
Season	PlotCover + Season	lognormal	342.26	9.35
PlotCover + Season	PlotCover + Season	log-logistic	342.43	9.52
Season	Season	lognormal	342.47	9.56
PlotCover + Season	PlotCover + Season	lognormal	343.57	10.66
PlotCover + Season	Season	lognormal	343.59	10.68
No Covariates	–	exponential	345.72	12.81
PlotCover	–	exponential	346.89	13.98
Season	–	exponential	349.71	16.80
PlotCover + Season	–	exponential	351.03	18.12

* Selected model-

AICc = Corrected Akaike Information Criterion.

Delta AICc = Change in AICc

Appendix D4. Carcass persistence models with covariates and distributions for 95-meter road and pads at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022 (n = 47).

Location Covariates	Scale Covariates	Distribution	AICc	Delta AICc
No Covariates	No Covariates	Weibull	218.71	0*
No Covariates	No Covariates	log-logistic	219.56	0.85
No Covariates	No Covariates	lognormal	219.68	0.97
Season	No Covariates	Weibull	222.03	3.32
Season	No Covariates	log-logistic	223.07	4.36
Season	No Covariates	lognormal	223.17	4.46
No Covariates	Season	Weibull	223.25	4.54
No Covariates	–	exponential	223.96	5.25
No Covariates	Season	log-logistic	224.21	5.50
No Covariates	Season	lognormal	224.35	5.64
Season	–	exponential	226.49	7.78
Season	Season	Weibull	227.06	8.35
Season	Season	log-logistic	228.15	9.44
Season	Season	lognormal	228.29	9.58

* Selected model.

AICc = Corrected Akaike Information Criterion.

Delta AICc = Change in AICc

Appendix D5. Carcass persistence top models with covariates, distributions, and model parameters for the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

Plot Search Type	Distribution	Estimated Median Removal Times (days)	Parameter 1	Parameter 2
60-m	Weibull*	18.05	shape = 0.6086	scale = 32.9503
95-m road and pad	Weibull*	8.47	shape = 0.6817	scale = 14.4978

* Parameterization follows the base R parameterization for this distribution

m = meters

Appendix E. Bat Fatality Rates and Adjustment Factors Table for the California Ridge Wind Farm, Champaign and Vermilion Counties, Illinois, from April 1 – October 15, 2022

Appendix E1. Estimated fatality rates and adjustment factors, with 90% confidence intervals at 60-meter cleared plot search areas for studies conducted at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

	Spring		Summer		Fall	
	26 turbines searched		26 turbines searched		26 turbines searched	
	Estimate	90% CI	Estimate	90% CI	Estimate	90% CI
Search Area Adjustment						
Bat	0.71	0.71–0.71	0.71	0.71–0.71	0.71	0.71–0.71
Searcher Efficiency						
Bat	0.90	0.84–0.94	0.90	0.84–0.94	0.90	0.84–0.94
Average Probability of a Carcass Persisting Through the Search Interval*						
Bat	0.85	0.79–0.90	0.85	0.79–0.90	0.85	0.79–0.90
Probability of Available and Detected						
Bat	0.82	0.76–0.87	0.82	0.76–0.87	0.82	0.76–0.87
Estimated Fatality Rates (Fatalities/Turbine/Season[s])						
Bat	1.15	0.82–1.49	10.55	9.44–11.78	22.76	20.79–25.16
Estimated Fatality Rates (Fatalities/Megawatt/Season[s])						
Bat	0.72	0.51–0.93	6.59	5.90–7.37	14.22	12.99–15.72

* The search interval was twice per week.

Appendix E2. Overall fatality rates per megawatt (MW) and per turbine for 60-meter cleared plot search area studies conducted at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

	Per MW Estimates		Per Turbine Estimates	
	Estimate	90% CI	Estimate	90% CI
Bat	21.55	19.87–23.60	34.48	31.80–37.76

CI = Confidence Interval.

Appendix E3. Estimated fatality rates and adjustment factors, with 90% confidence intervals at 60-meter uncleared (soy) plot search areas for studies conducted at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

	Spring		Summer		Fall	
	14 turbines searched		14 turbines searched		14 turbines searched	
	Estimate	90% CI	Estimate	90% CI	Estimate	90% CI
Search Area Adjustment						
Bat	0.71	0.71–0.71	0.71	0.71–0.71	0.71	0.71–0.71
Searcher Efficiency						
Bat	0.90	0.84–0.94	0.90	0.84–0.94	0.90	0.84–0.94
Average Probability of a Carcass Persisting Through the Search Interval*						
Bat	0.85	0.79–0.90	0.85	0.79–0.90	0.85	0.79–0.90
Probability of Available and Detected						
Bat	0.82	0.76–0.87	0.82	0.76–0.87	0.82	0.76–0.87
Estimated Fatality Rates (Fatalities/Turbine/Season[s])						
Bat	1.34	0.90–1.83	8.46	7.22–9.80	11.89	10.45–13.55
Estimated Fatality Rates (Fatalities/Megawatt/Season[s])						
Bat	0.84	0.56–1.15	5.29	4.51–6.13	7.43	6.53–8.47

* The search interval was twice per week.

Appendix E4. Overall fatality rates per megawatt (MW) and per turbine for 60-meter uncleared (soy) plot) search area studies conducted at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

	Per MW Estimates		Per Turbine Estimates	
	Estimate	90% CI	Estimate	90% CI
Bat	13.58	12.21–15.04	21.72	19.53–24.06

CI = Confidence Interval.

Appendix E5. Estimated fatality rates and adjustment factors, with 90% confidence intervals at road and pad search areas for studies conducted at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

	Spring		Summer		Fall	
	94 turbines searched		94 turbines searched		94 turbines searched	
	Estimate	90% CI	Estimate	90% CI	Estimate	90% CI
Search Area Adjustment						
Bat	0.04	0.04–0.04	0.04	0.04–0.04	0.04	0.04–0.04
Searcher Efficiency						
Bat	0.82	0.73–0.89	0.82	0.73–0.89	0.82	0.73–0.89
Average Probability of a Carcass Persisting Through the Search Interval*						
Bat	0.80	0.72–0.87	0.80	0.72–0.87	0.80	0.72–0.87
Probability of Available and Detected						
Bat	0.73	0.65–0.81	0.73	0.65–0.81	0.73	0.65–0.81
Estimated Fatality Rates (Fatalities/Turbine/Season[s])						
Bat	1.25	n/a**	11.14	7.95–14.88	15.05	11.15–19.68
Estimated Fatality Rates (Fatalities/Megawatt/Season[s])						
Bat	0.78	n/a**	6.96	4.97–9.30	9.41	6.97–12.30

* The search interval was twice per week.

** n/a = confidence interval not calculated because the observed carcass count is less than five.

Appendix E6. Overall fatality rates per megawatt (MW) and per turbine for road and pad search area studies conducted at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

	Per MW Estimates		Per Turbine Estimates	
	Estimate	90% CI	Estimate	90% CI
Bat	17.26	13.59–21.27	27.61	21.75–34.02

CI = Confidence Interval.

Appendix E7. Estimated fatality rates and adjustment factors, with 90% confidence intervals (CIs) at overall search areas for studies conducted at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

	Spring		Summer		Fall	
	134 turbines searched		134 turbines searched		134 turbines searched	
	Estimate	90% CI	Estimate	90% CI	Estimate	90% CI
Estimated Fatality Rates (Fatalities/Turbine/Seasons[s])						
Bat	1.23	0.61–2.18	10.74	8.42–13.46	16.20	13.31–19.61
Estimated Fatality Rates (Fatalities/Megawatt/Season[s])						
Bat	0.77	0.38–1.36	6.71	5.26–8.41	10.13	8.32–12.26

Note: the search interval was twice per week.

Appendix E8. Overall fatality rates per megawatt (MW) and per turbine for overall search area studies conducted at the California Ridge Wind Farm, Champaign and Vermilion counties, Illinois, from April 1 – October 15, 2022.

	Per MW Estimates		Per Turbine Estimates	
	Estimate	90% CI	Estimate	90% CI
Bat	17.70	14.91–20.70	28.33	23.85–33.11

CI = confidence Interval.