

# Section 7.0

## Breeding Birds



## TABLE OF CONTENTS

	<b>PAGE</b>
<b>7.0 BREEDING BIRDS .....</b>	<b>7-1</b>
7.1 RATIONALE FOR SELECTION AS A VEC.....	7-1
7.2 BOUNDARIES FOR ENVIRONMENTAL EFFECTS ASSESSMENT .....	7-1
7.2.1 Spatial Boundaries.....	7-1
7.2.2 Temporal Boundaries .....	7-1
7.3 METHODOLOGY .....	7-1
7.3.1 Field Surveys .....	7-1
7.3.2 Desktop Data Review .....	7-5
7.4 DESCRIPTION OF EXISTING ENVIRONMENT.....	7-5
7.4.1 Results of Field Surveys.....	7-5
7.4.2 Results of Desktop Data Review .....	7-11
7.5 POTENTIAL EFFECTS ASSESSMENT.....	7-13
7.5.1 Construction Phase Potential Effects .....	7-14
7.5.2 Operation, Maintenance and Rehabilitation (OMR) Phase Potential Effects..	14
7.5.3 Accidents, Malfunctions and Unplanned Events.....	7-14
7.6 MITIGATION MEASURES .....	7-15
7.7 SIGNIFICANCE OF RESIDUAL EFFECTS.....	7-19
7.8 MONITORING AND FOLLOW-UP REQUIREMENTS .....	7-20
7.9 BREEDING BIRDS - REFERENCES.....	7-20

## LIST OF TABLES

Table 7.1	Field Survey Locations .....	7-5
Table 7.2	Bird Species Observed during May Field Surveys .....	7-6
Table 7.3	Bird Species Observed during June Field Surveys .....	7-8
Table 7.4	Avian SAR Recorded Within 5 km of the Project Location .....	7-12
Table 7.5	Summary of Mitigation Measures for Breeding Birds .....	7-16
Table 7.6	Significance of Residual Effects to Breeding Birds after Mitigation .....	7-19

## LIST OF FIGURES

Figure 7.1	Bird Survey Locations – Map 1 of 2.....	7-2
Figure 7.2	Bird Survey Locations – Map 2 of 2.....	7-3

## LIST OF APPENDICES

- Appendix 7A ACCDC Report
- Appendix 7B Breeding Bird Field Observations
- Appendix 7C ACCDC and MBBA Species Lists

## **7.0 BREEDING BIRDS**

### **7.1 Rationale for Selection as a VEC**

Breeding birds has been selected as a VEC in consideration of the potential environmental effects of Project components and related activities on avian species and their habitats in the Project site. The majority of bird species in Canada are protected federally under the *Migratory Bird Convention Act* (MBCA); others are provincially under the *New Brunswick Fish and Wildlife Act*. Avian Species at Risk (SAR) are further protected by the federal SARA as well as the NBSRA. For the purposes of this assessment, birds and bird habitat include all resident and migratory birds which utilize habitat within the boundaries of the Project.

### **7.2 Boundaries for Environmental Effects Assessment**

#### **7.2.1 Spatial Boundaries**

The spatial boundaries (Project site) for the assessment of the potential environmental effects of breeding birds and their habitat is the area of the environment that the proposed Project will physically disrupt, as well as the zone of influence of the Project, including the Project-defined assessment area of 75 m on either side of the centreline. For SOCC, a 5 km radius around the midpoint of the Project site was used, as illustrated in the ACCDC report (Appendix 7A).

#### **7.2.2 Temporal Boundaries**

The temporal boundaries for the assessment of the potential effects of the Project on breeding birds include the duration of Project construction, as well as OMR of the Project in perpetuity. Birds are expected to be present in and around the Project site at all times of year. The breeding season for most birds in most of New Brunswick (including the Project area) is from the beginning of mid-April to late August, while migratory birds pass through the Project area during spring and fall migration (typically, March to May and August to October) and some species will overwinter in the area.

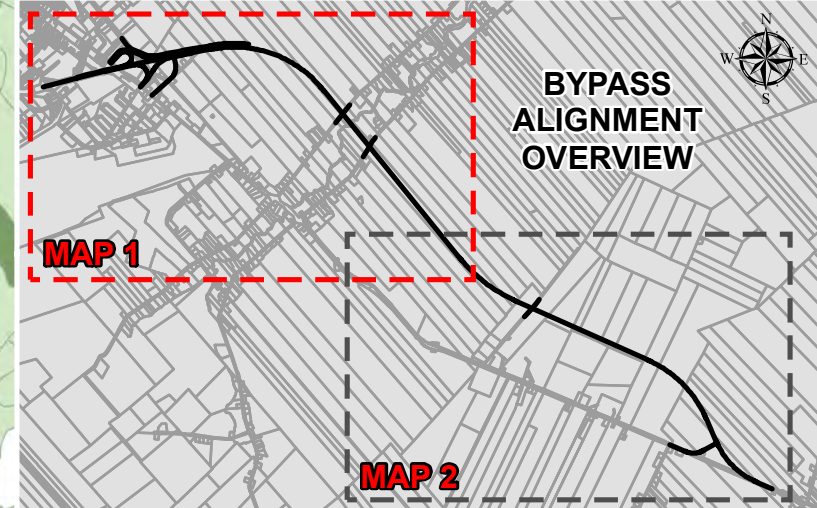
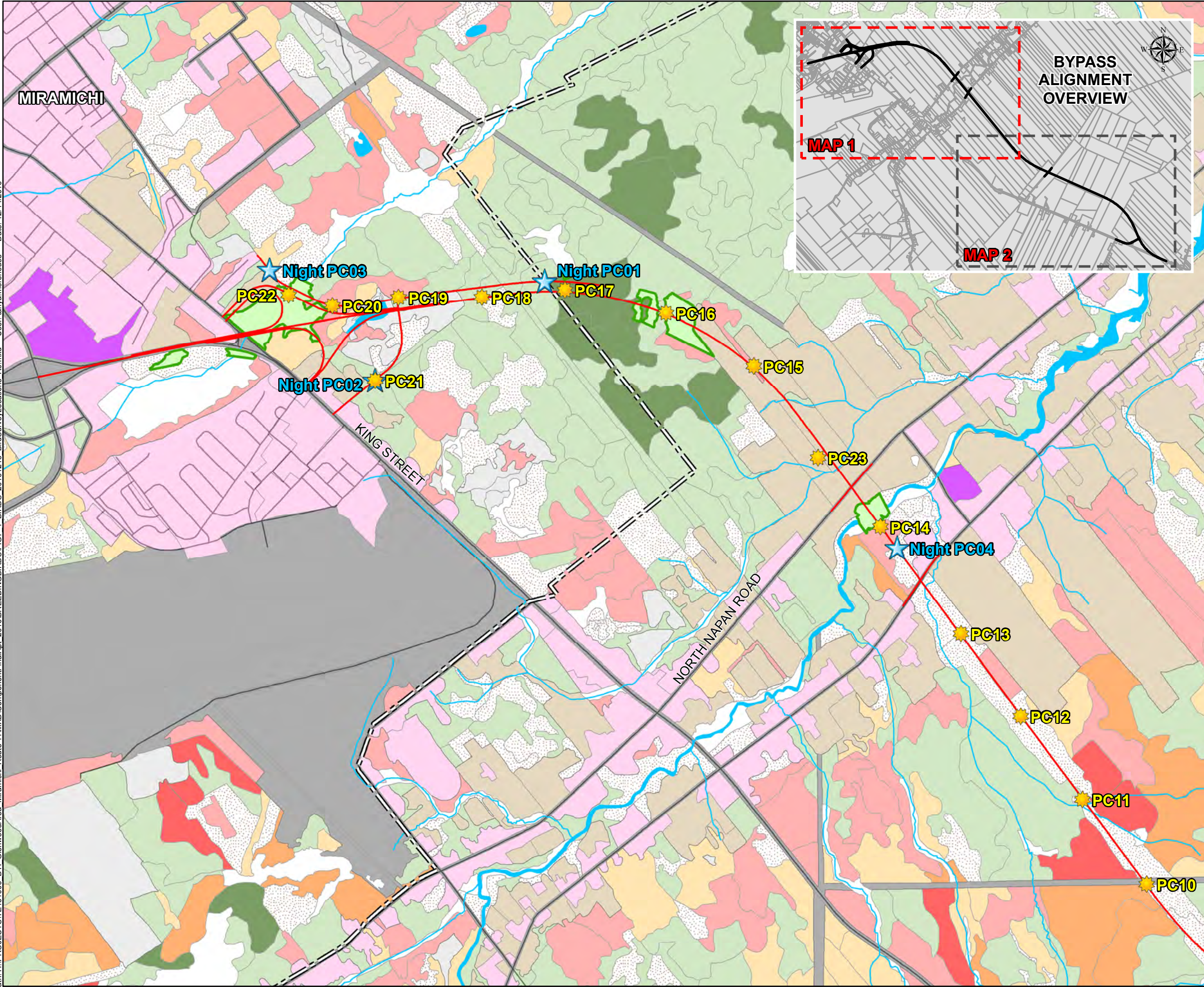
## **7.3 Methodology**

### **7.3.1 Field Surveys**

Bird surveys were carried out during the early and main breeding periods, and all habitats used by the targeted birds were surveyed to maximize the quality and quantity of data obtained (Figures 7.1 and 7.2). Surveys were conducted at the times of day with the highest likelihood of detecting the target species (i.e., early morning for most breeding passerines, after sunset for owls, and close to sunset for Common Nighthawks), and in favourable weather conditions to maximize detection probability (i.e. average wind speeds of less than 20 km/h; no sustained precipitation).



Path: H:\PROJECTS\161006 DTI GlenwoodArea Miramichi\_Route 11\MXD\ComponentFinalRpt\_2016\BREEDINGBIRDS\FIG7\_1\_BIRDS\_20161213\_BirdSurveyLocations\_R0.mxd User: lanyu.morehouse Date: 12/14/2016



**LEGEND:**

- Night
- Day
- Bypass Alignment
- Watercourse
- Field Verified Wetland Area
- Municipal Area (Miramichi)
- Agriculture
- Industrial
- Transportation/Utilities
- Recreation
- Residential
- Clearcut
- Hardwood
- Old Hardwood
- Mixedwood
- Old Mixedwood
- Softwood
- Old Softwood

SOURCE: GeoNB Habitat Data, 2016

CLIENT:

amec foster wheeler

PROJECT: ENVIRONMENTAL FIELD STUDIES  
VALUED ENVIRONMENTAL COMPONENT ASSESSMENT  
BREEDING BIRDS  
ROUTE 11 GLENWOOD AREA TO  
MIRAMICHI BYPASS PROJECT

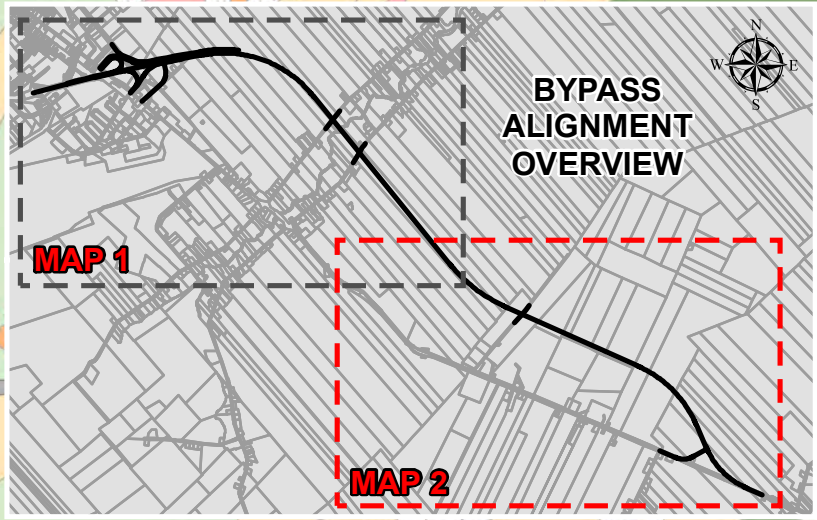
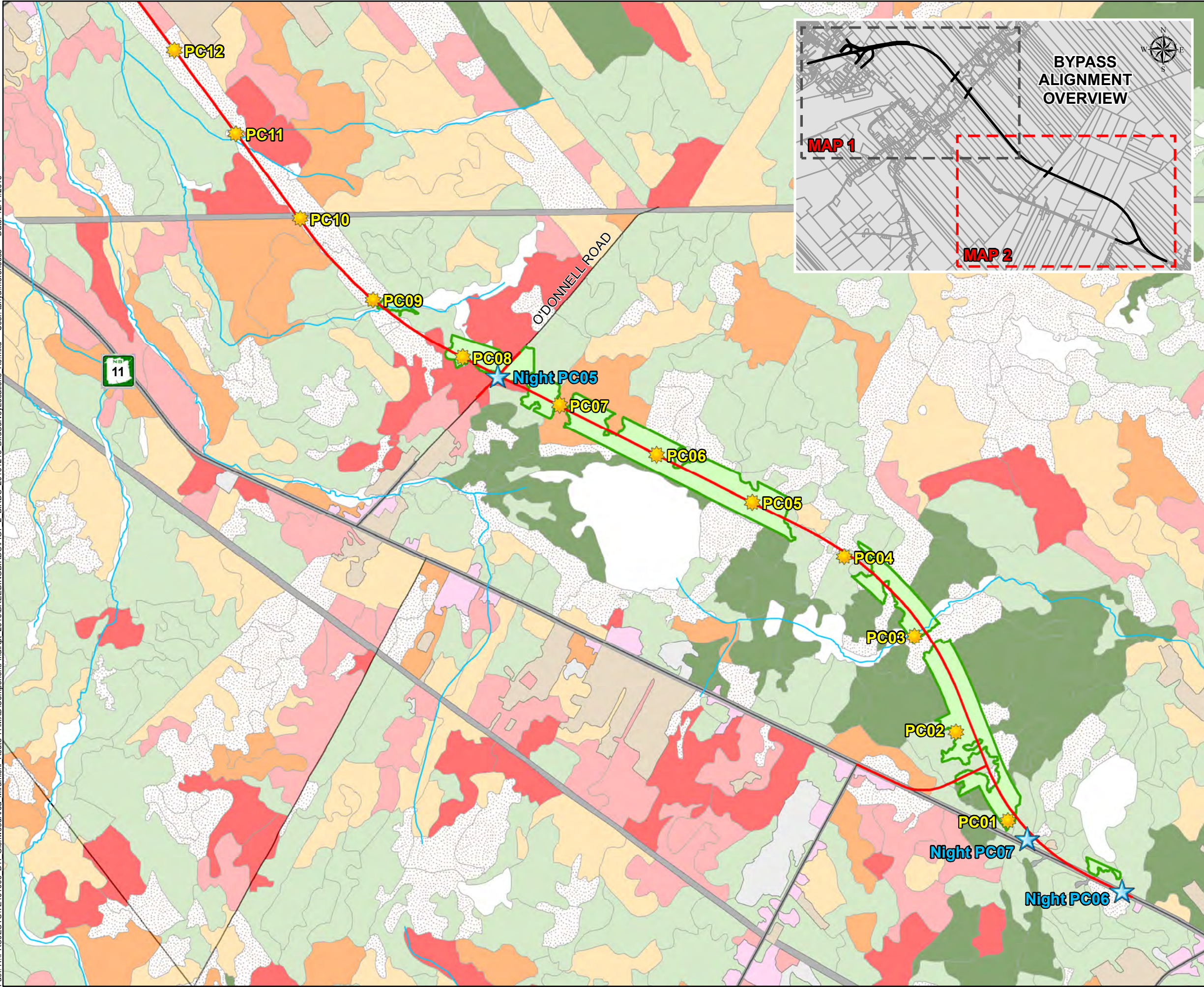
TITLE: BIRD SURVEY LOCATIONS  
MAP 1 of 2

DATUM:	DWN BY:	DATE:
NAD 83 CSRS	TM	September 2016
PROJECTION:	CHK'D BY:	SCALE:
NB Stereographic	CD	1:18,000
PROJECT NO:	REV NO:	FIGURE NO:
TE161006	R0	7.1

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**LEGEND:**

- Night
- Day
- Bypass Alignment
- Watercourse
- Field Verified Wetland Area
- Municipal Area (Miramichi)
- Agriculture
- Industrial
- Transportation/Utilities
- Recreation
- Residential
- Clearcut
- Hardwood
- Old Hardwood
- Mixedwood
- Old Mixedwood
- Softwood
- Old Softwood

SOURCE: GeoNB Habitat Data, 2016

0 100 200 400 600 800 1,000  
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CLIENT:

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PROJECT: ENVIRONMENTAL FIELD STUDIES  
VALUED ENVIRONMENTAL COMPONENT ASSESSMENT  
BREEDING BIRDS  
ROUTE 11 GLENWOOD AREA TO  
MIRAMICHI BYPASS PROJECT

TITLE: BIRD SURVEY LOCATIONS  
MAP 2 of 2

DATUM:	DWN BY:	DATE:
NAD 83 CSRS	TM	September 2016
PROJECTION:	CHK'D BY:	SCALE:
NB Stereographic	CD	1:18,000
PROJECT NO:	REV NO:	FIGURE NO:
TE161006	R0	7.2

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### **7.3.1.1 Early Breeding Birds including Owls, Woodpeckers and Raptors**

For the early breeding bird surveys, conducted on 10<sup>th</sup> and 11<sup>th</sup> of May, surveys were conducted at 21 fixed locations along the cleared centre line (Figures 7.1 and 7.2). Surveys consisted of 10-minute point counts conducted along the centreline, during which all bird species heard or seen within each distance category relative to the observer (<50 m, 50 - 100 m, and >100 m) were reported; note that this encompasses the assessment area of 75 m on either side of the centreline defined in Section 7.2.1. Incidental observations and evidence of other non-target species was recorded, including mammals and herpetiles. In accordance with standard raptor survey protocols for New Brunswick (Bird Studies Canada (BSC), 2003), playback of forest raptor calls was conducted, with calls broadcast in order from smallest species to largest, with one minute of silent listening between each call.

A night-time survey for owls was conducted on the evening of 11<sup>th</sup> of May, which employed the playback protocol used in the Atlantic Canada Nocturnal Owl Survey (BSC, 2007). Surveys began at sunset and were completed by midnight. The seven night-time survey locations (Figures 7.1 and 7.2) were selected to provide adequate geographic coverage of the survey area and placed in areas that could be safely accessed by car or along easily walkable trails. At each station, a series of Boreal Owl (*Aegolius funereus*) and Barred Owl (*Strix varia*) calls interspersed with silent listening periods was played for a total survey time of 15 minutes per station. Information on the general noise level (sources and degree of interference) and presence of non-target species including other nocturnal birds such as American Woodcock (*Scolopax minor*) and Wilson's Snipe (*Gallinago delicata*) were noted.

### **7.3.1.2 Breeding Bird Surveys**

For the June breeding bird surveys, Maritimes Breeding Bird Atlas (MBBA)-style point counts were conducted at 23 fixed locations along the cleared centre line. Each location was surveyed twice; the first round of surveys was conducted on 10<sup>th</sup> and 11<sup>th</sup> of June, and the second round on 27<sup>th</sup> and 28<sup>th</sup> of June. Surveys began a few minutes before sunrise and continued until 10:00 am. Ten minutes of silent listening was conducted at each point count. In accordance with MBBA guidance for surveying for species at risk in the Maritime Provinces (MBBA, 2008), playback of territorial calls was employed in areas of suitable habitat for Canada Warbler and Olive-sided Flycatcher if the species had not been detected during the ten-minute silent listening period. All bird species heard or seen during the point count surveys were recorded, along with incidental observations of other non-target species including mammals, butterflies, odonates and herpetiles. Incidental bird species seen or heard while traversing the site between point count locations were recorded separately and included in the species list for the Study Area.

Targeted evening surveys for nightjars (Whip-poor-will and Common Nighthawk) were conducted at the seven night-time survey points (Figure 7.1). In accordance with the Draft Canadian Nightjar Survey Protocol, dated April 2016, surveys began 30 minutes before sunset and were completed by 23:00. Six minutes of listening was conducted at each survey stop, and if no target species were heard after this period, vocalizations were broadcast in order to increase the probability of detection. The presence and number of target species at each stop was recorded, along with non-target species including other birds, mammals and vocalizing frogs.

### 7.3.2 Desktop Data Review

A review of existing data from various sources was conducted in order to provide supplemental information on breeding birds in and near the Project area, including avian SOCC. Data sources consulted include the MBBA (BSC et al., 2016) for information on species potentially nesting in or near the Project area, the ACCDC (ACCDC, 2016) for information on species at risk and SOCC within 5 km of the Project area, and the Important Bird Areas (IBA) of Canada database (IBA, 2016) for information on areas of particular importance for birds. As well, an assessment of mature and interior forest habitats in the proposed Project area was undertaken using NBDNR forest cover data from 2012.

## 7.4 Description of Existing Environment

### 7.4.1 Results of Field Surveys

The 23 diurnal point count locations and 7 nocturnal point count locations are shown on Figures 7.1 and 7.2, and the survey dates and habitats are presented in Table 7.1. Locations were selected to be representative of the available habitat types as well as to provide even geographical coverage along the route. The habitats shown on Figures 7.1 and 7.2 are taken from NBDNR data (NBDNR, 2012), while the descriptions in Table 7.1 were recorded in the field during the surveys and are therefore considered more accurate.

**Table 7.1 Field Survey Locations**

Point Count	Coordinates (NAD83, Zone 20T)	Survey Dates	Habitat
PC01	321769 5204950	10 May; 11 & 27 June	Conifer forest
PC02	321517 5205379	10 May; 11 & 27 June	Conifer forest, near wetland
PC03	321317 5205843	10 May; 11 & 27 June	Conifer forest, near wetland
PC04	320976 5206228	10 May; 11 & 27 June	Conifer forest
PC05	320532 5206492	10 May; 11 & 27 June	Conifer forest
PC06	320069 5206722	10 May; 11 & 27 June	Alder wetland
PC07	319599 5206963	10 May; 11 & 27 June	Mixed forest
PC08	319129 5207195	10 May; 11 & 27 June	Mixed forest, near wetland
PC09	318696 5207472	10 May; 11 & 27 June	Conifer forest (regenerating)
PC10	318343 5207866	10 May; 11 & 27 June	Mixed forest
PC11	318031 5208276	10 May; 11 & 27 June	Mixed forest
PC12	317733 5208680	10 May; 10 & 28 June	Young deciduous forest
PC13	317443 5209079	10 May; 10 & 28 June	Deciduous forest (regenerating)
PC14	317054 5209596	10 May; 10 & 28 June	Mixed forest, riparian
PC15	316440 5210375	11 May; 10 & 28 June	Field/young deciduous forest
PC16	316015 5210631	11 May; 10 & 28 June	Mixed forest



**Table 7.1 Field Survey Locations**

Point Count	Coordinates (NAD83, Zone 20T)	Survey Dates	Habitat
PC17	315526 5210744	11 May; 10 & 28 June	Conifer forest (mature)
PC18	315124 5210708	11 May; 10 & 28 June	Mixed forest
PC19	314720 5210707	11 May; 10 & 28 June	Mixed forest
PC20	314400 5210667	11 May; 28 June	Mixed forest
PC21	314607 5210305	11 May; 11 & 28 June	Mixed forest, near quarry
PC22	314188 5210719	11 & 28 June	Pond edge, cattail marsh
PC23	316751 5209931	10 & 28 June	Field
Night PC01	315428 5210785	11 May; 10 & 26 June	Conifer forest (mature)
Night PC02	314607 5210305	11 May; 10 & 26 June	Mixed forest, near quarry
Night PC03	314097 5210839	11 May; 10 & 26 June	Mixed forest
Night PC04	317135 5209494	11 May; 10 & 26 June	Mixed forest, riparian
Night PC05	319301 5207102	11 May; 10 & 26 June	Mixed forest
Night PC06	322323 5204609	11 May; 10 & 26 June	Conifer forest; roadside
Night PC07	321863 5204861	11 May; 10 & 26 June	Conifer forest; roadside

**7.4.1.1 Early Breeding Birds including Owls, Woodpeckers and Raptors**

During the May daytime surveys, a total of 40 species were observed (Table 7.2), including four raptor species (Bald Eagle (*Haliaeetus leucocephalus*), Broad-winged Hawk (*Buteo platypterus*), Northern Goshawk (*Accipiter gentilis*) and Red-tailed Hawk (*Buteo jamaicensis*)) and two woodpecker species (Northern Flicker (*Colaptes auratus*) and Yellow-bellied Sapsucker (*Sphyrapicus varius*)). All of these species are considered to be common and widespread throughout the Maritimes, with the exception of the American Wigeon (*Anas americana*), Bald Eagle and Barn Swallow (*Hirundo rustica*), which are considered to be of conservation concern by one or more authority (Table 7.2). Weather conditions on the mornings 10<sup>th</sup> and 11<sup>th</sup> of May were favourable, with winds of 10 - 15 km/h (gusting to 20 km/h on the 10<sup>th</sup>) and no precipitation.

Survey conditions for the nighttime survey for owls conducted on 11<sup>th</sup> May were generally favourable, with calm winds and clear skies and a temperature of 10°C; however, the hearing conditions were impaired by traffic noise at survey stations along Route 11 near the eastern end of the Project site. A single Barred Owl was heard near the western end of the Project site (Night PC 01 on Figure 7.1), and American Woodcock and Wilson’s Snipe were also detected during the survey. These three species are commonly heard in the evening hours throughout New Brunswick.

**Table 7.2 Bird Species Observed during May Field Surveys**

Common Name	Scientific Name	Conservation Status				
		ACCDC	General Status	NBSRA	SARA	COSEWIC
American Crow	<i>Corvus brachyrhynchos</i>					
American Goldfinch	<i>Spinus tristis</i>					
American Robin	<i>Turdus migratorius</i>					
American Wigeon	<i>Anas americana</i>	S3B				
American Woodcock	<i>Scolopax minor</i>					

**Table 7.2 Bird Species Observed during May Field Surveys**

Common Name	Scientific Name	Conservation Status				
		ACCDC	General Status	NBSRA	SARA	COSEWIC
Bald Eagle	<i>Haliaeetus leucocephalus</i>	S3B	At Risk	Endangered		Not At Risk
Barn Swallow	<i>Hirundo rustica</i>	S3B	Sensitive	Threatened		Threatened
Barred Owl	<i>Strix varia</i>					
Belted Kingfisher	<i>Megaceryle alcyon</i>					
Black-and-white Warbler	<i>Mniotilta varia</i>					
Black-capped Chickadee	<i>Poecile atricapillus</i>					
Blue Jay	<i>Cyanocitta cristata</i>					
Blue-headed Vireo	<i>Vireo solitarius</i>					
Blue-winged Teal	<i>Anas discors</i>					
Broad-winged Hawk	<i>Buteo platypterus</i>					
Brown Creeper	<i>Certhia americana</i>					
Canada Goose	<i>Branta canadensis</i>					
Common Grackle	<i>Quiscalus quiscula</i>					
Common Raven	<i>Corvus corax</i>					
Dark-eyed Junco	<i>Junco hyemalis</i>					
Eastern Phoebe	<i>Sayornis phoebe</i>					
Golden-crowned Kinglet	<i>Regulus satrapa</i>					
Gray Jay	<i>Perisoreus canadensis</i>					
Greater Yellowlegs	<i>Tringa melanoleuca</i>					
Green-winged Teal	<i>Anas crecca</i>					
Hermit Thrush	<i>Catharus guttatus</i>					
Northern Flicker	<i>Colaptes auratus</i>					
Northern Goshawk	<i>Accipiter gentilis</i>					Not At Risk
Red-breasted Nuthatch	<i>Sitta canadensis</i>					
Red-tailed Hawk	<i>Buteo jamaicensis</i>					Not At Risk
Ruby-crowned Kinglet	<i>Regulus calendula</i>					
Ruffed Grouse	<i>Bonasa umbellus</i>					
Savannah Sparrow	<i>Passerculus sandwichensis</i>					
Song Sparrow	<i>Melospiza melodia</i>					
Spotted Sandpiper	<i>Actitis macularius</i>					
White-throated Sparrow	<i>Zonotrichia albicollis</i>					
Wilson's Snipe	<i>Gallinago delicata</i>					
Winter Wren	<i>Troglodytes hiemalis</i>					
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>					
Yellow-rumped Warbler	<i>Setophaga coronata</i>					



### 7.4.1.2 Breeding Bird Surveys

During the June daytime surveys, 68 bird species were observed (Table 7.3), most of which are considered to be common and widespread throughout the Maritimes. American Wigeon, Bobolink (*Dolichonyx oryzivorus*), Canada Warbler (*Cardellina canadensis*), Eastern Wood-pewee (*Contopus virens*) and Killdeer (*Charadrius vociferous*) are considered to be of conservation concern by one or more authority (Table 7.3). Details of the field observations are provided in Table 7B-1 in Appendix 7B. Weather conditions on the mornings of 10<sup>th</sup> and 11<sup>th</sup> of June and 27<sup>th</sup> and 28<sup>th</sup> of June were favourable with winds generally less than 15 km/h and no precipitation, although there were scattered showers early in the morning of 28<sup>th</sup> June, and the winds exceeded 20 km/h after 9:30 am that morning, near the end of the survey (Table 7A-1).

Targeted nighttime surveys for Common Nighthawk (*Chordeiles minor*) were conducted on 10<sup>th</sup> and 26<sup>th</sup> of June. Survey conditions for both surveys were favourable, with winds ranging from calm to 10 km/h, and temperatures of approximately 15°C to 17°C, and mainly clear skies. As in the May nighttime surveys, the hearing conditions were impaired by traffic noise at survey stations along Route 11 near the eastern end of the Project site. No Common Nighthawk were observed during the surveys.

**Table 7.3 Bird Species Observed during June Field Surveys**

Common Name	Scientific Name	Conservation Status				
		ACCDC	General Status	NBSRA	SARA	COSEWIC
Alder Flycatcher	<i>Empidonax alnorum</i>					
American Crow	<i>Corvus brachyrhynchos</i>					
American Goldfinch	<i>Spinus tristis</i>					
American Redstart	<i>Setophaga ruticilla</i>					
American Robin	<i>Turdus migratorius</i>					
American Wigeon	<i>Anas americana</i>	S3B				
Bay-breasted Warbler	<i>Setophaga castanea</i>					
Belted Kingfisher	<i>Megaceryle alcyon</i>					
Black-and-white Warbler	<i>Mniotilta varia</i>					
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>					
Blackburnian Warbler	<i>Setophaga fusca</i>					
Black-capped Chickadee	<i>Poecile atricapillus</i>					
Blue Jay	<i>Cyanocitta cristata</i>					
Blue-headed Vireo	<i>Vireo solitarius</i>					
Bobolink	<i>Dolichonyx oryzivorus</i>	S3S4B	Sensitive	Threatened		Threatened
Broad-winged Hawk	<i>Buteo platypterus</i>					
Brown Creeper	<i>Certhia americana</i>					
Canada Warbler	<i>Cardellina canadensis</i>	S3S4B	At Risk	Threatened	Threatened (Schedule 1)	Threatened
Cedar Waxwing	<i>Bombycilla cedrorum</i>					
Chestnut-sided Warbler	<i>Setophaga pensylvanica</i>					

**Table 7.3 Bird Species Observed during June Field Surveys**

Common Name	Scientific Name	Conservation Status				
		ACCDC	General Status	NBSRA	SARA	COSEWIC
Chipping Sparrow	<i>Spizella passerina</i>					
Common Grackle	<i>Quiscalus quiscula</i>					
Common Raven	<i>Corvus corax</i>					
Common Yellowthroat	<i>Geothlypis trichas</i>					
Dark-eyed Junco	<i>Junco hyemalis</i>					
Downy Woodpecker	<i>Picoides pubescens</i>					
Eastern Phoebe	<i>Sayornis phoebe</i>					
Eastern Wood-Pewee	<i>Contopus virens</i>			Special Concern		Special Concern
European Starling	<i>Sturnus vulgaris</i>					
Golden-crowned Kinglet	<i>Regulus satrapa</i>					
Gray Jay	<i>Perisoreus canadensis</i>					
Hairy Woodpecker	<i>Picoides villosus</i>					
Hermit Thrush	<i>Catharus guttatus</i>					
Killdeer	<i>Charadrius vociferus</i>	S3B	Sensitive			
Least Flycatcher	<i>Empidonax minimus</i>					
Magnolia Warbler	<i>Setophaga magnolia</i>					
Mourning Dove	<i>Zenaida macroura</i>					
Nashville Warbler	<i>Oreothlypis ruficapilla</i>					
Northern Flicker	<i>Colaptes auratus</i>					
Northern Parula	<i>Setophaga americana</i>					
Northern Waterthrush	<i>Parkesia noveboracensis</i>					
Orange-crowned Warbler	<i>Vermivora celata</i>					
Osprey	<i>Pandion haliaetus</i>					
Ovenbird	<i>Seiurus aurocapilla</i>					
Palm Warbler	<i>Setophaga palmarum</i>					
Philadelphia Vireo	<i>Vireo philadelphicus</i>					
Red-breasted Nuthatch	<i>Sitta canadensis</i>					
Red-eyed Vireo	<i>Vireo olivaceus</i>					
Red-tailed Hawk	<i>Buteo jamaicensis</i>					Not At Risk
Red-winged Blackbird	<i>Agelaius phoeniceus</i>					
Rock Pigeon	<i>Columba livia</i>					
Ruby-crowned Kinglet	<i>Regulus calendula</i>					
Savannah Sparrow	<i>Passerculus sandwichensis</i>					
Sharp-shinned Hawk	<i>Accipiter striatus</i>					Not At Risk
Song Sparrow	<i>Melospiza melodia</i>					
Swainson's Thrush	<i>Catharus ustulatus</i>					
Swamp Sparrow	<i>Melospiza georgiana</i>					
Tennessee Warbler	<i>Oreothlypis peregrina</i>					
Tree Swallow	<i>Tachycineta bicolor</i>					



**Table 7.3 Bird Species Observed during June Field Surveys**

Common Name	Scientific Name	Conservation Status				
		ACCDC	General Status	NBSRA	SARA	COSEWIC
Veery	<i>Catharus fuscescens</i>					
White-throated Sparrow	<i>Zonotrichia albicollis</i>					
Wilson's Snipe	<i>Gallinago delicata</i>					
Wilson's Warbler	<i>Cardellina pusilla</i>					
Winter Wren	<i>Troglodytes hiemalis</i>					
Yellow Warbler	<i>Setophaga petechia</i>					
Yellow-bellied Flycatcher	<i>Empidonax flaviventris</i>					
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>					
Yellow-rumped Warbler	<i>Setophaga coronata</i>					

The most abundant species recorded during the June point count surveys were the White-throated Sparrow, Red-eyed Vireo, American Crow, Black-and-white Warbler, Common Yellowthroat and Yellow-rumped Warbler. Five species were not observed during point counts, but were noted while travelling between survey stations: Black-billed Cuckoo, Gray Jay, Killdeer, Osprey, Sharp-shinned Hawk.

**7.4.1.3 Avian SAR and Species of Conservation Concern (SOCC) Observed During Field Surveys**

A total of 12 observations of five provincially-listed SAR were noted during the field surveys: Bald Eagle (Endangered), Barn Swallow (Threatened), Bobolink (Threatened), Canada Warbler (Threatened) and Eastern Wood-pewee (Special Concern); one of these, the Canada Warbler, is also a federal SAR (Threatened, Schedule 1).

Bald Eagle and Barn Swallow were observed only during the May surveys, each at a single location. A Bald Eagle was seen perching in a large pine tree between PC16 and PC17; a search was undertaken in the area of the tree in which the bird was observed, but no nest was found. A review of the MBBA data for the Project area was undertaken to determine if there were any known Bald Eagle nests in the vicinity of the development area; one active nest was reported on the north bank of the Miramichi River, approximately 3 km from the northwest end of the development area. Three Barn Swallows were observed emerging from an old barn within the development area, on the north side of North Napan Road (47° 0'57.43"N, 65°24'37.25"W); it is possible that they are nesting in the building, although no Barn Swallows were observed during the June surveys.

A total of six Bobolink were observed at two point count locations in field (agricultural) habitat. In the early June surveys, a single Bobolink was heard at PC15, an indication of possible breeding, while at PC23, Bobolinks were heard in both survey rounds, indicating territorial behaviour (probable breeding) at that location.

One Canada Warbler was heard at PC01 during the early June survey; calls were broadcast after the 10-minute point count in the late June survey in order to try to elicit a territorial response, but no Canada Warbler was detected. Nonetheless, it is considered to be possibly breeding at this survey location. Similarly, an Eastern Wood-pewee was heard at PC19 in the early June survey only, and is considered a possible breeder.

Two additional species that are not considered SAR under federal or provincial legislation but are considered to be of conservation concern in the province of New Brunswick by ACCDC and/or General Status of Wild Species in Canada were observed during the field surveys: Killdeer and American Wigeon. An American Wigeon was observed in a pond near PC22 in both the May and late June surveys; no nesting behaviour was observed, but it is considered a possible breeder. A pair of Killdeer was observed between PC18 and PC19 in a sandy gravel pit, indicating that they are probably breeding in the area.

#### **7.4.2 Results of Desktop Data Review**

##### **7.4.2.1 Maritimes Breeding Bird Atlas (MBBA)**

Data from the Second MBBA were obtained from NatureServe. The Project area extends through three 10 X 10 km atlas squares: 20LT10, 20LT11 and 20LT20. While the survey effort within square 20LT20 was rather low (10.25 hours), the target survey effort of 20 hours/square was well exceeded in squares 20LT10 (30.75 hours) and 20LT11 (97 hours).

Breeding evidence was recorded for a total of 107 species in at least one of the three squares; of these, 56 were confirmed to be breeding in at least one of the squares based on observed evidence, a further 36 species were considered to be probable breeders, and the rest were considered to be possibly breeding. A list of species observed within the three atlas squares during the second MBBA is presented in Table 7C-1 in Appendix 7C.

##### **7.4.2.2 Avian SAR and SOCC**

Within 5 km of the Project location, there are 227 records of 37 bird species considered to be of conservation concern (ACCDC, 2016). As well, Bald Eagle was observed during the field surveys, and a search of the detailed MBBA reports for rare and colonial species has two records of Bald Eagle specifically within 5 km of the Project location. Table 7C-2 in Appendix 7C provides a summary of the 37 avian SOCC reported by ACCDC, including 11 species listed under the federal SARA Schedule 1 and/or NBSRA. The habitat requirements for these avian SAR, and their potential to occur in the Project area, is discussed in Table 7.4.

With respect to the Effects Assessment, it should be noted that a significant effect is one that results in the mortality or life-threatening injury to even a single individual of a designated (protected) species at risk, or that causes destruction or alteration of the designated critical habitat of any such species. Although there is potential habitat for some of these species in the Project area no designated critical habitat for avian SAR (as defined in SARA and NBSRA species recovery plans, where available) is present within the proposed development area.



**Table 7.4 Avian SAR Recorded Within 5 km of the Project Location**

Species	Status	Habitat	Potential to Occur in Project Area
Barrow's Goldeneye - Eastern Population	SARA and NBSRA: Special Concern	Breeds in high elevation lakes north of St. Lawrence Estuary and Gulf. Found in Maritimes during the winter months, mostly in marine habitats, with a few inland on open rivers.	None. Breeding range does not overlap with Project area, and there is no suitable wintering habitat.
Bald Eagle	NBSRA: Endangered	Forested areas adjacent to large bodies of water.	Present during breeding season and potentially year round; observed during field surveys.
Common Nighthawk	SARA and NBSRA: Threatened	Variety of open habitats, including coastal sand dunes and beaches, logged or slashburned areas of forest sites, woodland clearings, grassland habitat, farm fields, open forests, rock outcrops, and flat gravel rooftops.	Potentially present during the breeding season; suitable nesting habitat available.
Whip-poor-will	SARA and NBSRA: Threatened	Dry deciduous or mixed forests with little or no underbrush; requires shade and proximity to open areas for foraging.	Potentially present during the breeding season; suitable nesting habitat available.
Chimney Swift	SARA and NBSRA: Threatened	More concentrated in urban areas where there are large concentrations of chimneys for nest sites and communal roosts. Nests primarily in chimneys and other artificial sites; occasionally uses hollow trees.	Potentially present during the breeding season; suitable nesting habitat available.
Olive-sided Flycatcher	SARA and NBSRA: Threatened	Along forest edges and openings with tall snags for foraging and singing.	Potentially present during the breeding season; suitable nesting habitat available.
Eastern Wood-Pewee	NBSRA: Special Concern	Deciduous and mixed forests, usually near forest clearings and edges such as riparian habitats.	Present during the breeding season; observed during field surveys.
Barn Swallow	NBSRA: Threatened	Requires open areas (fields, meadows) for foraging and open structures such as barns for nesting; typically found near aquatic habitats, as a source of mud is required for nest construction.	Present during the breeding season; observed during field surveys.
Wood Thrush	NBSRA: Threatened	Mature deciduous forest with shrubby understorey.	Potentially present during the breeding season; suitable nesting habitat available.
Canada Warbler	SARA and NBSRA: Threatened	Most abundant in moist, mixed forests with a well-developed understory, dense nest site cover. Often near open water. Typically nests on or near the ground, often on slopes, knolls, in earthen banks, or rocky areas.	Present during the breeding season; observed during field surveys.
Bobolink	NBSRA: Threatened	Grasslands and pastures; agricultural fields. Nests on ground, beneath vegetation.	Present during the breeding season; observed during field surveys.
Rusty Blackbird	SARA and NBSRA: Special Concern	Frequents cool habitats in forest openings, including spruce bogs, swamps, and damp alder swales.	Potentially present during the breeding season; suitable nesting habitat available.

### **7.4.2.3 Important Bird Areas (IBA)**

Areas of particular importance to the survival of bird species may be given the designation of IBA. The IBA program is coordinated by BirdLife International, and administered in Canada by the Canadian Nature Federation and Bird Studies Canada (IBA, 2016). The criteria used to identify important habitat are internationally standardized, and are based on the presence of species at risk, species with restricted range, habitats holding representative species assemblages, or a congregation of a significant proportion of a species' population during one or more season. These criteria are used to identify sites of national and international importance.

The closest IBA to the Project area is the Kouchibouguac National Park Sand Spits and Barrier Islands (NB003), which is situated approximately 25 km to the southeast of the southern end of the Project. The coastal sand spits and barrier islands of Kouchibouguac National Park provide important nesting habitat for Common Tern and the endangered Piping Plover. Tern Island, the main colony of nesting Common Terns within this IBA, supports thousands of breeding pairs (up to 7,000 nests were reported in one survey) and is home to approximately 35% to 40% of the Common Tern population in the Maritimes, or about 14.5% of the North American breeding population. This IBA also supports an average of 12 pairs of Piping Plovers (approximately 6% of the Atlantic Canada breeding population), primarily in the North and South Kouchibouguac dunes. Other colonial nesting species reported in this IBA include Red-breasted Merganser, Herring Gull, Ring-billed Gull and Great Black-backed Gull.

### **7.4.2.4 Assessment of Mature and Interior Forest Habitat Loss**

Mature forest stands and areas of interior forest (i.e., contiguous forest patches of at least 10 ha located 100 m or more from edges such as developed areas, clearcuts, roads, transmission lines and agricultural habitat) are of particular importance for many bird species. Forest cover data from NBDNR, was examined in order to identify and quantify the approximate habitat loss associated with the proposed development (NBDNR, 2012).

Most of the forest through which the centre line passes is interspersed with clearcut patches and does not meet the criteria for interior forest; however, one patch of contiguous softwood/old softwood interior forest around PC17 (Figure 7.1) will be fragmented by the Project. Of the 20 patches of mature forest which the centre line crosses, none are greater than 10 ha in size. The total area of the habitat assessment area (including the centre line and 75 m to either side) is 237.49 ha. Of this, just 20.29 ha within the habitat assessment area is mature forest, including old softwood, old mixedwood and old hardwood habitat types (Figures 7.1 and 7.2).

## **7.5 Potential Effects Assessment**

The potential negative environmental effects resulting from the Project-related activities on breeding birds include permanent habitat loss and alteration, and accidental mortality. Negative changes in habitat quality due to sensory or indirect disturbance is anticipated during the construction and OMR phases of the proposed Project. However, these effects will be reduced by the implementation of mitigation measures.

### **7.5.1 Construction Phase Potential Effects**

Construction phase activities will result in the permanent loss of habitat along the corridor, as well as the creation of edge habitat in what was previously contiguous forest. This could result in disturbance or even direct or indirect mortality to migratory birds, particularly if conducted during the peak nesting bird season. Birds are protected federally under the MBCA and provincially under the *New Brunswick Fish and Wildlife Act*. Avian SAR are further protected by the federal SARA as well as the NBSRA; however, no identified critical habitat for SAR will be lost as a result of the Project. Disturbance or mortality to migratory birds, as well as their nests and eggs, is a contravention of the MBCA. According to Environment Canada's general avoidance information for migratory birds (Environment Canada, 2016), the Project area is located in breeding zone C3 and in this zone, the regional nesting period during which most migratory birds covered under the MBCA breed extends from mid-April to late August. It should be recognized that some avian species frequently nest outside of this period, including corvids, owls, Great Blue Heron (*Ardea Herodias*), American Woodcock, crossbills (*Loxia sp.*) and waxwings (*Bombycilla sp.*) (Environment Canada, 2016).

Due to construction timing restrictions as a result of other legislation (e.g., *Fisheries Act*), it is understood that site preparation activities such as grubbing and grading could take place during the main breeding period; this may result in the disturbance of ground-nesting species including the Common Nighthawk. As well, creation of bare areas and stockpiles during construction activities could potentially attract ground-nesting species to the construction area.

Ground disturbance during construction activities may result in increased sedimentation of waterways, which may have an adverse effect on bird habitat.

### **7.5.2 Operation, Maintenance and Rehabilitation (OMR) Phase Potential Effects**

Vehicle use of the new highway will cause sensory disturbance to birds in the area through light, noise and air pollutants, leading to indirect loss of usable habitat. As well, some direct mortality due to collisions with automobiles is anticipated.

Maintenance activities, including snow clearing, application of sand or salt, and vegetation management have the potential to have adverse effects on birds. Sand and salt may degrade water quality and/or result in increased sedimentation of waterways. Vegetation clearing and management will result in the removal of habitat for species that use edge habitat, and if conducted during the breeding season, may result in the destruction of nests.

### **7.5.3 Accidents, Malfunctions and Unplanned Events**

Two types of accidents and malfunctions that have potential to occur during the Construction and Operation and Maintenance phases of the Projects are spills of hazardous materials and fires.

In addition to hazardous materials that will be used on the site (e.g. fuels, lubricants, solvents, antifreeze), other hazardous materials may be transported along the highway. Therefore, the potential for accidents resulting in the release of hazardous materials must be considered. Such a spill could result in destruction or deleterious effects on waterways and terrestrial habitats, and



potentially lead to the direct or indirect mortality to birds. Hazardous materials should be stored properly, and spill kits should be available on-site, in compliance with the NBDTI EMM (NBDTI, 2010). The EMM also contains procedures for dealing with hazardous material spills.

Release of flammable chemicals, sparks from machinery or lightning strikes could result in a wildfire. Such a fire has potential to destroy bird habitat and result in direct mortality of birds and their offspring, possibly even over a large area. The EMM contains best management practices for fire prevention and response and working near environmentally sensitive areas (e.g. forests).

## 7.6 Mitigation Measures

Standard mitigation measures outlined in the EMM (NBDTI, 2010) will be followed throughout the construction and OMR phases of the Project. Mitigation measures for the Construction phase that pertain to birds, including avian SAR, include:

- Clearing should not be conducted during the breeding bird season.
- Clearing should be kept to the minimum required in order to minimize the amount of habitat lost.
- Travel outside the Project area should be minimized.
- If active nests are encountered within the construction area, an appropriate buffer around the nest should be established and activity within the buffer will cease until the birds have naturally fledged. The size of the buffer area should be determined in consultation with the Canadian Wildlife Service and/or NBERD.

Mitigation measures for the OMR phase that pertain to birds, including avian SAR, include:

- Winter maintenance guidelines in the EMM relating to salt application should be adhered to.
- Vegetation maintenance activities should be conducted in compliance with the MBCA.
- If nesting birds are observed within the areas where vegetation maintenance occurs, an appropriate buffer should be demarcated and observed until the birds have fledged.

A summary of the recommended mitigation measures related to birds for the construction and OMR phases of the Project is provided in Table 7.5.

**Table 7.5 Summary of Mitigation Measures for Breeding Birds**

Environmental and Project Component	Summary of Potential Effects	Standard NBDTI EMM Mitigation Measures <sup>1</sup>	Additional Recommended Mitigation Measures
<b>Construction</b>			
<b>Habitat Loss</b>			
During all phases of construction	<ul style="list-style-type: none"> <li>Loss of available habitat within Project footprint through vegetation clearing and ground-moving activities.</li> <li>Potential loss of Barn Swallow nesting habitat.</li> </ul>	5.3 Clearing 5.6 Dust Control 5.7 Erosion and Sediment Management 5.11 Grubbing 5.23 Working Near Environmentally Sensitive Areas	<ul style="list-style-type: none"> <li>Avoid work in areas where active nests are observed until the birds have fledged.</li> <li>Minimize Project-related activity outside the ROW.</li> <li>Limit the amount of clearing and disturbance to that which is necessary.</li> <li>Nest searches should be done to determine whether Barn Swallows are actively nesting in the barn on North Napan Road where they were observed in May 2016. If nests are found, additional mitigation measures should be developed, such as construction of suitable replacement nest structures.</li> </ul>
<b>Habitat Alteration</b>			
During all phases of construction	<ul style="list-style-type: none"> <li>Sedimentation of waterways due to poor erosion control.</li> <li>Creation of edge habitat along roadway.</li> <li>Creation of habitat for ground-nesting species during clearing, grubbing, stockpiling of materials.</li> </ul>	5.3 Clearing 5.6 Dust Control 5.7 Erosion and Sediment Management 5.11 Grubbing 5.20 Waste Management 5.23 Working Near Environmentally Sensitive Areas	<ul style="list-style-type: none"> <li>Conduct nest searches for ground-nesting species prior to conducting clearing and grubbing during the main breeding season.</li> <li>Cover bare areas stockpiled material where possible to deter ground-nesting species during the main breeding season.</li> <li>Minimize Project-related activity outside the ROW.</li> <li>Limit the amount of clearing and disturbance to that which is necessary.</li> </ul>
<b>Disturbance</b>			
During all phases of construction	<ul style="list-style-type: none"> <li>Avoidance of work areas by birds due to sensory disturbance from construction activities (effective loss of habitat).</li> </ul>	5.3 Clearing 5.6 Dust Control 5.7 Erosion and Sediment Management 5.19 Vehicle and Equipment Management 5.23 Working Near Environmentally Sensitive Areas	<ul style="list-style-type: none"> <li>Avoid work in areas where active nests are observed until the birds have fledged.</li> <li>Minimize Project-related activity outside the ROW.</li> <li>Limit the amount of clearing and disturbance to that which is necessary.</li> </ul>

**Table 7.5 Summary of Mitigation Measures for Breeding Birds**

Environmental and Project Component	Summary of Potential Effects	Standard NBDTI EMM Mitigation Measures <sup>1</sup>	Additional Recommended Mitigation Measures
<b>Mortality</b>			
During all phases of construction	<ul style="list-style-type: none"> <li>Destruction of active nests during construction activities.</li> </ul>	5.23 Working Near Environmentally Sensitive Areas 5.3 Clearing	<ul style="list-style-type: none"> <li>No additional measures anticipated to be required.</li> </ul>
<b>Operation, Maintenance and Rehabilitation (OMR)</b>			
<b>Habitat Loss</b>			
During all phases of OMR.	<ul style="list-style-type: none"> <li>Loss of edge habitat during vegetation maintenance activities.</li> </ul>	5.16 Summer Highway Maintenance 5.3 Clearing	<ul style="list-style-type: none"> <li>No additional measures anticipated to be required.</li> </ul>
<b>Disturbance</b>			
During all phases of OMR	<ul style="list-style-type: none"> <li>Avoidance of area by birds due to sensory disturbance from traffic, maintenance activities (effective loss of habitat).</li> </ul>	5.15.2 Structures Maintenance 5.16 Summer Highway Maintenance 5.20 Waste Management 5.21 Winter Highway Maintenance 5.23 Working Near Environmentally Sensitive Areas	<ul style="list-style-type: none"> <li>No additional measures anticipated to be required.</li> </ul>
<b>Mortality</b>			
During all phases of OMR	<ul style="list-style-type: none"> <li>Destruction of active nests during vegetation control activities.</li> <li>Collision with automobiles.</li> </ul>	5.15.2 Structures Maintenance 5.16 Summer Highway Maintenance 5.16.5 Pavement Markings 5.3 Clearing	<ul style="list-style-type: none"> <li>No additional measures anticipated to be required.</li> </ul>
<b>Accidents, Malfunctions and Unplanned Events</b>			
<b>Habitat Loss</b>			
All aspects of Project construction and OMR activities	<ul style="list-style-type: none"> <li>Release of hazardous materials into waterways and terrestrial habitats.</li> <li>Destruction of habitat due to wildfire.</li> </ul>	5.10 Fire Prevention and Contingency 5.12 Spills Management 5.13 Storage and Handling of Petroleum Products 5.14 Storage and Handling of Other Hazardous Materials 5.16 Summer Highway Maintenance 5.16.5 Pavement Markings 5.23 Working Near Environmentally Sensitive Areas	<ul style="list-style-type: none"> <li>No additional measures anticipated to be required.</li> </ul>



**Table 7.5 Summary of Mitigation Measures for Breeding Birds**

Environmental and Project Component	Summary of Potential Effects	Standard NBDTI EMM Mitigation Measures <sup>1</sup>	Additional Recommended Mitigation Measures
<b>Mortality</b>			
All aspects of Project construction and OMR activities	<ul style="list-style-type: none"> <li>• Direct or indirect mortality due to contact with/ingestion of spilled hazardous materials.</li> <li>• Death or destruction of active nests due to wildfire.</li> </ul>	5.10 Fire Prevention and Contingency 5.12 Spills Management 5.13 Storage and Handling of Petroleum Products 5.14 Storage and Handling of Other Hazardous Materials 5.23 Working Near Environmentally Sensitive Areas 5.3 Clearing	<ul style="list-style-type: none"> <li>• No additional measures anticipated to be required.</li> </ul>

Note:

1. Source: NBDTI EMM (2010)

## 7.7 Significance of Residual Effects

Table 7.6 below identifies the likelihood of the potential of the proposed Project activities to cause significant adverse environmental effects on breeding birds.

**Table 7.6 Significance of Residual Effects to Breeding Birds after Mitigation**

Project Related Environmental Effect	Magnitude	Geographic Extent	Duration and Frequency	Reversibility	Ecological Context	Significant Effect
<b>Construction – Activities / Interactions</b>						
Habitat Loss	M	Entire Project footprint	Construction	Yes	Direct loss of habitat in Project footprint, including areas of contiguous forest habitat, and indirect loss of habitat due to sensory disturbance. Much of the route passes through inhabited areas and forest fragmented by patches of clearcut, or is close to the existing Route 11 and therefore subjected to anthropogenic impacts. Just one patch of contiguous softwood/old softwood interior forest will be fragmented by the Project. The centre line crosses through 20 stands of mature forest; however, the average size of these patches is 1 ha, and none are greater than 10 ha.	No
Habitat Alteration	M	Entire Project footprint and adjacent habitats	Construction	Yes	Creation of edge habitat along the roadway will provide some new habitat for certain species.	No
Disturbance	L	Entire Project footprint and adjacent habitats	Construction	Yes	Much of the route passes through inhabited areas and is close to the existing Route 11; therefore, birds in the Study Area are already subject to some sensory disturbance.	No
Mortality	L	Entire Project footprint	Construction	Yes	Potential for some direct mortality due to collisions with vehicles or destruction of nests during construction activities; however, population-level effects are unlikely. Loss of an individual SAR would be considered significant.	No
<b>Operation, Maintenance and Rehabilitation (OMR) – Activities / Interactions</b>						
Habitat Loss	L	Entire Project footprint and adjacent habitats	OMR	Yes	Indirect loss of habitat due to disturbance; however, much of the route passes through inhabited areas and is close to the existing Route 11; therefore, birds in the Study Area are already subject to some sensory disturbance.	No
Disturbance	L	Entire Project footprint and adjacent habitats	OMR	Yes	Much of the route passes through inhabited areas and is close to the existing Route 11, therefore, birds in the Study Area are already subject to some sensory disturbance.	No

**Table 7.6 Significance of Residual Effects to Breeding Birds after Mitigation**

Project Related Environmental Effect	Magnitude	Geographic Extent	Duration and Frequency	Reversibility	Ecological Context	Significant Effect
Mortality	L	Entire Project footprint	OMR	Yes	Potential for some direct mortality due to collisions with vehicles or destruction of nests during vegetation clearing; however, population-level effects are unlikely. Loss of an individual SAR would be considered significant.	No

Notes:

**Magnitude:**

- High (H)* Values regularly exceed guidelines (Entire Route 11 affected);
- Moderate (M)* Values affected, but generally below guidelines (Route 11 between Glenwood and Miramichi affected); and
- Low (L)* Values not affected (Sections of Route 11 between Glenwood and Miramichi affected).

## 7.8 Monitoring and Follow-up Requirements

Regular environmental and compliance monitoring for the Project should be conducted in accordance with the EMM and Project-specific Environmental Management Plan (EMP) (if required). No specific monitoring and follow-up requirements specifically relating to breeding birds are proposed.

## 7.9 Breeding Birds - References

- Atlantic Canada Conservation Data Centre (ACCDC). 2016. ACCDC Data Report 5555: Miramichi, New Brunswick. Prepared 13 May 2016. J. Churchill, Data Manager.
- Bird Studies Canada (BSC). 2003. New Brunswick Forest Hawk and Spring Woodpecker Survey Guide for Volunteers, Revised May 2003. Bird Studies Canada, Atlantic Region.
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- Bird Studies Canada (BSC), Environment Canada - Canadian Wildlife Service, New Brunswick Department of Natural Resources, Nova Scotia Department of Natural Resources, Prince Edward Island Department of Agriculture and Forestry. 2012. Maritimes Breeding Bird Atlas Database. Data accessed from NatureCounts, a node of the Avian Knowledge Network, Bird Studies Canada. <http://www.naturecounts.ca/>. Accessed 23 August 2016.
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New Brunswick Department of Natural Resources (NBDNR). 2012. Imagery.

New Brunswick Department of Transportation (NBDTI). 2010. Environmental Management Manual. Fourth Edition. Accessed online: <http://www.gnb.ca/0113/publications/EMM/EMM-e.pdf>.



**Appendix 7A  
ACCDC Report**



## DATA REPORT 5555: Miramichi, NB

Prepared 13 May 2016  
by J. Churchill, Data Manager

### CONTENTS OF REPORT

#### 1.0 Preface

- 1.1 Data List
- 1.2 Restrictions
- 1.3 Additional Information
- Map 1: Buffered Study Area

#### 2.0 Rare and Endangered Species

- 2.1 Flora
- 2.2 Fauna
- Map 2: Flora and Fauna

#### 3.0 Special Areas

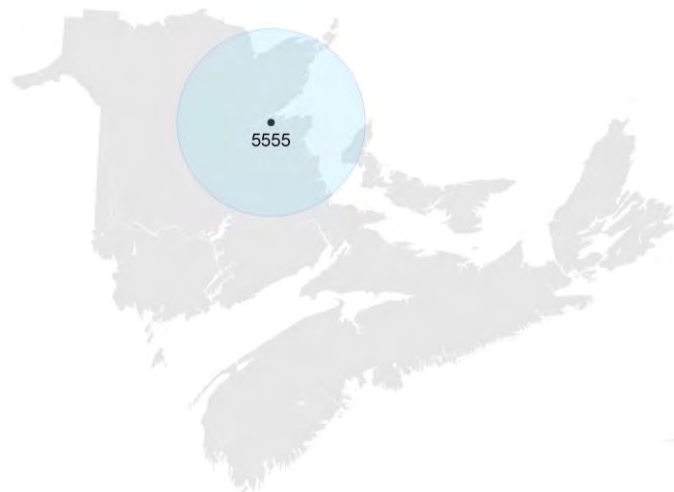
- 3.1 Managed Areas
- 3.2 Significant Areas
- Map 3: Special Areas

#### 4.0 Rare Species Lists

- 4.1 Fauna
- 4.2 Flora
- 4.3 Location Sensitive Species
- 4.4 Source Bibliography

#### 5.0 Rare Species within 100 km

- 5.1 Source Bibliography



Map 1. A 100 km buffer around the study area

## 1.0 PREFACE

The Atlantic Canada Conservation Data Centre (ACCDC) is part of a network of NatureServe data centres and heritage programs serving 50 states in the U.S.A, 10 provinces and 1 territory in Canada, plus several Central and South American countries. The NatureServe network is more than 30 years old and shares a common conservation data methodology. The ACCDC was founded in 1997, and maintains data for the jurisdictions of New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador. Although a non-governmental agency, the ACCDC is supported by 6 federal agencies and 4 provincial governments, as well as through outside grants and data processing fees. URL: [www.ACCDC.com](http://www.ACCDC.com).

Upon request and for a fee, the ACCDC queries its database and produces customized reports of the rare and endangered flora and fauna known to occur in or near a specified study area. As a supplement to that data, the ACCDC includes locations of managed areas with some level of protection, and known sites of ecological interest or sensitivity.

### 1.1 DATA LIST

Included datasets:

Filename	Contents
MiramichiNB_5555ob.xls	All Rare and legally protected <i>Flora and Fauna</i> within 5 km of your study area
MiramichiNB_5555ob100km.xls	A list of Rare and legally protected <i>Flora and Fauna</i> within 100 km of your study area
MiramichiNB_5555ma.xls	All <i>Managed Areas</i> in your study area
MiramichiNB_5555sa.xls	All <i>Significant Natural Areas</i> in your study area
MiramichiNB_5555ff.xls	Rare and common <i>Freshwater Fish</i> in your study area (DFO database)



## 1.2 RESTRICTIONS

The ACCDC makes a strong effort to verify the accuracy of all the data that it manages, but it shall not be held responsible for any inaccuracies in data that it provides. By accepting ACCDC data, recipients assent to the following limits of use:

- a) Data is restricted to use by trained personnel who are sensitive to landowner interests and to potential threats to rare and/or endangered flora and fauna posed by the information provided.
- b) Data is restricted to use by the specified Data User; any third party requiring data must make its own data request.
- c) The ACCDC requires Data Users to cease using and delete data 12 months after receipt, and to make a new request for updated data if necessary at that time.
- d) ACCDC data responses are restricted to the data in our Data System at the time of the data request.
- e) Each record has an estimate of locational uncertainty, which must be referenced in order to understand the record's relevance to a particular location. Please see attached Data Dictionary for details.
- f) ACCDC data responses are not to be construed as exhaustive inventories of taxa in an area.
- g) The absence of a taxon cannot be inferred by its absence in an ACCDC data response.

## 1.3 ADDITIONAL INFORMATION

The attached file DataDictionary 2.1.pdf provides metadata for the data provided.

Please direct any additional questions about ACCDC data to the following individuals:

### Plants, Lichens, Ranking Methods, All other Inquiries

Sean Blaney, Senior Scientist, Executive Director

Tel: (506) 364-2658

[sblaney@mta.ca](mailto:sblaney@mta.ca)

### Animals (Fauna)

John Klymko, Zoologist

Tel: (506) 364-2660

[jklymko@mta.ca](mailto:jklymko@mta.ca)

### Plant Communities

Sarah Robinson, Community Ecologist

Tel: (506) 364-2664

[srobinson@mta.ca](mailto:srobinson@mta.ca)

### Data Management, GIS

James Churchill, Data Manager

Tel: (902) 679-6146

[jlchurchill@mta.ca](mailto:jlchurchill@mta.ca)

### Billing

Jean Breau

Tel: (506) 364-2657

[jrbreau@mta.ca](mailto:jrbreau@mta.ca)

Questions on the biology of Federal Species at Risk can be directed to ACCDC: (506) 364-2658, with questions on Species at Risk regulations to: Samara Eaton, Canadian Wildlife Service (NB and PE): (506) 364-5060 or Julie McKnight, Canadian Wildlife Service (NS): (902) 426-4196.

For provincial information about rare taxa and protected areas, or information about game animals, deer yards, old growth forests, archeological sites, fish habitat etc., in New Brunswick, please contact Stewart Lusk, Natural Resources: (506) 453-7110.

For provincial information about rare taxa and protected areas, or information about game animals, deer yards, old growth forests, archeological sites, fish habitat etc., in Nova Scotia, please contact Sherman Boates, NSDNR: (902) 679-6146. To determine if location-sensitive species (section 4.3) occur near your study site please contact a NSDNR Regional Biologist:

**Western:** Duncan Bayne

(902) 648-3536

[baynedz@gov.ns.ca](mailto:baynedz@gov.ns.ca)

**Western:** Donald Sam

(902) 634-7525

[samdx@gov.ns.ca](mailto:samdx@gov.ns.ca)

**Central:** Shavonne Meyer

(902) 893-6353

[meyersj@gov.ns.ca](mailto:meyersj@gov.ns.ca)

**Central:** Kimberly George

(902) 893-5630

[georgeka@gov.ns.ca](mailto:georgeka@gov.ns.ca)

**Eastern:** Mark Pulsifer

(902) 863-7523

[pulsifmd@gov.ns.ca](mailto:pulsifmd@gov.ns.ca)

**Eastern:** Donald Anderson

(902) 295-3949

[andersdg@gov.ns.ca](mailto:andersdg@gov.ns.ca)

**Eastern:** Terry Power

(902) 563-3370

[powertd@gov.ns.ca](mailto:powertd@gov.ns.ca)

For provincial information about rare taxa and protected areas, or information about game animals, fish habitat etc., in Prince Edward Island, please contact Garry Gregory, PEI Dept. of Communities, Land and Environment: (902) 569-7595.

## 2.0 RARE AND ENDANGERED SPECIES

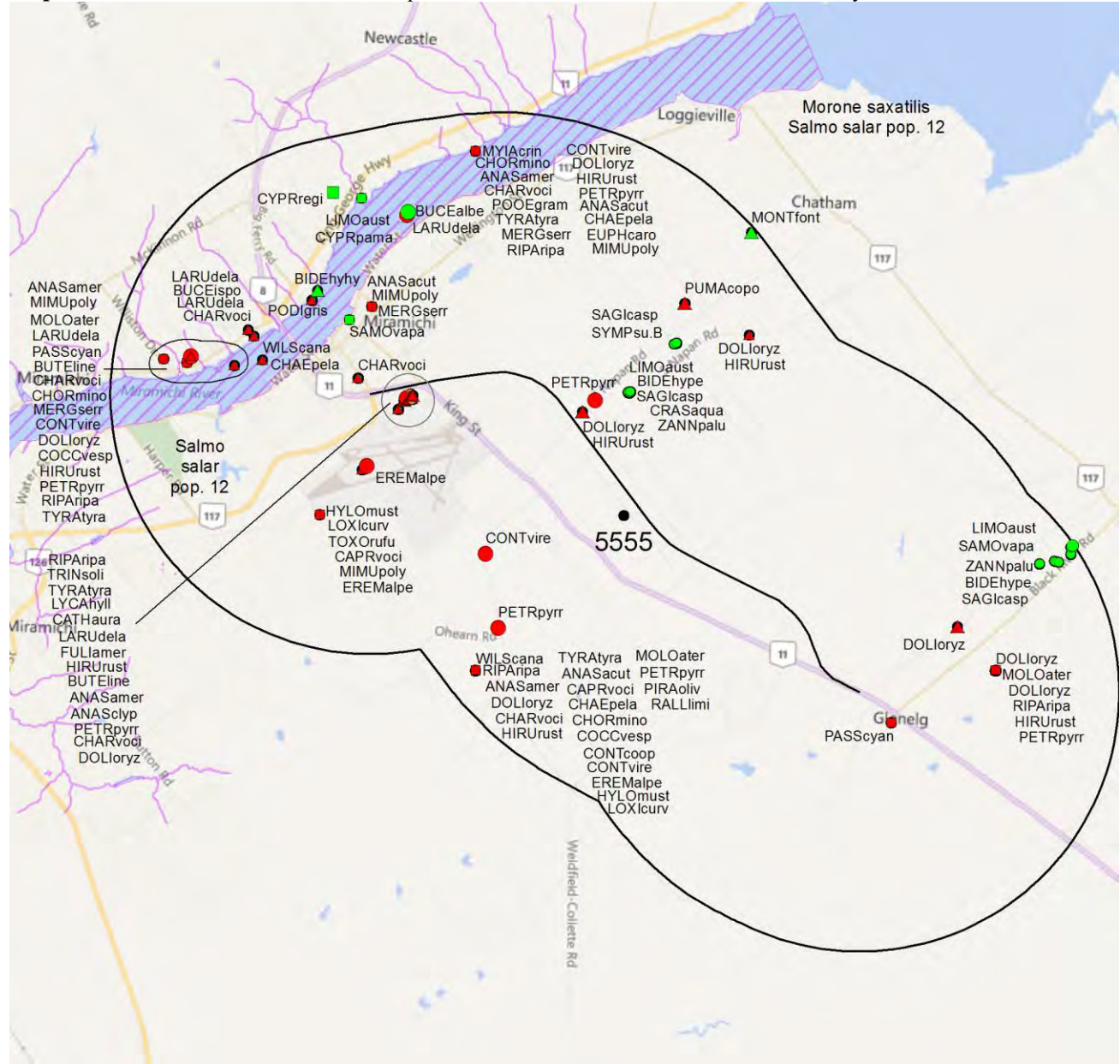
### 2.1 FLORA

A 5 km buffer around the study area contains 21 records of 11 vascular, no records of nonvascular flora (Map 2 and attached: \*ob.xls).

### 2.2 FAUNA

A 5 km buffer around the study area contains 228 records of 38 vertebrate, 2 records of 1 invertebrate fauna (Map 2 and attached data files - see 1.1 Data List). Please see section 4.3 to determine if 'location-sensitive' species occur near your study site.

**Map 2:** Known observations of rare and/or protected flora and fauna within 5 km of the study area.



#### RESOLUTION

- 4.7 within 50s of kilometers
- 4.0 within 10s of kilometers
- 3.7 within 5s of kilometers
- △ 3.0 within kilometers
- △ 2.7 within 500s of meters
- ◇ 2.0 within 100s of meters
- ◇ 1.7 within 10s of meters

#### HIGHER TAXON

- vertebrate fauna
- invertebrate fauna
- vascular flora
- nonvascular flora

### 3.0 SPECIAL AREAS

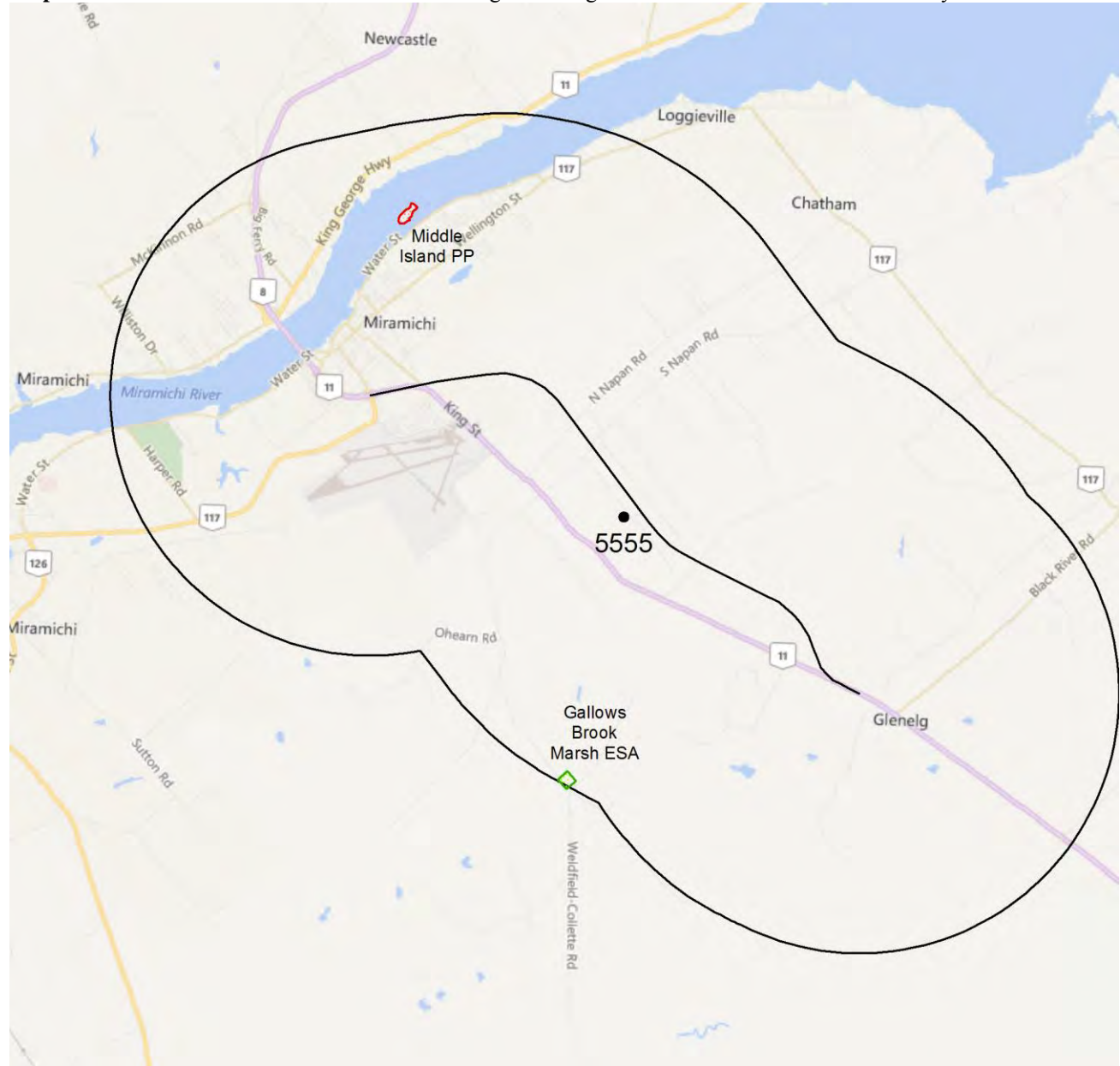
#### 3.1 MANAGED AREAS

The GIS scan identified 1 managed area in the vicinity of the study area (Map 3 and attached file: \*ma\*.xls)






#### 3.2 SIGNIFICANT AREAS

The GIS scan identified 1 biologically significant site in the vicinity of the study area (Map 3 and attached file: \*sa\*.xls)

**Map 3:** Boundaries and/or locations of known Managed and Significant Areas within 5 km of the study area.



#### MANAGED AREAS SIGNIFICANT AREAS

-  boundary
-  boundary
-  approximate
-  approximate
-  point location

#### NATIONAL DEFENSE FIRST NATIONS

-  boundary
-  boundary
-  approximate
-  approximate
-  point location



## 4.0 RARE SPECIES LISTS

Rare and/or endangered taxa (excluding “location-sensitive” species, section 4.3) within the 5 km-buffered area listed in order of concern, beginning with legally listed taxa, with the number of observations per taxon and the distance in kilometers from study area centroid to the closest observation ( $\pm$  the precision, in km, of the record). [P] = vascular plant, [N] = nonvascular plant, [A] = vertebrate animal, [I] = invertebrate animal, [C] = community. Note: records are from attached files \*ob.xls/\*ob.shp only.

### 4.1 FLORA

	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)
P	<i>Symphotrichum subulatum</i> (Bathurst pop)	Bathurst Aster - Bathurst pop.	Special Concern	Special Concern	Endangered	S2	1 At Risk	1	3.5 $\pm$ 0.0
P	<i>Sagittaria calycina</i> var. <i>spongiosa</i>	Long-lobed Arrowhead				S2	4 Secure	4	2.4 $\pm$ 0.0
P	<i>Cypripedium parviflorum</i> var. <i>makasin</i>	Small Yellow Lady's-Slipper				S2	2 May Be At Risk	1	7.9 $\pm$ 5.0
P	<i>Bidens hyperborea</i>	Estuary Beggarticks				S3	4 Secure	2	2.4 $\pm$ 0.0
P	<i>Bidens hyperborea</i> var. <i>hyperborea</i>	Estuary Beggarticks				S3	4 Secure	1	7.3 $\pm$ 1.0
P	<i>Crassula aquatica</i>	Water Pygmyweed				S3	4 Secure	1	2.4 $\pm$ 0.0
P	<i>Samolus valerandi</i> ssp. <i>parviflorus</i>	Seaside Brookweed				S3	4 Secure	3	6.5 $\pm$ 5.0
P	<i>Limosella australis</i>	Southern Mudwort				S3	4 Secure	4	2.4 $\pm$ 0.0
P	<i>Cypripedium reginae</i>	Showy Lady's-Slipper				S3	3 Sensitive	1	8.4 $\pm$ 10.0
P	<i>Zannichellia palustris</i>	Horned Pondweed				S3	4 Secure	2	2.4 $\pm$ 0.0
P	<i>Montia fontana</i>	Water Blinks				SH	2 May Be At Risk	1	6.0 $\pm$ 1.0

### 4.2 FAUNA

	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)
A	<i>Hylocichla mustelina</i>	Wood Thrush	Threatened		Threatened	S1S2B	2 May Be At Risk	2	4.1 $\pm$ 7.0
A	<i>Caprimulgus vociferus</i>	Whip-Poor-Will	Threatened	Threatened	Threatened	S2B	1 At Risk	4	4.1 $\pm$ 7.0
A	<i>Chaetura pelagica</i>	Chimney Swift	Threatened	Threatened	Threatened	S2S3B	1 At Risk	3	4.1 $\pm$ 7.0
A	<i>Chordeiles minor</i>	Common Nighthawk	Threatened	Threatened	Threatened	S3B	1 At Risk	6	4.1 $\pm$ 7.0
A	<i>Hirundo rustica</i>	Barn Swallow	Threatened		Threatened	S3B	3 Sensitive	29	2.1 $\pm$ 1.0
A	<i>Riparia riparia</i>	Bank Swallow	Threatened			S3B	3 Sensitive	12	4.1 $\pm$ 7.0
A	<i>Contopus cooperi</i>	Olive-sided Flycatcher	Threatened	Threatened	Threatened	S3S4B	1 At Risk	1	4.1 $\pm$ 7.0
A	<i>Wilsonia canadensis</i>	Canada Warbler	Threatened	Threatened	Threatened	S3S4B	1 At Risk	2	4.1 $\pm$ 7.0
A	<i>Dolichonyx oryzivorus</i>	Bobolink	Threatened		Threatened	S3S4B	3 Sensitive	23	2.1 $\pm$ 1.0
A	<i>Bucephala islandica</i> (Eastern pop.)	Barrow's Goldeneye - Eastern pop.	Special Concern	Special Concern	Special Concern	S2N	3 Sensitive	1	7.9 $\pm$ 0.0
A	<i>Euphagus carolinus</i>	Rusty Blackbird	Special Concern	Special Concern	Special Concern	S3B	2 May Be At Risk	1	7.6 $\pm$ 7.0
A	<i>Contopus virens</i>	Eastern Wood-Pewee	Special Concern		Special Concern	S4B	4 Secure	7	2.8 $\pm$ 0.0
A	<i>Buteo lineatus</i>	Red-shouldered Hawk	Not At Risk	Special Concern		S2B	2 May Be At Risk	2	4.8 $\pm$ 0.0
A	<i>Fulica americana</i>	American Coot	Not At Risk			S2B	3 Sensitive	1	4.7 $\pm$ 1.0
A	<i>Podiceps grisegena</i>	Red-necked Grebe	Not At Risk			S3M,S2N	3 Sensitive	1	7.3 $\pm$ 0.0
A	<i>Puma concolor</i> pop. 1	Cougar - Eastern pop.	Data Deficient		Endangered	SU	5 Undetermined	1	4.3 $\pm$ 1.0
A	<i>Anas clypeata</i>	Northern Shoveler				S2B	4 Secure	1	4.8 $\pm$ 1.0
A	<i>Eremophila alpestris</i>	Horned Lark				S2B	2 May Be At Risk	7	4.1 $\pm$ 7.0
A	<i>Toxostoma rufum</i>	Brown Thrasher				S2B	3 Sensitive	1	5.8 $\pm$ 7.0
A	<i>Pooecetes gramineus</i>	Vesper Sparrow				S2B	2 May Be At Risk	1	7.6 $\pm$ 7.0
A	<i>Tringa solitaria</i>	Solitary Sandpiper				S2B,S5M	4 Secure	2	4.7 $\pm$ 0.0
A	<i>Loxia curvirostra</i>	Red Crossbill				S3	4 Secure	2	4.1 $\pm$ 7.0
A	<i>Anas acuta</i>	Northern Pintail				S3B	3 Sensitive	3	4.1 $\pm$ 7.0
A	<i>Anas americana</i>	American Wigeon				S3B	4 Secure	15	4.1 $\pm$ 7.0
A	<i>Cathartes aura</i>	Turkey Vulture				S3B	4 Secure	1	4.7 $\pm$ 0.0
A	<i>Rallus limicola</i>	Virginia Rail				S3B	3 Sensitive	1	4.1 $\pm$ 7.0
A	<i>Charadrius vociferus</i>	Killdeer				S3B	3 Sensitive	17	4.1 $\pm$ 7.0
A	<i>Larus delawarensis</i>	Ring-billed Gull				S3B	4 Secure	24	4.7 $\pm$ 0.0
A	<i>Myiarchus crinitus</i>	Great Crested Flycatcher				S3B	3 Sensitive	1	7.6 $\pm$ 7.0
A	<i>Mimus polyglottos</i>	Northern Mockingbird				S3B	3 Sensitive	6	5.8 $\pm$ 7.0

	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)
A	<i>Passerina cyanea</i>	Indigo Bunting				S3B	4 Secure	2	6.5 ± 7.0
A	<i>Molothrus ater</i>	Brown-headed Cowbird				S3B	2 May Be At Risk	11	4.1 ± 7.0
A	<i>Mergus serrator</i>	Red-breasted Merganser				S3B,S4S5N	4 Secure	4	6.3 ± 7.0
A	<i>Bucephala albeola</i>	Bufflehead				S3N	3 Sensitive	1	7.1 ± 0.0
A	<i>Tyrannus tyrannus</i>	Eastern Kingbird				S3S4B	3 Sensitive	15	4.1 ± 7.0
A	<i>Petrochelidon pyrrhonota</i>	Cliff Swallow				S3S4B	3 Sensitive	12	2.3 ± 0.0
A	<i>Piranga olivacea</i>	Scarlet Tanager				S3S4B	4 Secure	1	4.1 ± 7.0
A	<i>Coccothraustes vespertinus</i>	Evening Grosbeak				S3S4B,S4S5N	3 Sensitive	4	4.1 ± 7.0
I	<i>Lycaena hyllus</i>	Bronze Copper				S3	3 Sensitive	2	4.6 ± 0.0

### 4.3 LOCATION SENSITIVE SPECIES

The Department of Natural Resources in each Maritimes province considers a number of species “location sensitive”. Concern about exploitation of location-sensitive species precludes inclusion of precise coordinates in this report. Those intersecting a 5 km buffer of your study area are indicated below with “YES”.

#### New Brunswick

Scientific Name	Common Name	SARA	Prov Legal Prot	Known within 5 km of Study Site?
<i>Chrysemys picta picta</i>	Eastern Painted Turtle			No
<i>Chelydra serpentina</i>	Snapping Turtle	Special Concern	Special Concern	No
<i>Glyptemys insculpta</i>	Wood Turtle	Threatened	Threatened	YES
<i>Haliaeetus leucocephalus</i>	Bald Eagle		Endangered	YES
<i>Falco peregrinus pop. 1</i>	Peregrine Falcon - anatum/tundrius pop.	Special Concern	Endangered	No
<i>Cicindela marginipennis</i>	Cobblestone Tiger Beetle	Endangered	Endangered	No
<i>Coenonympha nipsisquit</i>	Maritime Ringlet	Endangered	Endangered	No
<i>Bat Hibernaculum</i>		[Endangered] <sup>1</sup>	[Endangered] <sup>1</sup>	No

<sup>1</sup> *Myotis lucifugus* (Little Brown Myotis), *Myotis septentrionalis* (Long-eared Myotis), and *Perimyotis subflavus* (Tri-colored Bat or Eastern Pipistrelle) are all Endangered under the Federal Species at Risk Act and the NB Species at Risk Act.

### 4.4 SOURCE BIBLIOGRAPHY

The recipient of these data shall acknowledge the ACCDC and the data sources listed below in any documents, reports, publications or presentations, in which this dataset makes a significant contribution.

# recs	CITATION
124	eBird. 2014. eBird Basic Dataset. Version: EBD_relNov-2014. Ithaca, New York. Nov 2014. Cornell Lab of Ornithology, 25036 recs.
62	Erskine, A.J. 1992. Maritime Breeding Bird Atlas Database. NS Museum & Nimbus Publ., Halifax, 82,125 recs.
41	Lepage, D. 2014. Maritime Breeding Bird Atlas Database. Bird Studies Canada, Sackville NB, 407,838 recs.
8	Blaney, C.S.; Spicer, C.D.; Mazerolle, D.M. 2005. Fieldwork 2005. Atlantic Canada Conservation Data Centre. Sackville NB, 2333 recs.
7	Coursol, F. 2005. Dataset from New Brunswick fieldwork for <i>Eriocaulon parkeri</i> COSEWIC report. Coursol, Pers. comm. to C.S. Blaney, Aug 26. 110 recs.
3	Hinds, H.R. 1986. Notes on New Brunswick plant collections. Connell Memorial Herbarium, unpubl, 739 recs.
2	Benedict, B. Connell Herbarium Specimens. University New Brunswick, Fredericton. 2003.
2	Dept of Fisheries & Oceans. 2001. Atlantic Salmon Maritime provinces overview for 2000. DFO.
2	Klymko, J.J.D. 2014. Maritimes Butterfly Atlas, 2012 submissions. Atlantic Canada Conservation Data Centre, 8552 records.
1	Bradford, R.G. et al. 1999. Update on the Status of Striped bass ( <i>Morone saxatilis</i> ) in eastern Canada in 1998.
1	EMR Place Names
1	Scott, Fred W. 1998. Updated Status Report on the Cougar ( <i>Puma Concolor cougar</i> ) [ Eastern population]. Committee on the Status of Endangered Wildlife in Canada, 298 recs.
1	Tims, J. & Craig, N. 1995. Environmentally Significant Areas in New Brunswick (NBESA). NB Dept of Environment & Nature Trust of New Brunswick Inc, 6042 recs.
1	Tims, J. & Craig, N. 1995. Environmentally Significant Areas in New Brunswick (NBESA). NB Dept of Environment & Nature Trust of New Brunswick Inc.

## 5.0 RARE SPECIES WITHIN 100 KM

A 100 km buffer around the study area contains 15426 records of 102 vertebrate and 572 records of 53 invertebrate fauna; 3902 records of 253 vascular, 113 records of 60 nonvascular flora (attached: \*ob100km.xls).

Taxa within 100 km of the study site that are rare and/or endangered in the province in which the study site occurs. All ranks correspond to the province in which the study site falls, even for out-of-province records. Taxa are listed in order of concern, beginning with legally listed taxa, with the number of observations per taxon and the distance in kilometers from study area centroid to the closest observation ( $\pm$  the precision, in km, of the record).

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
A	<i>Myotis lucifugus</i>	Little Brown Myotis	Endangered	Endangered	Endangered	S1	1 At Risk	2	40.6 $\pm$ 1.0	NB
A	<i>Dermochelys coriacea</i> (Atlantic pop.)	Leatherback Sea Turtle - Atlantic pop.	Endangered	Endangered	Endangered	S1S2N	1 At Risk	4	36.3 $\pm$ 1.0	NB
A	<i>Morone saxatilis</i>	Striped Bass	Endangered			S2	2 May Be At Risk	14	9.1 $\pm$ 10.0	NB
A	<i>Charadrius melodus melodus</i>	Piping Plover melodus ssp	Endangered	Endangered	Endangered	S2B	1 At Risk	2216	11.3 $\pm$ 0.0	NB
A	<i>Calidris canutus rufa</i>	Red Knot rufa ssp	Endangered		Endangered	S3M	1 At Risk	298	16.7 $\pm$ 0.0	NB
A	<i>Rangifer tarandus pop. 2</i>	Woodland Caribou (Atlantic-Gasp -rsie pop.)	Endangered	Endangered	Extirpated	SX	0.1 Extirpated	5	33.0 $\pm$ 5.0	NB
A	<i>Hylocichla mustelina</i>	Wood Thrush	Threatened		Threatened	S1S2B	2 May Be At Risk	51	4.1 $\pm$ 7.0	NB
A	<i>Sturnella magna</i>	Eastern Meadowlark	Threatened		Threatened	S1S2B	2 May Be At Risk	7	12.9 $\pm$ 7.0	NB
A	<i>Caprimulgus vociferus</i>	Whip-Poor-Will	Threatened	Threatened	Threatened	S2B	1 At Risk	47	4.1 $\pm$ 7.0	NB
A	<i>Glyptemys insculpta</i>	Wood Turtle	Threatened	Threatened	Threatened	S2S3	1 At Risk	544	3.0 $\pm$ 0.0	NB
A	<i>Chaetura pelagica</i>	Chimney Swift	Threatened	Threatened	Threatened	S2S3B	1 At Risk	192	4.1 $\pm$ 7.0	NB
A	<i>Catharus bicknelli</i>	Bicknell's Thrush	Threatened	Special Concern	Threatened	S2S3B	1 At Risk	121	41.1 $\pm$ 13.0	NB
A	<i>Chordeiles minor</i>	Common Nighthawk	Threatened	Threatened	Threatened	S3B	1 At Risk	319	4.1 $\pm$ 7.0	NB
A	<i>Hirundo rustica</i>	Barn Swallow	Threatened		Threatened	S3B	3 Sensitive	598	2.1 $\pm$ 1.0	NB
A	<i>Riparia riparia</i>	Bank Swallow	Threatened		Threatened	S3B	3 Sensitive	434	4.1 $\pm$ 7.0	NB
A	<i>Contopus cooperi</i>	Olive-sided Flycatcher	Threatened	Threatened	Threatened	S3S4B	1 At Risk	414	4.1 $\pm$ 7.0	NB
A	<i>Wilsonia canadensis</i>	Canada Warbler	Threatened	Threatened	Threatened	S3S4B	1 At Risk	390	4.1 $\pm$ 7.0	NB
A	<i>Dolichonyx oryzivorus</i>	Bobolink	Threatened		Threatened	S3S4B	3 Sensitive	585	2.1 $\pm$ 1.0	NB
A	<i>Anguilla rostrata</i>	American Eel	Threatened		Threatened	S5	4 Secure	12	7.4 $\pm$ 1.0	NB
A	<i>Falco peregrinus pop. 1</i>	Peregrine Falcon - anatum/tundrius	Special Concern	Special Concern	Endangered	S1B	1 At Risk	11	12.8 $\pm$ 20.0	NB
A	<i>Histrionicus histrionicus pop. 1</i>	Harlequin Duck - Eastern pop.	Special Concern	Special Concern	Endangered	S1B,S1N	1 At Risk	4	61.9 $\pm$ 1.0	NB
A	<i>Bucephala islandica</i> (Eastern pop.)	Barrow's Goldeneye - Eastern pop.	Special Concern	Special Concern	Special Concern	S2N	3 Sensitive	72	7.9 $\pm$ 0.0	NB
A	<i>Asio flammeus</i>	Short-eared Owl	Special Concern	Special Concern	Special Concern	S3B	3 Sensitive	11	33.9 $\pm$ 0.0	NB
A	<i>Euphagus carolinus</i>	Rusty Blackbird	Special Concern	Special Concern	Special Concern	S3B	2 May Be At Risk	162	7.6 $\pm$ 7.0	NB
A	<i>Phalaropus lobatus</i>	Red-necked Phalarope	Special Concern			S3M	3 Sensitive	5	68.6 $\pm$ 1.0	NB
A	<i>Phocoena phocoena</i> (NW Atlantic pop.)	Harbour Porpoise - Northwest Atlantic pop.	Special Concern	Threatened		S4		1	94.7 $\pm$ 5.0	NB
A	<i>Contopus virens</i>	Eastern Wood-Pewee	Special Concern		Special Concern	S4B	4 Secure	370	2.8 $\pm$ 0.0	NB
A	<i>Podiceps auritus</i>	Horned Grebe	Special Concern		Special Concern	S4M,S4N	4 Secure	3	60.0 $\pm$ 3.0	NB
A	<i>Odobenus rosmarus rosmarus</i>	Atlantic Walrus	Special Concern		Extirpated	SX		4	33.2 $\pm$ 1.0	NB
A	<i>Falco rusticolus</i>	Gyr Falcon	Not At Risk			S1N	5 Undetermined	3	78.0 $\pm$ 0.0	NB
A	<i>Accipiter cooperii</i>	Cooper's Hawk	Not At Risk			S1S2B	2 May Be At Risk	2	95.6 $\pm$ 5.0	NB
A	<i>Aegolius funereus</i>	Boreal Owl	Not At Risk			S1S2B	2 May Be At Risk	14	27.2 $\pm$ 7.0	NB
A	<i>Sorex dispar</i>	Long-tailed Shrew	Not At Risk	Special Concern		S2	3 Sensitive	8	84.9 $\pm$ 1.0	NB
A	<i>Buteo lineatus</i>	Red-shouldered Hawk	Not At Risk	Special Concern		S2B	2 May Be At Risk	10	4.8 $\pm$ 0.0	NB
A	<i>Fulica americana</i>	American Coot	Not At Risk			S2B	3 Sensitive	5	4.7 $\pm$ 1.0	NB
A	<i>Chlidonias niger</i>	Black Tern	Not At Risk			S2B	3 Sensitive	5	38.0 $\pm$ 7.0	NB
A	<i>Globicephala melas</i>	Long-finned Pilot Whale	Not At Risk			S2S3		1	29.0 $\pm$ 1.0	NB



Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
A	<i>Lynx canadensis</i>	Canadian Lynx	Not At Risk		Endangered	S3	1 At Risk	39	12.2 ± 1.0	NB
A	<i>Haliaeetus leucocephalus</i>	Bald Eagle	Not At Risk		Endangered	S3B	1 At Risk	358	1.9 ± 0.0	NB
A	<i>Sterna hirundo</i>	Common Tern	Not At Risk			S3B	3 Sensitive	608	16.4 ± 1.0	NB
A	<i>Podiceps grisegena</i>	Red-necked Grebe	Not At Risk			S3M,S2N	3 Sensitive	8	7.3 ± 0.0	NB
A	<i>Canis lupus</i>	Gray Wolf	Not At Risk		Extirpated	SX	0.1 Extirpated	1	40.3 ± 100.0	NB
A	<i>Puma concolor pop. 1</i>	Cougar - Eastern pop.	Data Deficient		Endangered	SU	5 Undetermined	44	4.3 ± 1.0	NB
A	<i>Salvelinus alpinus</i>	Arctic Char				S1	3 Sensitive	5	84.9 ± 1.0	NB
A	<i>Synaptomys borealis</i>	Northern Bog Lemming				S1	5 Undetermined	3	65.3 ± 1.0	NB
A	<i>Lasionycteris noctivagans</i>	Silver-haired Bat				S1?	5 Undetermined	2	94.6 ± 1.0	NB
A	<i>Bartramia longicauda</i>	Upland Sandpiper				S1B	3 Sensitive	14	43.3 ± 7.0	NB
A	<i>Phalaropus tricolor</i>	Wilson's Phalarope				S1B	3 Sensitive	13	68.1 ± 7.0	NB
A	<i>Leucophaeus atricilla</i>	Laughing Gull				S1B	3 Sensitive	1	39.9 ± 0.0	NB
A	<i>Sterna paradisaea</i>	Arctic Tern				S1B	2 May Be At Risk	37	16.4 ± 0.0	NB
A	<i>Troglodytes aedon</i>	House Wren				S1B	5 Undetermined	4	13.2 ± 7.0	NB
A	<i>Aythya marila</i>	Greater Scaup				S1B,S2N	4 Secure	14	35.2 ± 1.0	NB
A	<i>Uria aalge</i>	Common Murre				S1B,S3N	4 Secure	3	85.0 ± 0.0	NB
A	<i>Alca torda</i>	Razorbill				S1B,S3N	4 Secure	7	87.8 ± 14.0	NB
A	<i>Oxyura jamaicensis</i>	Ruddy Duck				S1B,S4N	4 Secure	17	35.7 ± 0.0	NB
A	<i>Rissa tridactyla</i>	Black-legged Kittiwake				S1B,S4N	4 Secure	24	84.0 ± 0.0	NB
A	<i>Butorides virescens</i>	Green Heron				S1S2B	3 Sensitive	2	68.1 ± 7.0	NB
A	<i>Nycticorax nycticorax</i>	Black-crowned Night-heron				S1S2B	3 Sensitive	191	34.8 ± 1.0	NB
A	<i>Empidonax traillii</i>	Willow Flycatcher				S1S2B	3 Sensitive	20	12.9 ± 7.0	NB
A	<i>Progne subis</i>	Purple Martin				S1S2B	2 May Be At Risk	13	36.8 ± 7.0	NB
A	<i>Stelgidopteryx serripennis</i>	Northern Rough-winged Swallow				S1S2B	2 May Be At Risk	5	41.1 ± 1.0	NB
A	<i>Salmo salar</i>	Atlantic Salmon				S2	2 May Be At Risk	2081	7.4 ± 1.0	NB
A	<i>Lasiurus cinereus</i>	Hoary Bat				S2?	5 Undetermined	13	36.1 ± 0.0	NB
A	<i>Anas clypeata</i>	Northern Shoveler				S2B	4 Secure	76	4.8 ± 1.0	NB
A	<i>Anas strepera</i>	Gadwall				S2B	4 Secure	65	13.0 ± 0.0	NB
A	<i>Eremophila alpestris</i>	Horned Lark				S2B	2 May Be At Risk	120	4.1 ± 7.0	NB
A	<i>Toxostoma rufum</i>	Brown Thrasher				S2B	3 Sensitive	33	5.8 ± 7.0	NB
A	<i>Pooecetes gramineus</i>	Vesper Sparrow				S2B	2 May Be At Risk	70	7.6 ± 7.0	NB
A	<i>Tringa solitaria</i>	Solitary Sandpiper				S2B,S5M	4 Secure	92	4.7 ± 1.0	NB
A	<i>Chroicocephalus ridibundus</i>	Black-headed Gull				S2M,S1N	3 Sensitive	7	68.3 ± 0.0	NB
A	<i>Somateria spectabilis</i>	King Eider				S2N	4 Secure	2	60.0 ± 1.0	NB
A	<i>Asio otus</i>	Long-eared Owl				S2S3	5 Undetermined	13	33.5 ± 1.0	NB
A	<i>Tringa semipalmata</i>	Willet				S2S3B	3 Sensitive	454	9.6 ± 0.0	NB
A	<i>Pinicola enucleator</i>	Pine Grosbeak				S2S3B,S4S5N	3 Sensitive	56	16.4 ± 0.0	NB
A	<i>Branta bernicla</i>	Brant				S2S3M,S2S3N	4 Secure	64	33.3 ± 10.0	NB
A	<i>Cephus grylle</i>	Black Guillemot				S3	4 Secure	41	58.3 ± 3.0	NB
A	<i>Loxia curvirostra</i>	Red Crossbill				S3	4 Secure	102	4.1 ± 7.0	NB
A	<i>Salvelinus namaycush</i>	Lake Trout				S3	3 Sensitive	1	98.8 ± 0.0	NB
A	<i>Sorex maritimensis</i>	Maritime Shrew				S3	4 Secure	39	18.3 ± 0.0	NB
A	<i>Picoides dorsalis</i>	American Three-toed Woodpecker				S3?	3 Sensitive	63	35.6 ± 0.0	NB
A	<i>Anas acuta</i>	Northern Pintail				S3B	3 Sensitive	174	4.1 ± 7.0	NB
A	<i>Anas americana</i>	American Wigeon				S3B	4 Secure	362	4.1 ± 7.0	NB
A	<i>Cathartes aura</i>	Turkey Vulture				S3B	4 Secure	14	4.7 ± 0.0	NB
A	<i>Rallus limicola</i>	Virginia Rail				S3B	3 Sensitive	13	4.1 ± 7.0	NB
A	<i>Charadrius vociferus</i>	Killdeer				S3B	3 Sensitive	728	4.1 ± 7.0	NB
A	<i>Larus delawarensis</i>	Ring-billed Gull				S3B	4 Secure	392	4.7 ± 0.0	NB
A	<i>Myiarchus crinitus</i>	Great Crested Flycatcher				S3B	3 Sensitive	27	7.6 ± 7.0	NB
A	<i>Mimus polyglottos</i>	Northern Mockingbird				S3B	3 Sensitive	62	5.8 ± 7.0	NB
A	<i>Passerina cyanea</i>	Indigo Bunting				S3B	4 Secure	22	6.5 ± 7.0	NB
A	<i>Molothrus ater</i>	Brown-headed Cowbird				S3B	2 May Be At Risk	161	4.1 ± 7.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
A	<i>Mergus serrator</i>	Red-breasted Merganser				S3B,S4S5N	4 Secure	268	6.3 ± 7.0	NB
A	<i>Pluvialis dominica</i>	American Golden-Plover				S3M	3 Sensitive	65	8.1 ± 2.0	NB
A	<i>Phalaropus fulicarius</i>	Red Phalarope				S3M	3 Sensitive	5	16.7 ± 0.0	NB
A	<i>Melanitta nigra</i>	Black Scoter				S3M,S2S3N	3 Sensitive	141	16.4 ± 0.0	NB
A	<i>Calidris maritima</i>	Purple Sandpiper				S3M,S3N	4 Secure	13	68.5 ± 1.0	NB
A	<i>Bucephala albeola</i>	Bufflehead				S3N	3 Sensitive	48	7.1 ± 0.0	NB
A	<i>Synaptomys cooperi</i>	Southern Bog Lemming				S3S4	4 Secure	12	18.3 ± 0.0	NB
A	<i>Tyrannus tyrannus</i>	Eastern Kingbird				S3S4B	3 Sensitive	246	4.1 ± 7.0	NB
A	<i>Petrochelidon pyrrhonota</i>	Cliff Swallow				S3S4B	3 Sensitive	291	2.3 ± 0.0	NB
A	<i>Piranga olivacea</i>	Scarlet Tanager				S3S4B	4 Secure	73	4.1 ± 7.0	NB
A	<i>Coccothraustes vespertinus</i>	Evening Grosbeak				S3S4B,S4S5N	3 Sensitive	355	4.1 ± 7.0	NB
A	<i>Morus bassanus</i>	Northern Gannet				SHB,S5M,S5N	4 Secure	185	11.6 ± 0.0	NB
I	<i>Coenonympha nipisiquit</i>	Maritime Ringlet	Endangered	Endangered	Endangered	S1	1 At Risk	60	67.1 ± 20.0	NB
I	<i>Gomphus ventricosus</i>	Skillet Clubtail	Endangered		Endangered	S1S2	2 May Be At Risk	1	92.4 ± 0.0	NB
I	<i>Alasmidonta varicosa</i>	Brook Floater	Special Concern		Special Concern	S1S2	3 Sensitive	16	35.9 ± 0.0	NB
I	<i>Ophiogomphus howei</i>	Pygmy Snaketail	Special Concern	Special Concern	Special Concern	S2	2 May Be At Risk	26	43.5 ± 0.0	NB
I	<i>Lampsilis cariosa</i>	Yellow Lampmussel	Special Concern	Special Concern	Special Concern	S2	3 Sensitive	3	92.3 ± 0.0	NB
I	<i>Danaus plexippus</i>	Monarch	Special Concern	Special Concern	Special Concern	S3B	3 Sensitive	18	13.7 ± 0.0	NB
I	<i>Bombus terricola</i>	Yellow-banded Bumblebee	Special Concern			SU	3 Sensitive	4	53.5 ± 0.0	NB
I	<i>Somatochlora septentrionalis</i>	Muskeg Emerald				S1	2 May Be At Risk	3	95.7 ± 0.0	NB
I	<i>Leucorrhinia patricia</i>	Canada Whiteface				S1	2 May Be At Risk	8	40.6 ± 1.0	NB
I	<i>Coccinella transversoguttata richardsoni</i>	Transverse Lady Beetle				S1S2	2 May Be At Risk	10	40.8 ± 1.0	NB
I	<i>Plebejus saepiolus</i>	Greenish Blue				S1S2	4 Secure	12	46.9 ± 1.0	NB
I	<i>Strymon melinus</i>	Grey Hairstreak				S2	4 Secure	8	30.0 ± 1.0	NB
I	<i>Aeshna juncea</i>	Rush Darner				S2	3 Sensitive	1	95.7 ± 0.0	NB
I	<i>Somatochlora brevicincta</i>	Quebec Emerald				S2	5 Undetermined	2	92.6 ± 0.0	NB
I	<i>Somatochlora tenebrosa</i>	Clamp-Tipped Emerald				S2	5 Undetermined	5	39.5 ± 0.0	NB
I	<i>Ladona exusta</i>	White Corporal				S2	5 Undetermined	1	53.0 ± 0.0	NB
I	<i>Coenagrion interrogatum</i>	Subarctic Bluet				S2	3 Sensitive	6	20.9 ± 0.0	NB
I	<i>Alasmidonta undulata</i>	Triangle Floater				S2	3 Sensitive	3	35.9 ± 1.0	NB
I	<i>Cicindela hirticollis</i>	Hairy-necked Tiger Beetle				S2S3	4 Secure	2	32.4 ± 0.0	NB
I	<i>Callophrys henrici</i>	Henry's Elfin				S2S3	4 Secure	11	21.9 ± 1.0	NB
I	<i>Hesperia sassacus</i>	Indian Skipper				S3	4 Secure	3	41.7 ± 5.0	NB
I	<i>Euphyes bimacula</i>	Two-spotted Skipper				S3	4 Secure	9	52.0 ± 0.0	NB
I	<i>Papilio brevicauda</i>	Short-tailed Swallowtail				S3	4 Secure	40	32.6 ± 0.0	NB
I	<i>Papilio brevicauda bretonensis</i>	Short-tailed Swallowtail				S3	4 Secure	16	33.0 ± 0.0	NB
I	<i>Lycaena hyllus</i>	Bronze Copper				S3	3 Sensitive	5	4.6 ± 0.0	NB
I	<i>Lycaena dospassosi</i>	Salt Marsh Copper				S3	4 Secure	97	9.3 ± 0.0	NB
I	<i>Satyrrium acadica</i>	Acadian Hairstreak				S3	4 Secure	2	72.7 ± 0.0	NB
I	<i>Callophrys polios</i>	Hoary Elfin				S3	4 Secure	8	15.6 ± 0.0	NB
I	<i>Callophrys eryphon</i>	Western Pine Elfin				S3	4 Secure	5	34.2 ± 10.0	NB
I	<i>Plebejus idas</i>	Northern Blue				S3	4 Secure	24	39.8 ± 0.0	NB
I	<i>Plebejus idas empetri</i>	Crowberry Blue				S3	4 Secure	8	43.7 ± 0.0	NB
I	<i>Speyeria aphrodite</i>	Aphrodite Fritillary				S3	4 Secure	5	36.9 ± 1.0	NB
I	<i>Boloria eunomia</i>	Bog Fritillary				S3	5 Undetermined	5	47.9 ± 2.0	NB
I	<i>Boloria chariclea</i>	Arctic Fritillary				S3	4 Secure	9	20.3 ± 1.0	NB
I	<i>Boloria chariclea</i>	Purple Lesser Fritillary				S3	4 Secure	4	34.2 ± 10.0	NB

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I	<i>Polygonia satyrus grandis</i>	Satyr Comma				S3	4 Secure	12	33.6 ± 0.0	NB
I	<i>Polygonia gracilis</i>	Hoary Comma				S3	4 Secure	17	11.6 ± 1.0	NB
I	<i>Nymphalis l-album</i>	Compton Tortoiseshell				S3	4 Secure	3	33.4 ± 10.0	NB
I	<i>Gomphus abbreviatus</i>	Spine-crowned Clubtail				S3	4 Secure	14	33.2 ± 0.0	NB
I	<i>Dorocordulia lepida</i>	Petite Emerald				S3	4 Secure	3	92.2 ± 0.0	NB
I	<i>Somatochlora albicincta</i>	Ringed Emerald				S3	4 Secure	8	72.6 ± 1.0	NB
I	<i>Somatochlora cingulata</i>	Lake Emerald				S3	4 Secure	5	42.9 ± 0.0	NB
I	<i>Somatochlora forcipata</i>	Forcipate Emerald				S3	4 Secure	11	12.2 ± 1.0	NB
I	<i>Williamsonia fletcheri</i>	Ebony Boghaunter				S3	4 Secure	8	23.5 ± 0.0	NB
I	<i>Lestes eurinus</i>	Amber-Winged Spreadwing				S3	4 Secure	17	24.6 ± 1.0	NB
I	<i>Enallagma geminatum</i>	Skimming Bluet				S3	5 Undetermined	4	96.8 ± 0.0	NB
I	<i>Enallagma signatum</i>	Orange Bluet				S3	4 Secure	1	96.8 ± 0.0	NB
I	<i>Stylurus scudleri</i>	Zebra Clubtail				S3	4 Secure	3	47.0 ± 0.0	NB
I	<i>Leptodea ochracea</i>	Tidewater Mucket				S3	4 Secure	1	98.8 ± 0.0	NB
I	<i>Pantala hymenaea</i>	Spot-Winged Glider				S3B	4 Secure	2	90.9 ± 0.0	NB
I	<i>Satyrium liparops</i>	Striped Hairstreak				S3S4	4 Secure	14	20.3 ± 1.0	NB
I	<i>Satyrium liparops strigosum</i>	Striped Hairstreak				S3S4	4 Secure	8	35.6 ± 1.0	NB
I	<i>Cupido comyntas</i>	Eastern Tailed Blue				S3S4	4 Secure	1	58.0 ± 1.0	NB
N	<i>Aulacomnium heterostichum</i>	One-sided Groove Moss				S1	2 May Be At Risk	1	36.5 ± 0.0	NB
N	<i>Cinclidium stygium</i>	Sooty Cupola Moss				S1	2 May Be At Risk	1	91.1 ± 0.0	NB
N	<i>Dicranum bonjeanii</i>	Bonjean's Broom Moss				S1	2 May Be At Risk	1	45.4 ± 1.0	NB
N	<i>Homomallium adnatum</i>	Adnate Hairy-gray Moss				S1	2 May Be At Risk	1	34.6 ± 0.0	NB
N	<i>Meesia triquetra</i>	Three-ranked Cold Moss				S1	2 May Be At Risk	1	81.5 ± 10.0	NB
N	<i>Paludella squarrosa</i>	Tufted Fen Moss				S1	2 May Be At Risk	1	91.1 ± 0.0	NB
N	<i>Seligeria recurvata</i>	a Moss				S1	2 May Be At Risk	1	96.7 ± 15.0	NB
N	<i>Zygodon viridissimus</i>	a Moss				S1	2 May Be At Risk	1	34.5 ± 0.0	NB
N	<i>Fuscopannaria ahlneri</i>	Corrugated Shingles Lichen				S1	2 May Be At Risk	1	42.5 ± 0.0	NB
N	<i>Pohlia filum</i>	a Moss				S1?	5 Undetermined	2	59.9 ± 7.0	NB
N	<i>Anacamptodon splachnoides</i>	a Moss				S1S2	3 Sensitive	1	53.2 ± 1.0	NB
N	<i>Bryum pallescens</i>	Pale Bryum Moss				S1S2	5 Undetermined	1	41.6 ± 100.0	NB
N	<i>Tetradontium brownianum</i>	Little Georgia				S1S2	3 Sensitive	5	35.0 ± 0.0	NB
N	<i>Trichodon cylindricus</i>	Cylindric Hairy-teeth Moss				S1S2	3 Sensitive	1	96.7 ± 15.0	NB
N	<i>Collema leptaleum</i>	Crumpled Bat's Wing Lichen				S1S2	5 Undetermined	1	36.1 ± 0.0	NB
N	<i>Calypogeia neesiana</i>	Nees' Pouchwort				S1S3	6 Not Assessed	1	59.9 ± 1.0	NB
N	<i>Cephaloziella spinigera</i>	Spiny Threadwort				S1S3	6 Not Assessed	2	83.6 ± 0.0	NB
N	<i>Lophozia ascendens</i>	Small Notchwort				S1S3	6 Not Assessed	1	36.6 ± 1.0	NB
N	<i>Odontoschisma sphagni</i>	Bog-Moss Flapwort				S1S3	6 Not Assessed	1	37.3 ± 0.0	NB
N	<i>Orthotrichum speciosum</i>	Showy Bristle Moss				S2	4 Secure	4	34.6 ± 0.0	NB
N	<i>Platydictya jungermannioides</i>	False Willow Moss				S2	3 Sensitive	1	96.7 ± 15.0	NB
N	<i>Pohlia elongata</i>	Long-necked Nodding Moss				S2	3 Sensitive	4	35.0 ± 0.0	NB
N	<i>Pohlia prolifera</i>	Cottony Nodding Moss				S2	3 Sensitive	9	35.0 ± 0.0	NB
N	<i>Pohlia sphagnicola</i>	a moss				S2	3 Sensitive	1	40.1 ± 0.0	NB
N	<i>Scorpidium scorpioides</i>	Hooked Scorpion Moss				S2	3 Sensitive	2	78.6 ± 1.0	NB
N	<i>Sphagnum lindbergii</i>	Lindberg's Peat Moss				S2	3 Sensitive	1	48.8 ± 0.0	NB
N	<i>Sphagnum flexuosum</i>	Flexuous Peatmoss				S2	3 Sensitive	2	54.4 ± 10.0	NB
N	<i>Zygodon viridissimus</i>	a Moss				S2	2 May Be At Risk	1	34.6 ± 0.0	NB

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N	<i>Dendroica caerulea</i>	a lichen				S2S3	3 Sensitive	1	34.9 ± 0.0	NB
N	<i>Barbilophozia lycopodioides</i>	Greater Pawwort				S2S4	6 Not Assessed	1	91.7 ± 1.0	NB
N	<i>Bazzania tricrenata</i>	Three-toothed Whipwort				S2S4		1	40.0 ± 100.0	NB
N	<i>Jungermannia pumila</i>	Dwarf Flapwort				S2S4	6 Not Assessed	1	35.6 ± 1.0	NB
N	<i>Aulacomnium androgynum</i>	Little Groove Moss				S3	4 Secure	5	36.5 ± 0.0	NB
N	<i>Dicranum majus</i>	Greater Broom Moss				S3	4 Secure	4	36.7 ± 0.0	NB
N	<i>Heterocladium dimorphum</i>	Dimorphous Tangle Moss				S3	4 Secure	2	34.6 ± 0.0	NB
N	<i>Pleuridium subulatum</i>	a Moss				S3	3 Sensitive	1	11.8 ± 0.0	NB
N	<i>Pogonatum dentatum</i>	Mountain Hair Moss				S3	4 Secure	1	35.6 ± 0.0	NB
N	<i>Sphagnum compactum</i>	Compact Peat Moss				S3	4 Secure	1	35.2 ± 1.0	NB
N	<i>Sphagnum torreyanum</i>	a Peatmoss				S3	4 Secure	1	60.8 ± 0.0	NB
N	<i>Tetraphis geniculata</i>	Geniculate Four-tooth Moss				S3	4 Secure	3	43.0 ± 0.0	NB
N	<i>Schistidium maritimum</i>	a Moss				S3	4 Secure	1	39.5 ± 0.0	NB
N	<i>Rauvolfia scita</i>	Smaller Fern Moss				S3	3 Sensitive	1	38.0 ± 0.0	NB
N	<i>Collema nigrescens</i>	Blistered Tarpaper Lichen				S3	3 Sensitive	1	34.9 ± 0.0	NB
N	<i>Ahtiana aurescens</i>	Eastern Candlewax Lichen				S3	5 Undetermined	1	39.0 ± 0.0	NB
N	<i>Dicranella rufescens</i>	Red Forklet Moss				S3?	5 Undetermined	1	59.9 ± 7.0	NB
N	<i>Sphagnum contortum</i>	Twisted Peat Moss				S3?	4 Secure	1	60.8 ± 0.0	NB
N	<i>Atrichum tenellum</i>	Slender Smoothcap Moss				S3S4	4 Secure	3	34.8 ± 0.0	NB
N	<i>Barbula convoluta</i>	Lesser Bird's-claw Beard Moss				S3S4	4 Secure	1	73.3 ± 15.0	NB
N	<i>Dicranella subulata</i>	Awl-leaved Forklet Moss				S3S4	4 Secure	4	36.4 ± 0.0	NB
N	<i>Dicranum leioneuron</i>	a Dicranum Moss				S3S4	4 Secure	1	41.2 ± 10.0	NB
N	<i>Fissidens bryoides</i>	Lesser Pocket Moss				S3S4	4 Secure	1	52.3 ± 5.0	NB
N	<i>Pohlia annotina</i>	a Moss				S3S4	4 Secure	1	52.2 ± 4.0	NB
N	<i>Tortula truncata</i>	a Moss				S3S4	4 Secure	1	11.8 ± 1.0	NB
N	<i>Sphagnum majus</i>	Olive Peat Moss				S3S4	4 Secure	7	36.0 ± 0.0	NB
N	<i>Tetraplodon angustatus</i>	Toothed-leaved Nitrogen Moss				S3S4	4 Secure	1	36.5 ± 0.0	NB
N	<i>Hylocomiastrum pyrenaicum</i>	a Feather Moss				S3S4	4 Secure	1	43.1 ± 0.0	NB
N	<i>Pseudocyphellaria perpetua</i>	Gilded Specklebelly Lichen				S3S4	3 Sensitive	3	36.1 ± 0.0	NB
N	<i>Stereocaulon paschale</i>	Easter Foam Lichen				S3S4	5 Undetermined	1	76.1 ± 1.0	NB
N	<i>Leucodon brachypus</i>	a Moss				SH	2 May Be At Risk	9	34.5 ± 0.0	NB
N	<i>Splachnum luteum</i>	Yellow Collar Moss				SH	5 Undetermined	1	41.6 ± 100.0	NB
P	<i>Juglans cinerea</i>	Butternut	Endangered	Endangered	Endangered	S1	1 At Risk	23	37.0 ± 0.0	NB
P	<i>Symphotrichum laurentianum</i>	Gulf of St Lawrence Aster	Threatened	Threatened	Endangered	S1	1 At Risk	20	39.5 ± 0.0	NB
P	<i>Symphotrichum subulatum</i> (Bathurst pop)	Bathurst Aster - Bathurst pop.	Special Concern	Special Concern	Endangered	S2	1 At Risk	105	3.5 ± 0.0	NB
P	<i>Lechea maritima</i> var. <i>subcylindrica</i>	Beach Pinweed	Special Concern			S2	3 Sensitive	411	31.5 ± 0.0	NB
P	<i>Eriocaulon parkeri</i>	Parker's Pipewort	Not At Risk		Endangered	S2	1 At Risk	82	17.0 ± 1.0	NB
P	<i>Cryptotaenia canadensis</i>	Canada Honewort				S1	2 May Be At Risk	1	62.7 ± 1.0	NB
P	<i>Bidens eatonii</i>	Eaton's Beggarticks				S1	2 May Be At Risk	7	19.9 ± 0.0	NB
P	<i>Pseudognaphalium obtusifolium</i>	Eastern Cudweed				S1	2 May Be At Risk	3	76.4 ± 5.0	NB
P	<i>Betula glandulosa</i>	Glandular Birch				S1	2 May Be At Risk	8	80.9 ± 0.0	NB
P	<i>Betula michauxii</i>	Michaux's Dwarf Birch				S1	2 May Be At Risk	3	35.6 ± 0.0	NB
P	<i>Cynoglossum virginianum</i> var.	Wild Comfrey				S1	2 May Be At Risk	3	66.1 ± 0.0	NB



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P	<i>boreale</i> <i>Cardamine parviflora</i> <i>var. arenicola</i>	Small-flowered Bittercress				S1	2 May Be At Risk	1	52.8 ± 0.0	NB
P	<i>Draba incana</i>	Twisted Whitlow-grass				S1	2 May Be At Risk	2	93.5 ± 0.0	NB
P	<i>Stellaria crassifolia</i>	Fleshy Stitchwort				S1	2 May Be At Risk	1	16.0 ± 10.0	NB
P	<i>Stellaria longipes</i>	Long-stalked Starwort				S1	2 May Be At Risk	1	85.1 ± 1.0	NB
P	<i>Cuscuta pentagona</i>	Five-angled Dodder				S1	2 May Be At Risk	3	35.3 ± 0.0	NB
P	<i>Vaccinium boreale</i>	Northern Blueberry				S1	2 May Be At Risk	12	80.9 ± 0.0	NB
P	<i>Vaccinium uliginosum</i>	Alpine Bilberry				S1	2 May Be At Risk	5	82.1 ± 0.0	NB
P	<i>Chamaesyce polygonifolia</i>	Seaside Spurge				S1	2 May Be At Risk	6	42.7 ± 5.0	NB
P	<i>Bartonia virginica</i>	Yellow Bartonnia				S1	2 May Be At Risk	3	46.2 ± 0.0	NB
P	<i>Ranunculus lapponicus</i>	Lapland Buttercup				S1	2 May Be At Risk	1	95.9 ± 0.0	NB
P	<i>Ranunculus sceleratus</i>	Cursed Buttercup				S1	2 May Be At Risk	1	68.1 ± 100.0	NB
P	<i>Crataegus jonesiae</i>	Jones' Hawthorn				S1	2 May Be At Risk	1	81.2 ± 1.0	NB
P	<i>Potentilla canadensis</i>	Canada Cinquefoil				S1	5 Undetermined	1	99.9 ± 0.0	NB
P	<i>Rosa acicularis</i> ssp. <i>sayi</i>	Prickly Rose				S1	2 May Be At Risk	102	51.3 ± 0.0	NB
P	<i>Salix serissima</i>	Autumn Willow				S1	2 May Be At Risk	4	90.0 ± 0.0	NB
P	<i>Agalinis paupercula</i> <i>var. borealis</i>	Small-flowered Agalinis				S1	2 May Be At Risk	7	32.5 ± 0.0	NB
P	<i>Agalinis tenuifolia</i>	Slender Agalinis				S1	2 May Be At Risk	2	33.6 ± 0.0	NB
P	<i>Carex bigelowii</i>	Bigelow's Sedge				S1	2 May Be At Risk	1	81.0 ± 0.0	NB
P	<i>Carex glareosa</i> var. <i>amphigena</i>	Gravel Sedge				S1	2 May Be At Risk	2	83.5 ± 1.0	NB
P	<i>Carex viridula</i> var. <i>elatior</i>	Greenish Sedge				S1	2 May Be At Risk	11	90.0 ± 0.0	NB
P	<i>Cyperus diandrus</i>	Low Flatsedge				S1	2 May Be At Risk	2	25.4 ± 0.0	NB
P	<i>Cyperus bipartitus</i>	Shining Flatsedge				S1	2 May Be At Risk	13	12.3 ± 0.0	NB
P	<i>Scirpus pendulus</i>	Hanging Bulrush				S1	2 May Be At Risk	1	86.9 ± 0.0	PE
P	<i>Schoenoplectus smithii</i>	Smith's Bulrush				S1	2 May Be At Risk	18	19.8 ± 0.0	NB
P	<i>Juncus greenei</i>	Greene's Rush				S1	2 May Be At Risk	2	16.3 ± 1.0	NB
P	<i>Juncus stygius</i>	Moor Rush				S1	2 May Be At Risk	1	39.8 ± 0.0	NB
P	<i>Juncus stygius</i> ssp. <i>americanus</i>	Moor Rush				S1	2 May Be At Risk	3	52.9 ± 5.0	NB
P	<i>Juncus subtilis</i>	Creeping Rush				S1	2 May Be At Risk	3	72.5 ± 0.0	NB
P	<i>Juncus trifidus</i>	Highland Rush				S1	2 May Be At Risk	5	80.9 ± 0.0	NB
P	<i>Allium canadense</i>	Canada Garlic				S1	2 May Be At Risk	1	34.8 ± 1.0	NB
P	<i>Malaxis brachypoda</i>	White Adder's-Mouth				S1	2 May Be At Risk	2	90.0 ± 0.0	NB
P	<i>Calamagrostis stricta</i> <i>ssp. inexpansa</i>	Slim-stemmed Reed Grass				S1	2 May Be At Risk	1	41.6 ± 0.0	NB
P	<i>Catabrosa aquatica</i> <i>var. laurentiana</i>	Water Whorl Grass				S1	2 May Be At Risk	1	93.7 ± 5.0	PE
P	<i>Dichanthelium xanthophysum</i>	Slender Panic Grass				S1	2 May Be At Risk	7	60.4 ± 0.0	NB
P	<i>Puccinellia ambigua</i>	Dwarf Alkali Grass				S1	5 Undetermined	1	93.0 ± 0.0	NB
P	<i>Zizania aquatica</i> var. <i>brevis</i>	Indian Wild Rice				S1	2 May Be At Risk	16	12.1 ± 0.0	NB
P	<i>Potamogeton nodosus</i>	Long-leaved Pondweed				S1	2 May Be At Risk	2	32.6 ± 0.0	NB
P	<i>Cystopteris laurentiana</i>	Laurentian Bladder Fern				S1	2 May Be At Risk	1	75.9 ± 0.0	NB
P	<i>Huperzia selago</i>	Northern Firmoss				S1	2 May Be At Risk	2	81.0 ± 0.0	NB
P	<i>Bidens heterodoxa</i>	Connecticut Beggar-Ticks				S1?	2 May Be At Risk	2	39.6 ± 0.0	NB
P	<i>Cuscuta cephalanthi</i>	Buttonbush Dodder				S1?	2 May Be At Risk	23	34.8 ± 1.0	NB
P	<i>Carex laxiflora</i>	Loose-Flowered Sedge				S1?	5 Undetermined	1	94.2 ± 2.0	NB
P	<i>Humulus lupulus</i> var. <i>lupuloides</i>	Common Hop				S1S2	3 Sensitive	3	33.8 ± 0.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
P	<i>Rumex aquaticus</i> var. <i>fenestratus</i>	Western Dock				S1S2	2 May Be At Risk	2	66.5 ± 0.0	NB
P	<i>Carex crawei</i>	Crawe's Sedge				S1S2	2 May Be At Risk	1	56.2 ± 0.0	NB
P	<i>Carex rostrata</i>	Narrow-leaved Beaked Sedge				S1S2	3 Sensitive	5	52.1 ± 5.0	NB
P	<i>Thelypteris simulata</i>	Bog Fern				S1S2	2 May Be At Risk	1	9.6 ± 1.0	NB
P	<i>Listera australis</i>	Southern Twayblade			Endangered	S2	1 At Risk	23	40.0 ± 0.0	NB
P	<i>Osmorhiza depauperata</i>	Blunt Sweet Cicely				S2	3 Sensitive	3	36.9 ± 1.0	NB
P	<i>Pseudognaphalium macounii</i>	Macoun's Cudweed				S2	3 Sensitive	40	62.5 ± 5.0	NB
P	<i>Ionactis linariifolius</i>	Stiff Aster				S2	3 Sensitive	61	21.1 ± 1.0	NB
P	<i>Betula minor</i>	Dwarf White Birch				S2	3 Sensitive	4	80.9 ± 0.0	NB
P	<i>Arabis drummondii</i>	Drummond's Rockcress				S2	3 Sensitive	4	12.8 ± 1.0	NB
P	<i>Barbarea orthoceras</i>	American Yellow Rocket				S2	3 Sensitive	1	54.6 ± 0.0	NB
P	<i>Saginia nodosa</i>	Knotted Pearlwort				S2	3 Sensitive	2	76.3 ± 1.0	NB
P	<i>Stellaria longifolia</i>	Long-leaved Starwort				S2	3 Sensitive	4	54.3 ± 0.0	NB
P	<i>Atriplex franktonii</i>	Frankton's Saltbush				S2	4 Secure	4	32.6 ± 5.0	NB
P	<i>Chenopodium rubrum</i>	Red Pigweed				S2	3 Sensitive	11	32.3 ± 0.0	NB
P	<i>Callitriche hermaphroditica</i>	Northern Water-starwort				S2	4 Secure	4	28.0 ± 0.0	NB
P	<i>Hypericum dissimulatum</i>	Disguised St John's-wort				S2	3 Sensitive	1	76.3 ± 1.0	NB
P	<i>Astragalus eucosmus</i>	Elegant Milk-vetch				S2	2 May Be At Risk	1	32.6 ± 0.0	NB
P	<i>Oxytropis campestris</i> var. <i>johannensis</i>	Field Locoweed				S2	3 Sensitive	1	55.3 ± 10.0	NB
P	<i>Gentiana linearis</i>	Narrow-Leaved Gentian				S2	3 Sensitive	20	58.2 ± 50.0	NB
P	<i>Myriophyllum humile</i>	Low Water Milfoil				S2	3 Sensitive	1	72.5 ± 1.0	NB
P	<i>Nuphar lutea</i> ssp. <i>rubrodisca</i>	Red-disked Yellow Pond-lily				S2	3 Sensitive	5	35.7 ± 0.0	NB
P	<i>Orobanche uniflora</i>	One-Flowered Broomrape				S2	3 Sensitive	2	44.3 ± 1.0	NB
P	<i>Polygala sanguinea</i>	Blood Milkwort				S2	3 Sensitive	22	40.3 ± 0.0	NB
P	<i>Polygonum amphibium</i> var. <i>emersum</i>	Water Smartweed				S2	3 Sensitive	1	32.6 ± 0.0	NB
P	<i>Polygonum careyi</i>	Carey's Smartweed				S2	3 Sensitive	2	91.8 ± 1.0	NB
P	<i>Podostemum ceratophyllum</i>	Horn-leaved Riverweed				S2	3 Sensitive	8	34.5 ± 1.0	NB
P	<i>Hepatica nobilis</i> var. <i>obtusa</i>	Round-lobed Hepatica				S2	3 Sensitive	3	40.6 ± 0.0	NB
P	<i>Ranunculus longirostris</i>	Eastern White Water-Crowfoot				S2	5 Undetermined	1	94.2 ± 1.0	NB
P	<i>Crataegus scabrida</i>	Rough Hawthorn				S2	3 Sensitive	2	60.4 ± 1.0	NB
P	<i>Sanguisorba canadensis</i>	Canada Burnet				S2	4 Secure	43	71.2 ± 5.0	NB
P	<i>Salix candida</i>	Sage Willow				S2	3 Sensitive	21	75.1 ± 0.0	NB
P	<i>Viola novae-angliae</i>	New England Violet				S2	3 Sensitive	1	99.4 ± 1.0	NB
P	<i>Sagittaria calycina</i> var. <i>spongiosa</i>	Long-lobed Arrowhead				S2	4 Secure	111	2.4 ± 0.0	NB
P	<i>Carex granularis</i>	Limestone Meadow Sedge				S2	3 Sensitive	7	52.8 ± 5.0	NB
P	<i>Carex gynocrates</i>	Northern Bog Sedge				S2	3 Sensitive	9	90.0 ± 0.0	NB
P	<i>Carex hirtifolia</i>	Pubescent Sedge				S2	3 Sensitive	12	33.8 ± 0.0	NB
P	<i>Carex salina</i>	Saltmarsh Sedge				S2	3 Sensitive	5	49.3 ± 0.0	NB
P	<i>Carex sprengelii</i>	Longbeak Sedge				S2	3 Sensitive	1	54.8 ± 0.0	NB
P	<i>Carex tenuiflora</i>	Sparse-Flowered Sedge				S2	2 May Be At Risk	5	37.0 ± 0.0	NB
P	<i>Carex albicans</i> var. <i>emmonsii</i>	White-tinged Sedge				S2	3 Sensitive	8	32.4 ± 0.0	NB
P	<i>Carex vacillans</i>	Estuarine Sedge				S2	3 Sensitive	3	11.7 ± 10.0	NB
P	<i>Eriophorum gracile</i>	Slender Cottongrass				S2	2 May Be At Risk	2	54.4 ± 10.0	NB

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P	<i>Blysmus rufus</i>	Red Bulrush				S2	3 Sensitive	24	44.8 ± 1.0	NB
P	<i>Juncus vaseyi</i>	Vasey Rush				S2	3 Sensitive	33	6.8 ± 0.0	NB
P	<i>Lemna trisulca</i>	Star Duckweed				S2	4 Secure	2	82.1 ± 2.0	NB
P	<i>Amerorchis rotundifolia</i>	Small Round-leaved Orchis				S2	2 May Be At Risk	9	78.9 ± 1.0	NB
P	<i>Calypso bulbosa</i> var. <i>americana</i>	Calypso				S2	2 May Be At Risk	7	40.6 ± 0.0	NB
P	<i>Coeloglossum viride</i> var. <i>virescens</i>	Long-bracted Frog Orchid				S2	2 May Be At Risk	1	97.1 ± 1.0	NB
P	<i>Cypripedium parviflorum</i> var. <i>makasin</i>	Small Yellow Lady's-Slipper				S2	2 May Be At Risk	1	7.9 ± 5.0	NB
P	<i>Goodyera oblongifolia</i>	Menzies' Rattlesnake-plantain				S2	3 Sensitive	14	37.5 ± 1.0	NB
P	<i>Spiranthes cernua</i>	Nodding Ladies'-Tresses				S2	3 Sensitive	1	77.3 ± 0.0	NB
P	<i>Spiranthes lucida</i>	Shining Ladies'-Tresses				S2	3 Sensitive	5	22.2 ± 0.0	NB
P	<i>Agrostis mertensii</i>	Northern Bent Grass				S2	2 May Be At Risk	57	51.5 ± 0.0	NB
P	<i>Dichanthelium linearifolium</i>	Narrow-leaved Panic Grass				S2	3 Sensitive	3	35.7 ± 0.0	NB
P	<i>Piptatherum canadense</i>	Canada Rice Grass				S2	3 Sensitive	5	60.2 ± 0.0	NB
P	<i>Puccinellia laurentiana</i>	Nootka Alkali Grass				S2	3 Sensitive	2	30.9 ± 0.0	NB
P	<i>Zizania aquatica</i> var. <i>aquatica</i>	Indian Wild Rice				S2	5 Undetermined	7	13.6 ± 1.0	NB
P	<i>Piptatherum pungens</i>	Slender Rice Grass				S2	2 May Be At Risk	11	55.3 ± 5.0	NB
P	<i>Stuckenia filiformis</i>	Thread-leaved Pondweed				S2	3 Sensitive	1	84.4 ± 1.0	NB
P	<i>Potamogeton richardsonii</i>	Richardson's Pondweed				S2	3 Sensitive	5	57.6 ± 0.0	NB
P	<i>Woodwardia virginica</i>	Virginia Chain Fern				S2	3 Sensitive	9	34.6 ± 1.0	NB
P	<i>Woodsia alpina</i>	Alpine Cliff Fern				S2	3 Sensitive	1	71.5 ± 0.0	NB
P	<i>Lycopodium sitchense</i>	Sitka Clubmoss				S2	3 Sensitive	2	80.8 ± 0.0	NB
P	<i>Selaginella selaginoides</i>	Low Spikemoss				S2	3 Sensitive	14	90.0 ± 0.0	NB
P	<i>Toxicodendron radicans</i>	Poison Ivy				S2?	3 Sensitive	3	54.2 ± 0.0	NB
P	<i>Osmorhiza longistylis</i>	Smooth Sweet Cicely				S2?	3 Sensitive	2	49.5 ± 0.0	NB
P	<i>Epilobium coloratum</i>	Purple-veined Willowherb				S2?	3 Sensitive	3	35.0 ± 10.0	NB
P	<i>Crataegus macrosperma</i>	Big-Fruit Hawthorn				S2?	5 Undetermined	1	60.4 ± 0.0	NB
P	<i>Rubus pensilvanicus</i>	Pennsylvania Blackberry				S2?	4 Secure	5	68.1 ± 100.0	NB
P	<i>Rubus recurvicaulis</i>	Arching Dewberry				S2?	4 Secure	1	97.9 ± 0.0	NB
P	<i>Galium obtusum</i>	Blunt-leaved Bedstraw				S2?	4 Secure	9	41.4 ± 0.0	NB
P	<i>Salix myricoides</i>	Bayberry Willow				S2?	3 Sensitive	4	26.5 ± 5.0	NB
P	<i>Platanthera huronensis</i>	Fragrant Green Orchid				S2?	5 Undetermined	1	56.6 ± 0.0	NB
P	<i>Ceratophyllum echinatum</i>	Prickly Hornwort				S2S3	3 Sensitive	1	23.3 ± 0.0	NB
P	<i>Elatine americana</i>	American Waterwort				S2S3	3 Sensitive	19	12.9 ± 0.0	NB
P	<i>Bartonia paniculata</i> ssp. <i>iodandra</i>	Branched Bartonia				S2S3	3 Sensitive	1	36.8 ± 0.0	NB
P	<i>Geranium robertianum</i>	Herb Robert				S2S3	4 Secure	47	82.9 ± 0.0	PE
P	<i>Rumex maritimus</i> var. <i>persicarioides</i>	Peach-leaved Dock				S2S3	5 Undetermined	1	44.0 ± 0.0	NB
P	<i>Rumex pallidus</i>	Seabeach Dock				S2S3	3 Sensitive	7	42.5 ± 0.0	NB
P	<i>Galium labradoricum</i>	Labrador Bedstraw				S2S3	3 Sensitive	17	77.8 ± 5.0	NB
P	<i>Valeriana uliginosa</i>	Swamp Valerian				S2S3	3 Sensitive	7	90.0 ± 0.0	NB
P	<i>Carex adusta</i>	Lesser Brown Sedge				S2S3	4 Secure	8	46.7 ± 3.0	NB
P	<i>Juncus brachycephalus</i>	Small-Head Rush				S2S3	3 Sensitive	2	90.0 ± 0.0	NB
P	<i>Corallorhiza maculata</i>	Spotted Coralroot				S2S3	3 Sensitive	3	48.4 ± 1.0	NB

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P	<i>var. occidentalis</i>									
P	<i>Listera auriculata</i>	Auricled Twayblade				S2S3	3 Sensitive	16	37.8 ± 0.0	NB
P	<i>Potamogeton praelongus</i>	White-stemmed Pondweed				S2S3	4 Secure	3	77.6 ± 0.0	NB
P	<i>Isoetes acadensis</i>	Acadian Quillwort				S2S3	3 Sensitive	1	69.7 ± 0.0	NB
P	<i>Panax trifolius</i>	Dwarf Ginseng				S3	3 Sensitive	13	20.6 ± 5.0	NB
P	<i>Arnica lanceolata</i>	Lance-leaved Arnica				S3	4 Secure	34	36.8 ± 0.0	NB
P	<i>Artemisia campestris ssp. caudata</i>	Field Wormwood				S3	4 Secure	4	35.2 ± 0.0	NB
P	<i>Bidens hyperborea</i>	Estuary Beggarticks				S3	4 Secure	63	2.4 ± 0.0	NB
P	<i>Bidens hyperborea var. hyperborea</i>	Estuary Beggarticks				S3	4 Secure	13	7.3 ± 1.0	NB
P	<i>Erigeron hyssopifolius</i>	Hyssop-leaved Fleabane				S3	4 Secure	5	58.8 ± 0.0	NB
P	<i>Symphyotrichum boreale</i>	Boreal Aster				S3	3 Sensitive	5	60.8 ± 0.0	NB
P	<i>Betula pumila</i>	Bog Birch				S3	4 Secure	100	35.5 ± 5.0	NB
P	<i>Arabis glabra</i>	Tower Mustard				S3	5 Undetermined	9	53.2 ± 0.0	NB
P	<i>Cardamine maxima</i>	Large Toothwort				S3	4 Secure	3	70.1 ± 0.0	NB
P	<i>Subularia aquatica var. americana</i>	Water Awlwort				S3	4 Secure	1	85.4 ± 1.0	NB
P	<i>Stellaria humifusa</i>	Saltmarsh Starwort				S3	4 Secure	8	20.3 ± 0.0	NB
P	<i>Hudsonia tomentosa</i>	Woolly Beach-heath				S3	4 Secure	167	20.3 ± 5.0	NB
P	<i>Crassula aquatica</i>	Water Pygmyweed				S3	4 Secure	49	2.4 ± 0.0	NB
P	<i>Elatine minima</i>	Small Waterwort				S3	4 Secure	5	19.8 ± 0.0	NB
P	<i>Hedysarum alpinum</i>	Alpine Sweet-vetch				S3	4 Secure	5	53.2 ± 0.0	NB
P	<i>Geranium bicknellii</i>	Bicknell's Crane's-bill				S3	4 Secure	9	22.2 ± 0.0	NB
P	<i>Myriophyllum farwellii</i>	Farwell's Water Milfoil				S3	4 Secure	6	33.9 ± 0.0	NB
P	<i>Myriophyllum verticillatum</i>	Whorled Water Milfoil				S3	4 Secure	5	12.8 ± 1.0	NB
P	<i>Myriophyllum sibiricum</i>	Siberian Water Milfoil				S3	4 Secure	7	41.6 ± 0.0	NB
P	<i>Teucrium canadense</i>	Canada Germander				S3	3 Sensitive	56	13.9 ± 5.0	NB
P	<i>Nuphar lutea ssp. pumila</i>	Small Yellow Pond-lily				S3	4 Secure	5	13.3 ± 0.0	NB
P	<i>Epilobium hornemannii</i>	Hornemann's Willowherb				S3	4 Secure	18	33.9 ± 10.0	NB
P	<i>Epilobium strictum</i>	Downy Willowherb				S3	4 Secure	3	56.3 ± 0.0	NB
P	<i>Polygonum arifolium</i>	Halberd-leaved Tearthumb				S3	4 Secure	15	28.6 ± 5.0	NB
P	<i>Polygonum punctatum</i>	Dotted Smartweed				S3	4 Secure	1	43.5 ± 2.0	NB
P	<i>Polygonum punctatum var. confertiflorum</i>	Dotted Smartweed				S3	4 Secure	37	12.3 ± 0.0	NB
P	<i>Polygonum scandens</i>	Climbing False Buckwheat				S3	4 Secure	29	22.2 ± 0.0	NB
P	<i>Littorella uniflora</i>	American Shoreweed				S3	4 Secure	1	99.3 ± 1.0	NB
P	<i>Primula mistassinica</i>	Mistassini Primrose				S3	4 Secure	1	99.2 ± 0.0	NB
P	<i>Samolus valerandi</i>	Seaside Brookweed				S3	4 Secure	1	42.9 ± 0.0	NB
P	<i>Samolus valerandi ssp. parviflorus</i>	Seaside Brookweed				S3	4 Secure	129	6.5 ± 5.0	NB
P	<i>Pyrola minor</i>	Lesser Pyrola				S3	4 Secure	11	28.0 ± 0.0	NB
P	<i>Clematis occidentalis</i>	Purple Clematis				S3	4 Secure	1	66.1 ± 1.0	NB
P	<i>Ranunculus gmelinii</i>	Gmelin's Water Buttercup				S3	4 Secure	14	51.5 ± 0.0	NB
P	<i>Thalictrum venulosum</i>	Northern Meadow-rue				S3	4 Secure	1	54.6 ± 0.0	NB
P	<i>Agrimonia gryposepala</i>	Hooked Agrimony				S3	4 Secure	20	53.4 ± 0.0	NB
P	<i>Amelanchier canadensis</i>	Canada Serviceberry				S3	4 Secure	5	41.6 ± 0.0	NB
P	<i>Rosa palustris</i>	Swamp Rose				S3	4 Secure	4	16.1 ± 1.0	NB
P	<i>Rubus chamaemorus</i>	Cloudberry				S3	4 Secure	80	25.6 ± 0.0	NB
P	<i>Salix interior</i>	Sandbar Willow				S3	4 Secure	1	80.5 ± 1.0	NB
P	<i>Salix pedicellaris</i>	Bog Willow				S3	4 Secure	9	36.8 ± 0.0	NB
P	<i>Comandra umbellata</i>	Bastard's Toadflax				S3	4 Secure	59	24.6 ± 1.0	NB



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P	<i>Comandra umbellata</i> <i>ssp. umbellata</i>	Bastard's Toadflax				S3	4 Secure	6	88.1 ± 0.0	NB
P	<i>Geocaulon lividum</i>	Northern Comandra				S3	4 Secure	73	13.5 ± 0.0	NB
P	<i>Parnassia glauca</i>	Fen Grass-of-Parnassus				S3	4 Secure	14	33.4 ± 0.0	NB
P	<i>Limosella australis</i>	Southern Mudwort				S3	4 Secure	92	2.4 ± 0.0	NB
P	<i>Veronica serpyllifolia</i> <i>ssp. humifusa</i>	Thyme-Leaved Speedwell				S3	4 Secure	11	20.2 ± 1.0	NB
P	<i>Boehmeria cylindrica</i>	Small-spike False-nettle				S3	3 Sensitive	7	31.6 ± 0.0	NB
P	<i>Pilea pumila</i>	Dwarf Clearweed				S3	4 Secure	10	23.3 ± 0.0	NB
P	<i>Viola adunca</i>	Hooked Violet				S3	4 Secure	7	66.1 ± 0.0	NB
P	<i>Viola nephrophylla</i>	Northern Bog Violet				S3	4 Secure	7	90.0 ± 0.0	NB
P	<i>Carex arcta</i>	Northern Clustered Sedge				S3	4 Secure	1	42.8 ± 0.0	NB
P	<i>Carex atratiformis</i>	Scabrous Black Sedge				S3	4 Secure	3	56.7 ± 0.0	NB
P	<i>Carex capillaris</i>	Hairlike Sedge				S3	4 Secure	3	66.1 ± 0.0	NB
P	<i>Carex conoidea</i>	Field Sedge				S3	4 Secure	2	58.3 ± 10.0	NB
P	<i>Carex garberi</i>	Garber's Sedge				S3	3 Sensitive	20	35.2 ± 0.0	NB
P	<i>Carex haydenii</i>	Hayden's Sedge				S3	4 Secure	4	41.6 ± 0.0	NB
P	<i>Carex lupulina</i>	Hop Sedge				S3	4 Secure	1	61.2 ± 1.0	NB
P	<i>Carex michauxiana</i>	Michaux's Sedge				S3	4 Secure	5	43.7 ± 0.0	NB
P	<i>Carex ormostachya</i>	Necklace Spike Sedge				S3	4 Secure	8	9.5 ± 1.0	NB
P	<i>Carex tenera</i>	Tender Sedge				S3	4 Secure	3	27.5 ± 0.0	NB
P	<i>Carex tuckermanii</i>	Tuckerman's Sedge				S3	4 Secure	9	33.2 ± 0.0	NB
P	<i>Carex vaginata</i>	Sheathed Sedge				S3	3 Sensitive	6	90.0 ± 0.0	NB
P	<i>Carex wiegandii</i>	Wiegand's Sedge				S3	4 Secure	22	15.9 ± 1.0	NB
P	<i>Carex recta</i>	Estuary Sedge				S3	4 Secure	15	22.3 ± 0.0	NB
P	<i>Cyperus dentatus</i>	Toothed Flatsedge				S3	4 Secure	2	41.9 ± 10.0	NB
P	<i>Cyperus esculentus</i>	Perennial Yellow Nutsedge				S3	4 Secure	3	35.9 ± 0.0	NB
P	<i>Eleocharis intermedia</i>	Matted Spikerush				S3	4 Secure	2	41.7 ± 0.0	NB
P	<i>Eriophorum russeolum</i>	Russet Cottongrass				S3	4 Secure	66	17.4 ± 1.0	NB
P	<i>Rhynchospora capitellata</i>	Small-headed Beakrush				S3	4 Secure	64	34.5 ± 0.0	NB
P	<i>Rhynchospora fusca</i>	Brown Beakrush				S3	4 Secure	3	55.4 ± 0.0	NB
P	<i>Trichophorum clintonii</i>	Clinton's Clubrush				S3	4 Secure	66	51.7 ± 0.0	NB
P	<i>Schoenoplectus torreyi</i>	Torrey's Bulrush				S3	4 Secure	9	31.9 ± 0.0	NB
P	<i>Triglochin gaspensis</i>	Gasp [- Arrowgrass				S3	4 Secure	56	31.4 ± 0.0	NB
P	<i>Triantha glutinosa</i>	Sticky False-Asphodel				S3	4 Secure	9	39.4 ± 0.0	NB
P	<i>Cypripedium reginae</i>	Showy Lady's-Slipper				S3	3 Sensitive	27	8.4 ± 10.0	NB
P	<i>Liparis loeselii</i>	Loesel's Twayblade				S3	4 Secure	5	35.1 ± 0.0	NB
P	<i>Platanthera blephariglottis</i>	White Fringed Orchid				S3	4 Secure	53	6.7 ± 0.0	NB
P	<i>Platanthera grandiflora</i>	Large Purple Fringed Orchid				S3	3 Sensitive	18	40.6 ± 5.0	NB
P	<i>Bromus latiglumis</i>	Broad-Glumed Brome				S3	3 Sensitive	6	54.6 ± 0.0	NB
P	<i>Calamagrostis pickeringii</i>	Pickering's Reed Grass				S3	4 Secure	4	92.3 ± 0.0	NB
P	<i>Dichanthelium depauperatum</i>	Starved Panic Grass				S3	4 Secure	28	32.0 ± 0.0	NB
P	<i>Poa glauca</i>	Glaucous Blue Grass				S3	4 Secure	3	75.9 ± 0.0	NB
P	<i>Potamogeton obtusifolius</i>	Blunt-leaved Pondweed				S3	4 Secure	10	51.3 ± 1.0	NB
P	<i>Xyris montana</i>	Northern Yellow-Eyed-Grass				S3	4 Secure	42	20.5 ± 5.0	NB
P	<i>Zannichellia palustris</i>	Horned Pondweed				S3	4 Secure	41	2.4 ± 0.0	NB
P	<i>Adiantum pedatum</i>	Northern Maidenhair Fern				S3	4 Secure	2	49.5 ± 0.0	NB
P	<i>Cryptogramma stelleri</i>	Steller's Rockbrake				S3	4 Secure	2	63.0 ± 0.0	NB
P	<i>Asplenium trichomanes-ramosum</i>	Green Spleenwort				S3	4 Secure	2	72.4 ± 0.0	NB
P	<i>Dryopteris fragrans</i> <i>var. remotiuscula</i>	Fragrant Wood Fern				S3	4 Secure	32	36.5 ± 0.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
P	<i>Isoetes tuckermanii</i>	Tuckerman's Quillwort				S3	4 Secure	5	19.9 ± 0.0	NB
P	<i>Lycopodium sabinifolium</i>	Ground-Fir				S3	4 Secure	13	32.9 ± 1.0	NB
P	<i>Huperzia appalachiana</i>	Appalachian Fir-Clubmoss				S3	3 Sensitive	7	12.8 ± 1.0	NB
P	<i>Botrychium dissectum</i>	Cut-leaved Moonwort				S3	4 Secure	2	88.0 ± 5.0	PE
P	<i>Botrychium lanceolatum</i> var. <i>angustisegmentum</i>	Lance-Leaf Grape-Fern				S3	3 Sensitive	2	42.9 ± 0.0	NB
P	<i>Botrychium simplex</i>	Least Moonwort				S3	4 Secure	6	41.4 ± 0.0	NB
P	<i>Lobelia kalmii</i>	Brook Lobelia				S3S4	4 Secure	8	39.4 ± 0.0	NB
P	<i>Suaeda calceoliformis</i>	Horned Sea-blite				S3S4	4 Secure	42	24.7 ± 1.0	NB
P	<i>Utricularia gibba</i>	Humped Bladderwort				S3S4	4 Secure	1	35.9 ± 1.0	NB
P	<i>Rumex maritimus</i>	Sea-Side Dock				S3S4	4 Secure	31	23.6 ± 0.0	NB
P	<i>Rumex maritimus</i> var. <i>fueginus</i>	Tierra del Fuego Dock				S3S4	4 Secure	3	39.5 ± 0.0	NB
P	<i>Potentilla arguta</i>	Tall Cinquefoil				S3S4	4 Secure	3	44.1 ± 50.0	NB
P	<i>Cladium mariscoides</i>	Smooth Twigrush				S3S4	4 Secure	3	67.9 ± 0.0	NB
P	<i>Corallorhiza maculata</i>	Spotted Coralroot				S3S4	3 Sensitive	12	34.6 ± 1.0	NB
P	<i>Distichlis spicata</i>	Salt Grass				S3S4	4 Secure	64	11.7 ± 0.0	NB
P	<i>Potamogeton oakesianus</i>	Oakes' Pondweed				S3S4	4 Secure	1	83.1 ± 10.0	NB
P	<i>Stuckenia pectinata</i>	Sago Pondweed				S3S4	4 Secure	9	11.3 ± 1.0	NB
P	<i>Polygonum rail</i>	Sharp-fruited Knotweed				SH	0.1 Extirpated	3	67.6 ± 10.0	NB
P	<i>Montia fontana</i>	Water Blinks				SH	2 May Be At Risk	1	6.0 ± 1.0	NB
P	<i>Agalinis maritima</i>	Saltmarsh Agalinis				SX	0.1 Extirpated	2	48.7 ± 50.0	NB

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The recipient of these data shall acknowledge the ACCDC and the data sources listed below in any documents, reports, publications or presentations, in which this dataset makes a significant contribution.

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**Appendix 7B**  
**Breeding Bird Field Observations**



Table 7B-1 June 2016 Point Count Surveys, Miramichi to Glenwood

		5								6								7								8							
		Round 1				Round 2				Round 1				Round 2				Round 1				Round 2				Round 1				Round 2			
		Survey Date: 11-Jun-16				Survey Date: 27-Jun-16				Survey Date: 11-Jun-16				Survey Date: 27-Jun-16				Survey Date: 11-Jun-16				Survey Date: 27-Jun-16				Survey Date: 11-Jun-16				Survey Date: 27-Jun-16			
		Surveyor: M. Cameron-MacMillan				Surveyor: M. Cameron-MacMillan				Surveyor: M. Cameron-MacMillan				Surveyor: M. Cameron-MacMillan				Surveyor: M. Cameron-MacMillan				Surveyor: M. Cameron-MacMillan				Surveyor: M. Cameron-MacMillan							
		Survey Start: 7:06				Survey Start: 7:28				Survey Start: 6:39				Survey Start: 7:54				Survey Start: 6:11				Survey Start: 8:19				Survey Start: 5:40				Survey Start: 8:40			
		Weather				Weather				Weather				Weather				Weather				Weather				Weather							
		Temperature (°C)	Wind (km/h)	Precipitation	Cloud Cover	Temperature (°C)	Wind (km/h)	Precipitation	Cloud Cover	Temperature (°C)	Wind (km/h)	Precipitation	Cloud Cover	Temperature (°C)	Wind (km/h)	Precipitation	Cloud Cover	Temperature (°C)	Wind (km/h)	Precipitation	Cloud Cover	Temperature (°C)	Wind (km/h)	Precipitation	Cloud Cover	Temperature (°C)	Wind (km/h)	Precipitation	Cloud Cover	Temperature (°C)	Wind (km/h)	Precipitation	Cloud Cover
		0%	12	0	0	10%	15	0	0	0%	11	0	0	10%	16	0	0	10%	10	0	0	10%	16	<5	0	10%	10-Jan	0	0	10%	18-Jan	<5	0
		Count Name: PC05								Count Name: PC06								Count Name: PC07								Count Name: PC08							
		UTM: 20 T 320532 5206492								UTM: 20 T 320069 5206722								UTM: 20 T 319599 5206963								UTM: 20 T 319129 5207195							
		Habitat: Conifer forest								Habitat: Shrub (alder) wetland								Habitat: Mixed forest								Habitat: Mixed forest, shrub wetland							
Total Individuals Counted		1	5	7	0	3	9	1	0	1	7	7	0	3	7	5	0	1	7	9	0	3	8	3	0	1	7	6	0	1	7	3	0
Species per Count		19								17								19								18							
Code	Common Name	Max. Occurrence	Occur. Per Pts	Total Number Obs.	Total within 100m	0-50m	50-100m	>100	Flyover	0-50m	50-100m	>100	Flyover	0-50m	50-100m	>100	Flyover	0-50m	50-100m	>100	Flyover	0-50m	50-100m	>100	Flyover	0-50m	50-100m	>100	Flyover	0-50m	50-100m	>100	Flyover
ALFL	Alder Flycatcher	7	5	8	6	0	0	1	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
AMCR	American Crow	16	9	21	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
AMGO	American Goldfinch	9	9	12	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
AMRE	American Redstart	11	7	11	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0			
AMRO	American Robin	18	13	19	13	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1	0	0			
AMWI	American Wigeon	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
BBWA	Bay-breasted Warbler	4	4	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0			
BEKI	Belted Kingfisher	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
BAWW	Black-and-white Warbler	21	16	24	21	0	0	0	0	1	0	0	0	0	2	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0			
BLBW	Blackburnian Warbler	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
BCCH	Black-capped Chickadee	12	10	12	9	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0			
BLJA	Blue Jay	5	5	5	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
BHVI	Blue-headed Vireo	7	6	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0			
BOBO	Bobolink	4	2	6	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
BWHA	Broad-winged Hawk	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
BRCR	Brown Creeper	3	3	3	3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
CAWA	Canada Warbler	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
CEDW	Cedar Waxwing	19	9	20	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0			
CSWA	Chestnut-sided Warbler	5	5	5	4	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
CHSP	Chipping Sparrow	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
COGR	Common Grackle	3	3	3	3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
CORA	Common Raven	3	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
COYE	Common Yellowthroat	17	13	22	19	0	0	1	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	1	0	0	2			
DEJU	Dark-eyed Junco	6	5	7	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1			
DOWO	Downy Woodpecker	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
EAPH	Eastern Phoebe	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
EAWP	Eastern Wood-Pewee	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
EUST	European Starling	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
GCKI	Golden-crowned Kinglet	7	7	7	7	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0			
HAWO	Hairy Woodpecker	4	4	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0			
HETH	Hermit Thrush	13	11	18	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0			
LEFL	Least Flycatcher	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
MAWA	Magnolia Warbler	17	11	20	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
MODD	Mourning Dove	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
NAWA	Nashville Warbler	15	9	16	13	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0			
NOFL	Northern Flicker	4	4	4	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0			
NOPA	Northern Parula	18	13	18	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0			
NOWA	Northern Waterthrush	3	3	3	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
OCWA	Orange-crowned Warbler	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
OVEN	Ovenbird	15	11	16	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0			
PAWA	Palm Warbler	3	3	3	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
PHVI	Philadelphia Vireo	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
RBNU	Red-breasted Nuthatch	14	11	15	4	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0			
REVI	Red-eyed Vireo	36	18	42	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0			
RTHA	Red-tailed Hawk	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
RWBL	Red-winged Blackbird	5	1	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
ROPI	Rock Pigeon	5	2	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
RCKI	Ruby-crowned Kinglet	7	4	8	4	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
SAVS	Savannah Sparrow	3	2	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
SOSP	Song Sparrow	10	4	12	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
SWTH	Swainson's Thrush	18	12	19	6	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0			

Table 7B-1 June 2016 Point Count Surveys, Miramichi to Glenwood

		9								10								11								12							
		Round 1				Round 2				Round 1				Round 2				Round 1				Round 2				Round 1				Round 2			
		Survey Date: 10-Jun-16				Survey Date: 27-Jun-16				Survey Date: 10-Jun-16				Survey Date: 27-Jun-16				Survey Date: 10-Jun-16				Survey Date: 27-Jun-16				Survey Date: 10-Jun-16				Survey Date: 28-Jun-16			
		Surveyor: M. Cameron-MacMillan				Surveyor: M. Cameron-MacMillan				Surveyor: M. Cameron-MacMillan				Surveyor: M. Cameron-MacMillan				Surveyor: M. Cameron-MacMillan				Surveyor: M. Cameron-MacMillan				Surveyor: M. Cameron-MacMillan							
		Survey Start: 9:52				Survey Start: 9:04				Survey Start: 9:30				Survey Start: 9:29				Survey Start: 9:05				Survey Start: 9:52				Survey Start: 8:43				Survey Start: 10:00			
		Weather				Weather				Weather				Weather				Weather				Weather				Weather							
		Temperature (°C)	Wind (km/h)	Precipitation	Cloud Cover	Temperature (°C)	Wind (km/h)	Precipitation	Cloud Cover	Temperature (°C)	Wind (km/h)	Precipitation	Cloud Cover	Temperature (°C)	Wind (km/h)	Precipitation	Cloud Cover	Temperature (°C)	Wind (km/h)	Precipitation	Cloud Cover	Temperature (°C)	Wind (km/h)	Precipitation	Cloud Cover	Temperature (°C)	Wind (km/h)	Precipitation	Cloud Cover	Temperature (°C)	Wind (km/h)	Precipitation	
		100%	10	<10	0	10%	20	<5	0	100%	10	<10	0	0%	20	<20	0	100%	9	<10	0	0%	20	<10	0	100%	9	<20	0	100%	16	<25	0
Count Name:		PC09								PC10								PC11								PC12							
UTM:		20 T 318696 5207472								20 T 318343 5207866								20 T 318031 5208276								20 T 317733 5208680							
Habitat:		Regenerating conifer forest								Mixed forest								Mixed forest								Young deciduous forest							
Total Individuals Counted		1	6	3	0	2	9	1	0	2	3	4	0	1	3	1	0	0	5	2	0	5	2	0	0	1	3	4	0	0	3	2	0
Species per Count		13								10								9								11							
Code	Common Name	Max. Occurrence	Occur. Per Pts	Total Number Obs.	Total within 100m	0-50m	50-100m	>100	Flyover	0-50m	50-100m	>100	Flyover	0-50m	50-100m	>100	Flyover	0-50m	50-100m	>100	Flyover	0-50m	50-100m	>100	Flyover	0-50m	50-100m	>100	Flyover				
ALFL	Alder Flycatcher	7	5	8	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
AMCR	American Crow	16	9	21	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0			
AMGO	American Goldfinch	9	9	12	12	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
AMRE	American Redstart	11	7	11	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0			
AMRO	American Robin	18	13	19	13	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0			
AMWI	American Wigeon	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
BBWA	Bay-breasted Warbler	4	4	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
BEKI	Belted Kingfisher	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
BAWW	Black-and-white Warbler	21	16	24	21	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0			
BLBW	Blackburnian Warbler	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
BCCH	Black-capped Chickadee	12	10	12	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
BLJA	Blue Jay	5	5	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
BHVI	Blue-headed Vireo	7	6	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
BOBO	Bobolink	4	2	6	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
BWHA	Broad-winged Hawk	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
BRCR	Brown Creeper	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
CAWA	Canada Warbler	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
CEDW	Cedar Waxwing	19	9	20	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0			
CSWA	Chestnut-sided Warbler	5	5	5	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
CHSP	Chipping Sparrow	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
COGR	Common Grackle	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
CORA	Common Raven	3	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
COYE	Common Yellowthroat	17	13	22	19	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
DEJU	Dark-eyed Junco	6	5	7	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
DOWO	Downy Woodpecker	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
EAPH	Eastern Phoebe	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
EAWP	Eastern Wood-Pewee	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
EUST	European Starling	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
GCKI	Golden-crowned Kinglet	7	7	7	7	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
HAWO	Hairy Woodpecker	4	4	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
HETH	Hermit Thrush	13	11	18	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0			
LEFL	Least Flycatcher	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
MAWA	Magnolia Warbler	17	11	20	18	0	2	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0			
MODO	Mourning Dove	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
NAWA	Nashville Warbler	15	9	16	13	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
NOFL	Northern Flicker	4	4	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
NOPA	Northern Parula	18	13	18	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1			
NOWA	Northern Waterthrush	3	3	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
OCWA	Orange-crowned Warbler	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
OVEN	Ovenbird	15	11	16	11	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0			
PAWA	Palm Warbler	3	3	3	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
PHVI	Philadelphia Vireo	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
RBNU	Red-breasted Nuthatch	14	11	15	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0			
REVI	Red-eyed Vireo	36	18	42	35	0	0	0	0	1	0	0	1	0	0	0	0	0	2	0	0	1	0	0	0	0	1	0	0	0			
RTHA	Red-tailed Hawk	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
RWBL	Red-winged Blackbird	5	1	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
ROPI	Rock Pigeon	5	2	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
RCKI	Ruby-crowned Kinglet	7	4	8	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
SAVS	Savannah Sparrow	3	2	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
SOSP	Song Sparrow	10	4	12	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
SWTH	Swainson's Thrush	18	12	19	6	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0			
SWSP	Swamp Sparrow	2	2	2	1	0	0	0																									











**Appendix 7C**  
**ACCDC and MBBA Species Lists**



Table 7C-1 MBBA Species List for Atlas Squares 20LT10, 20LT11 and 20LT20

Common Name	Scientific Name	Breeding Evidence Code	Breeding Status	Atlas Square
Alder Flycatcher	<i>Empidonax alnorum</i>	T	Probable	20LT20
Alder Flycatcher	<i>Empidonax alnorum</i>	S	Possible	20LT10
Alder Flycatcher	<i>Empidonax alnorum</i>	S	Possible	20LT11
American Bittern	<i>Botaurus lentiginosus</i>	S	Possible	20LT10
American Bittern	<i>Botaurus lentiginosus</i>	FY	Confirmed	20LT11
American Black Duck	<i>Anas rubripes</i>	FY	Confirmed	20LT11
American Black Duck	<i>Anas rubripes</i>	FY	Confirmed	20LT10
American Crow	<i>Corvus brachyrhynchos</i>	FY	Confirmed	20LT20
American Crow	<i>Corvus brachyrhynchos</i>	T	Probable	20LT10
American Crow	<i>Corvus brachyrhynchos</i>	AE	Confirmed	20LT11
American Goldfinch	<i>Spinus tristis</i>	S	Possible	20LT20
American Goldfinch	<i>Spinus tristis</i>	P	Probable	20LT10
American Goldfinch	<i>Spinus tristis</i>	CF	Confirmed	20LT11
American Kestrel	<i>Falco sparverius</i>	H	Possible	20LT20
American Kestrel	<i>Falco sparverius</i>	T	Probable	20LT10
American Kestrel	<i>Falco sparverius</i>	H	Possible	20LT11
American Redstart	<i>Setophaga ruticilla</i>	S	Possible	20LT20
American Redstart	<i>Setophaga ruticilla</i>	T	Probable	20LT10
American Redstart	<i>Setophaga ruticilla</i>	NE	Confirmed	20LT11
American Robin	<i>Turdus migratorius</i>	CF	Confirmed	20LT20
American Robin	<i>Turdus migratorius</i>	CF	Confirmed	20LT10
American Robin	<i>Turdus migratorius</i>	NY	Confirmed	20LT11
American Wigeon	<i>Anas americana</i>	P	Probable	20LT10
American Wigeon	<i>Anas americana</i>	P	Probable	20LT11
American Woodcock	<i>Scolopax minor</i>	H	Possible	20LT20
American Woodcock	<i>Scolopax minor</i>	S	Possible	20LT10
American Woodcock	<i>Scolopax minor</i>	S	Possible	20LT11
Bald Eagle	<i>Haliaeetus leucocephalus</i>	H	Possible	20LT10
Bald Eagle	<i>Haliaeetus leucocephalus</i>	NY	Confirmed	20LT11
Baltimore Oriole	<i>Icterus galbula</i>	NB	Confirmed	20LT11
Barn Swallow	<i>Hirundo rustica</i>	P	Probable	20LT20
Barn Swallow	<i>Hirundo rustica</i>	FY	Confirmed	20LT10
Barn Swallow	<i>Hirundo rustica</i>	AE	Confirmed	20LT11
Barred Owl	<i>Strix varia</i>	S	Possible	20LT11
Bay-breasted Warbler	<i>Setophaga castanea</i>	D	Probable	20LT10
Belted Kingfisher	<i>Megaceryle alcyon</i>	S	Possible	20LT20
Belted Kingfisher	<i>Megaceryle alcyon</i>	P	Probable	20LT10
Belted Kingfisher	<i>Megaceryle alcyon</i>	P	Probable	20LT11
Black-and-white Warbler	<i>Mniotilta varia</i>	S	Possible	20LT11
Black-and-white Warbler	<i>Mniotilta varia</i>	CF	Confirmed	20LT10
Black-and-white Warbler	<i>Mniotilta varia</i>	CF	Confirmed	20LT20
Blackburnian Warbler	<i>Setophaga fusca</i>	S	Possible	20LT20
Blackburnian Warbler	<i>Setophaga fusca</i>	S	Possible	20LT10
Black-capped Chickadee	<i>Poecile atricapillus</i>	A	Probable	20LT20
Black-capped Chickadee	<i>Poecile atricapillus</i>	CF	Confirmed	20LT10
Black-capped Chickadee	<i>Poecile atricapillus</i>	NY	Confirmed	20LT11
Black-throated Blue Warbler	<i>Setophaga caerulescens</i>	S	Possible	20LT10
Black-throated Blue Warbler	<i>Setophaga caerulescens</i>	T	Probable	20LT11
Blue Jay	<i>Cyanocitta cristata</i>	FY	Confirmed	20LT20
Blue Jay	<i>Cyanocitta cristata</i>	S	Possible	20LT10
Blue Jay	<i>Cyanocitta cristata</i>	A	Probable	20LT11
Blue-headed Vireo	<i>Vireo solitarius</i>	FY	Confirmed	20LT20
Blue-headed Vireo	<i>Vireo solitarius</i>	S	Possible	20LT10
Blue-headed Vireo	<i>Vireo solitarius</i>	FY	Confirmed	20LT11
Blue-winged Teal	<i>Anas discors</i>	FY	Confirmed	20LT11
Bobolink	<i>Dolichonyx oryzivorus</i>	D	Probable	20LT20
Bobolink	<i>Dolichonyx oryzivorus</i>	T	Probable	20LT10
Bobolink	<i>Dolichonyx oryzivorus</i>	S	Possible	20LT11
Broad-winged Hawk	<i>Buteo platypterus</i>	T	Probable	20LT20
Brown Creeper	<i>Certhia americana</i>	T	Probable	20LT11
Canada Goose	<i>Branta canadensis</i>	FY	Confirmed	20LT10
Canada Goose	<i>Branta canadensis</i>	FY	Confirmed	20LT11
Cape May Warbler	<i>Setophaga tigrina</i>	T	Probable	20LT11
Cedar Waxwing	<i>Bombycilla cedrorum</i>	P	Probable	20LT20
Cedar Waxwing	<i>Bombycilla cedrorum</i>	NB	Confirmed	20LT10
Cedar Waxwing	<i>Bombycilla cedrorum</i>	CF	Confirmed	20LT11
Chestnut-sided Warbler	<i>Setophaga pensylvanica</i>	CF	Confirmed	20LT20
Chestnut-sided Warbler	<i>Setophaga pensylvanica</i>	CF	Confirmed	20LT10
Chipping Sparrow	<i>Spizella passerina</i>	S	Possible	20LT20



**Table 7C-1 MBBA Species List for Atlas Squares 20LT10, 20LT11 and 20LT20**

Common Name	Scientific Name	Breeding Evidence Code	Breeding Status	Atlas Square
Chipping Sparrow	<i>Spizella passerina</i>	A	Probable	20LT10
Chipping Sparrow	<i>Spizella passerina</i>	NB	Confirmed	20LT11
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	AE	Confirmed	20LT10
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	FY	Confirmed	20LT11
Common Grackle	<i>Quiscalus quiscula</i>	CF	Confirmed	20LT20
Common Grackle	<i>Quiscalus quiscula</i>	CF	Confirmed	20LT10
Common Grackle	<i>Quiscalus quiscula</i>	CF	Confirmed	20LT11
Common Nighthawk	<i>Chordeiles minor</i>	P	Probable	20LT11
Common Raven	<i>Corvus corax</i>	P	Probable	20LT20
Common Raven	<i>Corvus corax</i>	FY	Confirmed	20LT10
Common Raven	<i>Corvus corax</i>	T	Probable	20LT11
Common Yellowthroat	<i>Geothlypis trichas</i>	A	Probable	20LT20
Common Yellowthroat	<i>Geothlypis trichas</i>	FY	Confirmed	20LT10
Common Yellowthroat	<i>Geothlypis trichas</i>	CF	Confirmed	20LT11
Dark-eyed Junco	<i>Junco hyemalis</i>	S	Possible	20LT10
Downy Woodpecker	<i>Picoides pubescens</i>	H	Possible	20LT10
Downy Woodpecker	<i>Picoides pubescens</i>	FY	Confirmed	20LT11
Eastern Bluebird	<i>Sialia sialis</i>	NY	Confirmed	20LT11
Eastern Bluebird	<i>Sialia sialis</i>	P	Probable	20LT20
Eastern Bluebird	<i>Sialia sialis</i>	NE	Confirmed	20LT10
Eastern Kingbird	<i>Tyrannus tyrannus</i>	H	Possible	20LT10
Eastern Kingbird	<i>Tyrannus tyrannus</i>	CF	Confirmed	20LT11
Eastern Phoebe	<i>Sayornis phoebe</i>	NE	Confirmed	20LT10
Eastern Wood-Pewee	<i>Contopus virens</i>	S	Possible	20LT10
Eastern Wood-Pewee	<i>Contopus virens</i>	T	Probable	20LT11
European Starling	<i>Sturnus vulgaris</i>	CF	Confirmed	20LT20
European Starling	<i>Sturnus vulgaris</i>	CF	Confirmed	20LT10
European Starling	<i>Sturnus vulgaris</i>	AE	Confirmed	20LT11
Golden-crowned Kinglet	<i>Regulus satrapa</i>	S	Possible	20LT20
Golden-crowned Kinglet	<i>Regulus satrapa</i>	S	Possible	20LT10
Golden-crowned Kinglet	<i>Regulus satrapa</i>	FY	Confirmed	20LT11
Gray Catbird	<i>Dumetella carolinensis</i>	FY	Confirmed	20LT10
Gray Catbird	<i>Dumetella carolinensis</i>	A	Probable	20LT11
Gray Jay	<i>Perisoreus canadensis</i>	S	Possible	20LT20
Gray Jay	<i>Perisoreus canadensis</i>	H	Possible	20LT11
Great Black-backed Gull	<i>Larus marinus</i>	H	Possible	20LT20
Great Black-backed Gull	<i>Larus marinus</i>	AE	Confirmed	20LT11
Great Blue Heron	<i>Ardea herodias</i>	H	Possible	20LT10
Great Horned Owl	<i>Bubo virginianus</i>	A	Probable	20LT11
Green-winged Teal	<i>Anas crecca</i>	FY	Confirmed	20LT11
Hairy Woodpecker	<i>Picoides villosus</i>	H	Possible	20LT20
Hairy Woodpecker	<i>Picoides villosus</i>	NY	Confirmed	20LT10
Hairy Woodpecker	<i>Picoides villosus</i>	S	Possible	20LT11
Hermit Thrush	<i>Catharus guttatus</i>	S	Possible	20LT11
Hermit Thrush	<i>Catharus guttatus</i>	T	Probable	20LT10
Hermit Thrush	<i>Catharus guttatus</i>	S	Possible	20LT20
Hooded Merganser	<i>Lophodytes cucullatus</i>	FY	Confirmed	20LT10
Hooded Merganser	<i>Lophodytes cucullatus</i>	FY	Confirmed	20LT11
Horned Lark	<i>Eremophila alpestris</i>	DD	Confirmed	20LT10
House Finch	<i>Haemorhous mexicanus</i>	S	Possible	20LT11
House Sparrow	<i>Passer domesticus</i>	T	Probable	20LT10
Killdeer	<i>Charadrius vociferus</i>	FY	Confirmed	20LT10
Killdeer	<i>Charadrius vociferus</i>	FY	Confirmed	20LT11
Least Flycatcher	<i>Empidonax minimus</i>	S	Possible	20LT10
Magnolia Warbler	<i>Setophaga magnolia</i>	S	Possible	20LT11
Magnolia Warbler	<i>Setophaga magnolia</i>	S	Possible	20LT10
Magnolia Warbler	<i>Setophaga magnolia</i>	D	Probable	20LT20
Mallard	<i>Anas platyrhynchos</i>	FY	Confirmed	20LT10
Mallard	<i>Anas platyrhynchos</i>	FY	Confirmed	20LT11
Merlin	<i>Falco columbarius</i>	NY	Confirmed	20LT11
Mourning Dove	<i>Zenaida macroura</i>	T	Probable	20LT20
Mourning Dove	<i>Zenaida macroura</i>	S	Possible	20LT10
Mourning Dove	<i>Zenaida macroura</i>	P	Probable	20LT11
Mourning Warbler	<i>Geothlypis philadelphia</i>	A	Probable	20LT20
Mourning Warbler	<i>Geothlypis philadelphia</i>	S	Possible	20LT11
Nashville Warbler	<i>Oreothlypis ruficapilla</i>	T	Probable	20LT11
Nashville Warbler	<i>Oreothlypis ruficapilla</i>	S	Possible	20LT10
Nashville Warbler	<i>Oreothlypis ruficapilla</i>	CF	Confirmed	20LT20
Northern Flicker	<i>Colaptes auratus</i>	P	Probable	20LT20



Table 7C-1 MBBA Species List for Atlas Squares 20LT10, 20LT11 and 20LT20

Common Name	Scientific Name	Breeding Evidence Code	Breeding Status	Atlas Square
Northern Flicker	<i>Colaptes auratus</i>	FY	Confirmed	20LT10
Northern Flicker	<i>Colaptes auratus</i>	CF	Confirmed	20LT11
Northern Harrier	<i>Circus cyaneus</i>	T	Probable	20LT10
Northern Mockingbird	<i>Mimus polyglottos</i>	FY	Confirmed	20LT11
Northern Parula	<i>Setophaga americana</i>	S	Possible	20LT20
Northern Parula	<i>Setophaga americana</i>	S	Possible	20LT10
Northern Parula	<i>Setophaga americana</i>	T	Probable	20LT11
Northern Waterthrush	<i>Parlesia noveboracensis</i>	A	Probable	20LT10
Osprey	<i>Pandion haliaetus</i>	H	Possible	20LT10
Osprey	<i>Pandion haliaetus</i>	P	Probable	20LT11
Ovenbird	<i>Seiurus aurocapilla</i>	S	Possible	20LT20
Ovenbird	<i>Seiurus aurocapilla</i>	T	Probable	20LT10
Ovenbird	<i>Seiurus aurocapilla</i>	T	Probable	20LT11
Philadelphia Vireo	<i>Vireo philadelphicus</i>	FY	Confirmed	20LT20
Philadelphia Vireo	<i>Vireo philadelphicus</i>	S	Possible	20LT10
Philadelphia Vireo	<i>Vireo philadelphicus</i>	S	Possible	20LT11
Pied-billed Grebe	<i>Podilymbus podiceps</i>	FY	Confirmed	20LT10
Pied-billed Grebe	<i>Podilymbus podiceps</i>	FY	Confirmed	20LT11
Pileated Woodpecker	<i>Dryocopus pileatus</i>	P	Probable	20LT20
Pileated Woodpecker	<i>Dryocopus pileatus</i>	H	Possible	20LT10
Pileated Woodpecker	<i>Dryocopus pileatus</i>	S	Possible	20LT11
Pine Siskin	<i>Spinus pinus</i>	H	Possible	20LT10
Pine Siskin	<i>Spinus pinus</i>	H	Possible	20LT20
Pine Warbler	<i>Setophaga pinus</i>	T	Probable	20LT11
Purple Finch	<i>Haemorhous purpureus</i>	T	Probable	20LT10
Purple Finch	<i>Haemorhous purpureus</i>	T	Probable	20LT11
Purple Finch	<i>Haemorhous purpureus</i>	CF	Confirmed	20LT20
Red-breasted Nuthatch	<i>Sitta canadensis</i>	S	Possible	20LT20
Red-breasted Nuthatch	<i>Sitta canadensis</i>	P	Probable	20LT11
Red-breasted Nuthatch	<i>Sitta canadensis</i>	S	Possible	20LT10
Red-eyed Vireo	<i>Vireo olivaceus</i>	T	Probable	20LT20
Red-eyed Vireo	<i>Vireo olivaceus</i>	S	Possible	20LT11
Red-eyed Vireo	<i>Vireo olivaceus</i>	T	Probable	20LT10
Red-tailed Hawk	<i>Buteo jamaicensis</i>	H	Possible	20LT11
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	S	Possible	20LT20
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	NY	Confirmed	20LT11
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	A	Probable	20LT10
Ring-necked Duck	<i>Aythya collaris</i>	FY	Confirmed	20LT11
Ring-necked Duck	<i>Aythya collaris</i>	P	Probable	20LT10
Rock Pigeon (Feral Pigeon)	<i>Columba livia (Feral Pigeon)</i>	NB	Confirmed	20LT20
Rock Pigeon (Feral Pigeon)	<i>Columba livia (Feral Pigeon)</i>	NB	Confirmed	20LT11
Rock Pigeon (Feral Pigeon)	<i>Columba livia (Feral Pigeon)</i>	AE	Confirmed	20LT10
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	H	Possible	20LT10
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	S	Possible	20LT11
Ruby-crowned Kinglet	<i>Regulus calendula</i>	S	Possible	20LT20
Ruby-crowned Kinglet	<i>Regulus calendula</i>	T	Probable	20LT11
Ruby-crowned Kinglet	<i>Regulus calendula</i>	S	Possible	20LT10
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	T	Probable	20LT20
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	FY	Confirmed	20LT11
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	T	Probable	20LT10
Ruffed Grouse	<i>Bonasa umbellus</i>	FY	Confirmed	20LT11
Ruffed Grouse	<i>Bonasa umbellus</i>	FY	Confirmed	20LT10
Ruffed Grouse	<i>Bonasa umbellus</i>	S	Possible	20LT20
Savannah Sparrow	<i>Passerculus sandwichensis</i>	S	Possible	20LT20
Savannah Sparrow	<i>Passerculus sandwichensis</i>	CF	Confirmed	20LT11
Savannah Sparrow	<i>Passerculus sandwichensis</i>	NB	Confirmed	20LT10
Sharp-shinned Hawk	<i>Accipiter striatus</i>	H	Possible	20LT20
Song Sparrow	<i>Melospiza melodia</i>	S	Possible	20LT20
Song Sparrow	<i>Melospiza melodia</i>	CF	Confirmed	20LT11
Song Sparrow	<i>Melospiza melodia</i>	CF	Confirmed	20LT10
Sora	<i>Porzana carolina</i>	T	Probable	20LT11
Sora	<i>Porzana carolina</i>	S	Possible	20LT10
Spotted Sandpiper	<i>Actitis macularius</i>	DD	Confirmed	20LT11
Spotted Sandpiper	<i>Actitis macularius</i>	FY	Confirmed	20LT10
Swainson's Thrush	<i>Catharus ustulatus</i>	S	Possible	20LT20
Swainson's Thrush	<i>Catharus ustulatus</i>	T	Probable	20LT11
Swainson's Thrush	<i>Catharus ustulatus</i>	S	Possible	20LT10
Swamp Sparrow	<i>Melospiza georgiana</i>	A	Probable	20LT11
Swamp Sparrow	<i>Melospiza georgiana</i>	T	Probable	20LT10

**Table 7C-1 MBBA Species List for Atlas Squares 20LT10, 20LT11 and 20LT20**

Common Name	Scientific Name	Breeding Evidence Code	Breeding Status	Atlas Square
Tennessee Warbler	<i>Oreothlypis peregrina</i>	S	Possible	20LT11
Tennessee Warbler	<i>Oreothlypis peregrina</i>	S	Possible	20LT10
Tree Swallow	<i>Tachycineta bicolor</i>	AE	Confirmed	20LT20
Tree Swallow	<i>Tachycineta bicolor</i>	AE	Confirmed	20LT11
Tree Swallow	<i>Tachycineta bicolor</i>	AE	Confirmed	20LT10
Veery	<i>Catharus fuscescens</i>	S	Possible	20LT20
Veery	<i>Catharus fuscescens</i>	S	Possible	20LT11
Veery	<i>Catharus fuscescens</i>	T	Probable	20LT10
Vesper Sparrow	<i>Poocetes gramineus</i>	S	Possible	20LT11
Warbling Vireo	<i>Vireo gilvus</i>	S	Possible	20LT11
Warbling Vireo	<i>Vireo gilvus</i>	CF	Confirmed	20LT10
White-throated Sparrow	<i>Zonotrichia albicollis</i>	A	Probable	20LT20
White-throated Sparrow	<i>Zonotrichia albicollis</i>	A	Probable	20LT11
White-throated Sparrow	<i>Zonotrichia albicollis</i>	A	Probable	20LT10
White-winged Crossbill	<i>Loxia leucoptera</i>	T	Probable	20LT11
White-winged Crossbill	<i>Loxia leucoptera</i>	P	Probable	20LT10
Wilson's Snipe	<i>Gallinago delicata</i>	D	Probable	20LT10
Winter Wren	<i>Troglodytes hiemalis</i>	T	Probable	20LT20
Yellow Warbler	<i>Setophaga petechia</i>	CF	Confirmed	20LT10
Yellow Warbler	<i>Setophaga petechia</i>	T	Probable	20LT11
Yellow-bellied Flycatcher	<i>Empidonax flaviventris</i>	S	Possible	20LT10
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	FY	Confirmed	20LT10
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	H	Possible	20LT20
Yellow-rumped Warbler	<i>Setophaga coronata</i>	FY	Confirmed	20LT20
Yellow-rumped Warbler	<i>Setophaga coronata</i>	S	Possible	20LT11
Yellow-rumped Warbler	<i>Setophaga coronata</i>	S	Possible	20LT10

**Notes:**

Breeding Evidence Codes:

**OBSERVED**

X: Species observed in its breeding season (no breeding evidence)

**POSSIBLE**

H: Species observed in its breeding season in suitable nesting habitat

S: Singing male(s) present, or breeding calls heard, in suitable nesting habitat in breeding season

**PROBABLE**

P: Pair observed in suitable nesting habitat in breeding season

T: Permanent territory presumed through registration of territorial song, or the occurrence of an adult bird, at the same place, in breeding habitat, on at least two days spaced a week or more apart, during its breeding season

D: Courtship or display, including interaction between a male and a female or two males, including courtship feeding or copulation

V: Visiting probable nest site

A: Agitated behaviour or anxiety calls of an adult

B: Brood Patch on adult female or cloacal protuberance on adult male

N: Nest-building or excavation of nest hole by wrens and woodpeckers

**CONFIRMED**

NB: Nest building or carrying nest materials, for all species except wrens and woodpeckers

DD: Distraction display or injury feigning

NU: Used nest or egg shells found (occupied or laid within the period of the survey)

FY: Recently fledged young (nidicolous species) or downy young (nidifugous species), including incapable of sustained flight

AE: Adult leaving or entering nest sites in circumstances indicating occupied nest

FS: Adult carrying fecal sac

CF: Adult carrying food for young

NE: Nest containing eggs

NY: Nest with young seen or heard

**Table 7C-2 Avian SAR Reported by ACCDC Within 5 km of Study Area**

Scientific Name	Common Name	COSEWIC	SARA	NB SARA	ACCDC	NB General Status
<i>Podiceps grisegena</i>	Red-necked Grebe	Not At Risk			S3M,S2N	3 Sensitive
<i>Anas acuta</i>	Northern Pintail				S3B	3 Sensitive
<i>Anas clypeata</i>	Northern Shoveler				S2B	4 Secure
<i>Anas americana</i>	American Wigeon				S3B	4 Secure
<i>Bucephala islandica (Eastern pop.)</i>	Barrow's Goldeneye - Eastern pop.	Special Concern	Special Concern	Special Concern	S2N	3 Sensitive
<i>Bucephala albeola</i>	Bufflehead				S3N	3 Sensitive
<i>Mergus serrator</i>	Red-breasted Merganser				S3B,S4S5N	4 Secure
<i>Cathartes aura</i>	Turkey Vulture				S3B	4 Secure
<i>Buteo lineatus</i>	Red-shouldered Hawk	Not At Risk	Special Concern		S2B	2 May Be At Risk
<i>Rallus limicola</i>	Virginia Rail				S3B	3 Sensitive
<i>Fulica americana</i>	American Coot	Not At Risk			S2B	3 Sensitive
<i>Charadrius vociferus</i>	Killdeer				S3B	3 Sensitive
<i>Tringa solitaria</i>	Solitary Sandpiper				S2B,S5M	4 Secure
<i>Larus delawarensis</i>	Ring-billed Gull				S3B	4 Secure
<i>Chordeiles minor</i>	Common Nighthawk	Threatened	Threatened	Threatened	S3B	1 At Risk
<i>Caprimulgus vociferus</i>	Whip-Poor-Will	Threatened	Threatened	Threatened	S2B	1 At Risk
<i>Chaetura pelagica</i>	Chimney Swift	Threatened	Threatened	Threatened	S2S3B	1 At Risk
<i>Contopus cooperi</i>	Olive-sided Flycatcher	Threatened	Threatened	Threatened	S3S4B	1 At Risk
<i>Contopus virens</i>	Eastern Wood-Pewee	Special Concern		Special Concern	S4B	4 Secure
<i>Myiarchus crinitus</i>	Great Crested Flycatcher				S3B	3 Sensitive
<i>Tyrannus tyrannus</i>	Eastern Kingbird				S3S4B	3 Sensitive
<i>Eremophila alpestris</i>	Horned Lark				S2B	2 May Be At Risk
<i>Riparia riparia</i>	Bank Swallow	Threatened			S3B	3 Sensitive
<i>Petrochelidon pyrrhonota</i>	Cliff Swallow				S3S4B	3 Sensitive
<i>Hirundo rustica</i>	Barn Swallow	Threatened		Threatened	S3B	3 Sensitive
<i>Hylocichla mustelina</i>	Wood Thrush	Threatened		Threatened	S1S2B	2 May Be At Risk
<i>Mimus polyglottos</i>	Northern Mockingbird				S3B	3 Sensitive
<i>Toxostoma rufum</i>	Brown Thrasher				S2B	3 Sensitive
<i>Wilsonia canadensis</i>	Canada Warbler	Threatened	Threatened	Threatened	S3S4B	1 At Risk
<i>Piranga olivacea</i>	Scarlet Tanager				S3S4B	4 Secure
<i>Passerina cyanea</i>	Indigo Bunting				S3B	4 Secure
<i>Poocetes gramineus</i>	Vesper Sparrow				S2B	2 May Be At Risk
<i>Dolichonyx oryzivorus</i>	Bobolink	Threatened		Threatened	S3S4B	3 Sensitive
<i>Euphagus carolinus</i>	Rusty Blackbird	Special Concern	Special Concern	Special Concern	S3B	2 May Be At Risk
<i>Molothrus ater</i>	Brown-headed Cowbird				S3B	2 May Be At Risk
<i>Loxia curvirostra</i>	Red Crossbill				S3	4 Secure
<i>Coccythraustes vespertinus</i>	Evening Grosbeak				S3S4B,S4S5N	3 Sensitive