Wintering Grassland Raptor Survey Report

Richland III Solar Project

Town of Richland

Oswego County, New York

Prepared For:

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ACRONYM AND ABBREVIATION LIST

Applicant	Richland III PV, LLC
BBA	Breeding Bird Atlas
in	inches
inHG	inches of mercury
mi	miles
mph	miles per hour
NYCRR	New York Codes, Rules, and Regulations
NYSDEC	New York State Department of Environmental Conservation
ORES	Office of Renewable Energy Siting and Electric Transmission
Project	Richland III Solar Project
PSL	Public Service Law
PV	photovoltaic
RIC	RIC Development, LLC
WGRS	wintering grassland raptor survey
WSCR	Wildlife Site Characterization Report

1.0 INTRODUCTION

RIC Development, LLC (RIC) on behalf of Richland III PV, LLC (the Applicant), is developing the Richland III Solar Project (the Project), a utility-scale photovoltaic (PV) solar energy facility located in the Town of Richland, Oswego County, New York. The Project Area for this study consists of approximately 617 acres of land leased from owners of private property and represents the larger area in which the Project will be sited (Figure 1).

On behalf of the Applicant, TRC has prepared this Wintering Grassland Raptor Survey (WGRS) Report in accordance with the permitting requirements for this Project and to document the results of the WGRS conducted by TRC.

1.1 Background

In accordance with Article VIII of the New York State Public Service Law (PSL) New York Codes, Rules and Regulations (NYCRR) Chapter XI, Title 16 §1100-1.3 (g)(1), a Wildlife Site Characterization Report (WSCR) for the Project was submitted to Office of Renewable Energy Siting and Electric Transmission (ORES) in September 2024. A meeting with ORES, the New York State Department of Environmental Conservation (NYSDEC), the Applicant, and their representatives was held on October 17, 2024, during which the WSCR was discussed, along with recommended pre-application surveys, including WGRS. The Pre-application Wildlife Site Characterization Consultation letter was received from ORES on October 25, 2024, which summarized the recommendations from this call, including the recommendation that the Applicant conduct WGRS during the 2024-2025 season. Following the recommendations from ORES, TRC, on behalf of the Applicant, performed WGRS at the Project Area during the 2024-2025 winter season. In accordance with the New York State Department of Environmental Conservation Survey Protocol for State-listed Wintering Grassland Raptor Species Protocol (August 2021; Protocol), a WGRS Study Plan was submitted to ORES on October 15, 2024. Comments from ORES on the WGRS Study Plan were received on October 30, 2024, and the comments were addressed and incorporated into the WGRS as appropriate based on the results of field habitat verification and visibility mapping for all survey locations.[1]

1.2 Purpose and Objectives

The primary purpose of the WGRS was to:

- Document the presence of the target species [redacted] and
- Record particular areas used by the target species, such as suspected [redacted] within the Project Area, if any.

[1] As suggested in the ORES comments, an additional point was added in the western portion of the main part of the Project Area (S7) (Figure 1). Visibility mapping of habitat visible from survey location S2 determined that an additional point south of that location was not needed, nor did S2 need to be shifted off of the road, rather shifting the point location would reduce visibility of the extent of habitat surrounding S2 due to topographical conditions and local relief (Figure 1). It was determined that connectivity did exist between the northernmost field of open habitat near with habitat located outside of the Project boundary. However, an additional stationary location was not added to provide visibility of these areas as habitat within the Project Area is less than 25 acres and acreage remaining outside of the Project Area will not be reduced to less than 25 acres resulting from Project development and areas within the Project Area greater than 25 acres were visible from existing survey locations. Refer to Attachment B for spatial data detailing the results of the visibility mapping effort.

Other objectives of this survey included documenting presence and use of the Project Area by non-target state-listed raptor species, non-listed raptor species, and any other state-listed species.

Information obtained from these surveys will help determine the need for additional comprehensive studies, regulatory review, and if necessary, avoidance, minimization, and/or mitigation strategies.

2.0 METHODS

Field survey methods for the WGRS followed the *Protocol (NYSDEC 2021)*, the Project-specific WGRS Study Plan (October 2024), and comments from ORES, as described above in Section 1.1.

2.1 Survey Periods

Surveys were conducted generally weekly between November 15, 2024 through April 15, 2025 (study period; exact dates were November 18, 2024 through April 10, 2025), with two survey periods in November (survey periods 1 and 2) and four survey periods each in December (survey periods 3-6), January (survey periods 7-10), February (survey periods 11-14), and March (survey periods 15-18), and two extended survey periods in April (survey periods 19 and 20). Due to observations of a [redacted] during the last two weeks of survey in March (survey periods 17 and 18), two additional survey periods (survey periods 19 and 20) were added in April to the study period in accordance with the *Protocol*.

A total of 20 survey periods (i.e., visits) occurred during the study period. One complete survey period encompassed stationary surveys at all stationary locations and one daytime driving survey, conducted approximately weekly. Generally, surveys were not conducted during inclement weather, such as heavy precipitation, fog, or sustained strong winds.

2.2 Stationary Evening Surveys

Per the *Protocol,* stationary evening surveys are the primary survey method for [redacted]. During the WGRS, TRC conducted stationary evening surveys at seven stationary survey locations (Figure 1).

As outlined in the Study Plan, stationary survey locations were selected to provide full visibility of open habitats greater than 25 acres. Review of aerial imagery of potential habitat within the Project Area was used to pre-determine locations for stationary points with consideration of site-specific topographical conditions and visual obstructions. Survey locations were established within or on the edge of open habitat at vantage points with visibility of the open habitat. Locations were situated along public rights-of-way or on participating parcels within the Project Area and were established along hedgerows or forest edges or were conducted within or next to vehicles. Survey stations were sited no more than 1,000 meters apart within open habitat within the Project Area. Several locations also provided views of presumed reference/control areas (e.g., open habitat not located within the proposed Project Area or area not intended for development). During the first visit to each evening stationary survey, surveyors mapped the viewshed within the 1,000-meter radius of the stationary point, showing specific areas that were obstructed from view (e.g., by topography, vegetation, infrastructure, etc.). Visibility viewshed shapefiles are included in Attachment B, along with shapefiles of the stationary evening survey point locations. Additionally, during the first visit to each stationary point, biologists considered safety, access logistics, and viewshed, in order to micro-site the final location of each point (Figure 1).

During the first week of January, it was discovered that logging by the landowner was occurring within the Project Area which was not associated with the Project or the Applicant. During survey period 7, stationary survey location S7 had to be shifted to the opposite side of the field in order to be a safe distance away from the logging activity. This shifted point is noted on Figures 1 and 2. The estimated areas that were logged during the WGRS are identified on Figure 2. Hedgerows and scattered trees remain in these areas. Out of the 20 survey periods, 5 of the visits occurred at the shifted location while logging was occurring

(survey periods 7, 8, 9, 10, and 11, i.e., January and the first week of February), while the remainder of the visits occurred at the original point (Appendix A). These activities are notable as they indicate ongoing disturbance at the Project, however, given the number and distribution of observations these disturbances do not appear to be impacting activity. Further information regarding the survey effort is provided within Section 3.1 below.

Stationary evening surveys were initiated one hour before sunset and concluded when it was too dark to observe flying birds, at least one-half hour after sunset, or up to one hour after sunset, if conditions such as clear, moonlit skies, or complete snow cover allowed for observing flying birds after dark. This timing targeted the temporal window when overwintering raptors are foraging and leaving/returning to their roosts. When performing surveys, biologists used binoculars and/or spotting scopes, along with the naked eye, to scan the open habitat visible from survey locations. One survey station was sampled by one biologist per night and on occasion this biologist was supported by an additional observer for training purposes.

2.3 Daytime Driving Routes

TRC conducted daytime driving surveys along a route with seven pre-determined stops which were established approximately 0.5 mile apart and adjacent to open habitats along roads within the Project Area (Figure 1). Per the *Protocol,* these surveys are considered supplemental information to detect [redacted] and other diurnal raptors, however they are not necessarily suitable for detecting [redacted].

Similar to the stationary evening surveys, the driving route and stops were selected via desktop review and were finalized after the first visit to each stop after a consideration of safety, access logistics, and visibility (Figure 1). Shapefiles of the survey points and driving route/stops are included in a zipped package as Attachment B.

The daytime driving route survey was initiated prior to stationary surveys scheduled for the day, providing ample time to complete the driving route and to mobilize to stationary survey locations within the required timeframe. The daytime driving survey was also conducted approximately weekly throughout the survey period. At each stop, biologists conducted a five-minute point count survey, visually scanning the adjacent open habitat with the naked eye and with binoculars. Two biologists performed daytime driving route surveys together, allowing the driver to focus primarily on safe driving and the passenger to focus on raptor observations.

2.4 Data Collection

Detailed weather and bird observation data were collected during each survey. All data were entered onto digital data forms accessed by smartphone or tablet. Any observed roost sites, foraging paths, or flight paths were recorded and appended to the digital data form. Data were collected for any raptor species observed at the Project Area. Incidental observations included species documented within the Project Area outside of the scheduled survey window (e.g., when walking to or from a survey location, driving from point to point, etc.). Survey Data Forms are provided as Attachment A.

A data form was completed for each survey. General information that was recorded on each form includes:

- client;
- project name;
- survey type (driving or stationary);

- survey location;
- visit number (*i.e., survey period*);
- date;
- observer(s) name(s);
- whether or not the survey was completed, and if not, the reason why;
- survey start and end time;
- duration of survey (minutes);
- sunset time;
- disturbances;
- habitat type within 1,000-meter radius of point (i.e., row crop, fallow field, etc.) – *this was recorded only during the first visit and additionally if it changed significantly during the study period*; and
- photos from the survey location facing each of the cardinal directions. (*Note, photos were only taken during the first driving route survey, however, they were taken for each stationary survey occurrence.)*

2.4.1 Weather Observations

Weather conditions were noted at the beginning of each survey (i.e., first stop of the driving survey or the beginning of the evening stationary survey) and as conditions changed significantly throughout the survey. Weather parameters that were recorded included:

- wind speed (in miles per hour [mph]);
- wind direction (compass direction from which the wind is coming, or “variable”);
- temperature (degrees Fahrenheit).
- relative humidity (percent relative);
- barometric pressure (inches of mercury [inHG]);
- percent cloud cover;
- visibility (approximate distance in miles [mi]);
- precipitation;
- snow condition (i.e., powder, crust, slush, etc.); and
- snow depth (inches [in]).

Appendix C includes the weather conditions recorded during the survey.

2.4.2 Individual Raptor Observations

Observations of any raptors (owls, hawks, falcons, eagles, osprey, and vultures) were recorded continuously throughout each survey. When collecting data, surveyors performed continuous scanning of the habitat, both with the naked eye and with binoculars and/or spotting scopes. Particular attention was paid to birds perching on fence posts, utility poles, and hay bales, coursing low over the ground, or perching on the ground. In addition, biologists listened for identifying calls of the [redacted] The following data were recorded for each individual raptor observed:

- location observed;
- species (if possible);
- whether the raptor observation was an incidental sighting or not;

- count of individuals;
- first and last time observed;
- duration of observation (rounded to the nearest minute);
- age class (if possible);
- sex (if possible);
- behavior (such as perching, foraging, interaction, circling, fly-through, roosting, or other);
- general compass bearing flight direction (south, north, northeast, etc.);
- flight height (in feet, general range(s) observed);
- additional notes about the observation; and
- digital map of flight paths(s)/roost site(s)/etc., (as applicable).

If a raptor could not be identified to the species level, the bird was described to the greatest extent possible. For example, identified raptors were further described as “buteo” versus “accipiter”, or “large” versus “small.”

For all birds observed during March and April, an associated breeding bird atlas (BBA) code will be used to classify behaviors during the early breeding season. These codes correspond to a categorization of breeding activity within the sample area and indicate a level of certainty that a species is breeding at the Project Area. Behaviors may be considered as “observed” wherein a species is simply documented in the vicinity, “possible” indicating the species may be prospecting the site for breeding use, “probable” indicating a species is likely engaging in breeding activity, or “confirmed” indicating a species is definitively using the area for active breeding. While the Protocol requires categorization of behavior using BBA codes and definitions, there has been no statutorily defined link between a BBA code and category with determination of occupied breeding habitat. Therefore, it should not be assumed that assertion of “observed,” “probable,” or “possible” breeding behavior would indicate occupied breeding habitat unless otherwise indicated by evidence generated in this report or related survey or other relevant data.

[redacted] documented digitally, overlaid on photos of the Project Area, and then attached to the digital data form. Flight paths, perching locations, and potential roost locations, if applicable, for listed species are shown on Figure 2 and are provided as spatial data in the shapefile package (Attachment B).

2.4.3 Incidental Raptor Observations

Raptor species, when observed outside of a regular survey period, were recorded as incidental observations and appended to the stationary survey data form for the survey being conducted on the evening of the observation. During driving route surveys, raptors observed between driving stops were considered incidental and were appended to the survey data form at the next driving route stop.

2.4.4 Additional Observations

When it did not detract from the detection of target species, observations of all state-listed species and non-raptor species, such as arctic songbirds and winter resident grassland birds (i.e., snow buntings *(Plectrophenax nivalis)*, [redacted], longspurs *(Calcariu* spp.), pipits (*Anthus rubescens*), and shrikes *(Lanius* sp.) and/or other birds were recorded as "Additional Bird Observations" on the digital data form. Similarly other wildlife observations were recorded as "Additional Wildlife Observations." A full list of avian species documented at the Project Area, including target and non-target species and those observed incidentally, is included as Appendix E.

2.5 Data Analysis

At the completion of the WGRS, the following summaries were generated in map, table, or shapefile form as appropriate to address the objectives and goals of this study:

- overall survey effort and any related disruptions and/or distractions;
- weather conditions per survey;
- general habitat types and viewshed analysis within 1,000-meter radius of stationary points;
- raptor observations, including date, location, and behavior(s);
- raptor species richness (i.e., number of species) and overall avian species list;
- raptor species diversity, using the Shannon Diversity Index (i.e., based on the number of individuals per species, accounting for both the richness and evenness at each survey point);
- raptor frequency (i.e., number of visits a raptor/species was observed divided by number of visits to that point);
- raptor abundance (i.e., number of observations of a species);
- raptor use patterns and behaviors throughout the Project Area; and
- flight paths/roosts/perch locations of state-listed species observed.

3.0 RESULTS

3.1 Survey Effort

Surveys were conducted from November 18, 2024, through April 10, 2025 (overall study period), for a total of 140 stationary surveys and 140 driving stops, completed over 20 survey periods (Appendix A). The dates, times, and durations of each stationary survey and driving stop, along with any disruptions and/or distractions that occurred during each survey are outlined in Appendix A. As discussed above, disturbance due to logging activities may have impacted bird activity during some survey events throughout the study, specifically in vicinity of the logging activity. Surveys were completed in these areas in accordance with the *Protocol* to the extent feasible while maintaining safe conditions for field staff. While this report does not explicitly analyze the level of disturbance that may have occurred, the nature of observations and level of activity recorded would indicate the disturbance to have minimal impact on presence and site use by target species.

The general habitat within the 1,000-meter radius of each survey point is included in Appendix B and photographs of the habitat facing each cardinal direction from each of the survey points are included in Attachment A. Weather conditions for all survey periods are included in Appendix C.

3.2 Raptor Observations

Over the course of the study period, a total of 130 observations of raptors (including incidental observations), representing 7 raptor species and several unidentified raptors, were observed during and incidental to stationary surveys and driving surveys (Table 1). Raptor species observed included American kestrel (*Falco sparverius*), [redacted] red-tailed hawk (*Buteo jamaicensis*), rough-legged hawk (*Buteo lagopus*), turkey vulture (*Cathartes aura*), and several unidentified raptors (Table 1).

Out of the 130 total raptor observations, 77 observations occurred during regular stationary surveys and 14 observations occurred incidentally to stationary surveys (i.e., 91 observations for stationary surveys total); 37 observations occurred during driving stops and 2 observations occurred incidentally to driving stops (i.e., 39 observations for driving surveys total) (Table 1). The highest percentage of observations per species and the highest frequency of observations per survey period were of red-tailed hawks (approximately 50% of total raptor observations, and observed at 17 out of 20 survey periods, for an 85% frequency) (Table 1). Raptors were observed during all 20 survey periods (100% raptor frequency per survey period) (Table 1).

Out of the 130 total raptor observations, [redacted] (Table 1). Observations of state-listed raptor species are further described in Section 3.2.3. A table of all raptor species observed, including dates and points where they were observed, is included as Appendix D.

Non-raptor avian species included both those documented during scheduled surveys and incidentally while surveyors were present within the Project Area. A list of all avian species observed is provided as Appendix E.

Table 1. Overall Raptor Observations by Species

Species*	Number of Observations:					% of Total Observations	Frequency Per Survey Period
	During Stationary Surveys	*Incidental to Stationary Surveys*	During Driving Stops	*Incidental to Driving Surveys*	**Total**		
American Kestrel	3	*3*	1	*0*	**7**	5%	20%
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Red-tailed Hawk	38	*8*	19	*0*	**65**	50%	85%
Rough-legged Hawk	0	*0*	1	*0*	**1**	1%	5%
Turkey Vulture	10	*0*	5	*0*	**15**	12%	25%
Unidentified Raptor	6	*0*	6	*0*	**12**	9%	50%
Total:	**77**	***14***	**37**	***2***	**130**	**100%**	**100%**
*Listed species observations are **bolded**							

3.2.1 Stationary Evening Surveys Observations

A total of 91 observations of 6 raptor species and several unidentified raptors were recorded during stationary surveys (Tables 2 and 3). Seventy-seven of these observations were recorded during the regular duration of the stationary surveys, while 14 were recorded incidentally to the stationary surveys, for a total of 91 observations (Table 3).

All seven stationary survey locations were visited 20 times for a total of 140 individual visits (Tables 2 and 3). Raptors were observed from all seven stationary survey locations. Raptors were observed during 100% of the survey periods (i.e., during all 20 visits, raptors were observed), however, out of 140 total individual stationary survey visits in the Project Area, raptors were observed during 47 individual survey events (34%) (Tables 2 and 3). The overall species diversity for stationary surveys was 1.53 using the Shannon Diversity Index, calculating the number of individuals per species and taking into account species richness and evenness (Tables 2 and 3).

Out of all stationary survey locations, location S3 had the highest raptor frequency (55%; raptor observations were made at 11 out of 20 visits), the highest number of raptor observations of all survey locations (i.e., raptor abundance) with 27 total observations, the highest species richness with 6 species observed, and the highest species diversity (H= 1.46) (Tables 2 and 3).

Out of all stationary survey locations, location S6 had the lowest raptor frequency (20%; raptor observations were made at 4 out of 20 visits) (Tables 2 and 3). Locations S2 and S7 were tied for the lowest total number of raptor observations (eight observations each). Locations S1, S2, and S6 were tied for lowest species richness (three species each). Additionally, S2 had the lowest species diversity (H = 0.90) (Tables 2 and 3).

Table 2. Stationary Survey Raptor Summaries

Stationary Survey Location	Number of Survey Periods (Visits)	Number of Survey Periods (Visits) That Raptors Were Observed	Raptor Frequency Per Location	Total Raptor Observations (Abundance)	Number of Species Observed	Species Diversity (H)
S1	20	7	35%	13	3*	1.07
S2	20	6	30%	8	3	0.90
S3	20	11	55%	27	6*	1.46
S4	20	8	40%	16	4	1.28
S5	20	5	25%	9	4*	1.43
S6	20	4	20%	10	3*	1.19
S7	20	6	30%	8	4	1.07
Total Overall:	**140**	**20 out of 20 total survey periods** ***47 out of 140 individual stationary survey events***	**100% (per survey period)** ***34% (per individual survey event)***	**91**	**6***	**1.53**

Species richness = Number of species (*does not include unidentified raptors)
Species diversity = Shannon Diversity Index H = - Σ (pi * ln(pi)) (included unidentified raptors as a “species” for this calculation)
Abundance = Number of individuals (i.e., observations) of a species
Frequency = Number of visits a species was observed divided by the number of visits to that location

Table 3. Raptor Observations by Stationary Survey Location

Stationary Survey Location	Species*	Date(s) Observed	Number of Survey Periods (Visits) That Raptors Were Observed	Behavior(s) Observed	Number of Observations During Surveys	*Number of Incidental Observations*	Total Observations	Total Observations (Per Survey Location) (%)	Frequency (Per Survey Location) (%)
S1	American Kestrel	12/23/2024	1	Fly-through; Perching	0	*1*	1	8%	5%
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Red-tailed Hawk	12/9/2024; 12/16/2024; 12/23/2024; 1/6/2025; 3/24/2025	5	Fly-through; Perching; Foraging	7	*1*	8	62%	25%
	Unidentified Raptor	11/18/2024; 12/9/2024	2	Circling; Fly-through	2	*0*	2	15%	10%
	3 species *(not including unidentified raptors)* (H = 1.07)	Raptors were observed during 7 of 20 visits		**Total for S1:**	10 observations	*3 incidental observations*	13 total observations	100%	35%
S2	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Red-tailed Hawk	12/10/2024; 12/17/2024; 12/27/2024; 1/22/2025	4	Foraging; Perching; Fly-through; Calling	4	*1*	5	62.5%	20%
	3 species (H = 0.90)	Raptors were observed during 6 of 20 visits		**Total for S2:**	7 observations	*1 incidental observation*	8 total observations	100%	30%
S3	American Kestrel	11/20/2024	1	Fly-through	1	*0*	1	4%	5%
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Stationary Survey Location	Species*	Date(s) Observed	Number of Survey Periods (Visits) That Raptors Were Observed	Behavior(s) Observed	Number of Observations During Surveys	*Number of Incidental Observations*	Total Observations	Total Observations (Per Survey Location) (%)	Frequency (Per Survey Location) (%)
	Red-tailed Hawk	12/2/2024; 12/16/2024; 2/12/2025; 2/19/2025; 3/3/2025; 3/12/2025; 3/26/2025; 4/3/2025	8	Perching; Fly-through; Circling	12	*1*	13	48%	40%
	Turkey Vulture	4/3/2025	1	Circling	5	*0*	5	19%	5%
	Unidentified Raptor	1/15/2025	1	Fly-through	1	*0*	1	4%	5%
	6 species *(not including unidentified raptors)* (H=1.46)	Raptors were observed during 11 of 20 visits		**Total for S3:**	25 observations	*2 incidental observations*	27 total observations	100%	55%
S4	American Kestrel	12/3/2024	1	Circling	0	*2*	2	13%	5%
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Red-tailed Hawk	11/18/2024; 12/3/2024; 1/7/2025; 1/22/2025; 3/18/2025; 3/24/2025	6	Perching; Fly-through; Circling	5	*2*	7	44%	30%
	4 species (H=1.28)	Raptors were observed during 8 of 20 visits		**Total for S4:**	11 observations	*5 incidental observations*	16 total observations	100%	40%
S5	American Kestrel	12/16/2024	1	Fly-through; Foraging; Perching	1	*0*	1	11%	5%
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Stationary Survey Location	Species*	Date(s) Observed	Number of Survey Periods (Visits) That Raptors Were Observed	Behavior(s) Observed	Number of Observations During Surveys	*Number of Incidental Observations*	Total Observations	Total Observations (Per Survey Location) (%)	Frequency (Per Survey Location) (%)
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Red-tailed Hawk	12/2/2024; 3/24/2025	2	Circling; Foraging; Fly-through; Perching	4	*0*	4	44%	10%
	Unidentified Raptor	12/2/2024; 3/12/2025	2	Circling; Fly-through; Perching	2	*0*	2	22%	10%
	4 species *(not including unidentified raptors)* (H=1.43)	Raptors were observed during 5 of 20 visits		**Total for S5:**	9 observations	*0 incidental observations*	9 total observations	100%	25%
S6	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Red-tailed Hawk	1/13/2025; 3/24/2025	2	Circling; Fly-through; Interaction; Perching	4	*0*	4	40%	10%
	Turkey Vulture	4/8/2025	1	Circling; Fly-through	4	*0*	4	40%	5%
	Unidentified Raptor	12/3/2024	1	Fly-through	1	*0*	1	10%	5%
	3 species *(not including unidentified raptors)* (H = 1.19)	Raptors were observed during 4 of 20 visits		**Total for S6:**	10 observations	*0 incidental observations*	10 total observations	100%	20%
S7	American Kestrel	12/4/2024	1	Fly-through	1	*0*	1	12.5%	5%
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Red-tailed Hawk	2/11/2025; 2/21/2025; 2/25/2025; 3/11/225	4	Fly-through; Calling; Circling	2	*3*	5	62.5%	20%
	Turkey Vulture	12/4/2024	1	Circling	1	*0*	1	12.5%	5%

Stationary Survey Location	Species*	Date(s) Observed	Number of Survey Periods (Visits) That Raptors Were Observed	Behavior(s) Observed	Number of Observations During Surveys	*Number of Incidental Observations*	Total Observations	Total Observations (Per Survey Location) (%)	Frequency (Per Survey Location) (%)
	4 species (H = 1.07)	Raptors were observed during 6 of 20 visits		**Total for S7:**	5 observations	*3 incidental observations*	8 total observations	100%	30%
Total Overall Species:	**6 species** (*not including unidentified raptors*) (H= 1.53)	Raptors were observed 20 out of 20 visits *Raptors were observed 47 out of 140 individual stationary survey events*		**Total Overall:**	**77 observations**	***14 incidental observations***	**91 total observations**		**100% (per survey period)** ***34% (per individual event)***

*Listed species are **bolded**
Species richness = Number of species (does not include unidentified raptors)
Species diversity = Shannon Diversity Index H = - Σ (pi * ln(pi)) (included unidentified raptors as a "species" for this calculation)
Abundance = Number of individuals (i.e., observations) of a species
Frequency =Number of visits a species was observed divided by the number of visits to that location

3.2.2 Daytime Driving Routes Observations

A total of 39 observations of 7 raptor species and several unidentified raptors were recorded during driving surveys (Tables 4 and 5). Thirty-seven of these observations were recorded during the regular duration of driving stops, while two were recorded incidentally to driving stops, for a total of 39 observations (Table 5).

All seven driving stops were visited 20 times, for a total of 140 individual visits (Tables 4 and 5). Raptors were observed from all seven driving stop locations, however, raptors were observed during 65% of survey periods (i.e., raptors were observed at 13 out of 20 visits). Additionally, out of 140 individual survey stops, raptors were only observed at 29 stops (21%) (Tables 4 and 5). The overall species diversity for driving surveys was 1.57 using the Shannon Diversity Index, calculated using the number of individuals per species and considering species richness and evenness (Tables 4 and 5).

Out of all driving stops, stop D4 had the highest raptor frequency (30%; raptor observations were made at 6 out of 20 visits). Stops D4 and D3 were tied for driving stop with the highest number of raptor observations (i.e., raptor abundance), with seven observations each. Stops D4 and D7 were tied for driving stop with the highest species richness, each with four species observed. Stop D7 had the highest species diversity (H = 1.61) (Tables 4 and 5).

Out of all driving stops, stops D2 and D5 had the lowest raptor frequency (each with 15%, raptor observations were made at 3 out of 20 visits). There were five driving stops (D1, D2, D5, D6, and D7) tied for the lowest number of raptor observations (each with five raptor observations). Stops D2 and D5 tied as driving stop with the lowest species richness (each with one species) and lowest species diversity (H = 0.00) (Tables 4 and 5).

Table 4. Driving Stop Raptor Summaries

Driving Stop Location	Number of Survey Periods (Visits)	Number of Survey Periods (Visits) That Raptors Were Observed	Raptor Frequency Per Location	Total Raptor Observations (Abundance)	Number of Species Observed	Species Diversity (H)
D1	20	4	20%	5	2	0.67
D2	20	3	15%	5	1	0.00
D3	20	4	20%	7	2*	1.08
D4	20	6	30%	7	4*	1.55
D5	20	3	15%	5	1	0.00
D6	20	4	20%	5	3	1.05
D7	20	5	25%	5	4*	1.61
Total Overall:	**140**	**13 out of 20 survey periods** ***29 out of 140 individual driving stop survey events***	**65% (per survey period)** ***21% (per individual survey event)***	**39**	**7**	**1.57**

Species richness = Number of species (*does not include unidentified raptors)
Species diversity = Shannon Diversity Index H = - Σ (pi * ln(pi)) (included unidentified raptors as a "species" for this calculation)
Abundance = Number of individuals (i.e., observations) of a species
Frequency = Number of visits a species was observed divided by the number of visits to that location

Table 5. Raptor Observations by Driving Stop Location

Driving Stop Location	Species*	Date(s) Observed	Number of Survey Periods (Visits) That Raptors Were Observed	Behavior(s) Observed	Number of Observations During Surveys	*Number of Incidental Observations*	Total Observations	Percent Total Observations (Per Survey Location)	Frequency (Per Driving Stop Location)
D1	Red-tailed Hawk	12/2/224; 12/16/2024; 12/23/2024	3	Perching	3	*0*	3	60%	15%
	Turkey Vulture	3/10/2025	1	Circling; Fly-through	2	*0*	2	40%	5%
	2 species (H = 0.67)	Raptors were observed during 4 of 20 visits		**Total for D1:**	5 observations	*0 incidental observations*	5 total observations	100%	20%
D2	Red-tailed Hawk	1/27/2025; 3/24/2025; 4/1/2025	3	Perching; Circling; Fly-through	5	*0*	5	100%	15%
	1 species (H = 0.00)	Raptors were observed during 3 of 20 visits		**Total for D2:**	5 observations	*0 incidental observations*	5 total observations	100%	15%
D3	Red-tailed Hawk	2/24/2025	1	Perching	2	*0*	2	29%	5%
	Turkey Vulture	3/24/2025	1	Circling; Fly-through	2	*0*	2	29%	5%
	Unidentified Raptor	12/23/224; 3/17/2025; 3/24/2025	3	Fly-through; Circling	3	*0*	3	43%	15%
	2 species (*not including unidentified raptors*) (H = 1.08)	Raptors were observed during 4 of 20 visits		**Total for D3:**	7 observations	*0 incidental observations*	7 total observations	100%	20%
D4	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Red-tailed Hawk	12/16/2024; 1/27/2025	2	Circling; Fly-through; Perching; Foraging	2	*0*	2	29%	10%
	Unidentified Raptor	1/20/2025; 4/1/2025	2	Fly-through	2	*0*	2	29%	10%
	4 species (*not including unidentified raptors*) (H = 1.55)	Raptors were observed during 6 of 20 visits		**Total for D4:**	7 observations	*0 incidental observations*	7 total observations	100%	30%

Driving Stop Location	Species*	Date(s) Observed	Number of Survey Periods (Visits) That Raptors Were Observed	Behavior(s) Observed	Number of Observations During Surveys	*Number of Incidental Observations*	Total Observations	Percent Total Observations (Per Survey Location)	Frequency (Per Driving Stop Location)
D5	Red-tailed Hawk	12/16/2024; 1/202/2025; 1/27/225	3	Circling; Fly-through; Perching	5	*0*	5	100%	15%
	1 species (H = 0.00)	Raptors were observed during 3 of 20 visits		**Total for D5:**	5 observations	*0 incidental observations*	5 total observations	100%	15%
D6	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Red-tailed Hawk	12/2/2024; 3/17/2025	2	Circling; Fly-through	2	*0*	2	40%	10%
	Turkey Vulture	3/24/2025	1	Fly-through	1	*0*	1	20%	5%
	3 species (H = 1.05)	Raptors were observed during 4 of 20 visits		**Total for D6:**	4 observations	*1 incidental observation*	5 total observations	100%	20%
D7	American Kestrel	12/16/2024	1	Fly-through	1	*0*	1	20%	5%
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Rough-legged Hawk	11/25/2024	1	Circling	1	*0*	1	20%	5%
	Unidentified Raptor	1/13/2024	1	Circling	1	*0*	1	20%	5%
	4 species (*not including unidentified raptors*) (H = 1.61)	Raptors were observed during 5 of 20 visits		**Total for D7:**	4 observations	*1 incidental observation*	5 total observations	100%	25%
Total Overall Species:	**7 species** *(not including unidentified raptors)* (H= 1.57)	Raptors were observed 13 out of 20 survey periods *Raptors were observed 29 out of 140 individual driving stops*		**Total Overall:**	**37 observations**	***2 incidental observations***	**39 total observations**		**65% (per survey period)** ***21% (per individual survey event)***

*Listed species are **bolded**
Species richness = Number of species (does not include unidentified raptors)
Species diversity = Shannon diversity index H = - Σ (pi * ln(pi)) (included unidentified raptors as a "species" for this calculation)
Abundance = Number of individuals (i.e., observations) of a species
Frequency = Number of visits a species was observed divided by the number of visits to that location

3.2.3 State-Listed Species Observations

[redacted] There were no endangered species observed during the WGRS.

[redacted]

BBA codes are used to inform the level of certainty that a species is actively breeding at a given location, as described above. No “probable” or “confirmed” breeding behaviors were observed for the state-listed species during the WGRS per BBA codes (Table 6). [redacted] (Table 6) (New York Breeding Bird Atlas, n.d.). Further detail regarding observations of this species is provided in Section 3.2.3.1.

Table 6 summarizes observations of state-listed species. Flight paths, roosts, and perch locations, if applicable, are shown on Figure 2 and are included with additional information in the shapefiles (Attachment B).

Table 6. State-Listed Species Observations

Species	New York State Listing Status	Date(s) Observed	Number of Observations[1]	Number of Incidental Observations[2]	Total Observations	Location(s) Observed From	Behavior(s) Observed	Highest Breeding Bird Atlas Code
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Total:			[redacted]	[redacted]	[redacted]			

[1]Includes only observations recorded during all regular (driving and stationary) surveys.
[2] Includes only observations recorded incidentally to regular surveys.

3.2.3.1 Target Species

3.2.3.1.1 [redacted]

[redacted]

[redacted]

[redacted]

3.2.3.1.2 [redacted]

No [redacted] were observed during the WGRS.

3.2.3.2 Other Listed Species

3.2.3.2.1 [redacted]

[redacted]

[redacted]

[redacted]

3.2.3.2.2 [redacted]

[redacted]

4.0 CONCLUSIONS

TRC performed WGRS during the winter of 2024-2025 to document the presence and use of the Project Area by state-listed target species ([redacted]). Survey methodology followed the NYSDEC *Protocol* and the Project-specific Study Plan, along with comments from ORES. Seven stationary survey locations and seven driving survey stops throughout the Project Area were each visited 20 times (i.e., 20 survey periods) approximately weekly by surveyors from November 18, 2024, through April 10, 2025, for a total of 140 stationary evening surveys and 140 daytime driving stops (Figure 1). Due to the landowner's logging activity, one of the stationary points (S7) was shifted across the field occasionally throughout the winter, allowing the surveyor to be in a safe location when logging was occurring (Figure 1).

A total of 130 raptor observations, representing 7 species, and several unidentified raptors were recorded during the WGRS. [redacted] No [redacted] were observed during the WGRS, nor were any state-listed endangered species. Other raptors observed included American kestrel (7 observations), red-tailed hawk (65 observations), rough-legged hawk (1 observation), turkey vulture (15 observations), and unidentified raptors (12 observations).

There were no [redacted] However, there were [redacted]

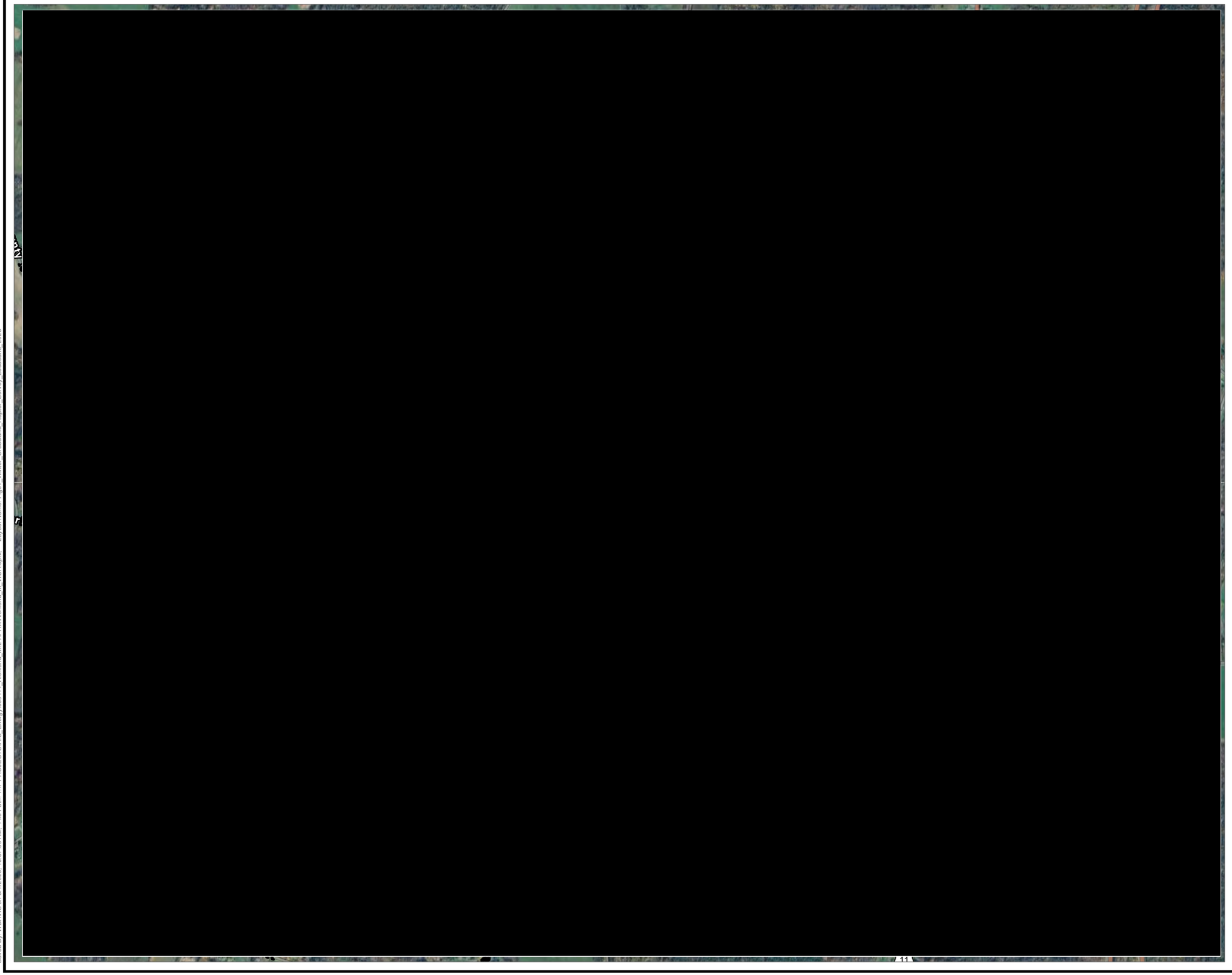
It is not anticipated that any further WGRS will be needed in respect to the Applicant's Article VIII Application at this time. Additional coordination with ORES is recommended to determine the presence and extent of occupied habitat for listed species and to adequately assess the potential impacts from the Project to state-listed species if any are likely to occur.

5.0 REFERENCES

New York Breeding Bird Atlas. n.d. Breeding Codes. Available from: https://ebird.org/atlasny/about/breeding-codes

New York State Department of Environmental Conservation (NYSDEC). 2021. New York State Department of Environmental Conservation Survey Protocol for State-listed Wintering Grassland Raptor Species August 2021.

FIGURES



PROJECT AREA
DRIVING ROUTES
STATIONARY SURVEY LOCATIONS
DRIVING SURVEY LOCATIONS

NOTES:

BASE MAP: USGS TOPOGRAPHIC MAP
DATA SOURCES: TRC, ESRI, USGS, NYGIS

[redacted]

1:14,400
1" = 1,200'

0 600 1,200
FEET

PROJECT:
RICHLAND III PV, LLC
RICHLAND III SOLAR
TOWN OF RICHLAND, OSWEGO COUNTY, NY

TITLE:
WINTERING GRASSLAND RAPTOR SURVEY LOCATIONS

DRAWN BY:	H. DAVIS	PROJ. NO.:	609114.1000.0000
CHECKED BY:	V. DEBRITA		**FIGURE 1**
APPROVED BY:	J. GUERIN		
DATE:	MAY 2025		

TRC
3 CORPORATE DRIVE
SUITE 202
CLIFTON PARK, NY 12065
PHONE: 518.348.1190

FILE: Richland_III_WSR.aprx

Coordinate System: NAD 1983 2011 StatePlane New York Central FIPS 3102 Ft US; Map Rotation: 0
Saved By: WDAVIS on 6/12/2025, 12:57:39 AM; File Path: T:\1-PROJECTS\RIC_Energy\609114_Richland_III\2-APRX\Richland_III_WSR.aprx; Layout Name: Fig01_Winter_Grassland_Raptor_Survey_Locations_2025

PROJECT AREA
ESTIMATED EXTENT OF LOGGING AREAS
DRIVING ROUTES
STATIONARY SURVEY LOCATIONS
DRIVING SURVEY LOCATIONS
[redacted]
[redacted]
[redacted]
[redacted]
[redacted]
[redacted]
[redacted]
[redacted]

NOTES:

BASE MAP: ESRI AERIAL IMAGERY
DATA SOURCES: TRC, ESRI

[redacted]

N

1:14,400
1" = 1,200'

0 600 1,200
FEET

PROJECT:
RICHLAND III PV, LLC
RICHLAND III SOLAR
TOWN OF RICHLAND, OSWEGO COUNTY, NY

TITLE:
STATE-LISTED SPECIES OBSERVATIONS

DRAWN BY:	H. DAVIS	PROJ. NO.:	609114.1000.0000
CHECKED BY:	V. DEBRITA		**FIGURE 2**
APPROVED BY:	J. GUERIN		
DATE:	MAY 2025		

TRC
3 CORPORATE DRIVE
SUITE 202
CLIFTON PARK, NY 12065
PHONE: 518.348.1190

FILE: Richland_III_WSR.aprx

Coordinate System: NAD 1983 2011 StatePlane New York Central FIPS 3102 Ft US; Map Rotation: 0
Saved By: MDAVIS on 5/7/2025 10:57:32 AM; File Path: T:_PROJECTS\RIC_Energy\609114_Richland_III\2_APRX\Richland_III_WSR.aprx; Layout Name: Fig02_State_Listed_Species_Observations_2025

APPENDICES

Appendix A. Survey Effort Table

Survey Date	Survey Location[1]	Survey Period (Visit)	Survey Start Time	Survey End Time	Duration of Survey (minutes)	Sunset	Were Raptors Observed?	Disturbances[2]/Other Survey Comments
2024-11-18	D1	1	13:06	13:11	5	16:36	no	
2024-11-18	D2	1	13:16	13:21	5	16:36	no	Dogs barking
2024-11-18	D3	1	13:27	13:32	5	16:36	no	
2024-11-18	D4	1	13:37	13:42	5	16:36	yes	
2024-11-18	D5	1	13:56	14:01	5	16:36	no	
2024-11-18	D6	1	14:06	14:11	5	16:36	no	
2024-11-18	D7	1	14:19	14:24	5	16:36	no	
2024-11-18	S1	1	15:36	17:10	94	16:36	yes	Car traffic on rt 11. Could hear traffic from rt 81.
2024-11-18	S4	1	15:36	17:10	94	16:36	yes	Train came by just prior to start of survey, with horns. Road is somewhat noisy. Hunting and construction nearby. Dogs barking periodically throughout survey.
2024-11-18	S6	1	15:36	17:06	90	16:36	no	
2024-11-19	S2	1	15:35	17:05	90	16:35	no	Traffic
2024-11-19	S5	1	15:36	17:06	90	16:36	no	Around 4:20, dog from the house to the south came and barked at me for a few minutes. Around 4:55 landowner(?) to the south started a bonfire; dogs ran around fields some. Road is busy and noisy. Amish traveling on it as well.
2024-11-20	S3	1	15:34	17:04	90	16:34	yes	Traffic, dog barking
2024-11-20	S7	1	15:35	17:06	91	16:35	no	
2024-11-25	D1	2	14:40	14:45	5	16:31	no	
2024-11-25	D2	2	14:33	14:38	5	16:31	no	
2024-11-25	D3	2	14:26	14:31	5	16:31	no	
2024-11-25	D4	2	14:20	14:25	5	16:32	no	
2024-11-25	D5	2	14:12	14:17	5	16:32	no	
2024-11-25	D6	2	14:03	14:08	5	16:32	no	
2024-11-25	D7	2	13:47	13:52	5	16:31	yes	

Survey Date	Survey Location[1]	Survey Period (Visit)	Survey Start Time	Survey End Time	Duration of Survey (minutes)	Sunset	Were Raptors Observed?	Disturbances[2]/Other Survey Comments
2024-11-25	S1	2	15:31	17:01	90	16:31	no	Traffic
2024-11-25	S3	2	15:31	17:01	90	16:31	no	For first 10min of survey tractor doing work in field. Came back at 4:16 and worked in field until 4:33
2024-11-25	S4	2	15:32	17:02	90	16:32	no	
2024-11-25	S6	2	15:31	17:01	90	16:31	no	
2024-11-26	S2	2	15:31	17:01	90	16:31	no	Traffic
2024-11-26	S7	2	15:31	17:01	90	16:31	yes	
2024-11-27	S5	2	15:30	17:02	92	16:30	no	
2024-12-02	D1	3	13:29	13:34	5	16:29	yes	
2024-12-02	D2	3	13:45	13:50	5	16:29	no	
2024-12-02	D3	3	13:51	13:56	5	16:29	no	
2024-12-02	D4	3	13:58	14:03	5	16:29	yes	
2024-12-02	D5	3	14:16	14:21	5	16:29	no	
2024-12-02	D6	3	14:28	14:33	5	16:29	yes	
2024-12-02	D7	3	14:47	14:52	5	16:29	yes	
2024-12-02	S1	3	15:29	17:00	91	16:29	yes	
2024-12-02	S3	3	15:29	17:03	94	16:29	yes	Landowner stopped to talk to me briefly to make sure I wasn't hunting his cows (around 4:25)
2024-12-02	S5	3	15:29	16:59	90	16:29	yes	Some traffic. Dogs barking and running around at nearby house to the south and into field
2024-12-03	S4	3	15:28	17:00	92	16:28	yes	Train came through around 4:30
2024-12-03	S6	3	15:28	16:58	90	16:28	yes	
2024-12-04	S2	3	15:28	16:58	90	16:28	no	
2024-12-04	S7	3	15:28	16:58	90	16:28	yes	
2024-12-09	D1	4	14:29	14:34	5	16:28	no	
2024-12-09	D2	4	14:22	14:27	5	16:28	no	
2024-12-09	D3	4	14:15	14:20	5	16:28	no	
2024-12-09	D4	4	14:08	14:13	5	16:28	no	

Survey Date	Survey Location[1]	Survey Period (Visit)	Survey Start Time	Survey End Time	Duration of Survey (minutes)	Sunset	Were Raptors Observed?	Disturbances[2]/Other Survey Comments
2024-12-09	D5	4	13:59	14:04	5	16:28	no	
2024-12-09	D6	4	13:51	13:56	5	16:28	no	
2024-12-09	D7	4	13:44	13:49	5	16:28	no	
2024-12-09	S1	4	15:28	16:58	90	16:28	yes	Traffic
2024-12-09	S4	4	15:28	16:58	90	16:28	no	
2024-12-09	S6	4	15:28	17:00	92	16:28	no	
2024-12-10	S2	4	15:28	16:58	90	16:28	yes	Traffic
2024-12-10	S7	4	15:28	17:00	92	16:28	no	
2024-12-11	S3	4	15:28	16:58	90	16:28	no	
2024-12-11	S5	4	15:28	16:58	90	16:28	no	Photos at the start of the survey didn't upload. Re took photos at the end once I realized they failed to save.
2024-12-16	D1	5	14:03	14:08	5	16:29	yes	
2024-12-16	D2	5	14:11	14:16	5	16:29	no	
2024-12-16	D3	5	14:17	14:22	5	16:29	no	
2024-12-16	D4	5	14:23	14:28	5	16:29	yes	
2024-12-16	D5	5	14:31	14:36	5	16:29	yes	
2024-12-16	D6	5	14:38	14:43	5	16:29	yes	
2024-12-16	D7	5	14:47	14:52	5	16:29	yes	
2024-12-16	S1	5	15:29	17:02	93	16:29	yes	
2024-12-16	S3	5	15:29	17:00	91	16:29	yes	
2024-12-16	S5	5	15:29	16:59	90	16:29	yes	Dogs running around in eastern field for 15 min
2024-12-17	S2	5	15:29	17:01	92	16:29	yes	
2024-12-17	S4	5	15:29	16:59	90	16:29	no	
2024-12-17	S7	5	15:29	16:59	90	16:29	no	Train passed through at 3:45pm
2024-12-18	S6	5	15:30	17:00	90	16:30	no	
2024-12-22	S6	6	15:33	17:03	90	16:33	no	
2024-12-23	D1	6	14:22	14:27	5	16:32	yes	
2024-12-23	D2	6	14:16	14:21	5	16:32	no	

Survey Date	Survey Location[1]	Survey Period (Visit)	Survey Start Time	Survey End Time	Duration of Survey (minutes)	Sunset	Were Raptors Observed?	Disturbances[2]/Other Survey Comments
2024-12-23	D3	6	14:08	14:13	5	16:32	yes	
2024-12-23	D4	6	14:02	14:07	5	16:32	no	
2024-12-23	D5	6	13:56	14:01	5	16:32	no	
2024-12-23	D6	6	13:48	13:53	5	16:32	no	
2024-12-23	D7	6	13:42	13:47	5	16:32	no	
2024-12-23	S1	6	15:32	17:03	91	16:32	yes	
2024-12-23	S3	6	15:32	17:02	90	16:32	no	
2024-12-23	S4	6	15:32	17:02	90	16:32	no	
2024-12-23	S7	6	15:32	17:02	90	16:32	no	
2024-12-26	S5	6	15:34	17:04	90	16:34	no	
2024-12-27	S2	6	15:35	17:05	90	16:35	yes	
2025-01-06	D1	7	13:52	13:57	5	16:44	no	
2025-01-06	D2	7	13:59	14:04	5	16:44	no	
2025-01-06	D3	7	14:05	14:10	5	16:44	no	
2025-01-06	D4	7	14:11	14:16	5	16:44	no	
2025-01-06	D5	7	14:18	14:23	5	16:44	no	
2025-01-06	D6	7	14:27	14:32	5	16:44	no	
2025-01-06	D7	7	14:34	14:39	5	16:44	no	
2025-01-06	S1	7	15:44	17:16	92	16:44	yes	
2025-01-06	S3	7	15:44	17:14	90	16:44	no	Active logging occurring at S7. Observed a logging truck getting loaded and a feller buncher (?)cutting down trees from S3. It appears S7 might be under a bunch of downed trees currently and no longer accessible while the logging is occurring.
2025-01-06	S5	7	15:44	17:14	90	16:44	no	
2025-01-07	S4	7	15:45	17:15	90	16:45	yes	
2025-01-07	S6	7	15:45	17:15	90	16:45	no	
2025-01-08	S2	7	15:46	17:17	91	16:46	no	

Survey Date	Survey Location[1]	Survey Period (Visit)	Survey Start Time	Survey End Time	Duration of Survey (minutes)	Sunset	Were Raptors Observed?	Disturbances[2]/Other Survey Comments
2025-01-09	S7	7	15:47	17:17	90	16:47	no	Active logging at edge of field from start of survey until 4:55 pm. Survey done at point labeled S7_Logging on field maps due to active logging occurring at the original point.
2025-01-13	D1	8	15:22	15:27	5	16:51	no	
2025-01-13	D2	8	15:16	15:21	5	16:51	no	
2025-01-13	D3	8	15:09	15:14	5	16:52	no	
2025-01-13	D4	8	15:03	15:08	5	16:52	no	
2025-01-13	D5	8	14:54	14:59	5	16:52	no	
2025-01-13	D6	8	14:46	14:51	5	16:52	no	
2025-01-13	D7	8	14:40	14:45	5	16:52	yes	
2025-01-13	S1	8	15:51	17:21	90	16:51	no	Traffic
2025-01-13	S4	8	15:51	17:21	90	16:51	no	
2025-01-13	S6	8	15:52	17:22	90	16:52	yes	
2025-01-15	S2	8	15:50	17:32	102	16:54	yes	
2025-01-15	S3	8	15:54	17:24	90	16:54	yes	Consistent passing vehicles (hard to hear calls), logging activity to the west near S 7
2025-01-15	S5	8	15:54	17:26	92	16:54	yes	
2025-01-16	S7	8	15:55	17:25	90	16:55	no	Logging happening near original pt 7 - ended 16:45, train + horn 16:57-17:01
2025-01-20	D1	9	14:43	14:48	5	17:00	no	
2025-01-20	D2	9	14:49	14:54	5	17:00	no	
2025-01-20	D3	9	14:56	15:01	5	17:00	no	
2025-01-20	D4	9	15:03	15:08	5	17:00	yes	
2025-01-20	D5	9	15:09	15:14	5	17:00	yes	
2025-01-20	D6	9	15:21	15:26	5	17:00	no	
2025-01-20	D7	9	15:29	15:34	5	17:00	yes	
2025-01-20	S1	9	16:00	17:32	92	17:00	no	
2025-01-20	S5	9	16:00	17:30	90	17:00	no	Dog barking and running around in eastern field ~5:09

Survey Date	Survey Location[1]	Survey Period (Visit)	Survey Start Time	Survey End Time	Duration of Survey (minutes)	Sunset	Were Raptors Observed?	Disturbances[2]/Other Survey Comments
2025-01-21	S3	9	16:01	17:31	90	17:01	no	Logging occurring to the northwest of S3. Loggers stopped working for the day around 4:45
2025-01-21	S6	9	16:01	17:31	90	17:01	no	
2025-01-22	S2	9	16:03	17:35	92	17:03	yes	
2025-01-22	S4	9	16:03	17:33	90	17:03	yes	
2025-01-23	S7	9	16:04	17:34	90	17:04	no	Active logging, train. Survey done at logging point. Loggers left around 5
2025-01-27	D1	10	15:18	15:23	5	17:09	no	
2025-01-27	D2	10	15:12	15:17	5	17:09	yes	
2025-01-27	D3	10	15:03	15:08	5	17:09	no	
2025-01-27	D4	10	14:55	15:00	5	17:09	yes	
2025-01-27	D5	10	14:46	14:51	5	17:09	yes	
2025-01-27	D6	10	14:39	14:44	5	17:09	no	
2025-01-27	D7	10	14:34	14:39	5	17:09	no	
2025-01-27	S1	10	16:09	17:39	90	17:09	no	
2025-01-27	S4	10	16:09	17:39	90	17:09	yes	
2025-01-27	S6	10	16:09	17:39	90	17:09	no	
2025-01-28	S2	10	16:11	17:41	90	17:11	no	
2025-01-28	S7	10	16:11	17:41	90	17:11	no	Logging activity occurring at original S7 so survey was conducted from the alternative location across the field. Loggers left around 4:50 PM. Trains came through with horns around 4:30.
2025-01-29	S5	10	16:12	17:42	90	17:12	no	
2025-01-30	S3	10	16:13	17:43	90	17:13	no	
2025-02-03	D1	11	15:32	15:37	5	17:19	no	
2025-02-03	D2	11	15:25	15:30	5	17:19	no	
2025-02-03	D3	11	15:18	15:23	5	17:19	no	
2025-02-03	D4	11	15:11	15:16	5	17:19	no	

Survey Date	Survey Location[1]	Survey Period (Visit)	Survey Start Time	Survey End Time	Duration of Survey (minutes)	Sunset	Were Raptors Observed?	Disturbances[2]/Other Survey Comments
2025-02-03	D5	11	15:05	15:10	5	17:19	no	
2025-02-03	D6	11	14:57	15:02	5	17:19	no	
2025-02-03	D7	11	14:51	14:56	5	17:19	no	
2025-02-03	S1	11	16:19	17:49	90	17:19	no	
2025-02-03	S5	11	16:19	17:49	90	17:19	no	
2025-02-04	S3	11	16:20	17:50	90	17:20	no	No logging activity occurring in the area today.
2025-02-04	S6	11	16:20	17:50	90	17:20	no	
2025-02-05	S2	11	16:22	17:54	92	17:22	no	
2025-02-05	S4	11	16:22	17:52	90	17:22	yes	
2025-02-05	S7	11	16:22	17:52	90	17:22	no	Active logging at north end of field. Point done at logging point location.
2025-02-10	D1	12	15:08	15:13	5	17:28	no	
2025-02-10	D2	12	15:14	15:19	5	17:28	no	
2025-02-10	D3	12	15:21	15:26	5	17:28	no	
2025-02-10	D4	12	15:28	15:33	5	17:28	no	
2025-02-10	D5	12	15:34	15:39	5	17:29	no	
2025-02-10	D6	12	15:43	15:48	5	17:29	no	
2025-02-10	D7	12	15:49	15:54	5	17:29	no	
2025-02-10	S1	12	16:28	17:58	90	17:28	no	Snow, tall snow bank impeding some visibility.
2025-02-10	S4	12	16:28	17:58	90	17:28	no	
2025-02-10	S6	12	16:29	17:59	90	17:29	no	
2025-02-11	S2	12	16:30	18:00	90	17:30	no	
2025-02-11	S7	12	16:30	18:00	90	17:30	yes	Logging occurring at northern end of field in woods out of sight (can hear equipment). Did survey from the original point due to the loggers being out of the area and the better visibility from this point. Loggers left around 4:50 PM.
2025-02-12	S3	12	16:31	18:01	90	17:31	yes	
2025-02-12	S5	12	16:31	18:01	90	17:31	no	

Survey Date	Survey Location[1]	Survey Period (Visit)	Survey Start Time	Survey End Time	Duration of Survey (minutes)	Sunset	Were Raptors Observed?	Disturbances[2]/Other Survey Comments
2025-02-19	D1	13	16:21	16:26	5	17:40	no	
2025-02-19	D2	13	16:15	16:20	5	17:40	no	
2025-02-19	D3	13	16:08	16:13	5	17:41	no	Had to do survey further west because of snow on side of road
2025-02-19	D4	13	16:02	16:07	5	17:41	no	
2025-02-19	D5	13	15:55	16:00	5	17:41	no	
2025-02-19	D6	13	15:48	15:53	5	17:41	no	
2025-02-19	D7	13	15:41	15:46	5	17:40	no	
2025-02-19	S1	13	16:40	18:11	91	17:40	no	Cannot see to the west due to snow banks.
2025-02-19	S3	13	16:41	18:11	90	17:41	yes	Loggers are active in the forest north/northwest of the point. Loggers left around 4:55 PM.
2025-02-19	S5	13	16:41	18:11	90	17:41	no	
2025-02-20	S2	13	16:42	18:12	90	17:42	no	
2025-02-20	S4	13	16:42	18:12	90	17:42	no	
2025-02-20	S6	13	16:42	18:12	90	17:42	no	
2025-02-21	S7	13	16:43	18:13	90	17:43	yes	Survey completed at regular spot. Loggers not working during survey time.
2025-02-24	D1	14	15:34	15:39	5	17:47	no	
2025-02-24	D2	14	15:41	15:46	5	17:47	no	
2025-02-24	D3	14	15:48	15:53	5	17:47	yes	
2025-02-24	D4	14	15:56	16:01	5	17:47	no	
2025-02-24	D5	14	16:02	16:07	5	17:47	no	
2025-02-24	D6	14	16:10	16:15	5	17:47	no	
2025-02-24	D7	14	16:15	16:20	5	17:47	no	
2025-02-24	S1	14	16:47	18:17	90	17:47	no	
2025-02-24	S4	14	16:47	18:17	90	17:47	no	
2025-02-24	S6	14	16:47	18:17	90	17:47	no	
2025-02-25	S2	14	16:48	18:18	90	17:48	no	
2025-02-25	S7	14	16:48	18:18	90	17:48	yes	Survey done at original point.

Survey Date	Survey Location[1]	Survey Period (Visit)	Survey Start Time	Survey End Time	Duration of Survey (minutes)	Sunset	Were Raptors Observed?	Disturbances[2]/Other Survey Comments
2025-02-26	S3	14	16:50	18:20	90	17:50	no	
2025-02-26	S5	14	16:50	18:20	90	17:50	no	
2025-03-03	D1	15	16:09	16:14	5	17:56	no	
2025-03-03	D2	15	16:03	16:08	5	17:56	no	
2025-03-03	D3	15	15:56	16:01	5	17:56	no	
2025-03-03	D4	15	15:50	15:55	5	17:56	no	
2025-03-03	D5	15	15:43	15:48	5	17:56	no	
2025-03-03	D6	15	15:35	15:40	5	17:56	no	
2025-03-03	D7	15	15:29	15:34	5	17:56	no	
2025-03-03	S1	15	16:56	18:28	92	17:56	no	
2025-03-03	S3	15	16:56	18:26	90	17:56	yes	
2025-03-03	S5	15	16:56	18:26	90	17:56	no	
2025-03-04	S4	15	16:57	18:27	90	17:57	no	
2025-03-04	S7	15	16:57	18:27	90	17:57	no	Survey done at original point. No active logging during survey.
2025-03-05	S2	15	16:58	18:29	91	17:58	no	
2025-03-05	S6	15	16:59	18:29	90	17:59	no	
2025-03-10	D1	16	16:54	16:59	5	19:05	yes	
2025-03-10	D2	16	17:01	17:06	5	19:05	no	
2025-03-10	D3	16	17:07	17:12	5	19:05	no	
2025-03-10	D4	16	17:13	17:18	5	19:05	no	
2025-03-10	D5	16	17:19	17:24	5	19:05	no	
2025-03-10	D6	16	17:27	17:32	5	19:05	no	
2025-03-10	D7	16	17:34	17:39	5	19:05	no	
2025-03-10	S1	16	18:05	19:35	90	19:05	no	Logging has been done in conifer area. ~1 acre has been cut
2025-03-10	S4	16	18:05	19:35	90	19:05	no	
2025-03-10	S6	16	18:05	19:35	90	19:05	no	
2025-03-11	S2	16	18:06	19:36	90	19:06	no	

Survey Date	Survey Location[1]	Survey Period (Visit)	Survey Start Time	Survey End Time	Duration of Survey (minutes)	Sunset	Were Raptors Observed?	Disturbances[2]/Other Survey Comments
2025-03-11	S7	16	18:06	19:36	90	19:06	yes	Survey done at original S7, no logging occurring. Looks like loggers might be done with work here as they have some of their equipment staged at the end of the road.
2025-03-12	S3	16	18:07	19:37	90	19:07	yes	
2025-03-12	S5	16	18:07	19:37	90	19:07	yes	
2025-03-17	D1	17	17:49	17:54	5	19:13	no	
2025-03-17	D2	17	17:42	17:47	5	19:13	no	
2025-03-17	D3	17	17:35	17:40	5	19:13	yes	
2025-03-17	D4	17	17:25	17:30	5	19:13	no	
2025-03-17	D5	17	17:19	17:24	5	19:13	no	
2025-03-17	D6	17	17:07	17:12	5	19:13	yes	
2025-03-17	D7	17	17:01	17:06	5	19:13	no	
2025-03-17	S1	17	18:13	19:43	90	19:13	no	
2025-03-17	S3	17	18:13	19:50	97	19:13	yes	Around 7:28 a man stopped to ask me what my spotting scope was and if I was recording something. Brief interaction. Another vehicle also stopped for awhile but didn't talk to me - left around 7:37.
2025-03-17	S5	17	18:13	19:43	90	19:13	no	
2025-03-18	S4	17	18:15	19:45	90	19:15	yes	
2025-03-18	S6	17	18:15	19:45	90	19:15	no	
2025-03-19	S2	17	18:16	19:47	91	19:16	yes	
2025-03-19	S7	17	18:16	19:46	90	19:16	no	Original point, no logging occurring.
2025-03-24	D1	18	17:16	17:21	5	19:22	no	
2025-03-24	D2	18	17:23	17:28	5	19:22	yes	
2025-03-24	D3	18	17:30	17:35	5	19:22	yes	
2025-03-24	D4	18	17:37	17:42	5	19:22	no	
2025-03-24	D5	18	17:43	17:48	5	19:22	no	
2025-03-24	D6	18	17:50	17:55	5	19:22	yes	

Survey Date	Survey Location[1]	Survey Period (Visit)	Survey Start Time	Survey End Time	Duration of Survey (minutes)	Sunset	Were Raptors Observed?	Disturbances[2]/Other Survey Comments
2025-03-24	D7	18	17:57	18:02	5	19:22	no	
2025-03-24	S1	18	18:22	19:52	90	19:22	yes	
2025-03-24	S4	18	18:22	19:52	90	19:22	yes	
2025-03-24	S5	18	18:22	19:52	90	19:22	yes	
2025-03-24	S6	18	18:22	19:52	90	19:22	yes	
2025-03-25	S2	18	18:23	19:53	90	19:23	no	
2025-03-25	S7	18	18:22	19:52	90	19:23	no	Survey occurred at original S7 (no logging occurring)
2025-03-26	S3	18	18:24	19:54	90	19:24	yes	
2025-04-01	D1	19	17:01	17:06	5	19:31	no	
2025-04-01	D2	19	17:07	17:12	5	19:31	yes	
2025-04-01	D3	19	17:15	17:20	5	19:31	no	
2025-04-01	D4	19	17:22	17:27	5	19:31	yes	
2025-04-01	D5	19	17:28	17:33	5	19:31	no	
2025-04-01	D6	19	17:36	17:41	5	19:31	no	
2025-04-01	D7	19	17:43	17:48	5	19:31	no	
2025-04-01	S4	19	18:31	20:01	90	19:31	no	
2025-04-01	S5	19	18:31	20:01	90	19:31	no	
2025-04-02	S2	19	18:33	20:03	90	19:33	no	
2025-04-02	S6	19	18:33	20:03	90	19:33	no	
2025-04-03	S3	19	18:34	20:04	90	19:34	yes	
2025-04-04	S7	19	18:35	20:05	90	19:35	no	Survey done at original point.
2025-04-05	S1	19	18:36	20:06	90	19:36	no	
2025-04-07	D1	20	17:58	18:03	5	19:38	no	
2025-04-07	D2	20	17:52	17:57	5	19:38	no	
2025-04-07	D3	20	17:45	17:50	5	19:38	no	
2025-04-07	D4	20	17:38	17:43	5	19:38	no	
2025-04-07	D5	20	17:32	17:37	5	19:39	no	
2025-04-07	D6	20	17:25	17:30	5	19:39	no	

Survey Date	Survey Location[1]	Survey Period (Visit)	Survey Start Time	Survey End Time	Duration of Survey (minutes)	Sunset	Were Raptors Observed?	Disturbances[2]/Other Survey Comments
2025-04-07	D7	20	17:19	17:24	5	19:38	no	
2025-04-07	S4	20	18:39	20:09	90	19:39	no	
2025-04-07	S5	20	18:39	20:09	90	19:39	no	
2025-04-08	S3	20	18:40	20:10	90	19:40	no	
2025-04-08	S6	20	18:40	20:10	90	19:40	yes	
2025-04-09	S2	20	18:41	20:11	90	19:41	no	
2025-04-09	S7	20	18:41	20:11	90	19:41	no	Survey done at original point.
2025-04-10	S1	20	18:42	20:12	90	19:42	no	

[1]S= stationary survey location; D = driving stop location
[2]None if left blank

Appendix B. Habitat Summary Table

Survey Location	General Habitat Types Within 1,000-Meter Radius of Point
D1	Hayfield, Mixed Forest, Shrubland, Wetland
D2	Corn Stubble, Hayfield, Mixed Forest, Shrubland, Wetland
D3	Corn Stubble, Hayfield, Mixed Forest, Shrubland, Wetland
D4	Hayfield, Mixed Forest, Shrubland, Wetland
D5	Fallow Field, Hayfield, Mixed Forest, Shrubland, Wetland
D6	Fallow Field, Hedgerow, Mixed Forest, Shrubland, Solar farm
D7	Fallow Field, Mixed Forest, Row crop- mowed soybean, Shrubland, Wetland
S1	Corn Stubble, Hayfield, Mixed Forest, Shrubland, Wetland
S2	Corn Stubble, Fallow Field, Hayfield, Mixed Forest, Shrubland, Wetland
S3	Corn Stubble, Hayfield, Mixed Forest, Shrubland, Wetland
S4	Coniferous Forest, Corn Stubble, Deciduous Forest, Hayfield, Mixed Forest, Shrubland, Train tracks, Wetland
S5	Hayfield, Hedgerow, Mixed Forest, Soybean field; solar panels, Wetland
S6	Coniferous Forest, Corn Stubble, Deciduous Forest, Fallow Field, Hedgerow, Wetland
S7*	Coniferous Forest, Corn Stubble, Deciduous Forest, Hayfield, Hedgerow, Mixed Forest

[1]S= stationary survey location; D = driving stop location
*S7 had to shift during portions of the survey due to active logging in the area. Both locations contained similar habitats, however after the logging occurred the forested areas (coniferous, deciduous, and mixed) were reduced but generally the hedgerows remained standing (Figure 2)

Appendix C. Weather Conditions Table

Survey Date	Survey Location[1]	Survey Period (Visit)	Wind Speed (mph)	Wind Direction (degrees)	Temperature (F)	Relative Humidity (%)	Barometric Pressure (inHG)	Cloud Cover (%)	Visibility (miles)	Precipitation	Snow Condition	Snow Depth (inches)	Weather comment/updates
2024-11-18	D1	1	13	290	51	77	30	30	10	0 - None	None	0	
2024-11-18	D2	1	13	289	51	77	30	45	10	0 - None	None	0	
2024-11-18	D3	1	13	289	51	77	30	20	10	0 - None	None	0	
2024-11-18	D4	1	12	288	52	73	30	15	10	0 - None	None	0	
2024-11-18	D5	1	12	288	52	72	30	15	10	0 - None	None	0	
2024-11-18	D6	1	12	288	54	73	30	10	10	0 - None	None	0	
2024-11-18	D7	1	12	287	53	68	30	25	10	0 - None	None	0	
2024-11-18	S1	1	10	292	51	67	30	25	10	0 - None	None	0	Partly cloudy, sunny
2024-11-18	S4	1	10	290	51	67	30	5	10	0 - None	None	0	
2024-11-18	S6	1	10	289	52	67	30	25	10	0 - None	None	0	
2024-11-19	S2	1	2	50	50	68	30	80	10	0 - None	None	0	
2024-11-19	S5	1	2	41	50	68	30	85	10	0 - None	None	0	
2024-11-20	S3	1	7	118	52	74	29.8	100	10	0 - None	None	0	
2024-11-20	S7	1	7	123	52	74	29.8	100	10	0 - None	None	0	
2024-11-25	D1	2	2	99	42	62	30.1	5	10	0 - None	None	0	
2024-11-25	D2	2	2	99	42	62	30.1	5	10	0 - None	None	0	
2024-11-25	D3	2	1	60	42	63	30.1	5	10	0 - None	None	0	
2024-11-25	D4	2	1	60	42	62	30.1	10	10	0 - None	None	0	
2024-11-25	D5	2	1	54	42	62	30.1	20	10	0 - None	None	0	
2024-11-25	D6	2	1	54	42	62	30.1	15	10	0 - None	None	0	
2024-11-25	D7	2	1	60	42	62	30.1	20	10	0 - None	None	0	
2024-11-25	S1	2	2	99	41	65	30.1	25	10	0 - None	None	0	
2024-11-25	S3	2	2	130	40	67	30.1	25	10	0 - None	None	0	
2024-11-25	S4	2	2	99	41	66	30.1	20	10	0 - None	None	0	
2024-11-25	S6	2	1	93	41	65	30.1	25	10	0 - None	None	0	
2024-11-26	S2	2	14	262	43	71	29.9	80	9	0 - None	None	0	Wind gusts. At 16:04 it started to rain (intermittent rain from 16:04 to end of survey).
2024-11-26	S7	2	14	262	43	71	29.9	95	10	0 - None	None	0	Some occasional stronger wind gusts at the beginning of survey. At 16:02 light drizzle started, continued to stop and start. At 16:45 drizzle fully stopped.
2024-11-27	S5	2	7	45	41	56	30.1	15	10	0 - None	None	0	
2024-12-02	D1	3	7	297	29	75	30.2	70	10	0 - None	Powder	1	
2024-12-02	D2	3	7	297	29	75	30.2	70	10	0 - None	Powder	1	
2024-12-02	D3	3	7	297	31	73	30.2	70	10	0 - None	Powder	1	

Survey Date	Survey Location[1]	Survey Period (Visit)	Wind Speed (mph)	Wind Direction (degrees)	Temperature (F)	Relative Humidity (%)	Barometric Pressure (inHG)	Cloud Cover (%)	Visibility (miles)	Precipitation	Snow Condition	Snow Depth (inches)	Weather comment/updates
2024-12-02	D4	3	7	297	31	72	30.2	70	10	0 - None	Powder	1	
2024-12-02	D5	3	7	297	29	73	30.2	70	10	0 - None	Powder	1	
2024-12-02	D6	3	7	297	29	73	30.2	70	10	0 - None	Powder	1	
2024-12-02	D7	3	6	294	29	74	30.2	70	10	0 - None	Powder	1	
2024-12-02	S1	3	7	295	29	76	30.2	90	10	0 - None	Powder	0.5	
2024-12-02	S3	3	7	295	29	74	30.2	80	10	0 - None	Powder	0.5	Snow varies in depth and isn't full coverage
2024-12-02	S5	3	7	294	29	75	30.2	60	10	0 - None	Powder	2	Very light snow for a few minutes around 4:30 pm
2024-12-03	S4	3	9	304	27	74	30.3	95	9	5 - Snow	Powder	1	Snow flurries earlier in the day and at the start of survey but they ended shortly after the start (at 15:40).
2024-12-03	S6	3	9	306	28	74	30.3	99	9	5 - Snow	Powder	2.5	Very lightly snowing
2024-12-04	S2	3	9	174	29	68	29.9	100	8	0 - None	Powder	2	
2024-12-04	S7	3	12	174	29	71	29.9	100	8	5 - Snow	Powder	2	Lightly snowing
2024-12-09	D1	4	15	126	35	97	29.9	100	9	3 - Rain	Granular	4	
2024-12-09	D2	4	15	126	35	96	29.9	100	9	3 - Rain	Granular	4	
2024-12-09	D3	4	15	126	35	96	29.9	100	9	3 - Rain	Granular	4	
2024-12-09	D4	4	15	126	36	96	29.9	100	9	3 - Rain	Granular	4	
2024-12-09	D5	4	15	128	35	96	29.9	100	9	3 - Rain	Granular	4	
2024-12-09	D6	4	15	129	35	96	29.9	100	9	3 - Rain	Granular	4	
2024-12-09	D7	4	12	70	40	93	29.9	100	9	3 - Rain	Granular	4	
2024-12-09	S1	4	15	132	35	96	29.9	100	9	3 - Rain	Granular	4	
2024-12-09	S4	4	15	132	35	97	29.9	100	9	2 - Drizzle	Granular, Slush	2	
2024-12-09	S6	4	15	135	36	97	29.9	100	9	3 - Rain	Granular, Slush	4	At 16:3, rain lightened up to a drizzle.
2024-12-10	S2	4	11	125	41	97	30	100	7	2 - Drizzle	Granular	2	At 15:45 drizzle became heavier rain.
2024-12-10	S7	4	11	125	41	97	30	100	9	0 - None	Slush	0.5	Light drizzle just before start of survey. A lot of snow has melted in areas, patchy. At 15:45 rain started. At 16:04 rain stopped.
2024-12-11	S3	4	6	304	39	99	29.6	100	4	3 - Rain	Granular	1	
2024-12-11	S5	4	11	299	38	96	29.6	100	7	2 - Drizzle	None	0	
2024-12-16	D1	5	13	137	41	83	30.3	95	10	0 - None	Slush	2	
2024-12-16	D2	5	13	137	41	83	30.3	95	10	0 - None	Slush	2	
2024-12-16	D3	5	13	137	41	83	30.3	90	10	0 - None	Slush	2	
2024-12-16	D4	5	13	137	41	83	30.3	90	10	0 - None	Slush	2	

Survey Date	Survey Location[1]	Survey Period (Visit)	Wind Speed (mph)	Wind Direction (degrees)	Temperature (F)	Relative Humidity (%)	Barometric Pressure (inHG)	Cloud Cover (%)	Visibility (miles)	Precipitation	Snow Condition	Snow Depth (inches)	Weather comment/updates
2024-12-16	D5	5	13	136	42	83	30.3	90	10	0 - None	Slush	2	
2024-12-16	D6	5	13	136	42	83	30.3	90	10	0 - None	Slush	2	
2024-12-16	D7	5	14	137	47	96	30.3	90	10	0 - None	Slush	2	
2024-12-16	S1	5	14	139	41	84	30.3	90	10	0 - None	Powder	1	
2024-12-16	S3	5	13	136	41	83	30.3	100	10	0 - None	Granular, Slush	2	
2024-12-16	S5	5	14	139	47	96	30.3	90	10	0 - None	Slush	2	
2024-12-17	S2	5	12	265	42	77	30.2	95	10	0 - None	None	0	At 16:30 drizzle started.
2024-12-17	S4	5	12	265	42	77	30.2	100	9	0 - None	None	0	Rain last night got rid of remaining snow. At 16:10 drizzle started.
2024-12-17	S7	5	12	265	42	77	30.2	100	8	0 - None	None	0	At 16:30 drizzle started.
2024-12-18	S6	5	7	174	34	96	30.1	100	3	3 - Rain	None	0	
2024-12-22	S6	6	6	349	8	76	30.6	20	10	0 - None	Powder	2	
2024-12-23	D1	6	12	145	21	57	30.5	90	10	0 - None	Powder	2	
2024-12-23	D2	6	12	145	21	57	30.5	90	10	0 - None	Powder	2	
2024-12-23	D3	6	12	145	21	57	30.5	90	10	0 - None	Powder	2	
2024-12-23	D4	6	12	145	22	57	30.5	90	10	0 - None	Powder	2	
2024-12-23	D5	6	12	146	20	57	30.5	90	10	0 - None	Powder	2	
2024-12-23	D6	6	12	146	20	57	30.5	90	10	0 - None	Powder	2	
2024-12-23	D7	6	12	145	20	57	30.5	90	10	0 - None	Powder	2	
2024-12-23	S1	6	10	146	23	59	30.5	100	10	0 - None	Powder	2	At 16:44 snow started falling.
2024-12-23	S3	6	10	146	23	59	30.5	90	10	0 - None	Powder	2	At 16:55 light snow started
2024-12-23	S4	6	12	144	19	77	30.4	100	10	0 - None	Powder	3	At 16:53 snow started.
2024-12-23	S7	6	10	146	23	59	30.5	100	10	0 - None	Powder	2	At 16:49 light snow started.
2024-12-26	S5	6	2	179	23	78	30.5	95	10	0 - None	Powder	3	
2024-12-27	S2	6	6	128	32	73	30.4	95	10	0 - None	Powder	4	Calm and clear
2025-01-06	D1	7	10	359	13	73	30	95	10	0 - None	Powder	24	
2025-01-06	D2	7	10	359	12	73	30	95	10	0 - None	Powder	24	
2025-01-06	D3	7	10	359	12	73	30	95	10	0 - None	Powder	24	
2025-01-06	D4	7	10	359	12	73	30	95	10	0 - None	Powder	24	
2025-01-06	D5	7	10	359	12	73	30	95	10	0 - None	Powder	24	
2025-01-06	D6	7	10	1	13	73	30	95	10	0 - None	Powder	24	
2025-01-06	D7	7	10	6	13	74	30	95	10	0 - None	Powder	24	
2025-01-06	S1	7	9	5	14	75	30	85	10	0 - None	Powder	24	
2025-01-06	S3	7	10	3	14	74	30	45	8	0 - None	Powder	24	
2025-01-06	S5	7	10	5	14	74	30	95	10	0 - None	Powder	24	

Survey Date	Survey Location[1]	Survey Period (Visit)	Wind Speed (mph)	Wind Direction (degrees)	Temperature (F)	Relative Humidity (%)	Barometric Pressure (inHG)	Cloud Cover (%)	Visibility (miles)	Precipitation	Snow Condition	Snow Depth (inches)	Weather comment/updates
2025-01-07	S4	7	17	312	21	83	30.1	95	10	0 - None	Powder	24	Snow varies in depth across the fields due to blowing. Occasional wind gusts blew snow in air across the fields.
2025-01-07	S6	7	17	314	21	83	30.1	95	9	0 - None	Powder	24	
2025-01-08	S2	7	16	307	15	80	30	90	10	0 - None	Crust	20	
2025-01-09	S7	7	15	309	20	89	30.1	90	9	0 - None	Powder	24	
2025-01-13	D1	8	13	257	30	67	29.9	80	10	0 - None	Granular	18	
2025-01-13	D2	8	13	257	30	66	29.9	80	10	0 - None	Granular	18	
2025-01-13	D3	8	13	257	30	66	29.9	80	10	0 - None	Granular	18	
2025-01-13	D4	8	13	257	31	65	29.9	80	10	0 - None	Granular	18	
2025-01-13	D5	8	14	257	31	66	29.9	80	10	0 - None	Granular	18	
2025-01-13	D6	8	14	257	31	66	29.9	80	10	0 - None	Granular	18	
2025-01-13	D7	8	14	254	31	66	29.9	80	10	0 - None	Granular	18	
2025-01-13	S1	8	13	256	30	67	30	80	10	0 - None	Granular	18	
2025-01-13	S4	8	13	256	29	69	30	85	10	0 - None	Powder	20	
2025-01-13	S6	8	14	257	30	67	29.9	80	10	0 - None	Granular	12	Snow depth varies across fields and roadsides. At 17:12 light snow started.
2025-01-15	S2	8	12	295	21	88	30.2	90	9	0 - None	Powder	14	At 16:22 snowfall started.
2025-01-15	S3	8	12	295	21	84	30.2	100	10	5 - Snow	Powder	18	
2025-01-15	S5	8	12	295	21	88	30.2	100	10	0 - None	Powder	6	At 16:12 snow started. At 16:25 snow stopped.
2025-01-16	S7	8	7	188	21	87	29.9	100	10	5 - Snow	Powder	36	
2025-01-20	D1	9	2	318	11	87	30.4	100	6	5 - Snow	Granular, Powder	24	Light snow
2025-01-20	D2	9	2	318	11	87	30.4	100	6	5 - Snow	Granular, Powder	24	Light snow
2025-01-20	D3	9	2	318	11	87	30.4	100	6	5 - Snow	Granular, Powder	24	Light snow, good visibility
2025-01-20	D4	9	2	318	11	87	30.4	100	6	5 - Snow	Granular, Powder	24	Light snow
2025-01-20	D5	9	2	318	11	87	30.4	100	6	5 - Snow	Granular, Powder	24	Light snow, good visibility
2025-01-20	D6	9	2	318	11	88	30.4	100	6	5 - Snow	Granular, Powder	24	Snowing, visibility okay
2025-01-20	D7	9	3	321	12	88	30.4	100	6	5 - Snow	Granular, Powder	24	Snowing, visibility okay

Survey Date	Survey Location[1]	Survey Period (Visit)	Wind Speed (mph)	Wind Direction (degrees)	Temperature (F)	Relative Humidity (%)	Barometric Pressure (inHG)	Cloud Cover (%)	Visibility (miles)	Precipitation	Snow Condition	Snow Depth (inches)	Weather comment/updates
2025-01-20	S1	9	1	346	11	87	30.4	100	5	5 - Snow	Powder	15	Snowing but I can see all the usual tree lines like normal within my 1,000m circle. At 16:40 there was some wind driven snow and then at 16:48 there was a slight snowfall. At 17:00 the snow stopped.
2025-01-20	S5	9	1	4	12	82	30.4	100	5	5 - Snow	Granular, Powder	24	Snow impairing visibility slightly, can still see areas that are normally visible in clear conditions. Visibility bad for ~10 minutes at 4:50, then cleared up. Snow stopped full at 17:06.
2025-01-21	S3	9	12	215	13	37	30.5	90	10	0 - None	Granular	20	
2025-01-21	S6	9	13	209	12	40	30.5	50	10	0 - None	Granular, Powder	24	
2025-01-22	S2	9	6	177	11	49	30.5	100	10	0 - None	Powder	24	
2025-01-22	S4	9	6	177	11	48	30.5	100	10	0 - None	Granular, Powder	24	
2025-01-23	S7	9	8	232	23	46	30.1	90	10	0 - None	Granular, Powder	24	
2025-01-27	D1	10	16	218	35	32	29.7	80	10	0 - None	Granular, Powder	30	
2025-01-27	D2	10	16	218	35	33	29.7	80	10	0 - None	Granular, Powder	30	
2025-01-27	D3	10	16	218	35	32	29.7	80	10	0 - None	Granular, Powder	30	
2025-01-27	D4	10	16	218	35	31	29.7	80	10	0 - None	Granular, Powder	30	
2025-01-27	D5	10	17	218	35	32	29.7	80	10	0 - None	Granular, Powder	30	
2025-01-27	D6	10	16	218	35	33	29.7	80	10	0 - None	Granular, Powder	30	
2025-01-27	D7	10	16	223	35	35	29.8	80	10	0 - None	Granular, Powder	30	
2025-01-27	S1	10	16	219	35	33	29.7	80	10	0 - None	Granular, Powder	30	
2025-01-27	S4	10	16	218	34	37	29.6	70	10	0 - None	Powder	20	
2025-01-27	S6	10	17	218	35	33	29.7	70	10	0 - None	Granular	24	
2025-01-28	S2	10	6	288	16	87	29.8	100	10	0 - None	Granular, Powder	30	Light snow started at 16:20 and stopped at 17:00.

Survey Date	Survey Location[1]	Survey Period (Visit)	Wind Speed (mph)	Wind Direction (degrees)	Temperature (F)	Relative Humidity (%)	Barometric Pressure (inHG)	Cloud Cover (%)	Visibility (miles)	Precipitation	Snow Condition	Snow Depth (inches)	Weather comment/updates
2025-01-28	S7	10	6	288	16	87	29.8	100	10	5 - Snow	Powder	30	Light snow. Snow stopped at 17:03.
2025-01-29	S5	10	11	297	24	68	29.7	100	10	0 - None	Crust, Powder	24	
2025-01-30	S3	10	7	178	26	69	30.2	80	10	0 - None	Powder	8	
2025-02-03	D1	11	8	161	33	93	29.9	100	7	2 - Drizzle	Granular, Slush	36	
2025-02-03	D2	11	8	161	33	93	29.9	100	7	2 - Drizzle	Granular, Slush	36	
2025-02-03	D3	11	8	161	33	93	29.9	100	7	2 - Drizzle	Granular, Slush	36	
2025-02-03	D4	11	8	161	34	92	29.9	100	7	2 - Drizzle	Granular, Slush	36	
2025-02-03	D5	11	8	163	34	90	29.9	100	7	2 - Drizzle	Granular, Slush	36	
2025-02-03	D6	11	9	163	34	89	29.9	100	7	2 - Drizzle	Granular, Slush	36	
2025-02-03	D7	11	8	161	34	88	29.9	100	7	2 - Drizzle	Granular, Slush	36	Light rain on and off. No impaired visibility
2025-02-03	S1	11	9	153	33	94	29.9	100	10	2 - Drizzle	Slush	15	
2025-02-03	S5	11	9	158	33	94	29.9	100	7	2 - Drizzle	Granular, Slush	36	On and off light rain. No impact to visibility. No wind
2025-02-04	S3	11	12	331	24	75	30.3	75	7	0 - None	Crust, Powder	20	New powdery snow on top of old snow
2025-02-04	S6	11	12	331	24	74	30.3	80	8	0 - None	Granular, Powder	25	
2025-02-05	S2	11	4	323	21	63	30.5	35	10	0 - None	Ice layer	12	
2025-02-05	S4	11	4	323	21	64	30.5	10	10	0 - None	Crust, Powder	30	
2025-02-05	S7	11	4	323	21	65	30.5	10	10	0 - None	Granular, Powder	30	
2025-02-10	D1	12	7	288	21	95	30.5	100	3	5 - Snow	Powder	36	Light snow, visibility good
2025-02-10	D2	12	7	288	21	96	30.5	100	3	5 - Snow	Powder	36	Light snow, visibility good
2025-02-10	D3	12	7	288	21	96	30.5	100	3	5 - Snow	Powder	36	Light snow, visibility decreasing
2025-02-10	D4	12	7	288	21	96	30.5	100	3	5 - Snow	Powder	36	Light snow, visibility decreasing
2025-02-10	D5	12	8	267	21	95	30.4	100	1	5 - Snow	Powder	36	Snow, visibility impaired
2025-02-10	D6	12	8	267	21	95	30.4	100	1	5 - Snow	Powder	36	Snow, visibility impaired
2025-02-10	D7	12	8	270	21	95	30.4	100	1	5 - Snow	Powder	36	Snow, visibility impaired
2025-02-10	S1	12	6	299	21	96	30.4	100	1	5 - Snow	Powder	36	Snow slightly, impacting visibility at 17:33.

Survey Date	Survey Location[1]	Survey Period (Visit)	Wind Speed (mph)	Wind Direction (degrees)	Temperature (F)	Relative Humidity (%)	Barometric Pressure (inHG)	Cloud Cover (%)	Visibility (miles)	Precipitation	Snow Condition	Snow Depth (inches)	Weather comment/updates
2025-02-10	S4	12	7	271	21	96	30.5	100	7	5 - Snow	Powder	20	Light snow can observe the tree lines around me
2025-02-10	S6	12	6	301	21	96	30.4	100	1	5 - Snow	Crust, Powder	30	Light snow at start of survey. Treeline still visible. Snow became heavier at 17:31 and visibility decreased.
2025-02-11	S2	12	6	260	27	59	30.4	90	10	0 - None	Powder	36	
2025-02-11	S7	12	6	260	27	59	30.4	95	8	0 - None	Crust, Powder	30	
2025-02-12	S3	12	5	107	24	70	30.3	90	10	0 - None	Powder	36	At 16:59 light snow started, did not impact visibility.
2025-02-12	S5	12	5	94	24	70	30.3	100	10	0 - None	Powder	25	At 17:24, snow started.
2025-02-19	D1	13	9	313	14	95	30.4	100	8	0 - None	Powder	36	
2025-02-19	D2	13	9	313	14	95	30.4	100	8	0 - None	Powder	36	
2025-02-19	D3	13	9	313	14	95	30.4	100	8	0 - None	Powder	36	
2025-02-19	D4	13	9	313	16	95	30.4	100	8	0 - None	Powder	36	
2025-02-19	D5	13	9	312	14	95	30.4	100	8	0 - None	Powder	36	
2025-02-19	D6	13	9	313	14	95	30.4	100	8	0 - None	Powder	36	
2025-02-19	D7	13	9	313	14	95	30.4	100	8	0 - None	Powder	36	
2025-02-19	S1	13	8	335	14	95	30.4	100	6	0 - None	Powder	40	Snow bank on the west side of the road is 8 feet tall and cannot see treeline.
2025-02-19	S3	13	8	335	14	95	30.4	90	9	0 - None	Powder	40	Earlier in the week had extremely high winds and lake effect snow storms.
2025-02-19	S5	13	8	335	20	91	30.4	100	8	0 - None	Powder	36	At 17:06 light snow started, no impact to visibility.
2025-02-20	S2	13	6	317	15	93	30.1	100	6	5 - Snow	Powder	40	Light snowfall can see tree lines and direct area.
2025-02-20	S4	13	6	317	15	93	30.1	100	6	5 - Snow	Crust, Powder	40	Light snow occurring at start of survey. Treeline still visible
2025-02-20	S6	13	6	317	16	93	30.1	100	5	5 - Snow	Powder	40	
2025-02-21	S7	13	10	298	16	90	30.4	100	2	5 - Snow	Powder	40	
2025-02-24	D1	14	15	168	42	59	29.8	100	10	0 - None	Granular	36	
2025-02-24	D2	14	15	168	42	59	29.8	100	10	0 - None	Granular	36	
2025-02-24	D3	14	15	168	42	58	29.8	100	10	0 - None	Granular	36	
2025-02-24	D4	14	15	168	42	58	29.8	100	10	0 - None	Granular	36	
2025-02-24	D5	14	15	168	42	56	29.8	100	10	0 - None	Granular	36	
2025-02-24	D6	14	15	168	42	57	29.8	100	10	0 - None	Granular	36	
2025-02-24	D7	14	16	169	42	57	29.8	100	10	0 - None	Granular	36	
2025-02-24	S1	14	15	168	42	59	29.8	95	10	0 - None	Granular	36	
2025-02-24	S4	14	14	181	42	57	29.8	90	10	0 - None	Slush	36	

Survey Date	Survey Location[1]	Survey Period (Visit)	Wind Speed (mph)	Wind Direction (degrees)	Temperature (F)	Relative Humidity (%)	Barometric Pressure (inHG)	Cloud Cover (%)	Visibility (miles)	Precipitation	Snow Condition	Snow Depth (inches)	Weather comment/updates
2025-02-24	S6	14	13	180	42	57	29.8	90	10	0 - None	Crust, Ice layer, Slush	36	
2025-02-25	S2	14	5	256	38	95	29.8	100	8	2 - Drizzle	Granular	30	Very light rain. Slightly foggy
2025-02-25	S7	14	5	256	38	95	29.8	100	8	2 - Drizzle	Crust, Slush	30	Very light drizzle
2025-02-26	S3	14	3	308	36	64	30.1	50	10	0 - None	Granular	25	
2025-02-26	S5	14	0	214	35	65	30.1	90	10	0 - None	Slush	10	
2025-03-03	D1	15	5	228	28	57	30.3	85	10	0 - None	Granular	25	
2025-03-03	D2	15	5	228	28	57	30.3	85	10	0 - None	Granular	25	
2025-03-03	D3	15	5	228	28	57	30.3	85	10	0 - None	Granular	25	
2025-03-03	D4	15	5	228	28	58	30.3	85	10	0 - None	Granular	25	
2025-03-03	D5	15	5	230	27	56	30.3	85	10	0 - None	Granular	25	
2025-03-03	D6	15	5	230	27	58	30.3	85	10	0 - None	Granular	25	
2025-03-03	D7	15	6	238	27	57	30.3	85	10	0 - None	Granular	30	
2025-03-03	S1	15	4	192	28	58	30.3	90	10	0 - None	Powder	12	
2025-03-03	S3	15	4	192	28	58	30.3	95	10	0 - None	Granular	20	
2025-03-03	S5	15	4	197	28	59	30.3	50	10	0 - None	Granular	25	
2025-03-04	S4	15	10	141	45	98	30	100	10	0 - None	Granular	20	
2025-03-04	S7	15	10	141	45	98	30	90	10	0 - None	Granular	30	
2025-03-05	S2	15	14	143	48	92	29.4	100	10	0 - None	Slush	8	
2025-03-05	S6	15	16	143	48	93	29.4	90	9	0 - None	Granular	18	
2025-03-10	D1	16	2	10	52	75	29.9	5	10	0 - None	Granular	3	
2025-03-10	D2	16	2	10	52	75	29.9	5	10	0 - None	Granular	3	
2025-03-10	D3	16	2	10	52	75	29.9	5	10	0 - None	Granular	3	
2025-03-10	D4	16	2	10	50	47	29.9	5	10	0 - None	Granular	5	
2025-03-10	D5	16	2	10	49	50	29.9	10	10	0 - None	Granular	3	
2025-03-10	D6	16	2	10	49	50	29.9	10	10	0 - None	Granular	3	
2025-03-10	D7	16	3	87	52	86	29.9	10	10	0 - None	Granular	3	
2025-03-10	S1	16	3	78	52	86	29.9	7	10	0 - None	Granular	3	
2025-03-10	S4	16	3	78	50	86	29.9	15	10	0 - None	Slush	3.5	
2025-03-10	S6	16	3	87	52	86	29.9	10	10	0 - None	Slush	3	Snow depth varies -still piled up along edges of road but patches of bare ground is showing in the fields
2025-03-11	S2	16	11	292	46	43	29.9	80	10	0 - None	Granular	4	
2025-03-11	S7	16	11	292	46	43	29.9	90	10	0 - None	Slush	3	Snow depth varies, some areas of fields are bare while others still have snow, piled up on edge of logging road

Survey Date	Survey Location[1]	Survey Period (Visit)	Wind Speed (mph)	Wind Direction (degrees)	Temperature (F)	Relative Humidity (%)	Barometric Pressure (inHG)	Cloud Cover (%)	Visibility (miles)	Precipitation	Snow Condition	Snow Depth (inches)	Weather comment/updates
2025-03-12	S3	16	4	49	31	54	30.1	90	10	0 - None	Granular	4	
2025-03-12	S5	16	4	51	31	55	30.1	100	10	0 - None	Slush	0	Snow is mostly gone, just piled up on edge of road and more shaded areas.
2025-03-17	D1	17	8	293	30	83	30.2	90	10	0 - None	None	0	
2025-03-17	D2	17	8	293	30	83	30.2	90	10	0 - None	None	0	
2025-03-17	D3	17	8	293	30	84	30.2	90	10	0 - None	None	0	
2025-03-17	D4	17	10	304	30	84	30.1	90	10	0 - None	Granular	0.5	
2025-03-17	D5	17	10	302	30	84	30.1	90	10	0 - None	Granular	0.5	
2025-03-17	D6	17	10	303	32	68	30.1	90	10	5 - Snow	Granular	0.5	Very light snow
2025-03-17	D7	17	10	304	32	68	30.1	90	10	2 - Drizzle	Granular	0.5	
2025-03-17	S1	17	8	293	30	82	30.2	85	10	0 - None	None	0	
2025-03-17	S3	17	8	293	30	82	30.2	80	10	0 - None	Slush	0	99% of the snow is gone. The snow that remains is from the piles along the edge of the road or in the shaded forested areas
2025-03-17	S5	17	8	287	30	82	30.2	80	10	0 - None	Granular	0.5	
2025-03-18	S4	17	6	136	56	33	30.1	5	10	0 - None	Slush	0	Most of the snow is gone, just small patches remain along edges of road and in shaded areas
2025-03-18	S6	17	6	136	56	33	30.1	20	10	0 - None	None	0	
2025-03-19	S2	17	14	169	67	25	29.9	85	10	0 - None	None	0	
2025-03-19	S7	17	14	169	70	47	29.9	90	10	0 - None	None	0	
2025-03-24	D1	18	9	291	52	57	29.7	80	10	0 - None	None	0	
2025-03-24	D2	18	9	291	52	58	29.7	80	10	0 - None	None	0	
2025-03-24	D3	18	12	268	48	63	29.7	80	10	0 - None	None	0	
2025-03-24	D4	18	12	268	48	63	29.7	80	10	0 - None	None	0	
2025-03-24	D5	18	12	268	48	63	29.7	80	10	0 - None	None	0	
2025-03-24	D6	18	12	266	49	63	29.8	80	10	0 - None	None	0	
2025-03-24	D7	18	12	266	48	64	29.8	80	10	0 - None	None	0	
2025-03-24	S1	18	12	268	51	59	29.7	70	10	0 - None	None	0	
2025-03-24	S4	18	12	268	51	59	29.7	75	10	0 - None	None	0	99.9% of snow is gone, however some small patches in shady areas remain.
2025-03-24	S5	18	12	268	51	59	29.7	85	10	0 - None	None	0	
2025-03-24	S6	18	12	268	51	59	29.7	70	10	0 - None	None	0	
2025-03-25	S2	18	12	272	48	66	30	90	10	0 - None	None	0	
2025-03-25	S7	18	12	272	48	66	30	100	10	0 - None	None	0	

Survey Date	Survey Location[1]	Survey Period (Visit)	Wind Speed (mph)	Wind Direction (degrees)	Temperature (F)	Relative Humidity (%)	Barometric Pressure (inHG)	Cloud Cover (%)	Visibility (miles)	Precipitation	Snow Condition	Snow Depth (inches)	Weather comment/updates
2025-03-26	S3	18	12	281	37	65	30.2	60	10	0 - None	None	0	
2025-04-01	D1	19	12	320	34	54	30.3	30	9	0 - None	None	0	
2025-04-01	D2	19	12	320	34	54	30.3	30	9	0 - None	None	0	
2025-04-01	D3	19	12	320	34	54	30.3	30	9	0 - None	None	0	
2025-04-01	D4	19	12	320	34	54	30.3	30	9	0 - None	None	0	
2025-04-01	D5	19	12	320	34	54	30.3	30	9	0 - None	None	0	
2025-04-01	D6	19	12	320	34	54	30.3	30	9	0 - None	None	0	
2025-04-01	D7	19	12	320	34	54	30.3	30	9	0 - None	None	0	
2025-04-01	S4	19	11	328	34	53	30.4	0	9	0 - None	None	0	
2025-04-01	S5	19	11	330	34	54	30.4	10	10	0 - None	None	0	
2025-04-02	S2	19	16	138	42	61	30.3	100	6	2 - Drizzle	None	0	At 18:50 drizzle turned to rain and then back to a drizzle at 19:18. Precipitation stopped at 19:30.
2025-04-02	S6	19	17	139	42	60	30.3	100	6	3 - Rain	None	0	At 19:14 drizzle started.
2025-04-03	S3	19	8	275	66	58	30	20	9	0 - None	None	0	
2025-04-04	S7	19	7	315	43	58	30.4	75	10	0 - None	None	0	
2025-04-05	S1	19	12	155	47	88	29.9	100	8	2 - Drizzle	None	0	
2025-04-07	D1	20	2	188	46	45	29.7	25	9	0 - None	None	0	
2025-04-07	D2	20	2	188	46	45	29.7	25	9	0 - None	None	0	
2025-04-07	D3	20	2	188	46	45	29.7	25	9	0 - None	None	0	
2025-04-07	D4	20	2	188	46	45	29.7	25	9	0 - None	None	0	
2025-04-07	D5	20	2	188	46	45	29.7	25	9	0 - None	None	0	
2025-04-07	D6	20	2	188	46	45	29.7	25	9	0 - None	None	0	
2025-04-07	D7	20	2	188	46	45	29.7	25	9	0 - None	None	0	
2025-04-07	S4	20	5	129	45	49	29.7	20	10	0 - None	None	0	
2025-04-07	S5	20	1	200	46	46	29.7	50	10	0 - None	None	0	
2025-04-08	S3	20	13	311	27	66	30	100	3	5 - Snow	Powder	1	At 19:12 snow stopped.
2025-04-08	S6	20	13	307	27	84	30	100	3	5 - Snow	Powder	1	Light snow, no impact to visibility
2025-04-09	S2	20	6	283	34	50	30.4	10	10	0 - None	None	0	
2025-04-09	S7	20	6	283	34	50	30.4	10	10	0 - None	None	0	
2025-04-10	S1	20	10	141	36	96	30.2	100	6	3 - Rain	None	0	

[1]S= stationary survey location; D = driving stop location

Appendix D. Raptor Observations Table

Date	Survey Location[1]	Survey Period (Visit)	Species*	Observation Number	Incidental?	Count of Individuals	Time First Observed	Time Last Observed	Duration of Observation (minutes)	Age	Sex	Behavior	General Flight Direction	General Flight Height (feet)	Observation Notes
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
2024-11-18	S1	1	Unidentified	1	no	1	17:03	17:04	1	Unknown	Unknown	Circling, Fly-through	Northwest	100 to 200	Angled wings, fanned tail, flat body. Entered view from southwest, high circling over forest, flew out of view to the northwest. Far away and dark- could not see coloration
2024-11-18	S4	1	Red-tailed Hawk	1	no	1	15:36	16:40	64	Adult	Unknown	Perching	NA	NA	Observed RTHA perched in tree as I began my survey. Remained perched there for the majority of the survey. Turning head occasionally and also fully turned around on tree branch at times. White breast with brown belly band. White “v” on back, short red tail. I was scanning other areas and when I looked back the hawk was gone.
2024-11-20	S3	1	American Kestrel	1	no	1	15:42	15:43	1	Adult	Unknown	Fly-through	Southwest	25 to 50	Pointed wings, straight tail, mottled white underbelly, quick flaps and then gliding, small- size of pigeon
2024-11-25	D7	2	Rough-legged Hawk	1	no	1	13:51	13:52	1	Unknown	Unknown	Circling	East	50 to 100	Straight wings, tail fanned, cream underside, dark back and wings, white rump, hovering, no flapping, white/mottled head
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
2024-12-02	D1	3	Red-tailed Hawk	1	no	1	13:32	13:34	2	Unknown	Unknown	Perching	NA	NA	White mottled chest, perching on dead tree, dark brown back. And then observed flying into field.
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
2024-12-02	D6	3	Red-tailed Hawk	2	no	1	14:30	14:33	3	Unknown	Unknown	Circling, Fly-through	West	50 to 100	Fanned wing tips, dark mottled back, white neck, light mottled belly, fanned tail

Date	Survey Location[1]	Survey Period (Visit)	Species*	Observation Number	Incidental?	Count of Individuals	Time First Observed	Time Last Observed	Duration of Observation (minutes)	Age	Sex	Behavior	General Flight Direction	General Flight Height (feet)	Observation Notes
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
2024-12-02	S3	3	Red-tailed Hawk	1	yes	1	15:14	15:15	1	Adult	Unknown	Perching	NA	NA	Observed RTHA perched in dead tree in hedgerow prior to starting survey. Distinct red tail, brown back with white v. Must have left perch as I was getting ready for my survey as I did not see it leave.
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
2024-12-02	S5	3	Unidentified	1	no	1	15:35	15:37	2	Unknown	Unknown	Circling, Fly-through	East	50 to 100	Circling above trees, fanned wing tips. Too far away and back lit, could not see any colors
2024-12-02	S5	3	Red-tailed Hawk	2	no	1	15:45	15:46	1	Unknown	Unknown	Circling, Foraging	Northwest	1 to 25	Flew up from ground in un-mowed field next to solar panels. Fanned tail, dark mottled back, light mottled belly
2024-12-02	S5	3	Red-tailed Hawk	3	no	1	15:50	15:56	6	Unknown	Unknown	Circling, Fly-through	West	1 to 25	Probably the same RTHA from observation 2, but I lost sight of it between observations. Black mottled back, light mottled belly, fanned tail, fanned wings. Circling low over solar panels and small field

Date	Survey Location[1]	Survey Period (Visit)	Species*	Observation Number	Incidental?	Count of Individuals	Time First Observed	Time Last Observed	Duration of Observation (minutes)	Age	Sex	Behavior	General Flight Direction	General Flight Height (feet)	Observation Notes
2024-12-02	S5	3	Red-tailed Hawk	4	no	1	16:22	16:23	1	Unknown	Unknown	Fly-through	West	1 to 25	light mottled stomach, dark mottled back, fanned tail, fanned wings. Flying low over solar panels
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
2024-12-03	S4	3	American Kestrel	2	yes	2	15:15	15:18	3	Unknown	Unknown	Circling	Southeast	100 to 200, 50 to 100	Observed two falcon shaped, slightly larger than a robin-size birds, soaring high above the fields, circling around and gaining altitude. Could not see coloration or faces very well, but could see barred/striped tails and black and white pattern on undersides of wings. Lost sight as red-tailed hawk flew into view.
2024-12-03	S4	3	Red-tailed Hawk	3	no	1	15:28	15:36	8	Adult	Unknown	Fly-through, Perching	North	50 to 100	First observed at 3:18 incidentally as I was watching the kestrels. The RTHA flew in from the east flying along the tree line before perching in the transmission tower closest to the railroad tracks. It remained perched there for several minutes. It was perched there at the start of the survey too. Remained perched for a while before taking off to the north along the railroad tracks and out of sight.
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Date	Survey Location[1]	Survey Period (Visit)	Species*	Observation Number	Incidental?	Count of Individuals	Time First Observed	Time Last Observed	Duration of Observation (minutes)	Age	Sex	Behavior	General Flight Direction	General Flight Height (feet)	Observation Notes
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
2024-12-03	S6	3	Unidentified	2	no	1	16:17	16:18	1	Unknown	Unknown	Fly-through	West	1 to 25	Flew above trees for a couple seconds, then flew out of view. Pointed wings, did not see any other features.
2024-12-04	S7	3	Turkey Vulture	1	no	1	15:37	15:38	1	Unknown	Unknown	Circling	East	50 to 100	Fanned wing tips, slightly unsteady flight, light underside of wings. Only saw for a few seconds before it dipped below tree line
2024-12-04	S7	3	American Kestrel	2	no	1	16:28	16:29	1	Unknown	Unknown	Fly-through	Southwest	1 to 25	Orange belly, pigeon sized, dark top of head, fast. Flew from trees in eastern field to SW corner of field out of sight.
2024-12-09	S1	4	Red-tailed Hawk	1	no	1	15:42	15:44	2	Adult	Unknown	Fly-through, Perching	North	1 to 25	Light mottled chest, fanned tail, red tail. Flew north along tree line and perched in tree. Watched it perched for a minute, and it flew away while I was scanning other areas.
2024-12-09	S1	4	Unidentified	2	no	1	16:08	16:09	1	Unknown	Unknown	Fly-through	Southwest	50 to 100	Straight wings, curved edges of wings, straight tail, several flaps then gliding. Couldn't see any colors on feathers due to distance
2024-12-10	S2	4	Red-tailed Hawk	1	no	1	16:17	16:37	20	Adult	Unknown	Foraging, Perching	East	1 to 25	White mottled stomach, dark back, fanned tail, red tail. Perched on 3 trees before I lost

Date	Survey Location[1]	Survey Period (Visit)	Species*	Observation Number	Incidental?	Count of Individuals	Time First Observed	Time Last Observed	Duration of Observation (minutes)	Age	Sex	Behavior	General Flight Direction	General Flight Height (feet)	Observation Notes
															sight. Flew to the ground in between perching on the trees.
2024-12-16	D1	5	Red-tailed Hawk	1	no	1	14:06	14:08	2	Adult	Unknown	Perching	NA	NA	White belly, red tail. Perching on tree
2024-12-16	D4	5	Red-tailed Hawk	1	no	1	14:26	14:27	1	Unknown	Unknown	Circling, Fly-through, Perching	West	25 to 50	Straight wings, fanned tail, light belly. Gliding, flew in, circled above trees, perched for a minute, then flew away
2024-12-16	D5	5	Red-tailed Hawk	1	no	1	14:30	14:31	1	Unknown	Unknown	Circling, Fly-through	South	25 to 50	Same bird as observed at previous point. Flew south, circled above trees, and flew out of sight
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
2024-12-16	D7	5	American Kestrel	1	no	1	14:50	14:51	1	Unknown	Unknown	Fly-through	South	1 to 25, 25 to 50	Straight tail, lots of flapping. Was flapping wings in one spot ~30 ft above ground, then gliding south over panels. (Likely saw the same bird during stationary survey, got a better look at the colors and confirmed to be kestrel)
2024-12-16	S1	5	Red-tailed Hawk	1	no	1	15:29	15:42	13	Adult	Unknown	Fly-through, Perching	East	1 to 25	Large raptor, white belly, dark wings, not moving much in the tree. Long wings, feathered wing tips, brown/red tail. Low flying with frequent flaps, saw flying east, and then north east. Lost sight heading east.
2024-12-16	S1	5	Red-tailed Hawk	2	no	1	15:56	16:34	38	Adult	Unknown	Foraging, Perching	North	1 to 25	RTH, Brown back, large bird, white belly, perching on a tree ~25 feet above the ground. Didn't see it land or take off at first. At 4:08pm it dove straight down to the ground and I lost sight near the highway. 4:10pm it appeared back on top of a tree in the same area circled. 4:14pm lost sight again as it dove down to the ground. At 4:17 it flew to the north and circled back and flew low to the ground to the south side of the field before losing sight due to the pulling terrain. Was able to see its fanned red tail and feathered wings. Lots of flapping when flying, few glides. Observed it at 4:32 flying to the north and lost it past the shrubs at 4:33.

Date	Survey Location[1]	Survey Period (Visit)	Species*	Observation Number	Incidental?	Count of Individuals	Time First Observed	Time Last Observed	Duration of Observation (minutes)	Age	Sex	Behavior	General Flight Direction	General Flight Height (feet)	Observation Notes
2024-12-16	S3	5	Red-tailed Hawk	1	no	1	15:29	15:38	9	Adult	Unknown	Perching	NA	NA	Observed RTHA prior to start of survey (at 3:23 PM) perched in a tree in the hedgerow between the cow pasture and corn field. Remained perched through the start of the survey for several minutes (including when the other RTHA was in area). I was scanning other areas of the field and it was gone when I scanned back to it.
2024-12-16	S3	5	Red-tailed Hawk	2	no	1	15:32	15:33	1	Adult	Unknown	Fly-through, Perching	Southeast	25 to 50	RTHA flew in from the southeast and flew in a “U” before perching in a tree next to a barn on the edge of the field. It perched briefly before taking back off to the southeast out of sight.
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
2024-12-16	S5	5	American Kestrel	1	no	1	15:28	15:32	4	Unknown	Unknown	Fly-through, Foraging, Perching	North	1 to 25	Red belly, black head with white patches under eyes, pigeon sized. Flying in one spot over panels, then perched on spruce and birch trees. Perched on telephone pole, then flew out of sight.
2024-12-17	S2	5	Red-tailed Hawk	1	no	2	15:23	15:26	3	Adult	Unknown	Fly-through, Perching	North	1 to 25	3 RTH, perched on a fence line near 81, both were a couple poles apart. Large raptors, white belly, brown backs and wings, red tails, fanned tails. As soon as one started flying north the other followed. They both flew out of sight past the farm equipment and rolling hills.
2024-12-23	D1	6	Red-tailed Hawk	1	no	1	14:26	14:27	1	Unknown	Unknown	Perching	NA	NA	White mottled belly, dark back. Perching on tree at edge of field. Remained on tree for at least 20 min after survey completion
2024-12-23	D3	6	Unidentified	1	no	1	14:13	14:14	1	Unknown	Unknown	Circling, Fly-through	South	25 to 50	Too far away to see any colors or features. Flapping fast. Flew in from the north, circled high over field (~40ft), then we lost sight of it.
2024-12-23	S1	6	American Kestrel	1	yes	1	15:01	15:02	1	Adult	Female	Fly-through, Perching	South	1 to 25, 25 to 50	Kestrel was observed pitching off their perch on some distribution lines and flying south out of sight while pulling up to the survey location.
2024-12-23	S1	6	Red-tailed Hawk	2	yes	1	15:07	15:31	24	Unknown	Unknown	Perching	NA	25 to 50	RTHA observed perched in maple tree over a house to the south of the S1 survey location. The raptor was facing south and was not observed flying off the perch but left while I was glassing other areas.

Date	Survey Location[1]	Survey Period (Visit)	Species*	Observation Number	Incidental?	Count of Individuals	Time First Observed	Time Last Observed	Duration of Observation (minutes)	Age	Sex	Behavior	General Flight Direction	General Flight Height (feet)	Observation Notes
2024-12-23	S1	6	Red-tailed Hawk	3	no	1	15:49	16:16	27	Adult	Unknown	Perching	NA	1 to 25	RTHA observed perching to the south of S1 survey location in a hedgerow. I did not observe the raptor leave the perch, but it switched trees a few times working to the east.
2024-12-27	S2	6	Red-tailed Hawk	1	yes	1	15:25	15:27	2	Adult	Unknown	Fly-through, Perching	South	25 to 50	Observed prior to start of surveys. Flew from pine trees that border the eastern edge of field east of S2 toward a bare tree about 30m south, perched for 2 minutes and flew off east out of sight.
2025-01-06	S1	7	Red-tailed Hawk	1	no	1	15:44	16:27	43	Adult	Unknown	Fly-through, Foraging, Perching	North	1 to 25	Large brown (with small white spots) bodied Raptor. White belly, red tail, originally observed sitting on fence post, dropped to the ground and then flew to the northern forest really low to the snow and grounds. Few flaps and then long glides. Large wingspan. Observed it until 4:27 but didn't see which way it flew off.
2025-01-06	S1	7	Red-tailed Hawk	2	no	1	16:01	16:05	4	Unknown	Unknown	Perching	NA	25 to 50	Observation 1 RTH nearby observation 2, but are different raptors. For observation 2, I believe this is a RTH, but its body is dark and hard to see color. It looks like a brown back, but I'm unable to make out anything else, it's facing the highway. Didn't see which way it flew away.
2025-01-07	S4	7	Red-tailed Hawk	1	no	1	15:55	15:56	1	Adult	Unknown	Circling	West	50 to 100	Red-tailed hawk flew in from the southeast, soaring high, floating with the wind. It did some large circles and eventually flew out of sight to the west.
2025-01-13	D7	8	Unidentified	1	no	1	14:43	14:44	1	Unknown	Unknown	Circling	North	50 to 100	Circling high above trees, too far away to see any features
2025-01-13	S6	8	Red-tailed Hawk	1	no	1	16:06	16:08	2	Adult	Unknown	Circling	Southwest	25 to 50	Red-tailed hawk observed soaring above the fields, circling around occasionally with some flapping. Eventually left sight to the southwest. White underside with belly band. Dark back. Red-tail.
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Date	Survey Location[1]	Survey Period (Visit)	Species*	Observation Number	Incidental?	Count of Individuals	Time First Observed	Time Last Observed	Duration of Observation (minutes)	Age	Sex	Behavior	General Flight Direction	General Flight Height (feet)	Observation Notes
															[redacted]
2025-01-15	S3	8	Unidentified	1	no	1	16:49	16:50	1	Unknown	Unknown	Fly-through	North	1 to 25	Did not observe for long and only saw size/silhouette. Wings held flat while gliding and almost red-tailed size. Best guess is Cooper's hawk. Did not appear large enough for even a smaller eagle. Lost sight when it flew below the other side of hill/embankment west of route 11. It all happened so fast!
[redacted]															
2025-01-20	D4	9	Unidentified	1	no	1	15:03	15:04	1	Unknown	Unknown	Fly-through	North	25 to 50	Brown back, tan or white underbelly, straight wings, 2 or 3 flaps and then gliding. Potentially a Cooper's hawk, but only observed for a few seconds before it flew out of sight
2025-01-20	D5	9	Red-tailed Hawk	1	no	2	15:09	15:14	5	Adult	Unknown	Perching	NA	NA	Two RTHA perched on tree. Dark backs, white belly, red tail. Perched for entirety of survey stop
[redacted]															
2025-01-22	S2	9	Red-tailed Hawk	1	no	1	16:03	16:09	6	Adult	Unknown	Calling, Fly-through, Perching	East	1 to 25, 25 to 50	Large RTH observed. Brown back, red tail, yellow/white belly, distinct verbal call. Observed in a tree in the fields edge, flew to the forest edge close by before eventually flying towards 81 to the east out of sight.
2025-01-22	S4	9	Red-tailed Hawk	1	yes	1	15:40	15:41	1	Adult	Unknown	Fly-through	West	25 to 50, 50 to 100	Observed red-tailed hawk flying across the field below the transmission line and then up over and above the line, out of sight to the west. Observed while walking to my point, prior to the start of the survey.
2025-01-27	D2	10	Red-tailed Hawk	1	no	1	15:12	15:17	5	Unknown	Unknown	Perching	NA	NA	White belly, brown back. Perched on tree line west of field
[redacted]															
2025-01-27	D4	10	Red-tailed Hawk	2	no	1	14:58	14:59	1	Unknown	Unknown	Fly-through, Foraging	East	1 to 25	RTHA flew from tree line towards house. Low to ground, almost landed on ground and flew into trees

Date	Survey Location[1]	Survey Period (Visit)	Species*	Observation Number	Incidental?	Count of Individuals	Time First Observed	Time Last Observed	Duration of Observation (minutes)	Age	Sex	Behavior	General Flight Direction	General Flight Height (feet)	Observation Notes
2025-01-27	D5	10	Red-tailed Hawk	1	no	2	14:47	14:51	4	Unknown	Unknown	Circling, Perching	North	25 to 50	3 RTHA. One circled over field, flew past tree line, and then back into our line of sight before flying back over trees. Other one flew over tree line into line of sight, then landed on a tree adjacent to the field.
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
2025-02-11	S7	12	Red-tailed Hawk	1	yes	2	16:15	16:17	2	Adult	Unknown	Calling, Fly-through	West	25 to 50	While I was walking up to the point I incidentally observed two red-tailed hawks flying above the hedgerow and across the field and out of sight to the west, occasionally calling, one flying behind the other. Each had red tails, dark topsides white undersides with dark belly bands.
2025-02-12	S3	12	Red-tailed Hawk	1	no	1	16:31	16:41	10	Unknown	Unknown	Perching	NA	NA	Perching on tree on west edge of field. Did not see it fly away
2025-02-12	S3	12	Red-tailed Hawk	2	no	2	16:35	16:40	5	Unknown	Unknown	Circling, Fly-through, Perching	North	25 to 50	Two red tails flew out of forest and perched on adjacent trees (I didn't see where they came from, I saw them just as they were landing). One red tail flew north and circled west out of sight. The other red tail was gone when I looked back at the perching spot, I didn't see where it went.
2025-02-12	S3	12	Red-tailed Hawk	3	no	1	16:40	16:41	1	Unknown	Unknown	Fly-through	East	25 to 50	Flew east from forested area out of sight
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Date	Survey Location[1]	Survey Period (Visit)	Species*	Observation Number	Incidental?	Count of Individuals	Time First Observed	Time Last Observed	Duration of Observation (minutes)	Age	Sex	Behavior	General Flight Direction	General Flight Height (feet)	Observation Notes
2025-02-19	S3	13	Red-tailed Hawk	2	no	2	17:04	17:05	1	Adult	Unknown	Circling	North	50 to 100	Observed two red-tailed hawks circling below the bald eagle, above the forest/cut area. They circled to the north and I lost sight of them as I tracked the bald eagle to the southeast.
2025-02-21	S7	13	Red-tailed Hawk	1	no	1	16:57	16:58	1	Adult	Unknown	Circling	Southeast	25 to 50	White mottled belly, white rump, red tail. Flew from behind me, circled over eastern field, then I lost sight of bird over trees
2025-02-24	D3	14	Red-tailed Hawk	1	no	2	15:49	15:53	4	Unknown	Unknown	Perching	NA	NA	3 RTHA perching in tree on edge of field. Remained there for full survey period
2025-02-25	S7	14	Red-tailed Hawk	1	yes	1	16:35	16:36	1	Adult	Unknown	Calling, Fly-through	West	25 to 50	As I was walking up to my point prior to the start of the survey a RTHA flew across the field, calling, and out of sight to the west.
2025-03-03	S3	15	Red-tailed Hawk	1	no	1	17:05	17:06	1	Adult	Unknown	Circling, Fly-through	Southeast	50 to 100	Observed RTHA flying above the conifer forest, circling around several times before flying across the field and road and out of sight behind the treeline in the southeast.
2025-03-10	D1	16	Turkey Vulture	1	no	2	16:56	17:00	4	Unknown	Unknown	Circling, Fly-through	North	50 to 100	3 turkey vultures circling high above rt 81, then flying north. Characteristic “V”, large wingspan, slightly unsteady soaring
2025-03-11	S7	16	Red-tailed Hawk	1	no	1	18:40	18:45	5	Adult	Unknown	Circling	North	50 to 100	Observed RTHA soaring in circles above the cut forest and the fields. Circled to the south for a while before circling back to the north and out of sight.
2025-03-12	S3	16	Red-tailed Hawk	1	no	1	18:55	18:57	2	Unknown	Unknown	Fly-through, Perching	East	25 to 50	White belly, dark back. Didn’t see tail. Perched on tree on corner of field for a minute, and then flew east out of view
2025-03-12	S5	16	Unidentified	1	no	1	18:07	19:04	57	Unknown	Unknown	Fly-through, Perching	NA, North	50 to 100, NA	Large raptor, white mottled belly looks like brown feathers on the wings, perched in a tree. Few flaps and long glides. Can’t tell any other features at the moment. Most likely RTHA but not confident
2025-03-17	D3	17	Unidentified	1	no	1	17:38	17:39	1	Unknown	Unknown	Fly-through	North	25 to 50	Small raptor flying over road and over trees. Couldn’t see any details. Straight wings, soaring, a few flaps in between
2025-03-17	D6	17	Red-tailed Hawk	1	no	1	17:11	17:13	2	Adult	Unknown	Fly-through	Southwest	25 to 50	Red tail, 4-5 flaps then gliding. Flew southwest over fields, lost sight past trees
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Date	Survey Location[1]	Survey Period (Visit)	Species*	Observation Number	Incidental?	Count of Individuals	Time First Observed	Time Last Observed	Duration of Observation (minutes)	Age	Sex	Behavior	General Flight Direction	General Flight Height (feet)	Observation Notes
															[redacted]
2025-03-18	S4	17	Red-tailed Hawk	1	yes	1	17:54	18:06	12	Adult	Unknown	Circling, Fly-through, Perching	Northwest	50 to 100	Incidentally observed a RTHA as I parked for my survey and started walking in. It flew in from the southwest and perched briefly on one of the transmission poles. It then took off to the east and perched for a few minutes on another transmission pole. It then flew across the field to the northwest before in started circling above the fields to the north of S4, generally moving in a northwest direction and out of sight.
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
2025-03-24	D2	18	Red-tailed Hawk	1	no	2	17:26	17:28	2	Unknown	Unknown	Circling, Fly-through, Perching	West	1 to 25	Two RTHA flying through newly cut forested area. Circled once or twice and then landed on two separate trees. Saw fanned tail on one of the birds.
2025-03-24	D3	18	Unidentified	1	no	1	17:32	17:33	1	Unknown	Unknown	Fly-through	West	50 to 100	Saw band of white on the tail. Lots of flapping and then gliding. Flew over field and then out of sight. Could not get an ID
2025-03-24	D3	18	Turkey Vulture	2	no	1	17:34	17:35	1	Unknown	Unknown	Circling, Fly-through	North	50 to 100	Large wingspan, unsteady flight, distinctive V
2025-03-24	D3	18	Turkey Vulture	3	no	1	17:34	17:35	1	Unknown	Unknown	Circling, Fly-through	East	50 to 100	Circling, large wingspan, unsteady flight, distinctive V
2025-03-24	D6	18	Turkey Vulture	1	no	1	17:53	17:54	1	Unknown	Unknown	Fly-through	West	50 to 100	Unsteady flight, flapping and then gliding, slow flight over fields and out of sight to the west.
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Date	Survey Location[1]	Survey Period (Visit)	Species*	Observation Number	Incidental?	Count of Individuals	Time First Observed	Time Last Observed	Duration of Observation (minutes)	Age	Sex	Behavior	General Flight Direction	General Flight Height (feet)	Observation Notes
															[redacted]
2025-03-24	S1	18	Red-tailed Hawk	2	no	1	19:09	19:10	1	Adult	Unknown	Fly-through	Southeast	50 to 100	Fanned red tail, mottled white belly. Flew high over field, across road, and out of sight over trees
2025-03-24	S4	18	Red-tailed Hawk	1	no	1	18:55	18:56	1	Adult	Unknown	Circling, Fly-through	South	100 to 200, 50 to 100	Observed RTHA circling high in the east above the trees and fields. Red tail, brown back, white underside. After circling several times it took off to the south lowering in elevation and out of sight.
2025-03-24	S4	18	Red-tailed Hawk	2	no	1	19:12	19:13	1	Adult	Unknown	Circling, Fly-through	Northwest	50 to 100	Observed a RTHA circling in the east above the trees, then gliding to the north west above the fields and out of sight.
2025-03-24	S5	18	Red-tailed Hawk	1	no	1	18:55	19:03	8	Adult	Unknown	Foraging, Perching	East	25 to 50	Observed perching in a tree top, stayed sitting for most of the observation. Once it left it dove to the ground for 15 seconds then flew to the east. Large raptor, orange/red tail. Fanned tail, dark brown body. Frequent flapping when flying.
2025-03-24	S6	18	Red-tailed Hawk	1	no	1	19:21	19:22	1	Adult	Unknown	Fly-through	West	100 to 200	Large with red tail and streaked belly.
2025-03-24	S6	18	Red-tailed Hawk	2	no	2	19:23	19:30	7	Adult	Unknown	Fly-through, Interaction, Perching	Southeast	50 to 100	Identification based on size, red tails, and streaked bellies. Two hawks flew in from the northwest, circled around each other and interacted. Perched in tree next to one another. One flew off southeast out of sight and a minute later the other hawk flew off in the same direction
2025-03-26	S3	18	Red-tailed Hawk	1	no	1	18:50	18:51	1	Adult	Unknown	Circling, Fly-through	East	50 to 100	Straight wings, red tail, mottled brown and white back. Flying high, circled over field and then over the trees to the east
[redacted]															
2025-04-01	D2	19	Red-tailed Hawk	1	no	2	17:08	17:10	2	Adult	Unknown	Circling	Northwest	100 to 200	Two adult red tailed hawks, noted by size, red tails and silhouette in flight. Hawks were circling high above field, no direct interactions in flight.
2025-04-01	D4	19	Unidentified	1	no	1	17:22	17:23	1	Unknown	Unknown	Fly-through	North	50 to 100	Unidentified raptor spotted flying through site. Headed N and out of sight. Was far away and high above trees, only saw for ~10 seconds, could not see any distinguishing features.

Date	Survey Location[1]	Survey Period (Visit)	Species*	Observation Number	Incidental?	Count of Individuals	Time First Observed	Time Last Observed	Duration of Observation (minutes)	Age	Sex	Behavior	General Flight Direction	General Flight Height (feet)	Observation Notes
2025-04-03	S3	19	Red-tailed Hawk	1	no	1	19:20	19:35	15	Adult	Unknown	Perching	NA	NA	Red-tailed hawk noted by silhouette, and red tail. Spotted already perching on large dead tree directly on field's edge in N. The individual was observed there for 15 minutes. While scanning other areas sight was lost on RTHA therefore direction of flight away is not known.
2025-04-03	S3	19	Turkey Vulture	2	no	5	18:38	18:50	12	Adult	Unknown	Circling	North	100 to 200	Five individuals spotted flying high over forested area in the Northwest of the survey area. The individuals were all exhibiting circling behavior for several minutes before leaving to the N.
2025-04-08	S6	20	Turkey Vulture	1	no	3	18:59	19:06	7	Unknown	Unknown	Circling, Fly-through	West	25 to 50, 50 to 100	4 turkey vultures flew from the north, circled over field and trees. Went out of sight for a few seconds, then came back into view, flew over field and out of view to the west
2025-04-08	S6	20	Turkey Vulture	2	no	1	19:07	19:08	1	Unknown	Unknown	Fly-through	North	50 to 100	Flew above trees and briefly over field, then flew out of sight to the north

[1]S= stationary survey location; D = driving stop location
*Listed species observations are **bolded**

Appendix E. Avian Species List

Common Name	*Scientific Name*	New York State Listing Status
American Crow	*Corvus brachyrhynchos*	-
American Kestrel	*Falco sparverius*	-
American Robin	*Turdus migratorius*	-
American Tree Sparrow	*Spizelloides arborea*	-
American Woodcock	*Scolopax minor*	-
[redacted]	[redacted]	[redacted]
Black-capped Chickadee	*Poecile atricapillus*	-
Blue Jay	*Cyanocitta cristata*	-
Canada Goose	*Branta canadensis*	-
Chimney Swift	*Chaetura pelagica*	-
Common Raven	*Corvus corax*	-
[redacted]	[redacted]	[redacted]
Dark-eyed Junco	*Junco hyemalis*	-
Downy Woodpecker	*Dryobates pubescens*	-
Eastern Bluebird	*Sialia sialis*	-
European Starling	*Sturnus vulgaris*	-
Golden-crowned Kinglet	*Regulus satrapa*	-
Great Blue Heron	*Ardea herodias*	-
Herring Gull	*Larus argentatus*	-
Killdeer	*Charadrius vociferus*	-
Mallard	*Anas platyrhynchos*	-
Mourning Dove	*Zenaida macroura*	-
Northern Cardinal	*Cardinalis cardinalis*	-
[redacted]	[redacted]	[redacted]
Pileated Woodpecker	*Dryocopus pileatus*	-
Red-tailed Hawk	*Buteo jamaicensis*	-
Red-winged Blackbird	*Agelaius phoeniceus*	-
Ring-billed Gull	*Larus delawarensis*	-
Rock Pigeon	*Columba livia*	-
Rough-legged Hawk	*Buteo lagopus*	-
Snow Bunting	*Plectrophenax nivalis*	-
Snow Goose	*Anser caerulescens*	-
Song Sparrow	*Melospiza melodia*	-
Tundra Swan	*Cygnus columbianus*	-
Turkey Vulture	*Cathartes aura*	-
Wild Turkey	*Meleagris gallopavo*	-
Wood Duck	*Aix sponsa*	-

ATTACHMENTS

Attachment A. Survey Data Sheets *(provided as zipped file)*
Attachment B. Shapefile Package *(provided as zipped file)*