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BIOPHYSICAL BASELINE REPORT
Shaw Middleton Sand Pit Project – Eastern Section
Middleton, NS

April 29, 2025

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April 29, 2025

Mr. Glen Merkley
GHD Limited
#110, 120 Western Parkway
Bedford, NS B4B 0V2

Dear Mr. Merkley,

Re: Biophysical Baseline Report
Shaw Middleton Sand Pit Project – Eastern Section, Middleton, NS

Attached is the Biophysical Baseline Report prepared for aw Middleton Sand Pit Project – Eastern Section, Middleton, NS.

The report documents our observations, findings, and recommendations.

We trust this to be satisfactory at this time. Once you have had an opportunity to review this correspondence, please contact us to address any questions you may have.

Thank you,

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1.0 INTRODUCTION

The Trimper Sand and Gravel Pit Expansion project was approved by Nova Scotia Environment and Climate Change (NSECC) in 2012, subject to conditions (East Coast Aquatics Inc., 2012). This proposed project was an expansion of an existing aggregate pit that is operating in Torbrook, Annapolis County by Ivan H. Trimper Construction Ltd.

Strum Consulting (Strum) was retained to complete additional terrestrial biophysical surveys as an update to the original EARD for the expansion of a sand and gravel pit that was approved by NSECC in 2012. These surveys included a desktop review of sensitive or rare flora and fauna and their habitats, followed by field surveys. This report is intended to support the preparation and submission of a new provincial Environmental Assessment Registration Document (EARD) with NSECC for the proposed Shaw Middleton Sand Pit Project.

Biophysical surveys have been completed with the key objectives of facilitating avoidance of effects where practicable, understanding potential interactions of future project expansions, and to support regulatory applications in the future as needed. This was achieved by completing a review of background desktop resources in combination with field studies to identify potential environmental constraints and sensitivities. The assessments focused on biophysical components that had not been surveyed during initial baseline biophysical surveys, with the acknowledgement that regulatory requirements and expectations have changed since the approval in 2012 (Section 1.2).

This report outlines the methods and results of the desktop and field evaluations completed in 2024. The surveys took place on land that had been surveyed in 2011 by East Coast Aquatics Inc. in preparation for that EARD. The property owner, Ivan Trimper, held an Industrial Approval for the site and owned and operated a sand and gravel extraction operation at this location. It was operated under an Industrial Approval (No. 2000-018068-R01) issued by NSECC on January 10, 2011, and effective until January 7, 2021 (East Coast Aquatics, 2012). The project size was 65 ha, with a proposed project timeline of 30 years.

Biophysical field work for the 2012 EARD included:

- An assessment for heritage resources
- Watercourse survey
- Avian fauna survey
- Vegetation community assessment and plant inventory
- Fish and fish habitat
- Rare and sensitive species at risk

The 2024 surveys were conducted to support the new proposed Shaw Middleton Sand Pit Project in the adjacent property, that may extend into the existing Trimper sand and gravel extraction operation (Drawing 1, Appendix A).

1.1 Assessment Area Spatial Boundaries

The Project Area is located within the Annapolis River watershed, approximately 5 km southeast of the community of Middleton in Annapolis County, NS (Drawing 1, Appendix A). It is located on a north-facing slope of the Annapolis Valley's South Mountain, at the boundary of the Western and Valley & Central Lowlands ecoregions (NSNR, 2021).

The Project Area for this analysis is 26 ha in total, consisting of five separate polygons (Drawing 1, Appendix A) and it is a subset of the area that was previously approved for quarry expansion under the 2012 EARD. The westernmost polygon directly borders the Project Area of the proposed Shaw Middleton Sand Pit Project. The Project Area is fully on private land in Annapolis County, consisting of the following four land parcels. The Property Identification numbers (PIDs) and landowner information are presented in Table 1.2.

Table 1.2: Land Parcels within the Project Area

PID	Landowner	Land Use
05180195	4389818 NOVA SCOTIA LIMITED	Forested, developed
05112719	4389818 NOVA SCOTIA LIMITED	Forested, developed, wetland
05218920	4389818 NOVA SCOTIA LIMITED	Forested
05014089	4389818 NOVA SCOTIA LIMITED	Forested, wetland

1.2 Regulatory Framework

The Trimper Pit was expanded after the 2012 EARD was approved and, therefore, followed all the environmental legislation at the time. In the following years guidance for environmental assessments has evolved, and regulators have different requirements for surveys. This report is intended as supplemental information in support of the Shaw Middleton Sand Pit project.

Applicable laws and regulations relating to the protection of fauna include the following:

- *Species at Risk Act (*SARA*,* SC 2002, c.29*)*
- *The Endangered Species Act,* 1999 *(*ESA*)*
- *Canada Wildlife Act*
- *Wildlife Act,* R.S.N.S. 1989, c. 504
- *Biodiversity Act*
- *The Canadian Environmental Protection Act, 1999 (*CEPA*)*
- *Environment Act,* S.N.S. 1994-95, c. 1

The ESA and SARA prohibit harm to listed species at risk (SAR) along with legally designated core/critical habitat (respectively). The *Canada Wildlife Act* provides a framework for the creation of protected wildlife areas, and the Nova Scotia *Wildlife Act,* R.S.N.S. 1989, c. 504 provides policies and programs for wildlife to maintain diversity of species at levels of abundance to meet specific management objectives. The *Wildlife Act* includes a clause for the protection of den/habitation of a furbearer [48(3)]. The Nova Scotia *Biodiversity Act* provides a framework for the creation of Biodiversity Management Zones used for conservation and

sustainable biodiversity values. Lastly, CEPA and the *Environment Act,* S.N.S. 1994-95, c. 1 both provide measures for the protection of the environment and pollution prevention.
An assessment for wildlife species (e.g. birds, mammals, fish, plants, etc.) was previously conducted in 2011 in accordance with the Guide to Addressing Wildlife Species and Habitat in an EA Registration Document (NSECC, 2005; East Coast Aquatics, 2012). Special consideration of SAR, listed under the SARA and the *Endangered Species Act*, S.N.S. 1998, c. 11 (ESA), along with species of conservation interest (SOCI), which, for the EA Registration Document, includes species that are:

- Assessed as 'Endangered', 'Threatened', or 'Special Concern' by the Committee on the Status of Endangered Wildlife in Canda (COSEWIC) that are not already listed under SARA.
- Have a subnational rank (S-Rank) or 'S3', 'S2', or 'S1' from the Atlantic Canada Conservation Data Centre (ACCDC).

For SAR, said species and their dwellings are provided protection under SARA, ESA, and the *Biodiversity Act.*

As this project is within an area that was previously approved under an EARD, the full suite of baseline biophysical surveys was not required for the purposes of this scope. Targeted and incidental surveys in 2024 were intended to supplement the initial SAR surveys that were completed in this area, providing updated information on species and environmental conditions.

1.3 Project Team

A Project Team consisting of terrestrial ecologists proficient in flora and fauna identification were selected to complete the field studies and reporting for these assessments. Team members with integral roles in the surveying, reporting and project management are listed below (Table 1.3).

Table 1.3: Project Team

Team Member	Role and Duties
Shaun Allain, BSc., EP	Senior review, project management, reporting, regulatory consultation
Emma Halupka, MSc	Reporting, regulatory consultation
Christina Daffre, B.Soc.Sc, Dipl. NRET	Botany and wood turtle surveys
Cole Vail, MREM	Lichen surveys and bat maternity roost surveys

2.0 DESKTOP ASSESSMENT

The assessment began with a desktop review, which helped to inform surveys on the ground.

2.1 Desktop Review Methodology

The intention of the desktop review was to identify any site sensitivities, potential for SAR, or notable conservation features that may have changed since the initial EA was submitted in 2012. It also helped to identify any features that may constrain project activities, and informed which field surveys would be necessary.

The desktop component included a review of the 2012 Trimper EARD (East Coast Aquatics, 2012) and the following resources and databases:

- Wetlands Inventory (NSNR, 2021a);
- Wetlands of Special Significance (WSS) Database (NSNR, 2020a);
- NS Topographic Database – Water Features (GeoNOVA, 2024a);
- Wet Areas Mapping (WAM) database (NSNR, 2021b);
- Restricted and Limited Use Lands layers (NSNR, 2007);
- ACCDC Data Report (ACCDC, 2024);
- Nova Scotia Parks and Protected Areas database (NSECC, 2024);
- Significant Species and Habitats Database (NSNRR, 2024);
- Old-Growth Policy Layer (NSNR, 2024a);
- SARA Critical Habitat layers;
- Special Management Practices (SMP) layers (NSNR, 2023), i.e.
    - Wood turtle SMP buffer
    - Wood turtle secondary watershed;
- NSNR predictive habitat mapping for boreal felt lichen (*Erioderma pedicellatum*) (2012);
- MTRI vole ears and extant blue felt lichen GIS databases (2019);
- Important Bird Areas (IBA; IBA Canada, 2024);
- Mainland moose core habitat (NSND, 2021c);
- Government records of abandoned mine openings (AMOs; NSNR, 2024b) as a proxy for potential bat habitat; and
- Locations of known bat hibernacula in Nova Scotia (Moseley, 2007).

The layers that were influential in the field study design are discussed within the following Desktop Results (Section 2.2).

To better understand habitat types on site, a desktop habitat model was developed by merging the Nova Scotia Forest Inventory, the provincial canopy height model (GeoNOVA, 2024b), and the Wet Areas Mapping Database (NSNR, 2021b), and then recategorizing the resulting polygons into 12 categories. Polygons were also manually adjusted based on disturbances visible on aerial imagery (sourced form July 2022).

2.2 Desktop Results

The Project Area is a combination of natural forest stands, roads and developed areas primarily from quarry operations, clear cut areas, and wetlands. About 60% (15.7 hectares) of

the Project Area has not been previously harvested (Table 2.1). The forests are a mixture of softwood and mixed wood forest types, with one provincially mapped wetland; a swamp that intersects a small portion (0.2 ha) of the northern Project Area (NSNR, 2021a). The nearest WSS is 3.8 km northwest of the Project Area.

2.2.1 Vegetation Community Model

The vegetation community model predicted the presence of 12 land cover types within the Project Area, with "urban or developed" covering 38.9% of the area (Table 2.1, Drawing 2, Appendix A). Though the field surveys were not intended to verify these findings, incidental observations from field biologists found that conditions on the ground did not differ significantly from these predicted results.

Table 2.1: Predicted Land Cover Types Within the Project Area and their Respective Percent Cover Based on Habitat Modelling

Land Cover Type	Total area within Project Area (ha)	Percentage of total Project Area (%)
Urban or developed	10.1	38.9
Mixedwood forest	8.0	30.8
Mixedwood wet forest*	0.6	2.3
Softwood forest	4.7	18.0
Softwood wet forest*	1.1	4.4
Hardwood forest	8	0.7
Hardwood wet forest*	0.6	0.7
Fields or barrens	0.2	0.8
Cutover upland	0	0
Cutover wetland*	0	0
Open wetland*	0	0
Shrubs and alders	0	0
Total	**26.1**	**100**

*Wetland data is from habitat model data and does not include field delineated wetlands.

2.2.2 ACCDC Results

An ACCDC report was provided for the Shaw Middleton Sand Pit project and provides an assessment of the area within a 5 km radius of the centre of that project, which is located only 750 m west of the centre of the Project Area presented in this report. The area within that 5 km radius will herein be referred to as the ACCDC Assessment Area, as presented in Drawing 2. The ACCDC report (Appendix B) therefore covers the entirety of the Project Area for this expanded section.

ACCDC records (2024) identified 224 records of 32 vascular flora species and 17 records of 13 nonvascular flora species within the ACCDC Assessment Area (Appendix B). It also identified 511 records of 38 vertebrate and 17 records of seven invertebrate fauna. Of these observations, three species are SAR. A summary of plant, lichen, and vertebrate SAR identified by the ACCDC records within 5km of the Project Area is provided in Table 2.2 (Drawing 2).

Table 2.2: ACCDC SAR and SOCI Identified within 5 km of the Project Area

Scientific Name	Common Name	COSEWIC	SARA	ESA	S-Rank
Plants (Vascular)					
Fraxinus nigra	Black ash	Threatened	---	Threatened	S1S2
Liatris spicata	Dense blazing star	Threatened	Threatened	--	SNA
Thuja occidentalis	Eastern white cedar	--	--	Vulnerable	S2S3
Vertebrates					
Cardellina canadensis	Canada warbler	Special Concern	Threatened	Endangered	S3B
Chaetura pelagica	Chimney swift	Threatened	Threatened	Endangered	S2S3B,S1M
Chelydra serpentina	Snapping turtle	Special Concern	Special Concern	Vulnerable	S3
Chordeiles minor	Common nighthawk	Special Concern	Special Concern	Threatened	S3B
Chrysemys picta	Painted turtle	Special Concern	Special Concern	--	S4
Chrysemys picta picta	Eastern painted turtle	Special Concern	Special Concern	--	S4
Coccothraustes vespertinus	Evening grosbeak	Special Concern	Special Concern	Vulnerable	S3B
Contopus cooperi	Olive-sided flycatcher	Special Concern	Special Concern	Threatened	S3S4B
Contopus virens	Eastern wood-pewee	Special Concern	Special Concern	Vulnerable	S3S4B
Dolichonyx oryzivorus	Bobolink	Special Concern	Threatened	Vulnerable	S3B
Emydoidea blandingii	Blanding's turtle – Nova Scotia population	Endangered	Endangered	Endangered	S1
Euphagus carolinus	Rusty blackbird	Special Concern	Special Concern	Endangered	S2B
Glyptemys insculpta	Wood turtle	Threatened	Threatened	Threatened	S2
Hirundo rustica	Barn swallow	Special Concern	Threatened	Endangered	S3B
Melanerpes erythrocephalus	Red-headed woodpecker	Endangered	Threatened	--	SNA
Riparia riparia	Bank swallow	Threatened	Threatened	Endangered	S2B
Invertebrates					
Epeoloides pilosulus	Macropis cuckoo bee	Endangered	Endangered	Endangered	S1
Danaus plexippus	Monarch	Endangered	Special Concern	Endangered	S2?B.S3M
Bombus terricola	Yellow-banded bumble bee	Special Concern	Special Concern	Vulnerable	S3
Coccinella transversoguttata richardsoni	Transverse lady beetle	Special Concern	--	Endangered	SH

Source: (ACCDC 2024)

Of the above species observations, four are considered location sensitive species: black ash (*Fraxinus nigra*), blanding's turtle (*Emydoidea blandingii*), wood turtle (*Glypteyms insculpta)*, and an unidentified bat species occurrence or bat hibernaculum[1].

Strum requested addition information from NSDNRR about the location sensitive species that were identified within the area by ACCDC. These communications refer to the environmental assessment for the adjacent Sand Pit Project and took place via email from June 2023 to January 2024. These communications confirmed that though core habitat for brook floater (*Alasmidonta varicose)*, black ash, and mainland moose (*Alces alces americana)* all exist within 5 km of the project area, but none are within the Project Area boundaries. The closest location sensitive species observation was a bat observed 800 m to the south (S. Spencer, 2023, personal communication).

Wood turtle core habitat, and wood turtle observations were also confirmed to be within 1 km of the site (S. Spencer, 2023, personal communication). There was some uncertainty regarding the accuracy of a Blanding's turtle observation that was identified by ACCDC ~2 km from the Sand Pit Expansion Project Project Area. Though this area does not have any known Blanding's turtle populations, and it may have been mis-identified, surveys for this project included looking for and recording all turtle species (C. Robicheau, 2023, personal communication).

Hoary bat (*Lasiurus cinereus*, COSWIC: Endangered) and silver-haired bat (*Lasionycteris noctivagans*, COSEWIC: Endangered) were identified by ACCDC within 5 km of the centre of the Project Area.

2.2.3 Desktop Findings - Overview

The Project Area is not within any area of Restricted or Limited Land use. The closest polygon from that layer is the Cloud Lake Wilderness Area located 7.5 km to the southeast (NSNR, 2007). The closest Park or Protected Area is the Torbrook Nature Reserve located 2.5 km south of the Project Area (NSECC, 2024).

There are no Old Growth Policy polygons within the Project Area, and the nearest mapped stand is located 400 m to the east (NSNR, 2024a; Drawing 2). There are no boreal felt lichen or vole ears predicted polygons located within 10 km of the Project Area. The closest SOCI lichens that have been identified are powdered fringe lichen (*Heterodermia speciosa*, S3S4), located 2.5 km southeast of the Project Area and black-footed reindeer lichen (*Cladonia stygia*, S3) located 4 km northeast of the Project Area (ACCDC, 2024).

There are no IBA, or mapped ECCC or SARA critical habitat within 10 km of the Project Area. There is Significant Habitat for wood turtles located in watercourses close to the Project Area including the Nictaux River, which is located 2.4 km to the west and is not hydrologically

[1] The location sensitive bat species might be a bat observation or a bat hibernaculum observation of three at-risk species: *Myotis lucifugus* (little brown myotis), *Myotis septentrionalis* (long-eared myotis), and *Perimyotis subflavus* (tri-colored bat or eastern pipistrelle), which are all Endangered under the Federal Species at Risk Act and the NS Endangered Species Act

connected to the Project Area, and the Black River which is 750 m northeast of the Project Area (NSNR, 2024; Drawing 2, Appendix A). A tributary of the Black River extends very close to the Project Area (within 60 m) and there is a wood turtle SMP buffer located approximately 550 m northeast of the Project Area (NSNR, 2023). The Project Area is within a wood turtle secondary watershed. The findings regarding wood turtles are further discussed in Section 2.2.3.

There are no SMP buffers or critical or core habitat for wildlife located within the Project Area, but there are a few sensitive locations within a few kilometers. The nearest mainland moose core habitat is located 4 km south of the Project Area (NSNR, 2021), and there is an identified Atlantic salmon southern upland population (*Salmo salar* pop. 6) located 2 km to the west in the Nictaux River (ACCDC, 2024). The nearest AMOs are located 1.1 km southeast of the Project Area. There are a total of 65 AMOs located within 7 km of the Project Area. Most of these are abandoned sites from iron exploration (n=63) with a range of open cuts (n=2), pits (n=23), shafts (n=29), stopes (n=2), trenches (n=6), and one adit (n=1). The nearest known bat hibernacula to the Project Area is the Vault Cave in Kings.

2.2.3.1 Priority Vascular Plants and Lichen Species

Prior to the field assessment, a detailed desktop review of known lichen observations and potential habitat of rare lichens within the Project Area was performed. The desktop review process informed field surveyors of the likelihood of priority lichen species and where they may be expected in relation to the Project Area. The forest inventory GIS database provides information pertaining to forest characteristics, including stand age, determining suitable lichen habitat. The specific habitat requirements of each priority lichen vary, though many require mature to old growth forest; stand age is one of the major determinants of the presence of many rare epiphytic lichens (McMullin et al. 2008).

The Boreal Felt Lichen Layer (provided to Strum by NSNRR) was reviewed to identify potential habitat for boreal felt lichen within the Project Area. The habitat model is based on the known distribution of boreal felt lichen, which is known to grow on the trunks of balsam fir trees in peatland and in close proximity (<30 km) to the Atlantic Ocean (NSNR, 2012a). Boreal felt lichen – Atlantic population (*Erioderma pedicellatum*) is a species listed as “Endangered” under Schedule 1 of SARA and ESA and is also listed as “S1” by ACCDC. No predicted boreal felt lichen polygons are present within the Project Area, with the closest predicted polygon occurring 500 m west-southwest of the Project Area. According to the MTRI databases, no extant boreal felt lichen populations are within 40 km of the Project Area, and the closest vole ears lichen population is located over 83 km away.

2.2.3.2 Bats

All seven species of bats known to occur in Nova Scotia are considered priority species, three of which are considered endangered under SARA. Four are resident species that reside in the province year-round and three are migratory species that overwinter in the southern United States. Resident species include the little brown myotis (*Myotis lucifugus*), northern myotis

(*Myotis septentrionalis*), tri-colored bat (*Perimyotis subflavus*), and big brown bat (*Eptesicus fuscus*). Migratory species include the eastern red bat (*Lasiurus borealis*), hoary bat (*Lasiurus cinereus*), and silver-haired bat (*Lasionycteris noctivagans*).

Known species of bats to occur in Nova Scotia, their rankings and migratory or resident species distinction are provided in Table 2.3.

Table 2.3: Migratory and Resident Bat Species in Nova Scotia

Scientific Name	Common Name	COSEWIC	SARA	ESA	S-Rank	Migratory or Resident Species
Myotis lucifugus	Little brown myotis	Endangered	Endangered	Endangered	S1	Resident
Myotis septentrionalis	Northern myotis	Endangered	Endangered	Endangered	S1	Resident
Perimyotis subflavus	Tricolored bat	Endangered	Endangered	Endangered	S1	Resident
Lasiurus cinereus	Hoary bat	-	-	-	SUB, S1M	Migratory
Lasiurus borealis	Eastern red bat	-	-	-	SUB, S1M	Migratory
Lasionycteris novtivagans	Silver-haired bat	-	-	-	SUB, S1M	Migratory
Eptesicus fuscus1	Big brown bat	-	-	-	SNA	Migratory

[1]There are very few records of big brown bats in Nova Scotia with Nova Scotia being outside of their documented range (Naughton 2012).

Three resident species (the little brown myotis, northern myotis, and tri-colored bat) are protected federally and provincially under SARA and the ESA. These three species were added to the ESA as “Endangered” on July 11, 2013, and were declared “Endangered” under Schedule 1 of SARA on November 26, 2014. The designation under SARA and the ESA was driven by the emergence of white-nose syndrome (a disease caused by the fungus *Geomyces destructans*), which was first detected in Canada in 2010 and led to a 90% population decline in Nova Scotia by 2013 (COSEWIC, 2013). All three migratory bat species were listed by COSEWIC in May 2023 as “Endangered” (COSEWIC, 2023). The big brown bat is not listed under either SARA or the ESA.

There are three habitat features considered to be significant for bats: hibernacula for overwintering, maternity roosts for birthing and raising young, and migratory stopovers for rest periods during spring/fall migration. Hibernacula are overwintering sites that are typically located in abandoned mines or caves and can support hundreds of bats. Maternity colonies are poorly documented in Nova Scotia, with limited desktop information regarding these sites’

location and use (NSNRR, 2020b). Conservation of maternity roosts where bats are known to raise their young is likely to aid in the recovery of these species (ECCC, 2018).

A 2007 publication outlining the known records of bats at caves and mines in Nova Scotia lists the Vault Cave in Kings County as a minor site, with fewer than 10 bats (Moseley, 2007). However, a more recent publication showed that the Vault Cave had a high level of bat swarming activity, with 249 bats captured during their surveys (Randall and Broders, 2014). The Vault Cave is located more than 10 km north of the Project Area.

NSDNRR has classified all bat species and their hibernacula as “location sensitive species”, meaning that ACCDC is not permitted to provide specific location data for these species in their reports. Communications with NSNRR revealed that there have been dozens of bat occurrences near the project site, and the closest observations are located, “800 m to the south and 1 km to the north” of the adjacent Project Area (S. Spencer, personal communication, 2023). Additionally, there is critical habitat for bats approximately 3 km to the north of the project site (S. Spencer, personal communication, 2023).

2.2.3.3 Wood Turtles

The wood turtle is listed as Threatened in Schedule 1 of SARA. Their critical habitat is identified based on habitat occupancy and habitat suitability. Wood turtle critical habitat is only partially identified in the provincial recovery strategy to protect this sensitive species (NSDLF, 2020)

The entire Project Area is within the Annapolis River secondary watershed which flows to the Bay of Fundy and is known to have wood turtles. There are known wood turtle populations within the Nictaux River, located 2 km west of the Project Area, and within the Black River, located within 1 km east of the Project Area. The 200 m SMP buffers extend within 600 m of the Project Area.

The ACCDC report identified wood turtle observation(s) within the ACCDC Project Area and NSDNRR communications confirmed the presence of wood turtle core habitat, and wood turtle observations within 1 km of the site.

3.0 FIELD SURVEYS

Four types of field surveys were conducted based on the results of the desktop assessment.

3.1 Bat Maternity Roost Methodology

As discussed in Section 2.2.3.3, conservation of bat maternity roosts is an important part of the recovery strategy for all at-risk bat species. Roosting preferences vary slightly between bat species, but generally bats may use cavities of canopy trees, foliage, tree bark, crevices on cliffs, and tree cavities (ECCC, 2018). Little Brown Myotis maternity roosts are often found in

buildings, while Northern myotis and tri-coloured bat will rarely use anthropogenic structures (ECCC, 2018). Any potential bat roosts or observed bats were recorded during the survey.

The survey for potential bat maternity roosts occurred concurrently with the lichen survey on September 23, 2024, by Cole Vail of Strum. The survey consisted of meandering transects throughout the Project Area with a focus on areas with mature trees and tall structures. Any potential roost or hibernacula was georeferenced and detailed notes and photos were taken.

3.2 Wood Turtle Survey Methodology

Visual encounter surveys were conducted incidentally throughout the Project Area, following methodology adapted from the wood turtle Standardized Water-Based Survey Protocol (Ikanawtiket Environmental Inc., 2018). The guidelines state that for best detection surveys should take place either in pre-nesting season in early May, or in pre-brumation after mid-September, though detection rates near water are higher during spring surveys (Ikanawtiket Environmental Inc., 2018). Air temperatures were greater than 9°C, but less than 25°C, and sunny/partially sunny conditions were present. Surveys were completed when air temperatures were warmer than water temperatures, due to the thermal advantage of basking on land, which increases the probability of detection (Flanagan, Roy-McDougall, Forbes, & Forbes, 2013).

Surveys for wood turtles and wood turtle habitat were conducted opportunistically during the botany surveys which took place on September 20, 2024. A qualified biologist with knowledge of wood turtle life history and habitat requirements for each life stage recorded any suitable habitat observed. If a watercourse was encountered, the surveyor walked in meandering transects extending up to 20 m on either side of the water.

Habitat suitability refers to the conditions that support any component of a wood turtle's life cycle (i.e., overwintering, foraging, thermoregulation, nesting) as well as their movements. Habitat suitability is based on specific biophysical features required to meet the species needs during each life cycle. Potential high use habitat is determined as any habitat that offers resources requires for critical life functions such as nesting, overwintering, and foraging. Although wood turtles often occupy terrestrial habitats, they require access to water daily for several vital functions such as thermoregulation (ECCC, 2020). For this reason, areas that have overlapping nesting, overwintering and foraging habitat are considered high use. Historical nesting or overwintering wood turtle observations would be included in high use habitat.

Wood turtles' preferred habitat for basking and overwintering coincides with the vegetation community and habitat types that are prioritized for conducting rare botany surveys. Studies have shown that 95% of wood turtles observations are within 200 m of a stream (ECCC, 2016). Surveyors therefore prioritized surveying within watercourses and in the areas 200 m on either side of watercourses or predicted watercourses.

Wood turtle visual encounter surveys and surveys for wood turtle potential habitat occurred at the same time as botany surveys. These surveys paired well together because the priority areas for botany surveys tend to overlap with preferred wood turtle habitat, as there is greater botany diversity in wet areas.

3.3 Lichen Survey Methodology

Lichen surveys were completed across the Project Area on September 23, 2024, by Cole Vail of Strum. Many of the SAR/SOCI lichens in Nova Scotia prefer mature forested communities, often in association with wetlands, lakes, and watercourses. The Project Area consists of both disturbed and intact habitat. Intact habitat is dominated by softwood and mixed wood forests as well as some wetlands.

All suitable lichen habitats within the Project Area were surveyed on foot via meandering transect and targeted mature trees appropriate for hosting priority lichen species. Host trees were visually inspected, focusing on tree trunks, branches, and twigs. Any identified priority lichen species were clearly marked with flagging tape. More time was spent in the southern half of the Project Area which contains more intact forested habitat and wet areas. If important habitat types such as wetlands or fringe habitat were identified adjacent to transects, these areas were investigated. All species observed were recorded in a list, and any SAR/SOCI observed were georeferenced using a handheld GPS.

If a lichen specimen could not be readily identified in situ, photos and/or specimens were collected where appropriate and identified ex situ in laboratory conditions via microscopy and standard chemical spot tests in accordance with Brodo et al. (2001) and using a variety of literature resources to aid in identification. Surveys prioritized the identification of macro lichens (i.e., foliose, fruticose, and some squamulose species).

3.4 Botany Survey Methodology

Vascular plant surveys focused on examining habitats considered particularly suitable for vascular plant SOCI (such as mature forest, wetlands, and riparian areas), as well as examining general vascular plant diversity and community composition within the Project Area. The search pattern used in the field was a random meander across the entire site.

Any vascular or non-vascular SAR or SOCI observed were georeferenced, counted (when possible), photographed, and a description of their habitat was recorded. When unknown species were encountered, surveyors took photos and samples (when appropriate) to verify identification with guidebooks and/or experts as required.

4.0 FIELD ASSESSMENT RESULTS

4.1 Bat Maternity Roosts

There were no bats observed, or potential bat maternity roosts identified within the Project Area.

4.2 Wood Turtles

There were no wood turtles or suitable wood turtle nesting or overwintering habitat observed within the Project Area. Though none were observed during surveys, it is possible that wood turtles may use some of the habitat within the Project Area for foraging or movement, including the riparian forests, mixedwood, and deciduous forests. The Project Area does not provide adequate habitat for the most limiting stages of a wood turtles' life cycle which are nesting and overwintering.

There is one watercourse that passes through the southern portion of the Project Area, but it did not have suitable nesting or overwintering habitat to support wood turtles.

4.3 Lichen

There was one SOCI lichen identified within the Project Area, and no SAR lichens. The SOCI lichen observed is Atlantic jellyskin lichen (*Leptogium acadiense*, S3S4), which has no associated provincial special management practices. There were three thalli of this species at chest height on a trembling aspen (*Populus tremuloides*) in an upland mixedwood forest in the southernmost polygon of the Project Area (Drawing 3, Appendix A).

4.4 Botany

No SOCI or SAR vascular plants were observed within the Project Area.

5.0 CONCLUSION

The desktop analysis of this Project Area highlighted four main sensitive ecological features that could impact development of the site: presence of bats or bat hibernacula, presence of wood turtles or key habitats to support wood turtles, priority lichen species, and priority vascular plants. Surveys for all four of those sensitive ecological features were conducted within the Project Area on September 20 and 24, 2024. There were no bats or potential bat maternity roosts identified, no turtles of any species, no suitable wood turtle basic or overwintering habitat, and no priority vascular plant species identified within the Project Area. There was one SOCI lichen species identified within the Project Area, the Atlantic jelly skin lichen. This species has no associated special management practices.

Following the desktop and field assessments of the Project Area, there are no notable conservation concerns or sensitive species observed that might impede a sand pit expansion.

6.0 STATEMENT OF QUALIFICATIONS AND LIMITATIONS

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

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

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

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

Consultant agrees that the Report represents its professional judgement as described above and that the Information has been prepared for the specific purpose and use described in the Report and the Agreement, but Consultant makes no other representations, or any guarantees or warranties whatsoever, whether express or implied, with respect to the Report, the Information or any part thereof.

The Report is to be treated as confidential and may not be used or relied upon by third parties, except:

- as agreed in writing by Consultant and Client
- as required by law
- for use by governmental reviewing agencies

Consultant accepts no responsibility, and denies any liability whatsoever, to parties other than Client who may obtain access to the Report or the Information for any injury, loss, or damage suffered by such parties arising from their use of, reliance upon, or decisions or actions based on the Report or any of the Information ("improper use of the Report"), except to the extent those parties have obtained the prior written consent of Consultant to use and rely upon the Report and the Information. Any damages arising from improper use of the Report or parts thereof shall be borne by the party making such use.

This Statement of Qualifications and Limitations forms part of the Report and any use of the Report is subject to the terms hereof.

Should additional information become available, Strum requests that this information be brought to our attention immediately so that we can re-assess the conclusions presented in this report. This report was prepared by Emma Halupka, MSc., Environmental Scientist, and was reviewed by Mark MacDonald, M.ScF., Senior Project Manager and Terrestrial Lead.

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Wildlife Act, R.S.N.S. 1989, c. 504

APPENDIX A
DRAWINGS

Shaw Middleton East, Middleton, NS

Site Overview

GHD

Study Area

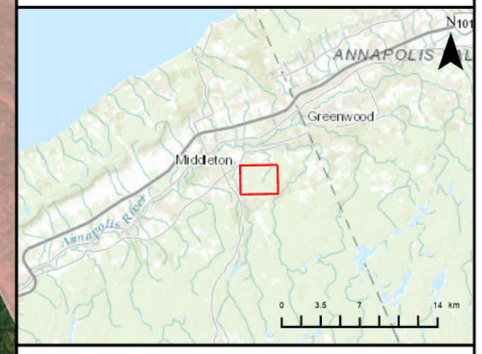
Shaw Middleton Sand Pit Project

Property Line

Crown Land

Transportation

Unpaved Road



Coordinate System: NAD83 UTM Zone 20N

Sources: ESRI Basemaps, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2025-03-14	Project #: 24-10016
Scale: 1:10,000	Drawing #: 1
Drawn By: E. Johnson	
Checked By: E. Halupka	

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0 200 400 600 800 m

Shaw Middleton East, Middleton, NS

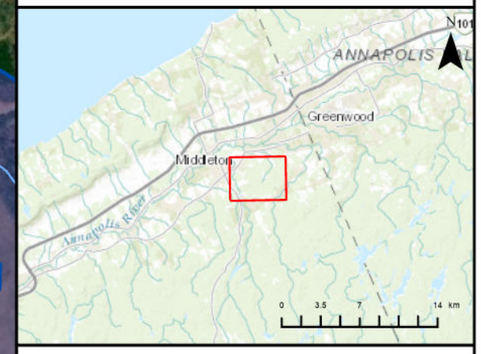
Desktop Results

GHD

Study Area	
Shaw Middleton Sand Pit Project	
Old Growth Polygon	
Potential Wood Turtle Habitat (200m Buffer)	
ACCDC Data	
Vertebrate Fauna	
Vascular Flora	
Invertebrate Fauna	
Abandoned Mine Opening	
Transportation	
Road	
Unpaved Road	
Water Features	
Mapped Stream (NSTDB)	
Mapped Wetland (NSE)	

Vegetation Habitat

- Hardwood Forest
- Hardwood Wet Forest
- Mixedwood Forest
- Mixedwood Wet Forest
- Open Areas
- Open Wetland
- Softwood Forest
- Softwood Wet Forest
- Urban/ Developed



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Sources: ESRI Basemaps, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2025-03-14	Project #: 24-10016
Scale: 1:15,000	Drawing #: 2
Drawn By: E. Johnson	
Checked By: E. Halupka	

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0 220 440 660 880 m

Robert Frost Rd
Driveway
Highway 201
Oakhurst Rd
Nictaux River
McKeown Rd
Highway 10
Nictaux Falls Rd
River Lane
Bloomington Rd
Nictaux Falls Trail
Torbrook West
Torbrook Rd
Trimport Lane
Whitman Br
Black River

Shaw Middleton East, Middleton, NS

Field Results

N

Fagus grandifolia

Ulmus americana

Carex lupulina

Equisetum pratense

Carex lupulina

Ulmus americana

0 150 300 450 600 m

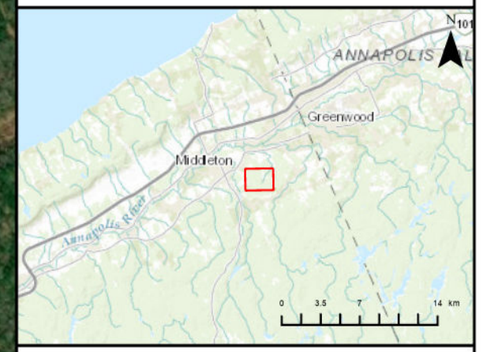
SAR / SOCI Lichen Observation

Study Area

Shaw Middleton Sand Pit Project

Transportation

Unpaved Road



Coordinate System: NAD83 UTM Zone 20N

Sources: ESRI Basemaps, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2025-03-14	Project #: 24-10016
Scale: 1:7,500	Drawing #: 3
Drawn By: E. Johnson	
Checked By: E. Halupka	

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APPENDIX B
ACCDC REPORT

DATA REPORT 7690: Middleton, NS

Prepared 31 May 2023
by C. Robicheau, Conservation Data Analyst

CONTENTS OF REPORT

Map 1. A 100 km buffer around the study area

1.0 PREFACE

The Atlantic Canada Conservation Data Centre (AC CDC; www.accdc.com) 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 AC CDC 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 AC CDC is supported by 6 federal agencies and 4 provincial governments, as well as through outside grants and data processing fees.

Upon request and for a fee, the AC CDC 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 AC CDC 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
MiddletonNS_7690ob.xls	Rare or legally-protected Flora and Fauna in your study area
MiddletonNS_7690ob100km.xls	A list of Rare and legally protected Flora and Fauna within 100 km of your study area
MiddletonNS_7690msa.xls	Managed and Biologically Significant Areas in your study area
MiddletonNS_7690ff_py.xls	Rare Freshwater Fish in your study area (DFO database)

1.2 RESTRICTIONS

The AC CDC 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 AC CDC 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 AC CDC 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) AC CDC 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) AC CDC 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 AC CDC data response.

1.3 ADDITIONAL INFORMATION

The accompanying Data Dictionary provides metadata for the data provided.

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

Plants, Lichens, Ranking Methods, All other Inquiries
Sean Blaney
Senior Scientist / Executive Director
(506) 364-2658
sean.blaney@accdc.ca

Animals (Fauna)
John Klymko
Zoologist
(506) 364-2660
john.klymko@accdc.ca

Data Management, GIS
James Churchill
Conservation Data Analyst / Field Biologist
(902) 679-6146
james.churchill@accdc.ca

Billing
Jean Breau
Financial Manager / Executive Assistant
(506) 364-2657
jean.breau@accdc.ca

Questions on the biology of Federal Species at Risk can be directed to AC CDC: (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 Hubert Askanas, Energy and Resource Development: (506) 453-5873.

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 Donna Hurlburt, NS DLF: (902) 679-6886. To determine if location-sensitive species (section 4.3) occur near your study site please contact a NS DLF Regional Biologist:

Western: Emma Vost
(902) 670-8187
Emma.Vost@novascotia.ca

Western: Sarah Spencer
(902) 541-0081
Sarah.Spencer@novascotia.ca

Central: Shavonne Meyer
(902) 893-0816
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Kimberly.George@novascotia.ca

Eastern: Harrison Moore
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Harrison.Moore@novascotia.ca

Eastern: Maureen Cameron-MacMillan
(902) 295-2554
Maureen.Cameron-MacMillan@novascotia.ca

Eastern: Elizabeth Walsh
(902) 563-3370
Elizabeth.Walsh@novascotia.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

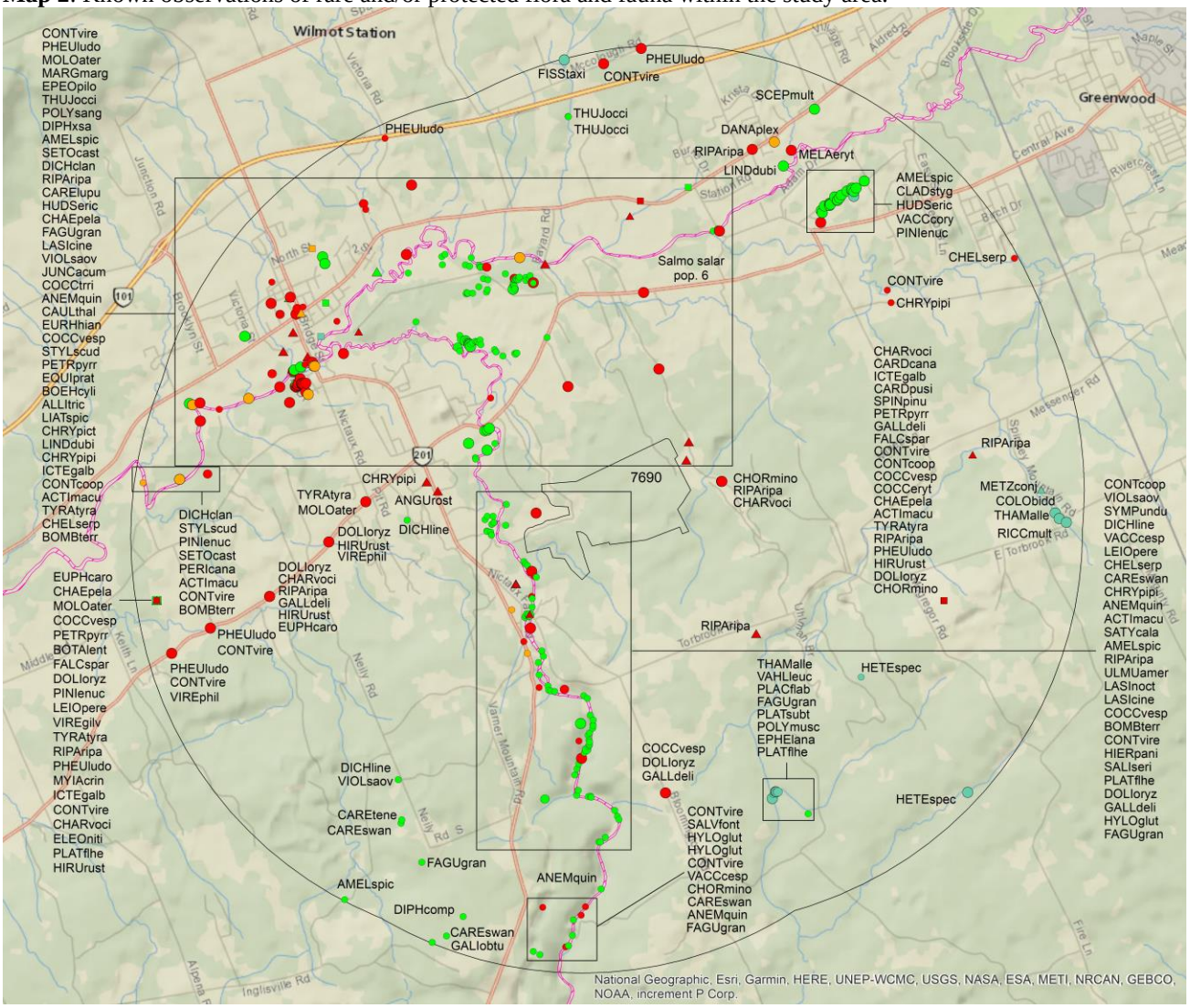
2.1 FLORA

The study area contains 224 records of 32 vascular and 17 records of 13 nonvascular flora (Map 2 and attached: *ob.xls), excluding 'location-sensitive' species.

2.2 FAUNA

The study area contains 511 records of 38 vertebrate and 17 records of 7 invertebrate fauna (Map 2 and attached data files - see 1.1 Data List), excluding 'location-sensitive species'. 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 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

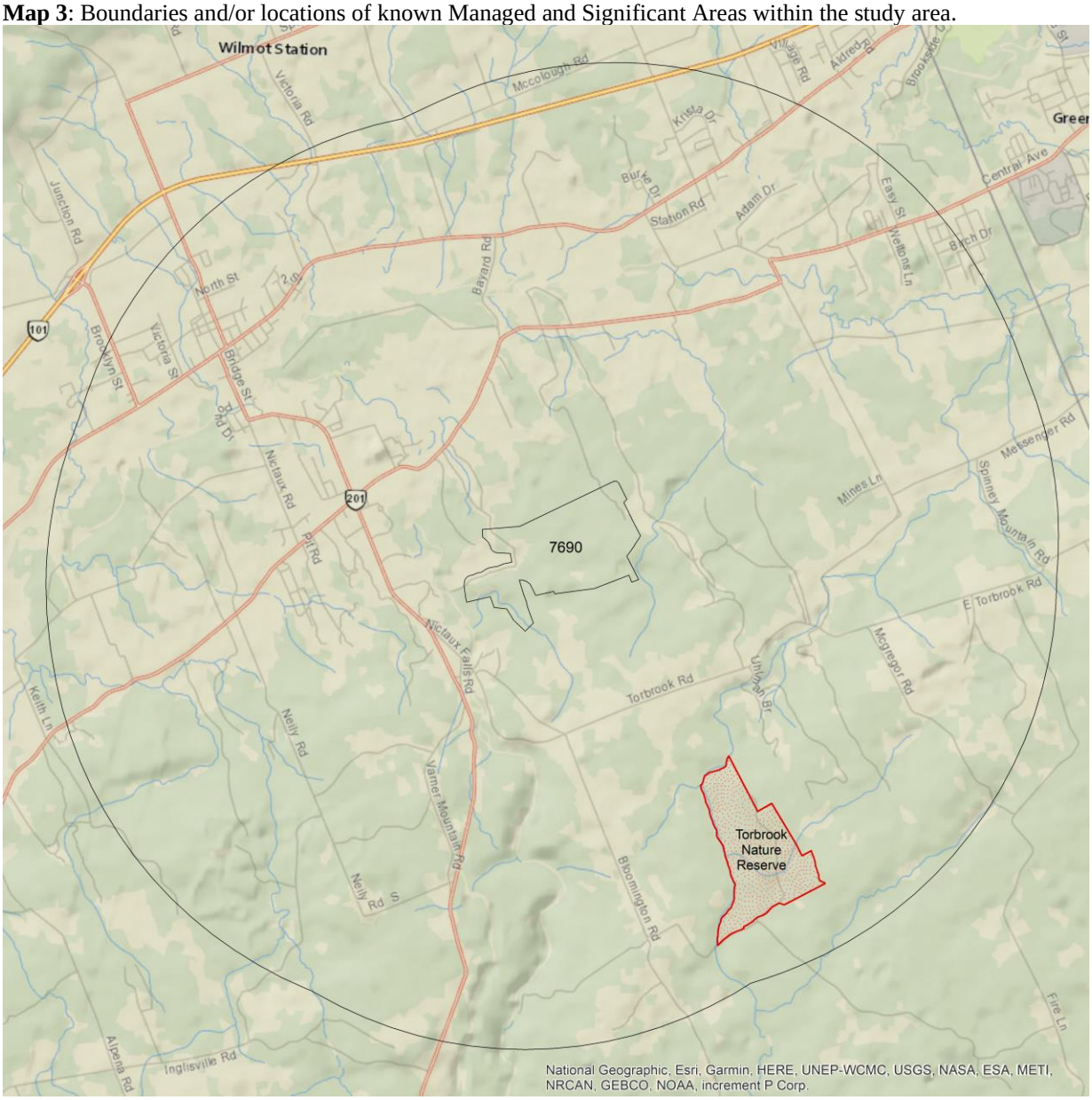
3.1 MANAGED AREAS

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 no biologically significant sites 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 the study area.



4.0 RARE SPECIES LISTS

Rare and/or endangered taxa (excluding “location-sensitive” species, section 4.3) within the study 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 (± 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	# recs	Distance (km)
N	*Polychidium muscicola*	Eyed Mossthorns Woollybear Lichen				S1	2	4.2 ± 0.0
N	*Placynthium flabellosum*	Scaly Ink Lichen				S2	1	4.2 ± 0.0
N	*Cololejeunea biddlecomiae*	Biddlecome's Pouncewort				S2?	1	5.6 ± 0.0
N	*Riccardia multifida*	Delicate Germanderwort				S2?	1	5.8 ± 0.0
N	*Oxyrrhynchium hians*	Light Beaked Moss				S2S3	1	4.3 ± 5.0
N	*Platydictya subtilis*	Bark Willow Moss				S2S3	1	4.2 ± 0.0
N	*Fissidens taxifolius*	Yew-leaved Pocket Moss				S3	1	5.8 ± 0.0
N	*Ephebe lanata*	Waterside Rockshag Lichen				S3	2	4.1 ± 0.0
N	*Metzgeria conjugata*	Rock Veilwort				S3?	1	5.5 ± 0.0
N	*Cladonia stygia*	Black-footed Reindeer Lichen				S3?	1	5.0 ± 0.0
N	*Thamnobryum alleghaniense*	a Moss				S3S4	2	4.2 ± 0.0
N	*Vahliella leucophaea*	Shelter Shingle Lichen				S3S4	1	4.2 ± 0.0
N	*Heterodermia speciosa*	Powdered Fringe Lichen				S3S4	2	3.8 ± 0.0
P	*Liatris spicata*	Dense Blazing Star	Threatened	Threatened		SNA	1	4.3 ± 0.0
P	*Hudsonia ericoides*	Pinebarren Golden Heather				S2	23	2.3 ± 0.0
P	*Hylodesmum glutinosum*	Large Tick-trefoil				S2	14	2.4 ± 0.0
P	*Allium tricoccum*	Wild Leek				S2	21	1.9 ± 0.0
P	*Platanthera flava var. herbiola*	Pale Green Orchid				S2	14	2.0 ± 0.0
P	*Thuja occidentalis*	Eastern White Cedar			Vulnerable	S2S3	47	3.0 ± 0.0
P	*Caulophyllum thalictroides*	Blue Cohosh				S2S3	12	2.7 ± 0.0
P	*Anemone quinquefolia*	Wood Anemone				S2S3	19	1.3 ± 0.0
P	*Galium obtusum*	Blunt-leaved Bedstraw				S2S3	1	5.9 ± 0.0
P	*Boehmeria cylindrica*	Small-spike False-nettle				S2S3	1	4.3 ± 0.0
P	*Symphyotrichum undulatum*	Wavy-leaved Aster				S3	9	1.5 ± 0.0
P	*Polygala sanguinea*	Blood Milkwort				S3	2	4.9 ± 0.0
P	*Salix sericea*	Silky Willow				S3	3	2.8 ± 0.0
P	*Lindernia dubia*	Yellow-seeded False Pimperel				S3	3	4.4 ± 0.0
P	*Carex lupulina*	Hop Sedge				S3	1	4.9 ± 3.0
P	*Carex swanii*	Swan's Sedge				S3	4	1.3 ± 0.0
P	*Carex tenera*	Tender Sedge				S3	1	4.8 ± 0.0
P	*Eleocharis nitida*	Quill Spikerush				S3	1	5.9 ± 7.0
P	*Dichanthelium linearifolium*	Narrow-leaved Panic Grass				S3	5	1.5 ± 0.0
P	*Diphasiastrum x sabinifolium*	Savin-leaved Ground-cedar				S3?	1	4.8 ± 0.0
P	*Hieracium paniculatum*	Panicled Hawkweed				S3S4	2	1.5 ± 0.0
P	*Vaccinium cespitosum*	Dwarf Bilberry				S3S4	5	1.3 ± 0.0
P	*Vaccinium corymbosum*	Highbush Blueberry				S3S4	1	4.7 ± 0.0
P	*Fagus grandifolia*	American Beech				S3S4	6	1.8 ± 0.0
P	*Amelanchier spicata*	Running Serviceberry				S3S4	9	1.7 ± 0.0
P	*Ulmus americana*	White Elm				S3S4	2	1.7 ± 0.0
P	*Viola sagittata var. ovata*	Arrow-Leaved Violet				S3S4	7	1.5 ± 0.0
P	*Juncus acuminatus*	Sharp-Fruit Rush				S3S4	2	4.9 ± 2.0
P	*Dichanthelium clandestinum*	Deer-tongue Panic Grass				S3S4	4	3.8 ± 0.0
P	*Equisetum pratense*	Meadow Horsetail				S3S4	1	1.8 ± 0.0
P	*Diphasiastrum complanatum*	Northern Ground-cedar				S3S4	1	5.5 ± 0.0
P	*Sceptridium multifidum*	Leathery Moonwort				S3S4	1	5.7 ± 0.0

4.2 FAUNA

	Scientific *Name*	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)
A	*Melanerpes erythrocephalus*	Red-headed Woodpecker	Endangered	Threatened		SNA	1	5.1 ± 0.0
A	*Lasiurus cinereus*	Hoary Bat	Endangered			SUB, S1M	6	1.8 ± 0.0
A	*Lasionycteris noctivagans*	Silver-haired Bat	Endangered			SUB,S1M	2	1.8 ± 0.0
A	*Riparia riparia*	Bank Swallow	Threatened	Threatened	Endangered	S2B	22	1.2 ± 1.0
A	*Chaetura pelagica*	Chimney Swift	Threatened	Threatened	Endangered	S2S3B,S1M	289	4.2 ± 0.0
A	*Anguilla rostrata*	American Eel	Threatened			S3N	1	2.2 ± 0.0
A	*Euphagus carolinus*	Rusty Blackbird	Special Concern	Special Concern	Endangered	S2B	2	4.5 ± 0.0
A	*Chelydra serpentina*	Snapping Turtle	Special Concern	Special Concern	Vulnerable	S3	10	1.5 ± 1.0
A	*Hirundo rustica*	Barn Swallow	Special Concern	Threatened	Endangered	S3B	11	3.6 ± 0.0
A	*Cardellina canadensis*	Canada Warbler	Special Concern	Threatened	Endangered	S3B	1	4.4 ± 7.0
A	*Chordeiles minor*	Common Nighthawk	Special Concern	Special Concern	Threatened	S3B	4	1.5 ± 0.0
A	*Contopus cooperi*	Olive-sided Flycatcher	Special Concern	Special Concern	Threatened	S3B	3	0.9 ± 0.0
A	*Dolichonyx oryzivorus*	Bobolink	Special Concern	Threatened	Vulnerable	S3B	19	3.6 ± 0.0
A	*Coccothraustes vespertinus*	Evening Grosbeak	Special Concern	Special Concern	Vulnerable	S3B,S3N,S3M	10	1.9 ± 0.0
A	*Contopus virens*	Eastern Wood-Pewee	Special Concern	Special Concern	Vulnerable	S3S4B	32	1.3 ± 0.0
A	*Chrysemys picta*	Painted Turtle	Special Concern	Special Concern		S4	2	4.2 ± 0.0
A	*Chrysemys picta picta*	Eastern Painted Turtle	Special Concern	Special Concern		S4	13	1.5 ± 0.0
A	*Myiarchus crinitus*	Great Crested Flycatcher				S1B	1	5.9 ± 7.0
A	*Vireo gilvus*	Warbling Vireo				S1B,SUM	1	5.9 ± 7.0
A	*Vireo philadelphicus*	Philadelphia Vireo				S2?B,SUM	2	3.6 ± 0.0
A	*Molothrus ater*	Brown-headed Cowbird				S2B	3	3.1 ± 0.0
A	*Petrochelidon pyrrhonota*	Cliff Swallow				S2S3B	3	4.2 ± 0.0
A	*Icterus galbula*	Baltimore Oriole				S2S3B,SUM	5	4.3 ± 0.0
A	*Perisoreus canadensis*	Canada Jay				S3	1	5.1 ± 0.0
A	*Spinus pinus*	Pine Siskin				S3	2	4.4 ± 7.0
A	*Salvelinus fontinalis*	Brook Trout				S3	1	5.1 ± 0.0
A	*Charadrius vociferus*	Killdeer				S3B	6	1.5 ± 0.0
A	*Coccyzus erythropthalmus*	Black-billed Cuckoo				S3B	1	4.4 ± 7.0
A	*Tyrannus tyrannus*	Eastern Kingbird				S3B	9	3.1 ± 0.0
A	*Pheucticus ludovicianus*	Rose-breasted Grosbeak				S3B	22	2.5 ± 0.0
A	*Falco sparverius*	American Kestrel				S3B,S4S5M	3	4.4 ± 7.0
A	*Gallinago delicata*	Wilson's Snipe				S3B,S5M	5	3.7 ± 0.0
A	*Cardellina pusilla*	Wilson's Warbler				S3B,S5M	1	4.4 ± 7.0
A	*Pinicola enucleator*	Pine Grosbeak				S3B,S5N,S5M	4	4.5 ± 0.0
A	*Botaurus lentiginosus*	American Bittern				S3S4B,S4S5M	3	5.9 ± 7.0
A	*Setophaga castanea*	Bay-breasted Warbler				S3S4B,S4S5M	2	3.2 ± 0.0
A	*Actitis macularius*	Spotted Sandpiper				S3S4B,S5M	6	1.5 ± 0.0
A	*Leiothlypis peregrina*	Tennessee Warbler				S3S4B,S5M	2	1.3 ± 0.0
I	*Epeoloides pilosulus*	Macropis Cuckoo Bee	Endangered	Endangered	Endangered	S1	2	5.0 ± 5.0
I	*Danaus plexippus*	Monarch	Endangered	Special Concern	Endangered	S2?B,S3M	1	5.1 ± 0.0
I	*Bombus terricola*	Yellow-banded Bumble Bee	Special Concern	Special Concern	Vulnerable	S3	3	2.1 ± 0.0
I	*Coccinella transversoguttata richardsoni*	Transverse Lady Beetle	Special Concern		Endangered	SH	1	4.7 ± 2.0
I	*Margaritifera margaritifera*	Eastern Pearlshell				S2	1	3.4 ± 0.0
I	*Stylurus scudderi*	Zebra Clubtail				S2S3	8	4.1 ± 0.0
I	*Satyrium calanus*	Banded Hairstreak				S3	1	1.8 ± 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 your study area are indicated below with "YES".

Nova Scotia

Scientific *Name*	Common Name	SARA	Prov Legal Prot	Known within the Study Site?
Fraxinus nigra	**Black Ash**		**Threatened**	**YES**
Emydoidea blandingii	**Blanding's Turtle - Nova Scotia pop.**	**Endangered**	**Endangered**	**YES**
Glyptemys insculpta	**Wood Turtle**	**Threatened**	**Threatened**	**YES**
Falco peregrinus pop. 1	Peregrine Falcon - anatum/tundrius pop.		Vulnerable	No
Bat hibernaculum or bat species occurrence		**[Endangered][1]**	**[Endangered][1]**	**YES**

1 *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 NS Endangered Species Act.

4.4 SOURCE BIBLIOGRAPHY

The recipient of these data shall acknowledge the AC CDC 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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5.0 RARE SPECIES WITHIN 100 KM

A 100 km buffer around the study area contains 67333 records of 163 vertebrate and 2626 records of 80 invertebrate fauna; 18494 records of 328 vascular and 5167 records of 247 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 (including “location-sensitive” species). 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 (± the precision, in km, of the record).

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
A	*Coregonus huntsmani*	Atlantic Whitefish	Endangered	Endangered	Endangered	S1	147	52.5 ± 1.0	NS
A	*Myotis lucifugus*	Little Brown Myotis	Endangered	Endangered	Endangered	S1	758	1.8 ± 0.0	NS
A	*Myotis septentrionalis*	Northern Myotis	Endangered	Endangered	Endangered	S1	108	1.8 ± 0.0	NS
A	*Perimyotis subflavus*	Tricolored Bat	Endangered	Endangered	Endangered	S1	206	1.8 ± 0.0	NS
A	*Emydoidea blandingii*	Blanding's Turtle	Endangered	Endangered	Endangered	S1	10325	2.2 ± 0.0	NS
A	*Salmo salar pop. 1*	Atlantic Salmon - Inner Bay of Fundy population	Endangered	Endangered		S1	122	7.9 ± 50.0	NS
A	*Salmo salar pop. 6*	Atlantic Salmon - Nova Scotia Southern Upland population	Endangered			S1	15	31.3 ± 1.0	NS
A	*Eubalaena glacialis*	North Atlantic Right Whale	Endangered	Endangered		S1	1	61.8 ± 50.0	NS
A	*Charadrius melodus melodus*	Piping Plover melodus subspecies	Endangered	Endangered	Endangered	S1B	758	64.6 ± 0.0	NS
A	*Sterna dougallii*	Roseate Tern	Endangered	Endangered	Endangered	S1B	57	39.7 ± 0.0	NS
A	*Dermochelys coriacea pop. 2*	Leatherback Sea Turtle - Atlantic population	Endangered	Endangered		S1S2N	6	68.3 ± 0.0	NS
A	*Morone saxatilis pop. 2*	Striped Bass - Bay of Fundy population	Endangered			S2S3B,S2S3N	4	18.8 ± 1.0	NS
A	*Lamna nasus*	Porbeagle Shark	Endangered			SNR	1	30.4 ± 0.0	NS
A	*Lasiurus cinereus*	Hoary Bat	Endangered			SUB, S1M	68	1.8 ± 0.0	NS
A	*Lasionycteris noctivagans*	Silver-haired Bat	Endangered			SUB,S1M	18	1.8 ± 0.0	NS
A	*Lasiurus borealis*	Eastern Red Bat	Endangered			SUB,S1M	8	33.3 ± 0.0	NS
A	*Rangifer tarandus pop. 2*	Caribou - Atlantic-Gasp ├⌐sie population	Endangered	Endangered	Extirpated	SX	2	88.7 ± 5.0	NB
A	*Catharus bicknelli*	Bicknell's Thrush	Threatened	Threatened	Endangered	S1B	9	50.9 ± 7.0	NS
A	*Asio flammeus*	Short-eared Owl	Threatened	Special Concern		S1B	32	54.5 ± 7.0	NS
A	*Glyptemys insculpta*	Wood Turtle	Threatened	Threatened	Threatened	S2	1127	1.5 ± 1.0	NS
A	*Riparia riparia*	Bank Swallow	Threatened	Threatened	Endangered	S2B	1717	1.2 ± 1.0	NS
A	*Thamnophis saurita*	Eastern Ribbonsnake	Threatened	Threatened	Threatened	S2S3	2496	19.8 ± 0.0	NS

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
A	*Chaetura pelagica*	Chimney Swift	Threatened	Threatened	Endangered	S2S3B,S1M	1849	4.2 ± 0.0	NS
A	*Limosa haemastica*	Hudsonian Godwit	Threatened			S2S3M	163	55.6 ± 0.0	NS
A	*Acipenser oxyrinchus*	Atlantic Sturgeon	Threatened			S2S3N	12	64.4 ± 0.0	NS
A	*Hydrobates leucorhous*	Leach's Storm-Petrel	Threatened			S3B	23	60.7 ± 0.0	NS
A	*Tringa flavipes*	Lesser Yellowlegs	Threatened			S3M	1109	45.2 ± 0.0	NS
A	*Anguilla rostrata*	American Eel	Threatened			S3N	406	2.2 ± 0.0	NS
A	*Sturnella magna*	Eastern Meadowlark	Threatened	Threatened		SHB	18	19.3 ± 7.0	NS
A	*Ixobrychus exilis*	Least Bittern	Threatened	Threatened		SUB	11	86.7 ± 0.0	NB
A	*Hylocichla mustelina*	Wood Thrush	Threatened	Threatened		SUB	63	14.3 ± 7.0	NS
A	*Antrostomus vociferus*	Eastern Whip-Poor-Will	Special Concern	Threatened	Threatened	S1?B	12	14.3 ± 7.0	NS
A	*Passerculus sandwichensis princeps*	Ipswich Sparrow	Special Concern	Special Concern		S1B	2	62.2 ± 0.0	NS
A	*Bucephala islandica*	Barrow's Goldeneye	Special Concern	Special Concern		S1N,SUM	31	51.6 ± 1.0	NS
A	*Euphagus carolinus*	Rusty Blackbird	Special Concern	Special Concern	Endangered	S2B	352	4.5 ± 0.0	NS
A	*Balaenoptera physalus*	Fin Whale	Special Concern	Special Concern		S2S3	5	73.4 ± 0.0	NB
A	*Phalaropus lobatus*	Red-necked Phalarope	Special Concern	Special Concern		S2S3M	15	12.6 ± 0.0	NS
A	*Histrionicus histrionicus pop. 1*	Harlequin Duck - Eastern population	Special Concern	Special Concern	Endangered	S2S3N,SUM	37	14.6 ± 4.0	NS
A	*Chelydra serpentina*	Snapping Turtle	Special Concern	Special Concern	Vulnerable	S3	803	1.5 ± 1.0	NS
A	*Hirundo rustica*	Barn Swallow	Special Concern	Threatened	Endangered	S3B	1446	3.6 ± 0.0	NS
A	*Cardellina canadensis*	Canada Warbler	Special Concern	Threatened	Endangered	S3B	1158	4.4 ± 7.0	NS
A	*Chordeiles minor*	Common Nighthawk	Special Concern	Special Concern	Threatened	S3B	804	1.5 ± 0.0	NS
A	*Contopus cooperi*	Olive-sided Flycatcher	Special Concern	Special Concern	Threatened	S3B	1354	0.9 ± 0.0	NS
A	*Dolichonyx oryzivorus*	Bobolink	Special Concern	Threatened	Vulnerable	S3B	1532	3.6 ± 0.0	NS
A	*Coccothraustes vespertinus*	Evening Grosbeak	Special Concern	Special Concern	Vulnerable	S3B,S3N,S3M	929	1.9 ± 0.0	NS
A	*Podiceps auritus*	Horned Grebe	Special Concern	Special Concern		S3N,SUM	53	8.8 ± 10.0	NS
A	*Contopus virens*	Eastern Wood-Pewee	Special Concern	Special Concern	Vulnerable	S3S4B	1516	1.3 ± 0.0	NS
A	*Phocoena phocoena*	Harbour Porpoise	Special Concern			S4	42	30.2 ± 6.0	NS
A	*Phocoena phocoena pop. 1*	Harbour Porpoise - Northwest Atlantic Population	Special Concern			S4	4	16.6 ± 3.0	NS
A	*Chrysemys picta*	Painted Turtle	Special Concern	Special Concern		S4	152	4.2 ± 0.0	NS
A	*Chrysemys picta picta*	Eastern Painted Turtle	Special Concern	Special Concern		S4	1104	1.5 ± 0.0	NS
A	*Anarhichas lupus*	Atlantic Wolffish	Special Concern	Special Concern		SNR	1	86.1 ± 0.0	NS
A	*Accipiter cooperii*	Cooper's Hawk	Not At Risk			S1?B,SUN,SUM	20	34.8 ± 0.0	NS
A	*Fulica americana*	American Coot	Not At Risk			S1B	20	41.6 ± 7.0	NS
A	*Chlidonias niger*	Black Tern	Not At Risk			S1B	6	86.2 ± 0.0	NB
A	*Falco peregrinus pop. 1*	Peregrine Falcon - anatum/tundrius	Not At Risk		Vulnerable	S1B,SUM	495	9.1 ± 0.0	NS
A	*Sorex dispar*	Long-tailed Shrew	Not At Risk			S2	4	60.4 ± 0.0	NS
A	*Aegolius funereus*	Boreal Owl	Not At Risk			S2?B,SUM	2	68.0 ± 7.0	NB
A	*Lynx canadensis*	Canada Lynx	Not At Risk		Endangered	S2S3	14	69.1 ± 5.0	NB
A	*Globicephala melas*	Long-finned Pilot Whale	Not At Risk			S2S3	2	66.4 ± 0.0	NB
A	*Hemidactylium scutatum*	Four-toed Salamander	Not At Risk			S3	44	23.5 ± 0.0	NS
A	*Megaptera novaeangliae*	Humpback Whale	Not At Risk			S3	7	26.3 ± 0.0	NS
A	*Sterna hirundo*	Common Tern	Not At Risk			S3B	252	48.6 ± 7.0	NS
A	*Sialia sialis*	Eastern Bluebird	Not At Risk			S3B	167	9.8 ± 7.0	NS
A	*Buteo lagopus*	Rough-legged Hawk	Not At Risk			S3N	6	60.8 ± 0.0	NS
A	*Accipiter gentilis*	Northern Goshawk	Not At Risk			S3S4	131	7.0 ± 0.0	NS
A	*Glaucomys volans*	Southern Flying Squirrel	Not At Risk			S3S4	17	45.1 ± 5.0	NS
A	*Lagenorhynchus acutus*	Atlantic White-sided Dolphin	Not At Risk			S3S4	3	86.7 ± 0.0	NS
A	*Ammospiza nelsoni*	Nelson's Sparrow	Not At Risk			S3S4B	235	9.8 ± 7.0	NS
A	*Calidris canutus rufa*	Red Knot rufa subspecies	E,SC	Endangered	Endangered	S2M	888	55.6 ± 0.0	NS
A	*Calidris canutus*	Red Knot	E,SC	E,T		S2M	2	91.2 ± 0.0	NS
A	*Morone saxatilis*	Striped Bass	E,SC			S2S3B,S2S3N	25	34.5 ± 0.0	NS
A	*Gadus morhua*	Atlantic Cod	E,SC,DD			SNR	5	59.1 ± 0.0	NS

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
A	*Salmo salar*	Atlantic Salmon	E,T,SC			S1B,S1N	8	33.6 ± 0.0	NS
A	*Odobenus rosmarus pop. 5*	Atlantic Walrus - Nova Scotia - Newfoundland - Gulf of St Lawrence population	X			SX	1	43.8 ± 5.0	NS
A	*Alces alces americana*	Moose			Endangered	S1	141	13.9 ± 0.0	NS
A	*Alces alces*	Moose				S1	26	27.7 ± 0.0	NS
A	*Picoides dorsalis*	American Three-toed Woodpecker				S1?	3	72.6 ± 0.0	NB
A	*Uria aalge*	Common Murre				S1?B	12	21.1 ± 0.0	NS
A	*Passerina cyanea*	Indigo Bunting				S1?B,SUM	60	24.3 ± 7.0	NS
A	*Nycticorax nycticorax*	Black-crowned Night-heron				S1B	8	86.2 ± 0.0	NB
A	*Oxyura jamaicensis*	Ruddy Duck				S1B	58	41.6 ± 7.0	NS
A	*Gallinula galeata*	Common Gallinule				S1B	22	28.1 ± 7.0	NS
A	*Myiarchus crinitus*	Great Crested Flycatcher				S1B	72	5.9 ± 7.0	NS
A	*Cistothorus palustris*	Marsh Wren				S1B	28	28.1 ± 7.0	NS
A	*Mimus polyglottos*	Northern Mockingbird				S1B	144	9.8 ± 7.0	NS
A	*Toxostoma rufum*	Brown Thrasher				S1B	30	14.5 ± 0.0	NS
A	*Charadrius semipalmatus*	Semipalmated Plover				S1B,S4M	2381	26.3 ± 0.0	NS
A	*Calidris minutilla*	Least Sandpiper				S1B,S4M	1874	32.6 ± 0.0	NS
A	*Anas acuta*	Northern Pintail				S1B,SUM	61	16.4 ± 0.0	NS
A	*Vireo gilvus*	Warbling Vireo				S1B,SUM	61	5.9 ± 7.0	NS
A	*Vespertilionidae sp.*	bat species				S1S2	398	1.8 ± 0.0	NS
A	*Pooecetes gramineus*	Vesper Sparrow				S1S2B,SUM	56	7.5 ± 0.0	NS
A	*Vireo philadelphicus*	Philadelphia Vireo				S2?B,SUM	64	3.6 ± 0.0	NS
A	*Alca torda*	Razorbill				S2B	38	26.4 ± 0.0	NS
A	*Fratercula arctica*	Atlantic Puffin				S2B	37	64.5 ± 0.0	NS
A	*Empidonax traillii*	Willow Flycatcher				S2B	73	16.8 ± 7.0	NS
A	*Molothrus ater*	Brown-headed Cowbird				S2B	268	3.1 ± 0.0	NS
A	*Spatula clypeata*	Northern Shoveler				S2B,SUM	157	28.1 ± 7.0	NS
A	*Mareca strepera*	Gadwall				S2B,SUM	198	28.1 ± 7.0	NS
A	*Piranga olivacea*	Scarlet Tanager				S2B,SUM	80	6.8 ± 0.0	NS
A	*Calidris alba*	Sanderling				S2N,S3M	2181	55.6 ± 0.0	NS
A	*Martes americana*	American Marten			Endangered	S2S3	28	20.2 ± 0.0	NS
A	*Asio otus*	Long-eared Owl				S2S3	23	50.9 ± 7.0	NS
A	*Rallus limicola*	Virginia Rail				S2S3B	56	9.8 ± 7.0	NS
A	*Rissa tridactyla*	Black-legged Kittiwake				S2S3B	18	37.4 ± 0.0	NS
A	*Petrochelidon pyrrhonota*	Cliff Swallow				S2S3B	346	4.2 ± 0.0	NS
A	*Phalacrocorax carbo*	Great Cormorant				S2S3B,S2S3N	48	15.3 ± 0.0	NS
A	*Cathartes aura*	Turkey Vulture				S2S3B,S4S5M	367	7.6 ± 0.0	NS
A	*Setophaga pinus*	Pine Warbler				S2S3B,S4S5M	55	7.0 ± 0.0	NS
A	*Bucephala clangula*	Common Goldeneye				S2S3B,S5N,S5M	254	18.3 ± 13.0	NS
A	*Icterus galbula*	Baltimore Oriole				S2S3B,SUM	153	4.3 ± 0.0	NS
A	*Pluvialis dominica*	American Golden-Plover				S2S3M	333	55.5 ± 0.0	NS
A	*Numenius phaeopus*	Whimbrel				S2S3M	7	55.4 ± 0.0	NS
A	*Numenius phaeopus hudsonicus*	Whimbrel				S2S3M	357	49.4 ± 0.0	NS
A	*Phalaropus fulicarius*	Red Phalarope				S2S3M	5	65.0 ± 0.0	NB
A	*Perisoreus canadensis*	Canada Jay				S3	596	5.1 ± 0.0	NS
A	*Poecile hudsonicus*	Boreal Chickadee				S3	433	9.8 ± 7.0	NS
A	*Spinus pinus*	Pine Siskin				S3	621	4.4 ± 7.0	NS
A	*Salvelinus fontinalis*	Brook Trout				S3	163	5.1 ± 0.0	NS
A	*Sorex maritimensis*	Maritime Shrew				S3	2	33.2 ± 0.0	NS
A	*Synaptomys cooperi*	Southern Bog Lemming				S3	24	60.4 ± 0.0	NS
A	*Pekania pennanti*	Fisher				S3	22	12.3 ± 0.0	NS

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A	*Calcarius lapponicus*	Lapland Longspur				S3?N,SUM	22	32.8 ± 0.0	NS
A	*Spatula discors*	Blue-winged Teal				S3B	174	9.8 ± 7.0	NS
A	*Charadrius vociferus*	Killdeer				S3B	771	1.5 ± 0.0	NS
A	*Tringa semipalmata*	Willet				S3B	1257	25.8 ± 7.0	NS
A	*Sterna paradisaea*	Arctic Tern				S3B	49	71.6 ± 0.0	NB
A	*Coccyzus erythropthalmus*	Black-billed Cuckoo				S3B	79	4.4 ± 7.0	NS
A	*Tyrannus tyrannus*	Eastern Kingbird				S3B	368	3.1 ± 0.0	NS
A	*Pheucticus ludovicianus*	Rose-breasted Grosbeak				S3B	715	2.5 ± 0.0	NS
A	*Alosa pseudoharengus*	Alewife				S3B	16	34.5 ± 0.0	NS
A	*Somateria mollissima*	Common Eider				S3B,S3M,S3N	832	9.8 ± 7.0	NS
A	*Tringa melanoleuca*	Greater Yellowlegs				S3B,S4M	2325	15.6 ± 0.0	NS
A	*Falco sparverius*	American Kestrel				S3B,S4S5M	330	4.4 ± 7.0	NS
A	*Gallinago delicata*	Wilson's Snipe				S3B,S5M	612	3.7 ± 0.0	NS
A	*Setophaga striata*	Blackpoll Warbler				S3B,S5M	84	19.3 ± 7.0	NS
A	*Cardellina pusilla*	Wilson's Warbler				S3B,S5M	157	4.4 ± 7.0	NS
A	*Pinicola enucleator*	Pine Grosbeak				S3B,S5N,S5M	102	4.5 ± 0.0	NS
A	*Setophaga tigrina*	Cape May Warbler				S3B,SUM	135	10.6 ± 7.0	NS
A	*Branta bernicla*	Brant				S3M	24	53.7 ± 0.0	NS
A	*Pluvialis squatarola*	Black-bellied Plover				S3M	2500	55.6 ± 0.0	NS
A	*Arenaria interpres*	Ruddy Turnstone				S3M	897	55.6 ± 0.0	NS
A	*Calidris pusilla*	Semipalmated Sandpiper				S3M	2473	33.4 ± 0.0	NS
A	*Calidris melanotos*	Pectoral Sandpiper				S3M	474	45.2 ± 0.0	NS
A	*Limnodromus griseus*	Short-billed Dowitcher				S3M	1674	45.2 ± 0.0	NS
A	*Chroicocephalus ridibundus*	Black-headed Gull				S3N	10	43.8 ± 0.0	NS
A	*Picoides arcticus*	Black-backed Woodpecker				S3S4	90	12.6 ± 7.0	NS
A	*Loxia curvirostra*	Red Crossbill				S3S4	351	9.8 ± 7.0	NS
A	*Sorex albibarbis*	Eastern Water Shrew				S3S4	3	85.1 ± 1.0	NB
A	*Botaurus lentiginosus*	American Bittern				S3S4B,S4S5M	340	5.9 ± 7.0	NS
A	*Setophaga castanea*	Bay-breasted Warbler				S3S4B,S4S5M	557	3.2 ± 0.0	NS
A	*Actitis macularius*	Spotted Sandpiper				S3S4B,S5M	1070	1.5 ± 0.0	NS
A	*Leiothlypis peregrina*	Tennessee Warbler				S3S4B,S5M	324	1.3 ± 0.0	NS
A	*Passerella iliaca*	Fox Sparrow				S3S4B,S5M	67	16.8 ± 7.0	NS
A	*Mergus serrator*	Red-breasted Merganser				S3S4B,S5M,S5N	217	9.8 ± 7.0	NS
A	*Calidris maritima*	Purple Sandpiper				S3S4N	232	8.8 ± 10.0	NS
A	*Lanius borealis*	Northern Shrike				S3S4N	44	53.6 ± 0.0	NS
A	*Morus bassanus*	Northern Gannet				SHB	89	14.6 ± 0.0	NS
A	*Aythya americana*	Redhead				SHB	5	91.3 ± 0.0	NB
A	*Leucophaeus atricilla*	Laughing Gull				SHB	10	60.6 ± 0.0	NB
A	*Progne subis*	Purple Martin				SHB	31	21.6 ± 7.0	NS
A	*Eremophila alpestris*	Horned Lark				SHB,S4S5N,S5M	36	7.4 ± 0.0	NS
I	*Bombus bohemicus*	Ashton Cuckoo Bumble Bee	Endangered	Endangered	Endangered	S1	23	5.9 ± 0.0	NS
I	*Epeoloides pilosulus*	Macropis Cuckoo Bee	Endangered	Endangered	Endangered	S1	2	5.0 ± 5.0	NS
I	*Danaus plexippus*	Monarch	Endangered	Special Concern	Endangered	S2?B,S3M	1181	5.1 ± 0.0	NS
I	*Danaus plexippus plexippus*	Monarch	Endangered	Special Concern		S2?B,S3M	5	36.7 ± 0.0	NS
I	*Barnea truncata*	Atlantic Mud-piddock	Threatened	Threatened		S1	8	62.6 ± 0.0	NS
I	*Bombus suckleyi*	Suckley's Cuckoo Bumble Bee	Threatened			SH	3	81.6 ± 5.0	NB
I	*Alasmidonta varicosa*	Brook Floater	Special Concern	Special Concern	Threatened	S3	2	62.5 ± 0.0	NS
I	*Bombus terricola*	Yellow-banded Bumble Bee	Special Concern	Special Concern	Vulnerable	S3	334	2.1 ± 0.0	NS
I	*Coccinella transversoguttata richardsoni*	Transverse Lady Beetle	Special Concern		Endangered	SH	5	4.7 ± 2.0	NS
I	*Gomphurus ventricosus*	Skillet Clubtail	Special Concern	Endangered		SH	1	90.9 ± 1.0	NS
I	*Cicindela formosa*	Big Sand Tiger Beetle				S1	1	45.6 ± 1.0	NS
I	*Erora laeta*	Early Hairstreak				S1	2	66.5 ± 2.0	NS

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I	*Ophiogomphus anomalus*	Extra-Striped Snaketail				S1	8	76.7 ± 0.0	NS
I	*Pachydiplax longipennis*	Blue Dasher				S1	17	45.2 ± 0.0	NS
I	*Atlanticoncha ochracea*	Tidewater Mucket				S1	11	84.6 ± 1.0	NS
I	*Polygonia comma*	Eastern Comma				S1?	20	41.2 ± 0.0	NS
I	*Polygonia satyrus*	Satyr Comma				S1?	7	66.2 ± 2.0	NS
I	*Boloria chariclea*	Arctic Fritillary				S1S2	2	72.8 ± 2.0	NS
I	*Somatochlora brevicincta*	Quebec Emerald				S1S2	1	98.5 ± 1.0	NS
I	*Tharsalea dospassosi*	Maritime Copper				S2	3	34.6 ± 1.0	NS
I	*Satyrium acadica*	Acadian Hairstreak				S2	5	88.9 ± 5.0	NB
I	*Coenagrion resolutum*	Taiga Bluet				S2	13	63.9 ± 0.0	NS
I	*Margaritifera margaritifera*	Eastern Pearlshell				S2	65	3.4 ± 0.0	NS
I	*Pantala hymenaea*	Spot-Winged Glider				S2?B	5	72.8 ± 0.0	NB
I	*Nymphalis l-album*	Compton Tortoiseshell				S2S3	26	54.2 ± 2.0	NS
I	*Aglais milberti*	Milbert's Tortoiseshell				S2S3	16	33.8 ± 2.0	NS
I	*Aglais milberti milberti*	Milbert's Tortoise Shell				S2S3	1	93.7 ± 0.0	NB
I	*Somatochlora kennedyi*	Kennedy's Emerald				S2S3	6	85.3 ± 0.0	NS
I	*Somatochlora williamsoni*	Williamson's Emerald				S2S3	7	15.2 ± 0.0	NS
I	*Williamsonia fletcheri*	Ebony Boghaunter				S2S3	4	72.4 ± 0.0	NS
I	*Enallagma geminatum*	Skimming Bluet				S2S3	4	55.0 ± 0.0	NS
I	*Stylurus scudderi*	Zebra Clubtail				S2S3	27	4.1 ± 0.0	NS
I	*Alasmidonta undulata*	Triangle Floater				S2S3	29	77.7 ± 0.0	NS
I	*Strophiona nitens*	Chestnut Bark Long-horned Beetle				S3	2	15.2 ± 0.0	NS
I	*Lebia ornata*	Ornate Harp Ground Beetle				S3	1	64.9 ± 0.0	NS
I	*Hippodamia parenthesis*	Parenthesis Lady Beetle				S3	7	54.3 ± 0.0	NS
I	*Disonycha pensylvanica*	Pennsylvania Flea Beetle				S3	1	39.0 ± 0.0	NS
I	*Chrysochus auratus*	Dogbane Leaf Beetle				S3	7	75.0 ± 0.0	NB
I	*Naemia seriata*	Seaside Lady Beetle				S3	55	15.8 ± 0.0	NS
I	*Pachyrhinus elegans*	Elegant Broad-nosed Weevil				S3	1	67.0 ± 0.0	NS
I	*Chilocorus stigma*	Twice-stabbed Lady Beetle				S3	25	52.8 ± 0.0	NS
I	*Myzia pullata*	Streaked Lady Beetle				S3	4	74.1 ± 0.0	NB
I	*Iphthiminus opacus*	Cloudy Darkling Beetle				S3	2	75.2 ± 0.0	NB
I	*Monochamus marmorator*	Balsam Fir Sawyer				S3	2	76.0 ± 0.0	NB
I	*Trachysida aspera*	Rough Flower Longhorn Beetle				S3	1	84.4 ± 0.0	NB
I	*Dicerca tenebrosa*	Dark Jewel Beetle				S3	2	34.7 ± 0.0	NS
I	*Dicerca tuberculata*	Swollen Jewel Beetle				S3	1	99.0 ± 9.0	NS
I	*Astylopsis sexguttata*	Six-speckled Long-horned Beetle				S3	1	92.2 ± 0.0	NB
I	*Satyrium calanus*	Banded Hairstreak				S3	49	1.8 ± 0.0	NS
I	*Callophrys lanoraieensis*	Bog Elfin				S3	22	47.7 ± 0.0	NS
I	*Strymon melinus*	Gray Hairstreak				S3	18	37.9 ± 2.0	NS
I	*Phanogomphus descriptus*	Harpoon Clubtail				S3	4	95.9 ± 0.0	NB
I	*Ophiogomphus aspersus*	Brook Snaketail				S3	13	78.0 ± 0.0	NS
I	*Ophiogomphus mainensis*	Maine Snaketail				S3	13	49.1 ± 0.0	NS
I	*Ophiogomphus rupinsulensis*	Rusty Snaketail				S3	18	54.3 ± 1.0	NS
I	*Epitheca princeps*	Prince Baskettail				S3	9	59.8 ± 1.0	NS
I	*Somatochlora forcipata*	Forcipate Emerald				S3	7	48.5 ± 1.0	NS
I	*Enallagma vernale*	Vernal Bluet				S3	2	87.3 ± 1.0	NS
I	*Polygonia interrogationis*	Question Mark				S3B	147	12.6 ± 1.0	NS
I	*Lepturopsis biforis*	Two-spotted Long-horned Beetle				S3S4	2	63.6 ± 0.0	NS
I	*Cecropterus pylades*	Northern Cloudywing				S3S4	9	88.9 ± 5.0	NB
I	*Amblyscirtes hegon*	Pepper and Salt Skipper				S3S4	6	53.7 ± 2.0	NS
I	*Cupido comyntas*	Eastern Tailed Blue				S3S4	41	12.6 ± 0.0	NS
I	*Argynnis aphrodite*	Aphrodite Fritillary				S3S4	35	12.6 ± 0.0	NS
I	*Polygonia faunus*	Green Comma				S3S4	31	12.6 ± 1.0	NS
I	*Oeneis jutta*	Jutta Arctic				S3S4	25	61.9 ± 0.0	NS

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I	*Aeshna clepsydra*	Mottled Darner				S3S4	34	10.3 ± 1.0	NS
I	*Aeshna constricta*	Lance-Tipped Darner				S3S4	31	41.2 ± 0.0	NS
I	*Boyeria grafiana*	Ocellated Darner				S3S4	21	23.1 ± 0.0	NS
I	*Gomphaeschna furcillata*	Harlequin Darner				S3S4	40	23.6 ± 0.0	NS
I	*Somatochlora franklini*	Delicate Emerald				S3S4	5	48.5 ± 1.0	NS
I	*Erythrodiplax berenice*	Seaside Dragonlet				S3S4	6	75.4 ± 0.0	NS
I	*Nannothemis bella*	Elfin Skimmer				S3S4	32	25.8 ± 0.0	NS
I	*Sympetrum danae*	Black Meadowhawk				S3S4	6	50.9 ± 0.0	NS
I	*Enallagma vesperum*	Vesper Bluet				S3S4	24	13.0 ± 0.0	NS
I	*Amphiagrion saucium*	Eastern Red Damsel				S3S4	9	64.1 ± 0.0	NB
I	*Icaricia saepiolus*	Greenish Blue				SH	1	67.4 ± 2.0	NS
I	*Chlosyne nycteis*	Silvery Checkerspot				SH	8	49.7 ± 2.0	NS
I	*Polygonia gracilis*	Hoary Comma				SH	1	92.2 ± 7.0	NB
I	*Eristalis brousii*	Hourglass Drone Fly				SX	1	63.9 ± 0.0	NS
N	*Erioderma mollissimum*	Graceful Felt Lichen	Endangered	Endangered	Endangered	S1	16	49.7 ± 1.0	NS
N	*Erioderma pedicellatum (Atlantic pop.)*	Boreal Felt Lichen - Atlantic pop.	Endangered	Endangered	Endangered	S1	13	52.0 ± 0.0	NS
N	*Peltigera hydrothyria*	Eastern Waterfan	Threatened	Threatened	Threatened	S1	831	55.0 ± 0.0	NS
N	*Pannaria lurida*	Wrinkled Shingle Lichen	Threatened	Threatened	Threatened	S2S3	291	14.5 ± 0.0	NS
N	*Pannaria lurida ssp. russellii*	Wrinkled Shingle Lichen	Threatened	Threatened		S2S3	1	62.9 ± 0.0	NS
N	*Anzia colpodes*	Black-foam Lichen	Threatened	Threatened	Threatened	S3	188	8.1 ± 0.0	NS
N	*Fuscopannaria leucosticta*	White-rimmed Shingle Lichen	Threatened			S3	96	25.2 ± 0.0	NS
N	*Heterodermia squamulosa*	Scaly Fringe Lichen	Threatened			S3	137	7.0 ± 0.0	NS
N	*Pectenia plumbea*	Blue Felt Lichen	Special Concern	Special Concern	Vulnerable	S3	607	10.4 ± 0.0	NS
N	*Sclerophora peronella (Atlantic pop.)*	Frosted Glass-whiskers (Atlantic population)	Special Concern	Special Concern		S3S4	31	14.3 ± 3.0	NS
N	*Pseudevernia cladonia*	Ghost Antler Lichen	Not At Risk			S2S3	41	46.7 ± 4.0	NS
N	*Fissidens exilis*	Pygmy Pocket Moss	Not At Risk			S3	18	8.2 ± 0.0	NS
N	*Aloina brevirostris*	Short-Beaked Rigid Screw Moss				S1	2	77.7 ± 2.0	NS
N	*Homalotheciella subcapillata*	Few-haired Moss				S1	1	59.3 ± 0.0	NS
N	*Orthotrichum gymnostomum*	Aspen Bristle Moss				S1	1	15.6 ± 0.0	NS
N	*Orthotrichum pallens*	Pale Bristle Moss				S1	1	61.6 ± 0.0	NS
N	*Seligeria calcarea*	Chalk Brittle Moss				S1	3	84.0 ± 0.0	NB
N	*Seligeria diversifolia*	a Moss				S1	1	63.1 ± 0.0	NB
N	*Sematophyllum demissum*	a Moss				S1	1	46.6 ± 1.0	NS
N	*Tetrodontium brownianum*	Little Georgia				S1	7	69.4 ± 0.0	NB
N	*Cyrto-hypnum minutulum*	Tiny Cedar Moss				S1	1	60.7 ± 0.0	NS
N	*Blennothallia crispa*	Crinkled Jelly Lichen				S1	1	83.2 ± 0.0	NS
N	*Umbilicaria vellea*	Grizzled Rocktripe Lichen				S1	2	69.9 ± 1.0	NB
N	*Usnea perplexans*	Powdered Beard Lichen				S1	1	71.7 ± 0.0	NS
N	*Heterodermia leucomela*	Elegant Fringe Lichen				S1	1	93.9 ± 0.0	NS
N	*Scytinium dactylinum*	Brown-buttoned Jellyskin Lichen				S1	2	8.1 ± 0.0	NS
N	*Flavoparmelia baltimorensis*	Rock Greenshield Lichen				S1	1	65.3 ± 0.0	NS
N	*Lathagrium cristatum*	Fingered Jelly Lichen				S1	6	68.1 ± 1.0	NB
N	*Ephebe hispidula*	Dryside Rockshag Lichen				S1	1	14.1 ± 0.0	NS
N	*Ephebe perspinulosa*	Thread Lichen				S1	2	9.6 ± 0.0	NS
N	*Fuscopannaria praetermissa*	Moss Shingles Lichen				S1	1	72.3 ± 0.0	NS
N	*Parmotrema perforatum*	Perforated Ruffle Lichen				S1	46	62.3 ± 0.0	NS
N	*Polychidium muscicola*	Eyed Mossthorns Woollybear Lichen				S1	9	4.2 ± 0.0	NS
N	*Pseudevernia consocians*	Common Antler Lichen				S1	1	80.9 ± 0.0	NS
N	*Spilonema revertens*	Rock Hairball Lichen				S1	4	21.1 ± 0.0	NS
N	*Sticta limbata*	Powdered Moon Lichen				S1	12	49.5 ± 0.0	NS
N	*Lathagrium fuscovirens*	Crumpled Rock Tarpaper Lichen				S1	2	55.7 ± 0.0	NS

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N	*Dermatocarpon miniatum*	Common Stippleback Lichen				S1	4	10.1 ± 0.0	NS
N	*Leptogium hibernicum*	Hibernia Jellyskin Lichen				S1	1	73.3 ± 0.0	NS
N	*Hypotrachyna horrescens*	Hairy-spined Shield Lichen				S1	1	88.2 ± 0.0	NS
N	*Peltigera lepidophora*	Scaly Pelt Lichen				S1	11	17.0 ± 0.0	NS
N	*Hypogymnia hultenii*	Powdered Honeycomb Lichen				S1	3	89.0 ± 0.0	NS
N	*Calypogeia neogaea*	Common Pouchwort				S1?	3	53.6 ± 0.0	NS
N	*Jubula pennsylvanica*	a liverwort				S1?	4	55.7 ± 0.0	NS
N	*Aloina rigida*	Aloe-Like Rigid Screw Moss				S1?	3	76.4 ± 0.0	NS
N	*Brachythecium erythrorrhizon*	Taiga Ragged Moss				S1?	1	96.6 ± 0.0	NB
N	*Imbribryum muehlenbeckii*	Muehlenbeck's Bryum Moss				S1?	2	54.9 ± 0.0	NS
N	*Cirriphyllum piliferum*	Hair-pointed Moss				S1?	2	8.5 ± 0.0	NS
N	*Conardia compacta*	Coast Creeping Moss				S1?	2	69.0 ± 1.0	NB
N	*Tortula obtusifolia*	a Moss				S1?	1	62.8 ± 0.0	NB
N	*Didymodon tophaceus*	Olive Beard Moss				S1?	2	83.2 ± 0.0	NS
N	*Grimmia anodon*	Toothless Grimmia Moss				S1?	4	60.9 ± 3.0	NS
N	*Homomallium adnatum*	Adnate Hairy-gray Moss				S1?	2	55.2 ± 0.0	NS
N	*Meesia triquetra*	Three-ranked Cold Moss				S1?	3	51.6 ± 0.0	NS
N	*Paludella squarrosa*	Tufted Fen Moss				S1?	3	83.4 ± 0.0	NS
N	*Physcomitrium immersum*	a Moss				S1?	9	6.4 ± 0.0	NS
N	*Schistostega pennata*	Luminous Moss				S1?	2	91.9 ± 0.0	NS
N	*Timmia norvegica*	a moss				S1?	3	69.3 ± 0.0	NB
N	*Trichodon cylindricus*	Cylindric Hairy-teeth Moss				S1?	3	6.4 ± 0.0	NS
N	*Plagiomnium ellipticum*	Marsh Leafy Moss				S1?	1	7.5 ± 0.0	NS
N	*Syntrichia ruralis*	a Moss				S1?	1	94.8 ± 0.0	NB
N	*Enchylium limosum*	Lime-loving Tarpaper Lichen				S1?	2	83.1 ± 0.0	NS
N	*Euopsis granatina*	Lesser Rockbud Lichen				S1?	1	17.0 ± 1.0	NS
N	*Scytinium intermedium*	Forty-five Jellyskin Lichen				S1?	1	83.3 ± 4.0	NS
N	*Melanelia culbersonii*	Appalachain Camouflage Lichen				S1?	1	83.9 ± 0.0	NS
N	*Peltigera malacea*	Veinless Pelt Lichen				S1?	2	73.7 ± 1.0	NB
N	*Peltigera venosa*	Fan Pelt Lichen				S1?	1	87.2 ± 0.0	NB
N	*Metzgeria crassipilis*	Hairy Veilwort				S1S2	1	98.5 ± 0.0	NS
N	*Porella pinnata*	Pinnate Scalewort				S1S2	3	23.0 ± 0.0	NS
N	*Reboulia hemisphaerica*	Purple-margined Liverwort				S1S2	3	16.1 ± 0.0	NS
N	*Arrhenopterum heterostichum*	One-sided Groove Moss				S1S2	3	49.2 ± 5.0	NS
N	*Brachythecium turgidum*	Thick Ragged Moss				S1S2	3	34.2 ± 3.0	NS
N	*Dicranoweisia crispula*	Mountain Thatch Moss				S1S2	1	76.4 ± 0.0	NB
N	*Didymodon rigidulus*	Rigid Screw Moss				S1S2	12	55.8 ± 0.0	NS
N	*Didymodon ferrugineus*	Rusty Beard Moss				S1S2	2	69.7 ± 0.0	NB
N	*Hygrohypnum montanum*	a Moss				S1S2	2	68.0 ± 1.0	NB
N	*Hypnum pratense*	Meadow Plait Moss				S1S2	2	33.9 ± 3.0	NS
N	*Mnium thomsonii*	Thomson's Leafy Moss				S1S2	1	73.1 ± 2.0	NS
N	*Tortula acaulon*	Cuspidate Earth Moss				S1S2	7	5.9 ± 0.0	NS
N	*Plagiothecium latebricola*	Alder Silk Moss				S1S2	4	70.4 ± 1.0	NB
N	*Platydictya confervoides*	a Moss				S1S2	1	73.6 ± 0.0	NS
N	*Sematophyllum marylandicum*	a Moss				S1S2	1	56.0 ± 0.0	NS
N	*Timmia megapolitana*	Metropolitan Timmia Moss				S1S2	2	92.7 ± 1.0	NS
N	*Tortula mucronifolia*	Mucronate Screw Moss				S1S2	3	60.9 ± 3.0	NS
N	*Syntrichia papillosa*	a Moss				S1S2	2	15.6 ± 0.0	NS
N	*Pseudotaxiphyllum distichaceum*	a Moss				S1S2	2	28.4 ± 4.0	NS
N	*Hamatocaulis vernicosus*	a Moss				S1S2	4	51.8 ± 0.0	NS
N	*Haplocladium microphyllum*	Tiny-leaved Haplocladium Moss				S1S2	1	31.9 ± 3.0	NS

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N	*Rhynchostegium serrulatum*	Dark Beaked Moss				S1S2	1	82.3 ± 2.0	NS
N	*Enchylium bachmanianum*	Bachman's Jelly Lichen				S1S2	2	58.2 ± 0.0	NS
N	*Sclerophora amabilis*	Collared Glass-whiskers Lichen				S1S2	3	30.9 ± 0.0	NS
N	*Cladonia sulphurina*	Greater Sulphur-cup Lichen				S1S2	7	78.4 ± 0.0	NB
N	*Peltigera ponojensis*	Pale-bellied Pelt Lichen				S1S2	6	73.7 ± 1.0	NB
N	*Pilophorus cereolus*	Powdered Matchstick Lichen				S1S2	2	54.2 ± 3.0	NS
N	*Rhizoplaca subdiscrepans*	Scattered Rock-posy Lichen				S1S2	2	64.6 ± 0.0	NS
N	*Parmotrema reticulatum*	Netted Ruffle Lichen				S1S2	12	23.0 ± 0.0	NS
N	*Parmeliella parvula*	Poor-man's Shingles Lichen				S1S2	1	89.2 ± 0.0	NS
N	*Chaenotheca hygrophila*	a lichen				S1S3	9	39.6 ± 0.0	NS
N	*Umbilicaria polyrhiza*	Ballpoint Rocktripe Lichen				S1S3	1	94.8 ± 0.0	NS
N	*Lecanora polytropa*	a lichen				S1S3	8	36.7 ± 1.0	NS
N	*Heterodermia galactophylla*	Branching Fringe Lichen				S1S3	4	84.3 ± 0.0	NS
N	*Xylopsora friesii*	a Lichen				S1S3	1	69.9 ± 1.0	NB
N	*Peltigera neckeri*	Black-saddle Pelt Lichen				S1S3	1	75.7 ± 5.0	NB
N	*Usnea fragilescens*	Inflationary Beard Lichen				S1S3	2	41.3 ± 0.0	NS
N	*Usnea chaetophora*	Articulated Beard Lichen				S1S3	2	47.9 ± 0.0	NS
N	*Stereocaulon intermedium*	Pacific Brain Foam Lichen				S1S3	11	9.5 ± 0.0	NS
N	*Anacamptodon splachnoides*	a Moss				S2	4	17.9 ± 0.0	NS
N	*Scorpidium scorpioides*	Hooked Scorpion Moss				S2	3	90.8 ± 0.0	NB
N	*Sphagnum platyphyllum*	Flat-leaved Peat Moss				S2	2	9.4 ± 0.0	NS
N	*Sphagnum subnitens*	Lustrous Peat Moss				S2	4	68.0 ± 0.0	NS
N	*Scorpidium cossonii*	CossonΓÇÖs Hook Moss				S2	1	89.7 ± 1.0	NB
N	*Cystocoleus ebeneus*	Rockgossamer Lichen				S2	4	17.0 ± 0.0	NS
N	*Hypotrachyna catawbiensis*	Powder-tipped Antler Lichen				S2	45	46.7 ± 4.0	NS
N	*Scytinium imbricatum*	Scaly Jellyskin Lichen				S2	4	57.0 ± 0.0	NB
N	*Nephroma arcticum*	Arctic Kidney Lichen				S2	2	69.4 ± 0.0	NS
N	*Nephroma resupinatum*	a lichen				S2	12	8.3 ± 0.0	NS
N	*Placynthium flabellosum*	Scaly Ink Lichen				S2	7	4.2 ± 0.0	NS
N	*Cololejeunea biddlecomiae*	Biddlecome's Pouncewort				S2?	1	5.6 ± 0.0	NS
N	*Moerckia flotoviana*	Flotow's Ruffwort				S2?	1	83.6 ± 0.0	NS
N	*Riccardia multifida*	Delicate Germanderwort				S2?	5	5.8 ± 0.0	NS
N	*Anomodon viticulosus*	a Moss				S2?	8	39.4 ± 0.0	NS
N	*Weissia muhlenbergiana*	a Moss				S2?	6	22.3 ± 0.0	NS
N	*Atrichum angustatum*	Lesser Smoothcap Moss				S2?	8	31.9 ± 0.0	NS
N	*Ptychostomum pendulum*	Drooping Bryum				S2?	1	77.7 ± 2.0	NS
N	*Drepanocladus polygamus*	Polygamous Hook Moss				S2?	9	9.4 ± 0.0	NS
N	*Pseudocampylium radicale*	Long-stalked Fine Wet Moss				S2?	3	33.9 ± 3.0	NS
N	*Climacium americanum*	American Tree Moss				S2?	10	55.8 ± 0.0	NS
N	*Dicranum condensatum*	Condensed Broom Moss				S2?	6	33.9 ± 3.0	NS
N	*Ditrichum rhynchostegium*	a Moss				S2?	5	58.7 ± 1.0	NS
N	*Fissidens bushii*	Bush's Pocket Moss				S2?	17	8.4 ± 0.0	NS
N	*Fontinalis hypnoides*	a moss				S2?	1	60.9 ± 0.0	NS
N	*Fontinalis sullivantii*	Sullivant's Water Moss				S2?	4	52.2 ± 0.0	NS
N	*Grimmia olneyi*	a Moss				S2?	10	55.8 ± 0.0	NS
N	*Grimmia anomala*	Mountain Forest Grimmia				S2?	1	65.7 ± 1.0	NS
N	*Hygrohypnum bestii*	Best's Brook Moss				S2?	6	13.3 ± 0.0	NS
N	*Orthotrichum anomalum*	Anomalous Bristle Moss				S2?	6	15.6 ± 0.0	NS
N	*Philonotis marchica*	a Moss				S2?	1	55.8 ± 0.0	NS
N	*Physcomitrium collenchymatum*	a Moss				S2?	1	34.2 ± 0.0	NS
N	*Platydictya jungermannioides*	False Willow Moss				S2?	3	69.7 ± 0.0	NB
N	*Rhytidium rugosum*	Wrinkle-leaved Moss				S2?	2	69.5 ± 1.0	NB
N	*Saelania glaucescens*	Blue Dew Moss				S2?	2	76.4 ± 0.0	NB
N	*Tortella fragilis*	Fragile Twisted Moss				S2?	1	69.3 ± 0.0	NB
N	*Anomobryum julaceum*	Slender Silver Moss				S2?	4	63.1 ± 0.0	NB

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N	*Rauiella scita*	Smaller Fern Moss				S2?	16	55.6 ± 0.0	NS
N	*Cyrtomnium hymenophylloides*	Short-pointed Lantern Moss				S2?	7	69.3 ± 0.0	NB
N	*Platylomella lescurii*	a Moss				S2?	13	25.1 ± 0.0	NS
N	*Phylliscum demangeonii*	Black Rock-wafer Lichen				S2?	6	17.0 ± 0.0	NS
N	*Oxyrrhynchium hians*	Light Beaked Moss				S2S3	6	4.3 ± 5.0	NS
N	*Platydictya subtilis*	Bark Willow Moss				S2S3	6	4.2 ± 0.0	NS
N	*Plagiomnium rostratum*	Long-beaked Leafy Moss				S2S3	10	29.3 ± 3.0	NS
N	*Scorpidium revolvens*	Limprichtia Moss				S2S3	3	83.4 ± 0.0	NS
N	*Moelleropsis nebulosa*	Blue-gray Moss Shingle Lichen				S2S3	15	22.7 ± 0.0	NS
N	*Moelleropsis nebulosa ssp. frullaniae*	Blue-gray Moss Shingle Lichen				S2S3	4	83.4 ± 0.0	NS
N	*Ramalina thrausta*	Angelhair Ramalina Lichen				S2S3	12	51.5 ± 1.0	NS
N	*Collema leptaleum*	Crumpled Bat's Wing Lichen				S2S3	73	19.3 ± 0.0	NS
N	*Usnea ceratina*	Warty Beard Lichen				S2S3	4	50.7 ± 0.0	NS
N	*Usnea rubicunda*	Red Beard Lichen				S2S3	8	44.1 ± 0.0	NS
N	*Ahtiana aurescens*	Eastern Candlewax Lichen				S2S3	28	36.8 ± 0.0	NS
N	*Usnocetraria oakesiana*	Yellow Band Lichen				S2S3	19	9.1 ± 1.0	NS
N	*Catinaria atropurpurea*	a lichen				S2S3	1	79.2 ± 0.0	NS
N	*Cladonia incrassata*	Powder-foot British Soldiers Lichen				S2S3	2	69.4 ± 0.0	NS
N	*Cladonia mateocyatha*	Mixed-up Pixie-cup				S2S3	4	39.6 ± 0.0	NS
N	*Cladonia parasitica*	Fence-rail Lichen				S2S3	2	66.3 ± 1.0	NS
N	*Scytinium tenuissimum*	Birdnest Jellyskin Lichen				S2S3	4	69.2 ± 1.0	NS
N	*Melanohalea septentrionalis*	Northern Camouflage Lichen				S2S3	4	72.2 ± 0.0	NS
N	*Myelochroa aurulenta*	Powdery Axil-bristle Lichen				S2S3	6	48.3 ± 0.0	NS
N	*Parmelia fertilis*	Fertile Shield Lichen				S2S3	8	20.0 ± 0.0	NS
N	*Hypotrachyna minarum*	Hairless-spined Shield Lichen				S2S3	6	21.5 ± 0.0	NS
N	*Parmeliopsis ambigua*	Green Starburst Lichen				S2S3	2	49.9 ± 2.0	NS
N	*Racodium rupestre*	Rockhair Lichen				S2S3	3	58.0 ± 0.0	NS
N	*Umbilicaria polyphylla*	Petalled Rocktripe Lichen				S2S3	1	49.9 ± 2.0	NS
N	*Usnea cavernosa*	Pitted Beard Lichen				S2S3	5	45.3 ± 0.0	NS
N	*Usnea mutabilis*	Bloody Beard Lichen				S2S3	4	71.6 ± 0.0	NS
N	*Fuscopannaria sorediata*	a Lichen				S2S3	11	58.3 ± 0.0	NS
N	*Stereocaulon condensatum*	Granular Soil Foam Lichen				S2S3	11	9.2 ± 0.0	NS
N	*Stereocaulon subcoralloides*	Coralloid Foam Lichen				S2S3	1	71.8 ± 1.0	NB
N	*Dimelaena oreina*	Golden Moonglow Lichen				S2S3	1	48.8 ± 0.0	NS
N	*Hypotrachyna revoluta*	Granulating Loop Lichen				S2S3	6	52.0 ± 2.0	NS
N	*Cetraria arenaria*	Sand-loving Icelandmoss Lichen				S2S3	33	7.4 ± 0.0	NS
N	*Cladonia coccifera*	Eastern Boreal Pixie-cup Lichen				S2S3	1	9.5 ± 0.0	NS
N	*Cladonia deformis*	Lesser Sulphur-cup Lichen				S2S3	11	55.0 ± 3.0	NS
N	*Cladonia phyllophora*	Felt Lichen				S2S3	2	39.9 ± 4.0	NS
N	*Hypotrachyna afrorevoluta*	Pustulate Revolute Loop Lichen				S2S3	3	48.1 ± 1.0	NS
N	*Usnea flammea*	Coastal Bushy Beard Lichen				S2S3	2	52.0 ± 0.0	NS
N	*Ephemerum serratum*	a Moss				S3	7	13.5 ± 0.0	NS
N	*Fissidens taxifolius*	Yew-leaved Pocket Moss				S3	15	5.8 ± 0.0	NS
N	*Anomodon tristis*	a Moss				S3	18	16.0 ± 0.0	NS
N	*Sphagnum contortum*	Twisted Peat Moss				S3	8	9.4 ± 0.0	NS
N	*Tetraplodon angustatus*	Toothed-leaved Nitrogen Moss				S3	6	32.5 ± 0.0	NS
N	*Rostania occultata*	Crusted Tarpaper Lichen				S3	9	8.4 ± 0.0	NS
N	*Collema nigrescens*	Blistered Tarpaper Lichen				S3	54	9.6 ± 0.0	NS
N	*Solorina saccata*	Woodland Owl Lichen				S3	18	68.1 ± 1.0	NB

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N	*Fuscopannaria ahlneri*	Corrugated Shingles Lichen				S3	44	22.6 ± 0.0	NS
N	*Scytinium lichenoides*	Tattered Jellyskin Lichen				S3	37	56.9 ± 0.0	NS
N	*Leptogium milligranum*	Stretched Jellyskin Lichen				S3	36	9.3 ± 0.0	NS
N	*Nephroma bellum*	Naked Kidney Lichen				S3	7	72.0 ± 9.0	NS
N	*Placynthium nigrum*	Common Ink Lichen				S3	2	69.9 ± 1.0	NB
N	*Punctelia appalachensis*	Appalachian Speckleback Lichen				S3	164	9.5 ± 0.0	NS
N	*Viridothelium virens*	a lichen				S3	7	40.8 ± 0.0	NS
N	*Ephebe lanata*	Waterside Rockshag Lichen				S3	14	4.1 ± 0.0	NS
N	*Phaeophyscia adiastola*	Powder-tipped Shadow Lichen				S3	25	10.1 ± 0.0	NS
N	*Phaeophyscia pusilloides*	Pompom-tipped Shadow Lichen				S3	9	8.6 ± 0.0	NS
N	*Peltigera collina*	Tree Pelt Lichen				S3	6	27.9 ± 0.0	NS
N	*Metzgeria conjugata*	Rock Veilwort				S3?	4	5.5 ± 0.0	NS
N	*Barbula convoluta*	Lesser Bird's-claw Beard Moss				S3?	3	13.1 ± 0.0	NS
N	*Calliergon giganteum*	Giant Spear Moss				S3?	3	9.7 ± 0.0	NS
N	*Drummondia prorepens*	a Moss				S3?	9	21.7 ± 0.0	NS
N	*Elodium blandowii*	Blandow's Bog Moss				S3?	6	7.5 ± 0.0	NS
N	*Mnium stellare*	Star Leafy Moss				S3?	3	77.0 ± 1.0	NS
N	*Sphagnum lindbergii*	Lindberg's Peat Moss				S3?	4	68.5 ± 0.0	NB
N	*Sphagnum riparium*	Streamside Peat Moss				S3?	4	23.0 ± 0.0	NS
N	*Cladonia stygia*	Black-footed Reindeer Lichen				S3?	18	5.0 ± 0.0	NS
N	*Anomodon rugelii*	Rugel's Anomodon Moss				S3S4	11	8.7 ± 0.0	NS
N	*Dichelyma capillaceum*	Hairlike Dichelyma Moss				S3S4	8	50.1 ± 3.0	NS
N	*Dicranum leioneuron*	a Dicranum Moss				S3S4	1	77.9 ± 0.0	NB
N	*Encalypta ciliata*	Fringed Extinguisher Moss				S3S4	3	66.3 ± 1.0	NS
N	*Encalypta procera*	Slender Extinguisher Moss				S3S4	8	17.0 ± 0.0	NS
N	*Myurella julacea*	Small Mouse-tail Moss				S3S4	4	21.1 ± 0.0	NS
N	*Splachnum ampullaceum*	Cruet Dung Moss				S3S4	4	32.5 ± 0.0	NS
N	*Thamnobryum alleghaniense*	a Moss				S3S4	41	4.2 ± 0.0	NS
N	*Tomentypnum nitens*	Golden Fuzzy Fen Moss				S3S4	4	51.9 ± 0.0	NS
N	*Schistidium agassizii*	Elf Bloom Moss				S3S4	6	12.4 ± 0.0	NS
N	*Hylocomiastrum pyrenaicum*	a Feather Moss				S3S4	4	8.7 ± 0.0	NS
N	*Bryoria pseudofuscescens*	Mountain Horsehair Lichen				S3S4	18	41.2 ± 0.0	NB
N	*Enchylium tenax*	Soil Tarpaper Lichen				S3S4	7	36.7 ± 0.0	NS
N	*Sticta fuliginosa*	Peppered Moon Lichen				S3S4	59	19.3 ± 0.0	NS
N	*Arctoparmelia incurva*	Finger Ring Lichen				S3S4	30	13.3 ± 0.0	NS
N	*Scytinium teretiusculum*	Curly Jellyskin Lichen				S3S4	27	8.4 ± 0.0	NS
N	*Leptogium acadiense*	Acadian Jellyskin Lichen				S3S4	46	9.9 ± 0.0	NS
N	*Scytinium subtile*	Appressed Jellyskin Lichen				S3S4	33	9.1 ± 0.0	NS
N	*Felipes leucopellaeus*	a lichen				S3S4	7	35.0 ± 0.0	NS
N	*Cladonia floerkeana*	Gritty British Soldiers Lichen				S3S4	8	58.5 ± 0.0	NS
N	*Vahliella leucophaea*	Shelter Shingle Lichen				S3S4	29	4.2 ± 0.0	NS
N	*Heterodermia speciosa*	Powdered Fringe Lichen				S3S4	110	3.8 ± 0.0	NS
N	*Leptogium corticola*	Blistered Jellyskin Lichen				S3S4	234	20.4 ± 0.0	NS
N	*Melanohalea olivacea*	Spotted Camouflage Lichen				S3S4	8	33.6 ± 0.0	NS
N	*Parmeliopsis hyperopta*	Gray Starburst Lichen				S3S4	4	52.0 ± 0.0	NS
N	*Parmotrema perlatum*	Powdered Ruffle Lichen				S3S4	62	36.4 ± 0.0	NS
N	*Peltigera hymenina*	Cloudy Pelt Lichen				S3S4	1	53.5 ± 1.0	NS
N	*Sphaerophorus fragilis*	Fragile Coral Lichen				S3S4	1	99.7 ± 3.0	NS
N	*Sclerophora peronella*	Frosted Glass-whiskers Lichen				S3S4	21	28.8 ± 0.0	NS
N	*Coccocarpia palmicola*	Salted Shell Lichen				S3S4	157	22.6 ± 0.0	NS
N	*Physcia caesia*	Blue-gray Rosette Lichen				S3S4	4	54.2 ± 0.0	NS
N	*Physcia tenella*	Fringed Rosette Lichen				S3S4	3	74.8 ± 0.0	NB

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N	*Anaptychia palmulata*	Shaggy Fringed Lichen				S3S4	324	9.0 ± 0.0	NS
N	*Evernia prunastri*	Valley Oakmoss Lichen				S3S4	42	9.8 ± 0.0	NS
N	*Heterodermia neglecta*	Fringe Lichen				S3S4	130	9.6 ± 1.0	NS
P	*Rhynchospora macrostachya*	Tall Beakrush	Endangered	Endangered	Endangered	S1	57	63.6 ± 0.0	NS
P	*Clethra alnifolia*	Coast Pepper-Bush	Endangered	Threatened	Vulnerable	S2	177	49.5 ± 0.0	NS
P	*Sabatia kennedyana*	Plymouth Gentian	Endangered	Endangered	Endangered	S2S3	1	88.9 ± 0.0	NS
P	*Fraxinus nigra*	Black Ash	Threatened		Threatened	S1S2	895	3.6 ± 0.0	NS
P	*Hydrocotyle umbellata*	Water Pennywort	Special Concern	Special Concern	Endangered	S2	86	59.5 ± 2.0	NS
P	*Eleocharis tuberculosa*	Tubercled Spike-rush	Special Concern	Special Concern	Vulnerable	S2	1	87.2 ± 0.0	NS
P	*Lachnanthes caroliniana*	Redroot	Special Concern	Special Concern	Vulnerable	S2	1483	60.2 ± 0.0	NS
P	*Lophiola aurea*	Goldencrest	Special Concern	Special Concern	Vulnerable	S2	846	55.0 ± 0.0	NS
P	*Lilaeopsis chinensis*	Eastern Lilaeopsis	Special Concern	Special Concern	Vulnerable	S3	154	72.6 ± 0.0	NS
P	*Scirpus longii*	Long's Bulrush	Special Concern		Vulnerable	S3	570	50.3 ± 0.0	NS
P	*Isoetes prototypus*	Prototype Quillwort	Special Concern	Special Concern	Vulnerable	S3	7	15.2 ± 0.0	NS
P	*Floerkea proserpinacoides*	False Mermaidweed	Not At Risk			S2S3	38	33.8 ± 1.0	NS
P	*Acer saccharinum*	Silver Maple				S1	34	39.7 ± 0.0	NS
P	*Toxicodendron vernix*	Poison Sumac				S1	42	68.8 ± 0.0	NS
P	*Osmorhiza depauperata*	Blunt Sweet Cicely				S1	1	54.6 ± 5.0	NS
P	*Antennaria rosea ssp. arida*	Rosy Pussytoes				S1	1	45.4 ± 0.0	NS
P	*Nabalus racemosus*	Glaucous Rattlesnakeroot				S1	24	67.1 ± 0.0	NS
P	*Andersonglossum boreale*	Northern Wild Comfrey				S1	5	42.5 ± 0.0	NS
P	*Turritis glabra*	Tower Mustard				S1	3	39.3 ± 0.0	NS
P	*Lobelia spicata*	Pale-Spiked Lobelia				S1	7	61.4 ± 7.0	NS
P	*Silene antirrhina*	Sleepy Catchfly				S1	5	9.3 ± 0.0	NS
P	*Hudsonia tomentosa*	Woolly Beach-heath				S1	1	96.7 ± 0.0	NB
P	*Callitriche hermaphroditica*	Northern Water-starwort				S1	7	76.2 ± 0.0	NB
P	*Elatine americana*	American Waterwort				S1	3	94.1 ± 0.0	NB
P	*Astragalus robbinsii var. minor*	Robbins' Milkvetch				S1	32	45.4 ± 0.0	NS
P	*Gentianella amarella ssp. acuta*	Northern Gentian				S1	3	90.3 ± 0.0	NB
P	*Ribes americanum*	Wild Black Currant				S1	13	69.5 ± 1.0	NS
P	*Trichostema dichotomum*	Forked Bluecurls				S1	9	57.9 ± 0.0	NS
P	*Fraxinus pennsylvanica*	Red Ash				S1	56	46.7 ± 0.0	NS
P	*Polygonum achoreum*	Leathery Knotweed				S1	4	28.1 ± 10.0	NS
P	*Persicaria careyi*	Carey's Smartweed				S1	1	99.9 ± 5.0	NB
P	*Phytolacca americana*	Common Pokeweed				S1	3	40.2 ± 0.0	NS
P	*Podostemum ceratophyllum*	Horn-leaved Riverweed				S1	4	36.6 ± 0.0	NS
P	*Montia fontana*	Water Blinks				S1	2	49.7 ± 0.0	NS
P	*Lysimachia minima*	Chaffweed				S1	1	59.2 ± 0.0	NS
P	*Lysimachia quadrifolia*	Whorled Yellow Loosestrife				S1	1	91.0 ± 0.0	NS
P	*Clematis occidentalis*	Purple Clematis				S1	16	69.6 ± 0.0	NB
P	*Ranunculus pensylvanicus*	Pennsylvania Buttercup				S1	5	76.5 ± 0.0	NB
P	*Amelanchier nantucketensis*	Nantucket Serviceberry				S1	1	79.5 ± 1.0	NS
P	*Agalinis tenuifolia*	Slender Agalinis				S1	1	99.6 ± 0.0	NS
P	*Scrophularia lanceolata*	Lance-leaved Figwort				S1	5	12.3 ± 1.0	NS
P	*Carex digitalis*	Slender Wood Sedge				S1	5	60.3 ± 0.0	NS
P	*Carex garberi*	Garber's Sedge				S1	3	89.7 ± 0.0	NB
P	*Carex granularis*	Limestone Meadow Sedge				S1	1	98.6 ± 5.0	NB
P	*Carex laxiflora*	Loose-Flowered Sedge				S1	6	25.8 ± 7.0	NS
P	*Carex ormostachya*	Necklace Spike Sedge				S1	7	26.6 ± 5.0	NS
P	*Carex plantaginea*	Plantain-Leaved Sedge				S1	6	68.8 ± 0.0	NB
P	*Carex prairea*	Prairie Sedge				S1	3	44.3 ± 1.0	NS
P	*Carex tincta*	Tinged Sedge				S1	9	75.2 ± 0.0	NB
P	*Carex viridula var. saxilittoralis*	Greenish Sedge				S1	1	54.1 ± 0.0	NS
P	*Carex grisea*	Inflated Narrow-leaved				S1	4	94.4 ± 0.0	NB

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		Sedge							
P	*Carex saxatilis*	Russet Sedge				S1	14	92.5 ± 0.0	NB
P	*Eleocharis erythropoda*	Red-stemmed Spikerush				S1	7	78.0 ± 0.0	NB
P	*Fimbristylis autumnalis*	Slender Fimbry				S1	3	68.1 ± 0.0	NS
P	*Scirpus atrovirens*	Dark-green Bulrush				S1	3	76.6 ± 0.0	NS
P	*Blysmopsis rufa*	Red Bulrush				S1	1	96.7 ± 0.0	NB
P	*Schoenoplectus torreyi*	Torrey's Bulrush				S1	10	50.9 ± 0.0	NS
P	*Iris prismatica*	Slender Blue Flag				S1	1	34.3 ± 100.0	NS
P	*Sisyrinchium fuscatum*	Coastal Plain Blue-eyed-grass				S1	6	41.9 ± 1.0	NS
P	*Juncus secundus*	Secund Rush				S1	3	34.7 ± 0.0	NS
P	*Juncus vaseyi*	Vasey Rush				S1	5	82.5 ± 0.0	NB
P	*Triantha glutinosa*	Sticky False-Asphodel				S1	4	89.7 ± 0.0	NB
P	*Trillium grandiflorum*	White Trillium				S1	3	44.4 ± 1.0	NS
P	*Malaxis monophyllos var. brachypoda*	North American White Adder's-mouth				S1	6	36.9 ± 0.0	NS
P	*Spiranthes casei var. casei*	Case's Ladies'-Tresses				S1	3	47.3 ± 0.0	NS
P	*Dichanthelium xanthophysum*	Slender Panic Grass				S1	10	61.6 ± 0.0	NS
P	*Elymus hystrix*	Spreading Wild Rye				S1	8	79.8 ± 0.0	NS
P	*Torreyochloa pallida var. pallida*	Pale False Manna Grass				S1	2	15.5 ± 1.0	NS
P	*Graphephorum melicoides*	Purple False Oats				S1	6	71.0 ± 0.0	NB
P	*Adiantum pedatum*	Northern Maidenhair Fern				S1	25	34.3 ± 100.0	NS
P	*Dryopteris goldieana*	Goldie's Woodfern				S1	1	72.8 ± 1.0	NS
P	*Equisetum palustre*	Marsh Horsetail				S1	4	44.1 ± 5.0	NS
P	*Selaginella rupestris*	Rock Spikemoss				S1	45	77.6 ± 0.0	NS
P	*Solidago hispida*	Hairy Goldenrod				S1?	4	95.6 ± 1.0	NB
P	*Suaeda rolandii*	Roland's Sea-Blite				S1?	7	62.3 ± 0.0	NS
P	*Carex pensylvanica*	Pennsylvania Sedge				S1?	1	71.9 ± 10.0	NS
P	*Carex rostrata*	Narrow-leaved Beaked Sedge				S1?	1	82.2 ± 0.0	NB
P	*Bolboschoenus robustus*	Sturdy Bulrush				S1?	1	39.2 ± 5.0	NS
P	*Juncus anthelatus*	Greater Poverty Rush				S1?	1	6.2 ± 0.0	NS
P	*Allium schoenoprasum*	Wild Chives				S1?	12	26.2 ± 0.0	NS
P	*Allium schoenoprasum var. sibiricum*	Wild Chives				S1?	4	47.1 ± 7.0	NS
P	*Panicum dichotomiflorum ssp. puritanorum*	Spreading Panicgrass				S1?	6	61.1 ± 0.0	NS
P	*Huperzia selago*	Northern Firmoss				S1?	1	36.7 ± 1.0	NS
P	*Crocanthemum canadense*	Long-branched Frostweed			Endangered	S1S2	151	6.4 ± 0.0	NS
P	*Cypripedium arietinum*	Ram's-Head Lady's-Slipper			Endangered	S1S2	308	72.8 ± 1.0	NS
P	*Sanicula odorata*	Clustered Sanicle				S1S2	9	34.4 ± 2.0	NS
P	*Ageratina altissima*	White Snakeroot				S1S2	56	47.0 ± 0.0	NS
P	*Draba glabella*	Rock Whitlow-Grass				S1S2	14	36.7 ± 1.0	NS
P	*Proserpinaca intermedia*	Intermediate Mermaidweed				S1S2	4	32.1 ± 2.0	NS
P	*Carex haydenii*	Hayden's Sedge				S1S2	13	51.1 ± 1.0	NS
P	*Platanthera huronensis*	Fragrant Green Orchid				S1S2	9	50.9 ± 10.0	NS
P	*Calamagrostis stricta ssp. stricta*	Slim-stemmed Reed Grass				S1S2	1	94.2 ± 7.0	NS
P	*Woodsia alpina*	Alpine Cliff Fern				S1S2	12	67.1 ± 0.0	NB
P	*Selaginella selaginoides*	Low Spikemoss				S1S2	9	69.5 ± 0.0	NB
P	*Euphrasia farlowii*	Farlow's Eyebright				S1S3	2	95.9 ± 0.0	NS
P	*Zizia aurea*	Golden Alexanders				S2	21	87.9 ± 0.0	NS
P	*Antennaria parlinii ssp. fallax*	Parlin's Pussytoes				S2	36	48.9 ± 0.0	NS
P	*Rudbeckia laciniata*	Cut-Leaved Coneflower				S2	28	9.8 ± 7.0	NS
P	*Arabis pycnocarpa*	Cream-flowered Rockcress				S2	17	47.6 ± 0.0	NS
P	*Cardamine maxima*	Large Toothwort				S2	27	13.0 ± 4.0	NS

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P	*Hudsonia ericoides*	Pinebarren Golden Heather				S2	155	2.3 ± 0.0	NS
P	*Desmodium canadense*	Canada Tick-trefoil				S2	17	45.1 ± 7.0	NS
P	*Hylodesmum glutinosum*	Large Tick-trefoil				S2	41	2.4 ± 0.0	NS
P	*Oxytropis campestris var. johannensis*	Field Locoweed				S2	28	45.4 ± 0.0	NS
P	*Conopholis americana*	American Cancer-root				S2	100	8.4 ± 0.0	NS
P	*Anemonastrum canadense*	Canada Anemone				S2	25	12.8 ± 0.0	NS
P	*Hepatica americana*	Round-lobed Hepatica				S2	63	10.6 ± 0.0	NS
P	*Ranunculus sceleratus*	Cursed Buttercup				S2	3	93.2 ± 0.0	NB
P	*Galium boreale*	Northern Bedstraw				S2	9	47.9 ± 0.0	NS
P	*Comandra umbellata*	Bastard's Toadflax				S2	1	96.7 ± 0.0	NB
P	*Gratiola neglecta*	Clammy Hedge-Hyssop				S2	15	77.3 ± 0.0	NB
P	*Dirca palustris*	Eastern Leatherwood				S2	70	70.8 ± 13.0	NS
P	*Carex chordorrhiza*	Creeping Sedge				S2	2	86.0 ± 0.0	NB
P	*Carex pellita*	Woolly Sedge				S2	3	95.6 ± 0.0	NB
P	*Carex livida*	Livid Sedge				S2	3	69.8 ± 10.0	NS
P	*Juncus greenei*	Greene's Rush				S2	2	85.6 ± 0.0	NS
P	*Juncus alpinoarticulatus ssp. americanus*	Northern Green Rush				S2	6	78.1 ± 0.0	NB
P	*Allium tricoccum*	Wild Leek				S2	136	1.9 ± 0.0	NS
P	*Lilium canadense*	Canada Lily				S2	39	30.7 ± 7.0	NS
P	*Cypripedium parviflorum var. pubescens*	Yellow Lady's-slipper				S2	30	40.4 ± 5.0	NS
P	*Cypripedium parviflorum var. makasin*	Small Yellow Lady's-Slipper				S2	16	26.8 ± 0.0	NS
P	*Cypripedium reginae*	Showy Lady's-Slipper				S2	35	64.9 ± 1.0	NB
P	*Platanthera flava var. flava*	Southern Rein Orchid				S2	19	57.4 ± 7.0	NS
P	*Platanthera flava var. herbiola*	Pale Green Orchid				S2	28	2.0 ± 0.0	NS
P	*Platanthera macrophylla*	Large Round-Leaved Orchid				S2	13	46.5 ± 0.0	NS
P	*Bromus latiglumis*	Broad-Glumed Brome				S2	1	98.5 ± 2.0	NB
P	*Cinna arundinacea*	Sweet Wood Reed Grass				S2	41	39.1 ± 0.0	NS
P	*Elymus wiegandii*	Wiegand's Wild Rye				S2	3	91.2 ± 0.0	NB
P	*Festuca subverticillata*	Nodding Fescue				S2	10	46.5 ± 1.0	NS
P	*Piptatheropsis pungens*	Slender Ricegrass				S2	15	13.8 ± 0.0	NS
P	*Cryptogramma stelleri*	Steller's Rockbrake				S2	6	63.2 ± 0.0	NB
P	*Cuscuta cephalanthi*	Buttonbush Dodder				S2?	3	68.1 ± 0.0	NS
P	*Rumex persicarioides*	Peach-leaved Dock				S2?	1	74.2 ± 0.0	NS
P	*Crataegus submollis*	Quebec Hawthorn				S2?	6	76.9 ± 1.0	NS
P	*Carex peckii*	White-Tinged Sedge				S2?	5	75.0 ± 0.0	NB
P	*Thuja occidentalis*	Eastern White Cedar			Vulnerable	S2S3	437	3.0 ± 0.0	NS
P	*Osmorhiza longistylis*	Smooth Sweet Cicely				S2S3	18	34.0 ± 1.0	NS
P	*Bidens hyperborea*	Estuary Beggarticks				S2S3	1	96.7 ± 0.0	NB
P	*Erigeron philadelphicus*	Philadelphia Fleabane				S2S3	14	36.7 ± 0.0	NS
P	*Eutrochium dubium*	Coastal Plain Joe Pye Weed				S2S3	2	70.5 ± 0.0	NS
P	*Lactuca hirsuta*	Hairy Lettuce				S2S3	5	54.3 ± 1.0	NS
P	*Impatiens pallida*	Pale Jewelweed				S2S3	13	36.6 ± 0.0	NS
P	*Caulophyllum thalictroides*	Blue Cohosh				S2S3	65	2.7 ± 0.0	NS
P	*Draba arabisans*	Rock Whitlow-Grass				S2S3	42	36.4 ± 0.0	NS
P	*Boechera stricta*	Drummond's Rockcress				S2S3	25	36.4 ± 0.0	NS
P	*Stellaria humifusa*	Saltmarsh Starwort				S2S3	16	46.7 ± 1.0	NS
P	*Oxybasis rubra*	Red Goosefoot				S2S3	8	90.5 ± 1.0	NB
P	*Hypericum majus*	Large St John's-wort				S2S3	8	64.7 ± 0.0	NS
P	*Hypericum x dissimulatum*	Disguised St. John's-wort				S2S3	6	57.0 ± 0.0	NS
P	*Empetrum atropurpureum*	Purple Crowberry				S2S3	1	93.7 ± 7.0	NS
P	*Euphorbia polygonifolia*	Seaside Spurge				S2S3	12	75.7 ± 3.0	NS
P	*Myriophyllum farwellii*	Farwell's Water Milfoil				S2S3	12	51.6 ± 1.0	NS
P	*Hedeoma pulegioides*	American False Pennyroyal				S2S3	62	27.9 ± 0.0	NS

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P	*Oenothera fruticosa ssp. tetragona*	Narrow-leaved Evening Primrose				S2S3	22	55.6 ± 0.0	NS
P	*Polygala polygama*	Racemed Milkwort				S2S3	45	22.6 ± 0.0	NS
P	*Polygonum aviculare ssp. buxiforme*	Box Knotweed				S2S3	6	25.8 ± 7.0	NS
P	*Polygonum oxyspermum ssp. raii*	Ray's Knotweed				S2S3	4	77.6 ± 1.0	NS
P	*Rumex triangulivalvis*	Triangular-valve Dock				S2S3	18	44.8 ± 1.0	NS
P	*Primula mistassinica*	Mistassini Primrose				S2S3	11	88.0 ± 0.0	NB
P	*Anemone quinquefolia*	Wood Anemone				S2S3	57	1.3 ± 0.0	NS
P	*Caltha palustris*	Yellow Marsh Marigold				S2S3	22	13.0 ± 0.0	NS
P	*Amelanchier fernaldii*	Fernald's Serviceberry				S2S3	1	61.6 ± 7.0	NS
P	*Potentilla canadensis*	Canada Cinquefoil				S2S3	10	54.1 ± 0.0	NS
P	*Galium obtusum*	Blunt-leaved Bedstraw				S2S3	9	5.9 ± 0.0	NS
P	*Salix pellita*	Satiny Willow				S2S3	20	14.2 ± 7.0	NS
P	*Tiarella cordifolia*	Heart-leaved Foamflower				S2S3	43	41.1 ± 0.0	NS
P	*Agalinis purpurea var. parviflora*	Small-flowered Purple False Foxglove				S2S3	5	89.7 ± 1.0	NB
P	*Boehmeria cylindrica*	Small-spike False-nettle				S2S3	57	4.3 ± 0.0	NS
P	*Carex adusta*	Lesser Brown Sedge				S2S3	5	73.4 ± 0.0	NB
P	*Carex capillaris*	Hairlike Sedge				S2S3	25	45.4 ± 0.0	NS
P	*Carex comosa*	Bearded Sedge				S2S3	12	20.8 ± 1.0	NS
P	*Carex houghtoniana*	Houghton's Sedge				S2S3	9	55.7 ± 0.0	NS
P	*Carex hystericina*	Porcupine Sedge				S2S3	10	7.5 ± 1.0	NS
P	*Carex longii*	Long's Sedge				S2S3	1	79.1 ± 10.0	NS
P	*Carex scirpoidea*	Scirpuslike Sedge				S2S3	6	86.5 ± 0.0	NB
P	*Eleocharis ovata*	Ovate Spikerush				S2S3	13	44.7 ± 0.0	NS
P	*Scirpus pedicellatus*	Stalked Bulrush				S2S3	13	92.3 ± 0.0	NB
P	*Vallisneria americana*	Wild Celery				S2S3	33	57.3 ± 0.0	NS
P	*Juncus ranarius*	Seaside Rush				S2S3	1	96.7 ± 0.0	NB
P	*Najas gracillima*	Thread-Like Naiad				S2S3	22	60.6 ± 0.0	NS
P	*Goodyera pubescens*	Downy Rattlesnake-Plantain				S2S3	106	8.4 ± 0.0	NS
P	*Spiranthes casei*	Case's Ladies'-Tresses				S2S3	2	64.7 ± 0.0	NS
P	*Spiranthes casei var. novaescotiae*	Case's Ladies'-Tresses				S2S3	4	6.9 ± 0.0	NS
P	*Spiranthes lucida*	Shining Ladies'-Tresses				S2S3	17	16.0 ± 1.0	NS
P	*Calamagrostis stricta*	Slim-stemmed Reed Grass				S2S3	8	76.8 ± 0.0	NB
P	*Potamogeton friesii*	Fries' Pondweed				S2S3	8	41.5 ± 2.0	NS
P	*Cystopteris laurentiana*	Laurentian Bladder Fern				S2S3	1	85.6 ± 1.0	NB
P	*Woodsia glabella*	Smooth Cliff Fern				S2S3	68	67.4 ± 0.0	NB
P	*Botrychium lanceolatum ssp. angustisegmentum*	Narrow Triangle Moonwort				S2S3	14	36.7 ± 1.0	NS
P	*Botrychium simplex*	Least Moonwort				S2S3	3	49.3 ± 1.0	NS
P	*Ophioglossum pusillum*	Northern Adder's-tongue				S2S3	7	37.5 ± 7.0	NS
P	*Potamogeton pulcher*	Spotted Pondweed			Vulnerable	S3	28	44.8 ± 0.0	NS
P	*Angelica atropurpurea*	Purple-stemmed Angelica				S3	3	84.4 ± 1.0	NB
P	*Conioselinum chinense*	Chinese Hemlock-parsley				S3	38	45.5 ± 0.0	NS
P	*Hieracium robinsonii*	Robinson's Hawkweed				S3	16	74.5 ± 0.0	NB
P	*Iva frutescens*	Big-leaved Marsh-elder				S3	59	49.0 ± 0.0	NS
P	*Senecio pseudoarnica*	Seabeach Ragwort				S3	1	93.4 ± 0.0	NS
P	*Symphyotrichum boreale*	Boreal Aster				S3	15	55.7 ± 0.0	NS
P	*Symphyotrichum undulatum*	Wavy-leaved Aster				S3	158	1.5 ± 0.0	NS
P	*Symphyotrichum ciliolatum*	Fringed Blue Aster				S3	27	36.1 ± 1.0	NS
P	*Alnus serrulata*	Smooth Alder				S3	700	54.0 ± 0.0	NS
P	*Betula michauxii*	Michaux's Dwarf Birch				S3	56	56.9 ± 0.0	NS
P	*Betula pumila*	Bog Birch				S3	2	96.7 ± 0.0	NB
P	*Cardamine parviflora*	Small-flowered Bittercress				S3	15	16.8 ± 7.0	NS
P	*Palustricodon aparinoides*	Marsh Bellflower				S3	20	16.9 ± 1.0	NS

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P	*Lobelia kalmii*	Brook Lobelia				S3	8	89.7 ± 1.0	NB
P	*Mononeuria groenlandica*	Greenland Stitchwort				S3	141	50.9 ± 0.0	NS
P	*Sagina nodosa*	Knotted Pearlwort				S3	30	53.7 ± 3.0	NS
P	*Sagina nodosa ssp. borealis*	Knotted Pearlwort				S3	1	79.9 ± 5.0	NS
P	*Stellaria longifolia*	Long-leaved Starwort				S3	5	68.1 ± 0.0	NB
P	*Ceratophyllum echinatum*	Prickly Hornwort				S3	15	40.1 ± 0.0	NS
P	*Triosteum aurantiacum*	Orange-fruited Tinker's Weed				S3	36	78.8 ± 0.0	NS
P	*Viburnum edule*	Squashberry				S3	15	71.3 ± 0.0	NB
P	*Crassula aquatica*	Water Pygmyweed				S3	1	99.3 ± 0.0	NS
P	*Empetrum eamesii*	Pink Crowberry				S3	5	85.5 ± 0.0	NS
P	*Halenia deflexa*	Spurred Gentian				S3	11	84.4 ± 1.0	NB
P	*Geranium bicknellii*	Bicknell's Crane's-bill				S3	28	14.0 ± 0.0	NS
P	*Myriophyllum verticillatum*	Whorled Water Milfoil				S3	11	79.3 ± 0.0	NB
P	*Utricularia resupinata*	Inverted Bladderwort				S3	18	55.1 ± 0.0	NS
P	*Epilobium strictum*	Downy Willowherb				S3	14	45.2 ± 3.0	NS
P	*Polygala sanguinea*	Blood Milkwort				S3	29	4.9 ± 0.0	NS
P	*Persicaria arifolia*	Halberd-leaved Tearthumb				S3	20	39.6 ± 0.0	NS
P	*Plantago rugelii*	Rugel's Plantain				S3	8	16.0 ± 1.0	NS
P	*Primula laurentiana*	Laurentian Primrose				S3	80	13.4 ± 0.0	NS
P	*Samolus parviflorus*	Seaside Brookweed				S3	57	72.7 ± 0.0	NS
P	*Pyrola minor*	Lesser Pyrola				S3	6	39.1 ± 7.0	NS
P	*Anemone virginiana*	Virginia Anemone				S3	14	69.9 ± 0.0	NS
P	*Cephalanthus occidentalis*	Common Buttonbush				S3	1966	48.9 ± 0.0	NS
P	*Salix pedicellaris*	Bog Willow				S3	97	29.9 ± 0.0	NS
P	*Salix sericea*	Silky Willow				S3	144	2.8 ± 0.0	NS
P	*Saxifraga paniculata ssp. laestadii*	Laestadius' Saxifrage				S3	51	45.4 ± 0.0	NS
P	*Lindernia dubia*	Yellow-seeded False Pimperel				S3	25	4.4 ± 0.0	NS
P	*Laportea canadensis*	Canada Wood Nettle				S3	41	8.3 ± 0.0	NS
P	*Pilea pumila*	Dwarf Clearweed				S3	12	50.5 ± 0.0	NS
P	*Viola nephrophylla*	Northern Bog Violet				S3	21	54.8 ± 1.0	NS
P	*Carex bebbii*	Bebb's Sedge				S3	24	72.3 ± 0.0	NS
P	*Carex castanea*	Chestnut Sedge				S3	3	89.1 ± 0.0	NS
P	*Carex cryptolepis*	Hidden-scaled Sedge				S3	19	51.1 ± 3.0	NS
P	*Carex eburnea*	Bristle-leaved Sedge				S3	18	68.9 ± 0.0	NB
P	*Carex hirtifolia*	Pubescent Sedge				S3	16	79.9 ± 0.0	NS
P	*Carex lupulina*	Hop Sedge				S3	70	4.9 ± 3.0	NS
P	*Carex rosea*	Rosy Sedge				S3	50	9.2 ± 0.0	NS
P	*Carex swanii*	Swan's Sedge				S3	83	1.3 ± 0.0	NS
P	*Carex tenera*	Tender Sedge				S3	10	4.8 ± 0.0	NS
P	*Carex tribuloides*	Blunt Broom Sedge				S3	20	9.6 ± 0.0	NS
P	*Carex tuckermanii*	Tuckerman's Sedge				S3	45	74.9 ± 0.0	NS
P	*Carex atratiformis*	Scabrous Black Sedge				S3	5	82.7 ± 0.0	NS
P	*Eleocharis nitida*	Quill Spikerush				S3	21	5.9 ± 7.0	NS
P	*Eleocharis flavescens var. olivacea*	Bright-green Spikerush				S3	13	30.8 ± 0.0	NS
P	*Eleocharis quinqueflora*	Few-flowered Spikerush				S3	9	89.4 ± 0.0	NB
P	*Eriophorum gracile*	Slender Cottongrass				S3	9	13.6 ± 1.0	NS
P	*Coeloglossum viride*	Long-bracted Frog Orchid				S3	16	41.1 ± 0.0	NS
P	*Cypripedium parviflorum*	Yellow Lady's-slipper				S3	583	44.8 ± 7.0	NS
P	*Neottia bifolia*	Southern Twayblade				S3	76	16.8 ± 0.0	NS
P	*Platanthera flava*	Southern Rein-Orchid				S3	37	48.6 ± 0.0	NS
P	*Platanthera grandiflora*	Large Purple Fringed Orchid				S3	37	33.8 ± 1.0	NS
P	*Platanthera hookeri*	Hooker's Orchid				S3	31	16.2 ± 1.0	NS
P	*Dichanthelium linearifolium*	Narrow-leaved Panic Grass				S3	16	1.5 ± 0.0	NS
P	*Piptatheropsis canadensis*	Canada Ricegrass				S3	15	55.7 ± 0.0	NS

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
P	*Poa glauca*	Glaucous Blue Grass				S3	26	36.5 ± 0.0	NS
P	*Stuckenia filiformis*	Thread-leaved Pondweed				S3	7	47.4 ± 7.0	NS
P	*Potamogeton praelongus*	White-stemmed Pondweed				S3	13	45.4 ± 1.0	NS
P	*Potamogeton richardsonii*	Richardson's Pondweed				S3	7	34.4 ± 1.0	NS
P	*Potamogeton zosteriformis*	Flat-stemmed Pondweed				S3	14	42.4 ± 1.0	NS
P	*Asplenium viride*	Green Spleenwort				S3	33	66.9 ± 0.0	NB
P	*Dryopteris fragrans*	Fragrant Wood Fern				S3	80	66.3 ± 0.0	NS
P	*Sceptridium dissectum*	Dissected Moonwort				S3	9	9.1 ± 1.0	NS
P	*Polypodium appalachianum*	Appalachian Polypody				S3	46	6.5 ± 0.0	NS
P	*Persicaria amphibia var. emersa*	Long-root Smartweed				S3?	43	48.4 ± 0.0	NS
P	*Spiranthes ochroleuca*	Yellow Ladies'-tresses				S3?	46	6.9 ± 0.0	NS
P	*Diphasiastrum x sabinifolium*	Savin-leaved Ground-cedar				S3?	14	4.8 ± 0.0	NS
P	*Bidens vulgata*	Tall Beggarticks				S3S4	4	74.8 ± 0.0	NS
P	*Erigeron hyssopifolius*	Hyssop-leaved Fleabane				S3S4	88	67.6 ± 0.0	NB
P	*Hieracium paniculatum*	Panicled Hawkweed				S3S4	51	1.5 ± 0.0	NS
P	*Bidens beckii*	Water Beggarticks				S3S4	42	39.4 ± 0.0	NS
P	*Packera paupercula*	Balsam Groundsel				S3S4	90	73.5 ± 0.0	NS
P	*Atriplex glabriuscula var. franktonii*	Frankton's Saltbush				S3S4	17	34.2 ± 0.0	NS
P	*Shepherdia canadensis*	Soapberry				S3S4	113	54.4 ± 0.0	NS
P	*Vaccinium boreale*	Northern Blueberry				S3S4	2	64.2 ± 0.0	NS
P	*Vaccinium cespitosum*	Dwarf Bilberry				S3S4	106	1.3 ± 0.0	NS
P	*Vaccinium corymbosum*	Highbush Blueberry				S3S4	19	4.7 ± 0.0	NS
P	*Fagus grandifolia*	American Beech				S3S4	776	1.8 ± 0.0	NS
P	*Bartonia virginica*	Yellow Bartonia				S3S4	25	30.3 ± 0.0	NS
P	*Proserpinaca pectinata*	Comb-leaved Mermaidweed				S3S4	76	44.1 ± 1.0	NS
P	*Decodon verticillatus*	Swamp Loosestrife				S3S4	189	48.7 ± 0.0	NS
P	*Nuphar microphylla*	Small Yellow Pond-lily				S3S4	7	44.7 ± 0.0	NS
P	*Persicaria pensylvanica*	Pennsylvania Smartweed				S3S4	34	10.2 ± 0.0	NS
P	*Fallopia scandens*	Climbing False Buckwheat				S3S4	20	8.3 ± 0.0	NS
P	*Rumex pallidus*	Seabeach Dock				S3S4	3	55.8 ± 0.0	NS
P	*Pyrola asarifolia*	Pink Pyrola				S3S4	14	36.7 ± 1.0	NS
P	*Endotropis alnifolia*	alder-leaved buckthorn				S3S4	133	41.1 ± 0.0	NS
P	*Amelanchier spicata*	Running Serviceberry				S3S4	73	1.7 ± 0.0	NS
P	*Fragaria vesca ssp. americana*	Woodland Strawberry				S3S4	28	45.7 ± 0.0	NS
P	*Fragaria vesca*	Woodland Strawberry				S3S4	13	38.6 ± 0.0	NS
P	*Galium aparine*	Common Bedstraw				S3S4	32	34.8 ± 2.0	NS
P	*Geocaulon lividum*	Northern Comandra				S3S4	11	15.2 ± 1.0	NS
P	*Limosella australis*	Southern Mudwort				S3S4	7	76.6 ± 0.0	NS
P	*Ulmus americana*	White Elm				S3S4	112	1.7 ± 0.0	NS
P	*Verbena hastata*	Blue Vervain				S3S4	130	11.9 ± 0.0	NS
P	*Viola sagittata var. ovata*	Arrow-Leaved Violet				S3S4	82	1.5 ± 0.0	NS
P	*Viola selkirkii*	Great-Spurred Violet				S3S4	11	36.7 ± 1.0	NS
P	*Symplocarpus foetidus*	Eastern Skunk Cabbage				S3S4	62	40.3 ± 0.0	NS
P	*Carex argyrantha*	Silvery-flowered Sedge				S3S4	29	34.4 ± 2.0	NS
P	*Sisyrinchium atlanticum*	Eastern Blue-Eyed-Grass				S3S4	114	36.2 ± 0.0	NS
P	*Triglochin gaspensis*	Gasp ├⌐ Arrowgrass				S3S4	16	64.9 ± 0.0	NB
P	*Juncus acuminatus*	Sharp-Fruit Rush				S3S4	13	4.9 ± 2.0	NS
P	*Juncus subcaudatus*	Woods-Rush				S3S4	15	12.0 ± 2.0	NS
P	*Luzula parviflora ssp. melanocarpa*	Black-fruited Woodrush				S3S4	13	19.3 ± 7.0	NS
P	*Goodyera repens*	Lesser Rattlesnake-plantain				S3S4	24	6.3 ± 0.0	NS
P	*Liparis loeselii*	Loesel's Twayblade				S3S4	15	36.7 ± 1.0	NS
P	*Platanthera obtusata*	Blunt-leaved Orchid				S3S4	18	45.1 ± 10.0	NS
P	*Platanthera orbiculata*	Small Round-leaved Orchid				S3S4	54	30.4 ± 0.0	NS
P	*Alopecurus aequalis*	Short-awned Foxtail				S3S4	9	12.0 ± 0.0	NS

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
P	*Dichanthelium clandestinum*	Deer-tongue Panic Grass				S3S4	294	3.8 ± 0.0	NS
P	*Coleataenia longifolia*	Long-leaved Panicgrass				S3S4	1631	54.8 ± 0.0	NS
P	*Panicum philadelphicum*	Philadelphia Panicgrass				S3S4	35	8.6 ± 0.0	NS
P	*Koeleria spicata*	Narrow False Oats				S3S4	34	45.4 ± 0.0	NS
P	*Asplenium trichomanes*	Maidenhair Spleenwort				S3S4	36	21.1 ± 0.0	NS
P	*Lorinseria areolata*	Netted Chain Fern				S3S4	64	69.2 ± 0.0	NS
P	*Equisetum pratense*	Meadow Horsetail				S3S4	12	1.8 ± 0.0	NS
P	*Diphasiastrum complanatum*	Northern Ground-cedar				S3S4	15	5.5 ± 0.0	NS
P	*Diphasiastrum sitchense*	Sitka Ground-cedar				S3S4	2	54.9 ± 1.0	NS
P	*Huperzia appressa*	Mountain Firmoss				S3S4	50	35.7 ± 0.0	NS
P	*Sceptridium multifidum*	Leathery Moonwort				S3S4	15	5.7 ± 0.0	NS
P	*Botrychium matricariifolium*	Daisy-leaved Moonwort				S3S4	11	44.3 ± 10.0	NS
P	*Bidens discoidea*	Swamp Beggarticks				SH	1	59.1 ± 0.0	NS
P	*Viola canadensis*	Canada Violet				SH	1	75.8 ± 0.0	NS
P	*Dichanthelium meridionale*	Matting Witchgrass				SH	1	63.9 ± 10.0	NS

5.1 SOURCE BIBLIOGRAPHY (100 km)

The recipient of these data shall acknowledge the AC CDC 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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95	Epworth, W. 2016. Species at Risk records, 2014-2016. Fort Folly Habitat Recovery Program, 38 recs.
95	McNeil, J.A. 2019. Eastern Painted Turtle trapping records, 2017. Mersey Tobeatic Research Institute.
94	Belliveau, A. 2013. Rare species records from Nova Scotia. Mersey Tobeatic Research Institute, 296 records. 296 recs.
94	NatureServe Canada. 2019. iNaturalist Maritimes Butterfly Records. iNaturalist.org and iNaturalist.ca.
92	Richardson, Leif. 2018. Maritimes Bombus records from various sources. Richardson, Leif.
90	Tims, J. & Craig, N. 1995. Environmentally Significant Areas in New Brunswick (NBESA). NB Dept of Environment & Nature Trust of New Brunswick Inc, 6042 recs. https://doi.org/10.1037/arc0000014.
86	Neily, T.H. 2017. Nova Scotia lichen records. Mersey Tobeatic Research Institute.
80	Hubley, Nicole. 2022. Monarch (Danaus plexippus) records submitted to MTRI from the 2021 field season. Mersey Tobeatic Research Institute.
80	Porter, Caitlin. 2021. Field data for 2020 in various locations across the Maritimes. Atlantic Canada Conservation Data Centre, 3977 records.
79	Herman, T.B. & Power, T.D., Eaton, B. 1995. Population status of Blanding's Turtle (Emydoidea blandingii) in Nova Scotia. Can. Field-Nat., 109: 182-191. 79 recs.
79	McMullin, R.T. 2022. Maritimes lichen records. Canadian Museum of Nature.
78	e-Butterfly. 2016. Export of Maritimes records and photos. Maxim Larrivee, Sambo Zhang (ed.) e-butterfly.org.
76	iNaturalist. 2020. iNaturalist butterfly records selected for the Maritimes Butterfly Atlas. iNaturalist.
76	Parks Canada. 2021. Species at Risk observations from 2019-2020 in Kejimkujik National Park and Historic Site. Parks Canada, 76 records.
75	Benjamin, L.K. (compiler). 2001. Significant Habitat & Species Database. Nova Scotia Dept of Natural Resources, 15 spp, 224 recs.
74	Brazner, John; MacKinnon, Frances. 2020. Relative conservation value of Nova Scotia's forests: forested wetlands as avian biodiversity hotspots. Canadian Journal of Forest Research, 50(12): 1307-1322. dx.doi.org/10.1139/cjfr-2020-0101.
71	Blaney, C.S. 2019. Sean Blaney 2019 field data. Atlantic Canada Conservation Data Centre, 4407 records.
70	Birds Canada. 2022. Maritimes Swiftwatch project data for 2022. Pers. comm., 155 records.
70	McNeil, J.A. 2019. Snapping Turtle records, 2019. Mersey Tobeatic Research Institute.
70	Roland, A.E. & Smith, E.C. 1969. The Flora of Nova Scotia, 1st Ed. Nova Scotia Museum, Halifax, 743pp.
68	McNeil, J.A. 2017. Updates to Blanding's Turtle database, 1984-2014. Mersey Tobeatic Research Institute.
65	Cameron, R.P. 2009. Cyanolichen database. Nova Scotia Environment & Labour, 1724 recs.
64	Klymko, John. 2022. Atlantic Canada Conservation Data Centre zoological fieldwork 2021. Atlantic Canada Conservation Data Centre.
64	Zinck, M. & Roland, A.E. 1998. Roland's Flora of Nova Scotia. Nova Scotia Museum, 3rd ed., rev. M. Zinck; 2 Vol., 1297 pp.
63	McNeil, J.A. 2013. Ribbonsnake (Thamnophis sauritus) sightings, 2012 . Parks Canada, 63 records of 26+ individuals.
63	Roland, A.E. 1976. The Coastal Plain Flora of Kejimkujik National Park. Parks Canada Report, 238 pp.
62	Blaney, C.S; Korol, J.B.; Crowell, I. 2023. 2022 AC CDC Botany program field data. Atlantic Canada Conservation Data Centre, 5293 records.
61	Blaney, C.S. 2017. Atlantic Canada Conservation Data Centre Fieldwork 2017. Atlantic Canada Conservation Data Centre.
60	Benedict, B. Connell Herbarium Specimens (Data) . University New Brunswick, Fredericton. 2003.
60	Bryson, I.C. 2020. Nova Scotia flora and lichen observations 2020. Nova Scotia Environment, 139 recs.
60	McLean, K. 2020. Species occurrence records from Clean Annapolis River Project fieldwork in 2020. Clean Annapolis River Project, 206 records.
59	Staicer, C. & Bliss, S.; Achenbach, L. 2017. Occurrences of tracked breeding birds in forested wetlands. , 303 records.
56	Bagnell, B.A. 2001. New Brunswick Bryophyte Occurrences. B&B Botanical, Sussex, 478 recs.
54	Blaney, C.S. 2000. Fieldwork 2000. Atlantic Canada Conservation Data Centre. Sackville NB, 1265 recs.
54	LaPaix, R.W.; Crowell, M.J.; MacDonald, M.; Neily, T.D.; Quinn, G. 2017. Stantec Nova Scotia rare plant records, 2012-2016. Stantec Consulting.
54	Layberry, R.A. & Hall, P.W., LaFontaine, J.D. 1998. The Butterflies of Canada. University of Toronto Press. 280 pp+plates.
53	Churchill, J.L. 2020. Atlantic Canada Conservation Data Centre Fieldwork 2020. Atlantic Canada Conservation Data Centre, 1083 recs.

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53	Neily, T.H. & Pepper, C.; Toms, B. 2018. Nova Scotia lichen database [as of 2018-03]. Mersey Tobeatic Research Institute.
52	Belliveau, A.G., Churchill, J.L. 2019. Compilation of flora and fauna observation records from Isle Haute, Nova Scotia. Acadia University; Atlantic Canada Conservation Data Centre, 522 recs.
52	Cowie, F. 2007. Electrofishing Population Estimates 1979-98. Canadian Rivers Institute, 2698 recs.
52	Richardson, D., Anderson, F., Cameron, R, McMullin, T., Clayden, S. 2014. Field Work Report on Black Foam Lichen (Anzia colpodes). COSEWIC.
50	Neily, T.H. 2019. Tom Neily NS Bryophyte records (2009-2013). T.H. Neily, Atlantic Canada Conservation Data Centre, 1029 specimen records.
47	Feltham, Carter. 2022. Monarch (Danaus plexippus) and Milkweed MTRI records from the 2022 Field Season. Mersey Tobeatic Research Institute.
47	Neily, T.H. & Pepper, C.; Toms, B. 2020. Nova Scotia lichen database [as of 2020-03-18]. Mersey Tobeatic Research Institute.
46	Blaney, C.S. 2018. Atlantic Canada Conservation Data Centre Fieldwork 2018. Atlantic Canada Conservation Data Centre.
45	Bayne, D.M. 2007. Atlantic Coastal Plain Flora record, 2004-06. Nova Scotia Nature Trust. Pers. comm. to C.S. Blaney, 57 recs.
45	MacDonald, E.C. 2018. Piping Plover nest records from 2010-2017. Canadian Wildlife Service.
44	McLean, K. 2019. Wood Turtle observations . Clean Annapolis River Project.
40	Cameron, E. 2007. Canadian Gypsum Co. survey 2005-07. Dillon Consulting Ltd, 40 recs.
38	Mazerolle, D.M. 2020. Atlantic Canada Conservation Data Centre botanical fieldwork 2019. Atlantic Canada Conservation Data Centre.
38	Sollows, M.C. 2009. NBM Science Collections databases: molluscs. New Brunswick Museum, Saint John NB, download Jan. 2009, 6951 recs (2957 in Atlantic Canada).
37	Newell, R.E. 2019. Crocanthemum canadense records compiled for provincial status report. pers. comm. from Ruth Newell to AC CDC.
36	McNeil, J.A. 2017. Eastern Ribbonsnake (Thamnophis sauritus) sightings, 2017. Mersey Tobeatic Research Institute, 36 recs.
36	Tsehtik, M.; Leblanc, M.; Creaser, T. 2020. Coastal Action: 2020 Species at Risk Data. Coastal Action, 40 records.
35	Benjamin, L.K. 2012. NSDNR fieldwork & consultant reports 2008-2012. Nova Scotia Dept Natural Resources, 196 recs.
35	Blaney, C.S.; Spicer, C.D.; Popma, T.M.; Hanel, C. 2002. Fieldwork 2002. Atlantic Canada Conservation Data Centre. Sackville NB, 2252 recs.
35	East Coast Aquatics Inc. 2021. Species at Risk records from Spicer North Mountain Quarry Expansion Environmental Assessment. East Coast Aquatics, 44 records.
35	Roland, A.E. 1980. Checklist of Vascular Plants of Kejimkujik National Park in Lichens, Liverworts, Mosses and Flowering Plants of Kejimkujik National Park. Roland, A.E. (ed.) Parks Canada Report, pp. 52-140, 160 pp.
34	Blaney, C.S.; Spicer, C.D.; Rothfels, C. 2004. Fieldwork 2004. Atlantic Canada Conservation Data Centre. Sackville NB, 1343 recs.
33	LaPaix, Rich. 2022. Rare species observations, 2018-2022. Nova Scotia Nature Trust.
33	McNeil, J.A. 2018. Wood Turtle records, 2018. Mersey Tobeatic Research Institute, 68 recs.
33	Mersey Tobetic Research Institute. 2021. 2020 Monarch records from the MTRI monitoring program. Mersey Tobetic Research Institute, 72 records.
32	Atlantic Canada Conservation Data Centre. 2020. Cape LaHave Island observations from August 2020. Atlantic Canada Conservation Data Centre, 605 records.
32	Klymko, J.J.D. 2018. 2017 field data. Atlantic Canada Conservation Data Centre.
31	Blaney, C.S.; Spicer, C.D. 2001. Fieldwork 2001. Atlantic Canada Conservation Data Centre. Sackville NB, 981 recs.
31	Jobin, C. & Clow, A., Van Dijk, J. 2019. Eastern Waterfan data, Mount Allison Fundy Field Camp 2019. Chapman, C.J. (ed.) Fundy National Park and Mount Allison University, 31 recs.
30	Amirault, D.L. & McKnight, J. 2003. Piping Plover Database 1991-2003. Canadian Wildlife Service, Sackville, unpublished data. 7 recs.
30	Frittaion, C. 2012. NSNT 2012 Field Observations. Nova Scotia Nature Trust, Pers comm. to S. Blaney Feb. 7, 34 recs.
30	Phinney, L. 2019. Little Brown Myotis maternal colony counts and birdSAR, 2019. Mersey Tobeatic Research Institute.
28	Blaney, C.S. 2003. Fieldwork 2003. Atlantic Canada Conservation Data Centre. Sackville NB, 1042 recs.
27	McAlpine, D.F. New Brunswick Museum bee specimens. New Brunswick Museum. 2013.
26	Benedict, B. Connell Herbarium Specimen Database Download 2004. Connell Memorial Herbarium, University of New Brunswick. 2004.
26	Erskine, A.J. 1999. Maritime Nest Records Scheme (MNRS) 1937-1999. Canadian Wildlife Service, Sackville, 313 recs.
26	McLean, K. 2020. Wood Turtle observations . Clean Annapolis River Project.
25	Burnie, B. 2013. 2013 Scirpus longii field data. Mount Saint Vincent University, 51 recs.
25	Honeyman, K. 2019. Unique Areas Database, 2018. J.D. Irving Ltd.
25	Kennedy, Joseph. 2010. New Brunswick Peregrine records, 2009. New Brunswick Dept Natural Resources, 19 recs (14 active).
25	McNeil, J.A. 2019. Snapping Turtle records, 2017. Mersey Tobeatic Research Institute.
24	Bayne, D.M., Cameron, R.C. 2014. 2014 Lichen records near Little Bon Mature Lake, Queens NS. NS Department of Natural Resources.
24	Belliveau, A.G. 2021. New Black ash site records near Kentville, NS. Acadia University, 47 records.
24	Broders, H.G. 2006. Unpublished data. , 24 recs.
24	Patrick, A.; Horne, D.; Noseworthy, J. et. al. 2017. Field data for Nova Scotia and New Brunswick, 2015 and 2017. Nature Conservancy of Canada.
24	Speers, L. 2008. Butterflies of Canada database: New Brunswick 1897-1999. Agriculture & Agri-Food Canada, Biological Resources Program, Ottawa, 2048 recs.
23	Haughian, Sean. 2021. Update to lichen data from 2017-2021. Nova Scotia Museum.
23	Hinds, H.R. 1986. Notes on New Brunswick plant collections. Connell Memorial Herbarium, unpubl, 739 recs.
23	McLean, K. 2019. Species At Risk observations. Clean Annapolis River Project.
22	Breen, A. 2018. 2018 Atlantic Whitefish observations. Coastal Action.
22	Klymko, J.J.D.; Robinson, S.L. 2012. 2012 field data. Atlantic Canada Conservation Data Centre, 447 recs.
22	Nelly, T.H. 2006. Cypripedium arietinum in Hants Co. Pers. comm. to C.S. Blaney. 22 recs, 22 recs.
21	Envirosphere Consultants Ltd., Strum. 2023. SAR records from three Environmental Assessments in Nova Scotia. Envirosphere Consultants Ltd., Strum, 48 records.
21	MacKinnon, D.S. & O'Brien, M.K.H.; Cameron, R.P. 2002. Fieldwork 2000. Dept of Environment & Labour, Protected Areas Branch, 252 recs.
21	Riley, J. 2023. Rare and at Risk lichens and plants near Goldsmith Lake, NS. Pers. comm. to J.L. Churchill.
20	MacDonald, E.C. 2018. CWS Piping Plover Census, 2010-2017. Canadian Wildlife Service, 672 recs.
20	O'Grady, Sally. 2010. Water Pennywort in Kejimkujik National Park, 2010. Parks Canada, 20 shapefiles.
20	Richardson, D., Anderson, F., Cameron, R, Pepper, C., Clayden, S. 2015. Field Work Report on the Wrinkled Shingle lichen (Pannaria lurida). COSEWIC.

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19	Ferguson, D.C. 1954. The Lepidoptera of Nova Scotia. Part I, macrolepidoptera. Proceedings of the Nova Scotian Institute of Science, 23(3), 161-375.
19	Neily, T.H. & Pepper, C.; Toms, B. 2020. Nova Scotia lichen database [as of 2020-05-25]. Mersey Tobeatic Research Institute, 668 recs.
19	NS DNR. 2017. Black Ash records from NS DNR Permanent Sample Plots (PSPs), 1965-2016. NS Dept of Natural Resources.
19	Porter, C.J.M. 2014. Field work data 2007-2014. Nova Scotia Nature Trust, 96 recs.
19	Thomas, A.W. 1996. A preliminary atlas of the butterflies of New Brunswick. New Brunswick Museum.
18	Basquill, S.; Sam, D. 2019. Crocanthemum canadense observations near Greenwood, NS, 2015-2019. pers. commun. from Nova Scotia Department of Lands and Forestry to AC CDC, 18 recs.
18	Basquill, S.P. 2003. Fieldwork 2003. Atlantic Canada Conservation Data Centre, Sackville NB, 69 recs.
18	Basquill, S.P., Porter, C. 2019. Bryophyte and lichen specimens submitted to the E.C. Smith Herbarium. NS Department of Lands and Forestry.
18	Benjamin, L.K. 2011. NSDNR fieldwork & consultant reports 1997, 2009-10. Nova Scotia Dept Natural Resources, 85 recs.
18	Chapman, C.J. 2018. Atlantic Canada Conservation Data Centre botanical fieldwork 2018. Atlantic Canada Conservation Data Centre, 11171 recs.
18	Epworth, W. 2012. Species at Risk records, 2009-11. Fort Folly Habitat Recovery Program, 162 recs.
17	Anderson, Frances; Neily, Tom. 2010. A Reconnaissance Level Survey of Calciphilous Lichens in Selected Karst Topography in Nova Scotia with Notes on Incidental Bryophytes. Mersey Tobeatic Research Institute.
17	Haughian, S.R. 2018. Description of Fuscopannaria leucosticta field work in 2017. New Brunswick Museum, 314 recs.
17	Manthorne, A. 2019. Incidental aerial insectivore observations. Birds Canada.
17	Nature Conservancy of Canada. 2022. NCC Field data for Nova Scotia. Nature Conservancy of Canada.
16	Holder, M. 2003. Assessment and update status report on the Eastern Lilaeopsis (Lilaeopsis chinensis) in Canada. Committee on the Status of Endangered Wildlife in Canada, 16 recs.
16	Hunsinger, J. 2021. Species at Risk records from Medway Community Forest Cooperative monitoring plots and baited game cameras, 2019-2020. Medway Community Forest Cooperative, 16 records.
16	Klymko, J.J.D.; Robinson, S.L. 2014. 2013 field data. Atlantic Canada Conservation Data Centre.
16	Nussey, Pat & NCC staff. 2019. AEI tracked species records, 2016-2019. Chapman, C.J. (ed.) Atlantic Canada Conservation Data Centre, 333.
16	Wallace, Shaylyn. 2023. Painted Turtle and Snapping Turtle records since 2015. New Brunswick Department of Energy and Resource Development.
15	Basquill, S.P. 2011 vascular plant field data. Nova Scotia Department of Natural Resources, 37 recs.
15	Cameron, R.P. 2018. Degelia plumbea records. Nova Scotia Environment.
15	Cowie, Faye. 2007. Surveyed Lakes in New Brunswick. Canadian Rivers Institute, 781 recs.
15	Klymko, J.J.D. 2012. Odonata specimens & observations, 2010. Atlantic Canada Conservation Data Centre, 425 recs.
15	Oldham, M.J. 2000. Oldham database records from Maritime provinces. Oldham, M.J; ONHIC, 487 recs.
14	Blaney, C.S.; Mazerolle, D.M. 2011. Fieldwork 2011. Atlantic Canada Conservation Data Centre. Sackville NB.
14	McNeil, J.A. 2018. Snapping Turtle records, 2018. Mersey Tobeatic Research Institute.
14	Neily, T.H. 2013. Email communication to Sean Blaney regarding Listera australis observations made from 2007 to 2011 in Nova Scotia. , 50.
14	New Brunswick Department of Natural Resources and Energy Development. 2023. Wood turtle records from 2016-2021. New Brunswick Department of Natural Resources and Energy Development, 637 records.
14	Pepper, C. 2013. 2013 rare bird and plant observations in Nova Scotia. , 181 records.
13	Blaney, C.S.; Spicer, C.D.; Mazerolle, D.M. 2005. Fieldwork 2005. Atlantic Canada Conservation Data Centre. Sackville NB, 2333 recs.
13	G.Proulx, R. Newell, A. Mills, D. Bayne. 2018. Selaginella rupestris records, Digby Co. Nova Scotia Lands and Forestry, 1387601 recs.
13	MacKinnon, D.S. 1998. Ponhook Lake survey map & notes. Dept of Environment and Labour, Protected Areas Branch, 13 recs.
13	Nova Scotia Nature Trust. 2014. Ladyslipper records from Saint Croix Nova Scotia, JLC Ed. Nova Scotia Nature Trust.
13	Wilhelm, S.I. et al. 2019. Colonial Waterbird Database. Canadian Wildlife Service.
12	Askanas, H. 2016. New Brunswick Wood Turtle Database. New Brunswick Department of Energy and Resource Development.
12	Basquill, S.P. 2012. 2012 rare vascular plant field data. Nova Scotia Department of Natural Resources, 37 recs.
12	Caissie, A. Herbarium Records. Fundy National Park, Alma NB. 1961-1993.
12	Hill, N.M. 2021. Observation of Carex haydenii and black ash near Marshy Hope and Ponhook Lake. pers. comm.
12	McAlpine, D.F. 1998. NBM Science Collections: Wood Turtle records. New Brunswick Museum, Saint John NB, 329 recs.
12	Sabine, D.L. Bombus terricola specimens in Dwayne Sabine's personal collection. pers. comm. 2022.
12	Sollows, M.C. 2008. NBM Science Collections databases: herpetiles. New Brunswick Museum, Saint John NB, download Jan. 2008, 8636 recs.
12	Toms, Brad. 2011. Species at Risk data from 2011 field surveys. Mersey Tobeatic Research Institute, 17 recs.
12	Tranquilla, L. 2015. Maritimes Marsh Monitoring Project 2015 data. Bird Studies Canada, Sackville NB, 5062 recs.
12	Wissink, R. 2000. Rare Plants of Fundy: maps. Parks Canada, 20 recs.
11	Adams, J. & Herman, T.B. 1998. Thesis, Unpublished map of C. insculpta sightings. Acadia University, Wolfville NS, 88 recs.
11	Blaney, C.S. & Mazerolle, D.M. 2011. Field data from NCC properties at Musquash Harbour NB & Goose Lake NS. Atlantic Canada Conservation Data Centre, 1739 recs.
11	Bryson, I. 2020. Nova Scotia and Newfoundland rare species observations, 2018-2020. Nova Scotia Environment.
11	Canadian Wildlife Service, Dartmouth. 2010. Piping Plover censuses 2007-09, 304 recs.
11	Clayden, S.R. 2005. Confidential supplement to Status Report on Ghost Antler Lichen (Pseudevernia cladonia). Committee on the Status of Endangered Wildlife in Canada, 27 recs.
11	Doucet, D.A. 2008. Fieldwork 2008: Odonata. ACCDC Staff, 625 recs.
11	Downes, C. 1998-2000. Breeding Bird Survey Data. Canadian Wildlife Service, Ottawa, 111 recs.
11	e-Butterfly. 2018. Selected Maritimes butterfly records from 2016 and 2017. Maxim Larrivee, Sambo Zhang (ed.) e-butterfly.org.
11	Hall, R.A. 2001. S.. NS Freshwater Mussel Fieldwork. Nova Scotia Dept Natural Resources, 178 recs.
11	Hall, R.A. 2003. NS Freshwater Mussel Fieldwork. Nova Scotia Dept Natural Resources, 189 recs.
11	Holder, M.L.; Kingsley, A.L. 2000. Kinglsey and Holder observations from 2000 field work.
11	Kennedy, Bob. 2021. Results of Oct 15 & 16 Field Trip. Nova Scotia Wild Flora Society.
11	LaPaix, R.W.; Crowell, M.J.; MacDonald, M. 2011. Stantec rare plant records, 2010-11. Stantec Consulting, 334 recs.
11	Neily, T.H. & Pepper, C.; Toms, B. 2013. Nova Scotia lichen location database. Mersey Tobeatic Research Institute, 1301 records.

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11	Nova Scotia Nature Trust. 2013. Nova Scotia Nature Trust 2013 Species records. Nova Scotia Nature Trust, 95 recs.
11	Ogden, K. Nova Scotia Museum butterfly specimen database. Nova Scotia Museum. 2017.
10	Belliveau, A.G. & Vail, Cole; King, Katie. 2020. New Allium tricoccum locations, Cornwallis River. Chapman, C.J. (ed.) Acadia University.
10	Benjamin, L.K. 2009. Boreal Felt Lichen, Mountain Avens, Orchid and other recent records. Nova Scotia Dept Natural Resources, 105 recs.
10	Bredin, K.A. 2001. WTF Project: Freshwater Mussel Fieldwork in Freshwater Species data. Atlantic Canada Conservation Data Centere, 101 recs.
10	Nature Trust of New Brunswick. 2022. Nature Trust of New Brunswick 2022 staff and volunteer observations of species occurence data. Nature Trust of New Brunswick.
10	Neily, T. H. 2018. Lichen and Bryophyte records, AEI 2017-2018. Tom Neily; Atlantic Canada Conservation Data Centre.
10	Parker, M.S.R. 2011. Hampton Wind Farm 2010: significant floral/faunal observations. , 13 recs.
10	Phinney, Lori; Toms, Brad; et. al. 2016. Bank Swallows (Riparia riparia) in Nova Scotia: inventory and assessment of colonies. Merset Tobeiatc Research Institute, 25 recs.
9	Blaxley, Megan; Vinson, Neil. 2020. Peltigera hydrothyria records from a tributary of Lake Brook, Fundy National Park. Chapman-Lam, Colin J. (ed.) Fundy National Park, 9.
9	Brunelle, P.-M. (compiler). 2010. ADIP/MDDS Odonata Database: NB, NS Update 1900-09. Atlantic Dragonfly Inventory Program (ADIP), 935 recs.
9	Edsall, J. 2007. Personal Butterfly Collection: specimens collected in the Canadian Maritimes, 1961-2007. J. Edsall, unpubl. report, 137 recs.
9	Hinds, H.R. 1999. Connell Herbarium Database. University New Brunswick, Fredericton, 131 recs.
9	McAlpine, D.F. 1983. Status & Conservation of Solution Caves in New Brunswick. New Brunswick Museum, Publications in Natural Science, no. 1, 28pp.
9	Munro, Marian K. Nova Scotia Provincial Museum of Natural History Herbarium Database. Nova Scotia Provincial Museum of Natural History, Halifax, Nova Scotia. 2014.
9	Pepper, C. 2021. Rare bird, plant and mammal observations in Nova Scotia, 2017-2021.
9	Sabine, D.L. 2005. 2001 Freshwater Mussel Surveys. New Brunswick Dept of Natural Resources & Energy, 590 recs.
9	Sollows, M.C,. 2009. NBM Science Collections databases: Coccinellid & Cerambycid Beetles. New Brunswick Museum, Saint John NB, download Feb. 2009, 569 recs.
8	Basquill, S.P. 2009. 2009 field observations. Nova Scotia Dept of Natural Resources.
8	Cameron, R.P. 2009. Nova Scotia nonvascular plant observations, 1995-2007. Nova Scotia Dept Natural Resources, 27 recs.
8	Canadian National Collection of Insects Arachnids, and Nematodes Bombus specimen database export. Government of Canada. 2022.
8	Goltz, J.P. 2012. Field Notes, 1989-2005. , 1091 recs.
8	Hinds, H.R. 1992. Rare Vascular Plants of Fundy National Park. , 10 recs.
8	King, Katie; Jean, Samuel. 2021. Black ash observations near Booklyn, NS. E.C. Smith Herbarium.
8	Klymko, J. 2019. Atlantic Canada Conservation Data Centre zoological fieldwork 2018. Atlantic Canada Conservation Data Centre.
8	McAlpine, D.F. 1998. NBM Science Collections databases to 1998. New Brunswick Museum, Saint John NB, 241 recs.
8	Voscort, L. Bombus terricola specimens collected during MSc research in southwestern Nova Scotia. Acadia University. 2022.
8	Wissink, R. 2006. Fundy National Park Digital Database. Parks Canada, 41 recs.
7	Blaney, C.S.; Mazerolle, D.M.; Klymko, J; Spicer, C.D. 2006. Fieldwork 2006. Atlantic Canada Conservation Data Centre. Sackville NB, 8399 recs.
7	Boyne, A.W. & Grecian, V.D. 1999. Tern Surveys. Canadian Wildlife Service, Sackville, unpublished data. 23 recs.
7	Kennedy, B.; Cron, C. 2019. observations of Poison Sumac andButtonbush, Nova Scotia. pers. commun to AC CDC.
7	Kennedy, Joseph. 2010. New Brunswick Peregrine records, 2010. New Brunswick Dept Natural Resources, 16 recs (11 active).
7	Ogden, J. NS DNR Butterfly Collection Dataset. Nova Scotia Department of Natural Resources. 2014.
7	Sollows, M.C. Export of New Brunswick Museum butterfly records for the Maritimes provinces. New Brunswick Museum. 2016.
7	Tingley, S. (compiler). 2001. Butterflies of New Brunswick. , Web site: www.geocities.com/Yosemite/8425/buttrfly. 142 recs.
6	Benjamin, L.K. 2006. Cypripedium arietinum. Pers. comm. to D. Mazerolle. 9 recs, 9 recs.
6	Brazner, J.; Hill, N. 2018. Plant observations along the Cornwallis River, Nova Scotia. Nova Scotia Department of Lands and Forestry.
6	Bredin, K.A. 2002. NS Freshwater Mussel Fieldwork. Atlantic Canada Conservation Data Centere, 30 recs.
6	Cameron, R.P. 2013. 2013 rare species field data. Nova Scotia Department of Environment, 71 recs.
6	Catling, P.M. 1981. Taxonomy of autumn-flowering Spiranthes species of southern Nova Scotia in Can. J. Bot. , 59:1250-1273. 30 recs.
6	Chaput, G. 2002. Atlantic Salmon: Maritime Provinces Overview for 2001. Dept of Fisheries & Oceans, Atlantic Region, Science Stock Status Report D3-14. 39 recs.
6	Matthew Smith. 2010. Field trip report from Avon Caving Club outlining the discovery of Cyrpipedium arietinum and Hepatica nobilis populations. Public Works and Government Services Canada.
6	McMullin, Troy. 2021. Anzia colpodes observations near Kejimkujik National Park. Canadian Museum of Nature.
6	Nova Scotia Nature Trust. 2022. Ram's Head Lady Slipper observations from 2015 and 2019. , 6 records.
6	Patrick, Allison. 2021. Animal and plant records from NCC properties from 2019 and 2020. Nature Conservancy Canada.
6	Popma, T.M. 2003. Fieldwork 2003. Atlantic Canada Conservation Data Centre. Sackville NB, 113 recs.
6	Riley, Johnathan. 2023. Wisqoq north of Kejimkujik National Park. Pers. comm. Municipality of the District of Digby, 6 records.
6	Rock, J. 2020. Atlantic Canada Piping Plover field surveys: Nesting pairs by beach, 2018-2020. Environment and Climate Change Canada - Canadian Wildlife Service, 216 records.
6	Speers, L. 2001. Butterflies of Canada database. Agriculture & Agri-Food Canada, Biological Resources Program, Ottawa, 190 recs.
6	Toms, Brad. 2022. Non-Lichen Observations from Lichen SMP and NCC Property Searches. Mersey Tobeatic Research Institute.
5	Belliveau, A. 2013. email to Sean Blaney regarding Listera australis observations in SW Nova Scotia. Mersey Tobeatic Research Institute, 8.
5	Carter, Jeff; Churchill, J.; Churchill, I.; Churchill, L. 2020. Bank Swallow colony Scots Bay, NS. Atlantic Canada Conservation Data Centre.
5	Christie, D.S. 2000. Christmas Bird Count Data, 1997-2000. Nature NB, 54 recs.
5	Goltz, J.P. & Bishop, G. 2005. Confidential supplement to Status Report on Prototype Quillwort (Isoetes prototypus). Committee on the Status of Endangered Wildlife in Canada, 111 recs.
5	Klymko, J. Butterfly records at the Nova Scotia Museum not yet accessioned by the museum. Atlantic Canada Conservation Data Centre. 2017.
5	Majka, C.G. & McCorquodale, D.B. 2006. The Coccinellidae (Coleoptera) of the Maritime Provinces of Canada: new records, biogeographic notes, and conservation concerns. Zootaxa. Zootaxa, 1154: 49–68. 7 recs.
5	McKendry, Karen. 2016. Rare species observations, 2016. Nova Scotia Nature Trust, 19 recs.
5	Neily, T.H. Tom Neily NS Sphagnum records (2009-2014). T.H. Neily, Atlantic Canada Conservation Data Centre. 2019.
5	Pohl, G.P. Specimen data from Northern Forest Research Centre. Northern Forest Research Centre. 2022.

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5	Whittam, R.M. 1999. Status Report on the Roseate Tern (update) in Canada. Committee on the Status of Endangered Wildlife in Canada, 36 recs.
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