

Winter Raptor Survey Report

Agricola Wind Project

Towns of Venice and Scipio

Cayuga County, New York

Prepared for:



Agricola Wind LLC

A subsidiary of Liberty Renewables Inc.

90 State Street

Albany, NY 12207

<https://liberty-renewables.com/agricolawind/>

Prepared by:



Environmental Design & Research, D.P.C.

217 Montgomery Street, Suite 1100

Syracuse, New York 13202

www.edrdpc.com

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TABLE OF CONTENTS

1.0	INTRODUCTION	1
1.1	Purpose of the Investigation	1
1.2	Target Species and Habitat Requirements	2
2.0	BACKGROUND INFORMATION	4
2.1	Existing Conditions	4
2.2	Agency Database Review and Consultation	4
3.0	WINTER RAPTOR SURVEYS	5
3.1	Survey Period and Frequency	5
3.2	Survey Methodology and Locations	5
3.3	Supplemental Survey Methodology	7
3.4	Data Analysis	8
3.5	Survey Results	9
3.5.1	State Listed Raptors	13
3.5.2	Other Raptors and Summary Metrics	18
3.5.3	Incidental Observations of Non-Raptor Species	23
4.0	SUMMARY AND CONCLUSIONS	24
5.0	REFERENCES	26

LIST OF TABLES

Table 1.	Completed Survey Summary	10
Table 2.	Summary of State Listed Raptor Observations	15
Table 3.	Summary of Observed Essential Behaviors for Focal Grassland Raptor Species	17
Table 4.	Summary of Raptor Observations	19
Table 5.	Summary of Raptor Metrics for Evening Survey Stations	21

LIST OF FIGURES

- Figure 1. Regional Facility Location
- Figure 2. Winter Raptor Survey (WRS) Study Area
- Figure 3. Open Fields and Survey Locations
- Figure 4. Estimated Areas of Ground Visibility
- Figure 5. Supplemental Morning Point Count Locations
- Figure 6. State Listed Raptor Observations
- Figure 7. State Listed Raptor Roost Location
- Figure 8. Observed Essential Behaviors for Focal Grassland Raptor Species
- Figure 9. State Listed Non-Raptor Species Observations

LIST OF APPENDICES

- Appendix A: Evening Survey Data Sheets
- Appendix B: Daytime Survey Data Sheets
- Appendix C: Winter Raptor Survey Observations

ACRONYMS AND ABBREVIATIONS

EDR	Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C.
GIS	geographic information system
IPaC	Information for Planning and Consultation
NYCRR	New York Codes, Rules and Regulations
NYNHP	New York Natural Heritage Program
NYSDEC	New York State Department of Environmental Conservation
ORES	New York State Office of Renewable Energy Siting
SGCN	species of greatest conservation need
SGCN-HP	high priority species of greatest conservation need
SSC	species of special concern
USFWS	U.S. Fish and Wildlife Service
WRS	Winter Raptor Survey

1.0 INTRODUCTION

Agricola Wind LLC (the Applicant), a wholly owned subsidiary of Liberty Renewables Inc., is planning to develop the Agricola Wind Project, a proposed wind energy generation facility and associated infrastructure (the Facility) of up to 99 megawatts located in Cayuga County, New York (Figure 1). The Facility will include up to 24 wind turbines. Associated support facilities will include an underground medium voltage collection system, gravel access roads, permanent meteorological towers, an aircraft detection lighting system tower, temporary construction laydown areas, a temporary concrete batch plant, an operations and maintenance facility, a medium voltage-to-transmission voltage collection substation, a point of interconnection switchyard, and a short 115-kilovolt transmission line that will connect the Facility to the high voltage electrical grid.

Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C. (EDR) prepared this Winter Raptor Survey (WRS) Report in support of an Application for a Siting Permit for a Major Renewable Energy Facility (Siting Permit) under Article VIII of the Public Service Law (Article VIII; formerly Section 94-c of the New York Executive Law).¹ The information included in this report is intended to help the Applicant design the Facility in a manner that minimizes adverse environmental impacts. This information will also assist the New York State Office of Renewable Energy Siting (ORES), in consultation with the New York State Department of Environmental Conservation (NYSDEC), in their determination of whether occupied habitat² for one or more state listed threatened or endangered wildlife species exists within the area under consideration to host the Facility in accordance with the requirements of Article VIII (formerly Section 94-c).

1.1 Purpose of the Investigation

The purpose of this study was to document the presence, abundance, and use patterns of raptor species within a defined WRS Study Area during the winter season and to identify specific habitat areas used by state listed raptor species, including roost sites and foraging areas. The WRS Study Area consisted of an approximately 4,200-acre area that included all parcels, or portions of parcels, which have been under consideration by the Applicant for the siting of Facility components (Figure 2). The Facility will be constructed within an approximately 4,000-acre area (the Facility Site) that corresponds closely with the

¹ Effective April 20, 2024, the Renewable Action through Project Interconnection and Deployment (RAPID) Act repealed Section 94-c and enacted Article VIII. The RAPID Act transferred ORES from the Department of State to the Department of Public Service, continuing all existing functions, powers, duties, and obligations under the former Section 94-c. With respect to ORES's regulations at Title 19 New York Codes, Rules and Regulations (NYCRR) part 900 (Part 900), the RAPID Act transfers Part 900 to 16 NYCRR chapter XI, and continues Part 900 in full force and effect subject to conforming changes, such as the substitution of numbering, names, titles, citations, and other non-substantive changes to be filed with the Secretary. Inasmuch as the conforming changes have not yet been filed, this document retains the numbering of the former Part 900.

² Occupied habitat is defined as a geographic area in New York within which a species listed as endangered or threatened in New York has been determined by the NYSDEC to exhibit one or more essential behaviors. Essential behavior refers to any of the behaviors exhibited by a species listed as endangered or threatened in New York that are a part of its normal or traditional life cycle and that are essential to its survival and perpetuation. Essential behavior includes behaviors associated with breeding, hibernation, reproduction, feeding, sheltering, migration and overwintering (NYSDEC, 2021a).

WRS Study Area. However, the current Facility Site is approximately 200 acres smaller than the WRS Study Area. Within this area, a more limited subset of land will be selected for the siting, design, construction, and operation of the Facility. Some Facility components will be constructed in areas where disturbance has already occurred (e.g., agricultural fields used for hay and/or row crop production) to minimize the need for vegetation removal within natural communities.

Surveys were conducted by EDR biologists following the methodology established in the August 2021 NYSDEC *Survey Protocol for State-listed Wintering Grassland Raptor Species* (NYSDEC Survey Protocol; NYSDEC, 2021b). The NYSDEC Survey Protocol specifically targets two grassland raptor species: **BEGIN CONFIDENTIAL INFORMATION** < [REDACTED] > **END CONFIDENTIAL INFORMATION** The study was also developed in consideration of recommendations provided by ORES following submittal of a WRS Work Plan (EDR, 2023a). Specifically, EDR added three survey locations (evening survey stations 24, 25, and 26), shifted several survey locations to improve coverage of open field areas (including evening survey stations 5, 10, 23, and 7), and updated the estimated areas of ground visibility for the evening survey stations based on additional on-site review.

1.2 Target Species and Habitat Requirements

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2.0 BACKGROUND INFORMATION

2.1 Existing Conditions

The Applicant has gathered a substantial amount of information on existing ecological conditions within the WRS Study Area. These investigations have included preparation of a Wildlife Site Characterization for the Facility (EDR, 2023b), plus additional desktop analyses and on-site field assessments (e.g., spring raptor migration surveys, fall raptor migration surveys, breeding bird surveys). Based on these assessments, the lands currently under consideration for the Facility are primarily composed of agricultural row cropland, hayfields, and pastureland. In addition, some areas of deciduous, mixed, and evergreen forestland, woody wetlands, emergent herbaceous wetlands, successional shrubland, and developed areas (mainly rural houses, farms, and associated yards) are also present.

2.2 Agency Database Review and Consultation

As part of preparing a Wildlife Site Characterization for the Facility, EDR has consulted with federal and state agencies regarding the potential presence of listed threatened or endangered species within the vicinity of the Facility. This included database review via the U.S. Fish and Wildlife Service online Information for Planning and Consultation (IPaC) system, correspondence with the New York Natural Heritage Program (NYNHP), and a pre-application consultation meeting with ORES and the NYSDEC. EDR performed a review of the IPaC system for the Facility on March 4, 2021, and again on August 1, 2023. **BEGIN CONFIDENTIAL**

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[REDACTED] > **END CONFIDENTIAL INFORMATION** A site-specific request for documented state listed species occurrences in the vicinity of the Facility was submitted to the NYNHP on March 5, 2021, and a response was received on April 26, 2021. **BEGIN CONFIDENTIAL INFORMATION** < [REDACTED]

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In a pre-application consultation letter provided on January 8, 2024, ORES noted that the Facility is located in proximity to **BEGIN CONFIDENTIAL INFORMATION** < [REDACTED]

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3.0 WINTER RAPTOR SURVEYS

3.1 Survey Period and Frequency

For the purposes of state listed grassland raptor surveys, the NYSDEC Survey Protocol defines the winter season as November 15 to March 31. This period represents the primary time when **BEGIN CONFIDENTIAL INFORMATION**<[REDACTED]>**END CONFIDENTIAL INFORMATION** occupy wintering habitat in New York State. Additionally, if one or both of these target species are documented during the last two weeks of March, then April surveys are also required (and observations of target species in April trigger additional agency consultation). Accordingly, surveys at the WRS Study Area were conducted beginning the week of November 13, 2023. Each survey location was surveyed approximately once per week throughout the winter season. **BEGIN CONFIDENTIAL INFORMATION**<[REDACTED]

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EDR biologists typically visited the WRS Study Area multiple days per week to conduct surveys. For the stationary evening surveys, one location was surveyed by one biologist on a given evening, and surveys were typically conducted on consecutive nights during each survey week. For daytime driving surveys, a team of two biologists typically visited each daytime survey stop in the morning or afternoon once during each survey week. To the maximum extent practicable, in consideration of weather conditions, surveys were conducted each week so that each station and daytime survey stop was surveyed approximately weekly throughout the winter season. Consequently, in accordance with the NYSDEC Survey Protocol, a total of at least 18 surveys were completed at each evening survey location by the end of the season.

3.2 Survey Methodology and Locations

The primary survey method consisted of regimented visual scans and observations from multiple stations in the late afternoon and evening. Stations were situated within or adjacent to open habitats, and at vantage points with clear visibility in all directions (or most directions if stations were near the edges of target open habitats). EDR biologists used a geographic information system (GIS) to conduct a review of open fields greater than or equal to 25 acres in size within the WRS Study Area, and to identify the number and general location of stations required to adequately survey the open fields within the WRS Study Area. Prior to finalizing station locations, EDR biologists also conducted a reconnaissance-level site visit to document actual viewing conditions, and revised station locations as necessary to provide optimal views of the surrounding open field(s).

A total of 26 evening survey stations were selected for this winter raptor study (Figure 3). These stations were selected to provide coverage of potentially suitable open habitats within the WRS Study Area (and in some cases, adjacent lands). As shown in Figure 3, the survey stations were spaced approximately 1,000 meters or less from one another to provide maximum coverage of potentially suitable open habitats within

the WRS Study Area, given access constraints. In some areas, the presence of unharvested corn, leaf-on conditions, and/or land access constraints initially limited EDR's ability to estimate the areas of ground visibility. Therefore, the exact locations of some stations (e.g., evening survey station 5) were further refined prior to the start of the survey period to improve coverage of open habitats. In some cases, alternate survey locations providing similar visual coverage were used until land access permission was obtained. The estimated areas of ground visibility were also refined during surveys to account for winter conditions, and these field-verified viewsheds for all evening survey stations are presented in Figure 4.

Due to the crepuscular nature of both target species, stationary evening surveys were initiated 1 hour before sunset and continued until it became too dark to observe flying birds (typically 30 minutes after sunset). Therefore, each stationary evening survey had a minimum duration of 1.5 hours (90 minutes). Sunset times for the winter season were obtained for the WRS Study Area and used to guide the start and end times for each stationary evening survey.

In addition, biologists performed daytime driving surveys by traveling along roads within and/or adjacent to the WRS Study Area and observing open habitats from the roadways at designated stops for at least 5 minutes at each location. These daytime driving surveys were used as a supplemental method of detecting **BEGIN CONFIDENTIAL INFORMATION** < [REDACTED] > **END CONFIDENTIAL INFORMATION** A total of 15 daytime survey stops were surveyed (Figure 3).

Whenever possible in consideration of survey schedule requirements and land access constraints, surveys were not conducted during inclement weather that prevented: (1) the use of the area by the two target species; (2) visibility of the survey areas; and/or (3) the accurate identification of raptor species. Inclement weather conditions included significant and sustained precipitation, fog, and/or moderate to strong winds (i.e., sustained wind speeds greater than 12 miles per hour). Weather forecasts were reviewed prior to the start of each survey week to identify the most suitable days to conduct surveys. If inclement weather prevented surveys from being conducted as planned, surveys were re-scheduled for another day and completed as soon as possible. However, given the highly variable and extreme conditions typical of the winter season, some surveys were conducted under marginal weather conditions in order to maintain the proper survey number and frequency (e.g., when all available evening survey periods in a given week had marginal weather conditions).

For all surveys, qualified, trained personnel visually scanned the surrounding habitat throughout the entirety of each survey period. Binoculars with 8x or 10x magnification and/or spotting scopes were used during visual scans to aid in the observation and identification of birds. As applicable, the following behaviors were noted for the target species and any other state listed species observed: basking, diving, feeding, flapping, flying to or leaving a suspected roost, foraging, gliding, hovering, interacting, kiting, perching, preening, resting, roosting, singing, soaring, stooping, vocalizing, and any probable or confirmed breeding behaviors. Suspected or confirmed roost locations were documented for state listed endangered or threatened species. All raptors (including vultures) observed during survey periods were documented. Other incidental species that were heard and/or seen during survey periods were also recorded, including any other state listed endangered or threatened species, SSC, high priority species of greatest conservation need (SGCN-

HP), species of greatest conservation need (SGCN), and NYSDEC-identified species of interest (i.e., shrikes [*Lanius* spp.] and arctic-breeding songbird species including the snow bunting [*Plectrophenax nivalis*], Lapland longspur [*Calcarius lapponicus*], and American pipit [*Anthus rubescens*]) (NYSDEC, 2015a; NYSDEC, 2015b; NYSDEC, 2021b). Incidental observations of state listed species made outside of the survey period or in areas not targeted for the survey were also recorded.

Surveyors recorded data at each evening survey station and driving survey stop using an electronic data entry platform, as well as a mobile GIS application. For state listed threatened or endangered species, SSC, and NYSDEC-identified species of interest, GIS feature data included observation points (for perch, roost, and/or nest locations), flight path lines, foraging area polygons, and roosting area polygons, as applicable. In addition to these detailed spatial data, biologists also completed survey data sheets to document the following information:

- Survey date.
- Observer name(s) or initials.
- Survey type (evening stationary or daytime driving), station/stop identification number and/or code.
- Start time, sunset time, end time, and survey duration.
- Pertinent weather conditions including air temperature, wind speed and direction, cloud cover, snow depth (if any), presence of snow crust (if any), and visibility.
- Open habitat types surrounding survey locations.
- Representative photographs.
- Other avian species observed for which GIS feature data were not collected.
- A description of any disruptions and/or distractions that occurred during the survey that may have affected the survey or avian behavior.

3.3 Supplemental Survey Methodology

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were conducive to: (1) hearing bird vocalizations; and (2) seeing birds move about in vegetation and in flight.

The supplemental breeding bird surveys were conducted by a qualified biologist with experience and training in both acoustic and visual identification of birds in New York State. Upon arriving at each point count location, EDR's biologist waited silently for at least two minutes before beginning a timed 5-minute survey (to allow birds to habituate to the presence of the observer). During surveys, the biologist recorded all birds seen and heard. Visual identification was aided by the use of binoculars with 8x or 10x magnification. Incidental species that were heard or seen during qualitative meander surveys between point count survey periods were also recorded, including any species listed by the state as endangered, threatened, or special concern, and birds listed as SGCN-HP or SGCN (NYSDEC, 2015a; NYSDEC, 2015b; NYSDEC, 2015c). Standardized four-letter alpha codes were used for each avian species (Pyle and DeSante, 2022). The following data were recorded for each point count survey:

- Survey date.
- Observer name(s).
- Point count location identification number or name.
- Start time.
- Pertinent weather conditions including temperature, wind speed and direction, precipitation, cloud cover, and visibility.
- General habitat characteristics and vegetation measurements, including photographs.
- Species observed.
- Detailed locations for all state listed threatened or endangered species and SSC observed.

3.4 Data Analysis

Several metrics were calculated for each raptor species observed during the winter raptor study, including abundance, frequency, and spatial use. Abundance, which consists of the total number of observations, including observations of raptors in flight or perched at any distance relative to the survey location, was identified for each species. Observations were considered equivalent to individuals for the purpose of the analysis, as it is not always possible to discern among individuals of the same species during surveys (i.e., the same individuals may or may not be present at the same locations from week to week). However, in some cases, multiple features (e.g., perch point and flight path) were used to represent a single bird. In these instances, each distinct feature was considered a separate observation. Similarly, if a single feature (e.g., perch point) was used to represent multiple birds, the total number of observations equaled the total number of birds recorded for the feature. Frequency was calculated for each species by dividing the number of surveys during which observations were recorded by the total number of surveys completed.

Data analysis also included a review of the spatial use across the WRS Study Area through comparison of variability in total species richness and mean species richness per survey station/stop. Total species richness was determined by calculating the total number of species recorded over the course of the entire survey period for each survey location. Mean species richness was determined by calculating the mean number of species per survey recorded for each survey location. Finally, for the two target species, EDR reviewed behavioral descriptions, flight heights/patterns, and temporal data to identify the subset of observations of these species that appeared to include one or more essential behaviors. Essential behavior is defined as any of the behaviors exhibited by a species listed as endangered or threatened (in New York State) that are a part of its normal or traditional life cycle and that are essential to its survival and perpetuation. Essential behavior includes behaviors associated with breeding, hibernation, reproduction, feeding, sheltering, migration and overwintering.

3.5 Survey Results

A total of 495 evening stationary surveys were completed at 26 different locations throughout the survey period (totaling more than 765 survey-hours). Daytime driving surveys were conducted on 22 different days from November 15, 2023 to April 9, 2024, with a total of 20 sets of surveys completed. The total effort for the winter raptor study included over 47,400 survey-minutes (more than 791 survey-hours). Field data sheets for all evening stationary surveys and daytime driving surveys are provided in Appendix A and Appendix B, respectively. Table 1 indicates when surveys were completed throughout the survey period, along with survey effort (i.e., number of hours).

Table 1. Completed Survey Summary

Survey Location	Monthly Survey Effort ¹												Total Survey Effort by Location	
	November		December		January		February		March		April			
	# of Surveys	Total Hours	# of Surveys	Total Hours	# of Surveys	Total Hours	# of Surveys	Total Hours	# of Surveys	Total Hours	# of Surveys	Total Hours	# of Surveys	Total Hours
Evening Survey Station 1	2	3.0	4	6.0	5	7.5	4	6.1	4	6.3	1	1.6	20	30.5
Evening Survey Station 2	2	3.1	4	6.0	5	7.7	3	4.7	5	7.7	0	0	19	29.1
Evening Survey Station 3	1	1.5	5	7.5	5	7.5	4	6.0	4	6.3	0	0	19	28.8
Evening Survey Station 4	2	3.1	4	6.5	5	7.6	3	4.5	4	6.1	1	1.5	19	29.3
Evening Survey Station 5	1	1.5	5	7.7	4	7.1	4	6.0	4	5.9	1	1.5	19	29.6
Evening Survey Station 6	2	3.0	4	6.2	5	7.8	3	4.7	4	6.3	2	3.2	20	31.1
Evening Survey Station 7	2	3.0	4	6.3	5	7.5	4	6.1	3	4.6	2	3.0	20	30.5
Evening Survey Station 8	2	3.02	4	6.0	5	7.5	3	4.9	5	7.5	1	1.6	20	30.6
Evening Survey Station 9	2	3.3	4	6.0	5	7.4	3	4.5	4	6.1	1	1.6	19	29.0

Survey Location	Monthly Survey Effort ¹												Total Survey Effort by Location	
	November		December		January		February		March		April			
	# of Surveys	Total Hours	# of Surveys	Total Hours	# of Surveys	Total Hours	# of Surveys	Total Hours	# of Surveys	Total Hours	# of Surveys	Total Hours	# of Surveys	Total Hours
Evening Survey Station 10	2	3.0	4	6.3	5	8.1	3	4.9	4	6.2	0	0	18	28.4
Evening Survey Station 11	2	3.3	4	6.2	4	6.0	4	6.3	4	6.1	1	1.6	19	29.5
Evening Survey Station 12	2	3.1	4	6.6	5	7.5	3	4.5	5	7.9	2	3.1	21	32.6
Evening Survey Station 13	2	3.0	4	6.2	4	6.0	4	6.2	4	6.6	0	0	18	27.9
Evening Survey Station 14	1	1.5	5	7.5	5	7.8	3	4.7	4	6.3	1	1.5	19	29.2
Evening Survey Station 15	2	3.3	4	6.5	5	8.4	3	4.8	4	6.7	1	1.5	19	31.0
Evening Survey Station 16	2	2.7	4	6.0	4	6.0	4	6.0	4	6.3	0	0	18	27.1
Evening Survey Station 17	1	1.6	5	7.7	4	6.7	4	6.4	4	6.1	1	1.5	19	29.9
Evening Survey Station 18	2	3.0	4	6.1	5	7.6	3	4.5	4	6.0	0	0	18	27.15
Evening Survey Station 19	2	3.1	4	6.3	4	6.0	4	6.2	4	6.6	0	0	18	28.2

Survey Location	Monthly Survey Effort ¹												Total Survey Effort by Location	
	November		December		January		February		March		April			
	# of Surveys	Total Hours	# of Surveys	Total Hours	# of Surveys	Total Hours	# of Surveys	Total Hours	# of Surveys	Total Hours	# of Surveys	Total Hours	# of Surveys	Total Hours
Evening Survey Station 20	2	2.9	4	6.0	5	7.5	3	4.5	4	6.4	0	0	18	27.3
Evening Survey Station 21	1	1.5	5	7.6	5	8.4	3	4.5	4	6.7	1	1.5	19	30.2
Evening Survey Station 22	2	3.2	4	6.3	5	7.5	2	3.1	5	7.7	1	1.5	19	29.3
Evening Survey Station 23	2	3.2	4	6.6	5	7.6	3	4.6	4	6.4	2	3.2	20	31.5
Evening Survey Station 24	2	3.0	4	6.3	4	6.3	5	7.8	4	6.1	1	1.6	20	31.0
Evening Survey Station 25	1	1.5	5	7.8	4	6.3	4	6.1	4	6.4	0	0	18	28.1
Evening Survey Station 26	2	3.1	4	6.0	5	7.8	3	4.6	4	6.1	1	1.5	19	29.1
Total Evening Survey Effort by Month	46	70.4	110	170.0	122	188.9	89	137.1	107	167.0	21	32.4	495	765.7
Daytime Driving Stops ²	2	2.7	4	5.9	4	5.1	4	5.0	4	5.9	2	0.9	20	25.5

¹ The number of surveys and total survey effort (hours) completed during each month.

² Daytime driving surveys consisted of 5-minute point count surveys conducted at 15 different stop locations.

3.5.1 State Listed Raptors

Throughout the winter survey season, a total of 142 observations of state listed threatened and endangered raptors were documented (including observations recorded incidentally outside of timed surveys). **BEGIN**
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State listed raptor observations are summarized in Table 2, and locations of observations and flight paths are illustrated in Figure 6. State listed raptor roost locations are presented in Figure 7. The subset of observations of the focal state listed grassland raptor species that appeared to include one or more essential behaviors (e.g., foraging, interacting, feeding, flying to or leaving a suspected or confirmed roost) are depicted in Figure 8, and these observations are also summarized in Table 3. All WRS observations are listed in Appendix C.

Table 2. Summary of State Listed Raptor Observations

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Common Name	Scientific Name	Conservation Status ¹	Number of Observations ²	Sex/Age	Date(s)	Nearest Survey Location(s)	Observed Behavior(s)	Probable or Confirmed Breeding Behavior(s) ³

Common Name	Scientific Name	Conservation Status ¹	Number of Observations ²	Sex/Age	Date(s)	Nearest Survey Location(s)	Observed Behavior(s)	Probable or Confirmed Breeding Behavior(s) ³

¹ Highest conservation status based on the List of Endangered, Threatened and Special Concern Fish & Wildlife Species of New York State (NYSDEC, 2015a).

² Includes all observations documented, including those recorded during evening surveys, daytime driving surveys, and incidentally. In some cases, multiple features (e.g., perch point and flight path) were used to represent a single bird. In these instances, each distinct feature was considered a separate observation.

³ Following New York Breeding Bird Atlas III breeding codes and definitions (eBird, 2020).

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Table 3. Summary of Observed Essential Behaviors for Focal Grassland Raptor Species

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Common Name	Scientific Name	Conservation Status ¹	Total Number of Observations ²	Total Number of Observations with Essential Behavior(s) ³	Observed Essential Behavior(s) ³

¹ Highest conservation status based on the List of Endangered, Threatened and Special Concern Fish & Wildlife Species of New York State (NYSDEC, 2015a).

² Includes all observations documented, including those recorded during evening surveys, daytime driving surveys, and incidentally.

³ Essential behavior is defined as any of the behaviors exhibited by a species listed as endangered or threatened (in New York State) that are a part of its normal or traditional life cycle and that are essential to its survival and perpetuation. Essential behavior includes behaviors associated with breeding, hibernation, reproduction, feeding, sheltering, migration and overwintering. The total number of observations with essential behavior(s) includes both confirmed and potential foraging behaviors based on analysis of flight heights and movement patterns.

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3.5.2 Other Raptors and Summary Metrics

The remaining raptor observations consisted of red-tailed hawks (*Buteo jamaicensis*; 281 observations), turkey vultures (*Cathartes aura*; 66 observations), great horned owls (*Bubo virginianus*; 12 observations), merlins (*Falco columbarius*; three observations), barred owls (*Strix varia*; two observations), unknown raptors (19 observations), unknown buteos (*Buteo* spp.; five observations), and unknown falcons (*Falco* spp.; five observations).

Red-tailed hawks were observed at all evening survey stations except for evening survey station 11, and at daytime driving survey stops A, B, C, D, F, G, H, I, J, K, L, M, and N. A total of 197 observations were made during evening stationary surveys, 65 observations were made during daytime driving surveys, and 19 observations were made incidentally. This species was often observed foraging, diving, flapping, gliding, soaring, vocalizing, perching. Red-tailed hawks were also observed hovering, resting, basking, stooping, and interacting.

Turkey vultures were observed at evening survey stations 1, 2, 8, 9, 16, 19, 20, and 25, as well as at daytime driving stops A, C, D, E, F, G, J, L, M, and O. A total of 33 observations were made during evening stationary surveys, 30 observations were made during daytime driving surveys, and three observations were made incidentally. Turkey vultures were observed flapping, gliding, kiting, and soaring.

Great horned owls were observed at evening survey stations 20, 24, and 25. All 12 observations occurred during evening stationary surveys. Great horned owls were observed vocalizing from wooded areas near evening survey stations.

Merlins were observed at evening survey stations 7 and 13. Merlins were not observed at any daytime driving stops. This species was observed perching and flapping.

Barred owls were observed vocalizing at evening survey station 13 and daytime driving stop E (one observation at each location).

Unknown raptors were observed at evening survey stations 1, 6, 7, 8, 12, 15, 16, 19, 24, and 25, as well as at daytime driving survey stops G and K. A total of 17 observations were made during evening stationary surveys, and two observations were made during daytime driving surveys. Observed behaviors included flapping, gliding, perching, soaring, interacting, and foraging. Unknown raptors were often observed at significant distances relative to the surveyors and/or very briefly, which prevented more definitive identification.

Unknown buteos were observed at evening survey locations 10, 19, and 25. Unknown buteos were not observed at any daytime driving stops. The observed behaviors included flapping, gliding, perching, and soaring. Unknown buteos were often observed at significant distances relative to the surveyors and/or very briefly, which prevented more definitive identification.

Unknown falcons were observed at evening survey stations 1, 3, 5, and 16. No observations were recorded during daytime driving surveys. Observed behaviors included flapping, gliding, diving, perching, feeding and preening. These raptors could not be identified to the species level due to distance relative to the observer(s) and low light levels at dusk.

The red-tailed hawk was the most abundant raptor species recorded during the study, with 281 total observations, representing 47.1% of all raptor observations. The barred owl and **BEGIN CONFIDENTIAL INFORMATION**<[REDACTED]>**END CONFIDENTIAL INFORMATION** were the least abundant raptor species recorded during the study, with two observations each, representing less than 1% of all raptor observations. The red-tailed hawk was also the most frequently observed raptor species; this species was observed during 90 of the total 495 evening surveys conducted (18.2%). The barred owl was the least frequently observed raptor species; this species was observed during 0.2% of the evening surveys.

A summary of all raptors observed during the study is provided in Table 4. All WRS observations are listed in Appendix C.

Table 4. Summary of Raptor Observations

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Common Name	Scientific Name	Date(s) Observed	Total Observations ¹	Frequency ²
Unknown Raptor	n/a	November 22, 2023 to March 7, 2024	19	3.2%
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Buteos				
Red-tailed Hawk	<i>Buteo jamaicensis</i>	November 15, 2023 to April 2, 2024	281	18.2%
Unknown Buteo	<i>Buteo</i> spp.	November 29, 2023 to March 5, 2024	5	0.8%
[REDACTED]				

Common Name	Scientific Name	Date(s) Observed	Total Observations ¹	Frequency ²
Vultures				
Turkey Vulture	<i>Cathartes aura</i>	February 21 to April 2, 2024	66	1.8%

¹ Includes all observations made during evening surveys, daytime driving surveys, and incidentally while on-site during the survey period. Does not include observations made before or after the winter season (e.g., raptors observed incidentally by EDR personnel during other types of fieldwork).

² The percentage of evening surveys during which the species was recorded.

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Overall, evening survey station 3 had the highest raptor abundance, with 38 raptor observations recorded throughout survey season, while evening survey station 11 had the lowest raptor abundance, with three raptor observations recorded throughout the season.

Evening survey station 24 had the highest total raptor species richness, with eight raptor species detected during the survey season, while evening survey station 11 had the lowest total raptor species richness, with one raptor species observed during the survey season.

Evening survey station 24 had the highest mean raptor species richness at 1.0 species per survey, followed by evening survey stations 25 (0.8 raptor species per survey), 1 (0.7 raptor species per survey) and 17 (0.7 raptor species per survey). Evening survey stations 5, 6, 8, 11, 16, and 26 had the lowest mean raptor species richness at 0.2 raptor species per survey. A summary of raptor metrics for each evening survey station is provided in Table 5.

Table 5. Summary of Raptor Metrics for Evening Survey Stations

Evening Survey Station	Primary Open Habitat Type(s)	Number of Evening Surveys	Abundance ¹	Total Species Richness ²	Mean Species Richness ³
1	Field Cropland (Alfalfa)	20	24	5	0.7
2	Field Cropland (Hay); Row Cropland (Harvested)	19	18	4	0.5
3	Row Cropland (Harvested); Field Cropland (Hay)	19	38	4	0.6
4	Field Cropland (Alfalfa)	19	26	4	0.5
5	Row Cropland (Harvested)	19	4	3	0.2
6	Field Cropland (Alfalfa)	20	7	2	0.2
7	Field Cropland (Alfalfa), Wetland (Pond)	20	9	5	0.4
8	Field Cropland (Hay)	20	5	2	0.2
9	Field Cropland (Hay)	19	9	4	0.4
10	Row Cropland (Harvested)	18	15	2	0.4
11	Row Cropland (Harvested)	19	3	1	0.2
12	Field Cropland (Alfalfa)	21	20	4	0.4
13	Row Cropland (Harvested)	18	12	4	0.4
14	Field Cropland (Wheat)	19	18	3	0.4
15	Row Cropland (Harvested); Field Cropland (Hay)	19	28	4	0.6

Evening Survey Station	Primary Open Habitat Type(s)	Number of Evening Surveys	Abundance ¹	Total Species Richness ²	Mean Species Richness ³
16	Field Cropland (Hay)	18	25	2	0.2
17	Row Cropland (Harvested)	19	25	5	0.7
18	Row Cropland (Harvested); Field Cropland (Hay)	18	21	5	0.6
19	Row Cropland (Harvested); Field Cropland (Hay)	18	19	6	0.4
20	Row Cropland (Harvested)	18	15	4	0.4
21	Row Cropland (Harvested)	19	13	6	0.5
22	Row Cropland (Harvested)	19	10	4	0.3
23	Row Cropland (Harvested); Field Cropland (Wheat)	20	18	3	0.4
24	Row Cropland (Harvested); Field Cropland (Wheat)	20	36	8	1.0
25	Field Cropland (Hay)	18	18	5	0.8
26	Row Cropland (Harvested)	19	5	3	0.2

¹ The total number of raptors observed from the evening survey station throughout the survey period, including raptors that could not be identified to the species level.

² The total number of raptor species observed from the evening survey station throughout the survey period, excluding raptors that could not be identified to the species level.

³ The mean number of raptor species observed during surveys conducted at the evening survey station, excluding raptors that could not be identified to the species level.

3.5.3 Incidental Observations of Non-Raptor Species

In addition to the raptor observations described in Sections 3.5.1 and 3.5.2, incidental observations of non-raptor species were also recorded. Refer to Appendices A and B, which consist of survey data sheets with incidental observations of non-raptor species recorded for each survey. Species abbreviations are based on standardized four-letter alpha codes defined by the Institute for Bird Populations (Pyle and DeSante, 2023).

Most of the incidental observations were of relatively common passerines, woodpeckers, and waterfowl. However, various non-raptor species of interest were observed, including non-raptor state listed threatened species, non-raptor state listed SSC, non-raptor SGCN-HP and SGCN. Many SSC, SGCN-HP, and SGCN are not currently listed as endangered or threatened in New York; therefore, such species are not subject to the same regulatory requirements. However, the NYSDEC Survey Protocol recommends recording and reporting observations of these species. State listed non-raptor observations are illustrated in Figure 9. A brief summary of these state listed non-raptor species and species of interest is presented as follows:

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- The eastern meadowlark (*Sturnella magna*), an SGCN-HP, was observed near evening stations 8, 18, and 22 during the month of March 2024. However, no nest locations were identified within the WRS Study Area.
- One American black duck (*Anas rubripes*), an SGCN-HP, was observed near evening station 19 in December 2023.
- American woodcocks (*Scolopax minor*; SGCN) were observed displaying and vocalizing near evening survey stations 8, 9, 15, 17, 24, 25, and 26 during the months of March and April 2024. However, no nest locations were identified within the WRS Study Area.
- The snow bunting, an arctic-breeding songbird species, was observed at evening survey stations 2, 3, 4, 5, 6, 7, 10, 14, 18, 19, and 20, as well as at daytime driving stop C. This species does not nest in New York (Cornell Lab, 2023c).

- The American pipit, an arctic-breeding songbird species, was observed at evening survey stations 2, 4, 6, 7, 13, 15, 16, 18, and 22, as well as at daytime driving stop N. This species does not nest in New York (Cornell Lab, 2023c).
- The Lapland longspur, an arctic breeding songbird species, was observed at evening survey station 3 on January 22, 2024. This species does not nest in New York (Cornell Lab, 2023c).

4.0 SUMMARY AND CONCLUSIONS

Evening and daytime surveys targeting two state listed grassland raptor species were conducted by EDR biologists within the WRS Study Area between November 15, 2023 to April 11, 2024. A total of evening 495 stationary surveys and 20 sets of daytime driving surveys were conducted, totaling more than 47,400 survey-minutes (more than 791 survey-hours). Each evening survey station was surveyed between 18 and 21 times during the winter season. **BEGIN CONFIDENTIAL INFORMATION** < [REDACTED]

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Over the course of the winter season, a total of 597 raptors were observed, representing 12 different species as well as additional raptors that could not be identified to a species level. **BEGIN CONFIDENTIAL INFORMATION** < [REDACTED]

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CONFIDENTIAL INFORMATION The remaining raptors were primarily red-tailed hawks, but also included turkey vultures, great-horned owls, merlins, barred owls, unknown raptors, unknown buteos, and unknown falcons. In addition, a total of six non-raptor avian species of interest were observed, including one non-raptor SSC **BEGIN CONFIDENTIAL INFORMATION** < [REDACTED] >END **CONFIDENTIAL INFORMATION**, two non-raptor SGCN-HP (the eastern meadowlark and the American black duck), one non-raptor SGCN (the American woodcock), and three species of arctic breeding songbird (the American pipit, Lapland longspur, and snow bunting). Of the more than 47,400 survey-minutes, state listed threatened or endangered species were observed for approximately 415 survey-minutes, equating to approximately 0.9% of the total survey effort.

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CONFIDENTIAL INFORMATION These conclusions are supported by publicly available data (as summarized in the Wildlife Site Characterization; EDR, 2023b), the data collected during the 2023-2024 winter raptor study, and other avian study data collected for the Facility. These findings will allow the Applicant to evaluate potential Facility-related impacts to state listed wintering bird species and identify possible avoidance, minimization, and mitigation measures in the Facility's Siting Permit Application.

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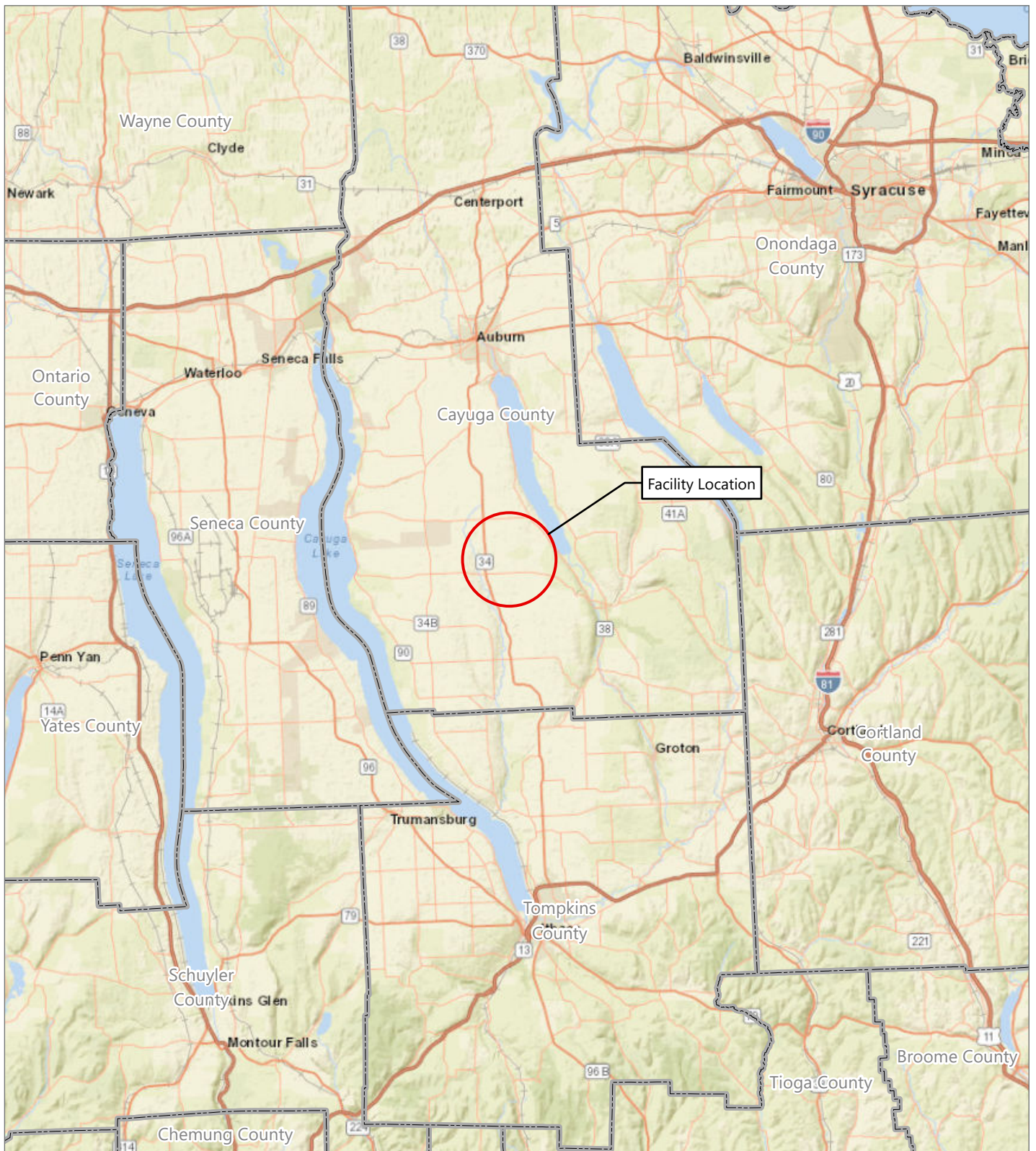
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FIGURES

Figure 1. Regional Facility Location



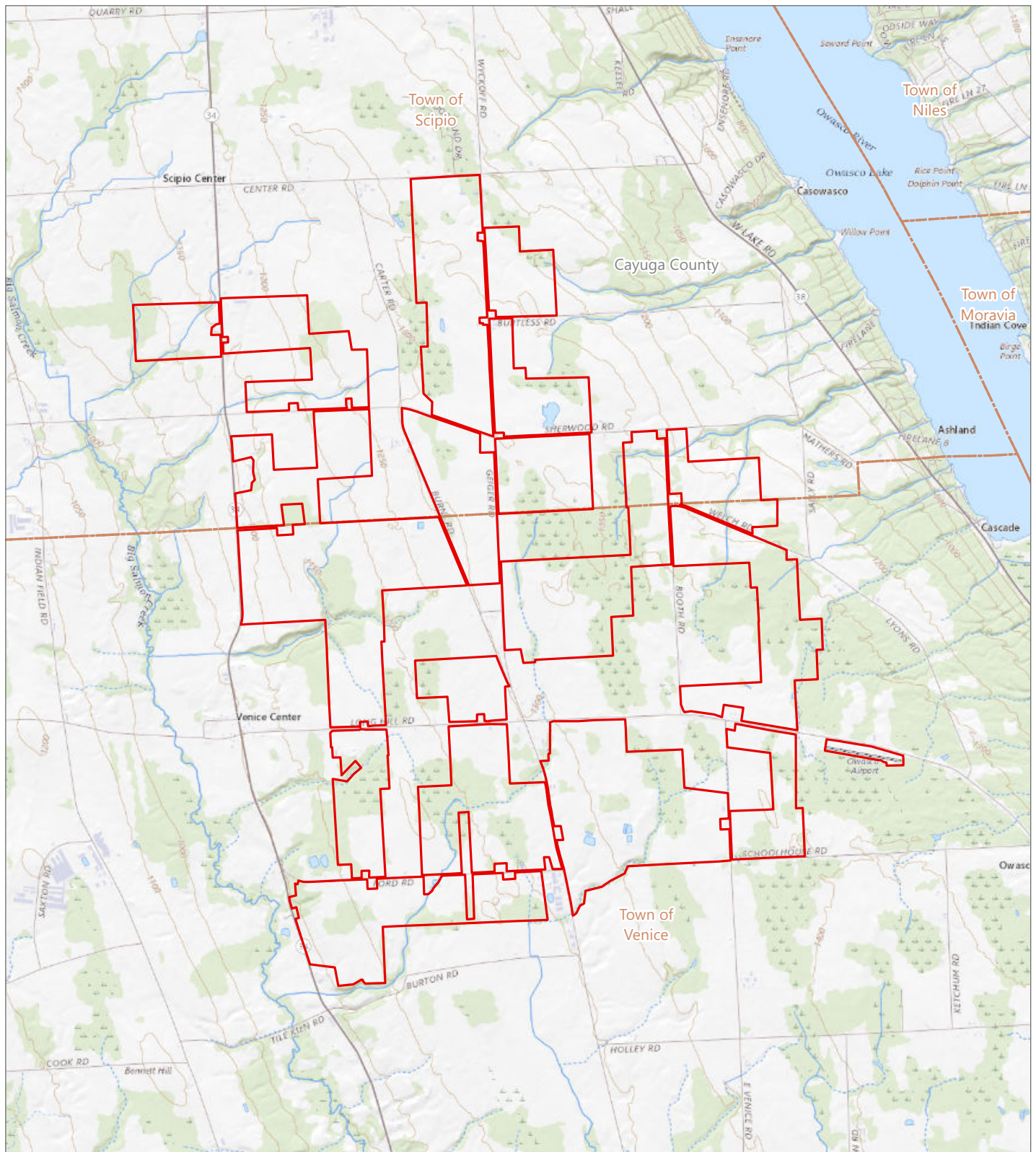
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Winter Raptor Survey Report



Figure 2. Winter Raptor Survey (WRS) Study Area



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Winter Raptor Survey Report

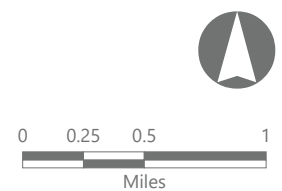
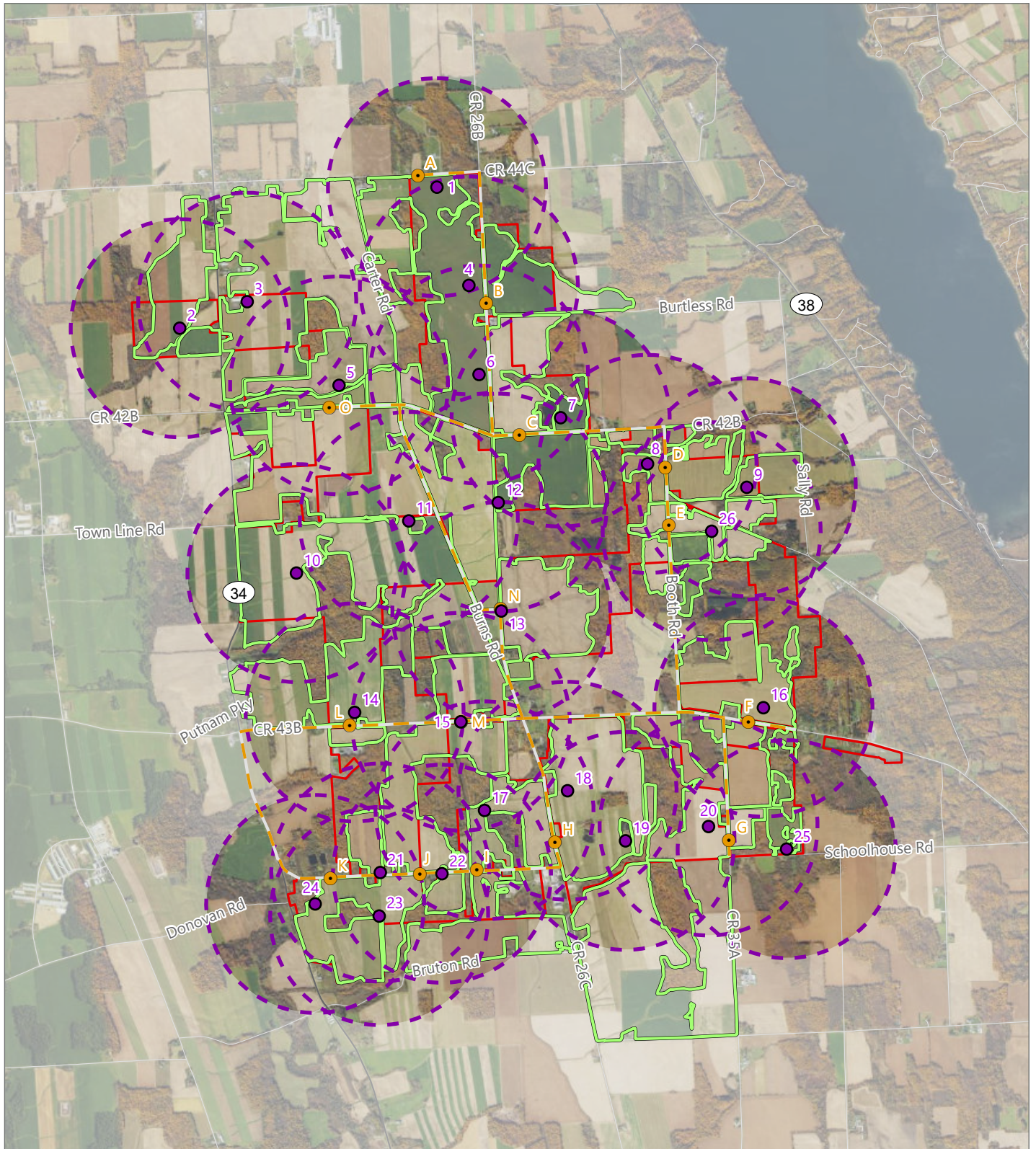


Figure 3. Open Fields and Survey Locations



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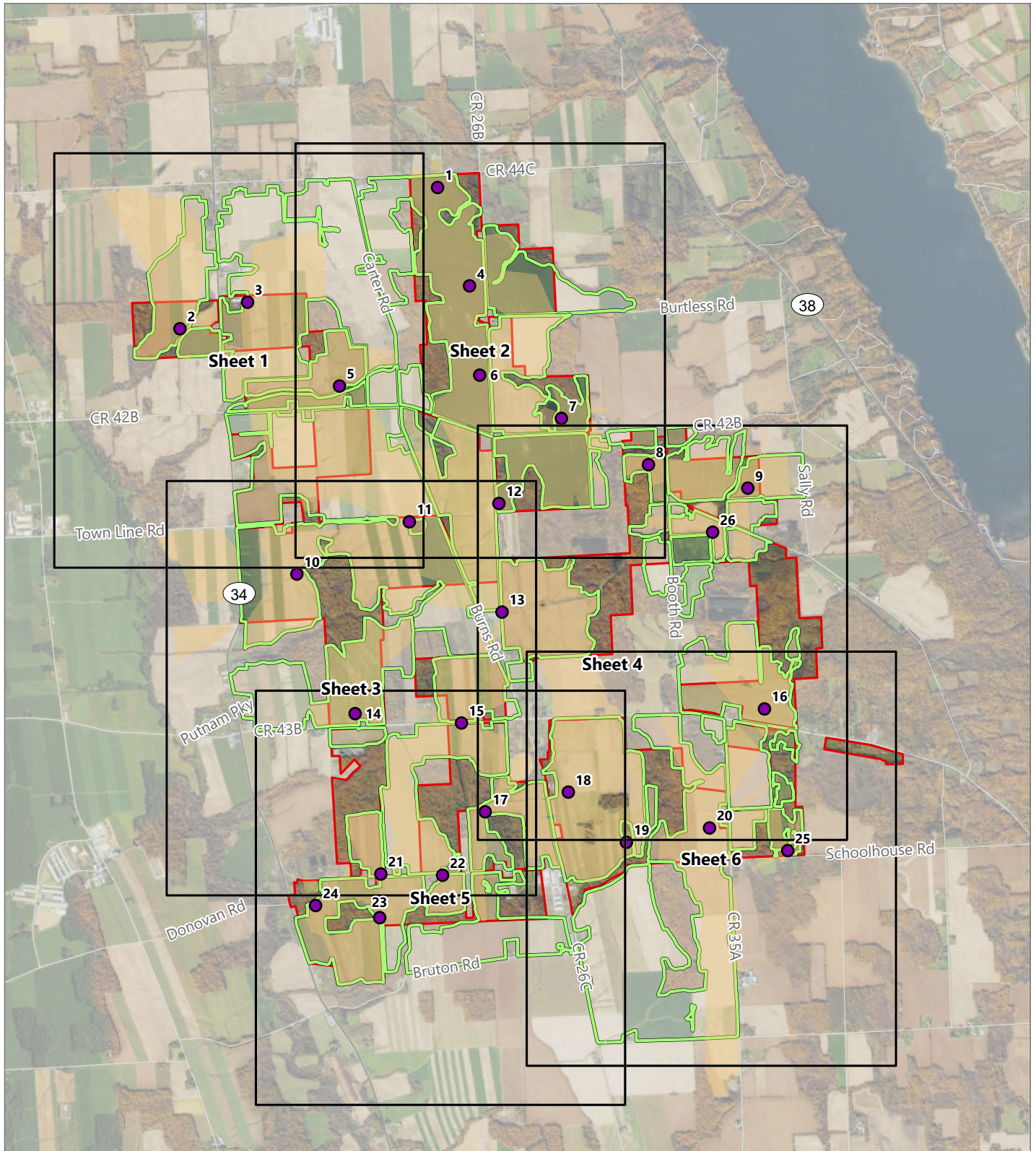
Winter Raptor Survey Report

- Evening Survey Station
- Daytime Driving Stop
- Daytime Driving Route
- Area within 1000 meters of Evening Survey Station
- Open Field
- WRS Study Area



Figure 4. Estimated Areas of Ground Visibility

Index



Agricola Wind Project

Towns of Venice and Scipio,
Cayuga County, New York

Winter Raptor Survey Report

- Evening Survey Station
- Estimated Area of Ground Visibility
- Open Field
- WRS Study Area



Figure 4. Estimated Areas of Ground Visibility



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Towns of Venice and Scipio,
Cayuga County, New York

Winter Raptor Survey Report

- Evening Survey Station
- Estimated Area of Ground Visibility
- Open Field
- WRS Study Area

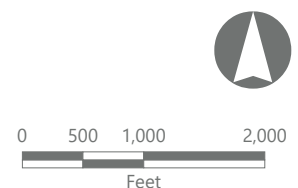
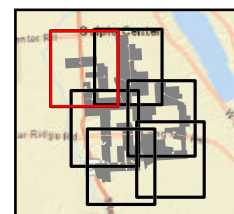


Figure 4. Estimated Areas of Ground Visibility



Agricola Wind Project

Towns of Venice and Scipio,
Cayuga County, New York

Winter Raptor Survey Report

- Evening Survey Station
- Estimated Area of Ground Visibility
- Open Field
- WRS Study Area

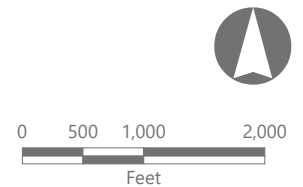
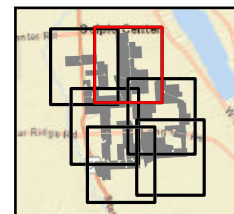


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Agricola Wind Project

Towns of Venice and Scipio,
Cayuga County, New York

Winter Raptor Survey Report

- Evening Survey Station
- Estimated Area of Ground Visibility
- Open Field
- WRS Study Area

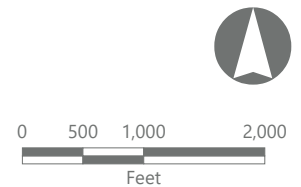
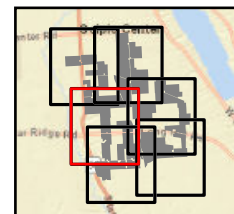


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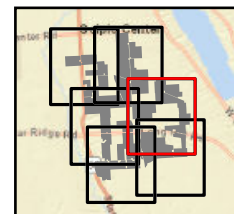


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Towns of Venice and Scipio,
Cayuga County, New York

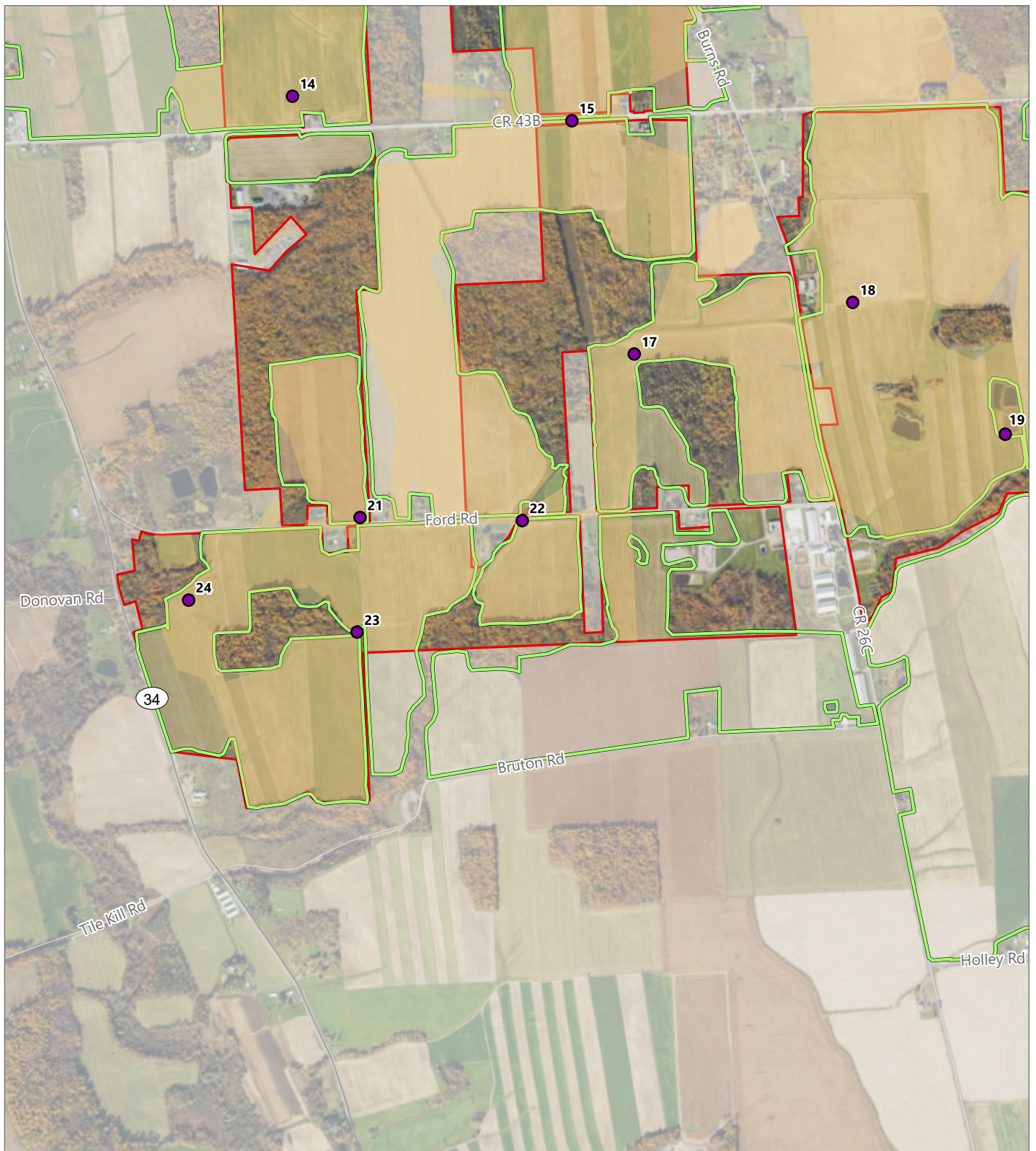
Winter Raptor Survey Report

- Evening Survey Station
- Estimated Area of Ground Visibility
- Open Field
- WRS Study Area



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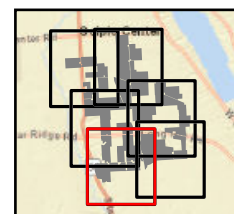


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Towns of Venice and Scipio,
Cayuga County, New York

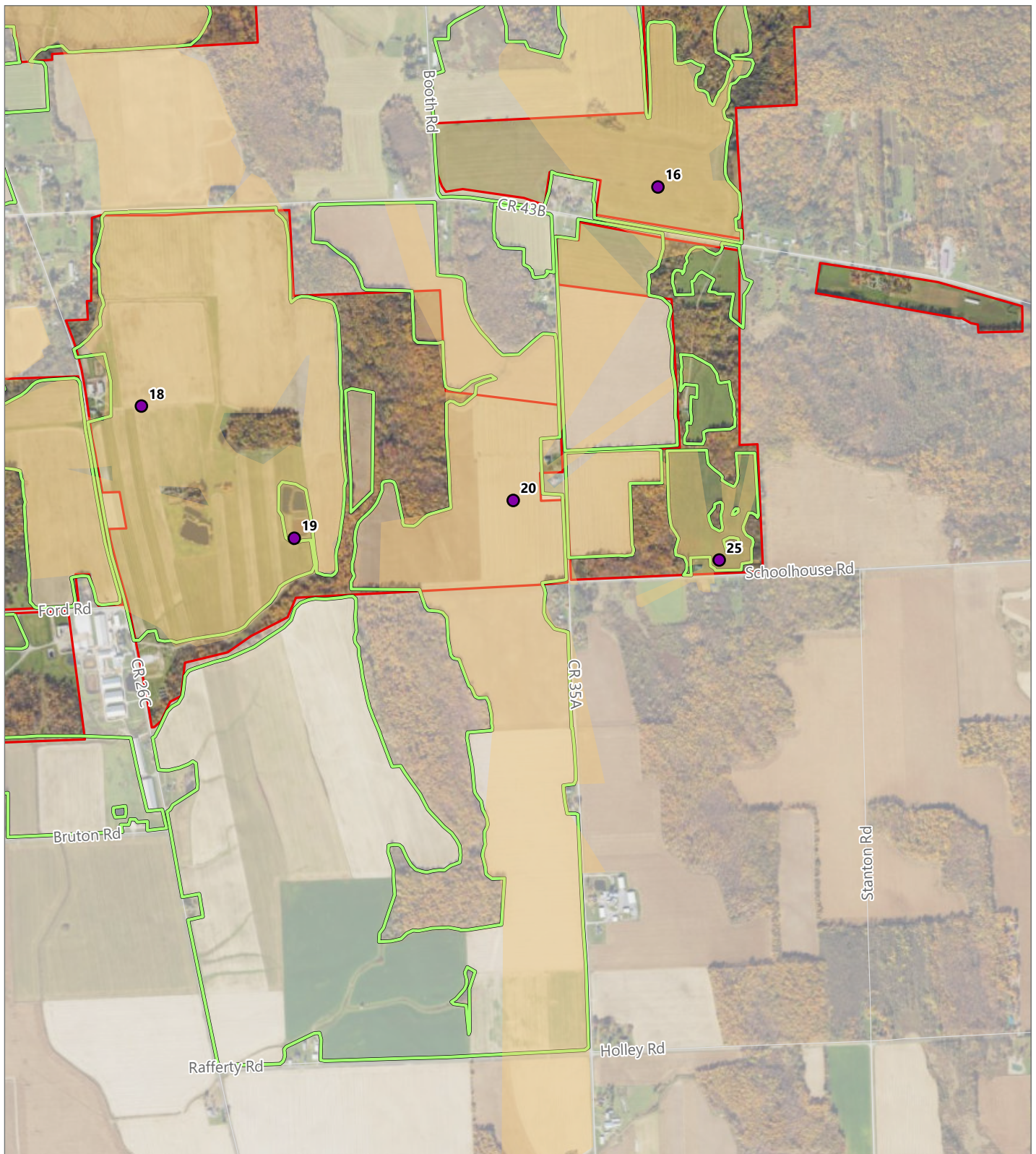
Winter Raptor Survey Report

- Evening Survey Station
- Estimated Area of Ground Visibility
- Open Field
- WRS Study Area



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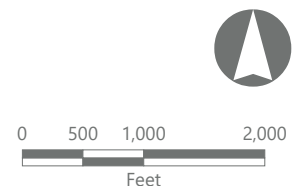
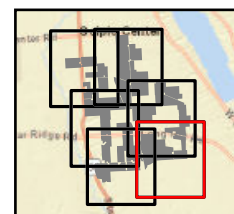


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Towns of Venice and Scipio,
Cayuga County, New York

Winter Raptor Survey Report

- Evening Survey Station
- Estimated Area of Ground Visibility
- Open Field
- WRS Study Area



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