DILLON CONSULTING

WOCAWSON ENERGY LIMITED PARTNERSHIP

Addendum to Bird and Bird Habitat Report (Final)

Summary of the Wocawson Energy Project Fall Avian Surveys

November 2018 – 18-6975

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1.0 Introduction

Dillon Consulting Limited (Dillon) was retained by the Wocawson Energy Limited Partnership (WLP) to complete avian surveys in support of an ongoing provincial registration of an Environmental Impact Assessment (EIA) for the Wocawson Energy Project ("the Project").

The proposed 20-40 megawatt (MW) Wocawson Energy Project is expected to provide electricity to approximately 3,600 – 7,200 New Brunswick homes. The turbines for the Project are sited on approximately 1,150 hectares (ha) of Crown land located approximately 20 km east of the Town of Sussex, near Penobsquis, in Kings County, New Brunswick. The transmission line associated with the Project will extend across Crown land as well as private land to connect to the existing power grid.

The Project area includes 12 proposed turbine locations (with potentially 6-12 turbines installed), connector lines, a substation and transmission line, as well as pre-existing road infrastructure (Mitton Road) to be upgraded for the Project. Mitton Road (located off NB Route 114) is the main access to the Project area. Nine alternate turbine locations have also been proposed by WLP based on a Wind Resource Assessment that was completed in 2018 by WLP.

The Project is located in a generally undeveloped area, although regular tree harvesting has occurred across the project area. It is anticipated that the area would provide suitable bird habitat for many species, resulting in birds and bird habitat being considered an important feature and a valued component (VC) related to the Project. Dillon conducted winter, spring and summer avian surveys as a part of a full-year, comprehensive avian survey program (for winter, spring, and summer results, refer to the Dillon Report titled "*Bird and Bird Habitat Summary Report (Final)"* dated August 2018; Dillon [2018]) in support of the Wocawson Energy Project EIA registration.

This addendum report provides a summary of the fall avian surveys (i.e., bird and bird habitat surveys, including species at risk [SAR] and species of conservation concern [SOCC]) conducted throughout the fall of 2018. This report provides the pre-construction baseline information on avian activity within the Project area during the fall migratory period.

2.0 Bird and Bird Habitat Survey Scope and Methodology

This section details the scope of the fall bird and bird habitat surveys conducted for the proposed project, and the methods that were used to conduct the desktop and field assessments.

2.1 Recommended Protocols and Scope of Work

2.1.1 Survey Protocols

The "Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds" published by the Canadian Wildlife Service (CWS 2007) recommends a full year breeding and migratory bird survey be completed as part of the EIA process and prior to the construction of a wind farm project.

The level of concern for the Project is considered to be "moderate"; details of this rationale can be referenced within the *Bird and Bird Habitat Summary Report (Final)"* dated August 2018 (Dillon 2018). Definitions of what constitutes a SAR or SOCC are also provided in the Dillon (2018) report.

2.1.2 Scope of Work

Based on the recommended Environment and Climate Change Canada (ECCC) and Canadian Wildlife Service (CWS) protocols and feedback from the consultation process, the following scope of work was completed as part of the fall bird and bird habitat surveys for the Project. The scope of work included:

- Background and desktop analysis; and
- Fall field surveys (targeting migratory species).

The methodologies used for the scope of the desktop analysis and field surveys listed above are outlined within the following sections.

2.1.2.1 Spatial Boundaries

For the purpose of the fall avian surveys, the spatial boundaries (i.e., the assessment area) have been identified as a 500 m buffer surrounding the project footprint of the proposed turbine locations, substation, connector lines, and road upgrades (refer to Figure 1). The proposed turbine locations include potential alternate placement options, which can be referenced on Figure 1 as "Potential Alternate Turbine Locations". The transmission corridor was not included within the assessment area during the fall avian surveys (refer to Section 2.3, below, for further discussion and rationale on the field survey methodology).

2.1.2.2 Temporal Boundaries

The temporal boundaries for the assessment define the time periods for which likely environmental effects of the Project are considered. The temporal boundaries of this assessment include the duration of the construction phase (approximately 1 year in duration during 2019) and subsequent operation phase (approximately 30 years following construction) of the Project. In the construction phase, specific construction-related effects are anticipated to be short term and limited to either the duration of the activities that produce the effects or the duration of the construction phase. Effects associated with the operation phase are longer term, as the proposed Project is intended to be operational for at least 30 years (although the lifespan may be extended with routine maintenance or refurbishment as appropriate).

2.2 Desktop Analysis Methodology

Prior to completing the avian (bird) field surveys, Dillon reviewed readily available information from reputable sources. The information was reviewed to evaluate the potential for avian SOCC and/or avian SAR within the general area of the Project. The information on habitats present in the local and sub-regional assessment area were reviewed to evaluate preliminary potential for at risk bird species and/or their critical habitat. Dillon completed a review of sources and data lists prior to completing the field surveys that can be referenced within the *Bird and Bird Habitat Summary Report (Final)"* dated August 2018 (Dillon 2018).

2.3 Field Survey Methodology

Based on the level of concern for the proposed project (CWS 2007), and the findings of the initial literature review, the following approach for the avian surveys was undertaken with the objective of gaining an estimate of both the number of bird species using the Project area, and their relative abundance during fall migration. The fall surveys were conducted between August 31 and October 6, 2018.

Based on the level of concern for the proposed project (and resulting assessment methodology as outlined in CWS 2007), and the findings of the initial literature review, the following approach for the avian surveys was undertaken with the objective of gaining an estimate of both the number of bird species using the Project area, and their relative abundance during fall migration. The fall surveys were conducted between August 31 and October 6, 2018.

Based on research, (Mabee et al. 2006) the average altitude of diurnal migrating bird species along the Appalachian Ridge was approximately 410 m above ground level with a nightly (nocturnal) average ranging from approximately 215 m to 775m above ground level. For birds using the assessment area for stop over, the potential for interactions with the 7-18 m high transmission line is considered less likely than the potential for interactions with wind turbines with a hub height of 135 m during fall migration.

The development and operation of the proposed transmission line corridor is anticipated to have more potential for interactions with breeding birds and associated nesting bird habitat (i.e. through the loss of bird habitat in general) than with migrating birds. There were no significant breeding colonies or large concentrations of birds found in or near the proposed transmission line during the spring breeding bird surveys that would require further study. Furthermore, considerable breeding bird and bird habitat data was collected for the transmission line corridor during the winter, spring and summer 2018 avian surveys when there is anticipated to be greater activity/habitat use in the area of the proposed transmission line. Additionally, the proposed turbine assessment area is located on a ridge top, likely making it a migration flight corridor (CWS 2007), with an elevated potential for higher numbers of migrants passing by. The fall survey was therefore designed to allow for maximum effort to be focussed solely on migration within the proposed turbine areas (i.e. the anticipated highest risk for birds migrating over the assessment area).

Three different survey types were employed during the 2018 fall migratory period within the proposed turbine area: i) migration stop-over counts; ii) diurnal passage watch counts; and iii) crepuscular passage watch counts. The former type of count determines the number and kinds of birds that land in the assessment area during their period of migration, while the two types of passage counts examine the number, species, altitude and behaviour of birds flying over the assessment area.

It should be noted that a clear distinction between the three types of surveys described above is not always possible. Birds that are detected during a stop-over survey may have only stopped momentarily while migrating during the daytime. Conversely, birds that have been migrating nocturnally can occasionally be seen flying in large numbers during the hours of a diurnal or crepuscular passage count as they attempt to regain their bearings, or seek suitable feeding and resting areas.

By conducting these types of surveys, migration stop-over counts seek to provide an estimate of the overall magnitude of bird migration in the area. Diurnal and crepuscular passage counts seek to provide a measure of the importance of an area for migrating birds, but can also provide critical information in evaluating the risk posed to birds from collisions with wind turbines. For the fall surveys, an additional Dillon bird specialist was engaged to complete surveys throughout the anticipated peak migration time, in order to allow for a doubled effort during the period of high activity.

2.3.1 Migration Stop-over Surveys

As depicted in **Figure 1**, two transects were established spanning the assessment area in close proximity to sites designated for the potential placement of wind turbines. Transect #1 is located in the western portion of the assessment area and Transect #2 is located in the eastern portion (refer to **Figure 1**). Seven point counts were distributed along the length of each transect. Birds seen or heard within the distance bands of <50 m, 50-100 m, >100 m, and flying overhead were recorded separately. During the fall migration period, Transect #1 was surveyed six times between August 31 and October 5, while Transect #2 was surveyed seven times between September 1 and October 6. The migration stop-over surveys were begun roughly one-half hour after local sunrise.

2.3.2 Crepuscular and Diurnal Passage Surveys

Diurnal and crepuscular passage surveys were conducted from two distinct watch points within the assessment area. Diurnal describes birds that are principally active during the day (typically morning) with major activities, such as courtship, nesting, feeding and other behaviors. Crepuscular describes birds that are typically most active (i.e., courtship, nesting, feeding, etc.) during twilight hours (i.e., pre-dawn). The choice of watch points was based on the extent to which they provided as close as possible to a 360 degree extended view of the air space around the watch point, its proximity to a potential site for the placement of wind turbines, and its elevation relative to the surrounding landscape. The location of both watch points is shown in **Figure 2**. Both the diurnal and crepuscular passage surveys consisted of a number of 30-minute time blocks of observation.

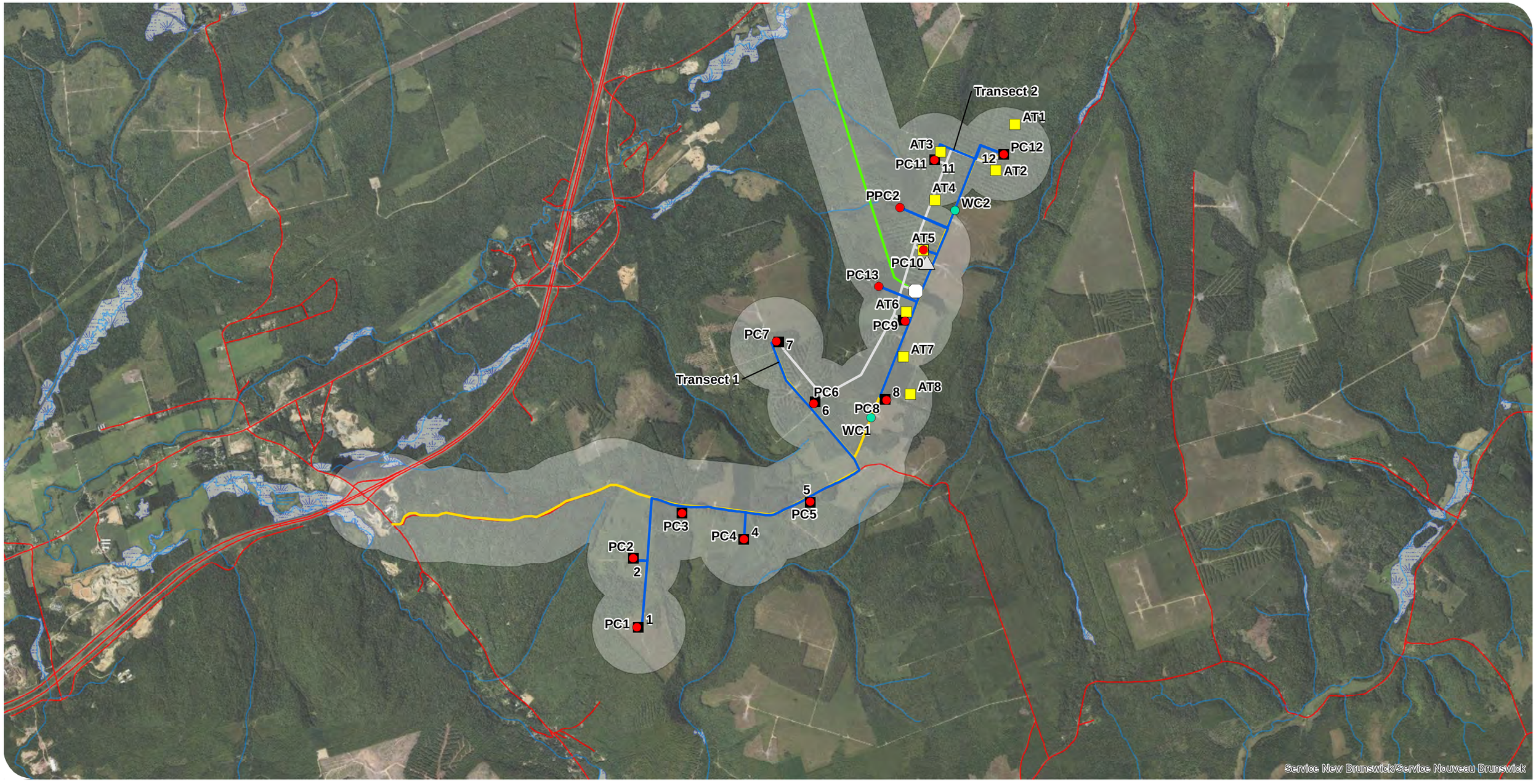
A total of 78 30-minute diurnal observation blocks were completed between August 31 and October 6, 2018, for a total of 39 hours of observation. Of these 78 observation blocks, 48 were conducted at Watch Point #1, and 30 were conducted at Watch Point #2.

A total 13 30-minute crepuscular observation blocks were completed between August 31 and October 6, 2018, for a total of 6.5 hours of observation. Of these 13 observation blocks, six were conducted at Watch Point #1, and seven were conducted at Watch Point #2.

Individual birds or group of birds of the same type detected passing through the observation space at these points was recorded as one observation. If a bird flew through the observation space and then flew through it again later in the same time block, it would have been recorded as two observations. If two or more birds of the same species flew through the observation space flying in the same direction and at the same altitude category, then it was one observation of X number of individuals. All birds seen or heard during this time period were recorded according to their species, number of individuals, direction of flight, and altitude relative to the forest canopy.

The crepuscular passage surveys were conducted immediately prior to beginning a migration stop-over survey on a given day, and therefore took place during the pre-dawn to dawn time period. The diurnal passage surveys were then conducted following the completion of a migration stop-over survey, and therefore typically began by mid-to-late morning and ended in the early afternoon. As such a typical survey day would be conducted as follows:

1. (Pre-dawn to dawn) 1 x 30 minute crepuscular passage survey;
2. (Dawn to mid-morning) migration stop-over survey consisting of 7 point counts; and
3. (Mid-morning to early afternoon) 6 x 30 minutes diurnal passage survey.



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Wocawson Energy Project

Wocawson Energy Project
Fall Avian Survey Locations
FIGURE 1

- Watch Counts
- Bird Survey Point Count
- Potential Alternative Turbine Locations
- Proposed Turbine Locations
- Proposed Substation
- Met Tower
- Transects
- Proposed Collector
- Proposed Road Upgrade
- Proposed Transmission Line
- Watercourses
- Roads
- Regulated Wetlands
- Assessment Area

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MAP DRAWING INFORMATION:
DATA PROVIDED BY NBDERD

MAP CREATED BY: JNH
MAP CHECKED BY: ACS
MAP PROJECTION: NAD 1983 CSRS New Brunswick Stereographic

0 0.5 1 2 km

SCALE 1:39,132

N W E S

FILE LOCATION: G:\CAD\GIS\186975_SUSSEX EAST\SUSSEX EAST WIND PROJECT\MAPS FOR REPORT\FALL AVIAN SURVEY LOCATIONS OCT 30 2018_JNH

PROJECT: 18-6975 STATUS: DRAFT DATE: 2018-11-15

3.0 Avian Survey Results

The results of the fall avian surveys conducted within the assessment area are summarized within the following sections.

3.1 Overview of Results

Including survey data collected during the 2018 fall avian assessment, a total 1,673 individual birds comprising of 58 avian species were recorded within the assessment area. The bird populations present in the assessment area were detected through the techniques of point counts, area searches / transects, and watch counts. Refer to **Appendix A** for detailed avian observation data tables, including an overview of species identified during the fall 2018 field program, as well as seasonal abundance summaries.

Refer to **Figure 1** for the location of point count areas, transects, and watch points used for the fall avian surveys.

For the purposes of this assessment:

- "abundance" refers to the total number of individuals per species per survey;
- "diversity" refers to the number of different species detected per survey area during the same time period, and
- "frequency" refers to the number of times a species occurs within a survey time block.

3.2 Migration Stop-over Surveys

In total, 299 individual birds comprised of 33 species were recorded during point counts along Transect #1, and a total of 318 individual birds comprised of 33 species were recorded during point counts along Transect #2 (refer to **Appendix A**).

These data are used to examine the effects of seasonality on birds migrating through the assessment area.

Figures 2 and **3**, below, represent the overall magnitude of the fall migration in the assessment area by displaying the total number of birds observed along Transects #1 and #2, respectively (i.e., abundance). These figures suggest that peak fall migration in the assessment area likely occurs in mid-to-late September.

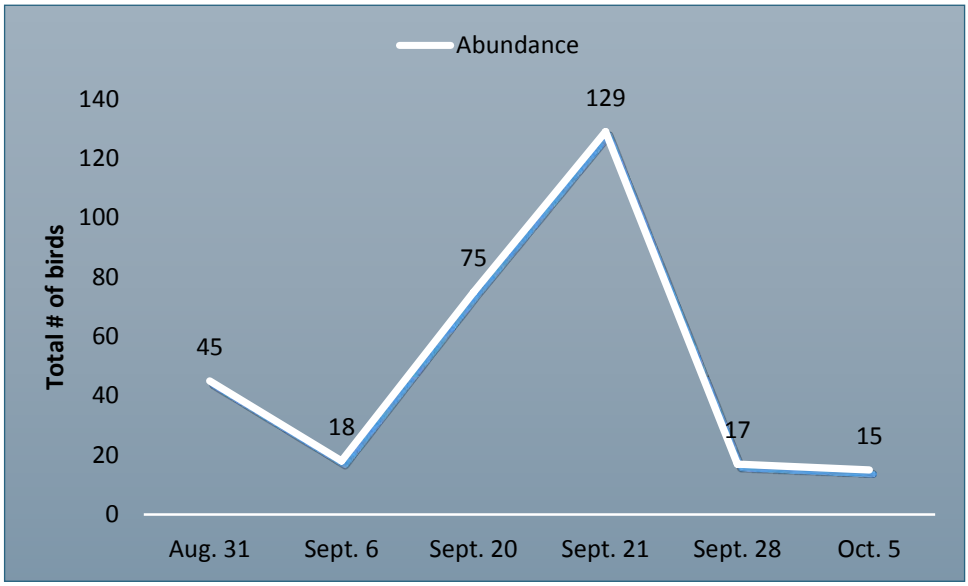

Figure 2: Summary of overall avian abundance along Transect #1 during Fall migration.

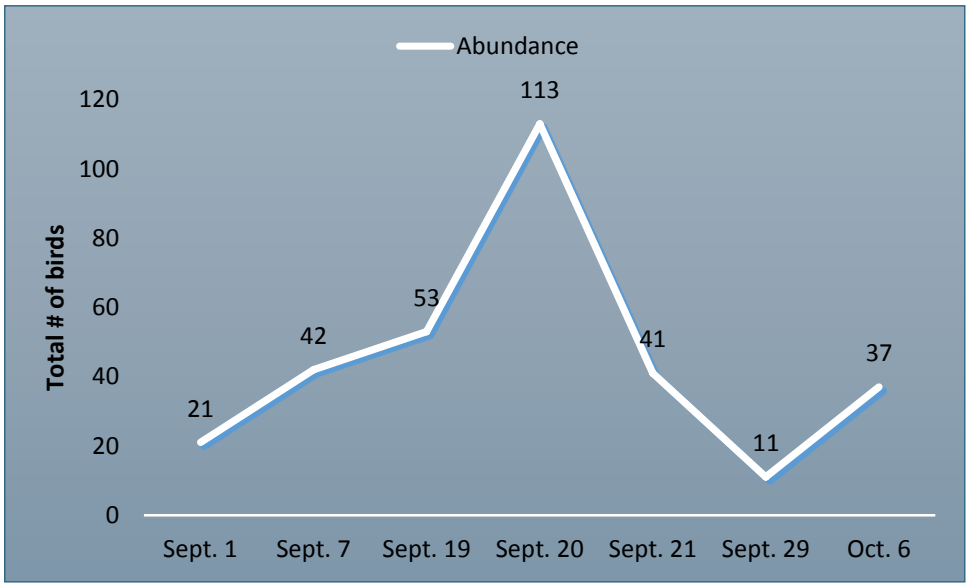

Figure 3: Summary of overall avian abundance along Transect #2 during Fall migration.

Figures 4 and **5**, below, present the overall number of species detected per transect in the assessment area during the same time period (diversity).

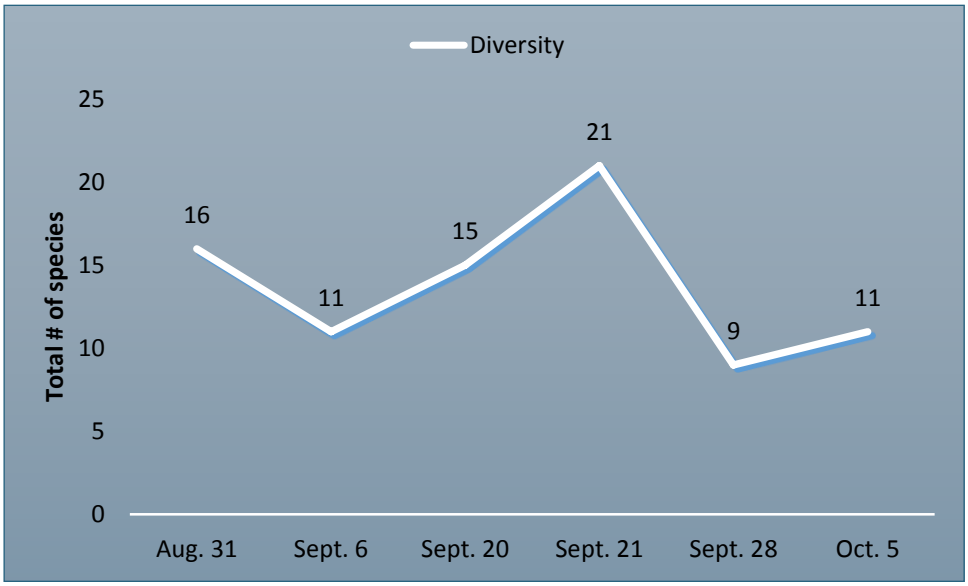

Figure 4: Summary of overall avian diversity along Transect #1 during Fall migration.

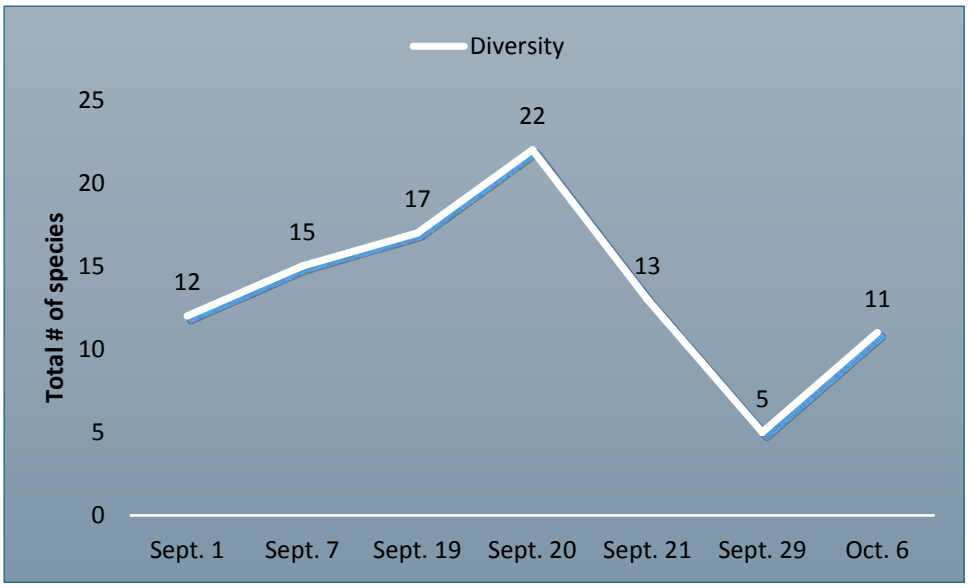

Figure 5: Summary of overall avian diversity along Transect #2 during Fall migration.

The above figures indicate that the overall diversity of bird species is highest during peak migration (mid-September) and generally decreases over the remainder of the fall migratory period. The relative spike in diversity in October is mostly attributable to poor weather conditions during surveys on September 29 (i.e., fog/drizzle) which suppressed bird activity, and thus the low number species detected.

3.3 Crepuscular Passage Surveys

3.3.1 Watch Point #1

For Watch Point #1, a total of 12 species (11 identifiable species and 1 unidentifiable) were detected during the crepuscular passage surveys. Due to the difficulty in reliably identifying all birds migrating over a given area, especially during the low-light conditions at pre-dawn, unidentified birds detected were grouped into larger categories, i.e., 'Warbler spp.' or 'Sparrow spp.' if necessary. The results of crepuscular passage surveys at Watch Point #1 are summarized in **Table 1** below.

Table 1: Results of the Crepuscular Passage Surveys at Watch Point #1

Common Name	Scientific Name	Total Number of birds detected	Number of time blocks detected	Frequency
Common Raven	*Corvus corax*	20	1	17%
White-throated Sparrow	*Zonotrichia albicollis*	18	5	83%
Swainson's Thrush	*Catharus ustulatus*	16	4	67%
Song Sparrow	*Melospiza melodia*	6	3	50%
Warbler spp.	-	4	1	17%
American Woodcock	*Scolopax minor*	2	2	33%
Black-capped Chickadee	*Poecile atricapillus*	2	1	17%
American Robin	*Turdus migratorius*	1	1	17%
Blue Jay	*Cyanocitta cristata*	1	1	17%
Dark-eyed Junco	*Junco hyemalis*	1	1	17%
Hermit Thrush	*Catharus guttatus*	1	1	17%
Yellow-rumped Warbler	*Setophaga coronata*	1	1	17%

The most abundantly detected bird at Watch Point #1 during crepuscular passage surveys was the common raven; however, all 20 common ravens were recorded during one time block on October 5, 2018. The most frequently detected species was the white-throated sparrow (detected in 83% of time blocks). Other frequently detected species included the Swainson's thrush (detected in 67% of time blocks), song sparrow (detected in 50% of time blocks), and American woodcock (detected in 33% of time blocks).

3.3.2 Watch Point #2

For Watch Point #2, 16 species in total (15 identifiable and 1 unidentifiable) were detected during crepuscular passage surveys. Due to the difficulty in reliably identifying birds migrating over a given area, especially during the low-light conditions at pre-dawn, unidentified birds detected were grouped into

larger categories, i.e., 'Warbler spp.' or 'Sparrow spp.' if necessary. The results of crepuscular passage surveys at Watch Point #2 are summarized in **Table 2** below.

Table 2: Results of the Crepuscular Passage Surveys at Watch Point #2

Common Name	Scientific Name	Total Number of birds detected	Number of time blocks detected	Frequency
White-throated Sparrow	*Zonotrichia albicollis*	32	6	86%
Song Sparrow	*Melospiza melodia*	21	4	57%
Swainson's Thrush	*Catharus ustulatus*	17	5	71%
Warbler spp.	-	6	2	29%
Blue Jay	*Cyanocitta cristata*	4	1	14%
Common Yellowthroat	*Geothlypis trichas*	4	1	14%
American Crow	*Corvus brachyrhynchos*	2	1	14%
American Robin	*Turdus migratorius*	2	1	14%
Dark-eyed Junco	*Junco hyemalis*	2	2	29%
Great-horned Owl	*Bubo virginianus*	2	1	14%
Hermit Thrush	*Catharus guttatus*	2	1	14%
American Woodcock	*Scolopax minor*	1	1	14%
Black-capped Chickadee	*Poecile atricapillus*	1	1	14%
Common Loon	*Gavia immer*	1	1	14%
Golden-crowned Kinglet	*Regulus satrapa*	1	1	14%
Lincoln's Sparrow	*Melospiza lincolnii*	1	1	14%

The most abundantly and frequently detected bird at Watch Point #2 during crepuscular passage surveys was the white-throated sparrow (detected in 86% of time blocks). Other frequently detected species included the Swainson's thrush (detected in 71% of time blocks), song sparrow (detected in 57% of time blocks), and dark-eyed junco (detected in 29% of time blocks). Unidentified warbler species were also detected quite frequently, with at least one observation in 29% of time blocks.

3.4 Diurnal Passage Surveys

3.4.1 Watch Point #1

For Watch Point #1, a total of 35 species (32 identifiable species and 3 unidentifiable) were detected during the diurnal passage surveys. Due to the difficulty in reliably identifying birds migrating over a given area (especially warbler and sparrow species), unidentified birds detected were grouped into their

own categories, i.e., 'Warbler spp.' and 'Duck spp.'. The results of diurnal passage surveys at Watch point #1 are summarized in **Table 3**, below.

Table 3: Results of the Diurnal Passage Surveys at Watch Point #1

Common Name	Scientific Name	Total Number of birds detected	Number of time blocks detected	Frequency
Yellow-rumped Warbler	*Setophaga coronata*	62	15	31%
Black-capped Chickadee	*Poecile atricapillus*	24	6	13%
Warbler spp.	-	20	9	19%
Common Raven	*Corvus corax*	16	9	19%
Dark-eyed Junco	*Junco hyemalis*	14	2	4%
Palm Warbler	*Setophaga pinus*	13	7	15%
American Goldfinch	*Spinus tristis*	12	8	17%
Blue Jay	*Cyanocitta cristata*	8	3	6%
Purple Finch	*Haemorhous purpureus*	7	5	10%
American Kestrel	*Falco sparverius*	6	5	10%
Hairy Woodpecker	*Leuconotopicus villosus*	4	4	8%
White-throated Sparrow	*Zonotrichia albicollis*	4	4	8%
American Robin	*Turdus migratorius*	3	2	4%
Pine Siskin	***Spinus pinus***	**3**	**3**	**6%**
Hermit Thrush	*Catharus guttatus*	2	1	2%
Merlin	*Falco columbarius*	2	1	2%
Northern Flicker	*Colaptes auratus*	2	2	4%
Red-breasted Nuthatch	*Sitta canadensis*	2	2	4%
Sharp-shinned Hawk	*Accipiter striatus*	2	2	4%
White-winged Crossbill	*Loxia leucoptera*	2	2	4%
American Crow	*Corvus brachyrhynchos*	1	1	2%
Bald Eagle	***Haliaeetus leucocephalus***	**1**	**1**	**2%**
Bank Swallow	***Riparia riparia***	**1**	**1**	**2%**
Black-throated Blue Warbler	*Dendroica caerulescens*	1	1	2%
Chipping Sparrow	*Spizella passerine*	1	1	2%
Downy Woodpecker	*Picoides pubescens*	1	1	2%
Duck spp.	-	1	1	2%

Common Name	Scientific Name	Total Number of birds detected	Number of time blocks detected	Frequency
Golden-crowned Kinglet	*Regulus satrapa*	1	1	2%
Gray Jay	*Perisoreus Canadensis*	1	1	2%
Northern Harrier	*Circus cyaneus*	1	1	2%
Red-eyed Vireo	*Vireo olivaceus*	1	1	2%
Ruby-crowned Kinglet	*Regulus calendula*	1	1	2%
Ruby-throated Hummingbird	*Archilochus colubris*	1	1	2%
Song Sparrow	*Melospiza melodia*	1	1	2%
Woodpecker spp.	-	1	1	2%

Legend: **Bold** text denotes SAR or SOCC bird species.

The bird species detected during the diurnal passage surveys at Watch Point #1 included common resident and migrant species of New Brunswick. The most abundantly detected bird at Watch Point #1 was the yellow-rumped warbler; however, this is reflects 40 yellow-rumped warblers that were recorded during one time block on September 20, 2018. The yellow-rumped warbler was also the most frequently detected species (detected in 31% of time blocks). Other frequently detected species included the common raven (detected in 19% of time blocks), American goldfinch (detected in 17% of time blocks), and palm warbler (detected in 15% of time blocks). Unidentified warbler species were also detected relatively frequently, with at least one observation in 19% of time blocks. Two species at risk, bank swallow ("threatened" under the *Species at Risk Act*) and bald eagle ("endangered" under the New Brunswick *Species at Risk Act*), were detected during the diurnal passage surveys.

3.4.2 Watch Point #2

For Watch Point #2, a total of 25 species (23 identifiable species and 2 unidentifiable) were detected during diurnal passage surveys. Due to the difficulty in reliably identifying birds migrating over a given area (especially warbler and sparrow species), unidentified birds detected were grouped into their own categories, i.e., 'Warbler spp.' and 'Duck spp.'. The results of diurnal passage surveys at Watch Point #2 are summarized in **Table 4**, below.

Table 4: Results of the Diurnal Passage Surveys at Watch Point #2

Common Name	Scientific Name	Total Number of birds detected	Number of time blocks detected	Frequency
Blue Jay	*Cyanocitta cristata*	23	9	30%
Warbler spp.	-	21	10	33%
American Goldfinch	*Spinus tristis*	17	7	23%
American Crow	*Corvus brachyrhynchos*	14	4	13%
American Robin	*Turdus migratorius*	14	7	23%
White-throated Sparrow	*Zonotrichia albicollis*	12	9	30%
Yellow-rumped Warbler	*Setophaga coronate*	12	7	23%
Cedar Waxwing	*Bombycilla cedrorum*	11	1	3%
Song Sparrow	*Melospiza melodia*	10	9	30%
Black-capped Chickadee	*Poecile atricapillus*	8	6	20%
Northern Flicker	*Colaptes auratus*	8	5	17%
Common Raven	*Corvus corax*	5	3	10%
Common Yellowthroat	*Geothlypis trichas*	5	5	17%
Dark-eyed Junco	*Junco hyemalis*	5	2	7%
Palm Warbler	*Setophaga pinus*	5	5	17%
Bald Eagle	***Haliaeetus leucocephalus***	**3**	**3**	**10%**
American Kestrel	*Falco sparverius*	2	1	3%
Turkey Vulture	***Cathartes aura***	**2**	**2**	**7%**
Hermit Thrush	*Catharus guttatus*	1	1	3%
Northern Harrier	*Circus cyaneus*	1	1	3%
Pine Siskin	***Spinus pinus***	**1**	**1**	**3%**
Purple Finch	*Haemorhous purpureus*	1	1	3%
Red-tailed Hawk	*Buteo jamaicensis*	1	1	3%
Ruby-crowned Kinglet	*Regulus calendula*	1	1	3%
Woodpecker spp.	-	1	1	3%

Legend: **Bold** text denotes SAR or SOCC bird species.

The bird species detected during the diurnal passage surveys at Watch Point #2 included common resident and migrant species of New Brunswick. The most abundantly detected bird at Watch Point #2 was the blue jay; however, these represent only the local movements of resident birds within the

assessment area. The most frequently detected species were the song sparrow, white throated sparrow and the blue jay (all three were detected in 30% of time blocks). Other frequently detected species included the American robin (detected in 23% of time blocks), yellow-rumped warbler (detected in 23% of time blocks), and American goldfinch (detected in 23% of time blocks). Unidentified warbler species were also detected quite frequently, with at least one observation in 33% of time blocks.

That said, common ravens and several other raptor species were detected at both the watch points, suggesting the assessment area is used by local populations of raptors and corvids in order to gain altitude. These species are known to use thermals and air currents that are generated off the forest canopy (albedo effect), as well as topographic features such as steep hills and ridges.

3.5 Bird Species at Risk or Species of Conservation Concern

3.5.1 Species at Risk

A custom Atlantic Canada Conservation Data Centre (AC CDC) (2018) data report was obtained for a 5 km radius around the proposed Project area. Refer to the *Bird and Bird Habitat Summary Report (Final)* (Dillon 2018) for a summary of AC CDC data.

Only two avian SAR were identified during the 2018 fall avian survey program, refer to **Table 5**, presented below. Descriptions of the species identified during the survey program and their preferential habitat is also provided below.

Table 5: Avian SAR Identified within the Assessment Area during the 2018 Avian Survey Program

Common name	Scientific name	AC CDC S-rank[1]	NB SARA Status	Federal SARA Status	COSEWIC
Bald Eagle*	*Haliaeetus leucocephalus*	S4	Endangered	-	-
Bank Swallow	*Riparia riparia*	S2S3B,S2S3M	-	Threatened	Threatened

* Bird species was not identified by the AC CDC records review (AC CDC 2018).

Notes: 1 S1: extremely rare in province; S2: rare in province; S3: uncommon in province; S4: widespread, common and apparently secure in province; S5: widespread, abundant and demonstrably secure in province S#S# = a numeric range rank used to indicate any range of uncertainty about the status of the species or community. B= Breeding, N = Nonbreeding, M = Migrant, U = Unrankable. (AC CDC 2018)

Bald Eagle

Bald eagles were observed once from Watch Point #1 on October 6, 2018 and twice from Watch Point #2 on September 20 and 21, 2018. Refer to **Appendix A** for more detailed information on the bald eagle detections.

This very large raptor is the largest bird that inhabits the Maritime Provinces, with the exception of the much rarer golden eagle (*Aquila chrysaetos*). In the Maritimes, bald eagles will typically nest in tall pine

trees in forested areas near a large body of water. They will return to the same nest year-after-year, adding new sticks and other materials to the structure with each use.

Bald eagle's diet consists of many species of fish, but they will also prey upon birds, reptiles, amphibians, invertebrates, and carrion. Suitable breeding habitat for this species does occur within the vicinity of the Project (the Kennebecasis River); however, this species may be currently nesting within the Project area. No bald eagle nests were observed within the assessment area during the field studies.

Bank Swallow

One bank swallow was observed from Watch Point #1 on August 31, 2018. Refer to **Appendix A** for more detailed information on the bank swallow detection.

The bank swallow is a colonial breeder and is found across New Brunswick in lowlands along rivers, streams and ocean coasts. Colonies can range from 10 to 2,000 nesting pairs and are always found around vertical, or near vertical cliffs or banks. Historically, bank swallows were most commonly found around natural bluffs or eroding streamside banks, however, they now are more commonly associated with sand and gravel quarries. These birds are aerial insectivores catching nearly their prey on the wing. Common prey items include bees, wasps, ants, butterflies and moths. Bank swallows winter in Central and South America.

3.5.2 Species of Conservation Concern

According to the AC CDC records review (AC CDC 2018), there are ten records of bird SOCC that have been historically observed within 5 km of the proposed Project area. Refer to the *Bird and Bird Habitat Summary Report (Final)* (Dillon 2018) for a summary of AC CDC data.

Only two avian SOCC were identified during the 2018 fall avian survey program; refer to **Table 6**, presented below. Descriptions of the species identified during the survey program and their preferential habitat is also provided below.

Table 6: Avian SOCC Identified within the Assessment Area During the 2018 Avian Survey Program

Common name	Scientific name	AC CDC S-rank[1]	NB SARA Status	Federal SARA Status	COSEWIC
Pine Siskin	*Spinus pinus*	S3	-	-	-
Turkey Vulture*	*Cathartes aura*	S3B,S3M	-	-	-

* Bird species was not identified by the AC CDC records review (AC CDC 2018).

Notes: [1] S1: extremely rare in province; S2: rare in province; S3: uncommon in province; S4: widespread, common and apparently secure in province; S5: widespread, abundant and demonstrably secure in province S#S# = a numeric range rank used to indicate any range of uncertainty about the status of the species or community. B= Breeding, N = Nonbreeding, M = Migrant, U = Unrankable. (AC CDC 2018)

Pine Siskin

Pine siskin were detected on a total of eight occasions within the assessment area during the course of the fall avian assessment. These detections occurred during migration stop-over surveys on both Transects #1 and #2, as well as from Watch Point #1. Refer to **Appendix A** for more detailed information on pine siskin detections.

This finch species breeds across New Brunswick in open coniferous or mixed forests, but also commonly occur in suburban parks and residential areas. As their name suggests, these small birds prefer the seeds of pine trees and other conifers, but will also take maple, birch and elm seeds, as well as some insects.

Pine siskins flock together during the winter months and remain in New Brunswick year round, thus they are a resident species of the province. Suitable breeding habitat for this species does occur within the footprint of the proposed Project. Land clearing during the breeding season (mid April to late August) would have the potential to unknowingly destroy pine siskin nests.

Turkey Vulture

Two detections of turkey vulture occurred on September 20, 2018 from Watch Point #2 These two detections are likely to be one singular individual passing the watch point twice. Refer to **Appendix A** for more detailed information on the turkey vulture detections.

Turkey vultures are large birds that specialize in scavenging, almost never attacking living prey. They primarily feed on mammal carrion, but are known to eat almost any decomposing vertebrate. This species prefers open areas that include both forested areas and farmland. Turkey vultures typically nest in rock crevices or cliffs, but will also re-use abandoned hawk and heron nests. Once selected a nest site may be used repeatedly for decades. Suitable breeding habitat for this species does occur within the region of the project, however this species is not anticipated to be nesting within the footprint of the proposed project.

Potential effects to bird SAR/SOCC (i.e., loss of habitat) are anticipated to occur during the construction phase of the proposed project.

Refer to the *Bird and Bird Habitat Summary Report (Final)* (Dillon 2018) for a summary of birds and bird habitat within the assessment area from a traditional knowledge perspective.

4.0 Environmental Effects Assessment

The identification of potential interactions between the proposed Project and birds or bird habitats has been undertaken in consideration of the nature of the Project, its planned activities, as well as potential accidental events/malfunctions. The potential interactions with the surrounding environment by four main distinct Project phases have been considered in terms of each distinct phase and summarized in the *Bird and Bird Habitat Summary Report (Final)* (Dillon 2018) report. The following sections identify the potential environmental effects with respect to migration and stop over.

4.1 Identification of Potential Environmental Effects

Without mitigation, the proposed Project could interact with bird migration and cause environmental effects in the following ways:

- Habitat loss:
  - Loss of stop-over and resting habitat due to construction activities/site development;
- Risk from collisions with wind turbines or other infrastructure:
  - Direct fatalities due to collisions with turbine towers or blades or the transmission line infrastructure during operation;
- Barrier effect:
  - Modifications to existing flight paths as birds avoid the project area during migration. This 'positive' behaviour can become a negative effect if avoiding the turbine arrays causes birds to lose too much energy or creates stress; and
- Displacement by disturbance:
  - Displacement by disturbance is the equivalent of habitat loss when during the construction and post-construction phases of wind farm development, the visual, noise and vibration of turbines and the disturbance created by construction and maintenance crews, their vehicles and machinery can drive birds from the area.

4.2 Mitigation of Potential Environmental Effects

Mitigation is identified for interactions and/or effect in relation to bird migration in an attempt to prevent the interaction from occurring if possible, or to reduce the severity, magnitude, geographic extent, frequency, or duration of the interaction. Best management practices (based on industry guidelines and regulatory guidance documents) have been identified as appropriate mitigative measures. In addition, several acts, codes, regulations and guidelines may require appropriate actions be conducted as mitigative measures prior to or during the interaction.

The federal and provincial legislation and codes that could apply to the proposed Project includes (but may not be limited to):

- *Canadian Environmental Protection Act* and regulations ;
- The Federal *Migratory Birds Convention Act,* and regulations;
- *Species at Risk Act* (Federal);
- The *Federal Policy on Wetland Conservation*;
- *Transportation of Dangerous Goods Act*, and regulations (Federal);
- New Brunswick *Clean Environment Act*, and regulations;
- New Brunswick *Clean Water Act*, and regulations;
- New Brunswick *Clean Air Act*, and regulations;
- New Brunswick *Occupational Health and Safety Act*, and regulations; and

- New Brunswick *Species at Risk Act,* and regulations.

The following mitigation measures have been identified to reduce the likelihood of occurrence, or minimize potential extent of effects of the proposed Project on bird migration. For additional mitigation measures for birds and bird habitat, refer to the *Bird and Bird Habitat Summary Report (Final)* (Dillon 2018). Planned mitigation measures for the proposed Project include the following:

- To minimize disruptions with bird activity/migration at night, the Project construction activities will be limited to daylight hours;
- The minimum amount of pilot warning and obstruction avoidance lighting should be used on tall structures. The use of only strobe lights at night, at the minimum intensity and minimum number of flashes per minute (longest duration between flashes) allowable by Transport Canada, is recommended. Also, using the minimum number of lights possible is recommended. The use of solid-burning or slow pulsing warning lights at night should be avoided;
- Post construction surveys will be completed during the operation phase of the Project to identify if additional mitigative measures are required, in consultation with CWS and New Brunswick Department of Energy and Resource Development (NBDERD);
- WLP will install lights on the turbines with short flash durations that do not emit light during the 'off flash' to minimize the "fatal light attraction phenomena" (FLAP); and,
- The Project has been designed to avoid sensitive or high use areas to the extent possible, should post construction surveys indicate a high number of collisions, bird diverters may be installed along transmission lines or connector lines.
- Any spills or leaks that occur will be reported to the appropriate regulatory authorities, if applicable, as soon as possible;
- Remedial action, or engineered controls, for any spills or leaks that occur will be completed;
- Major servicing of equipment will be completed off-site by a licensed mechanic when possible;
- Rubbish and waste materials will be kept at minimum quantities and burning of this material will be prohibited;
- Chemicals and petroleum hydrocarbons will be stored in appropriate containers and in specifically designated areas. Where applicable, secondary containment of chemicals or petroleum hydrocarbons will be employed; and,
- Work entailing use of toxic or hazardous materials, chemicals, or otherwise creating hazard to life, safety of health, will be conducted in accordance with National Fire Code of Canada to minimize the potential for spills or fires.

For additional mitigation measures for birds and bird habitat, refer to the *Bird and Bird Habitat Summary Report (Final)* (Dillon 2018).

4.3 Characterization of Residual Environmental Effects

Residual effects on birds and bird habitat that may occur as a result of the construction phase of the Project are expected to be of low magnitude and be reversible in nature. The spatial extent of potential residual effects is also anticipated to be limited to the Project site, and limited to the construction period of 1 year. Therefore, potential residual effects on birds and bird habitat are not expected to be substantive.

Residual effects to birds and bird habitat (including SAR and SOCC) that may occur as a result of the operation phase of the Project are expected to be of low magnitude and reversible in nature, however, post-construction monitoring will be completed at the Project site to evaluate the effect on birds following the application of the mitigative measures. Should residual effects be unacceptable, the mitigative measures will be re-evaluated and further mitigation will be proposed. The spatial extent of potential residual effects is also anticipated to be limited to the general area of Project site, and may occur over the project's lifespan of 30 or more years. The residual effects are not expected to be substantive on bird migration during the operation phase of the project. Further details/discussion on the likelihood of project interaction with birds and bird habitat are provided within the main EIA registration document: "*Wocawson Energy Project Environmental Impact Assessment Registration*" for this Project, dated September 2018 (Natural Forces 2018).

With the implementation of planned mitigation, and with the careful development and implementation of contingency and emergency response plans to be applied, effects posed by accidents and unplanned events related to the Project and birds and bird habitat are not anticipated to be substantive.

5.0 Summary and Conclusion

This report has been prepared for the construction and operation of the Wocawson Energy Project. The proposed Project is expected to provide renewable electricity to approximately 3,600 – 7,200 New Brunswick homes and support New Brunswick Power in attaining their future renewable energy targets.

The information provided in this document is based on the current available design/planning information and existing environment information obtained during focused field surveys conducted throughout 2018. The applicable environmental components and potential project environmental effects were assessed and presented with meaningful mitigation measures to minimize, and in some cases eliminate, the potential effects. Based on these interactions, it can be concluded that, with the proper mitigation and standard operating procedures as outlined in this document, the residual environmental effects of the Project are anticipated to be not significant, for the Project phases.

6.0 Closure

This report was prepared by Dillon Consulting Limited (Dillon) on behalf of the Wocawson Energy Limited Partnership, in support of the Wocawson Energy Project EIA. Dillon has used the degree of care and skill ordinarily exercised under similar circumstances at the time the work was performed by reputable members of the environmental consulting profession practicing in Canada. Dillon assumes no responsibility for conditions which were beyond its scope of work. There is no warranty expressed or implied by Dillon.

The material in the report reflects Dillon's best judgment in light of the information available to Dillon at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Dillon accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

Yours truly,

DILLON CONSULTING LIMITED

Kristin Banks, P.Eng.

Project Manager

Appendix A

Bird Observation Data Summary Sheets

Table A.4
Wocawson Energy Project - Summer 2018 Avian Surveys (Birder: R. Chiasson and C. Kennedy)

Site/Area:	W1	Between PC & PC2	PC1	T1 (PC1-PC2)*	PC2	T1 (PC2-PC3)	PC3
Survey Type	Watch	Incidental	Point Count	Transect	Point Count	Transect	Point Count
Date:	Aug. 31	Aug. 31	Aug. 31	Aug. 31	Aug. 31	Aug. 31	Aug. 31
Start Time:	5:40	6:50	6:40	6:51	7:23	7:35	8:11
End time	6:12		6:50	7:22	7:34	8:10	8:22
Temperature (C):	7	7	8	8	8	8	10
Cloud Cover (%):	5	5	10	10	10	10	10
Wind:	0	0	0	0	0	0	0
Precipitation:	0	0	0	0	0	0	0
Visibility:	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Background Noise:	0	0	0	0	0	0	0
Notes (including incidental observation)	No birds flying, Several SWTH using fall calls		LISP	T1 is a transect that runs from PC1 to PC2.		Good bird activity during transects	

Common Name	Bird Species	Species Count	Observations	Species Count	Observations	Species Count	Observations	Species Count	Observations	Species Count	Observations	Species Count	Observations	Species Count	Observations
Alder Flycatcher	*Empidonax alnorum*											1	60w, PC-318, Song		
American Crow	*Corvus brachyrhynchos*														
American Goldfinch	*Spinus tristis*							2	S60, PC60, calls						
American Redstart	*Setophaga ruticilla*														
American Robin	*Turdus migratorius*														
American Kestrel	*Falco sparverius*														
American Woodcock	*Scolopax minor*														
Bald Eagle	*Haliaeetus leucocephalus*														
Bank Swallow	*Riparia riparia*														
Bay-breasted Warbler	*Setophaga castanea*														
Black-and-white Warbler	*Mniotilta varia*														
Black-capped Chickadee	*Poecile atricapillus*							1	603,PC547, calls	2	60n,Calls	4	40-60V, PC73382, Calls		
Black-throated Blue Warbler	*Dendroica caerulescens*														
Black-throated Green Warbler	*Dendroica virens*														
Blue-headed Vireo	*Vireo solitarius*														
Blue Jay	*Cyanocitta cristata*							3	40-90V,PC85-329,Call						
Canada Goose	*Branta canadensis*														
Cedar Waxwing	*Bombycilla cedrorum*							1	40W, PC50,Calls						
Chestnut-sided Warbler	*Setophaga pensylvanica*														
Chipping Sparrow	*Spizella passerina*														
Common Loon	*Gavia immer*														
Common Raven	*Corvus corax*														
Common Yellowthroat	*Geothlypis trichas*					2	60w,calls			1	50s,calls	1	40w, PC195, calls		
Downy Woodpecker	*Picoides pubescens*														
Duck Spp	-														
Dark-eyed Junco	*Junco hyemalis*	1	F(60)SW									1	403, PC195,calls		
Golden-crowned Kinglet	*Regulus satrapa*					1	30e								
Gray Jay	*Perisoreus canadensis*														
Great Blue Heron	*Ardea herodias*														
Great-horned Owl	*Bubo virginianus*														
Hairy Woodpecker	*Leuconotopicus villosus*														
Hermit Thrush	*Catharus guttatus*														
Lincoln's Sparrow	*Melospiza lincolnii*					1	60s,song								
Magnolia Warbler	*Dendroica magnolia*									2	15n,perched				
Merlin	*Falco columbarius*														
Nashville Warbler	*Leiothlypis ruficapilla*											1	40ne, PC215,perched		
Northern Flicker	*Colaptes auratus*											2	40-90V, PC30-382		
Northern Harrier	*Circus cyaneus*														
Ovenbird	*Seiurus auracapilla*														
Palm Warbler	*Setophaga pinus*														
Philadephia Vireo	*Vireo philadelphicus*														
Pileated Woodpecker	*Hylatomus pileatus*														
Pine Siskin	*Spinus pinus*														
Pine Warbler	*Setophaga pinus*														
Purple Finch	*Haemorhous purpureus*							2	40-80V,PC8-235,Calls	3	40n,calls	1	60e,pc318,calls		
Red-breasted Nuthatch	*Sitta canadensis*					2	60N,calls					2	40e, pc318, calls		
Red-eyed Vireo	*Vireo olivaceus*														
Red-tailed Hawk	*Buteo jamaicensis*														
Ruby-crowned Kinglet	*Regulus calendula*					1	30e, calls	1	30W,PC547, weak	1	15n, Calls				
Ruby-throated Hummingbird	*Archilochus colubris*														
Savannah Sparrow	*Passerculus sandwichensis*														
Sharp-shinned Hawk	*Accipiter striatus*			3	F(60)N										
Song Sparrow	*Melospiza melodia*	4	2-40 var									1	5w, pc416, calls		
Swainson's Thrush	*Catharus ustulatus*	5	5-9 var												
Turkey Vulture	*Cathartes aura*														
Warbler spp.	-														
White-throated Sparow	*Zonotrichia albicollis*	3	30-60 var.			1	30e, calls	6	40-60W&E, PC157-			4	40-60e,pc195-264		
White-winged Crossbill	*Loxia leucoptera*														
Woodpecker spp.	-														
Yellow-bellied Sapsucker	*Sphyrapicus varius*														
Yellow-rumped Warbler	*Setophaga coronata*					3	40V,calls	4	20-40W&E, PC329-474			13	1-50,v, pc73-687, calls	1	30se, calls
Total Species - 58	***Totals Species (Diversity):***	**4**		**1**		**7**		**8**		**5**		**11**		**1**	
	Total Individuals (Abundance)	**13**		**3**		**11**		**20**		**9**		**31**		**1**	

Note: Observations include notes on flight passage height and direction, as well as behaviour

LEGEND

BOLD Denotes Species at Risk
BOLD Denotes Species of Conservation Concern
'F' Denotes bird observed in flight
'(100)' Denotes passage height of bird in flight in meters
'N' Denotes bird flying in northerly direction
'S' Denotes bird flying in southerly direction
'E' Denotes bird flying in easterly direction
'W' Denotes bird flying in westerly direction
'V' Denotes bird flying in various directions

Table A.4
Wocawson Energy Project - Summer 2018 Avian Surveys (Birder: R. Chiasson and C. Kennedy)

T1 (PC3-PC4)		PC4		T1 (PC4-PC5)		PC5		T1 (PC5-PC6)		PC6		T1 (PC6-PC7)		PC7		W1-1	
Transect		Point Count		Transect		Point Count		Transect		Point Count		Transect		Point Count		Watch	
Aug. 31		Aug. 31		Aug. 31		Aug. 31		Aug. 31		Aug. 31		Aug. 31		Aug. 31		Aug. 31	
8:22		8:46		9:00		9:11		9:22		9:43		9:53		10:01		10:25	
8:40		8:56		9:10		9:21		9:43		9:53		10:00		10:13		10:55	
10		14		14		14		16		18		18		18		20	
10		10		10		10		10		10		10		10		10	
0		0		0		0		0		0		0		0-2		0	
0		0		0		0		0		0		0		0		0	
Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent	
0		0		0		0		0		0		0		0		0	
Some warbler activity								Merlin									
Species Count	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***
														2	40e, Calls		
1	10e, pc450, calls																
2	5w, pc347, calls																
2	5w, pc450,forging	1	10w, Calls	5	40-60ne&nw, pc300,	1	10w, calls	1	20w, pc879, calls								
1	1w, pc117, calls																
				1	90w, pc300, Calls					1	60n, calls			2	60w, calls		
														4	60ne, perched		
																2	110s, F130nw, calls
				1	30nw, pc614, calls	1	10w, calls	2	2nw, pc451, Calls								
		1	60n, calls														
								1	60w, pc879, call					2	60s, calls		
1	5w, pc450, calls																
																1	1n, drilling
																1	1n, drilling
2	1-5e&w, pc117-450,					2	10w, calls										
								1	40n, pc275, F60n								
						1	60e, calls	2	40-50ne&n, pc275,								
												1	5n, pc453, forging on				
						2	1w, calls			1	5e, calls					1	1n, Calls
										1	10e, Calls						
																1	20s, F130n
2	10-50E&W, pc117-347,			6	40ne, pc300, calls			2	5n, pc694, Calls					1	20n, Calls		
3	5-40V, pc347, calls,	1	20w, calls					1	60w, pc879, Calls							1	1n, calls
8		**3**		**4**		**5**		**7**		**3**		**1**		**5**		**5**	
14		**3**		**13**		**7**		**10**		**3**		**1**		**11**		**6**	

Table A.4
Wocawson Energy Project - Summer 2018 Avian Surveys (Birder: R. Chiasson and C. Kennedy)

W1-2		W1-3		W1-4		W1-5		W1-6		W3		PC11		T2 (PC11-PC12)		PC12	
Watch		Watch		Watch		Watch		Watch		Watch		Point Count		Transect		Point Count	
Aug. 31		Aug. 31		Aug. 31		Aug. 31		Aug. 31		sept. 01		Sept. 1		Sept. 1		Sept. 1	
10:55		11:25		11:55		12-25		12:55		5:43		6:35		6:45		7:15	
11:25		11:55		12:25		12:55		13:25		6:15		6:45		7:15		7:25	
20		20		20		20		21		12		12		12		12	
10		10		10		10		10		10		10		10		10	
0-1		0-1		0-1		0-1		0-1		0		0-1		0-1		0-1	
0		0		0		0		0		0		0		0		0	
Excellent		Excellent		Excellent		Excellent		Excellent		Low fog but good		Excellent		Excellent		Excellent	
0		0		0		0		0		0		0		0		0	
						Barn Swallow flyby		2 MERL		2 GHOW						0 birds	
Species Count	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***
		1	60w, calling											1	60e, pc417, calls		
														1	20e, pc417, calls		
						1	60SW, F60e, calls										
1	30n, F5n, perched &																
														9	20-40v, pc217-		
		1	30n, F30Sw,														
														2	5-30w&e, pc233-489		
												1	1n, Calls	3	0-10ne, pc417-556,		
										2	60-90s, hoots						
								2	80-130w&sw, F120S								
												1	15n, song				
				1	20w, F20SW	1	1n, calls							2	5e, pc233, Calls		
												1	80e, calls	1	60w, pc556, Calls		
														2	1e, pc417, calls,		
						1	30e. Calls										
										2	5-120w&se, calls			1	10w, pc233, calls		
								1	60w, F60-90, S-Sw,								
										1	1s, calls			2	0-20e, pc 217-417,		
				1	40e, F30s							1	80e, Calls	1	30n, pc233, calls		
1		**2**		**2**		**3**		**2**		**3**		**4**		**11**		**0**	
1		**2**		**2**		**3**		**3**		**5**		**4**		**25**		**0**	

Table A.4
Wocawson Energy Project - Summer 2018 Avian Surveys (Birder: R. Chiasson and C. Kennedy)

T2 (PC12-PPC2)		PPC2		T2 (PPC2-PC10)		PC10		T2 (PC10-13)		PC13		T2 (PC13-PC9)		PC9		T2 (PC9-PC8)	
Transect		Point Count		Transect		Point Count		Transect		Point Count		Transect		Point Count		Transect	
Sept. 1		Sept. 1		Sept. 1		Sept. 1		Sept. 1		Sept. 1		Sept. 1		Sept. 1		Sept. 1	
7:25		8:00		8:20		8:35		8:50		9:13		9:23		9:31		9:41	
8:00		8:20		8:35		8:45		9:13		9:23		9:31		9:41		9:55	
12		15		15		15		17		17		18		18		18	
10		10		10		10		10		10		10		10		10	
0-1		0-1		0-1		0-1		0-1		0-1		0-1		0-1		0-1	
0		0		0		0		0		0		0		0		0	
Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent	
0		0		0		0		0		0		0		0		0	
												0 birds					
Species Count	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***
						1	130e, Calls										
								1	0w, pc370, song								
										4	20s, Calls						
										1	20s, calls						
1	60s, pc820, calls																
2	30-90n&w, pc820-894,	1	90e, calls			1	150e, Calls							1	90S, Calls	1	60w, pc108, Calls
				1	20s, pc551, calls												
2	5-60s&N, pcc796-894,															1	S5, pc108, Calls
1	50, pc1.o7, Calls							1	0w, pc370, Calls								
1	30n, pc730, Calls									1	60w, Calls					5	1e, pc108-556, calls,
								2	5w, pc566, calls							4	1e, pc406-556, calls
						1	20nw, drilling										
										1	20s, Calls						
																1	60s, pc406, calls
						1	50e, calls	1	30e, pc549, Calls								
								2	5n, pc-183, calls								
4	5-60n&s&sw, pc376-																
1	20se, pc727, perched																
1	50e, pc310, Calls							1	20w, pc566, Calls								
1	5s, pc796, calls							1	0w, pc370, Calls							1	5e, pc108, calls
										1	20s, Calls			1	60s, Calls		
9		**1**		**1**		**4**		**7**		**5**		**0**		**2**		**6**	
14		**1**		**1**		**4**		**9**		**8**		**0**		**2**		**13**	

Table A.4
Wocawson Energy Project - Summer 2018 Avian Surveys (Birder: R. Chiasson and C. Kennedy)

PC8		T2 (8- to cabin)		W3-1		W3-2		W3-3		W3-4		W3-5		W3-6		W1	
Point Count		Transect		Watch		Watch		Watch		Watch		Watch		Watch		Watch	
Sept. 1		Sept. 1		Sept. 1		Sept. 1		Sept. 1		Sept. 1		Sept. 1		Sept. 1		Sept. 6	
9:55		10:05		10:30		11:00		11:30		12:00		12:30		13:00		5:50	
10:05		10:25		11:00		11:30		12:00		12:30		13:00		13:30		6:20	
20		20		20		20		20		20		22		22		20	
5		5		5		10		10		10		10		10		5	
0-1		0-1		0-1		0-1		0-1		0-1		0-1		0-1		2-3	
0		0		0		0		0		0		0		0		0	
Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Good, hazy a bit	
0		0		0		0		0		0		0		0		Wind	
												No birds		No birds		SW wind caused reduced conditions.	
Species Count	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***
										1	60sw, short flight						
				1	50N, perched												
				2	50n,												
1	30s, calls					1	60nw, calls										
						1	60nw, call										
										1	80w perched						
										1	30w, f80e, hovering						
				2	20e, Calls												
1	60nw, Calls	1	5se, pc250, Calls	3	60-90e&se, calls											2	5n, Calls
										1	50nw, perched					1	40n, calls
2		**1**		**4**		**2**		**3**		**1**		**0**		**0**		**2**	
2		**1**		**8**		**2**		**3**		**1**		**0**		**0**		**3**	

Table A.4
Wocawson Energy Project - Summer 2018 Avian Surveys (Birder: R. Chiasson and C. Kennedy)

PC1		T1 (PC1-PC2)		PC2		T1 (PC2-PC3)		PC3		T1 (PC3-PC4)		PC4		T1 (PC4-5PC)		PC5	
Point Count		Transect		Point Count		Transect		Point Count		Transect		Point Count		Transect		Point Count	
Sept. 6		Sept. 6		Sept. 6		Sept. 6		Sept. 6		Sept. 6		Sept. 6		Sept. 6		Sept. 6	
6:50		7:00		7:33		7:43		7:59		8:11		8:23		8:33		8:43	
7:00		7:33		7:43		7:59		8:11		8:22		8:33		8:43		8:53	
20		20		20		20		21		21		23		23		23	
5		5		5		5		5		5		5		5		5	
2-3		2-3		2-3		2-4		2-4		2-4		2-4		2-4		2-4	
0		0		0		0		0		0		0		0		0	
Good, hazy a bit		Good, hazy a bit		Good, hazy a bit		Good, hazy a bit		Good, hazy a bit		Good, hazy a bit		Good, hazy a bit		Good, hazy a bit		Good, hazy a bit	
Wind		AMKE						Wind		Wind		Wind		Wind			
Species Count	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***
		1	5w, pc191, f50e														
		1	60w, pc715, f70sw,														
		1	52, pc113, Calls										1	30n, song					
1	60ne, Calls	8	5ew, pc113-255, Calls										2	1n, calls					
													1	1n, calls					
		1	5e, pc191, calls																
		1	5w, pc113, calls																
1	60w, Calls	1	5w, pc255, calls																
		1	5e, pc191, Calls																
													1	80sw, calls					
															1	10n, pc303, Calls			
										1	10s, pc434, calls								
													1	1n, calls					
		1	50w, sp113, calls					1	10w,f60s										
		3	5w&e, pc 113, calls																
		1	5w, pc255, Calls																
												2	10s, pc434, Calls						
				2	40w, Calls	2	40n, pc697, Calls						1	30s, calls					
1	40n, calls	3	5-30e, pc578										1	5n, calls	2	10s, pc303, calls	1	30s, Calls	
3		**12**		**1**		**1**		**1**		**2**		**7**		**2**		**1**	
3		**23**		**2**		**2**		**1**		**3**		**8**		**3**		**1**	

Table A.4
Wocawson Energy Project - Summer 2018 Avian Surveys (Birder: R. Chiasson and C. Kennedy)

T1 (PC5-PC6)		PC6		T1 (PC6-PC7)		PC7		W1-1		W1-2		W1-3		W1-4		W1-5	
Transect		Point Count		Transect		Point Count		Watch		Watch		Watch		Watch		Watch	
Sept. 6		Sept. 6		Sept. 6		Sept. 6		Sept. 6		Sept. 6		Sept. 6		Sept. 6		Sept. 6	
8:53		9:20		9:31		9:41		10:05		10:35		11:05		11:35		12:05	
9:20		9:30		9:41		9:51		10:35		11:05		11:35		12:05		12:35	
23		23		23		23		24		24		24		25		24	
5		5		5		5		10		10		60		60		70	
2-4		2-4		2-4		2-4		2-4		2-4		2-4		2-5		2-5	
0		0		0		0		0		0		0		0		0	
Good, hazy a bit		Good, hazy a bit		Good, hazy a bit		Good, hazy a bit		Good, hazy a bit		Good, hazy a bit		Good, hazy a bit		Good, hazy a bit		Good, hazy a bit	
Wind		Wind		Wind		Wind		Wind		Wind		Wind		Wind		Wind	
								AMKE		0 birds				O birds		0 birds	
Species Count	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***
3	60NW, PC674, calls					1	60n, perches	2	90v,F90V								
1	30nw, pc871, calls			2	20nw, pc382, calls												
1	30nw, pc871, calls																

Table A.4
Wocawson Energy Project - Summer 2018 Avian Surveys (Birder: R. Chiasson and C. Kennedy)

W1-6		W3		PC11		T2 (PC11- PC12		PC12		T2 (PC12-PPC2)		PPC2		T2 (PPC2-PC10)		PC10	
Watch		Watch		Point Count		Transect		Point Count		Transect		Point Count		Transect		Point Count	
Sept. 6		sept. 07		Sep 07		Sep 07		Sep 07		Sep 07		Sep 07		Sep 07		Sep 07	
12:35		5:50		6:44		6:55		7:18		7:28		8:22		8:32		8:58	
13:05		6:20		6:54		7:18		7:28		8:22		8:32		8:58		9:08	
25		8		8		8		8		9		10		10		12	
80		20		20		20		20		20		20		20		20	
2-5		0		0		0		0		0		0		0		0	
0		Nil		Nil		Nil		Nil		Nil		Nil		Nil		Nil	
Good, hazy a bit		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent	
Wind		None		None		None		None		None		None		None		None	
										Merlin, Philadephia vireo							
Species Count	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***
				2	30S, F70N, Calls									2	60W, PC521, Calls		
										1	50NW, PC549	1	Se40, Calls				
																2	N2
										1	5w,PC991, Forging						
				1	70N, Calls					2	5-70w&S, PC385-991,						
				2	80S, Calls									3	10-60e&W, PC521,	2	N60, Calls
						3	40s&e, pc190-428,			1	50N, PC549, calls						
				2	V30-40, calls	1	50e, PC190, Calls			1	30w, PC549, Calls						
														1	50N, PC521, Calls		
						1	60E, PC190, Calls										
										1	5W, PC552, F5S						
				1	80NW, Calls												
										2	5w,PC991, Forging						
						1	50S, PC182, Calls										
				1	40W, Calls							1	S50, Calls				
										2	5-40W&E, PC549-991,					1	S40, Calls
		1	30E, Calls											1	30s, PC521, Calls		
		5	V30-60, Calls														
1	10ne, F40se, calls									1	20s, PC385, Calls						
		8	V30-60, Calls			1	60E, PC304, Calls							4	20s, PC52-521, calls		
						1	40S, PC428, Calls	1	40S, Calls	2	5-50NW&w, PC549-	1	S30, Calls	2	30-60e, pc521, calls		
1		**3**		**6**		**6**		**1**		**10**		**3**		**6**		**3**	
1		**14**		**9**		**8**		**1**		**14**		**3**		**13**		**5**	

Table A.4
Wocawson Energy Project - Summer 2018 Avian Surveys (Birder: R. Chiasson and C. Kennedy)

T2 (PC10-PC13)		PC13		T2 PC13-PC9)		PC9		T2 (PC9-PC8)		PC8		T2 (PC8 to cabin)		W3-1		W3-2	
Transect		Point Count		Transect		Point Count		Transect		Point Count		Transect		Watch		Watch	
Sep 07		Sep 07		Sep 07		Sep 07		Sep 07		Sep 07		Sep 07		Sep 07		Sep 07	
9:12		9:25		9:35		9:43		9:53		10:00		10:10		10:30		11:00	
9:25		9:35		9:43		9:53		10:03		10:10		10:20		11:00		11:30	
12		14		14		14		15		16		16		18		19	
20		20		20		20		20		20		20		20		20	
0		0		0		0		0		0		0		0		0	
Nil		Nil		Nil		Nil		Nil		Nil		Nil		Nil		Nil	
Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent	
None		None		None		None		None		None		None		None		None	
				O birds													
Species Count	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***
										1	50s, Calls			1	40-S, Calls		
												2	60SE, Perched, PC240				
1	40n, PC-424, song					1	N1, calls										
1	20N, PC-424, Calls	4	5n, Calls			1	N1, calls	4	1s, PC409, Calls								
		2	5n, Calls			1	N1, calls			1	1N, Calls						
1	60w, PC-424, Seen,																
																2	120se, Calls
						1	N1, calls							1	20SE, Calls		
												15	V-1-20,PC717				
		4	5n, Calls					1	1s, PC409, Calls								
								1	1s, PC409, Calls								
										1	60se, Calls	1	60SE, Perched, PC240	4	80S, on ground		
						1	N1, calls	1	1s, PC409, Calls			1	30S,PC717, Calls	1	V-1, Calls		
		2	5n, Calls														
						1	N1, calls										
								1	1s, PC409, Calls								
														1	5S, Calls		
																2	V-5-20, Calls
												6	V-5-60, Calls	1	10-S, SOng		
4	5-40V,PC-424, Calls	1	5n, Calls			2	N1, calls	1	1s, PC409, Calls					1	30-E,Calls		
4		**5**		**0**		**7**		**6**		**3**		**5**		**7**		**2**	
7		**13**		**0**		**8**		**9**		**3**		**25**		**10**		**4**	

Table A.4
Wocawson Energy Project - Summer 2018 Avian Surveys (Birder: R. Chiasson and C. Kennedy)

W3-3		W3-4		W3-5		W3-6		W3		PC11		PC12		PPC2		PC10	
Watch		Watch		Watch		Watch		Watch		Point Count		Point Count		Point Count		Point Count	
Sep 07		Sep 07		Sep 07		Sep 07		Sept. 19		Sept. 19		Sept. 19		Sept. 19		Sept. 19	
11:30		12:00		12:30		13:00		7:30		8:10		8:31		8:51		9:09	
12:00		12:30		13:00		13:30		8:00		8:20		8:41		9:01		9:19	
20		21		21		21		11		11		11		12		12	
20		20		20		20		100		100		100		100		100	
0		0		0		0		2		2		2		2		2	
Nil		Nil		Nil		Nil		drizzle		drizzle/fog		drizzle/fog		drizzle/fog		drizzle/fog	
Excellent		Excellent		Excellent		Excellent		poor		poor		poor		poor		poor	
None		None		None		None		noise caused by rain		noise caused by rain		noise caused by rain		noise caused by rain		noise caused by rain	
		0 birds						delayed due to unfavourable conditions (rain)									
Species Count	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***
								2	100NW, F	1				1		2	
				1	40e,Calls							1					
										1							
										2							
										1						1	
														1			
																1	
								1	local, calls			1		3		2	
								1	local, calls								
														1			
						1	PAWA										
												1					
								3	local, calls								
								4	60SE, F					1		1	
								4	local, calls			1		1		2	
1	40SW, Calls											2					
1		**0**		**1**		**1**		**6**		**4**		**5**		**6**		**6**	
1		**0**		**1**		**1**		**15**		**5**		**6**		**8**		**9**	

Table A.4
Wocawson Energy Project - Summer 2018 Avian Surveys (Birder: R. Chiasson and C. Kennedy)

PC13		PC9		PC8		W3-1		W3-2		W3-3		W3-4		W3-5		W3-6	
Point Count		Point Count		Point Count		Watch		Watch		Watch		Watch		Watch		Watch	
Sept. 19		Sept. 19		Sept. 19		Sept. 19		Sept. 19		Sept. 19		Sept. 19		Sept. 19		Sept. 19	
9:30		9:47		10:12		10:45		11:15		11:45		12:15		12:45		1:15	
9:40		9:57		10:22		11:15		11:45		12:15		12:45		1:15		1:45	
13		13		13		14		14		14		14		14		14	
100		100		100		90		90		90		80		80		70	
2		2		2 to 3		2 to 3		2		2		2		2		2	
drizzle		drizzle		misting		misting on/off		misting on/off		misting on/off		misting on/off		very little precip		very little precip	
poor		poor		improving		improving		moderate		moderate		moderate		moderate		moderate	
noise caused by rain		none		none		none		none		none		none		none		none	
lots of activity																	
Species Count	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***
						3	100SE, F					4	100 NW, F				
2				1		2	S, calls							8	80SW, F		
								2	50SE, F	2	40S, F						
										1	100NW, F						
1																	
								1	local	2	local			1	local, calls		
1		1				1	local movement					4	50SW, F				
2		1						1	call, local								
				1				2	local movement					3	local, calls		
												1	local, calls				
		2										1	30N, F				
1												1	local, calls	1	local, calls		
1																	
2																	
1				1				1	call, local							1	local, calls
				1		2	60SE, F			3	40S, F					4	60SE, F
				1						1	local					2	local, calls
5								1	50S, calls							1	50SW, F
9		**3**		**5**		**4**		**6**		**5**		**5**		**4**		**4**	
16		**4**		**5**		**8**		**8**		**9**		**11**		**13**		**8**	

Table A.4
Wocawson Energy Project - Summer 2018 Avian Surveys (Birder: R. Chiasson and C. Kennedy)

W3		PC11		PC12		PPC2		PC10		PC13		PC9		PC8		W3-1	
Watch		Point Count		Point Count		Point Count		Point Count		Point Count		Point Count		Point Count		Watch	
Sept. 20		Sept. 20		Sept. 20		Sept. 20		Sept. 20		Sept. 20		Sept. 20		Sept. 20		Sept. 20	
6:47		7:25		7:42		8:02		8:22		8:45		9:05		9:27		9:55	
7:17		7:35		7:52		8:12		8:32		8:55		9:15		9:37		10:25	
7		8		8		8		8		8		7		7		7	
90		90		90		80		70		50		50		70		80	
1		1		1		1		1 to 2		1 to 2		2		2		2 to 3	
overcast - no precip		none		none		none		none		none		none		none		none	
good		good		good		good		good		good		good		good		good	
none		none		none		none		none		none		none		none		none	
quite cold																	
Species Count	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***
		1		1													
		2								1							
2	40SW, F							2		1						1	100E, heard
														2		2	10E, F, hunting
1	local											3		2			
4	local movement	2		2		3		1						8		1	local
						2		3								1	local, calls
						1				1							
						4		1		3				5			
										1				1			
		1				1		1				1		4			
		1				3								1			
										3							
						1											
		1								2							
				1													
						1											
		1				2		4						2		1	local, calls
2	80W, F	1		1		1		2				1					
		2		1		3		4						2		1	
												1					
		2										4		4			
4		**10**		**5**		**11**		**8**		**7**		**5**		**10**		**6**	
9		**14**		**6**		**22**		**18**		**12**		**10**		**31**		**7**	

Table A.4
Wocawson Energy Project - Summer 2018 Avian Surveys (Birder: R. Chiasson and C. Kennedy)

W3-2		W3-3		W3-4		W3-5		W3-6		W1		PC1		T1 (PC1-PC2)		PC2	
Watch		Watch		Watch		Watch		Watch		Watch		Point Count		Transect		Point Count	
Sept. 20		Sept. 20		Sept. 20		Sept. 20		Sept. 20		Sept 20		Sept 20		Sept 20		Sep 20	
10:25		10:55		11:25		11:55		12:25		6:05 am		7:08		7:19		7:35	
10:55		11:25		11:55		12:25		12:55		6:35		7:18		7:35		7:45	
8		9		10		11		12		9		9		9		9	
80		80		60		50		50		90		90		90		90	
2 to 3		2		2		1 to 2		1 to 2		0		0		0		0	
none		none		none		none		none		0		0		0		0	
good		good		good		good		good		GOOD		GOOD		GOOD		GOOD	
none		none		none		none		none		None		None		None		None	
Species Count	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***
				5	40-80SW, F			2	100N, F								
4	100N, heard			1	local, calls			3	40-80SE, F							1	30N,Calls
										1	30SW, Calls						
				1	200-300N, F, soaring	1	soaring SW										
								2	local								
3	60SE, F	5	local movement	5	local movements	1	N, heard	2	local			2	40E, Calls				
		11	60-80NW, F														
				2	N, heard	1	E, heard										
1	local, calls											1	40W, Calls			1	5s,Calls
		1	local, foraging			1	local, foraging					1	70NE, Calls				
1	40SW, F																
												1	70NE, Calls				
1	local, calls	1	local	1	local, calls	1	local, calls										
										5	50-90v, call						
1	40NW, F			1	100-200SW, soaring												
		1	80SE, F	2	40-80SE, F			2	60-80SE, F								
1	local, calls	1	local, calls			1	local movement	1	local, calls	7	5-80v, calls	1	40W, Calls			2	10s, Calls
												3	40-80W&E, Calls			4	5-20V,Calls
7		**6**		**8**		**6**		**6**		**3**		**6**		**0**		**4**	
12		**20**		**18**		**6**		**12**		**13**		**9**		**0**		**8**	

Table A.4
Wocawson Energy Project - Summer 2018 Avian Surveys (Birder: R. Chiasson and C. Kennedy)

T1 (PC2-PC3)		PC3		T1 (3-4)		PC4		T1 (4-5)		PC5		T1 (5-6)		PC6		T1 (6-7	
Transect		Point Count		Transect		Point Count		Transect		Point Count		Transect		Point Count		Transect	
Sept 20		Sep 20		Sept 20		Sept 20		Sept 20		Sept 20		Sept 20		Sept 20		Sept 20	
7:45		8:06		8:18		8:29		8:39		8:53		9:03		9:30		9:40	
8:06		8:17		8:28		8:39		8:53		9:03		9:30		9:40		9:57	
9		9		10		10		10		10		10		11		11	
90		90		90		90		90		90		90		90		90	
0		0		0		0		0		0		0		0		0	
0		0		0		0		0		0		0		0		0	
GOOD		GOOD		GOOD		GOOD		GOOD		GOOD		GOOD		GOOD		GOOD	
None		None		None		None		None		None		None		None		None	
Bobcat																	
Species Count	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***
										1	5S, F60W, Calls						
										1	40e, Calls						
																1	5N, PC40, Calls
								1	50NW, pc455, Calls	4	40-80V, Calls	2	10E pc22, Calls			1	5N, PC40, Calls
																3	5N, PC40, Calls
		1	20SE, Calls														
						1	100SE,Calls			4	5-80V,Calls						
												1	10Se pc22, Calls				
2	10-20V, PC223, Calls							1	20SE pc455, Calls								
																2	5N, PC40, Calls
												1	5s pc22, Calls				
												1	5s pc22, Calls				
1	60w, pc640, Calls	1	30NE, Calls			1	80S, Calls										
																1	5N, PC40, Calls
								1	20SE, f60n, pc455,			1	20N, pc22, Calls				
								1	20SE pc455, Calls								
1	40w, pc640, Calls									1	60E, Calls	9	1-20v, pc22, Calls				
														2	60S, Calls		
						1	80S, Calls					1	10W pc22, Calls				
														1	5S, Calls		
8	1-80v, pc223&pc640							1	10se, pc455, Calls	4	20-60W, Calls	3	5-30s, pc22&pc858,				
		1	10W, F80,E, Calls														
1	30n pc640, Calls																
6	10-80v, pc223&pc640,	2	40SW, Calls			3	5-30v, Calls			4	60v, Calls	30	5-60v, pc221&858	4	0-40V, calls		
6		**4**		**0**		**4**		**5**		**7**		**8**		**3**		**5**	
19		**5**		**0**		**6**		**5**		**19**		**48**		**7**		**8**	

Table A.4
Wocawson Energy Project - Summer 2018 Avian Surveys (Birder: R. Chiasson and C. Kennedy)

PC7		W1-1		W1-2		W1-3		W1-4		W1-5		W1-6		W3		PC11	
Point Count		Watch		Watch		Watch		Watch		Watch		Watch		Watch		Point Count	
Sept 20		Sept 20		Sept 20		Sept 20		Sept 20		Sept 20		Sept 20		Sep 21		Sept. 21	
9:57		10:30		11:00		11:30		12:00		12:30		1:00		6:15		7:02	
10:06		11:00		11:30		12:00		12:30		1:00		1:30		6:45		7:12	
11		11		11		15		15		16		16		4		5	
90		90		90		90		90		90		90		10		10	
0		0		0		0		0		0		0		0		0	
0		0		0		0		0		0		0		0		0	
GOOD		GOOD		GOOD		GOOD		GOOD		GOOD		GOOD		Foggy in places		Excellent	
None		None		None		None		None		None		None		None		None	
Species Count	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***
		1	40NW, Calls									1	30S, Calls				
														1	70NE, Calls		
				3	20W,F50S, Calls												
3	80s, Calls, perched			3	90S, F60-0	3	20S,F60N										
																5	50e, Calls
														1	100SW, Call		
								1	30s,f89n								
														4	20-60Calls		
2	60-80s, Calls			1	80S, calls												
		12	5S, Calls														
1	80N, F90,																
						1	90S, Calls					1	10N, On tree				
														1	60E, Calls		
8	5-90v, perched	1	30S, F40E,	1	30S, F40E,												
		1	20S,F5W														
		2	20E,Calls														
1	80s, Calls			3	20W,F50S, Calls							1	60s, Calls				
														5	20e&s, call	1	40E, Calls
														5	80NE&s, Calls		
2	60&80, Calls			1	50S, perched, calls									9	5-90V, Calls	4	10-40v, Calls
4	10-40v, calls	40	1-20V,Calls													4	10w, f60e, Calls
7		**6**		**6**		**2**		**1**		**0**		**3**		**7**		**4**	
21		**57**		**12**		**4**		**1**		**0**		**3**		**26**		**14**	

Table A.4
Wocawson Energy Project - Summer 2018 Avian Surveys (Birder: R. Chiasson and C. Kennedy)

T2 (PC11- PC12		PC12		T2 (PC12-PPC2)		PPC2		T2 (PPC2-PC10)		PC10		T2 (PC10-PC13)		PC13		T2 PC13-PC9)	
Transect		Point Count		Transect		Point Count		Transect		Point Count		Transect		Point Count		Transect	
Sept 21		Sept 21		Sept 21		Sept 21		Sept 21		Sept 21		Sept 21		Sept 21		Sept 21	
7:12		7:28		7:38		7:45		8:00		8:26		8:36		8:45		8:55	
7:28		7:38		7:45		7:55		5		8:36		8:45		8:55		9:15	
5		5		5		5		8		8		10		12		12	
10		10		10		10		0		0		0		5		5	
0		0		0		0		0		0		0		1		1	
0		0		0		0		0		0		0		0		0	
Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent	
None		None		None		None		None		None		None		None		None	
Species Count	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***
																1	30w, pc459, Calls
2	5E, pc248															4	30w,pc459, Calls
		1	20sw, perched														
4	30-80, PC100, Calls	1	80NE, Calls														
						1	40SW, Calls										
		1	50NW, Calls														
						1	30NW, Calls	1	40n, pc647, Calls								
4	52&E, PC248, Calls							1	30SE, pc255, ON								
												2	S5, pc558, perched				

Table A.4
Wocawson Energy Project - Summer 2018 Avian Surveys (Birder: R. Chiasson and C. Kennedy)

PC9		T2 (PC9-PC8)		PC8		T2 (PC8 to cabin)		W1-1		W1-2		W1-3		W1-4		W1-5	
Point Count		Transect		Point Count		Transect		Watch		Watch		Watch		Watch		Watch	
Sept 21		Sept 21		Sept 21		Sept 21		Sept 21		Sept 21		Sept 21		Sept 21		Sept 21	
9:15		9:25		9:33		9:43		10:05		10:35		11:05		11:35		12:05	
9:25		9:32		9:43		9:55		10:35		11:05		11:35		12:05		12:35	
12		12		13		13		15		15		15		15		15	
5		5		5		5		10		40		60		60		80	
1		1		1		1		1		1		1		1		1-3	
0		0		0		0		0		0		0		0		0	
Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent	
None		None		None		None		None		None		None		None		None	
Species Count	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***
								1	30S, Calls	3	30W, F90W, Calls						
		2	5E,PC535, Calls	1	50W,Calls			1	60NE, Calls					1	1S,Calls		
		1	70S, PC535, song														
												1	20W, F60S, Calls				
				2	30N, Calls												
														1	70SW, Calls		
				1	40w, Calls			1	30NE, Calls								
		1	5E,PC535, Calls					1	10S, Calls								
1	5w, perched									2	40w, Calls	2	30S,	1	30W,Call		
1	5E, Calls	1	5E,PC535, Calls	3	20-60s&W, Calls	2	5E, PC250, Calls										
1	30w, Calls	2	5E,PC535, Calls	2	30W, Calls			4	20-30v, F60S, Calls	2	20-30NE&W, f80e,	2	30S, F80NW. Calls				
3		**5**		**5**		**1**		**5**		**3**		**3**		**3**		**0**	
3		**7**		**9**		**2**		**8**		**7**		**5**		**3**		**0**	

Table A.4
Wocawson Energy Project - Summer 2018 Avian Surveys (Birder: R. Chiasson and C. Kennedy)

W1-6	W1	PC1	PC2	PC3	PC4	PC5	PC6	PC7
Watch	Watch	Point Count	Point Count	Point Count	Point Count	Point Count	Point Count	Point Count
Sept 21	Sept. 21	Sept. 21	Sept. 21	Sept. 21	Sept. 21	Sept. 21	Sept. 21	Sept. 21
12:35	6:35	7:24	7:41	7:57	8:15	8:42	9:03	9:23
13:05	7:05	7:34	7:51	8:07	8:25	8:52	9:13	9:33
15	6	7	8	9	10	10	11	12
80	20	20	10	10	10	10	10	20
1-3	1	1	1	1	1	1	1	1
0	none	none	none	none	none	none	none	none
Excellent	good	good	good	good	good	good	good	good
None	none	none	none	none	none	none	none	none
					lots of birds			

Species Count	*Observations*	*Species Count*	*Observations*	*Species Count*	*Observations*	*Species Count*	*Observations*	*Species Count*	*Observations*	*Species Count*	*Observations*	*Species Count*	*Observations*	*Species Count*	*Observations*	*Species Count*	*Observations*
						4				3							
		1	NW, heard									1		1		10	
		2	local movement							5		2		5			
										1							
										1							
		1	local, calls			2				1						4	
				2						2							
						1				1							
										3		1					
						1											

Table A.4
Wocawson Energy Project - Summer 2018 Avian Surveys (Birder: R. Chiasson and C. Kennedy)

W1-1		W1-2		W1-3		W1-4		W1-5		W1-6		W1		PC1		T1 (PC1-PC2)	
Watch		Watch		Watch		Watch		Watch		Watch		Watch		Point Count		Transect	
Sept. 21		Sept. 21		Sept. 21		Sept. 21		Sept. 21		Sept. 21		Sept 28		Sept 28		Sept 28	
9:45		10:15		10:45		11:15		11:45		12:15		6:05 am		7:08		7:19	
10:15		10:45		11:15		11:45		12:15		12:45		6:35		7:18		7:35	
13		13		13		12		11		12		9		9		9	
20		30		50		80		70		80		90		90		90	
1		2 to 3		3		3 to 4		3		3		0		0		0	
none		none		none		none		none		none		0		0		0	
good		good		good		good		good		good		GOOD		GOOD		GOOD	
none		none		none		none		none		none		None		None		None	
				5 ATVs riders passed by						Minivan passed by with two occupants							
Species Count	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***
								1	W, heard								
2	60-100S, F	1	60S, F														
1	W, heard									2	100SW, F						
1	W, perched	1	W, perched	1	W, perched			1	20W, F, hunting								
7	local	4	local	4	local			3	local							1	50E, PC50, Call
								2	S, heard								
		1	100-200S, F	2	80-160S, F												
																1	40e, pc320,song
																3	30V, PC317&pc325,
				1	local, heard										1	40W, Calls	1 40E,PC340, Calls
													1	40se, song			
													1	40se, song			
		1	NW, heard	1	W, heard												
													1	40se, song			
													5	5-80V, Calls			
		1	60N, F	10	50-100v, F	2	80-120SE, F			1	40-80SW, F						
		1	local					1	local, calls	1	local					2	30-
								1	NW, heard							2	40-50v,PC330-340,
4		**7**		**6**		**1**		**6**		**3**		**3**		**1**		**6**	
11		**10**		**19**		**2**		**9**		**4**		**7**		**1**		**10**	

Table A.4
Wocawson Energy Project - Summer 2018 Avian Surveys (Birder: R. Chiasson and C. Kennedy)

PC2	T1 (PC2-PC3)	PC3	T1 (3-4)	PC4	T1 (4-5)	PC5	T1 (5-6)	PC6
Point Count	Transect	Point Count	Transect	Point Count	Transect	Point Count	Transect	Point Count
Sept 28	Sept 28	Sept 28	Sept 28	Sept 28	Sept 28	Sept 28	Sept 28	Sept 28
7:35	7:45	8:06	8:18	8:29	8:39	8:53	9:03	9:30
7:45	8:06	8:17	8:28	8:39	8:53	9:03	9:30	9:40
9	9	9	10	10	10	10	10	11
90	90	90	90	90	90	90	90	90
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD
None	None	None	None	None	None	None	None	None
	Bobcat							

Species Count	*Observations*	*Species Count*	*Observations*	*Species Count*	*Observations*	*Species Count*	*Observations*	*Species Count*	*Observations*	*Species Count*	*Observations*	*Species Count*	*Observations*	*Species Count*	*Observations*	*Species Count*	*Observations*
		1	5W, PC380, CALLS													1	30SE, Calls
												1	20w, Calls				
2	50N, CALLS											1	40e, Calls	1	5W, PC797,CALLS		
		1	60N, PC552, CALLS									2	80n, perched				
		1	5W, PC380, CALLS							1	40W,280, CALLS						
		2	30-50v, PC686 to														
		1	5W, PC380, CALLS											2	5W, PC797,CALLS		
												1	60s, Calls				
		1	30e, PC10P, CALLS														
		1	5W,PC350, CALLS														
		4	5-50w&E, PC, 238 to			1	20s, pc71, Calls					1	10w, Calls				
3	60N, Calls	2	5 to 30w&e, PC100 to	1	20N, CALLS	1	20s, pc71, Calls	1	10w, Calls					3	5W, PC797,CALLS	1	1OE,F60SW, Calls
2		**9**		**1**		**2**		**1**		**1**		**5**		**3**		**2**	
5		**14**		**1**		**2**		**1**		**1**		**6**		**6**		**2**	

Table A.4
Wocawson Energy Project - Summer 2018 Avian Surveys (Birder: R. Chiasson and C. Kennedy)

T1 (6-7)		PC7		W1-1		W1-2		W1-3		W1-4		W1-5		W1-6		W3	
Transect		Point Count		Watch		Watch		Watch		Watch		Watch		Watch		Watch	
Sept 28		Sept 28		Sept 28		Sept 28		Sept 28		Sept 28		Sept 20		Sept 28		Sept. 29	
9:40		9:57		10:30		11:00		11:30		12:00		12:30		1:00		6:15	
9:57		10:06		11:00		11:30		12:00		12:30		1:00		1:30		7:05	
11		11		11		11		15		15		16		16		8	
90		90		90		90		90		90		90		90		100	
0		0		0		0		0		0		0		0		0-1	
0		0		0		0		0		0		0		0		Dense fog	
GOOD		GOOD		GOOD		GOOD		GOOD		GOOD		GOOD		GOOD		Very poor	
None		None		None		None		None		None		None		None		None	
																Extended watch because visibility was so poor & because of very low light	
Species Count	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***
		1	20E,Calls													1	10N, Calls
														1	50SE	8	5-80v, songs
														1	60SE		
														2	30-60S&SE	4	5-60V, Calls
														1	50N		
0		**1**		**0**		**0**		**0**		**0**		**0**		**4**		**3**	
0		**1**		**0**		**0**		**0**		**0**		**0**		**5**		**13**	

Table A.4
Wocawson Energy Project - Summer 2018 Avian Surveys (Birder: R. Chiasson and C. Kennedy)

0

PC11		T2 (PC11- PC12		PC12		T2 (PC12-PPC2)		PPC2		T2 (PPC2-PC10)		PC10		T2 (PC10-PC13)		PC13	
Point Count		Transect		Point Count		Transect		Point Count		Transect		Point Count		Transect		Point Count	
Sept. 29		Sept. 29		Sept. 29		Sept. 29		Sept. 29		Sept. 29		Sept. 29		Sept. 29		Sept. 29	
7:22		7:32		7:46		7:56		8:12		8:22		8:38		8:48		9:00	
7:32		7:46		7:56		8:12		8:22		8:38		8:48		9:00		9:10	
8		8		8		8		8		8		9		9		9	
100		100		100		100		100		100		100		100		100	
0-1		0-1		0-1		0-1		0-1		0-1		0-1		0-1		0-1	
Dense fog, light drizzle		Dense fog, light drizzle		fog, light drizzle		fog		fog		fog		fog		fog		fog	
Very poor		Very poor		Very poor		Very poor		Poor		Poor		Poor		Poor		Poor	
None		None		None		None		None		None		None		None		None	
Species Count	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***
		2	10E, PC349, Calls											4	1w, pc559, Calls		
1	5N, Calls																
		1	10e,pc250, Calls					1	20E, Calls					1	20e,pc273,Calls		
		1	5S,PC200											2	1w, pc559, Calls		

Table A.4
Wocawson Energy Project - Summer 2018 Avian Surveys (Birder: R. Chiasson and C. Kennedy)

T2 PC13-PC9)		PC9		T2 (PC9-PC8)		PC8		T2 (PC8 to cabin)		W1-1		W1-2		W1-3		W1-4	
Transect		Point Count		Transect		Point Count		Transect		Watch		Watch		Watch		Watch	
Sept. 29		Sept. 29		Sept. 29		Sept. 29		Sept. 29		Sept. 29		Sept. 29		Sept. 29		Sept. 29	
9:10		9:18		9:28		9:36		9:46		10:00		10:30		11:00		11:30	
9:18		9:28		9:36		9:46		9:55		10:30		11:00		11:30		12:00	
9		9		9		9		10		12		12		13		13	
100		100		100		100		100		100		100		100		100	
0-1		0-1		0-1		0-1		0-1		0-1		0-1		0-1		0-1	
fog		fog		fog		fog		fog		fog		fog		fog		fog	
Poor		Poor		Poor		Poor		Poor		Poor		Poor		Poor		Poor	
None		None		None		None		None		None		None		None		None	
Species Count	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***
								5	1W,PC750,Feeding								
2	1n,pc238, Calls	1	69ne, Calls														

Table A.4
Wocawson Energy Project - Summer 2018 Avian Surveys (Birder: R. Chiasson and C. Kennedy)

W1-5	W1-6	W1	PC1	T1 (PC1-PC2)	PC2	T1 (2-3)	PC3	T1 (3-4)
Watch	Watch	Watch	Point Count	Transect	Point Count	Transect	Point Count	Transect
Sept. 29	Sept. 29	Oct. 5	Oct. 5	Oct. 5	Oct. 5	Oct. 5	Oct. 5	Oct. 5
12:00	12:30	6:30	7:30	7:40	7:49	7:59	8:10	8:20
12:30	13:00	7:05	7:40	7:48	7:59	8:10	8:20	8:28
13	14	6	6	6	6	6	6	6
95	90	70	50	50	50	50	5	5
0-1	0-1	0-3	0-3	0-3	0-3	0-3	0-3	0-3
Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Good to excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
None		When gusting a bite noisy	When gusting a bite noisy	When gusting a bite noisy	When gusting a bite noisy	When gusting a bite noisy	When gusting a bite noisy	When gusting a bite noisy

Species Count	*Observations*	*Species Count*	*Observations*	*Species Count*	*Observations*	*Species Count*	*Observations*	*Species Count*	*Observations*	*Species Count*	*Observations*	*Species Count*	*Observations*	*Species Count*	*Observations*	*Species Count*	*Observations*
1	10-70V, Calls																
						1	50E, f90e,Calls	1	40e, pc260, Calls								
				1	60E, F50NW												
								1	10w, pc372,calls			1	5w,pc165, Calls	1	60S		
		2	90NW, F60-80SE, Calls	20	200S,F60-80N												
								3	5e, pc260, Calls			2	5w,pc165, Calls				
1	80N, Calls											1	30w, pc470, Calls				
				1	60se, song												
				1	30e, call			1	5e, pc260, Calls			1	5w,pc165, Calls				
3	20-60V, Calls	1	80SE,Calls			1	40SW, Calls					1	30w, pc470, Calls				
3		**2**		**4**		**2**		**4**		**0**		**5**		**1**		**0**	
5		**3**		**23**		**2**		**6**		**0**		**6**		**1**		**0**	

Table A.4
Wocawson Energy Project - Summer 2018 Avian Surveys (Birder: R. Chiasson and C. Kennedy)

PC4		T1 (4-5)		PC5		T1 (5-6)		PC6		T1 (6-7		PC7		W1-1		W1-2	
Point Count		Transect		Point Count		Transect		Point Count		Transect		Point Count		Watch		Watch	
Oct. 5		Oct. 5		Oct. 5		Oct. 5		Oct. 5		Oct. 5		Oct. 5		Oct. 5		Oct. 5	
8:28		8:38		8:49		8:59		9:25		9:35		9:39		10:05		10:35	
8:38		8:49		8:59		9:25		9:35		9:39		9:49		10:35		11:05	
6		6		6		6		7		7		7		8		9	
5		5		5		5		5		5		5		5		5	
0-3		0-3		0-3		0-3		0-3		0-3		0-3		0-3		0-3	
Nil		Nil		Nil		Nil		Nil		Nil		Nil		Nil		Nil	
Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent	
When gusting a bite noisy		When gusting a bite noisy		When gusting a bite noisy		When gusting a bite noisy		When gusting a bite noisy		When gusting a bite noisy		When gusting a bite noisy		When gusting a bite noisy		When gusting a bite noisy	
Species Count	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***
1	40n, F60S, Calls															3	50N, F60S, Calls
				1	50SW,Call	8	30NE&5w, pc246&,pc										
								1	80N, Calls								
														1	90SW,F70NW		
2	60E,F80N, Calls					4	5V, PC656, Flushed										
2	1V, Calls																
														1	80SE, Calls		
																2	1W, on ground
														6	20-60v, Perched& Calls		
						2	30NE, pc246, Calls										
								1	40E, F70NW, Calls					1	40SW,f80nw,calls		
				1	59s,Calls									1	50NW, Calls		
						1	5w,pc 876, calls										
1	1V,Calls																
																1	1000s,f100n
												1	40N, Calls n				
																1	80W, Calls
1	40NE, Calls					2	30NE, pc246, Calls										
5		**0**		**2**		**5**		**2**		**0**		**1**		**5**		**4**	
7		**0**		**2**		**17**		**2**		**0**		**1**		**10**		**7**	

Table A.4
Wocawson Energy Project - Summer 2018 Avian Surveys (Birder: R. Chiasson and C. Kennedy)

W1-3		W1-4		W1-5		W1-6		W3		PC11		T2 (PC11- PC12		PC12		T2 (PC12-PPC2)	
Watch		Watch		Watch		Watch		Watch		Point Count		Transect		Point Count		Transect	
Oct. 5		Oct. 5		Oct. 5		Oct. 5		Oct. 6		Oct. 6		Oct. 6		Oct. 6		Oct. 6	
11:05		11:35		12:05		12:35		6:34		7:27		7:37		7:53		8:03	
11:35		12:05		12:35		13:05		7:05		7:37		7:53		8:03		8:35	
9		10		10		10		1		1		1		1		1	
5		5		5		5		5		5		5		5		5	
0-3		0-3		0-2		0-2		0		0		0		0		0	
Nil		Nil		Nil		Nil		0		0		0		0		0	
Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent	
When gusting a bite noisy		When gusting a bite noisy		When gusting a bite noisy		When gusting a bite noisy											
		Gray Jay															
Species Count	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***
																1	30E, PC304, F60W,
										1	50SE,Calls						
												1	20E,PC100, Calls	2	1E, Calls		
																2	5N,PC677, perched
																2	5n,pc304, Calls
				1	200N, Calls												
				2	10n,Calls					1	20E, Flushed			2	1E, Calls	4	5n,pc304, Calls
																2	10E, PC100, Calls
1	30E,F60S																
									2	40-80, e&ne, calls							
									2	40-80, e&ne, calls							
												1	5E, PC253				
																1	69e,pc304, F60W,Calls
																2	10E, PC100, Calls
									7	5-60V, Songs							
									2	40-80NW&NE							
									6	5-60V,Calls	3	40v, Calls			1	70w, Calls	4	5n,pc304, Calls
																1	80N,Calls		
1	40N,Calls												2	50w&e, PC253, Calls		2	30S,Calls		
2		**0**		**2**		**0**		**4**		**3**		**3**		**5**		**8**	
2		**0**		**3**		**0**		**17**		**5**		**4**		**8**		**18**	

Table A.4
Wocawson Energy Project - Summer 2018 Avian Surveys (Birder: R. Chiasson and C. Kennedy)

PPC2		T2 (PPC2-PC10)		PC10		T2 (PC10-PC13)		PC13		T2 PC13-PC9)		PC9		T2 (PC9-PC8)		PC8	
Point Count		Transect		Point Count		Transect		Point Count		Transect		Point Count		Transect		Point Count	
Oct. 6		Oct. 6		Oct. 6		Oct. 6		Oct. 6		Oct. 6		Oct. 6		Oct. 6		Oct. 6	
8:35		8:45		9:04		9:14		9:34		9:44		9:50		10:00		10:05	
8:45		9:04		9:14		9:34		9:44		9:50		10:00		10:05		10:15	
2		2		3		3		3		4		4		4		4	
5		5		5		5		5		5		5		5		5	
0		0		0		0		0		0		1		1		1	
0		0		0		0		0		0		0		0		0	
Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent	
Species Count	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***	***Species Count***	***Observations***
1	80NW,Calls			2	1w, Calls									2	5E, PC540, Calls		
												1	300w, f200,sw, Calls				
				1	1w, Calls			1	1n, Calls								
						2	1w, pc238, on road					4	20-60, feeding			3	20-60v, Calls
						2	5s,pc571, Calls										
												1	80S,Calls				
				1	80S,Calls	1	50S, pc573, Calls					1	80N, Calls			1	60S, Calls
				1	1w, Calls			1	1n, Calls								
				1	1w, Calls												
						1	5s,pc571, Calls										
						1	30S,PC571, Calls										
1	0,calls			1	40se,Calls			1	60N, Calls			1	60SW,F60E,Calls	2	5E, PC540, Calls		
2		**0**		**6**		**5**		**3**		**0**		**5**		**2**		**2**	
2		**0**		**7**		**7**		**3**		**0**		**8**		**4**		**6**	

Table A.4
Wocawson Energy Project - Summer 2018 Avian Surveys (Birder: R. Chiasson and C. Kennedy)

T2 (PC8 to cabin)	W1-1	W1-2	W1-3	W1-4	W1-5	W1-6
Transect	Watch	Watch	Watch	Watch	Watch	Watch
Oct. 6	Oct. 6	Oct. 6	Oct. 6	Oct. 6	Oct. 6	Oct. 6
10:15	10:30	11:00	11:30	12:00	12:30	13:00
10:18	11:00	11:30	12:00	12:30	13:00	13:30
4	8	8	12	13	13	14
5	5	5	5	5	5	5
1	1	1	0	1	1	1
0	0	0	0	0	0	0
Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
			Bald Eagle			

Species Count	*Observations*	*Species Count*	*Observations*	*Species Count*	*Observations*	*Species Count*	*Observations*	*Species Count*	*Observations*	*Species Count*	*Observations*	*Species Count*	*Observations*	
														1
														23
		2	60NW, Calls											63
														10
														46
														17
														3
						1	50W,F150E,							4
														1
														2
														10
				3	5W,Calls									142
														2
														11
														4
														95
														1
														39
														1
														3
														1
				1	80E,Calls	5	50-90W,Calls&F150E, !							50
														47
														14
														1
3	10W, PC864,flushed													124
														40
														1
														1
														2
														8
														6
														1
														6
														4
														3
														53
														3
														5
				1	5n,Calls on ground									44
														2
														3
						1	60SE,Calls							8
														5
		1	60NW, Calls			1	60S,F60NW,Calls							42
														38
														13
														1
				1	5W, weak song									12
														1
														1
														2
														54
														33
														2
														78
														188
														4
														1
														2
		2	40E, Calls	5	40w,Calls	1	40NW,Calls	1	30W,Calls					292
1		**3**		**5**		**5**		**1**		**0**		**0**		
3		**5**		**11**		**9**		**1**		**0**		**0**		**1674**

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