Appendix M

Wildlife Survey Reports

1. Eagle and Raptor Nest Survey Reports
2. Sharp-tailed Grouse Lek Survey Reports
3. Avian Use Surveys
4. Grassland Assessment
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6. Bat Acoustic Activity Survey
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Appendix M.3
Avian Use Surveys

Year 1 and Year 2 Avian Use Studies for the Proposed Homestead Wind Project Williams County, North Dakota

Final

February 2023 – September 2025

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EXECUTIVE SUMMARY

Homestead Wind, LLC is developing the proposed Homestead Wind Project (Project) located in Williams County, North Dakota. Western EcoSystems Technology, Inc. (WEST), completed two years of avian use studies for the Project. Consistent with the US Fish and Wildlife Service's (USFWS's) *2024 Permits for Incidental Take of Eagles and Eagle Nests; Final rule* (2024 Eagle Rule), the study methodology was based on the recommendations in the USFWS's *Land-based Wind Energy Guidelines* (WEG), Appendix C(1)(a) of the *Eagle Conservation Plan Guidance* (ECPG), and the USFWS 2016 *Revisions to Regulations for Eagle Incidental Take and Take of Eagle Nests*.

The objectives of the Year 1 and Year 2 avian use studies were to assess temporal and spatial use of the Project area by large and small birds (Year 1) and large birds (Year 2), including species of concern (defined as species afforded protection under the Endangered Species Act of 1973, Bald and Golden Eagle Protection Act [BGEPA] of 1940, Level 1 Species of Conservation Priority by the North Dakota Game and Fish Department, and birds of conservation concern [BCC] defined by the USFWS Information for Planning and Consultation). This report summarizes the results from two years of avian use studies at the Project.

Surveys were completed monthly at 20 survey points (points) from February 20, 2023 – January 24, 2024 (Year 1) and October 20, 2024 – September 7, 2025 (Year 2). The 20 points provided 26.5% spatial coverage of the Project area. Surveys consisted of 10-minute surveys for small birds (Year 1) and 60-minute surveys for large birds (Year 1 and Year 2). In addition, species of concern were recorded any time they were observed during surveys, regardless of size, and incidentally if they occurred within the Project area.

No federally listed threatened or endangered species were observed during surveys or incidentally. Thirteen bald eagles (*Haliaeetus leucocephalus;* five in Year 1 and eight in Year 2) and eight golden eagles (*Aquila chrysaetos;* four in Year 1 and four in Year 2), protected under the BGEPA, were observed during surveys and incidentally.

In Year 1, six species classified by the NDGFD as Level I Species of Conservation Priority (SCP L1) were documented during surveys or incidentally and included: chestnut-collared longspur (*Calcarius ornatus*; n = 22), Franklin's gull (*Leucophaeus pipixcan;* n = 80), grasshopper sparrow (*Ammodramus savannarum*; n = 8), marbled godwit (*Limosa fedoa*; n = 12), Swainson's hawk (*Buteo swainsoni*; n = 13), and Wilson's phalarope (*Phalaropus tricolor*; n = 4). In Year 1, seven BCC were observed during surveys or incidentally and included: bobolink (*Dolichonyx oryzivorus*; n = 4), chestnut-collared longspur, Franklin's gull, grasshopper sparrow, marbled godwit, northern harrier (*Circus hudsonius*; n = 36), and willet (*Tringa semipalmata*; n = 4).

In Year 2, five species classified by the NDGFD as SCP L1 were documented during surveys or incidentally and included chestnut-collared longspur (n = 7), ferruginous hawk (*Buteo regalis*; n = 1), Franklin's gull (n = 124), marbled godwit (n = 49), and Swainson's hawk (n = 10). In Year 2,

six BCC species were observed during surveys or incidentally and included California gull (n = 4), chestnut-collared longspur, Franklin's gull, marbled godwit, northern harrier (n = 23), and willet (n = 4).

Large bird use in Year 1 was highest in fall, followed by spring, summer, and winter. In Year 2 large bird use was highest in the fall, followed by spring, winter, and summer. The most common large bird observed in Year 1 was sandhill crane, followed by Canada goose and snow goose, and in Year 2 it was ring-necked pheasant, followed by sandhill crane and Canada goose.

In Year 1, small bird use was highest in the fall, followed by spring, winter, and summer. Small bird use was primarily driven by passerines, specifically grassland birds (sparrows, buntings, longspurs, and juncos), blackbirds, and orioles.

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Appendix B. Mean Use, Percent of Use, and Frequency of Occurrence for Birds Observed in Survey Plots during the Avian Use Study at the Proposed Homestead Wind Project in Williams County, North Dakota, from February 20, 2023 – September 7, 2025 (Year 1 [B1: Large Birds; B2: Small Birds] and Year 2 [B3: Large Birds])

Appendix C. Mean Use by Survey Point for All Bird Types and Diurnal Raptor Subtypes Observed in Survey Plots during the Avian Use Study at the Proposed Homestead Wind Project in Williams County, North Dakota, from February 20, 2023 – September 7, 2025 (Year 1 [C1: Large Birds; C2: Small Birds] and Year 2 [C3: Large Birds])

INTRODUCTION

Homestead Wind, LLC is developing the proposed Homestead Wind Project (Project) located in Williams County, North Dakota (Figure 1). Western EcoSystems Technology, Inc. (WEST), completed two years of avian use studies (study) for the Project. Consistent with the US Fish and Wildlife Service's (USFWS) 2024 *Permits for Incidental Take of Eagles and Eagle Nests; Final Rule* (2024 Eagle Rule), study methodology was based on the recommendations in the USFWS's 2012 *Land-Based Wind Energy Guidelines* (WEG), and Appendix C(1)(a) of the 2013 *Eagle Conservation Plan Guidance* (ECPG), and the USFWS 2016 *Revisions to Regulations for Eagle Incidental Take and Take of Eagle Nests* (2016 Eagle Rule; 81 FR 91494 [2016]).

The objectives for Year 1 and Year 2 avian use studies were to assess the temporal and spatial use within the Project area by large birds and small birds (Year 1) and large birds (Year 2), including species of concern (defined as species afforded protection under the Endangered Species Act of 1973, Bald and Golden Eagle Protection Act [BGEPA] of 1940, Level 1 Species of Conservation Priority by the North Dakota Game and Fish Department [NDGFD; 2021]), and birds of conservation concern [BCC; USFWS 2021] defined by the USFWS Information for Planning and Consultation [IPac] 2024). This report summarizes the results of the study conducted in Year 1 and Year 2 at the Project.

PROJECT AREA

The Project area is located within the Northwestern Glaciated Plains Level III Ecoregion (US Environmental Protection Agency [USEPA] 2012, 2013). The Northwestern Glaciated Plains Ecoregion features a moderately high concentration of semi-permanent and seasonal wetlands (USEPA 2012, 2013).

The Project area is composed of approximately 24,994 acres (Figure 2). According to the National Land Cover Database (NLCD; 2024), the main land cover type is cultivated crops (81.2%), followed by herbaceous (14.2%), and developed (3.6%; NLCD 2024; Figure 2, Table 1). The remaining land cover types, together, account for less than 1.0% of the Project area (Figure 2, Table 1).

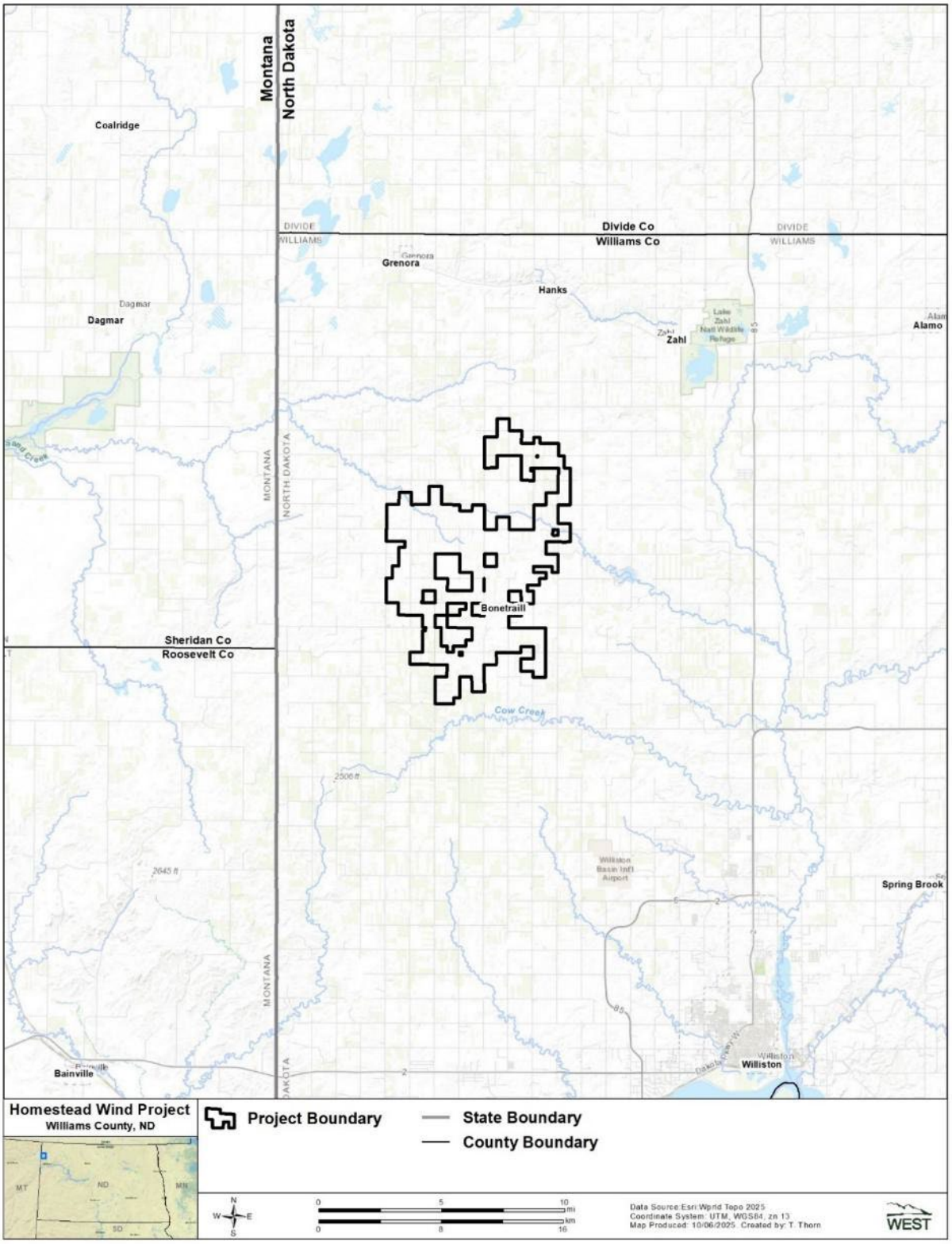

Figure 1. Location of the proposed Homestead Wind Project in Williams County, North Dakota.

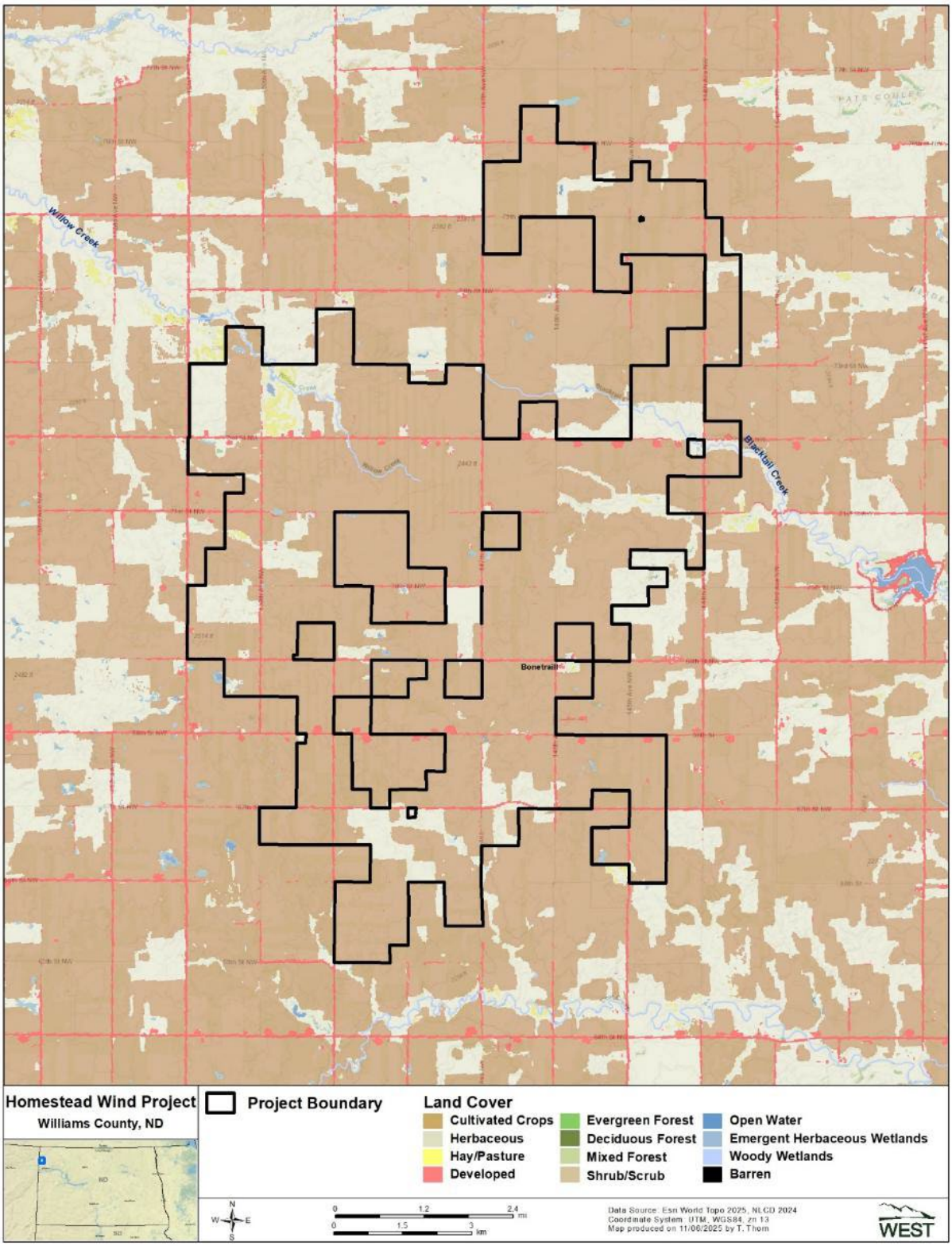

Figure 2. Land cover types at the proposed Homestead Wind Project in Williams County, North Dakota.

Table 1. Land cover types, cover, and percent composition within the proposed Homestead Wind Project in Williams County, North Dakota.

Land Cover	Cover (Acres)	Percent Composition
Cultivated Crops	20,302	81.2
Herbaceous	3,553	14.2
Developed[1]	888	3.6
Hay/Pasture	139	0.6
Emergent Herbaceous Wetlands	67	0.3
Shrub/Scrub	16	<0.1
Open Water	15	<0.1
Woody Wetlands	10	<0.1
Deciduous Forest	4	<0.1
Total	**24,994**	**100[2]**

1. Developed land cover types may include open space, low intensity, medium intensity, and high intensity.

2. Sums of values may not equal totals shown due to rounding.

Source: National Land Cover Database (2024).

METHODS

The study design and survey methods for birds recorded in these studies primarily followed guidance in the ECPG and the 2016 Eagle Rule because of the need to collect information on eagles. Guidance from the WEG was followed to collect information on other birds. The methods described below are common for all birds (i.e., large and small birds, eagles, and other species of concern) except as noted.

Large birds were defined as waterbirds, waterfowl, shorebirds, gulls/terns, diurnal raptors (i.e., kites, accipiters, buteos, eagles, falcons, northern harriers [*Circus hudsonius*], osprey [*Pandion haliaetus*]), owls, vultures, upland game birds, doves/pigeons, nightjars, and large corvids. Small birds were defined as cuckoos, swifts/hummingbirds, woodpeckers, kingfishers, small corvids, and passerines.

Study Design

Twenty survey locations (plots) that were spatially representative of the Project area were surveyed in Years 1 and 2; these points resulted in 26.5% coverage[1] (Figure 3). The center of the circular plot (survey point) had an 800-meter radius for large birds and 100-meter radius for small birds (Reynolds et al. 1980; USFWS 2013, 2024). Surveys were conducted monthly from February 2023 – January 2024 (Year 1), and from October 2024 – September 2025 (Year 2). Survey times at survey points were randomized to cover all daylight hours during a season and were conducted under all weather conditions except when visibility was less than 800 meters horizontally and 200 meters vertically (USFWS 2013, 2024). Surveys captured avian use in all seasons, as specified in the ECPG and 2016 Eagle Rule.

[1] The survey plots were selected to be spatially representative of coverage of the Project area, with the intent to provide the ECPG and 2016 Eagle-rule recommended 30% coverage of the minimum convex polygon surrounding future turbine locations. Due to Project boundary changes after surveys were initiated in 2023, only the plots that were surveyed in both Year 1 and Year 2 of the current Project boundary are included in this report.

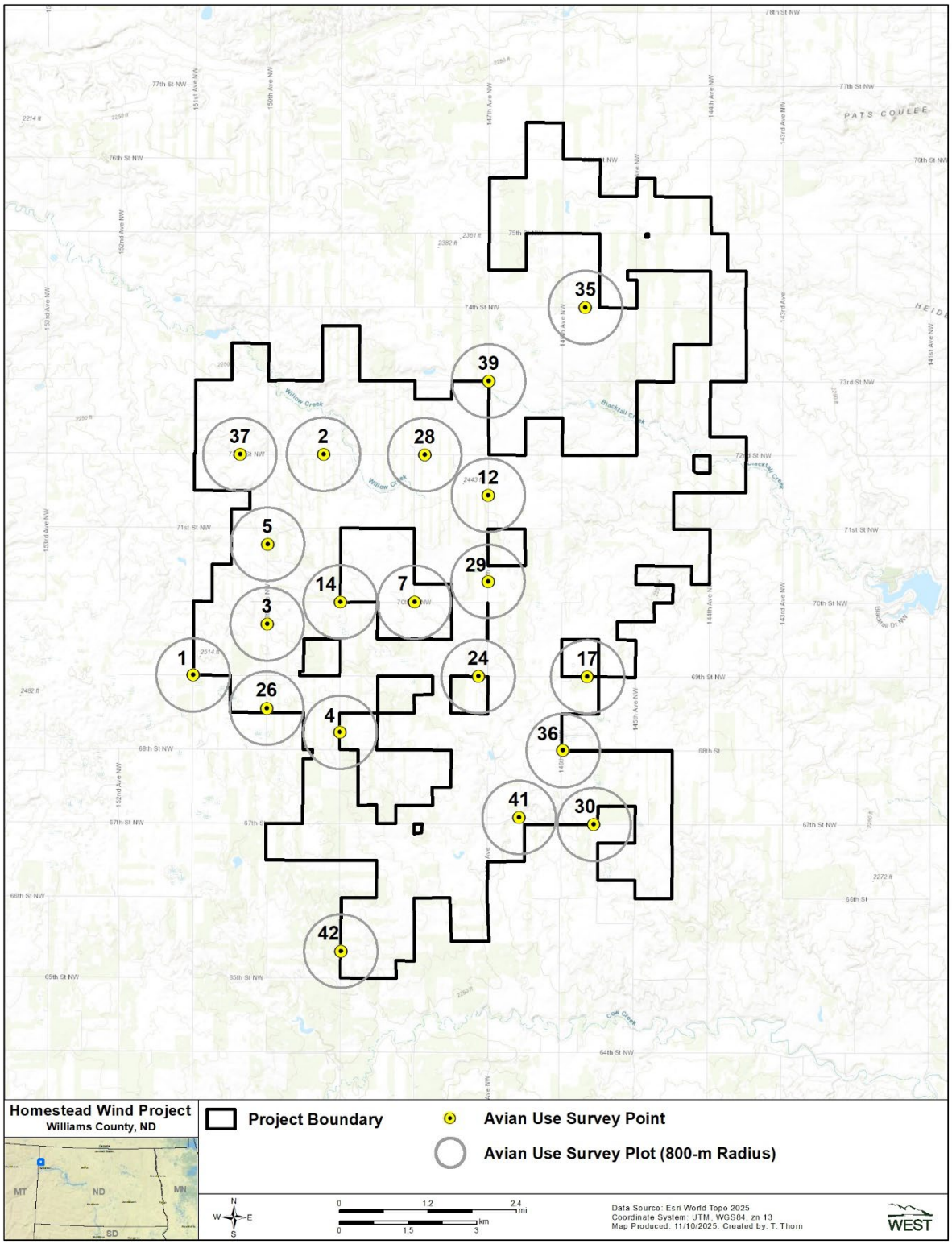

Figure 3. Avian use survey points and plots for Year 1 and Year 2 surveys at the proposed Homestead Wind Project in Williams County, North Dakota.

Survey Methods

During Year 1, surveys at each point were conducted for a period of 70 minutes (min), with small birds recorded during the first 10 min of the survey period out to a 100-meter radius, and large birds recorded for the remaining 60 min out to an 800-meter radius. For Year 2, surveys were limited to large bird surveys (60 min). Biologists recorded the following information for each point: date, start and end time, and weather (i.e., temperature, wind speed, wind direction, precipitation, and percent cloud cover). Additionally, the following data were recorded for each group of birds observed:

- observation number
- species (or best possible identification)
- number of individuals
- sex and age class (if identifiable)
- estimated distance from survey point to the nearest 5-meter interval (first and closest)
- estimated flight height above ground level (AGL) to the nearest 5-meter interval (first, lowest, and highest)
- flight direction (first observed)
- habitat
- activity (e.g., flying, perched)
- observation type (visual or aural)
- estimated flight paths and perch locations of eagles

Eagles

For each eagle observation, biologists recorded age class (juvenile [first year], immature or sub-adult [second to fourth year], adult [fifth year or older]). In addition, behavior (i.e., flight height, distance from observer, activity) was recorded at the top of each minute, to provide an instantaneous count for every eagle observed. Furthermore, eagle exposure minutes (referred to as eagle minutes in the 2024 Eagle Rule Environmental Assessment and ECPG) were defined and noted if an eagle was observed flying below 220[2] meters AGL and within 800 meters of the survey location at any time during the minute, as recommended by the ECPG (USFWS 2013).

Incidental Observations

Species of concern observed outside the 100- or 800-meter radius plot during surveys were recorded as incidental observations. In addition, incidental wildlife observations made outside of standardized surveys (e.g., driving to and from avian use points) were recorded, but were limited to species of concern, rare species not documented in standardized avian use surveys, and unique events such as large flocks observed within the Project area. The incidental observation data do not represent a systematic sampling of the Project but are useful to document rare or potentially localized birds not documented during the study. Incidental observations were included in lists of species observed but were not included in statistical analyses.

[2] The 2016 Eagle Rule indicates that the top of the risk cylinder for eagles should be 200 m or 25 m above the maximum blade reach, whichever is greater.

Data Management

Quality Assurance and Quality Control

WEST implemented quality assurance and quality control (QA/QC) measures at all stages of the study, including in the field, during data entry and analysis, and report writing. Following surveys, biologists were responsible for inspecting data forms for completeness, accuracy, and legibility. If errors or anomalies were found within the data, follow-up measures were implemented including discussions and review of field data with field technicians and/or Project Managers. If any errors, omissions, or problems were identified in later stages of analysis, they were traced back to the raw data forms where appropriate changes and measures were implemented, no matter what stage of analysis. Multiple reviews were conducted as QA/QC measures.

Data Compilation and Storage

A Microsoft SQL Server database was specifically developed to store, organize, and retrieve survey data. Project data were keyed into the electronic database using a pre-defined format to facilitate subsequent QA/QC and data analysis. WEST retained all data forms and electronic data files for reference.

Statistical Analysis

A *visit* was defined as surveying all the survey plots once within the Project area over a 30-day period (i.e., per month). A visit could occur across multiple dates but could not overlap another visit and had to be completed in a single season (e.g., spring). Seasons were defined as spring (March 1 – May 31), summer (June 1 – August 31), fall (September 1 – November 30), and winter (December 1 – February 28), with each season containing an equal number of visits. A *survey* was defined as a single 10-min count for small birds and a 60-min count for large birds. In some cases, a count of bird observations may have represented repeated observations of the same individual. Only observations within the survey plot were included for statistical analysis.

To provide more robust comparisons of avian use between survey years, the statistical analysis described below focused on the 24 months of avian use data recorded at the 20 points common to both Years 1 and 2 (Figure 3). The large and small bird results for both survey years are summarized with respect to mean use, percentage of use, and frequency of occurrence, flight height, and spatial variation as described below.

Mean Use, Percent of Use, and Frequency of Occurrence

Mean use was calculated as the average number of birds observed per plot per survey for small and large birds. Small bird use (per 100-meter radius plot per 10-min survey) and large bird use (per 800-meter radius plot per 60-min survey) were calculated by: 1) summing birds per plot per visit, 2) averaging number of birds across plots within a visit, and 3) averaging number of birds across visits within a season. Overall mean use was calculated as a weighted average of seasonal values by the number of days in each season. *Percent of use* was calculated as the percentage of large bird use that was attributable to a particular bird type or species. *Frequency of occurrence* was calculated as the percentage of surveys in which a particular bird type or species was observed.

Mean use and frequency of occurrence described different aspects of relative abundance in that mean use was based on the number of birds (i.e., large groups can produce high estimates), whereas frequency of occurrence was based on the number of groups of the same type of bird (i.e., it was not influenced by group size). Qualitative comparisons were made with these metrics among bird types, seasons, and points to help illustrate temporal and spatial avian use of the Project.

Flight Height

Flight height was an important metric to assess relative potential exposure to turbine blades and was used to calculate the percentage of large birds and small birds observed flying within the rotor-swept height (RSH) of proposed turbines. A RSH of 25–195 meters AGL[3] was assumed for the purpose of the flight height analysis. Flight height recorded during the initial observation was used to calculate the percentage of birds flying within the RSH and mean flight height.

Spatial Variation

Mean use was calculated by survey point for small and large birds to make spatial comparisons among the survey points. Additionally, flight paths of eagles were mapped during large bird use surveys to qualitatively show potential areas of concentration of eagle flight paths within the Project area compared to Project area characteristics (e.g., topographic features).

Eagles

Eagle exposure minutes were defined as the number of minutes an eagle was observed in flight within the risk cylinder. The risk cylinder was defined as the area within 800 meters of the survey point and below 220 meters AGL during the 60-min survey period. *Total minutes* were defined as the amount of time eagles were observed inside and outside the risk cylinder.

Eagle observations were summarized to provide flight heights (see *Flight Height* in *Results*) and flight path maps (see *Eagles* in *Results*) during surveys. Data were collected during each minute eagles were observed within the risk cylinder to count eagle exposure minutes, and the time eagles were observed inside and outside the risk cylinder to count total minutes.

Eagle exposure minutes per survey hour were reported by survey plot and season to enable spatial and temporal assessments of eagle exposure minutes recorded in the Project area. Data collected on perched eagles and those outside of the risk cylinder were not considered in the total exposure risk minutes calculation; however, these data were included in the total eagle minutes calculation. Flight paths of all eagles were mapped to qualitatively assess areas of eagle use within the Project area.

[3] Note: the rotor swept height used in the flight height analysis (195 m) is different from the height of the risk cylinder (220 m) used in the eagle analysis. This is based on the definition found in the 2016 Eagle Rule that states: “the risk cylinder is defined as 200 m or 25 m above the rotor swept height, whichever is greater.”

RESULTS

Overall, 698 avian use surveys were completed during Year 1 and Year 2 (one site visit per month for 24 months) at 20 points within the Project area, with 458 surveys completed in Year 1 and 240 surveys completed in Year 2. Surveys were not completed at 11 survey points in Year 1 (two in spring and nine in winter) due to severe weather and/or unsafe road conditions (Table 2). Year 1 (large bird and small bird) and Year 2 (large bird) study results are summarized below and are supplemented by the appendices, which present species-level detail on the following: numbers of groups and observations within the survey plot during surveys (Appendix A), mean use, percent of use, and frequency of occurrence by season (Appendix B), and mean use by survey point (Appendix C).

Year 1

Overall, for Year 1, 229 avian use surveys were completed at 20 survey points within the Project area (Table 2), including 229 hours for large birds and 38 hours for small birds. Forty-four species of large birds and 31 species of small birds, for a combined total of 75 species of birds, were documented over the study period.

Year 1 study results are summarized below, supplemented by the appendices, which present species-level detail on the following: numbers of groups and observations within the survey plot during surveys (Appendices A1 and A2), mean use, percent of use, and frequency of occurrence by season (Appendices B1 and B2), and mean use by survey point (Appendices C1 and C2).

Table 2. Summary of the survey effort for large and small birds at the proposed Homestead Wind Project in Williams County, North Dakota, from February 2023 – January 2024 (Year 1).

Season[1]	# Visits[2]	# Surveys[3]
spring	3	58
summer	3	60
fall	3	60
winter	3	51
Overall	**12**	**229**

[1] Season dates: spring (March 1 – May 31), summer (June 1 – August 31), fall (September 1 – November 30), winter (December 1 – February 28).

[2] A visit was defined as surveying all the survey plots once within the Project and could occur across multiple dates but had to be completed in a single season.

[3] A survey was defined as a single 10- or 60-minute count of birds at a single survey point. Some point surveys during the spring (n = 2) and winter (n=9) were not completed due to restricted access from deteriorated road conditions caused by severe weather.

Species of Concern

No federally listed threatened or endangered species were observed during surveys or incidentally. Six species of birds classified by the NDGFD SCP L1 were documented during Year 1 surveys or incidentally and included: chestnut-collared longspur (*Calcarius ornatus*; n = 22), Franklin's gull (*Leucophaeus pipixcan;* n = 80), grasshopper sparrow (*Ammodramus savannarum*; n = 8), marbled godwit (*Limosa fedoa*; n = 12), Swainson's hawk (*Buteo swainsoni*; n = 13), and

Wilson's phalarope (*Phalaropus tricolor*; n = 4; NDGFD 2021; Table 3). Seven BCC were observed during surveys or incidentally and included: bobolink (*Dolichonyx oryzivorus*; n = 4), chestnut-collared longspur, Franklin's gull, grasshopper sparrow, marbled godwit, northern harrier (n = 36), and willet (*Tringa semipalmata*; n = 4; Table 3).

Chestnut-collared longspur (n = 7), northern harrier (n = 20), and Swainson's hawk (n = 9) were recorded in the fall; grasshopper sparrow (n = 1), Franklin's gull (n = 80), northern harrier (n = 15), and marbled godwit (n = 2) were recorded during the spring; chestnut-collared longspur (n = 13), grasshopper sparrow (n = 7), bobolink (n = 4), marbled godwit (n = 10), Swainson's hawk (n = 4), and Wilson's phalarope (n = 4) were recorded during the summer; and no species of concern were recorded in winter (Appendices A1 and A2).

Table 3. Summary of species of concern observed during the standard avian use surveys or as incidental avian observations (incidental) at the proposed Homestead Wind Project in Williams County, North Dakota, from February 20, 2023 – January 24, 2024 (Year 1).

			Surveys		Incidental		Total	
Species	**Scientific Name**	**Status**	**# grps**	**# obs**	**#grps**	**#obs**	**#grps**	**#obs**
bald eagle	*Haliaeetus leucocephalus*	BGEPA	0	0	4	5	4	5
bobolink	*Dolichonyx oryzivorus*	BCC	4	4	0	0	4	4
chestnut-collared longspur	*Calcarius ornatus*	SCP L1; BCC	11	20	1	2	12	22
Franklin's gull	*Leucophaeus pipixcan*	SCP L1; BCC	2	80	0	0	2	80
golden eagle	*Aquila chrysaetos*	BGEPA	2	2	2	2	4	4
grasshopper sparrow	*Ammodramus savannarum*	SCP L1; BCC	8	8	0	0	8	8
marbled godwit	*Limosa fedoa*	SCP L1; BCC	11	12	0	0	11	12
northern harrier	*Circus hudsonius*	BCC	35	35	1	1	36	36
Swainson's hawk	*Buteo swainsoni*	SCP L1	8	13	0	0	8	13
unidentified eagle	–	BGEPA	1	1	0	0	1	1
willet	*Tringa semipalmata*	BCC	4	4	0	0	4	4
Wilson's phalarope	*Phalaropus tricolor*	SCP L1	1	4	0	0	1	4
Total	**11 species**		**87**	**183**	**9**	**11**	**96**	**194**

BGEPA = protected under the Bald and Golden Eagle Protection Act of 1940; BCC = Birds of Conservation Concern; SCP = Species of Conservation Priority, LEVEL 1 = Level I SCP (Dyke et al. 2015); grps = groups; obs = observations.

Sources: North Dakota Game and Fish Department (2021), US Fish and Wildlife Service (2021).

Eagles

Five bald eagles (*Haliaeetus leucocephalus*) were documented during Year 1 surveys or incidentally (Table 3). No bald eagle observations occurred during 229 hours of ECPG-level surveys (Table3). Five bald eagles were recorded incidentally within the Project area during the spring near points 4 (n = 1), 35 (n = 2), 39 (n = 1), and 42 (n = 1).

Four golden eagle (*Aquila chrysaetos*) observations were documented during surveys or incidentally within the Project area in Year 1 (Table 3). Two golden eagle observations occurred during 229 hours of ECPG-level surveys (Table 4a). Ten golden eagle total minutes were recorded during surveys, all of which were recorded within the risk cylinder (eagle exposure minutes; Table 4a). Golden eagle observations occurred in the winter and the fall seasons, with

six golden eagle total minutes recorded during the winter season and four total minutes recorded during fall (Table 4a). Two golden eagle observations were recorded at points 1 (n = 1) and 3 (n = 1; Figure 4; Appendix C1) near a small riparian area (Point 1) and large tracts of grasslands (Point 3). In addition, two golden eagles were observed incidentally during the fall (near Point 42), and winter (near Point 36). There was also one unidentified eagle minute recorded during surveys in fall at Point 2 near a large tract of grassland (Table 4b, Figure 4; Appendix C1).

Table 4a. Golden eagle observations and exposure minutes recorded by season during avian use surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from February 20, 2023 – January 24, 2024 (Year 1).

	Eagle Observations[1]	Total Observations[1]	Eagle Exposure Minutes[2]	Total Minutes[2]	Survey Hours	Eagle Minutes/Survey Hour
winter	1	1	6	6	51	0.1176
spring	0	0	0	0	58	0
summer	0	0	0	0	60	0
fall	1	1	4	4	60	0.0667
Total	**2**	**2**	**10**	**10**	**229**	**0.0437[3]**

1. Observations of golden eagles within the risk cylinder; total observations inside and outside risk cylinder.
2. Eagle exposure minutes of golden eagles in flight within the risk cylinder; total minutes inside and outside risk cylinder.
3. Value represents an average across months, rather than a sum.

Risk cylinder is the area within 800 meters of the survey point and below 200 m above ground level during the 60-min survey period.

Table 4b. Unidentified eagle observations and exposure minutes recorded by season during avian use surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from February 20, 2023 – January 24, 2024 (Year 1).

	Eagle Observations[1]	Total Observations[1]	Exposure[2] Minutes	Total Minutes[2]	Survey Hours	Eagle Minutes/Survey Hour
winter	0	0	0	0	51	0
spring	0	0	0	0	58	0
summer	0	0	0	0	60	0
fall	1	1	1	1	60	0.0167
Total	**1**	**1**	**1**	**1**	**229**	**0.0044[3]**

1. Observations of unidentified eagles within the risk cylinder; total observations inside and outside risk cylinder.
2. Eagle exposure minutes of unidentified eagles in flight within the risk cylinder; total minutes inside and outside risk cylinder.
3. Value represents an average across months, rather than a sum.

Risk cylinder is the area within 800 meters of the survey point and below 200 m above ground level during the 60-min survey period.

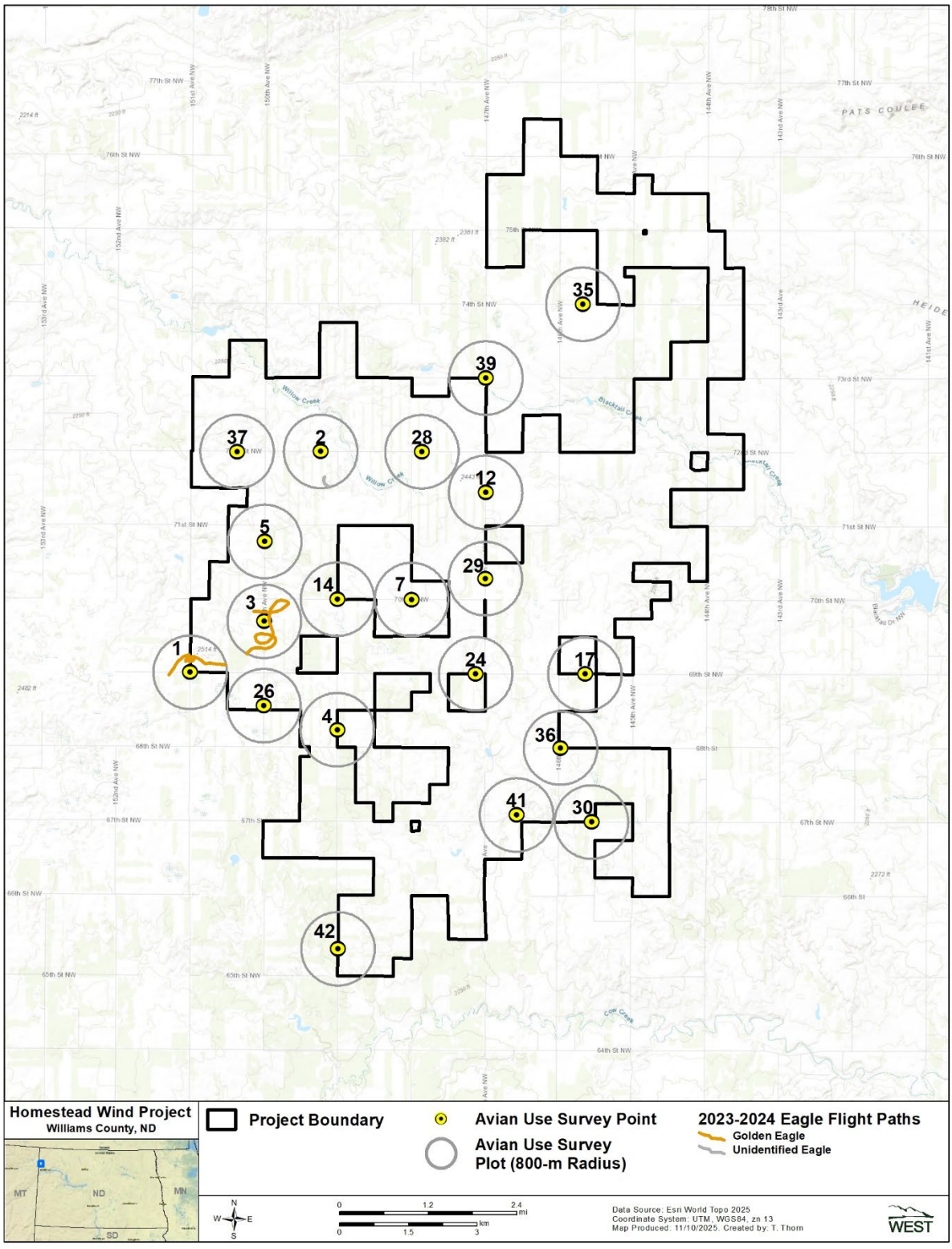

Figure 4. Golden and unidentified eagle estimated flight paths recorded during the 60-minute large bird survey at the proposed Homestead Wind Project in Williams County, North Dakota, from February 20, 2023 – January 24, 2024 (Year 1).

Large Birds

During the 60-min large bird surveys, 6,904 individual observations within 548 groups were recorded (Appendix A1). The most commonly observed large bird was sandhill crane (*Antigone canadensis*; 49.5% of observations), followed by Canada goose (*Branta canadensis*; 15.2%), and snow goose (*Anser caerulescens*; 14.5%). All other species accounted for less than 5.0% of observations individually (Appendix A1).

Eleven identified or unidentified diurnal raptor species were observed, which accounted for 1.2% of all large bird observations (n = 85; Appendix A1). The most common diurnal raptor observed during surveys was northern harrier (n = 35; 41.2%), followed by Swainson's hawk (n = 13; 15.3%) and red-tailed hawk (*Buteo jamaicensis*; n = 13; 15.3%; Appendix A1).

Mean Use, Percent of Use, and Frequency of Occurrence

Mean use, percent of use, and frequency of occurrence were calculated by season for large bird types (Figures 5 and 6) and species (Appendix B1). Large bird mean use varied throughout the seasons: fall (59.73 observations/800-m radius plot/60-min survey), followed by spring (47.74), summer (6.10), and winter (2.12; Figure 5; Appendix B1). Waterfowl accounted for the highest percent of use value in spring (80.8%), and summer (38.3%), while upland game birds accounted for the highest percent of use value in winter (85.9%), and waterbirds accounted for the highest use value in the fall (92.9%; Figure 6; Appendix B1). Upland game birds accounted for the highest frequency of occurrence in winter (14.4%), spring (56.1%), and summer (55.0%), while diurnal raptors accounted for the highest frequency of occurrence in fall (45.0%; Appendix B1).

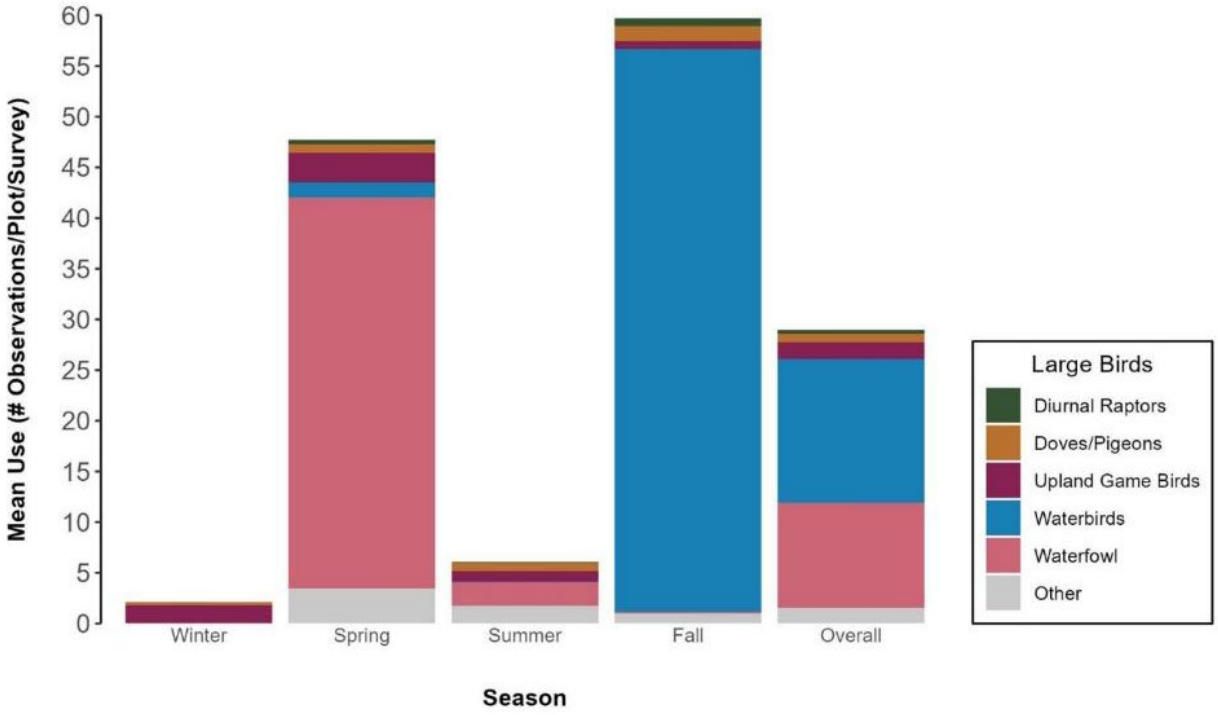

Figure 5. Large bird mean use by season and bird type observed during 60-minute large bird surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from February 20, 2023 – January 24, 2024 (Year 1).

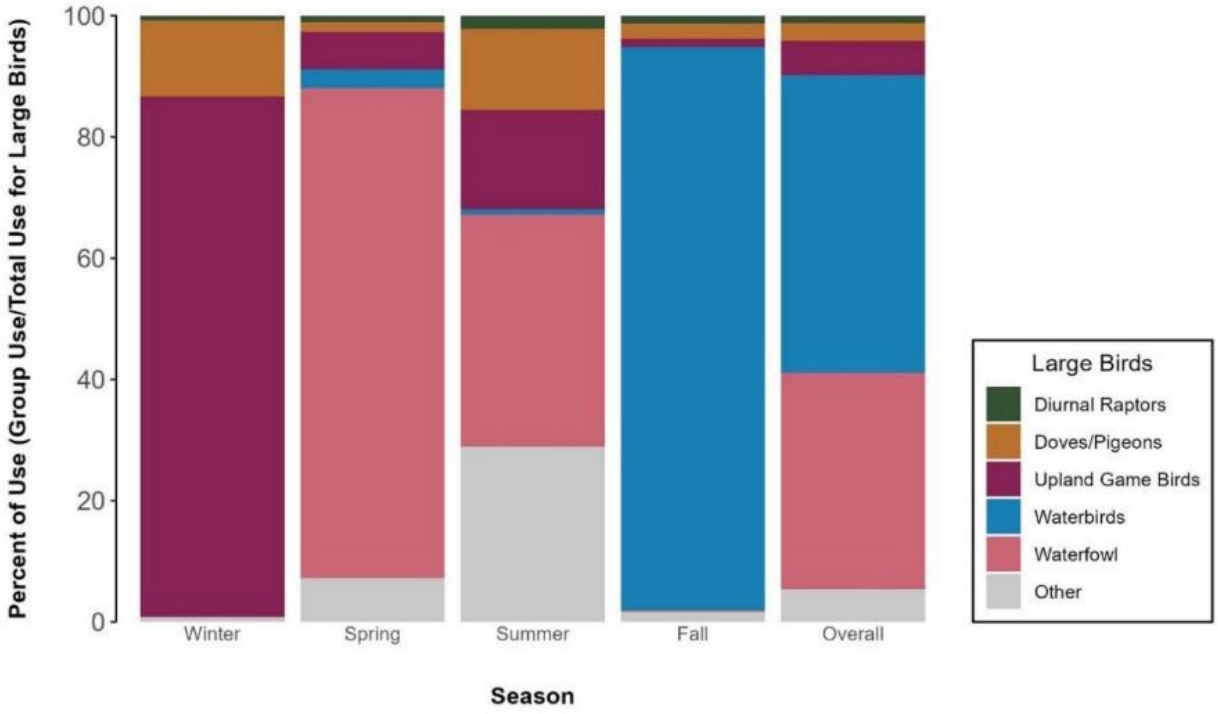

Figure 6. Large bird percent of use by season and bird type observed during the 60-minute large bird surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from February 20, 2023 – January 24, 2024 (Year 1).

Flight Height

Mean large bird flight heights ranged from approximately two meters for upland game birds to 163 meters for waterbirds. Diurnal raptor flights were most often recorded below the estimated RSH (64.8%), with eagles observed within the estimated RSH (25–195 m) for 66.7% of observations (Table 5). Waterfowl (73.1%), eagles (66.7%), buteos (64.5%), and vultures (60.0%) were recorded most frequently within the estimated RSH (Table 5). Accipiters (100%), falcons (100%), doves/pigeons (100%), upland game birds (100%), northern harrier (97.1%), shorebirds (84.2%), large corvids (67.2%), and gulls/terns (53.7%) were most frequently recorded below the estimated RSH.

Table 5. Flight height characteristics by large bird types and diurnal raptor subtypes recorded during 60-minute large bird surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from February 20, 2023 – January 24, 2024 (Year 1).

					% within Estimated Flight Height Categories		
Bird Type/Subtype	**# Groups Flying**	**# Obs Flying**	**% Obs Flying**	**Estimated Mean Flight Height (m)**	**<25 m**	**25–195 m[1]**	**>195 m**
diurnal raptors	65	71	83.5	28	64.8	32.4	2.8
accipiters	*2*	*2*	*100*	*11*	*100*	*0*	*0*
buteos	*25*	*31*	*91.2*	*50*	*29.0*	*64.5*	*6.5*
eagles	*3*	*3*	*100*	*68*	*33.3*	*66.7*	*0*
falcons	*1*	*1*	*9.1*	*5*	*100*	*0*	*0*
northern harrier	*34*	*34*	*97.1*	*8*	*97.1*	*2.9*	*0*
doves/pigeons	33	87	42.9	7	100	0	0
gulls/terns	25	162	99.4	25	53.7	46.3	0
large corvids	17	64	85.3	17	67.2	32.8	0
shorebirds	29	38	30.6	12	84.2	15.8	0
upland game birds	18	81	22.8	2	100	0	0
vultures	4	5	100	43	40.0	60.0	0
waterbirds	25	3,423	100	163	2.7	41.8	55.5
waterfowl	69	2,286	92.7	22	26.9	73.1	0
Large Birds Overall	**285**	**6,217**	**90.0**	**33**	**17.4**	**52.0**	**30.6**

[1.] The likely "rotor-swept height" for potential collision with a turbine blade, or 25–195 meters (m) above ground level.

Obs = observations.

All metrics are developed based on First Activity and First Flight Height.

Spatial Variation

Large bird use ranged from 1.55 large birds/60-min survey at Point 37 to 221.75 at Point 36 (Figure 7; Appendix C1). The relatively high use at Point 36, near crop fields, was attributed to high waterbird use, driven primarily by the occurrence of sandhill cranes in the fall (Appendix C1). Mean use for diurnal raptors ranged from 0.08 at points 26, 29, and 36, to 1.50 at Point 4 (Figure 7; Appendix C1). The highest mean use values occurred at points 36 (221.75), 5 (126.92), and 17 (39.25). These values were primarily driven by migrating waterbirds and waterfowl (Appendix C1).

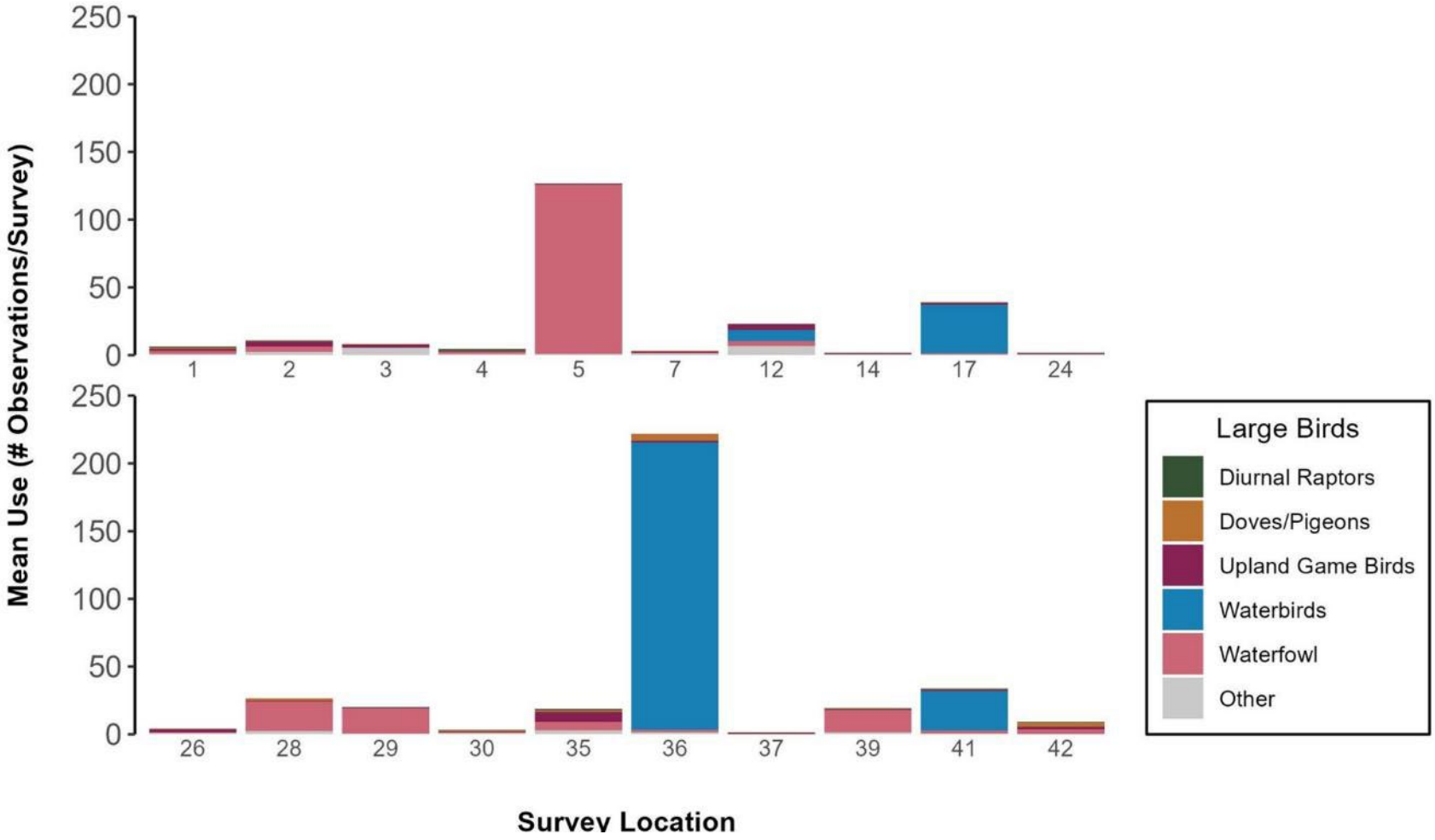

Figure 7. Large bird mean use by survey point and bird type recorded during the 60-minute bird surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from February 20, 2023 – January 24, 2024 (Year 1).

Small Birds

During the 10-min small bird surveys, 1,867 observations within 379 groups were recorded (Appendix A2). Horned lark (*Eremophila alpestris*; 31.2% of observations), European starling (*Sturnus vulgaris*; 18.2%), and Lapland longspur (*Calcarius lapponicus*; 17.2%) accounted for the majority of small bird observations (Appendix A2).

Mean Use, Percent of Use, and Frequency of Occurrence

Mean use, percent of use, and frequency of occurrence were calculated by season for small bird types (Appendix B2). Use by small birds was highest in the fall (12.08 observations/100-m radius plot/10-min survey), followed by spring (8.66), winter (6.27), and summer (4.27; Appendix B2). Passerines accounted for the highest use in all seasons: winter (100%), fall (100%), spring (99.8%), and summer (99.2%; Appendix B2). Passerines accounted for the highest frequency of occurrence in all seasons, primarily driven by horned lark in winter (13.3%), spring (66.9%), fall (18.3%), and summer (31.7%; Appendix B2).

Spatial Variation

Small bird use, driven by passerines, ranged from 1.45 small birds/10-min survey at Point 35 to 27.42 at Point 24 (Figure 8; Appendix C2). The relatively high use at points 24 and 39 (26.50) were attributed to high grassland/sparrow use (Point 24) and blackbirds/orioles (Point 39; Figure 8; Appendix C2). The highest mean use values occurred at points 24 (27.42), 39 (26.50), and 37 (16.64). These values were primarily driven by horned lark, Lapland longspur, European starling and red-winged blackbird [*Agelaius phoeniceus*] (Appendix C3).

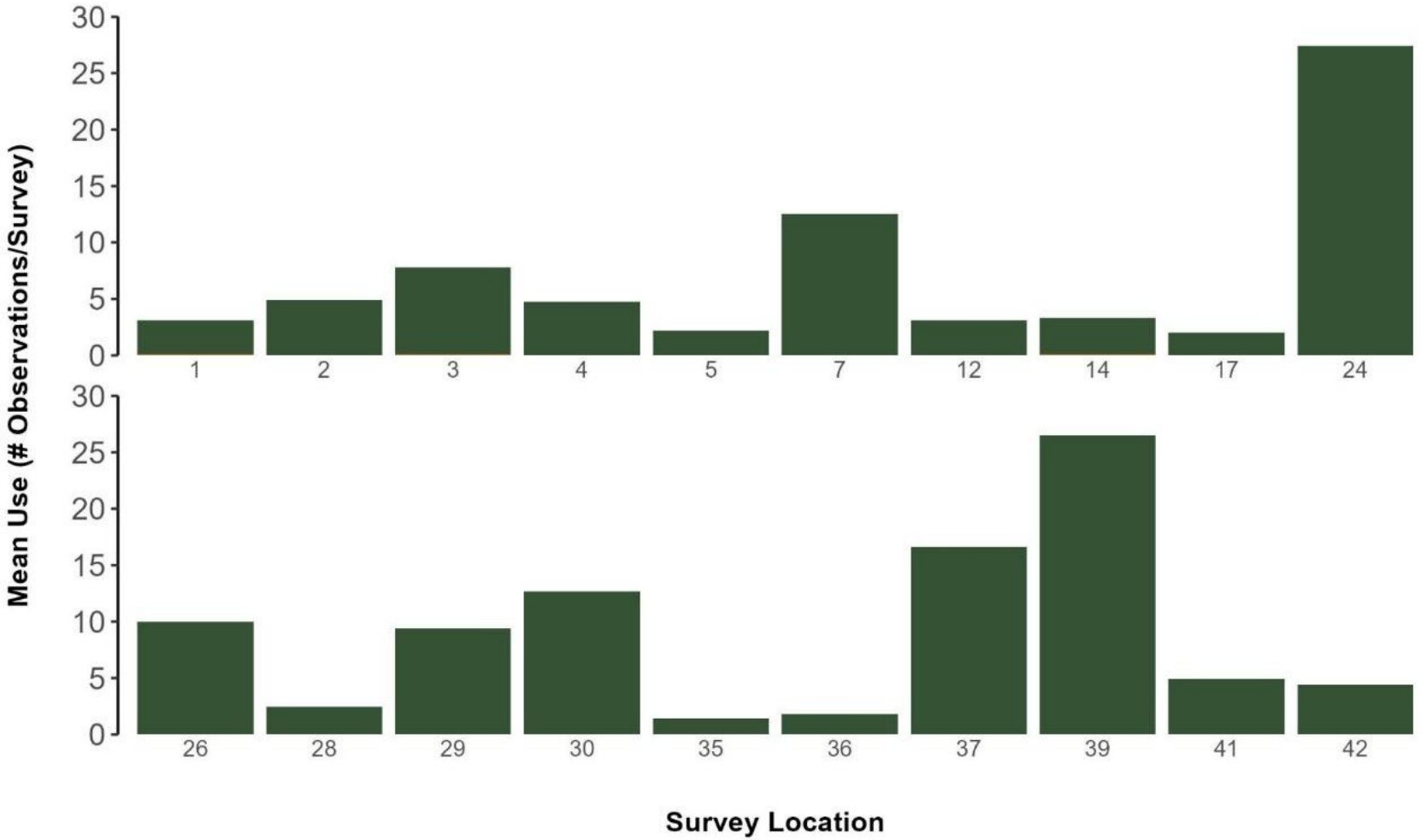

Figure 8. Passerine variability in mean use by survey point recorded during the 10-minute small bird surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from February 20, 2023 – January 24, 2024 (Year 1).

Year 2

Overall, 240 large bird avian use surveys were completed within the Project area in Year 2 (240 hours; Table 6). Forty species of large birds were documented during Year 2 (Appendix A3).

Year 2 study results are summarized below, supplemented by appendices, which present species-level detail on the following: numbers of groups and observations within the survey plot during surveys (Appendix A3), mean use, percent of use, and frequency of occurrence by season (Appendix B3), and mean use by survey point (Appendix C3).

Table 6. Summary of survey effort for large birds at the proposed Homestead Wind Project in Williams County, North Dakota, from October 20, 2024 – September 7, 2025 (Year 2).

Season[1]	# Visits[2]	# Surveys[3]
fall	3	60
winter	3	60
spring	3	60
summer	3	60
Overall	**12**	**240**

[1] Season dates: spring (March 1 – May 31), summer (June 1 – August 31), fall (September 1 – November 30), winter (December 1 – February 28).

[2] A visit was defined as surveying all the survey plots once within the Project and could occur across multiple dates but had to be completed in a single season.

[3] A survey was defined as a single 60-minute count of birds at a single survey point.

Species of Concern

No federally listed threatened or endangered species were observed during surveys or incidentally. Five species classified by the NDGFD as SCP L1 were documented during Year 2 surveys or incidentally and included: chestnut-collared longspur (n = 7), ferruginous hawk (*Buteo regalis*; n = 1), Franklin's gull (n = 124), marbled godwit (n = 49), and Swainson's hawk (n = 10; NDGFD 2021; Table 7). Six BCC species were observed during surveys or incidentally and included California gull (*Larus californicus*; n = 4), chestnut-collared longspur, Franklin's gull, marbled godwit, northern harrier (n = 23), and willet (n = 4; Table 7).

Northern harrier (n = 9) and Swainson's hawk (n = 4) were recorded in the fall; California gull (n = 4), Franklin's gull (n = 100), marbled godwit (n = 5), northern harrier (n = 8), ferruginous hawk (n = 1), and willet (n = 2) were recorded in the spring; northern harrier (n = 6), Swainson's hawk (n = 2), Franklin's gull (n = 24), marbled godwit (n = 2), and willet (n = 2) were recorded in the summer and no species of concern were recorded in winter (Appendix A3).

<u>Eagles</u>

Eight bald eagle observations were documented during surveys or incidentally in Year 2 (Table 7). One bald eagle observation was recorded during 240 hours of ECPG-level surveys (Table 8). Two bald eagle total minutes were recorded during surveys, all of which were recorded within the risk cylinder (eagle exposure minutes; Table 8). Bald eagle observations occurred in fall at Point

Table 7. Summary of species of concern observed during the standard avian use surveys or as incidental avian observations (incidental) at the proposed Homestead Wind Project in Williams County, North Dakota, from October 20, 2024 – September 7, 2025 (Year 2).

			Surveys		Incidental		Total	
Species	**Scientific Name**	**Status**	**#grps**	**#obs**	**#grps**	**#obs**	**#grps**	**#obs**
bald eagle	*Haliaeetus leucocephalus*	BGEPA	1	1	5	7	6	8
California gull	*Larus californicus*	BCC	1	4	0	0	1	4
chestnut-collared longspur	*Calcarius ornatus*	SCP L1; BCC	0	0	2	7	2	7
ferruginous hawk	*Buteo regalis*	SCP L1	0	0	1	1	1	1
Franklin's gull	*Leucophaeus pipixcan*	SCP L1; BCC	28	124	0	0	28	124
golden eagle	*Aquila chrysaetos*	BGEPA	0	0	4	4	4	4
marbled godwit	*Limosa fedoa*	SCP L1; BCC	6	7	1	42	7	49
northern harrier	*Circus hudsonius*	BCC	23	23	0	0	23	23
Swainson's hawk	*Buteo swainsoni*	SCP L1	9	10	0	0	9	10
willet	*Tringa semipalmata*	BCC	4	4	0	0	4	4
Total	**10 species**		**72**	**173**	**13**	**61**	**85**	**234**

BGEPA = protected under the Bald and Golden Eagle Protection Act of 1940; BCC = Birds of Conservation Concern; SCP = Species of Conservation Priority, LEVEL 1 = Level I SCP (Dyke et al. 2015); grps = groups; obs = observations.

Sources: North Dakota Game and Fish Department (2021), US Fish and Wildlife Service (2021).

24 (Table 8, Figure 9; Appendix C3). Point 24 is located near multiple tracts of inter-connected grassland and riparian habitats. In addition, seven bald eagles were observed incidentally within the Project area during the fall (n = 4) and spring (n = 3) near points 1 (n = 1), 4 (n = 1), 17 (n = 2), 35 (n = 2), and 39 (n = 1, Table 7).

Four golden eagle observations were documented during Year 2 surveys or incidentally. No golden eagle observations occurred during 240 hours of ECPG-level surveys (Table 7). Golden eagles were observed incidentally during the spring (n = 1) and winter (n = 3) near points 5 (n = 1), 35 (n = 1), 37 (n = 1), and 41 (n = 1; Table 7).

Table 8. Bald eagle observations and exposure minutes recorded by season during avian use surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from October 20, 2024 – September 7, 2025 (Year 2).

	Eagle Observations[1]	Total Observations[1]	Eagle Exposure Minutes[2]	Total Minutes[2]	Survey Hours	Eagle Exposure Minutes/Survey Hour
fall	1	1	2	2	60	0.0333
winter	0	0	0	0	60	0
spring	0	0	0	0	60	0
summer	0	0	0	0	60	0
Total	**1**	**1**	**2**	**2**	**240**	**0.0083[3]**

1. Observations of bald eagles within the risk cylinder; total observations inside and outside risk cylinder.

2. Eagle exposure minutes of bald eagles in flight within the risk cylinder; total minutes inside and outside risk cylinder

3 Value represents an average across months, rather than a sum.

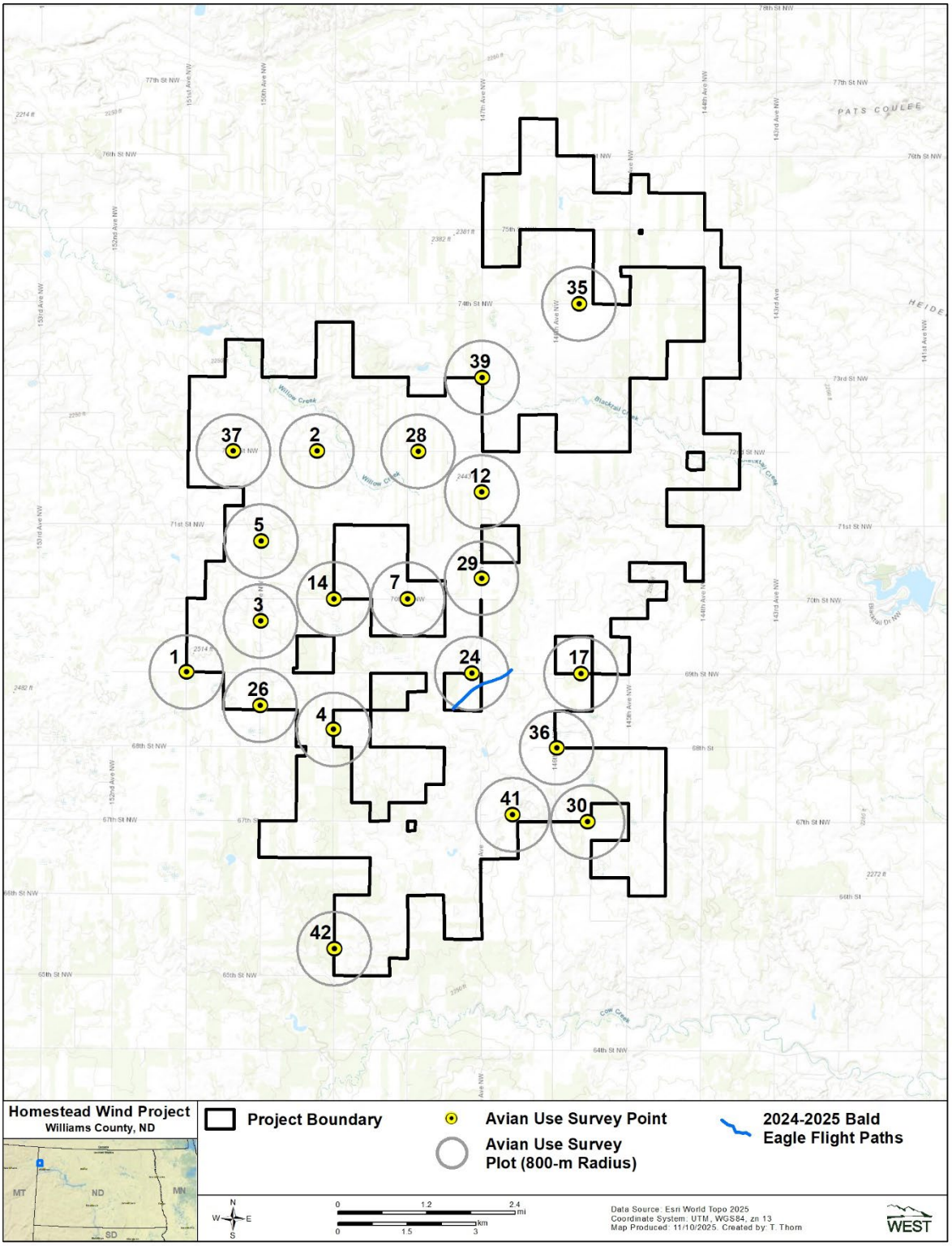

Figure 9. Bald eagle estimated flight paths recorded during the 60-minute large bird survey at the proposed Homestead Wind Project in Williams County, North Dakota, from October 20, 2024 – September 7, 2025 (Year 2).

Large Birds

During the 60-min large bird surveys, 2,568 individual observations within 416 groups were recorded (Appendix A3). The most commonly observed large bird was ring-necked pheasant (*Phasianus colchicus*; 24.0% of observations), followed by sandhill crane (20.9%), and Canada goose (14.1%). All other species accounted for less than 10% of observations, individually (Appendix A3).

Nine identified species and one unidentified diurnal raptor species were observed, which accounted for 2.5% of all large bird observations (n = 63; Appendix A3). The most common diurnal raptor observed during surveys was northern harrier (n = 23; 36.5%), followed by red-tailed hawk (n = 12; 19.0%) and Swainson's hawk (n = 10; 15.9%; Appendix A3).

Mean Use, Percent of Use, and Frequency of Occurrence

Mean use, percent of use, and frequency of occurrence were calculated by season for large bird types (Figures 10 and 11) and species (Appendix B3). Large bird mean use varied throughout the seasons: fall (18.63 observations/800-m radius plot/60-min survey), followed by spring (16.22), winter (4.82), and summer (3.13; Figure 10; Appendix B3). Waterbirds accounted for the highest percentage of use value in fall (44.7%), while waterfowl accounted for the highest percentage of use value in spring (60.3%), upland game birds in winter (99.3%), and gulls/terns accounted for the highest use in the summer (28.2%; Figure 11; Appendix B3). Upland game birds accounted for the highest frequency of occurrence in fall (41.7%), winter (16.7%), spring (50.0%), and summer (50.0%; Appendix B3).

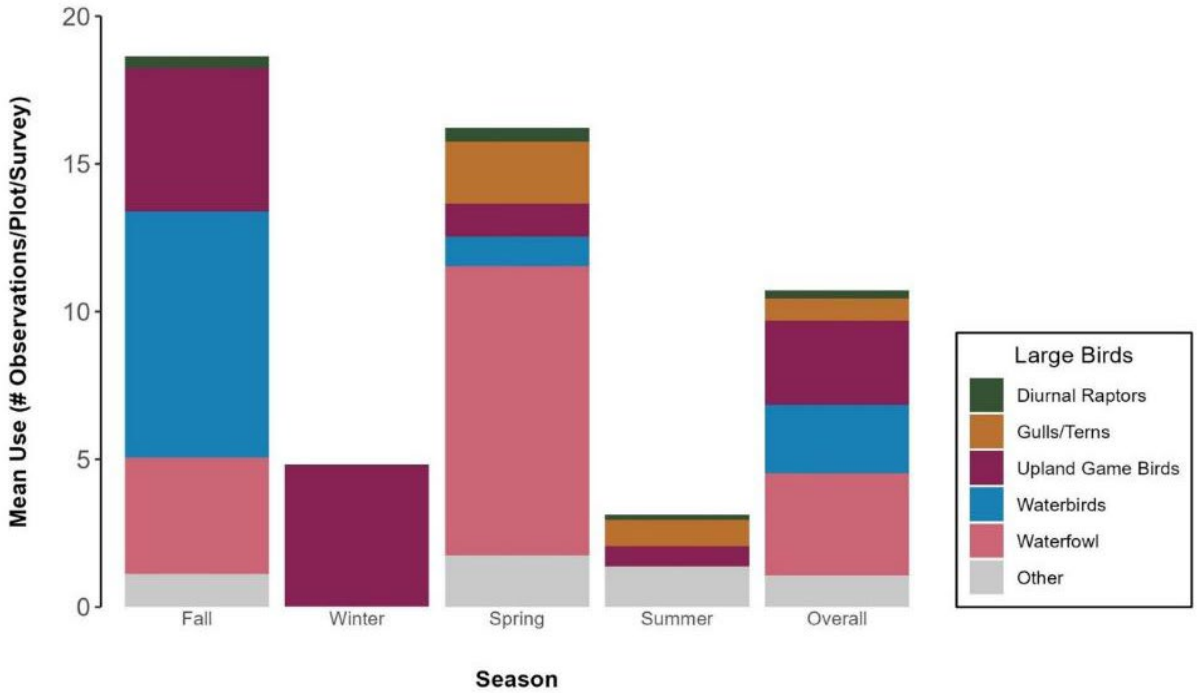

Figure 10. Large bird mean use by season and bird type observed during 60-minute large bird surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from October 20, 2024 – September 7, 2025 (Year 2).

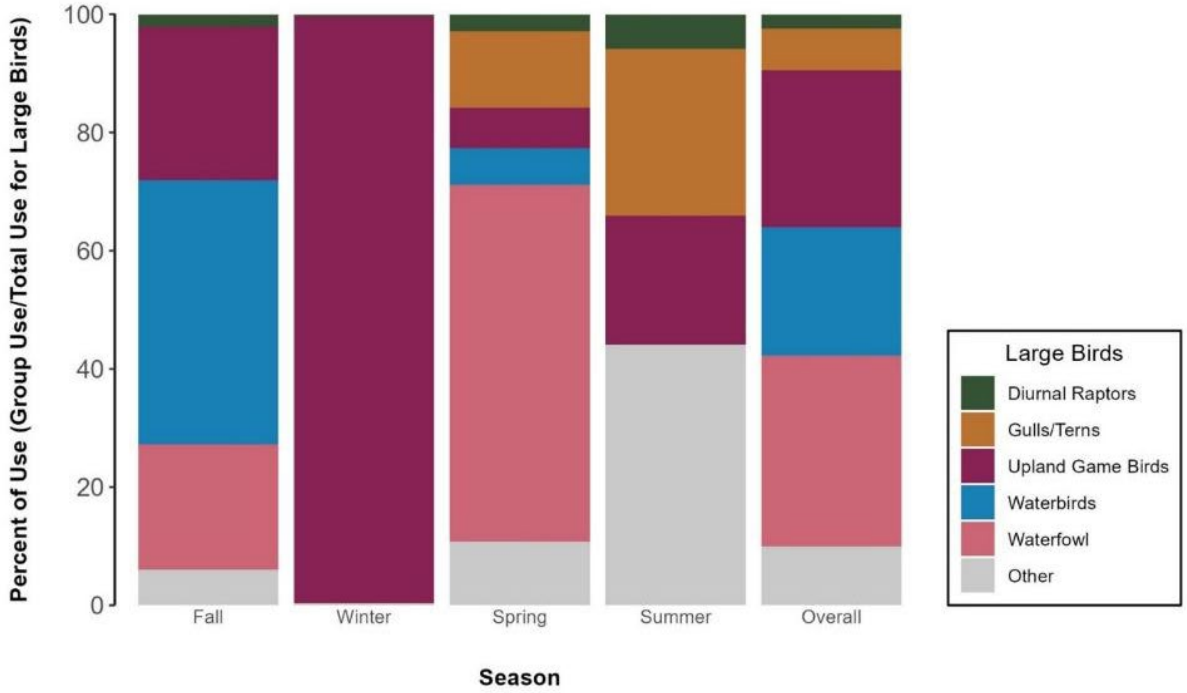

Figure 11. Large bird percent of use by season and bird type observed during the 60-minute large bird surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from October 20, 2024 – September 7, 2025 (Year 2).

Flight Height

Mean large bird flight heights ranged from approximately one meter for owls to 192 meters for waterbirds (Table 9). Diurnal raptor flights were most often recorded below the estimated RSH (72.7%), with a single bald eagle observation occurring within the estimated RSH (25–195 m; Table 9). Eagles (100%), waterbirds (71.4%), and buteos (47.6%) were recorded most frequently within the estimated RSH (Table 9). Accipiters (100%), northern harrier (100%), owls (100%), upland game birds (100%), doves/pigeons (98.8%), large corvids (97.2%), shorebirds (97.2%), falcons (90.0%), waterfowl (77.7%), vultures (66.7%), and gulls/terns (50.7%) were most frequently below the estimated RSH (Table 9).

Table 9. Flight height characteristics by large bird types and diurnal raptor subtypes recorded during 60-minute large bird surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from October 20, 2024 – September 7, 2025 (Year 2).

Bird Type/Subtype	# Groups Flying	# Obs Flying	% Obs Flying	Estimated Mean Flight Height (m)	% within Estimated Flight Height Categories		
					<25 m	25–195 m[1]	>195 m
diurnal raptors	53	55	87.3	29	72.7	21.8	5.5
accipiters	*1*	*1*	*100*	*5*	*100*	*0*	*0*
buteos	*20*	*21*	*80.8*	*76*	*38.1*	*47.6*	*14.3*
eagles	*1*	*1*	*100*	*50*	*0*	*100*	*0*
falcons	*9*	*10*	*83.3*	*9*	*90.0*	*10.0*	*0*
northern harrier	*22*	*22*	*95.7*	*4*	*100*	*0*	*0*
doves/pigeons	28	81	59.1	6	98.8	1.2	0
gulls/terns	42	152	84.9	46	50.7	43.4	5.9
large corvids	9	36	81.8	21	97.2	2.8	0
owls	1	1	100	1	100	0	0
shorebirds	14	36	50.7	14	97.2	2.8	0
upland game birds	35	225	32.8	2	100	0	0
vultures	2	3	100	48	66.7	33.3	0
waterbirds	6	560	100	192	0	71.4	28.6
waterfowl	39	804	97.6	16	77.7	22.3	0
Large Birds Overall	**229**	**1,953**	**76.1**	**35**	**57.3**	**33.8**	**8.8**

[1.] The likely "rotor-swept height" for potential collision with a turbine blade, or 25–195 meters (m) above ground level.

Obs = observations.

All metrics are developed based on First Activity and First Flight Height.

Spatial Variation

Large bird use ranged from 2.00 large birds/60-min survey at Point 4 to 43.08 at Point 2 (Figure 12; Appendix C3). The relatively high use at Point 2, near Willow Creek and multiple wetlands, was attributed to high waterbird use, driven primarily by the occurrence of sandhill cranes during fall (Figure 12; Appendix C3). Mean use for diurnal raptors ranged from zero at Point 4 to 0.58 at Point 28 (Figure 12; Appendix C3). The highest mean use values occurred at points 2 (43.08), 1 (32.83), and 37 (14.42). These values were primarily driven by waterbirds and waterfowl (Appendix C3).

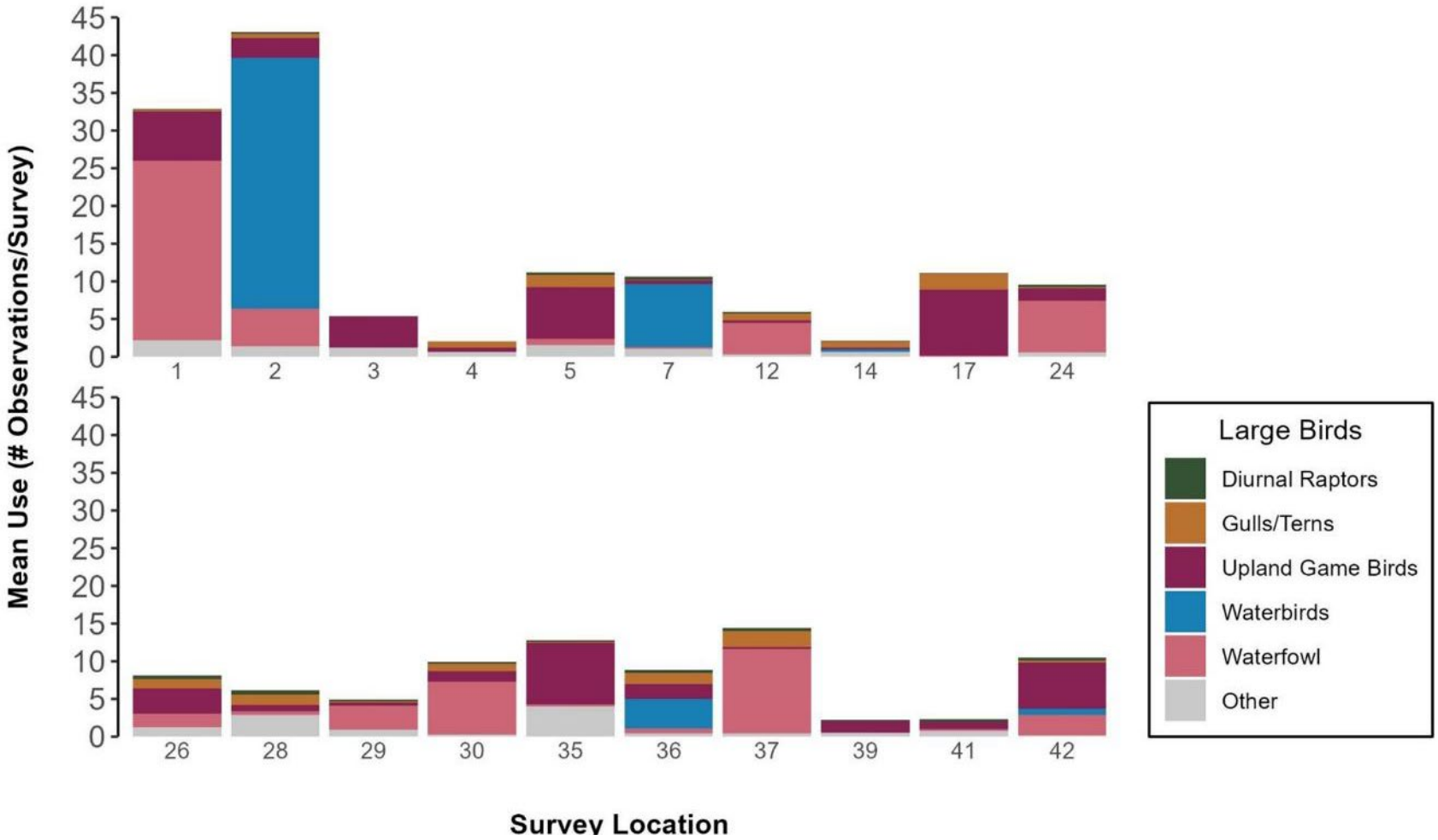

Figure 12. Large bird mean use, by survey point and bird type, recorded during the 60-minute bird surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from October 20, 2024 – September 7, 2025 (Year 2).

DISCUSSION

Six hundred ninety-eight avian use surveys were completed within the Project area during the two-year study, with 458 surveys completed in Year 1 and 240 surveys completed in Year 2. The Year 1 survey effort included 267 hours of avian use surveys (229 hours for large birds and 38 hours for small birds) and Year 2 surveys included 240 avian use hours of large bird surveys. Fifty-one species of large birds and 31 species of small birds (82 species overall) were documented within the Project area over the 2-year study. All 82 species were typical of mixed grass prairie landscapes within the Northwestern Glaciated Plains Level III Ecoregion.

Species of Concern

No federally listed threatened or endangered species were observed during surveys or incidentally over the two-year study. Seven North Dakota SCP L1 species were observed incidentally or during surveys in the Project area, including: chestnut-collared longspur, Franklin's gull, ferruginous hawk, grasshopper sparrow, marbled godwit, Swainson's hawk, and Wilson's phalarope. Four species were observed during both years, while grasshopper sparrow and Wilson's phalarope were observed only in Year 1 and ferruginous hawk was only observed in Year 2. All seven SCP L1 species are migratory and commonly occur in North Dakota during the annual reproductive period (Dyke et al. 2015) within landscapes hosting a mosaic of native mixed grass prairie, wetland habitats, and agricultural land use as represented in the Project area.

Eight BCC species were observed either during surveys or incidentally across the two-year study, and included: bobolink, chestnut-collared longspur, Franklin's gull, California gull, grasshopper sparrow, marbled godwit, northern harrier, and willet. The grasshopper sparrow was the only BCC species that was not observed both years. All eight BCC species are migratory and commonly occur in North Dakota during the annual reproductive period (Dyke et al. 2015) within landscapes hosting a mosaic of native mixed grass prairie, wetland habitats, and agricultural land use as represented in the Project area.

Eagles

The Project is located within the year-round range of bald and golden eagles (Katzner et al. 2020, Buehler 2022). Bald eagle use was infrequent during surveys, with just one bald eagle observed within the Project area during the Year 2 surveys (two exposure minutes at point 24). However, bald eagles were observed incidentally across both survey years (Year 1: five observations; Year 2: seven observations). Although incidental observations do not directly inform overall collision risk, incidental observations can provide insights into spatial and temporal patterns. Bald eagles were observed only during the fall and spring survey seasons and most observations occurred in the southern half of the Project area.

Golden eagles exhibited similar spatial use patterns to bald eagles, but golden eagle observations were proportionally more prevalent in the southern half of the Project area than bald eagles. Golden eagles were observed each year but were observed only during surveys in Year 1 (two observations, 10 exposure minutes). A similar number of golden eagle observations were

incidental (Year 1: two observations; Year 2: four observations). Across both survey years, golden eagle use spanned three seasons with observations occurring during the winter, fall and spring survey seasons. Throughout the two-year study, just one eagle was unidentifiable to species – it was observed during fall surveys during Year 1 at Point 2 (one exposure risk minute), near the northwest edge of the Project area.

Large and Small Birds

During the 60-min large bird surveys, 6,904 individual observations within 548 groups were recorded during Year 1 and 2,568 individual observations within 416 groups were recorded during Year 2. Large bird mean use was 3.2 times higher during the fall in Year 1 compared to Year 2, which is attributed to the high numbers of sandhill crane observations that were 6.3 times higher in Year 1, compared to Year 2.

Sandhill cranes had the highest overall abundance of all species in the Project area during the two-year survey (n= 3,420 [Year 1]; n = 537 [Year 2]), with 97% occurring during the fall migration periods. All sandhill crane observations were of groups that were flying (n = 23 [Year 1]; n = 3 [Year 2]), and none were observed on the ground foraging/resting within the Project area. Approximately 52% of the sandhill cranes were observed flying above the RSH (46% within the RSH).

The spatial variation in large bird mean use across both years was 1.4 times higher in the southern half of the Project area compared to the northern half, largely due to a high frequency of spring and fall observations of migrating waterbirds and waterfowl. Spatially, diurnal raptors (buteos, falcons, and northern harrier), doves/pigeons, gulls/terns, passerines (blackbirds/orioles and grassland sparrows), shorebirds, upland gamebirds and waterfowl occurred ubiquitously across all points between Year 1 and Year 2. Conversely, waterbirds (largely sandhill cranes) were observed at less than 25% of the points and depicted wide spatial variability within and between survey years, but had highest mean use recorded for any bird species at any point in both survey years (Point 36 [Year 1] and Point 2 [Year 2]). Waterbirds and waterfowl exhibited high spatial variability in the Project area during spring and fall migration periods and portrayed no obvious spatial patterns, but temporal use was heavily weighted towards the fall migration period.

Small bird species had the highest mean use in the fall, followed by spring, winter, and summer (Year 1) with the highest mean use was recorded (over 15 observations/survey) at points 24, 37, and 39. All these points are located in the central part of the Project area. The most commonly observed small bird species included horned lark, European starling, and Lapland longspur – all considered abundant species in western North Dakota.

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Appendix A. All Bird Types and Species Observed in Survey Plots during the Avian Use Study at the Proposed Homestead Wind Project in Williams County, North Dakota, from February 20, 2023 – September 7, 2025 (Year 1 [A1: Large Birds; A2 Small Birds] and Year 2 [A3: Large Birds])

Appendix A1. Summary of groups and individuals observed within the survey plot by large bird type and species during avian use surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from February 20, 2023 – January 24, 2024 (Year 1).

		Winter		Spring		Summer		Fall		Total	
Type/Subtype/Species	**Scientific Name**	**# grps**	**# obs**	**# grps**	**# obs**	**# grps**	**# obs**	**# grps**	**# obs**	**# grps**	**# obs**
diurnal raptors		1	1	29	29	8	8	34	47	72	85
accipiters		*0*	*0*	*0*	*0*	*0*	*0*	*2*	*2*	*2*	*2*
Cooper's hawk	*Accipiter cooperii*	0	0	0	0	0	0	1	1	1	1
sharp-shinned hawk	*Accipiter striatus*	0	0	0	0	0	0	1	1	1	1
buteos		*0*	*0*	*6*	*6*	*8*	*8*	*14*	*20*	*28*	*34*
red-tailed hawk	*Buteo jamaicensis*	0	0	4	4	3	3	5	6	12	13
rough-legged hawk	*Buteo lagopus*	0	0	1	1	0	0	5	5	6	6
Swainson's hawk	*Buteo swainsoni*	0	0	0	0	4	4	4	9	8	13
unidentified buteo		0	0	1	1	1	1	0	0	2	2
eagles		*1*	*1*	*0*	*0*	*0*	*0*	*2*	*2*	*3*	*3*
golden eagle	*Aquila chrysaetos*	1	1	0	0	0	0	1	1	2	2
unidentified eagle		0	0	0	0	0	0	1	1	1	1
falcons		*0*	*0*	*3*	*3*	*0*	*0*	*1*	*8*	*4*	*11*
American kestrel	*Falco sparverius*	0	0	2	2	0	0	1	8	3	10
merlin	*Falco columbarius*	0	0	1	1	0	0	0	0	1	1
northern harrier		*0*	*0*	*20*	*20*	*0*	*0*	*15*	*15*	*35*	*35*
northern harrier	*Circus hudsonius*	0	0	20	20	0	0	15	15	35	35
doves/pigeons		2	16	19	48	32	49	10	90	63	203
Eurasian collared-dove	*Streptopelia decaocto*	0	0	0	0	1	2	0	0	1	2
mourning dove	*Zenaida macroura*	0	0	7	9	30	45	6	64	43	118
rock pigeon	*Columba livia*	2	16	12	39	1	2	4	26	19	83
gulls/terns		0	0	24	143	2	20	0	0	26	163
Franklin's gull	*Leucophaeus pipixcan*	0	0	2	80	0	0	0	0	2	80
ring-billed gull	*Larus delawarensis*	0	0	16	56	2	20	0	0	18	76
unidentified gull		0	0	6	7	0	0	0	0	6	7
large corvids		1	1	12	26	3	3	11	45	27	75
American crow	*Corvus brachyrhynchos*	0	0	12	26	3	3	7	41	22	70
black-billed magpie	*Pica hudsonia*	0	0	0	0	0	0	2	2	2	2
common raven	*Corvus corax*	1	1	0	0	0	0	2	2	3	3
loons/grebes		0	0	0	0	1	1	0	0	1	1
eared grebe	*Podiceps nigricollis*	0	0	0	0	1	1	0	0	1	1
rails/coots		0	0	0	0	5	5	0	0	5	5
sora	*Porzana carolina*	0	0	0	0	5	5	0	0	5	5

Appendix A1. Summary of groups and individuals observed within the survey plot by large bird type and species during avian use surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from February 20, 2023 – January 24, 2024 (Year 1).

		Winter		Spring		Summer		Fall		Total	
Type/Subtype/Species	**Scientific Name**	**# grps**	**# obs**	**# grps**	**# obs**	**# grps**	**# obs**	**# grps**	**# obs**	**# grps**	**# obs**
shorebirds		0	0	29	36	55	75	4	13	88	124
American avocet	*Recurvirostra americana*	0	0	1	1	0	0	0	0	1	1
greater yellowlegs	*Tringa melanoleuca*	0	0	0	0	1	4	0	0	1	4
killdeer	*Charadrius vociferus*	0	0	14	15	15	23	4	13	33	51
marbled godwit	*Limosa fedoa*	0	0	2	2	9	10	0	0	11	12
semipalmated sandpiper	*Calidris pusilla*	0	0	0	0	1	2	0	0	1	2
upland sandpiper	*Bartramia longicauda*	0	0	6	8	22	22	0	0	28	30
willet	*Tringa semipalmata*	0	0	2	2	2	2	0	0	4	4
Wilson's phalarope	*Phalaropus tricolor*	0	0	0	0	1	4	0	0	1	4
Wilson's snipe	*Gallinago delicata*	0	0	2	5	3	3	0	0	5	8
unidentified sandpiper		0	0	1	2	0	0	0	0	1	2
unidentified shorebird		0	0	1	1	1	5	0	0	2	6
upland game birds		8	84	55	164	57	60	19	47	139	355
gray partridge	*Perdix perdix*	1	8	2	13	0	0	3	3	6	24
ring-necked pheasant	*Phasianus colchicus*	5	32	50	143	57	60	16	44	128	279
sharp-tailed grouse	*Tympanuchus phasianellus*	2	44	3	8	0	0	0	0	5	52
vultures		0	0	2	2	1	2	1	1	4	5
turkey vulture	*Cathartes aura*	0	0	2	2	1	2	1	1	4	5
waterbirds		0	0	1	90	2	3	22	3,330	25	3,423
double-crested cormorant	*Nannopterum auritum*	0	0	0	0	2	3	0	0	2	3
sandhill crane	*Antigone canadensis*	0	0	1	90	0	0	22	3,330	23	3,420
waterfowl		0	0	78	2,314	18	140	2	11	98	2,465
blue-winged teal	*Spatula discors*	0	0	1	2	2	5	1	6	4	13
Canada goose	*Branta canadensis*	0	0	26	1,040	1	2	1	5	28	1,047
canvasback	*Aythya valisineria*	0	0	0	0	3	15	0	0	3	15
gadwall	*Mareca strepera*	0	0	2	3	0	0	0	0	2	3
lesser scaup	*Aythya affinis*	0	0	1	15	0	0	0	0	1	15
mallard	*Anas platyrhynchos*	0	0	19	81	4	57	0	0	23	138
northern pintail	*Anas acuta*	0	0	12	85	2	31	0	0	14	116
northern shoveler	*Spatula clypeata*	0	0	6	16	3	7	0	0	9	23
snow goose	*Anser caerulescens*	0	0	1	1,000	0	0	0	0	1	1,000
tundra swan	*Cygnus columbianus*	0	0	3	15	0	0	0	0	3	15
unidentified duck		0	0	7	57	3	23	0	0	10	80
Overall		**12**	**102**	**249**	**2,852**	**184**	**366**	**103**	**3,584**	**548**	**6,904**

grps = groups; obs = observations.

Appendix A2. Summary of groups and individuals observed within the survey plot by small bird type and species during avian use surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from February 20, 2023 – January 24, 2024 (Year 1).

		Winter		Spring		Summer		Fall		Total	
Type/Subtype/Species	**Scientific Name**	**# grps**	**# obs**	**# grps**	**# obs**	**# grps**	**# obs**	**# grps**	**# obs**	**# grps**	**# obs**
passerines		10	376	141	509	179	254	46	725	376	1,864
blackbirds/orioles		***0***	***0***	***34***	***70***	***66***	***110***	***12***	***524***	***112***	***704***
Baltimore oriole	*Icterus galbula*	0	0	1	1	0	0	0	0	1	1
bobolink	*Dolichonyx oryzivorus*	0	0	0	0	4	4	0	0	4	4
Brewer's blackbird	*Euphagus cyanocephalus*	0	0	1	3	4	12	0	0	5	15
brown-headed cowbird	*Molothrus ater*	0	0	10	15	18	36	0	0	28	51
common grackle	*Quiscalus quiscula*	0	0	3	10	9	18	2	22	14	50
European starling	*Sturnus vulgaris*	0	0	0	0	0	0	5	340	5	340
red-winged blackbird	*Agelaius phoeniceus*	0	0	2	21	11	17	3	160	16	198
western meadowlark	*Sturnella neglecta*	0	0	16	19	17	17	2	2	35	38
yellow-headed blackbird	*Xanthocephalus xanthocephalus*	0	0	1	1	3	6	0	0	4	7
finches/crossbills		***0***	***0***	***0***	***0***	***3***	***4***	***1***	***2***	***4***	***6***
American goldfinch	*Spinus tristis*	0	0	0	0	3	4	0	0	3	4
house finch	*Haemorhous mexicanus*	0	0	0	0	0	0	1	2	1	2
flycatchers		***0***	***0***	***4***	***12***	***19***	***21***	***0***	***0***	***23***	***33***
eastern kingbird	*Tyrannus tyrannus*	0	0	3	4	15	17	0	0	18	21
western kingbird	*Tyrannus verticalis*	0	0	1	8	4	4	0	0	5	12
grassland/sparrows		***10***	***376***	***91***	***383***	***65***	***81***	***32***	***198***	***198***	***1,038***
chestnut-collared longspur	*Calcarius ornatus*	0	0	0	0	9	13	2	7	11	20
clay-colored sparrow	*Spizella pallida*	0	0	0	0	5	5	0	0	5	5
dark-eyed junco	*Junco hyemalis*	0	0	3	13	0	0	0	0	3	13
grasshopper sparrow	*Ammodramus savannarum*	0	0	1	1	7	7	0	0	8	8
horned lark	*Eremophila alpestris*	9	176	74	248	27	33	15	125	125	582
house sparrow	*Passer domesticus*	0	0	1	1	1	5	2	35	4	41
Lapland longspur	*Calcarius lapponicus*	1	200	6	108	0	0	3	14	10	322
Savannah sparrow	*Passerculus sandwichensis*	0	0	0	0	2	2	0	0	2	2
snow bunting	*Plectrophenax nivalis*	0	0	1	3	0	0	0	0	1	3
song sparrow	*Melospiza melodia*	0	0	3	6	2	2	6	9	11	17
vesper sparrow	*Pooecetes gramineus*	0	0	1	1	12	14	2	5	15	20
unidentified sparrow		0	0	1	2	0	0	2	3	3	5
shrikes		***0***	***0***	***0***	***0***	***0***	***0***	***1***	***1***	***1***	***1***
northern shrike	*Lanius borealis*	0	0	0	0	0	0	1	1	1	1
swallows		*0*	*0*	*7*	*39*	*14*	*26*	*0*	*0*	*21*	*65*
bank swallow	*Riparia riparia*	0	0	1	2	0	0	0	0	1	2
barn swallow	*Hirundo rustica*	0	0	5	7	11	16	0	0	16	23

Appendix A2. Summary of groups and individuals observed within the survey plot by small bird type and species during avian use surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from February 20, 2023 – January 24, 2024 (Year 1).

		Winter		Spring		Summer		Fall		Total	
Type/Subtype/Species	**Scientific Name**	**# grps**	**# obs**	**# grps**	**# obs**	**# grps**	**# obs**	**# grps**	**# obs**	**# grps**	**# obs**
cliff swallow	*Petrochelidon pyrrhonota*	0	0	1	30	3	10	0	0	4	40
thrushes		*0*	*0*	*5*	*5*	*10*	*10*	*0*	*0*	*15*	*15*
American robin	*Turdus migratorius*	0	0	5	5	10	10	0	0	15	15
warblers		*0*	*0*	*0*	*0*	*2*	*2*	*0*	*0*	*2*	*2*
common yellowthroat	*Geothlypis trichas*	0	0	0	0	2	2	0	0	2	2
woodpeckers		0	0	1	1	2	2	0	0	3	3
northern flicker	*Colaptes auratus*	0	0	1	1	2	2	0	0	3	3
Overall		**10**	**376**	**142**	**510**	**181**	**256**	**46**	**725**	**379**	**1,867**

grps = groups; obs = observations.

Appendix A3. Summary of groups and individuals observed within the survey plot by large bird type and species during avian use surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from October 20, 2024 – September 7, 2025 (Year 2).

		Fall		Winter		Spring		Summer		Total	
Type/Subtype/Species	**Scientific Name**	**# grps**	**# obs**	**# grps**	**# obs**	**# grps**	**# obs**	**# grps**	**# obs**	**# grps**	**# obs**
diurnal raptors		22	23	1	1	28	28	10	11	61	63
accipiters		*0*	*0*	*0*	*0*	*1*	*1*	*0*	*0*	*1*	*1*
Cooper's hawk	*Accipiter cooperii*	0	0	0	0	1	1	0	0	1	1
buteos		*11*	*12*	*0*	*0*	*11*	*11*	*3*	*3*	*25*	*26*
red-tailed hawk	*Buteo jamaicensis*	5	5	0	0	6	6	1	1	12	12
rough-legged hawk	*Buteo lagopus*	3	3	0	0	1	1	0	0	4	4
Swainson's hawk	*Buteo swainsoni*	3	4	0	0	4	4	2	2	9	10
eagles		*1*	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*1*	*1*
bald eagle	*Haliaeetus leucocephalus*	1	1	0	0	0	0	0	0	1	1
falcons		*1*	*1*	*1*	*1*	*8*	*8*	*1*	*2*	*11*	*12*
American kestrel	*Falco sparverius*	0	0	0	0	3	3	1	2	4	5
merlin	*Falco columbarius*	0	0	0	0	4	4	0	0	4	4
prairie falcon	*Falco mexicanus*	0	0	1	1	1	1	0	0	2	2
unidentified falcon		1	1	0	0	0	0	0	0	1	1
northern harrier		*9*	*9*	*0*	*0*	*8*	*8*	*6*	*6*	*23*	*23*
northern harrier	*Circus hudsonius*	9	9	0	0	8	8	6	6	23	23
doves/pigeons		9	43	0	0	15	44	23	50	47	137
Eurasian collared-dove	*Streptopelia decaocto*	1	2	0	0	1	2	0	0	2	4
mourning dove	*Zenaida macroura*	3	6	0	0	10	19	20	28	33	53

Appendix A3. Summary of groups and individuals observed within the survey plot by large bird type and species during avian use surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from October 20, 2024 – September 7, 2025 (Year 2).

		Fall		Winter		Spring		Summer		Total	
Type/Subtype/Species	**Scientific Name**	**# grps**	**# obs**	**# grps**	**# obs**	**# grps**	**# obs**	**# grps**	**# obs**	**# grps**	**# obs**
rock pigeon	*Columba livia*	5	35	0	0	4	23	3	22	12	80
gulls/terns		0	0	0	0	30	126	16	53	46	179
California gull	*Larus californicus*	0	0	0	0	1	4	0	0	1	4
Franklin's gull	*Leucophaeus pipixcan*	0	0	0	0	20	100	8	24	28	124
ring-billed gull	*Larus delawarensis*	0	0	0	0	6	19	8	29	14	48
unidentified gull		0	0	0	0	3	3	0	0	3	3
large corvids		6	24	0	0	5	20	0	0	11	44
American crow	*Corvus brachyrhynchos*	3	20	0	0	4	18	0	0	7	38
black-billed magpie	*Pica hudsonia*	1	1	0	0	1	2	0	0	2	3
common raven	*Corvus corax*	2	3	0	0	0	0	0	0	2	3
owls		0	0	1	1	0	0	0	0	1	1
snowy owl	*Bubo scandiacus*	0	0	1	1	0	0	0	0	1	1
shorebirds		0	0	0	0	18	38	29	33	47	71
American golden-plover	*Pluvialis dominica*	0	0	0	0	1	20	0	0	1	20
killdeer	*Charadrius vociferus*	0	0	0	0	4	4	4	5	8	9
marbled godwit	*Limosa fedoa*	0	0	0	0	4	5	2	2	6	7
upland sandpiper	*Bartramia longicauda*	0	0	0	0	6	6	19	22	25	28
willet	*Tringa semipalmata*	0	0	0	0	2	2	2	2	4	4
Wilson's snipe	*Gallinago delicata*	0	0	0	0	1	1	2	2	3	3
upland game birds		48	291	20	287	40	67	40	41	148	686
gray partridge	*Perdix perdix*	1	10	3	22	1	2	1	1	6	35
ring-necked pheasant	*Phasianus colchicus*	44	250	16	264	38	62	39	40	137	616
sharp-tailed grouse	*Tympanuchus phasianellus*	3	31	1	1	1	3	0	0	5	35
vultures		0	0	0	0	2	3	0	0	2	3
turkey vulture	*Cathartes aura*	0	0	0	0	2	3	0	0	2	3
waterbirds		2	500	0	0	4	60	0	0	6	560
American white pelican	*Pelecanus erythrorhynchos*	0	0	0	0	2	13	0	0	2	13
double-crested cormorant	*Nannopterum auritum*	0	0	0	0	1	10	0	0	1	10
sandhill crane	*Antigone canadensis*	2	500	0	0	1	37	0	0	3	537
waterfowl		10	237	0	0	37	587	0	0	47	824
blue-winged teal	*Spatula discors*	1	3	0	0	4	16	0	0	5	19
Canada goose	*Branta canadensis*	6	197	0	0	10	164	0	0	16	361
gadwall	*Mareca strepera*	1	4	0	0	2	5	0	0	3	9
greater white-fronted goose	*Anser albifrons*	1	25	0	0	0	0	0	0	1	25

Appendix A3. Summary of groups and individuals observed within the survey plot by large bird type and species during avian use surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from October 20, 2024 – September 7, 2025 (Year 2).

		Fall		Winter		Spring		Summer		Total	
Type/Subtype/Species	**Scientific Name**	**# grps**	**# obs**	**# grps**	**# obs**	**# grps**	**# obs**	**# grps**	**# obs**	**# grps**	**# obs**
mallard	*Anas platyrhynchos*	0	0	0	0	10	28	0	0	10	28
northern pintail	*Anas acuta*	0	0	0	0	7	99	0	0	7	99
snow goose	*Anser caerulescens*	0	0	0	0	2	250	0	0	2	250
tundra swan	*Cygnus columbianus*	1	8	0	0	0	0	0	0	1	8
unidentified duck		0	0	0	0	2	25	0	0	2	25
Overall		**97**	**1,118**	**22**	**289**	**179**	**973**	**118**	**188**	**416**	**2,568**

grps = groups; obs = observations.

Appendix B. Mean Use, Percent of Use, and Frequency of Occurrence for Birds Observed in Survey Plots during the Avian Use Study at the Proposed Homestead Wind Project in Williams County, North Dakota, from February 20, 2023 – September 7, 2025 (Year 1 [B1: Large Birds; B2: Small Birds] and Year 2 [B3: Large Birds])

Appendix B1. Mean large birds use (number of large birds/plot[1]/60-minute survey), percent of total use (%), and frequency of occurrence (%) for each large bird type, subtype, and species, by season, during avian use surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from February 20, 2023 – January 24, 2024 (Year 1).

	Mean Use				% of Use				% Frequency			
Type/Subtype/Species	**Winter**	**Spring**	**Summer**	**Fall**	**Winter**	**Spring**	**Summer**	**Fall**	**Winter**	**Spring**	**Summer**	**Fall**
diurnal raptors	0.02	0.48	0.13	0.78	0.8	1.0	2.2	1.3	1.7	23.3	13.3	45.0
accipiters	*0*	*0*	*0*	*0.03*	*0*	*0*	*0*	*0.1*	*0*	*0*	*0*	*3.3*
cooper's hawk	0	0	0	0.02	0	0	0	<0.1	0	0	0	1.7
sharp-shinned hawk	0	0	0	0.02	0	0	0	<0.1	0	0	0	1.7
buteos	*0*	*0.11*	*0.14*	*0.33*	*0*	*0.2*	*2.2*	*0.6*	*0*	*8.3*	*13.3*	*20.0*
red-tailed hawk	0	0.07	0.05	0.10	0	0.1	0.8	0.2	0	5.0	5.0	6.7
rough-legged hawk	0	0.02	0	0.08	0	<0.1	0	0.1	0	1.7	0	8.3
Swainson's hawk	0	0	0.07	0.15	0	0	1.1	0.3	0	0	6.7	5.0
unidentified buteo	0	0.02	0.02	0	0	<0.1	0.3	0	0	1.7	1.7	0
eagles	*0.02*	*0*	*0*	*0.03*	*0.8*	*0*	*0*	*0.1*	*1.7*	*0*	*0*	*3.3*
golden eagle	0.02	0	0	0.02	0.8	0	0	<0.1	1.7	0	0	1.7
unidentified eagle	0	0	0	0.02	0	0	0	<0.1	0	0	0	1.7
falcons	*0*	*0.05*	*0*	*0.13*	*0*	*0.1*	*0*	*0.2*	*0*	*5.0*	*0*	*1.7*
American kestrel	0	0.03	0	0.13	0	0.1	0	0.2	0	3.3	0	1.7
merlin	0	0.02	0	0	0	<0.1	0	0	0	1.7	0	0
northern harrier	*0*	*0.33*	*0*	*0.25*	*0*	*0.7*	*0*	*0.4*	*0*	*20.0*	*0*	*21.7*
northern harrier	0	0.33	0	0.25	0	0.7	0	0.4	0	20.0	0	21.7
doves/pigeons	0.27	0.80	0.82	1.50	12.6	1.7	13.4	2.5	3.3	20.0	38.3	13.3
Eurasian collared-dove	0	0	0.03	0	0	0	0.5	0	0	0	1.7	0
mourning dove	0	0.15	0.75	1.07	0	0.3	12.3	1.8	0	11.7	38.3	8.3
rock pigeon	0.27	0.65	0.03	0.43	12.6	1.4	0.5	0.7	3.3	8.3	1.7	5.0
gulls/terns	0	2.38	0.33	0	0	5.0	5.5	0	0	25.0	3.3	0
Franklin's gull	0	1.33	0	0	0	2.8	0	0	0	3.3	0	0
ring-billed gull	0	0.93	0.33	0	0	2.0	5.5	0	0	16.7	3.3	0
unidentified gull	0	0.12	0	0	0	0.2	0	0	0	8.3	0	0
large corvids	0.02	0.44	0.05	0.75	0.8	0.9	0.8	1.3	1.7	12.0	3.3	15.0
American crow	0	0.44	0.05	0.68	0	0.9	0.8	1.1	0	12.0	3.3	10.0
black-billed magpie	0	0	0	0.03	0	0	0	0.1	0	0	0	1.7
common raven	0.02	0	0	0.03	0.8	0	0	0.1	1.7	0	0	3.3
loons/grebes	0	0	0.02	0	0	0	0.3	0	0	0	1.7	0
eared grebe	0	0	0.02	0	0	0	0.3	0	0	0	1.7	0
rails/coots	0	0	0.08	0	0	0	1.4	0	0	0	8.3	0
sora	0	0	0.08	0	0	0	1.4	0	0	0	8.3	0
shorebirds	0	0.60	1.25	0.22	0	1.3	20.5	0.4	0	30.0	41.7	5.0
American avocet	0	0.02	0	0	0	<0.1	0	0	0	1.7	0	0

Appendix B1. Mean large birds use (number of large birds/plot[1]/60-minute survey), percent of total use (%), and frequency of occurrence (%) for each large bird type, subtype, and species, by season, during avian use surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from February 20, 2023 – January 24, 2024 (Year 1).

	Mean Use				% of Use				% Frequency			
Type/Subtype/Species	**Winter**	**Spring**	**Summer**	**Fall**	**Winter**	**Spring**	**Summer**	**Fall**	**Winter**	**Spring**	**Summer**	**Fall**
greater yellowlegs	0	0	0.07	0	0	0	1.1	0	0	0	1.7	0
killdeer	0	0.25	0.38	0.22	0	0.5	6.3	0.4	0	11.7	18.3	5.0
marbled godwit	0	0.03	0.17	0	0	0.1	2.7	0	0	3.3	13.3	0
semipalmated sandpiper	0	0	0.03	0	0	0	0.5	0	0	0	1.7	0
upland sandpiper	0	0.13	0.37	0	0	0.3	6.0	0	0	8.3	31.7	0
willet	0	0.03	0.03	0	0	0.1	0.5	0	0	3.3	3.3	0
Wilson's phalarope	0	0	0.07	0	0	0	1.1	0	0	0	1.7	0
Wilson's snipe	0	0.08	0.05	0	0	0.2	0.8	0	0	3.3	5.0	0
unidentified sandpiper	0	0.03	0	0	0	0.1	0	0	0	1.7	0	0
unidentified shorebird	0	0.02	0.08	0	0	<0.1	1.4	0	0	1.7	1.7	0
upland game birds	1.82	2.93	1	0.78	85.9	6.1	16.4	1.3	14.4	56.1	55.0	25.0
gray partridge	0.24	0.24	0	0.05	11.4	0.5	0	0.1	3.0	3.5	0	1.7
ring-necked pheasant	0.85	2.56	1	0.73	39.9	5.4	16.4	1.2	9.7	54.3	55.0	23.3
sharp-tailed grouse	0.73	0.14	0	0	34.5	0.3	0	0	1.7	3.5	0	0
vultures	0	0.03	0.03	0.02	0	0.1	0.5	<0.1	0	3.3	1.7	1.7
turkey vulture	0	0.03	0.03	0.02	0	0.1	0.5	<0.1	0	3.3	1.7	1.7
waterbirds	0	1.50	0.05	55.50	0	3.1	0.8	92.9	0	1.7	3.3	5.0
double-crested cormorant	0	0	0.05	0	0	0	0.8	0	0	0	3.3	0
sandhill crane	0	1.50	0	55.50	0	3.1	0	92.9	0	1.7	0	5.0
waterfowl	0	38.57	2.33	0.18	0	80.8	38.3	0.3	0	38.5	13.3	3.3
blue-winged teal	0	0.03	0.08	0.10	0	0.1	1.4	0.2	0	1.7	3.3	1.7
Canada goose	0	17.34	0.03	0.08	0	36.3	0.5	0.1	0	21.9	1.7	1.7
canvasback	0	0	0.25	0	0	0	4.1	0	0	0	5.0	0
gadwall	0	0.05	0	0	0	0.1	0	0	0	3.3	0	0
lesser scaup	0	0.25	0	0	0	0.5	0	0	0	1.7	0	0
mallard	0	1.35	0.95	0	0	2.8	15.6	0	0	18.3	5.0	0
northern pintail	0	1.42	0.52	0	0	3.0	8.5	0	0	6.7	3.3	0
northern shoveler	0	0.27	0.12	0	0	0.6	1.9	0	0	6.7	5.0	0
snow goose	0	16.67	0	0	0	34.9	0	0	0	1.7	0	0
tundra swan	0	0.25	0	0	0	0.5	0	0	0	5.0	0	0
unidentified duck	0	0.95	0.38	0	0	2.0	6.3	0	0	6.7	5.0	0
Overall	**2.12**	**47.74**	**6.10**	**59.73**	**100**	**100**	**100**	**100**	**NA**	**NA**	**NA**	**NA**

[1.] 800-meter radius plot for large birds.

Sums of values may not equal totals shown due to rounding.

Appendix B2. Mean small birds use (number of small birds/plot[1]/10-minute survey), percent of total use (%), and frequency of occurrence (%) for each small bird type, subtype, and species, by season, during avian use surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from February 20, 2023 – January 24, 2024 (Year 1).

	Mean Use				% of Use				% Frequency			
Type/Subtype/Species	**Winter**	**Spring**	**Summer**	**Fall**	**Winter**	**Spring**	**Summer**	**Fall**	**Winter**	**Spring**	**Summer**	**Fall**
passerines	6.27	8.66	4.23	12.08	100	100	99.4	100	13.3	85.2	78.3	40.0
Baltimore oriole	0	0.02	0	0	0	0.2	0	0	0	1.7	0	0
bobolink	0	0	0.07	0	0	0	1.6	0	0	0	6.7	0
Brewer's blackbird	0	0.05	0.20	0	0	0.6	4.7	0	0	1.7	5.0	0
brown-headed cowbird	0	0.25	0.60	0	0	2.9	14.1	0	0	15.0	28.3	0
common grackle	0	0.17	0.30	0.37	0	1.9	7.0	3.0	0	3.3	10.0	3.3
European starling	0	0	0	5.67	0	0	0	46.9	0	0	0	8.3
red-winged blackbird	0	0.35	0.28	2.67	0	4.0	6.6	22.1	0	3.3	16.7	3.3
western meadowlark	0	0.32	0.28	0.03	0	3.7	6.6	0.3	0	25.0	21.7	3.3
yellow-headed blackbird	0	0.02	0.10	0	0	0.2	2.3	0	0	1.7	5.0	0
American goldfinch	0	0	0.07	0	0	0	1.6	0	0	0	5.0	0
house finch	0	0	0	0.03	0	0	0	0.3	0	0	0	1.7
eastern kingbird	0	0.07	0.28	0	0	0.8	6.6	0	0	5.0	23.3	0
western kingbird	0	0.13	0.07	0	0	1.5	1.6	0	0	1.7	5.0	0
chestnut-collared longspur	0	0	0.22	0.12	0	0	5.1	1.0	0	0	11.7	3.3
clay-colored sparrow	0	0	0.08	0	0	0	2.0	0	0	0	6.7	0
dark-eyed junco	0	0.22	0	0	0	2.5	0	0	0	3.3	0	0
grasshopper sparrow	0	0.02	0.12	0	0	0.2	2.7	0	0	1.7	10.0	0
horned lark	2.93	4.29	0.55	2.08	46.8	49.6	12.9	17.2	13.3	66.9	31.7	18.3
house sparrow	0	0.02	0.08	0.58	0	0.2	2.0	4.8	0	1.7	1.7	1.7
Lapland longspur	3.33	1.80	0	0.23	53.2	20.8	0	1.9	1.7	6.7	0	5.0
Savannah sparrow	0	0	0.03	0	0	0	0.8	0	0	0	3.3	0
snow bunting	0	0.05	0	0	0	0.6	0	0	0	1.7	0	0
song sparrow	0	0.10	0.03	0.15	0	1.2	0.8	1.2	0	5.0	3.3	8.3
vesper sparrow	0	0.02	0.23	0.08	0	0.2	5.5	0.7	0	1.7	20.0	3.3
unidentified sparrow	0	0.03	0	0.05	0	0.4	0	0.4	0	1.7	0	3.3
northern shrike	0	0	0	0.02	0	0	0	0.1	0	0	0	1.7
bank swallow	0	0.03	0	0	0	0.4	0	0	0	1.7	0	0
barn swallow	0	0.12	0.27	0	0	1.3	6.3	0	0	8.3	16.7	0
cliff swallow	0	0.50	0.17	0	0	5.8	3.9	0	0	1.7	5.0	0
American robin	0	0.08	0.17	0	0	1.0	3.9	0	0	8.3	10.0	0
common yellowthroat	0	0	0.03	0	0	0	0.8	0	0	0	3.3	0

Appendix B2. Mean small birds use (number of small birds/plot[1]/10-minute survey), percent of total use (%), and frequency of occurrence (%) for each small bird type, subtype, and species, by season, during avian use surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from February 20, 2023 – January 24, 2024 (Year 1).

	Mean Use				% of Use				% Frequency			
Type/Subtype/Species	**Winter**	**Spring**	**Summer**	**Fall**	**Winter**	**Spring**	**Summer**	**Fall**	**Winter**	**Spring**	**Summer**	**Fall**
woodpeckers	0	0.02	0.03	0	0	0.2	0.8	0	0	1.7	3.3	0
northern flicker	0	0.02	0.03	0	0	0.2	0.8	0	0	1.7	3.3	0
Overall	**6.27**	**8.68**	**4.27**	**12.08**	**100**	**100**	**100**	**100**	**NA**	**NA**	**NA**	**NA**

1. 100-meter radius plot for small birds.

Sums of values may not equal totals shown due to rounding.

Appendix B3. Mean large birds use (number of large birds/plot[1]/60-minute survey), percent of total use (%), and frequency of occurrence (%) for each large bird type, subtype, and species, by season, during avian use surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from October 20, 2024 – September 7, 2025 (Year 2).

	Mean Use				% of Use				% Frequency			
Type/Subtype/Species	**Fall**	**Winter**	**Spring**	**Summer**	**Fall**	**Winter**	**Spring**	**Summer**	**Fall**	**Winter**	**Spring**	**Summer**
diurnal raptors	0.38	0.02	0.47	0.18	2.1	0.3	2.9	5.9	33.3	1.7	35.0	15.0
accipiters	*0*	*0*	*0.02*	*0*	*0*	*0*	*0.1*	*0*	*0*	*0*	*1.7*	*0*
cooper's hawk	0	0	0.02	0	0	0	0.1	0	0	0	1.7	0
buteos	*0.20*	*0*	*0.18*	*0.05*	*1.1*	*0*	*1.1*	*1.6*	*18.3*	*0*	*16.7*	*3.3*
red-tailed hawk	0.08	0	0.10	0.02	0.4	0	0.6	0.5	8.3	0	10.0	1.7
rough-legged hawk	0.05	0	0.02	0	0.3	0	0.1	0	5.0	0	1.7	0
Swainson's hawk	0.07	0	0.07	0.03	0.4	0	0.4	1.1	5.0	0	5.0	3.3
eagles	*0.02*	*0*	*0*	*0*	*0.1*	*0*	*0*	*0*	*1.7*	*0*	*0*	*0*
bald eagle	0.02	0	0	0	0.1	0	0	0	1.7	0	0	0
falcons	*0.02*	*0.02*	*0.13*	*0.03*	*0.1*	*0.3*	*0.8*	*1.1*	*1.7*	*1.7*	*11.7*	*1.7*
American kestrel	0	0	0.05	0.03	0	0	0.3	1.1	0	0	5.0	1.7
merlin	0	0	0.07	0	0	0	0.4	0	0	0	5.0	0
prairie falcon	0	0.02	0.02	0	0	0.3	0.1	0	0	1.7	1.7	0
unidentified falcon	0.02	0	0	0	0.1	0	0	0	1.7	0	0	0
northern harrier	*0.15*	*0*	*0.13*	*0.10*	*0.8*	*0*	*0.8*	*3.2*	*13.3*	*0*	*10.0*	*10.0*
northern harrier	0.15	0	0.13	0.10	0.8	0	0.8	3.2	13.3	0	10.0	10.0
doves/pigeons	0.72	0	0.73	0.83	3.8	0	4.5	26.6	13.3	0	21.7	28.3
Eurasian collared-dove	0.03	0	0.03	0	0.2	0	0.2	0	1.7	0	1.7	0
mourning dove	0.10	0	0.32	0.47	0.5	0	2.0	14.9	5.0	0	16.7	25.0
rock pigeon	0.58	0	0.38	0.37	3.1	0	2.4	11.7	6.7	0	6.7	5.0

Appendix B3. Mean large birds use (number of large birds/plot[1]/60-minute survey), percent of total use (%), and frequency of occurrence (%) for each large bird type, subtype, and species, by season, during avian use surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from October 20, 2024 – September 7, 2025 (Year 2).

	Mean Use				% of Use				% Frequency			
Type/Subtype/Species	**Fall**	**Winter**	**Spring**	**Summer**	**Fall**	**Winter**	**Spring**	**Summer**	**Fall**	**Winter**	**Spring**	**Summer**
gulls/terns	0	0	2.10	0.88	0	0	12.9	28.2	0	0	30.0	18.3
California gull	0	0	0.07	0	0	0	0.4	0	0	0	1.7	0
Franklin's gull	0	0	1.67	0.40	0	0	10.3	12.8	0	0	23.3	13.3
ring-billed gull	0	0	0.32	0.48	0	0	2.0	15.4	0	0	10.0	10.0
unidentified gull	0	0	0.05	0	0	0	0.3	0	0	0	3.3	0
large corvids	0.40	0	0.33	0	2.1	0	2.1	0	10.0	0	8.3	0
American crow	0.33	0	0.30	0	1.8	0	1.8	0	5.0	0	6.7	0
black-billed magpie	0.02	0	0.03	0	0.1	0	0.2	0	1.7	0	1.7	0
common raven	0.05	0	0	0	0.3	0	0	0	3.3	0	0	0
owls	0	0.02	0	0	0	0.3	0	0	0	1.7	0	0
snowy owl	0	0.02	0	0	0	0.3	0	0	0	1.7	0	0
shorebirds	0	0	0.63	0.55	0	0	3.9	17.6	0	0	21.7	33.3
American golden-plover	0	0	0.33	0	0	0	2.1	0	0	0	1.7	0
killdeer	0	0	0.07	0.08	0	0	0.4	2.7	0	0	6.7	6.7
marbled godwit	0	0	0.08	0.03	0	0	0.5	1.1	0	0	5.0	3.3
upland sandpiper	0	0	0.10	0.37	0	0	0.6	11.7	0	0	8.3	26.7
willet	0	0	0.03	0.03	0	0	0.2	1.1	0	0	3.3	3.3
Wilson's snipe	0	0	0.02	0.03	0	0	0.1	1.1	0	0	1.7	3.3
upland game birds	4.85	4.78	1.12	0.68	26.0	99.3	6.9	21.8	41.7	16.7	50.0	50.0
gray partridge	0.17	0.37	0.03	0.02	0.9	7.6	0.2	0.5	1.7	5.0	1.7	1.7
ring-necked pheasant	4.17	4.40	1.03	0.67	22.4	91.3	6.4	21.3	41.7	15.0	46.7	50.0
sharp-tailed grouse	0.52	0.02	0.05	0	2.8	0.3	0.3	0	5.0	1.7	1.7	0
vultures	0	0	0.05	0	0	0	0.3	0	0	0	3.3	0
turkey vulture	0	0	0.05	0	0	0	0.3	0	0	0	3.3	0
waterbirds	8.33	0	1	0	44.7	0	6.2	0	3.3	0	5.0	0
American white pelican	0	0	0.22	0	0	0	1.3	0	0	0	3.3	0
double-crested cormorant	0	0	0.17	0	0	0	1.0	0	0	0	1.7	0
sandhill crane	8.33	0	0.62	0	44.7	0	3.8	0	3.3	0	1.7	0
waterfowl	3.95	0	9.78	0	21.2	0	60.3	0	13.3	0	26.7	0
blue-winged teal	0.05	0	0.27	0	0.3	0	1.6	0	1.7	0	6.7	0
Canada goose	3.28	0	2.73	0	17.6	0	16.9	0	8.3	0	8.3	0
gadwall	0.07	0	0.08	0	0.4	0	0.5	0	1.7	0	3.3	0
greater white-fronted goose	0.42	0	0	0	2.2	0	0	0	1.7	0	0	0
mallard	0	0	0.47	0	0	0	2.9	0	0	0	11.7	0
northern pintail	0	0	1.65	0	0	0	10.2	0	0	0	10.0	0

Appendix B3. Mean large birds use (number of large birds/plot[1]/60-minute survey), percent of total use (%), and frequency of occurrence (%) for each large bird type, subtype, and species, by season, during avian use surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from October 20, 2024 – September 7, 2025 (Year 2).

	Mean Use				% of Use				% Frequency			
Type/Subtype/Species	**Fall**	**Winter**	**Spring**	**Summer**	**Fall**	**Winter**	**Spring**	**Summer**	**Fall**	**Winter**	**Spring**	**Summer**
snow goose	0	0	4.17	0	0	0	25.7	0	0	0	3.3	0
tundra swan	0.13	0	0	0	0.7	0	0	0	1.7	0	0	0
unidentified duck	0	0	0.42	0	0	0	2.6	0	0	0	3.3	0
Overall	**18.63**	**4.82**	**16.22**	**3.13**	**100**	**100**	**100**	**100**	**NA**	**NA**	**NA**	**NA**

1. 800-meter radius plot for large birds.

Sums of values may not equal totals shown due to rounding.

Appendix C. Mean Use by Survey Point for All Bird Types and Diurnal Raptor Subtypes Observed in Survey Plots during the Avian Use Study at the Proposed Homestead Wind Project in Williams County, North Dakota, from February 20, 2023 – September 7, 2025 (Year 1 [C1: Large Birds; C2: Small Birds] and Year 2 [C3: Large Birds])

Year 1

Appendix C1. Mean use (number of birds/60-minute survey) by survey point for large birds[1], bird types, and subtypes observed during avian use surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from February 20, 2023 – January 24, 2024 (Year 1).

	Survey Point									
Bird Type/Subtype	**1**	**2**	**3**	**4**	**5**	**7**	**12**	**14**	**17**	**24**
diurnal raptors	0.70	0.42	0.27	1.50	0.58	0.36	0.09	0.30	0.25	0.17
accipiters	*0.10*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
buteos	*0.30*	*0.08*	*0.18*	*0.33*	*0.25*	*0.18*	*0.09*	*0*	*0.17*	*0.08*
eagles	*0.10*	*0.08*	*0.09*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
falcons	*0*	*0*	*0*	*0.67*	*0*	*0*	*0*	*0*	*0*	*0*
northern harrier	*0.20*	*0.25*	*0*	*0.50*	*0.33*	*0.18*	*0*	*0.30*	*0.08*	*0.08*
doves/pigeons	1.10	0.50	0.36	0.25	0.17	0.45	0	0	0.58	0.17
gulls/terns	0.10	0.08	4.64	0.17	0	0	4.09	0	0	0.08
large corvids	0	0.08	0.18	0.08	0	0.18	2.55	0	0.17	0.08
loons/grebes	0	0.08	0	0	0	0	0	0	0	0
rails/coots	0.10	0	0.09	0	0	0	0	0	0	0
shorebirds	0.50	2.17	0.55	0.58	0.58	1.18	0.18	0.50	0.42	0.08
upland game birds	1.40	3.50	2.09	0.58	0.50	0.82	4.64	0.40	1.17	0.58
vultures	0.30	0	0	0	0.08	0	0	0	0	0
waterbirds	0	0	0	0	0	0	8.18	0	36	0
waterfowl	2.00	4.08	0.09	1.33	125	0.36	3.55	0.60	0.67	0.50
All Large Birds	**6.20**	**10.92**	**8.27**	**4.50**	**126.92**	**3.36**	**23.27**	**1.80**	**39.25**	**1.67**

[1.] 800-meter radius plot for large birds.

Sums of values may not equal totals shown due to rounding.

Appendix C1 (*continued*). Mean use (number of birds/60-minute survey) by survey point for large birds[1], bird types, and subtypes observed during avian use surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from February 20, 2023 – January 24, 2024 (Year 1).

	Survey Point									
Bird Type/Subtype	**26**	**28**	**29**	**30**	**35**	**36**	**37**	**39**	**41**	**42**
diurnal raptors	0.08	0.09	0.08	0.45	0.64	0.08	0.09	0.42	0.58	0.25
accipiters	*0*	*0*	*0*	*0*	*0.09*	*0*	*0*	*0*	*0*	*0*
buteos	*0*	*0*	*0*	*0.45*	*0.09*	*0*	*0*	*0.17*	*0.42*	*0.17*
eagles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
falcons	*0.08*	*0*	*0*	*0*	*0*	*0*	*0*	*0.08*	*0.08*	*0*
northern harrier	*0*	*0.09*	*0.08*	*0*	*0.45*	*0.08*	*0.09*	*0.17*	*0.08*	*0.08*
doves/pigeons	0.33	1.82	0.17	0.82	1.45	5.08	0.45	0.42	0.25	3.17
gulls/terns	0	1.27	0.17	0.45	2.91	0.17	0.18	0.08	0.08	0.25
large corvids	0	1.18	0	0.18	0.09	0.50	0	1.25	0.08	0
loons/grebes	0	0	0	0	0	0	0	0	0	0
rails/coots	0.08	0.09	0.08	0	0	0	0	0	0	0
shorebirds	1.00	0	0.33	0.64	0.09	0.92	0.09	0.25	0.58	0.08
upland game birds	2.33	0.45	0.33	0.36	7.09	0.92	0.64	0.58	0.92	1.92
vultures	0	0.09	0	0	0	0	0	0	0	0
waterbirds	0	0	0	0	0	212.50	0	0	29.25	0
waterfowl	0.42	21.36	18.75	0.27	6.36	1.58	0.09	16.08	1.92	3.50
All Large Birds	**4.25**	**26.36**	**19.92**	**3.18**	**18.64**	**221.75**	**1.55**	**19.08**	**33.67**	**9.17**

[1.] 800-meter radius plot for large birds.

Sums of values may not equal totals shown due to rounding.

Appendix C2. Mean use (number of birds/10-minute survey) by survey point for small birds[1], bird types, and subtypes observed during avian use surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from February 20, 2023 – January 24, 2024 (Year 1).

	Survey Point									
Bird Type/Subtype	**1**	**2**	**3**	**4**	**5**	**7**	**12**	**14**	**17**	**24**
passerines	3.00	4.92	7.73	4.75	2.17	12.55	3.09	3.20	2.00	27.42
blackbirds/orioles	*1.90*	*0.67*	*0.91*	*0.25*	*1.17*	*6.73*	*0.27*	*0.10*	*0.75*	*0.75*
finches/crossbills	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.08*
flycatchers	*0.20*	*0.08*	*0.09*	*0*	*0.08*	*0*	*0*	*0.10*	*0*	*0.17*
grassland/sparrows	*0.40*	*4.08*	*6.09*	*4.33*	*0.83*	*5*	*2.73*	*2.90*	*0.75*	*26.33*
shrikes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
swallows	*0*	*0.08*	*0.64*	*0.17*	*0*	*0.82*	*0*	*0*	*0.33*	*0.08*
thrushes	*0.40*	*0*	*0*	*0*	*0.08*	*0*	*0.09*	*0.10*	*0.17*	*0*
warblers	*0.10*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
woodpeckers	0.10	0	0.09	0	0	0	0	0.10	0	0
All Small Birds	**3.10**	**4.92**	**7.82**	**4.75**	**2.17**	**12.55**	**3.09**	**3.30**	**2.00**	**27.42**

[1.] 100-meter radius plot for small birds.

Sums of values may not equal totals shown due to rounding.

Appendix C2 (*continued*). Mean use (number of birds/10-minute survey) by survey point for small birds[1], bird types, and subtypes observed during avian use surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from February 20, 2023 – January 24, 2024 (Year 1).

	Survey Point									
Bird Type/Subtype	**26**	**28**	**29**	**30**	**35**	**36**	**37**	**39**	**41**	**42**
passerines	10	2.45	9.42	12.64	1.45	1.83	16.64	26.50	4.92	4.42
blackbirds/orioles	*6.92*	*0.45*	*8.75*	*1.73*	*0.27*	*0.25*	*6*	*21.75*	*0.75*	*0*
finches/crossbills	*0*	*0.18*	*0*	*0*	*0.09*	*0*	*0.18*	*0*	*0*	*0*
flycatchers	*0*	*0.27*	*0.08*	*0.18*	*0*	*0.92*	*0.27*	*0.33*	*0*	*0.08*
grassland/sparrows	*2.83*	*1.36*	*0.58*	*10.64*	*0.91*	*0.67*	*10.09*	*4.25*	*1.17*	*4.17*
shrikes	*0*	*0*	*0*	*0.09*	*0*	*0*	*0*	*0*	*0*	*0*
swallows	*0*	*0*	*0*	*0*	*0.09*	*0*	*0.09*	*0.08*	*3*	*0.17*
thrushes	*0.17*	*0.18*	*0*	*0*	*0.09*	*0*	*0*	*0.08*	*0*	*0*
warblers	*0.08*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
woodpeckers	0	0	0	0	0	0	0	0	0	0
All Small Birds	**10.00**	**2.45**	**9.42**	**12.64**	**1.45**	**1.83**	**16.64**	**26.50**	**4.92**	**4.42**

[1.] 100-meter radius plot for small birds.

Sums of values may not equal totals shown due to rounding.

Year 2

Appendix C3. Mean use (number of birds/60-minute survey) by survey point for large birds[1], bird types, and subtypes observed during avian use surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from October 20, 2024 – September 7, 2025 (Year 2).

	Survey Point									
Bird Type/Subtype	**1**	**2**	**3**	**4**	**5**	**7**	**12**	**14**	**17**	**24**
diurnal raptors	0.08	0.25	0.08	0	0.33	0.33	0.25	0.08	0.08	0.33
accipiters	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
buteos	*0.08*	*0.08*	*0.08*	*0*	*0.25*	*0*	*0.08*	*0.08*	*0*	*0.08*
eagles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.08*
falcons	*0*	*0.08*	*0*	*0*	*0.08*	*0.17*	*0.08*	*0*	*0*	*0*
northern harrier	*0*	*0.08*	*0*	*0*	*0*	*0.17*	*0.08*	*0*	*0.08*	*0.17*
doves/pigeons	0.42	0.58	0.08	0.42	0.33	0.33	0.08	0	0	0.42
gulls/terns	0.25	0.58	0	0.75	1.58	0.08	0.92	0.75	2.08	0.17
large corvids	0	0.42	1.08	0	0.92	0.50	0.17	0.42	0	0
owls	0	0	0	0	0	0	0	0	0	0
shorebirds	1.75	0.42	0.08	0.08	0.33	0.25	0.08	0.25	0	0.17
upland game birds	6.50	2.58	4.08	0.58	6.92	0.50	0.33	0.25	8.75	1.67
vultures	0	0	0	0.17	0	0	0	0	0	0
waterbirds	0	33.33	0	0	0	8.33	0	0.33	0	0
waterfowl	23.83	4.92	0	0	0.75	0.25	4.17	0	0.17	6.83
All Large Birds	**32.83**	**43.08**	**5.42**	**2.00**	**11.17**	**10.58**	**6.00**	**2.08**	**11.08**	**9.58**

[1.] 800-meter radius plot for large birds.

Sums of values may not equal totals shown due to rounding.

Appendix C3 (*continued*). Mean use (number of birds/60-minute survey), by survey point, for large birds[1], bird types, and subtypes observed during avian use surveys at the proposed Homestead Wind Project in Williams County, North Dakota, from October 20, 2024 – September 7, 2025 (Year 2).

	Survey Point									
Bird Type/Subtype	**26**	**28**	**29**	**30**	**35**	**36**	**37**	**39**	**41**	**42**
diurnal raptors	0.42	0.58	0.25	0.25	0.17	0.42	0.42	0.17	0.33	0.42
accipiters	*0.08*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
buteos	*0.17*	*0.42*	*0.08*	*0*	*0*	*0.17*	*0.25*	*0.17*	*0*	*0.17*
eagles	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
falcons	*0*	*0.17*	*0.08*	*0.08*	*0*	*0*	*0.08*	*0*	*0.08*	*0.08*
northern harrier	*0.17*	*0*	*0.08*	*0.17*	*0.17*	*0.25*	*0.08*	*0*	*0.25*	*0.17*
doves/pigeons	0.42	2.83	0.83	0	3.67	0.33	0.25	0.25	0	0.17
gulls/terns	1.25	1.42	0.17	1	0.17	1.42	2.08	0	0	0.25
large corvids	0.08	0	0	0	0	0.08	0	0	0	0
owls	0	0	0	0	0	0	0	0.08	0	0
shorebirds	0.67	0.08	0.08	0.25	0.33	0	0.17	0.17	0.75	0
upland game birds	3.33	0.75	0.42	1.33	8.17	2	0.25	1.58	1	6.17
vultures	0.08	0	0	0	0	0	0	0	0	0
waterbirds	0	0	0	0	0	3.92	0	0	0	0.75
waterfowl	1.83	0.50	3.17	7.08	0.25	0.67	11.25	0	0.25	2.75
All Large Birds	**8.08**	**6.17**	**4.92**	**9.92**	**12.75**	**8.83**	**14.42**	**2.25**	**2.33**	**10.50**

[1.] 800-meter radius plot for large birds.

Sums of values may not equal totals shown due to rounding.