



DILLON
CONSULTING

NORTHERN PULP NOVA SCOTIA

Migratory Bird Survey

Focus Report – Replacement Effluent Treatment Facility

Appendix Focus Report Item 8.2 Migratory Bird Surveys

As required by item 8.2 of the Terms of Reference (ToR) for the Focus Report (Nova Scotia Environment (NSE) 2019), migratory bird surveys were conducted along the proposed re-aligned pipeline route that is described in **Section 2.1**, and the results of the surveys are presented in this section. Additional bird surveys for select species that are requested in item 8.3 of the ToR are addressed by Focus Report **Item 8.3**. Birds at the proposed Effluent Treatment Facility (ETF) site on Northern Pulp Nova Scotia (NPNS) property were identified in Section 8.10 of the Environmental Assessment Registration Document (EARD) (NPNS 2019). Existing information on marine birds was provided in Section 8.13.2.3 of the EARD (NPNS 2019).

8.2.1 Migratory Bird Survey Program Methodology

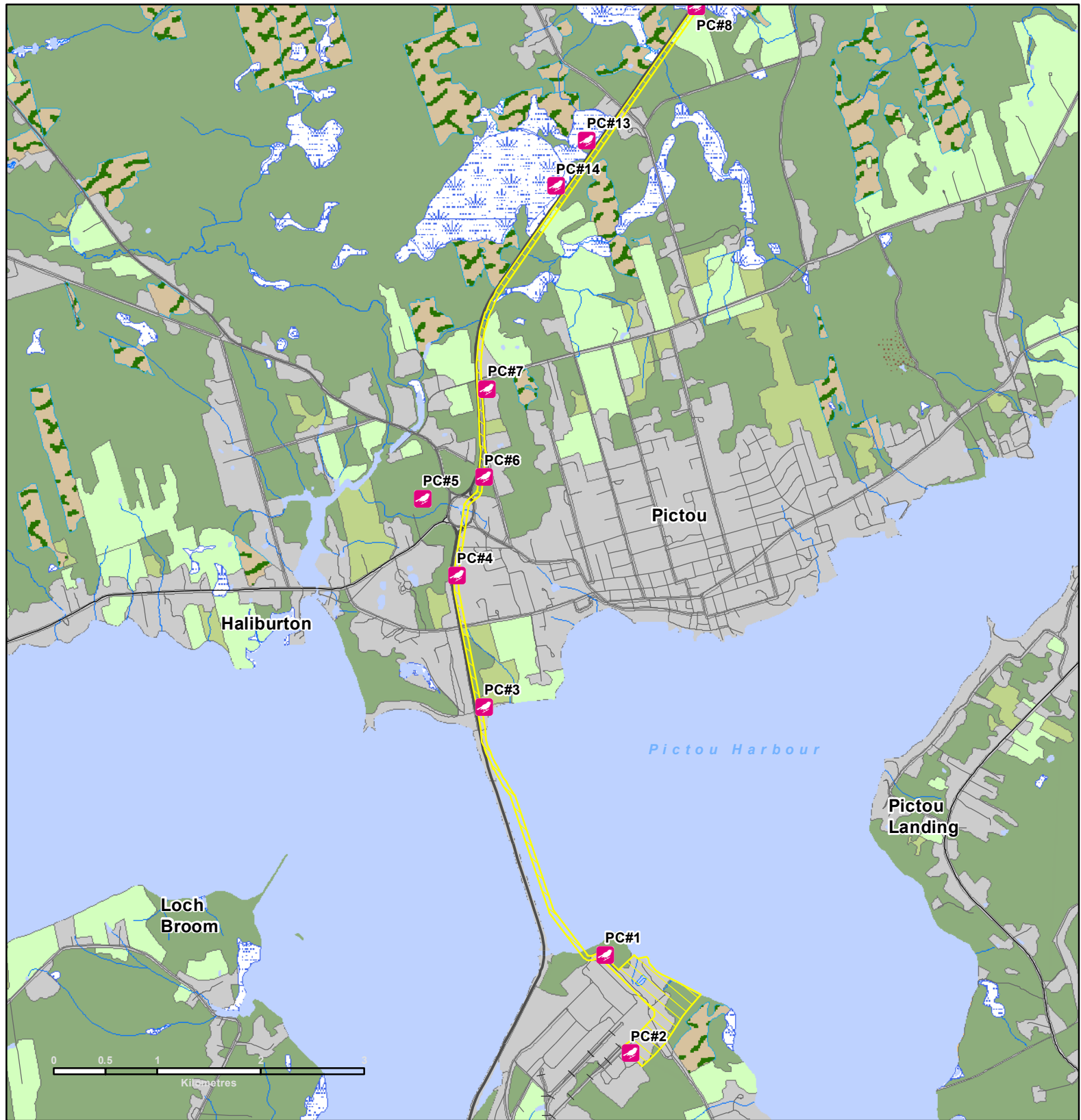
The migratory bird surveys were conducted as an update to the existing environment (as described in the EARD) based on the revised project description. Field surveys were designed to detect migratory birds, including those listed under the Migratory Birds Convention Act (MBCA), as well as identified priority birds listed pursuant to the Nova Scotia Endangered Species Act (NSESA) or the Nova Scotia Wildlife Act (NSWA). Furthermore, the evaluation of priority species also considers the definitions provided in Guide to Addressing Wildlife Species and Habitat in an EA Registration Document (NSE 2009). The EARD work informed the 2019 Migratory Bird Survey program design. The desktop assessment that was previously undertaken in support of the EARD, including a review of historical records of species at risk (SAR) and priority species (with S-ranks S1 (extremely rare) to S3 (uncommon) based on Atlantic Canada Conservation Data Centre (AC CDC 2018), as well as information from Bird Studies Canada (BSC 2019). Current AC CDC ranks were reviewed for this assessment (AC CDC 2019). The anticipated bird species that are believed to have potential to occur along the re-aligned pipeline route have not changed compared to the previous pipeline route that was described in the EARD.

Migratory bird surveys were undertaken on May 9, May 24, June 10, and July 5, 2019 within established survey windows and included breeding bird surveys (BBS) along the proposed re-aligned pipeline route.

Two types of migratory bird surveys were conducted:

- Breeding bird surveys were designed to detect and record those species which use the area of the proposed re-aligned pipeline route to breed and raise their young; and
- Migratory stop-over surveys targeted the detection of those species present during the late spring to summer migratory periods, and which may use the area as a stop-over location.

Survey locations were selected to incorporate the variety of forested and non-forested habitats present along the proposed re-aligned pipeline route. A total of 12 point count locations were identified for the surveys, ranging from point count (PC) location PC#1 at the ETF location to PC#12 located at the Northumberland Ferries marine terminal. Figure A8.2-1 provides the point count locations. Surveys



Northern Pulp Nova Scotia Corporation
 Replacement Effluent Treatment Facility
 Environmental Assessment- Focus report

Bird Point Count Locations
 Figure A8.2-1

- | | | | |
|-------------------------------------|---|------------|--------------|
| Bird Survey Point Count Locations | Cut Over (Varying Stages of Regeneration) | Developed | Dunes/Cliffs |
| Approximate Project Footprint Area* | Old Field/Pasture | Open Water | Beach |
| Wooded | Agriculture | Wetland | |



MAP DRAWING INFORMATION:
 DATA PROVIDED BY Northern Pulp Nova Scotia, ESRI

MAP CREATED BY: SCM
 MAP CHECKED BY: SLD
 MAP PROJECTION: NAD 1983 UTM Zone 20N



*Precise Project Footprint to be determined following completion of detailed design

were based on a 10-minute point count methodology whereby the observer recorded all birds heard or seen within a 10-minute period from a stationary location. Playback of bird calls was not included in the 10-minute counts, but was used to follow-up on species heard. However, during this time, the observer would also scan adjacent habitat, including open water, using binoculars. When necessary, additional time would be taken at a given location in order to record all birds present.

Certain weather conditions can pose difficulties in obtaining valid point count data, as windy conditions can make it difficult to hear birds. This problem is compounded in a forested area due to the rustling of leaves. Fog also makes it difficult to see birds and depresses overall bird activity. Birds also become inactive during periods of heavy rain. Therefore, point counts were not conducted when wind conditions exceeded 29 km/hour, when visibility was less than 100 m, or when precipitation was greater than a light rain (Canadian Wildlife Service 2007). Weather observations during the surveys were recorded including temperature, sky cover, precipitation, wind direction and wind speed, and visibility.

8.2.2 Results of 2019 Migratory Bird Surveys

As noted in the EARD, spring migration in northern Nova Scotia typically begins in March, with migrating water birds, hawks, and songbirds. During April, the pace of migration and the number of returning species increases, and reaches a peak during the month of May, with a wide diversity of birds either passing through the area on their way to Arctic nesting grounds or arriving on their breeding territories in Nova Scotia. By early June, migration is nearly complete, but can continue through the first week or two of June for the latest arriving birds.

Nesting in northern Nova Scotia can begin as early as mid-March, as with the Barred Owl (*Strix varia*), and continue into early-September, as with the American Goldfinch (*Spinus tristis*) (see Nesting Calendar for Breeding Birds from BSC within the EARD). However, as recognized by the Canadian Wildlife Service (CWS), the vast majority of birds are engaged in nesting activities from mid-April to late August (i.e., Nesting Zone C3 as defined by CWS).

The fall migration of birds in northern Nova Scotia can be first detected in early July, as migrating shorebirds occur primarily in coastal areas in Nova Scotia. Many other species, including local nesting birds, begin their southward migration in August, with the peak fall migration often occurring in late August and lasting into early October. By mid-October and early November, many of the birds remaining in the area are likely resident species or birds that have arrived from more northerly climes and will likely overwinter within the area.

Tables A8.2-1 through A8.2-4 provide the results of the 2019 spring through summer migratory bird surveys conducted on May 9, May 24, June 10, and July 5, 2019, respectively. Table A8.2-5 provides a complete bird list for the 2019 spring surveys, and Table A8.2-6 provides the observed 2019 breeding bird species list.

Table A8.2-1: Bird Surveys Conducted May 9, 2019.

Scientific Name	Common Name	Number of individuals identified at Point Count Location														SARA Status	NSES Status	S-Rank	Sgs rank
		PC#1	PC#2	PC#3	PC#4	PC#5	PC#6	PC#7	PC#8	PC#9	PC#10	PC#11	PC#12	PC#13	PC#14				
<i>Anas rubripes</i>	American Black Duck					3										-	-	S5	4 Secure
<i>Corvus brachyrhynchos</i>	American Crow	3	2		2			1		3	2	1	4	2		-	-	S5	4 Secure
<i>Carduelis tristis</i>	American Goldfinch	2		2		1			1			2		1		-	-	S5	4 Secure
<i>Turdus migratorius</i>	American Robin	2		1	2	1				2	1	9				-	-	S5B,S3N	4 Secure
<i>Haliaeetus leucocephalus</i>	Bald Eagle	1				1						1	1			NAR	-	S5	4 Secure
<i>Megaceryle alcyon</i>	Belted Kingfisher			1												-	-	S5B	4 Secure
<i>Poecile atricapilla</i>	Black-capped Chickadee	2					2	1	1							-	-	S5	4 Secure
<i>Cyanocitta cristata</i>	Blue Jay	1				1						4				-	-	S5	4 Secure
<i>Certhia americana</i>	Brown Creeper									1						-	-	S5	4 Secure
<i>Branta canadensis</i>	Canada Goose								1							-	-	SNAB,S4N	4 Secure
<i>Quiscalus quiscula</i>	Common Grackle					1			1	2						-	-	S5B	4 Secure
<i>Corvus corax</i>	Common Raven			1	2				1	1	1			4		-	-	S5	4 Secure
<i>Junco hyemalis</i>	Dark-eyed Junco							1								-	-	S4S5	4 Secure
<i>Phalacrocorax auritus</i>	Double-crested Cormorant			11		1										NAR	-	S4B	4 Secure
<i>Sturnus vulgaris</i>	European Starling	2		4	2	1	1									-	-	SNA	7 Exotic
<i>Regulus satrapa</i>	Golden-crowned Kinglet										1					-	-	S5	3 Sensitive
<i>Anas crecca</i>	Green-winged Teal								3							-	-	S4S5B	4 Secure
<i>Larus argentatus</i>	Herring Gull												3			-	-	S5	4 Secure
<i>Zenaidura macroura</i>	Mourning Dove							1								-	-	S5	4 Secure
<i>Vermivora ruficapilla</i>	Nashville Warbler		1													-	-	S4S5B	4 Secure
<i>Colaptes auratus</i>	Northern Flicker					2	1			1						-	-	S5B	4 Secure
<i>Pandion haliaetus</i>	Osprey		1													-	-	S4B	4 Secure
<i>Carpodacus purpureus</i>	Purple Finch	2				1	1			3						-	-	S4S5B,S3S4	4 Secure
<i>Mergus serrator</i>	Red-breasted Merganser			6												-	-	S3S4B,S5N	4 Secure
<i>Agelaius phoeniceus</i>	Red-winged Blackbird					2	1			6						-	-	S4B	4 Secure
<i>Phasianus colchicus</i>	Ring-necked Pheasant			1			1	1								-	-	SNA	7 Exotic
<i>Columba livia</i>	Rock Pigeon		2										7			-	-	SNA	7 Exotic
<i>Regulus calendula</i>	Ruby-crowned Kinglet								1	2	1					-	-	S3S4B	3 Sensitive
<i>Zonotrichia albicollis</i>	White-throated Sparrow							3			2	1		2		-	-	S5B	4 Secure
<i>Sphyrapicus varius</i>	Yellow-bellied Sapsucker				1											-	-	S4S5B	4 Secure
<i>Dendroica coronata</i>	Yellow-rumped Warbler		2		1		2		2			2		1		-	-	S5B	4 Secure

Birder: CK

S-rank - Ranking by the Atlantic Canadian Conservation Data Centre and NatureServe. Status notes (as of November 2018): S1: Extremely rare in province; S2: Rare in the province; S3: Uncommon in province; S4: Widespread, common and apparently Secure in province; S5: Widespread, abundant and demonstrably secure in province; SNA: Not applicable; SNR: Not yet assessed in province. The use of 'S#S#' is to denote a range in rank used to indicate any uncertainty about the status of the species or community. Qualifiers: B= Breeding (breeding population), N = Nonbreeding (nonbreeding population) ? = Inexact/Uncertain, H = Historic (possibly extirpated), M = Migrant and SNR = Not yet assessed in province. (ACDC 2019).

Italicized S# - Species is ranked as S1-S3 by the AC CDC.

Bold: SARA status - Conservation status under the Species At Risk Act as of June 2019: Not at Risk (NAR), endangered (E), threatened (T), special concern (SC)

Bold: NSES Status - Conservation status under the Nova Scotia Endangered Species Act as of June 2019: Vulnerable (V)

PC - Point Count

Sgs Rank - Provincial ranks under the General Status of Wildlife Process

- not assessed by SARA or NSES

Table A8.2-2: Bird Surveys Conducted May 24, 2019.

Scientific Name	Common Name	Number of individuals identified at Point Count Location														SARA Status	NSESAs Status	S-Rank	Sgs rank
		PC#1	PC#2	PC#3	PC#4	PC#5	PC#6	PC#7	PC#8	PC#9	PC#10	PC#11	PC#12	PC#13	PC#14				
<i>Corvus brachyrhynchos</i>	American Crow		3	5		3	3		1	1		1	4			-	-	S5	4 Secure
<i>Carduelis tristis</i>	American Goldfinch		2	5	2	2	1	2	1					1	2	-	-	S5	4 Secure
<i>Setophaga ruticilla</i>	American Redstart								1							-	-	S4S5B	4 Secure
<i>Turdus migratorius</i>	American Robin	2		3	2	2			1	4	2	3	1		1	-	-	S5B,S3N	4 Secure
<i>Haliaeetus leucocephalus</i>	Bald Eagle					1					1	1	2			NAR	-	S5	4 Secure
<i>Mniotilta varia</i>	Black-and-White Warbler				1	1	1				1	1		1		-	-	S5B	4 Secure
<i>Dendroica fusca</i>	Blackburnian Warbler								1	1						-	-	S4B	4 Secure
<i>Poecile atricapilla</i>	Black-capped Chickadee	1		1	1			2		2		1		1		-	-	S5	4 Secure
<i>Dendroica virens</i>	Black-throated Green Warbler					1			2							-	-	S5B	4 Secure
<i>Cyanocitta cristata</i>	Blue Jay		1					1				1		1		-	-	S5	4 Secure
<i>Vireo solitarius</i>	Blue-headed Vireo				1	1			1	1				1		-	-	S5B	4 Secure
<i>Branta canadensis</i>	Canada Goose														1	-	-	SNAB,S4N	4 Secure
<i>Quiscalus quiscula</i>	Common Grackle					1	1									-	-	S5B	4 Secure
<i>Corvus corax</i>	Common Raven								1	3	1	1			1	-	-	S5	4 Secure
<i>Geothlypis trichas</i>	Common Yellowthroat							1	1					1		-	-	S5B	4 Secure
<i>Phalacrocorax auritus</i>	Double-crested Cormorant			3									5			NAR	-	S4B	4 Secure
<i>Picoides pubescens</i>	Downy Woodpecker										1					-	-	S5	4 Secure
<i>Sturnus vulgaris</i>	European Starling	2	11	1	6	1						2				-	-	SNA	7 Exotic
<i>Ardea herodias</i>	Great Blue Heron			3											1	-	-	S4B	4 Secure
<i>Tringa melanoleuca</i>	Greater Yellowlegs			1												-	-	S3B,S3S4M	3 Sensitive
<i>Catharus guttatus</i>	Hermit Thrush									2				1		-	-	S5B	4 Secure
<i>Charadrius vociferus</i>	Killdeer											1				-	-	S3B	3 Sensitive
<i>Colaptes auratus</i>	Northern Flicker				1		1									-	-	S5B	4 Secure
<i>Parula americana</i>	Northern Parula					1		2								-	-	S5B	4 Secure
<i>Pandion haliaetus</i>	Osprey		1													-	-	S4B	4 Secure
<i>Seiurus aurocapilla</i>	Ovenbird		1			1	1	2	1	3	1	1		2		-	-	S5B	4 Secure
<i>Dendroica palmarum</i>	Palm Warbler												1			-	-	S5B	4 Secure
<i>Carpodacus purpureus</i>	Purple Finch		1	1						1	1					-	-	S4S5B,S3S4N	4 Secure
<i>Sitta canadensis</i>	Red-breasted Nuthatch								1							-	-	S3	4 Secure
<i>Agelaius phoeniceus</i>	Red-winged Blackbird					1	1	6							1	-	-	S4B	4 Secure
<i>Aythya collaris</i>	Ring-necked Duck			1												-	-	S5B	4 Secure
<i>Columba livia</i>	Rock Pigeon		2										2			-	-	SNA	7 Exotic
<i>Regulus calendula</i>	Ruby-crowned Kinglet								1	1			1			-	-	S3S4B	3 Sensitive
<i>Melospiza melodia</i>	Song Sparrow		1	2		2	2		1							-	-	S5B	4 Secure
<i>Porzana carolina</i>	Sora								1							-	-	S5B	4 Secure
<i>Melospiza georgiana</i>	Swamp Sparrow								1							-	-	S5B	4 Secure
<i>Tachycineta bicolor</i>	Tree Swallow									1						-	-	S4B	3 Sensitive
<i>Zonotrichia albicollis</i>	White-throated Sparrow		1		1		1				1	1		1		-	-	S5B	4 Secure
<i>Wilsonia pusilla</i>	Wilson's Warbler	1														-	-	S3B	3 Sensitive
<i>Troglodytes troglodytes</i>	Winter Wren									1						-	-	S5B	4 Secure
<i>Dendroica petechia</i>	Yellow Warbler	1		4		2	1									-	-	S5B	4 Secure
<i>Sphyrapicus varius</i>	Yellow-bellied Sapsucker				1											-	-	S4S5B	4 Secure
<i>Dendroica coronata</i>	Yellow-rumped Warbler	1	2			1		1	4	3	2			1		-	-	S5B	4 Secure

Birder: CK

S-rank - Ranking by the Atlantic Canadian Conservation Data Centre and NatureServe. Status notes (as of November 2018): S1: Extremely rare in province; S2: Rare in the province; S3: Uncommon in province; S4: Widespread, common and apparently Secure in province; S5: Widespread, abundant and demonstrably secure in province; SNA: Not applicable; SNR: Not yet assessed in province. The use of 'S#S#' is to denote a range in rank used to indicate any uncertainty about the status of the species or community. Qualifiers: B= Breeding (breeding population), N = Nonbreeding (nonbreeding population) ? = Inexact/Uncertain, H = Historic (possibly extirpated), M = Italicized S# - Species is ranked as S1-S3 by the AC CDC.

Bold: SARA Status - Conservation status under the Species At Risk Act as of June 2019: Not at Risk (NAR), endangered (E), threatened (T), special concern (SC)

Bold: NSESAs Status - Conservation status under the Nova Scotia Endangered Species Act as of June 2019: Vulnerable (V)

PC - Point Count

Sgs Rank - Provincial ranks under the General Status of Wildlife Process

- not assessed by SARA or NSESAs

Table A8.2-3: Bird Surveys Conducted June 10, 2019.

Scientific Name	Common Name	Number of individuals identified at Point Count Location														SARA Status	NSESAs Status	S-Rank	Sgs rank			
		PC#1	PC#2	PC#3	PC#4	PC#5	PC#6	PC#7	PC#8	PC#9	PC#10	PC#11	PC#12	PC#13	PC#14							
<i>Empidonax alnorum</i>	Alder Flycatcher			2	2	3	2		3					1		2	-	-	S5B	4 Secure		
<i>Corvus brachyrhynchos</i>	American Crow		3	2	2		1			1	1	1	3	1			-	-	S5	4 Secure		
<i>Carduelis tristis</i>	American Goldfinch	2	1		2				1		1				4		-	-	S5	4 Secure		
<i>Setophaga ruticilla</i>	American Redstart	1		1	1	2			1			1	1			1	-	-	S4S5B	4 Secure		
<i>Turdus migratorius</i>	American Robin	2	2	1	1	1			2				3	3		1	2	-	-	S5B, S3N	4 Secure	
<i>Haliaeetus leucocephalus</i>	Bald Eagle								2					1	3		NAR	-	S5	4 Secure		
<i>Mniotilta varia</i>	Black-and-White Warbler				1	2			2								1	-	-	S5B	4 Secure	
<i>Dendroica fusca</i>	Blackburnian Warbler										1	1					1	-	-	S4B	4 Secure	
<i>Poecile atricapilla</i>	Black-capped Chickadee		2		1	1	1		1	2				2				-	-	S5	4 Secure	
<i>Dendroica virens</i>	Black-throated Green Warbler												1					-	-	S5B	4 Secure	
<i>Cyanocitta cristata</i>	Blue Jay				1	4			2	1								-	-	S5	4 Secure	
<i>Vireo solitarius</i>	Blue-headed Vireo				1									1				-	-	S5B	4 Secure	
<i>Branta canadensis</i>	Canada Goose		2													1		-	-	SNAB, S4N	4 Secure	
<i>Bombicilla cedrorum</i>	Cedar Waxwing		2		1			2	1					1				-	-	S5B	4 Secure	
<i>Dendroica pensylvanica</i>	Chestnut-sided Warbler				1	2			2	1					1			-	-	S5B	4 Secure	
<i>Quiscalus quiscula</i>	Common Grackle				1						3						1	-	-	S5B	4 Secure	
<i>Corvus corax</i>	Common Raven											1						-	-	S5	4 Secure	
<i>Geothlypis trichas</i>	Common Yellowthroat		1			1	1		2							2		-	-	S5B	4 Secure	
<i>Phalacrocorax auritus</i>	Double-crested Cormorant												3				NAR	-	-	S4B	4 Secure	
<i>Picoides pubescens</i>	Downy Woodpecker						1											-	-	S5	4 Secure	
<i>Contopus virens</i>	Eastern Wood-Pewee					2											SC	V	-	-	S3S4B	3 Sensitive
<i>Sturnus vulgaris</i>	European Starling	2	9			3	3											-	-	SNA	7 Exotic	
<i>Regulus satrapa</i>	Golden-crowned Kinglet											1						-	-	S5	3 Sensitive	
<i>Ardea herodias</i>	Great Blue Heron			2														-	-	S4B	4 Secure	
<i>Catharus guttatus</i>	Hermit Thrush															2		-	-	S5B	4 Secure	
<i>Dendroica magnolia</i>	Magnolia Warbler						1			1	2	2	1				1	-	-	S5B	4 Secure	
<i>Zenaidura macroura</i>	Mourning Dove			1														-	-	S5	4 Secure	
<i>Colaptes auratus</i>	Northern Flicker						1											-	-	S5B	4 Secure	
<i>Parula americana</i>	Northern Parula							1						2				-	-	S5B	4 Secure	
<i>Pandion haliaetus</i>	Osprey		1															-	-	S4B	4 Secure	
<i>Seiurus aurocapilla</i>	Ovenbird			1		1		2		4	2	1	1	1	1			-	-	S5B	4 Secure	
<i>Dryocopus pileatus</i>	Pileated Woodpecker				1													-	-	S5	4 Secure	
<i>Vireo olivaceus</i>	Red-eyed Vireo	1		3	1	1	3	1		1			2	1				-	-	S5B	4 Secure	
<i>Agelaius phoeniceus</i>	Red-winged Blackbird					1			2	5								-	-	S4B	4 Secure	
<i>Columba livia</i>	Rock Pigeon			1										9				-	-	SNA	7 Exotic	
<i>Regulus calendula</i>	Ruby-crowned Kinglet									1								-	-	S3S4B	3 Sensitive	
<i>Accipiter striatus</i>	Sharp-shinned Hawk				1													NAR	-	S5	4 Secure	
<i>Melospiza melodia</i>	Song Sparrow		1	2	1	2	2		1				2					-	-	S5B	4 Secure	
<i>Melospiza georgiana</i>	Swamp Sparrow								1								1	-	-	S5B	4 Secure	
<i>Tachycineta bicolor</i>	Tree Swallow													1				-	-	S4B	3 Sensitive	
<i>Catharus fuscescens</i>	Veery							1										-	-	S3S4B	4 Secure	
<i>Zonotrichia albicollis</i>	White-throated Sparrow													1		1	2	-	-	S5B	4 Secure	
<i>Dendroica petechia</i>	Yellow Warbler	2	1	3	1			1					2					-	-	S5B	4 Secure	
<i>Sphyrapicus varius</i>	Yellow-bellied Sapsucker				1													-	-	S4S5B	4 Secure	
<i>Dendroica coronata</i>	Yellow-rumped Warbler								1	1	1							-	-	S5B	4 Secure	

Birder: CK

S-rank - Ranking by the Atlantic Canadian Conservation Data Centre and NatureServe. Status notes (as of November 2018): S1: Extremely rare in province; S2: Rare in the province; S3: Uncommon in province; S4: Widespread, common and apparently secure in province; S5: Widespread, abundant and demonstrably secure in province. The use of 'S#S#' is to denote a range in rank used to indicate any uncertainty about the status of the species or community. Qualifiers: B= Breeding (breeding population), N = Nonbreeding (nonbreeding population) ? = Inexact/Uncertain, H = Historic (possibly extirpated), M = Migrant and SNR = Not yet assessed in province. (ACCDC 2019).

Bold indicates a species of conservation concern.

Italicized S# - Species is ranked as S1-S3 by the AC CDC.

Bold: SARA status - Conservation status under the Species At Risk Act as of June 2019: Not at Risk (NAR), endangered (E), threatened (T), special concern (SC)

Bold: NSESAs Status - Conservation status under the Nova Scotia Endangered Species Act as of June 2019: Vulnerable (V)

PC - Point Count

Sgs Rank - Provincial ranks under the General Status of Wildlife Process

- not assessed by SARA or NSESAs

Table A8.2-4: Bird Surveys Conducted July 5, 2019.

Scientific Name	Common Name	Number of individuals identified at Point Count Location														SARA Status	NSESAs Status	S-Rank	Sgs rank
		PC#1	PC#2	PC#3	PC#4	PC#5	PC#6	PC#7	PC#8	PC#9	PC#10	PC#11	PC#12	PC#13	PC#14				
<i>Empidonax alnorum</i>	Alder Flycatcher			2					1						1	-	-	S5B	4 Secure
<i>Corvus brachyrhynchos</i>	American Crow	1	3	1	1				1		1		1	1	1	-	-	S5	4 Secure
<i>Carduelis tristis</i>	American Goldfinch	2	2	3			1	3	1				1	3	-	-	S5	4 Secure	
<i>Setophaga ruticilla</i>	American Redstart	2		2						1	1				-	-	S4S5B	4 Secure	
<i>Turdus migratorius</i>	American Robin	2		1				1	2	1		2	1		-	-	S5B,S3N	4 Secure	
<i>Mniotilta varia</i>	Black-and-White Warbler					2	2						1	1	-	-	S5B	4 Secure	
<i>Poecile atricapilla</i>	Black-capped Chickadee	1				1	1	1	1						-	-	S5	4 Secure	
<i>Cyanocitta cristata</i>	Blue Jay				1								1		-	-	S5	4 Secure	
<i>Vireo solitarius</i>	Blue-headed Vireo							2							-	-	S5B	4 Secure	
<i>Bombicilla cedrorum</i>	Cedar Waxwing			2	1				7	2		2	5	1	-	-	S5B	4 Secure	
<i>Dendroica pensylvanica</i>	Chestnut-sided Warbler	1			2	2	2				1	1	1		-	-	S5B	4 Secure	
<i>Petrochelidon pyrrhonota</i>	Cliff Swallow		11												-	-	S2S3B	2 May Be At Risk	
<i>Quiscalus quiscula</i>	Common Grackle					1									-	-	S5B	4 Secure	
<i>Corvus corax</i>	Common Raven										1		2	1	-	-	S5	4 Secure	
<i>Sterna hirundo</i>	Common Tern											1			NAR	-	S3B	3 Sensitive	
<i>Geothlypis trichas</i>	Common Yellowthroat					1		1	1	1		1		2	2	-	-	S5B	4 Secure
<i>Phalacrocorax auritus</i>	Double-crested Cormorant			6			2	1				1	4		NAR	-	S4B	4 Secure	
<i>Sturnus vulgaris</i>	European Starling		6	3			1								-	-	SNA	7 Exotic	
<i>Ardea herodias</i>	Great Blue Heron			1			2								-	-	S4B	4 Secure	
<i>Catharus guttatus</i>	Hermit Thrush									1	1				-	-	S5B	4 Secure	
<i>Larus argentatus</i>	Herring Gull												4		-	-	S5	4 Secure	
<i>Zenaidura macroura</i>	Mourning Dove			2								1			-	-	S5	4 Secure	
<i>Colaptes auratus</i>	Northern Flicker					1									-	-	S5B	4 Secure	
<i>Parula americana</i>	Northern Parula						1		2			1		1	-	-	S5B	4 Secure	
<i>Pandion haliaetus</i>	Osprey		1												-	-	S4B	4 Secure	
<i>Seiurus aurocapilla</i>	Ovenbird				1	1	1	2			2	1	1		1	-	-	S5B	4 Secure
<i>Dendroica palmarum</i>	Palm Warbler													1	-	-	S5B	4 Secure	
<i>Carpodacus purpureus</i>	Purple Finch								1	1					-	-	S4S5B,S3S4N	4 Secure	
<i>Vireo olivaceus</i>	Red-eyed Vireo				1	4		1	1	1	1	2	1	1	-	-	S5B	4 Secure	
<i>Agelaius phoeniceus</i>	Red-winged Blackbird					1		2	4						-	-	S4B	4 Secure	
<i>Columba livia</i>	Rock Pigeon		1										1		-	-	SNA	7 Exotic	
<i>Regulus calendula</i>	Ruby-crowned Kinglet									1					-	-	S3S4B	3 Sensitive	
<i>Melospiza melodia</i>	Song Sparrow	1	2	2	2	2	1		1				1		-	-	S5B	4 Secure	
<i>Catharus ustulatus</i>	Swainson's Thrush													1	-	-	S3S4B	4 Secure	
<i>Melospiza georgiana</i>	Swamp Sparrow							1						2	-	-	S5B	4 Secure	
<i>Tachycineta bicolor</i>	Tree Swallow												1		-	-	S4B	3 Sensitive	
<i>Zonotrichia leucophrys</i>	White-crowned Sparrow									2					-	-	SNA	4 Secure	
<i>Zonotrichia albicollis</i>	White-throated Sparrow							1			1			1	-	-	S5B	4 Secure	
<i>Dendroica petechia</i>	Yellow Warbler	1		1		1							2		-	-	S5B	4 Secure	
<i>Sphyrapicus varius</i>	Yellow-bellied Sapsucker				1										-	-	S4S5B	4 Secure	
<i>Dendroica coronata</i>	Yellow-rumped Warbler	1	1						2	1					-	-	S5B	4 Secure	

Birder: CK

S-rank - Ranking by the Atlantic Canadian Conservation Data Centre and NatureServe. Status notes (as of November 2018): S1: Extremely rare in province; S2: Rare in the province; S3: Uncommon in province; S4: Widespread, common and apparently secure in province; S5: Widespread, abundant and demonstrably secure in province; SNA: Not applicable; SNR: Not yet assessed in province. The use of 'S#S#' is to denote a range in rank used to indicate any uncertainty about the status of the species or community. Qualifiers: B= Breeding (breeding population), N = Nonbreeding (nonbreeding population) ? = Inexact/Uncertain, H = Historic (possibly extirpated), M = Migrant and SNR = Not yet assessed in province. (ACCDC 2019).

Italicized S# - Species is ranked as S1-S3 by the AC CDC.

Bold: SARA status - Conservation status under the Species At Risk Act as of June 2019: Not at Risk (NAR), endangered (E), threatened (T), special concern (SC)

Bold: NSESAs Status - Conservation status under the Nova Scotia Endangered Species Act as of June 2019: Vulnerable (V)

PC - Point Count

Sgs Rank - Provincial ranks under the General Status of Wildlife Process

- not assessed by SARA or NSESAs

Table A8.2-5: Spring 2019 Bird Survey List.

Scientific Name	Common Name	Spring Total Individuals	SARA Status	NSESA Status	S-Rank	Sgs rank
<i>Anas rubripes</i>	American Black Duck	3	-	-	S5	4 Secure
<i>Corvus brachyrhynchos</i>	American Crow	41	-	-	S5	4 Secure
<i>Carduelis tristis</i>	American Goldfinch	27	-	-	S5	4 Secure
<i>Setophaga ruticilla</i>	American Redstart	1	-	-	S4S5B	4 Secure
<i>Turdus migratorius</i>	American Robin	39	-	-	S5B,S3N	4 Secure
<i>Haliaeetus leucocephalus</i>	Bald Eagle	9	NAR	-	S5	4 Secure
<i>Megaceryle alcyon</i>	Belted Kingfisher	1	-	-	S5B	4 Secure
<i>Mniotilta varia</i>	Black-and-White Warbler	6	-	-	S5B	4 Secure
<i>Dendroica fusca</i>	Blackburnian Warbler	2	-	-	S4B	4 Secure
<i>Poecile atricapilla</i>	Black-capped Chickadee	15	-	-	S5	4 Secure
<i>Dendroica virens</i>	Black-throated Green Warbler	3	-	-	S5B	4 Secure
<i>Cyanocitta cristata</i>	Blue Jay	10	-	-	S5	4 Secure
<i>Vireo solitarius</i>	Blue-headed Vireo	5	-	-	S5B	4 Secure
<i>Certhia americana</i>	Brown Creeper	1	-	-	S5	4 Secure
<i>Branta canadensis</i>	Canada Goose	2	-	-	SNAB,S4N	4 Secure
<i>Quiscalus quiscula</i>	Common Grackle	6	-	-	S5B	4 Secure
<i>Corvus corax</i>	Common Raven	17	-	-	S5	4 Secure
<i>Geothlypis trichas</i>	Common Yellowthroat	3	-	-	S5B	4 Secure
<i>Junco hyemalis</i>	Dark-eyed Junco	1	-	-	S4S5	4 Secure
<i>Phalacrocorax auritus</i>	Double-crested Cormorant	20	NAR	-	S4B	4 Secure
<i>Picoides pubescens</i>	Downy Woodpecker	1	-	-	S5	4 Secure
<i>Sturnus vulgaris</i>	European Starling	33	-	-	SNA	7 Exotic
<i>Regulus satrapa</i>	Golden-crowned Kinglet	1	-	-	S5	3 Sensitive
<i>Ardea herodias</i>	Great Blue Heron	4	-	-	S4B	4 Secure
<i>Tringa melanoleuca</i>	Greater Yellowlegs	1	-	-	S3B,S3S4M	3 Sensitive
<i>Anas crecca</i>	Green-winged Teal	3	-	-	S4S5B	4 Secure
<i>Catharus guttatus</i>	Hermit Thrush	3	-	-	S5B	4 Secure
<i>Larus argentatus</i>	Herring Gull	3	-	-	S5	4 Secure
<i>Charadrius vociferus</i>	Killdeer	1	-	-	S3B	3 Sensitive
<i>Zenaidura macroura</i>	Mourning Dove	1	-	-	S5	4 Secure
<i>Vermivora ruficapilla</i>	Nashville Warbler	1	-	-	S4S5B	4 Secure
<i>Colaptes auratus</i>	Northern Flicker	6	-	-	S5B	4 Secure
<i>Parula americana</i>	Northern Parula	3	-	-	S5B	4 Secure
<i>Pandion haliaetus</i>	Osprey	2	-	-	S4B	4 Secure
<i>Seiurus aurocapilla</i>	Ovenbird	13	-	-	S5B	4 Secure
<i>Dendroica palmarum</i>	Palm Warbler	1	-	-	S5B	4 Secure
<i>Carpodacus purpureus</i>	Purple Finch	11	-	-	S4S5B,S3S4N	4 Secure
<i>Mergus serrator</i>	Red-breasted Merganser	6	-	-	S3S4B,S5N	4 Secure
<i>Sitta canadensis</i>	Red-breasted Nuthatch	1	-	-	S3	4 Secure
<i>Agelaius phoeniceus</i>	Red-winged Blackbird	18	-	-	S4B	4 Secure
<i>Aythya collaris</i>	Ring-necked Duck	1	-	-	S5B	4 Secure
<i>Phasianus colchicus</i>	Ring-necked Pheasant	3	-	-	SNA	7 Exotic
<i>Columba livia</i>	Rock Pigeon	13	-	-	SNA	7 Exotic
<i>Regulus calendula</i>	Ruby-crowned Kinglet	7	-	-	S3S4B	3 Sensitive
<i>Melospiza melodia</i>	Song Sparrow	16	-	-	S5B	4 Secure
<i>Porzana carolina</i>	Sora	1	-	-	S5B	4 Secure
<i>Melospiza georgiana</i>	Swamp Sparrow	1	-	-	S5B	4 Secure
<i>Tachycineta bicolor</i>	Tree Swallow	1	-	-	S4B	3 Sensitive
<i>Zonotrichia albicollis</i>	White-throated Sparrow	14	-	-	S5B	4 Secure
<i>Wilsonia pusilla</i>	Wilson's Warbler	1	-	-	S3B	3 Sensitive
<i>Troglodytes troglodytes</i>	Winter Wren	1	-	-	S5B	4 Secure
<i>Dendroica petechia</i>	Yellow Warbler	8	-	-	S5B	4 Secure
<i>Sphyrapicus varius</i>	Yellow-bellied Sapsucker	2	-	-	S4S5B	4 Secure
<i>Dendroica coronata</i>	Yellow-rumped Warbler	25	-	-	S5B	4 Secure

Birder: CK

S-rank - Ranking by the Atlantic Canadian Conservation Data Centre and NatureServe. Status notes (as of November 2018): S1: Extremely rare in province; S2: Rare in the province; S3: Uncommon in province; S4: Widespread, common and apparently Secure in province; S5: Widespread, abundant and demonstrably secure in province; SNA: Not applicable; SNR: Not yet assessed in province. The use of 'S#S#' is to denote a range in rank used to indicate any uncertainty about the status of the species or community. Qualifiers: B= Breeding (breeding population), N = Nonbreeding (nonbreeding population) ? = Inexact/Uncertain, H = Historic (possibly extirpated), M = Migrant and SNR = Not yet assessed in province. (ACDC 2019).

Italicized S# - Species is ranked as S1-S3 by the AC CDC.

BoLD: SARA status - Conservation status under the Species At Risk Act as of June 2019: Not at Risk (NAR), endangered (E), threatened (T), special concern (SC)

BoLD: NSESA Status - Conservation status under the Nova Scotia Endangered Species Act as of June 2019: Vulnerable (V)

Sgs Rank - Provincial ranks under the General Status of Wildlife Process, - not assessed by SARA or NSESA

Table A8.2-6: 2019 Breeding Bird List.

Scientific Name	Common Name	Breeding Total Individuals	SARA Status	NSESA Status	S-Rank	Sgs rank
<i>Empidonax alnorum</i>	Alder Flycatcher	19	-	-	S5B	4 Secure
<i>Corvus brachyrhynchos</i>	American Crow	26	-	-	S5	4 Secure
<i>Carduelis tristis</i>	American Goldfinch	30	-	-	S5	4 Secure
<i>Setophaga ruticilla</i>	American Redstart	16	-	-	S4S5B	4 Secure
<i>Turdus migratorius</i>	American Robin	28	-	-	S5B,S3N	4 Secure
<i>Haliaeetus leucocephalus</i>	Bald Eagle	6	NAR	-	S5	4 Secure
<i>Mniotilta varia</i>	Black-and-White Warbler	13	-	-	S5B	4 Secure
<i>Dendroica fusca</i>	Blackburnian Warbler	3	-	-	S4B	4 Secure
<i>Poecile atricapilla</i>	Black-capped Chickadee	15	-	-	S5	4 Secure
<i>Dendroica virens</i>	Black-throated Green Warbler	1	-	-	S5B	4 Secure
<i>Cyanocitta cristata</i>	Blue Jay	11	-	-	S5	4 Secure
<i>Vireo solitarius</i>	Blue-headed Vireo	4	-	-	S5B	4 Secure
<i>Branta canadensis</i>	Canada Goose	3	-	-	SNAB,S4N	4 Secure
<i>Bombycilla cedrorum</i>	Cedar Waxwing	27	-	-	S5B	4 Secure
<i>Dendroica pensylvanica</i>	Chestnut-sided Warbler	17	-	-	S5B	4 Secure
<i>Petrochelidon pyrrhonota</i>	Cliff Swallow	11	-	-	S2S3B	2 May Be At Risk
<i>Quiscalus quiscula</i>	Common Grackle	6	-	-	S5B	4 Secure
<i>Corvus corax</i>	Common Raven	5	-	-	S5	4 Secure
<i>Sterna hirundo</i>	Common Tern	1	NAR	-	S3B	3 Sensitive
<i>Geothlypis trichas</i>	Common Yellowthroat	16	-	-	S5B	4 Secure
<i>Phalacrocorax auritus</i>	Double-crested Cormorant	17	NAR	-	S4B	4 Secure
<i>Picoides pubescens</i>	Downy Woodpecker	1	-	-	S5	4 Secure
<i>Contopus virens</i>	Eastern Wood-Pewee	2	SC	V	S3S4B	3 Sensitive
<i>Sturnus vulgaris</i>	European Starling	27	-	-	SNA	7 Exotic
<i>Regulus satrapa</i>	Golden-crowned Kinglet	1	-	-	S5	3 Sensitive
<i>Ardea herodias</i>	Great Blue Heron	5	-	-	S4B	4 Secure
<i>Catharus guttatus</i>	Hermit Thrush	4	-	-	S5B	4 Secure
<i>Larus argentatus</i>	Herring Gull	4	-	-	S5	4 Secure
<i>Dendroica magnaolia</i>	Magnolia Warbler	8	-	-	S5B	4 Secure
<i>Zenaidura macroura</i>	Mourning Dove	4	-	-	S5	4 Secure
<i>Colaptes auratus</i>	Northern Flicker	2	-	-	S5B	4 Secure
<i>Parula americana</i>	Northern Parula	8	-	-	S5B	4 Secure
<i>Pandion haliaetus</i>	Osprey	2	-	-	S4B	4 Secure
<i>Seiurus aurocapilla</i>	Ovenbird	24	-	-	S5B	4 Secure
<i>Dendroica palmarum</i>	Palm Warbler	1	-	-	S5B	4 Secure
<i>Dryocopus pileatus</i>	Pileated Woodpecker	1	-	-	S5	4 Secure
<i>Carpodacus purpureus</i>	Purple Finch	2	-	-	S4S5B,S3S4N	4 Secure
<i>Vireo olivaceus</i>	Red-eyed Vireo	28	-	-	S5B	4 Secure
<i>Agelaius phoeniceus</i>	Red-winged Blackbird	15	-	-	S4B	4 Secure
<i>Columba livia</i>	Rock Pigeon	12	-	-	SNA	7 Exotic
<i>Regulus calendula</i>	Ruby-crowned Kinglet	2	-	-	S3S4B	3 Sensitive
<i>Accipiter striatus</i>	Sharp-shinned Hawk	1	NAR	-	S5	4 Secure
<i>Melospiza melodia</i>	Song Sparrow	23	-	-	S5B	4 Secure
<i>Catharus ustulatus</i>	Swainson's Thrush	1	-	-	S3S4B	4 Secure
<i>Melospiza georgiana</i>	Swamp Sparrow	5	-	-	S5B	4 Secure
<i>Tachycineta bicolor</i>	Tree Swallow	2	-	-	S4B	3 Sensitive
<i>Catharus fuscescens</i>	Veery	1	-	-	S3S4B	4 Secure
<i>Zonotrichia leucophrys</i>	White-crowned Sparrow	2	-	-	SNA	4 Secure
<i>Zonotrichia albicollis</i>	White-throated Sparrow	8	-	-	S5B	4 Secure
<i>Dendroica petechia</i>	Yellow Warbler	15	-	-	S5B	4 Secure
<i>Sphyrapicus varius</i>	Yellow-bellied Sapsucker	2	-	-	S4S5B	4 Secure
<i>Dendroica coronata</i>	Yellow-rumped Warbler	8	-	-	S5B	4 Secure

Birder: CK

S-rank - Ranking by the Atlantic Canadian Conservation Data Centre and NatureServe. Status notes (as of November 2018): S1: Extremely rare in province; S2: Rare in the province; S3: Uncommon in province; S4: Widespread, common and apparently Secure in province; S5: Widespread, abundant and demonstrably secure in province; SNA: Not applicable; SNR: Not yet assessed in province. The use of 'S#S#' is to denote a range in rank used to indicate any uncertainty about the status of the species or community. Qualifiers: B= Breeding (breeding population), N = Nonbreeding (nonbreeding population) ? = Inexact/Uncertain, H = Historic (possibly extirpated), M = Migrant and SNR = Not yet assessed in province. (ACDC 2019). Italicized S# - Species is ranked as S1-S3 by the AC CDC.

Bold: SARA status - Conservation status under the Species At Risk Act as of June 2019: Not at Risk (NAR), endangered (E), threatened (T), special concern (SC)

Bold: NSESA Status - Conservation status under the Nova Scotia Endangered Species Act as of June 2019: Vulnerable (V)
Sgs Rank - Provincial ranks under the General Status of Wildlife Process, - not assessed by SARA or NSESA

8.2.3 Priority Bird Species Observed

Priority bird species observed in the 2019 migratory bird surveys conducted along the proposed re-aligned pipeline route included those that were also described in the EARD (see Section 8.10.2.4 of the EARD for additional details), as follows:

- Cliff Swallow (*Petrochelidon pyrrhonota*) – In Nova Scotia, the Cliff Swallow is listed as S2S3B (A breeding population is uncommon to rare in the province) by the AC CDC (AC CDC 2019). They are colonial nesters, once restricted to natural cliff faces and overhangs, where, using available mud, vegetation and their specialized saliva build hollow, gourd-like nest structures. However, they now often nest on buildings and other human-made structures. Cliff swallows feed on the wing for flying insects above open habitats such as grasslands, riparian areas, open wetlands and disturbed areas.
 - Eleven Cliff Swallows were detected during the 2019 migratory bird survey program. They were observed foraging for insects ‘on-the-wing’ (i.e., while flying) around the Point Count #2 location on July 5, 2019. This is notable because Cliff Swallows had previously been noted and observed near this location collecting nesting materials and nesting on the NPNS facility during the 2018 avian program (as reported in the EARD).

- Common Tern (*Sterna hirundo*) – In Nova Scotia, the Common Tern is listed as S3B (xxx) by the AC CDC. This species of seabird breeds across Nova Scotia during the summer and winters along the western, northern and eastern coasts of South America. These birds nest on offshore islands, and occasionally on barrier beaches, sand-spits and dunes. The nest is rarely more than a depression in the ground, sometimes lined with dead vegetation. Common terns prey on small fish by diving head first into the water.
 - One individual was detected during the 2019 migratory bird survey program. It was observed from the Point Count #12 location on July 5, 2019, foraging over the marine waters of Caribou Harbour.

- Common Nighthawk (*Chordeiles minor*) – The Common Nighthawk is a SAR that is listed as Threatened on Schedule 1 of the federal SARA, as Threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), and as Threatened pursuant to the NSESA. In Nova Scotia, it is listed as S2B (a breeding population is rare in the province) by the AC CDC. See Focus Report **Section 8.3** for details on this bird species.
 - Several individuals were detected during the 2019 migratory bird survey program. They were heard performing courtship displays (i.e., wing ‘booms’) from two different locations (CONI#3 and CONI#5;) during the Common Nighthawk survey conducted on June 17, 2019.

- Eastern Wood-pewee (*Contopus virens*) – The Eastern Wood-pewee is a SAR that is listed as Special Concern pursuant to the federal SARA and COSEWIC, and as Vulnerable pursuant to the NSESA. In Nova Scotia, it is listed as S3S4B by the AC CDC. These birds breed throughout Nova Scotia during the summer months before migrating to northern South America and wintering in countries such as Ecuador, Colombia, Venezuela, Guyana, Peru, and Brazil. This species breeds in open woodland of all types in Nova Scotia, but shows a preference for forests with a dominance of deciduous trees. The Eastern wood-pewee forages on flying insects in the middle canopy and will often return to the same perch after capturing an insect.
 - Two individuals were detected during the 2019 migratory bird survey program. Both individuals were heard and observed together near Wetland WL-5D from the Point Count #5 location on

June 10, 2019. The birds did not appear agitated or aggressive towards each other, which is suggestive of a mated pair.

- Killdeer (*Charadrius vociferus*) – In Nova Scotia, the Killdeer is listed as S3B (a breeding population is uncommon in the province) by the AC CDC. This species of shorebird is somewhat peculiar in that it inhabits primarily dry habitats. Killdeer breed across Nova Scotia showing a preference for dry, barren type habitats such as sandbars, mudflats, grazed fields, athletic fields, graveled areas, parking lots and golf courses. They are opportunistic foragers known feed primarily on insects, worms and beetles, but occasionally will prey on frogs and minnows. In many parts of their range, the killdeer is a resident species remaining in one geographic area year round, but those that breed in Nova Scotia likely migrate to the southern United States during the winter.
 - Only one individual was detected during the 2019 migratory bird survey program. This bird was heard near the Northumberland Ferries marine terminal from the Point Count #12 location on May 24, 2019. It is likely that this bird was simply using the Caribou Harbour area as a ‘stop-over’ location during its migration. However, it is plausible for a Killdeer to nest in highly disturbed locations, such as the gravelled edges of the ferry terminal roadways and parking lots.
- Red-breasted Merganser (*Mergus serrator*) – In Nova Scotia, the Red-breasted Merganser is listed as S3S4B, S5N (a non-breeding population is secure and a breeding population is uncommon to widespread in the province) by the AC CDC. This species breeds across Nova Scotia and is found primarily along beaches and coastal wetlands, where they frequently breed in association with tern or gull colonies (Stewart et al. 2015). More than the closely related common merganser (*Mergus merganser*), the red-breasted merganser prefers saline environments over freshwater. These birds feed primarily on fish and crustaceans they catch during acrobatic underwater dives. Red-breasted mergansers tend to winter in protected bays around rocky coastlines all across Nova Scotia and are considered a resident species in the Province.
 - Six individuals were detected during the 2019 migratory bird survey program. All six were observed together in the marine waters adjacent to the Pictou Causeway from the Point Count #3 location on May 9, 2019. Their presence as a group of six birds together is suggestive of ongoing migration to more northerly climes; however, barrier beaches in the area do offer potential nesting sites.

In addition, the following priority species were detected:

- 1) **Greater Yellowlegs** (*Tringa melanoleuca*) – This shorebird species generally breeds in Canada’s Boreal forest, further north of Nova Scotia, around bog edges and scrub-spruce barrens with nearby open, shallow water. As such, in Nova Scotia, Greater Yellowlegs are most commonly observed during the spring and fall migratory periods where they can be found wading through shallow water hunting for small fish and invertebrates (Stewart et al. 2015). Although the Maritime Provinces are beyond the southern limit of its core breeding range, small numbers have been recorded breeding in Nova Scotia, typically from mid-June through the end of July (Stewart et al. 2015). Greater Yellowlegs are ground-nesting birds and will usually nest at the base of a small tree, creating a depression in moss or peat and lining it with leaves and lichen (Cornell 2008).

In Nova Scotia, the Greater Yellowlegs is listed as S3B, S3S4M (a breeding population is uncommon and a migratory population is uncommon to widespread in the province) by the AC CDC.

Only one individual of Greater Yellowlegs was detected during the 2019 migratory bird survey program. The individual was observed hunting in the shallow marine waters near Wetland #3 from

the Point Count #3 location on May 24, 2019. It is likely this bird was in the midst of its spring migration northward to breeding grounds in the Boreal forest and using the shoreline of Pictou Harbour as a 'stop-over' location.

- 2) **Red-breasted Nuthatch** (*Sitta canadensis*) – The Red-breasted Nuthatches are a widespread resident songbird species of forested areas throughout Nova Scotia. Their preferred breeding habitat are areas with mature softwood forest cover and generally avoiding young forests and any non-forested habitats. Red-breasted Nuthatches are cavity nesters and both the male and female participate in excavating a nest, which usually takes around two weeks (Cornell 2008). Nesting will typically take place between mid-May and early August (Stewart et al. 2015). Their summer diet consists primarily of insect prey, including caterpillars, beetles, ants and earwigs, while during the fall and into the winter, their diet transitions to mostly conifer seeds.

In Nova Scotia, the Red-breasted Nuthatch is listed as S3 (uncommon in province) by the AC CDC.

Only one Red-breasted Nuthatch was detected during the 2019 migratory bird survey program. The individual was heard near Wetland WL-13 from the Point Count #8 location on May 24, 2019. The bird was engaged in territorial singing when it was detected and, therefore, was likely establishing a breeding territory.

- 3) **Ruby-crowned Kinglet** (*Regulus calendula*) – The Ruby-crowned Kinglet is a widespread migratory songbird species that breeds in a variety of forested habitats across Nova Scotia. This species shows a preference for nesting in conifer-dominated forested habitats and will even nest in thinned stands and conifer-plantations (Stewart et al. 2015). It can take about five days for the female to construct a nest, which is often very high in a tree, often near the trunk or suspended from small branches (Cornell 2008). Nesting typically takes place between late May and early June (Stewart et al. 2015). A Ruby-crowned Kinglet's diet consists mostly of insect prey such as aphids, wasps, and bark beetles, but also spiders and some vegetative matter including seeds and berries.

In Nova Scotia, the Ruby-crowned Kinglet is listed as S3S4B (a breeding population is uncommon to widespread in the province) by the AC CDC.

Ruby-crowned Kinglets were detected on seven occasions during the 2019 migratory bird survey program, representing up to nine individual birds. However, many of these detections occurred at the same Point Count locations during subsequent visits and likely represent the same bird(s) detected during prior visits. This is the case for Point Count locations #8, #9, and #10, as a Ruby-crowned Kinglet was detected and engaged in territorial singing at these locations on multiple occasions.

- 4) **Swainson's Thrush** (*Catharus ustulatus*) – The Maritime Provinces and Newfoundland represent the easternmost edge of the Swainson's Thrush's range, nevertheless, this migratory songbird is considered a widespread breeder throughout Nova Scotia. This species tends to show a preference for mature conifer-dominated forests away from dense human settlement; however, this species is increasingly nesting in conifer-plantations and recent clear-cuts (Stewart et al. 2015). Swainson's Thrushes typically will nest in the forest understory, selecting a thicket of deciduous shrubs or conifer saplings to build their nest within (Cornell 2008). Nesting typically occurs from late May through July (Stewart et al. 2015). Their diet consists primarily of insect and arthropod prey including moths, grasshoppers, beetles, and caterpillars, but they will begin to incorporate berries and other fruits into their diet as the summer months wane.

In Nova Scotia, the Swainson's Thrush is listed as S3S4B (a breeding population is uncommon to widespread in the province) by the AC CDC.

Only one Swainson's Thrush was detected during the 2019 migratory bird survey program. The individual was heard near Wetland #9 from the Point Count #14 location on July 5, 2019. The bird was engaged in territorial singing when it was detected and, therefore, was likely on and defending an established breeding territory.

- 5) **Veery** (*Catharus fuscescens*) – Veeries are migratory songbirds that breeds throughout Nova Scotia and is mostly associated with forested wetlands and river valleys. They show a preference for hardwood forests with a dense understory that can provide concealed nesting sites, but can also be drawn to disturbed forests for this same reason (Cornell 2008). Veeries will generally nest on the forest floor obscuring their nest location near a mossy hummock or under fallen brush. The female constructs the nest over a period of roughly a week or more and breeding usually occurs from late May into early August (Stewart et al. 2015). Their diet, as with the closely related Swainson's Thrush, also consists primarily of insects and arthropods and they too will include berries and other fruits into their diet during the fall.

In Nova Scotia, the Veery is listed as S3S4B (a breeding population is uncommon to widespread in the province) by the AC CDC.

Only one Veery was detected during the 2019 migratory bird survey program. The individual was heard near Wetland #6 from the Point Count #7 location on June 10, 2019. The bird was engaged in territorial singing when it was detected and, therefore, was likely on and defending an established breeding territory.

- 6) **Wilson's Warbler** (*Wilsonia pusilla*) – The Maritime Provinces are nearly the southernmost limit of the Wilson's Warbler's breeding range, which stretches north into the Boreal forest and taiga habitats. In Nova Scotia, and elsewhere in the Maritimes, this migratory songbird tends to breed in younger, regenerating forested habitats near streams or wetlands that have a dense, scrubby understory (Stewart et al. 2015). Wilson's Warblers are generally a ground-nesting species concealing their nest at the base of a sapling, fallen log or other dense vegetation (Cornell 2008). Nesting typically occurs from late May and into early August (Stewart et al. 2015). Their diet consists primarily of larval insects gleaned from leaves and twigs, but will also prey on flying insects by 'hawking' (i.e., flying from a perch and back again to capture flying insects).

In Nova Scotia, the Wilson's Warbler is ranked as S3B (a breeding population is uncommon in the province) by the AC CDC.

Only one Wilson's Warbler was detected during the 2019 migratory bird survey program. The individual was observed within Wetland WL-2 from the Point Count #1 location on May 24, 2019. The bird was engaged in territorial singing when it was detected and, therefore, was likely establishing a breeding territory. However, as no Wilson's Warbler was detected during subsequent visits, it remains possible that this individual was in migration bound for a more northerly breeding territory and was simply using Wetland #2 as a 'stop-over location'.

8.2.4 Potential Priority Birds

Potential priority birds were reviewed in the EARD. In general, the potential priority bird species remains the same for the proposed re-aligned pipeline route as it was for the original pipeline route assessed in the EARD.

The 2019 migratory bird survey program did not identify any additional potential habitat for priority birds beyond that listed in the EARD. It is noted that the proposed re-aligned pipeline route is within an area that has been previously highly disturbed (i.e., close proximity to roadways, commercial areas and agricultural fields) and in an on-going disturbance regime related to the Highway 106.

8.2.5 References

- Atlantic Canada Conservation Data Centre (AC CDC). 2018. DATA REPORT 6252: Pictou, NS. November 2018 Data Request.
- Atlantic Canada Conservation Data Centre (AC CDC). 2019. Rarity Ranks and Legal Status by Province. <http://accdc.com/en/ranks.html>
- Bird Studies Canada (BSC). 2019. <https://www.birdscanada.org/>
- Canadian Wildlife Service. 2007. Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds.
- Cornell (Cornell Lab of Ornithology). 2008. All About Birds. Cornell University. Available Online: <https://www.allaboutbirds.org/>
- Northern Pulp Nova Scotia (NPNS). 2019. Northern Pulp Nova Scotia Replacement Effluent Treatment Facility Project Environmental Assessment Registration Document. https://www.novascotia.ca/nse/ea/Replacement_Effluent_Treatment_Facility_Project/
- Nova Scotia Environment (NSE). 2019. Focus Report Terms of Reference for the Preparation of a Focus Report Regarding the Replacement Effluent Treatment Facility Project. https://www.novascotia.ca/nse/ea/Replacement_Effluent_Treatment_Facility_Project/Focus-Report-Terms-of-Reference.pdf
- Stewart, R. L. M., K. A. Bredin, A. R. Couturier, A. G. Horn, D. Lepage, S. Makepeace, P. D. Taylor, M.-A. Villard, and R. M. Whittam (eds). 2015. Second Atlas of Breeding Birds of the Maritime Provinces. Bird Studies Canada, Environment Canada, Natural History Society of Prince Edward Island, Nature New Brunswick, New Brunswick Department of Natural Resources, Nova Scotia Bird Society, Nova Scotia Department of Natural Resources, and Prince Edward Island Department of Agriculture and Forestry, Sackville, 528 + 28 pp.