

Pre-Construction Breeding Bird Surveys - REDACTED Mohawk Solar Project Montgomery County, New York

**Draft Report
April – July 2018**



**Prepared for:
Mohawk Solar, LLC**

**Prepared by:
Jason P. Ritzert, Jonathan Stein, and Zoey Gustafson**

Western EcoSystems Technology, Inc.
1017 Mumma Road, Suite 103
Lemoyne, Pennsylvania 17043

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STUDY PARTICIPANTS

Western EcoSystems Technology

Jason Ritzert	Project Manager
Karl Koscuich	Senior Review
Jonathan Stein	Report Writer
Zoey Gustafson	Statistician
Carmen Boyd	Project Tracking and Data Manager
Kristen Klaphake	GIS Analyst
Michelle Ritzert	Technical Editor
Jonathan Stein	Field Supervisor
Ken Klapper	Field Technician
Gary Lewandrowski	Field Technician

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INTRODUCTION

Mohawk Solar LLC (Mohawk), a wholly-owned subsidiary of Avangrid Renewables LLC (AR), is planning the development of a 90 megawatt (MW) photovoltaic (PV) solar energy generating facility in Montgomery County, New York called the Mohawk Solar Project. To be consistent with the Public Scoping Statement (PSS), the term Facility will collectively refer to all components of the project (PV panels, access roads, collection lines, substations, and staging areas) and the term Facility Area will refer to the area of land within which all Facility components will ultimately be located. The Facility Area comprises approximately 2,761 hectare (ha; 6,600 acre [ac]); however, only approximately 405 ha (1,000 ac) will be used for the Facility (Figures 1 and 2).

During the PSS process, the New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Public Service (DPS) expressed concern over potential Facility impacts to state-listed nesting grassland bird species, specifically upland sandpiper (*Bartramia longicauda*), northern harrier (*Circus cyaneus*), Henslow's sparrow (*Ammodramus henslowii*), and sedge wren (*Cistothorus platensis*). In addition, the New York Natural Heritage Program (NYNHP) identified upland sandpiper as potentially occurring in the Facility Area via a response letter on August 25, 2017. If the Facility Area is still under development one year from the date of the letter, the request for information must be resubmitted. On December 21, 2018 Environmental Design & Research (EDR) requested updated information from NYNHP; however, at the time of this report, a response has not been received.

On December 12, 2018, EDR submitted a request for an official species list from the US Fish and Wildlife Service (USFWS) Information, Planning, and Consultation (IPac) and one species (northern long-eared bat [*Myotis septentrionalis*]) was listed as being in the vicinity of the project; however, there are no known nesting federally listed bird species in the Facility Area. Based on these results and agency correspondence, Mohawk contracted Western EcoSystems Technology, Inc. (WEST) to conduct pre-construction breeding bird surveys (BBS) per the NYSDEC and DPS request.

The BBS protocol was designed to meet the recommendations from the NYSDEC and DPS that followed the NYSDEC 2016 *Guidelines for Conducting Bird and Bat Studies at Commercial Wind Energy Projects* (NYSDEC 2016a). The study plan was reviewed and approved by the NYSDEC on May 3, 2018. The objectives of the BBS were to: 1) determine if state- or federally listed grassland bird species were recorded breeding in the Facility Area; and 2) provide information per the BBS reporting requirements in the NYSDEC 2016 *Guidelines for Conducting Bird and Bat Studies at Commercial Wind Energy Projects* (NYSDEC 2016a). The NYSDEC reporting requirements include:

- The number, location and length of each potential treatment and control transect (Field Methods Section);

- The overall survey period, date, time, and durations of surveys conducted at each point (Survey Schedule Section and Appendix A [REDACTED]);
- The number of species observed overall (Results Section and Appendix C);
- The total number of individuals of each species observed overall (Appendix C);
- The number of individuals of each species observed at each transect point (Appendix C);
- A summary of the number and behavior of birds seen (Appendix A [REDACTED]);
- Which birds were identified visually or via vocalizations (Appendix A [REDACTED]);
- The point(s) and transect(s) with the highest and lowest: number of species, species diversity, frequency, and abundance (Results Section and Appendix D);
- A description of weather conditions during and immediately prior to survey days (Appendix B);
- A list of all species with dates and point where they were observed (Appendix A [REDACTED]);
- The number and identification of the observer(s) conducting each survey (Study Participant Section);
- A description of any disruptions and/or distractions that occurred during each sampling period that may have precluded an adequate survey (Appendix A [REDACTED]);
- A detailed discussion of all methods, results, and recommendations (throughout report);
- One or more tables and graphs, as needed, depicting the above information, as well as all species with the dates and points where they were observed, the locations of proposed or existing project components (Appendix A [REDACTED] and throughout the report as needed);
- One or more maps, as needed, which displays all observations of all individuals of state and federally listed species, species of concern, species of greatest conservation need (SGCN), and any other species targeted at the site (Results Section and Figures 4 – 7 [REDACTED]). Detailed information on the location, method of detection, behavior, flight paths, and all other relevant data should be clearly shown on the map(s), or otherwise made available in the report (Appendix I [REDACTED]); and
- Shapefiles depicting the date, location and behavior of each individual of all state and federally listed species observed on site, and shapefiles of all transects and point locations, will be delivered electronically.

FACILITY AREA

The Facility Area lies within the Eastern Great Lakes Lowland Ecoregion, which is characterized by irregular plains bordered by hills (US Environmental Protection Agency 2010), and is located

in Montgomery County, approximately 1.6 kilometers (km; 1 mile [mi]) south of the Mohawk River, among the rolling hills of the New York State Appalachian Plateau (Figures 1 and 2). The Facility Area falls within the New York State Department of Environmental Conservation (NYSDEC) Mohawk Valley Ecological Zone of New York (Edinger et al. 2014). Land use in the Facility Area is dominated by hay/pasture and agricultural uses (US Geological Survey [USGS] National Land Cover Database [NLCD] 2011, Homer et al. 2015; Figure 3) including dairy farms and a variety of cultivated crops.

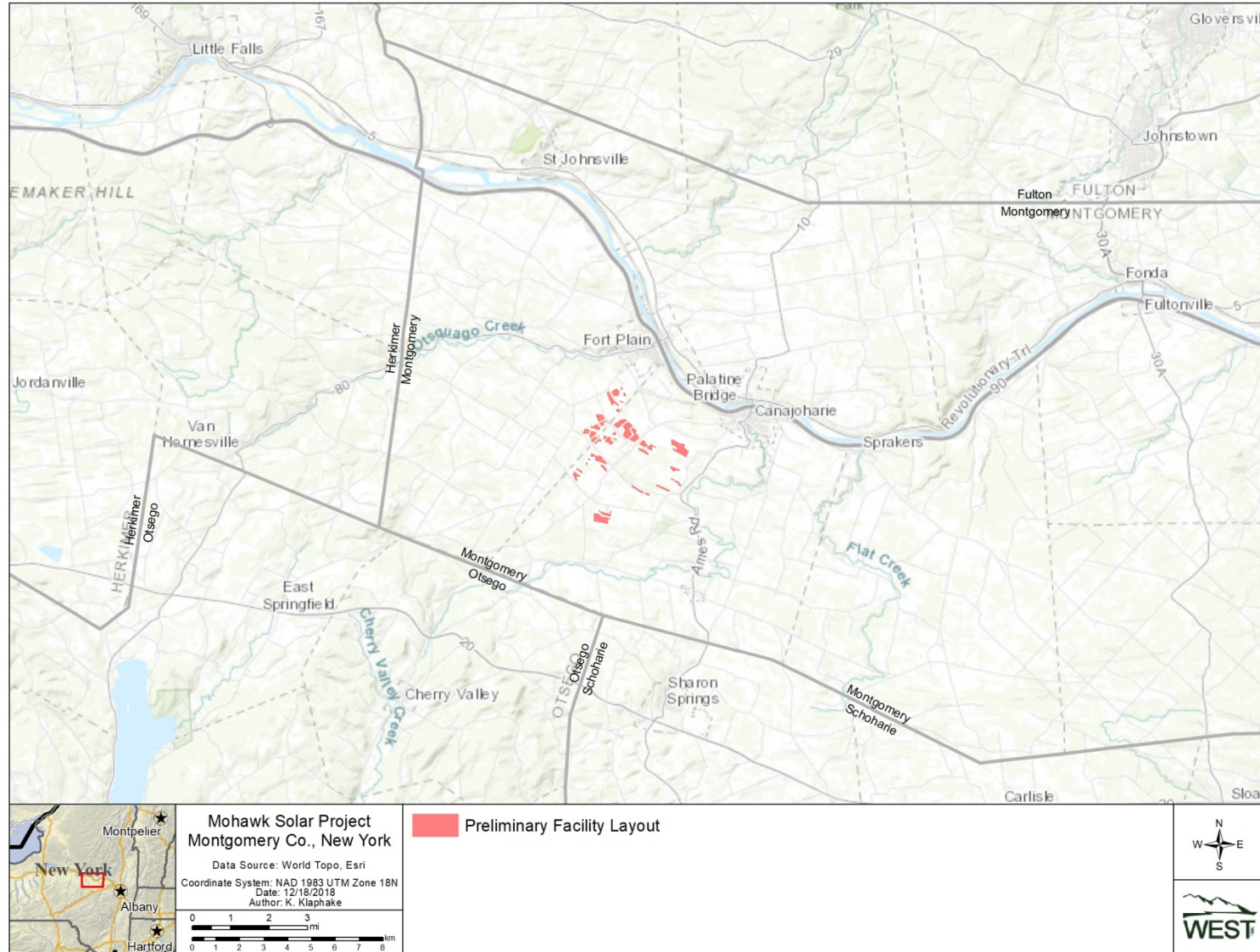


Figure 1. Location of the Mohawk Solar Project Facility Area in Montgomery County, New York.

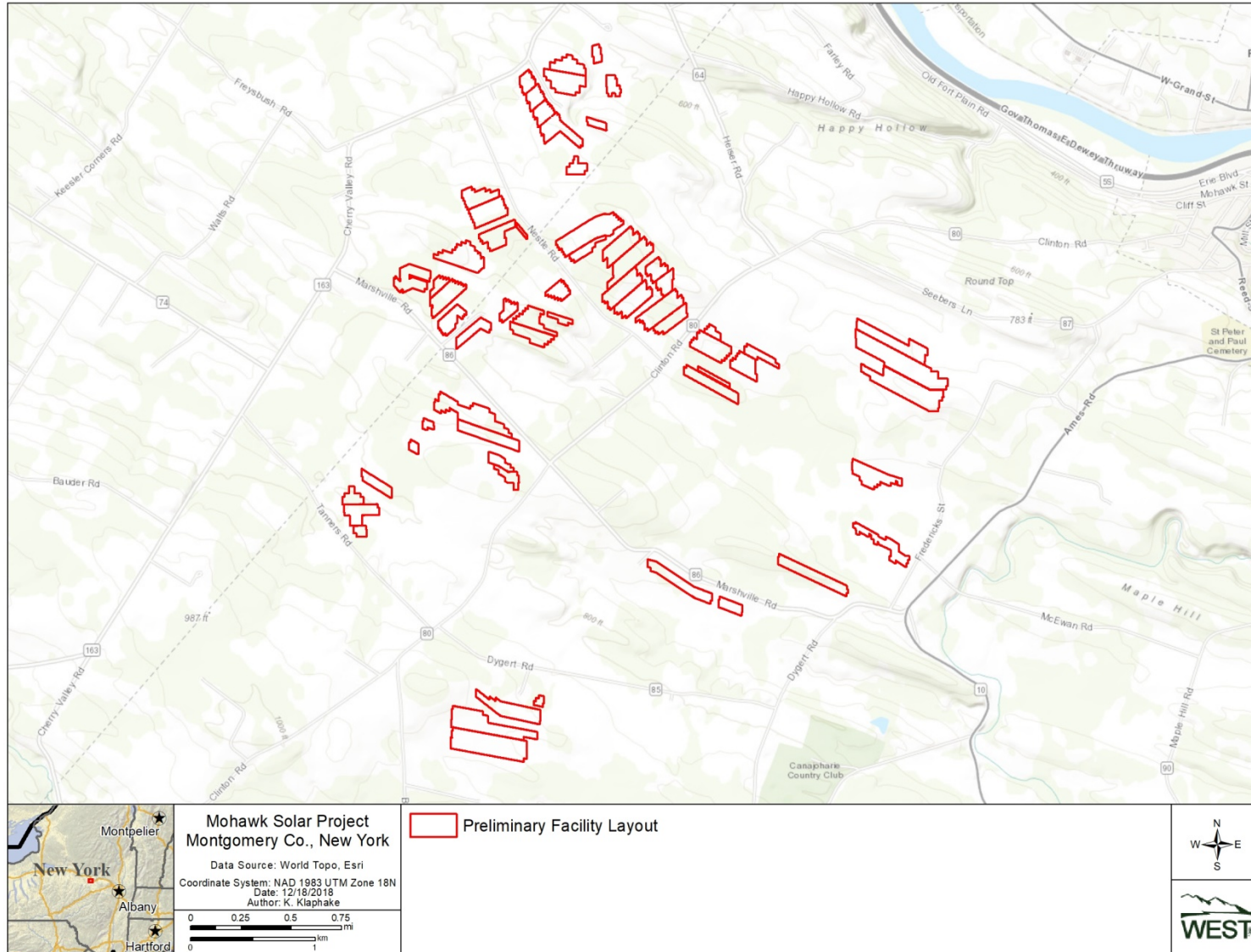


Figure 2. Overview of the Mohawk Solar Project Facility Area in Montgomery County, New York.

METHODS

Field Methods

Survey Transects and Plots

Breeding birds were surveyed along 15 300-meter (m; 984 feet [ft]) transects. Ten treatment transects were selected for surveys within the Facility, and five control transects were selected outside the Facility where no infrastructure is currently planned (Figure 3). All transects were placed in potential nesting habitat for state-listed grassland bird species based upon an examination of land use/land cover (NLCD 2011; Homer et al. 2015). Each transect consisted of six fixed point count locations along each transect with a 100 m (328 ft) radius survey plot around each point count location. One point count location was placed at each of the following distances along each transect: 25 m (82 ft), 75 m (246 ft), 125 m (410 ft), 175 m (574 ft), 225 m (738 ft), and 275 m (902 ft).

Survey Methods

A biologist walked each transect and completed a 10-minute survey at each fixed point count location. Surveys consisted of recording all birds seen or heard within a 100 m (328 ft) radius of the center of the survey plot. Data recorded for each survey included: start and end time of the observation period, weather information (i.e., temperature, wind speed, wind direction, and cloud cover), species identification, number of individuals of each species, method of observation (visual or auditory), behavior (nesting, flying, perching, singing, and other), habitat type, and approximate distance to each bird.

Survey Schedule

All 15 transects were surveyed weekly from April 17 to July 27, 2018. Surveys were conducted from one half hour before sunrise (i.e., first light) until 10:00 AM. After additional coordination with the NYSDEC, two evening transect surveys were conducted specifically for Henslow's sparrow, with one survey in mid-June and a second survey in mid-July (P. Novack, NYSDEC, pers. comm.). These two evening surveys began three hours before sunset and lasted until one hour after sunset. All 15 transects were surveyed during both of the weeks when evening surveys also took place. Surveys were not completed in inclement weather with the potential to impair bird observations such as rain or strong winds (greater than 24 km per hour [15 mi per hour]). Transect survey order was varied to avoid surveying any one transect at the same time of day during each morning or evening visit.

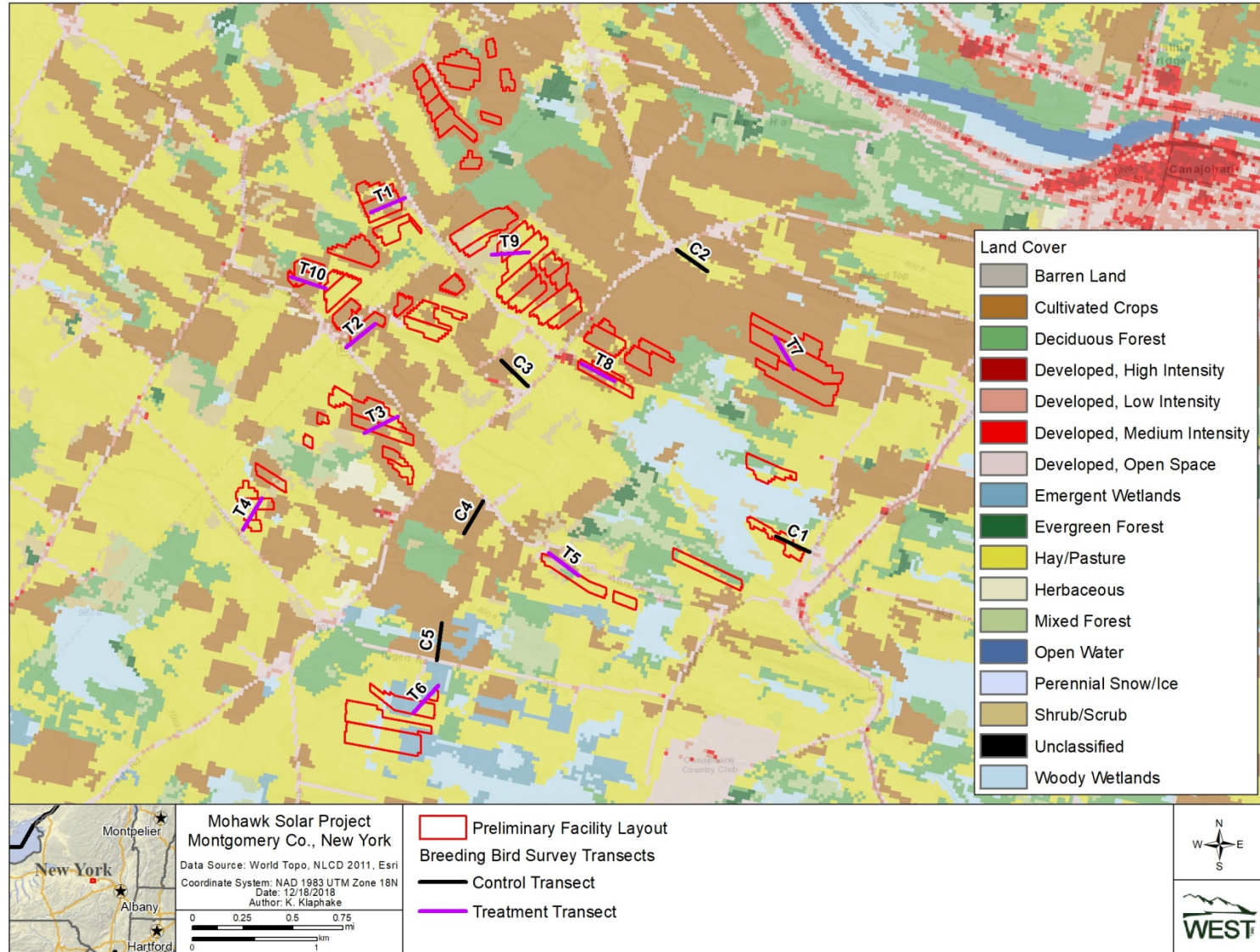


Figure 3. Land cover types present and breeding bird survey transect locations within the Mohawk Solar Project Facility Area in Montgomery County, New York.

Listed Species

The list of species observed during surveys was compared to the USFWS IPaC Trust Resources Report (USFWS 2018) obtained for the Facility, as well as to species lists maintained by the NYSDEC and the New York Natural Heritage Program (NYNHP; NYSDEC 2016b; NYNHP 2016, respectively). The species identified in the previous NYNHP correspondence were used to determine whether any federally or state-listed endangered, threatened, species of special concern (SSC), high priority species of greatest conservation need (HPSGCN), or species of greatest conservation need (SPCN) were observed during surveys. Update correspondence from the NYNHP was requested on December 21, 2018 and no response has been received to date.

Flight or movement paths for all federally- or state-listed, SSC, HPSGCN, and SGCN were mapped and given corresponding unique observation numbers. The map indicated whether each observation was within or outside the survey plot based on reference points at known distances from the plot center. Recent aerial photographs were also used to aid in recording locations of observations as accurately as possible.

Incidental Observations

Incidental observations were recorded, but were not included in the quantitative analysis for the study. Incidental observations included birds observed in transit between survey locations and flyovers of raptors, vultures, waterfowl, shorebirds, waterbirds, and corvids during transect surveys. The same types of data were recorded for both point count survey observations and incidental observations.

Statistical Analysis

Bird Species Composition, Relative Abundance, and Diversity

Bird species composition, relative abundance, and diversity were calculated by analyzing each transect using an aggregate of all bird data collected at each of the six point count survey plots along a given transect. A list of all bird observations and the number of observations organized by species and subgroup (i.e., guilds of similar birds such as blackbirds, sparrows, warblers, or corvids that have similar nesting habitat requirements) observed along each transect was also generated for each survey visit, as well as for the overall study period. This list provided a representation of bird species and subgroup composition. Bird relative abundance was expressed as the percentage of observations that were made for each species. Bird diversity was expressed as the total number of species¹ observed per transect. In some cases, the tally of observations may represent repeated sightings of the same individual.

Bird Use, Percent of Use, and Frequency

Estimates of bird use, calculated as the number of birds per transect per survey visit (birds/transect/survey visit) were calculated by determining the number of birds observed during

¹ Unidentified species were only included in the number of species if they were the only observed species of that guild (e.g., unidentified duck would only be included if it were the only duck observed).

each visit and then averaging by the number of transects surveyed during that survey visit, and then by the number of survey visits during the study period.

Percent of use was calculated as the proportion of total mean use that was attributable to a particular bird type or species. Frequency was calculated as the percent of surveys in which a particular bird type or species was observed.

Spatial Use

Differences in bird use between transect type (treatment or control) was assessed using two methods to investigate spatial use patterns across the Facility Area. First, comparisons were made at the transect level. Use for passerine subgroups and species at treatment and control transects was compared using a Mann-Whitney U-test. Second, comparisons were made between treatment and control transects at the point count survey plot level for passerine subgroups and species using a Mann-Whitney U-test. Therefore, differences between treatment and control transects were evaluated both among and within point count survey plots. Only passerine subgroups or species with sufficient sample sizes (i.e., at least 30 observations) were included in these analyses. P-values less than or equal to 0.1 were considered significant.

Data Compilation and Storage

A database was established to store, retrieve, and organize field observations. Data from field forms were keyed into electronic data files using a pre-defined format that made subsequent data analysis straightforward. All field data forms and electronic data files were retained for ready control.

Quality Assurance and Quality Control (QA/QC)

QA/QC measures were implemented at all stages of the study, including field data collection, data entry, data analysis, and report preparation. At the end of each survey day, the observer inspected his or her data forms for completeness, accuracy, and legibility. Periodically, the study team leader reviewed data forms to ensure completeness and legibility. Any problems detected were corrected. Any changes made to data forms were initialed and dated by the person making the change.

Data were checked thoroughly for data entry errors. Any errors were corrected by referencing the raw data forms and/or consulting with the observer who collected the data. Any irregular codes detected, or any data suspected as questionable, were discussed with the observer and the study team leader. Any changes made to the raw data were documented for future control. A senior level statistician reviewed the report methods and results for accuracy and to ensure sound study design.

RESULTS

A total of 254 transect surveys were completed during 17 visits from April 17 to July 27, 2018. All 15 transects were surveyed during each visit, except for the first week when transect T10 was not surveyed due to property access issues. Dates, species observed by point and transect, behavior, method of detection, and disruptions or distractions recorded during all survey visits are presented in Appendix A [REDACTED]. A list of weather conditions recorded during and immediately prior to survey visits is presented in Appendix B.

Statistical Analysis

Bird Species Composition, Relative Abundance, and Diversity

Overall, 12,883 bird observations within 9,432 separate groups were recorded during surveys (Appendix C). The majority (89.6%) of birds observed were passerines. The most commonly observed passerine subgroups included blackbirds/orioles (45.7% of all observations) and grassland/sparrows (25.9%), followed by finches/crossbills (5.8%), warblers (5.8%), swallows (4.5%), and thrushes (4.1%) (Appendix C). Ten additional passerine subgroups accounted for 8.2% of all observations.

Ninety-one unique bird species were observed during all surveys (Appendix C1). Five species accounted for 51.8% of all observations: red-winged blackbird (1,878 observations; *Agelaius phoeniceus*), song sparrow (1,248 observations; *Melospiza melodia*), bobolink (1,226 observations; *Dolichonyx oryzivorus*) European starling (1,190 observations; *Sturnus vulgaris*), and savannah sparrow (1,129 observations; *Passerculus sandwichensis*) (Appendix C1).

Transects C5, C1, and C2 had the highest species diversity with 15.06, 14.00, and 13.41 species/transect/survey, respectively (Appendix D1). The survey plots with the highest species diversity were Plot 1 along transect C1 and Plot 5 along transect C5 (6.76 species/plot/survey, each; Appendix D2).

Transect T7 had the lowest diversity of all transects (5.29 species/transect/survey; Appendix D1). The individual survey plots with the lowest species diversity were located along T8 (survey plots 2 and 5 with 2.06 and 2.13 species/plot/survey, respectively; Appendix D2). Overall, the control transects had greater species diversity than the treatment transects (Appendix D1).

Bird Use, Percent of Use, and Species Frequency

Overall mean use was 46.61 birds/transect/survey visit (Table 1). Passerines were observed during 100% of transect surveys (Table 1; Appendix E). Of the passerine subgroups, blackbirds/orioles accounted for 38.1% of bird use, followed by grassland/sparrows (25.1% of bird use). All other passerine subgroups accounted for less than 5.8% of bird use, individually (Table 1). Blackbirds/orioles were observed during 96.7% of all surveys and grassland/sparrows were observed during 98.3% of all surveys. Of the other bird types, doves/pigeons were the most frequently observed (38.6%).

Approximately 45.6% of overall use was composed of four of the five species that were observed mostly frequently. Red-winged blackbird had the highest mean use (7.20%), followed by song sparrow (4.85%), bobolink (4.69%), and Savannah sparrow (4.45%; Appendix E).

Table 1. Mean bird use (number of birds/transect/survey), percent of use, and frequency of occurrence for each bird type and passerine subgroup seen or heard within 100 meters (328 feet) of the observer recorded at point count survey plots during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.

Bird Type	Mean Use	Percent of Use	Frequency (%)
Waterbirds	0.12	0.2	8.4
Waterfowl	1.30	2.8	21.8
Shorebirds	0.48	1.0	24.1
Diurnal Raptors	0.18	0.4	12.0
Vultures	0.27	0.6	10.6
Upland Game Birds	<0.01	<0.1	0.4
Doves/Pigeons	1.89	4.1	38.6
Passerines	42.03	90.2	100
<u>Blackbirds/Orioles</u>	17.77	38.1	96.7
<u>Creepers/Nuthatches</u>	0.01	<0.1	1.2
<u>Finches/Crossbills</u>	2.69	5.8	66.2
<u>Flycatchers</u>	0.70	1.5	33.8
<u>Gnatcatchers/Kinglet</u>	<0.01	<0.1	0.4
<u>Grassland/Sparrows</u>	11.7	25.1	98.3
<u>Mimids</u>	1.45	3.1	51.6
<u>Swallows</u>	1.96	4.2	42.1
<u>Tanagers</u>	0.06	0.1	4.5
<u>Cardinals</u>	0.14	0.3	11.6
<u>Thrushes</u>	1.81	3.9	53.4
<u>Titmice/Chickadees</u>	0.12	0.3	6.2
<u>Vireos</u>	0.03	<0.1	2.8
<u>Warblers</u>	2.55	5.5	54.8
<u>Waxwings</u>	0.32	0.7	12.8
<u>Wrens</u>	0.10	0.2	6.1
<u>Corvids</u>	0.61	1.3	33.0
Swifts/Hummingbirds	0.01	<0.1	0.4
Woodpeckers	0.33	0.7	20.6
Kingfishers	<0.01	<0.1	0.8
Overall	46.61	100¹	

¹Sums of values may not add to total value shown, due to rounding

Spatial Use

For both treatment and control transects, bird use varied across the Facility Area (Table 2; Appendix F1 and F2). Use by passerine subgroups and species was analyzed at the point count survey plot location scale and is presented in Appendices G and H.

Based on the statistical threshold of 30 or more observations recorded, data for 11 passerine subgroups and 28 species were further analyzed (Table 2; Appendix G). Of the 28 species examined in greater detail, five species had significantly higher use at the treatment transects and 16 species had significantly higher use at the control transects (Table 2).

Table 2. Comparison of overall mean use at treatment and control transects for passerine subgroups and selected species seen or heard within 100 m (328 ft) of the observer recorded at point count survey plots during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018 (statistically significant differences [p-values less than or equal to 0.10] per Mann-Whitney U-test are bolded).

Bird Species/Type	Scientific Name	Mean Use Treatment Transects	Mean Use Control Transects	Difference of Means ¹	P-value
<u>Blackbirds/Orioles</u>		3.41	2.11	1.30	<0.01
brown-headed cowbird	<i>Molothrus ater</i>	0.01	0.08	-0.07	<0.01
bobolink	<i>Dolichonyx oryzivorus</i>	1.10	0.20	0.90	<0.01
common grackle	<i>Quiscalus quiscula</i>	0.41	0.48	-0.07	0.12
eastern meadowlark	<i>Sturnella magna</i>	0.14	0.06	0.08	<0.01
European starling	<i>Sturnus vulgaris</i>	0.38	0.38	-	<0.01
red-winged blackbird	<i>Agelaius phoeniceus</i>	1.37	0.89	0.48	<0.01
<u>Cardinals</u>		0.01	0.04	-0.03	<0.01
northern cardinal	<i>Cardinalis cardinalis</i>	0.01	0.04	-0.03	<0.01
<u>Finches/Crossbills</u>		0.42	0.48	-0.06	<0.01
American goldfinch	<i>Spinus tristis</i>	0.42	0.48	-0.06	<0.01
<u>Flycatchers</u>		0.09	0.17	-0.07	<0.01
alder flycatcher	<i>Empidonax alnorum</i>	0.01	0.07	-0.06	<0.01
eastern kingbird	<i>Tyrannus tyrannus</i>	0.05	0.05	0	0.93
willow flycatcher	<i>Empidonax traillii</i>	0.04	0.02	0.01	0.17
<u>Grassland/Sparrows</u>		1.76	2.30	-0.53	<0.01
eastern towhee	<i>Pipilo erythrophthalmus</i>	0	0.13	-0.13	<0.01
field sparrow	<i>Spizella pusilla</i>	0	0.12	-0.12	<0.01
grasshopper sparrow	<i>Ammodramus savannarum</i>	0.06	0	0.06	<0.01
horned lark	<i>Eremophila alpestris</i>	0.19	0.08	0.12	0.16
Savannah sparrow	<i>Passerculus sandwichensis</i>	0.81	0.60	0.21	<0.01
song sparrow	<i>Melospiza melodia</i>	0.61	1.21	-0.60	<0.01
swamp sparrow	<i>Melospiza georgiana</i>	0.04	0.07	-0.03	0.04
<u>Mimids</u>		0.18	0.37	-0.19	<0.01
brown thrasher	<i>Toxostoma rufum</i>	0.03	0.04	-0.02	0.20
gray catbird	<i>Dumetella carolinensis</i>	0.15	0.33	-0.18	<0.01
<u>Swallows</u>		0.21	0.54	-0.33	<0.01
barn swallow	<i>Hirundo rustica</i>	0.18	0.37	-0.18	<0.01
cliff swallow	<i>Petrochelidon pyrrhonota</i>	0	0.08	-0.08	<0.01
tree swallow	<i>Tachycineta bicolor</i>	0.03	0.09	-0.06	<0.01
<u>Thrushes</u>		0.26	0.38	-0.12	<0.01
American robin	<i>Turdus migratorius</i>	0.25	0.37	-0.12	<0.01
<u>Titmice/Chickadees</u>		0.01	0.04	-0.04	<0.01
black-capped chickadee	<i>Poecile atricapillus</i>	0.01	0.04	-0.04	<0.01
<u>Warblers</u>		0.32	0.66	-0.34	<0.01
common yellowthroat	<i>Geothlypis trichas</i>	0.16	0.37	-0.21	<0.01
yellow warbler	<i>Setophaga petechia</i>	0.15	0.24	-0.09	<0.01
<u>Waxwings</u>		0.05	0.06	-0.02	0.19
cedar waxwing	<i>Bombycilla cedrorum</i>	0.05	0.06	-0.02	0.19

Listed Species

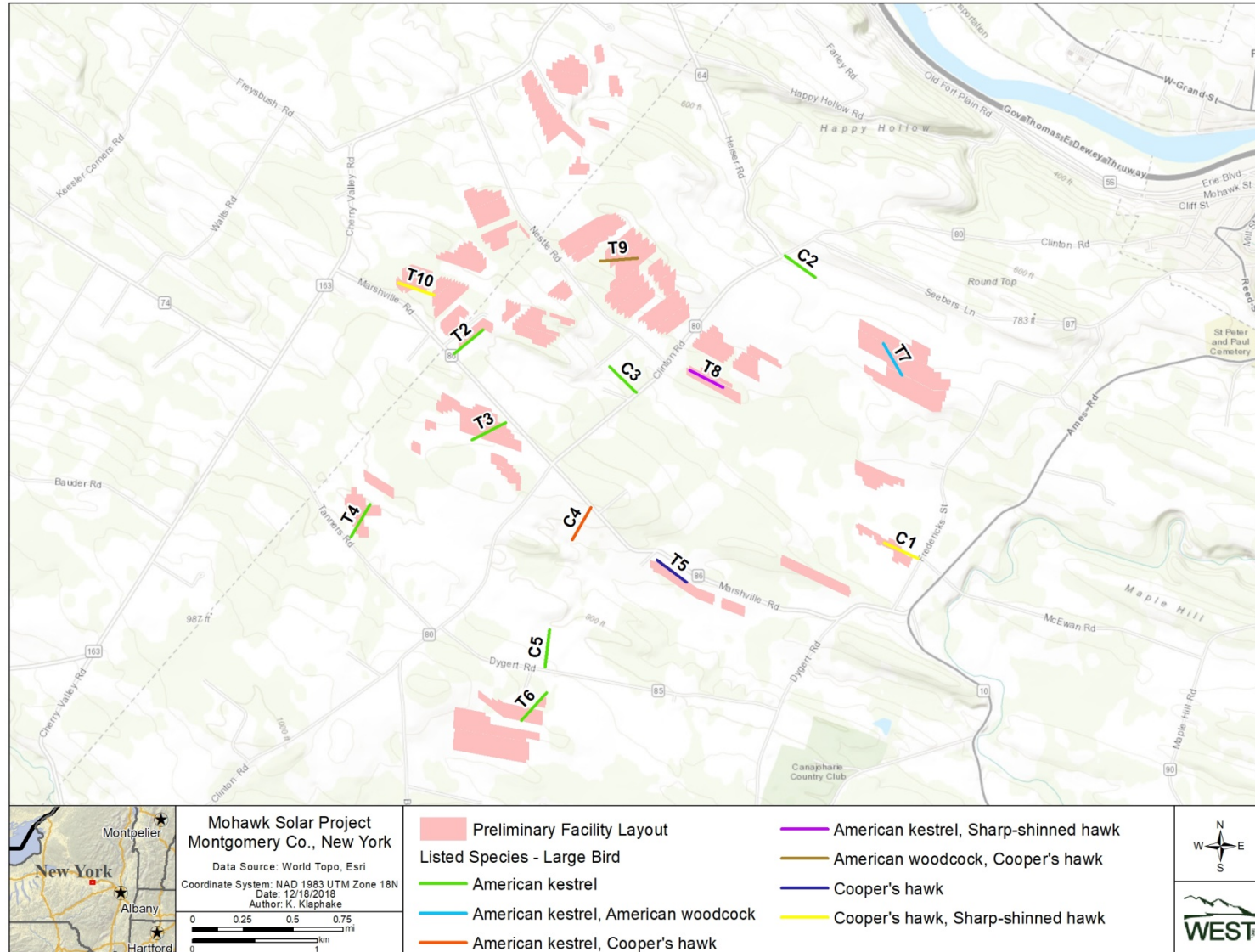
No federally threatened or endangered species were observed. Three state-listed threatened species were observed during surveys and/or incidentally: (1) northern harrier (21 observations); (2) upland sandpiper (two observations); and (3) pied-billed grebe (*Podilymbus podiceps*; two observations; Figure 4 [REDACTED]; Appendix I [REDACTED]). The two pied-billed grebe observations were auditory only and occurred outside of scheduled surveys near a small farm pond surrounded by cattails (*Typha* spp.) approximately 0.4 km (0.25 mi) [REDACTED] in an area with no planned infrastructure. No Henslow's sparrows or sedge wrens were recorded during surveys.

Four NYSDEC SSC were observed during surveys and/or incidentally: (1) Cooper's hawk (*Accipiter cooperii*; five observations), (2) sharp-shinned hawk (*Accipiter striatus*; four observations), (3) horned lark (*Eremophila alpestris*; 237 observations), and (4) grasshopper sparrow (*Ammodramus savannarum*; 57 observations; Figures 5 and; Appendix I [REDACTED]).

In addition, four SGCN were also observed during surveys: (1) American kestrel (*Falco sparverius*; 15 observations), (2) American woodcock (*Scolopax minor*; two observations), (3) blue-winged warbler (*Vermivora cyanoptera*; five observations), and (4) wood thrush (*Hylocichla mustelina*; 11 observations). Finally, three species of HPSGCN were also observed during surveys: (1) bobolink (*Dolichonyx oryzivorus*; 1,226 observations), (2) brown thrasher (*Toxostoma rufum*; 51 observations), (3) and eastern meadowlark (*Sturnella magna*; 178 observations; Figures 5 – 7; Appendix I [REDACTED]).

Incidental Observations

Incidental observations of four bird species (totaling 12 observations within seven separate groups) were recorded by biologists in-transit between surveys (Appendix C2). Pied-billed grebe (two observations) and least sandpiper (*Calidris minutilla*; six observations) were only observed incidentally. As previously stated, both of the pied-billed grebe observations were auditory only.



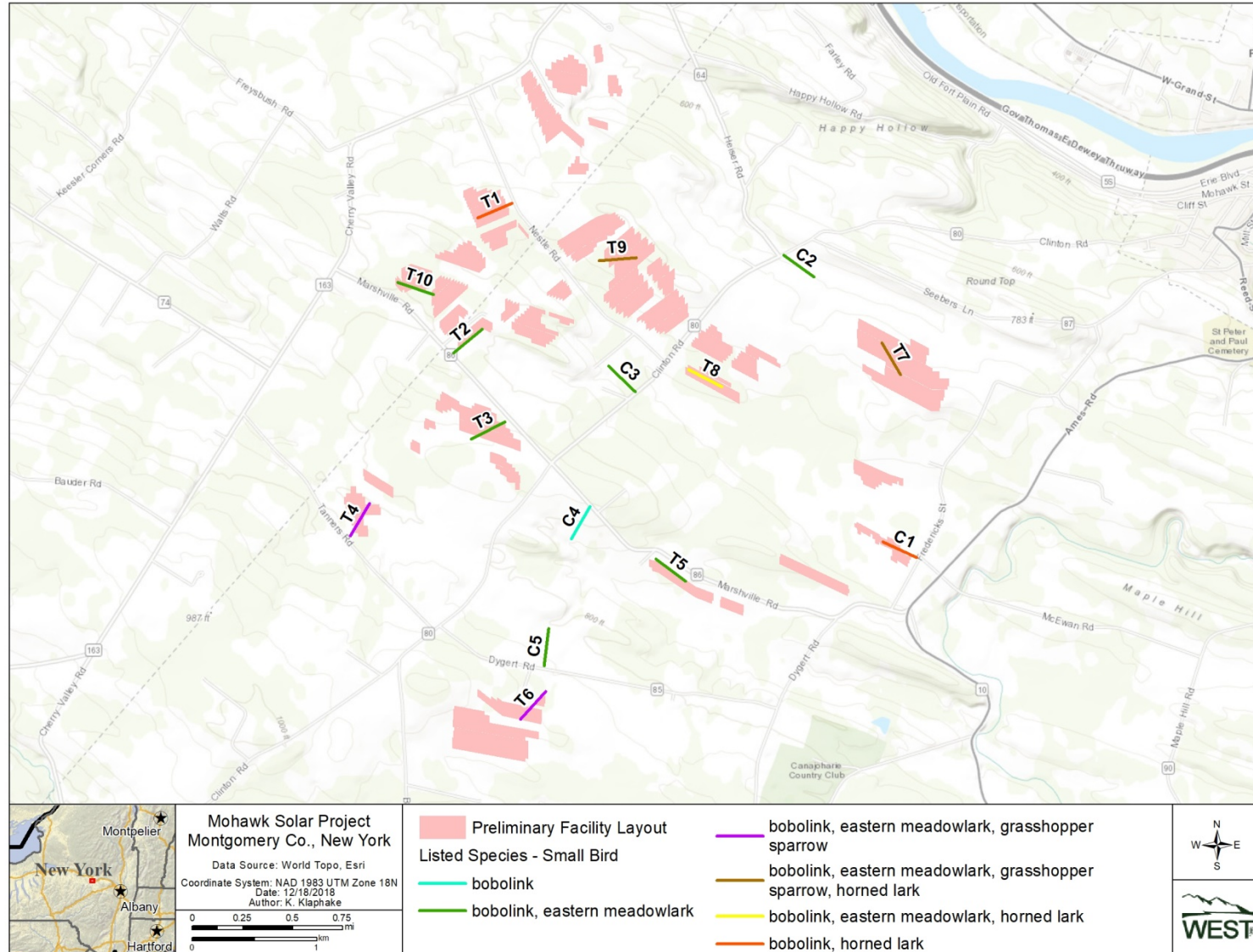


Figure 6. Transects where SSC, HPSGCN, and SGCN observations (small bird species) were recorded during surveys at the Mohawk Solar Project Facility Area in Montgomery County, New York.

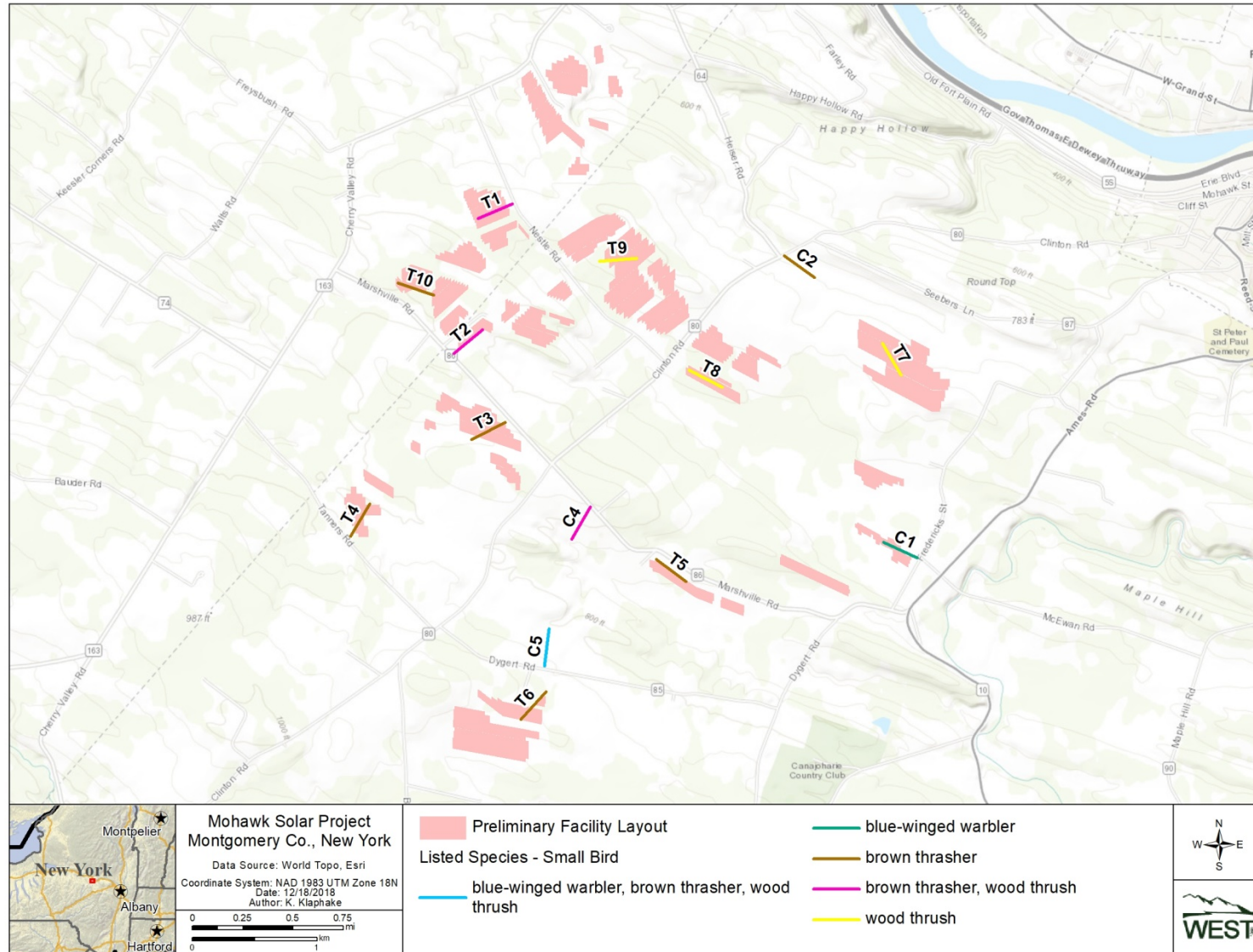


Figure 7. Transects where HPSGCN and SGCN observations (additional small bird species) were recorded during surveys at the Mohawk Solar Project Facility Area in Montgomery County, New York.

DISCUSSION

Two state-listed threatened grassland bird species, upland sandpiper (two observations) and northern harrier (21 observations), were detected during surveys. Both upland sandpiper observations occurred during transect surveys that were conducted in July. One was an in-flight observation at [REDACTED] on July 9 and the other was an auditory observation at [REDACTED] on July 11 (Figure 4 [REDACTED]; Appendix I [REDACTED]). Based on the timing and limited number of upland sandpiper observations and lack of observed courtship behavior, it is unlikely that upland sandpiper are nesting in areas where transect surveys occurred.

Of the 21 northern harrier observations, 18 occurred during transect surveys and three occurred incidentally outside of scheduled surveys. The majority of northern harrier observations occurred during surveys at [REDACTED] in April and at [REDACTED] in June (Figure 4; Appendix I [REDACTED]). Northern harriers were most often observed flying, hunting, and perching. During surveys at [REDACTED] on June 18, a male northern harrier was observed dropping prey in a hayfield northwest of the transect outside of the Facility Area. A female northern harrier was subsequently observed flying down into the same area where the male had previously dropped prey. The use of the area north of [REDACTED] outside of the Facility Area by a male and female northern harrier may indicate a possible nest in the vicinity; however, no further investigation was completed so as not to disturb any potential northern harrier nesting activity.

The two pied-billed grebe were heard incidentally near a small farm pond surrounded by cattails approximately 0.4 km (0.25 mi) north of [REDACTED] in an area where no infrastructure is planned. The area where the pied-billed grebes were heard is typical of habitat where this species is observed in New York (Muller and Storer 1999). No pied-billed grebe were heard or seen during transect surveys or incidentally in areas where infrastructure are planned.

Based on the study results of comparisons between passerine subgroups and passerine species (Appendices G and H), statistical differences in bird use were observed between treatment and control transects. Most observed mean use was higher at control transects than treatment transects; however, habitat variables were not measured and any conclusions regarding potential factors responsible for differences would be speculation. Additionally, no strong use patterns were noted when qualitatively comparing use along control and treatment transects, which may further reflect natural variation in use across the Facility Area.

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**Appendix A [REDACTED]: List of All Bird Observations Recorded During Breeding Bird
Surveys at the Mohawk Solar Project from April 17 – July 27, 2018**

**Appendix B: Weather Conditions Recorded During and Immediately Prior to the Breeding
Bird Surveys at the Mohawk Solar Project from April 17 – July 27, 2018**

Appendix B. Weather conditions recorded during and immediately before breeding bird surveys at the Mohawk Solar Project, April 17 – July 27, 2018.

Round	Date	Temperature (°F)		Prevailing Wind Direction	Wind Speed (mph)		Precipitation
		High	Low		Maximum	Minimum	
Round 1 Previous Day	4/16/2018	39	34	NE	10	2	none
	4/17/2018	37	35	W, NW	8	5	light rain
Round 1	4/18/2018	35	33	W	7	5	light snow, light rain, none
	4/19/2018	34	32	NW	2	0	light snow
	4/20/2018	31	30	W	10	8	none
	4/21/2018	44	24	W	7	2	none
	4/21/2018	44	24	W	7	2	none
Round 2 Previous Day	4/21/2018	44	24	W	7	2	none
	4/22/2018	38	25	W	2	2	none
Round 2	4/23/2018	41	25	N, NA, SE	1	0	none
	4/24/2018	45	35	NE, NA	2	0	none
	4/26/2018	49	46	W	8	3	none
	4/27/2018	40	33	SE, NA	1	0	none
	4/28/2018	59	46	S	6	3	none
Round 3 Previous Day	4/28/2018	59	46	S	6	3	none
	4/29/2018	38	37	W	10	8	none, light rain
Round 3	4/30/2018	67	37	W, SW	8	3	none, light rain
	5/1/2018	54	37	W, NA	3	0	none
	5/2/2018	52	42	W, NA	3	0	none
	5/3/2018	67	60	SW, NA	3	0	none
	5/5/2018	64	54	W	14	8	none
Round 4 Previous Day	5/5/2018	64	54	W	14	8	none
	5/6/2018	56	54	SW, W	3	1	light rain, none
Round 4	5/7/2018	56	53	NE	3	1	none
	5/8/2018	53	37	NA, SW	2	0	none
	5/9/2018	50	45	SE, NA	2	0	none
	5/10/2018	64	54	SE	4	2	none, light rain
	5/12/2018	48	46	NE	6	3	none
Round 5 Previous Day	5/12/2018	48	46	NE	6	3	none
	5/13/2018	47	44	E, NA	4	0	none
Round 5	5/14/2018	57	54	SW, W	2	2	none
	5/15/2018	63	53	SW, NA	5	0	none, light rain
	5/16/2018	54	50	SE, SW	5	2	none
	5/17/2018	60	57	SW, NA	2	0	none
	5/19/2018	54	48	S	9	0	none, light rain
Round 6 Previous Day	5/19/2018	54	48	S	9	0	none, light rain
	5/20/2018	63	58	SW, NW	6	2	none, light rain
Round 6	5/20/2018	63	58	SW, NW	6	2	none, light rain
	5/21/2018	57	48	N/A, W	2	0	none

Appendix B. Weather conditions recorded during and immediately before breeding bird surveys at the Mohawk Solar Project, April 17 – July 27, 2018.

Round	Date	Temperature (°F)		Prevailing Wind Direction	Wind Speed (mph)		Precipitation
		High	Low		Maximum	Minimum	
Round 7 Previous Day	5/23/2018	63	55	W	5	5	none
	5/24/2018	55	48	W	5	3	none
	5/25/2018	60	48	W	4	2	none
	5/26/2018	68	60	W	5	0	none
Round 7	5/27/2018	65	62	SE, SW	3	3	none, light rain
	5/28/2018	54	52	E	3	2	none
	5/29/2018	67	54	N/A, NW	3	0	none
	5/30/2018	62	58	E	3	1	none
	5/31/2018	65	55	E	4	3	none
Round 8 Previous Day	6/2/2018	66	57	N, NE	9	7	none
	6/3/2018	62	57	E	22	2	none
	6/4/2018	52	48	SE	6	4	none
Round 8	6/5/2018	59	52	W	3	2	none, light rain
	6/6/2018	55	52	W	4	2	none
	6/7/2018	58	48	NA, W	0	0	none
Round 9 Previous Day	6/9/2018	63	50	W, NW	7	3	none
	6/10/2018	60	50	NA, NW	2	1	none
Round 9	6/11/2018	56	48	NA, SE	6	2	none
	6/12/2018	57	48	N, W, SW, NW	4	2	none
	6/13/2018	63	59	SW	5	3	none
	6/14/2018	63	60	NW	9	4	none
Round 10 Previous Day	6/16/2018	72	52	W, NW	9	0	none
	6/17/2018	59	49	W, NA	2	0	none
Round 10	6/18/2018	80	65	W, NA, NW	6	0	none, rain
	6/19/2018	75	62	NW, W, SW	9	4	none
	6/20/2018	66	59	NA, NW, SW, W	5	3	none
Round 11 Previous Day	6/17/2018	59	49	W, NA	2	0	none
	6/18/2018	80	78	W, NA, NW	10	8	none, rain
Round 11	6/20/2018	74	50	NA, NW, SW, W	6	0	none
				NW, NA, N, NE, E,			
	6/21/2018	78	50	W	12	0	none
	6/22/2018	79	69	SE, E	10	5	none

Appendix B. Weather conditions recorded during and immediately before breeding bird surveys at the Mohawk Solar Project, April 17 – July 27, 2018.

Round	Date	Temperature (°F)		Prevailing Wind Direction	Wind Speed (mph)		Precipitation
		High	Low		Maximum	Minimum	
Round 12 Previous Day	6/23/2018	63	57	E, NE	5	0	none
Round 12	6/24/2018	62	57	NA, NW	1	0	none
	6/25/2018	64	60	NW	8	4	none
	6/26/2018	56	42	NA	0	0	none
	6/27/2018	61	56	NA, E	5	0	none
	6/28/2018	63	53	NA	0	0	none, light rain
Round 13 Previous Day	6/30/2018	64	62	S	3	0	none
Round 13	7/1/2018	80	68	W	2	1	none
	7/2/2018	80	69	NA	0	0	none
	7/3/2018	75	68	NA, W	2	0	none
	7/4/2018	72	64	NA, E	2	0	none
	7/5/2018	81	68	E, NW, S, NA, SW	1	0	none
Round 14 Previous Day	7/7/2018	73	61	E, NE	7	3	none
Round 14	7/8/2018	59	59	E, NW, S, NA, SW	1	1	none
	7/9/2018	60	53	NA	0	0	none
	7/10/2018	69	56	SW	1	1	none
	7/11/2018	77	56	NA, W	1	0	none
	7/12/2018	70	62	NA, NW	2	0	none
	7/13/2018	72	52	NA, NW	1	0	none
Round 15 Previous Day	7/14/2018	85	68	SE, SW	6	3	none
Round 15	7/15/2018	80	71	NW, W, NA	1	0	none
	7/16/2018	98	64	E, NE, SE, S, NA	5	0	none
	7/17/2018	80	68	NW, W, SW	10	2	none
	7/18/2018	74	62	NW, W, NA	15	2	none
Round 16 Previous Day	7/15/2018	80	71	NW, W, NA	1	0	none
Round 16	7/16/2018	82	80	E, NE, SE, S, NA	3	2	none,
	7/18/2018	67	61	NW, W, NA	1	0	none
	7/19/2018	81	49	NW, N, NA	3	0	none
	7/20/2018	85	51	E, SE, S, NA	12	0	none
Round 17 Previous Day	7/21/2018	75	70	S	9	5	none
Round 17	7/22/2018	65	62	E	11	6	light rain, none
	7/23/2018	73	71	E, N	4	2	none, light rain
	7/24/2018	76	71	E	6	1	none
	7/25/2018	76	68	NA, E	6	0	none

**Appendix B. Weather conditions recorded during and immediately before breeding bird surveys at the Mohawk Solar Project,
April 17 – July 27, 2018.**

Round	Date	Temperature (°F)		Prevailing Wind Direction	Wind Speed (mph)		Precipitation
		High	Low		Maximum	Minimum	
	7/26/2018	72	68	NA, W	3	0	light rain, none
	7/27/2018	75	64	W, NA, SW	3	0	none

Day before rounds = summary of conditions for entire day; day of surveys = actual conditions while surveying.

**Appendix C: Birds Observed During Breeding Bird Surveys at the Mohawk Solar Project
from April 17 – July 27, 2018**

Appendix C1. Total number of groups and observations for each bird type, passerine subgroup, and species seen or heard within 100 meters (328 feet) of the observer recorded at point count survey plots during the breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.

Bird Type / Species ¹	Scientific Name	Visit 1		Visit 2		Visit 3		Visit 4		Visit 5		Visit 6		Visit 7		Visit 8		Visit 9	
		# grps ²	# obs ²	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs
Waterbirds		1	2	0	0	1	1	2	3	3	3	0	0	2	2	1	1	0	0
great blue heron	<i>Ardea herodias</i>	1	2	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
green heron	<i>Butorides virescens</i>	0	0	0	0	1	1	2	3	2	2	0	0	2	2	1	1	0	0
Waterfowl		9	53	7	51	9	53	20	56	9	17	10	19	13	28	10	14	5	19
Canada goose	<i>Branta canadensis</i>	7	50	4	47	6	49	17	53	7	14	6	14	5	12	7	10	3	16
hooded merganser	<i>Lophodytes cucullatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
mallard	<i>Anas platyrhynchos</i>	2	3	3	4	3	4	2	2	2	3	2	3	8	16	3	4	1	2
unidentified duck		0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	1	1
wood duck	<i>Aix sponsa</i>	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Shorebirds		1	1	2	3	6	19	9	12	6	7	1	1	3	3	3	3	8	9
American woodcock	<i>Scolopax minor</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
greater yellowlegs	<i>Tringa melanoleuca</i>	0	0	0	0	1	13	0	0	0	0	0	0	0	0	0	0	0	0
killdeer	<i>Charadrius vociferus</i>	1	1	2	3	5	6	7	10	6	7	1	1	2	2	3	3	8	9
spotted sandpiper	<i>Actitis macularius</i>	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
upland sandpiper	<i>Bartramia longicauda</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wilson's snipe	<i>Gallinago delicata</i>	0	0	0	0	0	0	1	1	0	0	0	0	1	1	0	0	0	0
Diurnal Raptors		9	9	2	2	5	5	2	2	1	1	0	0	2	2	4	4	1	1
American kestrel	<i>Falco sparverius</i>	0	0	1	1	2	2	1	1	1	1	0	0	0	0	0	0	0	0
Cooper's hawk	<i>Accipiter cooperii</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
northern harrier	<i>Circus cyaneus</i>	7	7	1	1	0	0	1	1	0	0	0	0	1	1	2	2	1	1
red-tailed hawk	<i>Buteo jamaicensis</i>	1	1	0	0	3	3	0	0	0	0	0	0	1	1	0	0	0	0
sharp-shinned hawk	<i>Accipiter striatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
unidentified raptor		0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
Vultures		0	0	0	0	1	1	3	3	3	3	1	1	9	15	2	2	4	4
black vulture	<i>Coragyps atratus</i>	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0

Appendix C1. Total number of groups and observations for each bird type, passerine subgroup, and species seen or heard within 100 meters (328 feet) of the observer recorded at point count survey plots during the breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.

Bird Type / Species ¹	Scientific Name	Visit 1		Visit 2		Visit 3		Visit 4		Visit 5		Visit 6		Visit 7		Visit 8		Visit 9	
		# grps ²	# obs ²	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs
turkey vulture	<i>Cathartes aura</i>	0	0	0	0	1	1	3	3	2	2	1	1	9	15	2	2	4	4
Upland Game Birds		0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
wild turkey	<i>Meleagris gallopavo</i>	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
Doves/Pigeons		7	29	3	5	11	16	5	10	12	26	13	24	11	19	11	23	8	17
	<i>Zenaida macroura</i>	2	3	0	0	3	4	1	1	4	6	4	4	4	7	3	4	5	6
mourning dove	<i>Columba livia</i>	5	26	3	5	8	12	4	9	8	20	9	20	7	12	8	19	3	11
Passerines		183	445	389	494	378	521	546	600	609	708	643	682	635	667	668	716	699	791
<u>Corvids</u>		7	11	7	7	10	13	10	11	8	10	3	3	10	11	3	4	6	6
American crow	<i>Corvus brachyrhynchos</i>	4	5	3	3	6	6	7	7	5	7	2	2	10	11	2	3	5	5
	<i>Cyanocitta cristata</i>	2	5	3	3	4	7	1	1	2	2	1	1	0	0	0	0	1	1
blue jay	<i>Corvus corax</i>	1	1	1	1	0	0	2	3	1	1	0	0	0	0	1	1	0	0
common raven		69	103	132	213	143	188	254	292	315	396	334	356	325	346	313	338	365	432
<u>Blackbirds/Orioles</u>																			
Baltimore oriole	<i>Icterus galbula</i>	0	0	0	0	0	0	2	2	5	5	2	2	0	0	0	0	0	0
	<i>Dolichonyx oryzivorus</i>	0	0	0	0	12	22	77	92	135	170	155	161	136	145	151	161	143	150
bobolink																			
brown-headed cowbird	<i>Molothrus ater</i>	2	2	1	1	1	1	0	0	0	0	2	2	4	5	1	1	5	6
	<i>Quiscalus quiscula</i>	11	21	21	39	21	35	18	28	26	48	31	39	43	49	38	46	46	57
common grackle																			
eastern meadowlark	<i>Sturnella magna</i>	4	4	15	15	20	21	26	29	12	12	10	10	9	9	4	6	9	9
European starling	<i>Sturnus vulgaris</i>	5	20	4	9	3	5	2	2	5	6	10	12	3	3	5	7	21	64
red-winged blackbird	<i>Agelaius phoeniceus</i>	47	56	91	149	86	104	129	139	132	155	124	130	130	135	114	117	141	146
<u>Creepers/Nuthatches</u>		1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	<i>Certhia americana</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brown creeper																			
white-breasted nuthatch	<i>Sitta carolinensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<u>Finches/Crossbills</u>		0	0	17	20	16	18	27	32	19	26	25	30	6	8	20	25	17	26

Appendix C1. Total number of groups and observations for each bird type, passerine subgroup, and species seen or heard within 100 meters (328 feet) of the observer recorded at point count survey plots during the breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.

[illegible]

Appendix C1. Total number of groups and observations for each bird type, passerine subgroup, and species seen or heard within 100 meters (328 feet) of the observer recorded at point count survey plots during the breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.

Bird Type / Species ¹	Scientific Name	Visit 1		Visit 2		Visit 3		Visit 4		Visit 5		Visit 6		Visit 7		Visit 8		Visit 9	
		# grps ²	# obs ²	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs
Savannah sparrow	<i>domesticus</i> <i>Passerculus sandwichensis</i>	4	4	75	76	94	97	82	83	46	48	48	50	54	55	53	55	65	67
song sparrow	<i>Melospiza melodia</i>	63	63	98	98	57	57	74	74	80	80	71	71	64	64	83	83	86	86
swamp sparrow	<i>Melospiza georgiana</i>	0	0	3	3	6	6	3	3	0	0	2	2	0	0	3	3	3	3
unidentified sparrow		0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	1	1
white-crowned sparrow	<i>Zonotrichia leucophrys</i>	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
white-throated sparrow	<i>Zonotrichia albicollis</i>	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
<u>Mimids</u>		4	4	9	9	7	7	15	15	20	21	30	30	22	22	27	27	18	19
brown thrasher	<i>Toxostoma rufum</i>	1	1	9	9	7	7	7	7	1	1	2	2	4	4	4	4	2	3
	<i>Dumetella carolinensis</i>	1	1	0	0	0	0	8	8	19	20	28	28	18	18	23	23	16	16
gray catbird	<i>Mimus polyglottos</i>	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
northern mockingbird		0	0	3	5	8	8	13	21	11	14	13	20	24	29	26	39	22	31
<u>Swallows</u>		0	0	2	4	6	6	10	17	7	8	8	15	15	20	18	27	18	27
barn swallow	<i>Hirundo rustica</i>	0	0	0	0	0	0	0	0	0	0	0	0	4	4	5	8	3	3
cliff swallow	<i>Petrochelidon pyrrhonota</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	<i>Tachycineta bicolor</i>	0	0	1	1	2	2	3	4	4	6	5	5	5	5	3	4	1	1
tree swallow		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
<u>Tanagers</u>		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
	<i>Passerina cyanea</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
indigo bunting		3	3	6	6	2	2	2	2	0	0	1	1	1	1	0	0	0	0
<u>Cardinals</u>		3	3	6	6	2	2	2	2	0	0	1	1	1	1	0	0	0	0
	<i>Cardinalis cardinalis</i>	3	3	6	6	2	2	2	2	0	0	1	1	1	1	0	0	0	0
northern cardinal		21	105	29	47	20	21	14	15	16	17	14	14	9	10	13	14	11	11
<u>Thrushes</u>		21	105	29	47	20	21	14	15	16	17	14	14	9	10	13	14	11	11
	<i>Turdus migratorius</i>	21	105	27	45	20	21	13	14	15	16	14	14	9	10	13	14	10	10
American robin		21	105	27	45	20	21	13	14	15	16	14	14	9	10	13	14	10	10

Appendix C1. Total number of groups and observations for each bird type, passerine subgroup, and species seen or heard within 100 meters (328 feet) of the observer recorded at point count survey plots during the breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.

Bird Type / Species ¹	Scientific Name	Visit 1		Visit 2		Visit 3		Visit 4		Visit 5		Visit 6		Visit 7		Visit 8		Visit 9	
		# grps ²	# obs ²	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs
eastern bluebird	<i>Sialia sialis</i>	0	0	2	2	0	0	1	1	0	0	0	0	0	0	0	0	0	0
veery	<i>Catharus fuscescens</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
wood thrush	<i>Hylocichla mustelina</i>	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1
<u>Titmice/</u> <u>Chickadees</u>		0	0	0	0	1	2	1	1	6	8	2	2	0	0	2	2	1	1
black-capped chickadee	<i>Poecile atricapillus</i>	0	0	0	0	1	2	1	1	6	8	2	2	0	0	2	2	1	1
tufted titmouse	<i>Baeolophus bicolor</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<u>Vireos</u>		0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1	1	1
red-eyed vireo	<i>Vireo olivaceus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
warbling vireo	<i>Vireo gilvus</i>	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1	1	1
<u>Warblers</u>		0	0	1	1	3	3	36	36	63	63	63	64	79	79	81	81	62	62
American redstart	<i>Setophaga ruticilla</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6	0	0
black-and-white warbler	<i>Mniotilta varia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
blue-winged warbler	<i>Vermivora cyanoptera</i>	0	0	0	0	0	0	0	0	2	2	0	0	1	1	1	1	1	1
chestnut-sided warbler	<i>Setophaga pensylvanica</i>	0	0	0	0	0	0	0	0	2	2	0	0	2	2	0	0	0	0
common yellowthroat	<i>Geothlypis trichas</i>	0	0	1	1	0	0	13	13	36	36	32	33	39	39	34	34	30	30
Nashville warbler	<i>Oreothlypis ruficapilla</i>	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
ovenbird	<i>Seiurus aurocapilla</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
yellow warbler	<i>Setophaga petechia</i>	0	0	0	0	3	3	23	23	23	23	30	30	37	37	40	40	31	31
<u>Waxwings</u>		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	8
cedar waxwing	<i>Bombycilla cedrorum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	8
<u>Wrens</u>		0	0	0	0	2	2	2	2	3	3	4	4	5	5	4	4	2	2
house wren	<i>Troglodytes</i>	0	0	0	0	2	2	2	2	3	3	4	4	5	5	4	4	2	2

Appendix C1. Total number of groups and observations for each bird type, passerine subgroup, and species seen or heard within 100 meters (328 feet) of the observer recorded at point count survey plots during the breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.

Bird Type / Species ¹	Scientific Name	Visit 1		Visit 2		Visit 3		Visit 4		Visit 5		Visit 6		Visit 7		Visit 8		Visit 9	
		# grps ²	# obs ²	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs
Swifts/ Hummingbirds	<i>aedon</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
chimney swift	<i>Chaetura pelagica</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Woodpeckers		7	9	7	9	7	7	4	4	2	2	2	2	2	2	2	2	2	2
downy	<i>Picoides pubescens</i>	3	3	0	0	2	2	1	1	0	0	0	0	0	0	0	0	0	0
hairy woodpecker	<i>Picoides villosus</i>	1	2	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
northern flicker	<i>Colaptes auratus</i>	3	4	7	9	4	4	3	3	1	1	2	2	1	1	1	1	2	2
pileated	<i>Dryocopus pileatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
red-bellied	<i>Melanerpes carolinus</i>	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
woodpecker		0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1	0	0
yellow-bellied	<i>Sphyrapicus varius</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sapsucker		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kingfishers		0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
belted kingfisher	<i>Megasceryle alcyon</i>	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Overall		217	548	411	565	418	623	591	690	645	767	671	730	677	738	701	765	727	843

¹ Passerine species and their respective subgroups with 30 or more observations were included in the displacement analysis

² #grps = number of groups, #obs = number of observations

Appendix C1 (continued). Total number of groups and observations for each bird type, passerine subgroup, and species seen or heard within 100 meters (328 feet) of the observer recorded at point count survey plots during the breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.

Bird Type / Species ¹	Scientific Name	Visit 10		Visit 11		Visit 12		Visit 13		Visit 14		Visit 15		Visit 16		Visit 17		Overall	
		# grps ²	# obs ²	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs
Waterbirds		1	1	3	3	1	1	2	3	3	3	3	3	4	4	4	4	31	34
great blue heron	<i>Ardea herodias</i>	0	0	2	2	0	0	0	0	2	2	0	0	3	3	2	2	11	12
	<i>Butorides</i>																		
green heron	<i>virescens</i>	1	1	1	1	1	1	2	3	1	1	3	3	1	1	2	2	20	22
Waterfowl		1	2	4	10	4	22	0	0	0	0	0	0	3	10	0	0	104	354
	<i>Branta</i>																		
Canada goose	<i>canadensis</i>	1	2	1	6	4	22	0	0	0	0	0	0	0	0	0	0	68	295
hooded merganser	<i>Lophodytes cucullatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	1	7	0	0	1	7
	<i>Anas</i>																		
mallard	<i>platyrhynchos</i>	0	0	1	1	0	0	0	0	0	0	0	0	2	3	0	0	29	45
unidentified duck		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
wood duck	<i>Aix sponsa</i>	0	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	3	4
Shorebirds		7	7	13	15	7	8	6	6	3	3	10	13	7	8	9	15	101	133
American woodcock	<i>Scolopax minor</i>	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2	2
	<i>Tringa</i>																		
greater yellowlegs	<i>melanoleuca</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	13
	<i>Charadrius</i>																		
killdeer	<i>vociferus</i>	6	6	10	12	6	7	6	6	1	1	10	13	7	8	9	15	90	110
	<i>Actitis</i>																		
spotted sandpiper	<i>macularius</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
	<i>Bartramia</i>																		
upland sandpiper	<i>longicauda</i>	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	2	2
	<i>Gallinago</i>																		
Wilson's snipe	<i>delicata</i>	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	4	4
Diurnal Raptors		8	9	6	7	2	3	6	6	6	6	7	7	8	8	5	5	74	77
American kestrel	<i>Falco sparverius</i>	1	1	1	1	0	0	1	1	0	0	3	3	4	4	0	0	15	15
	<i>Accipiter</i>																		
Cooper's hawk	<i>cooperii</i>	0	0	1	1	0	0	0	0	0	0	1	1	1	1	0	0	5	5
northern harrier	<i>Circus cyaneus</i>	4	4	0	0	0	0	0	0	1	1	0	0	0	0	0	0	18	18

Appendix C1 (continued). Total number of groups and observations for each bird type, passerine subgroup, and species seen or heard within 100 meters (328 feet) of the observer recorded at point count survey plots during the breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.

Bird Type / Species ¹	Scientific Name	Visit 10		Visit 11		Visit 12		Visit 13		Visit 14		Visit 15		Visit 16		Visit 17		Overall	
		# grps ²	# obs ²	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs
red-tailed hawk	<i>Buteo jamaicensis</i>	2	3	4	5	2	3	3	3	4	4	3	3	3	3	5	5	31	34
sharp-shinned hawk	<i>Accipiter striatus</i>	1	1	0	0	0	0	2	2	1	1	0	0	0	0	0	0	4	4
unidentified raptor		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Vultures		10	17	4	5	7	7	0	0	2	3	6	7	5	5	2	4	59	77
black vulture	<i>Coragyps atratus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
turkey vulture	<i>Cathartes aura</i>	10	17	4	5	7	7	0	0	2	3	6	7	5	5	2	4	58	76
Upland Game Birds		0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2	2
wild turkey	<i>Meleagris gallopavo</i>	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Doves/Pigeons		7	10	20	54	15	28	14	25	14	44	34	125	18	55	15	44	218	554
mourning dove	<i>Zenaida macroura</i>	5	6	11	13	7	10	9	13	10	23	21	70	6	9	3	5	98	184
rock pigeon	<i>Columba livia</i>	2	4	9	41	8	18	5	12	4	21	13	55	12	46	12	39	120	370
Passerines		477	607	513	838	578	651	569	699	511	615	429	931	457	872	473	718	8,757	11,555
<u>Corvids</u>		4	5	5	6	12	14	7	12	8	11	12	23	8	14	8	16	128	177
American crow	<i>Corvus brachyrhynchos</i>	4	5	2	2	11	13	7	12	8	11	10	21	6	12	6	14	98	139
blue jay	<i>Cyanocitta cristata</i>	0	0	1	1	1	1	0	0	0	0	2	2	1	1	2	2	21	27
common raven	<i>Corvus corax</i>	0	0	2	3	0	0	0	0	0	0	0	0	1	1	0	0	9	11
<u>Blackbirds/Orioles</u>		195	307	200	487	187	237	152	240	130	202	105	488	94	386	83	274	3,396	5,285
Baltimore oriole	<i>Icterus galbula</i>	0	0	1	1	0	0	1	1	0	0	2	2	2	2	1	1	16	16
bobolink	<i>Dolichonyx oryzivorus</i>	60	66	73	86	44	60	7	53	11	15	11	32	7	7	6	6	1,028	1,226
brown-headed cowbird	<i>Molothrus ater</i>	2	2	4	5	2	4	0	0	4	9	4	65	0	0	2	6	34	109
common grackle	<i>Quiscalus</i>	20	26	26	43	25	37	41	65	31	66	21	39	10	17	19	33	448	688

Appendix C1 (continued). Total number of groups and observations for each bird type, passerine subgroup, and species seen or heard within 100 meters (328 feet) of the observer recorded at point count survey plots during the breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.

Bird Type / Species ¹	Scientific Name	Visit 10		Visit 11		Visit 12		Visit 13		Visit 14		Visit 15		Visit 16		Visit 17		Overall	
		# grps ²	# obs ²	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs
	<i>quiscula</i>																		
eastern meadowlark	<i>Sturnella magna</i>	4	5	8	8	8	9	6	6	6	7	6	9	10	13	6	6	163	178
European starling	<i>Sturnus vulgaris</i>	23	116	15	246	11	16	6	9	10	15	22	260	9	231	9	169	163	1,190
red-winged blackbird	<i>Agelaius phoeniceus</i>	86	92	73	98	97	111	91	106	68	90	39	81	56	116	40	53	1,544	1,878
<u>Creepers/</u> <u>Nuthatches</u>		0	0	0	0	0	0	0	0	0	0	3	3	1	1	0	0	5	5
	<i>Certhia americana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
brown creeper																			
white-breasted nuthatch	<i>Sitta carolinensis</i>	0	0	0	0	0	0	0	0	0	0	3	3	1	1	0	0	4	4
<u>Finches/Crossbill</u> <u>s</u>		20	24	25	35	40	49	18	33	34	43	57	102	57	127	59	77	457	675
American goldfinch	<i>Spinus tristis</i>	20	24	25	35	40	49	18	33	34	43	57	102	57	127	59	77	457	675
<u>Flycatchers</u>		16	16	14	14	7	7	11	11	6	6	7	7	14	14	15	16	185	190
	<i>Empidonax alnorum</i>	6	6	0	0	1	1	0	0	1	1	0	0	0	0	1	1	38	38
alder flycatcher	<i>Tyrannus tyrannus</i>	3	3	7	7	5	5	9	9	4	4	2	2	10	10	11	12	76	81
eastern kingbird																			
eastern phoebe	<i>Sayornis phoebe</i>	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	4	4
eastern wood-pewee	<i>Contopus virens</i>	2	2	3	3	1	1	1	1	0	0	1	1	0	0	0	0	11	11
great crested flycatcher	<i>Myiarchus crinitus</i>	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	2
	<i>Empidonax minimus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
least flycatcher																			
unidentified flycatcher		0	0	1	1	0	0	0	0	0	0	0	0	1	1	1	1	4	4
willow flycatcher	<i>Empidonax traillii</i>	5	5	3	3	0	0	1	1	1	1	2	2	3	3	1	1	49	49

Appendix C1 (continued). Total number of groups and observations for each bird type, passerine subgroup, and species seen or heard within 100 meters (328 feet) of the observer recorded at point count survey plots during the breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.

		Visit 10		Visit 11		Visit 12		Visit 13		Visit 14		Visit 15		Visit 16		Visit 17		Overall	
Bird Type / Species ¹	Scientific Name	# grps ²	# obs ²	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs
		# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs
<u>Gnatcatchers/</u>																			
Kinglet		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
ruby-crowned kinglet	<i>Regulus calendula</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
<u>Grassland/</u>																			
<u>Sparrows</u>		144	146	129	138	211	214	240	242	193	197	135	140	155	161	183	184	2,716	2,990
Cassin's sparrow	<i>Peucaea cassinii</i>	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1
	<i>Spizella</i>																		
chipping sparrow	<i>passerina</i>	1	1	0	0	1	1	3	3	1	1	1	1	3	3	2	2	22	22
clay-colored sparrow	<i>Spizella pallida</i>	6	6	2	3	3	3	5	5	5	5	0	0	0	0	0	0	28	29
	<i>Pipilo</i>																		
eastern towhee	<i>erythrophthalmus</i>	7	7	5	5	4	4	7	7	6	6	2	2	6	6	9	9	71	71
field sparrow	<i>Spizella pusilla</i>	5	5	3	4	1	1	4	4	3	3	3	3	8	8	10	10	60	61
grasshopper sparrow	<i>Ammodramus savannarum</i>	6	6	2	2	4	4	8	8	6	6	5	5	2	2	0	0	57	57
	<i>Eremophila</i>																		
horned lark	<i>alpestris</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	237
	<i>Passer</i>																		
house sparrow	<i>domesticus</i>	1	1	3	4	2	4	0	0	1	5	1	5	3	3	0	0	12	23
Savannah sparrow	<i>Passerculus sandwichensis</i>	67	69	48	54	84	85	109	111	67	67	71	72	54	59	76	77	1,097	1,129
	<i>Melospiza</i>																		
song sparrow	<i>melodia</i>	48	48	59	59	96	96	88	88	93	93	48	48	64	64	76	76	1,248	1,248
	<i>Melospiza</i>																		
swamp sparrow	<i>georgiana</i>	3	3	7	7	11	11	12	12	4	4	3	3	14	14	8	8	82	82
unidentified sparrow		0	0	0	0	5	5	4	4	7	7	0	0	1	2	2	2	22	23

Appendix C1 (continued). Total number of groups and observations for each bird type, passerine subgroup, and species seen or heard within 100 meters (328 feet) of the observer recorded at point count survey plots during the breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.

[illegible]

Appendix C1 (continued). Total number of groups and observations for each bird type, passerine subgroup, and species seen or heard within 100 meters (328 feet) of the observer recorded at point count survey plots during the breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.

Bird Type / Species ¹	Scientific Name	Visit 10		Visit 11		Visit 12		Visit 13		Visit 14		Visit 15		Visit 16		Visit 17		Overall	
		# grps ²	# obs ²	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs
wood thrush	<i>Hylocichla mustelina</i>	1	1	3	3	1	1	0	0	0	0	2	2	2	2	0	0	11	11
<u>Titmice/</u> <u>Chickadees</u>		0	0	3	3	1	1	3	7	2	2	0	0	0	0	2	2	24	31
black-capped chickadee	<i>Poecile atricapillus</i>	0	0	2	2	1	1	3	7	2	2	0	0	0	0	2	2	23	30
tufted titmouse	<i>Baeolophus bicolor</i>	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1
<u>Vireos</u>		1	1	2	2	1	1	0	0	1	1	1	1	0	0	0	0	9	9
red-eyed vireo	<i>Vireo olivaceus</i>	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0	4	4
warbling vireo	<i>Vireo gilvus</i>	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	5	5
<u>Warblers</u>		32	32	54	54	47	47	47	47	45	45	15	15	25	25	15	15	668	669
American redstart	<i>Setophaga ruticilla</i>	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	7	7
black-and-white warbler	<i>Mniotilta varia</i>	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1
blue-winged warbler	<i>Vermivora cyanoptera</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
chestnut-sided warbler	<i>Setophaga pensylvanica</i>	1	1	3	3	4	4	1	1	0	0	0	0	0	0	0	0	13	13
common yellowthroat	<i>Geothlypis trichas</i>	13	13	29	29	29	29	33	33	30	30	11	11	20	20	12	12	362	363
Nashville warbler	<i>Oreothlypis ruficapilla</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
ovenbird	<i>Seiurus aurocapilla</i>	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	2	2
yellow warbler	<i>Setophaga petechia</i>	18	18	21	21	14	14	12	12	14	14	3	3	5	5	3	3	277	277
<u>Waxwings</u>		3	8	5	7	3	3	3	5	3	3	14	28	8	13	5	6	48	81
cedar waxwing	<i>Bombycilla cedrorum</i>	3	8	5	7	3	3	3	5	3	3	14	28	8	13	5	6	48	81

Appendix C1 (continued). Total number of groups and observations for each bird type, passerine subgroup, and species seen or heard within 100 meters (328 feet) of the observer recorded at point count survey plots during the breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.

Bird Type / Species ¹	Scientific Name	Visit 10		Visit 11		Visit 12		Visit 13		Visit 14		Visit 15		Visit 16		Visit 17		Overall	
		# grps ²	# obs ²	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs
<u>Wrens</u>		0	0	0	0	1	1	1	1	1	1	2	2	0	0	0	0	27	27
house wren	<i>Troglodytes aedon</i>	0	0	0	0	1	1	1	1	1	1	2	2	0	0	0	0	27	27
Swifts/ Hummingbirds		0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0	2	3
chimney swift	<i>Chaetura pelagica</i>	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0	2	3
Woodpeckers		7	7	12	13	1	1	2	2	6	7	10	13	4	5	4	4	81	91
downy woodpecker	<i>Picoides pubescens</i>	1	1	1	1	0	0	0	0	0	0	2	2	1	1	0	0	11	11
hairy woodpecker	<i>Picoides villosus</i>	1	1	3	3	0	0	0	0	0	0	1	1	0	0	0	0	7	8
northern flicker	<i>Colaptes auratus</i>	3	3	4	4	1	1	2	2	5	6	7	10	3	4	4	4	53	61
pileated woodpecker	<i>Dryocopus pileatus</i>	1	1	2	2	0	0	0	0	1	1	0	0	0	0	0	0	4	4
red-bellied woodpecker	<i>Melanerpes carolinus</i>	1	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	3	4
unidentified woodpecker		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
yellow-bellied sapsucker	<i>Sphyrapicus varius</i>	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Kingfishers		0	0	1	1	0	0	0	0	0	0	0	0	1	1	0	0	3	3
belted kingfisher	<i>Megasceryle alcyon</i>	0	0	1	1	0	0	0	0	0	0	0	0	1	1	0	0	3	3
Overall		518	660	577	947	615	721	599	741	545	681	499	1,099	509	971	512	794	9,432	12,883

¹ Passerine species and their respective subgroups with 30 or more observations were included in the displacement analysis

² #grps = number of groups, #obs = number of observations

Appendix C2. Total number of incidental groups and observations for species recorded while in-transit between breeding bird point count survey plots at the Mohawk Solar Project from April 17 – July 27, 2018.

Bird Type / Species	Scientific Name	# grps¹	# obs¹
pied-billed grebe	<i>Podilymbus podiceps</i>	2	2
least sandpiper	<i>Calidris minutilla</i>	1	6
Cooper's hawk	<i>Accipiter cooperii</i>	1	1
northern harrier	<i>Circus cyaneus</i>	3	3
Avian Subtotal		7	12
coyote	<i>Canis latrans</i>	1	2
Mammal Subtotal		1	2

¹ #grps = number of groups, #obs = number of observations

Appendix D: Summary of Species Observed, Species Diversity (Average Number of Species Observed Across All Sampling Visits), Total Observations (Sum of All Observed Birds), and Frequency (Percent of Sampling Visits with Observations) Recorded by Transect and Point Count Survey Plots during Breeding Bird Surveys at the Mohawk Solar Project from April 17 – July 27, 2018

Appendix D1. Summary of species observed, species diversity (average number of species observed across all sampling visits), total observations (sum of all observed birds), and frequency (percent of sampling visits with observations) recorded by transect during the breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.

Transect #	# of Species Observed	Species Diversity	Total Observations	% Frequency
C1	53	14.00	958	100
C2	43	13.41	931	100
C3	24	10.65	916	100
C4	38	12.47	698	100
C5	49	15.06	789	100
T1	30	8.12	696	100
T2	36	12.18	908	100
T3	33	10.76	706	100
T4	39	12.65	1,019	100
T5	41	11.41	999	100
T6	34	12.06	760	100
T7	20	5.29	534	100
T8	25	6.12	455	100
T9	30	7.94	726	100
T10	36	10.75	752	100

¹T = Treatment transect; C = Control transect

Appendix D2. Number of species observed, species diversity (average number of species observed across all sampling visits), total observations (sum of all observed birds), and frequency (percent of sampling visits with observations) recorded by transect and point count survey plot during the breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.

Transect #	Point #	# of Species Observed	Species Diversity	Total Observations	% Frequency
C1	1	27	6.76	185	100
C1	2	26	6.18	163	100
C1	3	26	6.12	154	100
C1	4	23	5.47	140	100
C1	5	23	5.00	165	100
C1	6	30	6.38	151	100
C2	1	22	5.29	164	100
C2	2	18	4.76	154	100
C2	3	24	4.88	160	100
C2	4	23	5.12	155	100
C2	5	25	5.00	142	100
C2	6	31	6.31	156	100
C3	1	16	3.65	115	100
C3	2	13	4.00	126	100
C3	3	17	4.24	172	100
C3	4	17	4.71	185	100
C3	5	19	4.76	178	100
C3	6	17	4.18	140	100
C4	1	19	3.65	93	100
C4	2	18	3.82	105	100
C4	3	20	3.29	94	100
C4	4	18	4.00	116	100
C4	5	22	4.24	106	100
C4	6	29	6.59	184	100
C5	1	19	4.47	122	100
C5	2	20	3.82	106	100
C5	3	32	5.71	117	100
C5	4	27	6.29	137	100
C5	5	30	6.76	162	100
C5	6	28	5.88	145	100
T1	1	18	3.65	195	100
T1	2	13	2.82	82	100
T1	3	14	2.82	81	100
T1	4	13	3.19	167	100
T1	5	8	2.31	81	100
T1	6	17	3.56	90	100
T2	1	23	6.12	160	100
T2	2	16	4.47	135	100
T2	3	21	4.53	134	100
T2	4	19	4.82	219	100
T2	5	27	4.88	128	100
T2	6	23	4.76	132	100
T3	1	20	4.29	115	100
T3	2	19	4.12	110	100
T3	3	13	2.71	82	100
T3	4	17	3.13	84	100
T3	5	25	5.00	147	100
T3	6	23	6.44	168	100

Appendix D2. Number of species observed, species diversity (average number of species observed across all sampling visits), total observations (sum of all observed birds), and frequency (percent of sampling visits with observations) recorded by transect and point count survey plot during the breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.

Transect #	Point #	# of Species Observed	Species Diversity	Total Observations	% Frequency
T4	1	20	5.29	207	100
T4	2	22	4.65	141	100
T4	3	21	3.71	175	100
T4	4	22	4.94	160	100
T4	5	20	4.88	148	100
T4	6	22	5.71	188	100
T5	1	23	4.24	199	100
T5	2	20	3.71	143	100
T5	3	21	3.76	144	100
T5	4	22	4.06	142	100
T5	5	21	5.06	164	100
T5	6	22	5.24	207	100
T6	1	18	4.94	173	100
T6	2	19	4.88	126	100
T6	3	20	4.76	126	100
T6	4	24	4.53	113	100
T6	5	21	4.25	94	100
T6	6	18	5.33	128	100
T7	1	13	2.59	77	100
T7	2	12	2.41	90	100
T7	3	9	2.47	81	100
T7	4	9	2.35	74	100
T7	5	10	2.41	97	100
T7	6	10	2.63	115	100
T8	1	16	2.59	85	100
T8	2	13	2.06	98	100
T8	3	10	2.29	73	100
T8	4	10	2.29	73	100
T8	5	10	2.13	67	100
T8	6	14	2.24	59	100
T9	1	20	4.65	119	100
T9	2	20	4.00	133	100
T9	3	11	2.35	121	100
T9	4	9	2.41	102	100
T9	5	9	2.53	123	100
T9	6	11	2.88	128	100
T10	1	18	3.75	105	100
T10	2	14	2.63	84	100
T10	3	14	2.63	93	100
T10	4	18	4.13	164	100
T10	5	22	5.67	129	100
T10	6	20	5.93	177	100

¹T = Treatment transect; C = Control transect

Appendix E: Mean Use, Percent of Use, and Percent Frequency by Bird Type, Passerine Subgroup and Species Observed during Breeding Bird Surveys at the Mohawk Solar Project from April 17 – July 27, 2018

Appendix E. Mean bird use (number of birds/transect/survey visit), percent of use, and percent frequency for all bird types, passerine subgroups, and species seen or heard within 100 m (328 ft) of the observer recorded at point count survey plots during the breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.

Bird Type/Species	Mean Use¹	% of Use	% Frequency
Waterbirds	0.12	0.2	8.4
great blue heron	0.04	0.1	2.4
green heron	0.08	0.2	6.3
Waterfowl	1.30	2.8	21.8
Canada goose	1.12	2.4	14.7
mallard	0.16	0.3	8.2
unidentified duck	0.01	<0.1	1.1
wood duck	0.01	<0.1	0.8
Shorebirds	0.48	1.0	24.1
American woodcock	0.01	<0.1	0.8
greater yellowlegs	0.05	0.1	0.4
killdeer	0.40	0.9	22.1
spotted sandpiper	0.01	<0.1	0.8
upland sandpiper	<0.01	<0.1	0.4
Wilson's snipe	0.01	<0.1	1.2
Diurnal Raptors	0.18	0.4	12.0
American kestrel	0.02	<0.1	1.9
Cooper's hawk	0.02	<0.1	1.6
northern harrier	0.03	0.1	2.3
red-tailed hawk	0.09	0.2	4.5
sharp-shinned hawk	0.02	<0.1	1.7
unidentified raptor	<0.01	<0.1	0.4
Vultures	0.27	0.6	10.6
black vulture	<0.01	<0.1	0.4
turkey vulture	0.27	0.6	10.6
Upland Game Birds	<0.01	<0.1	0.4
wild turkey	<0.01	<0.1	0.4
Doves/Pigeons	1.89	4.1	38.6
mourning dove	0.69	1.5	21.7
rock pigeon	1.20	2.6	24.5
Passerines	42.03	90.2	100
<u>Blackbirds/Orioles</u>	<u>17.77</u>	<u>38.1</u>	<u>96.7</u>
Baltimore oriole	0.05	0.1	3.6
bobolink	4.69	10.1	44.5
brown-headed cowbird	0.20	0.4	9.1
common grackle	2.58	5.5	63.5
eastern meadowlark	0.66	1.4	31.4
European starling	2.39	5.1	31.5
red-winged blackbird	7.20	15.5	91.0
<u>Creepers/Nuthatches</u>	<u>0.01</u>	<u><0.1</u>	<u>1.2</u>
brown creeper	<0.01	<0.1	0.4
white-breasted nuthatch	0.01	<0.1	0.8
<u>Finches/Crossbills</u>	<u>2.69</u>	<u>5.8</u>	<u>66.3</u>
American goldfinch	2.69	5.8	66.3
<u>Flycatchers</u>	<u>0.70</u>	<u>1.5</u>	<u>33.8</u>
alder flycatcher	0.14	0.3	3.9
eastern kingbird	0.31	0.7	20.8
eastern phoebe	0.02	<0.1	1.5
eastern wood-pewee	0.03	0.1	2.4
great crested flycatcher	<0.01	<0.1	0.4
least flycatcher	<0.01	<0.1	0.4

Appendix E. Mean bird use (number of birds/transect/survey visit), percent of use, and percent frequency for all bird types, passerine subgroups, and species seen or heard within 100 m (328 ft) of the observer recorded at point count survey plots during the breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.

Bird Type/Species	Mean Use¹	% of Use	% Frequency
unidentified flycatcher	0.02	<0.1	1.6
willow flycatcher	0.18	0.4	9.0
<u>Gnatcatchers/Kinglet</u>	<0.01	<0.1	0.4
ruby-crowned kinglet	<0.01	<0.1	0.4
<u>Grassland/Sparrows</u>	11.70	25.1	98.3
chipping sparrow	0.09	0.2	7.5
clay-colored sparrow	0.12	0.3	3.2
eastern towhee	0.28	0.6	10.6
field sparrow	0.24	0.5	8.3
grasshopper sparrow	0.23	0.5	6.8
horned lark	0.92	2.0	1.9
house sparrow	0.08	0.2	4.1
Savannah sparrow	4.45	9.6	67.3
song sparrow	4.85	10.4	80.8
swamp sparrow	0.32	0.7	12.0
unidentified sparrow	0.09	0.2	5.7
white-crowned sparrow	0.01	<0.1	0.8
white-throated sparrow	0.02	<0.1	1.9
<u>Mimids</u>	1.45	3.1	51.6
brown thrasher	0.19	0.4	12.7
gray catbird	1.26	2.7	45.2
northern mockingbird	0.01	<0.1	0.4
<u>Swallows</u>	1.96	4.2	42.1
barn swallow	1.49	3.2	39.5
cliff swallow	0.18	0.4	5.3
northern rough-winged swallow	<0.01	<0.1	0.4
tree swallow	0.28	0.6	10.5
<u>Tanagers</u>	0.06	0.1	4.5
indigo bunting	0.06	0.1	4.5
<u>Cardinals</u>	0.14	0.3	11.6
northern cardinal	0.14	0.3	11.6
<u>Thrushes</u>	1.81	3.9	53.4
American robin	1.76	3.8	51.4
eastern bluebird	0.02	<0.1	1.6
wood thrush	0.02	0.1	2.4
<u>Titmice/Chickadees</u>	0.12	0.3	6.3
black-capped chickadee	0.12	0.3	6.3
<u>Vireos</u>	0.03	0.1	2.8
red-eyed vireo	0.01	<0.1	1.3
warbling vireo	0.02	<0.1	1.5
<u>Warblers</u>	2.55	5.5	54.8
American redstart	0.03	0.1	1.2
black-and-white warbler	<0.01	<0.1	0.4
blue-winged warbler	0.02	<0.1	1.5
chestnut-sided warbler	0.05	0.1	2.8
common yellowthroat	1.39	3.0	41.8
Nashville warbler	<0.01	<0.1	0.4
ovenbird	0.01	<0.1	0.8
yellow warbler	1.05	2.3	40.5
<u>Waxwings</u>	0.32	0.7	12.8

Appendix E. Mean bird use (number of birds/transect/survey visit), percent of use, and percent frequency for all bird types, passerine subgroups, and species seen or heard within 100 m (328 ft) of the observer recorded at point count survey plots during the breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.

Bird Type/Species	Mean Use¹	% of Use	% Frequency
cedar waxwing	0.32	0.7	12.8
<u>Wrens</u>	0.10	0.2	6.1
house wren	0.10	0.2	6.1
<u>Corvids</u>	0.61	1.3	33.0
American crow	0.49	1.0	26.8
blue jay	0.10	0.2	6.2
common raven	0.03	0.1	2.7
Swifts/Hummingbirds	0.01	<0.1	0.4
chimney swift	0.01	<0.1	0.4
Woodpeckers	0.33	0.7	20.6
downy woodpecker	0.04	0.1	3.2
hairy woodpecker	0.02	0.1	2.0
northern flicker	0.23	0.5	15.4
pileated woodpecker	0.01	<0.1	0.8
red-bellied woodpecker	0.02	<0.1	1.2
unidentified woodpecker	0.01	<0.1	0.7
yellow-bellied sapsucker	<0.01	<0.1	0.4
Kingfishers	0.01	<0.1	0.8
belted kingfisher	0.01	<0.1	0.8
Overall	46.61	100	

¹Data are restricted to those species seen within 100 meters (328 feet) of the observer

²Sums of values may not add to total value shown, due to rounding

**Appendix F: Mean Use by Bird Type and Passerine Subgroups Observed during
Breeding Bird Surveys at Treatment Transects and Control Transects at the Mohawk
Solar Project from April 17 – July 27, 2018**

Appendix F1. Mean use for major bird types and passerine subgroups observed at each treatment transect during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.

Bird Type	Survey Transect ¹				
	C1	C2	C3	C4	C5
Waterbirds	0.24	0.35	0.12	0	0.06
Waterfowl	0.94	4.06	3.18	0	0.12
Shorebirds	0.06	1.29	1.00	0.65	0.06
Diurnal Raptors	0.24	0.12	0	0.35	0.35
Vultures	0	0.47	0.06	1.12	0
Upland Game Birds	0	0	0	0	0
Doves/Pigeons	0.41	1.82	7.71	3.82	0.12
Passerines	54.24	46.18	41.82	34.71	44.35
<u>Blackbirds/Orioles</u>	4.41	19.06	21.65	6.06	12.18
<u>Creepers/Nuthatches</u>	0	0	0	0	0.12
<u>Finches/Crossbills</u>	6.24	2.94	0.53	2.35	2.18
<u>Flycatchers</u>	3.12	0.59	0.24	0.29	0.71
<u>Gnatcatchers/Kinglet</u>	0	0	0	0	0.06
<u>Grassland/Sparrows</u>	22.41	11.35	8.00	16.12	11.00
<u>Mimids</u>	2.82	1.53	0	2.65	4.06
<u>Swallows</u>	1.53	3.24	9.53	1.65	0.18
<u>Tanagers</u>	0.12	0	0	0.47	0
<u>Cardinals</u>	0.12	0.29	0	0.06	0.76
<u>Thrushes</u>	1.82	3.71	0.71	1.00	4.12
<u>Titmice/Chickadees</u>	0.47	0.18	0	0	0.65
<u>Vireos</u>	0.06	0	0	0.12	0.06
<u>Warblers</u>	10.35	1.29	0	2.35	5.65
<u>Waxwings</u>	0.47	0.35	0	0.35	0.65
<u>Wrens</u>	0	0.06	0	0	1.06
<u>Corvids</u>	0.29	1.59	1.18	1.24	0.94
Swifts/Hummingbirds	0	0	0	0	0
Woodpeckers	0.24	0.47	0	0.41	1.35
Kingfishers	0	0	0	0	0
Overall	56.35	54.76	53.88	41.06	46.41

¹Data are restricted to those species seen within 100 m (328 ft) of the observer

³Sums of values may not add to total value shown, due to rounding

Appendix F1 (continued). Mean use for major bird types and passerine subgroups observed at each treatment transect during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.

Bird Type	Survey Transect ¹				
	T1	T2	T3	T4	T5
Waterbirds	0.12	0.06	0.06	0.18	0
Waterfowl	3.59	0.41	0.06	0.53	1.12
Shorebirds	0.35	0.18	0	0.18	0
Diurnal Raptors	0	0.59	0.06	0.24	0.12
Vultures	0.06	0.06	0.65	0.41	0.41
Upland Game Birds	0	0	0	0	0
Doves/Pigeons	0.12	2.35	1.18	4.29	2.88
Passerines	36.71	49.41	38.76	53.71	54.06
<u>Blackbirds/Orioles</u>	19.00	26.29	16.53	29.53	33.53
<u>Creepers/Nuthatches</u>	0	0	0	0	0.06
<u>Finches/Crossbills</u>	1.47	1.47	1.65	6.41	2.65
<u>Flycatchers</u>	0.12	0.82	1.35	1.29	0.53
<u>Gnatcatchers/Kinglet</u>	0	0	0	0	0
<u>Grassland/Sparrows</u>	13.59	10.41	10.47	9.12	5.53
<u>Mimids</u>	0.59	2.76	0.88	1.18	1.35
<u>Swallows</u>	0.53	2.00	3.82	0.76	0.53
<u>Tanagers</u>	0	0	0.06	0	0.18
<u>Cardinals</u>	0	0.18	0	0.12	0.18
<u>Thrushes</u>	0.71	1.12	0.41	0.76	6.24
<u>Titmice/Chickadees</u>	0	0.06	0	0.06	0.06
<u>Vireos</u>	0	0	0	0	0.06
<u>Warblers</u>	0.29	3.18	2.47	3.06	2.00
<u>Waxwings</u>	0.06	0.29	0.29	0.65	0.88
<u>Wrens</u>	0.18	0.12	0	0	0.06
<u>Corvids</u>	0.18	0.71	0.82	0.76	0.24
Swifts/Hummingbirds	0	0	0	0	0
Woodpeckers	0	0.35	0.76	0.35	0.12
Kingfishers	0	0	0	0.06	0.06
Overall	40.94	53.41	41.53	59.94	58.76

¹Data are restricted to those species seen within 100 m (328 ft) of the observer

³Sums of values may not add to total value shown, due to rounding

Appendix F1 (continued). Mean use for major bird types and passerine subgroups observed at each control transect during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.

Bird Type	Survey Transect ¹				
	T6	T7	T8	T9	T10
Waterbirds	0.35	0	0	0	0.19
Waterfowl	0.06	1.35	0.59	2.71	1.50
Shorebirds	0.65	0.06	1.65	0.12	0.94
Diurnal Raptors	0	0.18	0.18	0.06	0.12
Vultures	0	0.12	0	0.12	0.56
Upland Game Birds	0	0	0	0.06	0
Doves/Pigeons	0.59	1.00	0.35	0	1.06
Passerines	42.76	28.53	24.00	39.47	42.31
<u>Blackbirds/Orioles</u>	19.71	11.35	13.06	10.29	26.88
<u>Creepers/Nuthatches</u>	0	0	0	0	0
<u>Finches/Crossbills</u>	2.41	2.53	1.65	2.65	2.25
<u>Flycatchers</u>	0.59	0	0.12	0.29	0.56
<u>Gnatcatchers/Kinglet</u>	0	0	0	0	0
<u>Grassland/Sparrows</u>	8.59	13.88	6.76	23.88	3.75
<u>Mimids</u>	1.82	0	0	0.59	1.38
<u>Swallows</u>	1.76	0.47	1.41	0.18	1.25
<u>Tanagers</u>	0	0	0	0.06	0
<u>Cardinals</u>	0	0	0	0.12	0.25
<u>Thrushes</u>	2.94	0.12	0.76	0.18	2.31
<u>Titmice/Chickadees</u>	0.29	0	0	0	0
<u>Vireos</u>	0	0	0	0.06	0.06
<u>Warblers</u>	3.94	0	0	1.12	3.00
<u>Waxwings</u>	0.47	0	0	0	0.06
<u>Wrens</u>	0	0	0	0	0.06
<u>Corvids</u>	0.24	0.18	0.24	0.06	0.50
Swifts/Hummingbirds	0	0.18	0	0	0
Woodpeckers	0.29	0	0	0.18	0.31
Kingfishers	0	0	0	0	0
Overall	44.71	31.41	26.76	42.71	47.00

¹Data are restricted to those species seen within 100 m (328 ft) of the observer

³Sums of values may not add to total value shown, due to rounding

**Appendix G: The Difference between Mean Use Recorded at Treatment and Control
Transects for Passerine Subgroups and Passerine Species Observed during Breeding
Bird Surveys at the Mohawk Solar Project from April 17 – July 27, 2018**

Appendix G1. The difference between mean use recorded at treatment and control transects, for passerine subgroups observed during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018. Points with p-values less than 0.10 are bolded.

Passerine Subgroup ¹	Point	Treatment Mean	Control Mean	Difference of Means ²	p-value
Blackbirds/Orioles	1	4.194	2.529	1.665	0.06
	2	3.276	2.247	1.029	0.01
	3	3.265	2.082	1.182	0.01
	4	3.788	2.329	1.459	0
	5	2.882	1.729	1.153	0
	6	3.053	1.753	1.300	0
Cardinals	1	0.024	0	0.024	0.16
	2	0.012	0.024	-0.012	0.48
	3	0.006	0.059	-0.053	0.01
	4	0.012	0.047	-0.035	0.08
	5	0.018	0.059	-0.041	0.08
	6	0.012	0.059	-0.047	0.01
Finches/Crossbills	1	0.500	0.612	-0.112	0.09
	2	0.365	0.435	-0.071	0.14
	3	0.306	0.435	-0.129	0.08
	4	0.318	0.529	-0.212	0.03
	5	0.329	0.424	-0.094	0.16
	6	0.682	0.412	0.271	0.38
Flycatchers	1	0.124	0.118	0.006	0.91
	2	0.059	0.200	-0.141	0.08
	3	0.071	0.176	-0.106	0.09
	4	0.024	0.165	-0.141	0
	5	0.112	0.176	-0.065	0.15
	6	0.176	0.153	0.024	0.73
Grassland/Sparrows	1	1.535	1.494	0.041	0.80
	2	1.565	1.847	-0.282	0.01
	3	1.500	2.247	-0.747	0
	4	1.876	2.376	-0.500	0
	5	1.976	2.871	-0.894	0
	6	2.124	2.941	-0.818	0
Mimids	1	0.300	0.400	-0.100	0.41
	2	0.106	0.329	-0.224	0
	3	0.100	0.294	-0.194	0
	4	0.129	0.365	-0.235	0
	5	0.200	0.353	-0.153	0.05
	6	0.212	0.471	-0.259	0
Swallows	1	0.282	0.388	-0.106	0.24
	2	0.235	0.576	-0.341	0.02
	3	0.235	0.529	-0.294	0.06
	4	0.265	0.553	-0.288	0.06
	5	0.159	0.741	-0.582	0
	6	0.088	0.435	-0.347	0
Thrushes	1	0.200	0.424	-0.224	0.01
	2	0.176	0.506	-0.329	0.20
	3	0.282	0.318	-0.035	0.08
	4	0.324	0.376	-0.053	0.02
	5	0.318	0.376	-0.059	0.01
	6	0.241	0.271	-0.029	0.01

Appendix G1. The difference between mean use recorded at treatment and control transects, for passerine subgroups observed during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018. Points with p-values less than 0.10 are bolded.

Passerine Subgroup ¹	Point	Treatment Mean	Control Mean	Difference of Means ²	p-value
Titmice/Chickadees	1	0.006	0.047	-0.041	0.08
	2	0.006	0	0.006	0.48
	3	0.018	0.035	-0.018	0.48
	4	0.006	0.012	-0.006	0.62
	5	0.006	0.082	-0.076	0.03
	6	0.006	0.082	-0.076	0.03
Warblers	1	0.365	0.447	-0.082	0.93
	2	0.247	0.600	-0.353	0.01
	3	0.165	0.600	-0.435	0
	4	0.141	0.576	-0.435	0
	5	0.335	0.576	-0.241	0.04
	6	0.635	1.129	-0.494	0.07
Waxwings	1	0.024	0.094	-0.071	0.08
	2	0.012	0.024	-0.012	0.48
	3	0.024	0.012	0.012	0.53
	4	0.035	0.071	-0.035	0.26
	5	0.082	0.059	0.024	0.82
	6	0.094	0.106	-0.012	1.00

Appendix G2. The difference between mean use recorded at treatment and control transects for passerine species observed during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018. Points with p-values less than 0.10 are bolded.

Species ¹	Point	Treatment Mean	Control Mean	Difference of Means ²	p-value
alder flycatcher	1	0	0.071	-0.071	0
	2	0	0.082	-0.082	0
	3	0	0.106	-0.106	0
	4	0	0.047	-0.047	0.05
	5	0.012	0.035	-0.024	0.47
	6	0.018	0.047	-0.029	0.18
American goldfinch	1	0.500	0.612	-0.112	0.09
	2	0.365	0.435	-0.071	0.14
	3	0.306	0.435	-0.129	0.08
	4	0.318	0.529	-0.212	0.03
	5	0.329	0.424	-0.094	0.16
	6	0.682	0.412	0.271	0.38
American robin	1	0.200	0.424	-0.224	0.01
	2	0.176	0.506	-0.329	0.20
	3	0.271	0.318	-0.047	0.06
	4	0.318	0.365	-0.047	0.02
	5	0.306	0.365	-0.059	0
	6	0.241	0.224	0.018	0.04
barn swallow	1	0.224	0.224	0	0.89
	2	0.200	0.447	-0.247	0.04
	3	0.206	0.329	-0.124	0.46
	4	0.241	0.353	-0.112	0.43
	5	0.135	0.529	-0.394	0.02
	6	0.088	0.306	-0.218	0
black-capped chickadee	1	0.006	0.047	-0.041	0.08
	2	0.006	0	0.006	0.48
	3	0.018	0.035	-0.018	0.48
	4	0.006	0.012	-0.006	0.62
	5	0.006	0.082	-0.076	0.03
	6	0.006	0.082	-0.076	0.03
brown-headed cowbird	1	0	0	0	NA
	2	0.029	0	0.029	0.22
	3	0.012	0.082	-0.071	0.03
	4	0	0.035	-0.035	0.01
	5	0	0.106	-0.106	0
	6	0.012	0.247	-0.235	0
bobolink	1	0.600	0.247	0.353	0
	2	0.865	0.341	0.524	0
	3	1.265	0.247	1.018	0
	4	1.371	0.118	1.253	0
	5	1.182	0.094	1.088	0
	6	1.312	0.176	1.135	0
brown thrasher	1	0.035	0.047	-0.012	0.99
	2	0	0.035	-0.035	0.01
	3	0.006	0.035	-0.029	0.08
	4	0.018	0.047	-0.029	0.18
	5	0.059	0.047	0.012	0.54
	6	0.047	0.047	0	0.83

Appendix G2. The difference between mean use recorded at treatment and control transects for passerine species observed during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018. Points with p-values less than 0.10 are bolded.

Species ¹	Point	Treatment Mean	Control Mean	Difference of Means ²	p-value
cedar waxwing	1	0.024	0.094	-0.071	0.08
	2	0.012	0.024	-0.012	0.48
	3	0.024	0.012	0.012	0.53
	4	0.035	0.071	-0.035	0.26
	5	0.082	0.059	0.024	0.82
	6	0.094	0.106	-0.012	1.00
cliff swallow	1	0.006	0.106	-0.100	0.01
	2	0	0.106	-0.106	0
	3	0.012	0.094	-0.082	0.08
	4	0.006	0.129	-0.124	0
	5	0	0.059	-0.059	0
	6	0	0	0	NA
common grackle	1	0.435	0.741	-0.306	0.08
	2	0.459	0.588	-0.129	0.93
	3	0.406	0.247	0.159	0.45
	4	0.453	0.482	-0.029	0.35
	5	0.441	0.376	0.065	0.88
	6	0.247	0.424	-0.176	0.07
common yellowthroat	1	0.218	0.235	-0.018	0.90
	2	0.147	0.329	-0.182	0.08
	3	0.071	0.353	-0.282	0
	4	0.065	0.400	-0.335	0
	5	0.147	0.365	-0.218	0
	6	0.318	0.553	-0.235	0.04
eastern kingbird	1	0.088	0.047	0.041	0.45
	2	0.029	0.082	-0.053	0.25
	3	0.041	0.035	0.006	0.81
	4	0.024	0.012	0.012	0.72
	5	0.053	0.071	-0.018	0.68
	6	0.065	0.059	0.006	0.71
eastern meadowlark	1	0.188	0.024	0.165	0
	2	0.182	0.106	0.076	0.38
	3	0.094	0.071	0.024	0.51
	4	0.124	0.047	0.076	0.07
	5	0.106	0.071	0.035	0.34
	6	0.135	0.035	0.100	0.04
eastern towhee	1	0	0.082	-0.082	0
	2	0	0.141	-0.141	0
	3	0.012	0.188	-0.176	0
	4	0.006	0.141	-0.135	0
	5	0	0.082	-0.082	0
	6	0.006	0.141	-0.135	0
European starling	1	1.206	0.235	0.971	0.89
	2	0.153	0.165	-0.012	0.41
	3	0.165	0.365	-0.200	0.11
	4	0.624	0.741	-0.118	0.54
	5	0.065	0.506	-0.441	0
	6	0.094	0.282	-0.188	0.03

Appendix G2. The difference between mean use recorded at treatment and control transects for passerine species observed during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018. Points with p-values less than 0.10 are bolded.

Species ¹	Point	Treatment Mean	Control Mean	Difference of Means ²	p-value
field sparrow	1	0	0.047	-0.047	0
	2	0	0.094	-0.094	0
	3	0	0.165	-0.165	0
	4	0	0.129	-0.129	0
	5	0	0.129	-0.129	0
	6	0	0.153	-0.153	0
gray catbird	1	0.265	0.353	-0.088	0.30
	2	0.106	0.294	-0.188	0
	3	0.094	0.259	-0.165	0
	4	0.106	0.318	-0.212	0
	5	0.135	0.306	-0.171	0
	6	0.165	0.424	-0.259	0
grasshopper sparrow	1	0.012	0	0.012	0.32
	2	0.012	0	0.012	0.32
	3	0.035	0	0.035	0.08
	4	0.065	0	0.065	0.03
	5	0.094	0	0.094	0.01
	6	0.118	0	0.118	0.01
horned lark	1	0	0	0	NA
	2	0.224	0	0.224	0.32
	3	0.324	0	0.324	0.48
	4	0.382	0	0.382	0.32
	5	0.194	0.471	-0.276	0.62
	6	0.035	0	0.035	0.32
northern cardinal	1	0.024	0	0.024	0.16
	2	0.012	0.024	-0.012	0.48
	3	0.006	0.059	-0.053	0.01
	4	0.012	0.047	-0.035	0.08
	5	0.018	0.059	-0.041	0.08
	6	0.012	0.059	-0.047	0.01
red-winged blackbird	1	1.765	1.271	0.494	0.22
	2	1.582	1.047	0.535	0.06
	3	1.324	1.035	0.288	0.45
	4	1.218	0.871	0.347	0.10
	5	1.082	0.553	0.529	0
	6	1.241	0.576	0.665	0
Savannah sparrow	1	0.700	0.341	0.359	0
	2	0.800	0.447	0.353	0.01
	3	0.794	0.612	0.182	0.06
	4	0.865	0.765	0.100	0.14
	5	0.906	0.588	0.318	0.21
	6	0.771	0.847	-0.076	0.56
song sparrow	1	0.659	0.965	-0.306	0
	2	0.518	1.047	-0.529	0
	3	0.300	1.129	-0.829	0
	4	0.453	1.094	-0.641	0
	5	0.647	1.388	-0.741	0
	6	1.059	1.635	-0.576	0

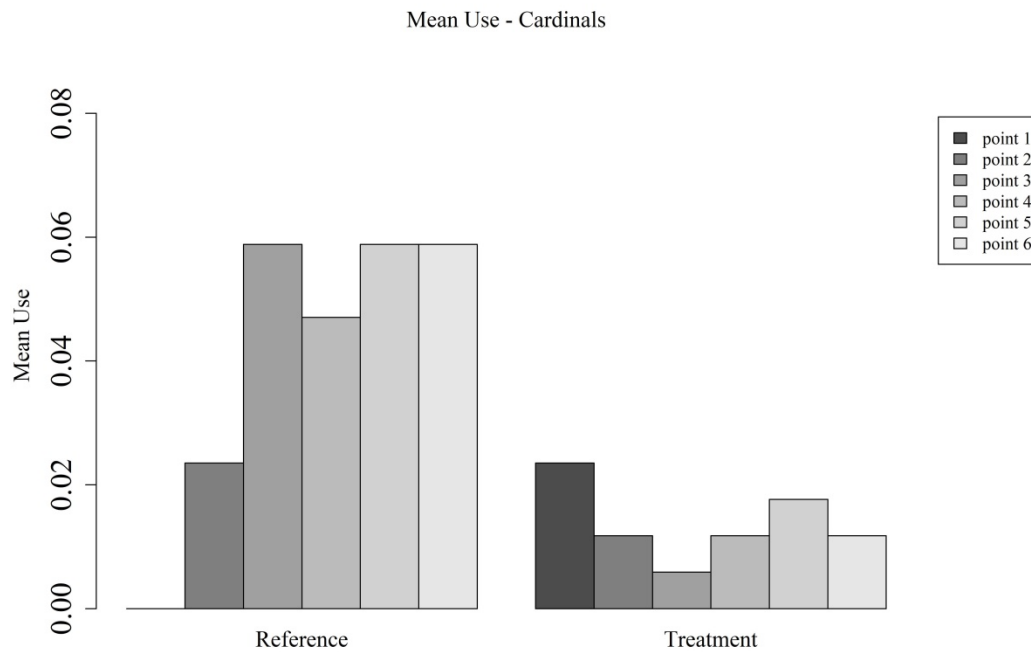
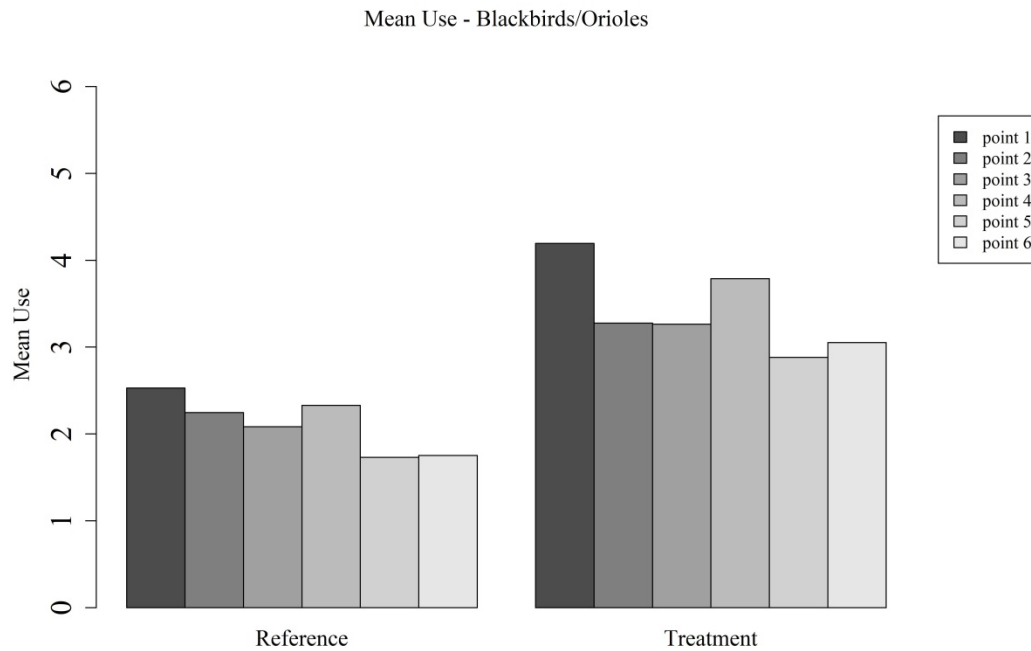
Appendix G2. The difference between mean use recorded at treatment and control transects for passerine species observed during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018. Points with p-values less than 0.10 are bolded.

Species ¹	Point	Treatment Mean	Control Mean	Difference of Means ²	p-value
swamp sparrow	1	0	0.012	-0.012	0.16
	2	0	0.047	-0.047	0
	3	0.018	0.071	-0.053	0.03
	4	0.059	0.106	-0.047	0.22
	5	0.082	0.106	-0.024	0.84
	6	0.100	0.082	0.018	0.61
tree swallow	1	0.053	0.059	-0.006	0.60
	2	0.035	0.024	0.012	0.49
	3	0.018	0.106	-0.088	0
	4	0.018	0.071	-0.053	0.08
	5	0.024	0.141	-0.118	0.01
	6	0	0.129	-0.129	0
willow flycatcher	1	0.029	0	0.029	0.16
	2	0.029	0.035	-0.006	0.80
	3	0.018	0.012	0.006	0.73
	4	0	0.035	-0.035	0.05
	5	0.047	0.024	0.024	0.29
	6	0.088	0.024	0.065	0.12
yellow warbler	1	0.141	0.212	-0.071	0.40
	2	0.100	0.259	-0.159	0
	3	0.094	0.212	-0.118	0.03
	4	0.071	0.141	-0.071	0.17
	5	0.182	0.176	0.006	0.69
	6	0.312	0.412	-0.100	0.35

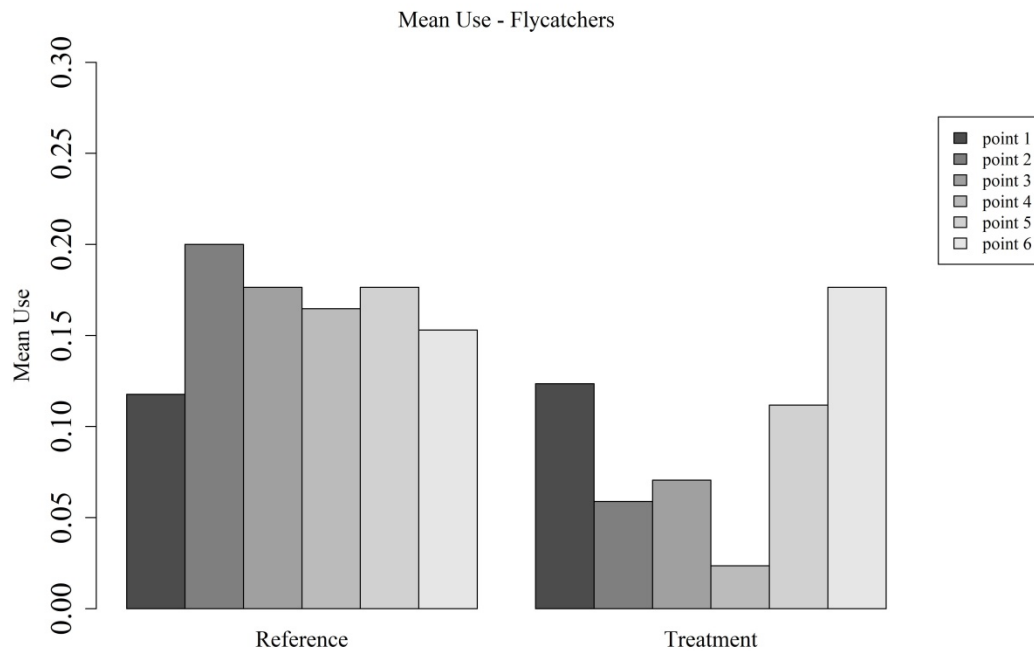
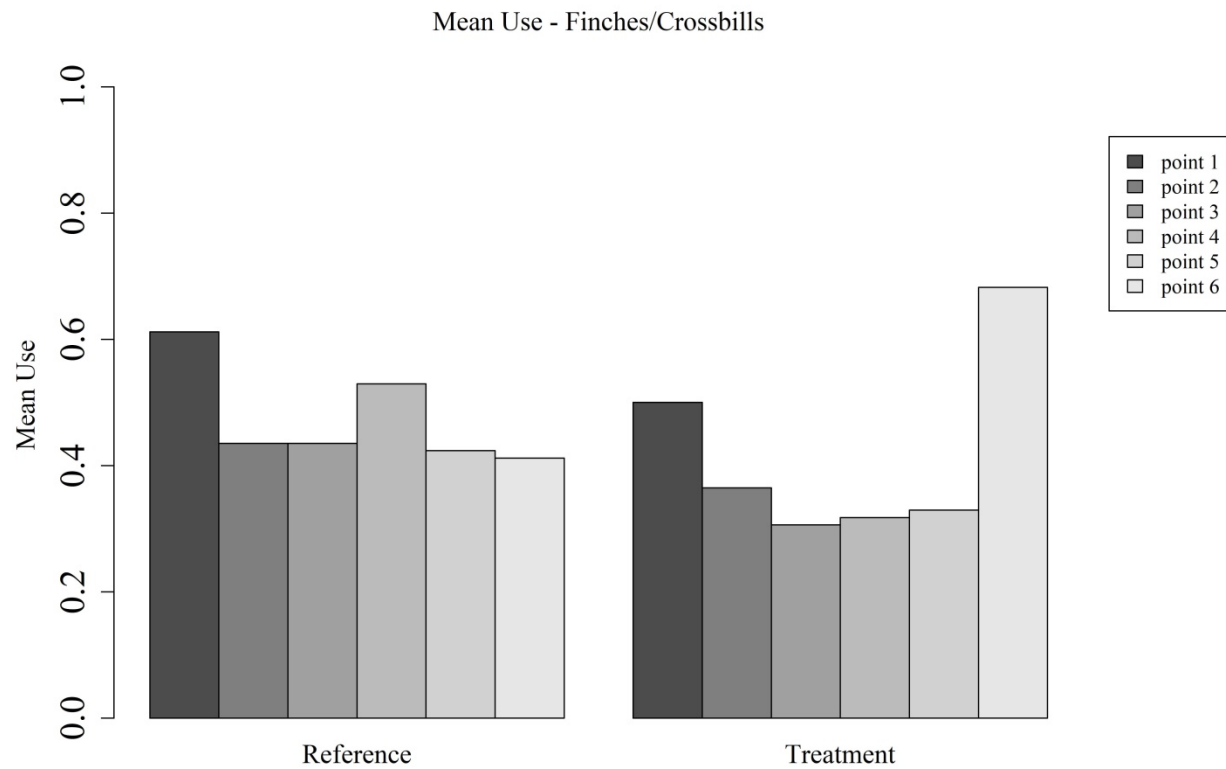
¹Data are restricted to those subgroups where at least 30 observations were recorded; statistically significant difference (p-values less than or equal to 0.10) are bolded

² The absolute difference is less than 0.1

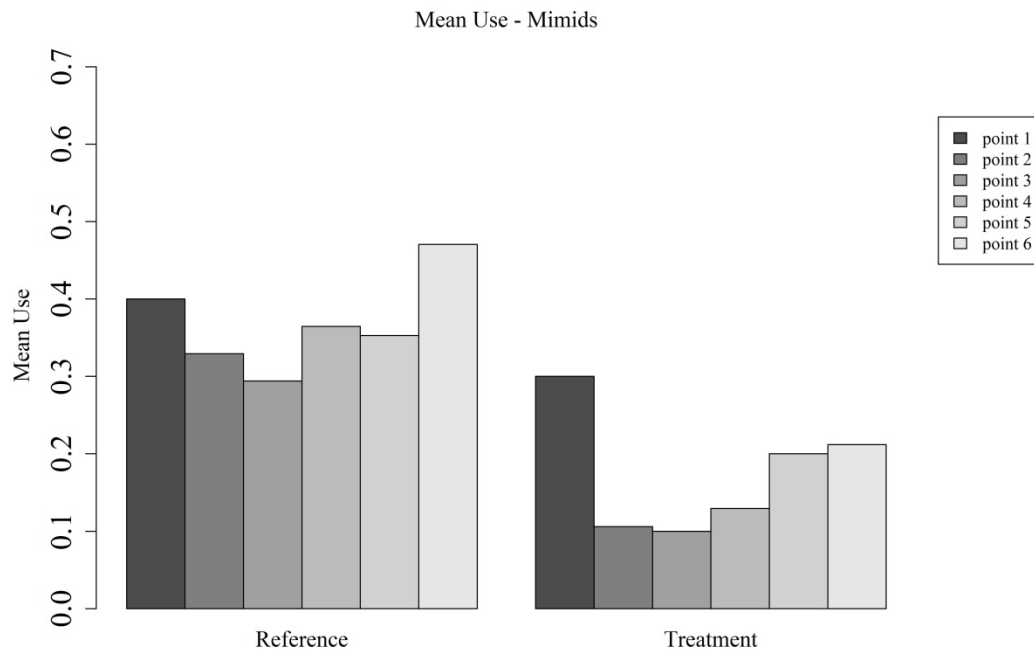
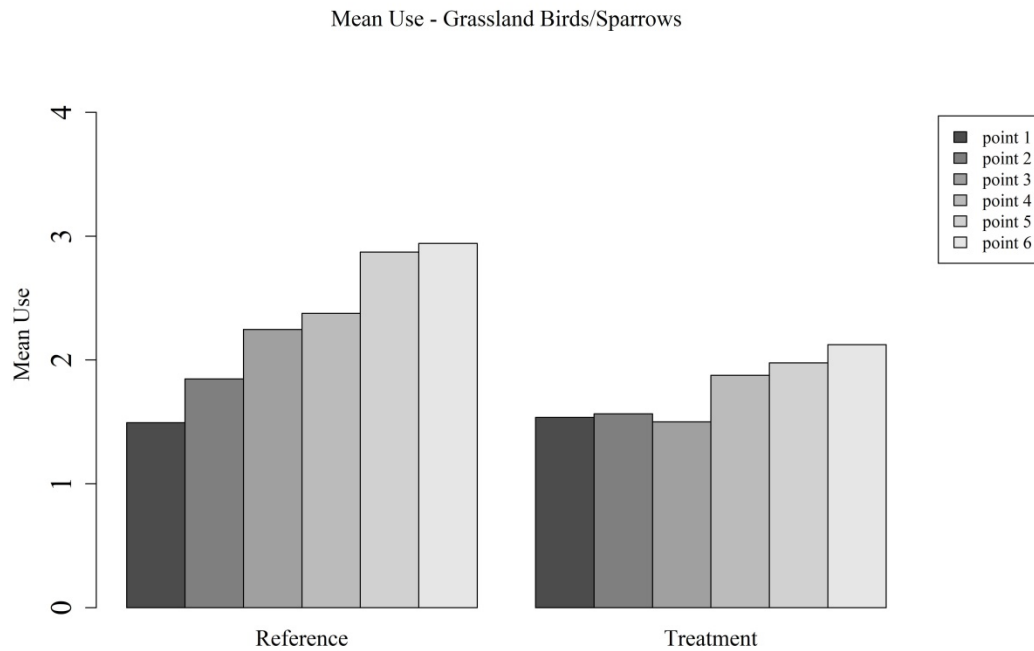
**Appendix H: Mean Use by Selected Passerine Subgroups and Species at each Point
Count Location of the Control and Treatment Transects Surveyed during Breeding Bird
Surveys at the Mohawk Solar Project from April 17 – July 27, 2018**



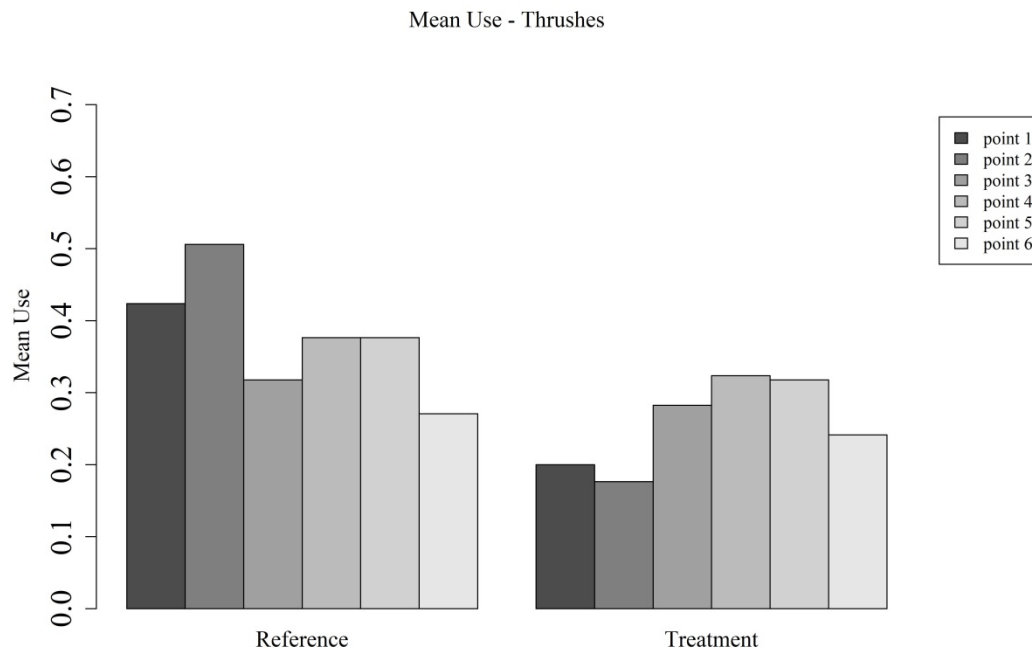
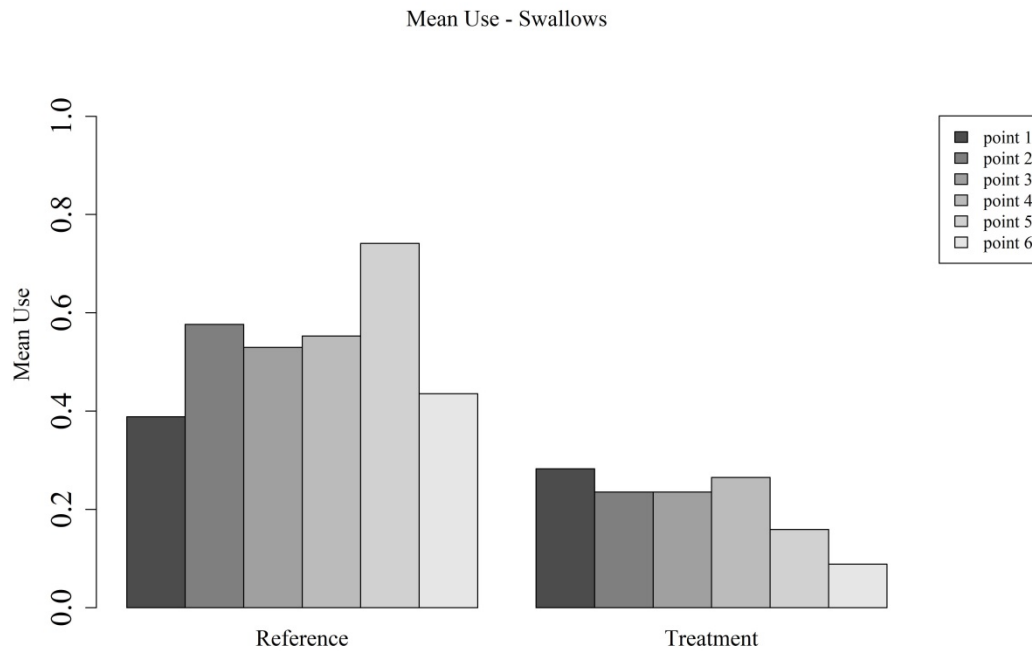
Appendix H1. Mean use by selected passerine subgroups (birds/transect/survey), at each point count location of the control and treatment transects surveyed during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.



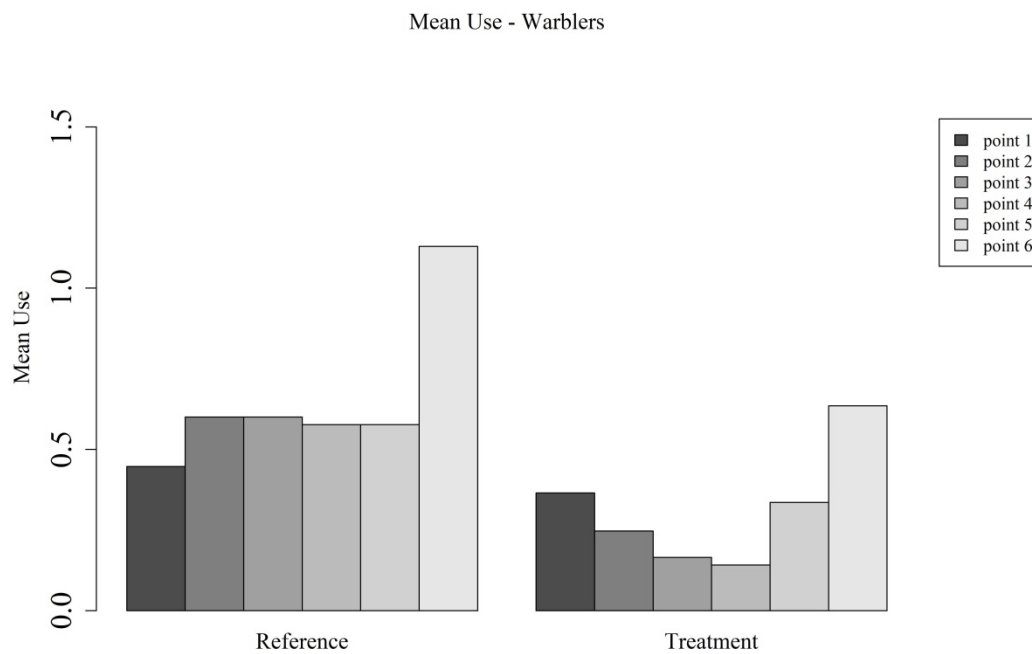
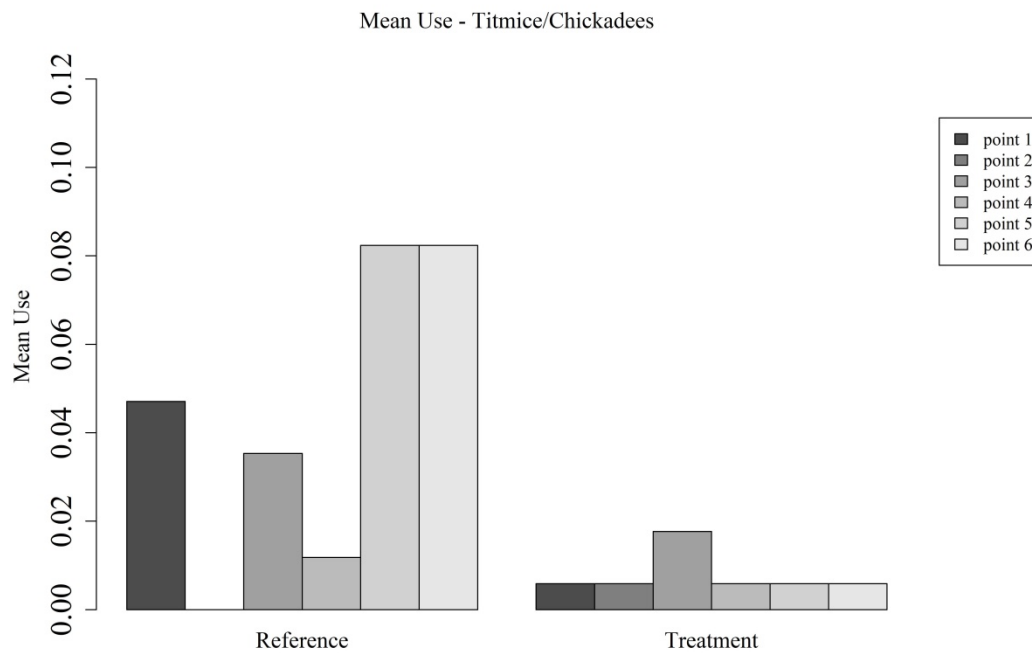
Appendix H1 (continued). Mean use by selected passerine subgroups (birds/transect/survey), at each point count location of the control and treatment transects surveyed during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.



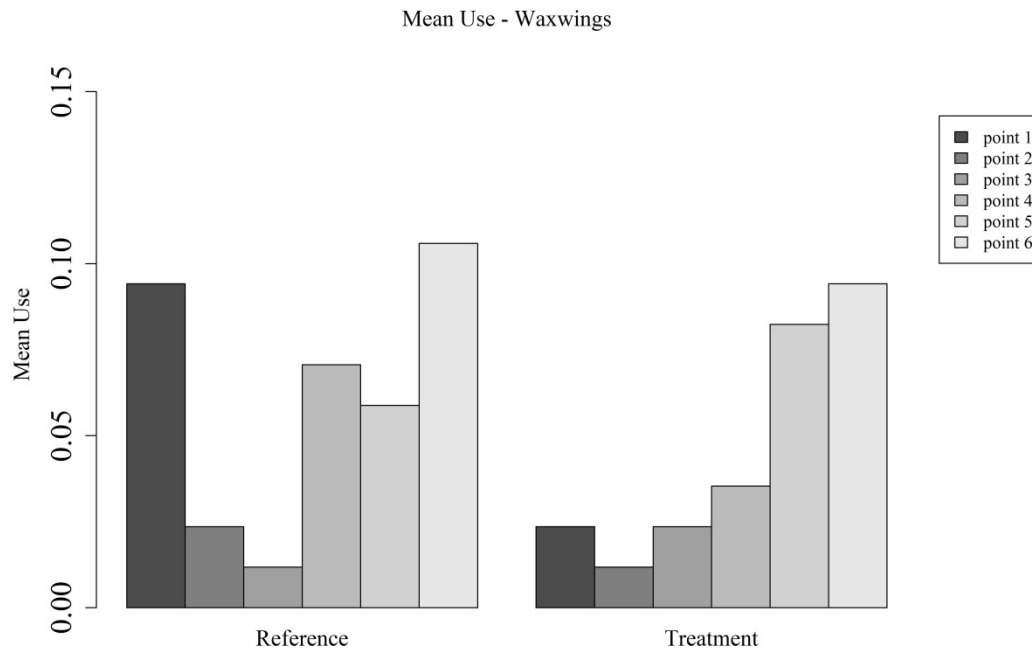
Appendix H1 (*continued*). Mean use by selected passerine subgroups (birds/transect/survey), at each point count location of the control and treatment transects surveyed during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.



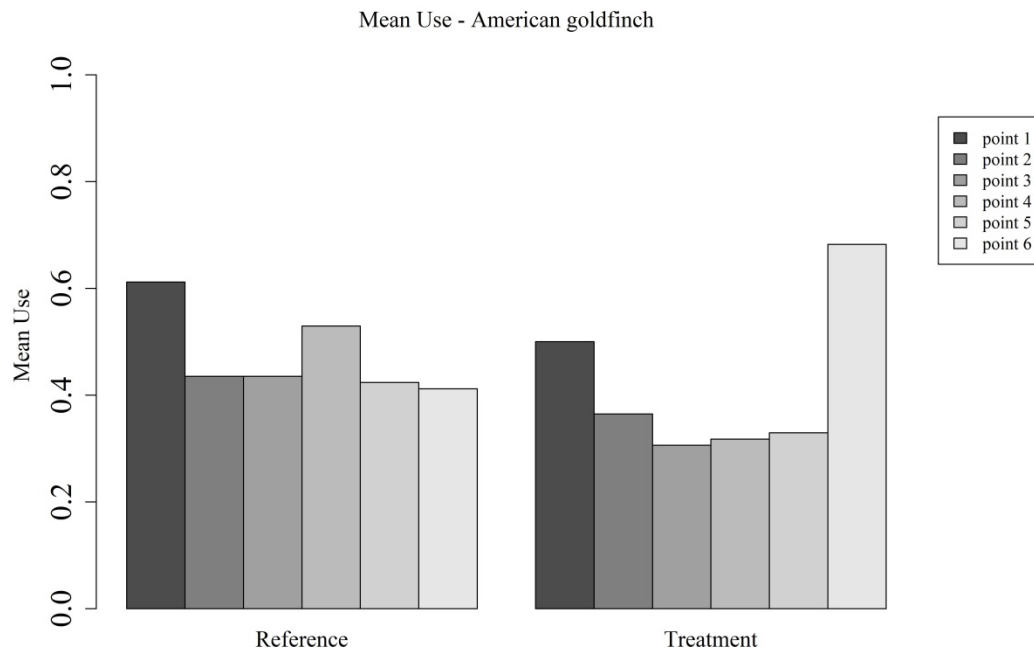
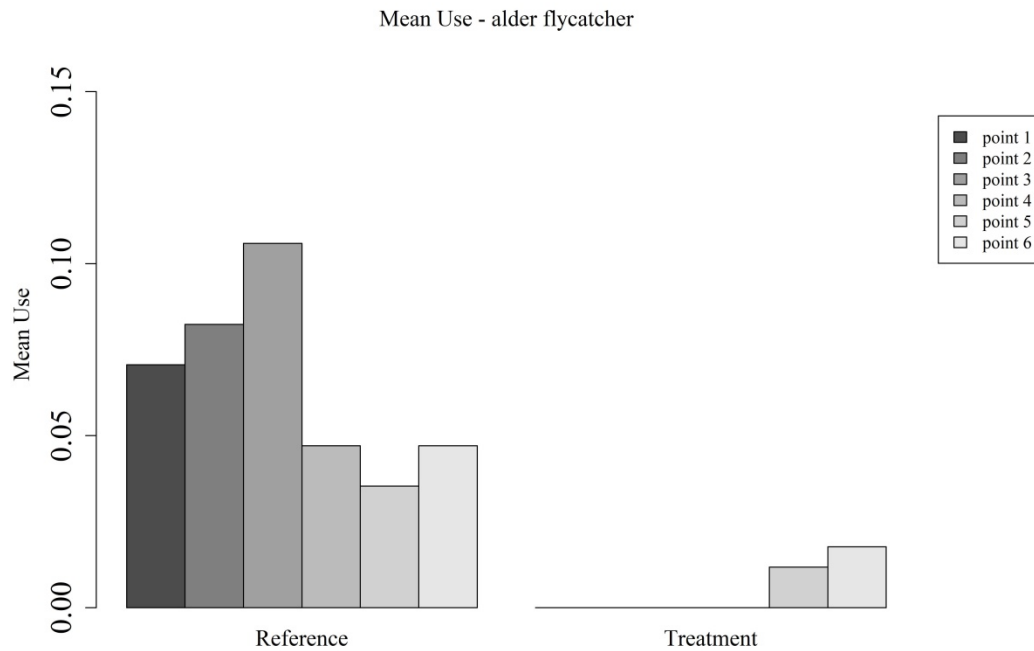
Appendix H1 (continued). Mean use by selected passerine subgroups (birds/transect/survey), at each point count location of the control and treatment transects surveyed during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.



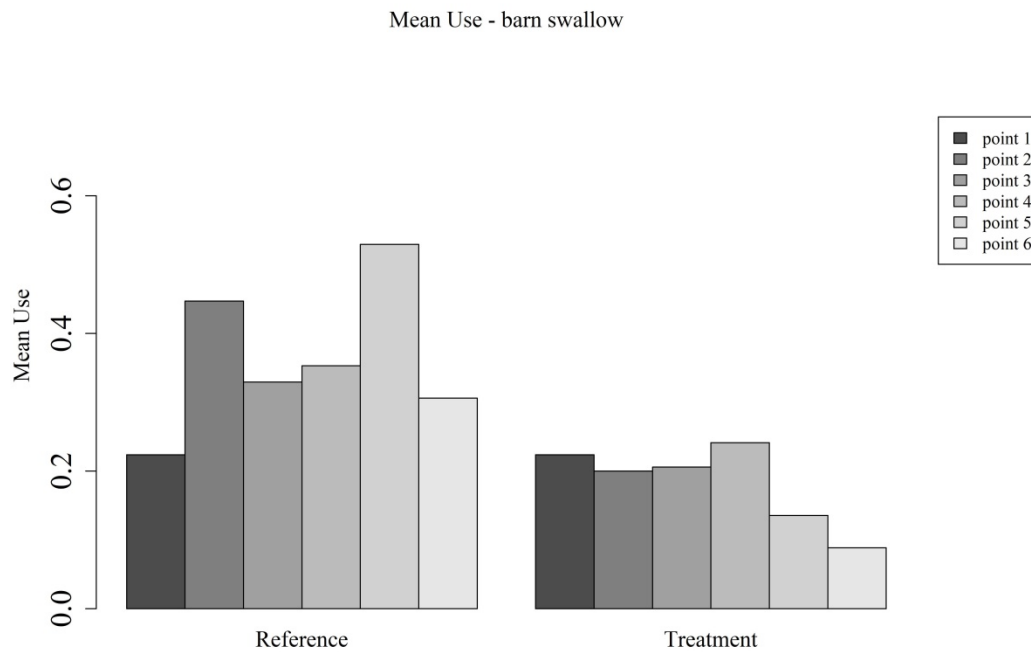
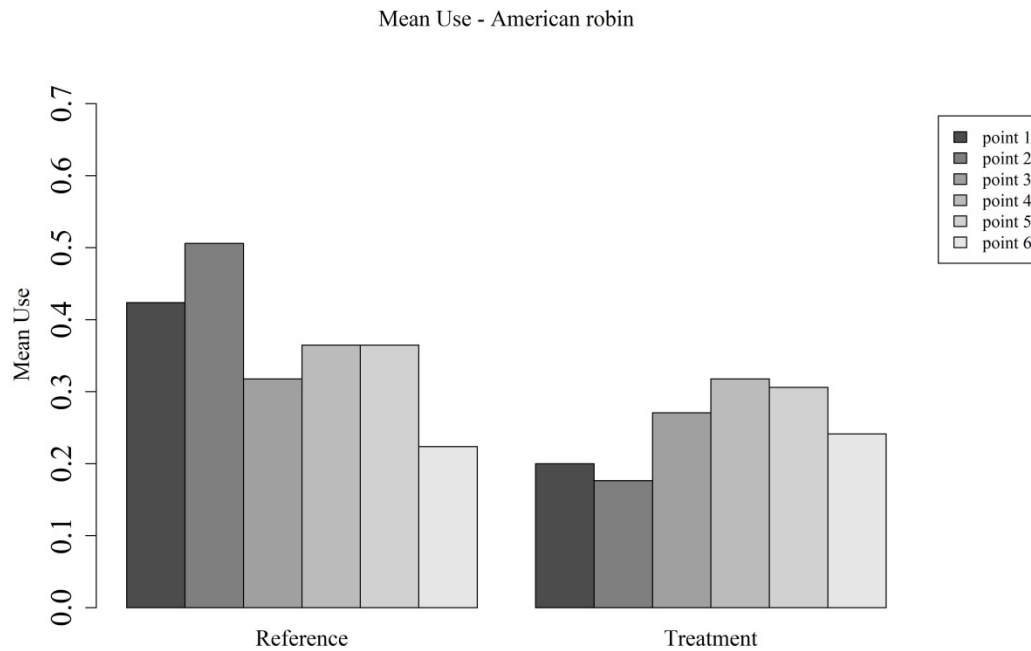
Appendix H1 (continued). Mean use by selected passerine subgroups (birds/transect/survey), at each point count location of the control and treatment transects surveyed during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.



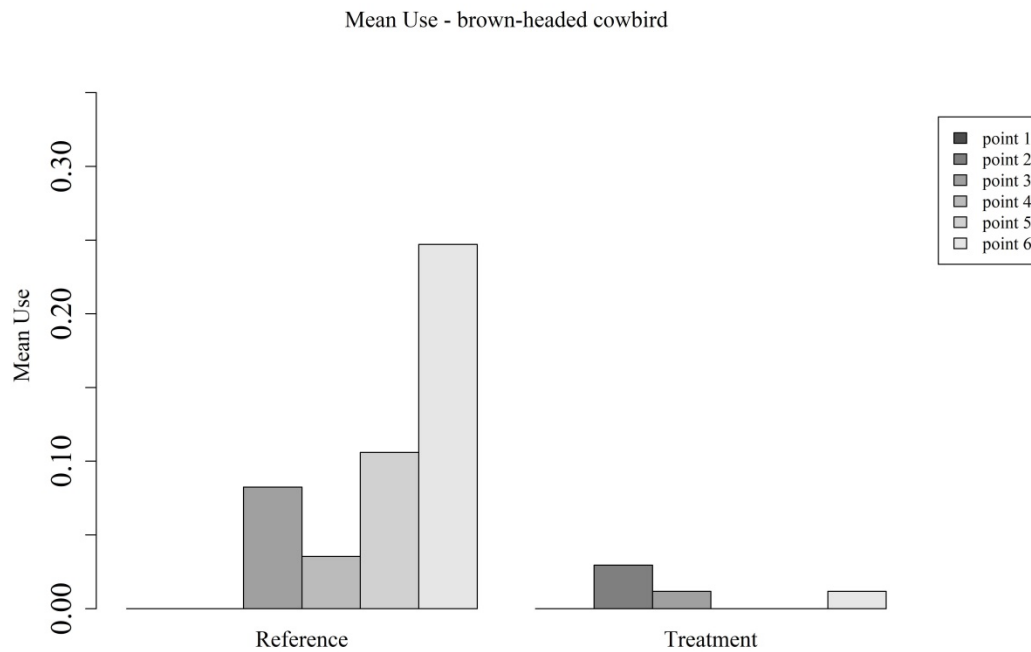
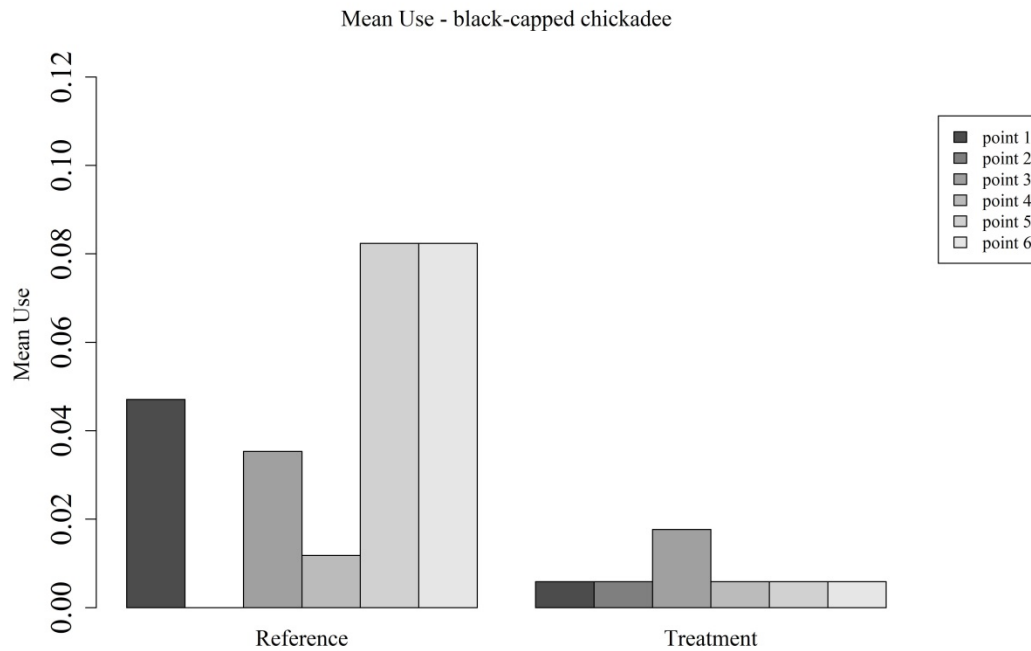
Appendix H1 (continued). Mean use by selected passerine subgroups (birds/transect/survey), at each point count location of the control and treatment transects surveyed during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.



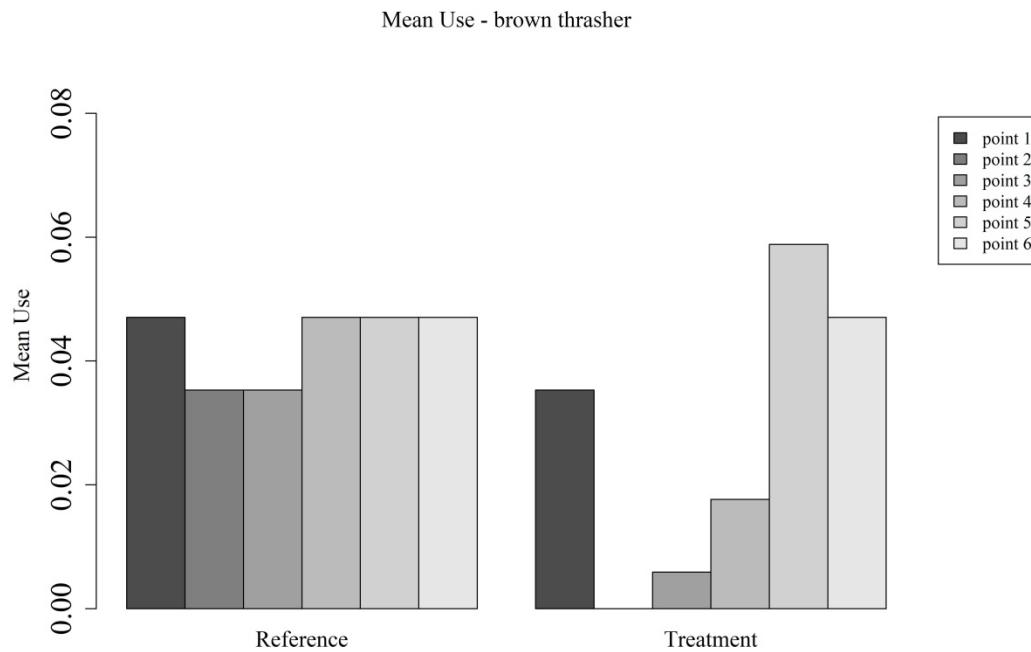
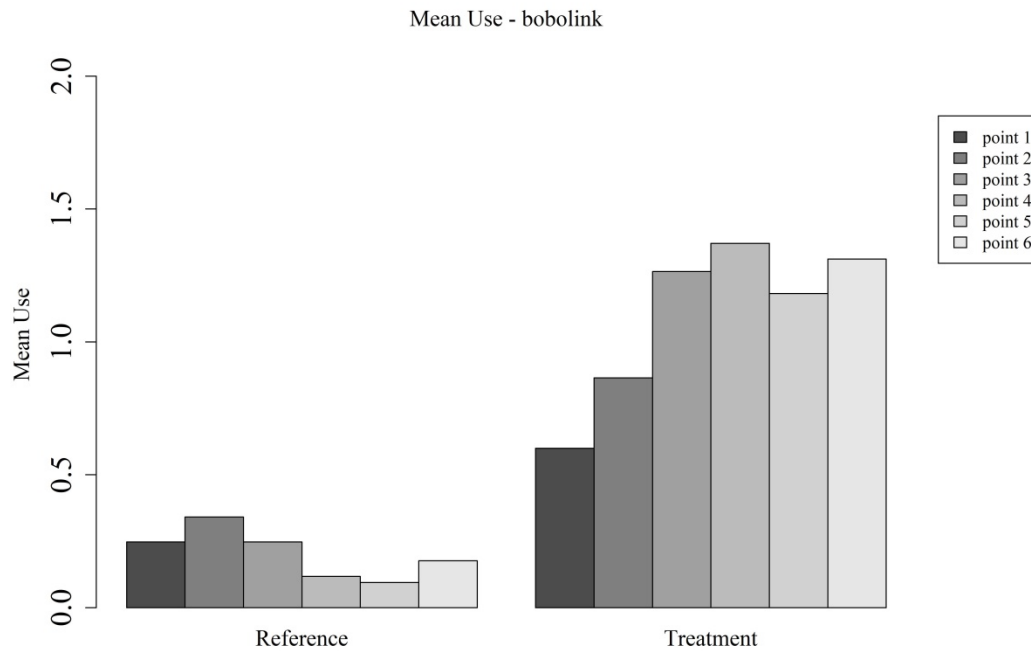
Appendix H2. Mean use by selected passerine species (birds/transect/survey), at each point count location of the control and treatment transects surveyed during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.



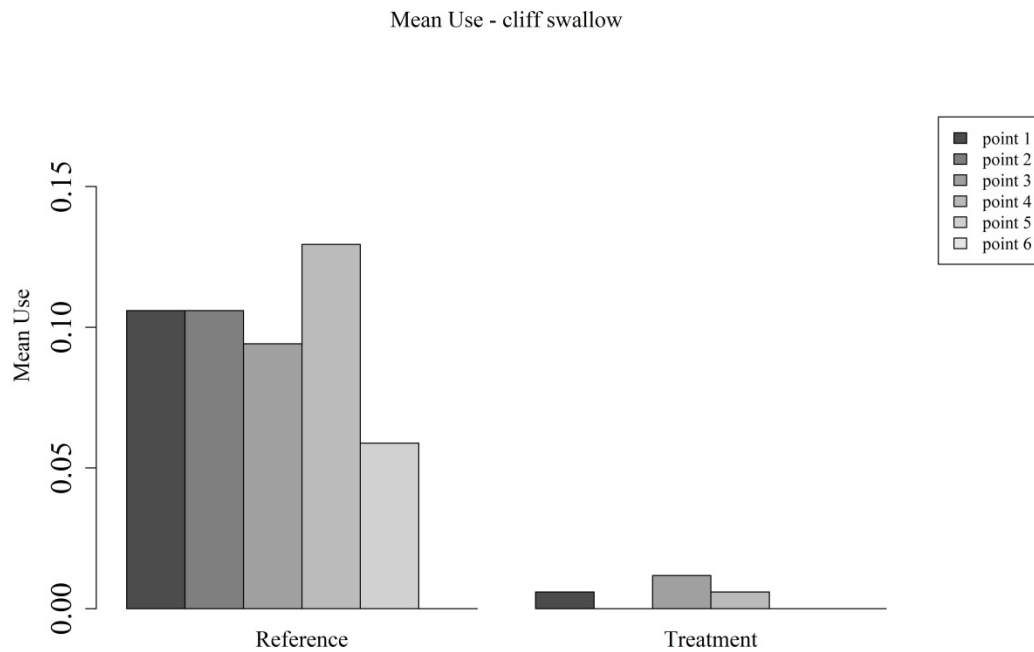
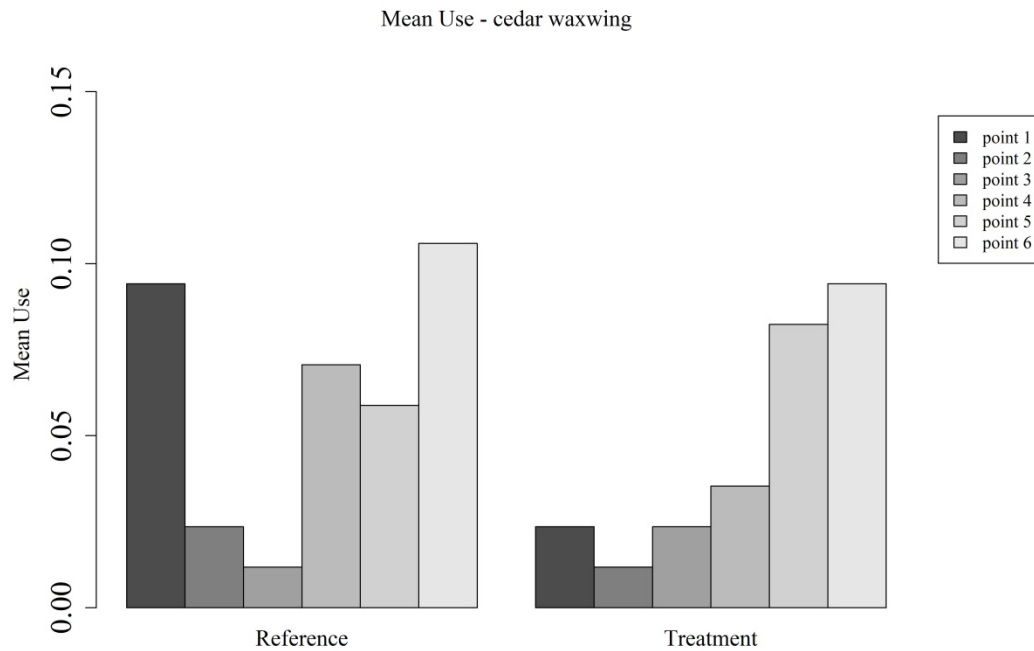
Appendix H2 (continued). Mean use by selected passerine species (birds/transect/survey), at each point count location of the control and treatment transects surveyed during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.



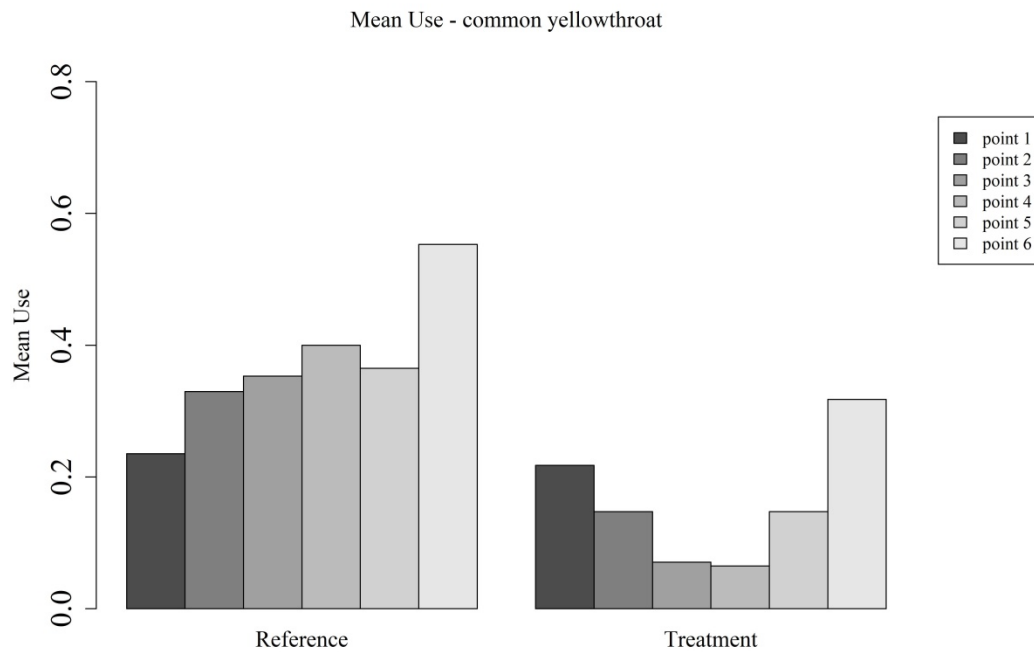
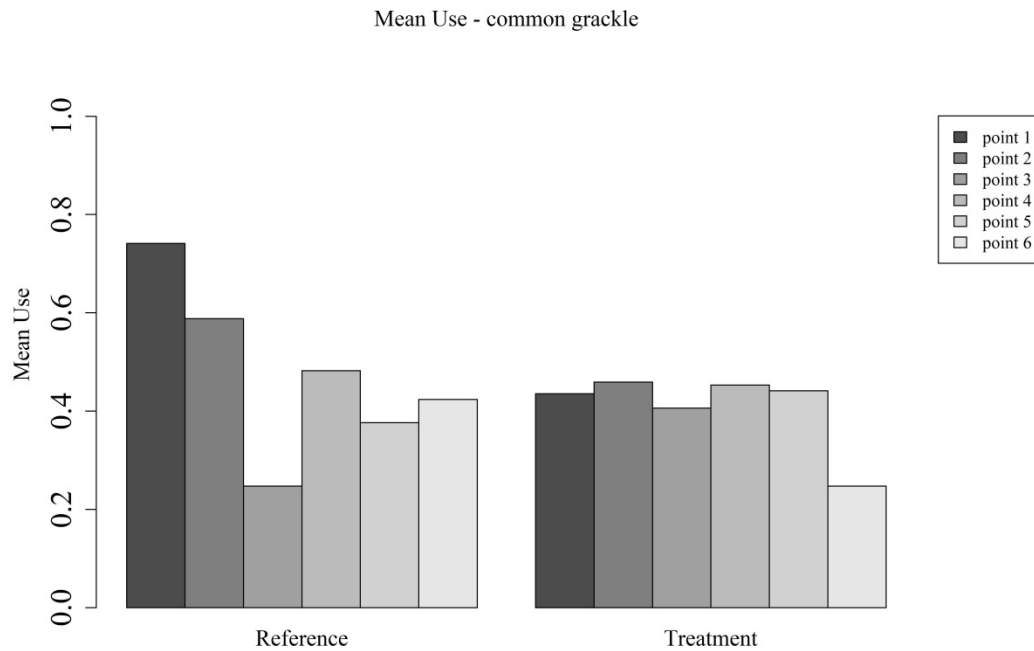
Appendix H2 (continued). Mean use by selected passerine species (birds/transect/survey), at each point count location of the control and treatment transects surveyed during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.



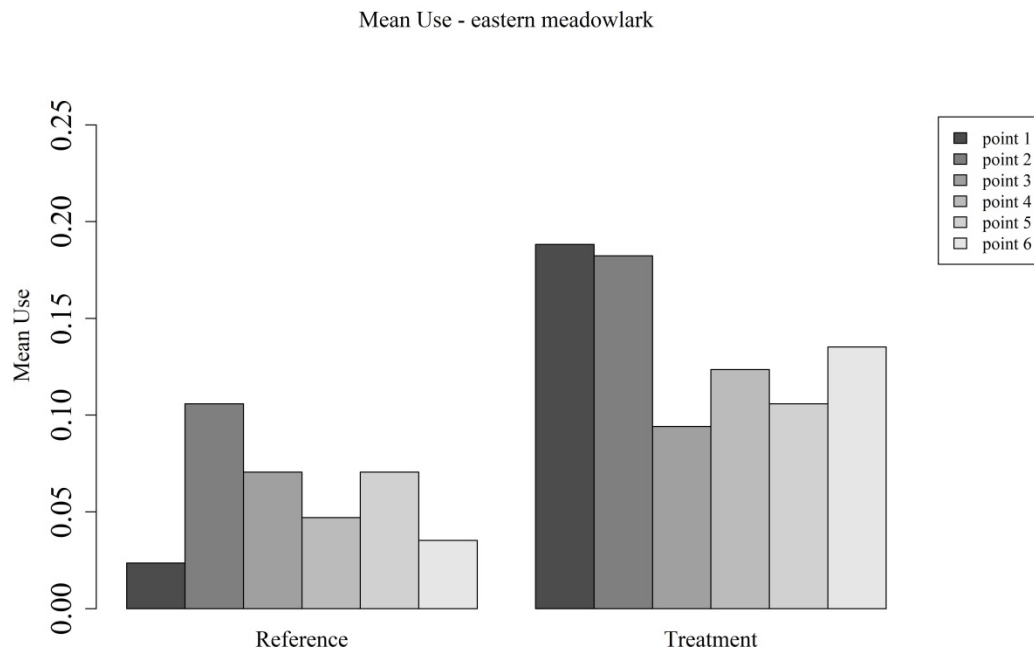
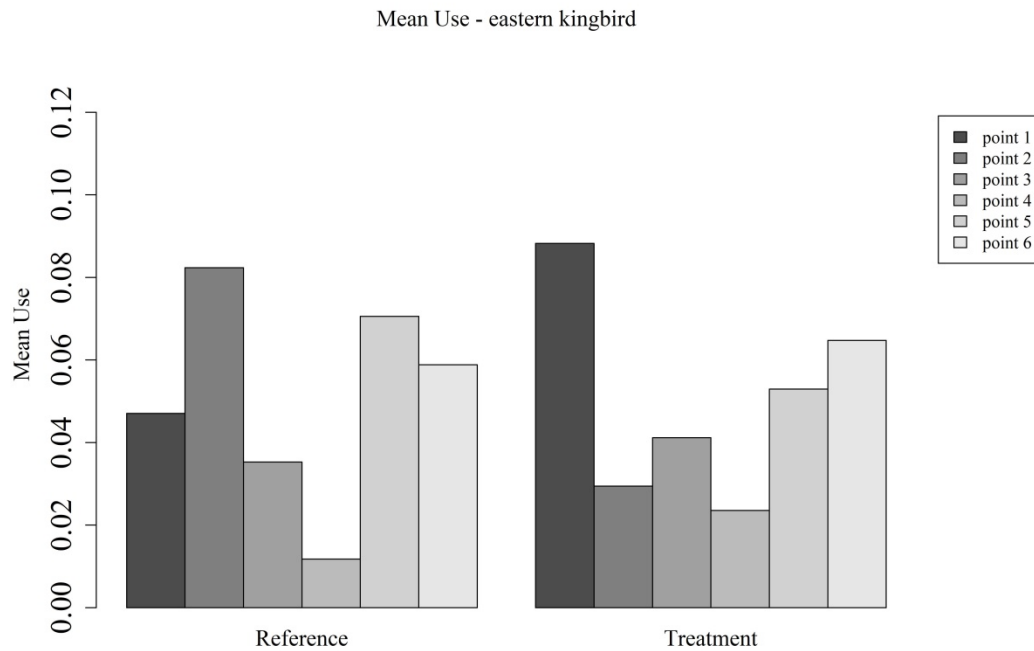
Appendix H2 (continued). Mean use by selected passerine species (birds/transect/survey), at each point count location of the control and treatment transects surveyed during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.



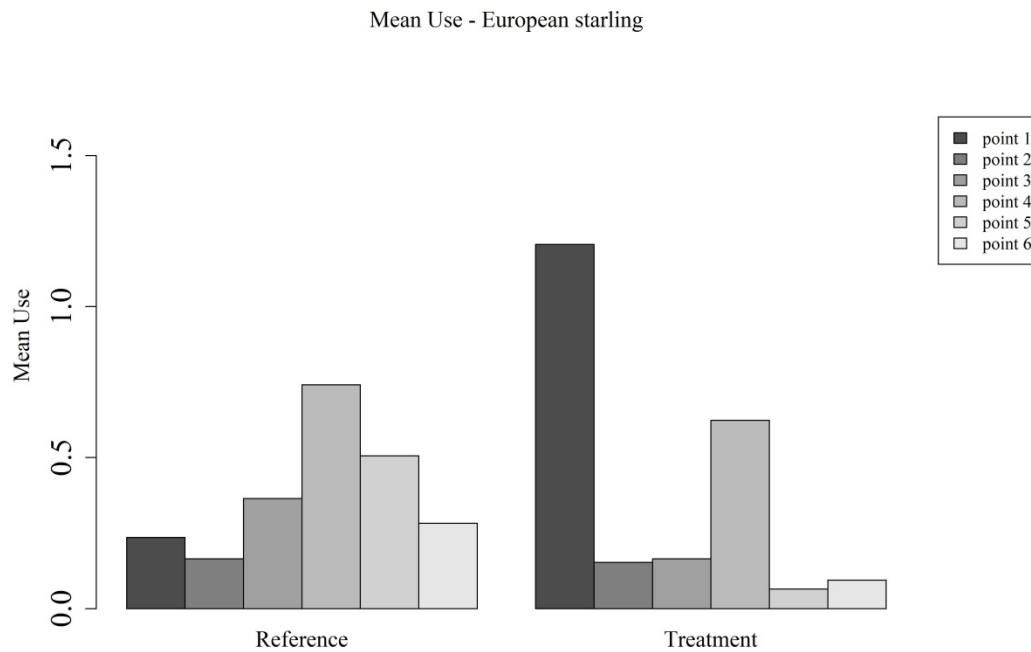
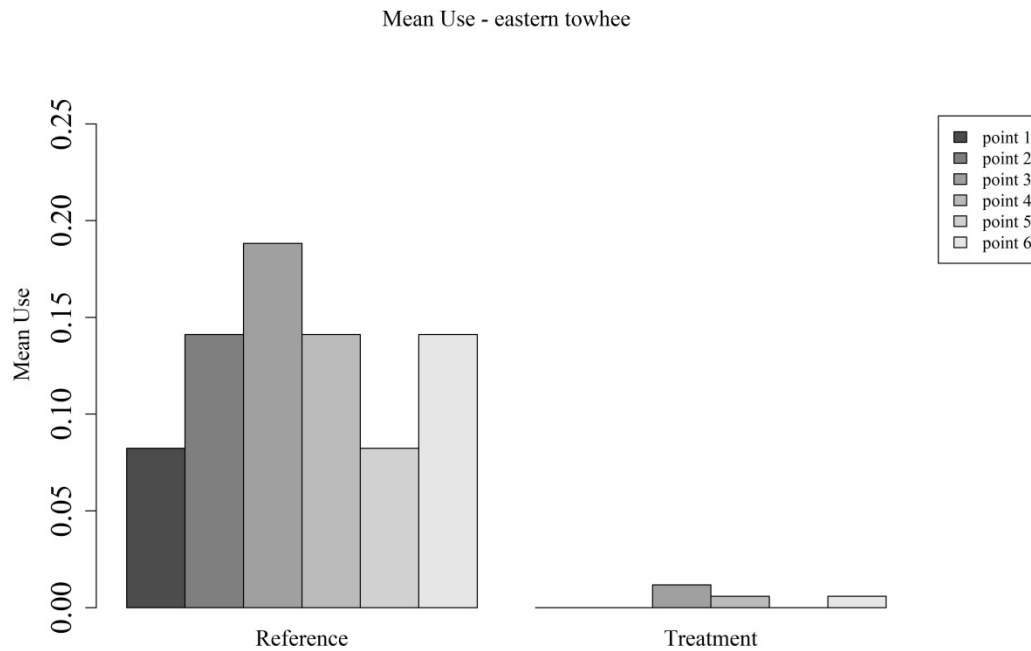
Appendix H2 (continued). Mean use by selected passerine species (birds/transect/survey), at each point count location of the control and treatment transects surveyed during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.



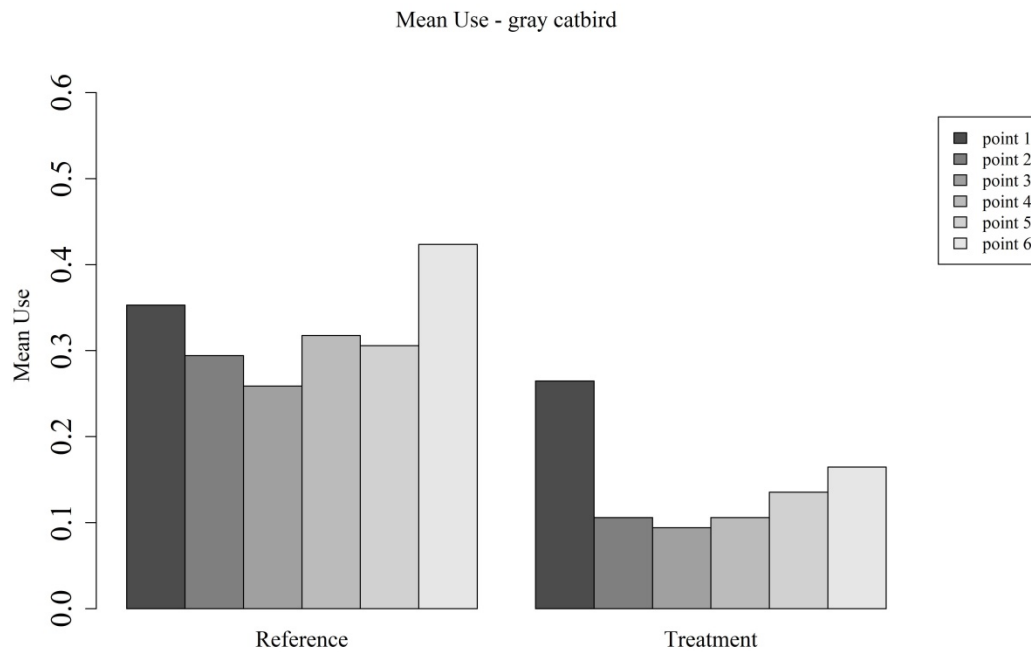
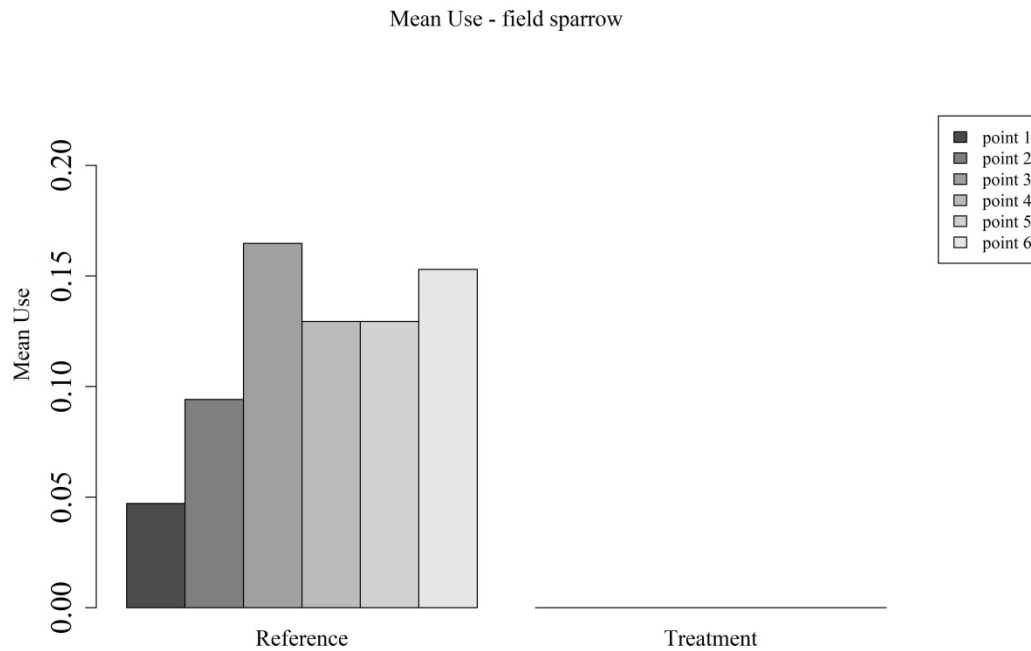
Appendix H2 (continued). Mean use by selected passerine species (birds/transect/survey), at each point count location of the control and treatment transects surveyed during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.



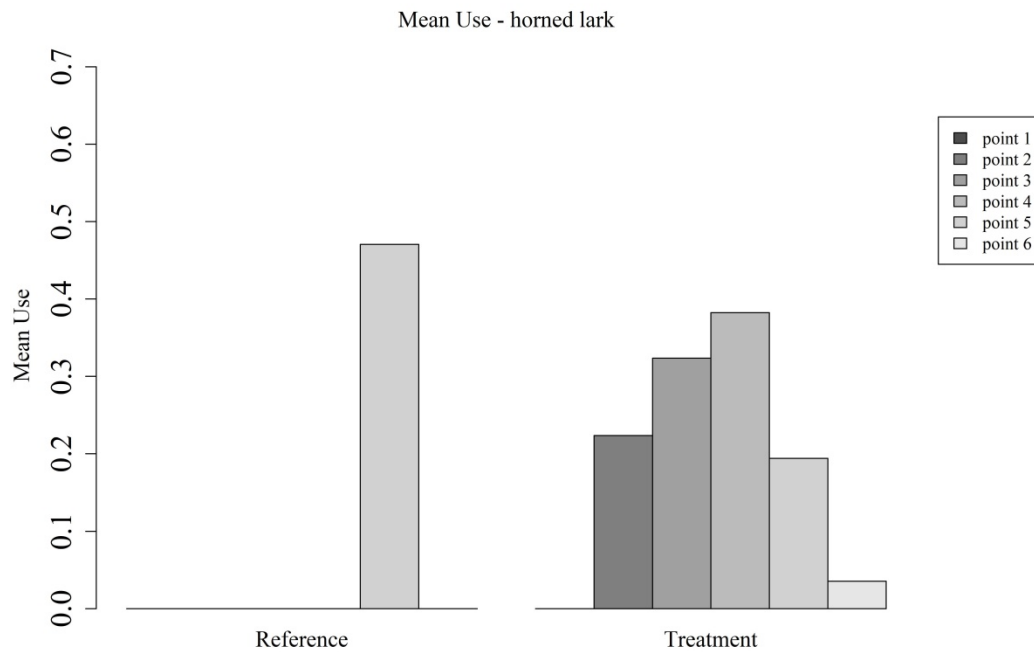
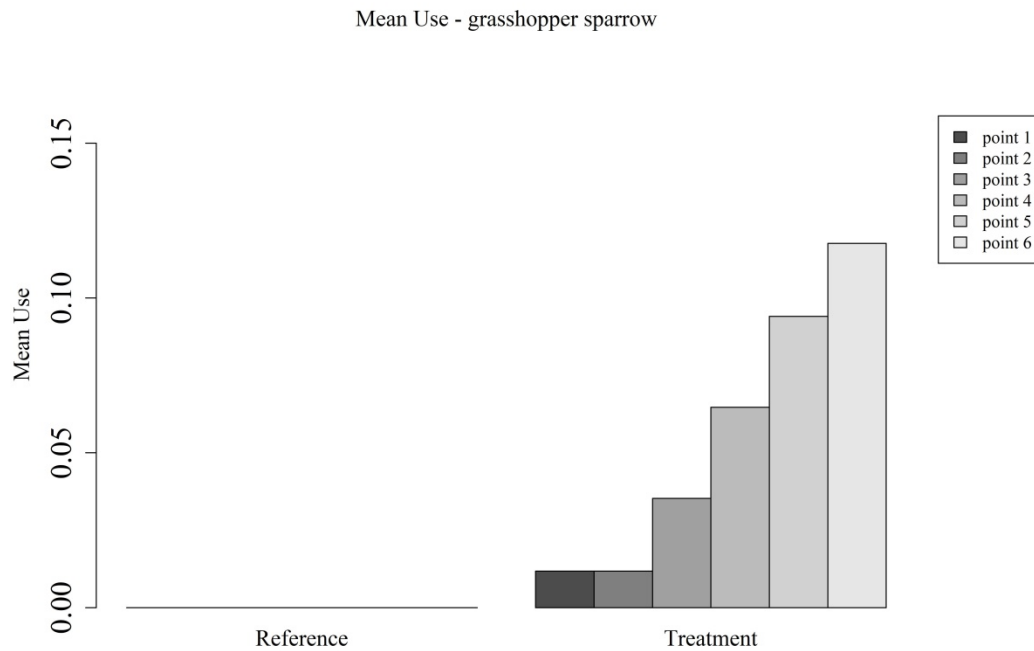
Appendix H2 (continued). Mean use by selected passerine species (birds/transect/survey), at each point count location of the control and treatment transects surveyed during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.



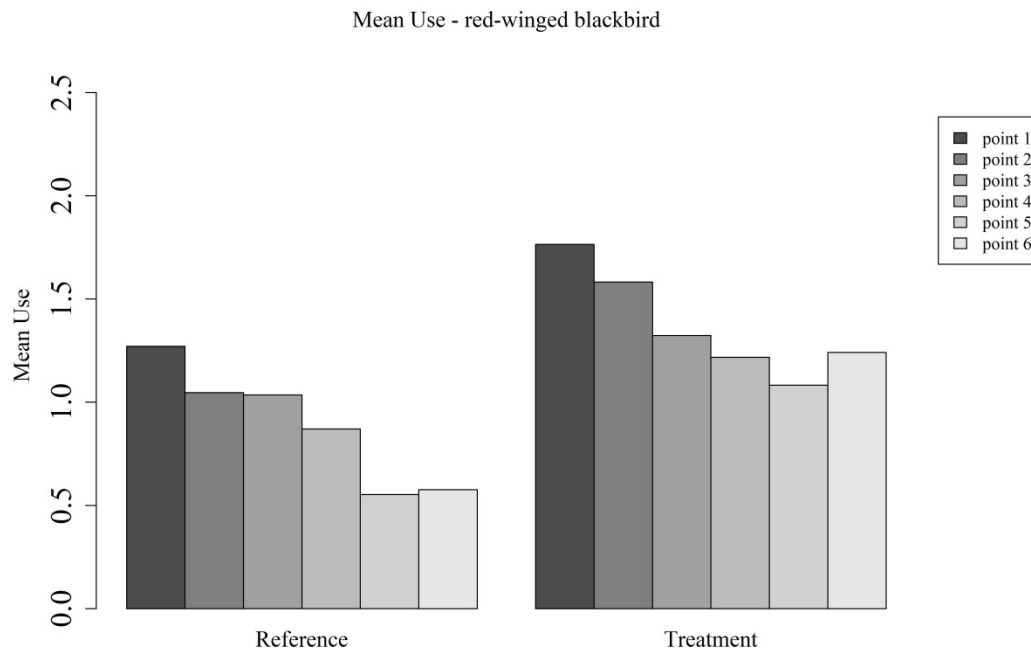
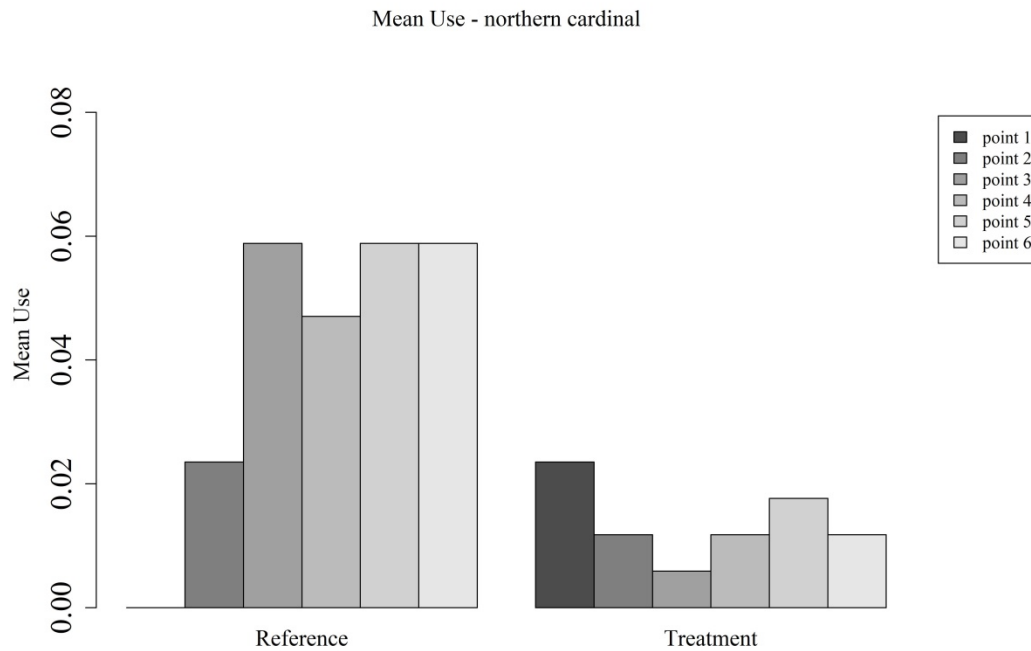
Appendix H2 (continued). Mean use by selected passerine species (birds/transect/survey), at each point count location of the control and treatment transects surveyed during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.



Appendix H2 (continued). Mean use by selected passerine species (birds/transect/survey), at each point count location of the control and treatment transects surveyed during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.

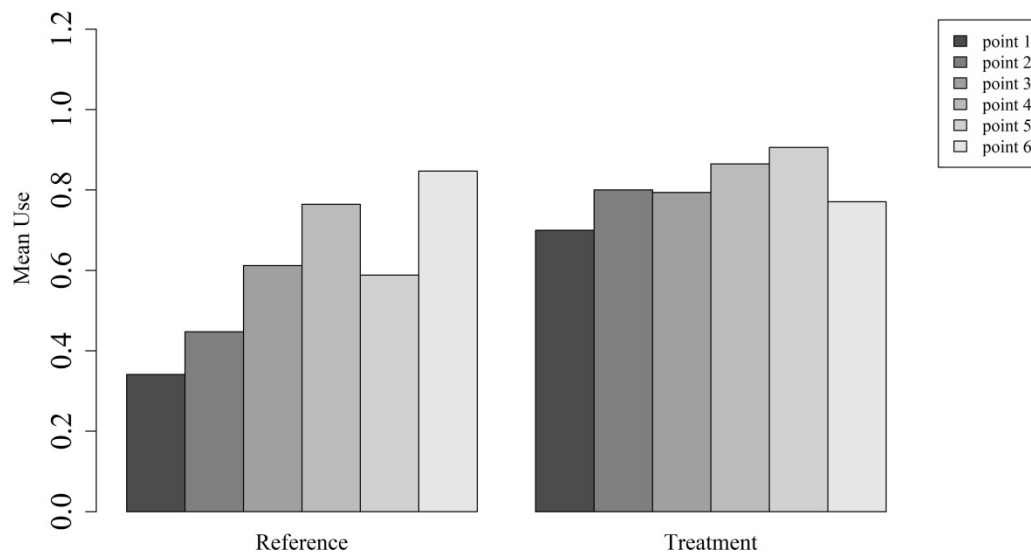


Appendix H2 (continued). Mean use by selected passerine species (birds/transect/survey), at each point count location of the control and treatment transects surveyed during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.

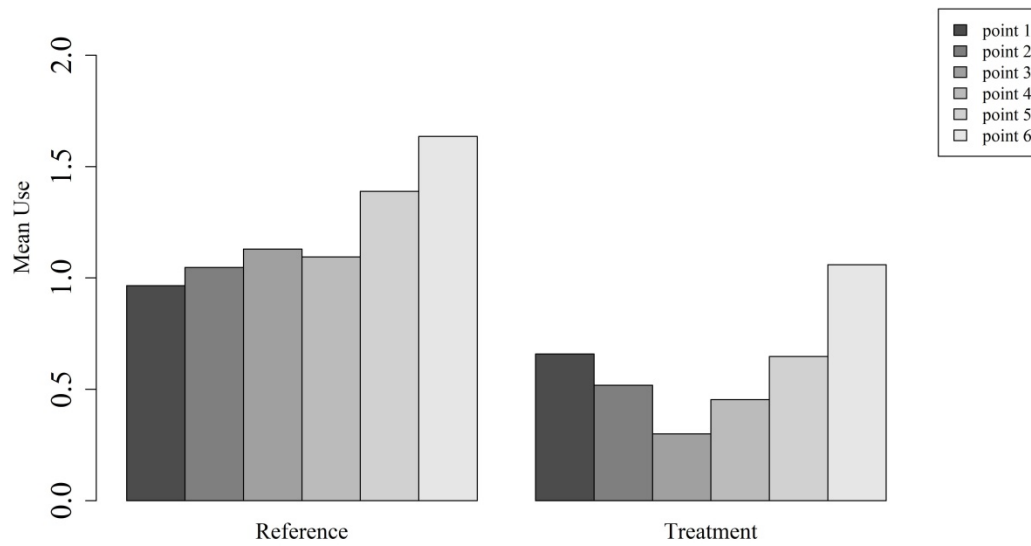


Appendix H2 (continued). Mean use by selected passerine species (birds/transect/survey), at each point count location of the control and treatment transects surveyed during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.

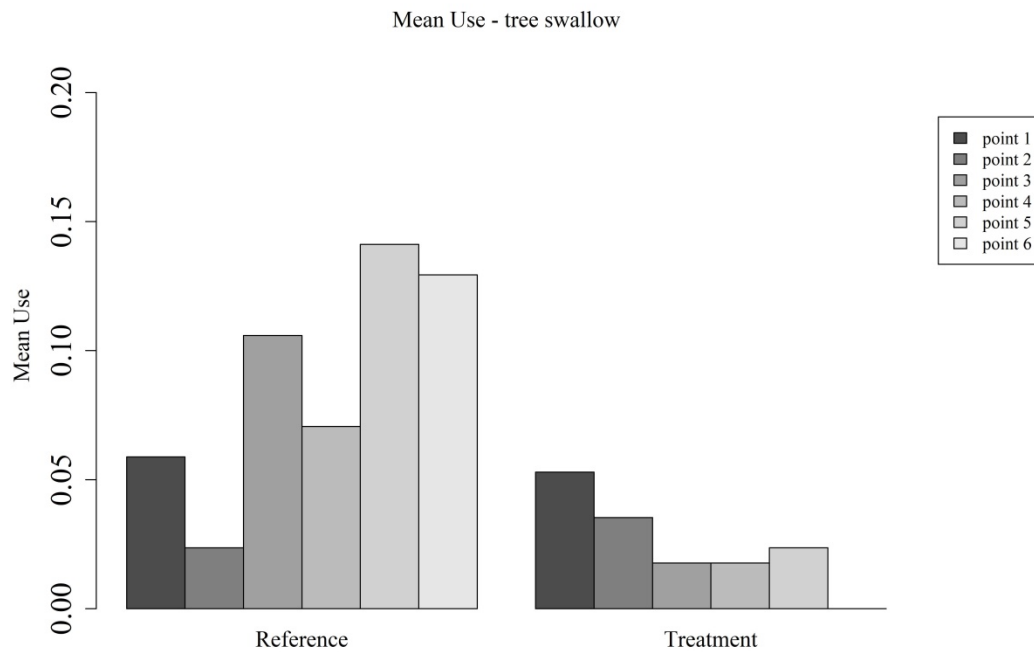
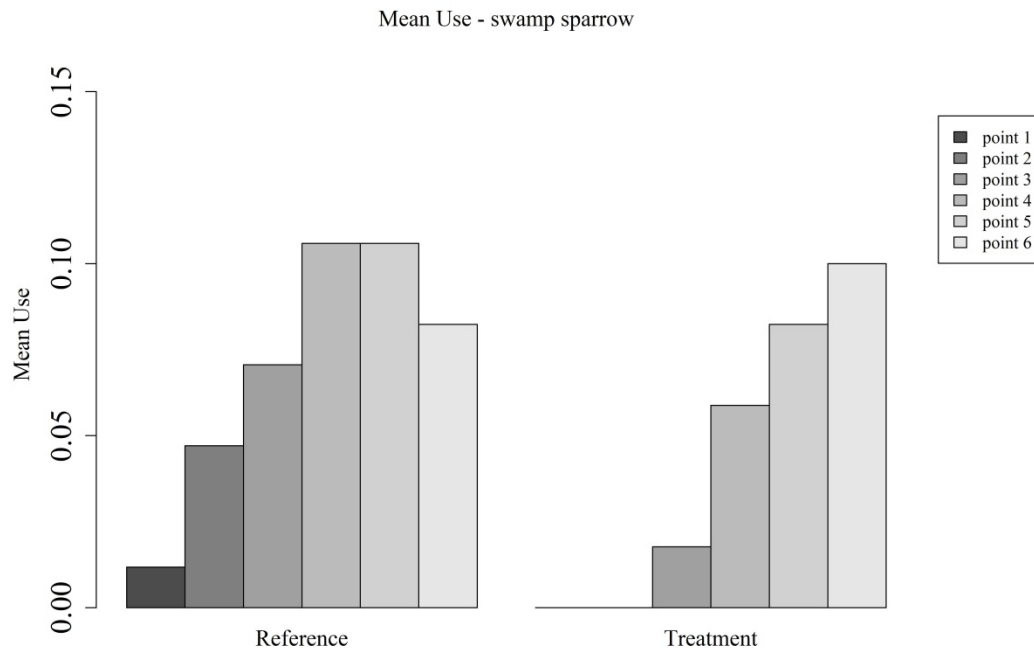
Mean Use - Savannah sparrow



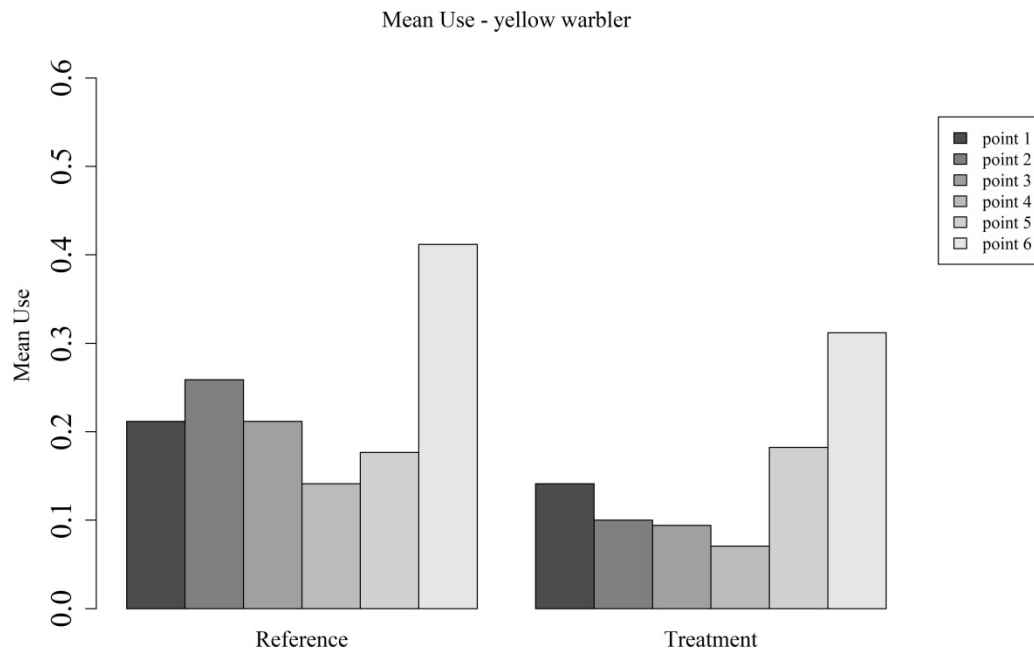
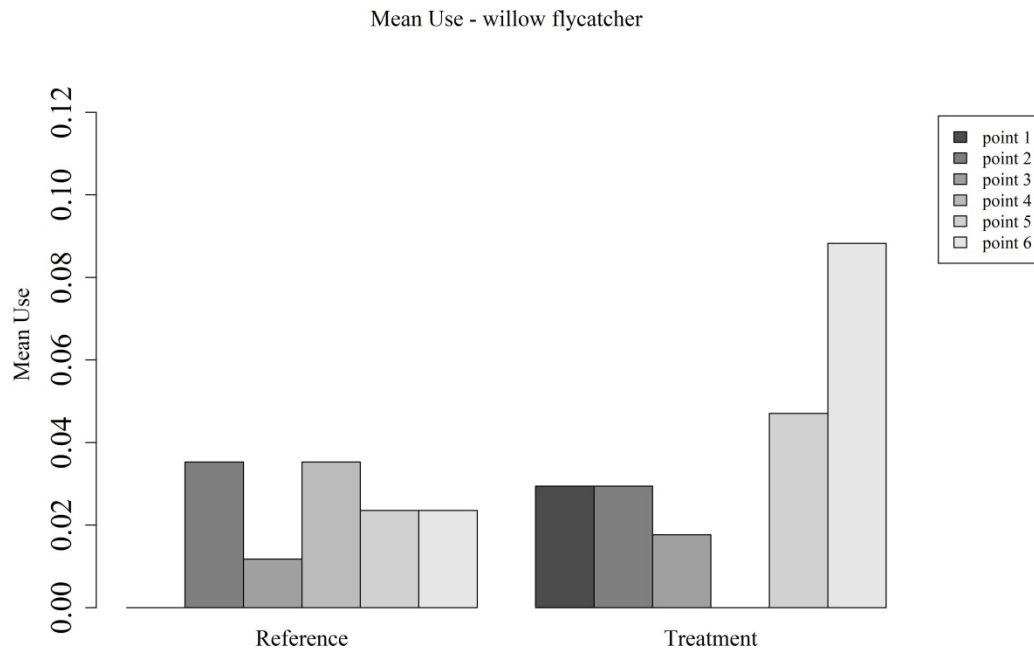
Mean Use - song sparrow



Appendix H2 (continued). Mean use by selected passerine species (birds/transect/survey), at each point count location of the control and treatment transects surveyed during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.



Appendix H2 (continued). Mean use by selected passerine species (birds/transect/survey), at each point count location of the control and treatment transects surveyed during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.



Appendix H2 (continued). Mean use by selected passerine species (birds/transect/survey), at each point count location of the control and treatment transects surveyed during breeding bird surveys at the Mohawk Solar Project from April 17 – July 27, 2018.

**Appendix I [REDACTED]: Details of Sensitive Species Observations Recorded during
Breeding Bird Surveys at the Mohawk Solar Project from April 17 – July 27, 201**

