APPENDIX J.1
Baseline Terrestrial Fauna Report

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ENVIRONMENTAL IMPACT STATEMENT
EVREC Green Energy Hub
Exploits Valley Renewable Energy Corporation

strum

CONSULTING

BASELINE TERRESTRIAL FAUNA REPORT
EVREC Green Energy Hub
Near Botwood, NL

May 11, 2026

EXECUTIVE SUMMARY

The Terrestrial Fauna Baseline Report was prepared to provide baseline methods and results from desktop and field surveys to inform Project design and future surveys for the Exploits Valley Renewable Energy Corporation (EVREC) wind to green ammonia project on the brownfield, former Abitibi lands, near Botwood in central Newfoundland, Canada.

Strum Consulting was retained to complete biophysical fauna surveys for the proposed Project. These assessments support the preparation and submission of the provincial Environmental Impact Statement (EIS).

Biophysical surveys have been completed with the key objectives of understanding baseline conditions related to terrestrial fauna within the Project Area (PA), and to support the EIS for the Project. This was achieved by completing a review of background desktop resources in combination with field studies to identify terrestrial fauna species and potential environmental constraints and sensitivities. This report outlines the methods and results of the desktop and field evaluations completed in 2022 to 2025. The following surveys were completed:

- Incidental wildlife surveys
- Wildlife trail camera deployment
- Caribou and Moose surveys
- American marten surveys

Wildlife surveys were completed opportunistically throughout the suite of biophysical surveys. There were 13 species identified during field assessments either by sighting individuals or signs thereof, including both targeted surveys and incidental observations conducted within the PA. One species of conservation concern (SOCC), caribou (*Rangifer tarandus*), was observed incidentally and through targeted surveys within the PA. No other SOCC or species at risk (SAR) terrestrial species were observed within the PA.

There were 42 wildlife trail cameras placed within the PA, 40 within the Wind and Transmission Project Area (WPA) and two within the Solar Project Area (SPA) and Industrial Project Area (IPA). Wildlife trail cameras recorded a total of 552 observations from December 2022 to February 2025 within the WPA. There were 31 observations recorded within the SPA and 10 observations recorded in the IPA. Moose observations were the most recorded across the PA, with 482 observations within the WPA and 37 observations within the SPA and IPA.

There were 33 trail cameras deployed to specifically document ungulate species within the WPA. There were 293 observations within the WPA from these ungulate cameras.

No American marten (*Martes americana atrata)* were identified during hair snag surveys within the WPA. No martens were documented incidentally within the IPA and SPA during any of the biophysical surveys.

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LIST OF ACRONYMS

ACCDC	Atlantic Canada Conservation Data Centre
BWPA	Botwood Wind Project Area
cm	Centimeters
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
DBH	Diameter at breast height
EIS	Environmental Impact Statement
ELC	Ecological Land Classification
EVREC	Exploits Valley Renewable Energy Corporation
GAMM	Generalized Additive Mixed Model
GW	Gigawatt
ha	Hectares
IPA	Industrial Project Area
km	Kilometer
LTWPA	Leading Tickles Wind Project Area
MMA	Moose Management Areas
MRZ	Moose Reduction Zone
MW	Megawatt
M	Metre
NL ESA	Newfoundland and Labrador *Endangered Species Act*
NLFAL	Newfoundland and Labrador Department of Forestry, Agriculture and Lands
SAR	Species at Risk
SARA	*Species at Risk Act*
SLWPA	Seabrights Lakes Wind Project Area
SPA	Solar Project Area.
SOCC	Species of Conservation Concern
SRank	Status rank
TLWPA	Twin Lakes Wind Project Area
WPA	Wind and Transmission Project Area
WTG	Wind Turbine Generators

1.0 INTRODUCTION

1.1 Background

Exploits Valley Renewable Energy Corporation (EVREC, the "Proponent"), is proposing to develop, construct, and operate a wind to green ammonia project on the brownfield, former Abitibi lands, near Botwood in central Newfoundland, Canada (the "Project"). EVREC will develop an onshore wind project consisting of up to 534 wind turbines, a 150 megawatt (MW) Solar Project, and associated off-site infrastructure (export and import terminals, access roads, collector substations, and water pipelines). Included as part of the Project will be an Industrial Facility comprised of 2.6 gigawatt (GW) of electrolysers utilizing a combination of proton exchange membrane and aqueous solution units, air separation plants, ammonia plant, electrical energy storage facilities, molecular storage, water purification systems, warehousing, administrative buildings, and other associated utility infrastructure (switchyards, transformers, pipelines, emergency generators, and cooling systems) including an electrical grid connection for critical loads. Collectively the wind to green ammonia project, including all components mentioned above, will be referred to as the "EVREC Green Energy Hub", or "the Project".

The Project nameplate capacity will be up to 3.5 GW of electrical power and produce 925,000 to 1,000,000 tons per year of certified green ammonia. The Project is considered an undertaking under Section 34 (1f) of the Newfoundland and Labrador Environmental Assessment Regulations, (2003), where electrical power generation that has a capacity greater than 1 MW and engages in the manufacturing of green hydrogen and ammonia, which requires the submission of an Environmental Impact Statement (EIS). The Project will involve development, construction, operations, decommissioning, and reclamation of a wind project, a solar project, an industrial facility, and water supply for green hydrogen production and ammonia synthesis, including air separation, water treatment, and ammonia storage.

The Project will use the existing Port of Botwood for its shipping needs, which has historically served various clients across industrial sectors for over 100 years. The Project is proposed on land parcels totaling 35,834 hectares (ha) in central Newfoundland (defined hereafter as the Project Area). The Project is centered at 49.161441° N, 55.486669° W.

The Project consists of three components: (i) Wind Project and transmission line; (ii) Solar Project; and (iii) hydrogen and ammonia production facilities (defined hereafter as the Industrial Facility). The Industrial Facility and Solar Project, along with associated infrastructure, are co-located on a parcel southwest of the Town of Botwood. Within the Project Area, siting of wind turbine generators (WTGs) will be within four areas: Botwood, Seabrights Lake, Twin Lakes, and Leading Tickles.

Strum was retained by EVREC to conduct biophysical surveys to support an EIS submission to develop this Project.

1.2 Regulatory Context

The Project is considered an undertaking under Section 34 (1f) of the Newfoundland and Labrador Environmental Assessment Regulations and Project specific EIS Guidelines where

electrical power generation that has a capacity greater than 1 MW and engages in the manufacturing of green hydrogen and ammonia, requires the registration of an Environmental Assessment Registration Document (NLECCC, 2025).

Legislation such as the Newfoundland & Labrador *Endangered Species Act* (NL ESA)*, Wildlife Act,* and *Wilderness and Ecological Reserves Act* provide guidance on the treatment of wildlife species in provincial environmental assessments.

The Project has potential to interact with fauna species, and their habitats, which are protected under several federal and provincial legislation and regulatory guidelines. Surveys were primarily designed to detect species that have legal protection. Legislation that may direct resource development and conservation of fauna include:

Federal Legislation

- *Species At Risk Act* (SARA)*, S.C. 2002, c. 29*
- *Migratory Birds Convention Act, S.C. 1994, c.22*
    - Designates Migratory Bird Sanctuaries
- *Canada National Marine Conservation Areas Act*
    - Designates National Marine Conservation Areas
- *Canada Wildlife Act*
    - Designates National Wildlife Areas
- *Canada National Parks Act*

Provincial Legislation

- *Wildlife Act, RSNL 1990, c W-8*
    - Designates wildlife reserves.
- *Water Resources Act,* SNL 2002 cW-4.011
- *Endangered Species Act, SNL 2001, c E-10.1* (NL ESA)
- *Environmental Protection Act*
- *Wilderness and Ecological Reserves Act, RSNL 1990, c W-9*
- *Lands Act, SNL 1991, c36 s1*

1.2.1 Assessment of Rare Species

The assessment for rare species was conducted in accordance with the EIS Guidelines (2025). Special consideration was given to Species at Risk (SAR), listed under the SARA and/or the NL ESA along with species of conservation concern (SOCC). Fauna SAR and SOCC are defined as follows:

- SAR: Species that are listed as Extirpated, Endangered, Threatened, or Special Concern on Schedule 1 of SARA, and species designated as Extirpated, Endangered, Threatened, or Vulnerable under the Newfoundland and Labrador *Endangered Species Act* (NL ESA).
- SOCC: Species having a subnational (provincial) rank (S-Rank) of S1, S2, S1S2, or S2S3 (ACCDC, 2026b).

1.3 Assessment Spatial Boundaries

The Project is proposed on land parcels totaling 35,834 hectares (ha) in central Newfoundland and Labrador [Drawing 1, Appendix A; defined hereafter as the Project Area (PA)]. The Project is centered at 49.161441° N, 55.486669° W. Within the PA, there are three key components which are presented below and show in Drawing 1, Appendix A:

- Industrial Facility
  - Industrial Project Area (IPA) is 1157 ha
- Solar Project
  - Solar Project Area (SPA) is 242 ha
- Wind Projects [within the Wind Project Area (WPA)]
  - Botwood
    - Botwood Wind Project Area (BWPA) is 20802 ha
  - Leading Tickles
    - Leading Tickles Wind Project Area (LTWPA) is 2391 ha
  - Seabrights Lakes
    - Seabrights Lakes Wind Project Area (SLWPA) is 3555 ha
  - Twin Lakes
    - Twin Lakes Wind Project Area (TLWPA) is 7686 ha

2.0 BASELINE PROGRAM METHODOLOGY

This section details the following key aspects of the biophysical baseline methodologs for fauna. Table 2.1 summarizes field studies completed and relevant Project components.

Table 2.1: Summary of Surveys and EIS Guidelines

Survey	Baseline Section	Description	Relevant Component(s)
Desktop Review	2.1	Identify significant species and habitat supporting SAR/SOCC within/near the PA using desktop resources	PA
Species at Risk & Species of Conservation Concern	2.1.1 2.2.1 3.2.1	Opportunistic surveys throughout all biophysical surveys	WPA, IPA, and SPA
Wildlife trail cameras	2.2.2 3.2.2	Trail Cameras	WPA, IPA, and SPA
Caribou	2.1.2 2.2.3 3.2.3	Camera Traps	WPA
Moose	2.1.3 2.2.3 3.2.3	Camera Traps	WPA
Marten	2.1.4 2.2.4 3.2.4	Hair Snag Stations	WPA

2.1 Desktop Review Methodology

The following sections describe the desktop review methodologies used to characterize fauna and ecologically sensitive areas or conservation features within the PA. The goal of the desktop review was to identify the potential for the PA to support fauna SAR, SOCC, and species outlined in the EIS Guidelines for the Project (NLECCC, 2025).

2.1.1 Species at Risk & Species of Conservation Concern

Prior to undertaking terrestrial field assessments, a detailed desktop review of known fauna observations and potential habitat for rare species was undertaken for the area within and near the PA. The desktop review helped to inform field survey design. The following databases were reviewed:

- SARA Critical Habitat layers
- SARA Recovery Strategies
- Big Game Management Areas (NLFAL, 2024a)
- Provincial Protected Areas (NLECCC, 2024)
- Newfoundland Land Use Atlas (Newfoundland and Labrador, 2025b)
- Atlantic Canadian Conservation Data Centre (ACCDC) fauna report (Appendix B)

Newfoundland Department of Forestry, Agriculture and Lands (NLFAL) was consulted regarding location sensitive species if recorded in the ACCDC report, as well as the presence of species' core habitat in relation to the PA. Specialized surveys were deemed necessary to target specific species known, or having the potential, to exist within the PA and surrounding area. These species are examined below.

2.1.2 Caribou

The Newfoundland population of woodland caribou (*Rangifer tarandus)* is listed as Special Concern under SARA and has a provincial S-Rank of S3S4. There are 14 subpopulations of caribou within Newfoundland (COSEWIC, 2014). The Newfoundland population has declined by approximately 60% since the early 2000s. The decline is thought to be driven by forage limitations, as well as high hunter harvest, and novel predation pressures (COSEWIC, 2014).

Prior to field assessments, a detailed desktop review of caribou subpopulations in the vicinity of the PA was completed. The following resources were reviewed:

- NLFAL Caribou Management Areas (CMA; NLFAL, 2024a)
- NLFAL Core Caribou Areas (Newfoundland and Labrador, 2025b)

A caribou habitat suitability layer was developed using multiple ecological layers to assess the potential of the PA to serve as potential habitat. Mature forest areas were intersected with upland softwood forest stands identified in the NLFAL – Forest Resources Inventory (FRI) (NLFAL, 2023) to determine potential overwintering, foraging, and/or rutting habitat (Hebert & Weladij, 2013). Additionally, calving and rearing habitat was identified by isolating wet areas, wet herbaceous/shrub areas, and bogs. Zonal statistics were run to generalize the habitat identified and capture patches of ground lichen between suitable forest stands. Lastly,

anthropogenic disturbance areas were removed by buffering forestry areas from the last 20 years by 500 m, as caribou tend to minimize their use of anthropogenic areas (COSEWIC, 2014).

2.1.3 Moose

Moose *(Alces alces*) are not a SAR or SOCC but are a species of cultural significance in Newfoundland. Moose were first introduced to the island of Newfoundland in 1878 and 1904, and with few natural predators, the population rapidly increased during the following century. The abundance of moose in Newfoundland has shifted the natural forest ecosystems, with over-browsing interrupting forest regeneration in many areas (Parks Canada, 2025).

Moose populations on the island of Newfoundland are largely managed, either through provincial culling programs or recreational and traditional hunting practices. Moose surveys, population estimates, and hunting quotas are divided into Moose Management Areas (MMAs). Prior to field assessments, a detailed desktop review of known moose observations and potential habitat for moose populations within the PA was completed, including a review of MMAs (Newfoundland and Labrador, 2023).

A moose habitat suitability layer was produced by analyzing and combining multiple ecological layers in consideration of crown density, tree height, and specific habitat features known to be used by moose. The analysis used a range of layers developed from a LiDAR-derived Ecological Land Classification (ELC) developed for the Project, including the following:

- Raised/Isolated Wet Area
- Wet Herbaceous/Shrub
- Wet Mixedwood
- Wet Shrub
- Wet Softwood
- Barren/herbaceous

Each of these layers from the ELC was considered to represent potential habitat for moose based on an understanding of moose habitat requirements for various life stages throughout the year (NLFFA, 2022). To refine habitat suitability further, forest layers were filtered based on crown density and tree height. Only areas with a crown density greater than 51% were included in the analysis. Forest areas were classified into two height ranges: forests with a height range of 6.6 m to 9.5 m and forests with a height greater than 9.5 m. These height criteria were chosen to differentiate between younger and mature forests, both of which provide different habitat characteristics used by moose for different life stages (NLFFA, 2022).

For each of the identified layers (i.e., barrens, wet areas, and forest), random points were generated at a fixed interval. These points served to represent potential moose habitat within each layer. The points from each individual layer were then merged into a single composite layer for each PA. This merging process allowed for the overlapping of points within the fixed interval where multiple criteria were met ensuring that areas with higher point density would reflect higher habitat suitability. As the point density increased within the merged layers, the

overall habitat suitability for moose was considered to improve. Higher point densities indicated areas where multiple habitat criteria were in proximity to one another, such as crown density, tree height, and barren areas with herbaceous cover, thereby offering more favorable conditions for moose.

2.1.4 American Marten

The American marten (*Martes americana atrata*, Newfoundland population) has been assessed by COSEWIC as Special Concern, and is listed under SARA as Special Concern, and under the NL ESA as Vulnerable. American marten populations in Newfoundland have declined over the last century, though recent assessments have seen an estimated increase from 630 to 875 individuals in 1985 to 2,558 to 2,837 mature individuals in 2019 (COSEWIC, 2022). In addition to an increased population, the distribution of the species across the island has expanded to at least 15 of 18 designated forest management districts as well as both national parks (COSEWIC, 2022). These factors lead to the provincial downlisting of the species from Threatened to Vulnerable in 2024 (NLFAL, 2024c)

The species confirmed extent of occurrence and index of area of occupancy have increased in Newfoundland to 82,700 km^2 and 4,692 km^2, respectively (COSEWIC, 2022). This range is primarily associated with mature conifer and mixed-wood forests; older forests that provide dense overhead cover, coarse woody debris, low-hanging branches, and shrub understory appear to contain ideal habitat for the species (COSEWIC, 2022).

Several provincially protected areas have been administered to protect the critical habitat of the Newfoundland population of American marten (COSEWIC, 2022).

Prior to field assessments, a detailed desktop review of known American marten observations and potential habitat for American marten populations within the PA was completed. The ACCDC data associated with American marten was also reviewed (ACCDC, 2026a).

The American marten habitat suitability layer was produced by analyzing multiple forestry components that make up favourable marten habitat. These include older forests that provide dense overhead canopy, coarse woody debris, low hanging branches and shrub understory. Regenerating forests and non-productive, scrub forests also offer marten habitat. The habitat suitability layer was designed based on a review of the literature around preferred American marten habitat and publicly available spatial data.

Habitat suitability was determined by overlapping suitable habitat layers. Once these layers were identified, random points were generated at a fixed interval, which served to represent potential marten habitat within each layer. Points from individual layers will then be merged to identify where suitable habitat is present (dense points). Hargis et al. (2001) found that American marten avoid open areas wider than 100 m, highlighting the species' preference for continuous forest cover. Consequently, the model applied a 100 m gap threshold between patches to delineate areas with greater connectivity, and more likely to be used by the species.

Zonal statistics were then used to illustrate generalization and connectivity. A hexagonal shape

was selected for generalization to reduce sampling bias due to edge effects; hexagons are optimal when analyzing habitat connectivity and movement paths of animal, as well as allowing for some generalization (Birch et al., 2007).

The Region Group tool was used to determine a suitable threshold for marten habitat. Additionally, Euclidian distance was used to analyze areas where regions may be connected and where some habitat criteria are met within 1000 m. This included the following layers:

- Mature Intersected with softwood from ELC
- Regenerating forest
- Scrub forest

Euclidian distance was run for up to 1000 m from each of the input layers where waterbodies are considered a barrier feature. The distances were then reclassified to a scale of 1 to 10 in equal intervals. Ten is considered the highest (best) value which represents a zone of 0 - 100 m from any of the described layers. The layers are then run through a weighted sum function where the most important criteria (mature softwood forest) was given a multiplier of two, double the weight of the rest of the criteria. To generalize this dataset, zonal statistics were run with the same tessellation used in the step above for generating the potential habitat layer. Lastly, a threshold was used to highlight connected regions.

2.1.5 Muskrat

A desktop study of potential muskrat habitat was conducted using the following criteria:

- Banks with high clay content, slope greater than 10 degrees, and with a minimum height of 0.2 m.
- 50–80% of water surface covered by emergent vegetation.
- Presence of shoreline vegetation within 10 m of water's edge.
- Water depth of 0.5 m to 1.5 m with stable, seasonal water levels.
- Slow flowing or standing water.

Muskrat prefer to burrow in clay soil on steep slopes, especially in marshy areas or bogs bordering deep ponds (Soper & Payne, 1997; Stantec, 2024). Spatial layers were combined, categorized, buffered, and ranked. The highest-ranking group was "Highly Suitable Habitat", which occurred when buffered waterbodies intersected with areas with high clay content, bog habitat, organic or fluvial surficial geology areas, and slopes greater than 10 degrees. The next highest-ranking group was "Moderately Suitable Habitat - High", which occurred when buffered waterbodies intersected with areas of high clay content, bog, and steep slopes. The third highest-ranking group was "Moderately Suitable Habitat – Low", which occurred when buffered waterbodies intersected with bog habitat and steep slopes. Lastly, "Suitable Habitat", the lowest-ranking group, contained areas of overlap between buffered waterbodies and bogs. Unsuitable habitats were removed from the resulting layers, until a potential muskrat habitat layer was produced.

2.2 Field Survey Methodology

Biophysical field studies for the Project began in December 2022 and continued into 2025. The field studies were focused on documenting fauna and fauna habitat within the PA, as well as with the surrounding habitats. The biophysical field assessments, Project component and timing are outlined in Table 2.2.

Table 2.2: Faunal Assessment Components and Timing (All Components)

Species	Survey Type	Timing
Caribou	Camera Traps	December 2022 to April 2025
Moose		
Muskrat	Habitat Modelling	August 2024 to March 2025
Marten	Desktop Review; Hair Snag Stations; Habitat Modelling	February 2025 to May 2025
Insects	Desktop Review	2022, 2024, and 2025

2.2.1 Species at Risk & Species of Conservation Concern

General wildlife surveys were completed opportunistically throughout the suite of biophysical surveys completed for the Project, including surveys for avifauna, fish and fish habitat, vascular plant, and lichens. Particular attention was paid to SAR and SOCC species. The surveys were indented to help understand which species have the potential to be present within the PA and how they could potentially interact with the Project. All observations were identified and recorded by biologists experienced in recognition of wildlife tracks, scat, and browse, resulting in a comprehensive fauna species list for the PA. Locations of observations were only recorded if the species observed was identified as a SAR or SOCC or a species outlined in the EIS Guidelines for the Project. The following literature was referenced during the surveys and identification process:

- Mammal Tracks & Signs: A Guide to North American Species (Elbroch, 2019)
- A Field Guide to Animal Tracks (Murie, 2005)
- Dragonflies and Damselflies of the East (Paulson, 2012)
- Tracking & the Art of Seeing (Rezendes, 1999)

Where a SAR or SOCC was identified during surveys, additional effort was made in the field to understand the habitat at the sighting location and evaluate its suitability to support the species' survival and life cycle requirements.

2.2.2 Wildlife Trail Cameras

Wildlife trail cameras were placed across the PA, to capture the presence of wildlife without interference from human activities. Camera locations were randomly selected and followed the advice of several regional outfitters to maximize the potential of detecting mammal species, including caribou and moose. Survey methodologies were developed in consultation with NLFAL - Wildlife Division as per the EIS Guidelines (NLECCC, 2025). A total of 29 cameras were deployed from December 2022 to January 2024 and from January 2024 to February 2025 (Drawing 2, Appendix A). Trail cameras were intended to remain in place for at least one full year; however, some were stolen or misplaced, resulting in shorter deployment periods. Of

these 29 cameras, nine were placed outside the PA, extending a maximum of 3 km beyond the PA.

Note that no wildlife trail cameras were deployed within the SLWPA or the central portion of the TLWPA due to the extreme remoteness and inaccessibility of these areas. In the case of the SLWPA, the absence of trail camera data also reflects iterative changes in the layout of the Project.

2.2.3 Caribou and Moose Cameras

Camera traps are an effective method of detecting forest wildlife and greatly increase the chances of making a direct observation of larger-bodied wildlife species. Survey methodologies for the camera trapping program were developed in consultation with NLFAL (NLECCC, 2025). The objective of the surveys was to estimate density and abundance of moose and caribou on a regional scale.

In December 2024, 33 cameras were deployed within and near the PA (Drawing 2, Appendix A). Caribou and moose camera design considered locations that were up to 1 km away from the PA, as well as the area in between the BWPA and TLWPA. Cameras were deployed in 'grids' of three cameras per grid (for a total of 11 grids) location stratified across habitats. Camera grids were set up in a triangle formation, wherein all three cameras within the grid were positioned ~250 m away from one another. A triangular design, of three cameras per grid, was chosen as this is the fewest number of cameras/grid that can produce accurate and precise ungulate density estimates (Carswell, 2024). Cameras were retrieved in April, 2025.

Camera grid locations were generated the 'Camtrapmonitoring' R package (Robitaille, 2024), using land cover type as the *a priori* selection criteria so that coverage was approximately proportional to the availability of habitat types. Dominant land cover types of the PA and surrounding areas were determined using the 2020 Canada Land Cover Atlas (Natural Resources Canada, 2020). Selection criteria included representative sampling of land cover type (i.e., coniferous, deciduous, mixedwood, shrubland, barrens, and wetlands; Natural Resources Canada, 2020). Location criteria included a position of 2 km within an accessible roadway or trail and 2 km away from the boundaries of local municipalities. Cameras were affixed to trees, stumps, or snags at a height of approximately 1.5 m from the ground, and were positioned facing directly north or south, depending on location, to minimize glare from the sun and maximize the ability of reviewers to identify species in photographs.

No caribou and moose camera grids were placed within the SPA or IPA as the stratified random approach to grid placement allows habitat within these areas to be representatively sampled elsewhere.

In addition to camera traps, opportunistic surveys were also completed for caribou and moose throughout the suite of biophysical surveys. All observations were identified and recorded by biologists experienced in recognition of wildlife tracks, scat, and browse.

Moose Occupancy Analysis

As camera traps were initially set up to primarily target ungulates (i.e., moose and caribou) and that most observations recorded were of moose, the photographs of moose were use for an occupancy analysis (Mackenzie et al., 2002). Occupancy analyses estimate occupancy (Ψ), i.e., probability of a location having at least one individual present, and detectability (ρ), i.e., probability of a camera trap capturing a photograph of the species given it occupies the area.

For each camera, data was partitioned into biweekly intervals the probability of at least one moose being captured in each biweekly period was assessed. The occupancy probabilities were then estimated for moose across the broad Canada Land Cover habitat classification.

2.2.4 American Marten Surveys

American marten surveys were conducted in March and April 2025 in accordance with the Newfoundland marten hair snag construction and deployment guidelines (Herdman, 2014). Hair snag boxes were constructed following the details provided therein. There were 20 hair snag stations established. Hair snag sampling locations were prioritized within and around the WPA. No hair snags were placed within the SPA or IPA due to relatively small size of these PAs. Opportunistic surveys were completed for marten throughout the suite of biophysical surveys. All observations were identified and recorded by biologists experienced in recognition of wildlife tracks, scat, and browse.

Locations for hair snag stations were selected using a two-stage approach. First, habitats that American marten would most likely occupy within the PA were determined via a desktop habitat suitability analysis. All forested habitat identified using the NL FRI (NLFAL, 2024b) including conifer, deciduous, and mixedwood forests, were examined. From the available forests, mature to old growth forests (age code > 3, or > 60 years old) were prioritized for sampling locations (Drawing 3, Appendix A). The PA was then partitioned into a hexagonal grid, with each grid cell having an area of 8 km^2 (the average female home range area) and a single sampling station positioned within randomly selected cells. At each selected location, field crews would assess the habitat and select a site dominated by mature softwood but including hardwood species as well as coniferous and deciduous scrub. At eight of the 20 trap stations, trail cameras were mounted to capture pictures of any animals accessing the traps.

Hair snag stations were placed as high as possible in large living softwood trees (> 23 cm DBH) in relatively continuous softwood stands with good canopy cover to reduce the effect of rain. Sardine cans were used as bait and were pushed into the corners of traps, ensuring any marten had to spend time retrieving the bait, increasing the likelihood of hair being snagged on sticky pads within the trap. Sticky pads were cut into strips to reduce the risk of bycatch mortality of small mammal species (e.g., mice). Traps were placed with branches directly below the trap to discourage mink visits. Hairs captured by the station were visually inspected before preparation for storage, with sample envelopes marked clearly with the date, coordinates, and name of the surveyor.

Hair snag stations were left out for one month and were checked at least three times during their deployment every six days, with checks not fewer than five days apart. The deployment

and recheck dates for each trap station are shown in Table 2.3.

Table 2.3: Hair Snag Deployment and Recheck Dates

Area	Trap #	Deployment Date	Recheck Dates		
			Recheck 1	Recheck 2	Recheck 3
New Bay	PMHS1[(1)]	Mar 22	Mar 28	Apr 3	Apr 9
	PMSH2[(1)]	Mar 22	Mar 28	Apr 3	Apr 9
	PMSH3	Mar 22	Mar 28	Apr 3	Apr 9
	PMSH4	Mar 22	Mar 28	Apr 3	Apr 9
Twin Lakes	PMSH5[(1)]	Mar 26	Apr 1	Apr 7	Apr 13
	PMSH6	Mar 26	Apr 1	Apr 7	Apr 13
Leading Tickles	PMSH7[(1)]	Mar 23	Mar 29	Apr 4	Apr 10
	PMSH8	Mar 23	Mar 29	Apr 4	Apr 10
	PMSH9[(1)]	Mar 23	Mar 29	Apr 4	Apr 10
	PMSH10	Mar 23	Mar 29	Apr 4	Apr 10
	PMSH11	Mar 23	Mar 29	Apr 4	Apr 10
Botwood/Northern Arm	PMSH12	Mar 25	Mar 31	Apr 6	Apr 12
	PMSH13	Mar 25	Mar 31	Apr 6	Apr 12
	PMSH14	Mar 25	Mar 31	Apr 6	Apr 12
	PMSH15[(1)]	Mar 25	Mar 31	Apr 6	Apr 12
Kippens Ridge/Twin Lakes	PMSH16	Mar 26	Apr 1	Apr 7	Apr 13
	PMSH17[(1)]	Mar 26	Apr 1	Apr 7	Apr 13
	PMSH18[(1)]	Mar 26	Apr 1	Apr 7	Apr 13
	PMSH19	Mar 26	Apr 1	Apr 7	Apr 13
	PMSH20	Mar 26	Apr 1	Apr 7	Apr 13

[(1)]Trail camera at station

2.2.4.1 Sample Collection

When traps were checked, field crews would carefully observe the ground surrounding the trap to look for tracks, disturbed bark, or other signs of animals. Traps were checked for absence of bait, hair stuck to the sticky pads, or any other evidence that the trap had been visited. If any evidence was noted, the sticky pads were removed, covered with flagging tape, and placed in envelopes labelled with the trap station and date. Fresh sticky pads were secured in the trap, and it was rebaited as necessary. Six of the 20 trap stations had activity with a total of eight samples being collected over the sampling period. Following the last recheck, traps were dismantled and removed, and the trail cameras were removed so the camera footage could be analyzed.

2.2.4.2 Hair Analysis

A visual assessment key was used to determine if the hair was from a marten or other mammal. Any hair samples that could not be visually identified were identified through cuticular patterns and guard hairs when possible.

The sticky pad was placed under a Leica Zoom 2000 stereo microscope to identify any hairs

embedded in the glue. The types of hair were identified qualitatively by colour, length, thickness, and waviness. A single hair of each type was removed from the glue for cuticular scale pattern analysis. The flagging tape was replaced on the glue and returned to the collection envelope. All samples were then frozen for transfer to the NLFAL - Wildlife Division.

The cuticular patterns were obtained by applying a drop of Sally Hansen 'Hard as Nails' invisible nail polish to a Fisher Scientific glass slide (Kestler, 2022). The nail polish was allowed to dry for 1-2 minutes. A glass cover slide was then used to carefully press the center of the hair into the nail polish. This was allowed to dry for an additional 5 minutes, then the cover slide was carefully removed. The nail polish was air dried for an additional 5 to 10 minutes (until tacky) and the hair was carefully removed.

The hair impression was examined using a Fisher Micromaster light microscope and examined at 40x, 100x, and 400x magnification. The slides were labelled with the sticky trap number and collection session and, following examination, were stored for future analysis if needed. If the gros features of the hair could not be used to determine if the animal was a marten, the cuticular patterns were examined. Marten cuticular scales are classified as imbricate, crenate, rough, overlapping, and streaked (Kestler, 2022). If necessary, cuticular patterns were compared to online databases and to physical marten hair samples obtained from the NL provincial museum.

3.0 EXISTING CONDITIONS

Desktop and field surveys for fauna were completed to determine potential impacts to species or their specific habitat which may be protected under legislation.

3.1 Desktop Review Results

3.1.1 Species at Risk & Species of Conservation Concern

The PA does not intersect with any federal or provincial protected areas, or wildlife management areas. The Swan Island Natural Area lies approximately 13.1 km east of the LTWPA. The nearest core caribou area and sensitive wildlife area is approximately 19.3 km southwest of the TLWPA (Drawing 4, Appendix A).

The following Natural Areas and Provincial Parks lie within a 20 km radius of the PA:

- Indian Arm Brook Natural Area (13.6 km from BWPA)
- Notre Dame Provincial Park (19.4 km from BWPA)
- Crooked Bog Natural Areas (19.1 km from TLWPA)

Terrestrial mammals documented within the PA include caribou, moose, black bear (*Ursus americanus*), lynx (*Lynx canadensis*), coyote (*Canis latrans*), American marten, mink (*Neogale vison*), fox (*Vulpes vulpes*), river otter (*Lutra canadensis*), muskrat, beaver (*Castor canadensis*), and snowshoe hare (*Lepus americanus*)

The ACCDC Data Report (ACCDC, 2026a) included just one observation of SAR or SOCC terrestrial fauna within 5 km of the PA, as presented in Table 3.1 and shown in Drawing 4 (Appendix A).

Table 3.1: SAR and SOCC Terrestrial Fauna within 5km of the PA

Common Name	Scientific Name	COSEWIC Status[1]	SARA Status[1]	NL ESA Status[2]	NL S-Rank (2020)
American Marten	*Martes americana*	Special Concern	Special Concern	Vulnerable	S3S4

Source: [1](COSEWIC, 2022), [2](Newfoundland and Labrador, 2001), [3](ACCDC, 2026a).

The ACCDC report also included the results of Newfoundland Expert Opinion Maps wherein the government gathers data from species-specific experts to map where SAR are most likely to be found. There were no observations in these maps of any species within 5 km of the PA; however, spring/summer polar bears (*Ursus maritimus*) in the ocean waters were listed as possible, but unlikely for this area (A. Durocher, personal communications, 2023). The ocean waters are not within the PA, therefore there is no suitable polar bear habitat within any of the PA.

3.1.2 Caribou

The PA overlaps the occupied territory of the Hodges Hill caribou aggregation which travels a portion of Central Newfoundland approximately between Exploits River and Notre Dame Bay. The Mount Peyton herd occupies territory southwest of the PA (Mahoney, 2000). The Hodges Hill aggregation is composed of 436 individuals as of a 2008 estimate (NLECCC, 2008). It is determined to be an isolated pocket of animals thought of as individuals from separate herds that eventually amalgamated into a larger group. The PA does not intersect with any caribou management areas, with the closest area, Mount Peyton CMA 68, located 8 km southwest and (NLFAL, 2024a).

The caribou habitat suitability model shows that there is a variety of suitable habitat types across the PA. Overwintering, foraging, rutting, calving and rearing habitats are predicted to be prevalent across the PA (Drawing 5A-E, Appendix A). Overwintering, foraging and rutting is the most prevalent in the north (i.e., Leading Tickles), whereas calving and rearing habitat is most prevalent near the town of Botwood (Drawing 5A-E, Appendix A).

3.1.3 Moose

The PA lies within MMA 15 Twin Lakes. In the 2022-2023 hunting season quotas issued for MMA 15 totaled 1,150 (Newfoundland and Labrador, 2023). A Moose Reduction Zone (MRZ) was established in 2015 and is located 7km south of PA (Newfoundland and Labrador, 2025a).

The habitat suitability model for moose shows potential habitat available throughout the PA (Drawing 6, Appendix A).

3.1.4 American Marten

The provincial population of marten is distributed throughout areas in Little Grand Lake,

Beothuk Lake, Georges Lake/Pinchgut Lake, Main River, Terra Nova National Park, and the northern portion of the Bay du Nord Wilderness area (ECCC, 2013). The results of the ACCDC report include one observation of an American marten; the observation was made in 2014 and has an accuracy of 100 m (ACCDC, 2026a). This observation is 1.2 km from the PA (Appendix B). A review of the Recovery Plan for American marten in Newfoundland indicates that the PA does not overlap with any identified critical habitat (Newfoundland and Labrador, 2010).

The habitat suitability model for American marten shows potential habitat is available throughout the PA; however, more general habitat is available compared to highly connected suitable habitat (Drawing 7, Appendix A).

3.1.5 Muskrat

The habitat suitability model for muskrat shows some potential habitat available throughout the PA; however, most of this habitat is the lowest ranked “Suitable” habitat (Drawing 8, Appendix A). Muskrat are found widely across Newfoundland, and this habitat model is likely a conservative estimate of predicted habitat within the PA.

3.2 Fauna Assessment Results

Fauna desktop and field surveys were completed to determine potential project interacts to species or their specific habitat. The results of the biophysical surveys for fauna are presented below for each Project components and individual PA: WPA, SPA, and IPA.

3.2.1 Species at Risk & Species of Conservation Concern

Wildlife species were assessed through incidental wildlife observations and recorded within the PA during all biophysical surveys. All incidental mammal observations confirmed either visually or by sign (scat, tracks, etc.) are presented below, Table 3.2.

There were 13 species identified during field assessments either by sighting individuals or signs thereof, including both targeted surveys and incidental observations conducted within the PA (Photograph log, Appendix C).

Table 3.2: Fauna Species Observed within the Project Area

Scientific Name	Common Name	COSEWIC	SARA	NL ESA	S-Rank
Alces alces	Moose	-	-	-	SNA
Canis latrans	Eastern coyote	-	-	-	SU
Castor canadensis	American beaver	-	-	-	S5
Lepus americanus	Snowshoe hare	-	-	-	SNA
Lutra canadensis	Northern river otter	-	-		S5
Lynx canadensis	Canada lynx	-	-	--	S3S4
Microtus pennsylvanicus	Meadow vole	-	-	-	S3S4
Mustela vison	American mink	-	-	-	SNA
Rangifer tarundus	Caribou	Special Concern	Special Concern	-	S3S4
Rattus norvegicus	Rat	-	-	-	SNA
Tamiascirus hudsonicus	Red squirrel	-	-	-	SNA

Scientific Name	Common Name	COSEWIC	SARA	NL ESA	S-Rank
Vulpes vulpes	Red fox	-	-	-	S5
Ursus americanus	Black bear	-	-	-	S4

Source: (ACCDC, 2026a)

3.2.2 Wildlife Trail Cameras

3.2.2.1 Wind and Transmission Component

A total of 552 individuals of nine distinct species were recorded on trail cameras. These animals included: snowshoe hare, squirrel (*Sciuridae*), moose, eastern coyote, Canada lynx, red fox, black bear, caribou, and Canada jay *(Perisoreus canadensis)*.

Trail camera 11 recorded the most individuals, with 50 observations (9%); the cameras with the next most observations were trail cameras 5 and 26, with 48 observations each (8%). Overall, observations primarily consisted of moose (n=438). Moose observations occurred at over half (n=28) of all trail camera locations within and around the WPA, indicating the overall abundance of moose in MMA 15. Trail camera 2 observed the highest variety of species, with seven species identified during the survey period. Four caribou were recorded within the WPA. See Table 3.3 below for further details.

Table 3.3: 2022 to 2025 Trail Camera Program Results Summary - WPA

Trail Camera	Dates Deployed	Species Observed	No. of Observations
Trail Camera 1	01/12/2024 - 02/04/2024	Moose	2
		Total Sightings	**2**
Trail Camera 2	11/11/2023 - 04/19/2025	Lynx	3
		Fox	2
		Snowshoe hare	5
		Coyote	1
		Caribou	1
		Canada jay	1
		Moose	9
		Total Sightings	**22**
Trail Camera 3	02/17/2025 - 02/19/2025	Moose	7
		Total Sightings	**7**
Trail Camera 4	08/01/2023 - 08/31/2023	Moose	6
		Total Sightings	**6**
Trail Camera 5	11/11/2023 - 04/19/2025	Snowshoe hare	14
		Coyote	1
		Moose	33
		Total Sightings	**48**
Trail Camera 6	11/11/2023 - 04/19/2025	Moose	45
		Caribou	2

Trail Camera	Dates Deployed	Species Observed	No. of Observations
		Total Sightings	**47**
Trail Camera 7	11/11/2023 - 04/19/2025	Moose	41
		Total Sightings	**41**
Trail Camera 8	11/11/2023 - 04/19/2025	N/A	-
Trail Camera 9	11/11/2023 - 04/19/2025	Moose	26
		Total Sightings	**26**
Trail Camera 10	12/18/2023 - 02/08/2025	Moose	25
		Black bear	1
		Total Sightings	**26**
Trail Camera 11	11/11/2023 - 04/14/2025	Moose	50
		Total Sightings	**50**
Trail Camera 12	11/11/2023 - 04/14/2025	Moose	6
		Snowshoe hare	13
		Total Sightings	**19**
Trail Camera 13	11/11/2023 - 04/14/2025	Lynx	9
		Moose	4
		Snowshoe hare	26
		Coyote	7
		Total Sightings	**46**
Trail Camera 14	11/11/2023 - 04/14/2025	Coyote	1
		Red fox	2
		Moose	5
		Total Sightings	**9**
Trail Camera 15	02/17/2025 - 02/19/2025	Moose	12
		Total Sightings	**12**
Trail Camera 16	02/17/2025 - 02/19/2025	N/A	-
Trail Camera 17	11/11/2023 - 08/20/2024	Moose	28
		Total Sightings	**12**
Trail Camera 18	12/06/2024 - 09/16/2024	Moose	19
		Fox	4
		Total Sightings	**23**
Trail Camera 19	02/17/2025 - 02/19/2025	N/A	-
Trail Camera 20	11/11/2023 - 04/19/2025	N/A	-
Trail Camera 21	11/11/2023 - 04/19/2025	N/A	-
		Total Sightings	**-**
Trail Camera 22	11/11/2023 - 04/19/2025	Coyote	1
		Moose	3
		Total Sightings	**4**

Trail Camera	Dates Deployed	Species Observed	No. of Observations
Trail Camera 23	12/21/2022 - 01/14/2023	Snowshoe hare	2
		Moose	3
		Total Sightings	**5**
Trail Camera 24	02/17/2025 - 02/19/2025	Moose	2
		Total Sightings	**2**
Trail Camera 25	11/11/2023 - 04/19/2025	Moose	29
		Caribou	1
		Red fox	2
		Total Sightings	**32**
Trail Camera 26	01/01/2023 - 11/21/2024	Coyote	3
		Moose	45
		Total Sightings	**48**
Trail Camera 27	02/17/2025 - 02/19/2025	N/A	-
Trail Camera 28	02/17/2025 - 02/19/2025	Moose	1
		Total Sightings	**1**
Trail Camera 29	01/03/2024 - 11-05-2024	Moose	22
		Total Sightings	**22**
Trail Camera 30	11/11/2023 -11/21/2024	Moose	38
		Total Sightings	**38**
Trail Camera 31	02/17/2025 - 04/19/2025	N/A	-
Trail Camera 32	02/17/2025 - 04/19/2025	N/A	-
Trail Camera 33	02/17/2025 - 04/19/2025	N/A	-
Trail Camera 34	02/17/2025 - 04/19/2025	N/A	-
Trail Camera 35	02/17/2025 - 04/19/2025	N/A	-
Trail Camera 36	02/17/2025 - 04/19/2025	N/A	-
Trail Camera 37	02/17/2025 - 04/19/2025	N/A	-
Trail Camera 38	12/03/2024 - 12/31/2024	Moose	8
		Caribou	2
		Total Sightings	**10**
Trail Camera 39	11/11/2023 - 02/17/2025	Moose	2
		Red squirrel	6
		Total Sightings	**8**
Trail Camera 40	11/24/2022 - 12/24/2022	Moose	1
		Total Sightings	**1**
Trail Camera 41	02/17/2025 - 04/19/2025	Moose	1
		Snowshoe hare	1
		Coyote	1
		Lynx	2

Trail Camera	Dates Deployed	Species Observed	No. of Observations
		Red fox	1
		Total Sightings	6
		Total	**552**

3.2.2.2 Solar Components

One trail camera was placed within the SPA from November 2023 to April 2025 (Drawing 2, Appendix A). There were 31 observations recorded of three distinct species: moose, caribou, and red fox (Table 3.4). Moose were the most recorded species, with 29 observations recorded. One caribou observation was recorded in wetland habitat within the SPA.

Table 3.4: 2022 to 2025 Trail Camera Program Results Summary - SPA

Trail Camera	Dates Deployed	Species Observed	No. of Observations
48	11/11/2023 - 04/19/2025	Moose	29
		Caribou	1
		Red fox	1
		Total Sightings	**31**

3.2.2.3 Industrial Facility Component

One trail camera was deployed 300 m west of the IPA from November 2023 to April 2025 (Drawing 2, Appendix A). Ten observations were recorded consisting of eight moose and two caribou (Table 3.5).

Table 3.5: 2022 to 2025 Trail Camera Program Results Summary - IPA

Trail Camera	Dates Deployed	Species Observed	No. of Observations
15	11/11/2023 - 04/19/2025	Moose	8
		Caribou	2
		Total Sightings	**10**

3.2.3 Caribou and Moose Cameras

Cameras were deployed from December 4th, 2024, to April 23rd, 2025. No camera malfunctioned or failed during the five-month period. Across all cameras, cameras were deployed for 4,434 camera trapping days. Six wildlife species were observed, moose, Canada lynx, snowshoe hare, coyote, red fox, and red squirrel. No caribou were recorded in any of the sampling locations. See Table 3.6 for a compilation of the number of photographs of each species at each camera trap and habitat classification.

Table 3.6: Camera Trap Program Results Summary - WPA

Habitat Classification	Trail Camera #	No. of Observations*					
		Moose	Lynx	Snowshoe Hare	Coyote	Red Squirrel	Red Fox
Barrens	25	6	-	-	-	-	-
	26	15	-	-	-	-	-
	27	32	-	-	-	-	-
Conifer Forest	1	-	-	4	-	-	-
	2	71	4	7	-	-	-
	3	5	-	-	-	-	-
	4	5	-	-	-	-	-
	5	-	-	-	-	-	-
	6	70	2	1	1	-	-
	7	-	-	-	-	-	-
	8	-	-	-	-	10	-
	9	101	-	16	-	-	-
Mixedwood Forest	16	98	-	5	-	2	-
	17	14	-	1	-	1	-
	18	1	-	-	-	-	-
	19	15	5	1	-	-	23
	20	-	-	-	-	-	-
	21	-	-	-	-	-	-
	22	30	-	6	-	-	-
	23	14	-	3	-	1	-
	24	19	-	-	-	-	-
Shrubland	28	0	-			-	-
	29	109 -	-	1	-	-	-
	30	-	-	-	-	-	-
	31	-	-	-	-	-	-
	32	-	-	-	-	-	-
	33	4	-	-	1	-	-
Wetland	10	-	-	-	-	-	-
	11	-	-	-	-	-	-
	12	-	28	-	-	-	9
	13	-	-	-	-	-	-
	14	-	-	-	-	-	-
	15	-	-	-	-	-	-

* Photographs were duplicated in instances where >1 individual was in an image

Moose Occupancy Analysis

Across all camera locations, detection probability of moose was estimated at 0.252, meaning, if a moose was occupying the habitat near a camera trap, cameras had a 25.2% chance of detecting the individual (Table 3.7). For the winter model, occupancy estimates for moose

ranged from very low (< 1%) in wetland habitats, to moderate in conifer forests (57%) and shrubland habitats (44%), and very high in barren (97%) and mixed-wood forests (98%).

Table 3.7: Occupancy Estimates (Ψ) for Moose in Winter (December 2024 to April 2025) at Camera Traps (n=33) Established in and Around the PA

Habitat Classification	Estimated Occupancy (Ψ)	Standard Error
Barrens	0.97	0.02
Conifer Forest	0.57	0.22
Mixed-wood Forest	0.98	0.01
Shrubland	0.44	0.23
Wetland	< 0.01	0.004

3.2.4 Marten Results

3.2.4.1 Wind and Transmission Component

A total of eight hair samples were collected from six of the 20 trapping stations. Coarse hair identification was used for preliminary distinction of hair samples collected (Table 3.8). Analysis of sticky traps collected from PMHS 2 on February 28, 2025, yielded no observable hairs. Based on length, colour, colour pattern, waviness, and thickness the samples were classed as 'not marten' or 'possible marten'. The trail cameras and track sightings were then consulted to determine if a marten might have entered the trap (Table 3.9). If additional identification was necessary, the cuticular scale patterns were assessed (Table 3.10).

Table 3.8: Gros Characteristics of Hair Collected from Marten Hair Snag Traps (February to April 2025)

Hair Snag #	Deployment check	Collection Date	Hair number	Gros Description	Results
PMHS 1	3	04/09/2025	1	Short, fine, wavy, dark light pattern, reddish colour	Not marten
PMHS 2	2	02/28/2025	0	N/A	N/A
	3	04/09/2025	1	Short, fine, wavy, dark light pattern, reddish colour	Not marten
PMHS 3	1	03/28/2025	1	Short, fine, straight, white or gray	Not marten
PMHS 3	3	04/08/2025	1	Long, thick, straight, dark with white tip	Possible marten
PMHS 8	3	04/10/2025	1	Long, thick, straight, white	Not marten
			2	Short, thick, curly, dark	Possible marten
			3	Short, thin, curly, reddish	Possible marten
PMHS 11	3	04/10/2025	1	Short, fine, straight, dark light pattern	Not marten
			2	Long, thin, wavy, white	Not marten
			3	Short, thin, wavy, dark	Possible marten
PMHS19	1	04/01/2025	1	Short, fine, straight, dark light pattern	Not marten

Table 3.9: Hair Snag Trail Camera Results

Trap ID	Date	Species observed	Number of observations
PMHS1	Mar 27, 2025	Red squirrel	110
PMHS2	Mar 30, 2025	Red squirrel	260
PMHS3	-	No observations	-
PMHS5	Mar 13, 2025	Red squirrel	1
PMHS8	-	No observations	-
PMHS9	Mar 27, 2025	Moose	1
	Apr 4, 2025	Red squirrel	2
PMHS11	-	No observations	-
PMHS18	Mar 31, 2025	Red squirrel	1
PHHS19	-	No observations	-

Table 3.10: Cuticular Patterns of Examined Hair Samples Collected from Marten Hair Snag Traps

Trap ID	Session #	Collection Date	Hair number	Cuticular pattern	Conclusion
PMSH 3	3	Apr 8, 2025	1	Imbricate, flattened, ovate, smooth	Not marten
PMSH 8	3	Apr 10, 2025	2	Imbricate, hollow, flattened, smooth	Not marten
			3	Imbricate, flattened, smooth	Not marten
PMSH 11	3	Apr 10, 2025	3	Imbricate, hollow, flattened, smooth	Not marten

No American martens were recorded by trail cameras at any of the hair snag locations within the WPA. Trail cameras paired with hair snag locations recorded 375 observations of red squirrel and one moose. Trail cameras at sampling locations PMHS3, PMHS8, PMHS11 and PMHS19 had no recorded observations, but hair samples were identified on hair snag traps.

Information from the hair analysis is consistent with the information from the trail cameras and observations of tracks at the trap sites. No marten were recorded during the February to April surveys.

4.0 CONCLUSION

A desktop review and field assessments for fauna and their associated habitats were completed to inform Project design and future surveys. This will improve understanding of potential interactions of the Project with fauna within the PA and in surrounding areas.

5.0 STATEMENT OF QUALIFICATIONS AND LIMITATIONS

This Report (the "Report") has been prepared by Strum Consulting ("Consultant") for the benefit of EVREC ("Client") in accordance with the agreement between Consultant and Client, including the scope of work detailed therein (the "Agreement").

The information, data, recommendations, and conclusions contained in the Report (collectively, the "Information"):

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- represents Consultant's professional judgement in light of the Limitations and industry standards for the preparation of similar reports
- may be based on information provided to Consultant which has not been independently verified
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued
- must be read as a whole and sections thereof should not be read out of such context
- was prepared for the specific purposes described in the Report and the Agreement
- in the case of subsurface, environmental, or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time

Consultant shall be entitled to rely upon the accuracy and completeness of information that was provided and has no obligation to update such information. Consultant accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental, or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

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Should additional information become available, Strum requests that this information be brought to our attention immediately so that we can re-assess the conclusions presented in this report. This report was prepared by Emma Posluns, MSc., Project Manager, and was reviewed by Melanie Juurlink, MREM, Senior Ecology Lead.

6.0 REFERENCES

ACCDC. (2026a). GIS scan of rare and provincially/federally listed species for area of interest in central Newfoundland, Newfoundland and Labrador (No. RQ1310). Atlantic Canada Conservation Data Centre.

ACCDC. (2026b). Species ranks [Dataset]. http://accdc.com/en/ranks.html

Becker, M., Huggard, D. J., Dickie, M., Warbington, C., Schieck, J., Herdman, E., Serrouya, R., & Boutin, S. (2022). Applying and testing a novel method to estimate animal density from motion-triggered cameras. Ecosphere, 13(4). https://doi.org/10.1002/ecs2.4005

Birch, C. P. D., Oom, S. P., & Beecham, J. A. (2007). Rectangular and hexagonal grids used for observation, experiment and simulation in ecology. Ecological Modelling, 206(3), 347–359. https://doi.org/10.1016/j.ecolmodel.2007.03.041

Carswell, B. M. (2024). Parameterizing the Random Encounter Staying Time model to generate mean and variance ungulate density and abundance estimates [MSc. Thesis]. Memorial University of Newfoundland and Labrador.

COSEWIC. (2014). COSEWIC assessment and status report on the caribou Rangifer tarandus Newfoundland population, Atlantic-Gaspésie population and boreal population, in Canada. Committee on the Status of Endangered Wildlife in Canada. https://www.sararegistry.gc.ca/virtual_sara/files/cosewic/sr_Caribou_NF_Boreal_Atlantic_2014_e.pdf

COSEWIC. (2022). COSEWIC assessment and status report on the American marten (Newfoundland population) Martes americana atrata in Canada. Committee on the Status of Endangered Wildlife in Canada. https://ecprccsarstacct.z9.web.core.windows.net/files/SARAFiles/legacy/cosewic/sr%20American%20Marten%202022_e.pdf

ECCC. (2013). American marten (martes americana atrata) Nefoundland population recovery strategy (Species at Risk Act Recovery Strategy Series).

Elbroch, M. (2019). Mammal tracks & signs: A guide to North American species. Globe Pequot.

Hargis, C. D., Bissonette, J. A., & Turner, D. L. (2001). The influence of forest fragmentation and landscape pattern on American martens. Journal of Applied Ecology, 36, 157–172.

Hebert, I., & Weladij, R. (2013). The use of coniferous forests and cutovers by Newfoundland woodland caribou. Forest Ecology and Management, 291, 318–325. https://doi.org/10.1016/j.foreco.2012.11.011

Herdman, E. (2014). Newfoundland marten hair snag construction and deployment guidelines.

Newfoundland and Labrador.

Hogg, J. (2021). The precision and accuracy of the Random Encounter Staying Time model's estimation of species population density [MSc. thesis]. Memorial University of Newfoundland and Labrador.

Kenney, A. J., Boutin, S., Jung, T. S., Murray, D. L., Johnson, N., & Krebs, C. J. (2024). Motion-sensitive cameras track population abundance changes in a boreal mammal community in southwestern Yukon, Canada. The Journal of Wildlife Management, 88(4), e22564. https://doi.org/10.1002/jwmg.22564

Kestler, J. (2022). Hair scale identification guide to terrestrial mammalian carnivores of Canada. Pelagic Publishing. https://doi.org/10.53061/YGXZ6719

Mackenzie, D. I., Nichols, J. D., Lachman, G. B., Droege, S., Royle, J. A., & Langtimm, C. A. (2002). Estimating site occupancy rates when detection probabilities are less than one. Ecology, 83(8), 2248–2255.

Mahoney, S. (2000). Distribution and movement of the Mount Peyton caribou herd (A Synthesis and Interpretation of the Biology of Woodland Caribou on the Island of Newfoundland). https://www.conservationvisions.com/sites/default/files/caribou_data_synthsis_volume_11_-_mount_peyton.pdf

Murie, M. (2005). A field guide to animal tracks (3rd ed.). Mariner Books.

Natural Resources Canada. (2020). 2020 Land Cover of Canada—Open Government Portal. https://open.canada.ca/data/en/dataset/ee1580ab-a23d-4f86-a09b-79763677eb47

Newfoundland and Labrador. (2001). Endangered Species Act, S.N.L. 2001, c. E-10. https://www.assembly.nl.ca/Legislation/sr/statutes/e10-1.htm

Newfoundland and Labrador. (2003). Environmental Assessment Regulations 2003-220. https://assembly.nl.ca/Legislation/sr/regulations/rc030054.htm

Newfoundland and Labrador. (2010). Recovery plan for American marten in Newfoundland. Department of Environment and Conservation, Government of Newfoundland and Labrador. https://www.gov.nl.ca/ffa/files/wildlife-endangeredspecies-marten-recovery-plan.pdf

Newfoundland and Labrador. (2023). Moose management areas. https://www.gov.nl.ca/hunting-trapping-guide/2023-24/hunting-seasons-and-zones/island/moose/

Newfoundland and Labrador. (2025a). Moose reduction zones. https://www.gov.nl.ca/hunting-trapping-guide/2023-24/hunting-seasons-and-zones/island/moose-reduction-zones/

Newfoundland and Labrador. (2025b). Provincial land use atlas [Dataset]. https://www.gov.nl.ca/crownlands/land-use-atlas/

NLECCC. (2008). Phase two of the caribou survey of northern heard completed. https://www.releases.gov.nl.ca/releases//2008/env/0922n03.htm

NLECCC. (2024). Provincial protected areas [Dataset]. Newfoundland and Labrador Environment, Conservation and Climate Change. https://www.gov.nl.ca/ecc/natural-areas/gis-data/#NFECO

NLECCC. (2025). Environmental impact statement guidelines for Botwood and area EVREC green energy project. Newfoundland and Labrador Environment, Conservation and Climate Change. https://www.gov.nl.ca/eccc/files/env_assessment_y2025_2327_Approved-EIS-Guidelines.pdf

NLFAL. (2023). Newfoundland forest resource inventory (Version Newfoundland) [Dataset]. Newfoundland and Labrador Forestry, Agriculture and Lands. https://www.gov.nl.ca/ffa/programs-and-funding/forestry-programs-and-funding/managing/inv-plan/

NLFAL. (2024a). Caribou management areas. Hunting-Trapping-Guide. https://www.gov.nl.ca/hunting-trapping-guide/2022-23/hunting-seasons-and-zones/island/caribou/

NLFAL. (2024b). Forest Inventory [Dataset]. https://www.gov.nl.ca/ffa/programs-and-funding/forestry-programs-and-funding/managing/inv-plan/

NLFAL. (2024c). Newfoundland Marten Showing Signs of Recovery; Rare Plant Added to List of At-Risk Species—News Releases. https://www.gov.nl.ca/releases/2024/ffa-en/0222n02/

NLFFA. (2022). 2022-2026 moose management plan. Newfoundland and Labrador Fisheries, Forestry, and Agriculture. https://www.gov.nl.ca/ffa/files/22282-Moose-Management-Report-July-12.pdf

NRCan. (2024). Land cover of Canada [TIFF]. Natural Resources Canada. https://open.canada.ca/data/en/dataset/ee1580ab-a23d-4f86-a09b-79763677eb47/resource/a653e4a1-53f1-4549-b059-b36ee85b65af

Parks Canada. (2025, September 17). Moose management Gros Morne National Park. https://parks.canada.ca/pn-np/nl/grosmorne/nature/conservation/resto/forets-forests/orignaux-moose

Paulson, D. (2012). Dragonflies and damselflies of the east. Princeton University Press.

Rezendes, P. (1999). Tracking & the art of seeing.

Robitaille, A. (2024). Camtrapmonitoring: Camera trap monitoring for estimating wildlife density [Dataset]. https://robitalec.github.io/camtrapmonitoring/authors.html#citation

Soper, L. R., & Payne, N. F. (1997). Relationship of introduced mink, an island race of muskrat, and marginal habitat. Annales Zoologici Fennici, 34(4), 251–258.

Stantec. (2024). Project Nujio'qonik 2023 muskrat survey. https://www.gov.nl.ca/ecc/files/env_assessment_y2024_2202_Appendix_2-Part-4_Jan2024_fin.pdf

Wood, S. (2017). Generalized Additive Mixed Models: An introduction with R. CRC press.

APPENDIX A
DRAWINGS

EVREC Green Energy Hub

Project Locator

EVREC

Project Area

- Industrial Project Area
- Solar Project Area
- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area
- Twin Lakes Wind Project Area

Transportation

- Trans-Canada Highway
- Highway
- Road
- Unpaved Road

Water Features

- Mapped Waterbodies

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
Scale: 1:200,000	Drawing #: 1
Drawn By: M. Partridge	
Checked By: N. Thomas	

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EVREC Green Energy Hub

Fauna Methodology

EVREC

Project Area

- Industrial Project Area
- Solar Project Area
- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area
- Twin Lakes Wind Project Area

Camera Locations

- Wildlife Trail Camera
- Caribou / Moose Camera

Transportation

- Trans-Canada Highway
- Highway
- Road
- Unpaved Road

Water Features

- Mapped Waterbodies

Strum Cam 38
Strum Cam 30
Strum Cam 7
Strum Cam 2
Strum Cam 25
Strum Cam 60
Strum Cam 50
Strum Cam 35
Strum Cam 58
Strum Cam 31
Strum Cam 64
Strum Cam 68
Strum Cam 44
Strum Cam 67
Strum Cam 29
Strum Cam 14
Strum Cam 51
Strum Cam 42
Strum Cam 22
Strum Cam 11
Strum Cam 41
Strum Cam 46
Strum Cam 56
Strum Cam 12
Strum Cam 6
Strum Cam 40
Strum Cam 48
Strum Cam 15
Strum Cam 4

Leading Tickles
Leading Tickles South
Leading Tickles East
Osmonton Arm
Southwest Arm
West Arm
Point Leamington
Botwood
Northern Arm
Peterview
Point of Bay
Porterville
Alderburn
Norris Arm
Trans-Canada-Highway
Rattling Brook
Charles Brook
Bulley's Cove
Moore's Cove
Fortune Harbour
Lawrence Harbour
Winter Tickle
South Arm
Burnt Arm
Seal Bay
Badger Bay
Sops Arm
Shoal Arm
Sops Lake
Crescent Lake
Halls Bay
Woodfords Arm
New Bay
Wild Bight
Lewis Lake
North Twin Lake
South Twin Lake
Long Pond
Rocky Pond
Mary Arm Lake
Frozen Ocean Lake
New Bay Pond
Peters Pond
Head Harbour
Card's Harbour
Jim's Cove
TRITON ISLAND
ALCOCK ISLAND
SEAL BAY HEAD
DUCK ISLAND
GULL ISLAND
BURNT ISLAND
GREEN POINT
STRONG ISLAND
UPPER BLACK ISLAND
THWART ISLAND
St. John's Bay
HODGES HILLS

0 4 8 12 km

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-27	Project #: 24-10265
Scale: 1:200,000	Drawing #: 2
Drawn By: K. Wallace	
Checked By: E. Posluns	

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EVREC Green Energy Hub

Fauna Methodology
Marten

EVREC

Project Area
Local Study Area
Marten Hair Snag

Stand Age
61 - 80 years
81 - 100 years
101 - 120 years
120+ years

Transportation
Trans-Canada Highway
Highway
Road
Unpaved Road

Water Features
Mapped Waterbodies

PMHS1
PMHS2
PMHS3
PMHS4
PMHS5
PMHS6
PMHS7
PMHS8
PMHS9
PMHS10
PMHS11
PMHS12
PMHS13
PMHS14
PMHS15
PMHS16
PMHS17
PMHS18
PMHS19
PMHS20

Leading Tickles
Leading Tickles South
Point Leamington
Botwood
Bishop's Falls
Wooddale
Jumpers Brook
Rattling Brook
Peterview
Notre Dame Junction
Alderburn
Porterville
Point of Bay
Charles Brook
Bulley's Cove
Fortune Harbour
Moore's Cove
Fleury Bight
Waldron Cove
Triton West
Pilley's Island
Head Harbour
Jim's Cove
Card's Harbour
Woodfords Arm
Halls Bay
Crescent Lake
Sops Arm
Sops Lake
Shoal Arm
Badger Bay
Duck Island
Seal Bay Head
Gull Island
Burnt Island
Osmonton Arm
New Bay
Ship Run
Lawrence Harbour
Strong Island
Southwest Arm
South Arm
West Arm
Winter Tickle
Upper Black Island
Southern Head
Little Burnt Bay
St. John's Bay
Thwart Island
Seal Bay
Wild Bight
Green Point
Lewis Lake
Frozen Ocean Lake
New Bay Pond
Burnt Arm
Northern Arm
Peters Pond
Rocky Pond
North Twin Lake
South Twin Lake
Long Pond
Burnt Pond
Crooked Lake
Mary Ann Lake
Pauls Lake
Joes Lake
Hodges Hills
Trans-Canada Highway
Highway 350

0 4 8 12 km

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date:	Project #:
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Scale: 1:220,000	Drawing #: 3
Drawn By: K. Wallace	
Checked By: E. Posluns	

strum CONSULTING

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EVREC Green Energy Hub

Desktop Fauna Results

EVREC

- Project Area
- ACCDC Point Location
- Protected or Conserved Areas
- Moose Management Area (MMA of Interest)
- Park or Natural Area
- Core Caribou Area

Transportation

- Trans-Canada Highway
- Highway
- Road
- Unpaved Road

Water Features

- Mapped Waterbodies

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-10	Project #: 24-10265
Scale: 1:230,000	Drawing #: 4
Drawn By: E. Johnson	
Checked By: E. Posluns	

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EVREC Green Energy Hub

Botwood Wind Project Area
Predicted Caribou Habitat & Disturbance Area

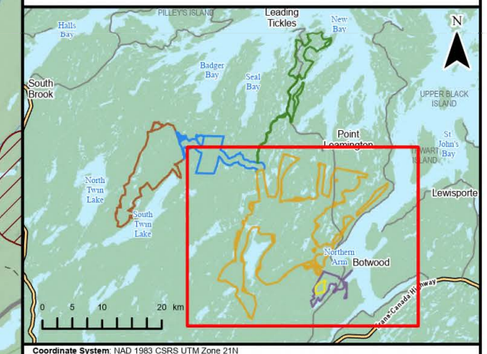
EVREC

Project Area
- Industrial Project Area
- Solar Project Area
- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area
- Accommodation
- Quarry
- Substation
- 230 kV Tranmission Line
- Project Road
- Resource Roads
- Turbine
- Disturbance Area (500 m)

Predicted Caribou Habitat
- Overwintering, Foraging & Rutting
- Calving & Rearing

Transportation
- Trans-Canada Highway
- Highway
- Road
- Unpaved Road

Water Features
- Mapped Watercourses
- Mapped Waterbodies



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Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-10	Project #: 24-10265
Scale: 1:115,000	Drawing #: **5A**
Drawn By: M. Partridge	
Checked By: E. Posluns	

strum CONSULTING

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EVREC Green Energy Hub

Leading Tickles Wind Project Area
Predicted Caribou Habitat & Disturbance Area

EVREC

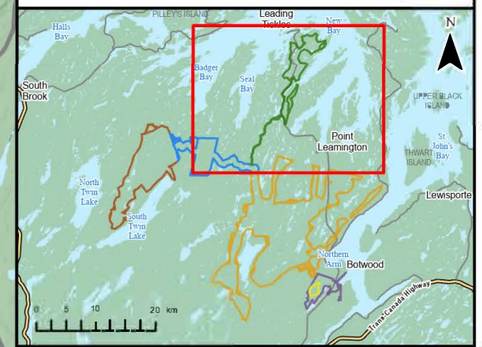
Project Area
- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area
- Quarry
- Substation
- 230 kV Tranmsission Line
- Project Road
- Resource Roads
- Turbine

- Disturbance Area (500 m)

Predicted Caribou Habitat
- Overwintering, Foraging & Rutting
- Calving & Rearing

Transportation
- Highway
- Road
- Unpaved Road

Water Features
- Mapped Watercourses
- Mapped Waterbodies



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Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-10	Project #: 24-10265
Scale: 1:95,000	Drawing #: **5B**
Drawn By: M. Partridge	
Checked By: E. Posluns	

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EVREC Green Energy Hub

Seabrights Lake Wind Project Area

Predicted Caribou Habitat & Disturbance Area

EVREC

Project Area

- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area
- Twin Lakes Wind Project Area
- Accommodation
- Quarry
- Substation
- 230 kV Tranmsission Line
- Project Road
- Resource Roads
- Turbine
- Disturbance Area (500 m)

Predicted Caribou Habitat

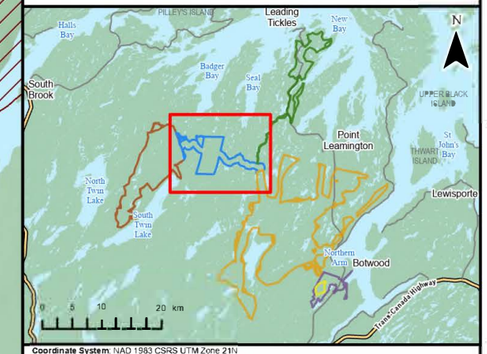
- Overwintering, Foraging & Rutting
- Calving & Rearing

Transportation

- Road
- Unpaved Road

Water Features

- Mapped Watercourses
- Mapped Waterbodies



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Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-10	Project #: 24-10265
Scale: 1:50,000	Drawing #: 5C
Drawn By: M. Partridge	
Checked By: E. Posluns	

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0 0.8 1.7 2.5 km

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EVREC Green Energy Hub

Twin Lakes Wind Project Area
Predicted Caribou Habitat & Disturbance Area

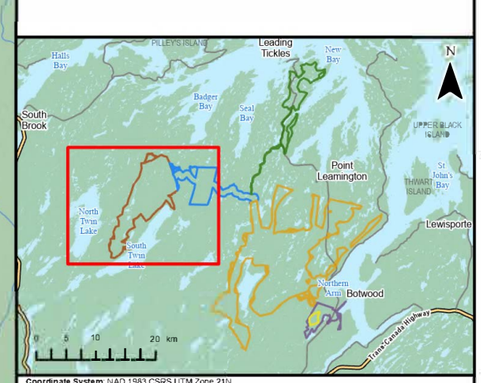
EVREC

Project Area
- Seabrights Lake Wind Project Area
- Twin Lakes Wind Project Area
- Accommodation
- Quarry
- Substation
- 230 kV Tranmsission Line
- Project Road
- Resource Roads
- Turbine
- Disturbance Area (500 m)

Predicted Caribou Habitat
- Overwintering, Foraging & Rutting
- Calving & Rearing

Transportation
- Road
- Unpaved Road

Water Features
- Mapped Watercourses
- Mapped Waterbodies



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Date: 2026-03-10	Project #: 24-10265
Scale: 1:75,000	Drawing #: **5D**
Drawn By: M. Partridge	
Checked By: E. Posluns	

strum CONSULTING

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EVREC Green Energy Hub

Industrial Facility & Solar Project Area
Predicted Caribou Habitat & Disturbance Area

EVREC

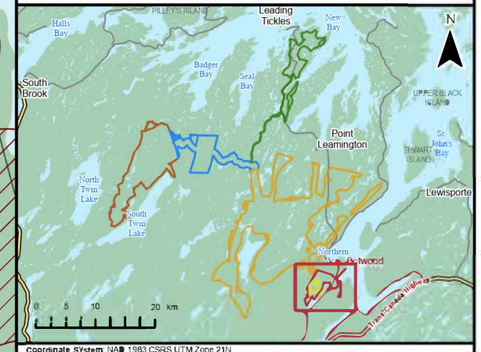
Project Area
- Industrial Project Area
- Solar Project Area
- Botwood Wind Project Area
- Industrial Facility Infrastructure Area
- Accommodation
- Quarry
- 230 kV Tranmsission Line
- Project Road
- Resource Roads

Disturbance Area (500 m)

Predicted Caribou Habitat
- Overwintering, Foraging & Rutting
- Calving & Rearing

Transportation
- Highway
- Road
- Unpaved Road

Water Features
- Mapped Watercourses
- Mapped Waterbodies



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Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-10	Project #: 24-10265
Scale: 1:30,000	Drawing #: 5E
Drawn By: M. Partridge	
Checked By: E. Posluns	

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0 0.5 1 1.5 km

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EVREC Green Energy Hub

Predicted Moose Habitat

EVREC

Project Area

- Industrial Project Area
- Solar Project Area
- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area
- Twin Lakes Wind Project Area
- Predicted Moose Habtiat Model

Transportation

- Trans-Canada Highway
- Highway
- Road
- Unpaved Road

Water Features

- Mapped Waterbodies

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-27	Project #: 24-10265
Scale: 1:200,000	Drawing #: 6
Drawn By: M. Partridge	
Checked By: E. Posluns	

strum CONSULTING

0 4 8 12 km

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EVREC Green Energy Hub

Predicted American Marten (Newfoundland Pop.) Habitat

EVREC

Project Area

Predicted Marten Habitat

High Potential

Lower (Connectivity) Potential

Transportation

Trans-Canada Highway

Highway

Road

Unpaved Road

Water Features

Mapped Waterbodies

Coordinate System: NAD 1983 CSRS UTM Zone 21N

Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-27	Project #: 24-10265
Scale: 1:200,000	Drawing #: 7
Drawn By: M. Partridge	
Checked By: E. Posluns	

strum CONSULTING

0 4 8 12 km

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EVREC Green Energy Hub

Fauna Methodology
Muskrat Habitat Model

EVREC

Project Area

Muskrat Habitat Model

Highly Suitable Habitat (1)
Moderately Suitable Habitat - High (2)
Moderately Suitable Habitat - Low (3)
Suitable Habitat (4)

Transportation

Trans-Canada Highway
Highway
Road
Unpaved Road

Water Features

Mapped Waterbodies

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-27	Project #: 24-10265
Scale: 1:200,000	Drawing #: 8
Drawn By: K. Wallace	
Checked By: E. Posluns	

strum CONSULTING

0 4 8 12 km

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APPENDIX B
ACCDC REPORT

GNAME	GCOMNAME	FAMILY	Observer	TotalNumber	Month	Day	Year	SRANK_2015	SRANK_2	NRANK
Scolopax minor	American Woodcock	Scolopacida	BBS observer: 10		7	5	2015	S1B,SUM	S1B	N5B,N5M
Dendroica castanea	Bay-breasted Warbler	Parulidae	BBS observer: 10		7	2	2018	S2B,SUM	S3B	N5B,N5M
Dendroica castanea	Bay-breasted Warbler	Parulidae	BBS observer: 10		7	3	2017	S2B,SUM	S3B	N5B,N5M
Ophiogomphus colubrinus	Boreal Snake Tail/ Club	Gomphidae	unknown		8	15	1997	S3	S3?	N5
Dendroica tigrina	Cape May Warbler	Parulidae	BBS observer: 10		7	7	2014	S2B,SUM	S2B	N5B,N5M
Dendroica tigrina	Cape May Warbler	Parulidae	BBS observer: 10		7	2	2018	S2B,SUM	S2B	N5B,N5M
Spizella passerina	Chipping Sparrow	Passerellida	BBS observer: 10		6	17	2019	S2S3B,SUM	S2B	N5B,N5M
Spizella passerina	Chipping Sparrow	Passerellida	BBS observer: 10		7	7	2012	S2S3B,SUM	S2B	N5B,N5M
Spizella passerina	Chipping Sparrow	Passerellida	BBS observer: 10		7	7	2012	S2S3B,SUM	S2B	N5B,N5M
Spizella passerina	Chipping Sparrow	Passerellida	BBS observer: 10		7	7	2014	S2S3B,SUM	S2B	N5B,N5M
Spizella passerina	Chipping Sparrow	Passerellida	BBS observer: 10		6	17	2019	S2S3B,SUM	S2B	N5B,N5M
Spizella passerina	Chipping Sparrow	Passerellida	BBS observer: 10		7	3	2016	S2S3B,SUM	S2B	N5B,N5M
Spizella passerina	Chipping Sparrow	Passerellida	BBS observer: 10		7	7	2014	S2S3B,SUM	S2B	N5B,N5M
Spizella passerina	Chipping Sparrow	Passerellida	BBS observer: 10		7	7	2014	S2S3B,SUM	S2B	N5B,N5M
Spizella passerina	Chipping Sparrow	Passerellida	BBS observer: 10		7	7	2014	S2S3B,SUM	S2B	N5B,N5M
Leucorrhinia glacialis	Crimson-ringed Whitefa	Libellulidae	Larson D.J.		6	19	1979	S3S4	S3	N5
Catharus minimus	Gray-cheeked Thrush	Turdidae	BBS observer: 10		7	3	2017	S2B,SUM	S2S3B	N5B,N5M
Catharus minimus	Gray-cheeked Thrush	Turdidae	BBS observer: 10		7	7	2013	S2B,SUM	S2S3B	N5B,N5M
Tringa melanoleuca	Greater Yellowlegs	Scolopacida	BBS observer: 10		6	17	2019	S3B, S4M	S4B,S5M	N5B,N4N,N
Tringa melanoleuca	Greater Yellowlegs	Scolopacida	BBS observer: 10		7	7	2011	S3B, S4M	S4B,S5M	N5B,N4N,N
Tringa melanoleuca	Greater Yellowlegs	Scolopacida	BBS observer: 10		7	2	2018	S3B, S4M	S4B,S5M	N5B,N4N,N
Anas platyrhynchos	Mallard	Anatidae	BBS observer: 10		7	7	2013	S3B,SUM	S3B	N5B,N5N,N
Martes americana	Newfoundland Marten	Mustelidae	Mac Andrews	1	12	10	1987	S3	S1	N5
Martes americana	Newfoundland Marten	Mustelidae	Roland Wayne Pa	1	4	26	2014	S3	S1	N5
Accipiter gentilis	Northern Goshawk	Accipitridae	Todd Boland	1	12	28	1999	S3	S3B	N4B,N4N5N
Accipiter gentilis	Northern Goshawk	Accipitridae	Craig Purchase	1	12	28	1998	S3	S3B	N4B,N4N5N
Parula americana	Northern Parula	Parulidae	BBS observer: 10		7	5	2015	S1B?,SUM	S1?B	N5B,N5M
Contopus cooperi	Olive-sided Flycatcher	Tyrannidae	Alison Mews		6	11	2017	S3B,SUM	S3S4B	N4B,N3M
Contopus cooperi	Olive-sided Flycatcher	Tyrannidae	BBS observer: 10		7	7	2014	S3B,SUM	S3S4B	N4B,N3M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	7	2014	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	3	2017	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	2	2018	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	7	2013	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	7	2014	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	5	2015	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	5	2015	S3B,SUM	S5B	N5B,N5M

GNAME	GCOMNAME	FAMILY	Observer	TotalNumber	Month	Day	Year	SRANK_2015	SRANK_2	NRANK
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	3	2016	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	2	2018	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	2	2018	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	2	2018	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		6	17	2019	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	7	2013	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	7	2014	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	3	2016	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	7	2011	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	7	2014	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	5	2015	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	3	2016	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	3	2016	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	3	2017	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		6	17	2019	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	3	2016	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	2	2018	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		6	17	2019	S3B,SUM	S5B	N5B,N5M
Vireo philadelphicus	Philadelphia Vireo	Vireonidae	BBS observer: 10		7	7	2013	S3B,SUM	S2B	N5B,N5M
Vireo philadelphicus	Philadelphia Vireo	Vireonidae	BBS observer: 10		7	7	2012	S3B,SUM	S2B	N5B,N5M
Vireo philadelphicus	Philadelphia Vireo	Vireonidae	BBS observer: 10		7	7	2012	S3B,SUM	S2B	N5B,N5M
Vireo philadelphicus	Philadelphia Vireo	Vireonidae	BBS observer: 10		7	7	2012	S3B,SUM	S2B	N5B,N5M
Vireo philadelphicus	Philadelphia Vireo	Vireonidae	BBS observer: 10		7	3	2016	S3B,SUM	S2B	N5B,N5M
Loxia curvirostra	Red Crossbill	Fringillidae	Barry Linehan		10		2020	S1S2	S2S3	N5B,N5N,N
Agelaius phoeniceus	Red-winged Blackbird	Icteridae	BBS observer: 10		7	7	2013	S1B,SUM	S1S2B	N5B,N5N,N
Calopteryx aequabilis	River Jewelwing/ Apicall	Calopterygic	Larson D.J.		6	26	1979	S3	S2S3	N5
Euphagus carolinus	Rusty Blackbird	Icteridae	BBS observer: 10		7	7	2013	S2S3B,SUM	S3B	N4B,NUN,N
Euphagus carolinus	Rusty Blackbird	Icteridae	BBS observer: 10		7	3	2017	S2S3B,SUM	S3B	N4B,NUN,N
Euphagus carolinus	Rusty Blackbird	Icteridae	BBS observer: 10		7	3	2016	S2S3B,SUM	S3B	N4B,NUN,N
Euphagus carolinus	Rusty Blackbird	Icteridae	BBS observer: 10		7	3	2016	S2S3B,SUM	S3B	N4B,NUN,N
Glaucopsyche lygdamus	Silvery Blue	Lycaenidae	Ross					S3		N5
Catharus fuscescens	Veery	Turdidae	BBS observer: 10		7	7	2011	S2B,SUM	S3B	N5B,N5M
Catharus fuscescens	Veery	Turdidae	BBS observer: 10		7	7	2011	S2B,SUM	S3B	N5B,N5M
Catharus fuscescens	Veery	Turdidae	BBS observer: 10		7	5	2015	S2B,SUM	S3B	N5B,N5M
Catharus fuscescens	Veery	Turdidae	BBS observer: 10		7	5	2015	S2B,SUM	S3B	N5B,N5M
Troglodytes hiemalis	Winter Wren	Troglodytida	BBS observer: 10		7	7	2011	S3B,SUM	S3S4B	N5B

GRANK	GeneralStati	COSEWIC_ST	PROVINCIAL	SARA	DESCR_HABIT	SITE_NAME	Accuracy	SYNAME
G5	Sensitive					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Undetermined					ExploitsRiver	1000	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Undetermined					Bishops Falls	1000	
G5	Secure	ndidate (Mid Priori	Threatened			Northern Arm BBS route (ID:19)	250	
G5	Secure	ndidate (Mid Priori	Threatened			Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	At Risk	Threatened	Threatened	Endangered		SE of Bishops Falls, approx 10 km	1000	
G5	At Risk	Threatened	Threatened	Endangered	. Marten eventu	Confederation Place, Botwood	100	
G5	Secure						1000	
G5	Secure					Jumper's Brook Road	1000	
G5	Undetermined					Northern Arm BBS route (ID:19)	250	
G4	At risk	Special Concern	Threatened	Threatened			1000	
G4	At risk	Special Concern	Threatened	Threatened		Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	

GRANK	GeneralStati	COSEWIC_ST	PROVINCIAL	SARA	DESCR_HABIT	SITE_NAME	Accuracy	SYNAME
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	At Risk	Threatened	Threatened	Threatened			1000	
G5	Sensitive					Northern Arm BBS route (ID:19)	250	
G5	Undetermine					Bishops Falls	1000	
G4	Secure	Special Concern	Vulnerable	Special Concern		Northern Arm BBS route (ID:19)	250	
G4	Secure	Special Concern	Vulnerable	Special Concern		Northern Arm BBS route (ID:19)	250	
G4	Secure	Special Concern	Vulnerable	Special Concern		Northern Arm BBS route (ID:19)	250	
G4	Secure	Special Concern	Vulnerable	Special Concern		Northern Arm BBS route (ID:19)	250	
G5	Secure					Bishop's Falls	1000	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	

CITATION	IDNUM	5km GRI	Y CENTROID OF	X CENTROID OF GRID CELL
Pardieck, K.L., Ziolkowski J	mstr1136111	Grid Cell	49.23312583	-55.37560864
Pardieck, K.L., Ziolkowski J	mstr1136987	Grid Cell	49.23312583	-55.37560864
Pardieck, K.L., Ziolkowski J	mstr1136771	Grid Cell	49.32398958	-55.44143202
2DDragonflydata.xls	mstr1034732	Grid Cell	49.01016537	-55.51963033
Pardieck, K.L., Ziolkowski J	mstr1135954	Grid Cell	49.23312583	-55.37560864
Pardieck, K.L., Ziolkowski J	mstr1136966	Grid Cell	49.36894828	-55.44001091
Pardieck, K.L., Ziolkowski J	mstr1137190	Grid Cell	49.18816748	-55.37708134
Pardieck, K.L., Ziolkowski J	mstr1135342	Grid Cell	49.32304138	-55.37265221
Pardieck, K.L., Ziolkowski J	mstr1135343	Grid Cell	49.32304138	-55.37265221
Pardieck, K.L., Ziolkowski J	mstr1135913	Grid Cell	49.32304138	-55.37265221
Pardieck, K.L., Ziolkowski J	mstr1137191	Grid Cell	49.32304138	-55.37265221
Pardieck, K.L., Ziolkowski J	mstr1136454	Grid Cell	49.36985699	-55.50885691
Pardieck, K.L., Ziolkowski J	mstr1135914	Grid Cell	49.41390659	-55.43858624
Pardieck, K.L., Ziolkowski J	mstr1135915	Grid Cell	49.45886452	-55.43715802
Pardieck, K.L., Ziolkowski J	mstr1135916	Grid Cell	49.45886452	-55.43715802
2DDragonflydata.xls	mstr1034726	Grid Cell	49.00926804	-55.45128125
Pardieck, K.L., Ziolkowski J	mstr1136848	Grid Cell	49.18816748	-55.37708134
Pardieck, K.L., Ziolkowski J	mstr1135780	Grid Cell	49.23312583	-55.37560864
Pardieck, K.L., Ziolkowski J	mstr1137127	Grid Cell	49.32398958	-55.44143202
Pardieck, K.L., Ziolkowski J	mstr1134996	Grid Cell	49.32304138	-55.37265221
Pardieck, K.L., Ziolkowski J	mstr1136893	Grid Cell	49.32304138	-55.37265221
Pardieck, K.L., Ziolkowski J	mstr1135554	Grid Cell	49.32304138	-55.37265221
John Neville. Accidental Ca	AC0153	Grid Cell	49.00833024	-55.38293564
Accidental Capture Marten	ST0246	Grid Cell	49.14320875	-55.37855038
Nf.Birds, Data Entry by WD	mstr1029831	Grid Cell	49.01016537	-55.51963033
Nf.Birds, Data Entry by WD	mstr1029841	Grid Cell	49.00833024	-55.38293564
Pardieck, K.L., Ziolkowski J	mstr1136222	Grid Cell	49.18816748	-55.37708134
nf.birds, june 11, 2017	mstr1055595	Grid Cell	49.01016537	-55.51963033
Pardieck, K.L., Ziolkowski J	mstr1135851	Grid Cell	49.18816748	-55.37708134
Pardieck, K.L., Ziolkowski J	mstr1135994	Grid Cell	49.18816748	-55.37708134
Pardieck, K.L., Ziolkowski J	mstr1136795	Grid Cell	49.18816748	-55.37708134
Pardieck, K.L., Ziolkowski J	mstr1137013	Grid Cell	49.18816748	-55.37708134
Pardieck, K.L., Ziolkowski J	mstr1135714	Grid Cell	49.2780838	-55.37413227
Pardieck, K.L., Ziolkowski J	mstr1135995	Grid Cell	49.2780838	-55.37413227
Pardieck, K.L., Ziolkowski J	mstr1136265	Grid Cell	49.2780838	-55.37413227
Pardieck, K.L., Ziolkowski J	mstr1136266	Grid Cell	49.2780838	-55.37413227

CITATION	IDNUM	5km GRII	Y CENTROID OF	X CENTROID OF GRID CELL
Pardieck, K.L., Ziolkowski J	mstr1136544	Grid Cell	49.2780838	-55.37413227
Pardieck, K.L., Ziolkowski J	mstr1137014	Grid Cell	49.2780838	-55.37413227
Pardieck, K.L., Ziolkowski J	mstr1137015	Grid Cell	49.2780838	-55.37413227
Pardieck, K.L., Ziolkowski J	mstr1137016	Grid Cell	49.2780838	-55.37413227
Pardieck, K.L., Ziolkowski J	mstr1137282	Grid Cell	49.2780838	-55.37413227
Pardieck, K.L., Ziolkowski J	mstr1135715	Grid Cell	49.32398958	-55.44143202
Pardieck, K.L., Ziolkowski J	mstr1135997	Grid Cell	49.32398958	-55.44143202
Pardieck, K.L., Ziolkowski J	mstr1136547	Grid Cell	49.32398958	-55.44143202
Pardieck, K.L., Ziolkowski J	mstr1135119	Grid Cell	49.32304138	-55.37265221
Pardieck, K.L., Ziolkowski J	mstr1135996	Grid Cell	49.32304138	-55.37265221
Pardieck, K.L., Ziolkowski J	mstr1136267	Grid Cell	49.32304138	-55.37265221
Pardieck, K.L., Ziolkowski J	mstr1136545	Grid Cell	49.32304138	-55.37265221
Pardieck, K.L., Ziolkowski J	mstr1136546	Grid Cell	49.32304138	-55.37265221
Pardieck, K.L., Ziolkowski J	mstr1136796	Grid Cell	49.32304138	-55.37265221
Pardieck, K.L., Ziolkowski J	mstr1137283	Grid Cell	49.32304138	-55.37265221
Pardieck, K.L., Ziolkowski J	mstr1136548	Grid Cell	49.36985699	-55.50885691
Pardieck, K.L., Ziolkowski J	mstr1137017	Grid Cell	49.36894828	-55.44001091
Pardieck, K.L., Ziolkowski J	mstr1137284	Grid Cell	49.36894828	-55.44001091
Pardieck, K.L., Ziolkowski J	mstr1135651	Grid Cell	49.18816748	-55.37708134
Pardieck, K.L., Ziolkowski J	mstr1135366	Grid Cell	49.32304138	-55.37265221
Pardieck, K.L., Ziolkowski J	mstr1135367	Grid Cell	49.41481674	-55.50749507
Pardieck, K.L., Ziolkowski J	mstr1135368	Grid Cell	49.45886452	-55.43715802
Pardieck, K.L., Ziolkowski J	mstr1136483	Grid Cell	49.45886452	-55.43715802
email communication, via C	mstr1061422	Grid Cell	49.01016537	-55.51963033
Pardieck, K.L., Ziolkowski J	mstr1135580	Grid Cell	49.18816748	-55.37708134
2DDragonflydata.xls	mstr1034722	Grid Cell	49.00926804	-55.45128125
Pardieck, K.L., Ziolkowski J	mstr1135581	Grid Cell	49.23312583	-55.37560864
Pardieck, K.L., Ziolkowski J	mstr1136686	Grid Cell	49.23312583	-55.37560864
Pardieck, K.L., Ziolkowski J	mstr1136419	Grid Cell	49.32398958	-55.44143202
Pardieck, K.L., Ziolkowski J	mstr1136420	Grid Cell	49.32398958	-55.44143202
Ross Newfoundland Data.x	mstr1041138	Grid Cell	49.01016537	-55.51963033
Pardieck, K.L., Ziolkowski J	mstr1135189	Grid Cell	49.18816748	-55.37708134
Pardieck, K.L., Ziolkowski J	mstr1135190	Grid Cell	49.23312583	-55.37560864
Pardieck, K.L., Ziolkowski J	mstr1136323	Grid Cell	49.23312583	-55.37560864
Pardieck, K.L., Ziolkowski J	mstr1136324	Grid Cell	49.23312583	-55.37560864
Pardieck, K.L., Ziolkowski J	mstr1135156	Grid Cell	49.2780838	-55.37413227

APPENDIX C
FAUNA PHOTOGRAPH LOG

Photo 1: American black bear (*Ursus americanus*) photographed at 15:24 on September 17, 2024, by trail camera 10 in the WPA.*

Photo 2: Grey jay (*Perisoreus canadensis*) photographed at 11:20 on January 29, 2025, by trail camera 36.*

Photo 3: Woodland caribou (*Rangifer tarandus)* photographed at 7:18 on May 13, 2024, by trail camera 6 in the WPA.*

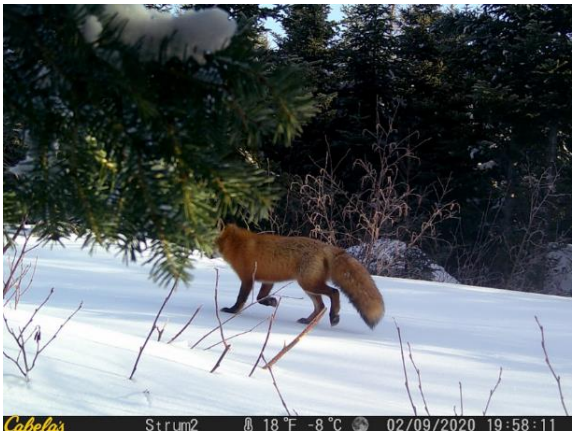

Photo 4: Red fox (*Vulpes vulpes*) photographed at 8:58 on February 9 5, 2025, by trail camera 2 in the WPA.*

Photo 5: Eastern coyote (*Canis latrans*) photographed at 18:53 on March 01 2024, by trail camera 2 in the WPA.*

Photo 6: Canada lynx (*Lynx canadensis)* photographed by iPad at 23:42 on March 26, 2024 by trail camera 2 in the WPA.*

Photo 7: Moose (*Alces alces*) photographed at 15:02 o n October 07 2024, by trail camera 10 in the WPA.*

Photo 8: Red squirrel (*Tamiascirus hudsonicus*) photographed at 7:53 October 9, 2024, by trail camera 8 in the WPA.*

Photo 9: Snowshoe hare (*Lepus americanus*) photographed at 8:14 January 15, 2022, by trail camera 12 in the WPA.*

**Trail camera numbers in photographs are incorrect and have been renumbered in Baseline Terrestrial Fauna report since observations.*

APPENDIX K.1
Baseline Bats Report

Prepared by: Strum Consulting

ENVIRONMENTAL IMPACT STATEMENT
EVREC Green Energy Hub
Exploits Valley Renewable Energy Corporation

strum

CONSULTING

BASELINE BATS REPORT
EVREC Green Energy Hub
Near Botwood, NL

May 11, 2026

EXECUTIVE SUMMARY

Exploits Valley Renewable Energy Corporation (EVREC, the "Proponent"), is proposing to develop, construct, and operate a wind to green ammonia project on the brownfield, former Abitibi lands, near Botwood in central Newfoundland, Canada (the "Project"). EVREC will develop an onshore wind project consisting of up to 534 wind turbines, a 150 megawatt (MW) Solar Project, and associated off-site infrastructure (export and import terminals, access roads, collector substations, and water pipelines). Included as part of the Project will be an Industrial Facility comprised of 2.6 gigawatt (GW) of electrolysers utilizing a combination of proton exchange membrane and aqueous solution units, air separation plants, ammonia plant, electrical energy storage facilities, molecular storage, water purification systems, warehousing, administrative buildings, and other associated utility infrastructure (switchyards, transformers, pipelines, emergency generators, and cooling systems) including an electrical grid connection for critical loads. Collectively the wind to green ammonia project, including all components mentioned above, will be referred to as the "EVREC Green Energy Hub", or "the Project".

All five bat species that occur in Newfoundland (*Lasiurus borealis*, *Lasiurus cinereus*, *Lasionycteris noctivagans, Myotis lucifugus,* and *Myotis septentrionalis*) are listed as provincially "Endangered", and the two resident species of Newfoundland (*Myotis lucifugus* and *Myotis septentrionalis*) are also listed as federally "Endangered". A desktop review and field studies were undertaken to gather information on bat species and associated habitat in the Project Area (PA). Objectives included assessing the presence of bats and bat habitat within the PA to inform Project design as well as mitigation and management practices.

Terrestrial habitat mapping was used to identify potential bat foraging and roosting habitat. A model of suitable bat habitat identified 5,500.2 hectares of suitable foraging habitat and 13,731.2 hectares of suitable roosting habitat within the PA.

Passive acoustic monitoring was also conducted from April to December in 2024, capturing the entirety of the active bat season. Following protocols outlined by the North American Bat Monitoring Program, 39 bat detectors were deployed in various habitat types across the Project Area. Acoustic analysis was completed following guidelines provided by the Canadian Wildlife Health Cooperative, identifying 2,927 bat passes throughout the monitoring period. Bat passes were attributed almost exclusively to resident species and were recorded between April and October 2024.

This Baseline Bat Report is intended to provide an analysis of potential interactions of the Project with bats and bat habitat within the Project Area and in surrounding areas.

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LIST OF ACRONYMS

ACCDC	Atlantic Canada Conservation Data Centre
BWPA	Botwood Wind Project Area
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
EIS	Environmental Impact Statement
ELC	Ecological Land Classification
EVREC	Exploits Valley Renewable Energy Corporation
GPS	Global Positioning System
GW	Gigawatt
ha	Hectares
IPA	Industrial Project Area
kHz	Kilohertz
km	Kilometre
LowF	Unknown low-frequency bat
LTWPA	Leading Tickles Wind Project Area
MYOLUC	Little brown myotis
MYOSEP	Northern myotis
MW	Megawatt
m	Metre
NABat	North American Bat Monitoring Program
NL ESA	Newfoundland and Labrador *Endangered Species Act*
NLFAL	Newfoundland and Labrador Department of Forestry, Agriculture and Lands
SAR	Species at Risk
SARA	*Species at Risk Act*
SLWPA	Seabrights Lakes Wind Project Area
SPA	Solar Project Area
SOCC	Species of Conservation Concern
SRank	Status rank
TLWPA	Twin Lakes Wind Project Area
WPA	Wind and Transmission Project Area
40KMyo	*Myotis* species

1.0 INTRODUCTION

Exploits Valley Renewable Energy Corporation (EVREC, the "Proponent"), is proposing to develop, construct, and operate a wind to green ammonia project on the brownfield, former Abitibi lands, near Botwood in central Newfoundland, Canada (the "Project"). EVREC will develop an onshore wind project consisting of up to 534 wind turbines, a 150 megawatt (MW) Solar Project, and associated off-site infrastructure (export and import terminals, access roads, collector substations, and water pipelines). Included as part of the Project will be an Industrial Facility comprised of 2.6 gigawatt (GW) of electrolysers utilizing a combination of proton exchange membrane and aqueous solution units, air separation plants, ammonia plant, electrical energy storage facilities, molecular storage, water purification systems, warehousing, administrative buildings, and other associated utility infrastructure (switchyards, transformers, pipelines, emergency generators, and cooling systems) including an electrical grid connection for critical loads. Collectively the wind to green ammonia project, including all components mentioned above, will be referred to as the "EVREC Green Energy Hub", or "the Project".

The Project nameplate capacity will be up to 3.5 GW of electrical power and produce 925,000 to 1,000,000 tons per year of certified green ammonia. The Project is considered an undertaking under Section 34 (1f) of the Newfoundland and Labrador Environmental Assessment Regulations, (2003), where electrical power generation that has a capacity greater than 1 MW and engages in the manufacturing of green hydrogen and ammonia, which requires the submission of an Environmental Impact Statement (EIS). The Project will involve development, construction, operations, decommissioning, and reclamation of a wind project, a solar project, an industrial facility, and water supply for green hydrogen production and ammonia synthesis, including air separation, water treatment, and ammonia storage.

The Project will use the existing Port of Botwood for its shipping needs, which has historically served various clients across industrial sectors for over 100 years. The Project is proposed on land parcels totaling 35,834 hectares (ha) in central Newfoundland and Labrador (defined hereafter as the Project Area). The Project is centered at 49.161441° N, 55.486669° W.

The Project Area (PA) refers to the combination of all Project components. For the purposes of this baseline report, the Project consists of three components: (i) Wind Project and Transmission line; (ii) Solar Project; and (iii) hydrogen and ammonia production facilities (defined hereafter as the Industrial Facility). Within the Wind Project Area (WPA) siting of wind turbine generators will be within four areas: Botwood, Twin Lakes, Seabrights Lakes, and Leading Tickles. The Industrial Facility and Solar Project, along with associated infrastructure, are co-located on a parcel southwest of the Town of Botwood.

1.1 Regulatory Context

There are five species of bats documented in Newfoundland, of which two are resident species that reside in the province year-round and three are migratory species that overwinter in the southern United States. Resident species include the little brown myotis (*Myotis lucifugus*) and northern myotis (*Myotis septentrionalis*). Migratory species include the eastern red bat (*Lasiurus borealis*), hoary bat (*Lasiurus cinereus*), and silver-haired bat (*Lasionycteris*

noctivagans). The eastern red bat and silver-haired bat have rarely been detected within the province.

All five bat species which occur in Newfoundland are listed as provincially "Endangered" and protected under the Newfoundland and Labrador *Endangered Species Act* [ESA, (Newfoundland and Labrador, 2001)]. Additionally, the little brown myotis and northern myotis were declared "Endangered" under Schedule 1 of the *Species At Risk Act* [SARA, (Canada, 2002)] on November 26, 2014. These designations were driven by the emergence of white-nose syndrome, a disease caused by the fungus (*Geomyces destructans*), which was first detected in Canada in 2010 and spread to Newfoundland by 2017 (NLFFA, 2023). All three migratory bat species were listed by Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in May 2023 as "Endangered" (COSEWIC, 2023).

1.2 Assessment Spatial Boundaries

The Project is proposed on land parcels totaling 35,834 ha in central Newfoundland and Labrador (Drawing 1, Appendix A). The Project is centered at 49.161441° N, 55.486669° W. Within the PA, there are three key components which are presented below and show in Drawing 1, Appendix A:

- Industrial Facility
    - Industrial Project Area (IPA) is 1,157 ha
- Solar Project
    - Solar Project Area (SPA) is 242 ha
- Wind Project Areas (WPA)
    - Botwood Wind Project
        - Botwood Wind Project Area (BWPA) is 20,802 ha
    - Leading Tickles Wind Project
        - Leading Tickles Wind Project Area (LTWPA) is 2,391 ha
    - Seabrights Lakes Wind Project
        - Seabrights Lakes Wind Project Area (SLWPA) is 3,555 ha
    - Twin Lakes Wind Project
        - Twin Lakes Wind Project Area (TLWPA) is 7,686 ha

2.0 BASELINE PROGRAM METHODS

A desktop review and field studies were undertaken to gather information on bat species and associated habitat in the PA. Objectives were as follows:

- Assess the presence of suitable bat habitat within the PA.
- Assess observations, species diversity, and habitat utilization of bats within the PA during the active bat period (spring to fall).
- Use the information collected to inform and refine the Project design (i.e., avoid impacts to species at risk (SAR)/species of conservation concern (SOCC) and their habitats).
- Use the information collected to inform mitigation and management practices.

2.1 Desktop Review Methods

Databases and online resources referenced as part of this desktop review include:

- Ecological Land Classification (ELC) (Appendix B)
- Newfoundland Forestry, Agriculture and Lands (NLFAL) – Land Cover (NLFAL, 2025)
- Atlantic Canada Conservation Data Centre (ACCDC) data report (ACCDC, 2026)

2.1.1 Suitable Habitat Modelling

There are three habitat features considered to be significant for bats: hibernacula for overwintering maternity roosts for birthing and raising young and migratory stopovers for rest periods during spring and fall migration. Hibernacula are overwintering sites that are typically located in abandoned mines, natural caves, or anthropogenic structures and can support hundreds of bats (ECCC, 2015).

Maternity colonies are poorly documented in Newfoundland, with limited desktop information regarding these sites' location and use (ECCC, 2015). Females may prefer to roost together in manmade structures or in cavities or under the bark of large diameter, mature trees, especially trembling aspen (*Populus tremuloides*) (Betts, 1998; CWHC, 2024; Johnson et al., 2015). In Newfoundland, Park and Broders (2012) describe that when trembling aspen isn't locally common, that bats will use black spruce (*Picea mariana*) for maternity roosting.

Migration is one of the most poorly understood components of bat biology, at both a regional [<200 kilometres (km)] and long distance (>1000 km) scale for both migratory and non-migratory bats. Migratory stopovers used for short term rest or sanctuary are thought to be located on islands or shorelines of large bodies of water and along linear geographic features such as riparian zones or mountain ranges (McGuire et al., 2012).

Additional bat habitat includes foraging habitat and over-day roosting habitat. Ideal habitat for bat foraging and over-day roosting includes lakes, wetlands, watercourses, forest edges, cliffs, rock outcrops, talus slopes, and mature hardwood forests (Broders & Forbes, 2004; Burgar et al., 2015; COSEWIC, 2023; ECCC, 2015; Loeb & O'Keefe, 2006).

Habitat modelling was used to identify potential locations of bat foraging and roosting habitat within the PA. Hibernation habitat was not modelled as locations of potential unknown hibernacula cannot be well predicted with available data; and hibernacula may be large distances from other habitats where bat activity may be detected (i.e. roosting, foraging).

Land with characteristics associated with bat foraging and roosting habitat were identified using provincial land cover data (NLFAL, 2025) and ELC, a model developed by Strum Consulting which classifies the landscape into categories based on aerial imagery, land cover, and LiDAR data (Appendix B). Forested areas represent suitable roosting habitat (over-day or maternity). Forest containing trembling aspen was highlighted to emphasize areas with a greater potential to represent good roosting habitat. Suitable foraging habitat includes wetlands and a 50 metre (m) buffer on waterbodies, watercourses, and existing roadways (edge habitat).

2.1.2 Other Sources of Information

The ACCDC data report (ACCDC, 2026) was reviewed for records of bats within 5 km of the Project center. Additionally, the Recovery Strategy for little brown myotis, northern myotis, and tri-colored bat (ECCC, 2015) was reviewed to assess presence of critical habitat within the PA. Other sources of information to identify bat habitat along with historical records and observations of bat presence are scarce within the regional area of the Project.

2.2 Field Assessment Methodology

2.2.1 Passive Acoustic Monitoring

Monitoring conducted within the PA consisted of passive acoustic monitoring during the 2024 active bat season. Detector locations were selected based on protocols outlined by the North American Bat (NA Bat) Monitoring Program (Loeb et al., 2022). The PA was partitioned using the 10 km by 10 km NA Bat grid, which was further subdivided into 5 km by 5 km quadrats. Potential bat habitat was identified within each quadrat using ELC, and deployment locations were selected to capture various habitat types, with one detector deployed per quadrat. As a result, 43 potential monitoring sites were identified. Upon deployment, four of these sites were found to be inaccessible and no detector was placed. In total, 39 detectors were deployed on trees at a height of approximately 1.5 m. Global Positioning System (GPS) points and supplementary information (i.e., habitat descriptions) were recorded for each location.

Acoustic monitoring was conducted using Song Meter Mini Bat 2 Li-Ion detectors from Wildlife Acoustics, operating with firmware version 4.3. The detectors were programed to monitor from 30 minutes before sunset to 30 minutes after sunrise to correspond with nightly bat activity. Audio recordings were made in full spectrum with a 256 kilohertz (kHz) sample rate and a minimum trigger frequency of 16 kHz. The trigger window was three seconds with a maximum recording length of 15 seconds.

Passive acoustic monitoring was conducted for 242 consecutive days within the PA between April 13 and December 11, encompassing the spring, summer, and fall active bat seasons. Sensitive equipment deployed in harsh, remote environments is prone to malfunction and difficult to monitor and maintain. Due to related complications, multiple acoustic detectors experienced interruptions in data collection during their monitoring periods (noted in Table 2.1). Additionally, detectors were deployed and retrieved over several days (due to the overall number of detectors used for the Project), resulting in varied numbers of monitoring nights between detectors.

A total of 39 detectors were deployed within the PA, including:

- One detector in the SPA
- Three detectors in the IPA
- 35 detectors in the WPA

Supplementary data for each detector is provided in Table 3.1 and detector locations are presented in Drawing 2 (Appendix A).

Table 2.1: Monitoring Periods for Detectors

Detector ID	Detector Location	Project Component	Habitat Description	Monitoring Duration (2024)
BAT-01	49.104868, -55.418265	IPA	Softwood stand between a harvested area and a large bog.	April 13 to December 3*
BAT-02	49.279341, -55.386643	WPA (BWPA)	Uneven age hardwood forest near an open wetland containing standing water.	April 13 to December 3
BAT-03	49.493780, -55.437404	WPA (LTWPA)	Small clearing at the edge of a lake opposite a rocky cliff face. Near flowing water. Near the coastline.	April 15 to December 2*
BAT-04	49.326465, -55.826138	WPA (TLWPA)	Patch of forest containing snags. Near the edge of a large clearcut close to a lake edge.	April 14 to December 3
BAT-05	49.451925, -55.449143	WPA (LTWPA)	Young hardwood forest bordering on a bog containing standing water and snags. At the edge of a paved road.	April 15 to December 3*
BAT-06	49.095810, -55.430282	IPA	Regenerating clearcut with a few hardwood snags near a lake.	April 13 to December 3
BAT-07	49.114307, -55.424445	SPA	Treed bog adjacent to a large, regenerating clearcut.	April 13 to December 3*
BAT-08	49.245172, -55.403143	WPA (BWPA)	Young spruce forest with patches of standing water adjacent to a dirt road.	April 13 to November 30*
BAT-09	49.119637, -55.380987	IPA	Forest edge alongside a bog containing standing water.	April 13 to December 3*
BAT-10	49.270364, -55.255887	WPA (BWPA)	Open wetland near a coastal paved road. Snags present in the surrounding area.	April 13 to December 3
BAT-11	49.433864, -55.449930	WPA (LTWPA)	Shrub bog containing standing water and snags adjacent to a dirt road.	April 15 to November 27
BAT-12	49.328177, -55.692127	WPA (SLWPA)	Edge of a young softwood forest bordering on a large open wetland. Near flowing water.	April 14 to December 3*
BAT-13	49.265729, -55.326355	WPA (BWPA)	Patch of softwood trees within a large, shrub-dominated wetland containing standing water.	April 13 to December 3
BAT-14	49.299628, -55.574842	WPA (SLWPA)	Regenerating harvest with patches of remaining trees near several small waterbodies.	April 15 to December 3
BAT-15	49.257330, -55.416239	WPA (BWPA)	Young softwood forest.	April 13 to November 30
BAT-16	49.393566, -55.466823	WPA (LTWPA)	Shrub barrens containing multiple snags near a small waterbody.	April 15 to December 2*
BAT-17	49.295723, -55.560586	WPA (SLWPA)	Softwood forest regenerating after harvesting.	April 15 to December 3*
BAT-18	49.340744, -55.781633	WPA (TLWPA)	Open harvested area surrounded by mature softwood forest. Flowing brook and a rocky cliff nearby.	April 14 to December 11*

Detector ID	Detector Location	Project Component	Habitat Description	Monitoring Duration (2024)
BAT-19	49.354127, -55.748914	WPA (TLWPA)	Uneven age softwood forest adjacent to a dirt road. Surrounded by mixedwood forest containing hardwood snags.	April 14 to December 1
BAT-20	49.336666, -55.722529	WPA (SLWPA)	Young, roadside softwood forest containing tall deciduous shrubs and multiple snags.	April 14 to December 1
BAT-21	49.315575, -55.597053	WPA (SLWPA)	Clearcut with few large trees and little regeneration.	April 14 to December 3*
BAT-22	49.208416, -55.358537	WPA (BWPA)	Previously harvested, sparsely treed softwood forest.	April 15 to December 3*
BAT-23	49.250160, -55.292962	WPA (BWPA)	Young softwood forest adjacent to a large, open harvest.	April 15 to December 3*
BAT-24	49.175501, -55.393473	WPA (BWPA)	Young, regenerating softwood forest at the edge of an open clearcut.	April 15 to December 3*
BAT-25	49.231423, -55.884988	WPA (TLWPA)	Mature softwood forest near multiple large wetlands.	April 17 to December 3
BAT-26	49.126843, -55.532252	WPA (BWPA)	Mid-age softwood forest at the edge of an open bog containing standing water.	April 16 to November 28*
BAT-27	49.148110, -55.452730	WPA (BWPA)	Young softwood forest adjacent to a small clearing.	April 16 to December 3*
BAT-28	49.105498, -55.606362	WPA (BWPA)	Young mixedwood forest near a large bog complex and a lakeside residential area.	April 16 to November 29
BAT-29	49.119104, -55.558442	WPA (BWPA)	Uneven-age roadside softwood forest.	April 16 to November 28*
BAT-30	49.178781, -55.430522	WPA (BWPA)	Hardwood forest edge along a harvesting corridor.	April 16 to November 28*
BAT-31	49.255341, -55.870658	WPA (TLWPA)	Large clearcut with few standing trees remaining.	April 17 to December 1
BAT-32	49.173736, -55.606747	WPA (BWPA)	Mid-age softwood forest at the edge of a small clearing at the end of a dirt road.	April 16 to December 3*
BAT-33	49.078110, -55.583276	WPA (BWPA)	Young hardwood forest regenerating after harvesting.	April 16 to December 3*
BAT-34	49.133487, -55.646028	WPA (BWPA)	Mid-age softwood forest near a dirt road.	April 16 to December 3*
BAT-35	49.168113, -55.527057	WPA (BWPA)	Softwood forest edge bordering on a large wetland complex.	April 16 to December 3*
BAT-36	49.234711, -55.834397	WPA (TLWPA)	Softwood forest edge bordering on a large wetland complex.	April 17 to December 3*
BAT-37	49.228047, -55.856068	WPA (TLWPA)	Small roadside wetland surrounded by softwood forest.	April 17 to December 1
BAT-38	49.217882, -55.489734	WPA (BWPA)	Roadside low shrub wetland containing standing water and a few snags.	April 16 to December 3*

Detector ID	Detector Location	Project Component	Habitat Description	Monitoring Duration (2024)
BAT-39	49.214568, -55.875549	WPA (TLWPA)	Roadside harvest with patches of mid-age softwood forest remaining and flowing water nearby.	April 17 to December 3*

*Denotes detectors missing at least one consecutive month of data.

2.2.2 Data Analysis

Analysis of acoustic data was completed following the Canadian Wildlife Health Cooperative's Guide for Bat Monitoring in Atlantic Canada (McBurney & Segers, 2021). Processing was completed using Kaleidoscope Pro software version 5.6.4 from Wildlife Acoustics, complementary to the detectors used. The sound files (spectrograms) were analyzed by the software for potential bat vocalizations and speciated when possible. Classifications of all bat passes were then manually verified by a trained biologist.

Due to their similarity, the calls of Newfoundland's two resident species (little brown myotis and northern myotis) can be difficult to reliably distinguish from one another (O'Farrell & Gannon, 1999), so these calls were rarely identified to the species level. Unknown calls between 20 kHz and 40 kHz were labelled as unknown low frequency bats (LowF). Identification codes used for bat species or groups are listed below:

- MYOLUC Little brown myotis
- MYOSEP Northern myotis
- 40KMyo *Myotis* species (little brown myotis or northern myotis)
- LowF Unknown low-frequency bat (hoary bat or silver-haired bat)

3.0 RESULTS

3.1 Desktop Review Results

3.1.1 Terrestrial Habitat Mapping

Based on modelling, suitable bat habitat was found to exist throughout the PA (Drawing 3A-E, Appendix A). In total, 13,731.2 ha of suitable roosting habitat and 5,500.2 ha of suitable foraging habitat are present within the PA (Table 3.1). Note that, as LiDAR data was not available across the entire PA, suitable foraging and roosting habitat were not able to be predicted (or were not predicted with the same parameters) in some areas of the PA (Drawing 3A-E, Appendix A).

Table 3.1: Suitable Bat Habitat Present Within the PA

Project Component		Suitable Foraging Habitat (ha)	Suitable Roosting Habitat (ha)	
			Does Not Contain Trembling Aspen	Contains Trembling Aspen
SPA		22.6	5.5	0.0
IPA		180.9	77.0	38.9
WPA	BWPA	3,431.0	7,669.4	371.3
	TLWPA	785.2	3,336.2	109.4
	SLWPA	565.1	824.3	46.4
	LTWPA	515.4	1,227.8	25.0
PA Total		**5,500.2**	**13,140.2**	**591.0**
			Total Roosting Habitat: 13,731.2	

3.1.2 Other Sources of Information

The ACCDC Data Report (ACCDC, 2026) completed for this Project did not indicate any records of bats within 5 km of the Project center. In addition, the Recovery Strategy for little brown myotis, northern myotis, and tri-colored bat does not indicate the presence of any critical habitat for *Myotis* species within the PA (ECCC, 2015).

3.2 Field Assessment Results

Throughout the PA, 2,927 bat passes were recorded during the monitoring period. Bat passes were detected each month from April to October and occurred between 18:00 and 06:00. Detections consisted almost entirely of *Myotis* species, with just one recording of a low frequency species. Though detections were dispersed throughout the PA, more bat passes were detected in the WPA (Drawing 2, Appendix A) and higher average bat passes per detector were recorded in the IPA than in any other Project area. It is important to note that bat passes indicate presence of bats – the number of detections cannot be directly correlated to abundance in any given location.

3.2.1 Solar Project Area

One bat detector was deployed in the SPA during passive acoustic monitoring (Table 3.2). This detector was located within a treed bog consisting primarily of spruce (*Picea* spp.) and alders (*Alnus* spp.). Over the monitoring period, three bat passes were detected within the SPA. Each of these recordings were identified as *Myotis* species, with one occurring in mid-July and two occurring in early August. In comparison to other detectors, a very low level of activity was recorded within the SPA, indicating relatively low abundance in this area. This detector was not located within bat habitat identified during habitat modelling, and the SPA lacks suitable bat habitat relative to other Project components.

Table 3.2: Bat Passes Detected Within the SPA

Detector ID	40KMyo	Total Bat Passes
BAT-07	3	3
	SPA Total	**3**

3.2.2 Industrial Project Area

Three detectors deployed in the IPA, which recorded a total of 1,256 bat passes during the monitoring period (Table 3.3). This resulted in an average of 419 bat passes per detector across the IPA, which was the highest among the Project areas. All bat passes were identified as *Myotis* species.

Table 3.3: Bat Passes Detected Within the IPA

Detector ID	40KMyo	Total Bat Passes
BAT-01	30	30
BAT-06	18	18
BAT-09	1,208	1,208
	IPA Total	**1,256**

Most of the recordings (96.2%) were detected by BAT-09. This detector was deployed adjacent to an NL Hydro transmission line over a wetland. This detector recorded the most bat passes of any other detector in the PA, accounting for 41.3% of total bat pass detections throughout the monitoring period. BAT-09 was deployed in foraging habitat identified through suitable habitat modelling. BAT-01 was located on a knoll near a small regenerating red pine (*Pinus resinosa*) grove and a large bog, and BAT-06 was in a previously clearcut regenerating spruce forest. Neither of these detectors were in suitable bat habitat, based on modelling.

Observed bat activity was highest during June and mostly concentrated at BAT-09, with substantially fewer detections during all other months (Figure 3.1). This could be related to timing of offspring births and subsequent dispersal (Slough et al., 2023). Overnight bat activity was observed to peak between 23:00 and 00:00, with most activity being recorded between 22:00 and 04:00.

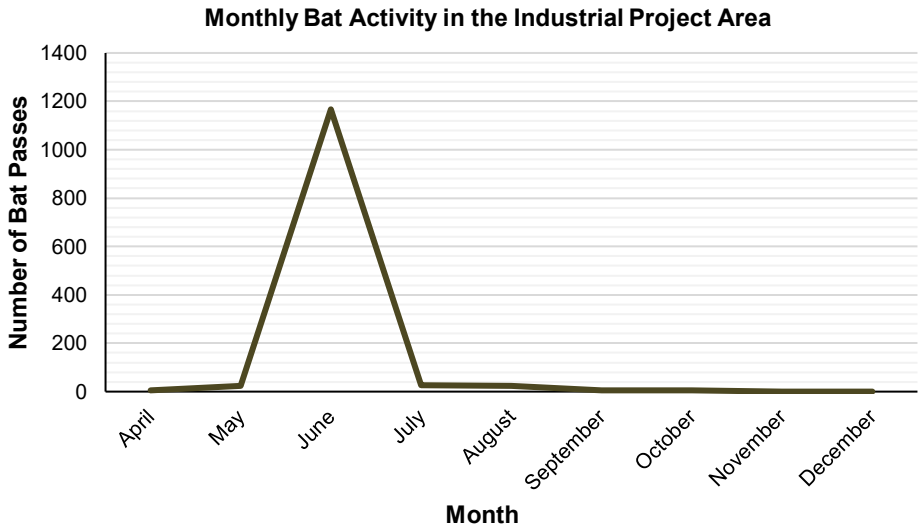

Figure 3.1: Bat Activity by Month Within the Industrial Project Area

3.2.3 Wind Project Area

There were 35 bat detectors deployed in the WPA. The detectors recorded 1,668 bat passes throughout the monitoring period (Table 3.4), resulting in an average of 48 bat passes per detector across the WPA. Species and species groups recorded include MyoLuc (1%), MyoSep (2%), 40KMyo (97%), and LowF (0.06%).

Table 3.4: Summary of Recorded Bat Passes within the WPA

Detector ID	MyoLuc	MyoSep	40KMyo	LowF	Total
BWPA					
BAT-02	0	0	20	0	20
BAT-08	0	0	4	0	4
BAT-10	7	0	4	0	11
BAT-13	0	0	21	0	21
BAT-15	0	0	4	0	4
BAT-22	0	0	2	0	2
BAT-23	0	0	3	0	3
BAT-24	0	0	229	0	229
BAT-26	0	0	22	0	22
BAT-27	0	0	75	0	75
BAT-28	0	0	19	0	19
BAT-29	0	0	19	0	19
BAT-30	0	0	17	0	17
BAT-32	0	0	6	0	6
BAT-33	0	0	99	0	99
BAT-34	0	0	2	0	2
BAT-35	0	0	12	0	12
BAT-38	0	0	21	0	21
BWPA Total	**7**	**0**	**579**	**0**	**586**
TLWPA					
BAT-04	0	0	52	0	52
BAT-18	0	0	50	0	50
BAT-19	0	0	10	1	11
BAT-25	0	0	6	0	6
BAT-31	9	18	55	0	82
BAT-36	0	0	13	0	13
BAT-37	0	0	52	0	52
BAT-39	0	0	13	0	13
TLWPA Total	**9**	**18**	**251**	**1**	**279**
SLWPA					
BAT-12	0	0	54	0	54
BAT-14	0	0	20	0	20
BAT-17	0	0	126	0	126
BAT-20	0	0	22	0	22

Detector ID	MyoLuc	MyoSep	40KMyo	LowF	Total
BAT-21	6	12	5	0	23
SLWPA Total	**6**	**12**	**227**	**0**	**245**
LTWPA					
BAT-03	0	0	379	0	379
BAT-05	0	0	153	0	153
BAT-11	0	0	8	0	8
BAT-16	0	0	18	0	18
LTWPA Total	**0**	**0**	**558**	**0**	**558**
WPA Total	**22**	**30**	**1,615**	**1**	**1,668**

Throughout the WPA, detected bat activity was observed to be low in April, highest in July, and low in October (Figure 3.2). No bat passes were recorded in November or December. There were additional, smaller peaks in activity observed in May and September. As almost no migratory species were detected during acoustic monitoring, this indicates that resident bat species are likely emerging from hibernacula in March and April and returning to hibernacula in September and October.

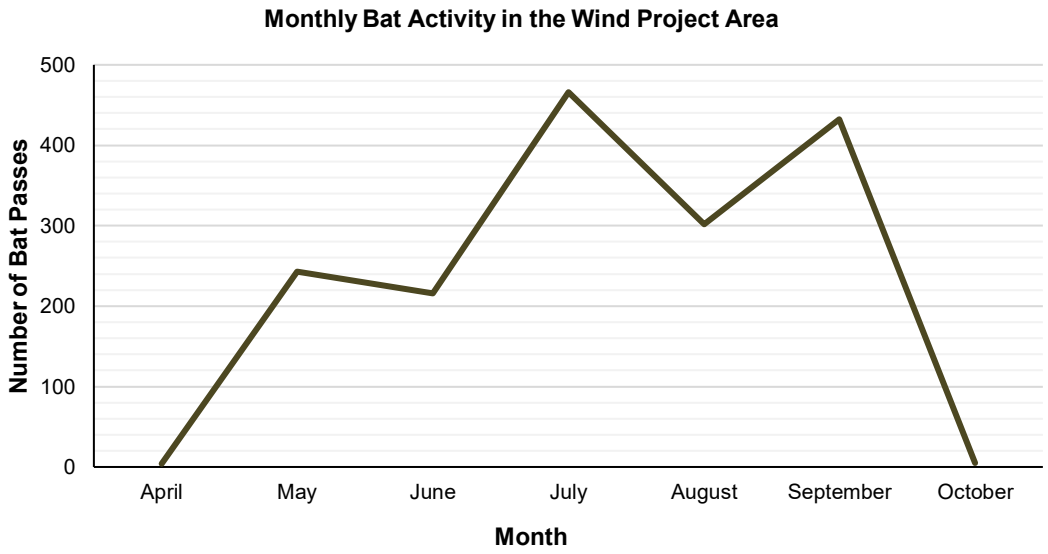

Figure 3.2: Bat Activity by Month Within the Wind Project Area

3.2.3.1 Botwood Wind Project Area

There were 18 bat detectors deployed in the BWPA. These covered a range of habitats including hardwood, softwood, and mixedwood forests, as well as wetlands and regenerating forests. Based on field observations, the BWPA has the highest concentration of anthropogenic structures in the PA. Similar manmade structures are often preferred for roosting by little brown myotis (Park & Broders, 2012). There were 586 bat passes detected over the monitoring period, of which seven passes were identified as little brown myotis, while the remaining were identified as *Myotis* species. The number of bat passes recorded at each detector ranged from

two to 229 (Table 3.4). There was an average of 33 bat passes per detector within the BWPA, reflecting a lower rate of detection than other regions of the WPA.

Detector BAT-24 recorded 229 bat passes, representing 39% of all recordings for the BWPA. This detector was placed approximately 750 m from the community of Northern Arm, Newfoundland. The location was on the edge of a domestic wood cutting lot in a forest comprised primarily of birch (*Betula* spp.) and spruce. The transition from forest to cut block along with the presence of streams and standing water in the area may act as a breeding ground for prey insects, providing an ideal foraging location, especially for little brown myotis (Slough et al., 2023). BAT-24, along with nine other detectors in the BWPA, were in suitable foraging habitat identified through suitable habitat modelling.

Detectors BAT-33 and BAT-27 also recorded higher than average numbers of bat passes, with 99 and 75 recordings, respectively. BAT-33 was within a hardwood [white birch (*Betula papyrifera*)] dominant forest, while BAT-27 was within a softwood dominant forest near a clearing.

Bat activity was observed to peak in May and July, with a decrease in activity detected in June, August, and September. No activity was detected in November or December, indicating a return to hibernacula during September and October. This aligns with activity patterns observed within the WPA as a whole. Monthly bat activity for the BWPA is summarized in Figure 3.3.

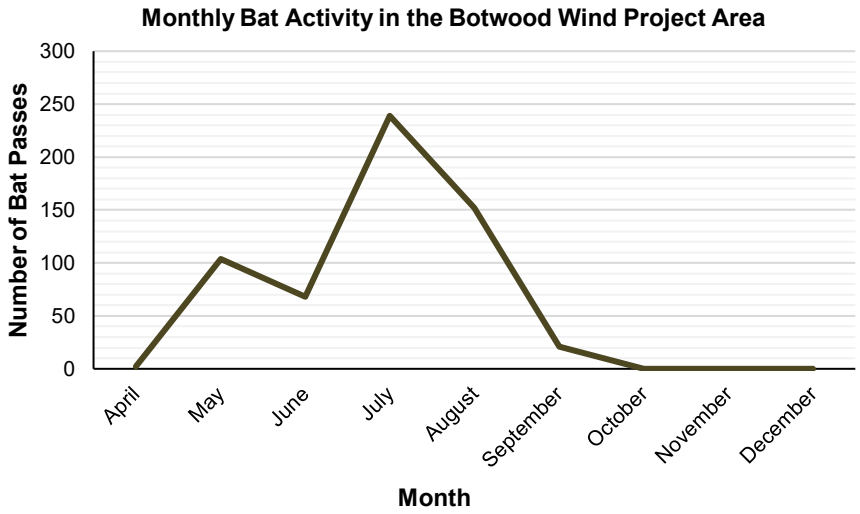

Figure 3.3: Bat Activity by Month Within the Botwood Wind Project Area

Nightly activity peaked at 22:00 followed by a gradual decrease until dawn (Figure 3.4). This pattern of activity is consistent with patterns observed in other areas of the WPA (Figure 3.10) and may indicate that recorded bats are mainly northern myotis, which tend to forage earlier in the night than little brown myotis (J. B. Johnson et al., 2013).

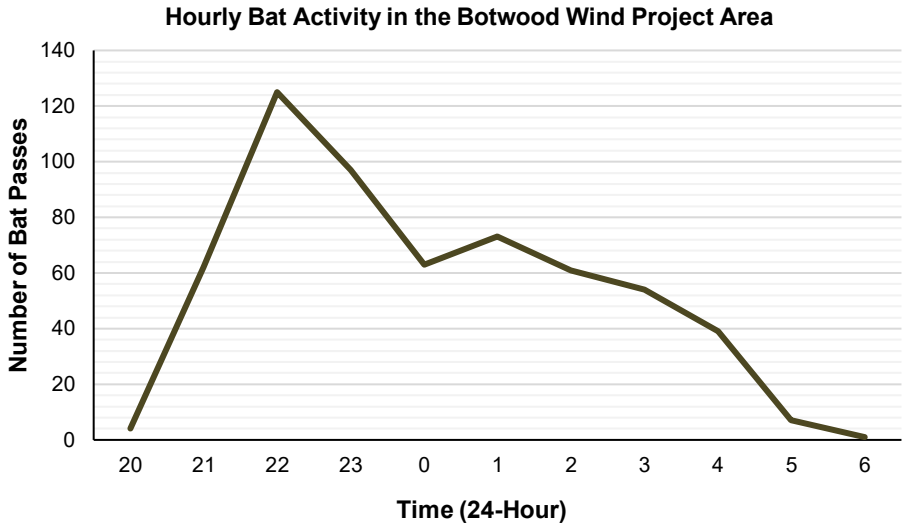

Figure 3.4: Bat Activity by Hour Within the Botwood Wind Project Area

3.2.3.2 Twin Lakes Wind Project Area

There were eight detectors deployed in the TLWPA. Over the course of the monitoring period, a total of 279 bat passes were detected. Of these, 251 were *Myotis* species (unable to be identified to the species level), nine were little brown myotis, 18 were northern myotis, and one was an unknown low frequency bat. The number of bat passes recorded at each detector ranged from six to 82 (Table 3.4). There was an average of 35 calls per detector throughout the TLWPA, which is lower than the average for the WPA as a whole.

Detector BAT-19 detected a low frequency bat on October 10, 2024. Since resident *Myotis* bats are both high frequency species, this call was likely generated by a migratory species. Identification of the species was not able to be completed with confidence due to the poor quality of the recording (high clutter resulting in distortion of the call); however, based on the geographic location of the detector, it is probable that the low frequency bat was a hoary bat. This was the only low frequency bat pass detected during acoustic monitoring across the PA. BAT-19 was in softwood dominant forest with relatively large diameter trees, located approximately 170 m from a large brook. Along with the low frequency pass, this detector also recorded 10 *Myotis* species bat passes.

The detector that recorded the most bat passes in the TLWPA was BAT-31. This detector was in a recent commercial clearcutting area. The detector was fixed to a white birch snag with one large spruce nearby. The surrounding area was open with some small, planted spruce trees. Given the low clutter habitat, some recorded bat passes were able to be identified to the species level. BAT-31 recorded 18 northern myotis passes, nine little brown myotis passes, and a further 55 calls that were identified as *Myotis* species, for a total of 82 bat passes.

Bat activity was observed to begin in May and peak in July, with a decrease in activity in June. Activity then decreased gradually over the late summer and fall, with no detections in

November or December (Figure 3.5). This pattern is relatively consistent with patterns observed across the WPA (Figure 3.2), with bats likely emerging from hibernation in March and April and returning to hibernation in September and October.

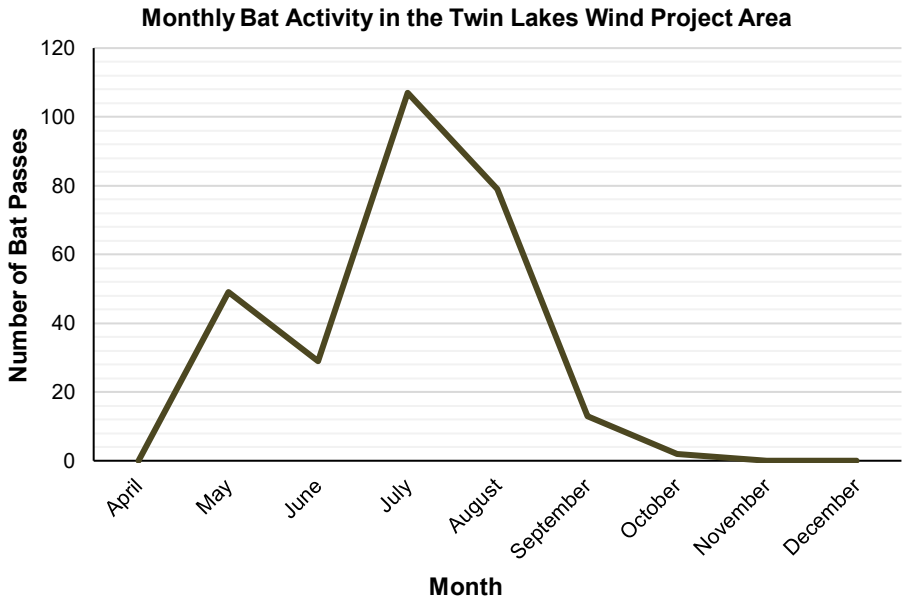

Figure 3.5: Bat Activity by Month Within the Twin Lakes Wind Project Area

Two peaks were observed in nightly activity; one occurred after 23:00 and another occurred after 03:00 (Figure 3.6). Activity within the TLWPA appears to be more consistent throughout the night than in other areas of the WPA, but activity begins and ends at similar times. This pattern was observed at other areas within the WPA (Figure 3.8). This pattern is also consistent with recent literature describing a peak in activity of little brown myotis approximately five to eight hours after sunset and a peak in the activity of northern myotis approximately one to four hours after sunset (J. B. Johnson et al., 2013), indicating that both of these species are likely present in the TLWPA.

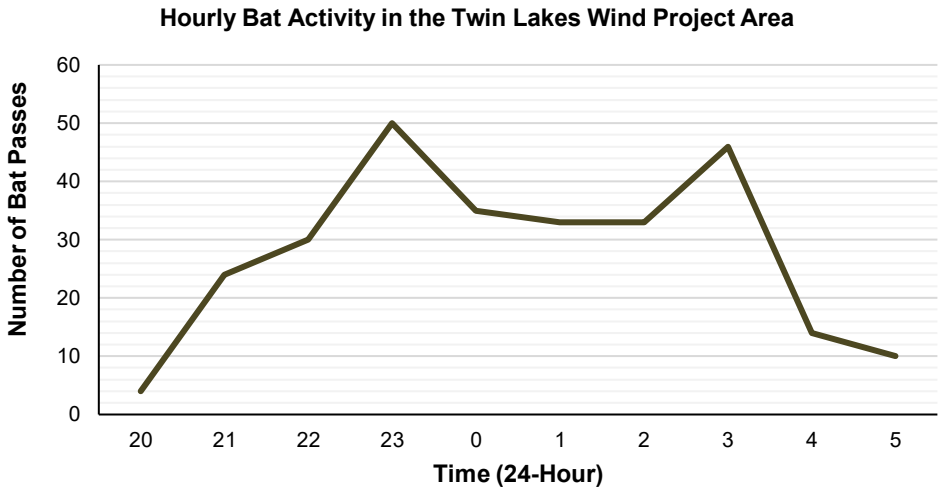

Figure 3.6: Bat Activity by Hour Within the Twin Lakes Wind Project Area

3.2.3.3 Seabrights Lakes Wind Project Area

There were five detectors deployed in the SLWPA, which has more rolling hills and cliffs than the other regions of the WPA. There were 245 bat passes recorded in the SLWPA. Of these passes, six were identified as little brown myotis, 12 as northern myotis, and the remaining 227 were classified as *Myotis* species. The number of bat passes recorded at each detector ranged from 20 to 126 (Table 3.4). This resulted in an average of 49 bat passes per detector across the SLWPA throughout the monitoring season, which is slightly higher than the overall WPA average of 48 bat passes per detector.

Detector BAT-17 detected the most bat activity in the SLWPA. This detector was located on the forest edge next to an open wetland with stagnant water. Similar areas are known to be good foraging habitat for little brown myotis (Slough et al., 2023). Detector BAT-21 was deployed on a lone birch tree snag in a commercial clear-cut block, with the nearest forest edge about 50 m away. The low clutter environment allowed for identification to the species level in some cases. Northern myotis accounted for 12 of the recordings, little brown myotis for six recordings, and another five were classified as *Myotis* species.

Bat activity in this area increased from April to July before decreasing from July to October, with no detections in November or December (Figure 3.7). This pattern is relatively consistent with patterns observed in other areas of the WPA (Figure 3.2) but, notably, does not include a decrease in activity between May and June.

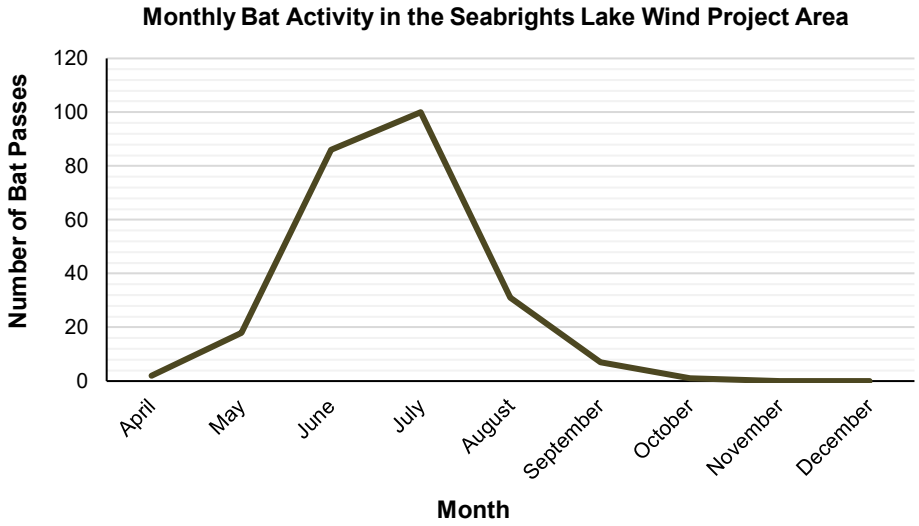

Figure 3.7: Bat Activity by Month Within the Seabrights Lake Wind Project Area

Overnight activity peaked at 22:00 and again with a lesser peak at 03:00 (Figure 3.8). This is relatively consistent with patterns of detection at other areas within the WPA (Figure 3.6). According to (J. B. Johnson et al., 2013), this double-peak pattern may also indicate the presence of both little brown myotis and northern myotis within the SLWPA.

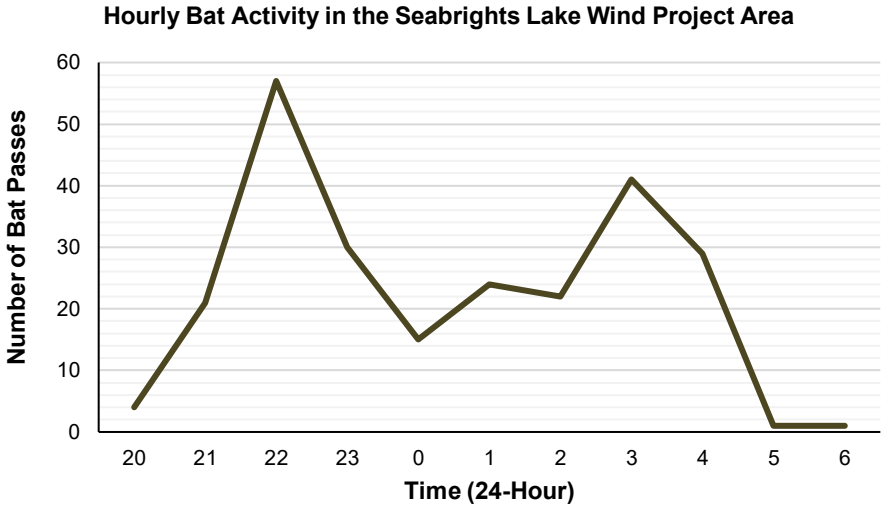

Figure 3.8: Bat Activity by Hour Within the Seabrights Lake Wind Project Area

3.2.3.4 Leading Tickles Wind Project Area

There were four bat detectors deployed in the LTWPA and 558 *Myotis* species bat passes were detected. The number of bat passes recorded at each detector ranged from eight to 379. On average, there were 140 bat passes per detector throughout the LTWPA. This was the highest average detection rate in the WPA, and noticeably higher than the overall WPA average.

The LTWPA is much closer to the coastline than the other areas of the WPA. Detector BAT-03, which was deployed just outside of the PA, accounted for 68% of bat calls in the LTWPA. This location is adjacent to a water supply pond, flowing water, and a rocky cliff face. Little brown myotis in particular tend to forage along forested edges of waterbodies (Slough et al., 2023). Detector BAT-05 recorded 28% of bat passes in this area. This detector was about 30 m from a paved road within a softwood forest. BAT-11 and BAT-16 recorded relatively few bat passes and were located on a bog and on a scrubby rock outcrop, respectively.

Bat activity remained relatively low during most of the year but sharply increased in September before decreasing again in October (Figure 3.9).

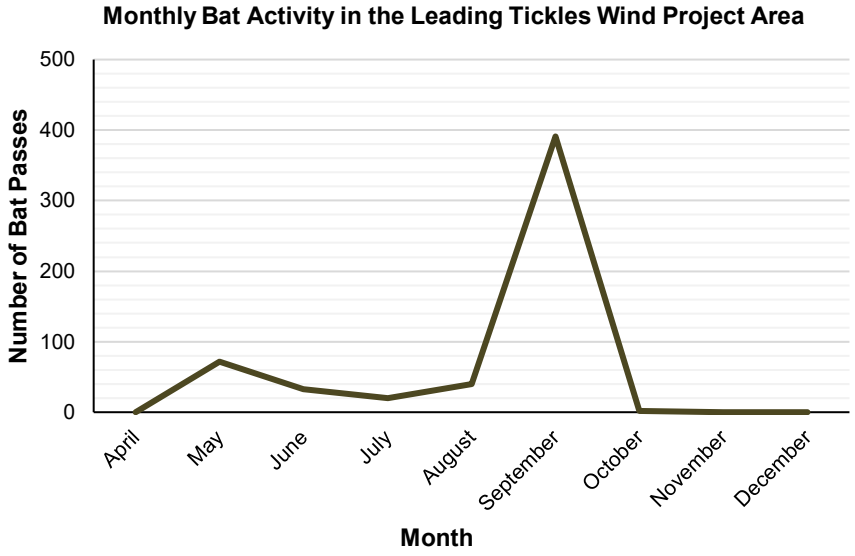

Figure 3.9: Bat Activity by Month Within the Leading Tickles Wind Project Area

Nightly activity in the LTWPA was highest at 21:00, then decreased relatively steadily throughout the night until dawn (Figure 3.10). This is consistent with patterns observed in other areas of the WPA (Figure 3.3) and may indicate that northern myotis is more prevalent than little brown myotis in this area of the WPA (J. B. Johnson et al., 2013).

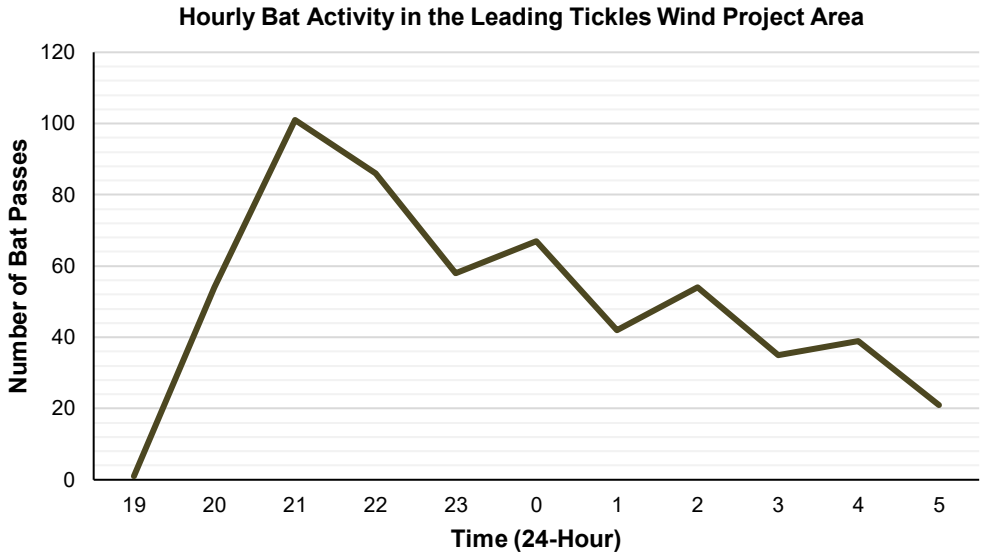

Figure 3.10: Bat Activity by Hour Within the Leading Tickles Wind Project Area

4.0 CONCLUSION

A desktop review and field assessments of bats and bat habitat were completed for the Project to inform Project design and future surveys. Terrestrial habitat mapping was used to identify potential locations of bat foraging and roosting habitat. Suitable habitat modelling identified 5,500.2 ha of suitable foraging habitat and 13,731.2 ha of suitable roosting habitat in the PA.

Passive acoustic monitoring was also conducted from April to December in 2024, capturing the entirety of the active bat season. Following protocols outlined by the North American Bat Monitoring Program, 39 bat detectors were deployed in various habitat types across the Project Area. Acoustic analysis identified 2,927 bat passes throughout the monitoring period. Bat passes identified were almost exclusively resident *Myotis* species and were recorded between April and October.

Three bat passes were detected within the SPA throughout acoustic monitoring. A high proportion of bat passes were detected within the IPA; approximately 43% of bat passes recorded Project-wide were recorded within the IPA despite it containing only three of the 39 detectors deployed across the PA. Approximately 57% of recorded bat passes occurred in the WPA, which contained 35 of the 39 detectors. Within the WPA, most bat passes were recorded in the BWPA and LTWPA. Generally, temporal patterns of bat activity aligned across the PA.

This baseline analysis is intended to support the assessment of potential Project interactions with bats and bat habitat within the Project Area and in surrounding areas. The analysis is also intended to support design considerations and the implementation of mitigations and monitoring measures to protect bats and bat habitat in and near the Project Area.

5.0 STATEMENT OF QUALIFICATIONS AND LIMITATIONS

This Report (the "Report") has been prepared by Strum Consulting ("Consultant") for the benefit of Exploits Valley Renewable Energy Corporation ("Client") in accordance with the agreement between Consultant and Client, including the scope of work detailed therein (the "Agreement").

The information, data, recommendations, and conclusions contained in the Report (collectively, the "Information"):

- Is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations").
- Represents Consultant's professional judgement in light of the Limitations and industry standards for the preparation of similar reports.
- May be based on information provided to Consultant which has not been independently verified.
- Has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued.
- Must be read as a whole and sections thereof should not be read out of such context.
- Was prepared for the specific purposes described in the Report and the Agreement.
- In the case of subsurface, environmental, or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time.

Consultant shall be entitled to rely upon the accuracy and completeness of information that was provided and has no obligation to update such information. Consultant accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental, or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

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- As required by law
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This Statement of Qualifications and Limitations forms part of the Report and any use of the Report is subject to the terms hereof.

Should additional information become available, Strum requests that this information be brought to our attention immediately so that we can re-assess the conclusions presented in this report. This report was prepared by Leah Riehl, BSc., Environmental Scientist and reviewed by Melanie Juurlink, MREM., Senior Ecology Lead.

6.0 REFERENCES

ACCDC. (2026). GIS scan of rare and provincially/federally listed species for area of interest in central Newfoundland, Newfoundland and Labrador (No. RQ1310). Atlantic Canada Conservation Data Centre.

Betts, B. J. (1998). Roosts used by maternity colonies of Silver-haired bats in northeastern Oregon. Journal of Mammalogy, 79(2), 643–650. https://doi.org/10.2307/1382994

Broders, H. G., & Forbes, G. J. (2004). Interspecific and Intersexual Variation in Roost-Site Selection of Northern Long-Eared and Little Brown Bats in the Greater Fundy National Park Ecosystem. The Journal of Wildlife Management, 68(3), 602–610. https://doi.org/10.2193/0022-541X(2004)068[0602:IAIVIR]2.0.CO;2

Burgar, J. M., Craig, M. D., & Stokes, V. L. (2015). The importance of mature forest as bat roosting habitat within a production landscape. Forest Ecology and Management, Special Section: The Characteristics, Impacts and Management of Forest Fire in China, 356, 112–123. https://doi.org/10.1016/j.foreco.2015.07.027

Canada. (2002). Species at Risk Act, S.C. 2002, c. 29. https://laws.justice.gc.ca/eng/acts/s-15.3/page-1.html#h-434501

COSEWIC. (2023). Hoary bat (Lasiurus cinereus) eastern red bat (Lasiurus borealis) silver-haired bat (Lasionycteris noctivagans): COSEWIC assessment and status report 2023. Committee on the Status of Endangered Wildlife in Canada. https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/cosewic-assessments-status-reports/hoary-bat-eastern-red-bat-silver-haired-bat-2023.html

ECCC. (2015). Recovery strategy for little brown myotis (Myotis lucifugus), northern myotis (Myotis septentrionalis), and tri-colored bat (Perimyotis subflavus). Environment and Climate Change Canada. https://www.registrelep-sararegistry.gc.ca/virtual_sara/files/plans/rs_LittleBrownMyotisNorthernMyotisTricoloredBat_e_proposed.pdf

Johnson, J. B., Rodrigue, J. L., & Ford, W. M. (2013). Nightly and yearly bat activity before and after white-nose syndrome on the fernow experimental forest in West Virginia (Research Paper NRS-24). United States Department of Agriculture.

Johnson, L. N. L., McLeod, B. A., Burns, L. E., Arseneault, K., Frasier, T. R., & Broders, H. G. (2015). Population genetic structure within and among seasonal site types in the Little brown bat (Myotis lucifugus) and the Northern long-eared bat (M. septentrionalis). PLOS One, 10(5), e0126309. https://doi.org/10.1371/journal.pone.0126309

Loeb, S. C., & O'Keefe, J. M. (2006). Habitat Use by Forest Bats in South Carolina in Relation to Local, Stand, and Landscape Characteristics. The Journal of Wildlife Management, 70(5), 1210–1218. https://doi.org/10.2193/0022-541X(2006)70[1210:HUBFBI]2.0.CO;2

Loeb, S. C., Rodhouse, T. J., Ellison, L. E., Lausen, C. L., Reichard, J. D., Irvine, K. M., Ingersoll, T. E., Coleman, J. T. H., Thogmartin, W. E., Sauer, J. R., Francis, C. M., Bayless, M. L., Stanley, T. R., & Johnson, D. H. (2022). A plan for the North American Bat Monitoring Program (NABat). Gen. Tech. Rep. SRS-208. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. https://doi.org/10.2737/SRS-GTR-208

McBurney, T. S., & Segers, J. L. (2021, March). Guide for bat monitoring in Atlantic Canada. Canadian Wildlife Health Cooperative. https://cwhc-rcsf.ca/docs/Guide%20for%20bat%20monitoring%20in%20Atlantic%20Canada.pdf

McGuire, L. P., Guglielmo, C. G., Mackenzie, S. A., & Taylor, P. D. (2012). Migratory stopover in the long-distance migrant silver-haired bat, Lasionycteris noctivagans. Journal of Animal Ecology, 81(2), 377–385. https://doi.org/10.1111/j.1365-2656.2011.01912.x

Newfoundland and Labrador. (2001). Endangered Species Act, S.N.L. 2001, c. E-10. https://www.assembly.nl.ca/Legislation/sr/statutes/e10-1.htm

Newfoundland and Labrador. (2003). Environmental Assessment Regulations 2003-220. https://assembly.nl.ca/Legislation/sr/regulations/rc030054.htm

NLFAL. (2025, February 14). Land Cover. Newfoundland and Labrador Forestry, Agriculture and Lands GeoHub. https://geohub-gnl.hub.arcgis.com/maps/ea86e8a2a296425bb4eff8fb8ee40f97/about

NLFFA. (2023, January 13). Public advisory: Public asked to report winter bat sightings. https://www.gov.nl.ca/releases/2023/ffa/0113n04/#:~:text=White%2Dnose%20syndrome%20has%20been,western%20portion%20of%20the%20Island.

NSNR. (2020). Recovery plan for tri-colored bat (Perimyotis subflavus) in Nova Scotia (Nova Scotia Endangered Species Act Recovery Plan Series, p. 226). Nova Scotia Natural Resources. https://novascotia.ca/natr/wildlife/species-at-risk/docs/RECOVERY_PLAN_Tri_colored_Bat_27Sept20.pdf

O'Farrell, M. J., & Gannon, W. L. (1999). A comparison of acoustic versus capture techniques for the inventory of bats. Journal of Mammalogy, 80(1), 24–30. https://doi.org/10.2307/1383204

Park, A. C., & Broders, H. G. (2012). Distribution and roost selection of bats on Newfoundland. Northeastern Naturalist, 19(2), 165–176.

Slough, B. G., Reid, D. G., Schultz, D. S., & Leung, M. C.-Y. (2023). Little brown bat activity patterns and conservation implications in agricultural landscapes in boreal Yukon, Canada. Ecosphere, 14(3), e4446. https://doi.org/10.1002/ecs2.4446

APPENDIX A
DRAWINGS

EVREC Green Energy Hub

Project Locator

EVREC

Project Area

- Industrial Project Area
- Solar Project Area
- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area
- Twin Lakes Wind Project Area

Transportation

- Trans-Canada Highway
- Highway
- Road
- Unpaved Road

Water Features

- Mapped Waterbodies

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
Scale: 1:200,000	Drawing #: 1
Drawn By: M. Partridge	
Checked By: N. Thomas	

strum CONSULTING

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EVREC Green Energy Hub

Bat Detection Location & Recorded Activity

EVREC

Project Area

- Industrial Project Area
- Solar Project Area
- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area
- Twin Lakes Wind Project Area

Level of Detected Bat Activity

- Call Count ≤10
- Call Count >10 and <100
- Call Count >100

Transportation

- Trans-Canada Highway
- Highway
- Road
- Unpaved Road

Water Features

- Mapped Waterbodies

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

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Scale: 1:200,000	Drawing #: 2
Drawn By: M. Partridge	
Checked By: L. Riehl	

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EVREC Green Energy Hub

Botwood Wind Project Area
Bat Habitat

EVREC

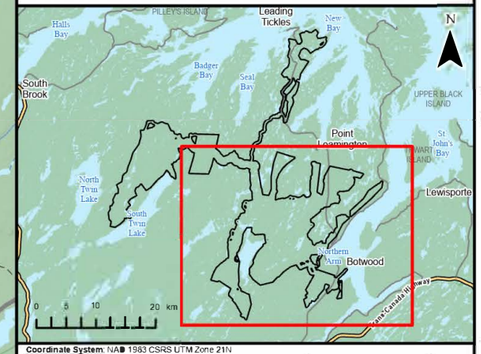
Project Area
Suitable Foraging Habitat
Suitable Roosting Habitat - Contains Trembling Aspen
Suitable Roosting Habitat - Does Not Contain Trembling Aspen
Low Potential Bat Habitat
No Data

Transportation

Trans-Canada Highway
Highway
Road
Unpaved Road

Water Features

Mapped Watercourses
Mapped Waterbodies



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Scale: 1:115,000	Drawing #: **3A**
Drawn By: M. Partridge	
Checked By: L. Riehl	

strum CONSULTING

0 2 4 6 km

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EVREC Green Energy Hub

Leading Tickles Wind Project Area
Bat Habitat

EVREC

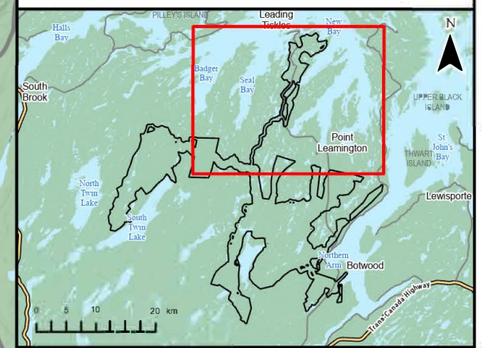
- Project Area
- Suitable Foraging Habitat
- Suitable Roosting Habitat - Contains Trembling Aspen
- Suitable Roosting Habitat - Does Not Contain Trembling Aspen
- Low Potential Bat Habitat
- No Data

Transportation

- Highway
- Road
- Unpaved Road

Water Features

- Mapped Watercourses
- Mapped Waterbodies



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Date: 2026-03-06	Project #: 24-10265
Scale: 1:95,000	Drawing #: **3B**
Drawn By: M. Partridge	
Checked By: L. Riehl	

strum CONSULTING

0 1.5 3 4.5 km

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EVREC Green Energy Hub

Seabrights Lake Wind Project Area
Bat Habitat

EVREC

Project Area

Suitable Foraging Habitat

Suitable Roosting Habitat - Contains Trembling Aspen

Suitable Roosting Habitat - Does Not Contain Trembling Aspen

Low Potential Bat Habitat

No Data

Transportation

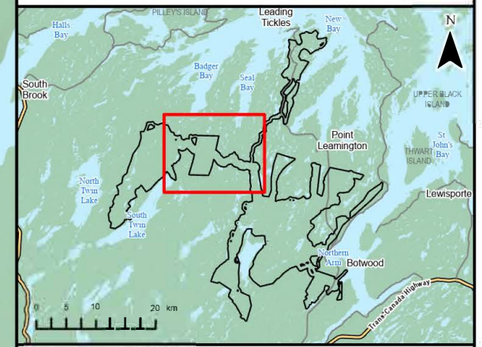
Road

Unpaved Road

Water Features

Mapped Watercourses

Mapped Waterbodies



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Date: 2026-03-06	Project #: 24-10265
Scale: 1:50,000	Drawing #: **3C**
Drawn By: M. Partridge	
Checked By: L. Riehl	

strum CONSULTING

0 0.8 1.7 2.5 km

N

Stuckless Lake

Mill Cove

Big Cove

Seabrights Lake

Lewis Lake

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EVREC Green Energy Hub

Twin Lakes Wind Project Area
Bat Habitat

EVREC

Tommy's Arm River

North Twin Lake

South Twin Lake

N

0 1 2 3 km

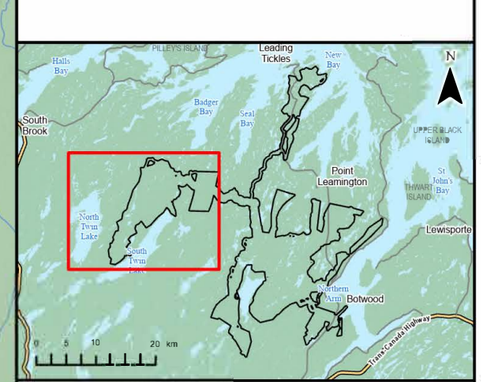
- Project Area
- Suitable Foraging Habitat
- Suitable Roosting Habitat - Contains Trembling Aspen
- Suitable Roosting Habitat - Does Not Contain Trembling Aspen
- Low Potential Bat Habitat
- No Data

Transportation

- Road
- Unpaved Road

Water Features

- Mapped Watercourses
- Mapped Waterbodies



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Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
Scale: 1:75,000	Drawing #: **3D**
Drawn By: M. Partridge	
Checked By: L. Riehl	

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EVREC Green Energy Hub

Industrial Facility & Solar Project Area
Bat Habitat

EVREC

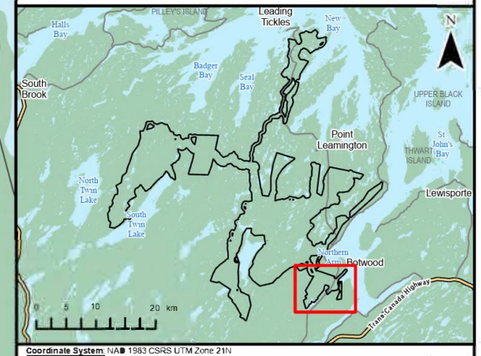
- Project Area
- Suitable Foraging Habitat
- Suitable Roosting Habitat - Contains Trembling Aspen
- Suitable Roosting Habitat - Does Not Contain Trembling Aspen
- Low Potential Bat Habitat

Transportation

- Highway
- Road
- Unpaved Road

Water Features

- Mapped Watercourses
- Mapped Waterbodies



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Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
Scale: 1:30,000	Drawing #: **3E**
Drawn By: M. Partridge	
Checked By: L. Riehl	

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APPENDIX B
ELC METHODOLOGY

ECOLOGICAL LAND CLASSIFICATION MODELING

Ecological Land Classification (ELC) was performed on the study area referred to as Botwood, Leading Tickles, Seabrights Lakes, and Twin Lakes in Newfoundland, using remote sensing techniques. This approach was chosen because it produces accurate results using aerial imagery, airborne LiDAR data, and land cover data.

Predictive modeling techniques were used to aggregate the collected data and feed the resulting product into a supervised modeling process. The supervised modeling uses class categories and assigns each pixel of the provided images into their respective classes. Various classes were chosen that were representative of each study area and ecoregion and can be summarized into ten classes listed in the table below.

Class Categories	
Coniferous	Water
Deciduous	Shiny Water
Bog	Shrub
Wetland	Road
Flark	Barren

General Class Categories used in the ELC modeling process.

Training data of the class categories listed in the above table was created for each part of the provided images where there was a spectral difference between one area and another. The difference in imagery was due to the time range that the provincial imagery was collected (2011-2021), and many other spectral conditions discussed further in the Limitations section. In total, nine areas were subdivided from the original imagery for Botwood, one for Leading Tickles, four for Seabrights Lakes, and three for Twin Lakes. Each subdivided image was processed individually through the supervised modeling process. This data was then passed into a Machine Learning Classifier, to generate the definition file for classifying each subdivided area.

The Support Vector Machine Classifier was chosen for the predictive modeling process because it offers advantages for training data that does not display normal distribution, it is less susceptible to noise in the imagery, and each class does not need to contain the same number of training samples (ESRI, 2024). It also allows for additional inputs to be considered when training the classifier, such as LiDAR derived products (e.g., digital surface model, canopy height model, and tree classification deep learning model). Alternatively, additional high-resolution imagery can be added as well as a composite dataset or as a standalone dataset.

Additional subdivision of classes based on the LiDAR derived data products occurred after the image classification was complete. The ELC model was enhanced by using a canopy height-based raster datasets to group forest criteria based on height and a depth-to-water product which allowed for interpretation of wet areas, drainage, and upland areas.

In order to help alleviate noise and misclassifications from the imagery a geoprocessing model was developed to enhance accuracy and accommodate the limitations of the input data. The model first applied a majority filter, which processes the raster by replacing each pixel's value with the most

common value in its surrounding neighbourhood. This spatial filtering technique helps to reduce noise and smooth out the raster, improving the overall quality of the data. Next, the raster was resampled to three-meter resolution, adjusting the pixel size to allow for some generalization and faster computing while maintaining detail through interpolation techniques.

Following resampling, the region group tool was applied to the raster. This tool groups connected pixels that share the same classification value, identifying distinct regions or clusters of contiguous pixels. Once the regions are defined, the extract by attributes tool was used to filter out unwanted regions or misclassified areas based on specific attributes. This step ensures that the majority of classifications are valid, and properly classified regions remain in the raster, refining the dataset.

The nibble tool was used to fill in any gaps or voids that may have been created during the previous steps, such as areas removed due to misclassification. The nibble tool works by replacing pixel areas with no data with values from neighboring pixels, ensuring continuity and a more seamless raster output. The result of this process is a cleaned, refined, and continuous raster dataset, with limited misclassifications, enhanced accuracy, and a spatial resolution suited for more efficient analysis.

Limitations

As with all remote sensing data products, it is important to understand the limitations on which the model was built, and the way that the imagery was interpreted. The main source of potential error occurred with the provincial imagery dataset. There were many occurrences of blurriness, haziness, off nadir image capture (i.e., significant leaning of elevated features such as trees), and various lighting conditions which affected the ability of the Machine Learning Classifier to model the study areas. For instance, part of the image could have contained defined pixel values for a dark green softwood stand, but elsewhere this defined pixel value could have corresponded to a hardwood stand, or shrubs along a watercourse, etc. This created confusion in the model, thus resulting in misclassification. Nevertheless, the majority of this misclassification was addressed with various LiDAR inputs to the Support Vector Machine Classifier; however, misclassification still occurred where imagery was the poorest.

REFERENCES

ESRI. (2024). *Train Support Vector Machine Classifier (Image Analyst)-ArcGIS Pro*. Retrieved from https://pro.arcgis.com/en/pro-app/latest/tool-reference/image-analyst/train-support-vector-machine-classifier.htm

APPENDIX K.2

Operational Curtailment & Bat Mortality Mitigation

Prepared by: Exploits Valley Renewable Energy Corporation

ENVIRONMENTAL IMPACT STATEMENT
EVREC Green Energy Hub
Exploits Valley Renewable Energy Corporation

EXPLOITS VALLEY RENEWABLE ENERGY CORPORATION

STRATEGY PAPER

OPERATIONAL CURTAILMENT & BAT MORTALITY MITIGATION

April 2026

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1. Executive Summary

Abraxas Power, through its subsidiary Exploits Valley Renewable Energy Corporation (EVREC), is developing a >3 GW wind to green ammonia project in Central Newfoundland that will produce ~1.04 million tonnes/year of green ammonia for export, designed and certified to worldclass standards. On 4 April 2025, the provincial Department of Environment and Climate Change issued Environmental Impact Statement (EIS) Guidelines that, by default, require *blanket* operational curtailment for bats (criteria: July 1–Oct 1; 30 min before sunset to 30 min after sunrise; ≥ 6 °C ambient temperature; blades feathered/locked ≤ 6.0 m/s; cut-in > 6.0 m/s) unless an adaptive framework using proven tools is formally approved. This strategy paper responds to this requirement with a science-based alternative that preserves environmental outcomes while safeguarding renewable energy yield.

Using regional post-construction evidence from Atlantic Canada and EVREC's extensive 2024 acoustic baseline, the Project's expected bat mortality level at full build-out (up to 530 turbines) is projected at ~141 bats/year (plausible range ~80–196), driven by a local community dominated by resident *Myotis* bats and reflecting a very low migratory activity—conditions historically associated with low turbine-related mortality in Atlantic Canada. On this basis, *upfront blanket curtailment is not justified*. Instead, EVREC proposes an avoid–minimise–monitor–mitigate hierarchy: (i) stay out of the highest-risk coastal/shoreline areas, (ii) apply conservative setbacks, (iii) complete robust and post-commissioning monitoring with corrected estimates, and (iv) deploy targeted operational measures only where turbine-level triggers are exceeded.

Design commitments already embedded in the project layout include buffers to water/wetlands, cabins, public roads and steep terrain, before any operational mitigation is considered. Post-construction, EVREC will implement turbine-level thresholds and respond proportionately with lighting minimisation, smart curtailment (predictive and/or acoustic-activated) and, only if further necessary, sectoral curtailment.

- **Tier 1 – Advisory**: ≥ 3 bats/turbine within the search window → confirm data quality, check lighting, activate deterrents (if installed) during peak windows.
- **Tier 2 – Action**: ≥ 5 bats/turbine within the search window → activate smart curtailment at that turbine (or zone) during risk windows (e.g., night-time, temperature above bat-active thresholds, and winds below curtailment set-point).
- **Tier 3 – Elevated**: ≥ 8 bats/turbine within the search window → raise curtailment set-point for that turbine/zone and operate deterrents continuously through the peak period;
- **Tier 4 – Critical**: repeated Tier 3 exceedances → move to sectoral curtailment with higher cut-in and extended time windows until rates subside.

Literature cited in this paper [1] indicates an average ~33% fatality reduction per 1.0 m/s increase in cut-in, which EVREC will apply selectively where warranted. Vendor-assessed tools (NRG Systems deterrents; EchoSense acoustic-activated curtailment; WEST Optimized Smart Curtailment) are available as turbine or zones-specific options to minimise energy loss while meeting protection goals.

This adaptive plan aligns with how several Canadian jurisdictions already manage bat risk (threshold-based or adaptive regimes) and provides regulators with a clear, testable pathway. EVREC will report transparently and adjust strategies as evidence accrues, reserving blanket curtailment as a last resort.

To conclude, EVREC's adaptive bat protection strategy aims to provide a balanced, evidence-based alternative to blanket curtailment by combining, conservative design and adaptive operations to achieve equal or better conservation outcomes. Turbine layouts are being designed to maintain buffers to cabins, wetlands, and waterways, while baseline monitoring confirmed that resident *Myotis* dominate and migratory bats are rare. Predicted effects (~141 bats/year at full build-out) are low relative to regional evidence, supporting a targeted, data-driven response framework. EVREC will monitor mortality, apply turbine-level thresholds and tiered mitigation (smart curtailment, deterrents, or sectoral adjustments as needed), and adapt operations through a formal feedback loop. This approach maintains renewable energy performance while ensuring bat mortality remains well below Canadian average mortality rates (15 .5 / turbine / year) and meets the intent of the federal and provincial EIS Guidelines.

2. Document Purpose

This document is intended to outline EVREC's internal strategy for mitigating the curtailment requirement outlined in Section 7.2 of the EIS Guidelines. This strategy will be shared with the DECC for potential modification of the existing requirements under Section 7.2 of the Guidelines.

The document provides a summary of the initial field work that was performed by Strum as outlined in the Environmental Assessment Registration Document (EARD) as well as EVREC's assessment of available mitigation technologies to be considered for the Project. The assessment of the available mitigation technologies are not indications of their implementations but rather to provide a basis for discussion with the technology providers and the DECC on their potential efficacies and benefits for the Project as an alternative to the proposed standard curtailment during the operational lifespan of the Project.

3. Background & Context

Wind power is a developing energy sector across Canada. As of October 2024, there were 337 wind power stations in Canada (*The Canadian Renewable Energy Association (CanREA) Annual Data Release*, 2025).

Bats are known to be killed at onshore and offshore wind power stations when moving seasonally between hibernation and roosting areas. Through this migratory process, these bats may move along specific routes instead of a dispersed pattern, which increases the risk of fatalities in localized areas during migratory periods.

While wind turbines are a leading source of direct anthropogenic mortality for migratory tree bats, continent-wide population declines in hibernating bats are primarily driven by white-nose syndrome (WNS).

3.1. Project Background

3.1.1. Relevant Generator Details

The EVREC project comprises up to 530 wind turbine generators, 7-8 MW each, that will be installed across the permitted project area. Below are expected characteristics:

Geometry and dimensions

- Hub height (HH): up to 140m.
- Rotor diameter (RD): up to 182 m
- Blade length: up to 91 m
- Maximum tip height (blade at 12 o'clock): up to 226 m
- Swept area: ≈ 26,000 m² for a 182 m rotor
- Approximate minimum tip ground clearance: ~44 m

Operating envelope

- Cut-in wind speed: approximately 3 m/s.
- Cut-out wind speed: 24–25 m/s
- Wind speed for maximum power: ≈12.7–15 m/s
- Ambient operating temperature (standard package): -20 °C to +45 °C.

Drivetrain and generator topology

- Rotor-nacelle concept: upwind, three-bladed, variable-speed, pitch-regulated.
- Gearbox: multi-stage gearbox
- Braking: primary aerodynamic braking (full blade feather) + mechanical/failsafe brake on the drivetrain.

Electrical and controls

- SCADA: full supervisory control and data acquisition with remote monitoring.
- Aviation lighting: installed in accordance with applicable Transport Canada requirements (TC-621).

- Turbines could also be fitted with an Aircraft Detection Lighting System (ADLS). ADLS uses radar or transponder detection to automatically turn on the turbine lights only when an aircraft is detected within a defined radius and altitude (typically 3–5 nautical miles and 700–1000 feet above ground level). This is done to dramatically reduces light pollution for nearby communities and wildlife, while remaining fully compliant with aviation obstruction marking standards.

3.1.2. Site Conditions

The Project spans the Central Newfoundland and North Shore Forest ecoregions. Summers are cool and winters short and cold; exposure to wind increases toward the coast. In the North Shore Forest ecoregion, mean annual temperature is ~4 °C (mean summer ~12.5 °C; mean winter ~–3.5 °C) and it is the **driest** part of the island with ~900–1,000 mm mean annual precipitation. Forests are less developed and barrens more common near the coast due to wind exposure. Elevations range from sea level to ~150 m asl.

Badger meteorological station is the closest meteorological station to the project site (~60 km SW of the Project). Details of Badger meteorological station are presented below:

- Operator: Environment and Climate Change Canada (ECCC)
- Station ID: 8400300 (Badger NL)
- Elevation: ~103 m ASL
- Station Type: Automated Weather Station (part of the national synoptic and climate network)
- Instrumentation:
    - Wind: Cup or ultrasonic anemometer with wind vane, mounted on a 10 m mast.
    - Temperature & Humidity: Shielded platinum resistance thermometer and capacitive humidity sensor at 1.5–2 m height.
    - Barometric Pressure: Electronic barometer housed in the instrument hut.
    - Precipitation: Heated tipping-bucket rain gauge (and sometimes snow gauge with wind shield).
    - Wind Measurement Standard: Follows WMO standards — wind at 10 m above ground, true north orientation, open terrain with minimal obstructions.
- Data Collected: Hourly averages of wind speed, direction, temperature, humidity, pressure, and precipitation.

In 2022, recorded mean annual temperature was 4.9 °C (mean daily max 19.7 °C, mean daily min –10.6 °C). The wettest months that year were January (157 mm) and March (132 mm).

In 2022, average hourly wind speeds recorded at Badger ranged from 22 km/h (≈ 6.1 m/s) in July to 45 km/h (≈ 12.5 m/s) in March. Directionality - Southwest (SW) was most frequent annually; strong winds (> 12 m/s) were most often from SW during spring/fall (wind rose).

Table 1: Climate data from Badger Station (2022)

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Year
Avg Temp (°C)	-6.6	-7.5	-3.8	2.8	6.2	14.0	16.9	18.6	12.4	8.4	0.0	-2.3	4.9
Max Temp (°C)	9.4	8.9	11.6	16.1	22.4	29.4	32.0	31.5	27.4	21.2	19.4	7.1	19.7
Min Temp (°C)	-26.2	-30.4	-18.5	-7.6	-7.6	-4.7	4.7	4.1	-2.1	-3.7	-17.0	-18.4	-10.6
Precipitation (mm)	157.2	125.9	132.4	84.3	74.1	48.6	67.9	68.4	75.5	74.8	131.6	69.9	92.5

Table 2: Wind data from Badger Station (2022)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Maximum Hourly Speed (km/h)	32	42	45	40	44	32	22	28	37	36	42	35
Most Frequent Direction	S	SW	S	SW	SW	S	S	SW	SW	SW	SW	S

3.2. Regulatory Background

This section outlines the legal and policy framework governing bats in the province as well as other Canadian jurisdictions. It explains the interaction between federal law and Newfoundland and Labrador's statutes and permitting and summarizes how other Canadian jurisdictions regulate bat protection at land-based wind facilities.

3.2.1. Species at Risk Act (SARA)

SARA is a Canadian federal statute that prevents extirpation and extinction, provides for recovery of listed wildlife species, and manages species of special concern. Key legal elements relevant to wind projects include:

- General prohibitions against killing, harming, harassing, capturing or taking an individual of a listed extirpated, endangered, or threatened species (s.32); prohibitions against damaging or destroying a listed species' residence (s.33); and protection against destruction of critical habitat (s.58), on federal lands or where a federal order applies.
- Permits and agreements (s.73) may authorize activities affecting listed species/residences/critical habitat if stringent tests are met (e.g., reasonable alternatives considered, impacts minimized, activity benefits or does not jeopardize survival/recovery).

Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*M. septentrionalis*), and Tri-colored Bat (*Perimyotis subflavus*) are listed as Endangered in Schedule 1, with a federal Recovery Strategy in place

(2018). The migratory tree bats—Hoary Bat (*Lasiurus cinereus*), Eastern Red Bat (*Lasiurus borealis*), and Silver-haired Bat (*Lasionycteris noctivagans*)—were assessed by COSEWIC (Committee on the Status of Endangered Wildlife in Canada) as Endangered in 2023 and are under federal consultation for potential SARA listing.

Outside federal lands, SARA's general prohibitions do not automatically apply, but SARA can still be engaged if (i) there is a federal decision trigger (e.g., federal land or authorization), or (ii) a federal minister issues a safety-net or critical habitat order. EVREC's principal legal obligations for terrestrial bats therefore lie under NL statutes and permits (Section 3), while SARA remains relevant for status, recovery planning, and any federal land/permit interactions.

3.2.2. NL Endangered Species Act (NL ESA)

The NL ESA provides special protection to Endangered, Threatened, and Vulnerable species native to NL and is administered by the Wildlife Division (Department of Fisheries, Forestry and Agriculture). Where SAR interactions cannot be fully avoided, proponents must obtain a Permit to Engage in an Economic Activity under section 19 (s.19 Permit). The permit requires an Impacts Mitigation and Monitoring Plan (IMMP) that demonstrates avoidance/minimization and sets monitoring/adaptive management objectives.

Under the Endangered Species List Regulations (NLR 57/02), Little Brown Myotis and Northern Myotis are listed as Endangered in NL, aligning with federal listings.

3.2.3. NL Wild Life Act (context for handling/roosts)

The Wild Life Act and associated permits govern collection/handling and prohibit killing wildlife (including bats) without authorization. This is typically relevant for roost management (e.g., building exclusions) or research/monitoring that requires capture or disturbance.

3.2.4. Environmental Assessment (EA) Guidance and Typical Conditions in NL

While not a statute, EA guidance and project-specific conditions can impose mandatory operational measures. For example, the EVREC EIS Approved Guidelines specify "standard curtailment for bats": from July 1–Oct 1, 30 minutes before sunset to 30 minutes after sunrise, at ≥6 °C, turbines must be programmed to cut-in only at wind speeds > 6.0 m/s and remain feathered/locked at ≤ 6.0 m/s, unless an approved adaptive framework is in place.

These curtailment parameters are policy conditions, not statutory requirements. A defensible, risk-based adaptive management plan paired with robust monitoring (pre and post-construction) is an accepted basis in NL for the Wildlife Division to consider modifying standard curtailment, as reflected in recent EAs that rely on a SAR IMMP tied to permitting.

3.2.5. How Other Canadian Jurisdictions Regulate Bats at Wind Projects (Comparative Context)

Ontario (ON)

Ontario's "Bats and Bat Habitats: Guidelines for Wind Power Projects" include a mortality threshold of 10 bats/turbine/year during the late-summer/early-fall period; exceeding the threshold triggers operational mitigation (e.g., increased cut-in speed) and extended monitoring. These thresholds are embedded in Renewable Energy Approval (REA) conditions and followed by industry.

In practice, projects that exceed the threshold implement higher cut-in speeds (commonly 5.5 m/s at night over the risk season) for the lifetime of the project, reducing fatalities while limiting energy loss to low-wind periods.

Alberta (AB)

The "Wildlife Directive for Alberta Wind Energy Projects " (Government of Alberta, 2018) lays out a staged process from screening and risk assessment through to post-construction mortality monitoring and adaptive mitigation.

Alberta's 2020 Post-Construction Survey Protocols (AEPA, 2020) formalize bird and bat fatality monitoring and adaptive responses as part of the Directive's Stage 4.

Stage	**Purpose**	**Bat-related Requirements**
Stage 1: Screening and Risk Assessment	Early desktop review and mapping to screen potential bat and bird conflicts.	• Identify nearby known hibernacula, maternity roosts, and key migratory corridors. • Use Alberta's Wildlife Sensitivity Map (contains bat records and risk zones). • Preliminary risk classification (Low, Moderate, High).
Stage 2: Pre-construction Wildlife Surveys	Collect site-specific data to confirm or refine risk level.	• Acoustic monitoring for bats during May 1 – Sept 30 at least one full active season. • Minimum of two acoustic detectors per 10 km² of turbine area, including one at hub-height proxy (> 50 m). • Identify species presence, nightly activity index, and seasonal peaks.

Stage	Purpose	Bat-related Requirements
		• Report to the regulator in the Fish and Wildlife Information Management System (FWIMS).
Stage 3: Impact Assessment and Mitigation Planning	Integrate wildlife findings into project design.	• For High-risk sites, proponents must demonstrate avoidance or minimization, such as increasing turbine setbacks from wetlands/forests or reducing density. • Submit a Wildlife Mitigation and Monitoring Plan (WMMP) that defines post-construction monitoring and adaptive management triggers.
Stage 4: Post-construction Monitoring and Adaptive Management	Verify predictions and mitigate where needed.	• Follow Post-construction Monitoring Protocols (2020). • Conduct 2 years of carcass searches using standardized searcher-efficiency and persistence trials. • Calculate adjusted mortality (Evidence-of-Absence or similar). • Apply thresholds to determine whether adaptive mitigation (curtailment or deterrents) is required.

Alberta does not impose a fixed cut-in speed like some provinces (e.g., Québec's 5.5 m/s rule). Instead, mitigation is trigger-based and proportional to measured mortality.

Threshold type	Value	Action required
High-risk or Endangered species (e.g., Little Brown Myotis, Northern Myotis, Tri-colored Bat)	1 bat/turbine/year or any mortality of known hibernating individuals	Immediate review with Alberta EPA; develop targeted mitigation (e.g., curtailment at night, deterrents).
All species (total bat mortality)	10 bats/turbine/year averaged across the facility	If exceeded, implement adaptive operational mitigation (increase cut-in speed by 1–2 m/s, feather blades, or test deterrents) until follow-up data show reduction below threshold.
Persistent exceedance after mitigation	If >10 bats/turbine/year after mitigation for two consecutive years	Extended curtailment window or other approved actions, continued monitoring for two further years.

Québec (QC)

Québec announced a province-wide requirement to increase night-time cut-in speed to 5.5 m/s between June 1–Oct 15 to reduce bat mortality at new projects.

Québec's "Protocole de suivi des mortalités d'oiseaux et de chiroptères" codifies adaptive steps: when ≥2 bat carcasses are found at a turbine's plot, implement 5.5 m/s night-time curtailment June 1–Oct 15; if mortality persists, raise to 6.5 m/s in subsequent years.

Nova Scotia (NS)

NS requires at least one full year of baseline acoustic monitoring for bats (spring and fall seasons at minimum) to accompany EA filings; results inform site-specific mitigation and post-construction monitoring commitments.

Summary

Across provinces, risk-based monitoring plus adaptive mitigation is standard. Only a few jurisdictions (e.g., Québec) have prescriptive, province-wide curtailment rules; others (ON, AB) rely on thresholds or directives to trigger mitigation when monitoring shows a need.

No statute in NL prescribes a fixed curtailment regime for bats. Curtailment is being imposed via EA guideline conditions or permit conditions, however, regulators may allow adaptive frameworks that can modify blanket curtailment where robust monitoring and risk analyses justify it.

Province	**Framework type**	**Threshold/Requirement**
Alberta	Directive-based, adaptive	10 bats/turbine/year → mitigation trigger; 1 bat/turbine/year for SAR.
Ontario	Regulation (REA)	10 bats/turbine/year threshold embedded in approvals; mitigation mandatory.
Québec	Prescriptive	Province-wide 5.5 m/s night-time cut-in (June 1–Oct 15).
Nova Scotia	EA guidance	Pre-construction acoustic monitoring required; adaptive post-construction.
Newfoundland & Labrador	EA condition	Fixed July 1–Oct 1 curtailment ≥ 6 m/s, unless adaptive plan approved.

3.3. Bat Monitoring Campaign

The baseline bat monitoring program was carried out by Strum Consulting, a local specialist environmental consulting firm.

3.3.1. Bat Habitat Assessment

This section describes bat habitat potentially occurring within the EVREC Project footprint and surrounding assessment areas. It characterizes the seasonal habitat needs of bats (roosting, maternity, foraging/commuting, and overwintering), identifies habitat features and environmental conditions that influence bat use, and outlines the methods and data used to map and rate habitat suitability.

Two resident species occur in Newfoundland: Little Brown Myotis (*Myotis lucifugus*) and Northern Myotis (*Myotis septentrionalis*). Both are listed Endangered under SARA and NL's ESA due primarily to white-nose syndrome (WNS), with WNS detected in Newfoundland in 2018. Migratory Hoary Bats, Eastern Red Bats, and Silver-haired bats occur infrequently but are relevant to collision risk during migration.

3.3.2. Desktop Analysis

Although no bat occurrence records were returned in the Atlantic Canada Conservation Centre (ACCDC) data pull for the Project Area, five bat species have been documented on the Island of Newfoundland: Little Brown Myotis, Northern Myotis, Hoary Bat, Eastern Red Bat, and Silver-haired Bat. Of these, Little Brown Myotis and Northern Myotis are listed as Endangered under the federal SARA and protected under provincial legislation; Hoary Bat, Eastern Red Bat, and Silver-haired Bat are assessed by COSEWIC as Endangered.

Potential bat habitats were delineated using the provincial Ecological Land Classification (ELC) which was used to guide detector deployment— capturing ideal bat habitats such as wetlands, softwood, mixed and hardwood forests, scrub, shorelines, and barrens. This habitat-based stratification was overlaid on the North America Bat Monitoring Program (NABat) grid to ensure spatially representative sampling of likely foraging and commuting areas and to maximize the probability of detecting SARA.

3.3.3. Ground survey

The NABat 10 km × 10 km grid was superimposed on the Project Area. Within each 10 × 10 cell, likely habitat polygons (from ELC) were partitioned into 5 × 5 km quadrats, with a maximum of one sampling location per quadrat to avoid spatial clustering. This design produced 43 candidate sites; 39 bat-targeted acoustic recording units (ARUs) were ultimately deployed (four quadrats were inaccessible due to vegetation & topography).

Equipment & Installation

- Detectors: Song Meter Mini Bat 2 Li-ion ARUs (Wildlife Acoustics) were used throughout. Units were mounted to trees >1.5 m above ground and oriented to minimize clutter and maximize detection of edge/flight paths in the stratified habitats.
- Recording Schedule: ARUs were programmed to record from 30 minutes before sunset to 30 minutes after sunrise to capture crepuscular and nocturnal activity peaks.
- Deployment Timing & Maintenance: ARUs were installed April 13–17, 2024 and scheduled for retrieval after October 31, 2024, with monthly site checks for power and storage media swaps.

- Acoustic Settings: Full-spectrum audio at 256 kHz sample rate; minimum trigger frequency 16 kHz; 3-second trigger window; maximum file length 15 seconds. These settings balance file manageability with retention of diagnostic call structure for species-level review.

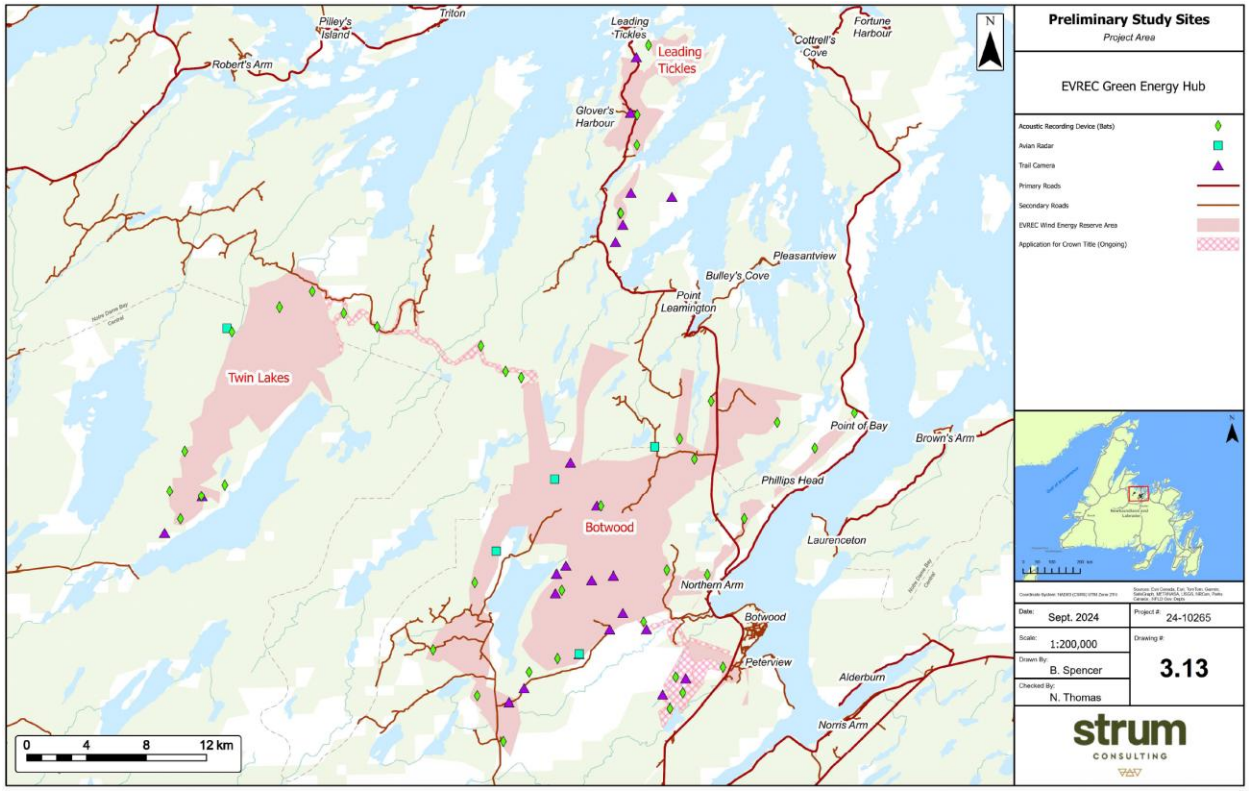

Figure 1: Preliminary study sites

Data Processing and Quality Assurance

Primary Workflow: Processing follows the Canadian Wildlife Health Cooperative (CWHC) Guide for Bat Monitoring in Atlantic Canada (McBurney & Segers, 2021). Files are screened and auto-classified in Kaleidoscope Pro; noise files are removed; species suggestions are generated for full manual review.

Manual Review & Call Bucketing: A qualified bat biologist reviews auto-IDs, assigning calls to (i) confirmed species; (ii) *Myotis* spp. (when genus is reliable but species is indeterminate); or (iii) frequency-based "unknown" classes (>35 kHz high-frequency unknown; <35 kHz low-frequency unknown). This maintains traceability while avoiding false precision.

Deliverables and Mapping: Deployment locations and study layers are compiled in Figure 1. All ARU and classification metadata are archived to enable reproducibility and future re-analysis as classifier performance improves.

3.3.4. Findings

Activity levels and distribution: Across the full Project Area, ~3,000 bat call files have been recorded to date, of which ~1,668 were within the defined Wind Project Areas (WPAs). Activity is not uniform: the Leading Tickles WPA shows the highest call rate (order of magnitude ~140 bat passes per detector), whereas Botwood, Seabright's Lake, and Twin Lakes WPAs each show substantially lower averages (~33–49 passes per detector over the measurement period). Activity levels at detectors are illustrated in Figure 2 below.

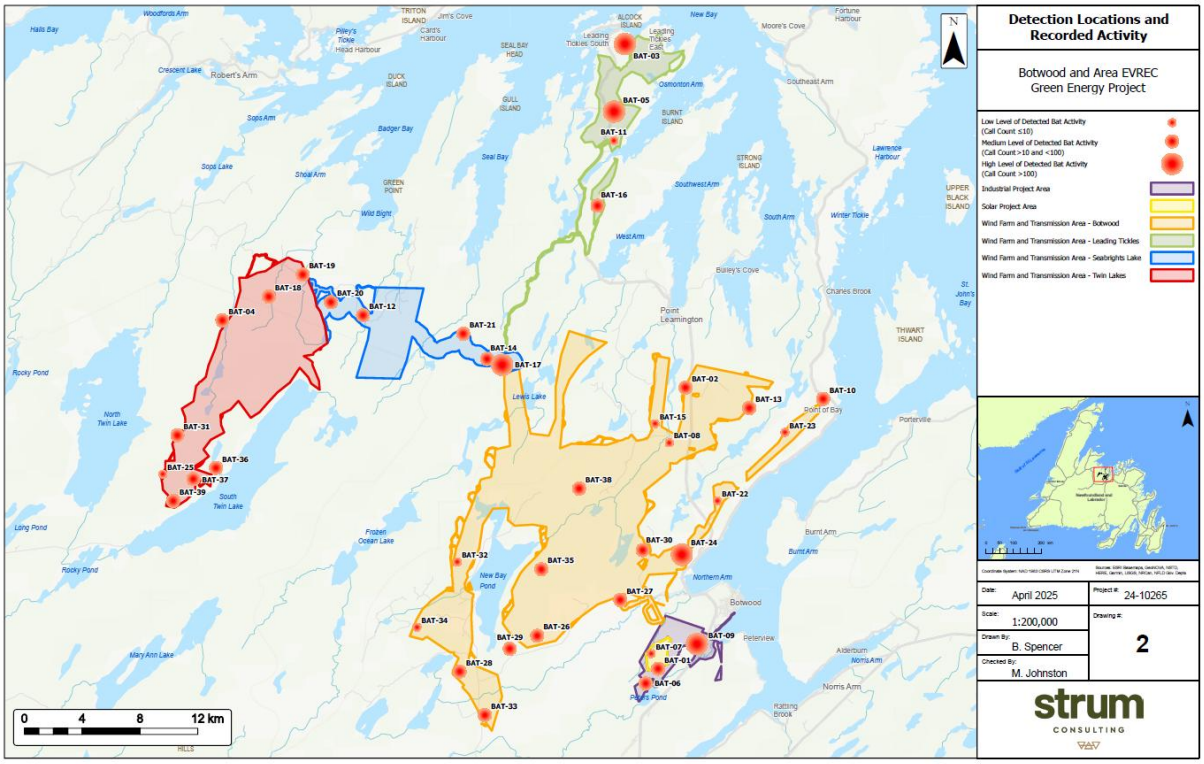

Figure 2 - Detection locations and recorded activity of bats

Species composition: Based on the data collected to date, ~99% of confirmed calls are *Myotis* (resident) species, with only isolated detections of migratory species. This interim composition suggests a bat community dominated by resident species—consistent with expectations for the Island of Newfoundland and with the EARD's species list for the area. Continued QA/QC and manual vetting will finalize proportions and seasonal timing.

Seasonality: Activity was detected from spring emergence (April/May) through autumn (October and into December at a subset of units). Final nightly activity curves (by temperature and wind speed bands) will be produced once the full QA pass is complete.

3.3.5. Correlations with Desktop Predictions

Habitat alignment: The highest preliminary activity aligns with detector sites adjacent to waterbodies and forest edges identified in the ELC—i.e., habitats predicted a priori as foraging and commuting zones. This supports the habitat-stratified deployment approach.

Spatial coverage & representativeness: The NABat grid ensured broad geographic coverage across the Project Area, including interior blocks that would otherwise be under-sampled.

Species expectations: The dominance of *Myotis* detections is consistent with expectations from the desktop species list. Migratory species have been rare in the dataset to date, which is consistent with Newfoundland's biogeography and the Project Area's inland setting.

3.3.6. Comparison with Other Publicly Available Projects

South Canoe Wind Energy Project - Nova Scotia

Before construction, a focused fall (Aug–Sep 2011) acoustic baseline used four ground-level AnaBat detectors deployed across the project footprint, logging 121 detector-nights. Analysts identified 4,211 bat-generated ultrasound files (noise excluded), with a project-wide mean of 34.8 passes per night; activity was dominated by *Myotis* spp., with occasional hoary and silver-haired detections. The project subsequently built out to 34 turbines (≈102 MW) and is now operational. Methods, detector counts, and results are documented in the EA appendix; the turbine count is from a public project summary.

Benjamins Mill Wind Project - Nova Scotia

During 2021, the proponent monitored June 1–Oct 15 to span breeding through fall migration. Six Wildlife Acoustics SM3BAT stations were installed, including two at the met tower (one at ground level and one ≈ 30 m AGL to sample within the future rotor-swept zone). The campaign recorded 146 total bat passes, with most activity in August (≈63% of all detections). The EA indicates up to 28 turbines (≈150 MW) across several phases; Phase 1 is under construction.

Amherst Community Wind Farm - Nova Scotia

A 2014 baseline deployed four detectors at forest edges and a met tower (one mic at ~2 m and another ≈ 33 m AGL). Across the study, 1,028 bat-generated echolocation sequences were confirmed (from 2,047 recorded files), with detections overwhelmingly attributed to hoary bat at one of the four stations and lower *Myotis* activity overall. The EA registered a three-turbine, 6 MW facility (Community Feed-In Tariff (COMFIT) program) at the time.

Conestogo Wind Farm – Ontario

Pre-construction fall 2007 monitoring used two met towers each carrying two detectors (Pettersson at 20 m and AnaBat at 40 m AGL) to sample near expected blade-swept heights. The study documented 276 bat passes over the campaign, with low activity relative to a nearby reference in Dufferin County and a greater share of migratory-type calls at the higher microphones. (The survey report does not state turbine count; at the time this was a planning-stage baseline.)

McLean's Mountain Wind Farm – Ontario

As part of the Environmental Screening Report (2009), the developer ran acoustic recorders and nocturnal radar at seven stations along the project ridge over 24 nights to characterize migration and flight behaviour. Radar recorded 2,797 individual nocturnal flights (birds and bats combined), while acoustics confirmed *Myotis* type calls and occasional migratory-bat detections; the combined dataset helped identify peak-use periods and flight heights before siting turbines. (This was a preconstruction program; the Environmental Screening Report (ESR) is the primary source for methods and counts.)

Glen Dhu Wind Development Area - Nova Scotia

Baseline acoustic work in 2007 reported a mean of ~6 bat sequences per night over the sampling period (ground-based detectors). Although the original Glen Dhu project is now operational, the cited baseline statistic pertains to its preconstruction surveys summarized in a later EA appendix.

Hampton Mountain Wind Development Area - Nova Scotia

Ground-based acoustic monitoring (Jul 19–Aug 25, 2010) documented ~75 bat sequences per night on average during the sampled period—considerably higher than Glen Dhu's baseline but within the range seen elsewhere in the province for late-summer activity peaks. (Detector type was AnaBat in contemporary NS baselines; the published summary reports nightly rates but not the unit count for this site.)

Glen Dhu South - Nova Scotia

A 2011 preconstruction program using ground-level detectors reported a mean of ~28.4 sequences per night, capturing the elevated late-summer activity typical of inland forest-edge settings in NS. (The EA summary does not specify the number of detectors in this snippet.)

Pugwash Wind Farm - Nova Scotia

In a recent EA, the proponent reported ~30 sequences per night during the sample period, broadly consistent with other inland NS baselines. The public EA chapters provide overall project description; the specific acoustic statistic is cited in the South Canoe appendix that compiles NS wind-project baselines.

4. Bat Mortality Estimations

This section quantifies the expected bat collision mortality for the EVREC Wind Project at full buildout (up to 530 wind turbine generators). The estimate is grounded in (i) EVREC's pre-construction acoustic dataset, (ii) the project's turbine configuration and siting, and (iii) regionally relevant post-construction fatality rates from Atlantic Canada. We also provide a within-project risk distribution by wind farm area to inform any adaptive management.

We estimate annual project-wide fatalities using three complementary lines of evidence, then reconcile them into a single, regulator-ready prediction:

- Regional Baseline Method (primary): Multiply the Atlantic Canada average fatality rate by EVREC's turbine count. This is the most defensible starting point for Newfoundland conditions because it is derived from actual post-construction carcass monitoring at Atlantic sites.
- Activity-Informed Distribution (internal allocation only): Use EVREC acoustic indices (passes per detector across the season) to distribute the project-level total among the wind farm areas to show where any adaptive management (if ever needed) should focus.
- Cross-checks / Bounding:
- Atlantic case study check: Compare the project-level result to site-specific post-construction results from Nova Scotia (e.g., Fairmont), which reported ~0.65–0.89 bats/turbine/year—still well below central Canada values and consistent with low Atlantic rates.
- National high-end check: Contrast with the Canadian national mean (15.5 bats/turbine/year) to show how implausible such rates would be for our coastal Newfoundland context given the very low migratory bat activity and our acoustic record dominated by Myotis.
- Species composition: Nationally, ~73% of turbine fatalities are migratory bats (hoary bat, silver-haired bat, and eastern red bat). EVREC recorded ~1% migratory-type calls, implying the driver of high fatality sites elsewhere is largely absent here.

The fatality rates are based on the findings of the 2016 "Wind Energy Bird and Bat Monitoring Database - Summary of the Findings from Post-construction Monitoring Reports", published by Bird Studies Canada, the Canadian Wind Energy Association, Environment Canada and the Ontario Ministry of Natural Resources.

4.1. Methodology

Bird and bat mortality data were collected from 1,889 turbines from 65 wind projects across eight provinces (AB, BC, NB, NL, NS, ON, PEI, SK), between 2006 and 2014.

Carcass searches were conducted around turbines, most commonly within a 50 m radius; this radius was applied to ensure cross-site comparability because 86% of the corrected dataset used 50 m plots (other layouts were 120×120 m or 100×100 m squares, or 57–60 m radii). Only carcasses within 50 m were used in corrected estimates. Search frequency varied from daily to once every 7 days across projects.

Uncorrected counts showed bat carcasses decline steadily with distance beyond ~20 m, reinforcing the importance of accounting for search radius.

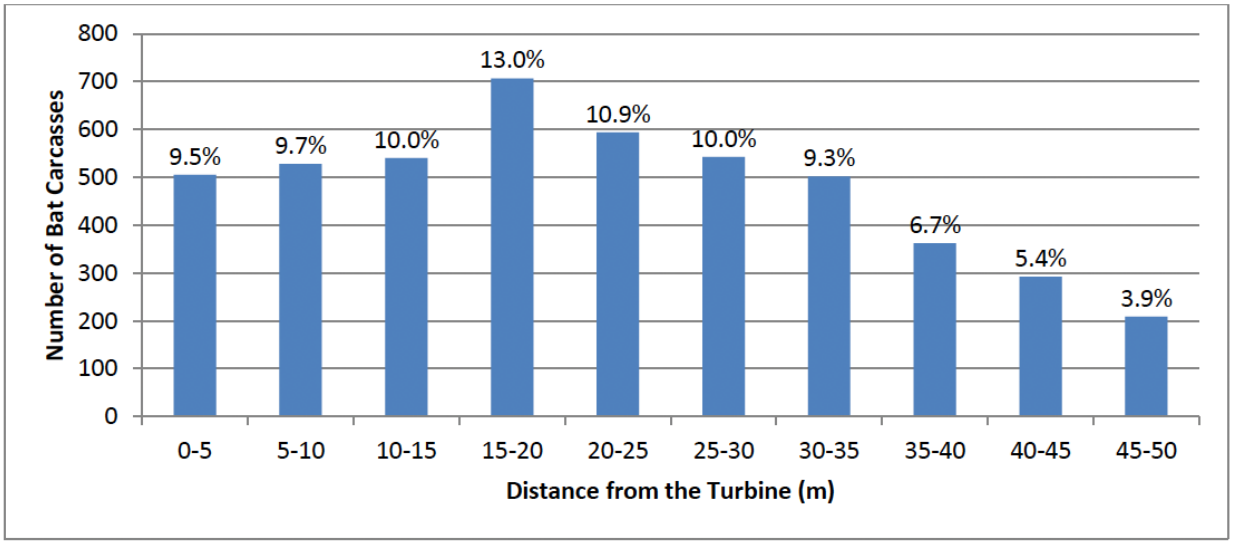

Figure 3: Uncorrected number of bat carcasses found at 46 wind power projects over 100 project-years of monitoring within each 5 m distance band from the base of the turbine.

Data were corrected to account for:

- animals that fall outside of the area searched under each turbine (percent area searched),
- carcasses that are removed from the search area by scavengers between site visits before they are detected (scavenger (carcass) removal),
- the efficiency of searchers at detecting carcasses (searcher efficiency); and
- the proportion of the year over which monitoring is completed,

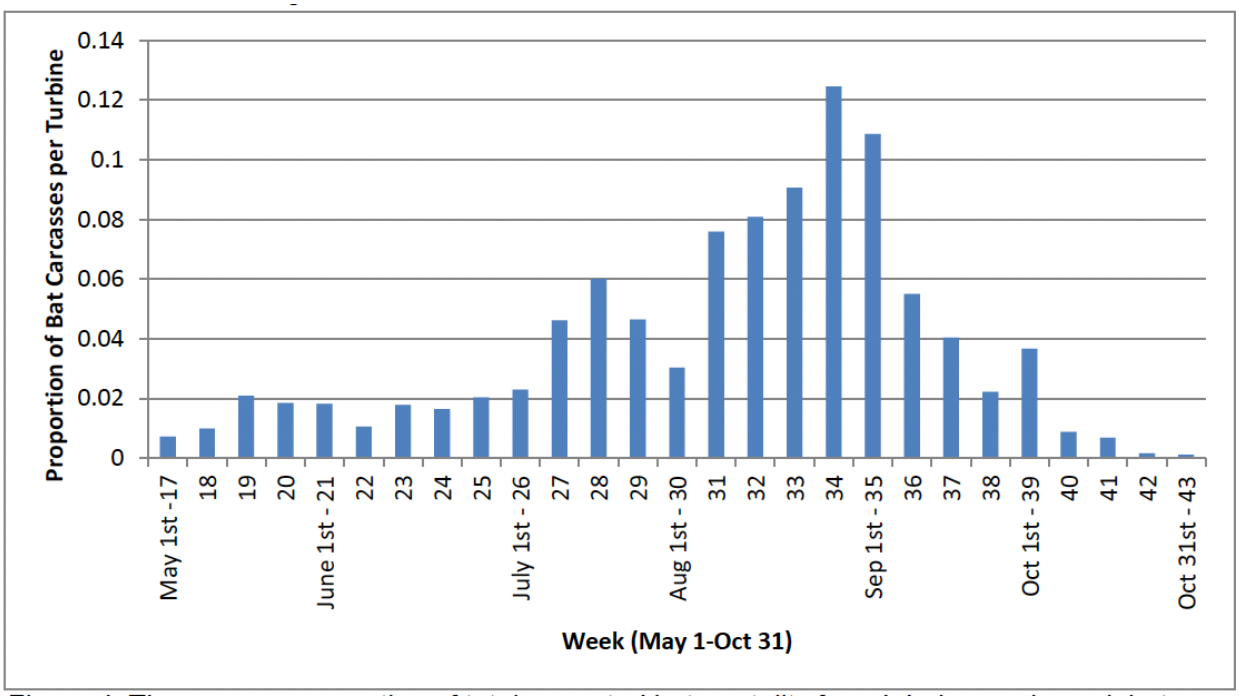

Figure 4:The average proportion of total corrected bat mortality found during each week between May 1 and Oct 31 for 20 wind energy projects totaling 33 project-years of post-construction monitoring.

Based on data collected at 5 wind power projects for 7 project-years between 2008 and 2012, the estimated average Atlantic Canada turbine mortality of bats was 0.26 ± 0.11 bats/turbine between May 1 and Oct 31 and ranged between 0 and 0.71 bats/turbine.

The total number of installed turbines in Atlantic Canada as of December 2015 was 521 (Bird Studies Canada, 2016) resulting in an estimate of 134 bat fatalities (95% confidence interval of 75 to 193 fatalities) between May 1 and October 31 based on December 2015 installed capacity.

It should be noted that the 0.26 ± 0.11 bats/turbine reflects mortality without any mitigation measures in place (such as higher cut-in windspeed thresholds), as there were no regulations at the time enforcing such measures.

4.2. Calculation for EVREC

Multiple peer-reviewed syntheses have shown that pre-construction acoustic activity alone does not reliably predict absolute post-construction fatality magnitudes (i.e., it's not a direct conversion). We therefore use EVREC acoustic results to weight spatial distribution of risk after anchoring the total to Atlantic post-construction fatality rates.

- Number of turbines: 530 (the EVREC project)
- Atlantic mean fatalities: 0.26 ± 0.11 bats/turbine/season (May–Oct) within 50m of a turbine base.

To aid siting and adaptive management, we apportion the 139 bats/year (rounded up) total across wind farm areas using EVREC's relative seasonal acoustic totals per detector:

- Leading Tickles: ~139.5 passes/detector/season → seasonal pass rate index ≈ 0.69 passes/detector-night (139.5 ÷ ~202 nights).
- Botwood/Twin Lakes/Seabright's: 32.6–49 passes/detector/season → ~0.16–0.24 passes/detector-night.

Using these indices as weights:

- Leading Tickles (44 turbines x 0.69 passes/detector-night): 30.36
- Botwood (273 turbines x 0.20 passes/detector-night): 54.6
- Twin Lakes (133 turbines x 0.20 passes/detector-night): 26.6
- Seabrights Lake (80 turbines x 0.20 passes/detector-night): 16
- Total: 127.57

As %:

- Leading Tickles: 23.81%
- Botwood: 42.80%
- Twin Lakes: 20.85%
- Seabrights Lake: 12.54%

Allocating the 139 fatalities per year expected and round up:

- Leading Tickles (44 turbines): ~ 34 fatalities/year
- Botwood (273 turbines): ~ 60 fatalities/year
- Twin Lakes (133 turbines): ~ 29 fatalities/year
- Seabrights Lake (80 turbines): ~ 18 fatalities/year
- **Total: (rounded) ~ 141 bats/yr**

Note, the difference between 141 and 139 fatalities / year for the entire site comes from the rounding errors.

4.3. Cross-Check

- Nova Scotia case study check (Fairmont): 0.65–0.89 bats/turbine/year → for 530 turbines this would be ~345–471 bats/year. This is a conservative upper bound from a small inland site and remains far below the Canadian national mean.
- Canadian national mean (not regionally applicable here): 15.5 bats/turbine/year → ~8,215 bats/year for 530 turbines. This number is not used for EVREC but is shown for contrast; it is driven by migratory bat rich regions (esp. Ontario).

4.4. Why the EVREC Prediction is Low

- **Species composition:** Most turbine fatalities in North America are migratory bats (hoary, silver-haired, eastern red). EVREC's acoustic record is ~99% Myotis (resident) and ~1% migratory, a pattern associated with low collision risk because resident myotis tend to fly lower (subcanopy) and are far less represented in carcass records at turbines.
- **Regional evidence:** Atlantic Canada post-construction monitoring shows very low mean fatality rates (~0.26 bats/turbine/season), confirming that coastal Atlantic wind projects have much lower bat risk profiles than inland/midcontinent sites.
- **Climatic setting and bat phenology:** Bat activity peaks on warm, low-wind nights in late summer–early fall. NL's interior coastal climate yields cooler night-time temperatures and higher winds during much of the active season, reducing the overlap between bat flight conditions and turbine operation at low wind speeds (where risk is highest).
- **WNS-depressed resident populations:** Resident Myotis populations across eastern Canada have undergone >75–90% declines due to WNS, which has reduced encounter rates at turbines in Atlantic provinces; this is consistent with low regional fatality totals.

It should also be noted that a Canada-wide analysis (Zimmerling & Francis, 2016), found no relationship between bat mortality and turbine height within the 117-136 hub-height range analyzed, and the vast majority of fatalities were still migratory species. EVREC's turbines will be similar in overall height envelope but with larger rotors; our prediction therefore relies more on regional fatality evidence and species composition than on speculative scaling by rotor diameter.

5. Bat Impact Mitigation Plan

While EVREC considers the predicted impact on bat population at full project built to be below other permitted projects in Canada and specifically Atlantic Canada, a bat impact mitigation plan was elaborated. EVREC's bat mitigation approach is built around the hierarchy of: **avoid** (stay out of the highest-risk habitats and travel corridors as much as reasonably possible), **minimise** (apply conservative setbacks and micro-siting as much as reasonably possible), **monitor** (carcass searches), and **mitigate adaptively** (deterrents and targeted, data-driven curtailment where and when it is demonstrably needed). Such plan, would ensure the bat impact remains low, while avoiding a blanket curtailment approach.

5.1. Applied Setbacks

The project has embedded a conservative setback envelope that both meets regulatory expectations and serves bat conservation objectives, by pushing turbines away from water, edges, cabins (where lighting and insect attraction can elevate bat activity), and linear disturbance:

Water and wetlands: maintain a 30 m undisturbed buffer around mapped streams, watercourses, and wetlands; in locations where rotor sweep could otherwise infringe, apply an additional 105 m blade setback so the blade path does not encroach on the water buffer.

Cabins/residences: apply a 550 m setback to all titled/licensed cabins across sites;

Publicly maintained roads, municipalities, and major transmission: set back 330 m to reduce edge lighting and human activity near turbines.

Accounting for regulated water setbacks and cabin buffers are examples of an aggressive application of avoidance at landscape scale. While precise fatality reductions cannot be quantified prior to operation, the combined effect of staying out of high-bat areas and buffering from water/edge habitats is expected to reduce collision risk on the order of a few tens of percent relative to a layout without these measures; this expectation will be tested and refined with the post-mitigation monitoring programme (carcass searches).

5.2. Pre-Construction Modelling & Refinement

Habitat/landscape modelling: Use hydrology mapping and internal GIS layers (including the large extent of regulated water and wetlands already mapped) to predict relative bat activity and identify potential turbine-free corridors and additional no-go pockets prior to design finalization.

Deliverables before construction include: a Micro-siting Refinement Log (identifying any turbine relocations or access road adjustments due to bat constraints).

5.3. Threshold Establishment

EVREC proposes turbine-level thresholds, consistent with adaptive management used at other North American projects, with an emphasis on timely, proportionate responses:

- **Metric and correction**: thresholds use estimated fatalities from post-construction carcass searches corrected.
- **Seasonality**: thresholds apply during the **high-risk period** (late summer/early autumn migration).

Tiered actions (per turbine)

- **Tier 1 – Advisory**: ≥ **15** bats/turbine within the search window → confirm data quality, check lighting, activate deterrents (if installed) during peak windows.
- **Tier 2 – Action**: ≥ **x** bats/turbine within the search window → **activate smart curtailment** at that turbine (or zone) during risk windows (e.g., night-time, temperature above bat-active thresholds, and winds below curtailment set-point).
- **Tier 3 – Elevated**: ≥ **y** bats/turbine within the search window → raise curtailment set-point for that turbine/zone and operate deterrents continuously through the peak period;
- **Tier 4 – Critical**: repeated Tier 3 exceedances → move to sectoral curtailment with higher cut-in and extended time windows until rates subside.

Threshold values are proposed starting points and will be finalised with the regulator.

5.4. Post Commissioning Mitigation Measures

Once operational, the project will continue monitoring through carcass searches and apply additional mitigations where localised thresholds are exceeded. The toolkit includes:

5.4.1. Lighting design that avoids creating “bat sinks”.

All aviation obstruction lighting installed on the wind turbines will comply with Transport Canada Standard 621 – Obstruction Marking and Lighting (Transport Canada, 2021) as required under the Aeronautics Act and the Canadian Aviation Regulations (Part VI, Subpart 2). In accordance with this standard, all turbine-mounted lights within the project will be synchronized to flash simultaneously rather than operate independently. This synchronization prevents a continuous lighting effect that can disorient pilots or create visual clutter, thereby reducing aviation safety risks while also minimizing continuous light exposure across the landscape. The synchronized flashing system will be incorporated into the turbine control network or an aircraft detection lighting system (ADLS), ensuring full compliance with federal aviation safety requirements while limiting unnecessary illumination that could attract insects and, consequently, bats.

5.4.2. Targeted lighting management

Where monitoring indicates insects (and thus bats) concentrate at ancillary facilities, EVREC will relocate or modify lighting to shift insect aggregation away from turbine strings (e.g., relocate unavoidable lights to leeward sides of buildings, lower mounting heights, convert to lower-spectrum LEDs). Any experimental "attraction away" lighting will be done only as a controlled pilot with before/after monitoring to confirm benefits and avoid unintended consequences.

5.4.3. Technology-assisted mitigation

The project has assessed both ultrasonic deterrents and two types of smart curtailment (acoustic-activated and model-optimised). The preferred sequence is to apply deterrents and/or smart curtailment at specific turbines/zones that exceed thresholds before considering broad curtailment. EVREC has proactively engaged with the available market technologies to assess suitability and benefits to the project design.

NRG Systems – Bat Deterrent Systems

NRG Systems presented its Bat Deterrent System that uses tower-mounted Bat Deterrent Units (BDUs) emitting ultrasonic noise, coordinated by Deterrent Unit Controllers (DUCs). The DUCs integrate with SCADA, schedule operation, and monitor system health. The frequency range is designed to cover North American bat species of concern (e.g., hoary bat, eastern red bat, silver-haired bat, little brown myotis, tri-colored bat, big brown bat, Mexican free-tailed bat, northern myotis, Indiana bat), with the intent of reducing bat approach rates so turbines can keep operating. Figure 5 shows the system configuration overview.

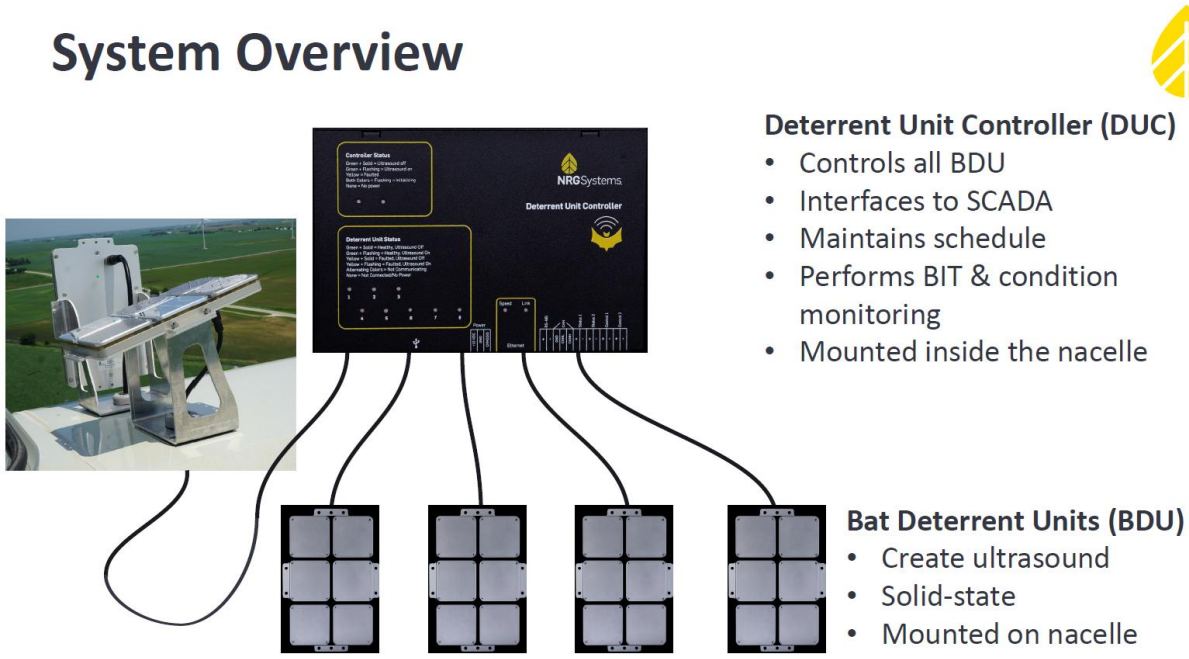

Figure 5- Overview of NRG System's Bat Deterrent System

NRG reported trials at two U.S. wind facilities (2018): 30 turbines in Illinois (8DUC system + 5 m/s curtailment) and 16 turbines in Texas (5DUC system). Both sites showed significant reductions in bat fatalities, with the Illinois results indicating greater effectiveness when low-level curtailment accompanies deterrents. EVREC notes that our turbines will be larger than those tested; the deterrent radius relative to rotor diameter will therefore be reviewed in FEED/commissioning pilots before any wide deployment. Figures below show the equipment testing details.

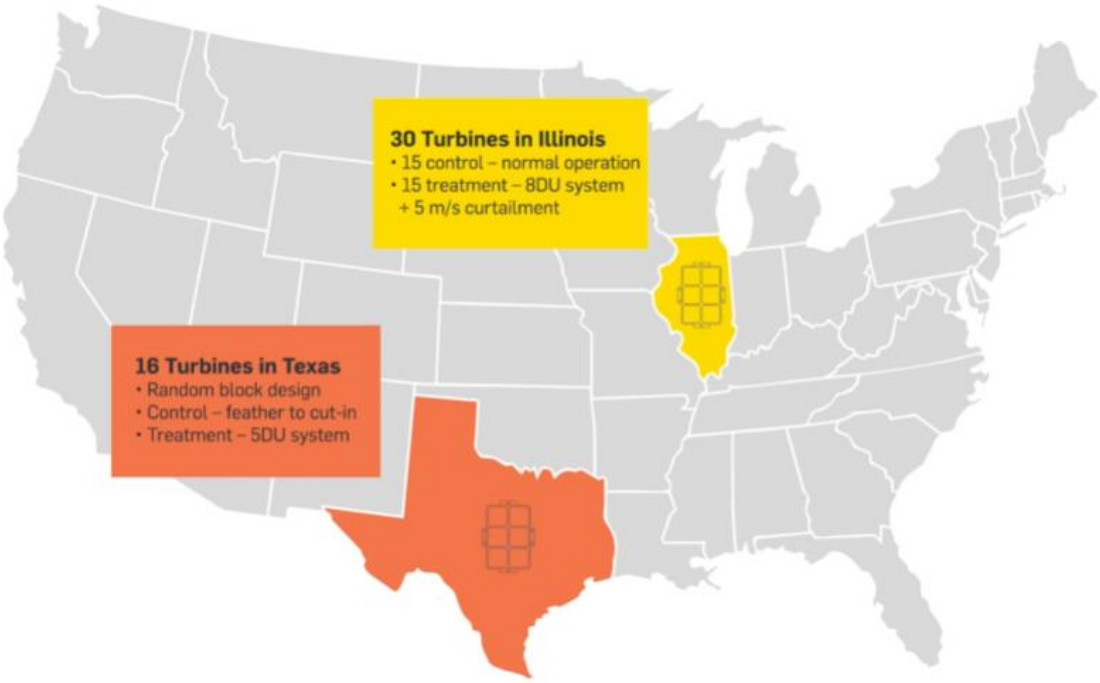

Figure 6 - Testing location details

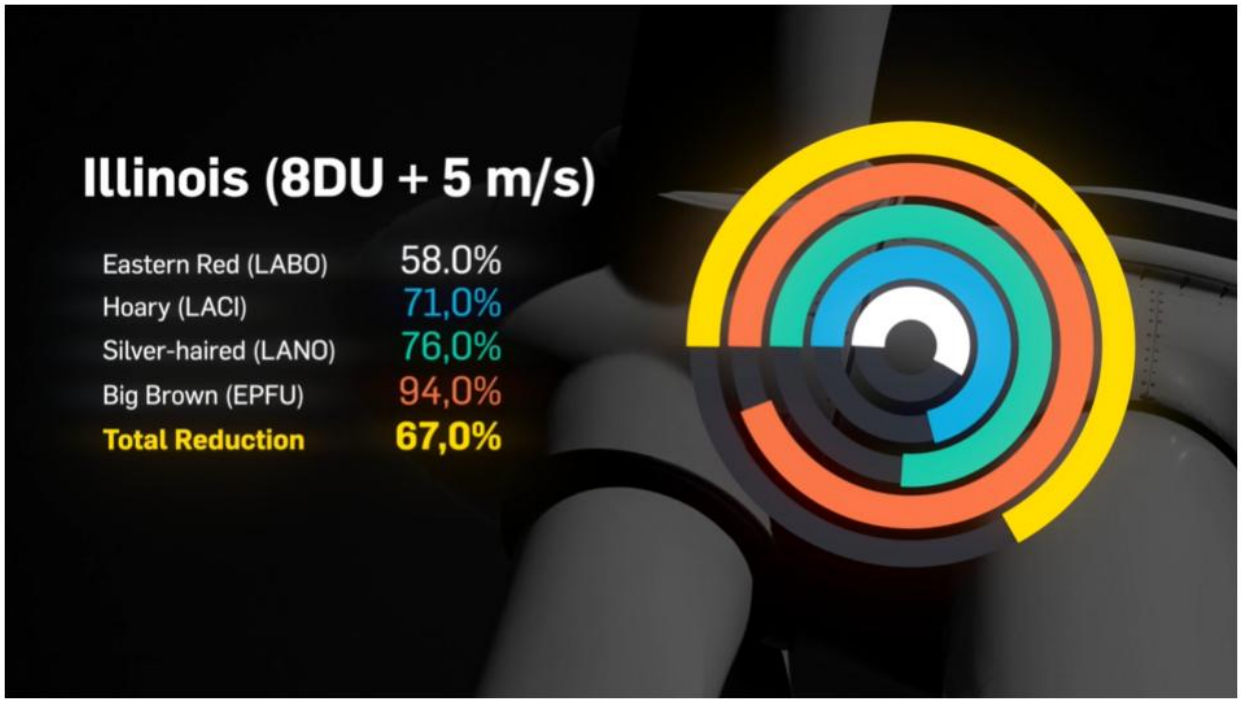

Figure 7 - Illinois testing details

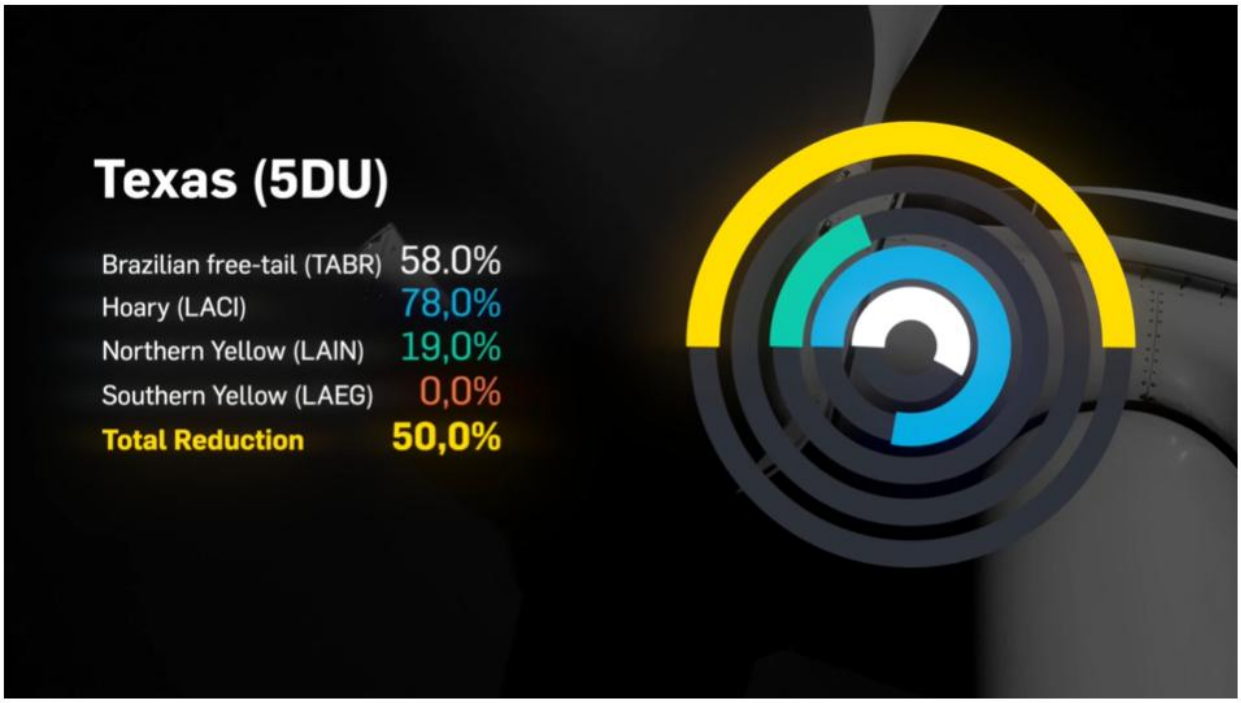

Figure 8 - Texas testing details

EchoSense – Smart Curtailment System

EchoSense presented its acoustic-activated smart curtailment: detectors collect live bat acoustic and weather data; a decision engine applies a site-specific rule set (season, temperature, wind speed, and live detections) and issues curtail/release commands via SCADA at the turbine or zone level. Initial curtailments run 30 minutes, with 10-minute rolling checks to release early if activity ceases or extend if it persists—limiting lost energy compared with fixed blanket curtailment.

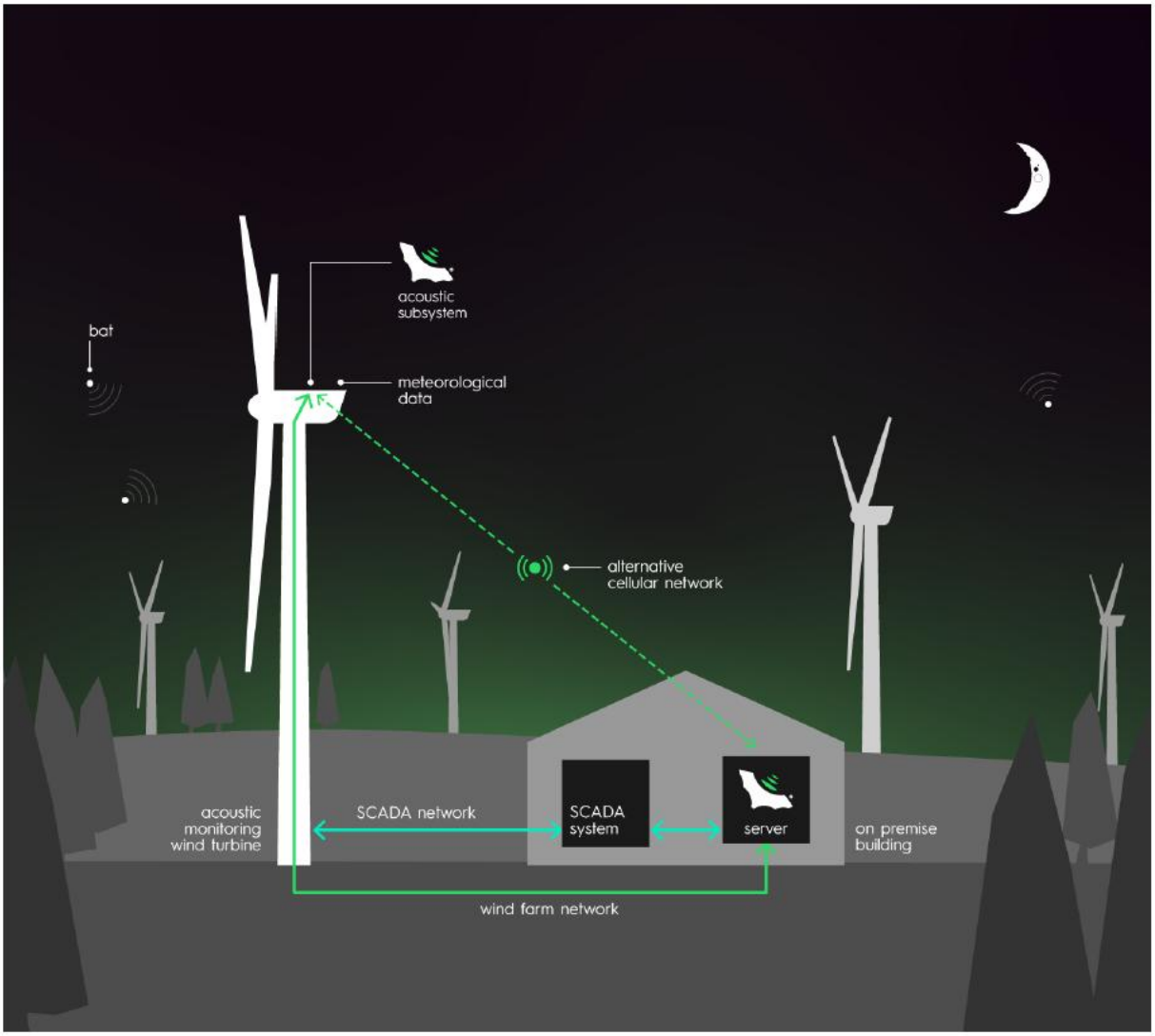

Figure 9 - EchoSense overview diagram

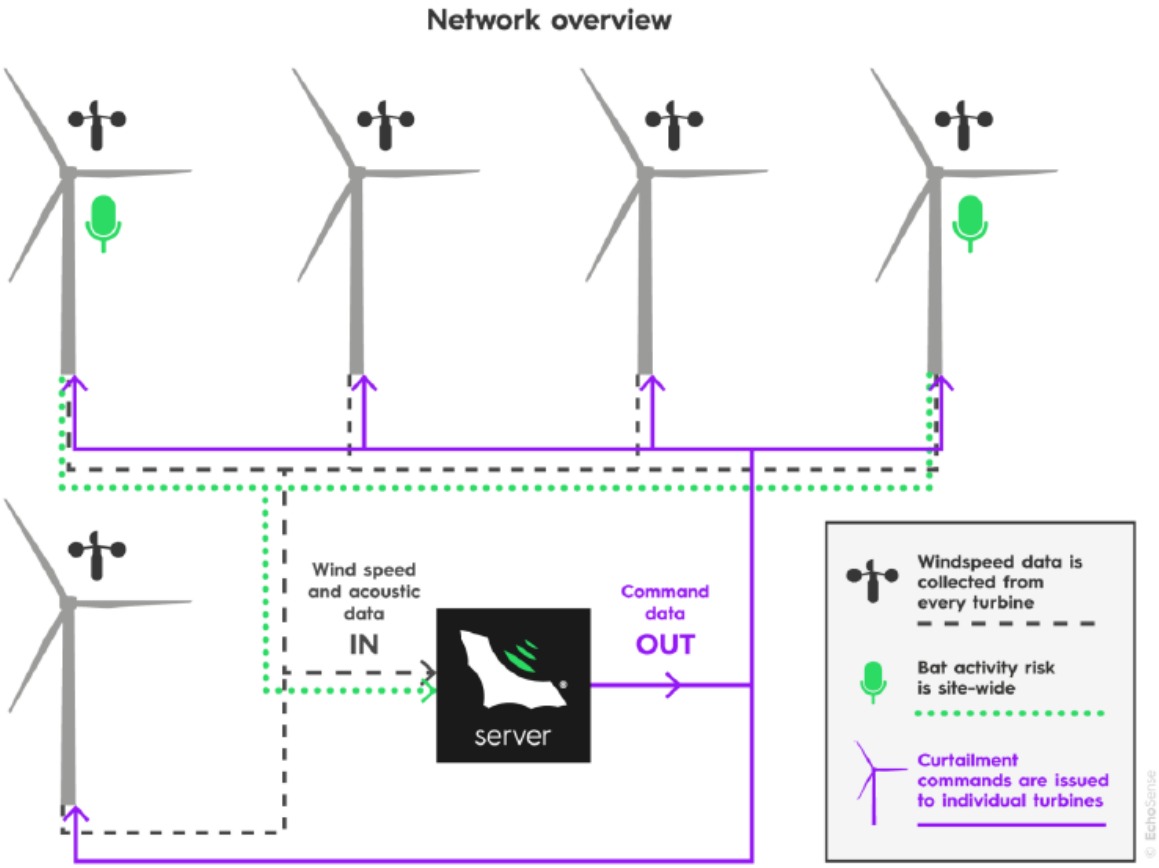

Figure 10 - EchoSense network overview

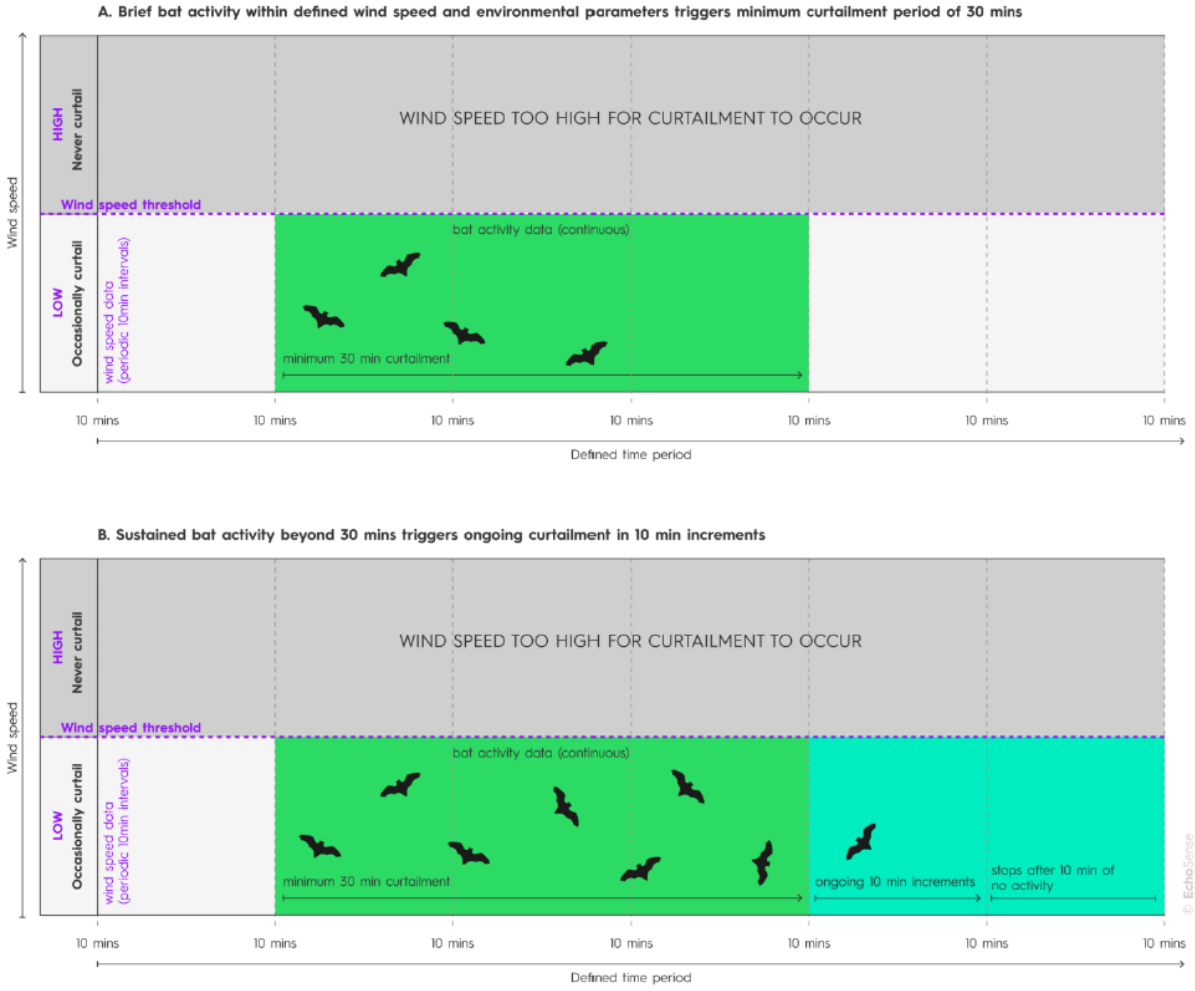

Figure 11 - EchoSense bat activity curtailment

A DOE/Renewable Energy Wildlife Research Fund study with Alliant Energy (Iowa) (*Alliant Energy - Protecting Migrating Species at Wind Projects*, n.d.) tested EchoSense on 69 turbines during fall migration. Across two seasons, smart curtailment achieved no significant difference in fatalities compared with blanket curtailment set at 6.9 m/s (2020) and 5.0 m/s (2021), while reducing per-turbine energy loss by an average 41% (2020) and 56% (2021). Net energy produced was higher with EchoSense (+5,490 MWh in 2020; +1,684 MWh in 2021).

Example of estimated energy loss and revenue for blanket versus EchoSense curtailment scenarios

	5.0 m/s Blanket	5.0 m/s EchoSense	6.9 m/s Blanket	6.9 m/s EchoSense
Base Power (MWh)	519,450	519,450	519,450	519,450
Curtailed Power (MWh)	513,528	518,463	473,375	514,983
Lost Energy	1.14%	0.19%	8.87%	0.86%
Bat Activity Exposed	65%	65%	44%	44%
Bat Activity Avoided	35%	35%	56%	56%
Delta in MWh	5,922	987	46,075	4,467
Difference in Revenue	-$236,869.20	-$39,478.20	-$1,843,008.60	-$178,690.80

Hypothetical energy and bat activity data for a 50-turbine wind project based on common regulatory-prescribed cut-in speeds for minimization of bat fatalities

Figure 12 - Example of estimated energy loss and revenue for blanket vs EchoSense curtailment

WEST, ULC. (WEST) – Optimized Smart Curtailment

WEST presented OSC, a machine-learning approach that produces site-tailored curtailment schedules from bat-activity and project power curve/wind-regime data, optimising the trade-off between fatality minimisation and energy production. OSC requires no additional field hardware (it is model-based) and can generate a portfolio of algorithms for operators to choose among, as an alternative to blanket curtailment.

At a Minnesota facility, WEST reported OSC increased power production by ~25% while reducing bat risk by ~31% relative to a 4.5 m/s blanket curtailment.

WEST Optimized Smart Curtailment Option Examples	Coverage Improvement (Relative to blanket curtailment)	Cost Savings (Relative to blanket curtailment)
Option 1: Power-focused	7.9%	57.7%
Option 2: Balanced	31.4%	24.9%
Option 3: Conservation-focused	36.4%	1.0%

Figure 13 - WEST OSC coverage improvement and cost savings

5.5. Monitoring Post Mitigation

EVREC will conduct a post-construction monitoring programme (and extend if thresholds are approached) comprising:

Fatality searches at a representative sample of turbines (stratified by habitat/risk, including any exceeding thresholds), with protocol-driven searcher efficiency and carcass persistence trials to enable corrected fatality estimates.

Data review cadence: monthly during peak season, with rapid-response memos when triggers are met; annual public-facing summary after each season.

Feedback loop: update the curtailment rule sets/thresholds based on measured outcomes; document any turbine long-term operating changes.

5.6. Curtailment

If post-mitigation monitoring shows repeated threshold exceedances in a defined area (e.g., a turbine string abutting a river corridor), EVREC will apply a mix of:

- predictive - smart curtailment;
- reactive – smart curtailment;
- sectoral curtailment;

Smart curtailment measures may be cost prohibitive and would be installed only on a specific subgroup of turbines where evidence showed exceedance of bat mortality threshold. In addition, smart curtailment may cause increased variability in energy generation, potentially causing difficulties keeping the wind farm grid stable, therefore sectoral curtailment may also be used as a viable mitigation strategy.

5.6.1. Predictive-Smart Curtailment

Predictive smart curtailment uses pre-built models based on site-specific bat activity, meteorological conditions, and historical patterns. These models forecast when and under what conditions bats are likely to be active and automatically curtail turbines accordingly.

At EVREC, predictive curtailment models will be constructed from:

- Pre-construction acoustic data, identifying periods of heightened activity (late July–September, sunset to sunrise).
- Meteorological triggers, following empirically established thresholds:
    - Temperature > 5 °C (bats rarely active below this)
    - Wind speed < 6 m/s
    - No precipitation or fog events
    - Night-time hours between sunset and sunrise

Each turbine will integrate a rule set into the SCADA system that references these parameters, curtailing operation when all conditions coincide. The algorithm will be recalibrated annually using mortality observations.

Predictive models will also consider site-specific wind resource and topography, as bat activity often increases along edges and riparian corridors—data which EVREC's environmental team will continue to refine.

5.6.2. Reactive-Smart Curtailment

Reactive or "acoustic-activated" smart curtailment employs live monitoring to trigger temporary shut-downs only when bats are detected in real time near turbines.

As described in the CanmetENERGY field guidelines, such systems link acoustic detectors and/or IR cameras to record activity, weather data, and turbine control logic so that curtailment events occur only when bats are recorded within specified ranges.

EVREC will employ this approach through systems such as EchoSense, which:

- Continuously collects bat calls, temperature, and wind data.
- Applies a 30-minute curtailment window when detections meet defined rules (temperature > 5 °C, wind < 6 m/s, night-time).
- Automatically releases turbines if no bat detections occur within the last 10 minutes of the window, minimizing downtime.
- Allows zone-specific or turbine-specific control, avoiding unnecessary generation loss across the entire site.

5.6.3. Sectoral Curtailment

Sectoral curtailment consists of raising cut-in windspeed (e.g., in 0.5–1.0 m/s steps) only during the risk windows demonstrated by onsite data (e.g., late-summer nights with temperatures conducive to bat activity and wind speed below the selected setpoint). The sector and settings will be reviewed biweekly in season and ratcheted down once rates decline.

A federal technical review [1] synthesizing 51 North American field studies (2006–2023) that tested curtailment, deterrent and detection/monitoring approaches, and distilling good-practice guidance for Canadian projects has found that for each 1.0 m/s increase in cut-in speed decreases bat fatality rates by c. 33%. EVREC will use this number to assess the necessity and extent of targeted curtailment on a turbine-by-turbine basis.

5.7. Expected Post Mitigation Results

The proposed combined mitigation package comprising conservative setbacks, a robust monitor–act framework and precision tools (deterrents/smart curtailment) is designed to keep the Project's already low predicted bat mortality, well below typical rates observed at earlier generation wind projects in Canada and Atlantic Canada, while avoiding the energy penalties of blanket curtailment.

Blanket curtailment is therefore reserved as a last resort, to be considered only if technology-assisted and sector-specific measures cannot achieve the required thresholds., and will be considered / applied in consultation with NL Department of Forestry, Agriculture and Lands (Wildlife Division).

6. Conclusion

This strategy paper sets out a balanced, evidence-driven approach to meeting the bat protection intent of the EIS Guidelines while avoiding the disproportionate energy penalties of blanket curtailment. It recognizes the province's default requirement (night-time, July–October, ≥ 6 °C, cut-in > 6.0 m/s) and proposes an alternative that achieves equivalent conservation outcomes by combining conservative design, rigorous monitoring, and adaptive operational tools.

At the design stage, EVREC has already reduced interaction potential through meaningful layout changes and setbacks such as maintaining 30 m undisturbed buffers to water and wetlands (with an added 105 m blade clearance where needed); setbacks to cabins, municipalities, roads and major transmission; and screening out steep/complex terrain. The 2024 NABat-informed baseline acoustic program (39 ARUs across stratified habitats from April through October) shows a bat community dominated by resident *Myotis* with very rare migratory detections and clear spatial variation (highest activity at Leading Tickles; much lower at Botwood, Seabright's Lake and Twin Lakes). These results corroborate regional expectations and inform both micro-siting and the *where* and *when* of any future operational responses.

Grounded in Atlantic Canada postconstruction evidence (~0.26 ± 0.11 bats/turbine/season), the Project's predicted total is ~141 bats/year at full buildout (530 turbines). The paper transparently bounds this estimate against higher-mortality sites elsewhere in Canada and explains why those higher rates are not transferable to EVREC (species mix, climate, and geography). With setbacks already in place, these predictions reinforce that front-loaded blanket curtailment is unnecessary; instead, EVREC will verify performance with corrected fatality estimates and escalate only where triggers are met.

Operationally, EVREC adopts turbine-level thresholds (e.g., ≥ 3/5/8 bats per turbine within the search window;) and a mitigation ladder: minimise lighting and avoid creating "bat sinks"; deploy smart curtailment—predictive rules keyed to temperature, wind and precipitation, and/or acoustic-activated curtail/release commands; and, if exceedances persist within a string, apply sectoral curtailment during demonstrated risk windows. Where cut-in increases are required, the paper uses the literature-based planning benchmark of ~33% fatality reduction per 1.0 m/s to size and communicate expected benefits, verified on site. Vendor assessed options (NRG ultrasonic deterrents; EchoSense; WEST OSC) provide flexible, zone-specific tools that integrate with SCADA and avoid systemwide energy losses.

In summary, EVREC's plan offers regulators a robust, transparent pathway to equal or better environmental protection than blanket curtailment, while maintaining the Project's renewable-energy objectives. It is consistent with adaptive frameworks used across Canada, is anchored in regional evidence and project-specific data and is executable through existing SCADA and monitoring systems. EVREC requests approval to implement this risk-based adaptive framework in lieu of the default blanket curtailment. EVREC commits to continuous improvement and reporting to keep mortality well below Canadian norms for projects of comparable scale.

7. References

AEPA. (2020, January). *Post-Construction Survey Protocols for Wind and Solar Energy Projects*. Alberta Environment and Protected Areas. https://open.alberta.ca/dataset/52509a43-6e3b-4b15-b1e7-3b47b1feb985/resource/05ddeaaf-5ba2-4bcd-9911-98e79ef454d8/download/aep-pcmp-protocols-2020.pdf

Alliant Energy—Protecting migrating species at wind projects. (n.d.). Retrieved April 23, 2026, from https://www.alliantenergy.com/news/illuminate/,-w-,/2024/10/cef-102424-protecting-bats-at-wind-sites

Bird Studies Canada. (2016). *Wind Energy Bird and Bat Monitoring Database Summary of Findings from Post-construction Monitoring Reports*.

Government of Alberta. (2018). *Wildlife directive for Alberta wind energy projects* (Directive AEP Fish and Wildlife 2016 No. 6).

McBurney, T. S., & Segers, J. L. (2021, March). *Guide for bat monitoring in Atlantic Canada*. Canadian Wildlife Health Cooperative. https://cwhc-rcsf.ca/docs/Guide%20for%20bat%20monitoring%20in%20Atlantic%20Canada.pdf

The Canadian Renewable Energy Association (CanREA) Annual Data Release. (2025). CanREA. https://renewablesassociation.ca/wp-content/uploads/2026/02/2025-Data-Release-report-V2.pdf?utm_source=webpage&utm_medium=CTA&utm_campaign=PDF2datarelease2026&utm_id=PDF2datarelease2026

Transport Canada. (2021, November). *Standard 621—Obstruction marking and lighting—Canadian aviation regulations (CARs)*. Transport Canada. https://tc.canada.ca/en/corporate-services/acts-regulations/list-regulations/canadian-aviation-regulations-sor-96-

433/standards/standard-621-obstruction-marking-lighting-canadian-aviation-regulations-cars

Zimmerling, J. R., & Francis, C. M. (2016). Bat Mortality Due to Wind Turbines in Canada. *June 2016*. https://doi.org/10.1002

APPENDIX L.1
Caribou Technical Memo

Prepared by: Strum Consulting

ENVIRONMENTAL IMPACT STATEMENT
EVREC Green Energy Hub
Exploits Valley Renewable Energy Corporation

strum

CONSULTING

CARIBOU TECHNICAL MEMO
EVREC Green Energy Hub
Near Botwood, NL

May 11, 2026

EXECUTIVE SUMMARY

Exploits Valley Renewable Energy Corporation (EVREC), is proposing to develop, construct, and operate a wind to green ammonia project near Botwood, in central Newfoundland (the "Project"). EVREC will develop a wind project consisting of up to 534 wind turbines, a 150 megawatt (MW) solar project area, and associated off-site infrastructure (export and import terminals, access roads, collector substations, and water pipelines). Also included as part of the Project will be an industrial facility.

This report focuses on the technical methods used to determine the potential for the Newfoundland population of woodland caribou, a Species at Risk, to occur and use available habitat in the Project Area (PA) using the following approach:

- Conduct modelling to understand the extent of overlap between the PA and caribou home ranges
- Assess the habitat suitability of the PA to serve as habitat for caribou
- Identify factors influencing caribou seasonal range use (particularly during sensitive life history stages)
- Use field assessments to estimate the baseline density and abundance of caribou

The desktop and field assessment for caribou will be used to inform Project design and future surveys, and improve understanding of potential interactions of the Project with caribou within the PA and surrounding areas.

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Appendix A: Drawings

LIST OF ACRONYMS

BWPA	Botwood Wind Project Area
EDD	Effective Detection Distance
EIS	Environmental Impact Statement
ELC	Ecological Land Classification
EVREC	Exploits Valley Renewable Energy Corporation
GAMM	Generalized Additive Mixed Models
GW	Gigawatt
HA	Hectares
IPA	Industrial Project Area
PA	Project Area
MCP	Minimum convex polygons
MW	Megawatt
REST	Random Encounter Stay Time
RSF	Resource Selection Function
SARA	*Species at Risk Act*
SLWPA	Seabrights Lakes Wind Project Area
SPA	Solar Project Area
TLWPA	Twin Lakes Wind Project Area
UTM	Universal Transverse Mercator
WTG	Wind Turbine Generators

1.0 INTRODUCTION

1.1 Background

Exploits Valley Renewable Energy Corporation (EVREC, the "Proponent"), is proposing to develop, construct, and operate a wind to green ammonia project on the brownfield, former Abitibi lands, near Botwood in central Newfoundland, Canada (the "Project"). EVREC will develop an onshore wind project consisting of up to 534 wind turbines, a 150 megawatt (MW) Solar Project, and associated off-site infrastructure (export and import terminals, access roads, collector substations, and water pipelines). Included as part of the Project will be an Industrial Facility comprised of 2.6 gigawatt (GW) of electrolysers utilizing a combination of proton exchange membrane and aqueous solution units, air separation plants, ammonia plant, electrical energy storage facilities, molecular storage, water purification systems, warehousing, administrative buildings, and other associated utility infrastructure (switchyards, transformers, pipelines, emergency generators, and cooling systems) including an electrical grid connection for critical loads. Collectively the wind to green ammonia project, including all components mentioned above, will be referred to as the "EVREC Green Energy Hub", or "the Project".

The Project nameplate capacity will be up to 3.5 GW of electrical power and produce 925,000 to 1,000,000 tons per year of certified green ammonia. The Project is considered an undertaking under Section 34 (1f) of the Newfoundland and Labrador Environmental Assessment Regulations, 2003, where electrical power generation that has a capacity greater than 1 MW and engages in the manufacturing of green hydrogen and ammonia, which requires the submission of an Environmental Impact Statement (EIS). The Project will involve development, construction, operations, decommissioning, and reclamation of a wind project, a solar project, an industrial facility, and water supply for green hydrogen production and ammonia synthesis, including air separation, water treatment, and ammonia storage.

The Project will use the existing Port of Botwood for its shipping needs, which has historically served various clients across industrial sectors for over 100 years. The Project is proposed on land parcels totaling 35,833 hectares (ha) in central Newfoundland (defined hereafter as the Project Area). The Project is centered at 49.161441° N, 55.486669° W.

The Project consists of three components: (i) Wind Project and transmission line; (ii) Solar Project; and (iii) hydrogen and ammonia production facilities (defined hereafter as the Industrial Facility). The Industrial Facility and Solar Project, along with associated infrastructure, are co-located on a parcel southwest of the Town of Botwood. Within the Project Area, siting of wind turbine generators (WTGs) will be within four areas: Botwood, Seabrights Lake, Twin Lakes, and Leading Tickles.

1.2 Regulatory Context

Several laws and regulations provide protection for caribou and their habitats in Newfoundland and Labrador. Legislation that may direct resource development and conservation of caribou include:

Federal Legislation

- *Species At Risk Act* (SARA)*, S.C. 2002, c. 29*

Provincial Legislation

- *Wildlife Act, RSNL 1990, c W-8*
- *Lands Act, SNL 1991, c36 s1*

Species at Risk Act, S.C. 2002 c. 29

Habitat protection for species listed in Schedule 1 of SARA (i.e., species designated as Extirpated, Endangered, or Threatened) is granted through the identification and designation of Critical Habitat. Critical Habitat is defined as habitat that is critical to the survival of a species and applies to federal lands. Newfoundland population of woodland caribou (*Rangifer tarandus caribou*) has been designated as Special Concern under COSEWIC and SARA (2020) and as such, does not have designated Critical Habitat.

Wildlife Act, R.S.N.L. 1990, c. 8

The *Wildlife Act (*Newfoundland and Labrador, 1990) and its associated legislation regulates the management of game species in Newfoundland and Labrador. This is done through the establishment of harvest areas, season dates, licenses, and harvest limits. Caribou on the Island of Newfoundland are a designated big game species and licenses are issued annually for harvest of some herds in designated regions of the province labelled as Caribou Management Areas.

Lands Act, S.N.L. 1991, c. 36

The *Lands Act* (Newfoundland and Labrador, 1991) designates Crown Reserves and Special Management Areas. This legislation may be used to grant temporary protection to an area of land. Caribou core areas in particular are identified as sensitive wildlife areas on the crown lands atlas) and development proposed for these areas is referred to the Newfoundland and Labrador Department of Forestry, Agriculture, and Lands (NL FAL) - Wildlife Division for review. Unfortunately, habitat is not documented on the crown lands atlas for all herds and resident populations.

1.3 Assessment Spatial Boundaries

The Project is proposed on land parcels totaling 35,834 hectares (ha) in central Newfoundland and Labrador (Drawing 1, Appendix A; defined hereafter as the Project Area [PA]). The Project is centered at 49.161441° N, 55.486669° W. Within the PA, there are three key components which are presented below and show in Drawing 1, Appendix A:

- Industrial Facility
    - Industrial Project Area (IPA) is 1157 ha
- Solar Project
    - Solar Project Area (SPA) is 242 ha
- Wind Projects
    - Botwood
        - Botwood Wind Project Area (BWPA) is 20802 ha

- Leading Tickles
  - Leading Tickles Wind Project Area (LTWPA) is 2390 ha
- Seabrights Lakes
  - Seabrights Lakes Wind Project Area (SLWPA) is 3555 ha
- Twin Lakes
  - Twin Lakes Wind Project Area (TLWPA) is 7686 ha

2.0 BASELINE PROGRAM METHODOLOGY

2.1 Desktop Assessment Methodology

The following sections describe the technical methods used to determine the home range of the Hodges Hill caribou herd (which is known to overlap the PA), assess the habitat suitability of the PA, and identify landscape factors that influence caribou seasonal range use (especially during the calving period).

2.1.1 Home Range Estimation

A caribou home range is a spatially defined area occupied by an animal in its normal activities, such as foraging, mating, and calving (Burt, 1943). The home range of the Hodges Hill caribou herd was estimated using Argos collar location data from collared caribou in the herd provided by NL FAL - Wildlife Division. Collar data consisted of satellite locations of 14 individuals recorded between December 2006 and December 2011. The spatial boundaries of the overall home range were determined from collar location data using a 95% kernel density estimator (Gitzen et al., 2006), a common technique for estimating the range of size of wildlife.

2.1.2 Caribou Habitat Suitability Modelling

A habitat suitability model based on selectivity indices noted for this population in Hebert & Weladji (2013) and Hebert (2012) was created to assess the availability of key habitats for caribou throughout the PA. The habitat types defined below were identified from an Ecological Land Classification (ELC) developed by Strum, updated aerial imagery, and the NL FAL – Forest Resource Inventory (FRI) dataset (NLFAL, 2023). The caribou habitat model included the following parameters:

Suitable overwintering, foraging, and breeding habitat

- Mature and greater age classes from the FRI dataset were intersected with the upland softwood (e.g., > 3 m in height in areas where depth to water was > 1 m) in the ELC and species from the FRI with the following codes: bf, bs, es, jp, lp, ns, rp, sp, ss, ws, wp.

Suitable calving habitat

- Open/bog habitat was defined by the following features in the ELC:
  - Raised/isolated wet area
  - Wet herbaceous/shrub
  - Bogs (targeting primarily peatland/ sphagnum dominated vegetation)

To add generalization and account for patches of lichen in between suitable softwood forest, zonal statistics were used to generalize the identified areas of suitable habitat. For both habitat types, anthropogenic disturbance areas were removed by buffering forested areas since 2005 [as outlined by ECCC (2012)] by 500 m, as caribou tend to minimize their use of anthropogenic areas (COSEWIC, 2014).

2.1.3 Caribou Calving Core Space Use and Resource Selection

Collar data collected from Hodges Hills caribou was used to assess landscape features influencing seasonal range use. The Argos collar data described above was used to document core habitat use by caribou in the Hodges Hill herd. A year-round Resource Selection Functions (RSF) as well as multiple seasonal RSFs were fit to assess habitat selection for Hodges Herd caribou during pre-calving, calving, and post-calving.

The technical methods used to identify core habitat use are described in the following sections.

2.1.3.1 Modelling Methodology

Data Collection and Cleaning

Land cover data were retrieved from the Canadian Forest Service (CFS; Hermosilla et al., 2022) to describe the broad categories of habitats present in the WPA (i.e., coniferous, and softwood forest, wetlands), which has been informative in other Newfoundland caribou habitat selection analyses. OpenStreetMap data (Padgham et al., 2017) was used to extract roads and bodies of water for distance-to-road and distance-to-water's edge covariates, to test the influence of these factors on caribou space use. The extent of all caribou collar locations was selected as the initial basis of the analysis, and a 5 km buffer was added on each side to define the bounding box within which to extract landscape data.

Upon inspection of the Argos collar data and the LOCQUAL column, 23.5% of locations were quality class 0 or lower, meaning the radius of uncertainty around those points was > 1,500 m (Brost et al., 2015; Douglas et al., 2012). These ~ ¼, proportion of points were omitted from the analysis, given the lack of confidence in those locations. Class 1 Argos points have an error radius of 500–1500 m but given that omitting these points would remove 40% of the caribou locations, this level of uncertainty was deemed manageable.

Among the class 3, 2, and 1 points, data was subset to April 1 to August 31 as a wide window around the calving season. Data were further subdivided this range based on parturition date records in Newfoundland to pre-calving (April 1 to May 21), peak calving (May 22 to June 18; (Ellington et al., 2020), and post-calving (June 19 to August 31) seasons. Data limitations precluded running the full RSF mixed effect model structure on each period separately (details below), but fixed-effects-only models are presented for comparison between periods.

Minimum convex polygons (MCP) were generated for each individual-year's collection of points. Within these MCPs, 10 points were randomly generated per observed point to use as the availability domain in the resource selection function. Home ranges for the entire year of data were very similar to those from this 4-month calving period window, so, the availability

domain defined by this MCP ought to include a reasonable range of potential locations.

Covariate Extraction

The spatial grain of the CFS land cover raster is 30 m x 30 m. Given the uncertainty in the caribou locations, i.e., up to 1,500 m, 1.5 km radii were extracted around each caribou location point and the proportion of cells within the radius of the main categories (i.e., consisting of > 1% of the land surface) was calculated: coniferous, mixedwood, wetland, and 'open' areas (shrubs and exposed rock/barrens). Water made up ~14% of the land surface but given that distance to water bodies is already a predictor and model fit can suffer when multiple proportion covariates sum to 1, water as land cover category was not included in the RSF.

Upon model examination, the proportion of wetland was most correlated with the other land cover types, and appeared to have the weakest coefficient in terms of caribou response, so it was removed to leave the following final model structure:

Case[obs vs. random] ~ proportion conifer + proportion mixed wood + proportion open + log(distance to water) + log(distance to road) + random (individual ID) + random (year) *Formula 1*

Table 2.1: Percentage of Land Cover Categories Among 30 m cells from Canadian Forest Service Raster Around the Area Used in Resource Selection Functions

Land Cover Category	Percentage
Coniferous	53%
Mixedwood	15%
Water	14%
Wetland	11%
Shrubs	4%
Exposed/Barren Land	3%
Broad Leaf	0.4%
Herbs	0.3%
Rock/Rubble	0.03%
Bryoids	0.002%
Snow/Ice	0.001%
Wetland Treed	0.001%

Simulate Error Iterations

To account for the uncertainty of the caribou locations, i.e., from the potentially high uncertainty in Argos collar location data, the reported error radii per quality class was used to modify the spatial coordinates of each point. For example, for all class two points (with an error radius of up to 500 m), a random sample of two values from a normal distribution centred on zero with a standard deviation of 500 m was taken and these values were added to the starting X and Y coordinates of each recorded location point. This process was repeated 100 times for all the Argos locations, and respective error radii, the same RSF model structure was re-run on each dataset to examine how sensitive the parameter estimates are to potential location error.

For this iterative process, a 150 m radius for land cover were used, rather than the 1.5 km as above, as location uncertainty is not accounted for through repetition, and in the interest of developing a finer-scale predictive model. This unadjusted data was reanalyzed at the 150 m radius as well to compare to the iterative set.

When attempting to apply the whole-season model structure separately to pre-, peak-, and post-calving periods, the models invariably failed to converge. Non-mixed effects models (i.e., not accounting for year or individual identification) were fit by removing the random intercepts of ID and year. The estimates from these non-mixed effects models are not directly comparable to the whole-season model, and overall, not as reliable; however, here they are presented out of interest in whether selection behaviour differed across these three periods.

Predicting Habitat Quality from RSF

Among the 100 iterations of the mixed model, the parameter estimates differed only slightly and the inference from each iteration was unchanged. the average across these 100 models was taken and average parameter estimates was used in predicting across the landscape.

To make a predictive map, a resolution needed to be predetermined. Given the model used a 150 m radius to calculate land cover proportions, the 30 m x 30 m CFS land cover types were aggregated to 300 m x 300 m cells, extracting the proportion of coniferous, mixedwood, and open habitats as above. The distances to roads and water with the same resolution and extent as above was rasterized. As the distance variables are log() transformed in the model, distances of zero (i.e., points on roads or in the middle of ponds) create an undefined value that precludes predicting in these locations. All the resultant missing values for log(distance) were replaced with zero for predictive purposes.

Although the fixed models for the shorter pre-, peak-, and post-calving periods are not directly comparable to the overall mixed model, predicted surfaces were generated for each specific period as above, to test whether the differences in the parameter estimates meaningfully changed the distribution of selected and avoided locations throughout the summer.

2.2 Field Survey Methodology

2.2.1 Camera Trap Survey

From December 2024 through January 2026, 33 trail cameras were deployed within and near the WPA to document the presence of ungulates and other wildlife (Drawing 2, Appendix A). The cameras were deployed in ‘grids’ composed of three cameras per grid with a total of 11 grids. Camera grids were positioned in a triangle formation approximately 250 m apart. Candidate locations for grids were selected using the Camtrapmonitoring R package (Robitaille, 2024). Deployments followed a stratified random design, where grid locations were randomly chosen via a priori selection criteria which included:

- Representative sampling of landcover type [i.e., coniferous, deciduous, mixedwood, shrubland, barrens, and wetlands (NRCan, 2020)].
- Locations less than 2 km from an accessible roadway or trail.

- Location more than 2 km from the boundaries of local municipalities.

Cameras were affixed to trees, stumps, or snags at a height of approximately 1.5 m from the ground (Carswell, 2024a). Cameras were positioned facing directly north or south, depending on location, minimizing glare from the sun and maximizing the ability of reviewers to identify species in photographs.

The objective of these surveys was to estimate caribou density and abundance on a regional scale. Opportunistic surveys were completed for caribou and moose throughout the suite of biophysical surveys completed for the Project.

2.2.1.1 Caribou Density Estimation

To estimate caribou density and abundance, 12 months of data were used (January 1, 2025, to December 31, 2025) from the camera trap grids. In addition to estimating caribou density from camera trap photos, for photographs of caribou, the number of photographs was summarized by demography (i.e., bull, cow, calf). Though the sampling period was limited to 12 months, the demographic ratios of captured photographs are expected to representative of population-level demographic patterns (Koeck et al., 2025).

Predictive Models

Results from camera-trap based density estimators can be sensitive to small sample sizes (e.g., fewer camera traps) or when species density is low (Carswell, 2024b), potentially biasing density estimates. To address such issues, the daily number of photographs captured for caribou were fit in a Generalised Additive Mixed Model (GAMM; Wood 2017; Wood 2025) to smooth spatial and temporal variation. Recent works highlight the advantages of explicitly modelling the variable parameters of density estimators (i.e., species contacts with a camera trap) when sample size may be limiting (Nakashima et al. 2026). The caribou predictive model was fit to a negative binomial distribution to account for overdispersion of error.

$$y \sim NegBin(\mu, \alpha) \qquad \textit{Formula 2}$$

where $\mu = mean\ number\ of\ photogrpahs$

$\alpha = dispersion\ parameter$

The easting and northing UTM (Universal Transverse Mercator) coordinates were fit in a Gaussian Process spline to account for spatial variation. Julian day was fitted in a cyclic cubic regression spline to account for temporal variation in caribou and moose occupancy of the study area and movement rates, as well as the structural dependence of data—which were partitioned by day. Finally, camera trap-specific influences were accounted for by fitting each unique camera trap as a random intercept (Formula 3).

$$y \sim s(Easting, Northing, bs =' gp') + s(JulilanDay, bs =' cc') + s(camera\ ID, bs =' re') \qquad \textit{Formula 3}$$

REST Model Parameterization

An adapted version of the Random Encounter Stay Time (REST) model was used, intended to

for camera trap photos instead of videos, to estimate ungulate density and abundance (Carswell, 2024b; Hogg, 2021; Nakashima et al., 2018). The model,

$$\rho = \frac{\sum T_S}{T_a * A_c} * \frac{\pi^2}{8} \qquad \textit{Formula 4}$$

estimates species density (ρ) as a function of the cumulative time a species spends in a given camera's viewshed ($\sum T_s$), the total time a camera trap was operational (T_a), and the estimated area the camera trap monitors (A_c). The REST model used is conceptually and mathematically similar to other camera trap-based density estimation models, e.g., Time in Front of Camera model (Becker et al., 2022; Warbington & Boyce, 2020).

To estimate theoretical variance and confidence bounds around density and abundance estimates, a variance equation derived by Hogg (2021) was used. The variance formulation,

$$Var(\rho) = \rho^2 * (\frac{\pi^2}{8} - 1 + \frac{\pi^2}{16*r*T*s*\rho}) \qquad \textit{Formula 5}$$

estimates theoretical variance around species density (ρ) as a function of the total time camera traps were operational (T), a species effective displacement rate in the same units as density (s; e.g., km/second), and the radius of a circle with the same viewshed area as the camera traps (r).

Area Monitored by the Camera Trap

Field Jog Tests

To assess the spatial footprint of camera traps, i.e., the area estimate of a camera viewshed, in-field jog tests were conducted following similar methodology as Del Bosco (2021) and Carswell et al. (2025). Field jog tests consisted of 10 to 20 instances where a technician crossed camera field of view at generally consistent speeds of 2 m/s. The distances the technician started and stopped each jog was determined using Sine law, horizontal distance measurements of the technician relative to the camera trap (collected with a rangefinder), and azimuth measurements relative to the camera's optical axis (collected with a compass onboard a GPS unit; see Figure 2.1). Due to field and logistical constraints, jog tests were conducted at 28 camera traps.

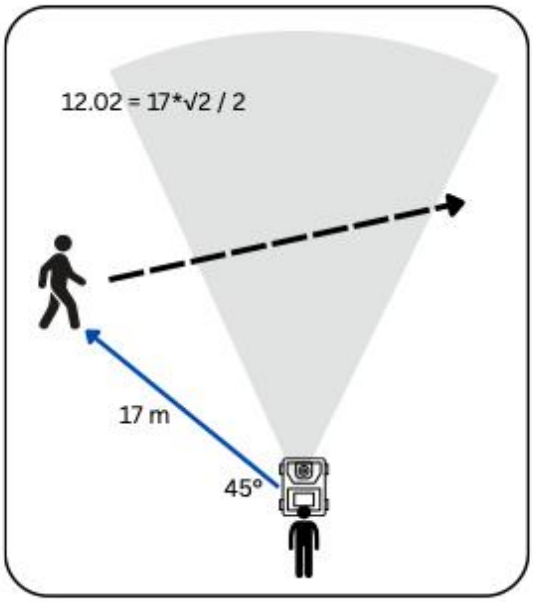

Figure 2.1: Example of camera viewshed determination from in-field jog tests.

As shown in Figure 2.1, using Sine law, a horizontal distance of 17 m from camera trap to technician, and a degree reading of 45° from the camera's optical lens to technician (determined from two azimuth readings), it can be estimated the technician is 12.02 m perpendicular to the camera trap.

Monitoring Area Enumeration

To estimate camera viewshed area, the photographs captured by the field jog-tests and the Effective Detection Distance (EDD) estimator (Hofmeester et al., 2017; Rowcliffe et al., 2008, 2011) were used. Photos captured during the jog tests were categorized into bins based on distance away from camera optical lens and fitted the mean numerical distance of each bin into a distance sampling function (Hofmeester et al., 2017). For example, photographs of joggers were categorized into 0–5 m (mean 2.5 m), 5–10 m (mean 7.5 m), 10–15 m (mean 12.5), 10–20 m (mean 17.5 m), and 20–25 m (mean 22.5 m) bins. Because EDD can overestimate camera trap viewshed areas by not considering for false negative detections (Carswell et al., 2025), the first captured photograph that might have occurred during each jog was considered. The jog-test detection data was fit in a distance sampling function following a half normal decay rate, and with a truncation (i.e., maximum distance) of 30 m based on camera trap specifications (Reconyx, 2022). Finally, the effective transect width returned by the distance sampling function was used and extrapolated to assume a circular viewshed area (Hofmeester et al., 2017). On average, it was assumed that the EDD estimate would represent the average viewshed area across all camera traps—determined to be 72.11 m^2.

Cumulative Time a Species Spends in Camera Viewshed (∑Ts)

The GAMM models (described above) were used to predict the number of photographs of caribou occurring at each Julian day at each unique camera trap. The predicted number of

photos for caribou was used, and an assumed temporal footprint of 1 second per photo to parameterise the time caribou spent in front of each camera. A photograph's temporal footprint was ~1 second was assumed from the results of in-field jog-tests by investigating the minimum, median, and mean time between sequential photos during each jog.

Temporal Footprint of Individual Photographs for Density Estimation

Following Carswell (2024), the minimum, median, and mean time (in seconds) between sequential photographs during the in-field jog tests was reviewed. Though not a perfect metric, the minimum and median times between sequential photographs can provide inference on camera technological delays and thus the temporal footprint a single photograph captures.

Total Time a Camera Trap Was Operational [T(a)]

During the study period of January 1, 2025, to December 31, 2025, most camera traps were continuously operational with no failures. For these cameras, it was assumed that all time between the start and end times of the study period were available for camera traps to capture photographs. For the few camera traps that experienced failure during the study period, it was assumed that last photograph registered by the camera was the final day such a camera was available to capture photographs.

Species Effective Displacement Rate (s) – Variance Equation

Because camera trap-based density estimators are based on species movement parameters (Hogg, 2021; Nakashima et al., 2018; Rowcliffe et al., 2008), the theoretical variance formulation used relies on an estimate of daily effective displacement rate. For caribou density and abundance estimates, it was assumed an effective displacement rate of 0.033 m/s based on literature in a nearby population on Fogo Island, Newfoundland and Labrador (Hendrix et al., 2024; Webber et al., 2024).

Density and Abundance Estimation

A daily density estimate for caribou was generated at each camera trap following REST parameterisation. This information was summarized into mean density estimates by integrating across Julian days and each camera trap. Density estimates for caribou are provided as well as extrapolated to an abundance estimate based on the spatial coverage the camera trap grids cover. A minimum convex polygon encompassing all camera traps covers ~550 km^2 in area. Thus, 550 km^2 was used as the most representative area to extrapolate density to abundance estimates. Though an abundance estimate for caribou was generated, the deployed camera traps only monitor surrounding the WPA, and thus do not account for other range the caribou herd may use. Thus, extrapolating beyond this area may propagate unquantifiable uncertainty.

3.0 EXISTING CONDITIONS

Desktop and field surveys for caribou were completed to determine potential impacts to caribou or their specific habitat.

3.1 Desktop Assessment Results

3.1.1 Home Range Estimation

The kernel analysis of NL FAL - Wildlife Division collar data yielded a home range estimate of 211,666 ha for the Hodges Hill herd (Drawing 3, Appendix A). The home range extends beyond the PA and is bounded by the coastline in the north, the Botwood Highway (Route 350) in the east, the Exploits River in the south, and the Trans-Canada Highway in the southwest. On the western edge of the range at Long Lake, the home range shifts east and runs between North and South Twin Lake.

3.1.2 Caribou Habitat Suitability Modelling

Using the output of the habitat suitability model, the extent of suitable caribou habitat was determined for the WPA and its components (Table 3.1; Drawing 2, Appendix A).

Table 3.1: Predicted Caribou Habitat in the Wind Project Area

Project Area Component	Potential Caribou Habitat (ha)	Area of WPA Component (ha)	Percentage %
IPA	867	1,157	75%
SPA	167	242	69%
BWPA	10,310	20,802	50%
LTWPA	1,578	2,391	66%
SLWPA	1,672	3,555	47%
TLWPA	3,221	7,686	42%
Total PA	**17,815**	**35,833**	**50%**

Per the habitat suitability model, approximately 17,815 ha of suitable caribou habitat was identified in the PA (50%). Overwintering, foraging, rutting, calving and rearing habitats are predicted to be prevalent across the PA, with this habitat type most prevalent in the north (i.e., LTWPA), whereas calving and rearing are the most prevalent closer to the town of Botwood.

3.1.3 Caribou Core Space Use and Resource Selection

The initial RSF model using a 1.5 km radius for proportion land cover identified all predictors as highly significant (Table 3.2). Caribou avoided locations near roads and selected locations near water. Caribou selected locations with more coniferous and open habitats but avoided locations with more mixedwood forest cover. Selection for open habitats appears very strong but it is worth noting open habitats constitute ~7% of the study area and the median proportion open at any given point was 1.2%, so even strong selection for this sparse land cover is unlikely to drive selection overall.

Table 3.2: Model Output from Mixed-effects RSF Model of Non-adjusted Argos Locations, Using a 1500 m Radius to Calculate Proportion of Land Cover (*n* = 3435 locations across 13 individuals and 5 years).

Term	Estimate[(1)]	SE	z-value	Pr(>|z|)
(Intercept)	-3.061	0.186	-16.44	9.11E-61
log(distance to road)	0.125	0.017	7.34	2.18E-13
log(distance to water)	-0.153	0.0149	-10.28	8.58E-25
Prop. Conifer	1.261	0.111	11.40	4.00E-30
Prop. Mixedwood	-1.276	0.199	-6.418	1.38E-10
Prop. Open	3.910	0.343	11.40	4.18E-30

[(1)]Note that for distance-to variables, negative coefficients indicate preferred selection for the feature, as shorter distances are selected.

3.1.3.1 Iterations of Full Summer Model

Parameter estimates from the iterated models with nudged locations were cohesive across iterations and were also broadly similar to parameter estimates from the 1.5 km radius model. Though the estimates from the position-adjusted models were somewhat more moderate for proportion coniferous and proportion open relative to the unadjusted data at the 150 m radius scale (Table 3.3, Figure 3.1), this did not affect interpretation of the model, and otherwise the estimates were quite consistent regardless of spatial jitter.

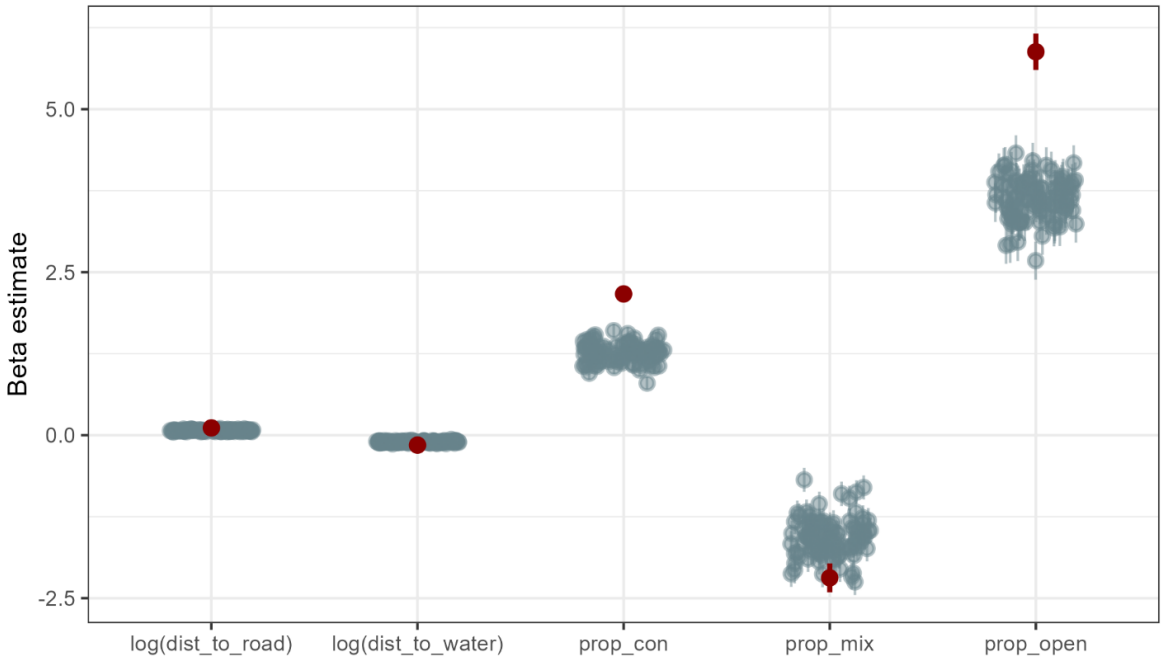

Figure 3.1: Parameter estimates (and standard error) from 100 iterations of mixed-effects RSF models of caribou habitat selection from April 1 to August 31.

Table 3.3: Average Model Output from n = 100 Iterations of Mixed-effects RSF Models Applying Random Error to XY Argos Locations

Term	Estimate	Standard Error
(Intercept)	-2.973	0.176
log(distance to road)	0.0727	0.0163
log(distance to water)	-0.103	0.0152
Proportion coniferous	1.270	0.101
Proportion mixed	-1.579	0.194
Proportion open	3.640	0.279

The predictive habitat selection map generated based on the results of the RSF is shown in Figure 3.2. The predicted values at each cell ranged from -2.5 to 3.5, but these values are not directly interpretable in isolation, and the 0 value does not indicate neutral response, but is rather interpreted as relative to one another. Relative differences between locations indicate where habitat is more preferrable.

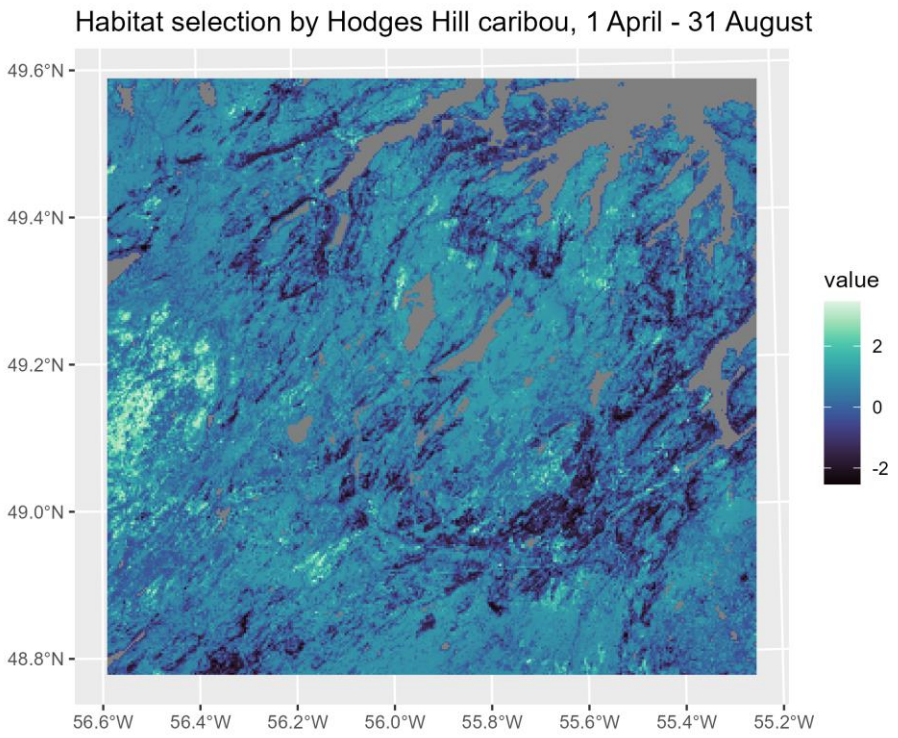

Figure 3.2 Predicted habitat selection by Hodges Hill caribou based on average parameter estimates from n = 100 iterations.

3.1.3.2 Iterations of Fixed-Effects Season-Specific Models

While estimates from the period-specific fixed effects models are not comparable to those from the overall mixed-effects models, differences between these seasons could indicate

biologically meaningful changes in space use. Generally, pre-calving (April 1 to May 21) selection coefficients were notably different from the peak (May 22 to June 18) and post (June 19 to August 31) calving selection models, which were quite similar. Particularly, pre-calving saw strong selection for open habitats, neutral response to mixed, and mild selection for conifer; during peak calving and post-calving, responses to open habitat were neutral to slightly avoidant, with avoidance of mixed habitats (Figure 3.3). To reiterate, however, the estimates from these fixed-effects-only models should not be interpreted with the same level of confidence as the April to August mixed effects model presented above.

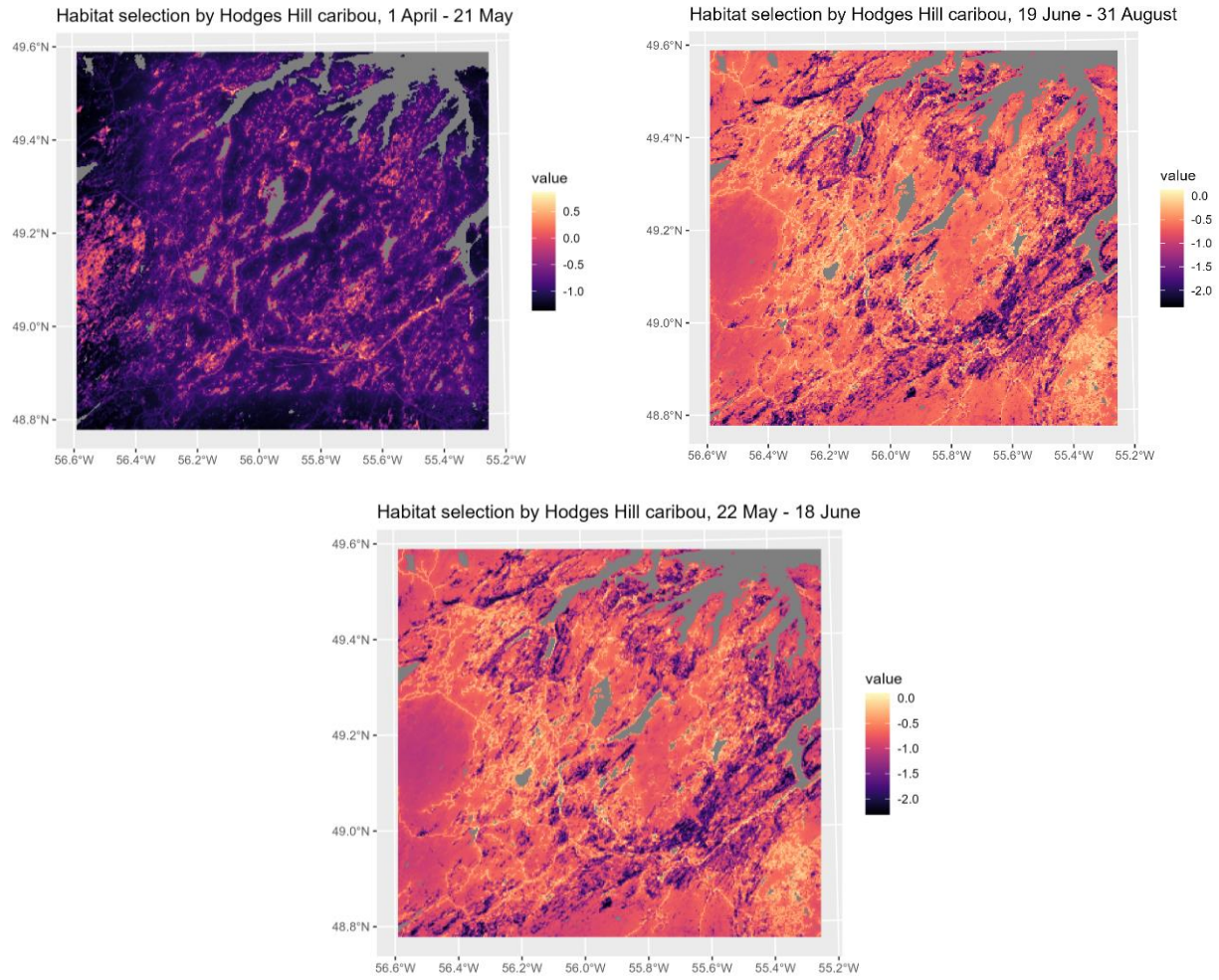

Figure 3.3: Predicted habitat selection by Hodges Hill caribou for pre-calving (April 1 to May 21), calving (May 22 to June 18), and post-calving (June 19 to August 31).

3.1.3.3 Summary of Caribou Core Space Use and Resource Selection

The calving habitat assessment generated a map demonstrating the relative quality of calving habitat (Drawing 4, Appendix A). The RSF model indicates that caribou habitat quality improved with increased distance from roads and improved when closer to water. Caribou

selected locations with more coniferous and open habitats but avoided locations with more mixed wood forest cover. Selection for open habitats appears very strong but it is worth noting that open habitats constitute ~7% of the collared study area and the median proportion open at any given point was 1.2%, so even strong selection for this sparse land cover is unlikely to drive selection overall

3.2 Field Survey Results

3.2.1 Camera Trap Survey

In total, after removing data from defective camera traps, data was collected from 30 unique camera traps representing 10,343 camera trapping days (Drawing 2, Appendix A). The cameras recorded 293 photographs of caribou, with 168 photographs of caribou cows, 116 photographs of bulls, and nine photographs of calves.

Minimum and median time between sequential photographs during jog tests was 1 second, whereas the mean time between sequential photographs was 1.7 seconds Therefore, it was assumed for the camera traps, a single photographs temporal footprint was equal to 1 second.

The mean density estimate for caribou from the camera trap grid was 0.43 caribou/km^2, which translates to an abundance estimate of approximately 237 caribou in the 550 km^2 area encompassed by the camera trapping grid. The minimum confidence interval for caribou density was 0.24 caribou/km^2, whereas the maximum confidence interval for caribou density was 0.62 caribou/km^2.

4.0 CONCLUSION

A desktop review and field assessment for caribou and their associated habitat were completed to inform Project design and future surveys. This will improve understanding of potential interactions of the Project with caribou within the PA and surrounding areas.

5.0 STATEMENT OF QUALIFICATIONS AND LIMITATIONS

This Report (the "Report") has been prepared by Strum Consulting ("Consultant") for the benefit of EVREC ("Client") in accordance with the agreement between Consultant and Client, including the scope of work detailed therein (the "Agreement").

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- may be based on information provided to Consultant which has not been independently verified
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued
- must be read as a whole and sections thereof should not be read out of such context
- was prepared for the specific purposes described in the Report and the Agreement
- in the case of subsurface, environmental, or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time

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Should additional information become available, Strum requests that this information be brought to our attention immediately so that we can re-assess the conclusions presented in this report. This report was prepared by Casidhe Dyke, MNRM, EP, Senior Environmental Scientist, and was reviewed by Mark MacDonald, MSc.F., Terrestrial Lead.

6.0 REFERENCES

Becker, M., Huggard, D. J., Dickie, M., Warbington, C., Schieck, J., Herdman, E., Serrouya, R., & Boutin, S. (2022). Applying and testing a novel method to estimate animal density from motion-triggered cameras. *Ecosphere*, *13*(4). https://doi.org/10.1002/ecs2.4005

Burt, W. H. (1943). Territoriality and Home Range Concepts as Applied to Mammals. *Journal of Mammalogy*, *24*(3), 346–352. JSTOR. https://doi.org/10.2307/1374834

Carswell. (2024a). *Parameterizing the random encounter staying time model to generate mean and variance ungulate density and abundance estimates* [Memorial University of Newfoundland]. https://memorial.scholaris.ca/server/api/core/bitstreams/bdeaeeea-6408-4980-98c9-64bfdf8bc689/content

Carswell, B. M. (2024b). *Parameterizing the Random Encounter Staying Time model to generate mean and variance ungulate density and abundance estimates* [MSc. Thesis]. Memorial University of Newfoundland and Labrador.

Carswell, B. M., Avgar, T., Street, G. M., Boyle, S. P., & Vander Wal, E. (2025). One size does not fit all: A novel approach for determining the Realised Viewshed Size for remote camera traps. *Methods in Ecology and Evolution*, *16*(4), 786–800. https://doi.org/10.1111/2041-210x.70008

Del Bosco, T. (2021). *An eulerian perspective on spring migration in mule deer* [MSc. thesis]. Utah State University.

ECCC. (2012, October 23). *Woodland caribou (Rangifer tarandus caribou), boreal population: Recovery strategy*. https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/recovery-strategies/woodland-caribou-boreal-population-2012.html

Gitzen, R. A., Millspaugh, J. J., & Kernohan, B. J. (2006). Bandwidth Selection for Fixed-Kernel Analysis of Animal Utilization Distributions. *The Journal of Wildlife Management*, *70*(5), 1334–1344. https://doi.org/10.2193/0022-541X(2006)70[1334:BSFFAO]2.0.CO;2

Hebert, I. (2012). *The habitat preferences of Newfoundland woodland caribou across range components and scale: Implications for management* [Master of Science]. Concordia University.

Hebert, I., & Weladij, R. (2013). The use of coniferous forests and cutovers by Newfoundland woodland caribou. *Forest Ecology and Management*, *291*, 318–325. https://doi.org/10.1016/j.foreco.2012.11.011

Hendrix, J. G., Robitaille, A. L., Kusch, J. M., Webber, Q. M. R., & Vander Wal, E. (2024). Faithful pals and familiar locales: Differentiating social and spatial site fidelity during reproduction. *Philosophical Transactions of the Royal Society B: Biological Sciences*,

379(1912), 20220525. https://doi.org/10.1098/rstb.2022.0525

Hermosilla, T., Wulder, M. A., White, J. C., & Coops, N. C. (2022). Land cover classification in an era of big and open data: Optimizing localized implementation and training data selection to improve mapping outcomes. *Remote Sensing of Environment*, *268*, 112780. https://doi.org/10.1016/j.rse.2021.112780

Hofmeester, T. R., Rowcliffe, J. M., & Jansen, P. A. (2017). A simple method for estimating the effective detection distance of camera traps. *Remote Sensing in Ecology and Conservation*, *3*(2), 81–89. https://doi.org/10.1002/rse2.25

Hogg, J. (2021). *The precision and accuracy of the Random Encounter Staying Time model's estimation of species population density* [MSc. thesis]. Memorial University of Newfoundland and Labrador.

Koeck, M. M., Moeller, A. K., Elmore, R. D., Fairbanks, W. S., & Chitwood, M. C. (2025). Accounting for Viewshed Area and Animal Availability When Estimating Density and Recruitment of Unmarked White-Tailed Deer. *Ecology and Evolution*, *15*(3), e71015. https://doi.org/10.1002/ece3.71015

Nakashima, Y., Fukasawa, K., & Samejima, H. (2018). Estimating animal density without individual recognition using information derivable exclusively from camera traps. *Journal of Applied Ecology*, *55*(2), 735–744. https://doi.org/10.1111/1365-2664.13059

Nakashima, Y., Yajima, G., & Matsuoka, R. (2026). Reducing data processing effort in camera trap density estimation: Extending the REST model by explicitly modelling animal detection processes. *Methods in Ecology and Evolution*, 2041-210x.70248. https://doi.org/10.1111/2041-210x.70248

Newfoundland and Labrador. (1991). *Lands Act, S.N.L. 1991, c. 36*. https://www.assembly.nl.ca/legislation/sr/statutes/l3691.htm

NLFAL. (2023). *Newfoundland forest resource inventory* (Version Newfoundland) [Dataset]. Newfoundland and Labrador Forestry, Agriculture and Lands. https://www.gov.nl.ca/ffa/programs-and-funding/forestry-programs-and-funding/managing/inv-plan/

NRCan. (2020, October). *Height reference system modernization*. Natural Resources Canada. https://natural-resources.canada.ca/sites/nrcan/files/files/pdf/Height_reference_system_modernization_(EN).pdf

Padgham, M., Lovelace, R., Salmon, M., & Rudis, B. (2017). Osmdata. *Journal of Open Source Software*, *2*(14), 305. https://doi.org/10.21105/joss.00305

Reconyx. (2022). *Reconyx Hyperfire 2 high performance camera instruction manual*. https://www.reconyx.com/img/file/HyperFire_2_User_Guide_2018_07_05_v5.pdf

Robitaille, A. (2024). *Camtrapmonitoring: Camera trap monitoring for estimating wildlife density* [Dataset]. https://robitalec.github.io/camtrapmonitoring/authors.html#citation

Rowcliffe, J. M., Carbone, C., Jansen, P. A., Kays, R., & Kranstauber, B. (2011). Quantifying the sensitivity of camera traps: An adapted distance sampling approach. *Methods in Ecology and Evolution*, *2*(5), 464–476. https://doi.org/10.1111/j.2041-210X.2011.00094.x

Rowcliffe, J. M., Field, J., Turvey, S. T., & Carbone, C. (2008). Estimating animal density using camera traps without the need for individual recognition. *Journal of Applied Ecology*, *45*(4), 1228–1236. https://doi.org/10.1111/j.1365-2664.2008.01473.x

Warbington, C. H., & Boyce, M. S. (2020). Population density of sitatunga in riverine wetland habitats. *Global Ecology and Conservation*, *24*, e01212. https://doi.org/10.1016/j.gecco.2020.e01212

Webber, Q., Prokopenko, C., Kingdon, K., Turner, J., & Vander Wal, E. (2024). Effects of the social environment on movement-integrated habitat selection. *Movement Ecology*, *12*(1), 61. https://doi.org/10.1186/s40462-024-00502-9

Wood, S. (2017). *Generalized Additive Mixed Models: An introduction with R*. CRC press.

Wood, S. (2025). mgcv: Mixed GAM computation vehicle with automatic smoothness estimation. *R Package: Version 1.9-3*. https://cran.r-project.org/web/packages/mgcv/index.html

APPENDIX A
DRAWINGS

EVREC Green Energy Hub

Project Locator

EVREC

Project Area

- Industrial Project Area
- Solar Project Area
- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area
- Twin Lakes Wind Project Area

Transportation

- Trans-Canada Highway
- Highway
- Road
- Unpaved Road

Water Features

- Mapped Waterbodies

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
Scale: 1:200,000	Drawing #: 1
Drawn By: M. Partridge	
Checked By: N. Thomas	

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EVREC Green Energy Hub

Caribou Camera Locations & Predicted Habitat

EVREC

Project Area

Caribou Camera Locations

Wildlife Trail Camera Locations

Predicted Caribou Habitat

Overwintering, Foraging & Rutting

Calving & Rearing

Water Features

Mapped Waterbodies

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-30	Project #: 24-10265
Scale: 1:200,000	Drawing #: 2
Drawn By: M. Partridge	
Checked By: E. Polsuns	

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EVREC Green Energy Hub

Home Range by Collared Hodges Hill Caribou

EVREC

Project Area

Hodges Hill Caribou Habitat - 95% Kernel

Project Footprint

Transportation

Trans-Canada Highway

Highway

Road

Unpaved Road

Water Features

Mapped Waterbodies

Coordinate System: NAD 1983 CSRS UTM Zone 21N

Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-04-29	Project #: 24-10265
Scale: 1:292,914	Drawing #: 3
Drawn By: B. Spencer	
Checked By: L. Pominville	

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EVREC Green Energy Hub

Habitat Selection by Hodges Hill Caribou, 1 April - 31 August

EVREC

Project Area

Project Footprint

Predicted Habitat Quality

Value

3.46296

-2.53206

Transportation

Trans-Canada Highway

Highway

Road

Unpaved Road

Water Features

Mapped Waterbodies

Coordinate System: NAD 1983 CSRS UTM Zone 21N

Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-30	Project #: 24-10265
Scale: 1:200,000	Drawing #: 4
Drawn By: B. Spencer	
Checked By: L. Pominville	

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APPENDIX M.1
Baseline Avian Report

Prepared by: Strum Consulting

ENVIRONMENTAL IMPACT STATEMENT
EVREC Green Energy Hub
Exploits Valley Renewable Energy Corporation

strum

CONSULTING

BASELINE AVIAN REPORT
EVREC Green Energy Hub
Near Botwood, NL

May 11, 2026

EXECUTIVE SUMMARY

Exploits Valley Renewable Energy Corporation (EVREC), is proposing to develop, construct, and operate a wind to green ammonia project near Botwood, in central Newfoundland (the "Project"). EVREC will develop a wind project consisting of up to 534 wind turbines, a 150 megawatt (MW) solar project area, and associated off-site infrastructure (export and import terminals, access roads, collector substations, and water pipelines). Included as part of the Project will be an industrial facility. For the purposes of this baseline study, only the Wind Project Area (WPA) was assessed, however limited surveys were also conducted within the Industrial Project Area (IPA) and Solar Project Area (SPA).The Project encompasses four Wind Project Areas (WPAs): the Botwood Wind Project Area (BWPA), Twin Lakes Wind Project Area (TLWPA), Seabrights Lake Wind Project Area (SLWPA), and Leading Tickles Wind Project Area (LTWPA).

A full year of avifauna surveys were completed beginning spring of 2024 and finishing in winter 2025 to assess avian abundance and species diversity within the WPA, and to assess the potential effects of the Project on avifauna. Based on various guidance documents and feedback from regulators and desktop review, the following surveys were conducted:

- Spring and fall migration watch counts
- Nocturnal owl surveys
- Winter resident surveys
- Breeding bird surveys
- Waterfowl surveys
- Shorebird surveys
- Coastal waterbird surveys

The results of the avian field program showed varying levels of avian abundance and diversity across the WPA, including the presence of several Species at Risk (SAR) [evening grosbeak (*Coccothraustes vespertinus)*, olive-sided flycatcher (*Contopus Cooperi*), red crossbill (*Loxia curvirostra percna)*, and rusty blackbird (*Euphagus carolinus)]* as well as several Species of Conservation Concern (SOCC). The results provided give an overview of baseline conditions within the WPA, including avifauna habitats present, and usage of the WPA by avifauna across all seasons. Desktop analysis of habitat types within the WPA for avifauna SAR indicates that the four SAR identified were those most likely to be present in the WPA, while other species listed under the Newfoundland and Labrador *Endangered Species Act* (NL ESA) appear to be either out of range or do not have suitable habitat present. The Project is primarily located inland, therefore occurrences of shorebirds, seabirds, and waterbirds within the WPA were low. Survey design was more heavily focused on forested, barren, and wetland habitats, and their associated species.

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Appendix D: NL Breeding Bird Atlas Squares
Appendix E: Avian Field Data

LIST OF ACRONYMS

ACCDC	Atlantic Canada Conservation Data Centre
B	Breeding season
BCCWS	Birds Canada British Columbia Coastal Waterbird Survey Protocol
BWPA	Botwood Wind Project Area
CEPA	*Canadian Environmental Protection Act*
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CWS	Canadian Wildlife Service
EIS	Environmental Impact Statement
ECCC	Environment and Climate Change Canada
EIS	Environmental Impact Statement
ELC	Ecological Land Classification
EVREC	Exploits Valley Renewable Energy Corporation
GPS	Global Positioning System
GW	Gigawatt
ha	Hectare
IBA	Important Bird Area
IPA	Industrial Project Area
LSA	Local Study Area
LTWPA	Leading Tickles Wind Project Area
M	Migration
MBCA	*Migratory Bird Convention Act*
MBS	Migratory Bird Sanctuary
MW	Megawatt
N	Non-breeding season
NLBBA	Newfoundland Breeding Bird Atlas
NL ESA	Newfoundland and Labrador Endangered Species Act
NLFAL	Newfoundland Forestry, Agriculture, and Lands
PA	Project Area
RSA	Regional Study Area
SAR	Species at Risk
SARA	Species at Risk Act
SLWPA	Seabrights Lake Wind Project Area
SPA	Solar Project Area
SOCC	Species of Conservation Concern
S-Rank	Species Rank
TLWPA	Twin Lakes Wind Project Area
WBPHS	Waterfowl Breeding Population and Habitat Survey
WPA	Wind Project Area
WTG	Wind Turbine Generator

1.0 INTRODUCTION

Exploits Valley Renewable Energy Corporation (EVREC, the "Proponent"), is proposing to develop, construct, and operate a wind to green ammonia project on the brownfield, former Abitibi lands, near Botwood in central Newfoundland, Canada (the "Project") (Drawing 1, Appendix A). EVREC will develop an onshore wind project consisting of up to 534 wind turbines, a 150 megawatt (MW) Solar Project Area, and associated off-site infrastructure (export and import terminals, access roads, collector substations, and water pipelines). Included as part of the Project will be an Industrial Facility comprised of 2.6 gigawatt (GW) of electrolysers using a combination of proton exchange membrane and aqueous solution units, air separation plants, ammonia plant, electrical energy storage facilities, molecular storage, water purification systems, warehousing, administrative buildings, and other associated utility infrastructure (switchyards, transformers, pipelines, emergency generators, and cooling systems) including an electrical grid connection for critical loads. Collectively the wind to green ammonia project, including all components mentioned above, will be referred to as the "EVREC Green Energy Hub", or "the Project".

The Project nameplate capacity will be up to 3.5 GW of electrical power and produce 925,000 to 1,000,000 tons per year of certified green ammonia. The Project is considered an undertaking under Section 34 (1f) of the Newfoundland and Labrador Environmental Assessment Regulations (2003), where electrical power generation that has a capacity greater than 1 MW and engages in the manufacturing of green hydrogen and ammonia, which requires the submission of an Environmental Impact Statement (EIS). The Project will involve development, construction, operations, decommissioning, and reclamation of wind project area, a solar project area, an industrial facility, and water supply for green hydrogen production and ammonia synthesis, including air separation, water treatment, and ammonia storage.

The Project will use the existing Port of Botwood for its shipping needs, which has historically served various clients across industrial sectors for over 100 years. The Project is proposed on land parcels totaling 35,834 hectares (ha) in central Newfoundland (defined hereafter as the Project Area). The Project is centered at 49.161441° N, 55.486669° W.

The Project consists of three components: (i) Wind Project Areas and transmission line; (ii) Solar Project Area; and (iii) hydrogen and ammonia production facilities (defined hereafter as the Industrial Facility). The wind component siting of wind turbine generators (WTGs) will be within four areas: Botwood, Seabrights Lake, Twin Lakes, and Leading Tickles. The Industrial Facility and Solar Project Area, along with associated infrastructure, are co-located on a parcel southwest of the Town of Botwood.

2.0 SPATIAL BOUNDARIES

The spatial boundaries discussed throughout this report are defined as follows:

- Project Area (PA) – the sum of all component project areas
- Wind Project Area (WPA) – the sum of all wind project areas
    - Botwood Wind Project Area (BWPA) – the individual Botwood Wind Project Area.
    - Leading Tickles Wind Project Area (LTWPA) – the individual Leading Tickles Wind Project Area.
    - Twin Lakes Wind Project Area (TLWPA) – the individual Twin Lakes Wind Project Area.
    - Seabrights Lake Wind Project Area (SLWPA) – the individual Seabrights Lake Wind Project Area.
- Industrial Project Area (IPA) – the industrial Project component Project Area.
- Solar Project Area (SPA) – the solar Project component Project Area.

The spatial boundaries are presented in Drawing 1 (Appendix A).

3.0 REGULATORY CONTEXT

The Project has potential to interact with avifauna species that are protected under federal and provincial legislation, which the avifauna surveys explained herein were designed to detect. Legislation that may direct resource development and conservation of avifauna species and their habitat include:

Federal Legislation

- *Species at Risk Act* (SARA)
- *Migratory Bird Convention Act, 1994* (MBCA)
- *Canada Wildlife Act*
- *Canadian Environmental Protection Act, 1999* (CEPA)

Provincial Legislation

- NL ESA
- *Newfoundland Wildlife Act, RSNL 1990*
- *Environment Protection Act,* S.N.L. 2002, c. E-14

The CEPA provides protection of the federal environment through pollution prevention, toxic substance control, waste management, and emissions management. Similarly, the *Environment Protection Act* supports and promotes the protection, enhancement, and use of the provincial environment while maintaining ecosystem integrity and sustainable development, along with pollution prevention and reduction.

The MBCA protects all migratory birds while they are present in Canadian Jurisdiction,

including on land, in the air, and on the water. The NL ESA and SARA prohibit harm to listed SAR along with their habitually occupied spaces and core/critical habitat.

The Project is also driven by policies, guidelines, and standards that provide guidance on the development of the Project and the survey design for all project types (e.g., wind, quarry, etc.). These guidance documents and policies include:

- Environment and Climate Change Canada's Canadian Wildlife Service (ECCC-CWS) (Atlantic Region) – Wind Energy & Birds Environmental Assessment Guidance Update (ECCC-CWS, 2022).
- Wind Turbines and Birds - Updated Guidance for Environmental Assessment and Monitoring, Canadian Wildlife Service – Atlantic Region (ECCC-CWS, 2018).
- Wind Turbines and Birds - A Guidance Document for Environmental Assessment, Canadian Wildlife Service (ECCC-CWS, 2007b).
- Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds (ECCC-CWS, 2007a).

4.0 METHODOLOGY

A desktop review and field program were undertaken to gather information on avian species and associated habitat within the PA. Objectives were as follows:

- Review existing records in and around the PA to inform survey design.
- Assess species diversity, and habitat utilization of avian species, including trends in species composition, within the PA during all seasons.
- Use the information collected to inform and refine the Project design (i.e., avoid impacts to avifauna species and their habitats, with a focus on Species at Risk (SAR) and Species of Conservation Concern (SOCC).
- Assess migratory bird activity and assess the risk that the Project poses to migratory birds.
- Use the information collected to inform mitigation and management practices.

4.1 Desktop Review Methodology

Desktop information was summarized to provide insight into protected avifauna habitats, species utilization of the area, and to identify avian SAR and SOCC potentially occurring at or within the Assessment Area using the following sources:

- Atlantic Canada Conservation Data Centre (ACCDC)
- SARA
- SARA Recovery strategies
- CWS Waterbird Colony Database (Atlantic Region)
- Newfoundland Breeding Bird Atlas (NLBBA) (2020-2024)
- Waterfowl Breeding Population and Habitat Survey
- eBird, iNaturalist, or other public data sources

SAR are species listed under the SARA and/or the NL ESA. SOCC are species not listed under provincial or federal legislation [i.e., listed only by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and/or ACCDC as S1 or S2 species or any combination thereof (i.e., S2S3)].

Species ranks (S-Ranks) from ACCDC were used to determine whether a species is a SOCC, based on the time of year in which the species was observed. Species ranked S1, S2, or any combination thereof (i.e. S3S2) were considered SOCC. Species ranks may differ depending on whether a species is observed in the breeding season (B), the non-breeding season (N), or during migration (M). If a species has only one seasonal ranking, such as S2B, it was considered a SOCC regardless of the time of year it was observed. If a species has an alternate seasonal ranking, such as S2B, S5N, the species was considered a SOCC only if observed during the breeding season.

4.2 Field Survey Methodology

Several survey methods were employed to assess avian species using the PA throughout the year. Prior to conducting field surveys, a preliminary desktop survey design (i.e., using provincial aerial imagery, forestry, wetland and topography layers) was developed to target suitable habitat for avifauna species or groups of interest (e.g., migratory birds, breeding birds, shorebirds, waterfowl, owls). Survey methods were consistent with the guidelines stated above: CWS (2007a), CWS (2022), as well as the environmental assessment guidance documents for wind turbines and birds released by CWS in 2007 and 2018 (ECCC-CWS, 2007b, 2018). These documents provided instructions in the following areas: survey site selection, survey location spacing, number of point counts, survey duration, and season selection. Survey locations for all surveys were selected to encompass coverage of the WPA with emphasis on wind turbine locations (Drawing 2, Appendix A).

Based on desktop review, CWS guidelines and results from the SAR/SOCC species list and the ACCDC report, the following avifauna survey types were selected:

- Winter resident surveys
- Spring and fall migration watch count surveys
- Nocturnal owl surveys
- Breeding bird point count surveys
- Shorebird Surveys
- Coastal waterbird surveys
- Waterfowl Surveys

Survey dates were selected to provide representative coverage of important stages of avifauna phenology. For example, by spreading out survey dates in the spring and fall, the most variety of migrating birds will be observed. Effort was made to spread rounds across survey periods (e.g., spring migration, breeding bird, and fall migration) to represent that entire period. A breakdown of survey type, dates, and survey rationale is described in Table 4.1. Nightjar surveys were not conducted due to nightjar species not being brought forward during desktop review. common nighthawk (*Chordeiles minor*) which is a SAR in the province of

Newfoundland and Labrador, has not been confirmed to breed on the island of Newfoundland, sightings are limited to western and north-western Newfoundland (NLBBA, 2022).

Table 4.1: Avian Surveys Completed in 2024 and 2025 for the Project

Survey Type	Survey Rounds	# of point count locations	Dates	Rationale	Reference for Survey Dates and Methods	Components Surveyed
Winter resident	1	50	March 19 to March 24, 2025	Winter resident surveys were conducted to determine presence of red crossbill in the PA.	Newfoundland Fisheries and Agriculture (NLFAL)	WPA
Spring/Fall migration	2	7	April 22 to May 6, 2024, and August 29 to September 14, 2024	Migratory watch counts were conducted to identify stopover species, migration timing and species abundance.	CWS	WPA
Nocturnal owl	3	12	May 6 to May 13, 2024	Nocturnal owl transects were conducted to determine the presence/absence of owl species in the PA.	Birds Canada-Newfoundland and Labrador Nocturnal Owl survey	WPA
Breeding bird	2	103	June 14 to July 15, 2024	Breeding bird surveys were conducted as per CWS protocols to identify breeding birds in the PA.	CWS	WPA, SPA, and IPA
Shorebird	2	2	June 3 to August 11, 2024	Shorebird surveys were conducted outside the PA near the towns of Botwood and Leading Tickles to determine species present in coastal habitats.	Birds Canada	WPA

Survey Type	Survey Rounds	# of point count locations	Dates	Rationale	Reference for Survey Dates and Methods	Components Surveyed
Coastal Waterbird	2	2	September 11 and October 11, 2024	Coastal waterbird surveys were conducted near the LTWPA to gather data regarding coastal waterbird species that may potentially interact with the PA.	Birds Canada Coastal Waterbirds Survey (BCCWS)	WPA
Waterfowl	3	10	May 6 to October 24, 2024	Waterfowl surveys were conducted to gather information regarding waterfowl and gamebird species in the PA.	Birds Canada	WPA

Survey methods were tailored for each survey type and are described in detail below.

4.2.1 Winter Resident Surveys

The Newfoundland Winter Forest Bird Survey Protocol (Parks Canada, n.d.) was referenced to develop the winter resident survey program. Surveys were conducted in and/or near the four WPAs. Survey locations included a combination of roadside points which could be accessed by vehicle, and hike-in points. The SLWPA, BWPA, and TLWPA, were surveyed with point count locations spaced 1 km apart, along a predetermined route. A total of 10 locations were surveyed for the TLWPA, the SLWPA, as well as the LTWPA, and 20 locations were surveyed for the BWPA. Four transects in total were completed. The point counts conducted near the LTWPA were hike-in points, arranged in the shape of a pentagon, with five points separated by a distance of approximately 300 m.

Winter bird surveys are recommended to be conducted in February and March, and, unlike breeding bird surveys, are not restricted to early mornings. Ideal conditions for surveys include good visibility and low wind. Surveys should not be conducted in a wind code of five or greater, or if visibility is reduced by fog or precipitation.

Five-minute point counts were conducted at each survey location along the survey route. All species were recorded, then an audio playback was used to draw out resident birds. The audio playback featured three minutes of red crossbill vocalizations, followed by three minutes of black-capped chickadee (*Poecile atricapillus*) mobbing calls. All species identified during the audio playback were noted separately from the initial five-minute point count.

Conditions noted at winter bird survey stations included: cone crops, dominant tree species,

weather conditions (precipitation, temperature, cloud cover), aspect, forest age, time, and coordinates.

Survey locations were selected based on habitat type and accessibility, and effort was made to capture preferred red crossbill habitat (Drawing 3, Appendix A).

4.2.2 Spring and Fall Migration Surveys

The ECCC CWS (Atlantic Region) - Wind Energy & Birds EA Guidance Update (ECCC-CWS, 2022) and the CWS document 'Recommended protocols for monitoring impacts of WTGs and birds' (ECCC-CWS, 2007a) were referenced to develop the migratory bird survey protocols and for risk category determination. Due to the size of the proposed Project, and the anticipated turbine heights, the Project risk level is Category 4 (highest risk level). Category 4 projects require 1 to 2-year intensive baseline studies with targeted studies for issues of concern and intensive follow-up studies (post-construction) for a minimum of two years with targeted follow-up studies for issues of concern.

Spring migration watch count surveys were conducted between April 22 and May 6, 2024, while fall migration watch count surveys were conducted between August 29 and September 14, 2024. Surveys were two hours in duration, and effort was made to perform some surveys in the early afternoon to enhance the likelihood of capturing raptor observations. When possible, survey locations with open views of the landscape (e.g. clearing, open bogs, lake edges, etc.) were selected to allow for easy detection of migrating flocks, or raptors soaring overhead.

Conditions noted during migratory watch counts included: observer, weather conditions (precipitation, temperature, cloud cover), habitat type, time, and coordinates. All birds identified (auditory and/or visual) were recorded by species, including age and sex if known. Breeding behaviour and flyovers were also documented (e.g., altitude and flight direction). Surveys were not conducted in wind speeds over three on the Beaufort scale (12-19 km/hr), when noise levels make it difficult to hear or distinguish bird calls, or in rain that is more than a light drizzle (ECCC-CWS, 2007a). Incidental observations, those observed outside point count locations or outside allocated survey times, were recorded. SAR/SOCC, or species displaying breeding or other noteworthy behaviour(s), were noted (Drawing 4, Appendix A).

4.2.3 Nocturnal Owl Surveys

Methods used to conduct nocturnal owl surveys were based on the Newfoundland and Labrador Nocturnal Owl Survey, distributed by Birds Canada (2019). Nocturnal owl surveys were conducted between May 6 and May 13, 2024, within the BWPA and the LTWPA. Six locations were surveyed at each site, along pre-determined routes (Drawing 5, Appendix A), using off-highway vehicles.

Nocturnal owl survey locations were spaced at least 2 km apart, to reduce the likelihood of detecting the same owl at multiple locations. The edges of forested areas were surveyed to capture suitable owl habitat in the area. Survey locations were situated on roads to alleviate safety concerns for the surveyor during nocturnal surveys.

Noise levels (traffic, wind, etc.), weather conditions, and habitat notes were recorded for all surveys. Efforts were made to conduct surveys when wind speeds were light (Beaufort level of 3 (8-12 mph) or less) to ensure auditory detection of owls was possible.

The Birds Canada Newfoundland and Labrador Nocturnal Owl Survey program broadcast was used at each nocturnal owl point count, which consists of a 7.5-minute track that follows the following format and owl data recording method (Birds Canada, 2024c):

- Initiates with a beep to indicate the start of the first silent listening period, which lasts one minute. All owls heard or seen are recorded. If an owl is calling during this period, estimate a distance and bearing. Another beep marks the end of the first listening period. This is followed by a second silent listening minute. Any new owls heard or seen are recorded.
- A boreal owl (*Aegolius funereus*) broadcast will then begin (20 seconds long) which is followed by a one-minute silent listening period. All new owls heard or seen during this period are recorded.
- The boreal owl broadcast is repeated, which is again followed by a one-minute silent listening period. All owls heard or seen during this period continue to be recorded.
- A 20-second northern saw-whet owl (*Aegolius acadicus*) broadcast begins, which is followed by a two-minute silent listening period. All owls heard or seen during this period continue to be recorded.
- The northern saw-whet owl broadcast is repeated, which is again followed by another two-minute silent listening period. All owls heard or seen during this period continue to be recorded.
- A beep marks the end of the broadcast track.

Prior to commencing the surveys, the broadcaster was tested to ensure that owl calls were audible and recognizable at 400 m. Ensuring that the broadcast could not be heard beyond 400 m minimized bias at the next survey station due to owls hearing the recording from the previous station (Takats et al., 2001). The broadcaster test was carried out under weather and noise conditions similar to those that were likely to be encountered during the survey.

Species vocalization (with timing of response if responding to track) and/or sightings were recorded along with any other significant information noted (distance/bearing, sex, age, habitat, and/or behaviour). Any other bird species (e.g., particularly novel species or SAR/SOCC) observed during the nocturnal owl surveys were also recorded as incidentals.

4.2.4 Breeding Bird Surveys

Breeding bird surveys were conducted between June 14 and July 15, 2024, to determine the composition and abundance of bird species that are breeding within the PA. Surveys were conducted using the protocols outlined in the CWS document ‘Recommended protocols for monitoring impacts of WTGs and birds’ (ECCC-CWS, 2007a). An Ecological Land Classification (ELC) was generated for the PA and was used to inform survey design. CWS protocols recommend 20 survey locations per major habitat type. These ELC habitat classes were used for stratification and survey location selection.

CWS protocols recommend at least 20 point count locations per major habitat type across a wind power development (ECCC-CWS, 2007a). Survey locations should be a minimum of 250 m apart in forested habitats, and 500 m apart in open habitats. Each location should be at least 100 m from the habitat edge, when possible. Preliminary habitat classification results suggest three major habitat types within the PA (softwood forest, shrub/heath land, and bogs). Nine habitat types were identified and targeted for breeding bird surveys. Some habitat type locations did not meet the criteria (250 m radius around pc of the targeted habitat type). Therefore, 20 points per habitat types were unable to be surveyed given the constraints on distance between points and distance to edge habitat. A total of 103 point count locations were surveyed during the 2024 breeding season (Drawing 6, Appendix A).

Breeding bird point count surveys were conducted between June 14 and July 15, 2024, for the BWPA, TLWPA, LTWPA, and the SLWPA. Two locations near the IPA and SPA were also surveyed, however the focus of the survey program was on the WPA. Point counts were conducted in the early morning, beginning one half hour before sunrise until four hours after sunrise. Point counts were conducted when wind speeds were light [Beaufort level of 3 (8-12 mph) or less] to ensure auditory detection of birds was possible. Observers listened for 10 minutes at each location, during which time the species detected (either visually or auditory) and number of each species identified were recorded. Effort was made to record important details such as evidence of breeding activity. The Global Positioning System (GPS) coordinates and a description of the point count location (e.g., observers names, date, time, habitat type, noise level, wind level, precipitation, and cloud cover) were also recorded.

4.2.5 Shorebird Surveys

The shorebird survey program was based on the Birds Canada and Point Blue Conservation Science program protocols (Point Blue Conservation Science, 2014). The surveys consisted of searches of a pre-determined coastal area featuring suitable shorebird habitat. Suitable habitats targeted included beaches and/or tidal mudflats, which provide ample feeding opportunities for shorebirds. Conditions noted at the survey locations included weather conditions (precipitation, temperature, cloud cover), tide level, shoreline type, vegetation cover, and GPS tracks.

Survey locations were selected using desktop GIS analysis and the ELC. Suitable habitat was only identified in the coastal area of BWPA and in the northern portion of the LTWPA, as much of the PA is inland. Within each suitable habitat area, one site was chosen based on proximity to PA boundaries, habitat, and accessibility (Drawing 7, Appendix A). Surveys were conducted from June 3 to 6, 2024, and July 29 to August 11, 2024.

4.2.6 Coastal Waterbird Surveys

The Birds Canada British Columbia Coastal Waterbird Survey Protocol (BCCWS) (Birds Canada, 2024) was referenced to inform coastal waterbird survey design. Coastal areas within the Local Study Area (LSA) were targeted for any potential SAR/SOCC or waterbird colonies. The available survey locations were limited, as much of the WPA is inland. Desktop review of relevant data sources (CWS/eBird) indicated the highest likelihood of waterbirds to be identified in the northern section of the LTWPA. Two locations were chosen and surveyed

during the fall of 2024 (Drawing 8, Appendix A). The BCCWS methodology requires the survey be completed within two hours of high tide to standardize timing and to ensure birds are close to shore for best visibility.

Surveys were conducted on September 11 and October 11, 2024. Data collected at each survey location included observer, site ID, weather conditions (cloud cover, precipitation, wind, and temperature), sea conditions, and the level of human activity. Waterbirds observed were documented in several categories, depending on their position: inland – all birds within inland habitats (inland is defined as anything above the high tide mark), near shore – all birds within near shore habitats (near shore is defined as 500 m which extend below the high tide mark) and off shore – all birds identified beyond the near shore zone.

4.2.7 Waterfowl Surveys

The Birds Canada Maritimes Marsh Monitoring Program Survey Protocols (Birds Canada, 2022) were used to inform waterfowl survey design. The objective of these surveys was to identify waterfowl, migratory gamebirds, other wetland-associated species, and their habitats within and near the PA. Surveys were conducted from May 6 to 10, 2024, May 25 to 27, 2024, August 7 to 12, 2024, and October 10 to 24, 2024.

Survey locations were selected through a desktop exercise that looked at suitable waterfowl habitat and suitable vantage points (elevation) for observers. A total of 10 locations with a suitable vantage point where observers could view the entire wetland, bog, or marsh were selected. Six locations were located within or near the BWPA, three were located within or near the TLWPA, and one was located near the LTWPA (Drawing 9, Appendix A).

Waterfowl are typically more active at dawn or dusk; therefore, effort was made to start conducting surveys 30 minutes before sunrise and to conclude by 10:00 am. Surveys were conducted in ideal conditions with low wind (Beaufort of 3 or less) and no precipitation.

Each survey consisted of a 15-minute observation period, during which all species were recorded along with the number of individuals observed. Flyovers and aerial foragers were also noted. Additional data recorded included date, start time, end time, GPS coordinates, observer names, noise, and weather (temperature, wind speed, wind direction, cloud cover, precipitation).

5.0 RESULTS

5.1 Desktop Review Results

5.1.1 ACCDC

The ACCDC Data Report [(ACCDC, 2026), Appendix C] identified 10 avian SOCC and three avian SAR within a 5 km radius of the PA center. The SAR were Newfoundland grey-cheeked thrush (*Catharus minimus minimus*), olive-sided flycatcher, and rusty blackbird.

5.1.2 Newfoundland Breeding Bird Atlas

The most recent edition of the NLBBA was completed between 2020 and 2024. The atlas divides the island of Newfoundland into 10 by 10 km grid squares, which are systematically surveyed for evidence of breeding birds (Birds Canada, 2025). Most of the PA is contained within 11 grid squares (Appendix D). It should be noted that the amount of survey coverage (number of surveys completed) varies by grid square. The grid squares which encompass the LTWPA and the BWPA had adequate coverage, while the TLWPA had low coverage, likely due to the remote nature of the area. The grid square encompassing the SLWPA had no survey coverage. Across the whole PA, a total of 80 species were reported, including four SAR. Results by WPA are as follows:

- Within the grid squares encompassing the LTWPA, 51 species were reported, none of which were SAR.
- Within the grid squares encompassing the BWPA, 73 species were reported, including two SAR: red crossbill and rusty blackbird.
- Within the grid squares encompassing the TLWPA, 62 species were reported, including two SAR: evening grosbeak and olive-sided flycatcher.

5.1.3 eBird

A review of publicly available eBird data was conducted, and records within the Regional Study Area (RSA) for the range of 2015 to 2023 were considered. The data was filtered based on potential SAR and the following species were identified near or within the WPA: evening grosbeak, olive-sided flycatcher and rusty blackbird. There were no occurrences of either red crossbill or grey-cheeked thrush in the past decade for the eBird Online Dataset.

5.1.4 CWS Waterbird Colony Database (Atlantic Region)

The CWS Waterbird Colony Database (Wilhelm & Mahoney, 2017) was reviewed to identify waterbird colonies near the Project. There are 14 waterbird colonies identified within a 5 km buffer of the PA. Of these 14 colonies, 10 are concentrated around the northern coastal extent of the LTWPA and were noted as supporting herring gull (*Larus argentatus*), great black-backed gull (*Larus marinus*), black-legged kittiwake (*Rissa tridactyla*), black guillemot (*Cepphus grylle*), unspecified cormorant species, and unspecified tern species. Two more colonies were identified east of the BWPA, on small islands in the Bay of Exploits, which were noted as supporting common tern (*Sterna hirundo*), unspecified tern species, and herring gull. One additional unspecified tern species colony was identified southwest of the LTWPA. The closest colony is located on Red Island, approximately 1.4 km north of the LTWPA.

5.1.5 Waterfowl Breeding Population and Habitat Survey

The Waterfowl Breeding Population and Habitat Survey (WBPHS) is conducted by fixed-winged airplane or helicopter across two million square miles which encompasses principal breeding areas for waterfowl in North America. The eastern survey area includes parts of Ontario, Quebec, Newfoundland and Labrador, Nova Scotia, Prince Edward Island, New Brunswick, and Maine. The most recent WBPHS for the eastern area took place in March 2024. The survey divides the entirety of the area into strata, with the island of Newfoundland falling under Strata 66. The Newfoundland survey plots include the TLWPA. The results of the

survey indicated that habitat in Central Newfoundland supported excellent breeding waterfowl habitat conditions with stable populations of Canada goose (*Branta canadensis*) noted. Populations of mallard (*Anas platyrhynchos*), American black duck (*Anas rubripes*), American green winged teal (*Anas crecca carolinensis*), ring-necked duck (*Aythya collaris*), common goldeneye (*Bucephala clangula*), Barrow's goldeneye (*Bucephala islandica*), common merganser (*Mergus merganser),* red-breasted merganser (*Mergus serrator*), and hooded merganser (*Lophodytes cucullatus*) all showed either an increase or stable population status, with goldeneye showing a substantial increase (+42% from previous year and + 76% from average).

5.1.6 Avian-related Protected Areas

There were no Important Bird Areas (IBAs) or Migratory Bird Sanctuaries (MBS) within 100 km of the Project. The closest IBA, Wadham Island and adjacent Marine Area (NF013), is located approximately 105 km northeast of the LTWPA.

5.2 Field Survey Results

Avian surveys were conducted for the BWPA, TLWPA, LTWPA, SLWPA, SPA and IPA in 2024, with the exception of winter resident surveys, which were conducted in 2025. This section details the results of the spring migration, nocturnal owl, breeding bird, shorebird, waterfowl, coastal waterbird, and winter resident survey programs. Based on data sources examined during desktop review (e.g., ACCDC, NLBBA, eBird, etc.), the bird species observed during these surveys were consistent with what was expected for this area. Unknown species or individuals identified to a sub-group (e.g., duck, sandpiper, etc.) were included in the results.

5.2.1 Spring Migration Surveys

Seven spring migration surveys were completed in the WPA between April 22 and May 6, 2024, during which 29 birds were observed, comprising 14 different species (Table 5.1; Table 1, Appendix E). The species with highest abundance were American robin (*Turdus migratorius*) and dark-eyed junco (*Junco hyemalis*). One SOCC, a gyrfalcon, was observed (*Falco rusticolus*). No SAR were observed.

Table 5.1: Species List – 2024 Spring Migration Surveys

Common Name	Scientific Name	COSEWIC	SARA	NL ESA	S-Rank
American crow	*Corvus brachyrhynchos*	---	---	---	S5
American robin	*Turdus migratorius*	---	---	---	S5B
Boreal chickadee	*Poecile hudsonicus*	---	---	---	S4
Canada goose	*Branta canadensis*	---	---	---	S4B
Common goldeneye	*Bucephala clangula*	---	---	---	S4B,SUN
Common loon	*Gavia immer*	---	---	---	S5B,S4N,SNR
Common redpoll	*Acanthis flammea*	---	---	---	S2S3B,S4N,SUM
Dark-eyed junco	*Junco hyemalis*	---	---	---	S5
Downy woodpecker	*Dryobates pubescens*	---	---	---	S4

Common Name	Scientific Name	COSEWIC	SARA	NL ESA	S-Rank
Greater yellowlegs	*Tringa melanoleuca*	---	---	---	S3B,S4M
Gyrfalcon*	*Falco rusticolus*	---	---	---	S2S3N,SUM
Herring gull	*Larus argentatus*	---	---	---	S4
White-winged crossbill	*Loxia leucoptera*	---	---	---	S5
Wilson's snipe	*Gallinago delicata*	---	---	---	S5B

*Species of Conservation Concern (SOCC).

The surveys were primarily completed in habitats characterized as wetlands, coniferous scrub, and barrens. Avian activity appeared highest within the BWPA and TLWPA and was relatively low within the LTWPA. The survey location with the highest avian abundance and species diversity was MIG-01-24, located within the BWPA, with eight distinct species observed. This location was noted as consisting of wetland habitat. Most of the species observed during these surveys were passerines, however several waterfowl species were also noted. Wilson's snipe (*Gallinago delicata*) was the only shorebird species observed, and it was primarily observed in wetland habitats.

5.2.2 Nocturnal Owl Surveys

There were 12 nocturnal owl surveys conducted in May 2024 (Drawing 5, Appendix A), with six surveys completed for the BWPA and six surveys completed for the TLWPA. A total of 12 owls were detected, comprising three different species: boreal owl, great horned owl (*Bubo virginianus)*, and northern saw-whet owl (Table 2, Appendix E). Boreal owl was the species with highest abundance, with seven detections made. Owl activity was found to be similar between the BWPA and the TLWPA, with six owls detected at each site. Boreal owls were most abundant near the TLWPA, where five of the seven detections were made, northern saw-whet owl was only detected during surveys for the BWPA, and great horned owl was detected at both sites. Most of the owls were observed in habitats characterized as mature, softwood dominant forest.

5.2.3 Breeding Bird Surveys

A total of 103 point count locations in the PA were surveyed throughout June and July 2024 (Drawing 6, Appendix A). Across all surveys, a total of 1,617 birds were observed, comprising 66 different species (Table 5.2; Table 3, Appendix E). Passerines (primarily warblers and sparrows) accounted for the majority of birds observed. White-throated sparrow (*Zonotrichia albicollis*), hermit thrush (*Catharus guttatus*), ruby-crowned kinglet (*Corthylio calendula*), and magnolia warbler (*Setophaga magnolia*) were the species with the highest abundance, together accounting for approximately 33% of all observations. Four SAR (evening grosbeak, olive-sided flycatcher, red crossbill, and rusty blackbird) were observed during the surveys. SOCC observed were bay-breasted warbler (*Setophaga castanea*), chipping sparrow (*Spizella passerina*), and Nashville warbler (*Leiothlypis ruficapilla*).

Table 5.2: Species List – 2024 Breeding Bird Surveys

Common Name	Scientific Name	COSEWIC	SARA	NL ESA	S-Rank
Alder flycatcher	*Empidonax alnorum*	---	---	---	S4B,SUM
American crow	*Corvus brachyrhynchos*	---	---	---	S5
American goldfinch	*Spinus tristis*	---		---	S5
American redstart	*Setophaga ruticilla*	---	---	---	S5B
American robin	*Turdus migratorius*	---	---	---	S5B
Bay-breasted warbler*	*Setophaga castanea*	---	---	---	S2B,SUM
Black-and-white warbler	*Mniotilta varia*	---	---	---	S5B
Black-backed woodpecker	*Picoides arcticus*	---	---	---	S4
Black-capped chickadee	*Poecile atricapillus*	---	---	---	S5
Blackpoll warbler	*Setophaga striata*	---	---	---	S5B
Black-throated green warbler	*Setophaga virens*	---	---	---	S5B
Blue jay	*Cyanocitta cristata*	---	---	---	S5
Blue-headed vireo	*Vireo solitarius*	---	---	---	S3S4B, SUM
Boreal chickadee	*Poecile hudsonicus*	---	---	---	S4
Brown creeper	*Certhia americana*	---	---	---	S3B
Canada jay	*Cyanocitta cristata*	---	---	---	S5
Cedar waxwing	*Bombycilla cedrorum*	---	---	---	S4B,SUM
Chipping sparrow*	*Spizella passerina*	---	---	---	S2S3B,SUM
Common grackle	*Quiscalus quiscula*	---	---	---	S4B,S3?N,SUM
Common loon	*Gavia immer*	---	---	---	S5B,S4N,SNR
Common merganser	*Mergus merganser*	---	---	---	S4B,S5N
Common raven	*Corvus corax*	---	---	---	S5
Common yellowthroat	*Geothlypis trichas*	---	---	---	S5B
Dark-eyed junco	*Junco hyemalis*	---	---	---	S5
Downy woodpecker	*Dryobates pubescens*	---	---	---	S4
Evening grosbeak**	*Coccothraustes vespertinus*	Special Concern	Special Concern	Vulnerable	S3S4
Fox sparrow	*Passerella iliaca*	---	---	---	S5B
Golden-crowned kinglet	*Regulus satrapa*	---	---	---	S5B,S4N,SUM

Common Name	Scientific Name	COSEWIC	SARA	NL ESA	S-Rank
Greater yellowlegs	*Tringa melanoleuca*	---	---	---	S3B,S4M
Hairy woodpecker	*Dryobates villosus*	---	---	---	S4
Hermit thrush	*Catharus guttatus*	---	---	---	S5B
Lincoln's sparrow	*Melospiza lincolnii*	---	---	---	S5B
Magnolia warbler	*Setophaga magnolia*	---	---	---	S5B,SUM
Mourning warbler	*Geothlypis philadelphia*	---	---	---	S4B,SUM
Nashville warbler*	*Leiothlypis ruficapilla*	---	---	---	S2B,SUM
Northern flicker	*Colaptes auratus*	---	---	---	S4
Northern waterthrush	*Parkesia noveboracensis*	---	---	---	S5B
Olive-sided flycatcher**	*Contopus cooperi*	Special Concern	Special Concern	Vulnerable	S3B,SUM
Orange-crowned warbler	*Leiothlypis celata*	---	---	---	SNA
Ovenbird	*Seiurus aurocapilla*	---	---	---	S3B, SUM
Palm warbler	*Setophaga palmarum*	---	---	---	S4B
Pine grosbeak	*Pinicola enucleator*	---	---	---	S5
Pine siskin	*Spinus pinus*	---	---	---	S4S5
Purple finch	*Haemorhous purpureus*	---	---	---	S5
Red crossbill**	*Loxia curvirostra*	Threatened	Threatened	Threatened	S1S2
Red-breasted nuthatch	*Sitta canadensis*	---	---	---	S5
Red-eyed vireo	*Vireo olivaceus*	---	---	---	S3S4B,SUM
Rose-breasted grosbeak	*Pheucticus ludovicianus*	---	---	---	SNA
Ruby-crowned kinglet	*Corthylio calendula*	---	---	---	S5B
Ruffed grouse	*Bonasa umbellus*	---	---	---	SNA
Rusty blackbird**	*Euphagus carolinus*	Special Concern	Special Concern	Vulnerable	S2S3B,SUM
Savannah sparrow	*Passerculus sandwichensis*	---	---	---	S5B
Song sparrow	*Melospiza melodia*	---	---	---	S4B,SUM
Spruce grouse	*Canachites*	---	---	---	SNA

Common Name	Scientific Name	COSEWIC	SARA	NL ESA	S-Rank
	canadensis				
Swainson's thrush	*Catharus ustulatus*	---	---	---	S5B
Swamp sparrow	*Melospiza georgiana*	---	---	---	S5B
Tennessee warbler	*Leiothlypis peregrina*	---	---	---	S4B,SUM
Tree swallow	*Tachycineta bicolor*	---	---	---	S4B,SUM
White-crowned sparrow	*Zonotrichia leucophrys*	---	---	---	S4B,SUM
White-throated sparrow	*Zonotrichia albicollis*	---	---	---	S5B
White-winged crossbill	*Loxia leucoptera*	---	---	---	S5
Wilson's snipe	*Gallinago delicata*	---	---	---	S5B
Wilson's warbler	*Cardellina pusilla*	---	---	---	S5B
Yellow warbler	*Setophaga petechia*	---	---	---	S5B
Yellow-bellied flycatcher	*Empidonax flaviventris*	---	---	---	S5B
Yellow-rumped warbler	*Setophaga coronata*	---	---	---	S5B

**Species at Risk (SAR) or *Species of Conservation Concern (SOCC).

5.2.3.1 Botwood Wind Project Area

A total of 1,044 birds, representing 60 different species, were observed in the BWPA. Most birds were observed in mixed-wood forest (26%) followed by wetlands (23%). The survey locations with the highest avian abundance overall were NB-BB-38 and NB-BB-4. NB-BB-38 was located in barren habitat, while NB-BB-4 was located in wetland habitat. SAR observed in the BWPA were evening grosbeak, olive-sided flycatcher, red crossbill, and rusty blackbird. Olive-sided flycatcher was the most abundant SAR with 13 observations made between mid-June and early July, primarily in habitats dominated by wetlands, coniferous forest, and coniferous scrub.

A single red crossbill was observed in mid-June in mixed-wood forest, and a single evening grosbeak was observed in mid-to-late June in an area dominated by wetland habitat. A pair of rusty blackbirds (a probable breeding pair based on territorial behaviour) was observed in early July, in habitat classified as coniferous scrub. An American goshawk (*Accipiter atricapillus*) nest was observed incidentally approximately 120 m outside of the BWPA during July breeding bird surveys, however no American goshawks were observed in the BWPA during any of the 2024 surveys.

5.2.3.2 Twin Lakes Wind Project Area

A total of 388 birds, representing 49 different species, were observed in the TLWPA. Most birds were observed in softwood forest (25%), followed by wetlands (19%) and coniferous scrub (18%). BB-26-24 was the survey location with the highest avian abundance overall; this point was located in hardwood forest. Olive-sided flycatcher was the only SAR observed at TLWPA. Six olive-sided flycatcher observations were made between mid-June and mid-July, in habitats dominated by wetlands and coniferous scrub.

5.2.3.3 Seabrights Lake Wind Project Area

A total of 104 birds, representing 29 different species, were observed in the SLWPA. Most birds were observed in either softwood forest (51%), or mixed-wood forest (34%). BB-56-24 was the survey location with the highest avian abundance overall; this point was located in softwood forest. The species of highest abundance were white-throated sparrow, hermit thrush, magnolia warbler, and yellow-rumped warbler (*Setophaga coronata*). No SAR or SOCC were observed.

5.2.3.4 Leading Tickles Wind Project Area

A total of 41 birds, representing 19 different species, were observed in the LTWPA. Most birds (73%) were observed in wetland habitat. Avian abundance was very similar between the two locations surveyed. SAR observed within the LTWPA were olive-sided flycatcher and red crossbill. Two olive-sided flycatchers and a single red crossbill were observed in early July in mixed scrub habitat.

5.2.3.5 Solar Project Area and Industrial Facility

Two locations were surveyed near the proposed SPA and IPA. A total of 40 birds, representing 20 different species were observed between these two points, most of which were songbirds. No SAR or SOCC were observed. The species of highest abundance were white-throated sparrow, dark-eyed junco, American robin, and black-and-white warbler (*Mniotilta varia*).

5.2.4 Shorebird Surveys

There were 12 shorebird surveys completed between June and August 2024, with six surveys completed near BWPA and six surveys completed near LTWPA (Drawing 7, Appendix A). A total of 245 birds were observed, representing 15 different species (Table 5.3; Table 4, Appendix E).

Table 5.3: Species List – 2024 Shorebird Surveys

Common Name	Scientific Name	COSEWIC	SARA	NL ESA	ACCDC S-Rank
American crow	*Corvus brachyrhynchos*	---	---	---	S5
Bald eagle	*Haliaeetus leucocephalus*	---	---	---	S4
Canada goose	*Branta canadensis*	---	---	---	S4B
Caspian tern*	*Hydroprogne caspia*	---	---	---	S2B,SUM
Common loon	*Gavia immer*	---	---	---	S5B,S4N,SNRM
Common tern	*Sterna hirundo*	---	---	---	S4B,SUM
Double-crested cormorant	*Nannopterum aritum*	---	---	---	S5B
Great black-backed gull	*Larus marinus*	---	---	---	S4
Greater yellowlegs	*Tringa melanoleuca*	---	---	---	S3B,S4M
Least sandpiper	*Calidris minutilla*	---	---	---	S3B,S4M
Lesser yellowlegs*	*Tringa flavipes*	Threatened	---	---	S2S3M
Mallard	*Anas platyrhynchos*	---	---	---	S3B,SUM
Osprey	*Pandion haliaetus*	---	---	---	S4S5B,SUM
Semipalmated plover*	*Charadrius semipalmatus*	---	---	---	S1B,S4M
Spotted sandpiper	*Actitis macularius*	---	---	---	S4B,SUM

*Species of Conservation Concern (SOCC).

The species of highest abundance during dedicated shorebird surveys was greater yellowlegs (*Tringa melanoleuca*), all of which were observed within the BWPA. Avian abundance and species diversity observed during the shorebird surveys was highest at BWPA, with several other shorebird species [spotted sandpiper (*Actitis macularius*), semipalmated plover (*Charadrius semipalmatus*), least sandpiper (*Calidris minutilla*), and lesser yellowlegs (*Tringa flavipes*)] recorded, as well as two species of tern [common tern and caspian tern *(Hydroprogne caspia*)]. Spotted sandpiper was the only shorebird species observed within the LTWPA. No SAR were observed at either site. SOCC observed were caspian tern, lesser yellowlegs, and semipalmated plover, all of which were observed within the BWPA in habitat characterized as tidal mud flat.

5.2.5 Fall Migration Surveys

Two rounds of fall migration surveys were completed in the WPA between August 29 and September 14, 2024. Three locations were surveyed in both the BWPA and TLWPA, and one location was surveyed at LTWPA (Drawing 4, Appendix A). Across all surveys, a total of 88 birds were identified, representing 27 different species (Table 5.4; Table 1, Appendix E).

Table 5.4: Species List – 2024 Fall Migration Surveys

Common Name	Scientific Name	COSEWIC	SARA	NL ESA	S-Rank
American black duck	*Anas rubripes*	---	---	---	S4B,S4N
American crow	*Corvus brachyrhynchos*	---	---	---	S5
American goshawk	*Accipiter atricapillus*	---	---	---	S3
American robin	*Turdus migratorius*	---	---	---	S5B
Bald eagle	*Haliaeetus leucocephalus*	---	---	---	S4
Black-capped chickadee	*Poecile atricapillus*	---	---	---	S5
Boreal chickadee	*Poecile hudsonicus*	---	---	---	S4
Canada jay	*Perisoreus canadensis*	---	---	---	S5
Common loon	*Gavia immer*	---	---	---	S5B,S4N,SNRM
Common raven	*Corvus corax*	---	---	---	S5
Dark-eyed junco	*Junco hyemalis*	---	---	---	S5
Fox sparrow	*Passerella iliaca*	---	---	---	S5B
Golden-crowned kinglet	*Regulus satrapa*	---	---	---	S5B,S4N,SUM
Hermit thrush	*Catharus guttatus*	---	---	---	S5B
Lincoln's sparrow	*Melospiza lincolnii*	---	---	---	S5B
Northern flicker	*Colaptes auratus*	---	---	---	S4
Osprey	*Pandion haliaetus*	---	---	---	S4S5B,SUM
Red-breasted nuthatch	*Sitta canadensis*	---	---	---	S5
Ring-necked duck	*Aythya collaris*	---	---	---	S5B
Savannah sparrow	*Passerculus sandwichensis*	---	---	---	S5B
Swamp sparrow	*Melospiza georgiana*	---	---	---	S5B
White-throated sparrow	*Zonotrichia albicollis*	---	---	---	S5B
Yellow warbler	*Setophaga petechia*	---	---	---	S5B
Yellow-rumped warbler	*Setophaga coronata*	---	---	---	S5B
Double-crested cormorant	*Nannopterum aritum*	---	---	---	S5B

The species of highest abundance were ring-necked duck, American robin, white-throated sparrow, and Canada jay (Perisoreus canadensis). Most of the species observed were passerines (approximately 70%), however several waterbird species [ring-necked duck, American black duck, and common loon (*Gavia immer*)] and raptor species [American goshawk, bald eagle (*Haliaeetus leucocephalus*), and osprey (*Pandion haliaetus*)] were also observed. No SAR or SOCC were observed. The TLWPA surveys showed higher avian abundance and species diversity compared to the BWPA and LTWPA and accounted for more than half of all the birds observed. MBS-TL-02 was the survey location with the most avian activity, with 26 individuals and 10 different species observed.

5.2.6 Waterfowl Surveys

Waterfowl surveys were completed at six BWPA locations, three TLWPA locations, and one LTWPA location between May and October 2024 (Drawing 9, Appendix A). A total of 79 birds,

representing 27 different species, were observed (Table 5.5; Table 5, Appendix E).

Table 5.5: Species List – 2024 Waterfowl Surveys

Common Name	Scientific Name	COSEWIC	SARA	NL ESA	S-Rank
American crow	*Corvus brachyrhynchos*	---	---	---	S5
American robin	*Turdus migratorius*	---	---	---	S5B
Bald eagle	*Haliaeetus leucocephalus*	---	---	---	S4
Black-capped chickadee	*Poecile atricapillus*	---	---	---	S5
Canada goose	*Branta canadensis*	---	---	---	S4B
Canada jay	*Perisoreus canadensis*	---	---	---	S5
Common loon	*Gavia immer*	---	---	---	S5B,S4N,SNRM
Common raven	*Corvus corax*	---	---	---	S5
Dark-eyed junco	*Junco hyemalis*	---	---	---	S5
Greater yellowlegs	*Tringa melanoleuca*	---	---	---	S3B,S4M
Hermit thrush	*Catharus guttatus*	---	---	---	S5B
Lincoln's sparrow	*Melospiza lincolnii*	---	---	---	S5B
Northern waterthrush	*Parkesia noveboracensis*	---	---	---	S5B
Olive-sided flycatcher**	*Contopus cooperi*	Special Concern	Special Concern	Vulnerable	S3B,SUM
Ring-necked duck	*Aythya collaris*	---	---	---	S5B
Ruby-crowned kinglet	*Corthylio calendula*	---	---	---	S5B
Rusty blackbird**	*Euphagus carolinus*	Special Concern	Special Concern	Vulnerable	S2S3B,SUM
Savannah sparrow	*Passerculus sandwichensis*	---	---	---	S5B
Swamp sparrow	*Melospiza georgiana*	---	---	---	S5B
White-throated sparrow	*Zonotrichia albicollis*	---	---	---	S5B
Wilson's snipe	*Gallinago delicata*	---	---	---	S5B
Yellow-rumped warbler	*Setophaga coronata*	---	---	---	S5B

**Species at Risk (SAR).

Common loon, greater yellowlegs, Wilson's snipe, and Canada jay were the most abundantly observed species. SAR observed were olive-sided flycatcher and rusty blackbird. A single olive-sided flycatcher was observed at one of the BWPA survey locations in August 2024, in a large bog/fen wetland complex associated with Mill River. A pair of rusty blackbirds were observed calling and feeding along the edge of a lake at one of the BWPA survey locations in August 2024. Waterfowl observed were Canada goose, ring-necked duck, common loon, and goldeneye species (likely common goldeneye), most of which were observed in the BWPA.

Goldeneye breeding activity (an adult with chicks) was observed at New Bay Pond in August. Two shorebird species, greater yellowlegs and Wilson's snipe, were also noted as being relatively common at both sites.

5.2.7 Coastal Waterbird Surveys

Coastal waterbird surveys were completed in September and October 2024 at East Bear Cove and Bulter Cove, coastal vantage points just north of LTWPA (Drawing 8, Appendix A). Activity was generally low, with 20 birds representing six different species observed in September (Table 5.6; Table 6, Appendix E). Double-crested cormorant (*Nannopterum auritum*), white-throated sparrow, unknown gull species, and unknown sandpiper species accounted for most of the activity observed in September. A flock of 20 American robins were the only birds observed in October. No SAR or SOCC were observed during the surveys.

Table 5.6: Species List – 2024 Coastal Waterbird Surveys

Common Name	Scientific Name	COSEWIC	SARA	NL ESA	S-Rank
American robin	*Turdus migratorius*	---	---	---	S5B
Bald eagle	*Haliaeetus leucocephalus*	---	---	---	S4
Double crested cormorant	*Nannopterum aritum*	---	---	---	S5B
Duck Sp.	---	---	---	---	---
Cormorant sp.	---	---	---	---	---
Gull Sp.	---	---	---	---	---
Herring gull	*Larus argentatus*	---	---	---	S4
Sandpiper Sp.	---	---	---	---	---
White-throated sparrow	*Zonotrichia albicollis*	---	---	---	S5B

5.2.8 Winter Bird Surveys

Winter bird transect surveys were completed in March 2025 for the BWPA, TLWPA, LTWPA and SLWPA. A total of 10 locations were surveyed for the TLWPA, the LTWPA, as well as the SLWPA, and 20 locations were surveyed for the BWPA. A total of 77 birds were observed, representing 12 different species (Table 5.7; Table 7, Appendix E).

Table 5.7: Species List – 2025 Winter Bird Surveys

Common Name	Scientific Name	COSEWIC	SARA	NL ESA	ACCDC S-Rank
American crow	*Corvus brachyrhynchos*	---	---	---	S5
Black-capped chickadee	*Poecile atricapillus*	---	---	---	S5
Boreal chickadee	*Poecile hudsonicus*	---	---	---	S4
Canada jay	*Perisoreus canadensis*	---	---	---	S5
Common goldeneye	*Bucephala clangula*	---	---	---	S4B,SUN
Common raven	*Corvus corax*	---	---	---	S5
Downy woodpecker	*Dryobates pubescens*	---	---	---	S4

Common Name	Scientific Name	COSEWIC	SARA	NL ESA	ACCDC S-Rank
Golden-crowned kinglet	*Regulus satrapa*	---	---	---	S5B,S4N,SUM
Pine grosbeak	*Pinicola enucleator*	---	---	---	S5
Pine siskin	*Spinus pinus*	---	---	---	S5
Purple finch	*Haemorhous purpureus*	---	---	---	S5
Red-breasted nuthatch	*Sitta canadensis*	---	---	---	S5

The highest level of bird activity was observed at the BWPA. Activity was relatively low at LTWPA and SLWPA, and no birds were observed at TLWPA. The species of highest abundance were black-capped chickadee, boreal chickadee (*Poecile hudsonicus*), Canada jay, and pine grosbeak (*Pinicola enucleator*). No SAR or SOCC were observed.

6.0 SUMMARY OF CONDITIONS

The following sections summarize the desktop and field results within the Wind and Transmission component (Table 6.1) and the Solar and Industrial Facility component (Table 6.2) of the project.

6.1 Wind and Transmission Component

Table 6.1: Summary of Wind and Transmission component results

Section	Summary
Desktop Review	
ACCDC Results: Section 5.1	Three (3) SAR species were identified to potentially occur in the WPA: rusty blackbird, olive-sided flycatcher, and grey-cheeked thrush.
eBird Results: Section 5.1	Three (3) SAR species were identified to potentially occur in the WPA: evening grosbeak, olive-sided flycatcher, and rusty blackbird.
Field Surveys	
Breeding Bird Surveys (Table 5.2)	101 point counts were surveyed identifying 1,577 birds representing 66 different species. Four (4) SAR and three (3) SOCC were observed.
Waterfowl Surveys (Table 5.5)	10 sites were surveyed identifying 79 birds representing 27 different species. Two (2) SAR were observed.
Spring Migration Surveys (Table 5.1)	Seven (7) sites were surveyed identifying 29 birds representing 14 different species. No SAR and one (1) SOCC was observed.
Fall Migration Surveys (Table 5.4)	Seven (7) sites were surveyed identifying 88 birds representing 27 different species. No SAR or SOCC were observed.
Shorebird Surveys (Table 5.3)	Two (2) sites were surveyed identifying a total of 245 birds representing 15 different species. No SAR and three (3) SOCC were observed.
Nocturnal Owl Surveys (Section 5.2.2)	12 nocturnal owl surveys were conducted identifying 12 owls representing three (3) different species. No SAR or SOCC were observed.

Section	Summary
Coastal Waterbird Surveys (Table 5.6)	Two (2) sites were surveyed for coastal waterbirds identifying 20 birds representing six (6) different species. No SAR or SOCC were observed.
Winter Resident Surveys (Table 5.7)	Four (4) transects, encompassing 50 point counts, were surveyed identifying 77 birds representing 12 different species. No SAR or SOCC were observed.

6.2 Solar and Industrial Facility Components

Table 6.2: Summary of Solar and Industrial Facility component results

Section	Summary
Desktop Review	
ACCDC Results: Section 5.1	One (1) SAR species was identified to potentially occur in the SPA and IPA: olive-sided flycatcher.
eBird Results: Section 5.1	One (1) SOCC was identified in the proximity of the SPA and IPA: great blue heron (*Ardea Herodias,* S2B, SUM).
Field Surveys	
Breeding Bird Surveys (Table 5.2)	Two (2) point counts were surveyed at each site identifying 40 birds representing 20 different species. No SAR or SOCC were observed.
Waterfowl Surveys (Table 5.5)	No waterfowl surveys were conducted in either the SPA or IPA.
Spring Migration Surveys (Table 5.1)	No spring migration studies were conducted in the SPA or IPA.
Fall Migration Surveys (Table 5.4)	No fall migration surveys were conducted in the SPA or IPA.
Shorebird Surveys (Table 5.3)	No shorebird surveys were conducted in the SPA or IPA.
Nocturnal Owl Surveys (Section 5.2.2)	No nocturnal owl surveys were conducted in the SPA or IPA.
Coastal waterbird Surveys (Table 5.6)	No Coastal waterbird surveys were completed in either the SPA or IPA.
Winter Resident Surveys (Section 5.7)	No winter resident surveys were conducted in the SPA or IPA.

6.3 General Summary

Avifauna surveys were conducted year-round for the WPA in 2024 and during the breeding season in the SPA and IPA, with additional studies in the WPA being conducted in early 2025 (winter resident surveys) to gain an all-encompassing understanding of the seasonal usage of the WPA.

In total, 2167 individuals were observed during field surveys, representing 90 species, as well as nine unconfirmed species (labeled as duck sp., sandpiper sp., etc.).

Results from all surveys indicate the presence of the following SAR in or near the WPA: rusty blackbird, evening grosbeak, olive-sided flycatcher, and red crossbill. While red crossbill is a known resident species on the island of Newfoundland, it was observed only during the breeding season and not during winter resident surveys. The highest concentration of winter

resident birds occurred in the BWPA, which also has the highest amount of human activity due to the amount of cabin owners and residents within the area. Red crossbill, rusty blackbird, olive-sided flycatcher, and evening grosbeak were all identified during the breeding season. Olive-sided flycatcher was the most abundant SAR overall, with 22 individuals observed during the breeding season.

Although study results from all surveys indicated a higher number of individuals in the BWPA, the BWPA had similar species diversity as the TLWPA which has the least amount of human disturbance. It is likely that the higher numbers observed in the BWPA are a result of the size of the PA, which is significantly larger (20,797.02 ha) than the LTWPA (2,392.74 ha), the TLWPA (7,679 ha), and the SLWPA (3,052.14 ha), and increased survey effort in the BWPA due to it being larger than the other areas. As recreational trails improved accessibility within the BWPA, a more fulsome survey effort was possible compared to the other three WPAs. In addition to having the highest overall avian abundance, the BWPA also had the highest abundance of SAR, with four species (rusty blackbird, olive-sided flycatcher, red crossbill, and evening grosbeak) identified, including a breeding pair of rusty blackbirds.

The LTWPA is the most coastal by proximity, therefore higher survey efforts for seabirds and shorebirds were implemented in this area. The LTWPA is the smallest (2,392.74 ha) and has the highest abundance of old growth forest. For this reason, winter resident survey efforts were increased in this WPA to increase the likelihood of identifying red crossbill, a resident SAR, however none were identified during the winter season.

7.0 STATEMENT OF QUALIFICATIONS AND LIABILITY

This Report (the "Report") has been prepared by Strum Consulting (the "Consultant") for the benefit of Exploits Valley Renewable Energy Corporation (the "Client") in accordance with the agreement between the Consultant and Client, including the scope of work detailed therein (the "Agreement").

The information, data, recommendations, and conclusions contained in the Report (collectively, the "Information"):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations").
- represents the Consultant's professional judgement in light of the Limitations and industry standards for the preparation of similar reports.
- may be based on information provided to the Consultant which has not been independently verified.
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued.
- must be read as a whole and sections thereof should not be read out of such context.
- was prepared for the specific purposes described in the Report and the Agreement.
- in the case of subsurface, environmental, or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time.

Consultant will be entitled to rely upon the accuracy and completeness of information that was provided and has no obligation to update such information. Consultant accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental, or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

Consultant agrees that the Report represents its professional judgement as described above and that the Information has been prepared for the specific purpose and use described in the Report and the Agreement, but Consultant makes no other representations, or any guarantees or warranties whatsoever, whether express or implied, with respect to the Report, the Information or any part thereof.

The Report is to be treated as confidential and may not be used or relied upon by third parties, except:

- as agreed in writing by the Consultant and Client
- as required by law
- for use by governmental reviewing agencies

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This Statement of Qualifications and Limitations forms part of the Report and any use of the Report is subject to the terms hereof.

Should additional information become available, Strum requests that this information be brought to our attention immediately so we may re-assess the conclusions presented in this report. This report was prepared by Diedre Park, Senior Environmental Scientist and Renee MacQuarrie, Environmental Scientist, and was reviewed by Jessica Lohnes, Terrestrial Specialist, and Melanie Juurlink, Senior Ecology Lead.

8.0 REFERENCES

ACCDC. (2026). GIS scan of rare and provincially/federally listed species for area of interest in central Newfoundland, Newfoundland and Labrador (No. RQ1310). Atlantic Canada Conservation Data Centre.

Birds Canada. (2019). Nova Scotia Nocturnal Owl Survey—Guide for Volunteers. Birds Canada. https://birdscanada.org/wp-content/uploads/2022/03/NS_owl_instructions_2022.pdf

Birds Canada. (2022). Maritimes marsh monitoring program survey protocols (2022 edition). https://birdscanada.org/wp-content/uploads/2022/05/MMMP-Survey-Protocols_2022.pdf

Birds Canada. (2024). NatureCounts. NatureCounts. https://naturecounts.ca/nc/default/main.jsp

Birds Canada. (2025). Newfoundland breeding bird atlas. https://naturecounts.ca/nc/nfatlas/findsquare.jsp

ECCC-CWS. (2007a). Recommended protocols for monitoring impacts of wind turbines on birds. https://publications.gc.ca/collections/collection_2013/ec/CW66-364-2007-eng.pdf

ECCC-CWS. (2007b). Wind turbines and birds: A guidance document for environmental assessment. https://publications.gc.ca/site/eng/458437/publication.html

ECCC-CWS. (2018). Wind turbines and birds – Updated guidance for environmental assessment and monitoring. Environment and Climate Change Canada Canadian Wildlife Service.

ECCC-CWS. (2022). Wind energy & birds environmental assessment guidance update. Environment and Climate Change Canada - Canadian Wildlife Service.

Newfoundland and Labrador. (2003). Environmental Assessment Regulations 2003-220. https://assembly.nl.ca/Legislation/sr/regulations/rc030054.htm

NLBBA. (2022). Common Nighthawk (CONI). Newfoundland Breeding Bird ATtas. chrome-

extension://efaidnbmnnnibpcajpcglclefindmkaj/https://nf.birdatlas.ca/wp-content/uploads/2022/11/CONI_9Nov2022.pdf

Parks Canada. (n.d.). Protocol for monitoring the biodiversity of winter forest bird assemblages in Gros Morne National Park of Canada.

Point Blue Conservation Science. (2014). Area-search protocol for surveying shorebirds in coastal environments. https://migratoryshorebirdproject.org/wp-content/uploads/2019/10/AreaSearchProtocol_Coast_2017.pdf

Takats, D., Francis, C., Holroyd, G., Duncan, J., Mazur, K., Cannings, R., Harris, W., & Holt, D. (2001). Guidelines for nocturnal owl monitoring in North America. Beaverhill Bird Observatory and Bird Studies Canada. https://www.researchgate.net/publication/270822838_Guidelines_for_Nocturnal_Owl_Monitoring_in_North_America

Wilhelm, S., & Mahoney, M. (2017). CWS: Waterbird colony database (Atlantic region) (Version 1) [Dataset]. Canadian node of the Ocean Biogeographic Information System (OBIS Canada). https://doi.org/10.15468/vlrjfx

APPENDIX A
DRAWINGS

EVREC Green Energy Hub

Project Locator

EVREC

Project Area

- Industrial Project Area
- Solar Project Area
- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area
- Twin Lakes Wind Project Area

Transportation

- Trans-Canada Highway
- Highway
- Road
- Unpaved Road

Water Features

- Mapped Waterbodies

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
Scale: 1:200,000	Drawing #: 1
Drawn By: M. Partridge	
Checked By: N. Thomas	

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EVREC Green Energy Hub

All Avian Survey Locations

EVREC

- Project Area
- Avian Radar Locations
- Avian Acoustic Monitor Locations

Avian Survey Locations

- Breeding Bird
- Coastal Shorebird
- Coastal Waterbird
- Migratory Bird
- Nocturnal Owl
- Waterfowl
- Winter Resident

Transportation

- Trans-Canada Highway
- Highway
- Road
- Unpaved Road

Water Features

- Mapped Waterbodies

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

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Scale: 1:200,000	Drawing #: 2
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Checked By: J. Lohnes	

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EVREC Green Energy Hub

Winter Resident Survey Locations

EVREC

Project Area

- Industrial Project Area
- Solar Project Area
- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area
- Twin Lakes Wind Project Area
- Winter Resident Survey Locations

Transportation

- Trans-Canada Highway
- Highway
- Road
- Unpaved Road

Water Features

- Mapped Waterbodies

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

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Checked By: J. Lohnes	

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EVREC Green Energy Hub

Migratory Bird Survey Locations

EVREC

Project Area

- Industrial Project Area
- Solar Project Area
- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area
- Twin Lakes Wind Project Area
- Initial Migratory Bird Survey

Transportation

- Trans-Canada Highway
- Highway
- Road
- Unpaved Road

Water Features

- Mapped Waterbodies

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

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Scale: 1:200,000	Drawing #: 4
Drawn By: M. Partridge	
Checked By: J. Lohnes	

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EVREC Green Energy Hub

Nocturnal Owl Survey Locations

EVREC

Project Area

- Industrial Project Area
- Solar Project Area
- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area
- Twin Lakes Wind Project Area
- Nocturnal Owl Survey Locations

Transportation

- Trans-Canada Highway
- Highway
- Road
- Unpaved Road

Water Features

- Mapped Waterbodies

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

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Checked By: J. Lohnes	

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EVREC Green Energy Hub

Breeding Bird Survey Locations

EVREC

Project Area

- Industrial Project Area
- Solar Project Area
- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area
- Twin Lakes Wind Project Area
- Breeding Bird Survey Locations

Transportation

- Trans-Canada Highway
- Highway
- Road
- Unpaved Road

Water Features

- Mapped Waterbodies

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

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Checked By: J. Lohnes	

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EVREC Green Energy Hub

Coastal Shorebird Survey Locations

EVREC

Project Area

- Industrial Project Area
- Solar Project Area
- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area
- Twin Lakes Wind Project Area
- Coastal Shorebird

Transportation

- Trans-Canada Highway
- Highway
- Road
- Unpaved Road

Water Features

- Mapped Waterbodies

Coordinate System: NAD 1983 CSRS UTM Zone 21N

Sources: Sources: Esri, Vantor, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap, and the GIS user community, Esri, NASA, NGA, USGS, GeoNOVA, SNIS.B, NSNRR.ACC©, ISA Canada, ONWI, HERE, Garmin, USGS

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Scale: 1:200,000	Drawing #: 7
Drawn By: M. Partridge	
Checked By: J. Lohnes	

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EVREC Green Energy Hub

Coastal Waterbird Survey Locations

EVREC

Project Area

- Industrial Project Area
- Solar Project Area
- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area
- Twin Lakes Wind Project Area
- Coastal Waterbird Survey Locations

Transportation

- Trans-Canada Highway
- Highway
- Road
- Unpaved Road

Water Features

- Mapped Waterbodies

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCBC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
Scale: 1:200,000	Drawing #: 8
Drawn By: M. Partridge	
Checked By: J. Lohnes	

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EVREC Green Energy Hub

Waterfowl Survey Locations

EVREC

Project Area

- Industrial Project Area
- Solar Project Area
- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area
- Twin Lakes Wind Project Area
- Waterfowl Survey Locations

Transportation

- Trans-Canada Highway
- Highway
- Road
- Unpaved Road

Water Features

- Mapped Waterbodies

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
Scale: 1:200,000	Drawing #: 9
Drawn By: M. Partridge	
Checked By: J. Lohnes	

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APPENDIX B
ELC METHODOLOGY

Ecological Land Classification Methodology

An Ecological Land Classification (ELC) was developed to support baseline desktop and field assessments for the Environmental Impact Statement of the Exploits Valley Renewable Energy Corporation (EVREC) Green Energy Hub near Botwood in Central Newfoundland. The ELC provides a detailed assessment of the land cover types present in the Project Area, a 35,833 hectare (ha) area consisting of four Wind Project Areas, a Solar Project Area, and Industrial Project Area. The model was developed using remote sensing and machine learning techniques. This approach was chosen because it produces accurate results using aerial imagery, airborne LiDAR data, and land cover data.

High-resolution (30-cm) airborne LiDAR data were collected within the Project Area in December 2023 and August 2024. Data were collected for 35,303 ha, or 99%, of the Project Area. These data were combined with aerial orthophoto mosaics acquired from Newfoundland and Labrador Forestry, Agriculture and Lands (NLFAL) using predictive modelling. Predictive modelling techniques were used to aggregate the collected data and feed the resulting product into a supervised modelling process. The supervised modelling assigns each pixel within an aerial image a class category. Various classes were chosen that were representative of each Project Area and ecoregion, summarized into ten classes (Table 1).

Table 1: Class Categories used in Supervised Modelling

Class Categories	
Coniferous	Water
Deciduous	Shiny Water
Bog	Shrub
Wetland	Road
Flark	Barren

Training data for each class category was created for each part of the provided images where spectral differences were apparent. Difference in the spectral quality of imagery used for the ELC was due to the time range over which aerial imagery was collected (2011-2021), and many spectral conditions discussed further in the Limitations Section. In total, nine areas were subdivided from the original imagery for Botwood, one for Leading Tickles, four for Seabrights Lake, and three for Twin Lakes. Each subdivided image was processed individually through the supervised modeling process. The resulting data were then passed into a machine learning classifier, to generate the definition file for classifying each subdivided area.

The Support Vector Machine Classifier tool withing ArcGIS Pro was chosen for the predictive modelling process because it offers advantages for training data that does not display normal distribution, it is less susceptible to noise in imagery, and each class does not need to contain the same number of training samples (ESRI, 2024). It also allows for additional inputs to be considered when training the classifier, such as LiDAR derived products (e.g., digital surface model, canopy height model, and tree classification deep learning model). Optionally, additional high-resolution imagery can be added as well as a composite dataset or as a standalone dataset.

Additional subdivision of classes based on the LiDAR derived data products occurred after the image classification was complete. The ELC model was enhanced by using a canopy height-based raster datasets to group forest criteria based on height and a depth-to-water product which allowed for interpretation of wet areas, drainage, and upland areas.

To alleviate noise and misclassifications of the imagery a geoprocessing model was developed to enhance accuracy and accommodate the limitations of the input data. The model first applied a majority filter, which processes the raster by replacing each pixel's value with the most common value in its surrounding neighborhood. This spatial filtering technique helps to reduce noise and smooth out the raster, improving the overall quality of the data. Next, the raster was resampled to a 3 m resolution, adjusting the pixel size to allow for some generalization and faster computing while maintaining detail through interpolation techniques.

Following resampling, the Region Group tool was applied to the raster. This tool groups connected pixels that share the same classification value, identifying distinct regions or clusters of contiguous pixels. Once the regions are defined, the extract by attributes tool was used to filter out unwanted regions or misclassified areas based on specific attributes. This step ensures that the majority of classifications are valid, and properly classified regions remain in the raster, refining the dataset. The Nibble tool was used to fill in any gaps or voids that may have been created during the previous steps, such as areas removed due to misclassification. The Nibble tool works by replacing pixel areas with no data with values from neighboring pixels, ensuring continuity and a more seamless raster output. The result of this process is a cleaned, refined, and continuous raster dataset, with limited misclassifications, enhanced accuracy, and a spatial resolution suited for more efficient analysis.

Limitations

As with all remote sensing data products, it is important to understand the limitations on which the model was built, and the way that the imagery was interpreted. The main source of potential error is associated with the aerial imagery used for the classification. There were many occurrences of blurriness, haziness, off nadir image capture (i.e., significant leaning of elevated features such as trees), and various lighting conditions which affected the ability of the Machine Learning Classifier to model the study areas. For instance, part of the image could have contained defined pixel values for a dark green softwood stand, but elsewhere this defined pixel value could have corresponded to a hardwood stand, or shrubs along a watercourse, etc. This created confusion in the model, thus resulting in misclassification. Nevertheless, the majority of this misclassification was addressed with various LiDAR inputs to the Support Vector Machine Classifier; however, misclassification still occurred where imagery was the poorest.

References

ESRI. (2024). *Train Support Vector Machine Classifier (Image Analyst)-ArcGIS Pro*. Retrieved from https://pro.arcgis.com/en/pro-app/latest/tool-reference/image-analyst/train-support-vector-machine-classifier.htm

APPENDIX C
ACCDC

GNAME	GCOMNAME	FAMILY	Observer	TotalNumber	Month	Day	Year	SRANK_2015	SRANK_2	NRANK
Scolopax minor	American Woodcock	Scolopacida	BBS observer: 10		7	5	2015	S1B,SUM	S1B	N5B,N5M
Dendroica castanea	Bay-breasted Warbler	Parulidae	BBS observer: 10		7	2	2018	S2B,SUM	S3B	N5B,N5M
Dendroica castanea	Bay-breasted Warbler	Parulidae	BBS observer: 10		7	3	2017	S2B,SUM	S3B	N5B,N5M
Ophiogomphus colubrinus	Boreal Snake Tail/ Club	Gomphidae	unknown		8	15	1997	S3	S3?	N5
Dendroica tigrina	Cape May Warbler	Parulidae	BBS observer: 10		7	7	2014	S2B,SUM	S2B	N5B,N5M
Dendroica tigrina	Cape May Warbler	Parulidae	BBS observer: 10		7	2	2018	S2B,SUM	S2B	N5B,N5M
Spizella passerina	Chipping Sparrow	Passerellida	BBS observer: 10		6	17	2019	S2S3B,SUM	S2B	N5B,N5M
Spizella passerina	Chipping Sparrow	Passerellida	BBS observer: 10		7	7	2012	S2S3B,SUM	S2B	N5B,N5M
Spizella passerina	Chipping Sparrow	Passerellida	BBS observer: 10		7	7	2012	S2S3B,SUM	S2B	N5B,N5M
Spizella passerina	Chipping Sparrow	Passerellida	BBS observer: 10		7	7	2014	S2S3B,SUM	S2B	N5B,N5M
Spizella passerina	Chipping Sparrow	Passerellida	BBS observer: 10		6	17	2019	S2S3B,SUM	S2B	N5B,N5M
Spizella passerina	Chipping Sparrow	Passerellida	BBS observer: 10		7	3	2016	S2S3B,SUM	S2B	N5B,N5M
Spizella passerina	Chipping Sparrow	Passerellida	BBS observer: 10		7	7	2014	S2S3B,SUM	S2B	N5B,N5M
Spizella passerina	Chipping Sparrow	Passerellida	BBS observer: 10		7	7	2014	S2S3B,SUM	S2B	N5B,N5M
Spizella passerina	Chipping Sparrow	Passerellida	BBS observer: 10		7	7	2014	S2S3B,SUM	S2B	N5B,N5M
Leucorrhinia glacialis	Crimson-ringed Whitefa	Libellulidae	Larson D.J.		6	19	1979	S3S4	S3	N5
Catharus minimus	Gray-cheeked Thrush	Turdidae	BBS observer: 10		7	3	2017	S2B,SUM	S2S3B	N5B,N5M
Catharus minimus	Gray-cheeked Thrush	Turdidae	BBS observer: 10		7	7	2013	S2B,SUM	S2S3B	N5B,N5M
Tringa melanoleuca	Greater Yellowlegs	Scolopacida	BBS observer: 10		6	17	2019	S3B, S4M	S4B,S5M	N5B,N4N,N
Tringa melanoleuca	Greater Yellowlegs	Scolopacida	BBS observer: 10		7	7	2011	S3B, S4M	S4B,S5M	N5B,N4N,N
Tringa melanoleuca	Greater Yellowlegs	Scolopacida	BBS observer: 10		7	2	2018	S3B, S4M	S4B,S5M	N5B,N4N,N
Anas platyrhynchos	Mallard	Anatidae	BBS observer: 10		7	7	2013	S3B,SUM	S3B	N5B,N5N,N
Martes americana	Newfoundland Marten	Mustelidae	Mac Andrews	1	12	10	1987	S3	S1	N5
Martes americana	Newfoundland Marten	Mustelidae	Roland Wayne Pa	1	4	26	2014	S3	S1	N5
Accipiter gentilis	Northern Goshawk	Accipitridae	Todd Boland	1	12	28	1999	S3	S3B	N4B,N4N5N
Accipiter gentilis	Northern Goshawk	Accipitridae	Craig Purchase	1	12	28	1998	S3	S3B	N4B,N4N5N
Parula americana	Northern Parula	Parulidae	BBS observer: 10		7	5	2015	S1B?,SUM	S1?B	N5B,N5M
Contopus cooperi	Olive-sided Flycatcher	Tyrannidae	Alison Mews		6	11	2017	S3B,SUM	S3S4B	N4B,N3M
Contopus cooperi	Olive-sided Flycatcher	Tyrannidae	BBS observer: 10		7	7	2014	S3B,SUM	S3S4B	N4B,N3M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	7	2014	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	3	2017	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	2	2018	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	7	2013	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	7	2014	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	5	2015	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	5	2015	S3B,SUM	S5B	N5B,N5M

GNAME	GCOMNAME	FAMILY	Observer	TotalNumber	Month	Day	Year	SRANK_2015	SRANK_2	NRANK
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	3	2016	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	2	2018	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	2	2018	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	2	2018	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		6	17	2019	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	7	2013	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	7	2014	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	3	2016	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	7	2011	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	7	2014	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	5	2015	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	3	2016	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	3	2016	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	3	2017	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		6	17	2019	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	3	2016	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		7	2	2018	S3B,SUM	S5B	N5B,N5M
Seiurus aurocapilla	Ovenbird	Parulidae	BBS observer: 10		6	17	2019	S3B,SUM	S5B	N5B,N5M
Vireo philadelphicus	Philadelphia Vireo	Vireonidae	BBS observer: 10		7	7	2013	S3B,SUM	S2B	N5B,N5M
Vireo philadelphicus	Philadelphia Vireo	Vireonidae	BBS observer: 10		7	7	2012	S3B,SUM	S2B	N5B,N5M
Vireo philadelphicus	Philadelphia Vireo	Vireonidae	BBS observer: 10		7	7	2012	S3B,SUM	S2B	N5B,N5M
Vireo philadelphicus	Philadelphia Vireo	Vireonidae	BBS observer: 10		7	7	2012	S3B,SUM	S2B	N5B,N5M
Vireo philadelphicus	Philadelphia Vireo	Vireonidae	BBS observer: 10		7	3	2016	S3B,SUM	S2B	N5B,N5M
Loxia curvirostra	Red Crossbill	Fringillidae	Barry Linehan		10		2020	S1S2	S2S3	N5B,N5N,N
Agelaius phoeniceus	Red-winged Blackbird	Icteridae	BBS observer: 10		7	7	2013	S1B,SUM	S1S2B	N5B,N5N,N
Calopteryx aequabilis	River Jewelwing/ Apicall	Calopterygic	Larson D.J.		6	26	1979	S3	S2S3	N5
Euphagus carolinus	Rusty Blackbird	Icteridae	BBS observer: 10		7	7	2013	S2S3B,SUM	S3B	N4B,NUN,N
Euphagus carolinus	Rusty Blackbird	Icteridae	BBS observer: 10		7	3	2017	S2S3B,SUM	S3B	N4B,NUN,N
Euphagus carolinus	Rusty Blackbird	Icteridae	BBS observer: 10		7	3	2016	S2S3B,SUM	S3B	N4B,NUN,N
Euphagus carolinus	Rusty Blackbird	Icteridae	BBS observer: 10		7	3	2016	S2S3B,SUM	S3B	N4B,NUN,N
Glaucopsyche lygdamus	Silvery Blue	Lycaenidae	Ross					S3		N5
Catharus fuscescens	Veery	Turdidae	BBS observer: 10		7	7	2011	S2B,SUM	S3B	N5B,N5M
Catharus fuscescens	Veery	Turdidae	BBS observer: 10		7	7	2011	S2B,SUM	S3B	N5B,N5M
Catharus fuscescens	Veery	Turdidae	BBS observer: 10		7	5	2015	S2B,SUM	S3B	N5B,N5M
Catharus fuscescens	Veery	Turdidae	BBS observer: 10		7	5	2015	S2B,SUM	S3B	N5B,N5M
Troglodytes hiemalis	Winter Wren	Troglodytida	BBS observer: 10		7	7	2011	S3B,SUM	S3S4B	N5B

GRANK	GeneralStati	COSEWIC_ST	PROVINCIAL	SARA	DESCR_HABIT	SITE_NAME	Accuracy	SYNAME
G5	Sensitive					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Undetermined					ExploitsRiver	1000	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Undetermined					Bishops Falls	1000	
G5	Secure	ndidate (Mid Priori	Threatened			Northern Arm BBS route (ID:19)	250	
G5	Secure	ndidate (Mid Priori	Threatened			Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	At Risk	Threatened	Threatened	Endangered		SE of Bishops Falls, approx 10 km	1000	
G5	At Risk	Threatened	Threatened	Endangered	. Marten eventu	Confederation Place, Botwood	100	
G5	Secure						1000	
G5	Secure					Jumper's Brook Road	1000	
G5	Undetermined					Northern Arm BBS route (ID:19)	250	
G4	At risk	Special Concern	Threatened	Threatened			1000	
G4	At risk	Special Concern	Threatened	Threatened		Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	

GRANK	GeneralStati	COSEWIC_ST	PROVINCIAL	SARA	DESCR_HABIT	SITE_NAME	Accuracy	SYNAME
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
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G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	At Risk	Threatened	Threatened	Threatened			1000	
G5	Sensitive					Northern Arm BBS route (ID:19)	250	
G5	Undetermine					Bishops Falls	1000	
G4	Secure	Special Concern	Vulnerable	Special Concern		Northern Arm BBS route (ID:19)	250	
G4	Secure	Special Concern	Vulnerable	Special Concern		Northern Arm BBS route (ID:19)	250	
G4	Secure	Special Concern	Vulnerable	Special Concern		Northern Arm BBS route (ID:19)	250	
G4	Secure	Special Concern	Vulnerable	Special Concern		Northern Arm BBS route (ID:19)	250	
G5	Secure					Bishop's Falls	1000	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	
G5	Secure					Northern Arm BBS route (ID:19)	250	

CITATION	IDNUM	5km GRI	Y CENTROID OF	X CENTROID OF GRID CELL
Pardieck, K.L., Ziolkowski J	mstr1136111	Grid Cell	49.23312583	-55.37560864
Pardieck, K.L., Ziolkowski J	mstr1136987	Grid Cell	49.23312583	-55.37560864
Pardieck, K.L., Ziolkowski J	mstr1136771	Grid Cell	49.32398958	-55.44143202
2DDragonflydata.xls	mstr1034732	Grid Cell	49.01016537	-55.51963033
Pardieck, K.L., Ziolkowski J	mstr1135954	Grid Cell	49.23312583	-55.37560864
Pardieck, K.L., Ziolkowski J	mstr1136966	Grid Cell	49.36894828	-55.44001091
Pardieck, K.L., Ziolkowski J	mstr1137190	Grid Cell	49.18816748	-55.37708134
Pardieck, K.L., Ziolkowski J	mstr1135342	Grid Cell	49.32304138	-55.37265221
Pardieck, K.L., Ziolkowski J	mstr1135343	Grid Cell	49.32304138	-55.37265221
Pardieck, K.L., Ziolkowski J	mstr1135913	Grid Cell	49.32304138	-55.37265221
Pardieck, K.L., Ziolkowski J	mstr1137191	Grid Cell	49.32304138	-55.37265221
Pardieck, K.L., Ziolkowski J	mstr1136454	Grid Cell	49.36985699	-55.50885691
Pardieck, K.L., Ziolkowski J	mstr1135914	Grid Cell	49.41390659	-55.43858624
Pardieck, K.L., Ziolkowski J	mstr1135915	Grid Cell	49.45886452	-55.43715802
Pardieck, K.L., Ziolkowski J	mstr1135916	Grid Cell	49.45886452	-55.43715802
2DDragonflydata.xls	mstr1034726	Grid Cell	49.00926804	-55.45128125
Pardieck, K.L., Ziolkowski J	mstr1136848	Grid Cell	49.18816748	-55.37708134
Pardieck, K.L., Ziolkowski J	mstr1135780	Grid Cell	49.23312583	-55.37560864
Pardieck, K.L., Ziolkowski J	mstr1137127	Grid Cell	49.32398958	-55.44143202
Pardieck, K.L., Ziolkowski J	mstr1134996	Grid Cell	49.32304138	-55.37265221
Pardieck, K.L., Ziolkowski J	mstr1136893	Grid Cell	49.32304138	-55.37265221
Pardieck, K.L., Ziolkowski J	mstr1135554	Grid Cell	49.32304138	-55.37265221
John Neville. Accidental Ca	AC0153	Grid Cell	49.00833024	-55.38293564
Accidental Capture Marten	ST0246	Grid Cell	49.14320875	-55.37855038
Nf.Birds, Data Entry by WD	mstr1029831	Grid Cell	49.01016537	-55.51963033
Nf.Birds, Data Entry by WD	mstr1029841	Grid Cell	49.00833024	-55.38293564
Pardieck, K.L., Ziolkowski J	mstr1136222	Grid Cell	49.18816748	-55.37708134
nf.birds, june 11, 2017	mstr1055595	Grid Cell	49.01016537	-55.51963033
Pardieck, K.L., Ziolkowski J	mstr1135851	Grid Cell	49.18816748	-55.37708134
Pardieck, K.L., Ziolkowski J	mstr1135994	Grid Cell	49.18816748	-55.37708134
Pardieck, K.L., Ziolkowski J	mstr1136795	Grid Cell	49.18816748	-55.37708134
Pardieck, K.L., Ziolkowski J	mstr1137013	Grid Cell	49.18816748	-55.37708134
Pardieck, K.L., Ziolkowski J	mstr1135714	Grid Cell	49.2780838	-55.37413227
Pardieck, K.L., Ziolkowski J	mstr1135995	Grid Cell	49.2780838	-55.37413227
Pardieck, K.L., Ziolkowski J	mstr1136265	Grid Cell	49.2780838	-55.37413227
Pardieck, K.L., Ziolkowski J	mstr1136266	Grid Cell	49.2780838	-55.37413227

CITATION	IDNUM	5km GRII	Y CENTROID OF	X CENTROID OF GRID CELL
Pardieck, K.L., Ziolkowski J	mstr1136544	Grid Cell	49.2780838	-55.37413227
Pardieck, K.L., Ziolkowski J	mstr1137014	Grid Cell	49.2780838	-55.37413227
Pardieck, K.L., Ziolkowski J	mstr1137015	Grid Cell	49.2780838	-55.37413227
Pardieck, K.L., Ziolkowski J	mstr1137016	Grid Cell	49.2780838	-55.37413227
Pardieck, K.L., Ziolkowski J	mstr1137282	Grid Cell	49.2780838	-55.37413227
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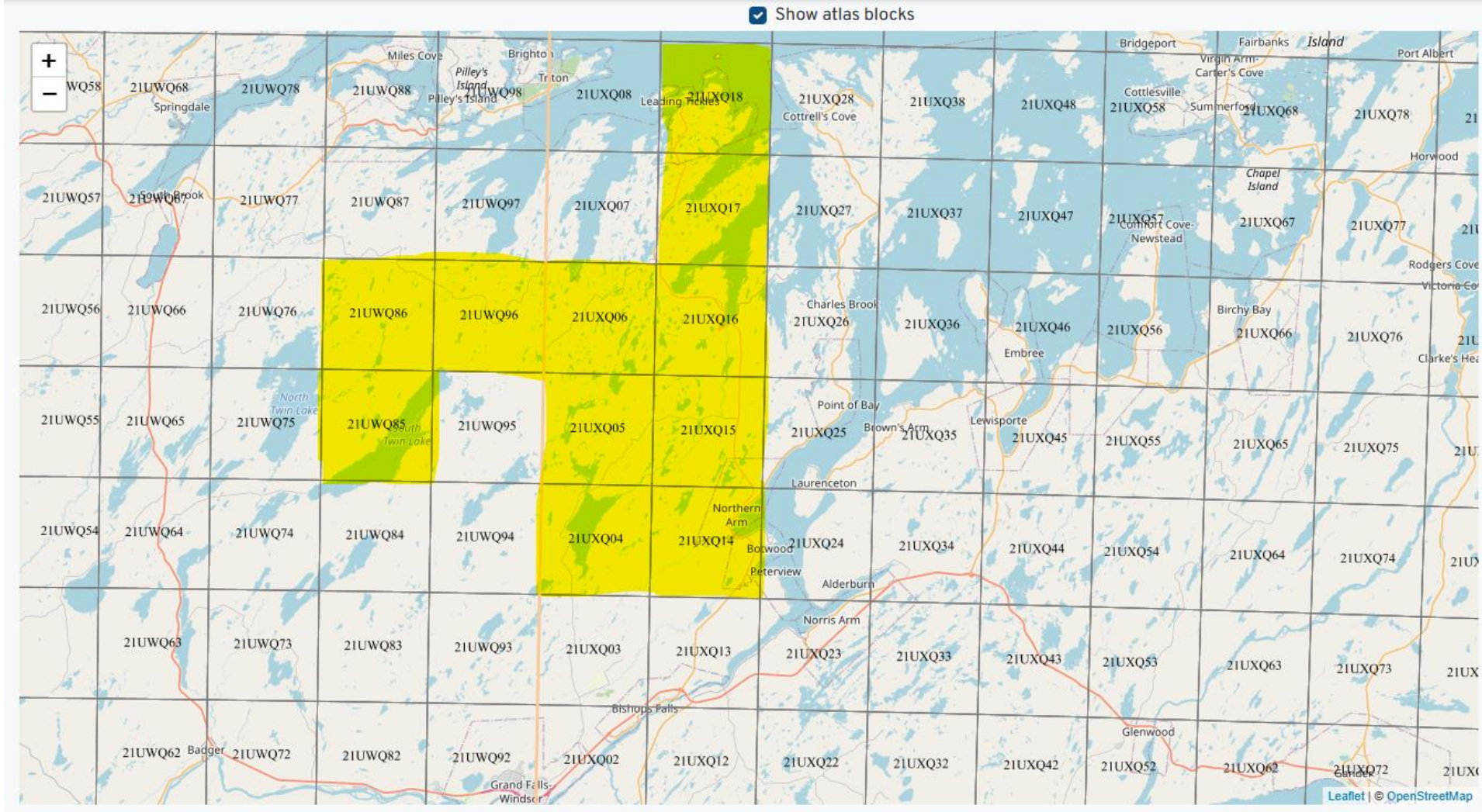
Pardieck, K.L., Ziolkowski J	mstr1135997	Grid Cell	49.32398958	-55.44143202
Pardieck, K.L., Ziolkowski J	mstr1136547	Grid Cell	49.32398958	-55.44143202
Pardieck, K.L., Ziolkowski J	mstr1135119	Grid Cell	49.32304138	-55.37265221
Pardieck, K.L., Ziolkowski J	mstr1135996	Grid Cell	49.32304138	-55.37265221
Pardieck, K.L., Ziolkowski J	mstr1136267	Grid Cell	49.32304138	-55.37265221
Pardieck, K.L., Ziolkowski J	mstr1136545	Grid Cell	49.32304138	-55.37265221
Pardieck, K.L., Ziolkowski J	mstr1136546	Grid Cell	49.32304138	-55.37265221
Pardieck, K.L., Ziolkowski J	mstr1136796	Grid Cell	49.32304138	-55.37265221
Pardieck, K.L., Ziolkowski J	mstr1137283	Grid Cell	49.32304138	-55.37265221
Pardieck, K.L., Ziolkowski J	mstr1136548	Grid Cell	49.36985699	-55.50885691
Pardieck, K.L., Ziolkowski J	mstr1137017	Grid Cell	49.36894828	-55.44001091
Pardieck, K.L., Ziolkowski J	mstr1137284	Grid Cell	49.36894828	-55.44001091
Pardieck, K.L., Ziolkowski J	mstr1135651	Grid Cell	49.18816748	-55.37708134
Pardieck, K.L., Ziolkowski J	mstr1135366	Grid Cell	49.32304138	-55.37265221
Pardieck, K.L., Ziolkowski J	mstr1135367	Grid Cell	49.41481674	-55.50749507
Pardieck, K.L., Ziolkowski J	mstr1135368	Grid Cell	49.45886452	-55.43715802
Pardieck, K.L., Ziolkowski J	mstr1136483	Grid Cell	49.45886452	-55.43715802
email communication, via C	mstr1061422	Grid Cell	49.01016537	-55.51963033
Pardieck, K.L., Ziolkowski J	mstr1135580	Grid Cell	49.18816748	-55.37708134
2DDragonflydata.xls	mstr1034722	Grid Cell	49.00926804	-55.45128125
Pardieck, K.L., Ziolkowski J	mstr1135581	Grid Cell	49.23312583	-55.37560864
Pardieck, K.L., Ziolkowski J	mstr1136686	Grid Cell	49.23312583	-55.37560864
Pardieck, K.L., Ziolkowski J	mstr1136419	Grid Cell	49.32398958	-55.44143202
Pardieck, K.L., Ziolkowski J	mstr1136420	Grid Cell	49.32398958	-55.44143202
Ross Newfoundland Data.x	mstr1041138	Grid Cell	49.01016537	-55.51963033
Pardieck, K.L., Ziolkowski J	mstr1135189	Grid Cell	49.18816748	-55.37708134
Pardieck, K.L., Ziolkowski J	mstr1135190	Grid Cell	49.23312583	-55.37560864
Pardieck, K.L., Ziolkowski J	mstr1136323	Grid Cell	49.23312583	-55.37560864
Pardieck, K.L., Ziolkowski J	mstr1136324	Grid Cell	49.23312583	-55.37560864
Pardieck, K.L., Ziolkowski J	mstr1135156	Grid Cell	49.2780838	-55.37413227

APPENDIX D
NL BREEDING BIRD ATLAS SQUARES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21UXQ73
21UWQ62
21UWQ72
21UWQ82
21UWQ92
21UXQ02
21UXQ12
21UXQ22
21UXQ32
21UXQ42
21UXQ52
21UXQ62
21UXQ72
Springdale
Miles Cove
Pilley's Island
Leading Tickles
Cottrell's Cove
Bridgeport
Fairbanks
Island
Port Albert
Virgin Arm-Carter's Cove
Cottlesville
Summerford
Horwood
Chapel Island
Comfort Cove-Newstead
Rodgers Cove
Charles Brook
Birchy Bay
Embree
Clarke's Head
North Twin Lake
South Twin Lake
Point of Bay
Brown's Arm
Lewisporte
Laurenceton
Northern Arm
Botwood
Peterview
Alderburn
Norris Arm
Bishops Falls
Glenwood
Badger
Grand Falls-Windsor
Gander
Leaflet | © OpenStreetMap

APPENDIX E
AVIAN FIELD DATA

Table 1: 2024 Migratory Bird Survey Results *Project # 24-10265*

Point ID	Date	Time	Temperature (°C)	Wind (Beaufort Scale)	Noise	Cloud %	Species Code	Common Name	Scientific Name	Number	Habitat Description	Notes
MIG-01-24	22-Apr-2024	8:04:00 AM	-2	1	0	15	UNK	Unknown	*N/A*	1	Wetland	
MIG-01-24	22-Apr-2024	8:04:00 AM	-2	1	0	15	WISN	Wilson's Snipe	*Gallinago delicata*	1	Wetland	
MIG-01-24	22-Apr-2024	8:04:00 AM	-2	1	0	15	AMRO	American Robin	*Turdus migratorius*	1	Wetland	
MIG-01-24	22-Apr-2024	8:04:00 AM	-2	1	0	15	WWCR	White-winged Crossbill	*Loxia leucoptera*	1	Wetland	
MIG-01-24	22-Apr-2024	8:04:00 AM	-2	1	0	15	UNK	Unknown	*N/A*	1	Wetland	
MIG-01-24	22-Apr-2024	8:04:00 AM	-2	1	0	15	DOWO	Downy Woodpecker	*Dryobates pubescens*	1	Wetland	
MIG-01-24	22-Apr-2024	8:04:00 AM	-2	1	0	15	UNK	Unknown	*N/A*	1	Wetland	
MIG-02-24	23-Apr-2024	7:55:00 AM	-3	3	1	15	CORE	Common Redpoll	*Acanthis flammea*	1		
MIG-02-24	23-Apr-2024	7:55:00 AM	-3	3	1	15	BOCH	Boreal Chickadee	*Poecile hudsonicus*	1		
MIG-02-24	23-Apr-2024	7:55:00 AM	-3	3	1	15	AMRO	American Robin	*Turdus migratorius*	1		
MIG-03-24	24-Apr-2024	10:44:00 AM	3	3	1	100	WISN	Wilson's Snipe	*Gallinago delicata*	1		
MIG-03-24	24-Apr-2024	10:44:00 AM	3	3	1	100	DEJU	Dark-eyed Junco	*Junco hyemalis*	1		
MIG-04-24	25-Apr-2024	10:30:00 AM	10	3	1	35	DEJU	Dark-eyed Junco	*Junco hyemalis*	1		
MIG-04-24	25-Apr-2024	10:30:00 AM	10	3	1	35	AMRO	American Robin	*Turdus migratorius*	1		
MIG-04-24	25-Apr-2024	10:30:00 AM	10	3	1	35	AMCR	American Crow	*Corvus brachyrhynchos*	1		
MIG-04-24	25-Apr-2024	10:30:00 AM	10	3	1	35	UNK	Sparrow sp.	*N/A*	1	Conifer Scrub	
MIG-05-24	25-Apr-2024	2:00:00 PM	11	3	1	50	DEJU	Dark-eyed Junco	*Junco hyemalis*	1	Conifer scrub	
MIG-06-24	26-Apr-2024	8:00:00 AM	1	3	1	100	COGO	Common Goldeneye	*Bucephala clangula*	1	Barren	
MIG-06-24	26-Apr-2024	8:00:00 AM	1	3	1	100	COLO	Common Loon	*Gavia immer*	1	Barren	
MIG-06-24	26-Apr-2024	8:00:00 AM	1	3	1	100	AMRO	American Robin	*Turdus migratorius*	1	Barren	
MIG-07-24	26-Apr-2024	1:45:00 PM		3	1	100	WISN	Wilson's Snipe	*Gallinago delicata*	1	Wetland	
MIG-07-24	26-Apr-2024	1:45:00 PM		3	1	100	HERG	Herring Gull	*Larus argentatus*	1	Wetland	
MIG-07-24	26-Apr-2024	1:45:00 PM		3	1	100	AMCR	American Crow	*Corvus brachyrhynchos*	1	Wetland	
MIG-01-24	6-May-2024	12:00		1	3	25	GYRF	Gyrfalcon	*Falco rusticolus*	1	Wetland scrub	
MIG-01-24	6-May-2024	12:00		1	3	25	WISN	Wilson's Snipe	*Gallinago delicata*	1	Wetland scrub	
MIG-02-24	6-May-2024	14:28		1	3	90	CAGO	Canada Goose	*Branta canadensis*	1	Wetland	Breeding Pair
MIG-02-24	6-May-2024	14:28		1	3	90	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	1	Wetland	Breeding Pair
MIG-02-24	6-May-2024	14:28		1	3	90	COLO	Common Loon	*Gavia immer*	1	Wetland	
MIG-02-24	6-May-2024	14:28		1	3	90	WISN	Wilson's Snipe	*Gallinago delicata*	1	Wetland	
MBS LT-01	11-Sep-24	3:00:00 PM	20	1		30	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	1		
MBS LT-01	11-Sep-24	3:00:00 PM	20	1		30	BOCH	Boreal Chickadee	*Poecile hudsonicus*	1		
MBS LT-01	11-Sep-24	3:00:00 PM	20	1		30	CAJA	Canada Jay	*Perisoreus canadensis*	1		
MBS LT-01	11-Sep-24	3:00:00 PM	20	1		30	AMCR	American Crow	*Corvus brachyrhynchos*	1		
MBS LT-01	11-Sep-24	3:00:00 PM	20	1		30	Flycatcher sp.	Flycatcher sp.	*N/A*	1		
MBS LT-01	11-Sep-24	3:00:00 PM	20	1		30	COLO	Common Loon	*Gavia immer*	1		
MBS TL-02	12-Sep-24	10:36:00 AM	16	1		5	CORA	Common Raven	*Corvus corax*	3		2 flyover
MBS TL-02	12-Sep-24	10:36:00 AM	16	1		5	ABDU	American Black Duck	*Anas rubripes*	1		Flyover
MBS TL-02	12-Sep-24	10:36:00 AM	16	1		5	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	1		
MBS TL-02	12-Sep-24	10:36:00 AM	16	1		5	HETH	Hermit Thrush	*Catharus guttatus*	1		
MBS TL-02	12-Sep-24	10:36:00 AM	16	1		5	CAJA	Canada Jay	*Perisoreus canadensis*	1		
MBS TL-02	12-Sep-24	10:36:00 AM	16	1		5	RNDU	Ring-necked Duck	*Aythya collaris*	12		
MBS TL-03	12-Sep-24	1:30:00 PM	18	2		80	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	1		
MBS TL-03	12-Sep-24	1:30:00 PM	18	2		80	BOCH	Boreal Chickadee	*Poecile hudsonicus*	1		
MBS NB-02	13-Sep-24	8:35:00 AM	10	2		0	OSPR	Osprey	*Pandion haliaetus*	2		
MBS NB-02	13-Sep-24	8:35:00 AM	10	2		0	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	3		
MBS NB-02	13-Sep-24	8:35:00 AM	10	2		0	BCCH	Black-capped Chickadee	*Poecile atricapillus*	1		
MBS NB-02	13-Sep-24	8:35:00 AM	10	2		0	COLO	Common Loon	*Gavia immer*	1		
MBS NB-02	13-Sep-24	8:35:00 AM	10	2		0	CAJA	Canada Jay	*Perisoreus canadensis*	1		
MBS NB-03	13-Sep-24	11:15:00 AM	15	1		0	OSPR	Osprey	*Pandion haliaetus*	1		

Point ID	Date	Time	Temperature (°C)	Wind (Beaufort Scale)	Noise	Cloud %	Species Code	Common Name	Scientific Name	Number	Habitat Description	Notes
MBS NB-03	13-Sep-24	11:15:00 AM	15	1		0	BOCH	Boreal Chickadee	*Poecile hudsonicus*	1		
MBS NB-03	13-Sep-24	11:15:00 AM	15	1		0	BCCH	Black-capped Chickadee	*Poecile atricapillus*	1		
MBS NB-03	13-Sep-24	11:15:00 AM	15	1		0	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	1		
MBS NB-03	13-Sep-24	11:15:00 AM	15	1		0	BAEA	Bald Eagle	*Haliaeetus leucocephalus*	1		
MBS NB-03	13-Sep-24	11:15:00 AM	15	1		0	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	1		
MBS NB-03	13-Sep-24	11:15:00 AM	15	1		0	CAJA	Canada Jay	*Perisoreus canadensis*	1		
MBS-NB-01	13-Sep-24	2:20:00 PM	20	2		10						No birds observed
MBS TL-01	14-Sep-24	10:55:00 AM	8	2		80	DEJU	Dark-eyed Junco	*Junco hyemalis*	2		
MBS TL-01	14-Sep-24	10:55:00 AM	8	2		80	AMGH	American Goshawk	*Accipiter atricapillus*	1		
MBS TL-01	14-Sep-24	10:55:00 AM	8	2		80	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	1		
MBS TL-01	29-Aug-24	2:15:00 PM	14	2			AMRO	American Robin	*Turdus migratorius*	7		
MBS TL-01	29-Aug-24	2:15:00 PM	14	2			WTSP	White-throated Sparrow	*Zonotrichia albicollis*	2		
MBS-TL-02	30-Aug-24	9:15:00 AM		2		0	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	1		
MBS-TL-02	30-Aug-24	9:15:00 AM		2		0	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	1		
MBS-TL-02	30-Aug-24	9:15:00 AM		2		0	BOCH	Boreal Chickadee	*Poecile hudsonicus*	1		
MBS-TL-02	30-Aug-24	9:15:00 AM		2		0	CAJA	Canada Jay	*Perisoreus canadensis*	2		
MBS-TL-02	30-Aug-24	9:15:00 AM		2		0	RBNU	Red-breasted Nuthatch	*Sitta canadensis*	1		
MBS-TL-02	30-Aug-24	9:15:00 AM		2		0	AMRO	American Robin	*Turdus migratorius*	1		
MBS TL-03	30-Aug-24	12:10:00 PM	20	2		5	NOFL	Northern Flicker	*Colaptes auratus*	1		
MBS TL-03	30-Aug-24	12:10:00 PM	20	2		5	DEJU	Dark-eyed Junco	*Junco hyemalis*	2		
MBS TL-03	30-Aug-24	12:10:00 PM	20	2		5	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	3		
MBS TL-03	30-Aug-24	12:10:00 PM	20	2		5	COLO	Common Loon	*Gavia immer*	1		
MBS TL-03	30-Aug-24	12:10:00 PM	20	2		5	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	1		
MBS TL-03	30-Aug-24	12:10:00 PM	20	2		5	FOSP	Fox Sparrow	*Passerella iliaca*	1		
MBS TL-03	30-Aug-24	12:10:00 PM	20	2		5	SWSP	Swamp Sparrow	*Melospiza georgiana*	1		
MBS NB-02	31-Aug-24	8:10:00 AM	16	2		5	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	3		
MBS NB-02	31-Aug-24	8:10:00 AM	16	2		5	COLO	Common Loon	*Gavia immer*	1		
MBS NB-02	31-Aug-24	8:10:00 AM	16	2		5	CAJA	Canada Jay	*Perisoreus canadensis*	1		
MBS NB-02	31-Aug-24	8:10:00 AM	16	2		5	AMRO	American Robin	*Turdus migratorius*	1		
MBS NB-03	31-Aug-24	11:00:00 AM	16	2		5	AMRO	American Robin	*Turdus migratorius*	1		
MBS NB-03	31-Aug-24	11:00:00 AM	16	2		5	YEWA	Yellow Warbler	*Setophaga petechia*	1		
MBS NB-03	31-Aug-24	11:00:00 AM	16	2		5	Gull sp	Gull sp.	*N/A*	2		
MBS NB-03	31-Aug-24	11:00:00 AM	16	2		5	BOCH	Boreal Chickadee	*Poecile hudsonicus*	1		
MBS NB-01	31-Aug-24	2:05:00 PM	24	2		5	AMCR	American Crow	*Corvus brachyrhynchos*	1		
MBS LT-01	01-Sep-24	7:59:00 AM	18	2		5	BOCH	Boreal Chickadee	*Poecile hudsonicus*	1		
MBS LT-01	01-Sep-24	7:59:00 AM	18	2		5	COLO	Common Loon	*Gavia immer*	1		
MBS LT-01	01-Sep-24	7:59:00 AM	18	2		5	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	1		
MBS LT-01	01-Sep-24	7:59:00 AM	18	2		5	DCCO	Double-crested Cormorant	*Nannopterum aritum*	1		Flyover

Site	Point ID	Surveyor(s)	Coordinates (UTM)		Date	Start time	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Species Common Name	Scientific Name	Habitat Type	Notes
			East (X)	North (Y)											
New Bay	NB-Pt.1	DP/JF/RP/AG/CM	55.58599	49.1729	06-May-24	21:03	0	8	100	1	1	N/A	N/A	Mixedwood	
New Bay	NB-Pt.1	DP/JF/RP/AG/CM	55.58599	49.1729	07-May-24	21:19	0	9	100	1	1	N/A	N/A	Mixedwood	
New Bay	NB-Pt.1	JF/RP/CM	55.58599	49.1729	08-May-24	21:06	1	4	100	2	1	N/A	N/A	Mixedwood	
New Bay	NB-Pt.2	DP/JF/RP/AG/CM	55.57325	49.18986	06-May-24	21:20		8	100	1		N/A	N/A	Softwood	
New Bay	NB-Pt.2	DP/JF/RP/AG/CM	55.57325	49.18986	07-May-24	21:35	1	9	100	1	1	N/A	N/A	Softwood	
New Bay	NB-Pt.2	JF/RP/CM	55.57325	49.18986	08-May-24	21:24	1	4	100	1	1	N/A	N/A	Softwood	
New Bay	NB-Pt.3	DP/JF/RP/AG/CM	55.55187	49.19811	06-May-24	21:40	0	8	100	1		N/A	N/A	Roadside	
New Bay	NB-Pt.3	DP/JF/RP/AG/CM	55.55187	49.19811	07-May-24	21:55	1	9	100	1	1	N/A	N/A	Roadside	
New Bay	NB-Pt.3	JF/RP/CM	55.55187	49.19811	08-May-24	21:41	1	4	100	1	1	N/A	N/A	Roadside	
New Bay	NB-Pt.4	DP/JF/RP/AG/CM	55.53475	49.21235	06-May-24	21:55	0	8	100	1		N/A	N/A	BS Forest	
New Bay	NB-Pt.4	DP/JF/RP/AG/CM	55.53475	49.21235	07-May-24	22:10	1	9	100	1	3	N/A	N/A	BS Forest	
New Bay	NB-Pt.4	JF/RP/CM	55.53475	49.21235	08-May-24	22:00	0	4	100	0	2	N/A	N/A	BS Forest	
New Bay	NB-Pt.5	DP/JF/RP/AG/CM	55.51631	49.22603	06-May-24	22:12	0	8	100	1	1	N/A	N/A	Softwood	
New Bay	NB-Pt.5	DP/JF/RP/AG/CM	55.51631	49.22603	07-May-24	22:30	0	3	100	1	0	Boreal Owl	*Aegolius funereus*	Softwood	Boreal Owl ID E 200-400m
New Bay	NB-Pt.5	DP/JF/RP/AG/CM	55.51631	49.22603	07-May-24	22:30	0	3	100	1	0	Great Horned Owl	*Bubo virginianus*	Softwood	Great Horned ID NE 300-500m
New Bay	NB-Pt.5	JF/RP/CM	55.51631	49.22603	08-May-24	22:19	1	4	90	0	0	Boreal Owl	*Aegolius funereus*	Softwood	Observed to the E
New Bay	NB-Pt.6	DP/JF/RP/AG/CM	55.51658	49.24361	06-May-24	22:36						N/A	N/A	Old growth spruce forest	
New Bay	NB-Pt.6	DP/JF/RP/AG/CM	55.51658	49.24361	07-May-24	22:52	0	3	100	1	0	Northern Saw-whet Owl	*Aegolius acadicus*	Old growth spruce forest	Northern Saw-whet Owl SW 300m
New Bay	NB-Pt.6	DP/JF/RP/AG/CM	55.51658	49.24361	07-May-24	22:52	0	3	100	1	0	Great Horned Owl	*Bubo virginianus*	Old growth spruce forest	Great Horned Owl E 200m
New Bay	NB-Pt.6	JF/RP/CM	55.51658	49.24361	08-May-24	22:38	0	4	90	0	0	Northern Saw-whet Owl	*Aegolius acadicus*	Old growth spruce forest	Observed to the North
Twin Lakes	TL-Pt.1	DP/NP/AG	55.92793	49.20592	08-May-24	20:40	0	6	85	2 to 3	1	N/A	N/A	Cut-over, ground cover-moss, spruce forest surrounding cut over.	
Twin Lakes	TL-Pt.1	DP/NP/AG	55.92793	49.20592	09-May-24	10:50	0	3	100	3	1	N/A	N/A	Cut-over, ground cover-moss, spruce forest surrounding cut over.	
Twin Lakes	TL-Pt.1	CM/NP	55.92793	49.20592	13-May-24	21:14	0	7	35	0	2	N/A	N/A	Cut-over, ground cover-moss, spruce forest surrounding cut over.	
Twin Lakes	TL-Pt.2	DP/NP/AG	55.90824	49.21906	08-May-24	21:00	0	5	95	3	1	Boreal Owl	*Aegolius funereus*	Road, gravel pile adjacent W, spruce forest to the E, spruce beyond	Owl detected NE 200-400m
Twin Lakes	TL-Pt.2	DP/NP/AG	55.90824	49.21906	09-May-24	21:07	1	3	100	2	1	N/A	N/A	Road, gravel pile adjacent W, spruce forest to the E, spruce beyond	
Twin Lakes	TL-Pt.2	CM/NP	55.90824	49.21906	13-May-24	21:39	0	5	35	1	1	N/A	N/A	Road, gravel pile adjacent W, spruce forest to the E, spruce beyond	
Twin Lakes	TL-Pt.3	DP/NP/AG	55.88943	49.22796	08-May-24	21:28	0	3	100	2	2	N/A	N/A	Roadside disturbed, Black Spruce Forest	
Twin Lakes	TL-Pt.3	DP/NP/AG	55.88943	49.22796	09-May-24	21:25	0	3	100	2	2	N/A	N/A	Roadside disturbed, Black Spruce Forest	
Twin Lakes	TL-Pt.3	CM/NP	55.88943	49.22796	13-May-24	21:58	0	4	20	1	1	Boreal Owl	*Aegolius funereus*	Roadside disturbed, Black Spruce Forest	Boreal owl observed in the distance to the NE - outside the survey area
Twin Lakes	TL-Pt.4	DP/NP/AG	55.87621	49.24325	08-May-24	21:46	1	3	100	2	2	N/A	N/A	Black Spruce Forest	
Twin Lakes	TL-Pt.4	DP/NP/AG	55.87621	49.24325	09-May-24	21:41	1	3	100	2	3	N/A	N/A	Black Spruce Forest	Next to running water in ditch
Twin Lakes	TL-Pt.4	CM/NP	55.87621	49.24325	13-May-24	22:18	0	5	0	0	0	N/A	N/A	Black Spruce Forest	
Twin Lakes	TL-Pt.5	DP/NP/AG	55.861	49.25822	08-May-24	22:06	0	2 to 3	70	2	1	Possible Boreal Owl	*Aegolius funereus*	Old growth black spruce, fir/birch dispersed throughout - negligible spruce/	Audio detected by observers NW 400m
Twin Lakes	TL-Pt.5	DP/NP/AG	55.861	49.25822	09-May-24	21:57	1	1	100	3	2	N/A	N/A	Old growth black spruce, fir/birch dispersed throughout - negligible spruce/	
Twin Lakes	TL-Pt.5	CM/NP	55.861	49.25822	13-May-24	22:44	0	5	0	0	1	Boreal Owl (2)	*Aegolius funereus*	Old growth black spruce, fir/birch dispersed throughout - negligible spruce/	Boreal to SW - Boreal W
Twin Lakes	TL-Pt.5	CM/NP	55.861	49.25822	13-May-24	22:44	0	5	0	0	1	Great Horned Owl	*Bubo virginianus*	Old growth black spruce, fir/birch dispersed throughout - negligible spruce/	Great Horned NE
Twin Lakes	TL-Pt.6	DP/NP/AG	55.87288	49.27288	08-May-24	22:28	0	2	60-70	1	1	N/A	N/A	Old growth spruce forest	
Twin Lakes	TL-Pt.6	DP/NP/AG	55.87288	49.27288	09-May-24	22:13	1	1	100	3	2	N/A	N/A	Old growth spruce forest	
Twin Lakes	TL-Pt.6	CM/NP	55.87288	49.27288	13-May-24	23:05	0	4	0	0	1	N/A	N/A	Old growth spruce forest	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
Twin Lakes	BB-43-24	3-Jul-24	0	13	10	1	0	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
Twin Lakes	BB-43-24	3-Jul-24	0	13	10	1	0	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-43-24	3-Jul-24	0	13	10	1	0	Wetland	AMRO	American Robin	*Turdus migratorius*	
Twin Lakes	BB-25-24	3-Jul-24	0	14	10	1	0	Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-25-24	3-Jul-24	0	14	10	1	0	Scrub	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
Twin Lakes	BB-25-24	3-Jul-24	0	14	10	1	0	Scrub	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
Twin Lakes	BB-25-24	3-Jul-24	0	14	10	1	0	Scrub	DEJU	Dark-eyed Junco	*Junco hyemalis*	
Twin Lakes	BB-25-24	3-Jul-24	0	14	10	1	0	Scrub	SWSP	Swamp Sparrow	*Melospiza georgiana*	
Twin Lakes	BB-25-24	3-Jul-24	0	14	10	1	0	Scrub	WCSP	White-crowned Sparrow	*Zonotrichia leucophrys*	
Twin Lakes	BB-25-24	3-Jul-24	0	14	10	1	0	Scrub	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Twin Lakes	BB-53-24	3-Jul-24	0	16	5	1	0	Wetland	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	
Twin Lakes	BB-53-24	3-Jul-24	0	16	5	1	0	Wetland	DEJU	Dark-eyed Junco	*Junco hyemalis*	
Twin Lakes	BB-53-24	3-Jul-24	0	16	5	1	0	Wetland	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
Twin Lakes	BB-53-24	3-Jul-24	0	16	5	1	0	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-53-24	3-Jul-24	0	16	5	1	0	Wetland	OCWA	Orange-crowned Warbler	*Leiothlypis celata*	
Twin Lakes	BB-53-24	3-Jul-24	0	16	5	1	0	Wetland	CHSP	Chipping Sparrow	*Spizella passerina*	
Twin Lakes	BB-53-24	3-Jul-24	0	16	5	1	0	Wetland	HETH	Hermit Thrush	*Catharus guttatus*	
Twin Lakes	BB-46-24	3-Jul-24	0	17	0	0	0	Softwood	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Twin Lakes	BB-46-24	3-Jul-24	0	17	0	0	0	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-46-24	3-Jul-24	0	17	0	0	0	Softwood	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
Twin Lakes	BB-52-24	3-Jul-24	0	17	0	0	0	Softwood	MAWA	Magnolia Warbler	*Setophaga magnolia*	
Twin Lakes	BB-52-24	3-Jul-24	0	17	0	0	0	Softwood	AMRO	American Robin	*Turdus migratorius*	
Twin Lakes	BB-52-24	3-Jul-24	0	17	0	0	0	Softwood	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Twin Lakes	BB-52-24	3-Jul-24	0	17	0	0	0	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-52-24	3-Jul-24	0	17	0	0	0	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-13-24	4-Jul-24	0	19	0	0	0	Softwood	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Twin Lakes	BB-13-24	4-Jul-24	0	19	0	0	0	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-13-24	4-Jul-24	0	19	0	0	0	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-13-24	4-Jul-24	0	19	0	0	0	Softwood	BAWW	Black-and-White Warbler	*Mniotilta varia*	
Twin Lakes	BB-13-24	4-Jul-24	0	19	0	0	0	Softwood	AMRO	American Robin	*Turdus migratorius*	
Twin Lakes	BB-13-24	4-Jul-24	0	19	0	0	0	Softwood	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
Twin Lakes	BB-24-24	4-Jul-24	0	13	100	0	1	Con Scrub	HETH	Hermit Thrush	*Catharus guttatus*	
Twin Lakes	BB-24-24	4-Jul-24	0	13	100	0	1	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-24-24	4-Jul-24	0	13	100	0	1	Con Scrub	AMRO	American Robin	*Turdus migratorius*	
Twin Lakes	BB-03-24	4-Jul-24	0	15	100	0	1		BAWW	Black-and-White Warbler	*Mniotilta varia*	
Twin Lakes	BB-03-24	4-Jul-24	0	15	100	0	1		RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Twin Lakes	BB-03-24	4-Jul-24	0	15	100	0	1		YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Twin Lakes	BB-03-24	4-Jul-24	0	15	100	0	1		WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-03-24	4-Jul-24	0	15	100	0	1		BTNW	Black-throated Green Warbler	*Setophaga virens*	
Twin Lakes	BB-51-24	4-Jul-24	0	15	80	0	1	Hardwood	AMRO	American Robin	*Turdus migratorius*	
Twin Lakes	BB-51-24	4-Jul-24	0	15	80	0	1	Hardwood	AMRE	American Redstart	*Setophaga ruticilla*	
Twin Lakes	BB-51-24	4-Jul-24	0	15	80	0	1	Hardwood	SWTH	Swainson's Thrush	*Catharus ustulatus*	
Twin Lakes	BB-51-24	4-Jul-24	0	15	80	0	1	Hardwood	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Twin Lakes	BB-51-24	4-Jul-24	0	15	80	0	1	Hardwood	BAWW	Black-and-White Warbler	*Mniotilta varia*	
Twin Lakes	BB-51-24	4-Jul-24	0	15	80	0	1	Hardwood	REVI	Red-eyed Vireo	*Vireo olivaceus*	
Twin Lakes	BB-51-24	4-Jul-24	0	15	80	0	1	Hardwood	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Twin Lakes	BB-51-24	4-Jul-24	0	15	80	0	1	Hardwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-02-24	4-Jul-24	0	17	70	0	1	Hardwood	BAWW	Black-and-White Warbler	*Mniotilta varia*	

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Twin Lakes	BB-02-24	4-Jul-24	0	17	70	0	1	Hardwood	SWTH	Swainson's Thrush	*Catharus ustulatus*	
Twin Lakes	BB-02-24	4-Jul-24	0	17	70	0	1	Hardwood	BTNW	Black-throated Green Warbler	*Setophaga virens*	
Twin Lakes	BB-04-24	5-Jul-24	0	9	15	1	0	Softwood forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-04-24	5-Jul-24	0	9	15	1	0	Softwood forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
Twin Lakes	BB-04-24	5-Jul-24	0	9	15	1	0	Softwood forest	AMRO	American Robin	*Turdus migratorius*	
Twin Lakes	BB-04-24	5-Jul-24	0	9	15	1	0	Softwood forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Twin Lakes	BB-04-24	5-Jul-24	0	9	15	1	0	Softwood forest	NOFL	Northern Flicker	*Colaptes auratus*	
Twin Lakes	BB-04-24	5-Jul-24	0	9	15	1	0	Softwood forest	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Twin Lakes	BB-04-24	5-Jul-24	0	9	15	1	0	Softwood forest	FOSP	Fox Sparrow	*Passerella iliaca*	
Twin Lakes	BB-01-24	5-Jul-24	0	9	15	0	0	Hardwood	SWTH	Swainson's Thrush	*Catharus ustulatus*	
Twin Lakes	BB-01-24	5-Jul-24	0	9	15	0	0	Hardwood	BAWW	Black-and-White Warbler	*Mniotilta varia*	
Twin Lakes	BB-01-24	5-Jul-24	0	9	15	0	0	Hardwood	BTNW	Black-throated Green Warbler	*Setophaga virens*	
Twin Lakes	BB-01-24	5-Jul-24	0	9	15	0	0	Hardwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-01-24	5-Jul-24	0	9	15	0	0	Hardwood	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
Twin Lakes	BB-01-24	5-Jul-24	0	9	15	0	0	Hardwood	BOCH	Boreal Chickadee	*Poecile hudsonicus*	
Twin Lakes	BB-41A-24	5-Jul-24	0	11	15	1	0	Wetland	DEJU	Dark-eyed Junco	*Junco hyemalis*	
Twin Lakes	BB-41A-24	5-Jul-24	0	11	15	1	0	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
Twin Lakes	BB-41A-24	5-Jul-24	0	11	15	1	0	Wetland	OCWA	Orange-crowned Warbler	*Leiothlypis celata*	
Twin Lakes	BB-41A-24	5-Jul-24	0	11	15	1	0	Wetland	BBWO	Black-backed Woodpecker	*Picoides arcticus*	
Twin Lakes	BB-41A-24	5-Jul-24	0	11	15	1	0	Wetland	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
Twin Lakes	BB-41A-24	5-Jul-24	0	11	15	1	0	Wetland	CAJA	Canada Jay	*Perisoreus canadensis*	
Twin Lakes	BB-41A-24	5-Jul-24	0	11	15	1	0	Wetland	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Twin Lakes	BB-41A-24	5-Jul-24	0	11	15	1	0	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-41A-24	5-Jul-24	0	11	15	1	0	Wetland	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Twin Lakes	BB-47-24	5-Jul-24	0	11	15	1	0	Alders	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
Twin Lakes	BB-47-24	5-Jul-24	0	11	15	1	0	Alders	CEDW	Cedar Waxwing	*Bombycilla cedrorum*	
Twin Lakes	BB-47-24	5-Jul-24	0	11	15	1	0	Alders	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Twin Lakes	BB-47-24	5-Jul-24	0	11	15	1	0	Alders	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Twin Lakes	BB-47-24	5-Jul-24	0	11	15	1	0	Alders	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
Twin Lakes	BB-54-24	5-Jul-24	0	15	10	2	0	Cutover	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-54-24	5-Jul-24	0	15	10	2	0	Cutover	DEJU	Dark-eyed Junco	*Junco hyemalis*	
Twin Lakes	BB-54-24	5-Jul-24	0	15	10	2	0	Cutover	AMRO	American Robin	*Turdus migratorius*	
Twin Lakes	BB-54-24	5-Jul-24	0	15	10	2	0	Cutover	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
Twin Lakes	BB-54-24	5-Jul-24	0	15	10	2	0	Cutover	WISN	Wilson's Snipe	*Gallinago delicata*	
Twin Lakes	BB-45-24	6-Jul-24	0	11	20	0	0	Mixed Forest	TEWA	Tennessee Warbler	*Leiothlypis peregrina*	
Twin Lakes	BB-45-24	6-Jul-24	0	11	20	0	0	Mixed Forest	DOWO	Downy Woodpecker	*Dryobates pubescens*	
Twin Lakes	BB-45-24	6-Jul-24	0	11	20	0	0	Mixed Forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-45-24	6-Jul-24	0	11	20	0	0	Mixed Forest	SWTH	Swainson's Thrush	*Catharus ustulatus*	
Twin Lakes	BB-45-24	6-Jul-24	0	11	20	0	0	Mixed Forest	NAWA	Nashville Warbler	*Leiothlypis ruficapilla*	
Twin Lakes	BB-44-24	6-Jul-24	0	11	10	0	0	Dec Scrub	TEWA	Tennessee Warbler	*Leiothlypis peregrina*	
Twin Lakes	BB-44-24	6-Jul-24	0	11	10	0	0	Dec Scrub	TEWA	Tennessee Warbler	*Leiothlypis peregrina*	
Twin Lakes	BB-44-24	6-Jul-24	0	11	10	0	0	Dec Scrub	SWTH	Swainson's Thrush	*Catharus ustulatus*	
Twin Lakes	BB-44-24	6-Jul-24	0	11	10	0	0	Dec Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-44-24	6-Jul-24	0	11	10	0	0	Dec Scrub	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
Twin Lakes	BB-14-24	6-Jul-24	0	13	5	0	1	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-14-24	6-Jul-24	0	13	5	0	1	Softwood	PISI	Pine Siskin	*Spinus pinus*	
Twin Lakes	BB-14-24	6-Jul-24	0	13	5	0	1	Softwood	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Twin Lakes	BB-14-24	6-Jul-24	0	13	5	0	1	Softwood	BCCH	Black-capped Chickadee	*Poecile atricapillus*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
Twin Lakes	BB-14-24	6-Jul-24	0	13	5	0	1	Softwood	RUGR	Ruffed Grouse	*Bonasa umbellus*	
Twin Lakes	BB-14-24	6-Jul-24	0	13	5	0	1	Softwood	DOWO	Downy Woodpecker	*Dryobates pubescens*	
Twin Lakes	BB-21-24	6-Jul-24	0	15	40	2	0		PISI	Pine Siskin	*Spinus pinus*	
Twin Lakes	BB-21-24	6-Jul-24	0	15	40	2	0		YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Twin Lakes	BB-21-24	6-Jul-24	0	15	40	2	0		LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
Twin Lakes	BB-21-24	6-Jul-24	0	15	40	2	0		HETH	Hermit Thrush	*Catharus guttatus*	
Twin Lakes	BB-21-24	6-Jul-24	0	15	40	2	0		SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
Twin Lakes	BB-21-24	6-Jul-24	0	15	40	2	0		WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-22A-24	6-Jul-24	0	18	30	1	1		WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-22A-24	6-Jul-24	0	18	30	1	1		LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
Twin Lakes	BB-22A-24	6-Jul-24	0	18	30	1	1		LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
Twin Lakes	BB-22A-24	6-Jul-24	0	18	30	1	1		DEJU	Dark-eyed Junco	*Junco hyemalis*	
Twin Lakes	BB-22A-24	6-Jul-24	0	18	30	1	1		RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Twin Lakes	BB-22A-24	6-Jul-24	0	18	30	1	1		HAWO	Hairy Woodpecker	*Dryobates villosus*	
Twin Lakes	BB-18-24	9-Jul-24	0	16	20	0	1	Dec Scrub/Mixedwood	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
Twin Lakes	BB-18-24	9-Jul-24	0	16	20	0	1	Dec Scrub/Mixedwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-18-24	9-Jul-24	0	16	20	0	1	Dec Scrub/Mixedwood	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Twin Lakes	BB-18-24	9-Jul-24	0	16	20	0	1	Dec Scrub/Mixedwood	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
Twin Lakes	BB-29A-24	11-Jul-24	0	9	100	0	0	Con Scrub	SWTH	Swainson's Thrush	*Catharus ustulatus*	
Twin Lakes	BB-29A-24	11-Jul-24	0	9	100	0	0	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-29A-24	11-Jul-24	0	9	100	0	0	Con Scrub	HETH	Hermit Thrush	*Catharus guttatus*	
Twin Lakes	BB-29A-24	11-Jul-24	0	9	100	0	0	Con Scrub	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
Twin Lakes	BB-29A-24	11-Jul-24	0	9	100	0	0	Con Scrub	BTNW	Black-throated Green Warbler	*Setophaga virens*	
Twin Lakes	BB-29A-24	11-Jul-24	0	9	100	0	0	Con Scrub	FOSP	Fox Sparrow	*Passerella iliaca*	
Twin Lakes	BB-29A-24	11-Jul-24	0	9	100	0	0	Con Scrub	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Twin Lakes	BB-40-24	11-Jul-24	0	10	100	0	1	Softwood	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Twin Lakes	BB-40-24	11-Jul-24	0	10	100	0	1	Softwood	AMRO	American Robin	*Turdus migratorius*	
Twin Lakes	BB-40-24	11-Jul-24	0	10	100	0	1	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-40-24	11-Jul-24	0	10	100	0	1	Softwood	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
Twin Lakes	BB-40-24	11-Jul-24	0	10	100	0	1	Softwood	BTNW	Black-throated Green Warbler	*Setophaga virens*	
Twin Lakes	BB-40-24	11-Jul-24	0	10	100	0	1	Softwood	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
Twin Lakes	BB-49-24	11-Jul-24	0	10	100	0	1	Mixed Forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-49-24	11-Jul-24	0	10	100	0	1	Mixed Forest	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Twin Lakes	BB-49-24	11-Jul-24	0	10	100	0	1	Mixed Forest	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
Twin Lakes	BB-15-24	11-Jul-24	0	11	100	0	1	Softwood	AMRO	American Robin	*Turdus migratorius*	
Twin Lakes	BB-15-24	11-Jul-24	0	11	100	0	1	Softwood	BTNW	Black-throated Green Warbler	*Setophaga virens*	
Twin Lakes	BB-15-24	11-Jul-24	0	11	100	0	1	Softwood	HETH	Hermit Thrush	*Catharus guttatus*	
Twin Lakes	BB-15-24	11-Jul-24	0	11	100	0	1	Softwood	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
Twin Lakes	BB-26-24	12-Jul-24	0	11		0	0	Hardwood	PIGR	Pine Grosbeak	*Pinicola enucleator*	Near a rockface
Twin Lakes	BB-26-24	12-Jul-24	0	11		0	0	Hardwood	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	Near a rockface
Twin Lakes	BB-26-24	12-Jul-24	0	11		0	0	Hardwood	MAWA	Magnolia Warbler	*Setophaga magnolia*	Near a rockface
Twin Lakes	BB-26-24	12-Jul-24	0	11		0	0	Hardwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	Near a rockface
Twin Lakes	BB-26-24	12-Jul-24	0	11		0	0	Hardwood	BCCH	Black-capped Chickadee	*Poecile atricapillus*	Near a rockface
Twin Lakes	BB-26-24	12-Jul-24	0	11		0	0	Hardwood	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	Near a rockface
Twin Lakes	BB-26-24	12-Jul-24	0	11		0	0	Hardwood	FOSP	Fox Sparrow	*Passerella iliaca*	Near a rockface
Twin Lakes	BB-26-24	12-Jul-24	0	11		0	0	Hardwood	AMRO	American Robin	*Turdus migratorius*	Near a rockface
Twin Lakes	BB-26-24	12-Jul-24	0	11		0	0	Hardwood	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	Near a rockface
Twin Lakes	BB-26-24	12-Jul-24	0	11		0	0	Hardwood	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	Near a rockface

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
Twin Lakes	BB-26-24	12-Jul-24	0	11		0	0	Hardwood	BAWW	Black-and-White Warbler	*Mniotilta varia*	Near a rockface
Twin Lakes	BB-26-24	12-Jul-24	0	11		0	0	Hardwood	DOWO	Downy Woodpecker	*Dryobates pubescens*	Near a rockface
Twin Lakes	BB-50-24	12-Jul-24	0	13		1	0	Con Scrub	HETH	Hermit Thrush	*Catharus guttatus*	
Twin Lakes	BB-50-24	12-Jul-24	0	13		1	0	Con Scrub	OSFL	Olive-sided Flycatcher	*Contopus cooperi*	
Twin Lakes	BB-50-24	12-Jul-24	0	13		1	0	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-50-24	12-Jul-24	0	13		1	0	Con Scrub	BAWW	Black-and-White Warbler	*Mniotilta varia*	
Twin Lakes	BB-50-24	12-Jul-24	0	13		1	0	Con Scrub	MAWA	Magnolia Warbler	*Setophaga magnolia*	
Twin Lakes	BB-50-24	12-Jul-24	0	13		1	0	Con Scrub	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
Twin Lakes	BB-19-24	12-Jul-24	0	13	60	1	0	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
Twin Lakes	BB-19-24	12-Jul-24	0	13	60	1	0	Wetland	OSFL	Olive-sided Flycatcher	*Contopus cooperi*	
Twin Lakes	BB-19-24	12-Jul-24	0	13	60	1	0	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-19-24	12-Jul-24	0	13	60	1	0	Wetland	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Twin Lakes	BB-19-24	12-Jul-24	0	13	60	1	0	Wetland	HETH	Hermit Thrush	*Catharus guttatus*	
Twin Lakes	BB-19-24	12-Jul-24	0	13	60	1	0	Wetland	FOSP	Fox Sparrow	*Passerella iliaca*	
Twin Lakes	BB-19-24	12-Jul-24	0	13	60	1	0	Wetland	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Twin Lakes	BB-27-24	12-Jul-24	0	15	40	1	0	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-27-24	12-Jul-24	0	15	40	1	0	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-27-24	12-Jul-24	0	15	40	1	0	Con Scrub	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
Twin Lakes	BB-27-24	12-Jul-24	0	15	40	1	0	Con Scrub	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Twin Lakes	BB-28-24	12-Jul-24	0	16	35	1	0	Mixed Forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
Twin Lakes	BB-28-24	12-Jul-24	0	16	35	1	0	Mixed Forest	AMRO	American Robin	*Turdus migratorius*	
Twin Lakes	BB-28-24	12-Jul-24	0	16	35	1	0	Mixed Forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Twin Lakes	BB-28-24	12-Jul-24	0	16	35	1	0	Mixed Forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
Twin Lakes	BB-28-24	12-Jul-24	0	16	35	1	0	Mixed Forest	COYE	Common Yellowthroat	*Geothlypis trichas*	
Twin Lakes	BB-28-24	12-Jul-24	0	16	35	1	0	Mixed Forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-28-24	12-Jul-24	0	16	35	1	0	Mixed Forest	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
Twin Lakes	BB-28-24	12-Jul-24	0	16	35	1	0	Mixed Forest	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
Twin Lakes	BB-08-24	13-Jul-24	0	11	10	3	1	Barren	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-08-24	13-Jul-24	0	11	10	3	1	Barren	SWTH	Swainson's Thrush	*Catharus ustulatus*	
Twin Lakes	BB-08-24	13-Jul-24	0	11	10	3	1	Barren	HETH	Hermit Thrush	*Catharus guttatus*	
Twin Lakes	BB-08-24	13-Jul-24	0	11	10	3	1	Barren	YWAR	Yellow Warbler	*Setophaga petechia*	
Twin Lakes	BB-08-24	13-Jul-24	0	11	10	3	1	Barren	AMRO	American Robin	*Turdus migratorius*	
Twin Lakes	BB-08-24	13-Jul-24	0	11	10	3	1	Barren	NOFL	Northern Flicker	*Colaptes auratus*	
Twin Lakes	BB-48-24	6-Jul-24	0	17	60	1	0	Softwood	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
Twin Lakes	BB-48-24	6-Jul-24	0	17	60	1	0	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-48-24	6-Jul-24	0	17	60	1	0	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-48-24	6-Jul-24	0	17	60	1	0	Softwood	MAWA	Magnolia Warbler	*Setophaga magnolia*	
Twin Lakes	BB-48-24	6-Jul-24	0	17	60	1	0	Softwood	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Twin Lakes	BB-48-24	6-Jul-24	0	17	60	1	0	Softwood	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Twin Lakes	BB-48-24	6-Jul-24	0	17	60	1	0	Softwood	SWTH	Swainson's Thrush	*Catharus ustulatus*	
Twin Lakes	BB-48-24	6-Jul-24	0	17	60	1	0	Softwood	CAJA	Canada Jay	*Perisoreus canadensis*	
Twin Lakes	BB-48-24	6-Jul-24	0	17	60	1	0	Softwood	DEJU	Dark-eyed Junco	*Junco hyemalis*	
Twin Lakes	BB-09-24	6-Jul-24	0	19	50	1	0	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-09-24	6-Jul-24	0	19	50	1	0	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-09-24	6-Jul-24	0	19	50	1	0	Con Scrub	HETH	Hermit Thrush	*Catharus guttatus*	
Twin Lakes	BB-09-24	6-Jul-24	0	19	50	1	0	Con Scrub	HETH	Hermit Thrush	*Catharus guttatus*	
Twin Lakes	BB-09-24	6-Jul-24	0	19	50	1	0	Con Scrub	BOCH	Boreal Chickadee	*Poecile hudsonicus*	
Twin Lakes	BB-09-24	6-Jul-24	0	19	50	1	0	Con Scrub	WIWA	Wilson's Warbler	*Cardellina pusilla*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
Twin Lakes	BB-09-24	6-Jul-24	0	19	50	1	0	Con Scrub	WWCR	White-winged Crossbill	*Loxia leucoptera*	
Twin Lakes	BB-09-24	6-Jul-24	0	19	50	1	0	Con Scrub	WWCR	White-winged Crossbill	*Loxia leucoptera*	
Twin Lakes	BB-09-24	6-Jul-24	0	19	50	1	0	Con Scrub	AMRO	American Robin	*Turdus migratorius*	
Twin Lakes	BB-09-24	6-Jul-24	0	19	50	1	0	Con Scrub	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Twin Lakes	BB-09-24	6-Jul-24	0	19	50	1	0	Con Scrub	DEJU	Dark-eyed Junco	*Junco hyemalis*	
Twin Lakes	BB-09-24	6-Jul-24	0	19	50	1	0	Con Scrub	FOSP	Fox Sparrow	*Passerella iliaca*	
Twin Lakes	BB-32-24	6-Jul-24	0	20	60	0	0	Softwood	CAJA	Canada Jay	*Perisoreus canadensis*	
Twin Lakes	BB-32-24	6-Jul-24	0	20	60	0	0	Softwood	CAJA	Canada Jay	*Perisoreus canadensis*	
Twin Lakes	BB-32-24	6-Jul-24	0	20	60	0	0	Softwood	BLPW	Blackpoll Warbler	*Setophaga striata*	
Twin Lakes	BB-32-24	6-Jul-24	0	20	60	0	0	Softwood	BLPW	Blackpoll Warbler	*Setophaga striata*	
Twin Lakes	BB-32-24	6-Jul-24	0	20	60	0	0	Softwood	MAWA	Magnolia Warbler	*Setophaga magnolia*	
Twin Lakes	BB-32-24	6-Jul-24	0	20	60	0	0	Softwood	MAWA	Magnolia Warbler	*Setophaga magnolia*	
Twin Lakes	BB-32-24	6-Jul-24	0	20	60	0	0	Softwood	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Twin Lakes	BB-32-24	6-Jul-24	0	20	60	0	0	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-32-24	6-Jul-24	0	20	60	0	0	Softwood	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Twin Lakes	BB-32-24	6-Jul-24	0	20	60	0	0	Softwood	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Twin Lakes	BB-32-24	6-Jul-24	0	20	60	0	0	Softwood	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Twin Lakes	BB-32-24	6-Jul-24	0	20	60	0	0	Softwood	COLO	Common Loon	*Gavia immer*	
Twin Lakes	BB-32-24	6-Jul-24	0	20	60	0	0	Softwood	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	
Twin Lakes	BB-32-24	6-Jul-24	0	20	60	0	0	Softwood	DEJU	Dark-eyed Junco	*Junco hyemalis*	
Twin Lakes	BB-58-24	7-Jul-24	0	17	100	0	0	Con Scrub	HETH	Hermit Thrush	*Catharus guttatus*	
Twin Lakes	BB-58-24	7-Jul-24	0	17	100	0	0	Con Scrub	OCWA	Orange-crowned Warbler	*Leiothlypis celata*	
Twin Lakes	BB-58-24	7-Jul-24	0	17	100	0	0	Con Scrub	DEJU	Dark-eyed Junco	*Junco hyemalis*	
Twin Lakes	BB-58-24	7-Jul-24	0	17	100	0	0	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-58-24	7-Jul-24	0	17	100	0	0	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB-58-24	7-Jul-24	0	17	100	0	0	Con Scrub	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
Twin Lakes	BB-58-24	7-Jul-24	0	17	100	0	0	Con Scrub	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
Twin Lakes	BB-58-24	7-Jul-24	0	17	100	0	0	Con Scrub	AMRO	American Robin	*Turdus migratorius*	
Twin Lakes	BB-58-24	7-Jul-24	0	17	100	0	0	Con Scrub	PAWA	Palm Warbler	*Setophaga palmarum*	
Twin Lakes	BB-58-24	7-Jul-24	0	17	100	0	0	Con Scrub	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
Twin Lakes	BB-58-24	7-Jul-24	0	17	100	0	0	Con Scrub	BAWW	Black-and-White Warbler	*Mniotilta varia*	
Twin Lakes	BB01-24	15-Jun-24	0	16	20	0	0	Hardwood	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
Twin Lakes	BB01-24	15-Jun-24	0	16	20	0	0	Hardwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB01-24	15-Jun-24	0	16	20	0	0	Hardwood	FOSP	Fox Sparrow	*Passerella iliaca*	
Twin Lakes	BB01-24	15-Jun-24	0	16	20	0	0	Hardwood	SWTH	Swainson's Thrush	*Catharus ustulatus*	
Twin Lakes	BB01-24	15-Jun-24	0	16	20	0	0	Hardwood	HETH	Hermit Thrush	*Catharus guttatus*	
Twin Lakes	BB01-24	15-Jun-24	0	16	20	0	0	Hardwood	BTNW	Black-throated Green Warbler	*Setophaga virens*	
Twin Lakes	BB01-24	15-Jun-24	0	16	20	0	0	Hardwood	TRES	Tree Swallow	*Tachycineta bicolor*	Flying overhead
Twin Lakes	BB02-24	15-Jun-24	0	17		0	0	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB02-24	15-Jun-24	0	17		0	0	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB02-24	15-Jun-24	0	17		0	0	Wetland	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
Twin Lakes	BB02-24	15-Jun-24	0	17		0	0	Wetland	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
Twin Lakes	BB02-24	15-Jun-24	0	17		0	0	Wetland	BTNW	Black-throated Green Warbler	*Setophaga virens*	
Twin Lakes	BB02-24	15-Jun-24	0	17		0	0	Wetland	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
Twin Lakes	BB02-24	15-Jun-24	0	17		0	0	Wetland	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Twin Lakes	BB02-24	15-Jun-24	0	17		0	0	Wetland	BAWW	Black-and-White Warbler	*Mniotilta varia*	
Twin Lakes	BB03-24	15-Jun-24	0	19		1	0	Wetland	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Twin Lakes	BB03-24	15-Jun-24	0	19		1	0	Wetland	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
Twin Lakes	BB03-24	15-Jun-24	0	19		1	0	Wetland	MAWA	Magnolia Warbler	*Setophaga magnolia*	
Twin Lakes	BB03-24	15-Jun-24	0	19		1	0	Wetland	FOSP	Fox Sparrow	*Passerella iliaca*	
Twin Lakes	BB25-24	15-Jun-24	0	19		2	1	Wetland	BAWW	Black-and-White Warbler	*Mniotilta varia*	
Twin Lakes	BB25-24	15-Jun-24	0	19		2	1	Wetland	BAWW	Black-and-White Warbler	*Mniotilta varia*	
Twin Lakes	BB25-24	15-Jun-24	0	19		2	1	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB25-24	15-Jun-24	0	19		2	1	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB25-24	15-Jun-24	0	19		2	1	Wetland	PAWA	Palm Warbler	*Setophaga palmarum*	
Twin Lakes	BB25-24	15-Jun-24	0	19		2	1	Wetland	HETH	Hermit Thrush	*Catharus guttatus*	
Twin Lakes	BB25-24	15-Jun-24	0	19		2	1	Wetland	COYE	Common Yellowthroat	*Geothlypis trichas*	
Twin Lakes	BB25-24	15-Jun-24	0	19		2	1	Wetland	MAWA	Magnolia Warbler	*Setophaga magnolia*	
Twin Lakes	BB25-24	15-Jun-24	0	19		2	1	Wetland	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Twin Lakes	BB43-24	15-Jun-24	0	19		2	1	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB43-24	15-Jun-24	0	19		2	1	Wetland	COYE	Common Yellowthroat	*Geothlypis trichas*	
Twin Lakes	BB43-24	15-Jun-24	0	19		2	1	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
Twin Lakes	BB43-24	15-Jun-24	0	19		2	1	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
Twin Lakes	BB24-24	15-Jun-24	0	21		1	1	Wetland	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Twin Lakes	BB24-24	15-Jun-24	0	21		1	1	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB24-24	15-Jun-24	0	21		1	1	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB24-24	15-Jun-24	0	21		1	1	Wetland	BAWW	Black-and-White Warbler	*Mniotilta varia*	
Twin Lakes	BB24-24	15-Jun-24	0	21		1	1	Wetland	DEJU	Dark-eyed Junco	*Junco hyemalis*	
Twin Lakes	BB24-24	15-Jun-24	0	21		1	1	Wetland	COYE	Common Yellowthroat	*Geothlypis trichas*	
Twin Lakes	BB46A-24	16-Jun-24	1	10	100	0	1	Softwood	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Twin Lakes	BB46A-24	16-Jun-24	1	10	100	0	1	Softwood	MAWA	Magnolia Warbler	*Setophaga magnolia*	
Twin Lakes	BB46A-24	16-Jun-24	1	10	100	0	1	Softwood	BAWW	Black-and-White Warbler	*Mniotilta varia*	
Twin Lakes	BB46A-24	16-Jun-24	1	10	100	0	1	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB46A-24	16-Jun-24	1	10	100	0	1	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB46A-24	16-Jun-24	1	10	100	0	1	Softwood	HETH	Hermit Thrush	*Catharus guttatus*	
Twin Lakes	BB13A-24	16-Jun-24	1	10	100	1	1	Con Scrub	DEJU	Dark-eyed Junco	*Junco hyemalis*	
Twin Lakes	BB13A-24	16-Jun-24	1	10	100	1	1	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB13A-24	16-Jun-24	1	10	100	1	1	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB13A-24	16-Jun-24	1	10	100	1	1	Con Scrub	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Twin Lakes	BB91A-24	17-Jun-24	0	9		0	0	Wetland	CAJA	Canada Jay	*Perisoreus canadensis*	
Twin Lakes	BB91A-24	17-Jun-24	0	9		0	0	Wetland	OSFL	Olive-sided Flycatcher	*Contopus cooperi*	
Twin Lakes	BB91A-24	17-Jun-24	0	9		0	0	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB91A-24	17-Jun-24	0	9		0	0	Wetland	AMRO	American Robin	*Turdus migratorius*	
Twin Lakes	BB91A-24	17-Jun-24	0	9		0	0	Wetland	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Twin Lakes	BB91A-24	17-Jun-24	0	9		0	0	Wetland	DEJU	Dark-eyed Junco	*Junco hyemalis*	
Twin Lakes	BB91A-24	17-Jun-24	0	9		0	0	Wetland	CHSP	Chipping Sparrow	*Spizella passerina*	
Twin Lakes	BB47-24	17-Jun-24	0	9	0	0	0	Mix Scrub	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Twin Lakes	BB47-24	17-Jun-24	0	9	0	0	0	Mix Scrub	DEJU	Dark-eyed Junco	*Junco hyemalis*	
Twin Lakes	BB47-24	17-Jun-24	0	9	0	0	0	Mix Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB47-24	17-Jun-24	0	9	0	0	0	Mix Scrub	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
Twin Lakes	BB47-24	17-Jun-24	0	9	0	0	0	Mix Scrub	CHSP	Chipping Sparrow	*Spizella passerina*	
Twin Lakes	BB47-24	17-Jun-24	0	9	0	0	0	Mix Scrub	BOCH	Boreal Chickadee	*Poecile hudsonicus*	
Twin Lakes	BB47-24	17-Jun-24	0	9	0	0	0	Mix Scrub	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Twin Lakes	BB47-24	17-Jun-24	0	9	0	0	0	Mix Scrub	AMRO	American Robin	*Turdus migratorius*	
Twin Lakes	BB45-24	17-Jun-24	0	11	0	0	1	Mixed	BTNW	Black-throated Green Warbler	*Setophaga virens*	
Twin Lakes	BB45-24	17-Jun-24	0	11	0	0	1	Mixed	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
Twin Lakes	BB45-24	17-Jun-24	0	11	0	0	1	Mixed	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Twin Lakes	BB45-24	17-Jun-24	0	11	0	0	1	Mixed	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB44-24	17-Jun-24	0	11	0	0	0	Mix Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB44-24	17-Jun-24	0	11	0	0	0	Mix Scrub	BAWW	Black-and-White Warbler	*Mniotilta varia*	
Twin Lakes	BB44-24	17-Jun-24	0	11	0	0	0	Mix Scrub	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
Twin Lakes	BB44-24	17-Jun-24	0	11	0	0	0	Mix Scrub	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
Twin Lakes	BB44-24	17-Jun-24	0	11	0	0	0	Mix Scrub	HETH	Hermit Thrush	*Catharus guttatus*	
Twin Lakes	BB44-24	17-Jun-24	0	11	0	0	0	Mix Scrub	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Twin Lakes	BB44-24	17-Jun-24	0	11	0	0	0	Mix Scrub	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
Twin Lakes	BB44-24	17-Jun-24	0	11	0	0	0	Mix Scrub	OSFL	Olive-sided Flycatcher	*Contopus cooperi*	
Twin Lakes	BB44-24	17-Jun-24	0	11	0	0	0	Mix Scrub	WWCR	White-winged Crossbill	*Loxia leucoptera*	
Twin Lakes	BB14-24	17-Jun-24	0	17	0	0	0	Softwood	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Twin Lakes	BB14-24	17-Jun-24	0	17	0	0	0	Softwood	BTNW	Black-throated Green Warbler	*Setophaga virens*	
Twin Lakes	BB14-24	17-Jun-24	0	17	0	0	0	Softwood	BRCR	Brown Creeper	*Certhia americana*	
Twin Lakes	BB14-24	17-Jun-24	0	17	0	0	0	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB14-24	17-Jun-24	0	17	0	0	0	Softwood	BBWO	Black-backed Woodpecker	*Picoides arcticus*	
Twin Lakes	BB21-24	17-Jun-24	0	15	0	1	1	Wetland	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
Twin Lakes	BB21-24	17-Jun-24	0	15	0	1	1	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB21-24	17-Jun-24	0	15	0	1	1	Wetland	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Twin Lakes	BB22A-24	17-Jun-24	0	18	0	1	1	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB22A-24	17-Jun-24	0	18	0	1	1	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB22A-24	17-Jun-24	0	18	0	1	1	Wetland	PUFI	Purple Finch	*Haemorhous purpureus*	
Twin Lakes	BB22A-24	17-Jun-24	0	18	0	1	1	Wetland	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Twin Lakes	BB22A-24	17-Jun-24	0	18	0	1	1	Wetland	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
Twin Lakes	BB22A-24	17-Jun-24	0	18	0	1	1	Wetland	HETH	Hermit Thrush	*Catharus guttatus*	
Twin Lakes	BB22A-24	17-Jun-24	0	18	0	1	1	Wetland	BAWW	Black-and-White Warbler	*Mniotilta varia*	
Twin Lakes	BB22A-24	17-Jun-24	0	18	0	1	1	Wetland	PAWA	Palm Warbler	*Setophaga palmarum*	
Twin Lakes	BB39A-24		0	13	80	1	1	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB39A-24		0	13	80	1	1	Softwood	AMRO	American Robin	*Turdus migratorius*	
Twin Lakes	BB39A-24		0	13	80	1	1	Softwood	AMRE	American Redstart	*Setophaga ruticilla*	
Twin Lakes	BB18-24	19-Jun-24	0	13	10	0	1	Mixed	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB18-24	19-Jun-24	0	13	10	0	1	Mixed	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB18-24	19-Jun-24	0	13	10	0	1	Mixed	TEWA	Tennessee Warbler	*Leiothlypis peregrina*	
Twin Lakes	BB18-24	19-Jun-24	0	13	10	0	1	Mixed	FOSP	Fox Sparrow	*Passerella iliaca*	
Twin Lakes	BB18-24	19-Jun-24	0	13	10	0	1	Mixed	BTNW	Black-throated Green Warbler	*Setophaga virens*	
Twin Lakes	BB18-24	19-Jun-24	0	13	10	0	1	Mixed	BAWW	Black-and-White Warbler	*Mniotilta varia*	
Twin Lakes	BB18-24	19-Jun-24	0	13	10	0	1	Mixed	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
Twin Lakes	BB18-24	19-Jun-24	0	13	10	0	1	Mixed	AMRO	American Robin	*Turdus migratorius*	
Twin Lakes	BB40-24	19-Jun-24	0	15	10		1	Softwood	AMRE	American Redstart	*Setophaga ruticilla*	
Twin Lakes	BB40-24	19-Jun-24	0	15	10		1	Softwood	CAJA	Canada Jay	*Perisoreus canadensis*	
Twin Lakes	BB40-24	19-Jun-24	0	15	10		1	Softwood	MAWA	Magnolia Warbler	*Setophaga magnolia*	
Twin Lakes	BB40-24	19-Jun-24	0	15	10		1	Softwood	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Twin Lakes	BB40-24	19-Jun-24	0	15	10		1	Softwood	HETH	Hermit Thrush	*Catharus guttatus*	
Twin Lakes	BB40-24	19-Jun-24	0	15	10		1	Softwood	BTNW	Black-throated Green Warbler	*Setophaga virens*	
Twin Lakes	BB40-24	19-Jun-24	0	15	10		1	Softwood	WIWA	Wilson's Warbler	*Cardellina pusilla*	
Twin Lakes	BB40-24	19-Jun-24	0	15	10		1	Softwood	REVI	Red-eyed Vireo	*Vireo olivaceus*	
Twin Lakes	BB40-24	19-Jun-24	0	15	10		1	Softwood	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
Twin Lakes	BB40-24	19-Jun-24	0	15	10		1	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
Twin Lakes	BB15-24	19-Jun-24	0	15	10	0	2	Softwood	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Twin Lakes	BB15-24	19-Jun-24	0	15	10	0	2	Softwood	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
Twin Lakes	BB15-24	19-Jun-24	0	15	10	0	2	Softwood	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
Twin Lakes	BB15-24	19-Jun-24	0	15	10	0	2	Softwood	BTNW	Black-throated Green Warbler	*Setophaga virens*	
Twin Lakes	BB15-24	19-Jun-24	0	15	10	0	2	Softwood	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Twin Lakes	BB15-24	19-Jun-24	0	15	10	0	2	Softwood	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
Twin Lakes	BB15-24	19-Jun-24	0	15	10	0	2	Softwood	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
Twin Lakes	BB49-24	19-Jun-24	0	17	10		2	Mixed	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
Twin Lakes	BB49-24	19-Jun-24	0	17	10		2	Mixed	BTNW	Black-throated Green Warbler	*Setophaga virens*	
Twin Lakes	BB49-24	19-Jun-24	0	17	10		2	Mixed	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Twin Lakes	BB49-24	19-Jun-24	0	17	10		2	Mixed	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
Twin Lakes	BB26-24	20-Jun-24	0	21	10	1	1	Hardwood	BAWW	Black-and-White Warbler	*Mniotilta varia*	
Twin Lakes	BB26-24	20-Jun-24	0	21	10	1	1	Hardwood	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
Twin Lakes	BB26-24	20-Jun-24	0	21	10	1	1	Hardwood	OSFL	Olive-sided Flycatcher	*Contopus cooperi*	
Twin Lakes	BB26-24	20-Jun-24	0	21	10	1	1	Hardwood	MAWA	Magnolia Warbler	*Setophaga magnolia*	
Twin Lakes	BB26-24	20-Jun-24	0	21	10	1	1	Hardwood	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
Twin Lakes	BB26-24	20-Jun-24	0	21	10	1	1	Hardwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB26-24	20-Jun-24	0	21	10	1	1	Hardwood	MOWA	Mourning Warbler	*Geothlypis philadelphia*	
Twin Lakes	BB26-24	20-Jun-24	0	21	10	1	1	Hardwood	FOSP	Fox Sparrow	*Passerella iliaca*	
Twin Lakes	BB50-24	20-Jun-24	0	21	5	1	1	Con Scrub	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
Twin Lakes	BB50-24	20-Jun-24	0	21	5	1	1	Con Scrub	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Twin Lakes	BB50-24	20-Jun-24	0	21	5	1	1	Con Scrub	HETH	Hermit Thrush	*Catharus guttatus*	
Twin Lakes	BB50-24	20-Jun-24	0	21	5	1	1	Con Scrub	FOSP	Fox Sparrow	*Passerella iliaca*	
Twin Lakes	BB50-24	20-Jun-24	0	21	5	1	1	Con Scrub	DEJU	Dark-eyed Junco	*Junco hyemalis*	
Twin Lakes	BB50-24	20-Jun-24	0	21	5	1	1	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB19-24	20-Jun-24		23	10	2	1	Con Scrub	OSFL	Olive-sided Flycatcher	*Contopus cooperi*	
Twin Lakes	BB19-24	20-Jun-24		23	10	2	1	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB19-24	20-Jun-24		23	10	2	1	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB19-24	20-Jun-24		23	10	2	1	Con Scrub	DEJU	Dark-eyed Junco	*Junco hyemalis*	
Twin Lakes	BB19-24	20-Jun-24		23	10	2	1	Con Scrub	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
Twin Lakes	BB19-24	20-Jun-24		23	10	2	1	Con Scrub	BAWW	Black-and-White Warbler	*Mniotilta varia*	
Twin Lakes	BB19-24	20-Jun-24		23	10	2	1	Con Scrub	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
Twin Lakes	BB27-24	20-Jun-24		25	60	1	1	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB27-24	20-Jun-24		25	60	1	1	Con Scrub	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Twin Lakes	BB27-24	20-Jun-24		25	60	1	1	Con Scrub	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
Twin Lakes	BB27-24	20-Jun-24		25	60	1	1	Con Scrub	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
Twin Lakes	BB27-24	20-Jun-24		25	60	1	1	Con Scrub	PUFI	Purple Finch	*Haemorhous purpureus*	
Twin Lakes	BB27-24	20-Jun-24		25	60	1	1	Con Scrub	AMRO	American Robin	*Turdus migratorius*	
Twin Lakes	BB27-24	20-Jun-24		25	60	1	1	Con Scrub	DEJU	Dark-eyed Junco	*Junco hyemalis*	
Twin Lakes	BB48-24	23-Jun-24	0	13	0	0	1	Softwood	BTNW	Black-throated Green Warbler	*Setophaga virens*	
Twin Lakes	BB48-24	23-Jun-24	0	13	0	0	1	Softwood	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
Twin Lakes	BB48-24	23-Jun-24	0	13	0	0	1	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB48-24	23-Jun-24	0	13	0	0	1	Softwood	AMRO	American Robin	*Turdus migratorius*	
Twin Lakes	BB48-24	23-Jun-24	0	13	0	0	1	Softwood	CAJA	Canada Jay	*Perisoreus canadensis*	
Twin Lakes	BB48-24	23-Jun-24	0	13	0	0	1	Softwood	SWTH	Swainson's Thrush	*Catharus ustulatus*	
Twin Lakes	BB48-24	23-Jun-24	0	13	0	0	1	Softwood	PISI	Pine Siskin	*Spinus pinus*	
Twin Lakes	BB9-24	23-Jun-24	0	15	5	2	1	Barren	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB9-24	23-Jun-24	0	15	5	2	1	Barren	AMRO	American Robin	*Turdus migratorius*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
Twin Lakes	BB32-24	23-Jun-24	0	18	0	0	1	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	BB32-24	23-Jun-24	0	18	0	0	1	Con Scrub	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
Twin Lakes	BB32-24	23-Jun-24	0	18	0	0	1	Con Scrub	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Twin Lakes	BB32-24	23-Jun-24	0	18	0	0	1	Con Scrub	BLPW	Blackpoll Warbler	*Setophaga striata*	
Seabright Lakes	BB-33A-24	8-Jul-24	0	13	5	1	0	Dec Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Seabright Lakes	BB-33A-24	8-Jul-24	0	13	5	1	0	Dec Scrub	BLPW	Blackpoll Warbler	*Setophaga striata*	
Seabright Lakes	BB-33A-24	8-Jul-24	0	13	5	1	0	Dec Scrub	HETH	Hermit Thrush	*Catharus guttatus*	
Seabright Lakes	BB-37-24	8-Jul-24	0	16	5	1	0	Softwood	HETH	Hermit Thrush	*Catharus guttatus*	
Seabright Lakes	BB-37-24	8-Jul-24	0	16	5	1	0	Softwood	MAWA	Magnolia Warbler	*Setophaga magnolia*	
Seabright Lakes	BB-37-24	8-Jul-24	0	16	5	1	0	Softwood	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Seabright Lakes	BB-37-24	8-Jul-24	0	16	5	1	0	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Seabright Lakes	BB-37-24	8-Jul-24	0	16	5	1	0	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Seabright Lakes	BB-37-24	8-Jul-24	0	16	5	1	0	Softwood	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
Seabright Lakes	BB-37-24	8-Jul-24	0	16	5	1	0	Softwood	DEJU	Dark-eyed Junco	*Junco hyemalis*	
Seabright Lakes	BB-37-24	8-Jul-24	0	16	5	1	0	Softwood	AMRO	American Robin	*Turdus migratorius*	
Seabright Lakes	BB-37-24	8-Jul-24	0	16	5	1	0	Softwood	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Seabright Lakes	BB-38-24	8-Jul-24	0	16	10	1	0	Softwood	AMRE	American Redstart	*Setophaga ruticilla*	
Seabright Lakes	BB-38-24	8-Jul-24	0	16	10	1	0	Softwood	AMRO	American Robin	*Turdus migratorius*	
Seabright Lakes	BB-38-24	8-Jul-24	0	16	10	1	0	Softwood	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
Seabright Lakes	BB-38-24	8-Jul-24	0	16	10	1	0	Softwood	BOCH	Boreal Chickadee	*Poecile hudsonicus*	
Seabright Lakes	BB-38-24	8-Jul-24	0	16	10	1	0	Softwood	BAWW	Black-and-White Warbler	*Mniotilta varia*	
Seabright Lakes	BB-38-24	8-Jul-24	0	16	10	1	0	Softwood	COYE	Common Yellowthroat	*Geothlypis trichas*	
Seabright Lakes	BB-38-24	8-Jul-24	0	16	10	1	0	Softwood	MAWA	Magnolia Warbler	*Setophaga magnolia*	
Seabright Lakes	BB-38-24	8-Jul-24	0	16	10	1	0	Softwood	RBGR	Rose-breasted Grosbeak	*Pheucticus ludovicianus*	
Seabright Lakes	BB-38-24	8-Jul-24	0	16	10	1	0	Softwood	YWAR	Yellow Warbler	*Setophaga petechia*	
Seabright Lakes	BB-10-24	9-Jul-24	0	15	15	1	1	Barren	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Seabright Lakes	BB-10-24	9-Jul-24	0	15	15	1	1	Barren	HETH	Hermit Thrush	*Catharus guttatus*	
Seabright Lakes	BB-10-24	9-Jul-24	0	15	15	1	1	Barren	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Seabright Lakes	BB-10-24	9-Jul-24	0	15	15	1	1	Barren	HAWO	Hairy Woodpecker	*Dryobates villosus*	
Seabright Lakes	BB-34A-24	9-Jul-24	0	16	25	0	1	Mixed Forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	20% Hardwood
Seabright Lakes	BB-34A-24	9-Jul-24	0	16	25	0	1	Mixed Forest	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	20% Hardwood
Seabright Lakes	BB-34A-24	9-Jul-24	0	16	25	0	1	Mixed Forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	20% Hardwood
Seabright Lakes	BB-34A-24	9-Jul-24	0	16	25	0	1	Mixed Forest	SWTH	Swainson's Thrush	*Catharus ustulatus*	20% Hardwood
Seabright Lakes	BB-34A-24	9-Jul-24	0	16	25	0	1	Mixed Forest	AMRE	American Redstart	*Setophaga ruticilla*	20% Hardwood
Seabright Lakes	BB-34A-24	9-Jul-24	0	16	25	0	1	Mixed Forest	SOSP	Song Sparrow	*Melospiza melodia*	20% Hardwood
Seabright Lakes	BB-34A-24	9-Jul-24	0	16	25	0	1	Mixed Forest	AMRO	American Robin	*Turdus migratorius*	20% Hardwood
Seabright Lakes	BB-34A-24	9-Jul-24	0	16	25	0	1	Mixed Forest	BOCH	Boreal Chickadee	*Poecile hudsonicus*	20% Hardwood
Seabright Lakes	BB-56-24	7-Jul-24	0	15	100	0	0	Softwood	HETH	Hermit Thrush	*Catharus guttatus*	
Seabright Lakes	BB-56-24	7-Jul-24	0	15	100	0	0	Softwood	HETH	Hermit Thrush	*Catharus guttatus*	
Seabright Lakes	BB-56-24	7-Jul-24	0	15	100	0	0	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Seabright Lakes	BB-56-24	7-Jul-24	0	15	100	0	0	Softwood	MAWA	Magnolia Warbler	*Setophaga magnolia*	
Seabright Lakes	BB-56-24	7-Jul-24	0	15	100	0	0	Softwood	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
Seabright Lakes	BB-56-24	7-Jul-24	0	15	100	0	0	Softwood	BAWW	Black-and-White Warbler	*Mniotilta varia*	
Seabright Lakes	BB-56-24	7-Jul-24	0	15	100	0	0	Softwood	HAWO	Hairy Woodpecker	*Dryobates villosus*	
Seabright Lakes	BB-56-24	7-Jul-24	0	15	100	0	0	Softwood	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
Seabright Lakes	BB-56-24	7-Jul-24	0	15	100	0	0	Softwood	FOSP	Fox Sparrow	*Passerella iliaca*	
Seabright Lakes	BB-57-24	7-Jul-24	0	15	100	0	0	Softwood	UNK	Sandpiper spp.	*N/A*	Before starting survey sandpiper spp seen on road

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
Seabright Lakes	BB-57-24	7-Jul-24	0	15	100	0	0	Softwood	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Seabright Lakes	BB-57-24	7-Jul-24	0	15	100	0	0	Softwood	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Seabright Lakes	BB-57-24	7-Jul-24	0	15	100	0	0	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Seabright Lakes	BB-57-24	7-Jul-24	0	15	100	0	0	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Seabright Lakes	BB-57-24	7-Jul-24	0	15	100	0	0	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Seabright Lakes	BB-57-24	7-Jul-24	0	15	100	0	0	Softwood	HETH	Hermit Thrush	*Catharus guttatus*	
Seabright Lakes	BB-57-24	7-Jul-24	0	15	100	0	0	Softwood	HETH	Hermit Thrush	*Catharus guttatus*	
Seabright Lakes	BB-57-24	7-Jul-24	0	15	100	0	0	Softwood	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
Seabright Lakes	BB-57-24	7-Jul-24	0	15	100	0	0	Softwood	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
Seabright Lakes	BB-59-24	7-Jul-24	0	18	100	0	0	Mixed Forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Seabright Lakes	BB-59-24	7-Jul-24	0	18	100	0	0	Mixed Forest	HETH	Hermit Thrush	*Catharus guttatus*	
Seabright Lakes	BB-59-24	7-Jul-24	0	18	100	0	0	Mixed Forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
Seabright Lakes	BB-59-24	7-Jul-24	0	18	100	0	0	Mixed Forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
Seabright Lakes	BB-59-24	7-Jul-24	0	18	100	0	0	Mixed Forest	NOFL	Northern Flicker	*Colaptes auratus*	
Seabright Lakes	BB-59-24	7-Jul-24	0	18	100	0	0	Mixed Forest	COYE	Common Yellowthroat	*Geothlypis trichas*	
Seabright Lakes	BB-59-24	7-Jul-24	0	18	100	0	0	Mixed Forest	PISI	Pine Siskin	*Spinus pinus*	
Seabright Lakes	BB33A-24	18-Jun-24	0	13	20	1	1	Con Scrub	HETH	Hermit Thrush	*Catharus guttatus*	
Seabright Lakes	BB33A-24	18-Jun-24	0	13	20	1	1	Con Scrub	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Seabright Lakes	BB33A-24	18-Jun-24	0	13	20	1	1	Con Scrub	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Seabright Lakes	BB33A-24	18-Jun-24	0	13	20	1	1	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Seabright Lakes	BB37-24	18-Jun-24	0		100	2	1	Softwood	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Seabright Lakes	BB37-24	18-Jun-24	0		100	2	1	Softwood	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Seabright Lakes	BB37-24	18-Jun-24	0		100	2	1	Softwood	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
Seabright Lakes	BB37-24	18-Jun-24	0		100	2	1	Softwood	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Seabright Lakes	BB37-24	18-Jun-24	0		100	2	1	Softwood	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Seabright Lakes	BB37-24	18-Jun-24	0		100	2	1	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Seabright Lakes	BB38-25	18-Jun-24	0	13	65	2	1	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Seabright Lakes	BB38-25	18-Jun-24	0	13	65	2	1	Softwood	HETH	Hermit Thrush	*Catharus guttatus*	
Seabright Lakes	BB38-25	18-Jun-24	0	13	65	2	1	Softwood	AMRO	American Robin	*Turdus migratorius*	
Seabright Lakes	BB38-25	18-Jun-24	0	13	65	2	1	Softwood	AMRO	American Robin	*Turdus migratorius*	
Seabright Lakes	BB10-24	18-Jun-24	0	13	70	3	1	Barren	BAWW	Black-and-White Warbler	*Mniotilta varia*	
Seabright Lakes	BB10-24	18-Jun-24	0	13	70	3	1	Barren	BAWW	Black-and-White Warbler	*Mniotilta varia*	
Seabright Lakes	BB10-24	18-Jun-24	0	13	70	3	1	Barren	BAWW	Black-and-White Warbler	*Mniotilta varia*	
Seabright Lakes	BB-55-24	25-Jun-24	0	11	100	0	1	Mixedwood forest	BAWW	Black-and-White Warbler	*Mniotilta varia*	
Seabright Lakes	BB-55-24	25-Jun-24	0	11	100	0	1	Mixedwood forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Seabright Lakes	BB-55-24	25-Jun-24	0	11	100	0	1	Mixedwood forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Seabright Lakes	BB-55-24	25-Jun-24	0	11	100	0	1	Mixedwood forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
Seabright Lakes	BB-55-24	25-Jun-24	0	11	100	0	1	Mixedwood forest	PIGR	Pine Grosbeak	*Pinicola enucleator*	
Seabright Lakes	BB-55-24	25-Jun-24	0	11	100	0	1	Mixedwood forest	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
Seabright Lakes	BB-55-24	25-Jun-24	0	11	100	0	1	Mixedwood forest	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
Seabright Lakes	BB-55-24	25-Jun-24	0	11	100	0	1	Mixedwood forest	BRCR	Brown Creeper	*Certhia americana*	
Seabright Lakes	BB-55-24	25-Jun-24	0	11	100	0	1	Mixedwood forest	FOSP	Fox Sparrow	*Passerella iliaca*	
Seabright Lakes	BB-56-24	25-Jun-24	0	11	100	0	1	Softwood forest	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
Seabright Lakes	BB-56-24	25-Jun-24	0	11	100	0	1	Softwood forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Seabright Lakes	BB-56-24	25-Jun-24	0	11	100	0	1	Softwood forest	FOSP	Fox Sparrow	*Passerella iliaca*	
Seabright Lakes	BB-56-24	25-Jun-24	0	11	100	0	1	Softwood forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
Seabright Lakes	BB-56-24	25-Jun-24	0	11	100	0	1	Softwood forest	HETH	Hermit Thrush	*Catharus guttatus*	
Seabright Lakes	BB-56-24	25-Jun-24	0	11	100	0	1	Softwood forest	BOCH	Boreal Chickadee	*Poecile hudsonicus*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
Seabright Lakes	BB-56-24	25-Jun-24	0	11	100	0	1	Softwood forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Seabright Lakes	BB-57-24	25-Jun-24	0	12	100	0	1	Mixed softwood	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
Seabright Lakes	BB-57-24	25-Jun-24	0	12	100	0	1	Mixed softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Seabright Lakes	BB-57-24	25-Jun-24	0	12	100	0	1	Mixed softwood	HETH	Hermit Thrush	*Catharus guttatus*	
Seabright Lakes	BB-57-24	25-Jun-24	0	12	100	0	1	Mixed softwood	BRCR	Brown Creeper	*Certhia americana*	
Seabright Lakes	BB-57-24	25-Jun-24	0	12	100	0	1	Mixed softwood	DEJU	Dark-eyed Junco	*Junco hyemalis*	
Seabright Lakes	BB-59-24	25-Jun-24	0	13	100	0	1	Mixed softwood	HETH	Hermit Thrush	*Catharus guttatus*	
Seabright Lakes	BB-59-24	25-Jun-24	0	13	100	0	1	Mixed softwood	AMRO	American Robin	*Turdus migratorius*	
Seabright Lakes	BB-59-24	25-Jun-24	0	13	100	0	1	Mixed softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Seabright Lakes	BB-59-24	25-Jun-24	0	13	100	0	1	Mixed softwood	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
Seabright Lakes	BB-59-24	25-Jun-24	0	13	100	0	1	Mixed softwood	BOCH	Boreal Chickadee	*Poecile hudsonicus*	
Seabright Lakes	BB-59-24	25-Jun-24	0	13	100	0	1	Mixed softwood	MAWA	Magnolia Warbler	*Setophaga magnolia*	
Seabright Lakes	BB-59-24	25-Jun-24	0	13	100	0	1	Mixed softwood	DOWO	Downy Woodpecker	*Dryobates pubescens*	
New Bay	NB-BB-7	28-Jun-24		16	45	3	1	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-7	28-Jun-24		16	45	3	1	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-7	28-Jun-24		16	45	3	1	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-7	28-Jun-24		16	45	3	1	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-7	28-Jun-24		16	45	3	1	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-7	28-Jun-24		16	45	3	1	Wetland	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-7	28-Jun-24		16	45	3	1	Wetland	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-7	28-Jun-24		16	45	3	1	Wetland	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-7	28-Jun-24		16	45	3	1	Wetland	COYE	Common Yellowthroat	*Geothlypis trichas*	
New Bay	NB-BB-7	28-Jun-24		16	45	3	1	Wetland	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	
New Bay	NB-BB-6	28-Jun-24		16	85	0	0	Softwood	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-6	28-Jun-24		16	85	0	0	Softwood	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-6	28-Jun-24		16	85	0	0	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-6	28-Jun-24		16	85	0	0	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-6	28-Jun-24		16	85	0	0	Softwood	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-6	28-Jun-24		16	85	0	0	Softwood	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-6	28-Jun-24		16	85	0	0	Softwood	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-6	28-Jun-24		16	85	0	0	Softwood	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-6	28-Jun-24		16	85	0	0	Softwood	CAJA	Canada Jay	*Perisoreus canadensis*	
New Bay	NB-BB-6	28-Jun-24		16	85	0	0	Softwood	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-5	28-Jun-24		16	90	1	1	Mixed Forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-5	28-Jun-24		16	90	1	1	Mixed Forest	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
New Bay	NB-BB-5	28-Jun-24		16	90	1	1	Mixed Forest	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	NB-BB-5	28-Jun-24		16	90	1	1	Mixed Forest	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-5	28-Jun-24		16	90	1	1	Mixed Forest	SWTH	Swainson's Thrush	*Catharus ustulatus*	
New Bay	NB-BB-5	28-Jun-24		16	90	1	1	Mixed Forest	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
New Bay	NB-BB-5	28-Jun-24		16	90	1	1	Mixed Forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-5	28-Jun-24		16	90	1	1	Mixed Forest	NOFL	Northern Flicker	*Colaptes auratus*	
New Bay	NB-BB-5	28-Jun-24		16	90	1	1	Mixed Forest	AMCR	American Crow	*Corvus brachyrhynchos*	
New Bay	NB-BB-5	28-Jun-24		16	90	1	1	Mixed Forest	PUFI	Purple Finch	*Haemorhous purpureus*	
New Bay	NB-BB-5	28-Jun-24		16	90	1	1	Mixed Forest	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-5	28-Jun-24		16	90	1	1	Mixed Forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-5	28-Jun-24		16	90	1	1	Mixed Forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-5	28-Jun-24		16	90	1	1	Mixed Forest	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-4	28-Jun-24		16	95	2	0	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
New Bay	NB-BB-4	28-Jun-24		16	95	2	0	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-4	28-Jun-24		16	95	2	0	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-4	28-Jun-24		16	95	2	0	Wetland	CAJA	Canada Jay	*Perisoreus canadensis*	
New Bay	NB-BB-4	28-Jun-24		16	95	2	0	Wetland	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-4	28-Jun-24		16	95	2	0	Wetland	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-4	28-Jun-24		16	95	2	0	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-4	28-Jun-24		16	95	2	0	Wetland	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-4	28-Jun-24		16	95	2	0	Wetland	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-4	28-Jun-24		16	95	2	0	Wetland	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-4	28-Jun-24		16	95	2	0	Wetland	COYE	Common Yellowthroat	*Geothlypis trichas*	
New Bay	NB-BB-4	28-Jun-24		16	95	2	0	Wetland	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-4	28-Jun-24		16	95	2	0	Wetland	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-4	28-Jun-24		16	95	2	0	Wetland	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-4	28-Jun-24		16	95	2	0	Wetland	BOCH	Boreal Chickadee	*Poecile hudsonicus*	
New Bay	NB-BB-4	28-Jun-24		16	95	2	0	Wetland	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-4	28-Jun-24		16	95	2	0	Wetland	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-4	28-Jun-24		16	95	2	0	Wetland	WIWA	Wilson's Warbler	*Cardellina pusilla*	
New Bay	NB-BB-3	28-Jun-24		17	95	2	1	Mixed Forest	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-3	28-Jun-24		17	95	2	1	Mixed Forest	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-3	28-Jun-24		17	95	2	1	Mixed Forest	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	NB-BB-3	28-Jun-24		17	95	2	1	Mixed Forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-3	28-Jun-24		17	95	2	1	Mixed Forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-3	28-Jun-24		17	95	2	1	Mixed Forest	CAJA	Canada Jay	*Perisoreus canadensis*	
New Bay	NB-BB-3	28-Jun-24		17	95	2	1	Mixed Forest	CAJA	Canada Jay	*Perisoreus canadensis*	
New Bay	NB-BB-3	28-Jun-24		17	95	2	1	Mixed Forest	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-3	28-Jun-24		17	95	2	1	Mixed Forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-3	28-Jun-24		17	95	2	1	Mixed Forest	TEWA	Tennessee Warbler	*Leiothlypis peregrina*	
New Bay	NB-BB-3	28-Jun-24		17	95	2	1	Mixed Forest	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-3	28-Jun-24		17	95	2	1	Mixed Forest	COLO	Common Loon	*Gavia immer*	
New Bay	NB-BB-3	28-Jun-24		17	95	2	1	Mixed Forest	SWTH	Swainson's Thrush	*Catharus ustulatus*	
New Bay	NB-BB-2	28-Jun-24		17	95	1	0	Mixed Forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-2	28-Jun-24		17	95	1	0	Mixed Forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-2	28-Jun-24		17	95	1	0	Mixed Forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-2	28-Jun-24		17	95	1	0	Mixed Forest	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-2	28-Jun-24		17	95	1	0	Mixed Forest	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-2	28-Jun-24		17	95	1	0	Mixed Forest	OVEN	Ovenbird	*Seiurus aurocapilla*	
New Bay	NB-BB-2	28-Jun-24		17	95	1	0	Mixed Forest	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-2	28-Jun-24		17	95	1	0	Mixed Forest	CORA	Common Raven	*Corvus corax*	
New Bay	NB-BB-1	28-Jun-24		18	100	1	1	Hardwood Forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-1	28-Jun-24		18	100	1	1	Hardwood Forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-1	28-Jun-24		18	100	1	1	Hardwood Forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-1	28-Jun-24		18	100	1	1	Hardwood Forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-1	28-Jun-24		18	100	1	1	Hardwood Forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-1	28-Jun-24		18	100	1	1	Hardwood Forest	AMGO	American Goldfinch	*Spinus tristis*	
New Bay	NB-BB-1	28-Jun-24		18	100	1	1	Hardwood Forest	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
New Bay	NB-BB-1	28-Jun-24		18	100	1	1	Hardwood Forest	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-1	28-Jun-24		18	100	1	1	Hardwood Forest	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-1	28-Jun-24		18	100	1	1	Hardwood Forest	HETH	Hermit Thrush	*Catharus guttatus*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
New Bay	NB-BB-1	28-Jun-24		18	100	1	1	Hardwood Forest	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-8	1-Jul-24		14	100	2	0	Mixed Forest	CAJA	Canada Jay	*Perisoreus canadensis*	
New Bay	NB-BB-8	1-Jul-24		14	100	2	0	Mixed Forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-8	1-Jul-24		14	100	2	0	Mixed Forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-8	1-Jul-24		14	100	2	0	Mixed Forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-8	1-Jul-24		14	100	2	0	Mixed Forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-8	1-Jul-24		14	100	2	0	Mixed Forest	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-8	1-Jul-24		14	100	2	0	Mixed Forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-8	1-Jul-24		14	100	2	0	Mixed Forest	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-8	1-Jul-24		14	100	2	0	Mixed Forest	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	NB-BB-8	1-Jul-24		14	100	2	0	Mixed Forest	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	NB-BB-8	1-Jul-24		14	100	2	0	Mixed Forest	COLO	Common Loon	*Gavia immer*	
New Bay	NB-BB-8	1-Jul-24		14	100	2	0	Mixed Forest	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
New Bay	NB-BB-8	1-Jul-24		14	100	2	0	Mixed Forest	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-9	1-Jul-24		14	100	3	1	Wetland	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	
New Bay	NB-BB-9	1-Jul-24		14	100	3	1	Wetland	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	
New Bay	NB-BB-9	1-Jul-24		14	100	3	1	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-9	1-Jul-24		14	100	3	1	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-9	1-Jul-24		14	100	3	1	Wetland	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-9	1-Jul-24		14	100	3	1	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-9	1-Jul-24		14	100	3	1	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-9	1-Jul-24		14	100	3	1	Wetland	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-9	1-Jul-24		14	100	3	1	Wetland	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-9	1-Jul-24		14	100	3	1	Wetland	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-9	1-Jul-24		14	100	3	1	Wetland	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-9	1-Jul-24		14	100	3	1	Wetland	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-10	1-Jul-24		16	100	1	0	Con Scrub	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-10	1-Jul-24		16	100	1	0	Con Scrub	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-10	1-Jul-24		16	100	1	0	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-10	1-Jul-24		16	100	1	0	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-10	1-Jul-24		16	100	1	0	Con Scrub	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-10	1-Jul-24		16	100	1	0	Con Scrub	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	NB-BB-10	1-Jul-24		16	100	1	0	Con Scrub	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-10	1-Jul-24		16	100	1	0	Con Scrub	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-10	1-Jul-24		16	100	1	0	Con Scrub	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	NB-BB-11	1-Jul-24		18	100	2	0	Regenerating Forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-11	1-Jul-24		18	100	2	0	Regenerating Forest	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	NB-BB-11	1-Jul-24		18	100	2	0	Regenerating Forest	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
New Bay	NB-BB-11	1-Jul-24		18	100	2	0	Regenerating Forest	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-11	1-Jul-24		18	100	2	0	Regenerating Forest	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-11	1-Jul-24		18	100	2	0	Regenerating Forest	YWAR	Yellow Warbler	*Setophaga petechia*	
New Bay	NB-BB-11	1-Jul-24		18	100	2	0	Regenerating Forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-11	1-Jul-24		18	100	2	0	Regenerating Forest	WWCR	White-winged Crossbill	*Loxia leucoptera*	
New Bay	NB-BB-11	1-Jul-24		18	100	2	0	Regenerating Forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-11	1-Jul-24		18	100	2	0	Regenerating Forest	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-11	1-Jul-24		18	100	2	0	Regenerating Forest	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-11	1-Jul-24		18	100	2	0	Regenerating Forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-11	1-Jul-24		18	100	2	0	Regenerating Forest	DEJU	Dark-eyed Junco	*Junco hyemalis*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
New Bay	NB-BB-12	1-Jul-24		20	100	1	0	Regenerating Forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-12	1-Jul-24		20	100	1	0	Regenerating Forest	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
New Bay	NB-BB-12	1-Jul-24		20	100	1	0	Regenerating Forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-12	1-Jul-24		20	100	1	0	Regenerating Forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-12	1-Jul-24		20	100	1	0	Regenerating Forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-12	1-Jul-24		20	100	1	0	Regenerating Forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-12	1-Jul-24		20	100	1	0	Regenerating Forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-12	1-Jul-24		20	100	1	0	Regenerating Forest	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-12	1-Jul-24		20	100	1	0	Regenerating Forest	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-12	1-Jul-24		20	100	1	0	Regenerating Forest	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	
New Bay	NB-BB-12	1-Jul-24		20	100	1	0	Regenerating Forest	BOCH	Boreal Chickadee	*Poecile hudsonicus*	
New Bay	NB-BB-12	1-Jul-24		20	100	1	0	Regenerating Forest	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	NB-BB-12	1-Jul-24		20	100	1	0	Regenerating Forest	WIWA	Wilson's Warbler	*Cardellina pusilla*	
New Bay	NB-BB-13	1-Jul-24		21	95	3	1	Con Scrub	CAJA	Canada Jay	*Perisoreus canadensis*	
New Bay	NB-BB-13	1-Jul-24		21	95	3	1	Con Scrub	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-13	1-Jul-24		21	95	3	1	Con Scrub	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-13	1-Jul-24		21	95	3	1	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-13	1-Jul-24		21	95	3	1	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-13	1-Jul-24		21	95	3	1	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-13	1-Jul-24		21	95	3	1	Con Scrub	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-13	1-Jul-24		21	95	3	1	Con Scrub	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-13	1-Jul-24		21	95	3	1	Con Scrub	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-13	1-Jul-24		21	95	3	1	Con Scrub	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-13	1-Jul-24		21	95	3	1	Con Scrub	OSFL	Olive-sided Flycatcher	*Contopus cooperi*	Visual
New Bay	NB-BB-13	1-Jul-24		21	95	3	1	Con Scrub	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-13	1-Jul-24		21	95	3	1	Con Scrub	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-13	1-Jul-24		21	95	3	1	Con Scrub	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-14	2-Jul-24		14	100	0	0	Wetland	OSFL	Olive-sided Flycatcher	*Contopus cooperi*	
New Bay	NB-BB-14	2-Jul-24		14	100	0	0	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-14	2-Jul-24		14	100	0	0	Wetland	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-14	2-Jul-24		14	100	0	0	Wetland	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-14	2-Jul-24		14	100	0	0	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-14	2-Jul-24		14	100	0	0	Wetland	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-14	2-Jul-24		14	100	0	0	Wetland	ALFL	Alder Flycatcher	*Empidonax alnorum*	
New Bay	NB-BB-14	2-Jul-24		14	100	0	0	Wetland	COYE	Common Yellowthroat	*Geothlypis trichas*	
New Bay	NB-BB-14	2-Jul-24		14	100	0	0	Wetland	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
New Bay	NB-BB-14	2-Jul-24		14	100	0	0	Wetland	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-14	2-Jul-24		14	100	0	0	Wetland	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-14	2-Jul-24		14	100	0	0	Wetland	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-14	2-Jul-24		14	100	0	0	Wetland	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	NB-BB-14	2-Jul-24		14	100	0	0	Wetland	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	NB-BB-15	2-Jul-24		14	100	0	0	Mixed Scrub	WISN	Wilson's Snipe	*Gallinago delicata*	
New Bay	NB-BB-15	2-Jul-24		14	100	0	0	Mixed Scrub	CAJA	Canada Jay	*Perisoreus canadensis*	
New Bay	NB-BB-15	2-Jul-24		14	100	0	0	Mixed Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-15	2-Jul-24		14	100	0	0	Mixed Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-15	2-Jul-24		14	100	0	0	Mixed Scrub	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-15	2-Jul-24		14	100	0	0	Mixed Scrub	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-15	2-Jul-24		14	100	0	0	Mixed Scrub	HETH	Hermit Thrush	*Catharus guttatus*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
New Bay	NB-BB-15	2-Jul-24		14	100	0	0	Mixed Scrub	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-15	2-Jul-24		14	100	0	0	Mixed Scrub	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-15	2-Jul-24		14	100	0	0	Mixed Scrub	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	NB-BB-16	2-Jul-24		14	100	0	0	Wetland	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	
New Bay	NB-BB-16	2-Jul-24		14	100	0	0	Wetland	AMCR	American Crow	*Corvus brachyrhynchos*	
New Bay	NB-BB-16	2-Jul-24		14	100	0	0	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-16	2-Jul-24		14	100	0	0	Wetland	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-16	2-Jul-24		14	100	0	0	Wetland	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	NB-BB-16	2-Jul-24		14	100	0	0	Wetland	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-16	2-Jul-24		14	100	0	0	Wetland	COYE	Common Yellowthroat	*Geothlypis trichas*	
New Bay	NB-BB-16	2-Jul-24		14	100	0	0	Wetland	WISN	Wilson's Snipe	*Gallinago delicata*	
New Bay	NB-BB-16	2-Jul-24		14	100	0	0	Wetland	SWSP	Swamp Sparrow	*Melospiza georgiana*	
New Bay	NB-BB-16	2-Jul-24		14	100	0	0	Wetland	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-16	2-Jul-24		14	100	0	0	Wetland	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	NB-BB-16	2-Jul-24		14	100	0	0	Wetland	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	NB-BB-17	2-Jul-24		14	100	0	0	Regenerating Forest	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-17	2-Jul-24		14	100	0	0	Regenerating Forest	BLPW	Blackpoll Warbler	*Setophaga striata*	
New Bay	NB-BB-17	2-Jul-24		14	100	0	0	Regenerating Forest	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-17	2-Jul-24		14	100	0	0	Regenerating Forest	OSFL	Olive-sided Flycatcher	*Contopus cooperi*	
New Bay	NB-BB-17	2-Jul-24		14	100	0	0	Regenerating Forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-17	2-Jul-24		14	100	0	0	Regenerating Forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-17	2-Jul-24		14	100	0	0	Regenerating Forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-17	2-Jul-24		14	100	0	0	Regenerating Forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-17	2-Jul-24		14	100	0	0	Regenerating Forest	WIWA	Wilson's Warbler	*Cardellina pusilla*	
New Bay	NB-BB-17	2-Jul-24		14	100	0	0	Regenerating Forest	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-17	2-Jul-24		14	100	0	0	Regenerating Forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-17	2-Jul-24		14	100	0	0	Regenerating Forest	WWCR	White-winged Crossbill	*Loxia leucoptera*	
New Bay	NB-BB-17	2-Jul-24		14	100	0	0	Regenerating Forest	WISN	Wilson's Snipe	*Gallinago delicata*	
New Bay	NB-BB-17	2-Jul-24		14	100	0	0	Regenerating Forest	SWSP	Swamp Sparrow	*Melospiza georgiana*	
New Bay	NB-BB-17	2-Jul-24		14	100	0	0	Regenerating Forest	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-18	2-Jul-24		16	100	0	0	Wetland	COYE	Common Yellowthroat	*Geothlypis trichas*	
New Bay	NB-BB-18	2-Jul-24		16	100	0	0	Wetland	COYE	Common Yellowthroat	*Geothlypis trichas*	
New Bay	NB-BB-18	2-Jul-24		16	100	0	0	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-18	2-Jul-24		16	100	0	0	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-18	2-Jul-24		16	100	0	0	Wetland	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-18	2-Jul-24		16	100	0	0	Wetland	WISN	Wilson's Snipe	*Gallinago delicata*	
New Bay	NB-BB-18	2-Jul-24		16	100	0	0	Wetland	WISN	Wilson's Snipe	*Gallinago delicata*	
New Bay	NB-BB-18	2-Jul-24		16	100	0	0	Wetland	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-18	2-Jul-24		16	100	0	0	Wetland	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-18	2-Jul-24		16	100	0	0	Wetland	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-18	2-Jul-24		16	100	0	0	Wetland	WIWA	Wilson's Warbler	*Cardellina pusilla*	
New Bay	NB-BB-18	2-Jul-24		16	100	0	0	Wetland	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-18	2-Jul-24		16	100	0	0	Wetland	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-18	2-Jul-24		16	100	0	0	Wetland	AMCR	American Crow	*Corvus brachyrhynchos*	
New Bay	NB-BB-18	2-Jul-24		16	100	0	0	Wetland	AMCR	American Crow	*Corvus brachyrhynchos*	
New Bay	NB-BB-18	2-Jul-24		16	100	0	0	Wetland	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-18	2-Jul-24		16	100	0	0	Wetland	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-18	2-Jul-24		16	100	0	0	Wetland	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
New Bay	NB-BB-18	2-Jul-24		16	100	0	0	Wetland	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	NB-BB-19	2-Jul-24		17	100	1	1	Wetland	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	
New Bay	NB-BB-19	2-Jul-24		17	100	1	1	Wetland	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	
New Bay	NB-BB-19	2-Jul-24		17	100	1	1	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-19	2-Jul-24		17	100	1	1	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-19	2-Jul-24		17	100	1	1	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-19	2-Jul-24		17	100	1	1	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-19	2-Jul-24		17	100	1	1	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-19	2-Jul-24		17	100	1	1	Wetland	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-19	2-Jul-24		17	100	1	1	Wetland	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-19	2-Jul-24		17	100	1	1	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-19	2-Jul-24		17	100	1	1	Wetland	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-19	2-Jul-24		17	100	1	1	Wetland	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-19	2-Jul-24		17	100	1	1	Wetland	OSFL	Olive-sided Flycatcher	*Contopus cooperi*	
New Bay	NB-BB-20	3-Jul-24		10	0	2	1	Softwood	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-20	3-Jul-24		10	0	2	1	Softwood	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-20	3-Jul-24		10	0	2	1	Softwood	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-20	3-Jul-24		10	0	2	1	Softwood	SWTH	Swainson's Thrush	*Catharus ustulatus*	
New Bay	NB-BB-20	3-Jul-24		10	0	2	1	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-21	3-Jul-24		10	0	2	0	Softwood	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-21	3-Jul-24		10	0	2	0	Softwood	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-21	3-Jul-24		10	0	2	0	Softwood	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-21	3-Jul-24		10	0	2	0	Softwood	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-21	3-Jul-24		10	0	2	0	Softwood	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-21	3-Jul-24		10	0	2	0	Softwood	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-21	3-Jul-24		10	0	2	0	Softwood	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-21	3-Jul-24		10	0	2	0	Softwood	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-21	3-Jul-24		10	0	2	0	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-22	3-Jul-24		12	0	1	0	Mixed Forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-22	3-Jul-24		12	0	1	0	Mixed Forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-22	3-Jul-24		12	0	1	0	Mixed Forest	UNK	Woodpecker sp.	*N/A*	Woodpecker
New Bay	NB-BB-22	3-Jul-24		12	0	1	0	Mixed Forest	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-22	3-Jul-24		12	0	1	0	Mixed Forest	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-22	3-Jul-24		12	0	1	0	Mixed Forest	SWTH	Swainson's Thrush	*Catharus ustulatus*	
New Bay	NB-BB-22	3-Jul-24		12	0	1	0	Mixed Forest	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
New Bay	NB-BB-22	3-Jul-24		12	0	1	0	Mixed Forest	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	NB-BB-22	3-Jul-24		12	0	1	0	Mixed Forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-22	3-Jul-24		12	0	1	0	Mixed Forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-22	3-Jul-24		12	0	1	0	Mixed Forest	BRCR	Brown Creeper	*Certhia americana*	
New Bay	NB-BB-22	3-Jul-24		12	0	1	0	Mixed Forest	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-23	3-Jul-24		16	0	2	0	Barren	SWTH	Swainson's Thrush	*Catharus ustulatus*	
New Bay	NB-BB-23	3-Jul-24		16	0	2	0	Barren	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-23	3-Jul-24		16	0	2	0	Barren	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-23	3-Jul-24		16	0	2	0	Barren	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-23	3-Jul-24		16	0	2	0	Barren	BOCH	Boreal Chickadee	*Poecile hudsonicus*	
New Bay	NB-BB-23	3-Jul-24		16	0	2	0	Barren	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-23	3-Jul-24		16	0	2	0	Barren	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-23	3-Jul-24		16	0	2	0	Barren	COLO	Common Loon	*Gavia immer*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
New Bay	NB-BB-23	3-Jul-24		16	0	2	0	Barren	CORA	Common Raven	*Corvus corax*	
New Bay	NB-BB-23	3-Jul-24		16	0	2	0	Barren	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-23	3-Jul-24		16	0	2	0	Barren	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-23	3-Jul-24		16	0	2	0	Barren	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-23	3-Jul-24		16	0	2	0	Barren	NOFL	Northern Flicker	*Colaptes auratus*	
New Bay	NB-BB-23	3-Jul-24		16	0	2	0	Barren	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
New Bay	NB-BB-24	3-Jul-24		18	0	0	0	Mixed Forest	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
New Bay	NB-BB-24	3-Jul-24		18	0	0	0	Mixed Forest	SWTH	Swainson's Thrush	*Catharus ustulatus*	
New Bay	NB-BB-24	3-Jul-24		18	0	0	0	Mixed Forest	SWTH	Swainson's Thrush	*Catharus ustulatus*	
New Bay	NB-BB-24	3-Jul-24		18	0	0	0	Mixed Forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-24	3-Jul-24		18	0	0	0	Mixed Forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-24	3-Jul-24		18	0	0	0	Mixed Forest	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-24	3-Jul-24		18	0	0	0	Mixed Forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-24	3-Jul-24		18	0	0	0	Mixed Forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-24	3-Jul-24		18	0	0	0	Mixed Forest	BOCH	Boreal Chickadee	*Poecile hudsonicus*	
New Bay	NB-BB-24	3-Jul-24		18	0	0	0	Mixed Forest	BOCH	Boreal Chickadee	*Poecile hudsonicus*	
New Bay	NB-BB-24	3-Jul-24		18	0	0	0	Mixed Forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-24	3-Jul-24		18	0	0	0	Mixed Forest	PUFI	Purple Finch	*Haemorhous purpureus*	
New Bay	NB-BB-25	3-Jul-24		20	0	0	0	Mixed Forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-25	3-Jul-24		20	0	0	0	Mixed Forest	UNK	Woodpecker sp.	*N/A*	Woodpecker
New Bay	NB-BB-25	3-Jul-24		20	0	0	0	Mixed Forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-25	3-Jul-24		20	0	0	0	Mixed Forest	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
New Bay	NB-BB-25	3-Jul-24		20	0	0	0	Mixed Forest	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-25	3-Jul-24		20	0	0	0	Mixed Forest	SWTH	Swainson's Thrush	*Catharus ustulatus*	
New Bay	NB-BB-26	5-Jul-24		13	35	1	1	Wetland	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-26	5-Jul-24		13	35	1	1	Wetland	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-26	5-Jul-24		13	35	1	1	Wetland	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-26	5-Jul-24		13	35	1	1	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-26	5-Jul-24		13	35	1	1	Wetland	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-26	5-Jul-24		13	35	1	1	Wetland	OSFL	Olive-sided Flycatcher	*Contopus cooperi*	
New Bay	NB-BB-26	5-Jul-24		13	35	1	1	Wetland	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-26	5-Jul-24		13	35	1	1	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-26	5-Jul-24		13	35	1	1	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-26	5-Jul-24		13	35	1	1	Wetland	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-26	5-Jul-24		13	35	1	1	Wetland	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-26	5-Jul-24		13	35	1	1	Wetland	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	NB-BB-27	5-Jul-24		14	20	0	1	Softwood	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-27	5-Jul-24		14	20	0	1	Softwood	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-27	5-Jul-24		14	20	0	1	Softwood	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	NB-BB-27	5-Jul-24		14	20	0	1	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-27	5-Jul-24		14	20	0	1	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-27	5-Jul-24		14	20	0	1	Softwood	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-27	5-Jul-24		14	20	0	1	Softwood	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-27	5-Jul-24		14	20	0	1	Softwood	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-27	5-Jul-24		14	20	0	1	Softwood	HAWO	Hairy Woodpecker	*Dryobates villosus*	
New Bay	NB-BB-29	5-Jul-24		15	0	1	0	Mixed Forest	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-29	5-Jul-24		15	0	1	0	Mixed Forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-29	5-Jul-24		15	0	1	0	Mixed Forest	HETH	Hermit Thrush	*Catharus guttatus*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
New Bay	NB-BB-29	5-Jul-24		15	0	1	0	Mixed Forest	OVEN	Ovenbird	*Seiurus aurocapilla*	
New Bay	NB-BB-29	5-Jul-24		15	0	1	0	Mixed Forest	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-29	5-Jul-24		15	0	1	0	Mixed Forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-29	5-Jul-24		15	0	1	0	Mixed Forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-29	5-Jul-24		15	0	1	0	Mixed Forest	AMRE	American Redstart	*Setophaga ruticilla*	
New Bay	NB-BB-29	5-Jul-24		15	0	1	0	Mixed Forest	AMRE	American Redstart	*Setophaga ruticilla*	
New Bay	NB-BB-29	5-Jul-24		15	0	1	0	Mixed Forest	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
New Bay	NB-BB-29	5-Jul-24		15	0	1	0	Mixed Forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-30	5-Jul-24		17	10	2	0	Con Scrub	OSFL	Olive-sided Flycatcher	*Contopus cooperi*	
New Bay	NB-BB-30	5-Jul-24		17	10	2	0	Con Scrub	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-30	5-Jul-24		17	10	2	0	Con Scrub	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-30	5-Jul-24		17	10	2	0	Con Scrub	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	NB-BB-30	5-Jul-24		17	10	2	0	Con Scrub	SWSP	Swamp Sparrow	*Melospiza georgiana*	
New Bay	NB-BB-30	5-Jul-24		17	10	2	0	Con Scrub	RUBL	Rusty Blackbird	*Euphagus carolinus*	
New Bay	NB-BB-30	5-Jul-24		17	10	2	0	Con Scrub	RUBL	Rusty Blackbird	*Euphagus carolinus*	
New Bay	NB-BB-30	5-Jul-24		17	10	2	0	Con Scrub	COGR	Common Grackle	*Quiscalus quiscula*	
New Bay	NB-BB-30	5-Jul-24		17	10	2	0	Con Scrub	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-30	5-Jul-24		17	10	2	0	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-30	5-Jul-24		17	10	2	0	Con Scrub	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-30	5-Jul-24		17	10	2	0	Con Scrub	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-30	5-Jul-24		17	10	2	0	Con Scrub	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-31	8-Jul-24		14	0	0	1	Softwood	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-31	8-Jul-24		14	0	0	1	Softwood	BOCH	Boreal Chickadee	*Poecile hudsonicus*	
New Bay	NB-BB-31	8-Jul-24		14	0	0	1	Softwood	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-31	8-Jul-24		14	0	0	1	Softwood	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
New Bay	NB-BB-31	8-Jul-24		14	0	0	1	Softwood	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	NB-BB-31	8-Jul-24		14	0	0	1	Softwood	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-31	8-Jul-24		14	0	0	1	Softwood	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-31	8-Jul-24		14	0	0	1	Softwood	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-31	8-Jul-24		14	0	0	1	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-31	8-Jul-24		14	0	0	1	Softwood	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-31	8-Jul-24		14	0	0	1	Softwood	CAJA	Canada Jay	*Perisoreus canadensis*	
New Bay	NB-BB-31	8-Jul-24		14	0	0	1	Softwood	CAJA	Canada Jay	*Perisoreus canadensis*	
New Bay	NB-BB-31	8-Jul-24		14	0	0	1	Softwood	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-32	8-Jul-24		15	0	1	0	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-32	8-Jul-24		15	0	1	0	Softwood	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-32	8-Jul-24		15	0	1	0	Softwood	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-32	8-Jul-24		15	0	1	0	Softwood	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-32	8-Jul-24		15	0	1	0	Softwood	NOFL	Northern Flicker	*Colaptes auratus*	
New Bay	NB-BB-32	8-Jul-24		15	0	1	0	Softwood	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
New Bay	NB-BB-32	8-Jul-24		15	0	1	0	Softwood	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-32	8-Jul-24		15	0	1	0	Softwood	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-33	8-Jul-24		17	0	0	0	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-33	8-Jul-24		17	0	0	0	Wetland	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-33	8-Jul-24		17	0	0	0	Wetland	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-33	8-Jul-24		17	0	0	0	Wetland	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-33	8-Jul-24		17	0	0	0	Wetland	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-33	8-Jul-24		17	0	0	0	Wetland	HETH	Hermit Thrush	*Catharus guttatus*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
New Bay	NB-BB-33	8-Jul-24		17	0	0	0	Wetland	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-33	8-Jul-24		17	0	0	0	Wetland	COYE	Common Yellowthroat	*Geothlypis trichas*	
New Bay	NB-BB-33	8-Jul-24		17	0	0	0	Wetland	COYE	Common Yellowthroat	*Geothlypis trichas*	
New Bay	NB-BB-33	8-Jul-24		17	0	0	0	Wetland	COYE	Common Yellowthroat	*Geothlypis trichas*	
New Bay	NB-BB-33	8-Jul-24		17	0	0	0	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-33	8-Jul-24		17	0	0	0	Wetland	PAWA	Palm Warbler	*Setophaga palmarum*	
New Bay	NB-BB-33	8-Jul-24		17	0	0	0	Wetland	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-34	8-Jul-24		18	0	1	0	Con Scrub	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-34	8-Jul-24		18	0	1	0	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-34	8-Jul-24		18	0	1	0	Con Scrub	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-34	8-Jul-24		18	0	1	0	Con Scrub	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-34	8-Jul-24		18	0	1	0	Con Scrub	WIWA	Wilson's Warbler	*Cardellina pusilla*	
New Bay	NB-BB-34	8-Jul-24		18	0	1	0	Con Scrub	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-34	8-Jul-24		18	0	1	0	Con Scrub	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-34	8-Jul-24		18	0	1	0	Con Scrub	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
New Bay	NB-BB-34	8-Jul-24		18	0	1	0	Con Scrub	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	NB-BB-34	8-Jul-24		18	0	1	0	Con Scrub	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-34	8-Jul-24		18	0	1	0	Con Scrub	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-34	8-Jul-24		18	0	1	0	Con Scrub	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-34	8-Jul-24		18	0	1	0	Con Scrub	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-34	8-Jul-24		18	0	1	0	Con Scrub	PAWA	Palm Warbler	*Setophaga palmarum*	
New Bay	NB-BB-35	8-Jul-24		19	0	0	1	Softwood	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	NB-BB-35	8-Jul-24		19	0	0	1	Softwood	SWTH	Swainson's Thrush	*Catharus ustulatus*	
New Bay	NB-BB-35	8-Jul-24		19	0	0	1	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-35	8-Jul-24		19	0	0	1	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-35	8-Jul-24		19	0	0	1	Softwood	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-35	8-Jul-24		19	0	0	1	Softwood	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
New Bay	NB-BB-35	8-Jul-24		19	0	0	1	Softwood	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	NB-BB-35	8-Jul-24		19	0	0	1	Softwood	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-36	9-Jul-24		16	35	1	0	Barren	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-36	9-Jul-24		16	35	1	0	Barren	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-36	9-Jul-24		16	35	1	0	Barren	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-36	9-Jul-24		16	35	1	0	Barren	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-36	9-Jul-24		16	35	1	0	Barren	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-36	9-Jul-24		16	35	1	0	Barren	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-36	9-Jul-24		16	35	1	0	Barren	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-36	9-Jul-24		16	35	1	0	Barren	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-36	9-Jul-24		16	35	1	0	Barren	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-36	9-Jul-24		16	35	1	0	Barren	COLO	Common Loon	*Gavia immer*	
New Bay	NB-BB-36	9-Jul-24		16	35	1	0	Barren	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-36	9-Jul-24		16	35	1	0	Barren	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-36	9-Jul-24		16	35	1	0	Barren	YWAR	Yellow Warbler	*Setophaga petechia*	
New Bay	NB-BB-36	9-Jul-24		16	35	1	0	Barren	COYE	Common Yellowthroat	*Geothlypis trichas*	
New Bay	NB-BB-37	9-Jul-24		17	45	1	0	Barren	CAJA	Canada Jay	*Perisoreus canadensis*	
New Bay	NB-BB-37	9-Jul-24		17	45	1	0	Barren	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-37	9-Jul-24		17	45	1	0	Barren	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-37	9-Jul-24		17	45	1	0	Barren	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-37	9-Jul-24		17	45	1	0	Barren	HETH	Hermit Thrush	*Catharus guttatus*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
New Bay	NB-BB-37	9-Jul-24		17	45	1	0	Barren	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-37	9-Jul-24		17	45	1	0	Barren	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-37	9-Jul-24		17	45	1	0	Barren	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-37	9-Jul-24		17	45	1	0	Barren	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-37	9-Jul-24		17	45	1	0	Barren	YWAR	Yellow Warbler	*Setophaga petechia*	
New Bay	NB-BB-37	9-Jul-24		17	45	1	0	Barren	COYE	Common Yellowthroat	*Geothlypis trichas*	
New Bay	NB-BB-37	9-Jul-24		17	45	1	0	Barren	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-37	9-Jul-24		17	45	1	0	Barren	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-37	9-Jul-24		17	45	1	0	Barren	PAWA	Palm Warbler	*Setophaga palmarum*	
New Bay	NB-BB-37	9-Jul-24		17	45	1	0	Barren	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-37	9-Jul-24		17	45	1	0	Barren	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
New Bay	NB-BB-37	9-Jul-24		17	45	1	0	Barren	COLO	Common Loon	*Gavia immer*	
New Bay	NB-BB-37	9-Jul-24		17	45	1	0	Barren	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	NB-BB-37	9-Jul-24		17	45	1	0	Barren	AMRE	American Redstart	*Setophaga ruticilla*	
New Bay	NB-BB-38	9-Jul-24		17	65	2	0	Barren	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-38	9-Jul-24		17	65	2	0	Barren	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-38	9-Jul-24		17	65	2	0	Barren	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-38	9-Jul-24		17	65	2	0	Barren	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-38	9-Jul-24		17	65	2	0	Barren	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-38	9-Jul-24		17	65	2	0	Barren	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-38	9-Jul-24		17	65	2	0	Barren	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-38	9-Jul-24		17	65	2	0	Barren	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-38	9-Jul-24		17	65	2	0	Barren	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-38	9-Jul-24		17	65	2	0	Barren	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-38	9-Jul-24		17	65	2	0	Barren	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-38	9-Jul-24		17	65	2	0	Barren	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	
New Bay	NB-BB-38	9-Jul-24		17	65	2	0	Barren	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-38	9-Jul-24		17	65	2	0	Barren	CORA	Common Raven	*Corvus corax*	
New Bay	NB-BB-38	9-Jul-24		17	65	2	0	Barren	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	NB-BB-38	9-Jul-24		17	65	2	0	Barren	COYE	Common Yellowthroat	*Geothlypis trichas*	
New Bay	NB-BB-38	9-Jul-24		17	65	2	0	Barren	COLO	Common Loon	*Gavia immer*	
New Bay	NB-BB-38	9-Jul-24		17	65	2	0	Barren	CAJA	Canada Jay	*Perisoreus canadensis*	
New Bay	NB-BB-38	9-Jul-24		17	65	2	0	Barren	PUFI	Purple Finch	*Haemorhous purpureus*	
New Bay	NB-BB-38	9-Jul-24		17	65	2	0	Barren	SWSP	Swamp Sparrow	*Melospiza georgiana*	
New Bay	NB-BB-39	9-Jul-24		17	50	0	0	Mixed Scrub	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-39	9-Jul-24		17	50	0	0	Mixed Scrub	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-39	9-Jul-24		17	50	0	0	Mixed Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-39	9-Jul-24		17	50	0	0	Mixed Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-39	9-Jul-24		17	50	0	0	Mixed Scrub	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-39	9-Jul-24		17	50	0	0	Mixed Scrub	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-39	9-Jul-24		17	50	0	0	Mixed Scrub	CAJA	Canada Jay	*Perisoreus canadensis*	
New Bay	NB-BB-39	9-Jul-24		17	50	0	0	Mixed Scrub	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-39	9-Jul-24		17	50	0	0	Mixed Scrub	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-39	9-Jul-24		17	50	0	0	Mixed Scrub	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
New Bay	NB-BB-39	9-Jul-24		17	50	0	0	Mixed Scrub	SWTH	Swainson's Thrush	*Catharus ustulatus*	
New Bay	NB-BB-40	9-Jul-24			45	1	0	Hardwood Forest	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-40	9-Jul-24			45	1	0	Hardwood Forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-40	9-Jul-24			45	1	0	Hardwood Forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
New Bay	NB-BB-40	9-Jul-24			45	1	0	Hardwood Forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-40	9-Jul-24			45	1	0	Hardwood Forest	AMRE	American Redstart	*Setophaga ruticilla*	
New Bay	NB-BB-40	9-Jul-24			45	1	0	Hardwood Forest	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-40	9-Jul-24			45	1	0	Hardwood Forest	BHVI	Blue-headed Vireo	*Vireo solitarius*	
New Bay	BB-BANE-06	8-Jul-24		16	10	0	0	Mixed Forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	BB-BANE-06	8-Jul-24		16	10	0	0	Mixed Forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	BB-BANE-06	8-Jul-24		16	10	0	0	Mixed Forest	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	BB-BANE-06	8-Jul-24		16	10	0	0	Mixed Forest	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	BB-BANE-06	8-Jul-24		16	10	0	0	Mixed Forest	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	BB-BANE-06	8-Jul-24		16	10	0	0	Mixed Forest	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
New Bay	BB-BANE-06	8-Jul-24		16	10	0	0	Mixed Forest	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
New Bay	BB-BANE-06	8-Jul-24		16	10	0	0	Mixed Forest	BHVI	Blue-headed Vireo	*Vireo solitarius*	
New Bay	BB-BANE-06	8-Jul-24		16	10	0	0	Mixed Forest	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
New Bay	BB-BANE-06	8-Jul-24		16	10	0	0	Mixed Forest	AMRE	American Redstart	*Setophaga ruticilla*	
New Bay	BB-BANE-06	8-Jul-24		16	10	0	0	Mixed Forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	BB-BANE-06	8-Jul-24		16	10	0	0	Mixed Forest	SWTH	Swainson's Thrush	*Catharus ustulatus*	
New Bay	BB-BANE-06	8-Jul-24		16	10	0	0	Mixed Forest	YWAR	Yellow Warbler	*Setophaga petechia*	
New Bay	BB-BANE-06	8-Jul-24		16	10	0	0	Mixed Forest	OVEN	Ovenbird	*Seiurus aurocapilla*	
New Bay	BB-BANE-06	8-Jul-24		16	10	0	0	Mixed Forest	COLO	Common Loon	*Gavia immer*	
New Bay	BB-BANE-07	8-Jul-24		18	0	0	0	Mixed Forest		N/A	*N/A*	Goshawk nest on walk to site
New Bay	BB-BANE-07	8-Jul-24		18	0	0	0	Mixed Forest	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
New Bay	BB-BANE-07	8-Jul-24		18	0	0	0	Mixed Forest	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
New Bay	BB-BANE-07	8-Jul-24		18	0	0	0	Mixed Forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	BB-BANE-07	8-Jul-24		18	0	0	0	Mixed Forest	TEWA	Tennessee Warbler	*Leiothlypis peregrina*	
New Bay	BB-BANE-07	8-Jul-24		18	0	0	0	Mixed Forest	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	BB-BANE-07	8-Jul-24		18	0	0	0	Mixed Forest	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	BB-BANE-07	8-Jul-24		18	0	0	0	Mixed Forest	SWSP	Swamp Sparrow	*Melospiza georgiana*	
New Bay	BB-BANE-01	9-Jul-24		14	30	0	1	Mixed Forest (brook)	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	BB-BANE-01	9-Jul-24		14	30	0	1	Mixed Forest (brook)	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	BB-BANE-01	9-Jul-24		14	30	0	1	Mixed Forest (brook)	AMRE	American Redstart	*Setophaga ruticilla*	
New Bay	BB-BANE-01	9-Jul-24		14	30	0	1	Mixed Forest (brook)	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	BB-BANE-01	9-Jul-24		14	30	0	1	Mixed Forest (brook)	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	BB-BANE-01	9-Jul-24		14	30	0	1	Mixed Forest (brook)	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	BB-BANE-01	9-Jul-24		14	30	0	1	Mixed Forest (brook)	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	BB-BANE-01	9-Jul-24		14	30	0	1	Mixed Forest (brook)	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
New Bay	BB-BANE-01	9-Jul-24		14	30	0	1	Mixed Forest (brook)	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	BB-BANE-01	9-Jul-24		14	30	0	1	Mixed Forest (brook)	COLO	Common Loon	*Gavia immer*	
New Bay	BB-BANE-02	9-Jul-24		16	30	0	0	Mixed Forest	SWTH	Swainson's Thrush	*Catharus ustulatus*	
New Bay	BB-BANE-02	9-Jul-24		16	30	0	0	Mixed Forest	SWTH	Swainson's Thrush	*Catharus ustulatus*	
New Bay	BB-BANE-02	9-Jul-24		16	30	0	0	Mixed Forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	BB-BANE-02	9-Jul-24		16	30	0	0	Mixed Forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	BB-BANE-02	9-Jul-24		16	30	0	0	Mixed Forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	BB-BANE-02	9-Jul-24		16	30	0	0	Mixed Forest	AMRE	American Redstart	*Setophaga ruticilla*	
New Bay	BB-BANE-02	9-Jul-24		16	30	0	0	Mixed Forest	AMRE	American Redstart	*Setophaga ruticilla*	
New Bay	BB-BANE-02	9-Jul-24		16	30	0	0	Mixed Forest	OVEN	Ovenbird	*Seiurus aurocapilla*	
New Bay	BB-BANE-02	9-Jul-24		16	30	0	0	Mixed Forest	UNK	Woodpecker sp.	*N/A*	Woodpecker
New Bay	BB-BANE-02	9-Jul-24		16	30	0	0	Mixed Forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	BB-BANE-02	9-Jul-24		16	30	0	0	Mixed Forest	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
New Bay	BB-BANE-02	9-Jul-24		16	30	0	0	Mixed Forest	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	BB-BANE-02	9-Jul-24		16	30	0	0	Mixed Forest	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	BB-BANE-03	9-Jul-24		18		0	1	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	BB-BANE-03	9-Jul-24		18		0	1	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	BB-BANE-03	9-Jul-24		18		0	1	Softwood	SWTH	Swainson's Thrush	*Catharus ustulatus*	
New Bay	BB-BANE-03	9-Jul-24		18		0	1	Softwood	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	BB-BANE-03	9-Jul-24		18		0	1	Softwood	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
New Bay	BB-BANE-03	9-Jul-24		18		0	1	Softwood	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	BB-BANE-03	9-Jul-24		18		0	1	Softwood	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	BB-BANE-03	9-Jul-24		18		0	1	Softwood	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	BB-BANE-03	9-Jul-24		18		0	1	Softwood	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	BB-BANE-03	9-Jul-24		18		0	1	Softwood	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	BB-BANE-03	9-Jul-24		18		0	1	Softwood	WWCR	White-winged Crossbill	*Loxia leucoptera*	
New Bay	BB-BANE-03	9-Jul-24		18		0	1	Softwood	COLO	Common Loon	*Gavia immer*	
New Bay	BB-BANE-04	9-Jul-24		20		0	0	Wetland/alders	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	BB-BANE-04	9-Jul-24		20		0	0	Wetland/alders	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	BB-BANE-04	9-Jul-24		20		0	0	Wetland/alders	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	BB-BANE-04	9-Jul-24		20		0	0	Wetland/alders	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	BB-BANE-04	9-Jul-24		20		0	0	Wetland/alders	TEWA	Tennessee Warbler	*Leiothlypis peregrina*	
New Bay	BB-BANE-04	9-Jul-24		20		0	0	Wetland/alders	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	BB-BANE-04	9-Jul-24		20		0	0	Wetland/alders	BRCR	Brown Creeper	*Certhia americana*	
New Bay	BB-BANE-04	9-Jul-24		20		0	0	Wetland/alders	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
New Bay	BB-BANE-05	9-Jul-24				1	3	Softwood	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	BB-BANE-05	9-Jul-24				1	3	Softwood	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	BB-BANE-05	9-Jul-24				1	3	Softwood	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	BB-BANE-05	9-Jul-24				1	3	Softwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	BB-BANE-05	9-Jul-24				1	3	Softwood	SWSP	Swamp Sparrow	*Melospiza georgiana*	
New Bay	BB-BANE-05	9-Jul-24				1	3	Softwood	BRCR	Brown Creeper	*Certhia americana*	
New Bay	BB-BANE-05	9-Jul-24				1	3	Softwood	OVEN	Ovenbird	*Seiurus aurocapilla*	
New Bay	BB-02-24-Botwood	15-Jul-24		18	100	1	0	Con Clearing	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	BB-02-24-Botwood	15-Jul-24		18	100	1	0	Con Clearing	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	BB-02-24-Botwood	15-Jul-24		18	100	1	0	Con Clearing	SWSP	Swamp Sparrow	*Melospiza georgiana*	
New Bay	BB-02-24-Botwood	15-Jul-24		18	100	1	0	Con Clearing	PAWA	Palm Warbler	*Setophaga palmarum*	
New Bay	BB-02-24-Botwood	15-Jul-24		18	100	1	0	Con Clearing	YWAR	Yellow Warbler	*Setophaga petechia*	
New Bay	BB-02-24-Botwood	15-Jul-24		18	100	1	0	Con Clearing	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
New Bay	BB-02-24-Botwood	15-Jul-24		18	100	1	0	Con Clearing	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	BB-02-24-Botwood	15-Jul-24		18	100	1	0	Con Clearing	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	BB-02-24-Botwood	15-Jul-24		18	100	1	0	Con Clearing	UNK	Gull sp.	*N/A*	Gull Spp. Flew over
New Bay	BB-01-24-Botwood	10-Jul-24		18	100	1	0	Alders	OVEN	Ovenbird	*Seiurus aurocapilla*	
New Bay	BB-01-24-Botwood	10-Jul-24		18	100	1	0	Alders	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	BB-01-24-Botwood	10-Jul-24		18	100	1	0	Alders	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	BB-01-24-Botwood	10-Jul-24		18	100	1	0	Alders	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	BB-01-24-Botwood	10-Jul-24		18	100	1	0	Alders	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	BB-01-24-Botwood	10-Jul-24		18	100	1	0	Alders	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	BB-01-24-Botwood	10-Jul-24		18	100	1	0	Alders	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	BB-01-24-Botwood	10-Jul-24		18	100	1	0	Alders	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	BB-01-24-Botwood	10-Jul-24		18	100	1	0	Alders	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	BB-01-24-Botwood	10-Jul-24		18	100	1	0	Alders	BAWW	Black-and-White Warbler	*Mniotilta varia*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
New Bay	BB-01-24-Botwood	10-Jul-24		18	100	1	0	Alders	AMRO	American Robin	*Turdus migratorius*	
New Bay	BB-01-24-Botwood	10-Jul-24		18	100	1	0	Alders	YWAR	Yellow Warbler	*Setophaga petechia*	
New Bay	BB-01-24-Botwood	10-Jul-24		18	100	1	0	Alders	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	BB-01-24-Botwood	10-Jul-24		18	100	1	0	Alders	COLO	Common Loon	*Gavia immer*	
New Bay	BB-BANE01-24	17-Jun-24	0	8	50	1	1	Mixedwood forest	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	Near small tributary
New Bay	BB-BANE01-24	17-Jun-24	0	8	50	1	1	Mixedwood forest	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	Near small tributary
New Bay	BB-BANE01-24	17-Jun-24	0	8	50	1	1	Mixedwood forest	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	Near small tributary
New Bay	BB-BANE01-24	17-Jun-24	0	8	50	1	1	Mixedwood forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	Near small tributary
New Bay	BB-BANE01-24	17-Jun-24	0	8	50	1	1	Mixedwood forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	Near small tributary
New Bay	BB-BANE01-24	17-Jun-24	0	8	50	1	1	Mixedwood forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	Near small tributary
New Bay	BB-BANE01-24	17-Jun-24	0	8	50	1	1	Mixedwood forest	ALFL	Alder Flycatcher	*Empidonax alnorum*	Near small tributary
New Bay	BB-BANE01-24	17-Jun-24	0	8	50	1	1	Mixedwood forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	Near small tributary
New Bay	BB-BANE02-24	17-Jun-24	0	10	10	0	0	Mixedwood forest	BCCH	Black-capped Chickadee	*Poecile atricapillus*	Near small tributary
New Bay	BB-BANE02-24	17-Jun-24	0	10	10	0	0	Mixedwood forest	AMRE	American Redstart	*Setophaga ruticilla*	
New Bay	BB-BANE02-24	17-Jun-24	0	10	10	0	0	Mixedwood forest	OVEN	Ovenbird	*Seiurus aurocapilla*	
New Bay	BB-BANE02-24	17-Jun-24	0	10	10	0	0	Mixedwood forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	BB-BANE02-24	17-Jun-24	0	10	10	0	0	Mixedwood forest	AMRO	American Robin	*Turdus migratorius*	
New Bay	BB-BANE02-24	17-Jun-24	0	10	10	0	0	Mixedwood forest	SWTH	Swainson's Thrush	*Catharus ustulatus*	
New Bay	BB-BANE02-24	17-Jun-24	0	10	10	0	0	Mixedwood forest	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
New Bay	BB-BANE03-24	17-Jun-24	0	12	0	0	0	Mixedwood forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	BB-BANE03-24	17-Jun-24	0	12	0	0	0	Mixedwood forest	AMRO	American Robin	*Turdus migratorius*	
New Bay	BB-BANE03-24	17-Jun-24	0	12	0	0	0	Mixedwood forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	BB-BANE03-24	17-Jun-24	0	12	0	0	0	Mixedwood forest	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	BB-BANE03-24	17-Jun-24	0	12	0	0	0	Mixedwood forest	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
New Bay	BB-BANE03-24	17-Jun-24	0	12	0	0	0	Mixedwood forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	BB-BANE03-24	17-Jun-24	0	12	0	0	0	Mixedwood forest	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	BB-BANE04-24	17-Jun-24	0	15	0	0	0	Mixedwood forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	BB-BANE04-24	17-Jun-24	0	15	0	0	0	Mixedwood forest	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	BB-BANE04-24	17-Jun-24	0	15	0	0	0	Mixedwood forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	BB-BANE04-24	17-Jun-24	0	15	0	0	0	Mixedwood forest	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	BB-BANE04-24	17-Jun-24	0	15	0	0	0	Mixedwood forest	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	BB-BANE04-24	17-Jun-24	0	15	0	0	0	Mixedwood forest	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	BB-BANE04-24	17-Jun-24	0	15	0	0	0	Mixedwood forest	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	BB-BANE05-24	17-Jun-24	0	16	0	0	1	Mixedwood forest	OVEN	Ovenbird	*Seiurus aurocapilla*	Near highway
New Bay	BB-BANE05-24	17-Jun-24	0	16	0	0	1	Mixedwood forest	OVEN	Ovenbird	*Seiurus aurocapilla*	Near highway
New Bay	BB-BANE05-24	17-Jun-24	0	16	0	0	1	Mixedwood forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	Near highway
New Bay	BB-BANE06-24	18-Jun-24	0	18	5	0	0	Mixedwood forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	BB-BANE06-24	18-Jun-24	0	18	5	0	0	Mixedwood forest	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
New Bay	BB-BANE06-24	18-Jun-24	0	18	5	0	0	Mixedwood forest	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	BB-BANE06-24	18-Jun-24	0	18	5	0	0	Mixedwood forest	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	BB-BANE06-24	18-Jun-24	0	18	5	0	0	Mixedwood forest	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	BB-BANE06-24	18-Jun-24	0	18	5	0	0	Mixedwood forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	BB-BANE06-24	18-Jun-24	0	18	5	0	0	Mixedwood forest	AMRO	American Robin	*Turdus migratorius*	
New Bay	BB-BANE06-24	18-Jun-24	0	18	5	0	0	Mixedwood forest	WISN	Wilson's Snipe	*Gallinago delicata*	
New Bay	BB-BANE07-24	18-Jun-24	0	18	90	0	0	Mixedwood forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	BB-BANE07-24	18-Jun-24	0	18	90	0	0	Mixedwood forest	AMRO	American Robin	*Turdus migratorius*	
New Bay	BB-BANE07-24	18-Jun-24	0	18	90	0	0	Mixedwood forest	BBWO	Black-backed Woodpecker	*Picoides arcticus*	Feeding
New Bay	BB-BANE07-24	18-Jun-24	0	18	90	0	0	Mixedwood forest	HAWO	Hairy Woodpecker	*Dryobates villosus*	Feeding

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
New Bay	BB-BANE07-24	18-Jun-24	0	18	90	0	0	Mixedwood forest	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	BB-01-24BOT	16-Jun-24		13	100	1	1	Wetland	AMRE	American Redstart	*Setophaga ruticilla*	
New Bay	BB-01-24BOT	16-Jun-24		13	100	1	1	Wetland	YWAR	Yellow Warbler	*Setophaga petechia*	
New Bay	BB-01-24BOT	16-Jun-24		13	100	1	1	Wetland	MOWA	Mourning Warbler	*Geothlypis philadelphia*	
New Bay	BB-01-24BOT	16-Jun-24		13	100	1	1	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	BB-01-24BOT	16-Jun-24		13	100	1	1	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	BB-01-24BOT	16-Jun-24		13	100	1	1	Wetland	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	BB-01-24BOT	16-Jun-24		13	100	1	1	Wetland	AMRO	American Robin	*Turdus migratorius*	
New Bay	BB-01-24BOT	16-Jun-24		13	100	1	1	Wetland	AMRO	American Robin	*Turdus migratorius*	
New Bay	BB-01-24BOT	16-Jun-24		13	100	1	1	Wetland	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	BB-01-24BOT	16-Jun-24		13	100	1	1	Wetland	COYE	Common Yellowthroat	*Geothlypis trichas*	
New Bay	BB-01-24BOT	16-Jun-24		13	100	1	1	Wetland	AMGO	American Goldfinch	*Spinus tristis*	
New Bay	BB-01-24BOT	16-Jun-24		13	100	1	1	Wetland	WISN	Wilson's Snipe	*Gallinago delicata*	
New Bay	BB-02-24BOT	16-Jun-24	0		100	1	1	Con Scrub	YWAR	Yellow Warbler	*Setophaga petechia*	
New Bay	BB-02-24BOT	16-Jun-24	0		100	1	1	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	BB-02-24BOT	16-Jun-24	0		100	1	1	Con Scrub	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	BB-02-24BOT	16-Jun-24	0		100	1	1	Con Scrub	AMRO	American Robin	*Turdus migratorius*	
New Bay	BB-02-24BOT	16-Jun-24	0		100	1	1	Con Scrub	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	BB-58-24	25-Jun-24	0	12	100	0	1	Con Scrub	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	BB-58-24	25-Jun-24	0	12	100	0	1	Con Scrub	OCWA	Orange-crowned Warbler	*Leiothlypis celata*	
New Bay	BB-58-24	25-Jun-24	0	12	100	0	1	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	BB-58-24	25-Jun-24	0	12	100	0	1	Con Scrub	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-1	15-Jun-24	0	10	10	1	1	Hardwood	AMRE	American Redstart	*Setophaga ruticilla*	
New Bay	NB-BB-1	15-Jun-24	0	10	10	1	1	Hardwood	MOWA	Mourning Warbler	*Geothlypis philadelphia*	
New Bay	NB-BB-1	15-Jun-24	0	10	10	1	1	Hardwood	MOWA	Mourning Warbler	*Geothlypis philadelphia*	
New Bay	NB-BB-1	15-Jun-24	0	10	10	1	1	Hardwood	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-1	15-Jun-24	0	10	10	1	1	Hardwood	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-1	15-Jun-24	0	10	10	1	1	Hardwood	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-1	15-Jun-24	0	10	10	1	1	Hardwood	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	NB-BB-1	15-Jun-24	0	10	10	1	1	Hardwood	COLO	Common Loon	*Gavia immer*	
New Bay	NB-BB-1	15-Jun-24	0	10	10	1	1	Hardwood	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-1	15-Jun-24	0	10	10	1	1	Hardwood	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-1	15-Jun-24	0	10	10	1	1	Hardwood	PISI	Pine Siskin	*Spinus pinus*	
New Bay	NB-BB-2	15-Jun-24	0	10	10	1	1	Mixedwood forest	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-2	15-Jun-24	0	10	10	1	1	Mixedwood forest	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-2	15-Jun-24	0	10	10	1	1	Mixedwood forest	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-2	15-Jun-24	0	10	10	1	1	Mixedwood forest	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-2	15-Jun-24	0	10	10	1	1	Mixedwood forest	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-2	15-Jun-24	0	10	10	1	1	Mixedwood forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-2	15-Jun-24	0	10	10	1	1	Mixedwood forest	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-2	15-Jun-24	0	10	10	1	1	Mixedwood forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-2	15-Jun-24	0	10	10	1	1	Mixedwood forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-2	15-Jun-24	0	10	10	1	1	Mixedwood forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-3	14-Jun-24	0	11	10	2	0	Mixedwood forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-3	14-Jun-24	0	11	10	2	0	Mixedwood forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-3	14-Jun-24	0	11	10	2	0	Mixedwood forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-3	14-Jun-24	0	11	10	2	0	Mixedwood forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-3	14-Jun-24	0	11	10	2	0	Mixedwood forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
New Bay	NB-BB-3	14-Jun-24	0	11	10	2	0	Mixedwood forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-3	14-Jun-24	0	11	10	2	0	Mixedwood forest	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	NB-BB-3	14-Jun-24	0	11	10	2	0	Mixedwood forest	UNK	Woodpecker sp.	*N/A*	Woodpecker
New Bay	NB-BB-3	14-Jun-24	0	11	10	2	0	Mixedwood forest	OVEN	Ovenbird	*Seiurus aurocapilla*	
New Bay	NB-BB-3	14-Jun-24	0	11	10	2	0	Mixedwood forest	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-3	14-Jun-24	0	11	10	2	0	Mixedwood forest	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-3	14-Jun-24	0	11	10	2	0	Mixedwood forest	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-3	14-Jun-24	0	11	10	2	0	Mixedwood forest	YWAR	Yellow Warbler	*Setophaga petechia*	
New Bay	NB-BB-4	14-Jun-24	0	11	10	3	1	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-4	14-Jun-24	0	11	10	3	1	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-4	14-Jun-24	0	11	10	3	1	Wetland	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-4	14-Jun-24	0	11	10	3	1	Wetland	COYE	Common Yellowthroat	*Geothlypis trichas*	
New Bay	NB-BB-4	14-Jun-24	0	11	10	3	1	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-4	14-Jun-24	0	11	10	3	1	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-4	14-Jun-24	0	11	10	3	1	Wetland	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-4	14-Jun-24	0	11	10	3	1	Wetland	CAJA	Canada Jay	*Perisoreus canadensis*	
New Bay	NB-BB-4	14-Jun-24	0	11	10	3	1	Wetland	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
New Bay	NB-BB-4	14-Jun-24	0	11	10	3	1	Wetland	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-4	14-Jun-24	0	11	10	3	1	Wetland	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-4	14-Jun-24	0	11	10	3	1	Wetland	SWTH	Swainson's Thrush	*Catharus ustulatus*	
New Bay	NB-BB-5	15-Jun-24	0	13	10	1	0	Mixedwood forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-5	15-Jun-24	0	13	10	1	0	Mixedwood forest	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
New Bay	NB-BB-5	15-Jun-24	0	13	10	1	0	Mixedwood forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-5	15-Jun-24	0	13	10	1	0	Mixedwood forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-5	15-Jun-24	0	13	10	1	0	Mixedwood forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-5	15-Jun-24	0	13	10	1	0	Mixedwood forest	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-5	15-Jun-24	0	13	10	1	0	Mixedwood forest	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-5	15-Jun-24	0	13	10	1	0	Mixedwood forest	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-5	15-Jun-24	0	13	10	1	0	Mixedwood forest	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-6	15-Jun-24	0	15	20	2	1	Softwood forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-6	15-Jun-24	0	15	20	2	1	Softwood forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-6	15-Jun-24	0	15	20	2	1	Softwood forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-6	15-Jun-24	0	15	20	2	1	Softwood forest	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-6	15-Jun-24	0	15	20	2	1	Softwood forest	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-6	15-Jun-24	0	15	20	2	1	Softwood forest	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	NB-BB-6	15-Jun-24	0	15	20	2	1	Softwood forest	YWAR	Yellow Warbler	*Setophaga petechia*	
New Bay	NB-BB-6	15-Jun-24	0	15	20	2	1	Softwood forest	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-7	14-Jun-24	0	15	30	3	2	Wetland	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-7	14-Jun-24	0	15	30	3	2	Wetland	COYE	Common Yellowthroat	*Geothlypis trichas*	
New Bay	NB-BB-7	14-Jun-24	0	15	30	3	2	Wetland	WISN	Wilson's Snipe	*Gallinago delicata*	
New Bay	NB-BB-7	14-Jun-24	0	15	30	3	2	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-7	14-Jun-24	0	15	30	3	2	Wetland	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	
New Bay	NB-BB-8	16-Jun-24	1	17	100		0	Con Scrub	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-8	16-Jun-24	1	17	100		0	Con Scrub	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-8	16-Jun-24	1	17	100		0	Con Scrub	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-8	16-Jun-24	1	17	100		0	Con Scrub	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-8	16-Jun-24	1	17	100		0	Con Scrub	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-8	16-Jun-24	1	17	100		0	Con Scrub	MAWA	Magnolia Warbler	*Setophaga magnolia*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
New Bay	NB-BB-8	16-Jun-24	1	17	100		0	Con Scrub	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-8	16-Jun-24	1	17	100		0	Con Scrub	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-8	16-Jun-24	1	17	100		0	Con Scrub	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	NB-BB-8	16-Jun-24	1	17	100		0	Con Scrub	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	NB-BB-8	16-Jun-24	1	17	100		0	Con Scrub	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-9	16-Jun-24	1	17	100		0	Wetland	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-9	16-Jun-24	1	17	100		0	Wetland	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-9	16-Jun-24	1	17	100		0	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-9	16-Jun-24	1	17	100		0	Wetland	CHSP	Chipping Sparrow	*Spizella passerina*	
New Bay	NB-BB-9	16-Jun-24	1	17	100		0	Wetland	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-9	16-Jun-24	1	17	100		0	Wetland	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-9	16-Jun-24	1	17	100		0	Wetland	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-9	16-Jun-24	1	17	100		0	Wetland	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-9	16-Jun-24	1	17	100		0	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-9	16-Jun-24	1	17	100		0	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-9	16-Jun-24	1	17	100		0	Wetland	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	
New Bay	NB-BB-9	16-Jun-24	1	17	100		0	Wetland	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	NB-BB-10	16-Jun-24	1	17	100	0	0	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-10	16-Jun-24	1	17	100	0	0	Con Scrub	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
New Bay	NB-BB-10	16-Jun-24	1	17	100	0	0	Con Scrub	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-10	16-Jun-24	1	17	100	0	0	Con Scrub	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-10	16-Jun-24	1	17	100	0	0	Con Scrub	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-10	16-Jun-24	1	17	100	0	0	Con Scrub	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-10	16-Jun-24	1	17	100	0	0	Con Scrub	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-10	16-Jun-24	1	17	100	0	0	Con Scrub	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-11	16-Jun-24	1	16	100	0	1	Con Scrub/Wetland	OSFL	Olive-sided Flycatcher	*Contopus cooperi*	
New Bay	NB-BB-11	16-Jun-24	1	16	100	0	1	Con Scrub/Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-11	16-Jun-24	1	16	100	0	1	Con Scrub/Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-11	16-Jun-24	1	16	100	0	1	Con Scrub/Wetland	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-11	16-Jun-24	1	16	100	0	1	Con Scrub/Wetland	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-11	16-Jun-24	1	16	100	0	1	Con Scrub/Wetland	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-11	16-Jun-24	1	16	100	0	1	Con Scrub/Wetland	WIWA	Wilson's Warbler	*Cardellina pusilla*	
New Bay	NB-BB-11	16-Jun-24	1	16	100	0	1	Con Scrub/Wetland	YWAR	Yellow Warbler	*Setophaga petechia*	
New Bay	NB-BB-11	16-Jun-24	1	16	100	0	1	Con Scrub/Wetland	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-11	16-Jun-24	1	16	100	0	1	Con Scrub/Wetland	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	NB-BB-11	16-Jun-24	1	16	100	0	1	Con Scrub/Wetland	COYE	Common Yellowthroat	*Geothlypis trichas*	
New Bay	NB-BB-11	16-Jun-24	1	16	100	0	1	Con Scrub/Wetland	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-12	16-Jun-24		15	100	1	0	Wetland	YWAR	Yellow Warbler	*Setophaga petechia*	
New Bay	NB-BB-12	16-Jun-24		15	100	1	0	Wetland	ALFL	Alder Flycatcher	*Empidonax alnorum*	
New Bay	NB-BB-12	16-Jun-24		15	100	1	0	Wetland	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-12	16-Jun-24		15	100	1	0	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-12	16-Jun-24		15	100	1	0	Wetland	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-12	16-Jun-24		15	100	1	0	Wetland	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-12	16-Jun-24		15	100	1	0	Wetland	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
New Bay	NB-BB-12	16-Jun-24		15	100	1	0	Wetland	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-12	16-Jun-24		15	100	1	0	Wetland	BOCH	Boreal Chickadee	*Poecile hudsonicus*	
New Bay	NB-BB-12	16-Jun-24		15	100	1	0	Wetland	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-12	16-Jun-24		15	100	1	0	Wetland	WISN	Wilson's Snipe	*Gallinago delicata*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
New Bay	NB-BB-12	16-Jun-24		15	100	1	0	Wetland	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-12	16-Jun-24		15	100	1	0	Wetland	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-12	16-Jun-24		15	100	1	0	Wetland	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	NB-BB-12	16-Jun-24		15	100	1	0	Wetland	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	
New Bay	NB-BB-13	17-Jun-24		9	10	1	0	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-13	17-Jun-24		9	10	1	0	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-13	17-Jun-24		9	10	1	0	Con Scrub	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	NB-BB-13	17-Jun-24		9	10	1	0	Con Scrub	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-13	17-Jun-24		9	10	1	0	Con Scrub	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-13	17-Jun-24		9	10	1	0	Con Scrub	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-13	17-Jun-24		9	10	1	0	Con Scrub	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-13	17-Jun-24		9	10	1	0	Con Scrub	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-13	17-Jun-24		9	10	1	0	Con Scrub	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-13	17-Jun-24		9	10	1	0	Con Scrub	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-13	17-Jun-24		9	10	1	0	Con Scrub	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	
New Bay	NB-BB-14	17-Jun-24		11	0	0	0	Regenerative Forest	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-14	17-Jun-24		11	0	0	0	Regenerative Forest	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
New Bay	NB-BB-14	17-Jun-24		11	0	0	0	Regenerative Forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-14	17-Jun-24		11	0	0	0	Regenerative Forest	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-14	17-Jun-24		11	0	0	0	Regenerative Forest	WISN	Wilson's Snipe	*Gallinago delicata*	
New Bay	NB-BB-14	17-Jun-24		11	0	0	0	Regenerative Forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-14	17-Jun-24		11	0	0	0	Regenerative Forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-14	17-Jun-24		11	0	0	0	Regenerative Forest	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	NB-BB-14	17-Jun-24		11	0	0	0	Regenerative Forest	DOWO	Downy Woodpecker	*Dryobates pubescens*	
New Bay	NB-BB-14	17-Jun-24		11	0	0	0	Regenerative Forest	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
New Bay	NB-BB-14	17-Jun-24		11	0	0	0	Regenerative Forest	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-14	17-Jun-24		11	0	0	0	Regenerative Forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-14	17-Jun-24		11	0	0	0	Regenerative Forest	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-14	17-Jun-24		11	0	0	0	Regenerative Forest	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-14	17-Jun-24		11	0	0	0	Regenerative Forest	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-15	17-Jun-24		13	0	2	0	Wetland	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	
New Bay	NB-BB-15	17-Jun-24		13	0	2	0	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-15	17-Jun-24		13	0	2	0	Wetland	WISN	Wilson's Snipe	*Gallinago delicata*	
New Bay	NB-BB-15	17-Jun-24		13	0	2	0	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-15	17-Jun-24		13	0	2	0	Wetland	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-15	17-Jun-24		13	0	2	0	Wetland	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-15	17-Jun-24		13	0	2	0	Wetland	COYE	Common Yellowthroat	*Geothlypis trichas*	
New Bay	NB-BB-15	17-Jun-24		13	0	2	0	Wetland	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-16	17-Jun-24		14	0	1	0	Mixed Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-16	17-Jun-24		14	0	1	0	Mixed Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-16	17-Jun-24		14	0	1	0	Mixed Scrub	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-16	17-Jun-24		14	0	1	0	Mixed Scrub	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-16	17-Jun-24		14	0	1	0	Mixed Scrub	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-16	17-Jun-24		14	0	1	0	Mixed Scrub	BOCH	Boreal Chickadee	*Poecile hudsonicus*	
New Bay	NB-BB-16	17-Jun-24		14	0	1	0	Mixed Scrub	BOCH	Boreal Chickadee	*Poecile hudsonicus*	
New Bay	NB-BB-16	17-Jun-24		14	0	1	0	Mixed Scrub	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-16	17-Jun-24		14	0	1	0	Mixed Scrub	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	NB-BB-16	17-Jun-24		14	0	1	0	Mixed Scrub	WIWA	Wilson's Warbler	*Cardellina pusilla*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
New Bay	NB-BB-16	17-Jun-24		14	0	1	0	Mixed Scrub	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	
New Bay	NB-BB-16	17-Jun-24		14	0	1	0	Mixed Scrub	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-16	17-Jun-24		14	0	1	0	Mixed Scrub	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-17	17-Jun-24		16	5	2	1	Wetland	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	NB-BB-17	17-Jun-24		16	5	2	1	Wetland	WISN	Wilson's Snipe	*Gallinago delicata*	
New Bay	NB-BB-17	17-Jun-24		16	5	2	1	Wetland	CAJA	Canada Jay	*Perisoreus canadensis*	
New Bay	NB-BB-17	17-Jun-24		16	5	2	1	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-17	17-Jun-24		16	5	2	1	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-17	17-Jun-24		16	5	2	1	Wetland	AMCR	American Crow	*Corvus brachyrhynchos*	
New Bay	NB-BB-17	17-Jun-24		16	5	2	1	Wetland	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-17	17-Jun-24		16	5	2	1	Wetland	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-17	17-Jun-24		16	5	2	1	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-17	17-Jun-24		16	5	2	1	Wetland	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-17	17-Jun-24		16	5	2	1	Wetland	WIWA	Wilson's Warbler	*Cardellina pusilla*	
New Bay	NB-BB-18	17-Jun-24		18	0	2	1	Regenerative Forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-18	17-Jun-24		18	0	2	1	Regenerative Forest	WISN	Wilson's Snipe	*Gallinago delicata*	
New Bay	NB-BB-18	17-Jun-24		18	0	2	1	Regenerative Forest	WIWA	Wilson's Warbler	*Cardellina pusilla*	
New Bay	NB-BB-18	17-Jun-24		18	0	2	1	Regenerative Forest	UNK	Woodpecker sp.	*N/A*	woodpecker
New Bay	NB-BB-18	17-Jun-24		18	0	2	1	Regenerative Forest	BLPW	Blackpoll Warbler	*Setophaga striata*	
New Bay	NB-BB-18	17-Jun-24		18	0	2	1	Regenerative Forest	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-18	17-Jun-24		18	0	2	1	Regenerative Forest	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	
New Bay	NB-BB-18	17-Jun-24		18	0	2	1	Regenerative Forest	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-18	17-Jun-24		18	0	2	1	Regenerative Forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-18	17-Jun-24		18	0	2	1	Regenerative Forest	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-19	18-Jun-24		12	90	3	1	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-19	18-Jun-24		12	90	3	1	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-19	18-Jun-24		12	90	3	1	Wetland	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-19	18-Jun-24		12	90	3	1	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-19	18-Jun-24		12	90	3	1	Wetland	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-19	18-Jun-24		12	90	3	1	Wetland	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-19	18-Jun-24		12	90	3	1	Wetland	AMCR	American Crow	*Corvus brachyrhynchos*	
New Bay	NB-BB-19	18-Jun-24		12	90	3	1	Wetland	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-20	18-Jun-24		13	90	2	1	Mixedwood forest	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-20	18-Jun-24		13	90	2	1	Mixedwood forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-20	18-Jun-24		13	90	2	1	Mixedwood forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-20	18-Jun-24		13	90	2	1	Mixedwood forest	SWTH	Swainson's Thrush	*Catharus ustulatus*	
New Bay	NB-BB-20	18-Jun-24		13	90	2	1	Mixedwood forest	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
New Bay	NB-BB-20	18-Jun-24		13	90	2	1	Mixedwood forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-21	18-Jun-24		14	50	2	2	Mixedwood forest	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
New Bay	NB-BB-21	18-Jun-24		14	50	2	2	Mixedwood forest	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-21	18-Jun-24		14	50	2	2	Mixedwood forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-21	18-Jun-24		14	50	2	2	Mixedwood forest	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-21	18-Jun-24		14	50	2	2	Mixedwood forest	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-23	18-Jun-24		16	100	2	1	Mixedwood forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-23	18-Jun-24		16	100	2	1	Mixedwood forest	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-23	18-Jun-24		16	100	2	1	Mixedwood forest	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-23	18-Jun-24		16	100	2	1	Mixedwood forest	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	NB-BB-23	18-Jun-24		16	100	2	1	Mixedwood forest	AMRO	American Robin	*Turdus migratorius*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
New Bay	NB-BB-23	18-Jun-24		16	100	2	1	Mixedwood forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-23	18-Jun-24		16	100	2	1	Mixedwood forest	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
New Bay	NB-BB-23	18-Jun-24		16	100	2	1	Mixedwood forest	SWTH	Swainson's Thrush	*Catharus ustulatus*	
New Bay	NB-BB-24	18-Jun-24		17	100	2	1	Mixedwood forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-24	18-Jun-24		17	100	2	1	Mixedwood forest	BBWA	Bay-breasted Warbler	*Setophaga castanea*	
New Bay	NB-BB-24	18-Jun-24		17	100	2	1	Mixedwood forest	BBWA	Bay-breasted Warbler	*Setophaga castanea*	
New Bay	NB-BB-24	18-Jun-24		17	100	2	1	Mixedwood forest	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-24	18-Jun-24		17	100	2	1	Mixedwood forest	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	NB-BB-24	18-Jun-24		17	100	2	1	Mixedwood forest	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-24	18-Jun-24		17	100	2	1	Mixedwood forest	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-24	18-Jun-24		17	100	2	1	Mixedwood forest	OVEN	Ovenbird	*Seiurus aurocapilla*	
New Bay	NB-BB-24	18-Jun-24		17	100	2	1	Mixedwood forest	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-25	19-Jun-24		14	10	0	1	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-25	19-Jun-24		14	10	0	1	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-25	19-Jun-24		14	10	0	1	Wetland	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-25	19-Jun-24		14	10	0	1	Wetland	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-25	19-Jun-24		14	10	0	1	Wetland	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-25	19-Jun-24		14	10	0	1	Wetland	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-25	19-Jun-24		14	10	0	1	Wetland	OSFL	Olive-sided Flycatcher	*Contopus cooperi*	
New Bay	NB-BB-25	19-Jun-24		14	10	0	1	Wetland	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-25	19-Jun-24		14	10	0	1	Wetland	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-25	19-Jun-24		14	10	0	1	Wetland	WISN	Wilson's Snipe	*Gallinago delicata*	
New Bay	NB-BB-25	19-Jun-24		14	10	0	1	Wetland	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-25	19-Jun-24		14	10	0	1	Wetland	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-25	19-Jun-24		14	10	0	1	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-26	19-Jun-24		13	25	0	0	Wetland/scrub	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-26	19-Jun-24		13	25	0	0	Wetland/scrub	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-26	19-Jun-24		13	25	0	0	Wetland/scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-26	19-Jun-24		13	25	0	0	Wetland/scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-26	19-Jun-24		13	25	0	0	Wetland/scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-26	19-Jun-24		13	25	0	0	Wetland/scrub	OSFL	Olive-sided Flycatcher	*Contopus cooperi*	
New Bay	NB-BB-26	19-Jun-24		13	25	0	0	Wetland/scrub	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-26	19-Jun-24		13	25	0	0	Wetland/scrub	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	NB-BB-26	19-Jun-24		13	25	0	0	Wetland/scrub	CHSP	Chipping Sparrow	*Spizella passerina*	
New Bay	NB-BB-26	19-Jun-24		13	25	0	0	Wetland/scrub	CHSP	Chipping Sparrow	*Spizella passerina*	
New Bay	NB-BB-26	19-Jun-24		13	25	0	0	Wetland/scrub	COYE	Common Yellowthroat	*Geothlypis trichas*	
New Bay	NB-BB-26	19-Jun-24		13	25	0	0	Wetland/scrub	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	NB-BB-26	19-Jun-24		13	25	0	0	Wetland/scrub	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-26	19-Jun-24		13	25	0	0	Wetland/scrub	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-26	19-Jun-24		13	25	0	0	Wetland/scrub	WISN	Wilson's Snipe	*Gallinago delicata*	
New Bay	NB-BB-26	19-Jun-24		13	25	0	0	Wetland/scrub	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-27	19-Jun-24		15	10	0		Softwood forest	SPGR	Spruce Grouse	*Canachites canadensis*	
New Bay	NB-BB-27	19-Jun-24		15	10	0		Softwood forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-27	19-Jun-24		15	10	0		Softwood forest	COLO	Common Loon	*Gavia immer*	
New Bay	NB-BB-27	19-Jun-24		15	10	0		Softwood forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-27	19-Jun-24		15	10	0		Softwood forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-27	19-Jun-24		15	10	0		Softwood forest	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-27	19-Jun-24		15	10	0		Softwood forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
New Bay	NB-BB-27	19-Jun-24		15	10	0		Softwood forest	WISN	Wilson's Snipe	*Gallinago delicata*	
New Bay	NB-BB-27	19-Jun-24		15	10	0		Softwood forest	OSFL	Olive-sided Flycatcher	*Contopus cooperi*	
New Bay	NB-BB-27	19-Jun-24		15	10	0		Softwood forest	RBNU	Red-breasted Nuthatch	*Sitta canadensis*	
New Bay	NB-BB-27	19-Jun-24		15	10	0		Softwood forest	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-27	19-Jun-24		15	10	0		Softwood forest	WIWA	Wilson's Warbler	*Cardellina pusilla*	
New Bay	NB-BB-28	19-Jun-24		16	30	0	1	Softwood forest	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-28	19-Jun-24		16	30	0	1	Softwood forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-28	19-Jun-24		16	30	0	1	Softwood forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-28	19-Jun-24		16	30	0	1	Softwood forest	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-28	19-Jun-24		16	30	0	1	Softwood forest	BBWA	Bay-breasted Warbler	*Setophaga castanea*	
New Bay	NB-BB-28	19-Jun-24		16	30	0	1	Softwood forest	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-28	19-Jun-24		16	30	0	1	Softwood forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-28	19-Jun-24		16	30	0	1	Softwood forest	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-28	19-Jun-24		16	30	0	1	Softwood forest	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
New Bay	NB-BB-28	19-Jun-24		16	30	0	1	Softwood forest	BLPW	Blackpoll Warbler	*Setophaga striata*	
New Bay	NB-BB-28	19-Jun-24		16	30	0	1	Softwood forest	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-29	19-Jun-24		17	5	0	1	Mixedwood forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-29	19-Jun-24		17	5	0	1	Mixedwood forest	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-29	19-Jun-24		17	5	0	1	Mixedwood forest	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-29	19-Jun-24		17	5	0	1	Mixedwood forest	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-29	19-Jun-24		17	5	0	1	Mixedwood forest	OVEN	Ovenbird	*Seiurus aurocapilla*	
New Bay	NB-BB-29	19-Jun-24		17	5	0	1	Mixedwood forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-29	19-Jun-24		17	5	0	1	Mixedwood forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-29	19-Jun-24		17	5	0	1	Mixedwood forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-29	19-Jun-24		17	5	0	1	Mixedwood forest	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	NB-BB-29	19-Jun-24		17	5	0	1	Mixedwood forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-29	19-Jun-24		17	5	0	1	Mixedwood forest	AMRE	American Redstart	*Setophaga ruticilla*	
New Bay	NB-BB-29	19-Jun-24		17	5	0	1	Mixedwood forest	BOCH	Boreal Chickadee	*Poecile hudsonicus*	
New Bay	NB-BB-30	19-Jun-24		22	60	1	0	Barren	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-30	19-Jun-24		22	60	1	0	Barren	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-30	19-Jun-24		22	60	1	0	Barren	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-30	19-Jun-24		22	60	1	0	Barren	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-30	19-Jun-24		22	60	1	0	Barren	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-30	19-Jun-24		22	60	1	0	Barren	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	NB-BB-30	19-Jun-24		22	60	1	0	Barren	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	NB-BB-30	19-Jun-24		22	60	1	0	Barren	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-30	19-Jun-24		22	60	1	0	Barren	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
New Bay	NB-BB-30	19-Jun-24		22	60	1	0	Barren	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-31	20-Jun-24		20	0	1	1	Con Scrub	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-31	20-Jun-24		20	0	1	1	Con Scrub	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-31	20-Jun-24		20	0	1	1	Con Scrub	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-31	20-Jun-24		20	0	1	1	Con Scrub	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-31	20-Jun-24		20	0	1	1	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-31	20-Jun-24		20	0	1	1	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-31	20-Jun-24		20	0	1	1	Con Scrub	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
New Bay	NB-BB-31	20-Jun-24		20	0	1	1	Con Scrub	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-31	20-Jun-24		20	0	1	1	Con Scrub	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-31	20-Jun-24		20	0	1	1	Con Scrub	MAWA	Magnolia Warbler	*Setophaga magnolia*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
New Bay	NB-BB-31	20-Jun-24		20	0	1	1	Con Scrub	CAJA	Canada Jay	*Perisoreus canadensis*	
New Bay	NB-BB-31	20-Jun-24		20	0	1	1	Con Scrub	SWTH	Swainson's Thrush	*Catharus ustulatus*	
New Bay	NB-BB-31	20-Jun-24		20	0	1	1	Con Scrub	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-32	20-Jun-24		20	0	2	1	Mixedwood forest	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
New Bay	NB-BB-32	20-Jun-24		20	0	2	1	Mixedwood forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-32	20-Jun-24		20	0	2	1	Mixedwood forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-32	20-Jun-24		20	0	2	1	Mixedwood forest	OSFL	Olive-sided Flycatcher	*Contopus cooperi*	
New Bay	NB-BB-32	20-Jun-24		20	0	2	1	Mixedwood forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-32	20-Jun-24		20	0	2	1	Mixedwood forest	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-32	20-Jun-24		20	0	2	1	Mixedwood forest	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-32	20-Jun-24		20	0	2	1	Mixedwood forest	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-32	20-Jun-24		20	0	2	1	Mixedwood forest	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-32	20-Jun-24		20	0	2	1	Mixedwood forest	RECR	Red Crossbill	*Loxia curvirostra*	
New Bay	NB-BB-33	20-Jun-24		22	5	2	1	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-33	20-Jun-24		22	5	2	1	Con Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-33	20-Jun-24		22	5	2	1	Con Scrub	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-33	20-Jun-24		22	5	2	1	Con Scrub	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-33	20-Jun-24		22	5	2	1	Con Scrub	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-33	20-Jun-24		22	5	2	1	Con Scrub	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-33	20-Jun-24		22	5	2	1	Con Scrub	WIWA	Wilson's Warbler	*Cardellina pusilla*	
New Bay	NB-BB-33	20-Jun-24		22	5	2	1	Con Scrub	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	NB-BB-33	20-Jun-24		22	5	2	1	Con Scrub	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-33	20-Jun-24		22	5	2	1	Con Scrub	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-34	20-Jun-24		23	30	3	2	Wetland	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-34	20-Jun-24		23	30	3	2	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-34	20-Jun-24		23	30	3	2	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-34	20-Jun-24		23	30	3	2	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-34	20-Jun-24		23	30	3	2	Wetland	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-34	20-Jun-24		23	30	3	2	Wetland	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-34	20-Jun-24		23	30	3	2	Wetland	EVGR	Evening Grosbeak	*Coccothraustes vespertinus*	
New Bay	NB-BB-34	20-Jun-24		23	30	3	2	Wetland	CHSP	Chipping Sparrow	*Spizella passerina*	
New Bay	NB-BB-35	21-Jun-24		12	100	1	0	Hardwood	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-35	21-Jun-24		12	100	1	0	Hardwood	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-35	21-Jun-24		12	100	1	0	Hardwood	OVEN	Ovenbird	*Seiurus aurocapilla*	
New Bay	NB-BB-35	21-Jun-24		12	100	1	0	Hardwood	OVEN	Ovenbird	*Seiurus aurocapilla*	
New Bay	NB-BB-35	21-Jun-24		12	100	1	0	Hardwood	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-35	21-Jun-24		12	100	1	0	Hardwood	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-35	21-Jun-24		12	100	1	0	Hardwood	AMRE	American Redstart	*Setophaga ruticilla*	
New Bay	NB-BB-35	21-Jun-24		12	100	1	0	Hardwood	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-36	21-Jun-24		14	85	0	0	Softwood forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-36	21-Jun-24		14	85	0	0	Softwood forest	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-36	21-Jun-24		14	85	0	0	Softwood forest	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-36	21-Jun-24		14	85	0	0	Softwood forest	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	NB-BB-36	21-Jun-24		14	85	0	0	Softwood forest	OSFL	Olive-sided Flycatcher	*Contopus cooperi*	
New Bay	NB-BB-36	21-Jun-24		14	85	0	0	Softwood forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-36	21-Jun-24		14	85	0	0	Softwood forest	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
New Bay	NB-BB-36	21-Jun-24		14	85	0	0	Softwood forest	BLJA	Blue Jay	*Cyanocitta cristata*	
New Bay	NB-BB-36	21-Jun-24		14	85	0	0	Softwood forest	HETH	Hermit Thrush	*Catharus guttatus*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
New Bay	NB-BB-36	21-Jun-24		14	85	0	0	Softwood forest	OVEN	Ovenbird	*Seiurus aurocapilla*	
New Bay	NB-BB-36	21-Jun-24		14	85	0	0	Softwood forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-37	21-Jun-24		14	50	0	0	Softwood forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-37	21-Jun-24		14	50	0	0	Softwood forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-37	21-Jun-24		14	50	0	0	Softwood forest	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-37	21-Jun-24		14	50	0	0	Softwood forest	CAJA	Canada Jay	*Perisoreus canadensis*	
New Bay	NB-BB-37	21-Jun-24		14	50	0	0	Softwood forest	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-37	21-Jun-24		14	50	0	0	Softwood forest	BLPW	Blackpoll Warbler	*Setophaga striata*	
New Bay	NB-BB-37	21-Jun-24		14	50	0	0	Softwood forest	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	NB-BB-37	21-Jun-24		14	50	0	0	Softwood forest	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	NB-BB-37	21-Jun-24		14	50	0	0	Softwood forest	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-37	21-Jun-24		14	50	0	0	Softwood forest	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-38	26-Jun-24		11	100	0	1	Mixedwood forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-38	26-Jun-24		11	100	0	1	Mixedwood forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-38	26-Jun-24		11	100	0	1	Mixedwood forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-38	26-Jun-24		11	100	0	1	Mixedwood forest	WIWA	Wilson's Warbler	*Cardellina pusilla*	
New Bay	NB-BB-38	26-Jun-24		11	100	0	1	Mixedwood forest	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
New Bay	NB-BB-38	26-Jun-24		11	100	0	1	Mixedwood forest	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-38	26-Jun-24		11	100	0	1	Mixedwood forest	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-38	26-Jun-24		11	100	0	1	Mixedwood forest	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-38	26-Jun-24		11	100	0	1	Mixedwood forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-38	26-Jun-24		11	100	0	1	Mixedwood forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-38	26-Jun-24		11	100	0	1	Mixedwood forest	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-39	26-Jun-24		11	100	0	0	Mixedwood forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-39	26-Jun-24		11	100	0	0	Mixedwood forest	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-39	26-Jun-24		11	100	0	0	Mixedwood forest	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-39	26-Jun-24		11	100	0	0	Mixedwood forest	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
New Bay	NB-BB-39	26-Jun-24		11	100	0	0	Mixedwood forest	BOCH	Boreal Chickadee	*Poecile hudsonicus*	
New Bay	NB-BB-39	26-Jun-24		11	100	0	0	Mixedwood forest	OVEN	Ovenbird	*Seiurus aurocapilla*	
New Bay	NB-BB-39	26-Jun-24		11	100	0	0	Mixedwood forest	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-39	26-Jun-24		11	100	0	0	Mixedwood forest	PIGR	Pine Grosbeak	*Pinicola enucleator*	
New Bay	NB-BB-39	26-Jun-24		11	100	0	0	Mixedwood forest	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
New Bay	NB-BB-39	26-Jun-24		11	100	0	0	Mixedwood forest	AMRE	American Redstart	*Setophaga ruticilla*	
New Bay	NB-BB-39	26-Jun-24		11	100	0	0	Mixedwood forest	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-40	26-Jun-24		11	100	1	0	Barren	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-40	26-Jun-24		11	100	1	0	Barren	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-40	26-Jun-24		11	100	1	0	Barren	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-40	26-Jun-24		11	100	1	0	Barren	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-40	26-Jun-24		11	100	1	0	Barren	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-40	26-Jun-24		11	100	1	0	Barren	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	NB-BB-40	26-Jun-24		11	100	1	0	Barren	AMCR	American Crow	*Corvus brachyrhynchos*	
New Bay	NB-BB-40	26-Jun-24		11	100	1	0	Barren	AMCR	American Crow	*Corvus brachyrhynchos*	
New Bay	NB-BB-40	26-Jun-24		11	100	1	0	Barren	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
New Bay	NB-BB-40	26-Jun-24		11	100	1	0	Barren	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-40	26-Jun-24		11	100	1	0	Barren	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-40	26-Jun-24		11	100	1	0	Barren	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-40	26-Jun-24		11	100	1	0	Barren	PUFI	Purple Finch	*Haemorhous purpureus*	
New Bay	NB-BB-40	26-Jun-24		11	100	1	0	Barren	OSFL	Olive-sided Flycatcher	*Contopus cooperi*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
New Bay	NB-BB-41	26-Jun-24		12	100	0	0	Barren	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-41	26-Jun-24		12	100	0	0	Barren	AMCR	American Crow	*Corvus brachyrhynchos*	
New Bay	NB-BB-41	26-Jun-24		12	100	0	0	Barren	AMCR	American Crow	*Corvus brachyrhynchos*	
New Bay	NB-BB-41	26-Jun-24		12	100	0	0	Barren	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-41	26-Jun-24		12	100	0	0	Barren	DEJU	Dark-eyed Junco	*Junco hyemalis*	
New Bay	NB-BB-41	26-Jun-24		12	100	0	0	Barren	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-41	26-Jun-24		12	100	0	0	Barren	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-41	26-Jun-24		12	100	0	0	Barren	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-41	26-Jun-24		12	100	0	0	Barren	YWAR	Yellow Warbler	*Setophaga petechia*	
New Bay	NB-BB-41	26-Jun-24		12	100	0	0	Barren	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-41	26-Jun-24		12	100	0	0	Barren	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-41	26-Jun-24		12	100	0	0	Barren	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-41	26-Jun-24		12	100	0	0	Barren	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
New Bay	NB-BB-41	26-Jun-24		12	100	0	0	Barren	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-41(2)	26-Jun-24		12	100	1	0	Barren	HETH	Hermit Thrush	*Catharus guttatus*	
New Bay	NB-BB-41(2)	26-Jun-24		12	100	1	0	Barren	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-41(2)	26-Jun-24		12	100	1	0	Barren	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-41(2)	26-Jun-24		12	100	1	0	Barren	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-41(2)	26-Jun-24		12	100	1	0	Barren	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-41(2)	26-Jun-24		12	100	1	0	Barren	FOSP	Fox Sparrow	*Passerella iliaca*	
New Bay	NB-BB-41(2)	26-Jun-24		12	100	1	0	Barren	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-41(2)	26-Jun-24		12	100	1	0	Barren	BAWW	Black-and-White Warbler	*Mniotilta varia*	
New Bay	NB-BB-41(2)	26-Jun-24		12	100	1	0	Barren	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	
New Bay	NB-BB-41(2)	26-Jun-24		12	100	1	0	Barren	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-41(2)	26-Jun-24		12	100	1	0	Barren	NOFL	Northern Flicker	*Colaptes auratus*	
New Bay	NB-BB-41(2)	26-Jun-24		12	100	1	0	Barren	NOFL	Northern Flicker	*Colaptes auratus*	
New Bay	NB-BB-41(2)	26-Jun-24		12	100	1	0	Barren	AMRO	American Robin	*Turdus migratorius*	
New Bay	NB-BB-41(2)	26-Jun-24		12	100	1	0	Barren	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	
New Bay	NB-BB-41(2)	26-Jun-24		12	100	1	0	Barren	COLO	Common Loon	*Gavia immer*	
New Bay	NB-BB-41(2)	26-Jun-24		12	100	1	0	Barren	COME	Common Merganser	*Mergus merganser*	
New Bay	NB-BB-41(2)	26-Jun-24		12	100	1	0	Barren	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-42	26-Jun-24		13	100	0	0	Mixedwood forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-42	26-Jun-24		13	100	0	0	Mixedwood forest	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
New Bay	NB-BB-42	26-Jun-24		13	100	0	0	Mixedwood forest	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
New Bay	NB-BB-42	26-Jun-24		13	100	0	0	Mixedwood forest	YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	
New Bay	NB-BB-42	26-Jun-24		13	100	0	0	Mixedwood forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-42	26-Jun-24		13	100	0	0	Mixedwood forest	BTNW	Black-throated Green Warbler	*Setophaga virens*	
New Bay	NB-BB-42	26-Jun-24		13	100	0	0	Mixedwood forest	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
New Bay	NB-BB-42	26-Jun-24		13	100	0	0	Mixedwood forest	COYE	Common Yellowthroat	*Geothlypis trichas*	
New Bay	NB-BB-42	26-Jun-24		13	100	0	0	Mixedwood forest	MAWA	Magnolia Warbler	*Setophaga magnolia*	
New Bay	NB-BB-42	26-Jun-24		13	100	0	0	Mixedwood forest	UNK	Woodpecker sp.	*N/A*	woodpecker
Leading Tickles	BB-LT01-24	5-Jul-24		15	0	0	1	Wetland	HETH	Hermit Thrush	*Catharus guttatus*	
Leading Tickles	BB-LT01-24	5-Jul-24		15	0	0	1	Wetland	GCKI	Golden-crowned Kinglet	*Regulus satrapa*	
Leading Tickles	BB-LT01-24	5-Jul-24		15	0	0	1	Wetland	SWSP	Swamp Sparrow	*Melospiza georgiana*	
Leading Tickles	BB-LT01-24	5-Jul-24		15	0	0	1	Wetland	COYE	Common Yellowthroat	*Geothlypis trichas*	
Leading Tickles	BB-LT01-24	5-Jul-24		15	0	0	1	Wetland	AMRO	American Robin	*Turdus migratorius*	
Leading Tickles	BB-LT01-24	5-Jul-24		15	0	0	1	Wetland	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Leading Tickles	BB-LT01-24	5-Jul-24		15	0	0	1	Wetland	MAWA	Magnolia Warbler	*Setophaga magnolia*	

Site	Point ID	Date	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Habitat Type	Species Code	Common Name	Scientific Name	Notes
Leading Tickles	BB-LT01-24	5-Jul-24		15	0	0	1	Wetland	BAWW	Black-and-White Warbler	*Mniotilta varia*	
Leading Tickles	BB-LT01-24	5-Jul-24		15	0	0	1	Wetland	UNK	Woodpecker sp.	*N/A*	Woodpecker
Leading Tickles	BB-LT01-24	5-Jul-24		15	0	0	1	Wetland	COLO	Common Loon	*Gavia immer*	
Leading Tickles	BB-LT01-24	5-Jul-24		15	0	0	1	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Leading Tickles	BB-LT01-24	5-Jul-24		15	0	0	1	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Leading Tickles	BB-LT01-24	5-Jul-24		15	0	0	1	Wetland	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Leading Tickles	BB-LT02-24	5-Jul-24		15	50	1	0	Mixed Scrub	OSFL	Olive-sided Flycatcher	*Contopus cooperi*	
Leading Tickles	BB-LT02-24	5-Jul-24		15	50	1	0	Mixed Scrub	OSFL	Olive-sided Flycatcher	*Contopus cooperi*	
Leading Tickles	BB-LT02-24	5-Jul-24		15	50	1	0	Mixed Scrub	RECR	Red Crossbill	*Loxia curvirostra*	
Leading Tickles	BB-LT02-24	5-Jul-24		15	50	1	0	Mixed Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Leading Tickles	BB-LT02-24	5-Jul-24		15	50	1	0	Mixed Scrub	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Leading Tickles	BB-LT02-24	5-Jul-24		15	50	1	0	Mixed Scrub	AMRO	American Robin	*Turdus migratorius*	
Leading Tickles	BB-LT02-24	5-Jul-24		15	50	1	0	Mixed Scrub	HETH	Hermit Thrush	*Catharus guttatus*	
Leading Tickles	BB-LT02-24	5-Jul-24		15	50	1	0	Mixed Scrub	HETH	Hermit Thrush	*Catharus guttatus*	
Leading Tickles	BB-LT02-24	5-Jul-24		15	50	1	0	Mixed Scrub	SWSP	Swamp Sparrow	*Melospiza georgiana*	
Leading Tickles	BB-LT02-24	5-Jul-24		15	50	1	0	Mixed Scrub	SWTH	Swainson's Thrush	*Catharus ustulatus*	
Leading Tickles	BB-LT02-24	5-Jul-24		15	50	1	0	Mixed Scrub	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Leading Tickles	BB-LT01-24	16-Jun-24	0	12	95	2	0	Wetland	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Leading Tickles	BB-LT01-24	16-Jun-24	0	12	95	2	0	Wetland	CAJA	Canada Jay	*Perisoreus canadensis*	
Leading Tickles	BB-LT01-24	16-Jun-24	0	12	95	2	0	Wetland	BAWW	Black-and-White Warbler	*Mniotilta varia*	
Leading Tickles	BB-LT01-24	16-Jun-24	0	12	95	2	0	Wetland	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
Leading Tickles	BB-LT01-24	16-Jun-24	0	12	95	2	0	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Leading Tickles	BB-LT01-24	16-Jun-24	0	12	95	2	0	Wetland	AMRO	American Robin	*Turdus migratorius*	
Leading Tickles	BB-LT01-24	16-Jun-24	0	12	95	2	0	Wetland	SWSP	Swamp Sparrow	*Melospiza georgiana*	
Leading Tickles	BB-LT01-24	16-Jun-24	0	12	95	2	0	Wetland	MAWA	Magnolia Warbler	*Setophaga magnolia*	
Leading Tickles	BB-LT02-24	16-Jun-24	0	14	35	1	0	Wetland	BOCH	Boreal Chickadee	*Poecile hudsonicus*	
Leading Tickles	BB-LT02-24	16-Jun-24	0	14	35	1	0	Wetland	SWSP	Swamp Sparrow	*Melospiza georgiana*	
Leading Tickles	BB-LT02-24	16-Jun-24	0	14	35	1	0	Wetland	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
Leading Tickles	BB-LT02-24	16-Jun-24	0	14	35	1	0	Wetland	COYE	Common Yellowthroat	*Geothlypis trichas*	
Leading Tickles	BB-LT02-24	16-Jun-24	0	14	35	1	0	Wetland	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Leading Tickles	BB-LT02-24	16-Jun-24	0	14	35	1	0	Wetland	AMRO	American Robin	*Turdus migratorius*	
Leading Tickles	BB-LT02-24	16-Jun-24	0	14	35	1	0	Wetland	WISN	Wilson's Snipe	*Gallinago delicata*	
Leading Tickles	BB-LT02-24	16-Jun-24	0	14	35	1	0	Wetland	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Leading Tickles	BB-LT02-24	16-Jun-24	0	14	35	1	0	Wetland	YTWA	UNK	*N/A*	

Site ID	Date	Start Time	End Time	Observers	Wind	Cover	Tide	Visble Area	Percent Flooded	Percent Bare	Percent Vegetated	Vegetation	Species Code	Common Name	Scientific Name	Number Observed
Botwood	05-Jun-24	12:42:00 PM	12:52:00 PM	BS/DP	2	Tidal Mud Flat	Low,Falling	100%	5%	90%	5%	1-6inches	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	1
Botwood	05-Jun-24	12:42:00 PM	12:52:00 PM	BS/DP	2	Tidal Mud Flat	Low,Falling	100%	5%	90%	5%	1-6inches	CAGO	Canada Goose	*Branta canadensis*	10
Botwood	06-Jun-24	11:00:00 AM	11:15:00 AM	BS/DP	3	Tidal Mud Flat	Low,Falling	100%	30%	65%	5%	Bare	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	3
Botwood	29-Jul-24	7:25:00 AM	7:55:00 AM	RP	2	Tidal Mud Flat	Low	100%	0%	100%	0%	6-12 inches	SEPL	Semipalmated Plover	*Charadrius semipalmatus*	4
Botwood	29-Jul-24	7:25:00 AM	7:55:00 AM	RP	2	Tidal Mud Flat	Low	100%	0%	100%	0%	6-12 inches	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	24
Botwood	29-Jul-24	7:25:00 AM	7:55:00 AM	RP	2	Tidal Mud Flat	Low	100%	0%	100%	0%	6-12 inches	SPSA	Spotted Sandpiper	*Actitis macularius*	2
Botwood	29-Jul-24	7:25:00 AM	7:55:00 AM	RP	2	Tidal Mud Flat	Low	100%	0%	100%	0%	6-12 inches	LESA	Least Sandpiper	*Calidris minutilla*	5
Botwood	08-Aug-24	4:05:00 PM	4:25:00 PM	RP	2	Tidal Mud Flat	Low	100%	0%	100%	0%	6-12 inches	SEPL	Semipalmated Plover	*Charadrius semipalmatus*	4
Botwood	08-Aug-24	4:05:00 PM	4:25:00 PM	RP	2	Tidal Mud Flat	Low	100%	0%	100%	0%	6-12 inches	COTE	Common Tern	*Sterna hirundo*	80
Botwood	08-Aug-24	4:05:00 PM	4:25:00 PM	RP	2	Tidal Mud Flat	Low	100%	0%	100%	0%	6-12 inches	CATE	Caspian Tern	*Hydroprogne caspia*	6
Botwood	08-Aug-24	4:05:00 PM	4:25:00 PM	RP	2	Tidal Mud Flat	Low	100%	0%	100%	0%	6-12 inches	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	5
Botwood	08-Aug-24	4:05:00 PM	4:25:00 PM	RP	2	Tidal Mud Flat	Low	100%	0%	100%	0%	6-12 inches	LEYE	Lesser Yellowlegs	*Tringa flavipes*	1
Botwood	11-Aug-24	6:00:00 AM	6:20:00 AM	RP	0	Tidal Mud Flat	Low	100%	0%	100%	0%	6-12 inches	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	16
Botwood	11-Aug-24	6:00:00 AM	6:20:00 AM	RP	0	Tidal Mud Flat	Low	100%	0%	100%	0%	6-12 inches	CAGO	Canada Goose	*Branta canadensis*	5
Botwood	11-Aug-24	6:00:00 AM	6:20:00 AM	RP	0	Tidal Mud Flat	Low	100%	0%	100%	0%	6-12 inches	COTE	Common Tern	*Sterna hirundo*	10
Botwood	11-Aug-24	6:00:00 AM	6:20:00 AM	RP	0	Tidal Mud Flat	Low	100%	0%	100%	0%	6-12 inches	COLO	Common Loon	*Gavia immer*	1
Botwood	11-Aug-24	6:00:00 AM	6:20:00 AM	RP	0	Tidal Mud Flat	Low	100%	0%	100%	0%	6-12 inches	CATE	Caspian Tern	*Hydroprogne caspia*	7
Botwood	11-Aug-24	6:00:00 AM	6:20:00 AM	RP	0	Tidal Mud Flat	Low	100%	0%	100%	0%	6-12 inches	MALL	Mallard	*Anas platyrhynchos*	8
Botwood	11-Aug-24	6:00:00 AM	6:20:00 AM	RP	0	Tidal Mud Flat	Low	100%	0%	100%	0%	6-12 inches	LEYE	Lesser Yellowlegs	*Tringa flavipes*	3
Botwood	11-Aug-24	6:00:00 AM	6:20:00 AM	RP	0	Tidal Mud Flat	Low	100%	0%	100%	0%	6-12 inches	OSPR	Osprey	*Pandion haliaetus*	3
Leading Tickles	05-Jun-24	11:10:00 AM	11:15:00 AM	BS/DP	3	Rocky shoreline	Low,Falling	100%	20%	80%	0%	Bare	DCCO	Double-crested Cormorant	*Nannopterum auritum*	2
Leading Tickles	03-Jun-24	11:10:00 AM	11:25:00 AM	BS/DP	3	Beach	Low,Falling	100%	15%	80%	5%	Bare	Gull sp.	Gull sp.	*N/A*	1
Leading Tickles	05-Jun-24	11:20:00 AM	11:30:00 AM	BS/DP	3	Rocky shoreline	Low,Falling	100%	20%	70%	10%	1-6 inches	Gull sp.	Gull sp.	*N/A*	2
Leading Tickles	04-Jun-24	11:20:00 AM	11:30:00 AM	BS/DP	3	Rocky shoreline	Low,Falling	60%	10%	80%	10%	1-6 inches	GBBG	Great Black-backed Gull	*Larus marinus*	6
Leading Tickles	03-Jun-24	11:20:00 AM	11:30:00 AM	BS/DP	1	Rocky shoreline	Low,Falling	50%	10%	80%	10%	1-6 inches	Gull sp.	Gull sp.	*N/A*	30
Leading Tickles	29-Jul-24	8:50:00 AM	9:10:00 AM	RP	2	Rocky shoreline	Low,rising	60%	10%	90%	0%	Bare	BAEA	Bald Eagle	*Haliaeetus leucocephalus*	1
Leading Tickles	08-Aug-24	5:20:00 PM	5:40:00 PM	RP	2	Rocky shoreline	Low, rising	60%	10%	90%	0%	Bare	AMCR	American Crow	*Corvus brachyrhynchos*	4
Leading Tickles	11-Aug-24	7:10:00 AM	7:30:00 AM	RP	0	Rocky shoreline	Low,rising	60%	20%	80%	0%	Bare	SPSA	Spotted Sandpiper	*Actitis macularius*	1

Site	Point ID	Surveyor(s)	Coordinates (UTM)			Date	Start Time	End Time	Precip-itation	Temp. (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Species Code	Common Name	Scientific Name	Notes
			East (X)	North (Y)	Zone												
Leading Tickles	BW-01	CM/NP	611835	5471337	21U	07-May-24	844	859	0	6	100	1	1	WISN	Wilson's Snipe	*Gallinago delicata*	
Leading Tickles	BW-01	CM/NP	611835	5471337	21U	07-May-24	844	859	0	6	100	1	1	Woopecker sp.	Woopecker sp.	*N/A*	
Leading Tickles	BW-01	AL	611835	5471337	21U	10-Aug-24	801	816	0	18	80	1	0	COLO	Common Loon	*Gavia immer*	
Leading Tickles	BW-01	AL	611835	5471337	21U	10-Aug-24	801	816	0	18	80	1	0	CAJA	Canada Jay	*Perisoreus canadensis*	
Leading Tickles	BW-01	AL	611835	5471337	21U	10-Aug-24	801	816	0	18	80	1	0	CAJA	Canada Jay	*Perisoreus canadensis*	
Leading Tickles	BW-01	AL	611835	5471337	21U	11-Aug-24	801	816	0	18	80	1	0	No Observations	N/A	*N/A*	
Leading Tickles	BW-01	AL/AG	611835	5471337	21U	11-Oct-24	1005	1020	0	5	5	2	0	CORA	Common Raven	*Corvus corax*	CORA observed >100m
Leading Tickles	BW-01	CM/AL	611835	5471337	21U	24-Oct-24	812	827	0	10	5	2	0	No Observations	N/A	*N/A*	
Botwood	BW-02	CM/JF	616939	5459287	21U	09-May-24	841	856	0	5	80	0	0	COLO	Common Loon	*Gavia immer*	
Botwood	BW-02	CM/JF	616939	5459287	21U	09-May-24	841	856	0	5	80	0	0	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	
Botwood	BW-02	CM/JF	616939	5459287	21U	09-May-24	841	856	0	5	80	0	0	HETH	Hermit Thrush	*Catharus guttatus*	
Botwood	BW-02	CM/JF	616939	5459287	21U	09-May-24	841	856	0	5	80	0	0	WISN	Wilson's Snipe	*Gallinago delicata*	
Botwood	BW-02	CM/JF	616939	5459287	21U	09-May-24	841	856	0	5	80	0	0	WISN	Wilson's Snipe	*Gallinago delicata*	
Botwood	BW-02	CM/JF	616939	5459287	21U	09-May-24	841	856	0	5	80	0	0	WISN	Wilson's Snipe	*Gallinago delicata*	
Botwood	BW-02	CM/JF	616939	5459287	21U	09-May-24	841	856	0	5	80	0	0	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
Botwood	BW-02	CM/JF	616939	5459287	21U	09-May-24	841	856	0	5	80	0	0	BCCH	Black-capped Chickadee	*Poecile atricapillus*	
Botwood	BW-02	CM/JF	616939	5459287	21U	09-May-24	841	856	0	5	80	0	0	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Botwood	BW-02	CM/JF	616939	5459287	21U	09-May-24	841	856	0	5	80	0	0	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Botwood	BW-02	CM/JF	616939	5459287	21U	09-May-24	841	856	0	5	80	0	0	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Botwood	BW-02	CM/JF	616939	5459287	21U	09-May-24	841	856	0	5	80	0	0	AMCR	American Crow	*Corvus brachyrhynchos*	
Botwood	BW-02	AL	616939	5459287	21U	10-Aug-24	640	655	0	15	80	1	0	OSFL	Olive-sided Flycatcher	*Contopus cooperi*	
Botwood	BW-02	AL	616939	5459287	21U	10-Aug-24	640	655	0	15	80	1	0	NOWA	Northern Waterthrush	*Parkesia noveboracensis*	
Botwood	BW-02	AL	616939	5459287	21U	10-Aug-24	640	655	0	15	80	1	0	SWSP	Swamp Sparrow	*Melospiza georgiana*	
Botwood	BW-02	AL	616939	5459287	21U	10-Aug-24	640	655	0	15	80	1	0	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	
Botwood	BW-02	AL	616939	5459287	21U	10-Aug-24	640	655	0	15	80	1	0	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	
Botwood	BW-02	AL	616939	5459287	21U	10-Aug-24	640	655	0	15	80	1	0	COLO	Common Loon	*Gavia immer*	
Botwood	BW-02	AL	616939	5459287	21U	11-Aug-24	640	655	0	15	80	1	0	No Observations	N/A	*N/A*	
Botwood	BW-02	AL/AG	616939	5459287	21U	11-Oct-24	902	917	0	5	10	1	1	CORA	Common Raven	*Corvus corax*	CORA observed >100m
Botwood	BW-02	CM/AL	616939	5459287	21U	24-Oct-24	914	929	0	10	20	2	0	No Observations	N/A	*N/A*	
Botwood	BW-03	CM/JF	612809	5454535	21U	09-May-24	939	954	0	5	85	0	0	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	
Botwood	BW-03	CM/JF	612809	5454535	21U	09-May-24	939	954	0	5	85	0	0	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	
Botwood	BW-03	CM/JF	612809	5454535	21U	09-May-24	939	954	0	5	85	0	0	Duck Sp.	Duck Sp.	*N/A*	Fly over, unable to ID
Botwood	BW-03	AL	612809	5454535	21U	12-Aug-24	709	724	0	20	30	0	0	CAJA	Canada Jay	*Perisoreus canadensis*	
Botwood	BW-03	AL	612809	5454535	21U	12-Aug-24	709	724	0	20	30	0	0	CAJA	Canada Jay	*Perisoreus canadensis*	
Botwood	BW-03	AL	612809	5454535	21U	12-Aug-24	709	724	0	20	30	0	0	CAJA	Canada Jay	*Perisoreus canadensis*	
Botwood	BW-03	AL	612809	5454535	21U	12-Aug-24	709	724	0	20	30	0	0	SWSP	Swamp Sparrow	*Melospiza georgiana*	
Botwood	BW-03	AL	612809	5454535	21U	12-Aug-24	709	724	0	20	30	0	0	Woodpecker Sp.	Woodpecker Sp.	*N/A*	
Botwood	BW-03	AL	612809	5454535	21U	12-Aug-24	709	724	0	20	30	0	0	No Observations	N/A	*N/A*	
Botwood	BW-03	AL/AG	612809	5454535	21U	11-Oct-24	756	811	0	5	0	0	0	No Observations	N/A	*N/A*	
Botwood	BW-03	CM/AL	612809	5454535	21U	24-Oct-24	1012	1027	0	12	25	1	0	No Observations	N/A	*N/A*	
Botwood	BW-04	CM/JF	604765	5454556	21U	10-May-24	738	753	0	0	100	2	1	Duck Sp.	Duck Sp.	*N/A*	Heard but unable to ID species
Botwood	BW-04	CM/JF	604765	5454556	21U	10-May-24	738	753	0	0	100	2	1	Duck Sp.	Duck Sp.	*N/A*	Heard but unable to ID species
Botwood	BW-04	CM/JF	604765	5454556	21U	25-May-24	941	956	0	6	100	2	0	No Observations	N/A	*N/A*	No observations

Site	Point ID	Surveyor(s)	Coordinates (UTM)			Date	Start Time	End Time	Precip-itation	Temp. (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Species Code	Common Name	Scientific Name	Notes
			East (X)	North (Y)	Zone												
Botwood	BW-04	AL	604765	5454556	21U	11-Aug-24	710	725	0	18	100	1	0	RUBL	Rusty Blackbird	*Euphagus carolinus*	
Botwood	BW-04	AL	604765	5454556	21U	11-Aug-24	710	725	0	18	100	1	0	RUBL	Rusty Blackbird	*Euphagus carolinus*	
Botwood	BW-04	AL	604765	5454556	21U	11-Aug-24	710	725	0	18	100	1	0	Sandpiper Sp.	Sandpiper Sp.	*N/A*	
Botwood	BW-04	AL	604765	5454556	21U	11-Aug-24	710	725	0	18	100	1	0	No Observations	N/A	*N/A*	
Botwood	BW-04	AL/AG	604765	5454556	21U	10-Oct-24	949	1004	0	10	15	0	0	No Observations	N/A	*N/A*	
Botwood	BW-04	CM/AL	604765	5454556	21U	23-Oct-24	928	943	0	6	75	1	0	No Observations	N/A	*N/A*	
Botwood	BW-05	CM/JF	601625	5447414	21U	08-May-24	938	953	0	4	100	3	1	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	
Botwood	BW-05	CM/JF	601625	5447414	21U	08-May-24	938	953	0	4	100	3	1	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	
Botwood	BW-05	CM/JF	601625	5447414	21U	08-May-24	938	953	0	4	100	3	1	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	
Botwood	BW-05	CM/JF	601625	5447414	21U	25-May-24	839	854	0	6	100	3	1	RNDU	Ring-necked Duck	*Aythya collaris*	
Botwood	BW-05	CM/JF	601625	5447414	21U	25-May-24	839	854	0	6	100	3	1	RNDU	Ring-necked Duck	*Aythya collaris*	
Botwood	BW-05	AL	601625	5447414	21U	09-Aug-24	725	740	0	20	20	1	0	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	
Botwood	BW-05	AL	601625	5447414	21U	09-Aug-24	725	740	0	20	20	1	0	COLO	Common Loon	*Gavia immer*	
Botwood	BW-05	AL	601625	5447414	21U	09-Aug-24	725	740	0	20	20	1	0	Plover Sp.	Plover Sp.	*N/A*	
Botwood	BW-05	AL	601625	5447414	21U	10-Aug-24	725	740	0	20	20	1	0	COLO	Common Loon	*Gavia immer*	
Botwood	BW05	AL/AG	601625	5447414	21U	10-Oct-24	848	903	0	10	5	1	0	No Observations	N/A	*N/A*	
Botwood	BW05	CM/AL	601625	5447414	21U	23-Oct-24	8:38	8:53	0	5	70	2	0	No Observations	N/A	*N/A*	
Botwood	BW-06	CM/JF	607183	5446822	21U	10-May-24	948	1003	0	0	100	3	2	No Observations	N/A	*N/A*	No observations
Botwood	BW-06	AL	607183	5446822	21U	11-Aug-24	940	955	0	20	100	0	0	CAJA	Canada Jay	*Perisoreus canadensis*	
Botwood	BW-06	AL	607183	5446822	21U	11-Aug-24	940	955	0	20	100	0	0	AMRO	American Robin	*Turdus migratorius*	
Botwood	BW-06	AL	607183	5446822	21U	11-Aug-24	940	955	0	20	100	0	0	No Observations	N/A	*N/A*	
Botwood	BW-06	AL/AG	607183	5446822	21U	10-Oct-24	1125	1140	0	12	30	1	0	TCAG	Canada Goose	*Branta canadensis*	
Botwood	BW-06	CM/AL	607183	5446822	21U	23-Oct-24	1042	1057	0	10	40	2	0	No observations	N/A	*N/A*	
Botwood	BW-07	CM/JF	603505	5441412	21U	08-May-24	854	909	1	4	100	3	1	COLO	Common Loon	*Gavia immer*	
Botwood	BW-07	CM/JF	603505	5441412	21U	08-May-24	854	909	1	4	100	3	1	COLO	Common Loon	*Gavia immer*	
Botwood	BW-07	CM	603505	5441412	21U	25-May-24	734	749	0	6	100	2	0	No observations	N/A	*N/A*	No observations
Botwood	BW-07	AL	603505	5441412	21U	09-Aug-24	606	621	0	16	10	1	0	Goldeneye sp.	Goldeneye sp.	*N/A*	Adult with 6 young
Botwood	BW-07	AL	603505	5441412	21U	09-Aug-24	606	621	0	16	10	1	0	COLO	Common Loon	*Gavia immer*	
Botwood	BW-07	AL	603505	5441412	21U	09-Aug-24	606	621	0	16	10	1	0	Goldeneye sp.	Golden eye sp.	*N/A*	Goldeneye had 6 young
Botwood	BW-07	AL	603505	5441412	21U	09-Aug-24	606	621	0	16	10	1	0	COLO	Common Loon	*Gavia immer*	
Botwood	BW-07	AL/AG	603505	5441412	21U	10-Oct-24	757	812	0	8	5	1	1	TCAG	Canada Goose	*Branta canadensis*	Unknown Ducks observed >100m
Botwood	BW-07	CM/AL	603505	5441412	21U	23-Oct-24	7:49	8:04	0	3	80	1	0	No observations	N/A	*N/A*	
Twin Lakes	TL-01	CM/NP	588664	5465694	21U	06-May-24	1105	1120	0	10	50	4	2	BAEA	Bald Eagle	*Haliaeetus leucocephalus*	Wetland
Twin Lakes	TL-01	CM/NP	588664	5465694	21U	06-May-24	1105	1120	0	10	50	4	2	BAEA	Bald Eagle	*Haliaeetus leucocephalus*	Wetland
Twin Lakes	TL-01	AL	588664	5465694	21U	08-Aug-24	731	746	0	18	0	1	0	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	
Twin Lakes	TL-01	AL	588664	5465694	21U	08-Aug-24	731	746	0	18	0	1	0	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	
Twin Lakes	TL-01	AL	588664	5465694	21U	08-Aug-24	731	746	0	18	0	1	0	COLO	Common Loon	*Gavia immer*	
Twin Lakes	TL-01	AL	588664	5465694	21U	08-Aug-24	731	746	0	18	0	1	0	Plover Sp.	Plover Sp.	*N/A*	
Twin Lakes	TL-02	CM/NP	584690	5454390	21U	06-May-24	1622	1637	0	5	100	4	0	WISN	Wilson's Snipe	*Gallinago delicata*	
Twin Lakes	TL-02	CM/RP/JF	584690	5454390	21U	27-May-24	844	859	0	10	5	1	0	CAGO	Canada Goose	*Branta canadensis*	Con Scrub
Twin Lakes	TL-02	CM/RP/JF	584690	5454390	21U	27-May-24	844	859	0	10	5	1	0	CAGO	Canada Goose	*Branta canadensis*	Con Scrub
Twin Lakes	TL-02	CM/RP/JF	584690	5454390	21U	27-May-24	844	859	0	10	5	1	0	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	Con Scrub
Twin Lakes	TL-02	CM/RP/JF	584690	5454390	21U	27-May-24	844	859	0	10	5	1	0	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	Con Scrub

Site	Point ID	Surveyor(s)	Coordinates (UTM)			Date	Start Time	End Time	Precip-itation	Temp. (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Noise	Species Code	Common Name	Scientific Name	Notes
			East (X)	North (Y)	Zone												
Twin Lakes	TL-02	CM/RP/JF	584690	5454390	21U	27-May-24	844	859	0	10	5	1	0	SAVS	Savannah Sparrow	*Passerculus sandwichensis*	Con Scrub
Twin Lakes	TL-02	CM/RP/JF	584690	5454390	21U	27-May-24	844	859	0	10	5	1	0	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	Con Scrub
Twin Lakes	TL-02	CM/RP/JF	584690	5454390	21U	27-May-24	844	859	0	10	5	1	0	DEJU	Dark-eyed Junco	*Junco hyemalis*	Con Scrub
Twin Lakes	TL-02	CM/RP/JF	584690	5454390	21U	27-May-24	844	859	0	10	5	1	0	GRYE	Greater Yellowlegs	*Tringa melanoleuca*	Con Scrub
Twin Lakes	TL-02	CM/RP/JF	584690	5454390	21U	27-May-24	844	859	0	10	5	1	0	RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	Con Scrub
Twin Lakes	TL-02	CM/RP/JF	584690	5454390	21U	27-May-24	844	859	0	10	5	1	0	WISP	Wilson's Snipe	*Gallinago delicata*	Con Scrub
Twin Lakes	TL-02	CM/RP/JF	584690	5454390	21U	27-May-24	844	859	0	10	5	1	0	LISP	Lincoln's Sparrow	*Melospiza lincolnii*	Con Scrub
Twin Lakes	TL-02	CM/RP/JF	584690	5454390	21U	27-May-24	844	859	0	10	5	1	0	YRWA	Yellow-rumped Warbler	*Setophaga coronata*	Con Scrub
Twin Lakes	TL-02	AL	584690	5454390	21U	07-Aug-24	645	700	0	18	0	3	0	WTSP	White-throated Sparrow	*Zonotrichia albicollis*	
Twin Lakes	TL-02	AL/AG	584690	5454390	21U	12-Oct-24	744	759	1	5	80	3	0		N/A	*N/A*	No Observations
Twin Lakes	TL-03	CM/NP	592484	5465293	21U	07-May-24	1319	1334	0	6	100	0	0	WISN	Wilson's Snipe	*Gallinago delicata*	
Twin Lakes	TL-03	CM/NP	592484	5465293	21U	07-May-24	1319	1334	0	6	100	0	0	AMRO	American Robin	*Turdus migratorius*	
Twin Lakes	TL-03	AL	592484	5465293	21U	08-Aug-24	925	940	0	20	5	2	0		N/A	*N/A*	Unknown passerine flew over too fast to ID
Twin Lakes	TL-03	AL/AG	592484	5465293	21U	12-Oct-24	1110	1125	1	8	90	3	1		N/A	*N/A*	No Observations

Point ID	Date	Start Time	End Time	Precip -itation	Cloud (%)	Sea Conditions	Tide Conditions	Tide Movement	Visability	Inshore	Nearshore	Offshore	Outside Survey
CWBS-01	11-Sep-24	12:25	13:03	0	5	Calm	Mid	Falling	500m	N/A	Cormorant Sp.	Duck Sp.	WTSP
CWBS-01	11-Sep-24	12:25	13:03	0	5	Calm	Mid	Falling	500m	N/A	Cormorant Sp.	BAEA	WTSP
CWBS-02	11-Sep-24	1:45	2:20		60	Ripple	high	falling	500m	N/A	HERG	N/A	N/A
CWBS-02	11-Sep-24	1:45	2:20		60	Ripple	high	falling	500m	N/A	DCCO (4)	N/A	N/A
CWBS-02	11-Sep-24	1:45	2:20		60	Ripple	high	falling	500m	N/A	Gull Sp. (7)	N/A	N/A
CWBS-02	11-Sep-24	1:45	2:20		60	Ripple	high	falling	500m	N/A	Sandpiper Sp. (2)	N/A	N/A
CWBS-01	11-Oct-24	12:54	13:22	0	15	Ripple	Mid-High	Rising	Unlimited	N/A	N/A	N/A	Flock of AMRO (aprox. 20)
CWBS-02	11-Oct-24	12:02	12:25	0	10	Choppy	Mid-High	Rising	Unlimited	N/A	N/A	N/A	N/A

Site	Station	Route	Date	Start time	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Dominant Trees	Cone Crops	Species Detected During 5 Min Point Count	Count	Additional Species Detected During Playback	Count	Comments
Leading Tickles	1	LT	19-Mar-25	10:13:00 AM	None	-4	100	1	BS, BF	None	Pine Siskin	1	N/A		
Leading Tickles	2	LT	19-Mar-25	10:50:00 AM	Snow	-4	100	1	BS, WS, BF	None	Canada Jay	1	N/A		
Leading Tickles	3	LT	19-Mar-25	11:30:00 AM	Snow	-2	100	0	BS, WB, BF	None	N/A		N/A		
Leading Tickles	4	LT	19-Mar-25	11:55:00 AM	Snow	-4	100	0	BS, WB, BF	None	N/A		Golden-crowned Kinglet	2	
Leading Tickles	5	LT	19-Mar-25	12:35:00 PM	Snow	-4	100	1	BS	None	N/A		Black-capped Chickadee	1	
Leading Tickles	6	LT	20-Mar-25		None	-4	100	0	BF, WB	None	Black-capped Chickadee	1	Black-capped Chickadee	1	
Leading Tickles	6	LT	20-Mar-25		None	-4	100	0	BF, WB	None	N/A	1	Red-breasted Nuthatch	1	
Leading Tickles	7	LT	20-Mar-25	10:30:00 AM	Snow	-2	100	0	BF, WB, TA	None	N/A		Pine Siskin	1	
Leading Tickles	8	LT	20-Mar-25	10:40:00 AM	Snow	-2	100	1	WS	None	N/A		N/A		
Leading Tickles	9	LT	20-Mar-25	11:30:00 AM	None	0	100	1	BS, WS, BF	None	N/A		Purple Finch	1	
Leading Tickles	10	LT	20-Mar-25	12:01:00 PM		0	100	0	BF, WS	Light	N/A		N/A		
New Bay	1	2	21-Mar-25	9:06:00 AM	Drizzle	2	100	0	BS	Light	Canada Jay	1	N/A		
New Bay	2	2	21-Mar-25	9:30:00 AM	Drizzle	2	100	0	WS, BS, WB	Light	N/A		Black-capped Chickadee	3	
New Bay	3	2	23-Mar-25	9:45:00 AM	None	0	15	3	BS, BF, WS	None	N/A		Black-capped Chickadee	1	
New Bay	4	2	23-Mar-25	10:05:00 AM	None	0	10	3	BS, WS, BF	Light	N/A		N/A		
New Bay	5	2	23-Mar-25	10:30:00 AM	None	0	15	3	BS, WS, BF	Light	N/A		Black-capped Chickadee	1	
New Bay	6	2	23-Mar-25	10:55:00 AM	None	0	10	3	BS, WS, BF		Pine Grosbeak	2	N/A		Flying
New Bay	7	2	23-Mar-25	11:15:00 AM					BS, WS, BF, WB	Light	Common Goldeneye	1	N/A		Audio
New Bay	7	2	23-Mar-25	11:15:00 AM					BS, WS, BF, WB	Light	Common Raven	2	N/A		Visual
New Bay	8	2	23-Mar-25	11:35:00 AM	None	4	0	2	BS, WS	Light	N/A		Black-capped Chickadee	6	Feeding
New Bay	9	2	23-Mar-25	12:00:00 PM		5	0	2	BS, WS, BF, WB	Light	N/A		Boreal Chickadee	3	Feeding
New Bay	10	2	23-Mar-25	12:20:00 PM	None	6	0	2	BS, BF, WB	Light	N/A		N/A		
New Bay	11	2	23-Mar-25	12:45:00 PM	None	7	40	2	BS, WB, BF	Light	Canada Jay	3	N/A		
New Bay	12	2	23-Mar-25	1:05:00 PM	None	7	15	2	BS, WB, BF	Light	Boreal Chickadee	4	Pine Grosbeak	2	
New Bay	12	2	23-Mar-25	1:05:00 PM	None	7	15	2	BS, WB, BF	Light	Black-capped Chickadee	4	Downy Woodpecker	1	
New Bay	12	2	23-Mar-25	1:05:00 PM	None	7	15	2	BS, WB, BF	Light	N/A	4	Black-capped Chickadee	5	
New Bay	12	2	23-Mar-25	1:05:00 PM	None	7	15	2	BS, WB, BF	Light	N/A	4	Boreal Chickadee	3	
New Bay	13	2	23-Mar-25	1:30:00 PM	None	8	0	2	BS, WB, BF	Light	Black-capped Chickadee	1	N/A		
New Bay	14	2	23-Mar-25	1:45:00 PM	None	8	0	3	BS,WB	Light	N/A		Black-capped Chickadee	2	Stream nearby, noise level 2
New Bay	15	2	23-Mar-25	2:40:00 PM	None	8	0	2	BS, BF	Light	N/A		N/A		
New Bay	16	2	23-Mar-25	3:00:00 PM	None	7	10	2	BS, BF, WB	Light	N/A		N/A		
New Bay	17	2	23-Mar-25	3:20:00 PM	None	7	10	2	WB, BS, BF	None	N/A		N/A		
New Bay	18	2	23-Mar-25	3:35:00 PM	None	6	25	3	WB, BS, BF	Light	N/A		N/A		
New Bay	19	2	23-Mar-25	3:55:00 PM	None	6	15	2	BF, BS		American Crow	2	N/A		AMCR flying
New Bay	20	2	23-Mar-25	4:10:00 PM	None	6	5	3	BF	None	N/A		N/A		
Twin Lakes	1	3	24-Mar-25	9:45:00 AM	Snow	-4	40	3	BS		N/A		N/A		
Twin Lakes	2	3	24-Mar-25	10:05:00 AM	Snow	-4	25	3	BS	None	N/A		N/A		
Twin Lakes	3	3	24-Mar-25	10:20:00 AM	Snow	-4	25	3	BS	None	N/A		N/A		
Twin Lakes	4	3	24-Mar-25	10:40:00 AM	Snow	-4	25	3	BS	None	N/A		N/A		
Twin Lakes	5	3	24-Mar-25	11:00:00 AM	Snow	-4	80	3	BS, WS	None	N/A		N/A		
Twin Lakes	6	3	24-Mar-25	11:15:00 AM	Snow	-3	60	3	BS, WS	None	N/A		N/A		
Twin Lakes	7	3	24-Mar-25	11:35:00 AM	Snow	-3	75	3	BS, BF, WS	None	N/A		N/A		
Twin Lakes	8	3	24-Mar-25	11:50:00 AM	Snow	-3	25	4	BS	None	N/A		N/A		
Twin Lakes	9	3	24-Mar-25	12:05:00 PM	None	-4	15	4	BS	None	N/A		N/A		
Twin Lakes	10	3	24-Mar-25	12:30:00 PM	None	-3	5	4	BS	None	N/A		N/A		
Seabright Lakes	1	1	20-Mar-25	3:00:00 PM	None	0	15	1	BS, WB, BF	None	N/A		Pine Siskin	1	
Seabright Lakes	1	1	20-Mar-25	3:00:00 PM	None	0	15	1	BS, WB, BF	None	N/A		Canad Jay	1	
Seabright Lakes	1	1	20-Mar-25	3:00:00 PM	None	0	15	1	BS, WB, BF	None	N/A		Black-capped Chickadee	1	

Site	Station	Route	Date	Start time	Precipitation	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Dominant Trees	Cone Crops	Species Detected During 5 Min Point Count	Count	Additional Species Detected During Playback	Count	Comments
Seabright Lakes	2	1	20-Mar-24	15:20	0	0	20	1	BS, WB	None	N/A		N/A		
Seabright Lakes	3	1	20-Mar-24	15:40	0	0	10	1	BS, WB	None	N/A		Canada Jay	1	
Seabright Lakes	4	1	20-Mar-24						WB, BS, TA	None	N/A		N/A		
Seabright Lakes	5	1	20-Mar-24	16:20	0	3	40	2	WS, WB		Bald Eagle	1	Black-capped Chickadee	4	
Seabright Lakes	5	1	20-Mar-24	16:20	0	3	40	2	WS, WB		N/A		Boreal Chickadee	1	
Seabright Lakes	6	1	20-Mar-24	16:40	0	1	15	2	BS, BF		N/A		N/A		
Seabright Lakes	7	1	20-Mar-24	17:00	0		5	2	BS, BF	None	N/A		N/A		
Seabright Lakes	8	1	20-Mar-24	17:15	0	0	5	2	BS, WS, BF		Canada Jay	1			
Seabright Lakes	9	1	20-Mar-24	17:35	0	0	5	2	BS, WS, BF	None	N/A		N/A		
Seabright Lakes	10	1	20-Mar-24	17:55	0	0	5	1	BS	None	N/A		N/A		