



Memorandum

To: Brandon Smith and David Strong (Borrego Solar Systems Inc.)
From: Environmental Design & Research, D.P.C. (EDR)
Date: October 29, 2021
Reference: Glen Wind 1, LLC
Summary of Avian Field Surveys
EDR Project No.: 20151

Introduction

This memorandum summarizes avian field surveys conducted by Environmental Design & Research, D.P.C. (EDR) on behalf of Glen Wind 1, LLC (the Applicant). Avian field surveys were conducted in 2020 and 2021 for a community-scale wind-powered electric generating facility and associated infrastructure that is proposed within the Town of Glen in Montgomery County, New York (the Project) (see Attachment 1, Figures 1 and 2).

The Project is anticipated to include two wind turbines, access roads, and associated infrastructure within an overall Project Site that totals approximately 191 acres (see Attachment 1, Figure 2). Much of the Project Site is dominated by deciduous forest, successional shrubland, and successional old field, though an open water/emergent wetland feature and disturbed/developed land (in the form of roads, driveways, orchard infrastructure, and residential buildings) are also present.

Given its proposed generating capacity (up to 10 megawatts [MW]), the Project will be reviewed under the State Environmental Quality Review Act (SEQRA) process, and the results of the avian field surveys are intended to inform the Applicants in the design and development of the Project, and the New York State Department of Environmental Conservation (NYSDEC) and the SEQRA Lead Agency in their review of the proposed Project.

Summary of Agency Consultations

Consultation with state agencies regarding the potential presence of state-listed threatened or endangered avian species within or near the Project Site began in 2020. Correspondence with the New York Natural Heritage Program (NYNHP) began with the submittal of a formal request for information regarding state and federally-listed endangered and threatened species within and

adjacent to the Project Site. A response letter was received from the NYNHP on October 16, 2020, and indicated that there are no known records of rare or state-listed animals or plants, or significant natural communities at the Project Site.

EDR also reviewed the NYSDEC Environmental Resource Mapper (ERM) to obtain more detailed occurrence records for state-listed species that have been documented within and in the vicinity of the Project Site. The ERM Rare Plants or Animals layer indicates no records of rare or state-listed species within and in the vicinity of the Project Site.

Although the NYSDEC has not identified known occupied habitat for state-listed threatened or endangered bird species that overlaps with the Project Site, the Applicants retained EDR to conduct fall raptor migration surveys, winter raptor surveys, spring raptor migration surveys, and breeding bird surveys to evaluate the potential presence and use of the Project Site by these and other avian species. Summaries are provided below for each type of avian field survey completed for the Project.

Fall Raptor Migration Surveys

- Fall raptor migration surveys began on September 3, 2020, and were performed once every other week until December 9, 2020, for a total of 8 surveys (representing more than 64 survey-hours). Surveys were conducted from 8:00 a.m. until at least two hours prior to sunset, which ranged from approximately 5:45 p.m. at the beginning of the fall season to approximately 2:23 p.m. at the end of the survey period.
- During surveys, biologists either sat or stood at a single stationary survey location (see Attachment 1, Figure 3) and conducted visual scans of the sky in all directions in order to detect raptors and other birds passing through the Project Site. Biologists recorded detailed information for all raptors observed, as well as any state-listed species and large flocks of non-raptor birds (defined as 50 or more individuals).
- Data recorded for each survey included observer initials, date, start and end time, weather conditions for the previous day, hourly weather conditions, the number of individuals and identification of each species observed, the start and end time of each observation, sex and age of individuals (if discernable), average flight height and direction, initial distance of observation, closest distance of observation, behavior(s), and additional notes.

- A total of 64 raptor observations were recorded during the survey period. Turkey vulture (*Cathartes aura*) was the most abundant species recorded at the Project Site, with 17 observations (27% of all raptor observations). One other species—red-tailed hawk (*Buteo jamaicensis*)—was also abundant, with 16 observations (25% of all raptor observations).
- Northern harrier (*Circus hudsonius*) was the most frequently observed raptor species (recorded during five of eight surveys). Red-tailed hawk was the second-most frequently observed raptor species (recorded during four surveys). These species were observed throughout the day, with observations occurring between approximately 8:00 a.m. and 4:30 p.m.
- Two state-listed threatened species were observed during the fall migration season: bald eagle (*Haliaeetus leucocephalus*; five observations) and northern harrier (10 observations). The bald eagle observations included mostly single individuals (and one observation of two birds) flying high above the ground (150 to 1,000 feet) over the southern and western portions of the Project Site. The northern harrier observations included male and female adults and unknown juveniles exhibiting flying and foraging behavior in the western portion of the Project Site within successional old fields, and in a hayfield located to the west of the Project Site across Reynolds Road. Attachment 1, Figure 4 depicts the locations and flight paths of these state-listed threatened species observations. Attachment 2 provides a summary of state-listed species observations.
- Three state-listed species of special concern were observed during the fall migration season: osprey (*Pandion haliaetus*; one observation), red-shouldered hawk (*Buteo lineatus*; two observations), and Cooper's hawk (*Pandion haliaetus*; six observations). One osprey was observed flying west over the northern portion Project Site at an average height of 300 feet above the ground. The red-shouldered hawk observations included an unknown adult and an unknown juvenile flying over the Project Site high above the ground (150 to 200 feet) west of the Project Site across Reynolds Road. The Cooper's hawk observations included male and female adults and unknown individuals exhibiting flying and hunting behavior in the western portion of the Project Site. Attachment 2 provides a summary of state-listed species observations.

Winter Raptor Surveys

- Winter raptor surveys began on January 13, 2021, and were performed once every three weeks until March 25, 2021, for a total of six surveys (representing more than nine survey-

hours). Surveys were conducted from one hour prior to sunset until it became too dark to observe flying birds (at least 30 minutes after sunset).

- To the greatest extent practicable, surveys were not conducted on days when weather conditions would limit visibility (e.g., sustained precipitation, fog, and/or moderate to strong winds). Weather forecasts were reviewed regularly in order to select the most appropriate survey days.
- During surveys, biologists either sat or stood at a single stationary survey location and conducted visual scans of the surrounding habitat in all directions in order to detect raptors and other birds passing through the Project Site (see Attachment 1, Figure 3). Biologists recorded detailed information for all raptors observed, as well as any state-listed species.
- Data recorded for each survey included date, observer initials, start time, sunset time, and end time, pertinent weather conditions, the number of individuals and identification of each species observed, the start and end time of each observation, sex and age of individuals (if discernable), average flight height and direction, behavior(s), and additional notes. Perch locations, roost locations, flight paths, and/or foraging areas were documented for all state-listed species.
- A total of five raptor observations were recorded during the winter season, representing three species: red-tailed hawk (two observations), great-horned owl (*Bubo virginianus*), and turkey vulture (one observation). No state-listed species were observed during the winter raptor surveys.

Spring Raptor Migration Surveys

- Spring raptor migration surveys began on March 10, 2021, and were performed once every two weeks until May 19, 2021, for a total of six surveys (representing more than 57 survey-hours). Surveys were conducted from 8:00 a.m. and until at least two hours prior to sunset, which ranged from approximately 3:55 p.m. at the beginning of the spring season to approximately 6:17 p.m. at the end of the survey period.

- To the greatest extent practicable, surveys were not conducted on days when weather conditions would limit visibility (e.g., sustained precipitation, fog, and/or moderate to strong winds). Weather forecasts were reviewed regularly in order to select the most appropriate survey days.
- During surveys, biologists either sat or stood at a single stationary survey location and conducted visual scans of the sky in all directions in order to detect raptors and other birds passing through the Project Site (see Attachment 1, Figure 3). Biologists recorded detailed information for all raptors observed, as well as any state-listed species and large flocks of non-raptor birds (defined as 50 or more individuals).
- Data recorded for each survey included observer initials, date, start and end time, weather conditions for the previous day, hourly weather conditions, the number of individuals and identification of each species observed, the start and end time of each observation, sex and age of individuals (if discernable), average flight height and direction, behavior(s), and additional notes.
- A total of 189 raptor observations were recorded during the survey period. Northern harrier was the most abundant species recorded at the Project Site, with 72 observations (38% of all raptor observations; many of these were of the same individuals). One other species—turkey vulture—was also abundant, with 71 observations (also 38% of all raptor observations).
- Adult male and female northern harriers were seen multiple times in the western portion of the Project Site, usually flying low over fields and along hedgerows, and to and from perch locations. Northern harriers were also observed foraging (three observations), carrying food (one observation), and flying to and from a possible nest site (two observations) during the survey season. Attachment 1, Figures 5 depicts the locations and flight paths of these state-listed threatened species observations. Attachment 2 provides a summary of state-listed species observations.
- One state-listed species of special concern, Cooper's hawk, was observed four times flying over the Project Site during the spring migration season.

Breeding Bird Surveys

- Breeding bird surveys were conducted once every two weeks between May 19, 2021 and July 15, 2021, for a total of four surveys. Surveys began at first light and continued until approximately 10:30 a.m. Three transects spanning 300 meters were identified within the Project Site. Point count surveys were conducted every 100 meters along each transect, for a total of 12 point count survey locations (see Attachment 1, Figure 3).
- Point count surveys were conducted by scanning the surrounding habitat and listening for bird vocalizations for five minutes at each location. Data recorded during surveys included the date, observer name, survey location (transect number and point count location ID), start and end time, summary of weather conditions (temperature, wind speed, precipitation/sky condition), the number and identification of each species observed, and behavioral observations (including any possible, probable, or confirmed breeding behaviors). The approximate distance from the observer was also recorded for each bird.
- A total of 353 individual birds representing 43 different species were recorded within 100 meters of the point count locations. Eastern towhee (*Pipilo erythrophthalmus*) was the most abundant species recorded at the Project Site, with 39 observations (11.05% of all observations). Other highly abundant species included common yellowthroat (*Geothlypis trichas*; 34 observations) and gray catbird (*Dumetella carolinensis*; 30 observations). Together, these three species accounted for 29.18% of all observations.
- No state-listed endangered, threatened, or special concern species were observed during the breeding season.

Conclusions

Overall, two state-listed threatened species were observed at the Project Site during avian surveys: bald eagle and northern harrier. The following state-listed species of special concern were also documented: red-shouldered hawk, Cooper's hawk, and osprey.

Bald eagle and northern harrier were only seen during the spring and fall migration survey periods. None of the bald eagle observations included breeding behaviors, and all of these observations were relatively brief flyovers. All bald eagles observed flew in direct paths over the Project Site at substantial heights, which suggests travel to off-site habitat areas rather than use of on-site areas.

Northern harriers were observed in October, November, and early December 2020, potentially suggesting the presence of occupied wintering habitat. However, the lack of observations during subsequent winter raptor surveys suggests that occupied wintering habitat may not be present. It is normal to observe this highly nomadic species traveling significant distances on the way to/from suitable wintering or breeding habitat areas. Northern harriers were observed in April and May 2021 exhibiting essential behaviors on multiple occasions (e.g., foraging, circling above/visiting a potential nest site, and carrying food) indicating that a nesting attempt may have been made in early May 2021 within or near the site.

Based on the results of the avian surveys conducted, northern harrier occupied breeding habitat appears to be present in some open areas located on/adjacent to the Project Site (particularly near the southwestern portion), and Project-related impacts to such habitat could potentially occur depending on the locations of proposed Project components.

Attachments: Attachment 1: Figures
Attachment 2: Summary of State-Listed Species Observations

Copies To: Brandon Smith (Borrego Solar Systems Inc.)
Dave Strong (Borrego Solar Systems Inc.)
Project File

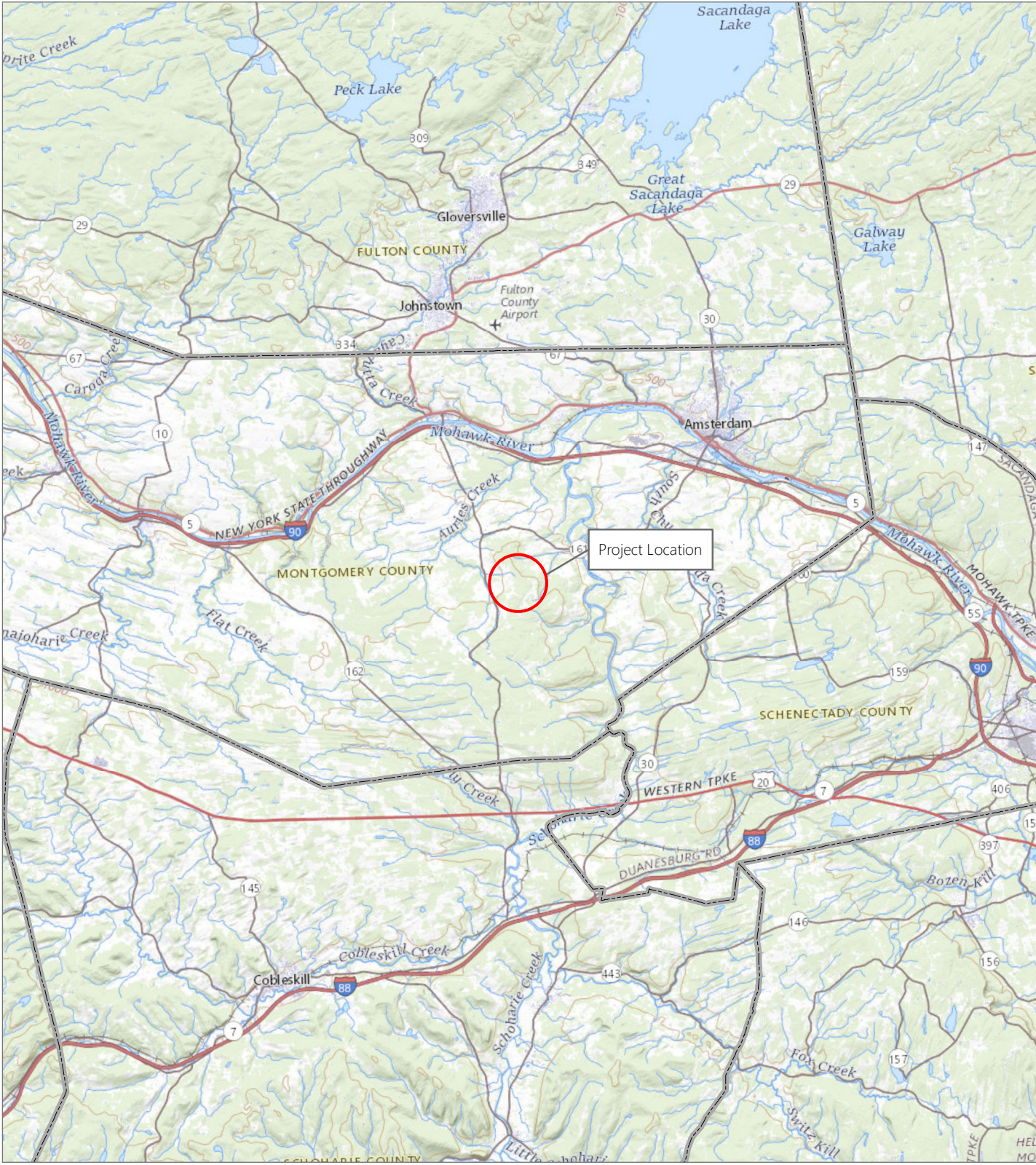
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ATTACHMENT 1

Figures

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Figure 1. Regional Project Location

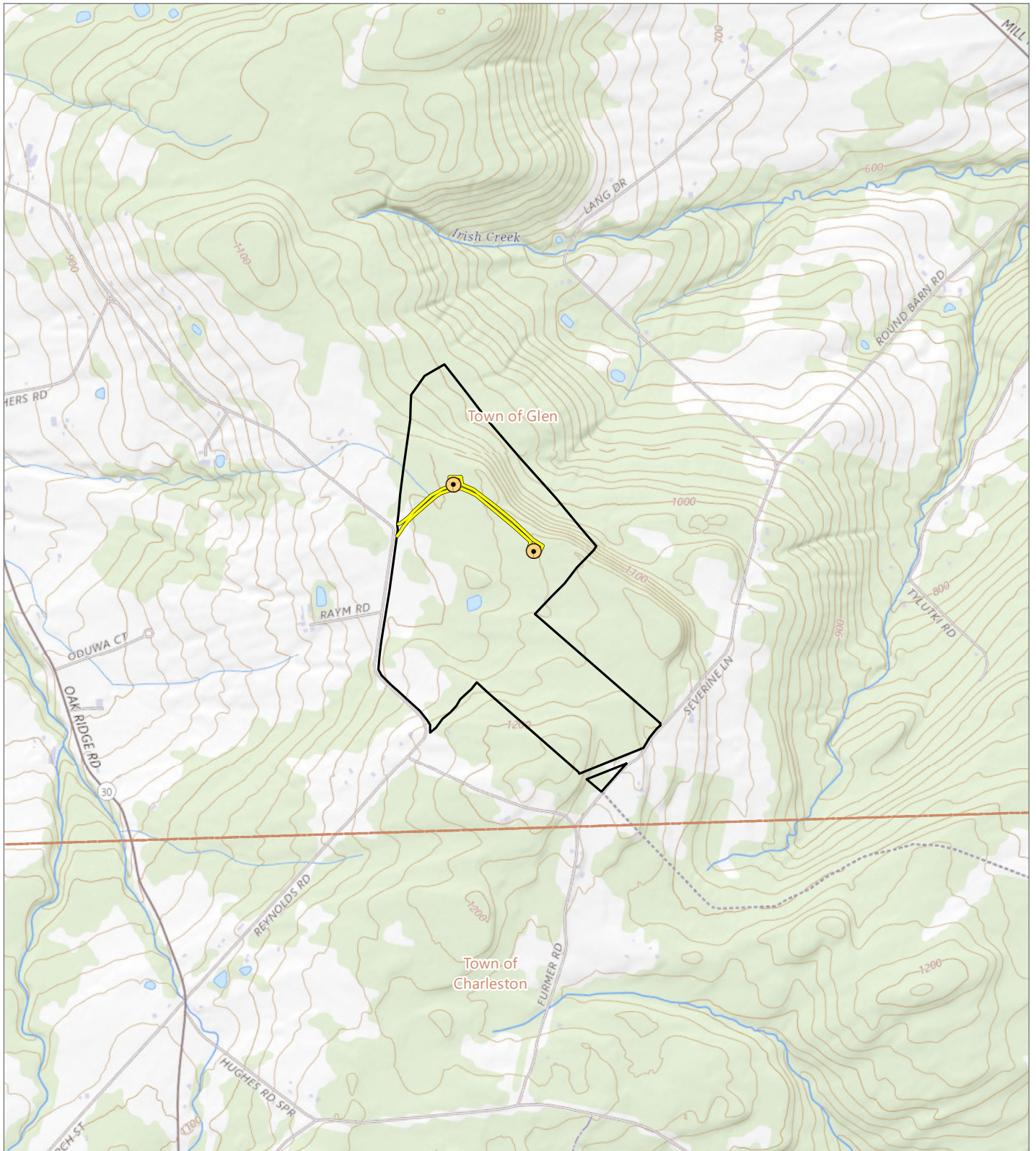


Glen Wind 1, LLC
Town of Glen,
Montgomery County, New York

Summary of Avian Field Surveys



Figure 2. Project Site



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Summary of Avian Field Surveys

-  Wind Turbine
-  Access Road
-  Project Site

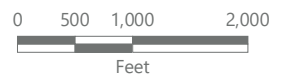
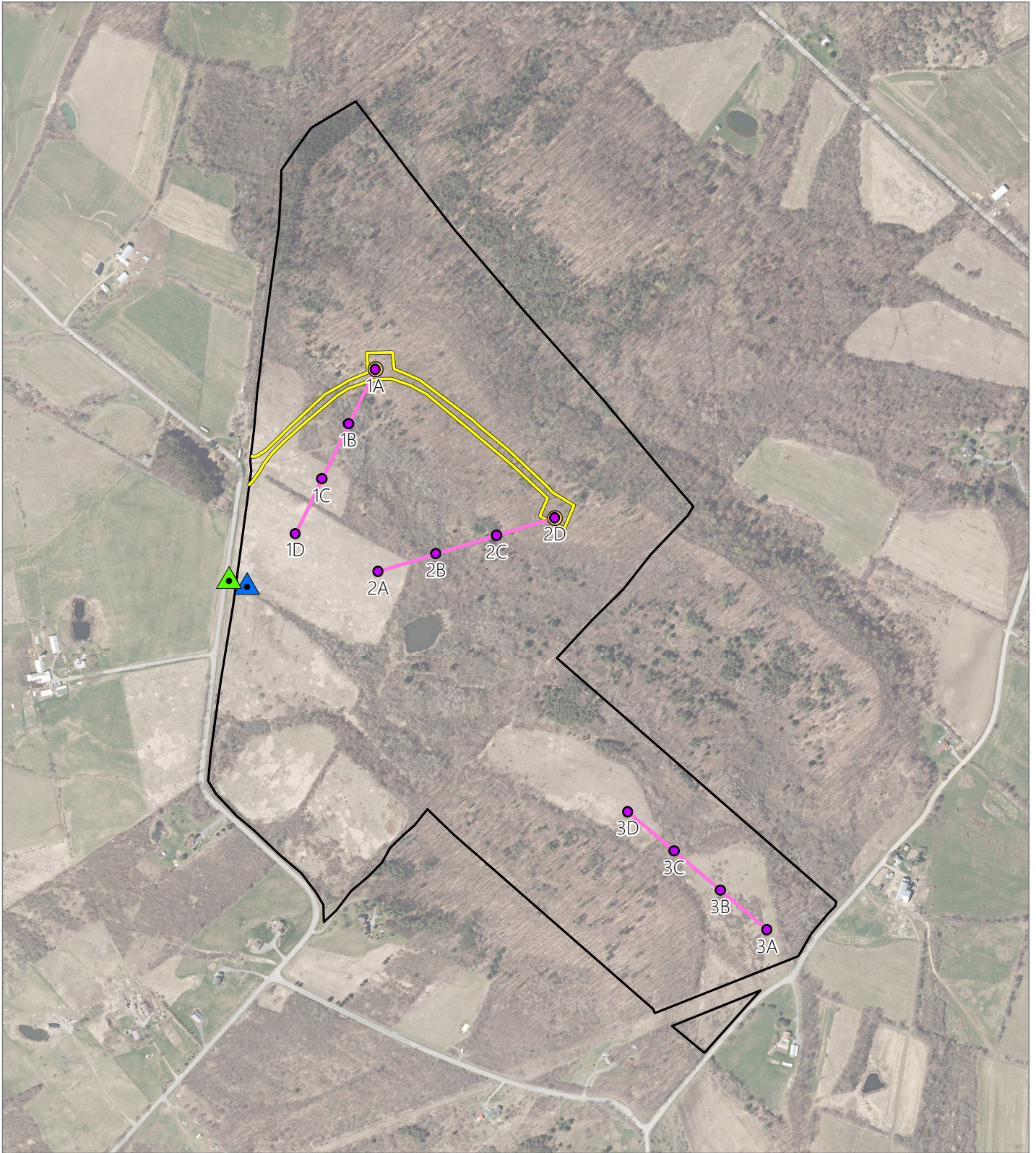


Figure 3. Survey Locations









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Town of Glen,
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Summary of Avian Field Surveys



-  Fall Raptor Survey Location
-  Spring Raptor Survey Location
-  Breeding Bird Point Count Location
-  Breeding Bird Survey Transect
-  Access Road
-  Project Site

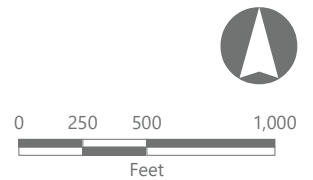
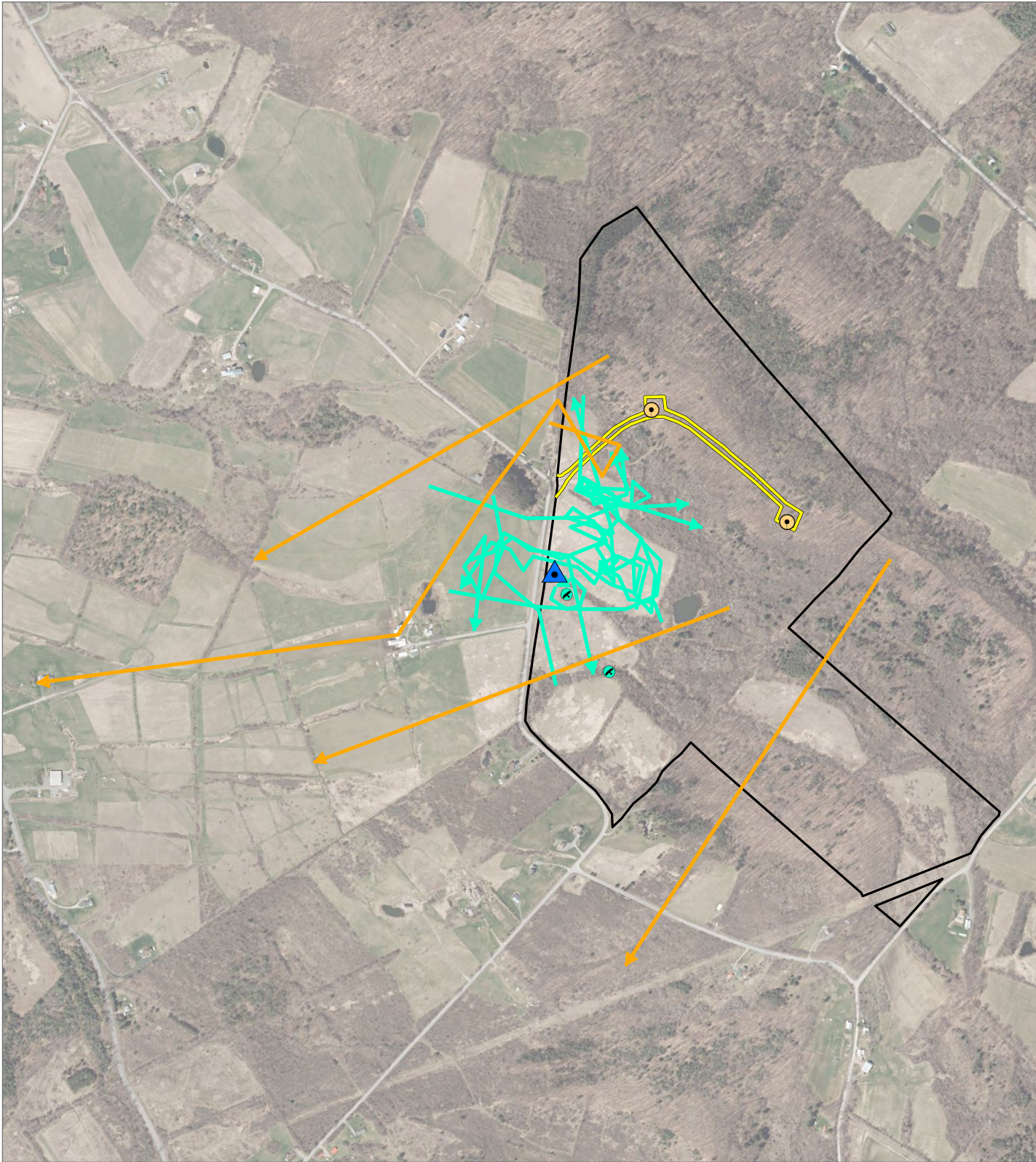








Figure 4. T&E Species Observations (Fall Raptor Migration Surveys)



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Summary of Avian Field Surveys

-  Fall Raptor Survey Location
-  Access Road
-  Northern Harrier Perch Location
-  Project Site
-  Bald Eagle Flight Path
-  Northern Harrier Flight Path

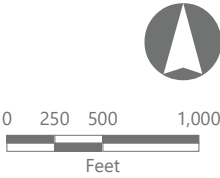
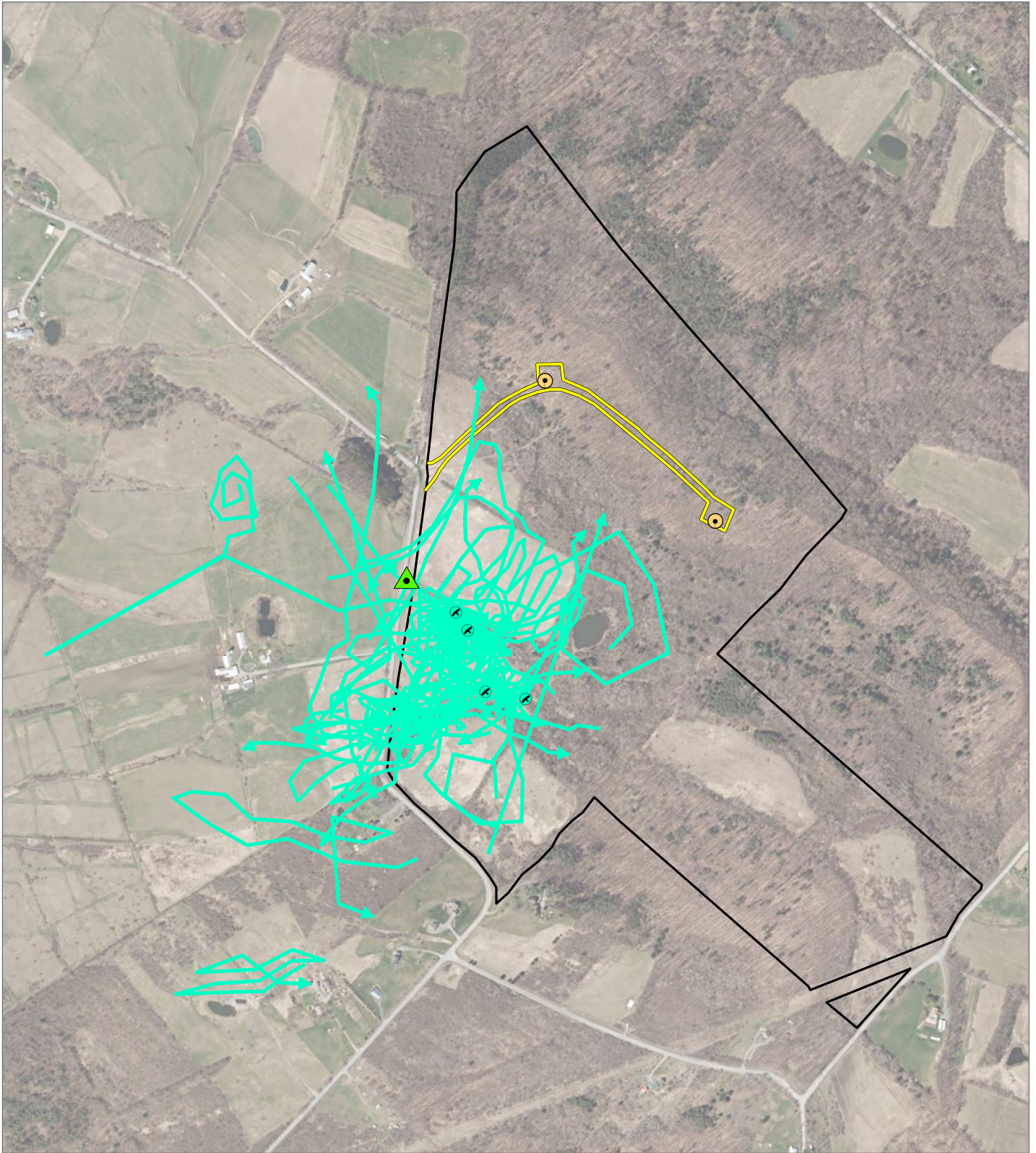







Figure 5. T&E Species Observations (Spring Raptor Migration Surveys)

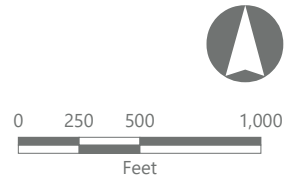


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Town of Glen,
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-  Spring Raptor Survey Location
-  Access Road
-  Northern Harrier Perch Location
-  Project Site
-  Northern Harrier Flight Path

Summary of Avian Field Surveys



ATTACHMENT 2

Summary of State-Listed Species Observations

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Summary of State-Listed Species Observations

Species Common Name	Species Scientific Name	Conservation Status ¹	Number of Observations	Date(s) Observed	Survey Type(s)	Sex/Age	Behavior(s)	Description
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Threatened	4	9/15/2020	Fall Raptor	Adult Male; Unknown Adult; Unknown Juvenile	Flying	Observed flying over the Project Site (and areas north and west of the Project Site), with flight heights ranging from approximately 150 to 400 feet above the ground.
Northern Harrier	<i>Circus hudsonius</i>	Threatened	74	10/1/2020 10/12/2020 10/29/2020 11/9/2020 11/24/2020 12/9/2020 4/7/2021 4/20/2021 5/7/2021 5/19/2021	Fall Raptor Spring Raptor	Adult Male; Adult Female; Unknown Adult; Unknown	Flying; Foraging; Perching	Observed during the spring and fall migration seasons flying over the Project Site, with flight heights ranging from approximately 5 to 100 feet above the ground, perching, foraging, flying to and from a potential nest site, and carrying food.
Red-shouldered Hawk	<i>Buteo lineatus</i>	Special Concern	2	10/12/2020	Fall Raptor	Unknown Adult; Unknown Juvenile	Flying	Observed flying over the Project Site, with flight heights ranging from approximately 150 to 200 feet above the ground.
Cooper's Hawk	<i>Accipiter cooperii</i>	Special Concern	4	9/15/2020 10/12/2020 4/7/2021	Fall Raptor Spring Raptor	Adult Male; Adult Female; Unknown	Flying; Hunting	Observed flying over the Project Site, with flight heights ranging from approximately 30 to 150 feet above the ground as well as flying low to the ground and hunting during the fall migration season.
Osprey	<i>Pandion haliaetus</i>	Special Concern	1	9/15/2020	Fall Raptor	Unknown	Flying	Observed flying over the Project Site at a height of approximately 300 feet.

¹ Highest conservation status based on the List of Endangered, Threatened and Special Concern Fish & Wildlife Species of New York State (<https://www.dec.ny.gov/animals/7494.html>).