Breeding Bird Survey Report

Agricola Wind Project

Towns of Venice and Scipio

Cayuga County, New York

Prepared for:

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ACRONYMS AND ABBREVIATIONS

BBS	Breeding Bird Survey
EDR	Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C.
IPaC	Information for Planning and Consultation
MW	megawatt
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
POI	point of interconnection
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

1.0 INTRODUCTION

1.1 Purpose of the Investigation

On behalf of Agricola Wind LLC (the Applicant), a wholly owned subsidiary of Liberty Renewables Inc., Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C. (EDR) prepared this Breeding Bird Survey Report for the Agricola Wind Project, a proposed wind energy generation facility and associated infrastructure (the Facility) located in Cayuga County, New York (**Figure 1**). This report supports an Application for a siting permit under New York's Accelerated Renewable Energy Growth and Community Benefit Act, Executive Law § 94-c (Section 94-c) regulations.[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 habitat[2] for one or more state listed threatened or endangered avian species exists within the area under consideration to host the Facility components in accordance with the requirements of Section 94-c.

The purpose of this study was to document the presence, abundance, and use patterns of breeding grassland and other bird species within a defined Breeding Bird Survey (BBS) Study Area. The BBS Study Area consisted of parcels, or portions of parcels, which have been under consideration by the Applicant for the siting of Facility components (**Figure 2**). Trained, qualified biologists conducted the 2023 breeding bird surveys following the methodology established in the NYSDEC 2022 *Survey Protocol for State-listed Breeding Grassland Bird Species* (NYSDEC 2022 Survey Protocol; NYSDEC, 2022). The scope of these surveys was defined in a Breeding Bird Survey Work Plan (EDR, 2023a), which was submitted to ORES and the NYSDEC in April 2023. Based on recommendations provided by ORES and NYSDEC staff following submittal of the Breeding Bird Survey Work Plan and additional on-site review, EDR added five survey locations to improve coverage of the BBS Study Area. In addition, a total of 10 point count locations (and associated parcels) were removed from the breeding bird study. Surveys also began in early May **BEGIN CONFIDENTIAL INFORMATION<** [redacted] **>END CONFIDENTIAL INFORMATION**

[1] Chapter XVIII, Title 19 of the New York Codes, Rules and Regulations (19 NYCRR) Part 900. Available at: https://ores.ny.gov/regulations

[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.

1.2 Facility Location and Description

The proposed Facility is a utility-scale wind energy generating project located in Cayuga County, New York with a generating capacity of up to 99 megawatts (MW). The Facility will include up to 24 wind turbines. Associated support facilities will include an underground medium voltage collection system, gravel access roads, a permanent meteorological (MET) tower, an aircraft detection lighting system (ADLS) tower, temporary construction laydown areas, a temporary concrete batch plant, an operations and maintenance (O&M) facility, a medium voltage-to-transmission voltage collection substation, a point of interconnection (POI) switchyard, and a short 115-kilovolt (kV) transmission line that will connect the Facility to the high voltage electrical grid. The Facility will be constructed within an approximately 4,000-acre area (the Facility Site) that corresponds closely with the BBS 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 that are used for hay and/or row crop production) to minimize the need for vegetation removal within natural communities.

2.0 BACKGROUND INFORMATION

2.1 Existing Conditions

The Applicant has gathered a substantial amount of information on existing ecological conditions within the BBS Study Area. These investigations have included preparation of a Wildlife Site Characterization for the Facility (EDR, 2021; EDR, 2023b), plus additional desktop analyses and on-site field assessments (e.g., spring raptor migration surveys, fall raptor migration surveys, initial breeding bird surveys conducted in 2022). 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. On-site crop cover types for the past five years (2019-2023) are presented in **Appendix A**.

2.2 Agency Database Review and Consultation

As part of preparing a Wildlife Site Characterization Report 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 (USFWS) 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 NYSDEC. EDR performed a review of the IPaC system for the Facility on March 4, 2021, and again on August 1, 2023 **BEGIN CONFIDENTIAL INFORMATION<** [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] **>END CONFIDENTIAL INFORMATION**

In a pre-application consultation letter provided on January 8, 2024, ORES noted that the Facility is located approximately **BEGIN CONFIDENTIAL INFORMATION<** [redacted] **>END CONFIDENTIAL INFORMATION** ORES and NYSDEC recommended conducting on-site avian field surveys, with a focus on open fields greater than 25 acres in size. These open areas may represent suitable habitat for grassland bird species (state listed and others).

3.0 2023 BREEDING BIRD SURVEYS

3.1 Survey Period and Frequency

EDR biologists conducted breeding bird surveys between early May and mid-July 2023, which corresponds with the typical breeding period for most avian species that may be present in New York State (and the optimal window for surveys for state listed grassland bird species), as well as the early portion of the breeding season when some state listed grassland bird species **BEGIN CONFIDENTIAL INFORMATION<** [redacted] **>END CONFIDENTIAL INFORMATION** may be present. Surveys began on May 2, 2023, and were performed one or more days per week until July 21, 2023. Survey locations were visited in a varying order each week so that each individual survey location was surveyed at different times of the day throughout the breeding season.

3.2 Survey Methodology

As described in the Breeding Bird Survey Work Plan (EDR, 2023a), the primary method for surveying breeding birds consisted of five-minute morning point count surveys that were conducted within on-site open habitats. A total of 74 point count locations were designated within the BBS Study Area (**Figure 3**). Point count locations were systematically located to provide coverage of open habitats (e.g., hayfields, pastureland, row cropland, fallow fields) throughout the BBS Study Area. These 74 point count locations were spaced approximately 250 meters apart to minimize the potential for overlapping detections while maintaining adequate coverage in accordance with the NYSDEC 2022 Survey Protocol. In addition to point count surveys, biologists also conducted qualitative meander surveys while walking to, from, and among point count locations.

Point count surveys were conducted one or more days per week between first light (one half hour before sunrise) and approximately 10:30 a.m. as weather conditions permitted. To the greatest extent practicable, surveys were conducted in conditions that were conducive to: (1) hearing bird vocalizations; and (2) seeing birds move about in vegetation and in flight. Surveys were not conducted in conditions that could significantly reduce detectability, such as high winds, steady/heavy precipitation, fog, or extreme temperatures. Survey locations were visited in a different order each week to minimize sampling bias, as detectability of some species can vary at different times of day. As the season progressed, increased crop heights restricted access and/or visibility for some locations. In these instances, point count surveys were conducted from alternate locations near field edges, and the use of alternate locations was noted on the survey data sheets. Alternate locations were also used when access was restricted due to the presence of livestock within fenced pasture areas. Alternate locations were selected to provide visual and auditory coverage of the same open field areas. Alternate point count locations located more than 100 meters from the original point due to access constraints were not included in the data analysis.

Surveys were conducted by qualified biologists with experience and training in both acoustic and visual identification of birds in New York State. Upon arriving at each point count location, biologists waited silently for at least two minutes before beginning the timed five-minute survey (to allow birds to habituate to the presence of the observer). During surveys, biologists 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 species of greatest conservation need (SGCN) (NYSDEC, 2015a; NYSDEC, 2015b; NYSDEC, 2015c). Standardized four-letter alpha codes were used for each avian species (Pyle and DeSante, 2022). Behavior and breeding codes were developed based on those used for the New York Breeding Bird Atlas III, and the activity or behavior observed that was most indicative of breeding was documented for each individual bird (eBird, 2020a). 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 and number of each individual bird observed.
- Distance of each identified bird from the observer (recorded as less than 100 meters or greater than 100 meters).
- Detailed locations for all state listed threatened or endangered species and SSC observed.
- Observed activities, behaviors, and signs of breeding (if any) for each individual bird.

3.3 Data Analysis

Avian Use, Abundance, Composition, and Frequency

In order to avoid duplicate records of the same individuals between point count locations, only observations recorded within 100 meters of the point count locations were used to calculate avian use, composition, and frequency for each species. Avian use for each species was determined by dividing the total number of observations recorded within 100 meters of point count locations by the total number of surveys conducted. 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. Composition for each species was calculated as the percentage of species-specific observations divided by the number of total observations (of all species). Frequency for each species was calculated as the percentage of surveys during which the species was recorded.

Species Richness and Spatial Avian Use

Data analysis included a review of the variability in mean species richness (per survey), total species richness, and spatial avian use across the BBS Study Area. Mean species richness at each point count location was determined for each survey location by calculating the mean number of species recorded at each survey location per survey. Total species richness was determined by calculating the total number of species recorded over the course of the breeding season at each point count location. Spatial avian use was calculated by dividing the total number of observations recorded (for all species) by the total number of surveys conducted.

Incidental Observations

During point count surveys, birds detected at distances beyond 100 meters were recorded, but were not included in the calculation of the metrics described previously. Incidental observations (i.e., birds observed before, after, and between point count surveys) were also documented for all special status species (i.e., state listed endangered, threatened, SSC, and/or SGCN) detected. Incidental observations also included other avian species that were observed independent of the point count surveys.

Essential Behaviors

For state listed endangered or threatened species that were documented, 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.

3.4 Survey Results

EDR biologists conducted surveys at least one day per week between May 2 and July 21, 2023. In total, morning point count surveys were completed on 35 different days and included a total of 701 breeding bird point count surveys and 3,505 survey-minutes. Up to 11 surveys were completed at point count locations by the end of the survey period, and the majority of point count locations were surveyed eight or nine times throughout the survey period. The NYSDEC Survey Protocol recommends at least eight surveys per point count location. The overall survey effort, including travel among point count locations, totaled more than 11,853 survey-minutes (more than 197 survey-hours). Completed survey information is provided in **Appendix B, Table 1**.

A total of 2,395 birds representing 62 different species were recorded within 100 meters of point count locations during breeding bird surveys. The red-winged blackbird (*Agelaius phoeniceus*) was the most abundant species recorded, with 782 observations, which accounted for 32.65% of all observations within 100 meters of point count locations. Other abundant species included the savannah sparrow (*Passerculus sandwichensis*; 275 observations), song sparrow (*Melospiza melodia*; 217 observations), and barn swallow (*Hirundo rustica*; 155 observations). Together, these three species accounted for 27.01% of all observations within 100 meters of point count locations. The red-winged blackbird was also the most frequently observed species (30.66% of surveys). The savannah sparrow was the second-most frequently observed species (26.71% of surveys). **Appendix B, Table 2** provides a summary of abundance (total number of species observed), composition (percent of species observations/total observations), use (specific species observations/total number of surveys), and frequency (percentage of surveys during which the species was recorded) for each species observed.

Spatially, point count location 16 had the highest mean species richness at 13.25 species per survey, followed by point count locations 19 (13.00 species per survey) and 62 (12.60 species per survey). Point count locations 34 (6.6 species per survey), 9 (7.10 species per survey), 43 (7.33 species per survey), and 6 (7.44 species per survey) had the lowest mean species richness. Point count location 62 had the highest total species richness, with 43 species recorded over the course of the season. Point count locations 69 and 34 had the lowest total species richness, with a total of 19 and 21 species recorded over the course of the season, respectively. The highest avian use was recorded at point count location 65, with an average of approximately 40.10 birds recorded per survey. **Appendix B, Table 3** provides a summary of abundance (total observations), avian use, total species richness, and mean species richness (per survey) for each point count location.

In addition to bird observation data, habitat data were collected during each survey, and included observations of plant species, vegetation percent cover, vegetation height, litter depth (if any), and human activities or other factors that would be likely to alter avian behavior. The dominant cover types at survey locations included field cropland (in the form of alfalfa and hay fields) and row cropland (in the form of corn and soybean fields). In some cases, on-site hayfields were mowed/harvested during the survey period. Another cover type present included forested edges adjacent to agricultural land. Habitat information and vegetative measurements, including representative photographs, are provided on the survey data sheets in **Appendix C**.

A total of 36 additional species were observed over 100 meters from point count locations, and therefore were not included in the data analysis (although these observations are included in **Appendix B, Table 2** and **Appendix D**). A total of 42 species were recorded incidentally outside of the timed point count surveys (e.g., during the silent acclimatization period, while walking between point count locations). One species, the great horned owl (*Bubo virginianus*), was observed only outside of timed point count surveys. Incidental species observed during each survey are noted on the survey data sheets in **Appendix C**.

Nine species were confirmed as breeding within or in the vicinity of the BBS Study Area based on behavioral observations made during the 2023 surveys. **BEGIN CONFIDENTIAL INFORMATION**<[redacted]>**END CONFIDENTIAL INFORMATION** Adult and fledgling red-tailed hawks (*Buteo jamaicensis*) were observed occupying a nest near point count location 62, and a fledgling was seen south of point count location 44. Red-winged blackbirds were observed carrying food (point count locations 17, 67, and 68) and building a nest (point count locations 39). Fledgling red-winged blackbirds were also recorded near point count location 67. Savannah sparrows were observed carrying nesting materials (point count locations 29) and occupying a nest near point count location 59. Song sparrows were observed carrying food (point count location 4) and nesting materials (point count location 63). A brown-headed cowbird (*Molothrus ater*; point count location 26), a bobolink (*Dolichonyx oryzivorus*; point count location 63), three common grackles (*Quiscalus quiscula*; point count locations 26, 28, and 42), and a gray catbird (*Dumetella carolinensis*; point count location 48) were observed carrying food. In addition, as noted in **Appendix D**, many other species exhibited behaviors consistent with possible or probable breeding within the BBS Study Area, including singing birds, pairs in suitable breeding habitat, males chasing females, courtship displays, territorial defenses, and/or agitated behavior (refer to eBird, 2020a for details pertaining to breeding codes and definitions).

3.4.1 State Listed Species

BEGIN CONFIDENTIAL INFORMATION<[redacted]>**END CONFIDENTIAL INFORMATION** Additional information pertaining to state listed species observations is provided in the following sections, and in **Table 4** (**Appendix B**).

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3.4.2 Other Special Status Species

Species for which conservation actions are needed within the next 10 years in order to maintain or increase populations are designated by the NYSDEC as high priority species of greatest conservation need (SGCN-HP; NYSDEC, 2015c).[3] Three species listed as SGCN-HP were recorded during the survey period, including the bobolink, brown thrasher (*Toxostoma rufum*), and eastern meadowlark (*Sturnella magna*). Bobolinks were observed 251 times throughout the BBS Study Area, mostly within open fields. Observed behaviors included courtship, agitated behavior, carrying food, territorial defense, and, most commonly, singing. Pairs were also observed in suitable habitat. Brown thrashers were observed 20 times throughout the BBS Study Area, most commonly singing from wooded areas located near point count locations. Eastern meadowlark observations were mainly concentrated in the southern portion of the BBS Study Area, and most individuals were heard singing in appropriate habitat.

Species of conservation concern in New York State are listed by the NYSDEC as SGCN.[5] These species are in need conservation actions to maintain or increase population levels (NYSDEC, 2015c). A total of four species listed as SGCN were observed during the survey period, including the American kestrel (*Falco sparverius*), black-billed cuckoo (*Coccyzus erythropthalmus*), scarlet tanager (*Piranga olivacea*), and wood thrush (*Hylocichla mustelina*). American kestrel observations were primarily concentrated in the

[3] Some endangered, threatened, and special concern species are also listed as SGCN-HP or SGCN; these species are described in other sections of this report.

southwestern portion of the BBS Study Area, within the field containing point count location 55.2. Four black-billed cuckoo observations were recorded near point count locations 55, 61, 65, and 66. Scarlet tanager and wood thrush observations included singing birds located in wooded areas near survey locations.

4.0 SUMMARY AND CONCLUSIONS

EDR biologists conducted breeding bird surveys at 74 point count locations within the BBS Study Area between May 2 and July 21, 2023. A total of 701 point count surveys were conducted over a period of 12 weeks, and each point count location was surveyed between eight and 11 times during the breeding season. Overall, a total of 2,395 birds of 62 different species were recorded within 100 meters of point count locations. A total of 42 species were recorded before or after timed point count surveys, or during meander surveys that were conducted when traveling between/among point count locations; of these, one species was recorded only outside of timed point count surveys.

BEGIN CONFIDENTIAL INFORMATION< [redacted] **>END CONFIDENTIAL INFORMATION** No occupied breeding habitat for other state listed endangered or threatened species appears to be present within the BBS Study Area. Publicly available data (as summarized in the Wildlife Site Characterization; EDR, 2023b), the data collected during the 2023 breeding bird study, and other avian study data collected for the Facility will allow the Applicant to evaluate potential Facility-related impacts to state listed breeding birds and identify possible avoidance, minimization, and mitigation measures in the Facility's Section 94-c Siting Permit Application.

5.0 REFERENCES

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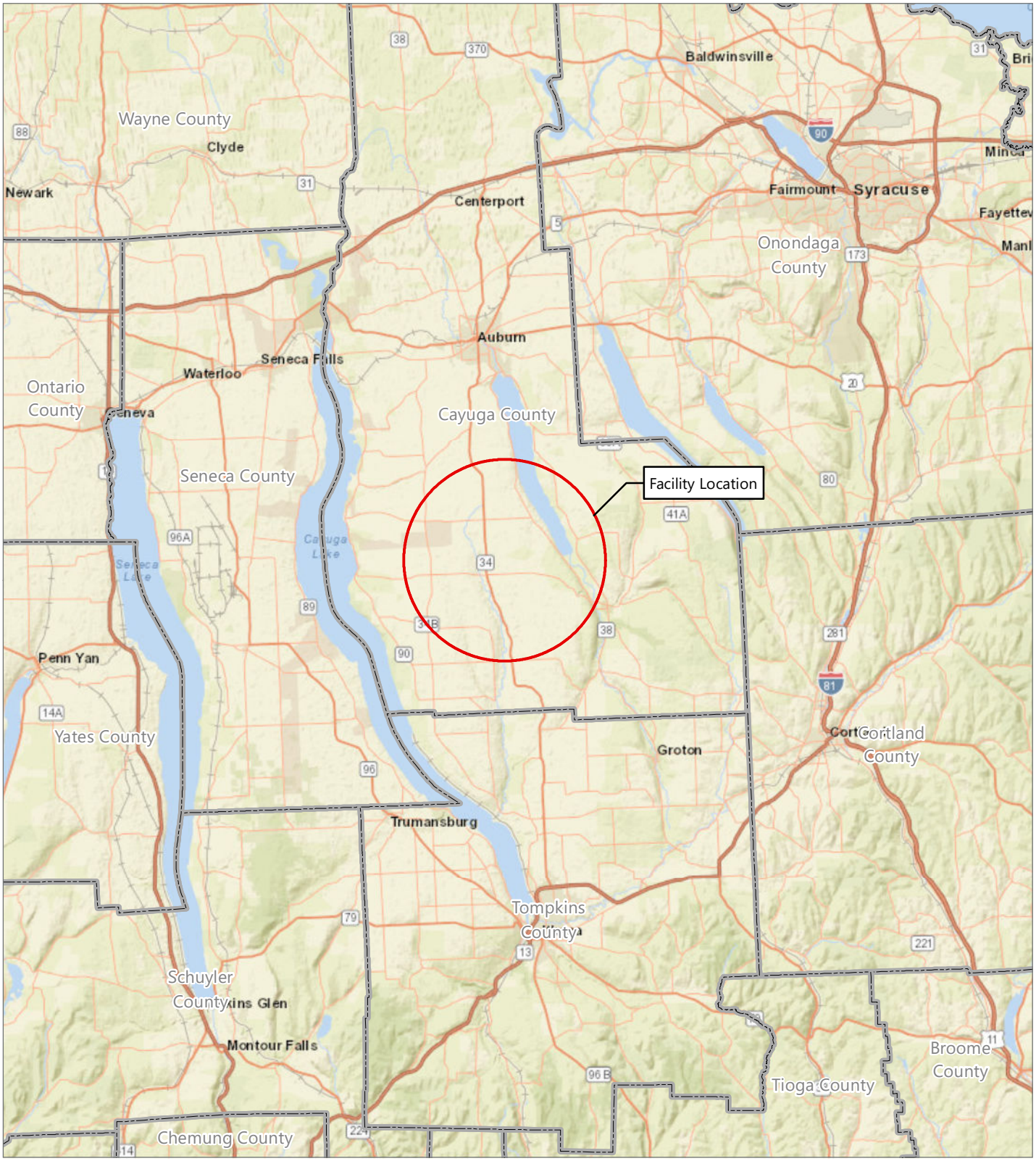
FIGURES

Figure 1. Regional Facility Location



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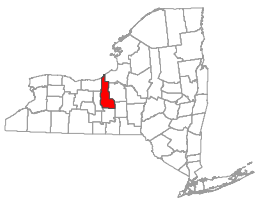
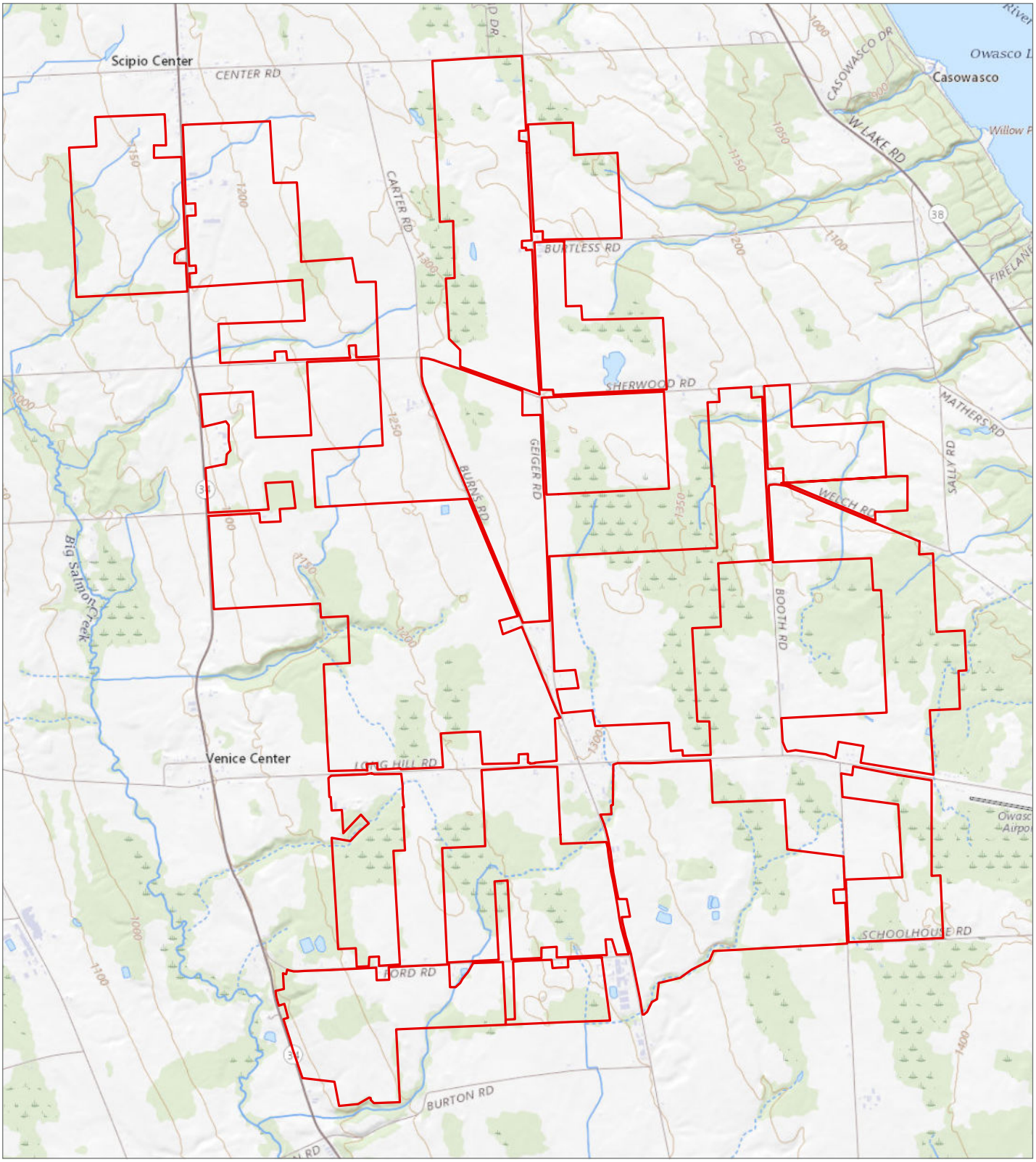


0 2.5 5 10
Miles

Prepared August 24, 2023
Basemap: Esri "World Street Map" map service

Figure 2. Breeding Bird Survey (BBS) Study Area



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BBS Study Area

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Miles

Figure 3. Survey Locations

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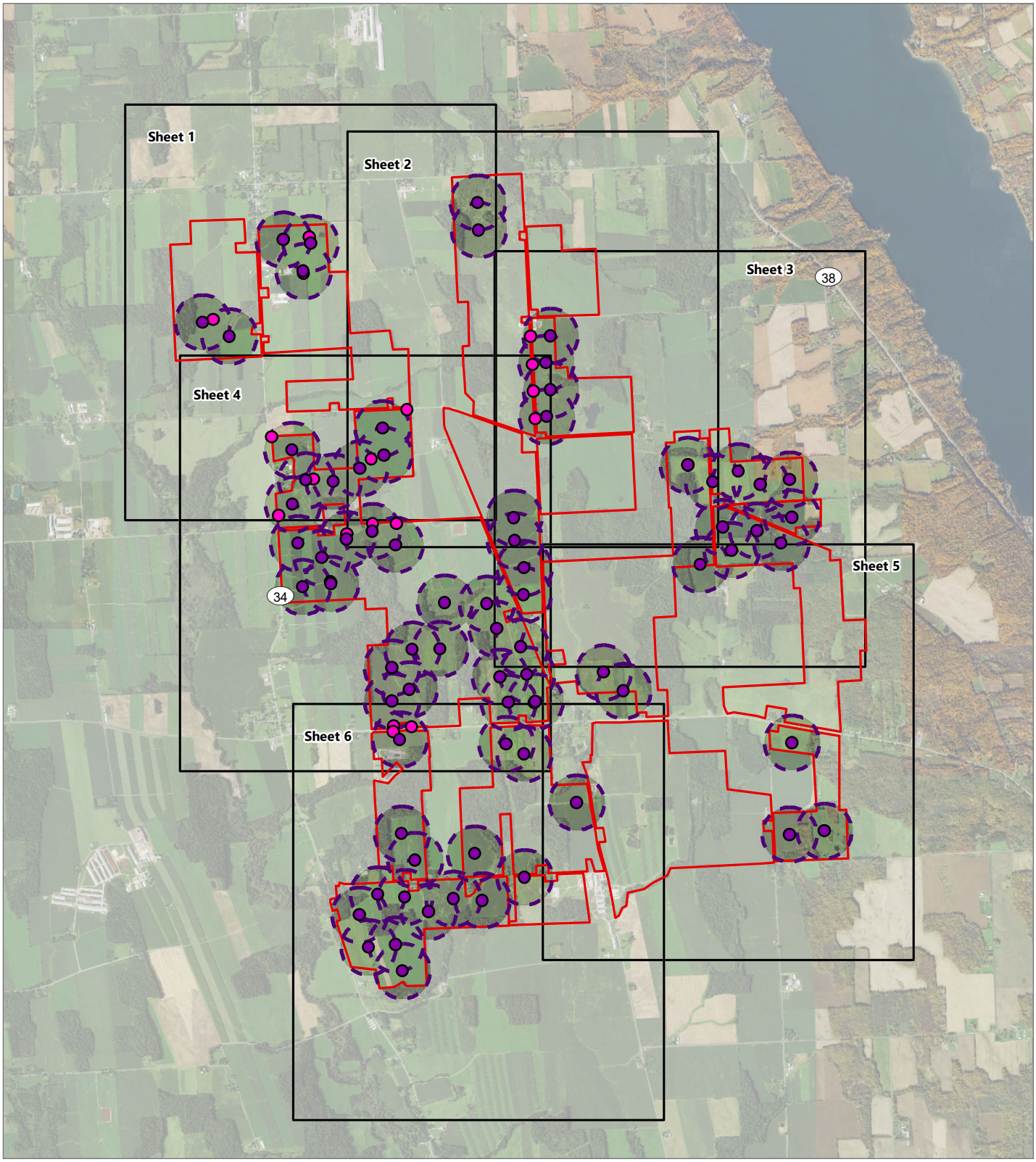

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Breeding Bird Survey Report (2023)

- Point Count Location
- Alternate Point Count Location
- Area within 250 meters of Point Count Location
- BBS Study Area

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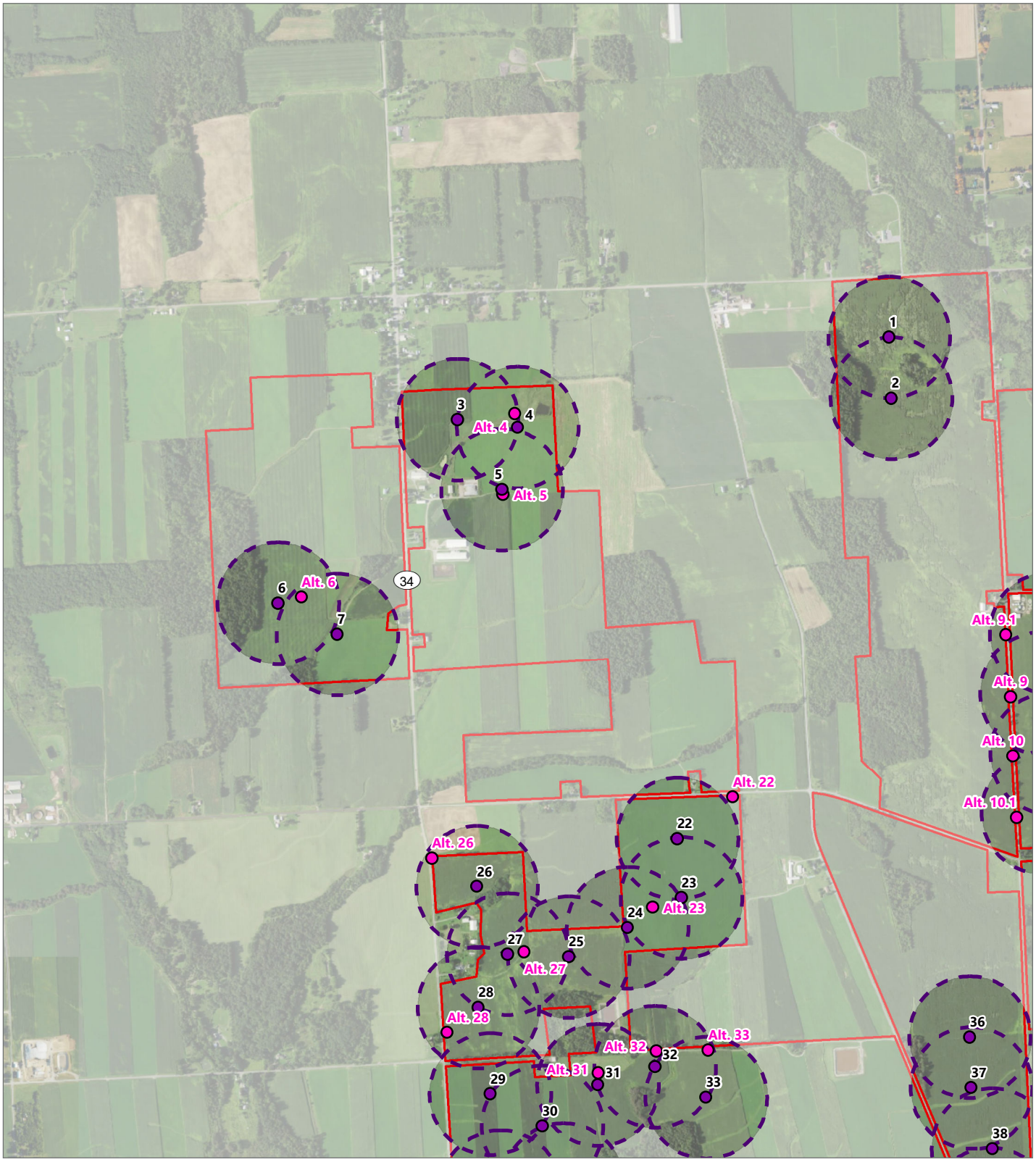
Miles

Prepared November 14, 2023
Basemap: USDA NAIP "2022 New York 60cm" orthoimagery map service

EDR

Figure 3. Survey Locations



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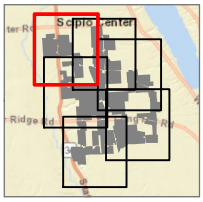

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Feet

Prepared November 14, 2023
Basemap: USDA NAIP "2022 New York 60cm" orthoimagery map service

EDR

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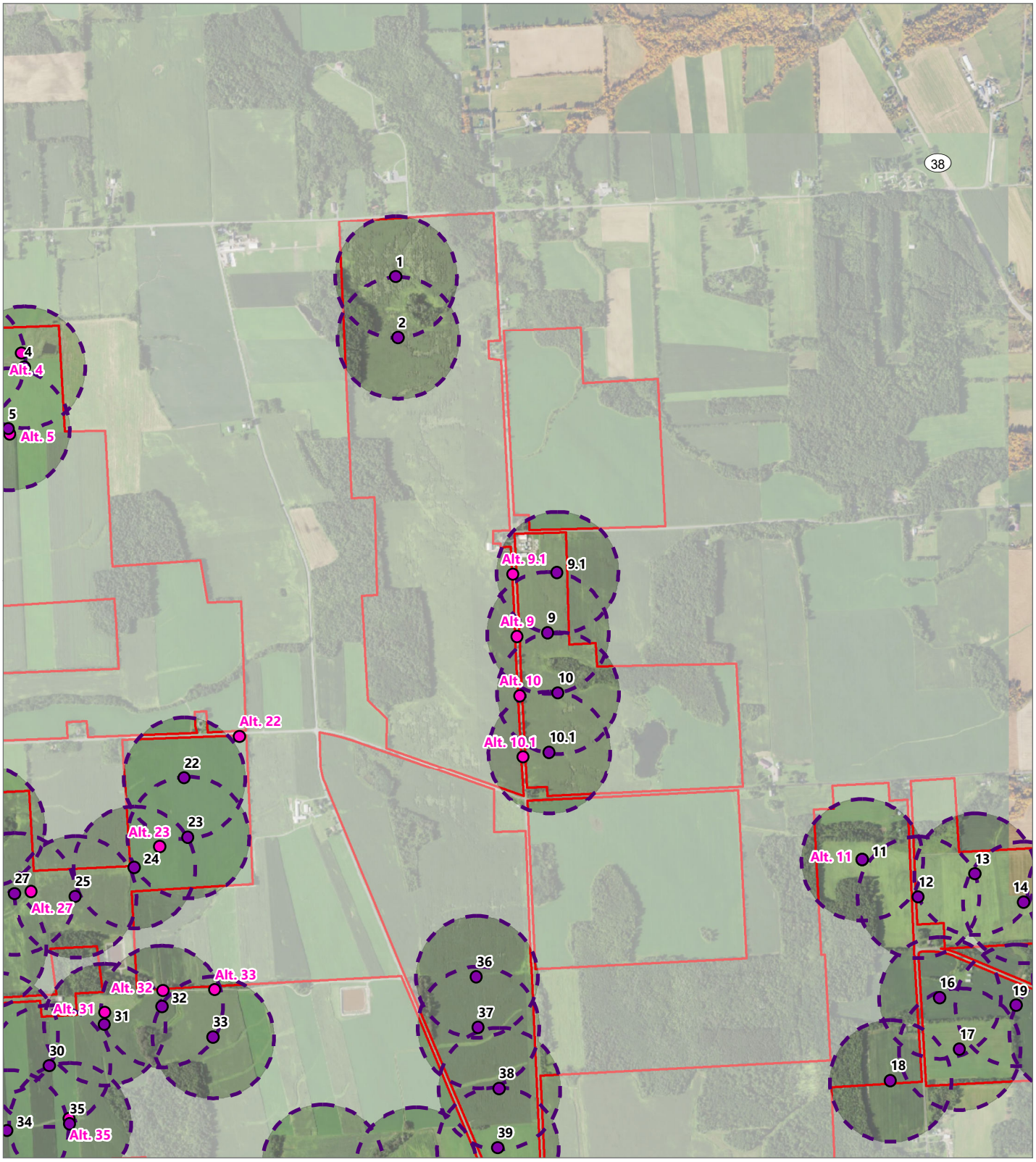

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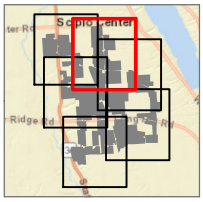

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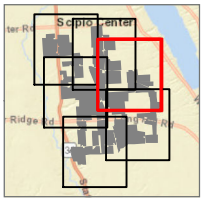

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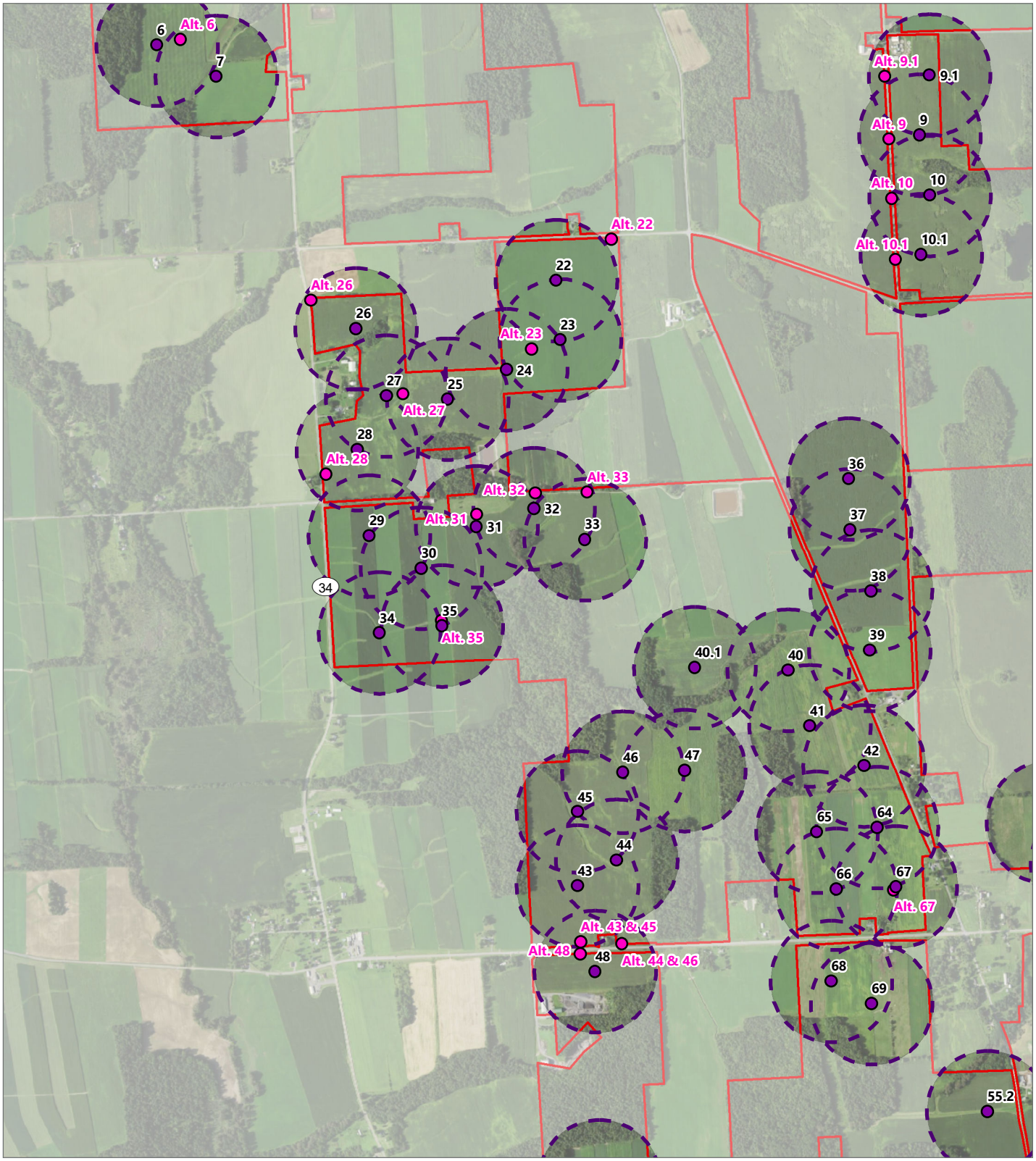

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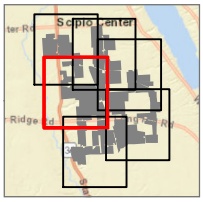
- Area within 250 meters of Point Count Location
- BBS Study Area



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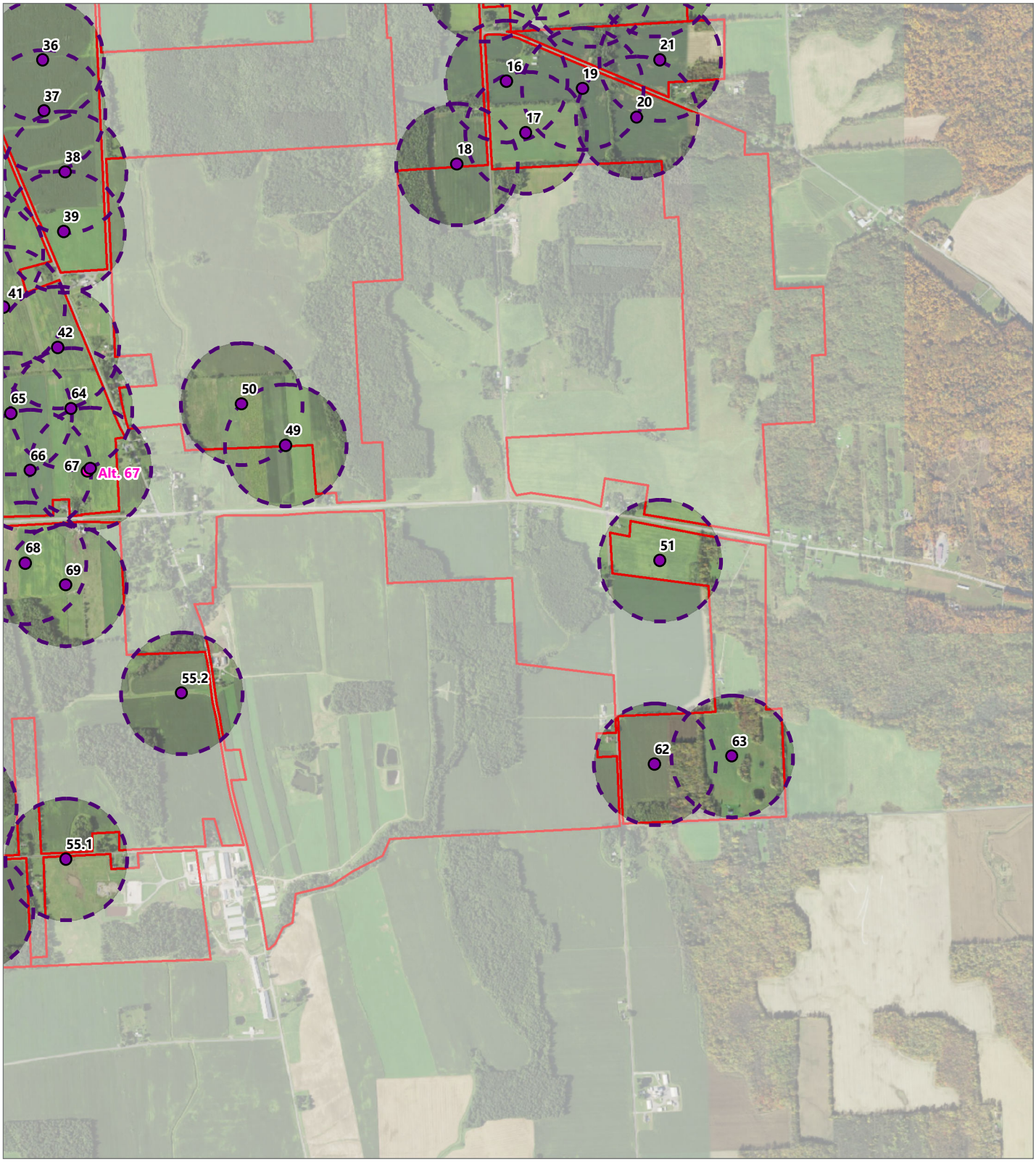
Feet

Prepared November 14, 2023
Basemap: USDA NAIP "2022 New York 60cm" orthoimagery map service

EDR

Figure 3. Survey Locations

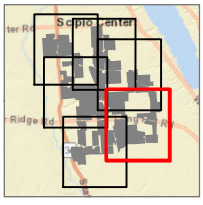


Agricola Wind Project

Towns of Venice and Scipio,
Cayuga County, New York

Breeding Bird Survey Report (2023)

- Point Count Location
- Alternate Point Count Location
- Area within 250 meters of Point Count Location
- BBS Study Area



0 500 1,000 2,000
Feet

Prepared November 14, 2023
Basemap: USDA NAIP "2022 New York 60cm" orthoimagery map service

EDR

Figure 3. Survey Locations

Agricola Wind Project

Towns of Venice and Scipio,
Cayuga County, New York

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- Point Count Location
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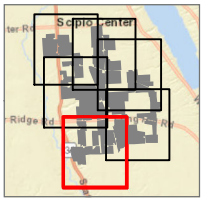

0 500 1,000 2,000
Feet

Prepared November 14, 2023
Basemap: USDA NAIP "2022 New York 60cm" orthoimagery map service

This figure has been redacted from this publicly available document because it contains protected/confidential information regarding species listed as endangered, threatened, or special concern in New York.

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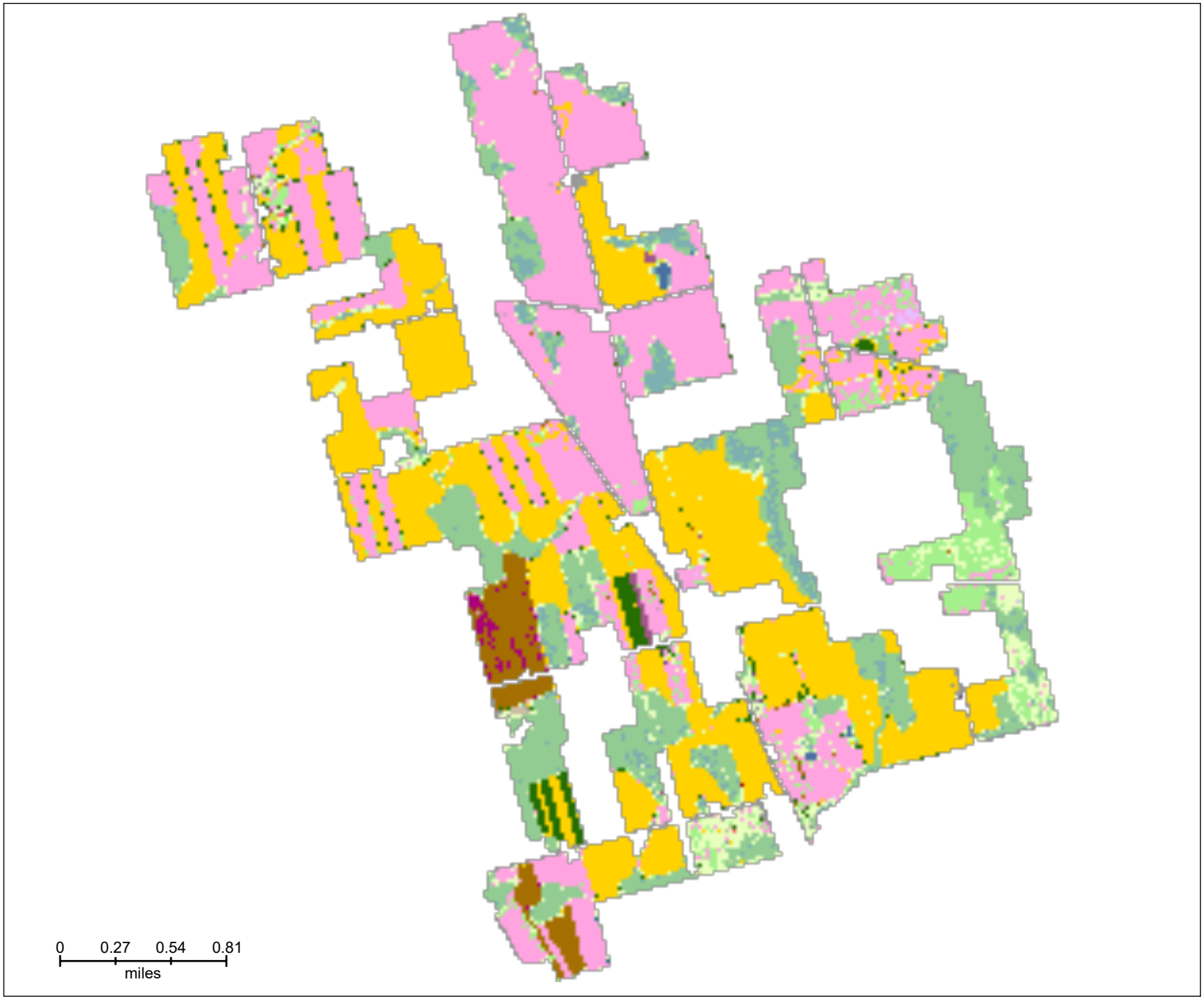
APPENDIX A

Crop Cover Types within the Facility Site

REDACTED – Permit Application No. 23-00064

2023



Land Cover Categories

(by decreasing acreage)

AGRICULTURE*

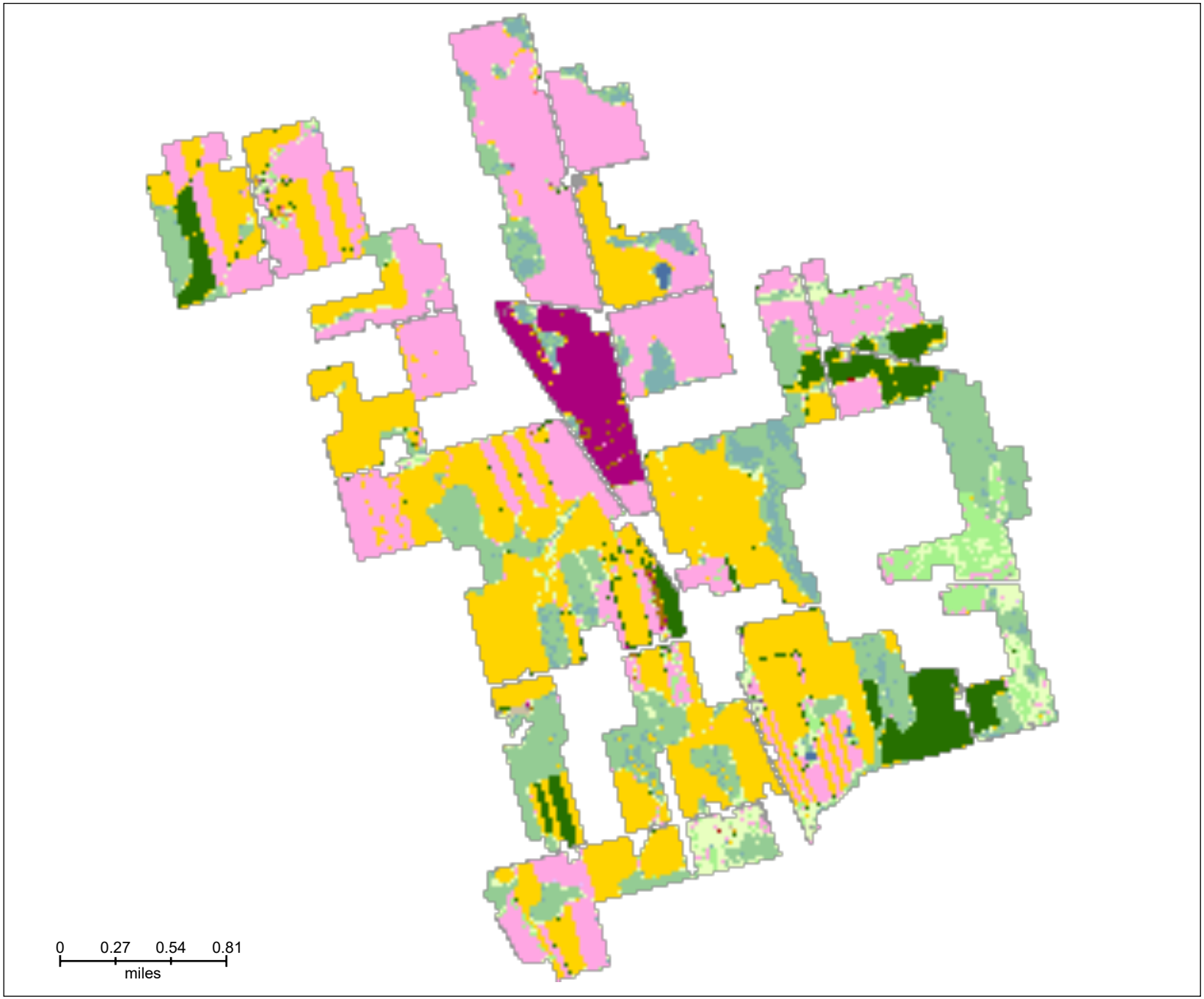
- Alfalfa
- Corn
- Grass/Pasture
- Other Hay/Non Alfalfa
- Winter Wheat
- Soybeans
- Rye
- Oats
- Clover/Wildflowers
- Triticale
- Fallow/Idle Cropland
- Dbl Crop Triticale/Corn
- Grapes
- Squash
- Christmas Trees
- Sweet Corn

NON-AGRICULTURE**

- Deciduous Forest
- Woody Wetlands
- Developed/Open Space
- Developed/Low Intensity
- Mixed Forest
- Developed/Medium Intensity

REDACTED - Permit Application No. 23-00064

2022



Land Cover Categories

(by decreasing acreage)

AGRICULTURE*

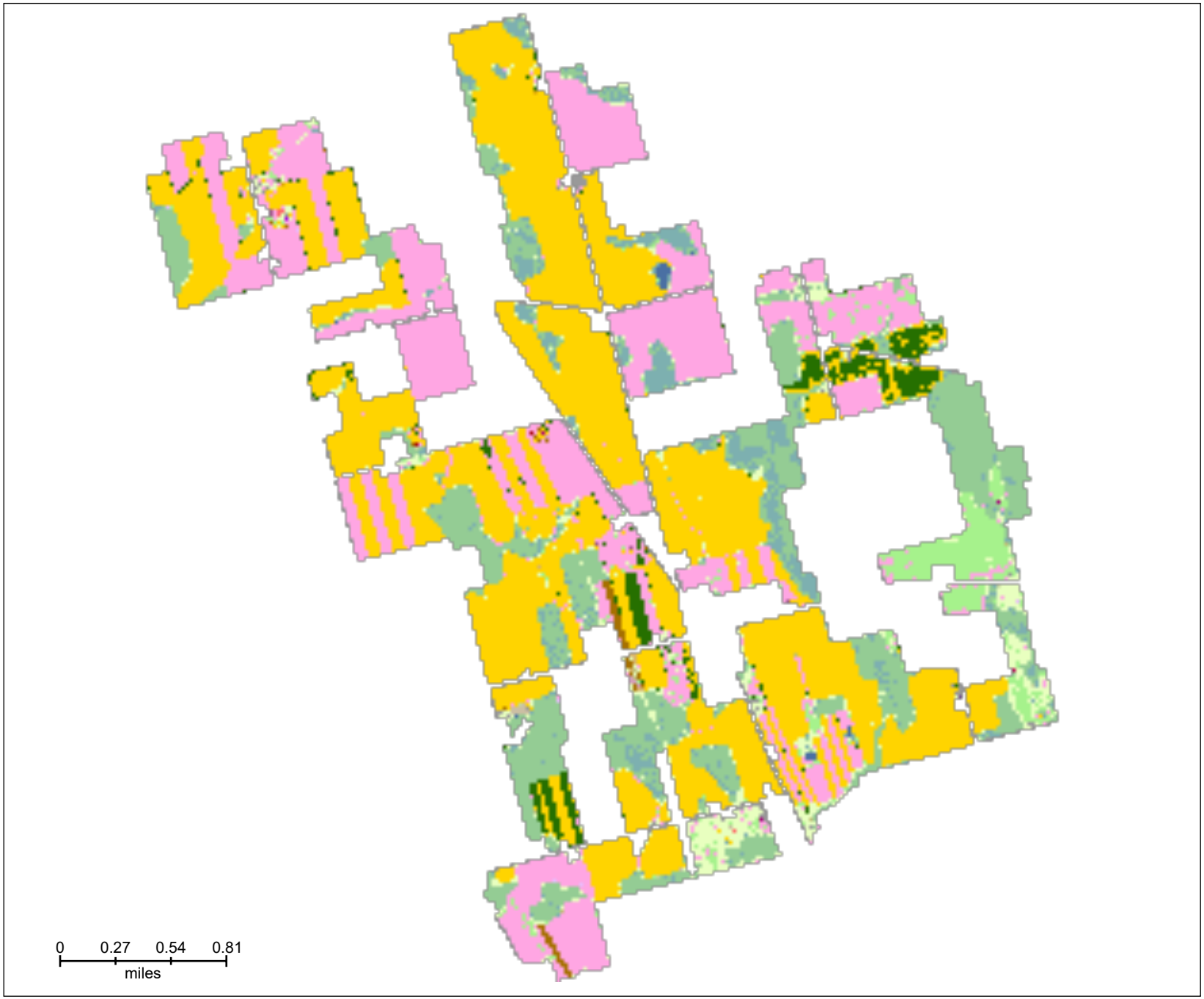
- Corn
- Alfalfa
- Soybeans
- Grass/Pasture
- Rye
- Other Hay/Non Alfalfa
- Winter Wheat
- Oats
- Clover/Wildflowers
- Fallow/Idle Cropland
- Sweet Corn
- Dry Beans
- Cabbage
- Triticale
- Grapes
- Squash

NON-AGRICULTURE**

- Deciduous Forest
- Woody Wetlands
- Developed/Open Space
- Developed/Low Intensity
- Mixed Forest
- Developed/Medium Intensity

REDACTED - Permit Application No. 23-00064

2021



Land Cover Categories

(by decreasing acreage)

AGRICULTURE*

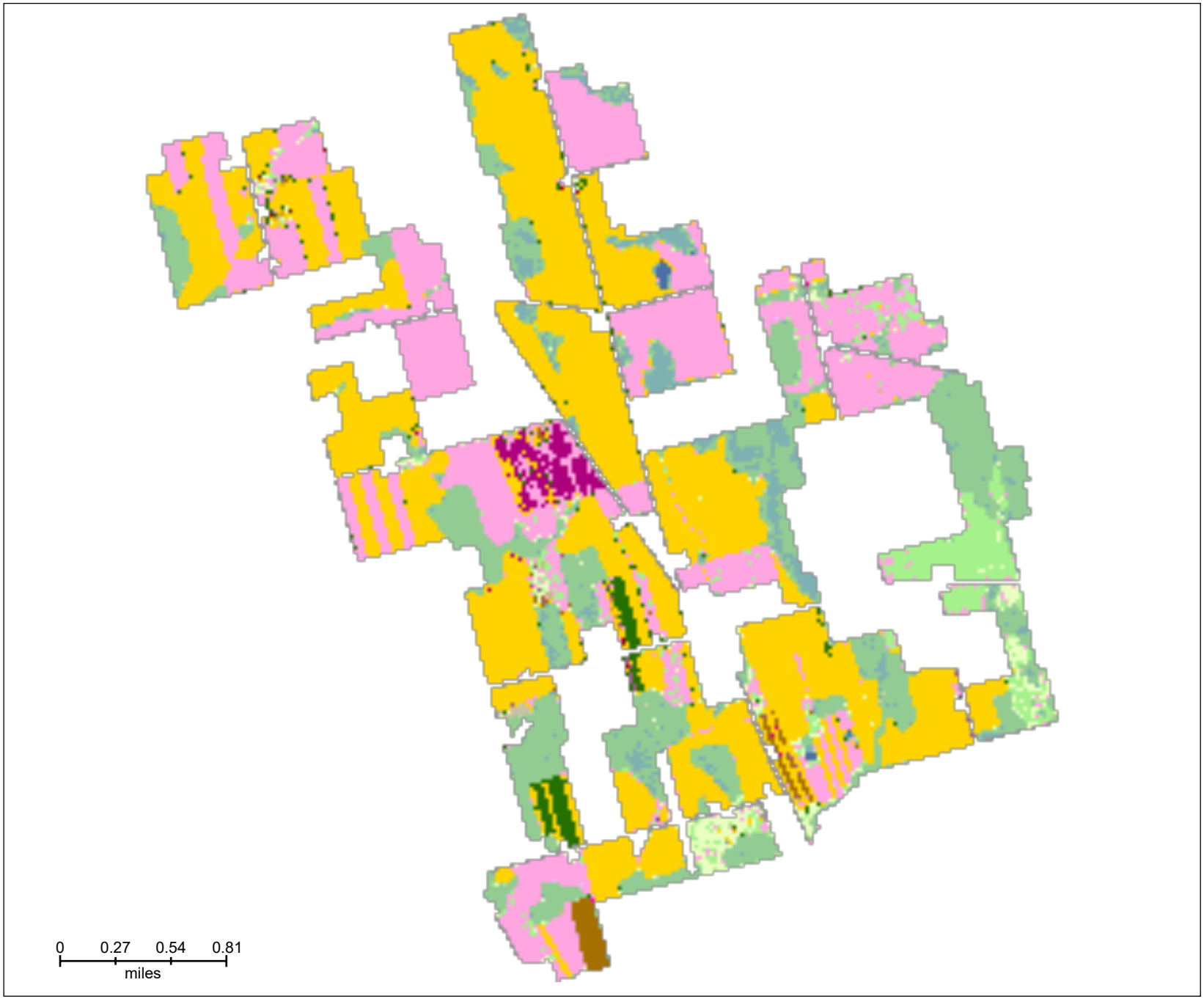
- Corn
- Alfalfa
- Grass/Pasture
- Other Hay/Non Alfalfa
- Soybeans
- Winter Wheat
- Dbl Crop Triticale/Corn
- Clover/Wildflowers
- Spring Wheat
- Fallow/Idle Cropland
- Triticale
- Oats
- Pumpkins
- Rye
- Dry Beans
- Sweet Corn

NON-AGRICULTURE**

- Deciduous Forest
- Woody Wetlands
- Developed/Open Space
- Developed/Low Intensity
- Mixed Forest
- Developed/Medium Intensity

REDACTED - Permit Application No. 23-00064

2020



Land Cover Categories

(by decreasing acreage)

AGRICULTURE*

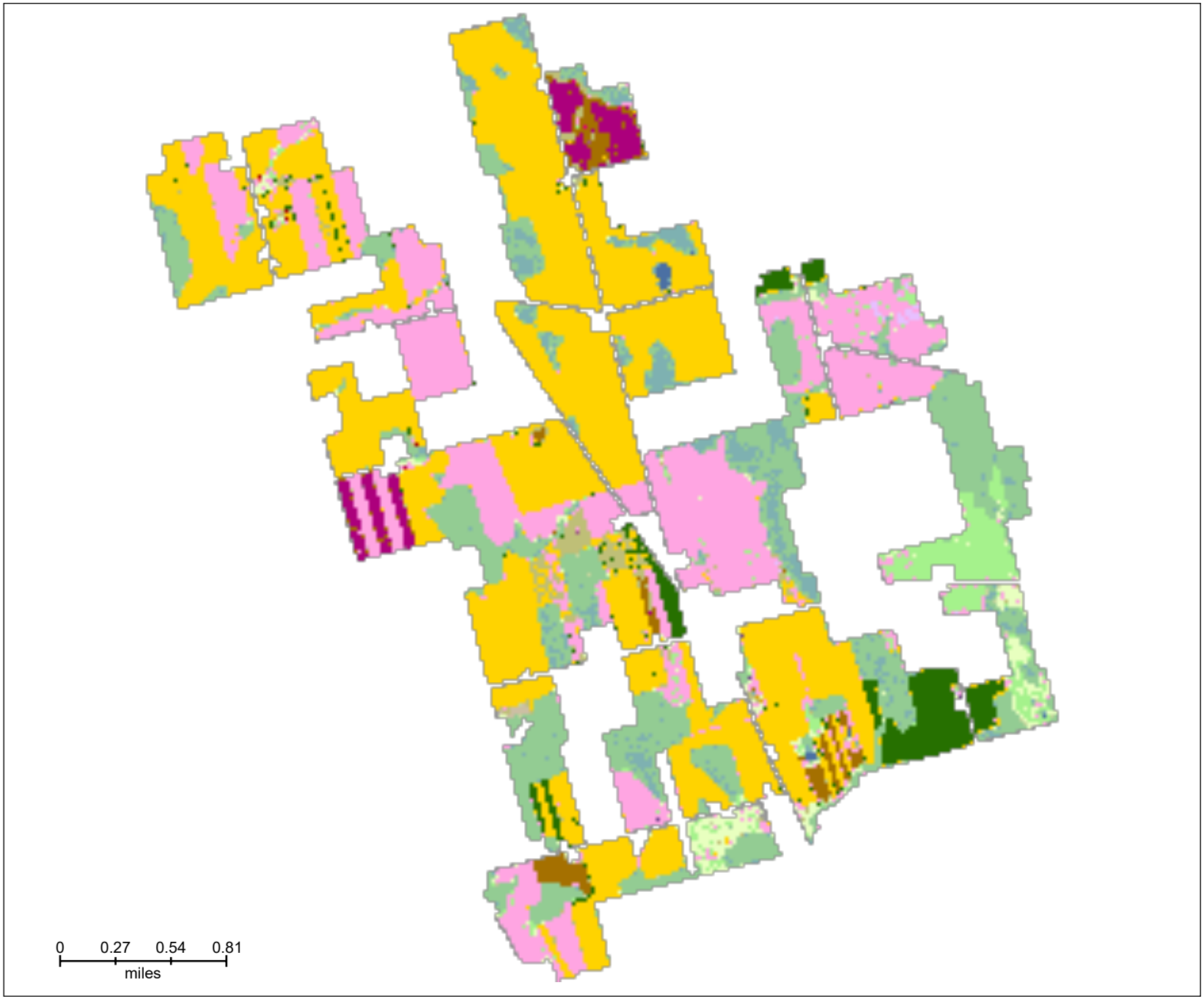
- Corn
- Alfalfa
- Other Hay/Non Alfalfa
- Grass/Pasture
- Soybeans
- Rye
- Winter Wheat
- Oats
- Clover/Wildflowers
- Sweet Corn
- Fallow/Idle Cropland
- Dry Beans
- Barley
- Potatoes
- Grapes
- Triticale

NON-AGRICULTURE**

- Deciduous Forest
- Woody Wetlands
- Developed/Open Space
- Mixed Forest
- Shrubland
- Open Water

REDACTED - Permit Application No. 23-00064

2019



Land Cover Categories

(by decreasing acreage)

AGRICULTURE*

- Corn
- Alfalfa
- Soybeans
- Other Hay/Non Alfalfa
- Grass/Pasture
- Rye
- Winter Wheat
- Fallow/Idle Cropland
- Dbl Crop Triticale/Corn
- Clover/Wildflowers
- Oats
- Grapes
- Dry Beans
- Sweet Corn
- Barley
- Triticale

NON-AGRICULTURE**

- Deciduous Forest
- Woody Wetlands
- Developed/Open Space
- Mixed Forest
- Shrubland
- Open Water

APPENDIX B

Summary Tables

Table 1. Completed Survey Information

Survey Date	Point Count Locations Surveyed	Start Time (a.m.)	End Time (a.m.)	Number of Surveyors	Number of Survey-Hours[1]	Temperature Range (°F)	Cloud Cover Range (%)	Wind Direction(s)	Wind Speed Range (mph)	Precipitation	Visibility Range (miles)
5/2/2023	9-11 & 22-35	05:25	10:30	1	5:05	38-44	25-100	SW, SSW	4-12	Rain (Intermittent/ Light)	10+
5/3/2023	36-38; 43-46; 52-58	05:36	09:05	1	3:29	37-38	90-100	WSW, W	0-3	Rain (Sustained/ Heavy)	0.62-10
5/4/2023	59-67, 9.1, 10.1, 55.2, 55.1	05:49	10:23	1	4:34	41-46	90-100	NW	1-3	Rain (Intermittent/ Light)	0.62-10
5/8/2023	9-11, 22-35	05:21	10:30	1	5:09	46-55	50-100	NNW, NW	1-7	Fog	<0.62-10+
5/9/2023	39-42, 47, 49, 50, 62-67	05:21	10:07	1	4:46	40-53	25-90	NE, NNW	0-3	None (Clear)	10+
5/12/2023	36-38; 43-46; 52-61	05:15	10:30	1	5:15	52-72	10-50	ESE, W	1-12	None (Clear)	10+
5/16/2023	1-7; 9.1-10.1; 29-35	05:05	10:30	1	5:25	46-65	10-90	SSW, WSW	4-13+	None (Clear)	10+
5/16/2023	43-46, 51-61	05:15	10:23	1	5:08	44-63	25-90	SSW, WSW	1-7	None (Clear)	10+
5/17/2023	62-69, 36-42, 47, 48	05:18	10:32	1	5:14	39	50-100	NNW	4-12	None (Clear)	10+
5/19/2023	22-28, 49, 50	06:41	09:49	1	3:08	50-62	10-25	SSE, S	8-12	None (Clear)	10+
5/19/2023	11-21, 58.1, 58.2	07:27	10:32	1	3:05	51-62	10-50	SSE, S	4-12	None (Clear)	10+

Survey Date	Point Count Locations Surveyed	Start Time (a.m.)	End Time (a.m.)	Number of Surveyors	Number of Survey-Hours[1]	Temperature Range (°F)	Cloud Cover Range (%)	Wind Direction(s)	Wind Speed Range (mph)	Precipitation	Visibility Range (miles)
5/24/2023	10, 10.1, 22-28, 59-69	06:00	10:36	1	4:36	56-67	10-100	S, W	1-7	None (Clear)	10+
5/25/2023	3-5, 9, 9.1, 29-42	05:19	10:40	1	5:21	35-51	0-90	N	1-12	None (Clear)	10+
5/26/2023	43-58.2	5:13	10:30	2	5:17	35-57	0	ENE, WNW	1-7	None (Clear)	10+
5/26/2023	1,2,6,7,11 -21	05:35	10:30	2	4:55	36-57	0	N, NW	1-7	None (Clear)	10+
5/30/2023	39-42, 51-61	05:14	10:33	1	5:19	57-68	0	SSE	8-12	None (Clear)	10+
5/31/2023	1-15, 20-21	05:15	10:08	1	4:53	58-73	0	SE, SW	1-7	None (Clear)	10+
6/1/2023	16, 19, 22-38, 48	05:32	10:33	1	5:01	56-77	0-25	ESE, NNW	0-1	None (Clear)	10+
6/2/2023	47, 49, 50, 62-69	07:08	10:42	1	3:34	64-79	0-25	WNW, NW	1-7	None (Clear)	10+
6/6/2023	16, 19-38	05:10	10:31	1	5:21	49-63	90-100	N, WNW	1-7	None (Clear)	0.62-10
6/7/2023	1-7, 9-15, 17, 18	05:25	10:31	1	5:06	47-52	25-90	N, WNW	1-7	None (Clear)	0.62-10
6/9/2023	49-62	05:15	10:19	1	5:04	44-56	50-100	ESE, WSW	0-7	None (Clear)	10+
6/9/2023	39-48, 63-68	05:27	10:31	1	5:04	59-55	25-100	NNE, W	1-3	None (Clear)	0.62-10
6/12/2023	20-38, 51	05:15	10:25	1	5:10	68-74	90-100	SE	8-12	None (Clear)	10+
6/14/2023	52-55, 55.1, 56-61	08:30	10:51	1	2:21	55-58	90-100	ESE, SE	4-12	Rain (Intermittent/ Light)	10+

Survey Date	Point Count Locations Surveyed	Start Time (a.m.)	End Time (a.m.)	Number of Surveyors	Number of Survey-Hours[1]	Temperature Range (°F)	Cloud Cover Range (%)	Wind Direction(s)	Wind Speed Range (mph)	Precipitation	Visibility Range (miles)
6/15/2023	16, 19, 39-50, 55.2, 58.2, 58.1, 62, 63	05:10	10:52	1	5:42	54-64	10-100	WNW	1-7	None (Clear)	10+
6/16/2023	1-15, 17, 18	05:08	10:10	1	5:02	57-58	90-100	E, WSW	0-3	Rain (Intermittent/ Light)	0.62-10+
6/20/2023	11-21, 51, 62-68	05:35	10:33	1	4:58	61-72	50-90	E, ESE	1-3	None (Clear)	10+
6/22/2023	3, 6, 7, 9-10.1 22-28, 49, 50	05:12	10:12	1	5:00	54-66	10-100	SE, ESE	1-7	None (Clear)	10+
6/22/2023	36-39, 52-61	05:33	10:32	1	4:59	54-69	25-90	ESE	1-7	None (Clear)	10+
6/23/2023	1, 2, 4, 5, 29-35, 43-46, 48	06:06	10:35	1	4:29	65-69	50-100	E, ESE	4-7	None (Clear)	10+
6/27/2023	1-15, 17	06:11	10:37	1	4:26	65-69	50-90	SSE, S	4-7	None (Clear)	10+
6/28/2023	51-61	05:20	09:50	1	4:30	62-60	90-100	W	8-12	Fog/ Rain (Intermittent/ Light)	0.62-10
6/28/2023	18,20,21,39,43-46,64-68	06:15	10:35	1	4:20	62-60	90-100	WNW	4-7	Fog/ Rain (Intermittent/ Light)	0.62-10
7/7/2023	29-38, 51-58	05:19	10:29	1	5:10	66-72	25-100	N	0-1	None (Clear)	10+
7/7/2023	16, 19, 22-28, 48, 62-68	05:22	10:32	1	5:10	66-73	50-100	N	0-1	None (Clear)	0.62-10

Survey Date	Point Count Locations Surveyed	Start Time (a.m.)	End Time (a.m.)	Number of Surveyors	Number of Survey-Hours[1]	Temperature Range (°F)	Cloud Cover Range (%)	Wind Direction(s)	Wind Speed Range (mph)	Precipitation	Visibility Range (miles)
7/10/2023	1-5, 9-15, 17, 18, 20, 21	06:01	10:44	1	4:43	63-65	90-100	NW	0-7	Rain (Intermittent/ Light)	10+
7/13/2023	22-28, 43-46; 48; 50; 68	05:26	08:50	1	3:24	68-74	0-100	SE, S	4-12	None (Clear)	10+
7/12/2023	6,7,16,19, 55-61	06:11	10:31	1	4:20	65-71	25-100	WSW, W	1-7	None (Clear)	10+
7/17/2023	17, 18, 20, 21, 58.1-63, 43-46	05:30	10:49	1	5:19	63-74	90-100	S, SSW	1-7	None (Clear)	0.62-10
7/19/2023	3-5, 29-38, 64-68	05:17	10:10	1	4:53	59-68	10-50	N, NW	0-1	Fog	0.62-10
7/21/2023	1, 2, 6-15	05:25	09:13	1	3:48	61-66	90-100	SSE, S	1-7	None (Clear)	10+

[1] The total amount of time surveyors conducted surveys on-site (hh:mm).

Table 2. Summary of Avian Species Observed During Point Count Surveys

BEGIN CONFIDENTIAL INFORMATION<

Alpha Code[1]	Common Name	Scientific Name	Within 100 meters[2]	Beyond 100 meters[3]	Total[4]	Avian Use[5]	Composition[6]	Frequency[7]	Activity Code[8]
ALFL	Alder Flycatcher	*Empidonax alnorum*	1	9	10	0.00	0.04%	0.15%	S
[redacted]			0	1	1	0.00	0.00%	0.00%	F
AMCR	American Crow	*Corvus brachyrhynchos*	20	558	578	0.03	0.82%	1.60%	S
AMGO	American Goldfinch	*Spinus tristis*	113	477	590	0.16	4.66%	11.19%	A
AMKE	American Kestrel	*Falco sparverius*	0	4	4	0.00	0.00%	0.00%	H
AMRE	American Redstart	*Setophaga ruticilla*	2	21	23	0.00	0.08%	0.29%	S
AMRO	American Robin	*Turdus migratorius*	116	1055	1,171	0.17	1.78%	11.77%	A
BANS	Bank Swallow	*Riparia riparia*	7	0	7	0.01	0.29%	0.44%	H
BAOR	Baltimore Oriole	*Icterus galbula*	7	56	63	0.01	0.29%	1.01%	P
BARS	Barn Swallow	*Hirundo rustica*	155	374	529	0.23	6.39%	9.16%	H
BAWW	Black-and-white Warbler	*Mniotilta varia*	1	4	5	0.00	0.04%	0.15%	S
BBCU	Black-billed Cuckoo	*Coccyzus erythropthalmus*	0	4	4	0.00	0.00%	0.00%	S
BCCH	Black-capped Chickadee	*Poecile atricapillus*	6	24	30	0.01	0.25%	0.58%	S
BEKI	Belted Kingfisher	*Megaceryle alcyon*	0	1	1	0.00	0.00%	0.00%	H
BHCO	Brown-headed Cowbird	*Molothrus ater*	13	109	122	0.02	0.54%	1.74%	CF
BHVI	Blue-headed Vireo	*Vireo solitarius*	0	23	23	0.00	0.00%	0.00%	S
BLJA	Blue Jay	*Cyanocitta cristata*	4	144	148	0.01	0.16%	0.58%	S
BOBO	Bobolink	*Dolichonyx oryzivorus*	103	148	251	0.15	4.24%	5.67%	CF
BRTH	Brown Thrasher	*Toxostoma rufum*	0	20	27	0.00	0.00%	0.00%	S
BTNW	Black-throated Green Warbler	*Setophaga virens*	0	4	4	0.00	0.00%	0.00%	S
CANG	Canada Goose	*Branta canadensis*	8	77	85	0.01	0.33%	0.44%	S
CARW	Carolina Wren	*Thryothorus ludovicianus*	0	2	2	0.00	0.00%	0.00%	S
CEDW	Cedar Waxwing	*Bombycilla cedrorum*	4	65	69	0.01	0.16%	0.58%	S
CHSP	Chipping Sparrow	*Spizella passerina*	10	212	222	0.01	0.41%	1.31%	S
CHSW	Chimney Swift	*Chaetura pelagica*	0	1	1	0.00	0.00%	0.00%	H
COGR	Common Grackle	*Quiscalus quiscula*	31	215	346	0.05	1.28%	2.76%	CF

Alpha Code[1]	Common Name	Scientific Name	Within 100 meters[2]	Beyond 100 meters[3]	Total[4]	Avian Use[5]	Composition[6]	Frequency[7]	Activity Code[8]
[redacted]			0	1	1	0.00	0.00%	0.00%	H
COME	Common Merganser	*Mergus merganser*	0	1	1	0.00	0.00%	0.00%	F
CORA	Common Raven	*Corvus corax*	0	8	8	0.00	0.00%	0.00%	H
COYE	Common Yellowthroat	*Geothlypis trichas*	22	375	397	0.03	0.91%	3.20%	S
CSWA	Chestnut-sided Warbler	*Setophaga pensylvanica*	1	56	57	0.00	0.04%	0.15%	S
DOWO	Downy Woodpecker	*Dryobates pubescens*	2	25	27	0.00	0.08%	0.29%	H
EABL	Eastern Bluebird	*Sialia sialis*	5	4	9	0.01	0.21%	0.73%	S
EAKI	Eastern Kingbird	*Tyrannus tyrannus*	6	16	22	0.01	0.25%	0.73%	S
EAME	Eastern Meadowlark	*Sturnella magna*	1	14	15	0.00	0.04%	0.15%	S
EAPH	Eastern Phoebe	*Sayornis phoebe*	1	24	25	0.00	0.04%	0.15%	S
EATO	Eastern Towhee	*Pipilo erythrophthalmus*	0	1	1	0.00	0.00%	0.00%	S
EAWP	Eastern Wood-Pewee	*Contopus virens*	1	69	70	0.00	0.04%	0.15%	S
EUST	European Starling	*Sturnus vulgaris*	85	866	951	0.12	3.50%	2.33%	S
FICR	Fish Crow	*Corvus ossifragus*	0	2	2	0.00	0.00%	0.00%	H
FISP	Field Sparrow	*Spizella pusilla*	11	128	139	0.02	0.45%	1.31%	S
GBHE	Great Blue Heron	*Ardea herodias*	5	13	18	0.00	0.21%	0.73%	H
GCFL	Great Crested Flycatcher	*Myiarchus crinitus*	1	58	59	0.00	0.04%	0.15%	S
GRCA	Gray Catbird	*Dumetella carolinensis*	13	162	175	0.02	0.54%	1.74%	CF
GRHE	Green Heron	*Butorides virescens*	2	1	3	0.00	0.08%	0.15%	T
[redacted]			1	0	1	0.00	0.04%	0.15%	S
HAWO	Hairy Woodpecker	*Dryobates villosus*	0	2	2	0.00	0.00%	0.00%	S
HERG	Herring Gull	*Larus argentatus*	2	0	2	0.00	0.08%	0.15%	F
HETH	Hermit Thrush	*Catharus Guttatus*	0	1	1	0.00	0.00%	0.00%	S
HOFI	House Finch	*Haemorhous mexicanus*	2	7	9	0.00	0.08%	0.29%	S
[redacted]			89	184	273	0.13	3.67%	6.69%	A
HOSP	House Sparrow	*Passer domesticus*	15	114	129	0.02	0.62%	1.45%	A
HOWA	Hooded Warbler	*Setophaga citrina*	0	2	2	0.00	0.00%	0.00%	S
HOWR	House Wren	*Troglodytes aedon*	2	90	92	0.00	0.08%	0.29%	S
INBU	Indigo Bunting	*Passerina cyanea*	8	137	145	0.01	0.33%	1.02%	T
KILL	Killdeer	*Charadrius vociferus*	56	183	239	0.08	2.31%	6.10%	A
MALL	Mallard	*Anas platyrhynchos*	0	1	1	0.00	0.00%	0.00%	F
MODO	Mourning Dove	*Zenaida macroura*	14	217	231	0.02	0.58%	1.89%	P

Alpha Code[1]	Common Name	Scientific Name	Within 100 meters[2]	Beyond 100 meters[3]	Total[4]	Avian Use[5]	Composition[6]	Frequency[7]	Activity Code[8]
MOWA	Mourning Warbler	*Geothlypis philadelphia*	0	3	3	0.00	0.00%	0.00%	S
NAWA	Nashville Warbler	*Leiothlypis ruficapilla*	0	7	7	0.00	0.00%	0.00%	S
NOCA	Northern Cardinal	*Cardinalis cardinalis*	14	238	252	0.02	0.58%	1.89%	A
NOFL	Northern Flicker	*Colaptes auratus*	3	108	111	0.00	0.12%	0.44%	S
NOMO	Northern Mockingbird	*Mimus polyglottos*	3	41	44	0.00	0.12%	0.44%	S
NOPA	Northern Parula	*Setophaga americana*	0	1	1	0.00	0.00%	0.00%	S
[redacted]			0	14	14	0.00	0.00%	0.00%	ON
OVEN	Ovenbird	*Seiurus aurocapilla*	1	11	12	0.00	0.04%	0.15%	S
PIWO	Pileated Woodpecker	*Dryocopus pileatus*	0	17	17	0.00	0.00%	0.00%	S
PUFI	Purple Finch	*Haemorhous purpureus*	0	9	9	0.00	0.00%	0.00%	S
PUMA	Purple Martin	*Progne subis*	0	1	1	0.00	0.00%	0.00	H
RBGR	Rose-breasted Grosbeak	*Pheucticus ludovicianus*	0	26	26	0.00	0.00%	0.00%	S
RBWO	Red-bellied Woodpecker	*Melanerpes carolinus*	0	21	21	0.00	0.00%	0.00%	S
REVI	Red-eyed Vireo	*Vireo olivaceus*	2	134	136	0.00	0.08%	0.29%	A
ROPI	Rock Pigeon	*Columba livia*	4	76	80	0.01	0.16%	0.44%	H
RTHA	Red-tailed Hawk	*Buteo jamaicensis*	9	45	54	0.01	0.37%	1.02%	FL
RTHU	Ruby-throated Hummingbird	*Archilochus colubris*	0	1	1	0.00	0.00%	0.00%	H
RWBL	Red-winged Blackbird	*Agelaius phoeniceus*	782	2,348	3,130	1.14	32.22%	30.67%	CF
SAVS	Savannah Sparrow	*Passerculus sandwichensis*	275	569	844	0.40	11.33%	24.71%	ON
SCTA	Scarlet Tanager	*Piranga olivacea*	1	13	14	0.00	0.04%	0.15%	S
SOSP	Song Sparrow	*Melospiza melodia*	217	1239	1,456	0.32	8.94%	23.26%	CF
SPSA	Spotted Sandpiper	*Actitis macularius*	0	2	2	0.00	0.00%	0.00%	H
[redacted]			0	1	1	0.00	0.00%	0.00%	H
SWSP	Swamp Sparrow	*Melospiza georgiana*	1	19	20	0.00	0.04%	0.15%	S
TRES	Tree Swallow	*Tachycineta bicolor*	52	90	142	0.08	2.14%	1.89%	H
TUTI	Tufted Titmouse	*Baeolophus bicolor*	3	71	74	0.00	0.12%	0.44%	S
TUVU	Turkey Vulture	*Cathartes aura*	4	47	51	0.01	0.16%	0.58%	S
VEER	Veery	*Catharus fuscescens*	0	15	15	0.00	0.00%	0.00%	S
[redacted]			4	16	20	0.01	0.16%	0.58%	S
WAVI	Warbling Vireo	*Vireo gilvus*	25	186	211	0.04	1.03%	3.63%	A

Alpha Code[1]	Common Name	Scientific Name	Within 100 meters[2]	Beyond 100 meters[3]	Total[4]	Avian Use[5]	Composition[6]	Frequency[7]	Activity Code[8]
WBNU	White-breasted Nuthatch	*Sitta carolinensis*	1	10	11	0.00	0.04%	0.15%	S
WCSP	White-crowned Sparrow	*Zonotrichia leucophrys*	0	1	1	0.00	0.00%	0.00%	S
WIFL	Willow Flycatcher	*Empidonax traillii*	7	34	41	0.01	0.29%	1.02%	S
WITU	Wild Turkey	*Meleagris gallopavo*	0	10	10	0.00	0.00%	0.00%	S
WODU	Wood Duck	*Aix sponsa*	0	2	2	0.00	0.00%	0.00%	S
WOTH	Wood Thrush	*Hylocichla mustelina*	1	142	143	0.00	0.04%	0.15%	S
WTSP	White-throated Sparrow	*Zonotrichia albicollis*	1	8	9	0.00	0.04%	0.15	S
YBSA	Yellow-bellied Sapsucker	*Sphyrapicus varius*	0	7	7	0.00	0.00%	0.00%	S
YEWA	Yellow Warbler	*Setophaga petechia*	39	173	212	0.06	1.61%	5.09%	A
YTVI	Yellow-throated Vireo	*Vireo flavifrons*	0	2	2	0.00	0.00%	0.00%	S

[1] Species codes are based on standardized four-letter alpha codes defined by the Institute for Bird Populations (https://www.birdpop.org/docs/misc/Alpha_codes_eng.pdf). The alpha code for the American goldfinch was changed from AMGO to AGOL while the 2023 breeding bird study was underway; therefore, it is reported as AMGO in this report.

[2] Includes all observations recorded within 100 meters of point count locations during 5-minute point count surveys.

[3] Includes all observations recorded more than 100 meters from point count locations during 5-minute point count surveys.

[4] Includes all observations recorded within and more than 100 meters from point count locations during 5-minute point count surveys.

[5] Represents the mean number of birds recorded per 5-minute point count survey (based on all observations recorded within 100 meters of point count locations).

[6] Reflects the percentage of point count survey observations that were of the species (based on all observations recorded within 100 meters of point count locations).

[7] Represents the percentage of 5-minute point count surveys during which the species was recorded (based on all observations recorded within 100 meters of point count locations).

[8] Represents the activity or behavior observed (based on all point count survey observations) that was most indicative of on-site breeding, based on the codes used for the New York Breeding Bird Atlas III (eBird, 2022a). The following additional code was used when no other more indicative behavior was observed: CL = Calling.

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Table 3. Summary of Avian Metrics for Each Point Count Location

Point Count Location	Habitat Type(s)	Number of Point Count Surveys	Number of Point Count Surveys at Alternate Locations[1]	Total Observations	Avian Use[2]	Total Species Richness[3]	Mean Species Richness[4]
1	Field Cropland (Alfalfa)	9	0	108	12.00	28	8.00
2	Field Cropland (Alfalfa)	9	0	106	11.78	32	8.00
3	Row Cropland (Corn)/ Pastureland	9	0	241	26.78	33	9.11
4	Row Cropland (Corn)	9	0	276	30.67	26	8.33
5	Row Cropland (Corn)	9	0	268	29.78	28	8.22
6	Row Cropland (Corn)	9	0	117	13.00	29	7.44
7	Field Cropland (Hay)	9	0	237	26.33	25	8.00
9	Row Cropland (Corn)	10	1	114	11.40	32	7.10
9.1	Row Cropland (Corn)	10	1	194	19.40	31	8.40
10	Row Cropland (Corn)	10	1	172	17.20	29	7.80
10.1	Row Cropland (Corn)	10	1	163	16.30	30	9.10
11	Field Cropland (Hay)	11	0	261	23.73	38	11.09
12	Field Cropland (Hay)	9	0	196	21.78	32	9.78
13	Field Cropland (Hay)	9	0	174	19.33	30	8.89
14	Field Cropland (Hay)	9	0	165	18.33	24	8.11
15	Field Cropland (Hay)	9	0	145	16.11	25	8.56
16	Field Cropland (Wheat then Alfalfa)	8	0	267	33.38	40	13.25

Point Count Location	Habitat Type(s)	Number of Point Count Surveys	Number of Point Count Surveys at Alternate Locations[1]	Total Observations	Avian Use[2]	Total Species Richness[3]	Mean Species Richness[4]
17	Field Cropland (Hay)	8	0	205	25.63	23	8.38
18	Row Cropland (Corn)	8	0	183	22.88	36	11.88
19	Field Cropland (Wheat then Alfalfa)	8	0	198	24.75	38	13.00
20	Field Cropland (Wheat then Alfalfa)	9	0	190	21.11	38	12.33
21	Field Cropland (Wheat then Alfalfa)	9	0	141	15.67	30	10.44
22	Row Cropland (Corn)	9	1	126	14	25	8.22
23	Row Cropland (Corn)	9	1	157	17.44	26	9.11
24	Row Cropland (Corn)/ Field Cropland (Alfalfa)	10	0	151	15.10	29	8.30
25	Field Cropland (Alfalfa)	10	0	216	15.10	41	10.60
26	Row Cropland (Corn)	9	1	220	21.60	25	10.22
27	Row Cropland (Corn)	10	0	215	24.44	34	9.60
28	Row Cropland (Corn)	9	1	170	21.50	33	9.22
29	Field Cropland (Alfalfa/Hay)	10	0	168	18.89	29	8.50
30	Field Cropland (Alfalfa)	10	0	170	16.80	29	8.70
31	Row Cropland (Corn)	10	0	212	17.00	36	11.70
32	Row Cropland (Corn)	10	0	191	21.20	31	9.60
33	Row Cropland (Corn)	9	1	153	19.10	31	8.67

Point Count Location	Habitat Type(s)	Number of Point Count Surveys	Number of Point Count Surveys at Alternate Locations[1]	Total Observations	Avian Use[2]	Total Species Richness[3]	Mean Species Richness[4]
34	Field Cropland (Alfalfa/ Hay)	10	0	127	17.00	21	6.60
35	Row Cropland (Corn)	10	0	148	12.70	25	7.50
36	Field Cropland (Alfalfa)	10	0	187	14.80	35	9.40
37	Field Cropland (Alfalfa)	10	0	177	18.70	34	9.50
38	Field Cropland (Alfalfa)	10	0	212	17.70	32	9.90
39	Field Cropland (Alfalfa/ Hay)	8	0	272	21.20	29	10.38
40	Row Cropland (Corn)	6	0	162	34.00	31	12.33
40.1	Row Cropland (Corn)	5	0	97	27.00	24	10.20
41	Row Cropland (Corn)	6	0	160	19.40	27	11.00
42	Row Cropland (Corn)	6	0	204	26.67	28	10.38
43	Field Cropland (Wheat)	9	1	104	34.00	22	7.33
44	Field Cropland (Wheat)	9	1	149	11.56	32	9.11
45	Field Cropland (Wheat)	9	1	139	16.56	26	8.56
46	Field Cropland (Wheat)	9	1	159	15.44	35	9.89
47	Row Cropland (Corn)	6	0	108	17.67	29	11.00
48	Field Cropland (Wheat)	8	0	161	18.00	34	10.00
49	Row Cropland (Corn)	7	0	138	20.13	35	9.43
50	Row Cropland (Corn)	7	0	154	19.71	28	10.71

Point Count Location	Habitat Type(s)	Number of Point Count Surveys	Number of Point Count Surveys at Alternate Locations[1]	Total Observations	Avian Use[2]	Total Species Richness[3]	Mean Species Richness[4]
51	Field Cropland (Hay)	9	0	149	22.00	35	9.11
52	Row Cropland (Soy)	10	0	143	16.56	30	8.70
53	Row Cropland (Corn)	11	0	205	14.30	34	9.81
54	Row Cropland (Corn)	10	0	215	18.64	35	9.80
55	Row Cropland (Corn)	11	0	238	21.50	39	11.18
55.1	Pasture	11	0	307	21.64	39	12.00
55.2	Row Cropland (Corn)	11	0	228	27.91	41	11.91
56	Row Cropland (Corn)	11	0	203	20.73	39	9.55
57	Row Cropland (Corn)	11	0	154	18.45	37	9.27
58	Field Cropland (Hay) then Row Cropland (Corn)	11	0	182	14.00	38	9.91
58.1	Field Cropland (Wheat)	9	0	197	16.55	35	12.44
58.2	Field Cropland (Wheat)	9	0	138	21.89	32	9.89
59	Field Cropland (Hay)	11	0	321	15.33	35	10.00
60	Field Cropland (Wheat)	11	0	269	29.18	35	11.45
61	Field Cropland (Wheat)	11	0	261	24.45	37	11.36
62	Row Cropland (Corn)	10	0	198	23.73	43	12.60
63	Field Cropland (Hay)	10	0	283	19.80	40	11.80
64	Field Cropland (Hay)	10	0	401	28.30	29	9.70

Point Count Location	Habitat Type(s)	Number of Point Count Surveys	Number of Point Count Surveys at Alternate Locations[1]	Total Observations	Avian Use[2]	Total Species Richness[3]	Mean Species Richness[4]
65	Row Cropland (Soy)	10	0	311	40.10	38	12.50
66	Row Cropland (Soy)	10	0	313	31.10	31	9.90
67	Row Cropland (Corn)	10	0	367	31.30	26	9.50
68	Row Cropland (Corn)	8	0	238	36.70	34	11.38
69	Row Cropland (Corn)/ Pasture	3	0	74	29.75	19	10.00

[1] Alternate point count locations were used when access and visibility were restricted due to tall crop height or when access was restricted due to the presence of livestock within fenced pasture areas. This column notes surveys that were completed from alternate point count locations located more than 100 meters from the original corresponding point count locations.

[2] The mean number of observations recorded during 5-minute point count surveys.

[3] The total number of species observed at the survey location.

[4] The mean number of species observed during 5-minute point count surveys.

Table 4. State Listed Species Observations

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Common Name	Scientific Name	Conservation Status[1]	Number of Observations[2]	Sex/Age	Date(s)	Nearest Point Count Location(s)	Observed Behavior(s)	Probable or Confirmed Breeding Behavior(s)[3]	Observed Essential Behavior(s)[4]
[redacted]	[redacted]	Threatened	1	Unknown Adult	April 21, 2023	[redacted]	Gliding; Flapping; In Appropriate Habitat	None	None
		Threatened	3	Adult Female	May 4 to June 23, 2023		Foraging; In Appropriate Habitat	None	Foraging
		Special Concern	1	Unknown Adult	June 20, 2023		Flying	None	N/A
		Special Concern	1	Unknown Age/Sex	July 10, 2023		Foraging; In Appropriate Habitat	None	N/A
		Special Concern	1	Adult Male[5]	June 22, 2023		Singing; In Appropriate Habitat	Singing[6]	N/A

Common Name	Scientific Name	Conservation Status[1]	Number of Observations[2]	Sex/Age	Date(s)	Nearest Point Count Location(s)	Observed Behavior(s)	Probable or Confirmed Breeding Behavior(s)[3]	Observed Essential Behavior(s)[4]
[redacted]	[redacted]	Special Concern	273	Adult Male;[5] Unknown	May 2 to July 19, 2023	[redacted]	Agitated Behavior; Leaving a Suspected Roost; Territorial Defense; Singing; In Appropriate Habitat; Flying	Agitated Behavior; Territorial Defense; Singing[6]	N/A
		Special Concern	14	Unknown Adult; Unknown	May 2 to July 19, 2023		Occupied Nest; Calling	Occupied Nest	N/A
		Special Concern	1	Unknown Adult	June 6, 2023		In Appropriate Habitat	N/A	N/A

Common Name	Scientific Name	Conservation Status[1]	Number of Observations[2]	Sex/Age	Date(s)	Nearest Point Count Location(s)	Observed Behavior(s)	Probable or Confirmed Breeding Behavior(s)[3]	Observed Essential Behavior(s)[4]
[redacted]		Special Concern	20	Adult Male[5]	May 9 to July 17, 2023	[redacted]	Singing	Singing[6]	N/A

[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 point count 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] Based on the codes used for the New York Breeding Bird Atlas III (eBird, 2020a).

[4] 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.

[5] Sex assumed for some individuals based on song characteristics; however, sex could not always be confirmed.

[6] Some singing birds were likely present for seven or more days, indicating probable breeding (eBird, 2020a).

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