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**Nalcor Energy Lower Churchill
Project, Environmental Effects
Monitoring Program –
Avifauna**

2016 Forest Songbird and
Common Nighthawk (*Chordeiles
minor*) Point-Count Surveys



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Interim Report

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EXECUTIVE SUMMARY

The 2016 Avifauna Environmental Effects Monitoring Program (EEMP) is one component of Nalcor Energy's (Nalcor) larger, multi-year program designed to monitor potential environmental effects on wildlife during the development on the Lower Churchill Generation Project (the Project). The 2016 interim report summarizes the methods and results of field surveys conducted during the third and final year of the Avifauna EEMP.

Stassinu Stantec Limited Partnership (Stassinu Stantec) completed forest songbird and Common Nighthawk (*Chordeiles minor*) point-count surveys in 2016. The forest songbird point-count surveys were designed to assess distribution and habitat associations based on species richness and additional information on provincially listed species at risk (SAR) in the study area. The Common Nighthawk point-count surveys were designed to collect additional information on their distribution and habitat associations in the study area.

Including incidentals, a total of 48 species were identified across 117 forest songbird point-count surveys. Species richness for the entire survey area, based on the total number of target species (i.e., passerines and woodpeckers), was 31. Mean species richness was highest in Riparian Habitat (4.5), followed by Fir-Spruce (4.0) and Mixedwood (3.8) Forest habitats. Mean species richness was lowest in Black Spruce Lichen Woodland (2.9) and Disturbed (2.9) habitats.

Two Common Nighthawks were recorded during evening point-count surveys on July 8, at the same point-count station in a recent (2016) burn. One was identified as a male and the other unconfirmed sex. No other SAR were identified throughout 2016 surveys.

A final report will be prepared combining result of annual monitoring (i.e., 2014-2016), and will provide a detailed assessment of Project-related effects on avifauna in the Project study area.

1.0 INTRODUCTION

Avifauna were identified as a Valued Ecosystem Component (VEC) in the environmental assessment for the Lower Churchill Project (the Project) (Nalcor 2009a, 2009b). As part of commitments made during the environmental assessment process, Nalcor Energy (Nalcor) retained Stassinu Stantec Limited Partnership (Stassinu Stantec) to implement an Environmental Effects Monitoring Program (EEMP) for avifauna in the Project study area. The 2016 Interim Report summarizes the methods and results of field surveys conducted in spring/early summer during the third and final year of the Avifauna EEMP. A final report will be prepared combining result of annual monitoring (i.e., 2014-2016), and will provide an assessment of Project-related effects on forest songbirds in the Project Area.

1.1 Background

In 2006 and 2007, a series of three baseline studies related to avifauna were carried out in support of the Project (Minaskuat Inc. 2008, LGL Limited 2008, Hatch 2007). These surveys confirmed a variety of songbird, waterfowl and raptor species in the Project study area, including five species listed under the federal *Species at Risk Act* (Government of Canada 2002) and/or the Newfoundland and Labrador *Endangered Species Act* (Government of Newfoundland and Labrador 2004): Harlequin Duck (*Histrionicus histrionicus*), Common Nighthawk (*Chordeiles minor*), Olive-sided Flycatcher (*Contopus cooperi*), Gray-cheeked Thrush (*Catharus minimus*), and Rusty Blackbird (*Euphagus carolinus*). Monitoring and follow-up programs identified in the Project Environmental Impact Statement (EIS) (Nalcor 2009a, 2009b) and recommended by the Joint Review Panel (JRP 2011) to address concerns related to avifauna included:

1. Monitoring of ashkui formation in the Project area
2. Monitoring of direct and indirect impacts on waterfowl
3. Development of a detailed mitigation and monitoring plan for all listed species (e.g., point-count surveys).

Ice conditions/ashkui formation and waterfowl [Surf Scoter (*Melanitta perspicillata*)] use of ashkui in the lower Churchill River valley were monitored during the first year of the Avifauna EEMP (i.e., in 2014). Monitoring of listed species and other forest songbirds was also initiated in 2014, with annual data collection until 2016 (i.e., this interim report). The final report will provide a detailed assessment of Project-related effects on forest songbirds, based on point-count data collected from 2014 to 2016.

2.0 STUDY OBJECTIVES

The objective of the 2016 Avifauna EEMP was to collect additional information on the distribution and habitat associations of forest songbirds and avifauna Species at Risk (SAR) in the lower Churchill River valley, based on commitments made in the EIS. Specifically, in 2016 this included:

1. Dawn forest songbird point-count surveys to collect additional information related to species richness in study area and the following SAR: Olive-sided Flycatcher, Rusty Blackbird, and Gray-cheeked Thrush
2. Evening point-count surveys in habitat suitable for Common Nighthawk.

3.0 METHODS

3.1 Study Team

The study team for the 2016 Avifauna EEMP was comprised of personnel from Stassinu Stantec (Table 3.1).

Table 3.1 2016 Avifauna Study Team

Name	Role	Survey
Wayne Tucker	Project Manager	Forest Songbirds Common Nighthawk
Barry Keough	Assistant Project Manager	Forest Songbirds Common Nighthawk
Karen Rashleigh	Team Lead Reporting	Forest Songbirds
Rich LaPaix	Team Lead	Forest Songbirds
Stacey Camus	Team Lead Reporting	Common Nighthawk
Tony Parr	Team Lead	Common Nighthawk
Margie Clark	Field Technician	Forest Songbirds Common Nighthawk
Jean-Luc Hervieux	Field Technician	Forest Songbirds
Chris White	Field Technician	Common Nighthawk
Ken Blackmore	Field Technician	Common Nighthawk
David Sheppard	Field Technician	Common Nighthawk

Prior to the start of the field component of the 2016 Avifauna EEMP, all personnel reviewed the Health, Safety, Environment, and Quality (HSEQ) and Project Execution Plan, and a Risk Management Strategy (Stassinu Stantec 2016). A daily hazard assessment was completed each morning. The required scientific research permit #WLR2016-01 (Appendix A) was acquired from the Government of Newfoundland and Labrador, Department of Environment and Conservation prior to the surveys.

3.2 Study Area

The Lower Churchill Project study area includes the generation facility at Muskrat Falls (main site) and future reservoir and the high-voltage alternating current (HVac) transmission line extending between the towns of Happy Valley-Goose Bay and Churchill Falls (Figure 3-1). In planning for the Avifauna EEMP, the Project study area was broken in four sections, based on Project and landscape features: Below Muskrat Falls, Between Muskrat Falls and Gull Island, Above Gull Island, and Above Gull Island + (Figure 3-1). Within these sections, forest songbird point-count locations were selected based on areas previously surveyed (primarily during baseline investigations in 2006 and 2007) and believed to encompass habitat types representative of the larger Project study area. In 2016, point-count locations targeted the area between Muskrat Falls and Churchill Falls (Figure 3-1).

Common Nighthawk point-count surveys were carried out between Happy Valley-Goose Bay and Gull Island, as well as south along Route 510 from the causeway to the Traverspine River (Figure 3-1). Locations similarly targeted breeding and foraging habitats previously surveyed (in 2014 and/or 2015).

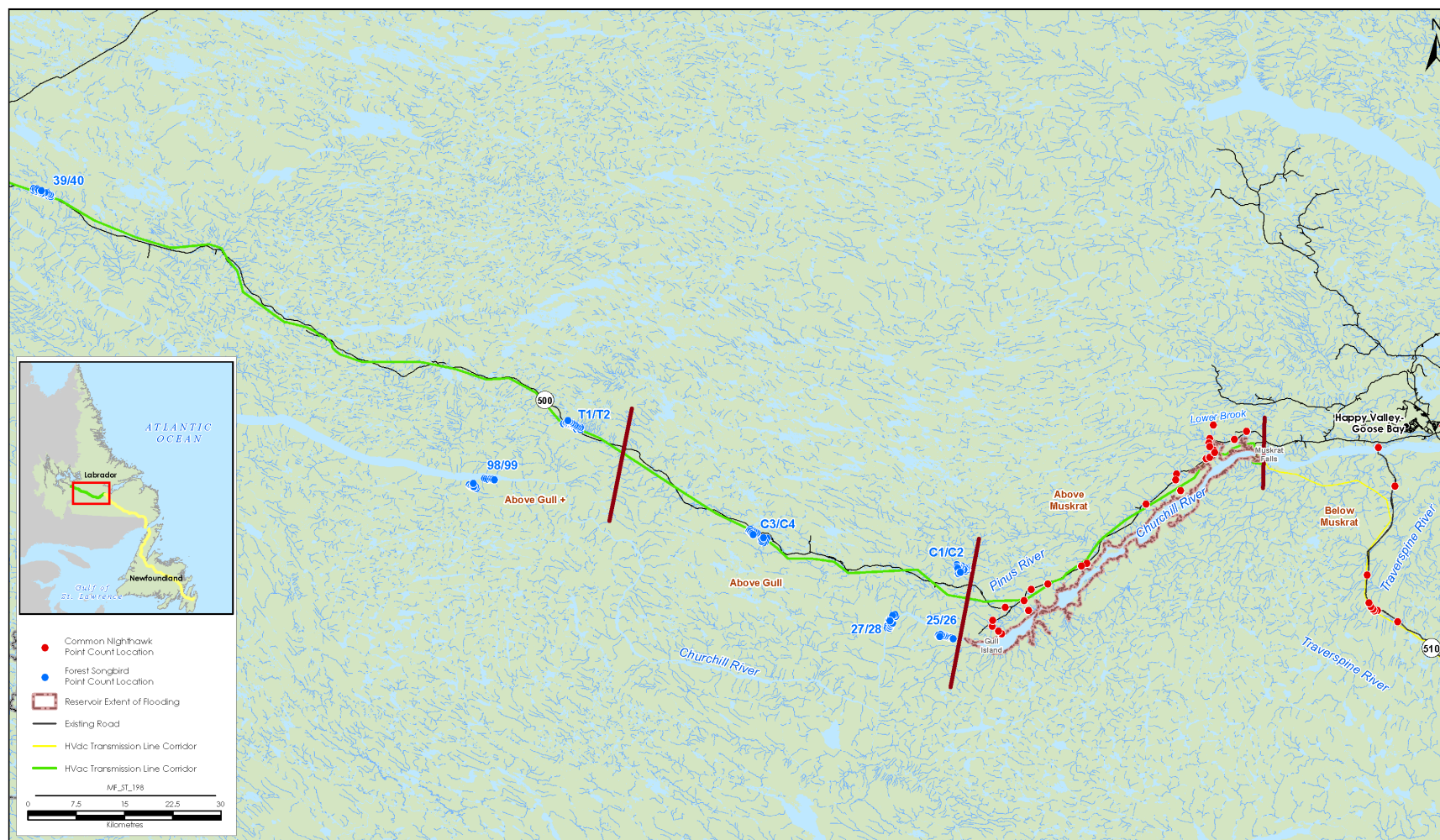


Figure 3-1 2016 Avifauna EEMP Study Area

3.3 Forest Songbird Point-Count Surveys

Survey protocols were designed to follow the Newfoundland and Labrador Boreal Bird Monitoring Protocol Initiative SOP#3 (NLDOEC 2012). The surveys began no earlier than 30 minutes before sunrise and ended approximately 0930. Surveys were conducted under suitable weather conditions including temperatures above freezing, winds less than 25 km/h, little to no precipitation, and visibility of more than 50 m.

Two 2-person field teams conducted the point-count surveys, with point-count stations spaced at 300 m intervals along a transect. At each point-count station, the following information was recorded upon arrival on prepared datasheets: date, GPS location, weather conditions, habitat information, and time of survey.

Surveys consisted of a five-minute listening period followed by a two-minute call playback. All birds heard or observed within the first five minutes were recorded based on distance categories of 0-25, 25-50 m, 50-100 m, and >100 m. After the five-minute listening period, a Black-capped Chickadee (*Poecile atricapillus*) mobbing call was broadcasted for two minutes using a FoxPro game caller. Any new species were recorded in a one-minute listening period after the broadcast, as well as an indication of whether any birds responded to the mobbing call. Any birds (or other wildlife species) heard or observed during transit between point-count stations were recorded as incidental observations.

3.3.1 Species at Risk

Olive-sided Flycatcher, Rusty Blackbird, Common Nighthawk, and Gray-cheeked Thrush were selected as targeted SAR species for the avifauna EEMP based on the EIS (Nalcor 2009a, 2009b). When suitable habitat for the four targeted SAR species was encountered (Table 3.2), call playback of the species was also played for two-minute call playback period (following the chickadee playback-listening period), followed by a one-minute listening period.

Table 3.2 Species at Risk and Their Habitats in the Study Area

Scientific Name	Common Name	Status	Habitat	Occurrence in the Study Area
<i>Contopus cooperi</i>	Olive-sided Flycatcher	Threatened under SARA and NLESA	Open areas (e.g., forest clearings, wetlands, burns) containing mature trees and large numbers of dead trees.	Four observations during baseline surveys in 2006 and 2007, one during 2014 point-count surveys, and one during area nest searches in 2016. Suitable primary habitat estimated to comprise 14% of the lower Churchill River watershed (LCRW).

Scientific Name	Common Name	Status	Habitat	Occurrence in the Study Area
<i>Euphagus carolinus</i>	Rusty Blackbird	Special Concern under SARA Vulnerable NLESA	Primarily occupies forest wetlands, such as slow-moving streams, peat bogs, sedge meadows, marshes, swamps, beaver ponds, and pasture edges.	16 observations during baseline surveys in 2006 and 2007, and seven during area nest searches in 2014. Suitable primary habitat estimated to comprise 3.7% of the LCRW.
<i>Chordeiles minor</i>	Common Nighthawk	Threatened under SARA and NLESA	Burns and burn edges, or anthropogenically disturbed sites for ground nesting; wetland areas for foraging on insects.	Incidental observations during baseline surveys in 2006 (number unconfirmed) and one during area nest searches in 2014. Suitable primary habitat estimated to comprise 42.3% of the LCRW.
<i>Catharus minimus</i>	Gray-cheeked Thrush	Threatened under NLESA	A variety of mature forest types including white spruce, wet spruce and dry spruce adjacent to wetland or riparian habitat.	Nine observations during baseline surveys in 2006 and 2007. Suitable primary habitat estimated to comprise 16.9% of the LCRW.
Notes: - LCRW – Lower Churchill River Watershed; SARA – Species at Risk Act, NLESA – Newfoundland and Labrador Endangered Species Act. - Estimate of primary habitat is based on the regional Ecological Land Classification (ELC) conducted in support of the Project. - Other SAR that may occur in the Project area include Bank Swallow (<i>Riparia riparia</i>) and Harlequin Duck (<i>Histrionicus histrionicus</i>),				

3.3.2 Analysis

Species richness was calculated for the entire study area as well as for each point-count station and averaged by habitat type. Species richness was based on the total of number of species observed during the five-minute listening period, and only for those species recorded <100 m from the observer. Further, only those species targeted by point-count surveys (passerines and woodpeckers) were included when determining species richness (Stantec Consulting Ltd. 2013). Species / species groups omitted from the analysis and justification are as follows (Stantec Consulting Ltd. 2013):

- Waterfowl and waterbirds - their primary habitats are not forests
- Raptors – their territories exceed area surveyed by point-counts
- Early nesters as described by Environment Canada (Government of Canada 2014) as they may not be breeding during the timing of point-counts – Gray Jay (*Perisoreus canadensis*), American Crow (*Corvus brachyrhynchos*), Common Raven (*Corvus corax*), and White-winged Crossbill (*Loxia leucoptera*).

- Colonial species (all Swallows, except Tree Swallow) – can result in error when extrapolated to larger study area

Habitat for each point-count station was based on descriptions recorded in the field, and categorized into general habitat categories aligned with Ecological Land Classification (ELC) models developed for the Project. Habitat types with a minimum of three point-count stations were included when calculating mean species richness by habitat (Stantec Consulting Ltd. 2013). This included Black Spruce (33 stations), Black Spruce Lichen Woodland (21 stations), Fir-Spruce Forest (five stations), Mixedwood Forest (six stations), Riparian (14 stations), Wetland (11 stations), and Disturbed (i.e., cleared ROW; 25 stations). Hardwood Forest (one station) was omitted from the calculation due to a low sample size.

3.4 Common Nighthawk Point-Count Surveys

Surveys followed Stantec's Standard Operating Protocols (SOPs) for Common Nighthawk as well as other species of the Nightjar family (Stantec Consulting Ltd. 2010) based upon recommendations from British Columbia's Resource Inventory Committee (BC RIC 1998) and United States Nightjar Survey Network (US NSN 2012).

Surveys were conducted during mid-to late June, when males are more likely to call (BC RIC 1998). Surveys began at sunset and continued until the end of the dusk crepuscular period, or nautical twilight. Nautical twilight period was identified using a sunrise/sunset calculator from the National Research Council of Canada (Government of Canada 2016). Surveys were conducted under favourable weather conditions with temperature above 7°C, winds below 3 on the Beaufort scale (explained in Table 3.1), and either no precipitation to light, intermittent drizzle.

Two-person field teams conducted point-count surveys, with each station spaced a minimum of 500 m apart (BC RIC 1998). Upon arrival at a survey location, all light and noise sources were turned off, and observers waited one-minute to allow potential effects from such disturbances to subside. During this time, UTM coordinates, weather, moon phase, noise, and habitat information were recorded. Moon phase was determined before heading into the field using the following website: <http://www.timeanddate.com/moon/phases/canada/happy-valley-goose-bay>. Any species detected during this period were recorded as incidental observations. The one-minute waiting period was followed by a six-minute listening period. During the six-minute listening period, any Common Nighthawk observed or heard were recorded. For each Common Nighthawk observation, the number of individuals, visual or auditory observation, sex, habitat, approximate distance, and angle from the observation point was recorded. A two-minute Common Nighthawk call playback followed the six-minute listening period. A final two-minute listening period (ten minutes total) followed the call playback where any Common Nighthawk observations were recorded.

4.0 RESULTS

4.1 Forest Songbirds Point-Count Surveys

4.1.1 Survey Summary and Conditions

A total of 117 point-counts forest songbird point-count surveys were conducted over the seven-day period from June 20 to June 26 (Table 4.1). Weather conditions were generally suitable, with light intermittent to no precipitation occurring throughout surveys, and temperatures well above freezing. Wind gusts of up to 3 and 4 (Beaufort Scale) were recorded on two days. High winds and other noise interference (e.g., river noise) can interfere with an observers' ability to detect birds. Although comparable numbers of birds were recorded singing on these days (Table 4.1), data from individual point-counts during 2016 and previous (i.e., 2014 and 2015) surveys where wind and/or noise disturbance was high, may be excluded from final statistical analyses.

Table 4.1 2016 Forest Songbird Point-Count Survey Locations and Conditions

Date	Transect Location	Survey Duration		# of Point-Counts	Survey Conditions		Total # of Birds detected (< 100m)
		Start Time	End Time		Temperature (°C)	Wind**	
20 June	Repeat of transect series 25 and 26 from baseline*; ~5 km west of GI	06:15	09:20	11	15-17	0	47
21 June	Repeat of transect series C1 and C2 from baseline*; near Pinus River	05:25	09:32	19	15-20	0-4	60
22 June	Repeat of transect series 27 and 28 from baseline*; N and S side of CR near Bob's Brook	05:20	09:18	17	5-15	0-2	67
23 June	Repeat of transect series 98 and 99 from baseline; N and S side of CR at the east end of Lake Winokapau	05:37	09:21	17	5-16	0-2	92
24 June	Repeat of transect series C3 and C4 from baseline; along TLH / ROW	06:36	09:31	16	5-15	0-3	61
25 June	Repeat of transect series 39 and 40 from baseline; along TLH / ROW near Churchill Falls	05:04	09:00	19	5-12	0-1	62
26 June	Repeat of transect series T1 and T2 from baseline; along TLH / ROW	06:22	09:26	18	10-20	0-2	83

Notes:

- * – Exact point-count locations differed slightly from baseline due to different geodetic datums (i.e., NAD 27 vs. NAD 83) used in 2016 vs. during baseline surveys.
- ** – Beaufort Scale: 0 = <2 km/h; 1 = 2-5 km/h; 2 = 6-11 km/h; 3 = 12-19 km/h; 4 = 20-29 km/h
- GI = Gull Island; N = North, S = South, CR = Churchill River, TLH = Trans Labrador Highway; ROW = Right-of-Way

4.1.2 Forest Songbird Point-Count Results

A total of 48 species were identified during point-count surveys, either during the five-minute listening period or incidentally (as flyovers, >100 m from observer, recorded post-mobbing call, or recorded between point-counts) (Appendix B). All species recorded in 2016 were previously identified as occurring in the study area either during baseline (2006/2007) or EEMP (2014/2015) studies. The five most common species recorded in 2016 were (based on point-count records <100 m from the observer): Dark-eyed Junco (*Junco hyemalis*; n=109), Ruby-crowned Kinglet (*Regulus calendula*; n=78), Yellow-rumped Warbler (*Setophaga coronate*; n=53), Swainson's Thrush (*Catharus ustulatus*; n=50), and Gray Jay (*Perisoreus canadensis*; n=42).

Species richness for the total survey area was 31 (based on criteria identified in Section 3.2.2) (Appendix B). Mean species richness was highest in Riparian Habitat (4.5), followed by Fir-Spruce (4.0) and Mixedwood (3.8) Forest habitats (Figure 4-1). Mean species richness was lowest in Black Spruce Lichen Woodland (2.9) and Disturbed (2.9) habitats.

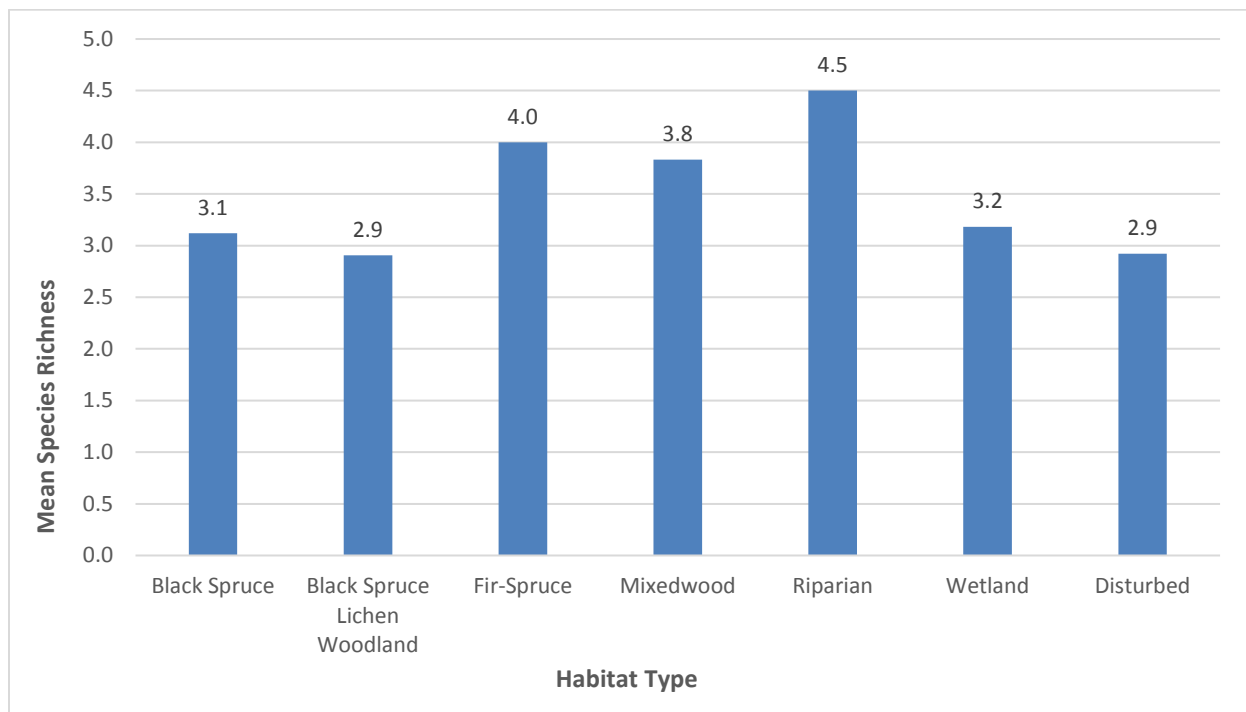


Figure 4-1 Forest Songbird Species Richness by Habitat Type in the Lower Churchill River Valley in 2016

4.1.3 Species at Risk

Rusty Blackbird was the only SAR identified during point-count surveys. Rusty Blackbirds were recorded on four different days, from six different transects, across the study area (Table 4.2). Rusty Blackbirds were primarily detected during the initial five-minute listening period (four of six observations), but were also detected following the Black-capped Chickadee mobbing call and/or Olive-sided Flycatcher call playback. Call playback using the Rusty Blackbird call occasionally brought in the same and sometimes additional individuals (Table 4.2).

Table 4.2 Records of Rusty Blackbird during 2016 Forest Songbird Point-Count Surveys

Date	Method of Detection	Total # Heard and/or Observed	General Habitat	Comments
21 June	Heard calling during PC survey.	1	Black Spruce Lichen Woodland	Bird was likely passing through the area, as the habitat was atypical for RUBL.
24 June	One RUBL recorded during PC survey. RUBL call was played and a pair + juvenile came in.	3	Along cleared ROW adjacent to Wetland habitat	Pair observed with juvenile.
24 June	One RUBL was recorded during PC survey, and a pair flew in after the survey had ended.	2	Wetland adjacent to Black Spruce Lichen Woodland	RUBL was also recorded during the next PC and was likely one of the same individuals.
25 June	One recorded during PC survey as well as at three subsequent PC stations, believed to be the same individual. RUBL call brought in the individual at two of the PC stations. BCCH mobbing call brought in a pair at one other station.	2	Along cleared ROW adjacent Black Spruce forest / Wetland habitat	Pair observed with nesting material.
26 June	One recorded after BCCH mobbing call.	1	Along cleared ROW adjacent to Black Spruce habitat	Open water / Wetland habitat in surrounding area.
26 June	One observed after OSFL call. What is believed to be the same bird was subsequently recorded after RUBL call playback at the next PC station.	1	Wetland / Black Spruce Lichen Forest	Individual observed with nesting material.
Notes: 1. BCCH = Boreal Chickadee, OSFL = Olive-sided Flycatcher, RUBL = Rusty Blackbird 2. PC = Point-count, ROW = Right-of-Way				

4.2 Common Nighthawk Point-Count Surveys

4.2.1 Survey Summary and Conditions

Thirty-five (35) Common Nighthawk point-count surveys were conducted over three evenings between June 29 and July 8 (Table 4.3). All point-count surveys were completed within the identified nautical twilight period, under suitable weather conditions.

Table 4.3 2016 Common Nighthawk Point-Count Survey Locations and Conditions

Date	General Location	Survey Duration		# of Point-Counts	Survey Conditions					
		Start	End		Temp-erature (°C)	Wind*	Cloud Cover (%)	Precip-itation	Moon (Y/N)	Moon Phase
29 June	Between Happy Valley-Goose Bay and Lower Brook	2035	2243	12	17	0	100	Nil	No	Waning crescent
6 July	Between Upper Brook and Pinus River	2032	2146	8	10	1	65	Nil	No	Waxing crescent
8 July	Between Pinus River and Gull Island; Route 510 from the causeway to the Traverspine River	2024	2315	15	15	0	20	Nil	Yes	Waxing crescent

Notes:

- Two-teams were deployed on June 29 and July 6, and one team only on July 6.
- * – Beaufort Scale: 0 = <2 km/h; 1 = 2-5 km/h
- Moon phase was determined before heading into the field using the following website: <http://www.timeanddate.com/moon/phases/canada/happy-valley-goose-bay>
- Survey locations are indicated on Figure 3-1.

4.2.2 Common Nighthawk Point-Count Results

Two Common Nighthawks were recorded from the same point-count station on July 8 (Table 4.4). One was identified as male, based on the "booming" sound created when they dive in flight during mating display or territorial defense. Sex of the other bird was unconfirmed. Both observations were made in a recent (2012) burn.

Table 4.4 Records of Common Nighthawk during 2016 Surveys

Date	General Location	Habitat	# Birds	Direction	Type (Auditory/ Visual)	Sex
8 July	Pinus River	2012 Burn	1	~150 m away at a 353° bearing from the observer	Auditory – flight display "boom"	Male
			1	~170 m away at a 157° bearing from the observer	Auditory – "peent" calls	Unknown

The following bird species were observed incidentally during Common Nighthawk surveys: Spotted Sandpiper (*Actitis macularius*), Wilson's Snipe (*Gallinago delicata*), Least Flycatcher (*Empidonax minimus*), Gray Jay (*Perisoreus canadensis*), Ruby-Crowned Kinglet (*Regulus calendula*), Swainson's Thrush (*Catharus ustulatus*), Hermit Thrush (*Catharus guttatus*), American Robin (*Turdus migratorius*), Tennessee Warbler (*Leiothlypis peregrina*), Black-throated Green Warbler (*Setophaga virens*), White-throated Sparrow (*Zonotrichia albicollis*), Fox Sparrow (*Passerella iliaca*), Dark-eyed Junco (*Junco hyemalis*), and Pine Grosbeak (*Pinicola enucleator*). Other observations included American Toad (*Anaxyrus americanus*) and moose (*Alces alces*) tracks.

5.0 SUMMARY

Results from the 2016 Avifauna EEMP provide additional information on avifauna in the study area, including SAR. A total of 48 species were identified (including non-target species) during 117 point-count surveys, over seven survey days between June 20 and June 26. Species richness for the total survey area was 31 (based on target species only). Mean species richness was highest in Riparian Habitat (4.5), followed by Fir-Spruce (4.0) and Mixedwood (3.8) Forest habitats (Figure 4-1). Mean species richness was lowest in Black Spruce Lichen Woodland (2.9) and Disturbed (2.9) habitats.

Two Common Nighthawks were recorded from the same point-count station on July 8 in a recent (2012) burn. One was identified as a male and the other unconfirmed sex. No other SAR were identified throughout surveys.

2016 represents the final year of the three-year Avifauna EEMP. A final report will be issued providing an assessment of Project-related effects on avifauna from 2014 to 2016, using species richness as a key measure of change over time.

6.0 REFERENCES

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APPENDIX A

Research Permit

GOVERNMENT OF NEWFOUNDLAND AND LABRADOR
Dept of Environment & Conservation

Scientific Research Permit

(as under Section 86 of the Wildlife Regulations, Consolidated Newfoundland and Labrador Regulation 1156/96)

Permit #: WLR2016-01

Supplement to Permit(s) #: IW2013-66; IW2014-25; IW2015-03

Project Title: *Wildlife Environmental Effects Monitoring Programs for the Lower Churchill Generation Project and Labrador-Island Transmission Link*

Issued to:

Wayne Tucker, Team Lead
Stassinu Stantec Limited Partnership
19 Union Street
Corner Brook, NL, A2H 5P9
Tel: (709) 639-9712

Permit to:

- 1) **Spring/Summer Research:** Undertake bird breeding point count surveys and ground nest searches, and monitoring fledging of young;
- 3) **Fall Research:** Undertake late summer/fall aerial surveys for beaver colonies

The objectives of these studies are to investigate and monitor potential environmental effects during construction of the Lower Churchill Generation Project and Labrador-Island Transmission Link Project.

Dates of Research: May 1 to November 1, 2016.

Date of Permit Expiration: December 1, 2016.

Location: All field investigations associated with the Lower Churchill Generation Project will occur primarily within the lower Churchill River watershed of Labrador (Figure 1). Of interest is a 20 km radius around the Project footprint in the lower Churchill River valley and the AC transmission line from Muskrat Falls to Churchill Falls. There are also field investigations associated with the Labrador-Island Transmission Link which extends from Happy Valley-Goose Bay in Labrador to the Northern Peninsula of Newfoundland (Figure 2). The intent is to establish a monitoring grid throughout the study area of each Project where cells become permanent monitoring stations. Where possible and appropriate, pre-existing transects and grids will be resurveyed and supplemented.

Conditions:

- 1) The permit holder may designate other individuals to perform these actions on his behalf, with suitable supervision. The permit holder is responsible for the training of any designated individuals and must ensure that designated individuals follow all conditions of this permit.
- 2) Names and contact information for all individuals participating in research activities shall be provided to the Wildlife Division-Department of Environment and Conservation, prior to commencement of field work. Additional names or deletion of names can be provided to the Wildlife Division on an ongoing basis.
- 3) Prior to initiation of the field program for effects monitoring and baseline investigations, a digital copy of the shape files of all survey routes must be provided to the Wildlife Division.
- 4) This permit is only valid for work within the indicated study areas (Figures 1 and 2).
- 5) With the exception of activities covered under this permit, no wildlife species, including the study species, will be unduly harassed, injured or killed as a result of activities performed under this permit. The Wildlife Division advises applicants to operate under established regulations and guidelines with respect to wildlife and wildlife habitat to minimize adverse impacts (Section 106 of the Wild Life Regulations under the *Wild Life Act* (O.C. 96-809)).
- 6) Disturbance of all wildlife should be minimized during helicopter and ground transportation. Whenever possible, aircraft should not descend lower than 100 meters (above ground level) during surveys.
- 7) The field program will be conducted using accepted wildlife research techniques and targeted species will be disturbed as little as possible. The method and survey dates described in the initial permit request will be followed as closely as possible. Any changes to the survey design or methodology outlined in the initial permit request will require approval before implementation.
- 8) Any samples that are collected must be turned into the Wildlife Division following identification. A permit is required and must be obtained prior to transporting any samples or specimens out of the province.
- 9) To avoid introduction of non-native species, all research equipment should be new and unused, or equipment that has not been previously used outside of Labrador or the Island of Newfoundland.
- 10) Final reports should be submitted for each of the components of the work proposed and permitted. Reports should provide a synopsis of the location of surveys, methods employed, number of samples/specimens taken, location of samples/specimens, additional relevant ecological information and a summary of next steps. The raw data

and coordinates should be submitted in digital format along with the final reports for each component of the field program and for all sightings of wildlife and sign. The permit holder is responsible to obtain any and all permissions which may be required to release this information to the Wildlife Division. Final reports are to be remitted by the following dates to the Wildlife Division:

Spring/Summer Research: October 1, 2016

Fall Research: December 1, 2016

- 11) Any unusual wildlife observations or any adverse effects observed during the field program are to be reported immediately to the Wildlife Division
- 12) This permit does not absolve or relieve the permit holder from any other laws, permits, regulations or orders.
- 13) This permit does not relieve the permit holder from the requirement to acquire permission to access private property.
- 14) All conditions of this permit must be adhered to and data and results from the field program submitted to the Wildlife Division prior to another permit being issued.
- 15) Under the discretion of the Director of Wildlife, this permit can be revoked without notice.

Date:

3-3-16

Director of Wildlife

Wildlife Division
PO Box 2007
Corner Brook, NL
A2H 7S1
Ph (709) 637-2008
Fax (709) 637-2004

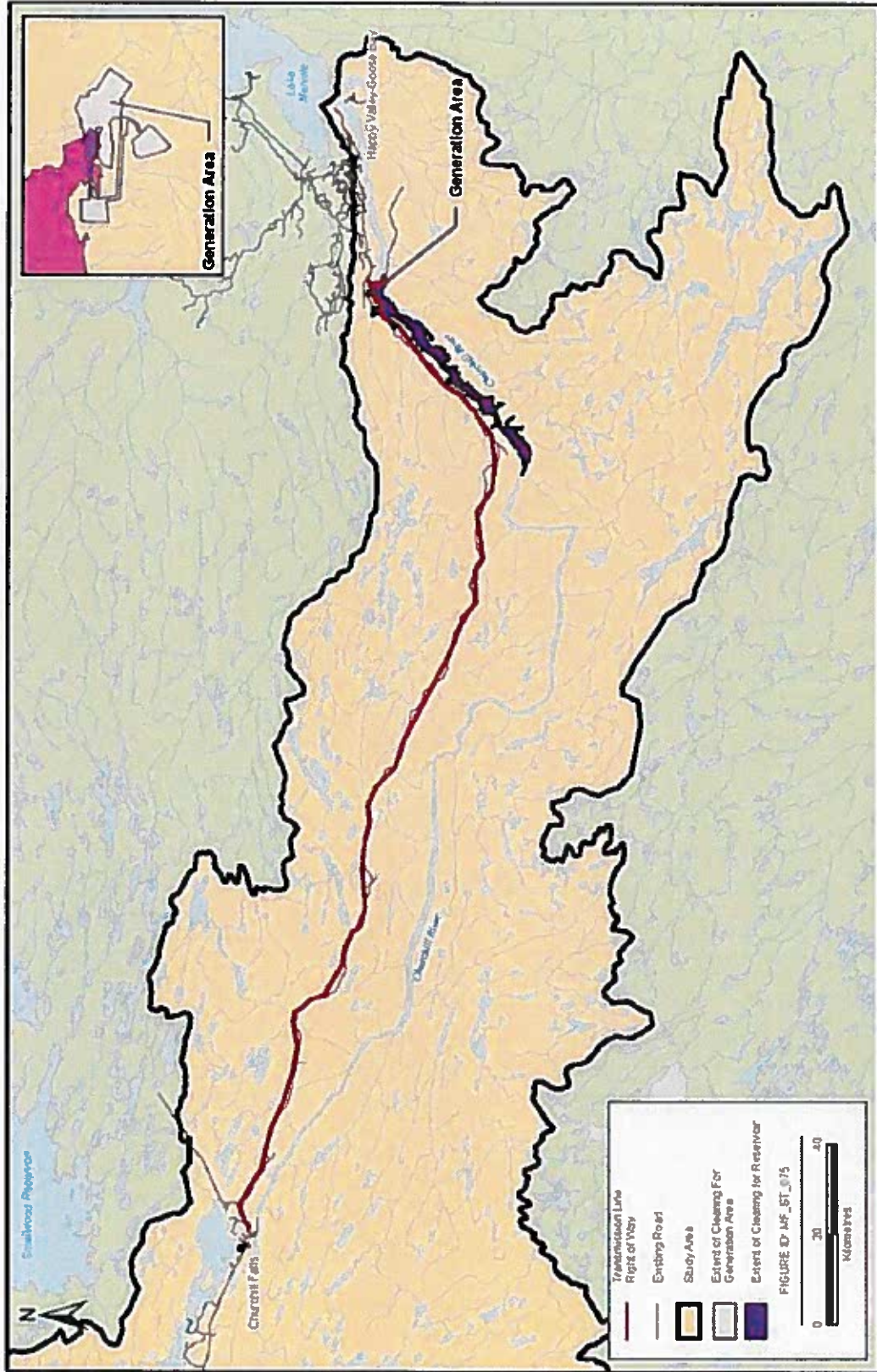


Figure 1 Study Area Overview for the Muskrat Falls Component of the LCP

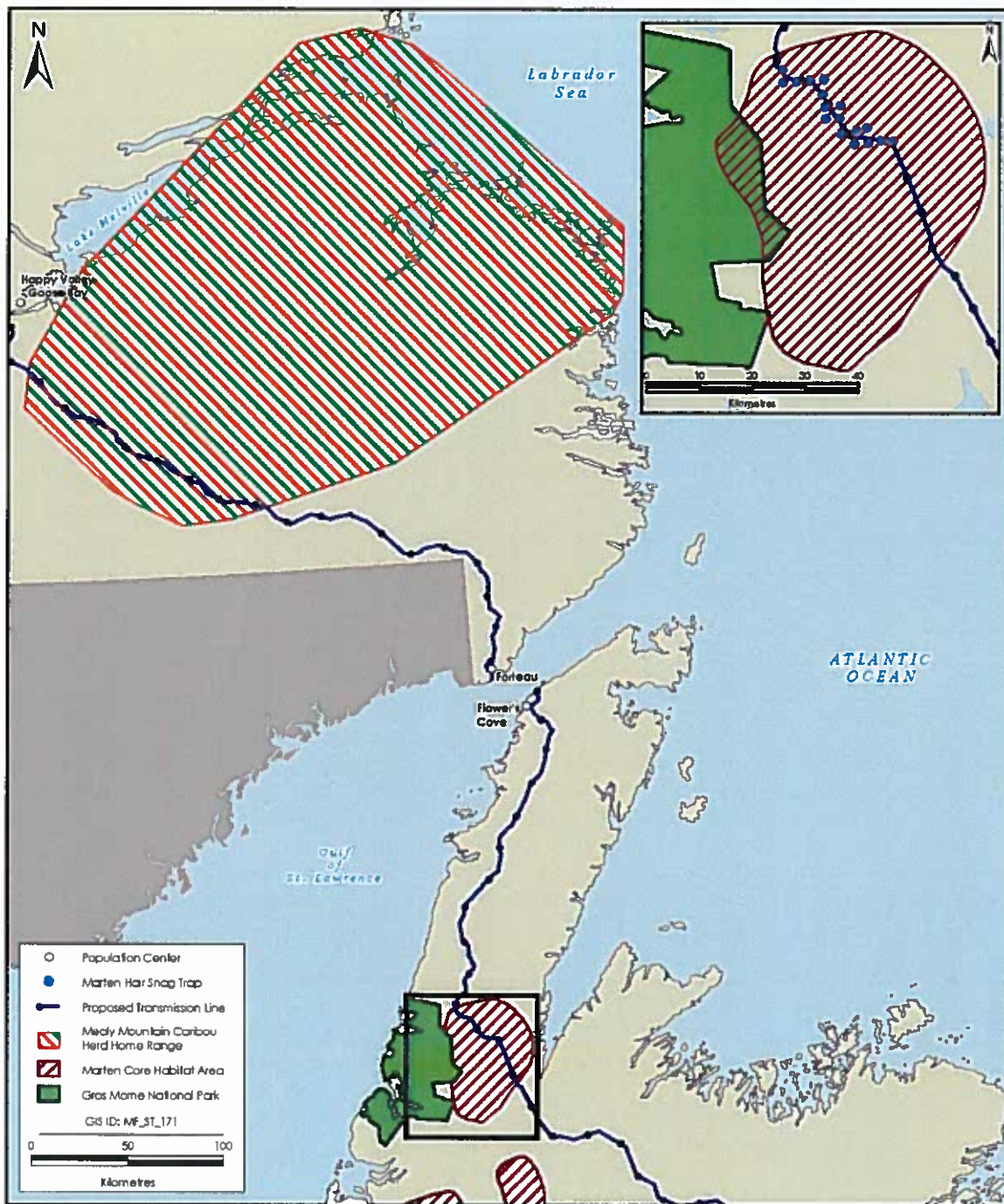


Figure 2 Study Area Overview for the LITL Component of the LCP

APPENDIX B

Forest Songbird Point-Count Survey Data

Table B.1 List of Species Recorded during 2016 Forest Songbird Surveys

English Name	Scientific Name	# Forest Songbird Point-Count Records	Included in Species Richness Calculation?
Common Loon	<i>Gavia immer</i>	1	No
Canada Goose	<i>Branta canadensis</i>	Recorded after BCCH mobbing call	No
American Green-winged Teal	<i>Anas crecca</i>	Incidental only	No
Common Merganser	<i>Mergus merganser</i>	Incidental only	No
Ruffed Grouse	<i>Bonasa umbellus</i>	1	No
Red-tailed Hawk	<i>Buteo jamaicensis</i>	Incidental only	No
Osprey	<i>Pandion haliaetus</i>	4	No
Solitary Sandpiper	<i>Tringa solitaria</i>	2	No
Spotted Sandpiper	<i>Actitis macularius</i>	5	No
Greater Yellowlegs	<i>Tringa melanoleuca</i>	4	No
Wilson's Snipe	<i>Gallinago delicata</i>	Incidental only	No
Black-backed Woodpecker	<i>Picoides arcticus</i>	Recorded after BCCH mobbing call	No
Northern Flicker	<i>Colaptes auratus</i>	1	Yes
Least Flycatcher	<i>Empidonax minimus</i>	1	Yes
Alder Flycatcher	<i>Empidonax alnorum</i>	6	Yes
Yellow-bellied Flycatcher	<i>Empidonax flaviventris</i>	4	Yes
Gray Jay	<i>Perisoreus canadensis</i>	42	No
Common Raven	<i>Corvus corax</i>	Incidental only	No
Boreal Chickadee	<i>Poecile hudsonicus</i>	5	Yes
Red-breasted Nuthatch	<i>Sitta canadensis</i>	2	Yes
Brown Creeper	<i>Certhia americana</i>	Recorded after BCCH mobbing call	No
Winter Wren	<i>Troglodytes hiemalis</i>	5	Yes
Ruby-crowned Kinglet	<i>Regulus calendula</i>	78	Yes
Swainson's Thrush	<i>Catharus ustulatus</i>	50	Yes
Hermit Thrush	<i>Catharus guttatus</i>	6	Yes
American Robin	<i>Turdus migratorius</i>	14	Yes
Tennessee Warbler	<i>Oreothlypis peregrina</i>	9	Yes
Yellow Warbler	<i>Setophaga petechia</i>	11	Yes
Palm Warbler	<i>Setophaga palmarum</i>	1	Yes
Magnolia Warbler	<i>Setophaga magnolia</i>	11	Yes

English Name	Scientific Name	# Forest Songbird Point-Count Records	Included in Species Richness Calculation?
Yellow-rumped Warbler	<i>Setophaga coronata</i>	53	Yes
Blackpoll Warbler	<i>Setophaga striata</i>	2	Yes
American Redstart	<i>Setophaga ruticilla</i>	1	Yes
Black-throated Green Warbler	<i>Setophaga virens</i>	19	Yes
Wilson's Warbler	<i>Cardellina pusilla</i>	2	Yes
Northern Waterthrush	<i>Parkesia noveboracensis</i>	11	Yes
Common Yellowthroat	<i>Geothlypis trichas</i>	Recorded after BCCH mobbing call	No
Rusty Blackbird	<i>Euphagus carolinus</i>	5	Yes
Lincoln's Sparrow	<i>Melospiza lincolnii</i>	6	Yes
White-throated Sparrow	<i>Zonotrichia albicollis</i>	19	Yes
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	1	Yes
Savannah Sparrow	<i>Passerculus sandwichensis</i>	4	Yes
Fox Sparrow	<i>Passerella iliaca</i>	29	Yes
Dark-eyed Junco	<i>Junco hyemalis</i>	109	Yes
Pine Grosbeak	<i>Pinicola enucleator</i>	2	Yes
White-winged Crossbill	<i>Loxia leucoptera</i>	3	Yes
Pine Siskin	<i>Spinus pinus</i>	4	Yes
Common Redpoll	<i>Acanthis flammea</i>	1	Yes
Notes: 1. The number of point count records is based on the five-minute listening period, and only birds recorded <100 m from the observer, unless otherwise indicated. 2. Only those species targeted by point count surveys were included in the analysis of species richness. This primarily included passerines and woodpeckers [refer to Section 3.2.2 and Stantec Consulting Ltd. (2013)] 3. Incidental observations include flyovers and observations between point-counts. 4. BCCH – Black-capped Chickadee			

Table B.2 2016 Forest Songbird Point-Count Survey Data

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
20-Jun	602466	5870353	Black Spruce	616	Ruffed Grouse			1		
20-Jun	602466	5870353	Black Spruce	616	Ruby-crowned Kinglet			1		
20-Jun	602466	5870353	Black Spruce	616	Winter Wren			1		
20-Jun	602466	5870353	Black Spruce	616	Swainson's Thrush		1	1		
20-Jun	602466	5870353	Black Spruce	616	Magnolia Warbler	1				
20-Jun	602466	5870353	Black Spruce	616	White-throated Sparrow		1			
20-Jun	602466	5870353	Black Spruce	616	Dark-eyed Junco	1	1			1
20-Jun	602466	5870353	Black Spruce	616	Fox Sparrow			1		
20-Jun	602758	5870275	Mixed Forest - Spruce Dominant	649	Winter Wren			1		
20-Jun	602758	5870275	Mixed Forest - Spruce Dominant	649	Swainson's Thrush		2			
20-Jun	602758	5870275	Mixed Forest - Spruce Dominant	649	Magnolia Warbler		1			
20-Jun	602758	5870275	Mixed Forest - Spruce Dominant	649	Fox Sparrow			1		
20-Jun	602758	5870275	Mixed Forest - Spruce Dominant	649	White-throated Sparrow			1		
20-Jun	602758	5870275	Mixed Forest - Spruce Dominant	649	Dark-eyed Junco			1		
20-Jun	602758	5870275	Mixed Forest - Spruce Dominant	649	Yellow-bellied Flycatcher					1
20-Jun	602976	5870176	Black Spruce	721	Magnolia Warbler		2			

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
20-Jun	602976	5870176	Black Spruce	721	White-throated Sparrow			2		
20-Jun	602976	5870176	Black Spruce	721	Swainson's Thrush					1
20-Jun	602976	5870176	Black Spruce	721	Dark-eyed Junco					1
20-Jun	603269	5870144	Mixed Forest - Spruce Dominant	807	Swainson's Thrush		1			1
20-Jun	603269	5870144	Mixed Forest - Spruce Dominant	807	Yellow-rumped Warbler		1			
20-Jun	603552	5870035	Hardwood	850	Yellow-bellied Flycatcher		1			
20-Jun	603552	5870035	Hardwood	850	Swainson's Thrush	1		1		
20-Jun	603552	5870035	Hardwood	850	Yellow Warbler			1		
20-Jun	603552	5870035	Hardwood	850	White-throated Sparrow		1			
20-Jun	603552	5870035	Hardwood	850	Dark-eyed Junco		1			
20-Jun	603552	5870035	Hardwood	850	American Redstart					1
20-Jun	602288	5870296	Black Spruce	618	Ruby-crowned Kinglet			2		
20-Jun	602288	5870296	Black Spruce	618	Winter Wren		1			
20-Jun	602288	5870296	Black Spruce	618	Yellow-rumped Warbler	1				
20-Jun	602288	5870296	Black Spruce	618	Black-throated Green Warbler		1			
20-Jun	602288	5870296	Black Spruce	618	Fox Sparrow		1	1		
20-Jun	602288	5870296	Black Spruce	618	Dark-eyed Junco		1			
20-Jun	602288	5870296	Black Spruce	618	Pine Siskin		1			
20-Jun	602288	5870296	Black Spruce	618	Gray Jay					1
20-Jun	602288	5870296	Black Spruce	618	Common Yellowthroat					1

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
20-Jun	601970	5870361	Mixed Forest - Spruce Dominant	700	Winter Wren		1			
20-Jun	601970	5870361	Mixed Forest - Spruce Dominant	700	Swainson's Thrush		1			
20-Jun	601970	5870361	Mixed Forest - Spruce Dominant	700	Magnolia Warbler	1				
20-Jun	601970	5870361	Mixed Forest - Spruce Dominant	700	Yellow-rumped Warbler	1				
20-Jun	601970	5870361	Mixed Forest - Spruce Dominant	700	Black-throated Green Warbler	1				
20-Jun	601970	5870361	Mixed Forest - Spruce Dominant	700	White-throated Sparrow		1	1		
20-Jun	601734	5870507	Black Spruce	732	Winter Wren			2		
20-Jun	601734	5870507	Black Spruce	732	Swainson's Thrush		1	2		
20-Jun	601734	5870507	Black Spruce	732	Yellow-rumped Warbler		1			
20-Jun	601734	5870507	Black Spruce	732	Black-throated Green Warbler		2			
20-Jun	601734	5870507	Black Spruce	732	White-throated Sparrow	1		1		
20-Jun	601734	5870507	Black Spruce	732	Tennessee Warbler					1
20-Jun	601734	5870507	Black Spruce	732	Alder Flycatcher					1
20-Jun	601734	5870507	Black Spruce	732	Dark-eyed Junco					1
20-Jun	601734	5870507	Black Spruce	732	Black-backed Woodpecker					1
20-Jun	601474	5870586	Black Spruce	801	Winter Wren		1			
20-Jun	601474	5870586	Black Spruce	801	Swainson's Thrush		1			

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
20-Jun	601474	5870586	Black Spruce	801	Yellow-rumped Warbler		2			
20-Jun	601474	5870586	Black Spruce	801	Dark-eyed Junco		1			
20-Jun	601474	5870586	Black Spruce	801	Black-throated Green Warbler					1
20-Jun	601225	5870376	Mixed Forest - Spruce Dominant	842	Ruffed Grouse		1			
20-Jun	601225	5870376	Mixed Forest - Spruce Dominant	842	Alder Flycatcher		1			
20-Jun	601225	5870376	Mixed Forest - Spruce Dominant	842	Winter Wren	1				
20-Jun	601225	5870376	Mixed Forest - Spruce Dominant	842	Swainson's Thrush		1			
20-Jun	601225	5870376	Mixed Forest - Spruce Dominant	842	Magnolia Warbler		1			
20-Jun	601225	5870376	Mixed Forest - Spruce Dominant	842	Yellow-rumped Warbler	1	1			
20-Jun	601225	5870376	Mixed Forest - Spruce Dominant	842	White-throated Sparrow			1		
20-Jun	601225	5870376	Mixed Forest - Spruce Dominant	842	Dark-eyed Junco		1			
20-Jun	601225	5870376	Mixed Forest - Spruce Dominant	842	Fox Sparrow		1			
20-Jun	601451	5870212	Black Spruce	913	Winter Wren	1				
20-Jun	601451	5870212	Black Spruce	913	Black-throated Green Warbler		1			
20-Jun	601451	5870212	Black Spruce	913	White-throated Sparrow		1	1		

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
20-Jun	601451	5870212	Black Spruce	913	Dark-eyed Junco		2			
20-Jun	601451	5870212	Black Spruce	913	Pine Siskin					1
21-Jun	604030	5880750	Black Spruce Lichen Woodland	525	Gray Jay	1				
21-Jun	604030	5880750	Black Spruce Lichen Woodland	525	Ruby-crowned Kinglet			1		
21-Jun	604030	5880750	Black Spruce Lichen Woodland	525	Swainson's Thrush			1		
21-Jun	604030	5880750	Black Spruce Lichen Woodland	525	Dark-eyed Junco	1		1		
21-Jun	604030	5880750	Black Spruce Lichen Woodland	525	Yellow-rumped Warbler					1
21-Jun	604096	5880503	Black Spruce	547	Ruby-crowned Kinglet			1		
21-Jun	604096	5880503	Black Spruce	547	Dark-eyed Junco	1	1			
21-Jun	604359	5880624	Black Spruce Lichen Woodland	614	Red-breasted Nuthatch		1			
21-Jun	604359	5880624	Black Spruce Lichen Woodland	614	Ruby-crowned Kinglet	1	1			
21-Jun	604359	5880624	Black Spruce Lichen Woodland	614	Dark-eyed Junco			1		
21-Jun	604359	5880624	Black Spruce Lichen Woodland	614	Yellow-rumped Warbler					1
21-Jun	604643	5880700	Black Spruce	639	Ruby-crowned Kinglet			1		
21-Jun	604643	5880700	Black Spruce	639	Swainson's Thrush		1			
21-Jun	604643	5880700	Black Spruce	639	Yellow-rumped Warbler	1				

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
21-Jun	604643	5880700	Black Spruce	639	Black-throated Green Warbler		1			
21-Jun	604824	5880915	Black Spruce	705	Swainson's Thrush			1		
21-Jun	604824	5880915	Black Spruce	705	Yellow-rumped Warbler	1				
21-Jun	604824	5880915	Black Spruce	705	Black-throated Green Warbler	2				
21-Jun	604777	5881185	Fir-Spruce	729	Ruby-crowned Kinglet	1	1			
21-Jun	604777	5881185	Fir-Spruce	729	Swainson's Thrush			1		
21-Jun	604777	5881185	Fir-Spruce	729	Yellow-rumped Warbler	1				
21-Jun	604777	5881185	Fir-Spruce	729	Boreal Chickadee					1
21-Jun	604468	5881167	Black Spruce Lichen Woodland	750	Swainson's Thrush			1		
21-Jun	604468	5881167	Black Spruce Lichen Woodland	750	Dark-eyed Junco		1			
21-Jun	604468	5881167	Black Spruce Lichen Woodland	750	Brown Creeper					1
21-Jun	604468	5881167	Black Spruce Lichen Woodland	750	Ruby-crowned Kinglet					1
21-Jun	604175	5881096	Black Spruce Lichen Woodland	825	Ruby-crowned Kinglet		1	1		
21-Jun	604175	5881096	Black Spruce Lichen Woodland	825	Yellow-rumped Warbler		1			
21-Jun	604175	5881096	Black Spruce Lichen Woodland	825	Red-breasted Nuthatch					1
21-Jun	603939	5881386	Black Spruce Lichen Woodland	855	Dark-eyed Junco		1			

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
21-Jun	████	████	Black Spruce Lichen Woodland	855	Rusty Blackbird	1				
21-Jun	603939	5881386	Black Spruce Lichen Woodland	855	Fox Sparrow					
21-Jun	603939	5881386	Black Spruce Lichen Woodland	855	Ruby-crowned Kinglet					
21-Jun	604379	5880917	Black Spruce	927	Ruby-crowned Kinglet		1	1		
21-Jun	604379	5880917	Black Spruce	927	Gray Jay					3
21-Jun	603912	5880893	Black Spruce	526	Ruby-crowned Kinglet	1	1	1		
21-Jun	603912	5880893	Black Spruce	526	Swainson's Thrush		1			
21-Jun	603912	5880893	Black Spruce	526	Dark-eyed Junco		1			
21-Jun	603912	5880893	Black Spruce	526	Yellow-rumped Warbler					1
21-Jun	603717	5881207	Black Spruce	600	Ruby-crowned Kinglet		2			
21-Jun	603717	5881207	Black Spruce	600	Yellow-rumped Warbler		1			
21-Jun	603717	5881207	Black Spruce	600	Fox Sparrow		2			
21-Jun	603717	5881207	Black Spruce	600	Dark-eyed Junco	1				
21-Jun	603717	5881207	Black Spruce	600	Gray Jay					1
21-Jun	603471	5881388	Black Spruce	630	Gray Jay		3			
21-Jun	603471	5881388	Black Spruce	630	Ruby-crowned Kinglet	1				
21-Jun	603471	5881388	Black Spruce	630	Yellow-rumped Warbler		1			
21-Jun	603471	5881388	Black Spruce	630	Black-throated Green Warbler		1			
21-Jun	603198	5881530	Black Spruce	657	Ruby-crowned Kinglet		1	2		
21-Jun	603198	5881530	Black Spruce	657	Hermit Thrush		1			

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
21-Jun	603198	5881530	Black Spruce	657	Black-throated Green Warbler		1			
21-Jun	603198	5881530	Black Spruce	657	Fox Sparrow		1	1		
21-Jun	603198	5881530	Black Spruce	657	White-throated Sparrow		1			
21-Jun	603198	5881530	Black Spruce	657	Dark-eyed Junco		1			
21-Jun	603198	5881530	Black Spruce	657	Yellow-rumped Warbler					1
21-Jun	603220	5881218	Mixed Forest - Spruce Dominant	722	Boreal Chickadee	1				
21-Jun	603220	5881218	Mixed Forest - Spruce Dominant	722	Ruby-crowned Kinglet	1				
21-Jun	603220	5881218	Mixed Forest - Spruce Dominant	722	Hermit Thrush		1			
21-Jun	603220	5881218	Mixed Forest - Spruce Dominant	722	Yellow-rumped Warbler	1	1			
21-Jun	603393	5880979	Black Spruce Lichen Woodland	755	Ruby-crowned Kinglet		2			
21-Jun	603393	5880979	Black Spruce Lichen Woodland	755	Swainson's Thrush			1		
21-Jun	603393	5880979	Black Spruce Lichen Woodland	755	Black-throated Green Warbler		1	1		
21-Jun	603393	5880979	Black Spruce Lichen Woodland	755	Fox Sparrow		1			
21-Jun	603393	5880979	Black Spruce Lichen Woodland	755	Dark-eyed Junco	1	1			
21-Jun	603423	5880207	Black Spruce Lichen Woodland	825	Ruby-crowned Kinglet		1			

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
21-Jun	603423	5880207	Black Spruce Lichen Woodland	825	Swainson's Thrush		2			
21-Jun	603423	5880207	Black Spruce Lichen Woodland	825	Yellow-rumped Warbler		2			
21-Jun	603423	5880207	Black Spruce Lichen Woodland	825	Black-throated Green Warbler			2		
21-Jun	603423	5880207	Black Spruce Lichen Woodland	825	Dark-eyed Junco		2			
21-Jun	603591	5880195	Black Spruce	857	Ruby-crowned Kinglet	1	1			
21-Jun	603591	5880195	Black Spruce	857	Yellow-rumped Warbler	1	1			
21-Jun	603591	5880195	Black Spruce	857	Pine Siskin				1	
21-Jun	603591	5880195	Black Spruce	857	Dark-eyed Junco					1
21-Jun	603812	5880404	Black Spruce	925	Greater Yellowlegs	1				
21-Jun	603812	5880404	Black Spruce	925	Ruby-crowned Kinglet		2	1		
21-Jun	603812	5880404	Black Spruce	925	Dark-eyed Junco		1			
22-Jun	593595	5871932	Black Spruce	526	Osprey			1		
22-Jun	593595	5871932	Black Spruce	526	Dark-eyed Junco		1			
22-Jun	593595	5871932	Black Spruce	526	White-throated Sparrow					1
22-Jun	593415	5871676	Riparian	552	Yellow Warbler	1				
22-Jun	593415	5871676	Riparian	552	Northern Waterthrush	1				
22-Jun	593415	5871676	Riparian	552	Fox Sparrow	1				
22-Jun	593256	5871405	Riparian	623	Yellow Warbler	1				
22-Jun	593256	5871405	Riparian	623	Magnolia Warbler	1				
22-Jun	593256	5871405	Riparian	623	Green-winged Teal				1	

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
22-Jun	593192	5871155	Riparian	631	Yellow Warbler	1				
22-Jun	593192	5871155	Riparian	631	Northern Waterthrush	1				
22-Jun	593192	5871155	Riparian	631	Fox Sparrow		1			
22-Jun	593259	5870877	Riparian	730	Yellow Warbler	1				1
22-Jun	593259	5870877	Riparian	730	Magnolia Warbler	1				
22-Jun	593259	5870877	Riparian	730	Northern Waterthrush	1				
22-Jun	593586	5870843	Black Spruce	756	Gray Jay	3				
22-Jun	593586	5870843	Black Spruce	756	Ruby-crowned Kinglet	1				
22-Jun	593586	5870843	Black Spruce	756	Swainson's Thrush			1		
22-Jun	593586	5870843	Black Spruce	756	Blackpoll Warbler	1				
22-Jun	593586	5870843	Black Spruce	756	Fox Sparrow			1		
22-Jun	593586	5870843	Black Spruce	756	Dark-eyed Junco	1				
22-Jun	593710	5871152	Wetland	819	Ruby-crowned Kinglet	1				
22-Jun	593710	5871152	Wetland	819	Swainson's Thrush		2	1		
22-Jun	593710	5871152	Wetland	819	Dark-eyed Junco	1	2			
22-Jun	593817	5871439	Black Spruce	845	Yellow-bellied Flycatcher	1				
22-Jun	593817	5871439	Black Spruce	845	Ruby-crowned Kinglet		1	1		
22-Jun	593817	5871439	Black Spruce	845	Swainson's Thrush		1	1		
22-Jun	593817	5871439	Black Spruce	845	Dark-eyed Junco	1				
22-Jun	593817	5871439	Black Spruce	845	Gray Jay					1
22-Jun	593999	5877686	Wetland	913	Gray Jay	1				1
22-Jun	593999	5877686	Wetland	913	Ruby-crowned Kinglet	1				

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
22-Jun	593999	5877686	Wetland	913	Fox Sparrow		1			
22-Jun	593999	5877686	Wetland	913	Dark-eyed Junco	1				
22-Jun	593999	5877686	Wetland	913	Red-breasted Nuthatch					1
22-Jun	593373	5872147	Wetland	520	Alder Flycatcher	1				
22-Jun	593373	5872147	Wetland	520	Yellow Warbler	1				
22-Jun	593373	5872147	Wetland	520	Black-throated Green Warbler		1			
22-Jun	593373	5872147	Wetland	520	Wilson's Warbler	1				
22-Jun	593597	5872290	Wetland	557	Yellow Warbler	1				
22-Jun	593597	5872290	Wetland	557	Yellow-rumped Warbler		1			
22-Jun	593597	5872290	Wetland	557	Black-throated Green Warbler		1			
22-Jun	593597	5872290	Wetland	557	Northern Waterthrush	1				
22-Jun	593597	5872290	Wetland	557	Fox Sparrow		1			
22-Jun	593862	5872452	Wetland	625	Alder Flycatcher	1				
22-Jun	593862	5872452	Wetland	625	Swainson's Thrush		1			
22-Jun	594076	5872651	Fir-Spruce	653	Gray Jay		1			
22-Jun	594076	5872651	Fir-Spruce	653	Ruby-crowned Kinglet		1			
22-Jun	594076	5872651	Fir-Spruce	653	Swainson's Thrush	1	1			
22-Jun	594076	5872651	Fir-Spruce	653	Yellow-rumped Warbler	1				
22-Jun	594076	5872651	Fir-Spruce	653	Fox Sparrow	1				
22-Jun	594076	5872651	Fir-Spruce	653	Dark-eyed Junco	1	1			
22-Jun	594358	5872727	Black Spruce	716	Ruby-crowned Kinglet		1	1		

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
22-Jun	594358	5872727	Black Spruce	716	Winter Wren			1		
22-Jun	594358	5872727	Black Spruce	716	Swainson's Thrush		2	1		
22-Jun	594358	5872727	Black Spruce	716	Yellow-rumped Warbler		1			
22-Jun	594358	5872727	Black Spruce	716	Black-throated Green Warbler		1			
22-Jun	594358	5872727	Black Spruce	716	Fox Sparrow			1		
22-Jun	594358	5872727	Black Spruce	716	White-throated Sparrow			1		
22-Jun	594358	5872727	Black Spruce	716	Dark-eyed Junco		1			
22-Jun	594219	5872980	Black Spruce	738	Swainson's Thrush	1	1	1		
22-Jun	594219	5872980	Black Spruce	738	Tennessee Warbler		1			
22-Jun	594219	5872980	Black Spruce	738	Dark-eyed Junco		1			
22-Jun	593869	5872818	Black Spruce	812	Ruby-crowned Kinglet		1			
22-Jun	593869	5872818	Black Spruce	812	Swainson's Thrush		1	1		
22-Jun	593869	5872818	Black Spruce	812	Yellow-rumped Warbler		1			
22-Jun	593869	5872818	Black Spruce	812	Dark-eyed Junco		2			
22-Jun	593869	5872818	Black Spruce	812	Boreal Chickadee					1
22-Jun	593597	5872005	Black Spruce	842	Boreal Chickadee	1				
22-Jun	593597	5872005	Black Spruce	842	Ruby-crowned Kinglet	1	2			
22-Jun	593597	5872005	Black Spruce	842	Swainson's Thrush	1	1	1		
22-Jun	593597	5872005	Black Spruce	842	Yellow-rumped Warbler	1				
22-Jun	593597	5872005	Black Spruce	842	Dark-eyed Junco		1			
22-Jun	593597	5872005	Black Spruce	842	Gray Jay					1
22-Jun	593597	5872005	Black Spruce	842	Pine Siskin					1

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
22-Jun	593597	5872005	Black Spruce	842	Common Merganser				1	
23-Jun	526885	5887720	Black Spruce Lichen Woodland	545	Gray Jay		1			
23-Jun	526885	5887720	Black Spruce Lichen Woodland	545	Ruby-crowned Kinglet		1			
23-Jun	526885	5887720	Black Spruce Lichen Woodland	545	Swainson's Thrush	1		1		
23-Jun	526885	5887720	Black Spruce Lichen Woodland	545	Yellow-rumped Warbler	1				
23-Jun	526885	5887720	Black Spruce Lichen Woodland	545	Fox Sparrow			1		
23-Jun	526885	5887720	Black Spruce Lichen Woodland	545	White-throated Sparrow		1			
23-Jun	526885	5887720	Black Spruce Lichen Woodland	545	Dark-eyed Junco	1	1			
23-Jun	526631	5887570	Black Spruce	614	Ruby-crowned Kinglet			1		
23-Jun	526631	5887570	Black Spruce	614	Swainson's Thrush	1	2	1		
23-Jun	526631	5887570	Black Spruce	614	Yellow-rumped Warbler		1			
23-Jun	526631	5887570	Black Spruce	614	Common Redpoll	1				
23-Jun	526631	5887570	Black Spruce	614	Gray Jay					1
23-Jun	526864	5887359	Fir-Spruce	637	Gray Jay		1			
23-Jun	526864	5887359	Fir-Spruce	637	Ruby-crowned Kinglet			1		
23-Jun	526864	5887359	Fir-Spruce	637	Swainson's Thrush		2			
23-Jun	526864	5887359	Fir-Spruce	637	Fox Sparrow		2			
23-Jun	526864	5887359	Fir-Spruce	637	Dark-eyed Junco	1				

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
23-Jun	526864	5887359	Fir-Spruce	637	Yellow-rumped Warbler					1
23-Jun	527138	5887234	Fir-Spruce	705	Gray Jay		1			
23-Jun	527138	5887234	Fir-Spruce	705	Swainson's Thrush			1		
23-Jun	527138	5887234	Fir-Spruce	705	Fox Sparrow			1		
23-Jun	527138	5887234	Fir-Spruce	705	Ruby-crowned Kinglet					1
23-Jun	527138	5887234	Fir-Spruce	705	Dark-eyed Junco					1
23-Jun	527138	5887234	Fir-Spruce	705	Yellow-rumped Warbler					1
23-Jun	527429	5887208	Black Spruce Lichen Woodland	726	Ruby-crowned Kinglet	1	1	1		
23-Jun	527429	5887208	Black Spruce Lichen Woodland	726	Winter Wren			1		
23-Jun	527429	5887208	Black Spruce Lichen Woodland	726	Swainson's Thrush		1			
23-Jun	527429	5887208	Black Spruce Lichen Woodland	726	Dark-eyed Junco	1				
23-Jun	527429	5887208	Black Spruce Lichen Woodland	726	Gray Jay					1
23-Jun	527429	5887208	Black Spruce Lichen Woodland	726	Boreal Chickadee					1
23-Jun	527728	5887128	Black Spruce	749	Gray Jay		1			3
23-Jun	527728	5887128	Black Spruce	749	Ruby-crowned Kinglet		1			
23-Jun	527728	5887128	Black Spruce	749	Swainson's Thrush		1			
23-Jun	527728	5887128	Black Spruce	749	White-throated Sparrow	1				
23-Jun	527728	5887128	Black Spruce	749	Dark-eyed Junco	1				

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
23-Jun	527585	5887391	Black Spruce	813	Gray Jay	1				1
23-Jun	527585	5887391	Black Spruce	813	Swainson's Thrush			1		
23-Jun	527585	5887391	Black Spruce	813	Dark-eyed Junco	1	1			
23-Jun	527585	5887391	Black Spruce	813	Boreal Chickadee					2
23-Jun	527328	5887340	Black Spruce Lichen Woodland	834	Gray Jay	1				
23-Jun	527328	5887340	Black Spruce Lichen Woodland	834	Ruby-crowned Kinglet	1				
23-Jun	527328	5887340	Black Spruce Lichen Woodland	834	Swainson's Thrush			1		
23-Jun	527328	5887340	Black Spruce Lichen Woodland	834	American Redstart		1			
23-Jun	527328	5887340	Black Spruce Lichen Woodland	834	White-throated Sparrow			1		
23-Jun	527328	5887340	Black Spruce Lichen Woodland	834	Dark-eyed Junco		2			
23-Jun	527328	5887340	Black Spruce Lichen Woodland	834	American Robin					1
23-Jun	527183	5887827	Mixed Forest - Spruce Dominant	853	Swainson's Thrush		1			
23-Jun	527183	5887827	Mixed Forest - Spruce Dominant	853	Tennessee Warbler	1				
23-Jun	527183	5887827	Mixed Forest - Spruce Dominant	853	Ruby-crowned Kinglet					1
23-Jun	527183	5887827	Mixed Forest - Spruce Dominant	853	Dark-eyed Junco					1

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
23-Jun	527183	5887827	Mixed Forest - Spruce Dominant	853	Yellow-rumped Warbler					1
23-Jun	528880	5888741	Riparian	537	Spotted Sandpiper		2			
23-Jun	528880	5888741	Riparian	537	Alder Flycatcher		1			
23-Jun	528880	5888741	Riparian	537	Gray Jay		1			
23-Jun	528880	5888741	Riparian	537	Ruby-crowned Kinglet		1	1		
23-Jun	528880	5888741	Riparian	537	Swainson's Thrush		2			
23-Jun	528880	5888741	Riparian	537	Tennessee Warbler			1		
23-Jun	528880	5888741	Riparian	537	Yellow Warbler	1		1		
23-Jun	528880	5888741	Riparian	537	Northern Waterthrush	1		1		
23-Jun	528880	5888741	Riparian	537	White-throated Sparrow			1		
23-Jun	528880	5888741	Riparian	537	Pine Siskin				10	
23-Jun	528880	5888741	Riparian	537	Dark-eyed Junco					1
23-Jun	528880	5888741	Riparian	537	Black-throated Green Warbler					1
23-Jun	529174	5888714	Riparian	610	Spotted Sandpiper		2			
23-Jun	529174	5888714	Riparian	610	Ruby-crowned Kinglet		1			
23-Jun	529174	5888714	Riparian	610	Swainson's Thrush		2	1		
23-Jun	529174	5888714	Riparian	610	Tennessee Warbler	1				
23-Jun	529174	5888714	Riparian	610	Yellow Warbler	1				
23-Jun	529174	5888714	Riparian	610	Fox Sparrow	1				
23-Jun	529174	5888714	Riparian	610	White-throated Sparrow		1			
23-Jun	529174	5888714	Riparian	610	White-winged Crossbill		1			

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
23-Jun	529174	5888714	Riparian	610	Gray Jay					2
23-Jun	529479	5888670	Riparian	640	Common Loon		1			
23-Jun	529479	5888670	Riparian	640	Alder Flycatcher		1			
23-Jun	529479	5888670	Riparian	640	Least Flycatcher		1			
23-Jun	529479	5888670	Riparian	640	Red-breasted Nuthatch		1			
23-Jun	529479	5888670	Riparian	640	Ruby-crowned Kinglet		1			
23-Jun	529479	5888670	Riparian	640	Swainson's Thrush	1				
23-Jun	529479	5888670	Riparian	640	Tennessee Warbler	1	1			
23-Jun	529479	5888670	Riparian	640	Yellow Warbler		1			
23-Jun	529479	5888670	Riparian	640	Magnolia Warbler	1				
23-Jun	529479	5888670	Riparian	640	Yellow-rumped Warbler		1			
23-Jun	529479	5888670	Riparian	640	Fox Sparrow	1				
23-Jun	529479	5888670	Riparian	640	White-throated Sparrow			1		
23-Jun	529479	5888670	Riparian	640	Spotted Sandpiper					1
23-Jun	529479	5888670	Riparian	640	Pine Siskin					1
23-Jun	529813	5888719	Riparian	710	Gray Jay	1				
23-Jun	529813	5888719	Riparian	710	Swainson's Thrush	1	2			
23-Jun	529813	5888719	Riparian	710	Tennessee Warbler	1	1			
23-Jun	529813	5888719	Riparian	710	Yellow Warbler	1				
23-Jun	529813	5888719	Riparian	710	Yellow-rumped Warbler		1			
23-Jun	529813	5888719	Riparian	710	Black-throated Green Warbler		1			
23-Jun	529813	5888719	Riparian	710	Fox Sparrow			1		

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
23-Jun	529813	5888719	Riparian	710	White-throated Sparrow			1		
23-Jun	529813	5888719	Riparian	710	Dark-eyed Junco					1
23-Jun	529813	5888719	Riparian	710	Spotted Sandpiper					1
23-Jun	529813	5888719	Riparian	710	Boreal Chickadee					1
23-Jun	529813	5888719	Riparian	710	Ruby-crowned Kinglet					1
23-Jun	530123	5888689	Riparian	740	Common Loon			1		
23-Jun	530123	5888689	Riparian	740	Alder Flycatcher	1		1		
23-Jun	530123	5888689	Riparian	740	Ruby-crowned Kinglet		1			
23-Jun	530123	5888689	Riparian	740	Swainson's Thrush	1	1			
23-Jun	530123	5888689	Riparian	740	Tennessee Warbler	1	1			
23-Jun	530123	5888689	Riparian	740	Yellow Warbler		1			
23-Jun	530123	5888689	Riparian	740	Magnolia Warbler	1				
23-Jun	530123	5888689	Riparian	740	Black-throated Green Warbler		2			
23-Jun	530417	5888620	Riparian	812	Ruby-crowned Kinglet			1		
23-Jun	530417	5888620	Riparian	812	Swainson's Thrush	1		1		
23-Jun	530417	5888620	Riparian	812	Dark-eyed Junco			1		
23-Jun	530417	5888620	Riparian	812	Pine Siskin	3				
23-Jun	530417	5888620	Riparian	812	Black-throated Green Warbler					1
23-Jun	530346	588364	Fir-Spruce	852	Yellow-bellied Flycatcher		1			
23-Jun	530346	588364	Fir-Spruce	852	Gray Jay		1			

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
23-Jun	530346	588364	Fir-Spruce	852	Ruby-crowned Kinglet	1	1			2
23-Jun	530346	588364	Fir-Spruce	852	Swainson's Thrush		2	1		
23-Jun	530346	588364	Fir-Spruce	852	Yellow-rumped Warbler	1				
23-Jun	530346	588364	Fir-Spruce	852	Black-throated Green Warbler		1			
23-Jun	530346	588364	Fir-Spruce	852	Dark-eyed Junco		2			
23-Jun	530066	588313	Fir-Spruce	916	Yellow-bellied Flycatcher	1				
23-Jun	530066	588313	Fir-Spruce	916	Ruby-crowned Kinglet		2			
23-Jun	530066	588313	Fir-Spruce	916	Swainson's Thrush			2		
23-Jun	530066	588313	Fir-Spruce	916	Black-throated Green Warbler		1			
23-Jun	530066	588313	Fir-Spruce	916	Fox Sparrow			1		
23-Jun	530066	588313	Fir-Spruce	916	White-throated Sparrow			1		
23-Jun	530066	588313	Fir-Spruce	916	Dark-eyed Junco		1			
24-Jun	571083	5883797	Wetland	636	Gray Jay	2				
24-Jun	571083	5883797	Wetland	636	Ruby-crowned Kinglet		1			
24-Jun	571083	5883797	Wetland	636	Northern Waterthrush	1				
24-Jun	571083	5883797	Wetland	636	Savannah Sparrow	1				
24-Jun	571083	5883797	Wetland	636	Fox Sparrow		1			
24-Jun	571083	5883797	Wetland	636	Lincoln's Sparrow	1				
24-Jun	571083	5883797	Wetland	636	White-throated Sparrow		1			
24-Jun	571083	5883797	Wetland	636	Dark-eyed Junco		1			

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
24-Jun	571795	5883896	Disturbed	655	Common Loon			1		
24-Jun	571795	5883896	Disturbed	655	Osprey	1				
24-Jun	571795	5883896	Disturbed	655	Ruby-crowned Kinglet			1		
24-Jun	571795	5883896	Disturbed	655	Fox Sparrow		1			
24-Jun	571795	5883896	Disturbed	655	White-crowned Sparrow	1				
24-Jun	571795	5883896	Disturbed	655	Dark-eyed Junco	1				
24-Jun			Disturbed	655	Rusty Blackbird	1				
24-Jun	571795	5883896	Disturbed	655	Gray Jay					1
24-Jun	571521	5884005	Disturbed	720	Osprey		1			
24-Jun	571521	5884005	Disturbed	720	Ruby-crowned Kinglet			1		
24-Jun	571521	5884005	Disturbed	720	Dark-eyed Junco	2	1			
24-Jun	571247	5884127	Disturbed	739	Osprey		1			
24-Jun	571247	5884127	Disturbed	739	Ruby-crowned Kinglet		1			
24-Jun	571247	5884127	Disturbed	739	Fox Sparrow		1			
24-Jun	571247	5884127	Disturbed	739	Dark-eyed Junco	1	2			
24-Jun	571247	5884127	Disturbed	739	Common Raven				1	
24-Jun	570950	5884238	Disturbed	754	Osprey	1				
24-Jun	570950	5884238	Disturbed	754	Ruby-crowned Kinglet			1		
24-Jun	570950	5884238	Disturbed	754	Fox Sparrow		1			
24-Jun	570950	5884238	Disturbed	754	White-throated Sparrow	1				
24-Jun	570950	5884238	Disturbed	754	Dark-eyed Junco			1		1
24-Jun	570671	5884332	Disturbed	814	Osprey			1		

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
24-Jun	570671	5884332	Disturbed	814	Ruby-crowned Kinglet			1		
24-Jun	570671	5884332	Disturbed	814	Fox Sparrow		1			
24-Jun	570671	5884332	Disturbed	814	Dark-eyed Junco	1	1	1		
24-Jun	570527	5884072	Black Spruce Lichen Woodland	833	Greater Yellowlegs			1		
24-Jun	570527	5884072	Black Spruce Lichen Woodland	833	Ruby-crowned Kinglet		1			
24-Jun	570527	5884072	Black Spruce Lichen Woodland	833	Palm Warbler		1			
24-Jun	570527	5884072	Black Spruce Lichen Woodland	833	Fox Sparrow			1		
24-Jun	570527	5884072	Black Spruce Lichen Woodland	833	Dark-eyed Junco		1			
24-Jun	570527	5884072	Black Spruce Lichen Woodland	833	Gray Jay					3
24-Jun	570787	5883910	Wetland	854	Greater Yellowlegs			1		
24-Jun	570787	5883910	Wetland	854	Gray Jay			2		
24-Jun	570787	5883910	Wetland	854	Ruby-crowned Kinglet			1		
24-Jun	570787	5883910	Wetland	854	Yellow-rumped Warbler				1	
24-Jun	570787	5883910	Wetland	854	Fox Sparrow		1			
24-Jun	570787	5883910	Wetland	854	Dark-eyed Junco					1
24-Jun	571005	5883700	Black Spruce Lichen Woodland	910	Ruby-crowned Kinglet	2		1		
24-Jun	571005	5883700	Black Spruce Lichen Woodland	910	Savannah Sparrow		1			

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
24-Jun	571247	5883514	Black Spruce	926	Gray Jay	1				
24-Jun	571247	5883514	Black Spruce	926	Ruby-crowned Kinglet			1		
24-Jun	571247	5883514	Black Spruce	926	Dark-eyed Junco	1				1
24-Jun	573401	5883211	Black Spruce Lichen Woodland	640	Gray Jay		2			
24-Jun	573401	5883211	Black Spruce Lichen Woodland	640	Ruby-crowned Kinglet			3		
24-Jun	573401	5883211	Black Spruce Lichen Woodland	640	American Robin		2			
24-Jun	573401	5883211	Black Spruce Lichen Woodland	640	White-throated Sparrow			1		
24-Jun	573401	5883211	Black Spruce Lichen Woodland	640	Dark-eyed Junco	1	1			
24-Jun	573401	5883211	Black Spruce Lichen Woodland	640	White-winged Crossbill					10
24-Jun	573315	5882907	Black Spruce Lichen Woodland	732	Osprey			1		
24-Jun	573315	5882907	Black Spruce Lichen Woodland	732	Gray Jay		1			
24-Jun	573315	5882907	Black Spruce Lichen Woodland	732	Ruby-crowned Kinglet		1	1		
24-Jun	573315	5882907	Black Spruce Lichen Woodland	732	Yellow-rumped Warbler		1			
24-Jun	573315	5882907	Black Spruce Lichen Woodland	732	Dark-eyed Junco		2			
24-Jun	573196	5882609	Black Spruce	755	Gray Jay	1				

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
24-Jun	573196	5882609	Black Spruce	755	Ruby-crowned Kinglet	1		1		
24-Jun	573196	5882609	Black Spruce	755	Yellow-rumped Warbler	1				
24-Jun	573196	5882609	Black Spruce	755	White-throated Sparrow			1		
24-Jun	573196	5882609	Black Spruce	755	Boreal Chickadee					4
24-Jun	572916	5882462	Black Spruce	815	Osprey			1		
24-Jun	572916	5882462	Black Spruce	815	Ruby-crowned Kinglet		1			
24-Jun	572916	5882462	Black Spruce	815	American Robin		1			
24-Jun	572916	5882462	Black Spruce	815	Fox Sparrow		1			
24-Jun	572916	5882462	Black Spruce	815	White-throated Sparrow			1		
24-Jun	572916	5882462	Black Spruce	815	Dark-eyed Junco	1				
24-Jun	572916	5882462	Black Spruce	815	Gray Jay					1
24-Jun	572916	5882462	Black Spruce	815	Yellow-rumped Warbler					1
24-Jun	572610	5882615	Black Spruce	835	Spotted Sandpiper	1				
24-Jun	572610	5882615	Black Spruce	835	Gray Jay		1			
24-Jun	572610	5882615	Black Spruce	835	Ruby-crowned Kinglet			1		
24-Jun	572610	5882615	Black Spruce	835	Fox Sparrow		1			
24-Jun	572610	5882615	Black Spruce	835	Pine Grosbeak		1			
24-Jun	572610	5882615	Black Spruce	835	American Robin					1
24-Jun	572610	5882615	Black Spruce	835	White-throated Sparrow					1
24-Jun	572600	5882977	Wetland	900	Osprey			1		
24-Jun	572600	5882977	Wetland	900	Ruby-crowned Kinglet		1	1		
24-Jun	572600	5882977	Wetland	900	Northern Waterthrush		1			

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
24-Jun			Wetland	900	Rusty Blackbird	1				
24-Jun	572600	5882977	Wetland	900	Gray Jay					1
24-Jun	572837	5883187	Wetland	920	Greater Yellowlegs	1		1		
24-Jun	572837	5883187	Wetland	920	Ruby-crowned Kinglet			1		
24-Jun	572837	5883187	Wetland	920	Northern Waterthrush			1		
24-Jun	572837	5883187	Wetland	920	Lincoln's Sparrow		1			
24-Jun	572837	5883187	Wetland	920	Dark-eyed Junco		1			
24-Jun			Wetland	920	Rusty Blackbird		1			
24-Jun	572837	5883187	Wetland	920	American Robin					1
25-Jun	456853	5927017	Disturbed	504	Greater Yellowlegs			1		
25-Jun	456853	5927017	Disturbed	504	Ruby-crowned Kinglet			1		1
25-Jun	456853	5927017	Disturbed	504	Hermit Thrush			1		
25-Jun	456853	5927017	Disturbed	504	American Robin			1		
25-Jun	456853	5927017	Disturbed	504	White-crowned Sparrow			1		
25-Jun	456853	5927017	Disturbed	504	Dark-eyed Junco		1	1		
25-Jun	456853	5927017	Disturbed	504	Lincoln's Sparrow					1
25-Jun	457145	5926942	Disturbed	527	Greater Yellowlegs			1		
25-Jun	457145	5926942	Disturbed	527	Ruby-crowned Kinglet		1	1		
25-Jun	457145	5926942	Disturbed	527	Lincoln's Sparrow	1				
25-Jun	457145	5926942	Disturbed	527	White-throated Sparrow			1		
25-Jun	457145	5926942	Disturbed	527	Dark-eyed Junco		2			
25-Jun	457145	5926942	Disturbed	527	Pine Siskin				2	

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
25-Jun	457431	5926871	Disturbed	547	Canada Goose			2		
25-Jun	457431	5926871	Disturbed	547	Boreal Chickadee	1		1		
25-Jun	457431	5926871	Disturbed	547	Ruby-crowned Kinglet		1	1		
25-Jun	457431	5926871	Disturbed	547	Hermit Thrush			1		
25-Jun	457431	5926871	Disturbed	547	American Robin			1		
25-Jun	457431	5926871	Disturbed	547	White-throated Sparrow		1	1		
25-Jun	457431	5926871	Disturbed	547	Dark-eyed Junco		2			
25-Jun	457717	5926775	Disturbed	608	Ruby-crowned Kinglet		1	1		
25-Jun	457717	5926775	Disturbed	608	Hermit Thrush		1			
25-Jun	457717	5926775	Disturbed	608	American Robin			1		
25-Jun	457717	5926775	Disturbed	608	White-throated Sparrow			1		
25-Jun	457717	5926775	Disturbed	608	Dark-eyed Junco	1		1		
25-Jun			Disturbed	608	Rusty Blackbird		1			
25-Jun	458013	5926717	Disturbed	629	Gray Jay		1			
25-Jun	458013	5926717	Disturbed	629	Ruby-crowned Kinglet			1		
25-Jun	458013	5926717	Disturbed	629	American Robin			1		
25-Jun	458013	5926717	Disturbed	629	Dark-eyed Junco		1	1		
25-Jun			Disturbed	629	Rusty Blackbird				1	
25-Jun	457947	5926991	Wetland	647	Gray Jay		1			
25-Jun	457947	5926991	Wetland	647	Ruby-crowned Kinglet		2			
25-Jun	457947	5926991	Wetland	647	American Robin		2			
25-Jun	457947	5926991	Wetland	647	Lincoln's Sparrow		1			

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
25-Jun	457947	5926991	Wetland	647	White-throated Sparrow			1		
25-Jun	457947	5926991	Wetland	647	Dark-eyed Junco		2			
25-Jun			Wetland	647	Rusty Blackbird					
25-Jun	457610	5927070	Black Spruce	710	Canada Goose			1		
25-Jun	457610	5927070	Black Spruce	710	Ruby-crowned Kinglet		1			
25-Jun	457610	5927070	Black Spruce	710	White-throated Sparrow			1		
25-Jun	457610	5927070	Black Spruce	710	Dark-eyed Junco	1				
25-Jun			Black Spruce	710	Rusty Blackbird					2
25-Jun	457338	5927227	Wetland	734	Wilson's Snipe			1		
25-Jun	457338	5927227	Wetland	734	Canada Goose			1		
25-Jun	457338	5927227	Wetland	734	Gray Jay			1		
25-Jun	457338	5927227	Wetland	734	Common Raven			1		
25-Jun	457338	5927227	Wetland	734	Ruby-crowned Kinglet			1		
25-Jun	457338	5927227	Wetland	734	Dark-eyed Junco	1				
25-Jun	457036	5927254	Black Spruce Lichen Woodland	753	Ruby-crowned Kinglet		1			
25-Jun	457036	5927254	Black Spruce Lichen Woodland	753	Dark-eyed Junco			1		
25-Jun	457036	5927254	Black Spruce Lichen Woodland	753	Boreal Chickadee					1
25-Jun	456492	5927098	Disturbed	510	Osprey			1		
25-Jun	456492	5927098	Disturbed	510	Boreal Chickadee		1			
25-Jun	456492	5927098	Disturbed	510	Ruby-crowned Kinglet		1	1		

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
25-Jun	456492	5927098	Disturbed	510	Hermit Thrush			2		
25-Jun	456492	5927098	Disturbed	510	American Robin		1			
25-Jun	456492	5927098	Disturbed	510	Yellow-rumped Warbler		1			
25-Jun	456492	5927098	Disturbed	510	Fox Sparrow			1		
25-Jun	456492	5927098	Disturbed	510	Lincoln's Sparrow			1		
25-Jun	456492	5927098	Disturbed	510	White-throated Sparrow		1	1		
25-Jun	456492	5927098	Disturbed	510	Dark-eyed Junco		1			
25-Jun	456186	5927175	Disturbed	538	Gray Jay	1				
25-Jun	456186	5927175	Disturbed	538	Ruby-crowned Kinglet			1		
25-Jun	456186	5927175	Disturbed	538	Swainson's Thrush			1		
25-Jun	456186	5927175	Disturbed	538	Hermit Thrush			1		
25-Jun	456186	5927175	Disturbed	538	American Robin		1	1		
25-Jun	456186	5927175	Disturbed	538	Yellow-rumped Warbler	1				
25-Jun	456186	5927175	Disturbed	538	Lincoln's Sparrow			1		
25-Jun	456186	5927175	Disturbed	538	White-throated Sparrow			1		
25-Jun	456186	5927175	Disturbed	538	Dark-eyed Junco	1		1		
25-Jun	456186	5927175	Disturbed	538	Fox Sparrow					1
25-Jun	455887	5927250	Disturbed	600	Gray Jay			1		
25-Jun	455887	5927250	Disturbed	600	Ruby-crowned Kinglet			2		
25-Jun	455887	5927250	Disturbed	600	American Robin			1		
25-Jun	455887	5927250	Disturbed	600	Fox Sparrow			1		
25-Jun	455887	5927250	Disturbed	600	Lincoln's Sparrow		1			

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
25-Jun	455887	5927250	Disturbed	600	White-throated Sparrow		1	2		
25-Jun	455887	5927250	Disturbed	600	Dark-eyed Junco		1			
25-Jun	455887	5927250	Disturbed	600	Greater Yellowlegs					1
25-Jun	455577	5927338	Disturbed	630	White-throated Sparrow		1			
25-Jun	455577	5927338	Disturbed	630	Dark-eyed Junco	1				
25-Jun	455577	5927338	Disturbed	630	Yellow-rumped Warbler					1
25-Jun	455265	5927426	Disturbed	655	Ruby-crowned Kinglet			1		
25-Jun	455265	5927426	Disturbed	655	American Robin	1	1	1		
25-Jun	455265	5927426	Disturbed	655	Yellow-rumped Warbler		1			
25-Jun	455265	5927426	Disturbed	655	Fox Sparrow			1		
25-Jun	455265	5927426	Disturbed	655	White-throated Sparrow		1	1		
25-Jun	455265	5927426	Disturbed	655	Dark-eyed Junco			1		
25-Jun	455261	5927722	Black Spruce Lichen Woodland	715	Ruby-crowned Kinglet		1	1		
25-Jun	455261	5927722	Black Spruce Lichen Woodland	715	American Robin	1				
25-Jun	455261	5927722	Black Spruce Lichen Woodland	715	Yellow-rumped Warbler	1	1			
25-Jun	455261	5927722	Black Spruce Lichen Woodland	715	Dark-eyed Junco	1	2			
25-Jun	455542	5927593	Wetland	737	Greater Yellowlegs			1	1	
25-Jun	455542	5927593	Wetland	737	Ruby-crowned Kinglet		1			
25-Jun	455542	5927593	Wetland	737	Magnolia Warbler		1			
25-Jun	455542	5927593	Wetland	737	Yellow-rumped Warbler		1			

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
25-Jun	455542	5927593	Wetland	737	White-throated Sparrow		1	1		
25-Jun	455542	5927593	Wetland	737	Dark-eyed Junco		1			
25-Jun	455542	5927593	Wetland	737	Gray Jay					1
25-Jun	455831	5927695	Black Spruce	805	Greater Yellowlegs			1		
25-Jun	455831	5927695	Black Spruce	805	Ruby-crowned Kinglet			2		
25-Jun	455831	5927695	Black Spruce	805	Hermit Thrush		1			
25-Jun	455831	5927695	Black Spruce	805	Yellow-rumped Warbler	1				
25-Jun	455831	5927695	Black Spruce	805	Dark-eyed Junco		1	1		
25-Jun	455831	5927695	Black Spruce	805	Boreal Chickadee					3
25-Jun	455831	5927695	Black Spruce	805	Gray Jay					1
25-Jun	456107	5927527	Black Spruce Lichen Woodland	830	Spotted Sandpiper				1	
25-Jun	456107	5927527	Black Spruce Lichen Woodland	830	Ruby-crowned Kinglet			1		
25-Jun	456107	5927527	Black Spruce Lichen Woodland	830	American Robin	1				
25-Jun	456107	5927527	Black Spruce Lichen Woodland	830	Fox Sparrow			1		
25-Jun	456107	5927527	Black Spruce Lichen Woodland	830	Common Redpoll				1	
25-Jun	456107	5927527	Black Spruce Lichen Woodland	830	Hermit Thrush					1
25-Jun	456489	5927459	Wetland	855	Greater Yellowlegs			1		
25-Jun	456489	5927459	Wetland	855	Gray Jay	2				

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
25-Jun	456489	5927459	Wetland	855	Ruby-crowned Kinglet		1	1		
25-Jun	456489	5927459	Wetland	855	Hermit Thrush		1			
25-Jun	456489	5927459	Wetland	855	Fox Sparrow			1		
25-Jun	456489	5927459	Wetland	855	Lincoln's Sparrow		1			
25-Jun	456489	5927459	Wetland	855	White-throated Sparrow			1		
25-Jun	456489	5927459	Wetland	855	Solitary Sandpiper		1			
26-Jun	540419	5898241	Disturbed	626	Northern Waterthrush		1			
26-Jun	540419	5898241	Disturbed	626	Ruby-crowned Kinglet			1		
26-Jun	540419	5898241	Disturbed	626	Swainson's Thrush			1		
26-Jun	540419	5898241	Disturbed	626	Fox Sparrow		1			
26-Jun	540419	5898241	Disturbed	626	White-throated Sparrow		1	1		
26-Jun	540419	5898241	Disturbed	626	Dark-eyed Junco	1	1			
26-Jun	540419	5898241	Disturbed	626	Pine Grosbeak		1			
26-Jun	540760	5898367	Disturbed	645	Northern Flicker	1				
26-Jun	540760	5898367	Disturbed	645	Ruby-crowned Kinglet		1	1		
26-Jun	540760	5898367	Disturbed	645	Northern Waterthrush			1		
26-Jun	540760	5898367	Disturbed	645	Fox Sparrow			1		
26-Jun	540760	5898367	Disturbed	645	White-throated Sparrow			1		
26-Jun	540760	5898367	Disturbed	645	Dark-eyed Junco	1	1			
26-Jun			Disturbed	645	Rusty Blackbird					1
26-Jun	540760	5898367	Disturbed	645	Gray Jay					1
26-Jun	540760	5898367	Disturbed	645	Canada Goose					1

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
26-Jun	541044	5898270	Disturbed	702	Gray Jay		1			
26-Jun	541044	5898270	Disturbed	702	Ruby-crowned Kinglet		1	1		
26-Jun	541044	5898270	Disturbed	702	American Robin		1			
26-Jun	541044	5898270	Disturbed	702	White-throated Sparrow			1		
26-Jun	541044	5898270	Disturbed	702	Dark-eyed Junco	1	1			
26-Jun	541044	5898270	Disturbed	702	Swainson's Thrush					1
26-Jun	541335	5898179	Disturbed	725	Greater Yellowlegs			1		
26-Jun	541335	5898179	Disturbed	725	Gray Jay			1		2
26-Jun	541335	5898179	Disturbed	725	Ruby-crowned Kinglet	1		1		
26-Jun	541335	5898179	Disturbed	725	Yellow-rumped Warbler		1			
26-Jun	541335	5898179	Disturbed	725	Fox Sparrow			1		
26-Jun	541335	5898179	Disturbed	725	White-throated Sparrow			1		
26-Jun	541335	5898179	Disturbed	725	Dark-eyed Junco		1	1		
26-Jun	541335	5898179	Disturbed	725	Northern Flicker					1
26-Jun	541632	5898071	Disturbed	744	Gray Jay		2			
26-Jun	541632	5898071	Disturbed	744	Ruby-crowned Kinglet			2		1
26-Jun	541632	5898071	Disturbed	744	White-throated Sparrow			1		
26-Jun	541632	5898071	Disturbed	744	Dark-eyed Junco		2			
26-Jun	541931	5897981	Disturbed	804	Greater Yellowlegs		1			
26-Jun	541931	5897981	Disturbed	804	Wilson's Snipe			1		
26-Jun	541931	5897981	Disturbed	804	Gray Jay			1		
26-Jun	541931	5897981	Disturbed	804	Ruby-crowned Kinglet			1		

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
26-Jun	541931	5897981	Disturbed	804	American Robin		1			
26-Jun	541931	5897981	Disturbed	804	Dark-eyed Junco	1		1		
26-Jun	541931	5897981	Disturbed	804	American Redstart					1
26-Jun	542183	5897894	Disturbed	822	Gray Jay			1		
26-Jun	542183	5897894	Disturbed	822	Ruby-crowned Kinglet		2			
26-Jun	542183	5897894	Disturbed	822	Hermit Thrush		1			
26-Jun	542183	5897894	Disturbed	822	Yellow-rumped Warbler		1			
26-Jun	542183	5897894	Disturbed	822	Savannah Sparrow		1			
26-Jun	542183	5897894	Disturbed	822	Fox Sparrow		1			
26-Jun	542183	5897894	Disturbed	822	Dark-eyed Junco		1			
26-Jun	542480	5897572	Disturbed	844	Greater Yellowlegs		1			
26-Jun	542480	5897572	Disturbed	844	Gray Jay	2				
26-Jun	542480	5897572	Disturbed	844	Ruby-crowned Kinglet		1			1
26-Jun	542480	5897572	Disturbed	844	Yellow-rumped Warbler		1			
26-Jun	542480	5897572	Disturbed	844	Savannah Sparrow	1				
26-Jun	542480	5897572	Disturbed	844	White-throated Sparrow		1			
26-Jun	542480	5897572	Disturbed	844	Dark-eyed Junco	1	1			
26-Jun	542480	5897572	Disturbed	844	Fox Sparrow					
26-Jun	542777	5897692	Disturbed	900	Common Loon			1		
26-Jun	542777	5897692	Disturbed	900	Gray Jay			1		
26-Jun	542777	5897692	Disturbed	900	Ruby-crowned Kinglet			1		
26-Jun	542777	5897692	Disturbed	900	Fox Sparrow			1		

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
26-Jun	542777	5897692	Disturbed	900	White-crowned Sparrow			1		
26-Jun	542777	5897692	Disturbed	900	Dark-eyed Junco	1		1		
26-Jun	542777	5897692	Disturbed	900	Greater Yellowlegs					1
26-Jun	543077	5897594	Disturbed	921	Ruby-crowned Kinglet			3		
26-Jun	543077	5897594	Disturbed	921	Yellow-rumped Warbler		1			
26-Jun	543077	5897594	Disturbed	921	Fox Sparrow			1		
26-Jun	543077	5897594	Disturbed	921	Dark-eyed Junco		1			
26-Jun	543087	5897935	Black Spruce	622	Ruby-crowned Kinglet		2	1		
26-Jun	543087	5897935	Black Spruce	622	Swainson's Thrush		1	1		
26-Jun	543087	5897935	Black Spruce	622	Yellow-rumped Warbler	1	1			
26-Jun	543087	5897935	Black Spruce	622	Northern Waterthrush	1				
26-Jun	543087	5897935	Black Spruce	622	Fox Sparrow		1			
26-Jun	543087	5897935	Black Spruce	622	White-throated Sparrow			1		
26-Jun	543087	5897935	Black Spruce	622	Dark-eyed Junco	2				
26-Jun	542743	5897961	Black Spruce Lichen Woodland	650	Gray Jay	1	1			
26-Jun	542743	5897961	Black Spruce Lichen Woodland	650	Ruby-crowned Kinglet		2			
26-Jun	542743	5897961	Black Spruce Lichen Woodland	650	American Robin		1			
26-Jun	542743	5897961	Black Spruce Lichen Woodland	650	Yellow-rumped Warbler	1	1			
26-Jun	542743	5897961	Black Spruce Lichen Woodland	650	Fox Sparrow		1			

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
26-Jun	542743	5897961	Black Spruce Lichen Woodland	650	Dark-eyed Junco	1				
26-Jun	542743	5897961	Black Spruce Lichen Woodland	650	White-winged Crossbill	2			3	
26-Jun	542743	5897961	Black Spruce Lichen Woodland	650	Red-tailed Hawk			1		
26-Jun	542442	5898084	Black Spruce Lichen Woodland	712	Gray Jay	1				
26-Jun	542442	5898084	Black Spruce Lichen Woodland	712	Ruby-crowned Kinglet			2		
26-Jun	542442	5898084	Black Spruce Lichen Woodland	712	Yellow-rumped Warbler		1			
26-Jun	542442	5898084	Black Spruce Lichen Woodland	712	Fox Sparrow		1	1		
26-Jun	542442	5898084	Black Spruce Lichen Woodland	712	Dark-eyed Junco		1			
26-Jun	542442	5898084	Black Spruce Lichen Woodland	712	White-winged Crossbill				1	
26-Jun	542166	5898230	Black Spruce Lichen Woodland	732	Gray Jay		2			
26-Jun	542166	5898230	Black Spruce Lichen Woodland	732	Ruby-crowned Kinglet		1	1		
26-Jun	542166	5898230	Black Spruce Lichen Woodland	732	Yellow-rumped Warbler	1	1			
26-Jun	542166	5898230	Black Spruce Lichen Woodland	732	Fox Sparrow			1		

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Easting		Start Time	Species	<50	<100	>100	Fly-over	
26-Jun	542166	5898230	Black Spruce Lichen Woodland	732	White-winged Crossbill				10	
26-Jun	542166	5898230	Black Spruce Lichen Woodland	732	Dark-eyed Junco					1
26-Jun	541883	5898366	Black Spruce Lichen Woodland	752	Boreal Chickadee	1				
26-Jun	541883	5898366	Black Spruce Lichen Woodland	752	Ruby-crowned Kinglet		1	1		
26-Jun	541883	5898366	Black Spruce Lichen Woodland	752	Yellow-rumped Warbler	1				
26-Jun	541883	5898366	Black Spruce Lichen Woodland	752	Dark-eyed Junco			2		
26-Jun	541883	5898366	Black Spruce Lichen Woodland	752	Gray Jay					1
26-Jun	541603	5898503	Wetland	800	Yellow-rumped Warbler		1			
26-Jun	541603	5898503	Wetland	800	Fox Sparrow			1		
26-Jun	541603	5898503	Wetland	800	Dark-eyed Junco	1	2			
26-Jun	541603	5898503	Wetland	800	White-winged Crossbill				1	
26-Jun	541603	5898503	Wetland	800	Ruby-crowned Kinglet					1
26-Jun			Wetland	800	Rusty Blackbird					
26-Jun	541323	5898645	Black Spruce Lichen Woodland	836	Solitary Sandpiper	1				
26-Jun	541323	5898645	Black Spruce Lichen Woodland	836	Gray Jay		1			
26-Jun	541323	5898645	Black Spruce Lichen Woodland	836	Ruby-crowned Kinglet		2	1		

Date	Coordinates (UTM)		Habitat	5-minute Listening Period		Number Observed by Distance Category (m)				Additional Species Post-BCCH Mobbing Call
	Northing	Eastng		Start Time	Species	<50	<100	>100	Fly-over	
26-Jun	541323	5898645	Black Spruce Lichen Woodland	836	Yellow-rumped Warbler	1				
26-Jun	541323	5898645	Black Spruce Lichen Woodland	836	Northern Waterthrush	1				
26-Jun	541323	5898645	Black Spruce Lichen Woodland	836	Fox Sparrow		1			
26-Jun	541323	5898645	Black Spruce Lichen Woodland	836	Dark-eyed Junco		1			
26-Jun			Black Spruce Lichen Woodland	836	Rusty Blackbird					
26-Jun	541057	5898789	Riparian	905	Ruby-crowned Kinglet		1	1		
26-Jun	541057	5898789	Riparian	905	Swainson's Thrush		1			
26-Jun	541057	5898789	Riparian	905	Blackpoll Warbler		1			
26-Jun	541057	5898789	Riparian	905	Northern Waterthrush	1				
26-Jun	541057	5898789	Riparian	905	Wilson's Warbler	1				
26-Jun	541057	5898789	Riparian	905	Fox Sparrow			1		
26-Jun	541057	5898789	Riparian	905	Dark-eyed Junco		1			
26-Jun	541057	5898789	Riparian	905	American Robin					1
26-Jun	541057	5898789	Riparian	905	Yellow-rumped Warbler					1

Notes:

- * - "0" indicates point-counts where call playback of indicated species was played and where no new species were identified. Blank cells indicate that call playback for either species was not attempted.
- BCCH = Boreal Chickadee, GCTH = Gray-cheeked Thrush, RUBL = Rusty Blackbird, OSFL = Olive-sided Flycatcher

Table B.3 Summary of Species at Risk Call Playback Used in 2016

Date	Point Count #	Start Time	Habitat	Call Playback Used	Additional Species Post-Call Playback (# recorded)	Comments
20-Jun	25A	625	Black Spruce	GCTH	No new	
21-Jun	C1I	900	Black Spruce Lichen Woodland	RUBL	FOSP (1) RCKI (1)	RUBL detected during the 5-minute PC survey
21-Jun	C2Ea	800	Black Spruce Lichen Woodland	GCTH	No new	
24-Jun	C4B	700	Disturbed	RUBL	RUBL (3) GRAJ (1)	Pair RUBL + Juvenile
25-Jun	39D	613	Disturbed	RUBL	RUBL (1)	Same RUBL had been observed flying over ROW during the 5-minute PC survey
25-Jun	39F	652	Wetland	RUBL	RUBL (1)	RUBL had something in its beak; possibly same individual as 39D
25-Jun	40Ga	742	Wetland	GCTH RUBL	No new	
25-Jun	40Ha	810	Black Spruce	OSFL	No new	
26-Jun	T1E	749	Disturbed	RUBL	No new	
26-Jun	T1H	844	Disturbed	RUBL	FOSP (1)	
26-Jun	T2Fa	805	Wetland	OSFL	RUBL (1)	RUBL observed carrying food
26-Jun	T2Ga	841	Black Spruce Lichen Woodland	RUBL	RUBL (1)	RUBL observed carrying food; possible the same individual as at T2Fa
26-Jun	T2Ha	910	Riparian	GCTH OSFL	No new	

Notes:

- Coordinates for species at risk are not provided; Refer to Figure 3-1 for point count reference locations.
- GCTH = Gray-cheeked Thrush; RUBL = Rusty Blackbird; OSFL= Olive-sided Flycatcher
- PC = Point Count; ROW = Right-of-Way

APPENDIX C

Common Nighthawk Survey Data

Table C.1 Common Nighthawk Point-Count Survey Data

Date	Coordinates (UTM)		Time	CONI	General Habitat	Incidental Observations	Comments
	Easting	Northing					
29-Jun	640467	5901194	20h50	0	Cleared area near Black Spruce and White Birch	Swainson's Thrush, Yellow-rumped Warbler, White-crowned Sparrow, Wilson's Snipe	
29-Jun	640959	5901479	21h22	0	Cleared area near Mixedwood (Balsam Fir, Black Spruce, and White Birch)	Black Bear scat, Wilson's Snipe, Swainson's Thrush, White-throated Sparrow, Spotted Sandpiper	
29-Jun	641529	5902655	21h41	0	Sandpit near Mixedwood (Balsam Fir, Black Spruce, and White Birch)	Swainson's Thrush, White-throated Sparrow	
29-Jun	644612	5904535	22h03	0	Sandpit near Mixedwood (Balsam Fir, Black Spruce, and White Birch)	Swainson's Thrush, Black-and-white Warbler, Spotted Sandpiper	
29-Jun	666987	5905209	22h37	0	Balsam Fir and Black Spruce / Riverine	American toad	
29-Jun	676798	5909410	20h35	0	Black Spruce	White-throated Sparrow, Black-throated Green Warbler, Dark-eyed Junco	
29-Jun	641159	5906476	21h44	0	Black Spruce	Dark-eyed Junco, Swainson's Thrush, Fox Sparrow	
29-Jun	646405	5905934	22h05	0	White Birch and Spruce Spp.	Swainson's Thrush	
29-Jun	640790	5904433	22h27	0	Spruce Spp.	White-throated Sparrow	
29-Jun	640678	5903721	22h44	0	Black Spruce	Black-throated Green Warbler, White-throated Sparrow	
29-Jun	641698	5902274	23h08	0	Spruce Spp.	None	

Date	Coordinates (UTM)		Time	CONI	General Habitat	Incidental Observations	Comments
	Easting	Northing					
29-Jun	640880	5903155	23h23	0	Spruce Spp.	None	
6-Jul	631738	5893393	20h32	0	Black Spruce	White-throated Sparrow, Swainson's Thrush, Dark-eyed Junco, American Robin	
6-Jul	636928	5895910	21h12	0	Dwarf Birch	White-throated Sparrow	
6-Jul	636091	5898467	21h50	0	Black Spruce	White-throated Sparrow, Swainson's Thrush, Dark-eyed Junco	
6-Jul	636034	5897524	22h12	0	Black Spruce	Swainson's Thrush	
6-Jul	615068	5878732	20h43	0	Black Spruce	Swainson's Thrush, White-throated Sparrow, Least Flycatcher, Hermit Thrush	
6-Jul	617520	5879736	21h01	0	Black Spruce	Dark-eyed Junco, Swainson's Thrush, White-throated Sparrow	
6-Jul	623367	5883430	21h28	0	Black Spruce	Dark-eyed Junco, Swainson's Thrush, White-throated Sparrow	
6-Jul	622495	5882913	21h46	0	Black Spruce	Tennessee Warbler, Dark-eyed Junco, Swainson's Thrush, White-throated Sparrow	
8-Jul	611005	5871409	20h24	0	Black Spruce	Swainson's Thrush, White-throated Sparrow, Gray Jay	
8-Jul	610481	5871809	20h48	0	Black Spruce	Dark-eyed Junco and Swainson's Thrush	
8-Jul	609481	5872499	21h10	0	Black Spruce	Dark-eyed Junco and Swainson's Thrush	
8-Jul	609481	5873387	21h24	0	Black Spruce	Dark-eyed Junco, White-throated Sparrow, Swainson's Thrush	
8-Jul	611246	5875571	21h46	0	Black Spruce	White-throated Sparrow, Swainson's Thrush	

Date	Coordinates (UTM)		Time	CONI	General Habitat	Incidental Observations	Comments
	Easting	Northing					
8-Jul	614071	5876853	22h02	0	Black Spruce	Dark-eyed Junco, Swainson's Thrush	
8-Jul	██████	██████	22h20	2	Black Spruce	Dark-eyed Junco, Swainson's Thrush, Wilson's Snipe	Male located ~350m from observer at a bearing of 150°; Unknown sex located ~ 180m away at a bearing of 180°
8-Jul	672290	5878487	20h26	0	Black Spruce	Dark-eyed Junco, Swainson's Thrush, Wilson's Snipe, Ruby-crowned Kinglet, American Robin	
8-Jul	669048	5879923	20h57	0	Black Spruce	Fox Sparrow, Yellow Warbler, Swainson's Thrush, White-throated Sparrow, Spotted Sandpiper, Pine Grosbeak	
8-Jul	668548	5879772	21h19	0	Black Spruce	Fox Sparrow, Yellow Warbler, Swainson's Thrush, White-throated Sparrow, Dark-eyed Junco, Tennessee Warbler	
8-Jul	668303	5880058	21h39	0	Black Spruce	White-throated Sparrow, Swainson's Thrush, Hermit Thrush, moose tracks, American toad	
8-Jul	667905	5880427	22h00	0	Black Spruce	Swainson's Thrush, White-throated Sparrow, American toad, Gray Jay	
8-Jul	667597	5880960	22h21	0	Black Spruce	Least Flycatcher, Swainson's Thrush, and Grouse Spp. kill site	
8-Jul	666927	5885302	22h44	0	Black Spruce	Spotted Sandpiper	
8-Jul	670117	5899404	23h15	0	Black Spruce	American toad	