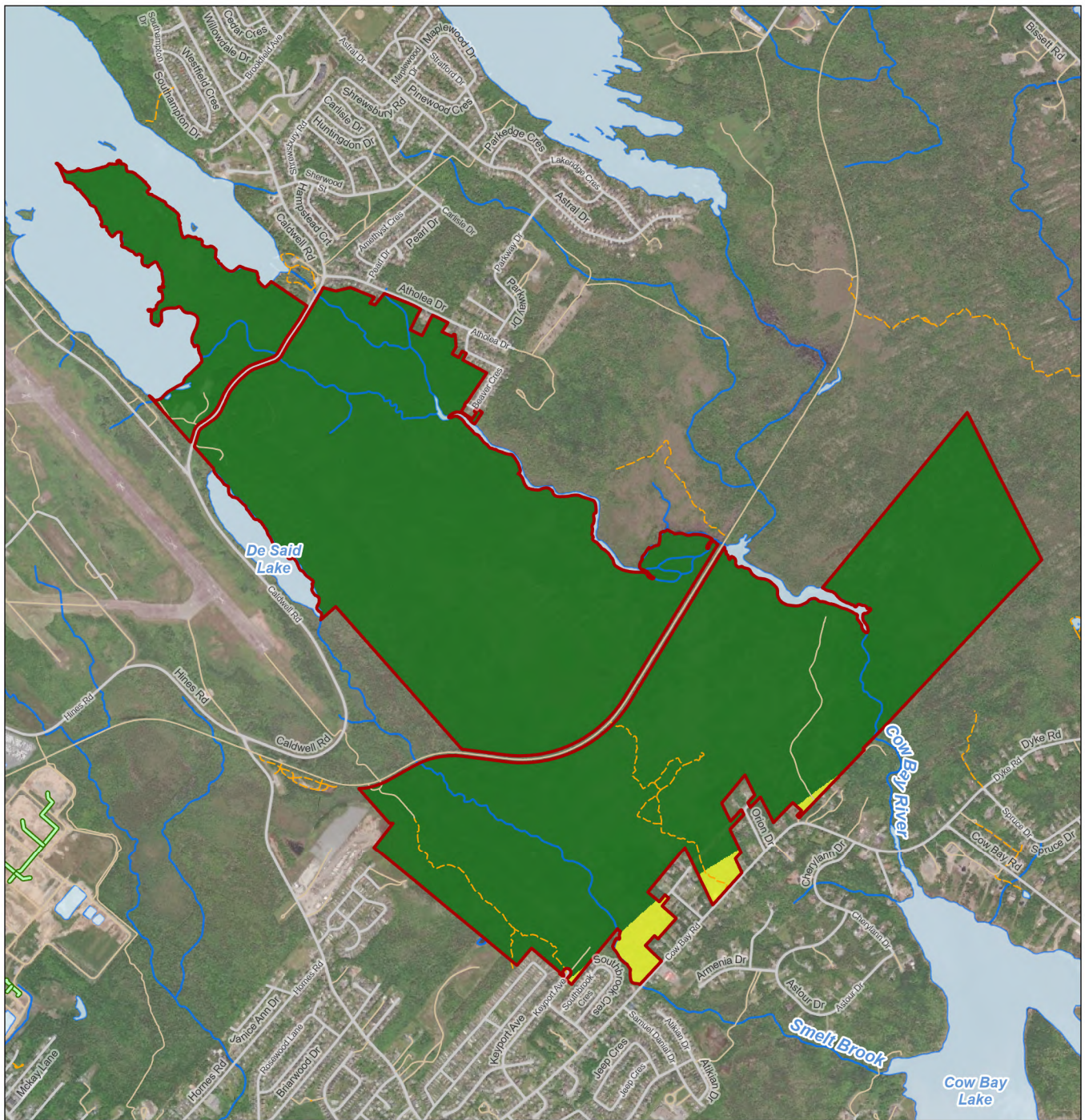




Notes

1. Coordinate System: NAD 1983 CSRS UTM Zone 20N
2. Data Sources: Stantec; Government of Nova Scotia, Department of Service Nova Scotia and Internal Services
3. Background: Government of Nova Scotia, Department of Service Nova Scotia and Internal Services

Study Area

Land Suitability Score

- 3
- 2
- 1

Transportation

- Road
- Resource / Seasonal Road
- Trail

Utilities

- Pipeline

Other Features

- Waterway
- Waterbody

0 250 500 Metres
(At original document size of 8.5x11)
1:25,000



Project Location
Halifax Regional Municipality,
Nova Scotia

Prepared by NWhite on 2024-03-08
Revised by NWhite on 2024-05-17

Client/Project
Halifax Regional Municipality
Future Serviced Communities
Background Studies

Fig ID: 160410459_032

Figure No.

3.14

Title

**Geology Land Suitability Analysis -
MLSA**

3.7 Topography

Stantec processed LiDAR data provided by HRM to classify slopes within the MLSA. This was primarily a desktop exercise using ESRI ArcMAP, with considerations from the field (field crews noted any significant slopes along watercourses and wetlands).

3.7.1 LAND SUITABILITY ANALYSIS – TOPOGRAPHY

Steep slopes can be associated with environmental features such as rock outcrops, shallow soils, and groundwater springs. These features can have various impacts on development planning including surface water flow, water quality, erosion, and sediment patterns. These factors also influence microclimate which contributes to vegetation growth and succession. These unique features can also provide niche habitat for SAR, specifically bank swallows and bats.

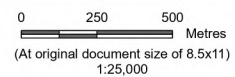
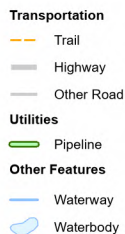
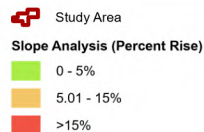
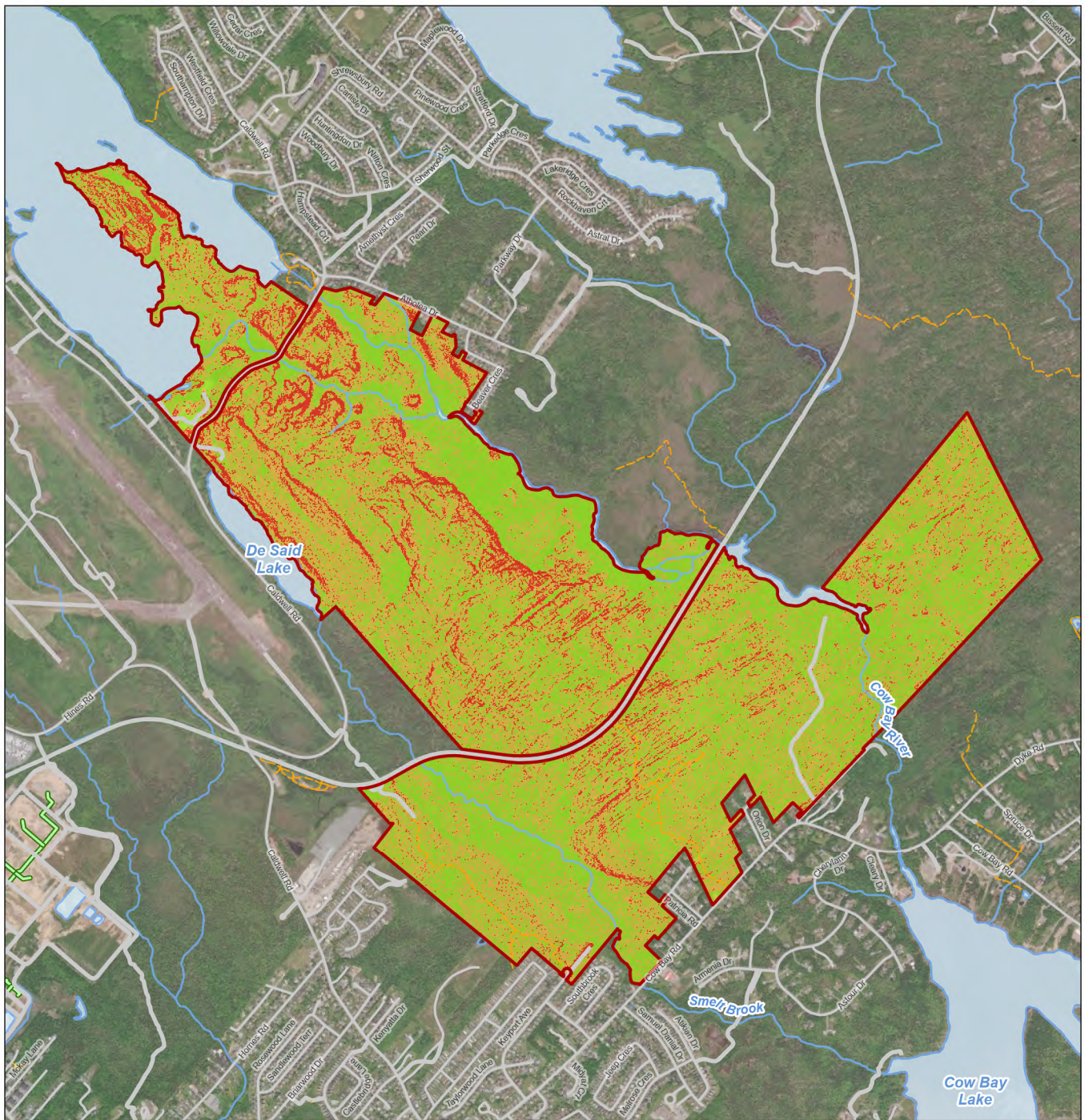
For this land suitability analysis, steeper slopes were ranked as the lowest priority for potential development while the relatively flatter topography is ranked higher for potential development (Table 3.18). Slopes have been classified into three categories based on their percent rise: 0%-5%, 5.01%-15% and >15%. Slope mapping can be found below in Figure 3.15.

Slope is only one of many factors that must be considered when evaluating land suitability for development. The current assessment of topography is based primarily on a desktop review of available provincial mapping, and does not purport to be definitive regarding development risks and opportunities. Stantec recommends a slope review be conducted prior to finalizing consultation planning.

Table 3.18 Topography – Land Suitability Ranking Framework

Layer	Land Suitability Ranking		
	1 - Low suitability for development	2 - Moderate suitability for development	3 - Higher suitability for development
Slope	>15%	5.01%-15%	0%-5%





Project Location
Halifax Regional Municipality,
Nova Scotia

Prepared by IPodrug on 2023-11-09
Revised by NWhite on 2024-05-17

Client/Project
Halifax Regional Municipality
Future Serviced Communities
Background Studies

Figure No.
3.15

Title
**Slope Land Suitability Analysis -
Morris Lake Expansion**

Notes

1. Coordinate System: NAD 1983 CSRS UTM Zone 20N
2. Data Sources: Government of Nova Scotia, Department of Service Nova Scotia and Internal Services
3. Background: Government of Nova Scotia, Department of Service Nova Scotia and Internal Services

3.8 Contaminated Sites

Stantec conducted a contaminated sites review of the MLSA. The purpose of the review was to assess if evidence of potential or actual environmental contamination exists in connection with the Study Area, because of current or past activities on the Study Area or neighboring properties.

3.8.1 METHODOLOGY

The contaminated sites review consisted of the following:

- records review including, but not limited to, aerial photographs, LiDAR imagery
- provincial government regulatory search for the Study Area
- a site visit (relevant features were recorded during the wetland delineation; a site visit specifically to document potential environmental contamination concerns was not completed)
- evaluation of information

The review does not include sampling or testing of air, soil, groundwater, surface water or building materials. Nor does it include a review or audit of operational environmental compliance issues, or of any environmental management systems, which may exist for the Study Area.

Desktop mapping and field verification for the Study Area took place in spring/summer 2023. Stantec field staff documented the location of sites that exhibited characteristics of contamination as well as incidental evidence of anthropogenic activities (e.g., illegal dumping, camp sites). Existing structures were not accessed, and private properties occupied and unoccupied were not evaluated in the field. The Study Area and readily visible and publicly accessible portions of adjoining and neighboring properties were examined for the presence of potential sources of environmental contamination. No interviews were conducted with persons associated with the Study Area.

3.8.2 DESKTOP REVIEW

Aerial Photography / LiDAR Review

The MLSA is located within HRM boundaries in Halifax County, Nova Scotia. The Study Area includes a variety of users including residential properties adjacent to the Study Area along Cow Bay Road and Atholea Drive, Morris Lake East Holdings owned undeveloped lands, utility corridors, and the Shearwater Flyer Trail.

From at least 1931 Caldwell Road and the Canada National Railway (The Musquodoboit Railway, officially known as the Dartmouth Subdivision) were present cutting through the Study Area. In the 1931, 1945, and 2002 aerial photographs showed that the Study Area was treed and undeveloped. In 1945/47 a small, cleared area was noted in the area of Property Identifier (PID) 40852592. The Railway was abandoned in 1983 and converted to a recreational path (Shearwater Flyer Trail) in the early 1990s. LiDAR imagery review did not reveal features (pits or piles) of note.



**HALIFAX REGIONAL MUNICIPALITY – FUTURE SERVICED COMMUNITIES
FINAL REPORT – VOLUME 5: MORRIS LAKE STUDY AREA REPORT – LAND SUITABILITY
ANALYSIS**

The following concerns regarding potential environmental contamination issues were noted:

- Evidence of human activity on PID 40852592 in 1940s.
- The presence of a railway crosscutting the southern portion of the Study Area.

Regulatory Request

NSECC was queried for information about the MLSA and received NSECC's Environmental Registry response. The information is summarized below and will be appended to the final report.

Regulatory Infractions Search: NSECC has provided no records of infractions for the Study Area.

Environmental Investigations: Information pertaining to site assessments, risk assessments, remedial work or other environmental investigations registered with NSECC for the Study Area are available only through "Freedom of Information" requests which require a ninety-day turn-around time. Ms. Tina Skeir of NSECC indicated the following files requiring a "Freedom of Information and Protection of Privacy" (FOIPOP) request were on file for the following properties, which fall within the boundary of the Study Area:

- A subdivision file (file #96000-32-AMH-2021-2813907) pertaining to 0 Orion Drive, Eastern Passage.

These FOIPOP records may provide additional information relevant to the proposed development of the MLSA.

Tank Registrations: No tanks were registered to the Study Area based on information provided from the NSECC Petroleum Storage Tank Registry.

Other:

- Orion Drive, Eastern Passage (PID 40127649):

Application for Approval for the Rayken Subdivision located on the southeastern portion of the site.

Construction and installation of an on-site sewage disposal system to service a single unit residential structure with a design flow of 1000 liters per day at PID 40127649, lot Block RW-3, Rayken Subdivision, Eastern Passage, dated May 4, 2010 was reviewed.

These records do not represent a potential environmental concern to the MLSA.



3.8.3 FIELD RESULTS

The following environmental concerns were noted during the site visit and are noted on Figure No. 3.16- Contaminated Sites in the MLSA:

- Potential Contaminated Site S1: PID 40852592-Craig Charles Hartlen, on the western portion of the Study Area-fishing gear storage on a cleared property.
- Potential Contaminated Site S2: PID 40117269-Morris Lake East Holdings Limited- a hunting blind was noted on the southern portion of the Study Area.
- Potential Contaminated Site S3: PID 00372995-Morris Lake East Holdings Limited-a hunting blind was noted on the southern portion of the Study Area.
- Potential Contaminated Site S4: PID 40291775-Morris Lake East Holdings Limited- a hunting blind was noted on the southern portion of the Study Area.
- Potential Contaminated Site S5 and S6: PID 41412834-Morris Lake East Holdings Limited-two hunting blinds were noted on the southern portion of the Study Area.
- Potential Contaminated Site S7: PID 41412834-Morris Lake East Holdings Limited-a area of dumping (approximately 20 bags of recyclables and discarded camping chairs) were noted.
- Potential Contaminated Sites S8, S9, and S10: PID 41129974-Morris Lake East Holdings Limited- a hunting blind was noted on the southern portion of the Study Area.

These may represent a potential environmental concern to the MLSA.

3.8.4 INFLUENCE ON LAND SUITABILITY

The study has revealed evidence of potential and/or actual environmental contamination associated with the Study Area. The following environmental concerns were identified:

- Evidence of human activity (equipment storage) on PID 40852592.
- Evidence of human activity (hunting blinds) on PID 40117269, PID 00372995, PID 41129974, PID 41412834, and PID 40291775.
- Dumping (recyclables) on PID 41412834.
- The presence of a railway crosscutting the southern portion of the Study Area from at least 1931 until the early 1980s.

Due to the potential presence of environmental contamination within the Study Area, if material is exposed or is planned to be excavated and removed from the Site during redevelopment, it should be tested to confirm the handling and disposal requirements. Additional environmental assessment and reporting to NSECC under the Contaminated Sites Regulations may be required as part of the development process. There are no constraints to development with respect to potential contaminated sites provided the NSECC Regulations are followed.



\\na0213-ppl\ss01\work_group\121\active\160410459\gis_data\mapping\ArcGIS Pro\HRM_2024_Contaminated_Sites.aprx: Fig. 3.16_HRM_FCM_036_Contaminated_Sites.aprx: 2024-05-23 By: nwhite



Notes
1. Coordinate System: NAD 1983 CSRS UTM Zone 20N
2. Data Sources: Government of Nova Scotia, Department of Service Nova Scotia and Internal Services
3. Background: Government of Nova Scotia, Department of Service Nova Scotia and Internal Services

- Potential Contaminated Site
- NSECC File (FOIPOP, Tank Registration, other)
- Study Area
- Utilities
- Pipeline
- Transportation
- Road
- Resource / Seasonal Road
- Trail

- Other Features
- Waterway
 - Waterbody
 - Property Boundary

0 250 500 Metres
(At original document size of 8.5x11)
1:27,000



Project Location
Halifax Regional Municipality,
Nova Scotia

Prepared by NWhite on 2024-05-23

Client/Project
Halifax Regional Municipality
Future Serviced Communities
Background Studies

Fig ID: 160410459_036

Figure No.
3.16

Title
**Potential Contaminated Sites in
the MLSA**

Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.

3.9 Areas of Cultural Significance

Stantec completed an archaeological and cultural study that included an Archaeological Resource Impact Assessment (ARIA) conducted under Heritage Research Permit (HRP) A2023NS168 to document areas of archaeological potential within the MLSA. The scope of the assessment included a site walkover carried out on November 22, 23, 29, and 30, 2023, and a background study (including environmental setting, Pre-Contact and Historic Period land use, property history, and past archaeological assessments). This archaeological assessment was conducted to provide a baseline for future study, informed by Mi'kmaq knowledge. The results of the ARIA are detailed in a final report under a separate cover to be submitted to the Nova Scotia Department of Communities, Culture, Tourism, and Heritage to fulfill the requirements of the HRP. Refer to Appendix D for the full ARIA report and recommendations.

3.10 Summary of Land Suitability Analysis

Stantec has prepared a summary of the land suitability analysis which integrates results from the environmental components that were studied for the MLSA. The objective of the land suitability analysis was to determine what portions of the Study Area are potentially most suitable for new community development based on a desktop and field analysis of these components. Note that not all areas within the Study Area (Figure 3.1) are being considered for future development (e.g., if they are privately owned and/or are already developed).

It is important to note that this is not an exhaustive analysis of all parameters that could influence whether or not a given location is amenable for development. It is also not possible to definitively declare which parameters are most important in determining whether an area is suitable for development. Therefore, each parameter used in the summary analysis is equally weighted and caution should be used when applying the combined analysis for planning purposes. In Stantec's opinion, it is recommended that planners consider the results, including regulatory requirements and management implications, for each component separately for a more useful representation of development opportunities and constraints.

Sections 3.2 through 3.8 describe desktop and field results followed by details about how each environmental component was evaluated from a land suitability perspective. Suitability for development was generally ranked as follows:

- a score of 1 indicates low suitability for development
- a score of 2 indicates moderate suitability for development
- a score of 3 indicates high suitability for development

Lower scores generally correspond to areas with higher ecological function, making them generally more suitable for conservation purposes and potentially less suitable for development. Conversely, higher scores indicate lands that are potentially less desirable for conservation efforts and potentially more suitable for development. It is important to note that many factors, in addition to those addressed throughout this report, contribute to suitability for development and/or conservation, including views expressed by members of the public, other stakeholders and Indigenous groups. Therefore, the information presented in this summary should not be viewed in isolation.



Stantec divided the final mapping into two cumulative analyses: one focusing on the project's biological components and the other on geological/topographic information. While acknowledging the relationship between these analyses, this approach was chosen to enhance the decision-making process for users from a landscape planning perspective, whether for development or conservation pathways. Another key component that should inform development is landscape connectivity, which is discussed in Section 3.5. While it is noted that landscape connectivity coincides with other biological components explicitly considered in the sections above and this summary (i.e., watercourses, wetlands, forest habitat/SAR), Section 3.5 considers these factors in a holistic way regarding wildlife movement and sustainability.

3.10.1 BIOLOGICAL COMPONENTS

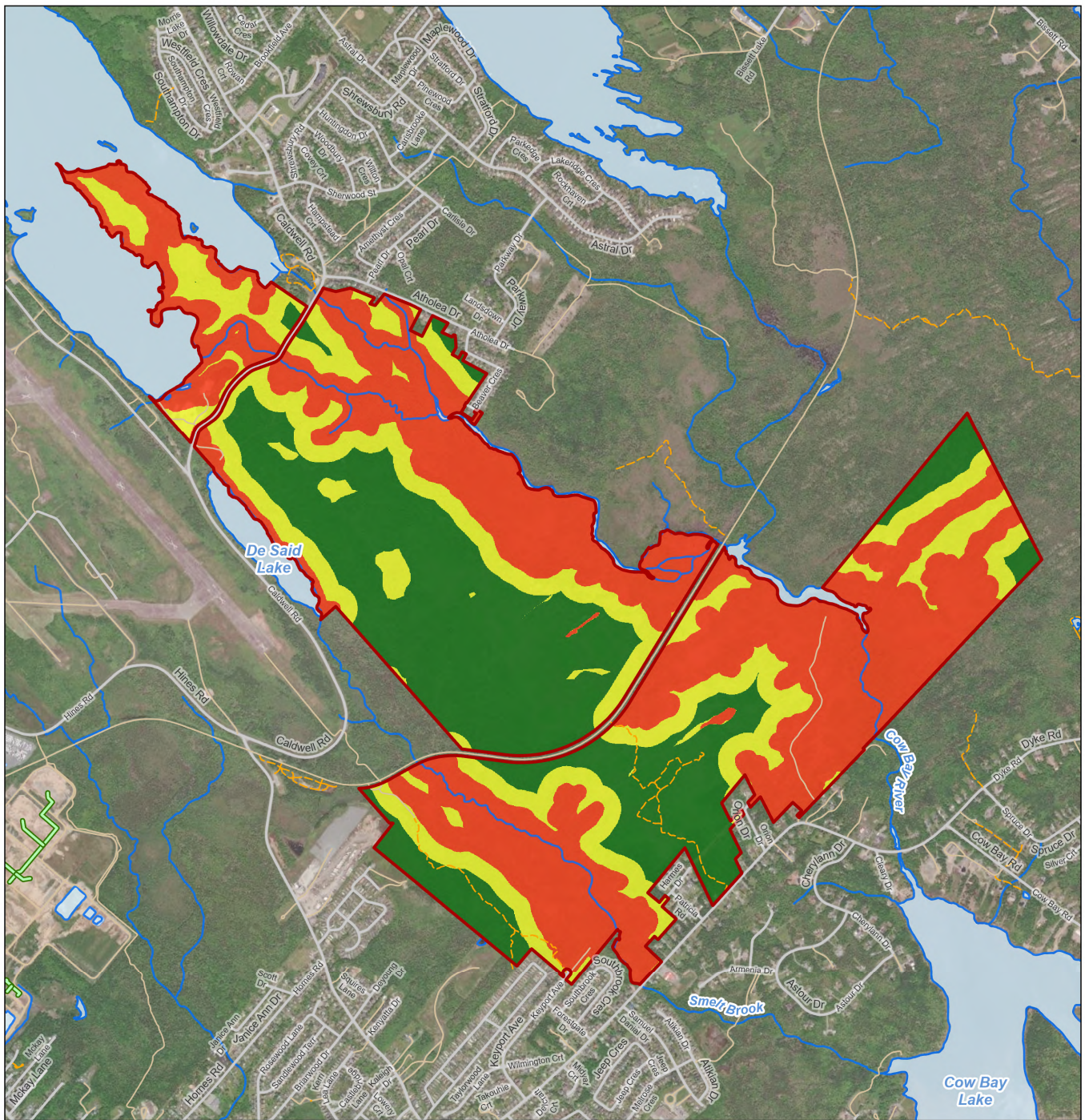
This section combines the LSA figures for wetlands (Section 3.2.1; Figure 3.3), watercourses (Section 3.3.2; Figure 3.6) and forest habitat and species at risk (Section 3.4.4; Figure 3.10).

Twenty-six wetlands were identified within the MLSA and thirteen were evaluated using WESP (Table 3.1). Further evaluation and permitting are highlighted in Section 3.2.2.

The forest habitat and species at risk analysis combines two layers: the Forest Maturity and Forest Succession and Species at Risk. For the forest maturity layer, 46 forest inventory polygons visited during field surveys were classified according to the Nova Scotia FEC system (Table 3.13). Where age is not determined in the field due to various constraints, the maturity class from the FEC or age from the NSDNRR Forest Inventory was used. The presence of individual SAR was not used exclusively to evaluate the presence and distribution of SAR within the MLSA since it was not feasible to conduct comprehensive investigations to detect all individuals of all SAR species that may be present at the MLSA. Instead, SAR that are or could potentially be present in the MLSA were identified from both the results of the field surveys and from AC CDC records of SAR reported within 5 km of the MLSA. Where matches were found between SAR habitat preferences and habitats mapped in the MLSA, those species were considered potentially present and reflected in the LSA mapping.

Each of the three LSA figures for the biological components have been weighted and combined to show the overall summary LSA of biological components (Figure 3.17). Habitat LSA and Wetland LSA scores have been averaged and Stantec manually adjusted the weighting of policy-protected constraints including established environmental buffers such as watercourse setbacks and wetlands intersected by watercourses. These features were deemed to have low development suitability and were manually emphasized as indicated by the red shading in Figure 3.17.





Notes

1. Coordinate System: NAD 1983 CSRS UTM Zone 20N
2. Data Sources: Stantec; Government of Nova Scotia, Department of Service Nova Scotia and Internal Services
3. Background: Government of Nova Scotia, Department of Service Nova Scotia and Internal Services

Study Area

Land Suitability Score

- 3 (High)
- 2
- 1 (Low)

Utilities

- Pipeline

Transportation

- Road
- Resource / Seasonal Road
- Trail

Other Features

- Waterway
- Waterbody

0 250 500 Metres
(At original document size of 8.5x11)
1:25,000



Project Location
Halifax Regional Municipality,
Nova Scotia

Prepared by NWhite on 2024-03-20
Revised by NWhite on 2024-07-09

Client/Project
Halifax Regional Municipality
Future Serviced Communities
Background Studies

Figure No.
3.17

Title
**Land Suitability Analysis of
Biological Components - MLSA**

3.10.2 GEOLOGY AND TOPOGRAPHY COMPONENTS

This section combines the LSA figures for geology (Section 3.6.4: Figure 3.14) and topography (Section 3.7.1: Figure 3.15).

The primary parameter used to evaluate geology in the MLSA for potential land suitability for development is the acid producing potential associated with sulphide-bearing bedrock (Table 3.18; Figure 3.14). Acid producing potential is considered an important and regulated constraint for development. The current assessment of surficial and bedrock geology is based on a desktop review of available provincial mapping and indicates a general absence of acid producing bedrock in the MLSA. These findings should be confirmed through further investigations. If sulphide-bearing rock is encountered during development, it must be managed and disposed of according to Sulphide Bearing Material Disposal Regulations (NSECC 2021).

For the topography component of the land suitability analysis, LiDAR data provided by HRM to was used to classify slopes within the MLSA. This was primarily a desktop exercise using ESRI ArcMAP, with incidental field observations. These findings should be confirmed through further investigations.

Each of the two LSA figures for geology and topography have been weighted equally and combined to show the overall summary LSA for these components (Figure 3.18).



3.11 References

- Beaupre-McPhee, Carter. 2022. *Research Report Former Nova Scotia Home for Colored Children, 18 Wilfred Jakson Way, Dartmouth*, prepared by HRM Planning and Development, HRM, Halifax.
- Cameron, R. P., and Neily, T. 2008. Heuristic model for identifying the habitats of *Erioderma pedicellatum* and other rare cyanolichens in Nova Scotia, Canada. *The Bryologist* 111: 650-658.
- CBWES (CB Wetlands & Environmental Specialists). 2013. Post-Restoration Monitoring (Year 5) of the Lawrencetown Lake Salt Marsh Restoration Project, Produced for Nova Scotia Department of Transportation and Infrastructure Renewal
- COSEWIC. 2000. COSEWIC assessment and status report on the Barrow's Goldeneye *Bucephala islandica*, Eastern population, in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 65 pp. (<https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html>).
- COSEWIC. 2007a. COSEWIC assessment and status report on the Common Nighthawk *Chordeiles minor* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa.
- COSEWIC. 2007b. COSEWIC assessment and status report on the Chimney Swift *Chaetura pelagica* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 49 pp.
- COSEWIC 2008a. COSEWIC assessment and status report on the Ipswich Sparrow princeps subspecies *Passerculus sandwichensis* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 13 pp.
- COSEWIC. 2008b. COSEWIC assessment and status report on the Snapping Turtle *Chelydra serpentina* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 47 pp.
- COSEWIC. 2010. COSEWIC assessment and update status report on the Atlantic Cod *Gadus morhua* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xiii + 76 pp .
- COSEWIC. 2011a. COSEWIC status appraisal summary on the Barrow's Goldeneye *Bucephala islandica*, Eastern population, in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xii pp.
- COSEWIC. 2011b. COSEWIC assessment and status report on the Barn Swallow *Hirundo rustica* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa.
- COSEWIC. 2011c. COSEWIC assessment and status report on the Yellow-breasted Chat *auricollis* subspecies *Icteria virens auricollis* and the Yellow-breasted Chat *virens* subspecies *Icteria virens virens* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xvi + 51 pp.



**HALIFAX REGIONAL MUNICIPALITY – FUTURE SERVICED COMMUNITIES
FINAL REPORT – VOLUME 5: MORRIS LAKE STUDY AREA REPORT – LAND SUITABILITY
ANALYSIS**

- COSEWIC. 2012a. COSEWIC assessment and status report on Buff-breasted Sandpiper *Tryngites subruficollis* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 44 pp.
- COSEWIC. 2012b. COSEWIC assessment and status report on the Eastern Wood-pewee *Contopus virens* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 39 pp.
- COSEWIC. 2012c. COSEWIC assessment and status report on the Atlantic Wolffish *Anarhichas lupus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 56 pp.
- COSEWIC. 2012d. COSEWIC assessment and status report on the American Eel *Anguilla rostrata* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xii + 109 pp.
- COSEWIC. 2012e. COSEWIC assessment and status report on the Striped Bass *Morone saxatilis* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. iv + 82 pp.
- COSEWIC 2013a. COSEWIC assessment and status report on the Harlequin Duck *Histrionicus histrionicus* Eastern population in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 38 pp.
- COSEWIC. 2013b. COSEWIC assessment and status report on the Piping Plover *circumcinctus* subspecies (*Charadrius melodus circumcinctus*) and the *melodus* subspecies (*Charadrius melodus melodus*), in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xiv + 39 pp.
- COSEWIC. 2013c. COSEWIC assessment and status report on the Bank Swallow *Riparia riparia* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 48 pp.
- COSEWIC. 2013d. COSEWIC assessment and status report on the little brown myotis *Myotis lucifugus*, northern myotis *Myotis septentrionalis* and tri-colored bat *Perimyotis subflavus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. Ottawa. xxiv + 93 pp.
- COSEWIC. 2014a. COSEWIC assessment and status report on the Boreal Felt Lichen *Erioderma pedicellatum*, Boreal population and Atlantic population, in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xiv + 66 pp.
- COSEWIC. 2014b. COSEWIC assessment and status report on the Sweet Pepperbush *Clethra alnifolia* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 41 pp.
- COSEWIC. 2015. COSEWIC assessment and status report on the Yellow-banded Bumble Bee *Bombus terricola* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 60
- COSEWIC. 2016a. COSEWIC assessment and status report on the Evening Grosbeak *Coccothraustes vespertinus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 64 pp.



**HALIFAX REGIONAL MUNICIPALITY – FUTURE SERVICED COMMUNITIES
FINAL REPORT – VOLUME 5: MORRIS LAKE STUDY AREA REPORT – LAND SUITABILITY
ANALYSIS**

- COSEWIC. 2016b. COSEWIC assessment and status report on the Monarch *Danaus plexippus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xiii + 59 pp.
- COSEWIC. 2017a. COSEWIC assessment and status report on the Harris's Sparrow *Zonotrichia querula* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 36 pp.
- COSEWIC. 2017b. COSEWIC assessment and status report on the Rusty Blackbird *Euphagus carolinus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 64 pp.
- COSEWIC. 2018a. COSEWIC assessment and status report on the Common Nighthawk *Chordeiles minor* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 50 pp.
- COSEWIC. 2018b. COSEWIC assessment and status report on the Chimney Swift *Chaetura pelagica* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xii + 63 pp.
- COSEWIC. 2018c. COSEWIC assessment and status report on the Olive-sided Flycatcher *Contopus cooperi* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 52 pp.
- COSEWIC. 2018d. COSEWIC assessment and status report on the Midland Painted Turtle *Chrysemys picta marginata* and the Eastern Painted Turtle *Chrysemys picta picta* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xvi + 107 pp.
- COSEWIC. 2018e. COSEWIC assessment and status report on the Wood Turtle *Glyptemys insculpta* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xiii + 51 pp.
- COSEWIC. 2019. COSEWIC assessment and status report on the Hudsonian Godwit *Limosa haemastica* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 50 pp.
- COSEWIC. 2020a. COSEWIC assessment and status report on the Lesser Yellowlegs *Tringa flavipes* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 64 pp.
- COSEWIC. 2020b. COSEWIC assessment and status report on the Red Knot *Calidris canutus islandica* subspecies *Calidris canutus islandica*), *roselaari* subspecies (*Calidris canutus roselaari*) and *rufa* subspecies (*Calidris canutus rufa*) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxxv + 173 pp.
- COSEWIC. 2020c. COSEWIC assessment and status report on the Canada Warbler *Cardellina canadensis* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 54 pp.
- COSEWIC. 2021a. COSEWIC assessment and status report on the Short-eared Owl *Asio flammeus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xii + 69 pp.



**HALIFAX REGIONAL MUNICIPALITY – FUTURE SERVICED COMMUNITIES
FINAL REPORT – VOLUME 5: MORRIS LAKE STUDY AREA REPORT – LAND SUITABILITY
ANALYSIS**

- COSEWIC. 2021b. COSEWIC assessment and status report on the Barn Swallow *Hirundo rustica* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xii + 60 pp.
(https://wildlife-species.az.ec.gc.ca/species-risk-registry/virtual_sara/files/cosewic/sr%20Barn%20Swallow%202021_e.pdf).
- COSEWIC. 2022a. COSEWIC assessment and status report on the Bobolink *Dolichonyx oryzivorus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 60 pp.
- COSEWIC. 2023. COSEWIC assessment and status report on the Hoary Bat *Lasiurus cinereus*, Eastern Red Bat *Lasiurus borealis* and Silver-haired Bat *Lasionycteris noctivagans*, in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxi + 100 pp.
- East Coast Aquatics. 2016. Ecological aspects of a local Wood Turtle (*Glyptemys insculpta*) population along the Sackville River, Nova Scotia. Part 5. Produced for Nova Scotia Department of Transportation and Infrastructure Renewal. March 2016. 60 pp.
- Environment and Climate Change Canada. 2018. Recovery strategy for the Eastern Whip-poor-will (*Antrostomus vociferus*) in Canada. *Species at Risk Act Recovery Strategy Series*. Environment and Climate Change Canada, Ottawa. vi + 107pp.
- Environment and Climate Change Canada. 2018. Recovery strategy for the Little Brown Myotis (*Myotis lucifugus*), the Northern Myotis (*Myotis septentrionalis*), and the Tri-colored bat (*Perimyotis subflavus*) in Canada. *Species at Risk Act Recovery Strategy Series*. Environment and Climate Change Canada, Ottawa. ix + 172pp.
- Environment and Climate Change Canada. 2020. Action Plan for the Boreal Felt Lichen (*Erioderma pedicellatum*) (Atlantic population) and Vole Ears Lichen (*Erioderma mollissimum*) in Canada. *Species at Risk Act Action Plan Series*. Environment and Climate Change Canada, Ottawa. v + 44 pp.
- Environment and Climate Change Canada. 2022a. Management Plan for the Red-necked Phalarope (*Phalaropus lobatus*) in Canada (Proposed). *Species at Risk Act Management Plan Series*. Environment and Climate Change Canada, Ottawa. iv + 40pp.
- Environment and Climate Change Canada. 2022b. Recovery strategy for the Bobolink (*Dolichonyx oryzivorus*) in Canada (Proposed). *Species at Risk Act Recovery Strategy Series*. Environment and Climate Change Canada, Ottawa. viii + 141pp.
- Environment and Climate Change Canada. 2022c. Management Plan for the Yellow banded Bumble Bee (*Bombus terricola*) in Canada [Proposed]. *Species at Risk Act Management Plan Series*. Environment and Climate Change Canada, Ottawa. iv + 46 pp
- Environment and Climate Change Canada (ECCC). 2022d. Recovery Strategy for the Gypsy Cuckoo Bumble Bee (*Bombus bohemicus*) in Canada [Proposed]. *Species at Risk Act Recovery Strategy Series*. Environment and Climate Change Canada, Ottawa. viii + 80 pp.



**HALIFAX REGIONAL MUNICIPALITY – FUTURE SERVICED COMMUNITIES
FINAL REPORT – VOLUME 5: MORRIS LAKE STUDY AREA REPORT – LAND SUITABILITY
ANALYSIS**

- Environment Canada. 2007. Recovery Strategy for the Boreal Felt Lichen (*Erioderma pedicellatum*), Atlantic Population, in Canada [Proposed]. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. viii + 31 pp.
- Environment Canada. 2014. Recovery strategy for the Dense Blazing Star (*Liatrix spicata*) in Canada (Proposed). *Species at Risk Act* Recovery Strategy Series. Environment Canada, Ottawa. vi + 27pp.
- Government of NS. 2011. Nova Scotia Wetland Conservation Policy. Dated September 2011, revised October 2019. Available from:
<https://novascotia.ca/nse/wetland/docs/Nova.Scotia.Wetland.Conservation.Policy.pdf>
- Halifax Regional Municipality. 2022. *Item No. 9.1.3 Heritage Advisory Committee*, Case H00534: Request to include 18 Wilfred Jackson Way, Westphal, in the Registry of Heritage Property for the Halifax Regional Municipality, Halifax.
- Halifax Regional Municipality. 2024. Land Use Bylaw Eastern Passage / Cow Bay. Accessed at:
<https://cdn.halifax.ca/sites/default/files/documents/about-the-city/regional-community-planning/easternpassagecowbay-lub-eff-23oct13-case2023-002-toclinked-2.pdf> April 8, 2024
- Halifax Regional Municipality and Halifax Water. 2020. Halifax Stormwater Management Standards For development activities July 2020
- Halifax Regional Municipality and O2 Planning + Design. 2018. Halifax Green Network Plan. Available from: https://cdn.halifax.ca/sites/default/files/documents/about-the-city/regional-community-planning/HGNP-Final%20Report_20180726_updated.pdf. June 2018
- Hastings, K., King, M., and Allard, K. 2014. Ecologically and Biologically Significant Areas in the Atlantic Coastal Region of Nova Scotia. Canadian Technical Report of Fisheries and Aquatic Sciences 3107
- NBDELG (New Brunswick Department of Environment and Local Government). 2018. Manual for Wetland Ecosystem Protocol for Atlantic Canada (WESP-AC): Non-tidal Wetlands. Fredericton, NB.
- Neily, P., S. Basquill, E. Quigley K. Keys, S. Maston and B. Stewart. 2023. Forest Ecosystem Classification for Nova Scotia (2022): Field Guide. Nova Scotia Dept. of Natural Resources and Renewables forestry and Wildlife Branch.
- Nova Scotia Lands and Forestry (NSLF). 2018. At-Risk-Lichens: Special Management Practises. Available Online: January 2024
https://novascotia.ca/natr/wildlife/habitats/terrestrial/pdf/SMP_BFL_At-Risk-Lichens.pdf.
- NSDNR (Nova Scotia Department of Natural Resources). 2017. Ecological Land Classification for Nova Scotia. Retrieved from [Ecological-Land-Classification-guide.pdf \(novascotia.ca\)](https://novascotia.ca/natr/wildlife/habitats/terrestrial/pdf/SMP_BFL_At-Risk-Lichens.pdf)



**HALIFAX REGIONAL MUNICIPALITY – FUTURE SERVICED COMMUNITIES
FINAL REPORT – VOLUME 5: MORRIS LAKE STUDY AREA REPORT – LAND SUITABILITY
ANALYSIS**

- NSDNRR (Nova Scotia Department of Natural Resources and Renewables). 2021. Recovery Plan for the Bank Swallow (*Riparia riparia*) in Nova Scotia (Final). Nova Scotia Endangered Species Act Recovery Plan Series.
- NSDNRR. 2022a. Management Plan for the Eastern Wood-pewee (*Contopus virens*) in Nova Scotia. *Nova Scotia Endangered Species Act Recovery Plan Series*. 39 pp.
- NSDNRR. 2022b. An Old-Growth Forest Policy for Nova Scotia old-growth-forest-policy.pdf (novascotia.ca). Accessed September 2023.
- NSECC (Nova Scotia Department of Environment and Climate Change). 2021. Sulphide Bearing Material Disposal Regulations. Updated 2021.
- NSECC (Nova Scotia Department of Environment and Climate Change). 2022. NS Well Logs Database. <https://novascotia.ca/nse/groundwater/welldatabase.asp>. Updated 2022.
- Porter, C.J.M., Basquill, S.P. and Lundholm, J.T. 2020. Barrens Ecosystems in Nova Scotia: Classification of Heathlands and Related Plant Communities.
- Sadeghpour, M.H. and T.F. Ginnett. 2011. Habitat selection by female American black bears in northern Wisconsin. *Ursus* 22(2): 159-166.
- Scheidegger, C. (Lichen Specialist Group). 2003. *Erioderma pedicellatum*. The IUCN Red List of Threatened Species 2003: e.T43995A10839336. <http://dx.doi.org/10.2305/IUCN.UK.2003.RLTS.T43995A10839336.en>
- Stea, R.R., Conley, H., and Brown, Y. (compilers) 1992: Surficial Geology of the Province of Nova Scotia; Nova Scotia Department of Natural Resources, Map 92-3, Scale 1:500 000.
- White, C.E. and Goodwin, T.A.. 2011. Lithogeochemistry, petrology, and the acid-generating potential of the Goldenville and Halifax groups and associated granitoid rocks in metropolitan Halifax Regional Municipality, Nova Scotia, Canada.
- White, C.E., MacDonald, M.A., and Home, R. J. 2014: Bedrock geology map of the Halifax area, NTS 11D/12, Halifax County, Nova Scotia; Nova Scotia Department of Natural Resources, Open File Map ME 2014-010, scale 1:50,000.

\\ca0213-pfss01\work_group\1214\active\160410459\LSA_draft_report\04_Morris Lake\Rev 6\fnl_rpt_160410459_VOLUME_5_hrm_fsc_volume_4_morris_lake_20250114.docx



APPENDIX A

AC CDC Report

DATA REPORT 7795: Morris Lake, NS

Prepared 4 August 2023
by J. Churchill, Data Manager

CONTENTS OF REPORT

1.0 Preface

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

2.0 Rare and Endangered Species

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

3.0 Special Areas

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

4.0 Rare Species Lists

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

5.0 Rare Species within 100 km

- 5.1 Source Bibliography



Map 1. A 100 km buffer around the study area

1.0 PREFACE

The Atlantic Canada Conservation Data Centre (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

MorrisLkNS_7795ob.xls
MorrisLkNS_7795ob100km.xls
MorrisLkNS_7795msa.xls
MorrisLkNS_7795bp.xls

Contents

Rare or legally-protected Flora and Fauna in your study area
A list of Rare and legally protected Flora and Fauna within 100 km of your study area
Managed and Biologically Significant Areas in your study area
Rare and common Pelagic Birds in your study area (CWS 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
Shavonne.Meyer@novascotia.ca

Central: Kimberly George
(902) 890-1046
Kimberly.George@novascotia.ca

Eastern: Harrison Moore
(902) 497-4119
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

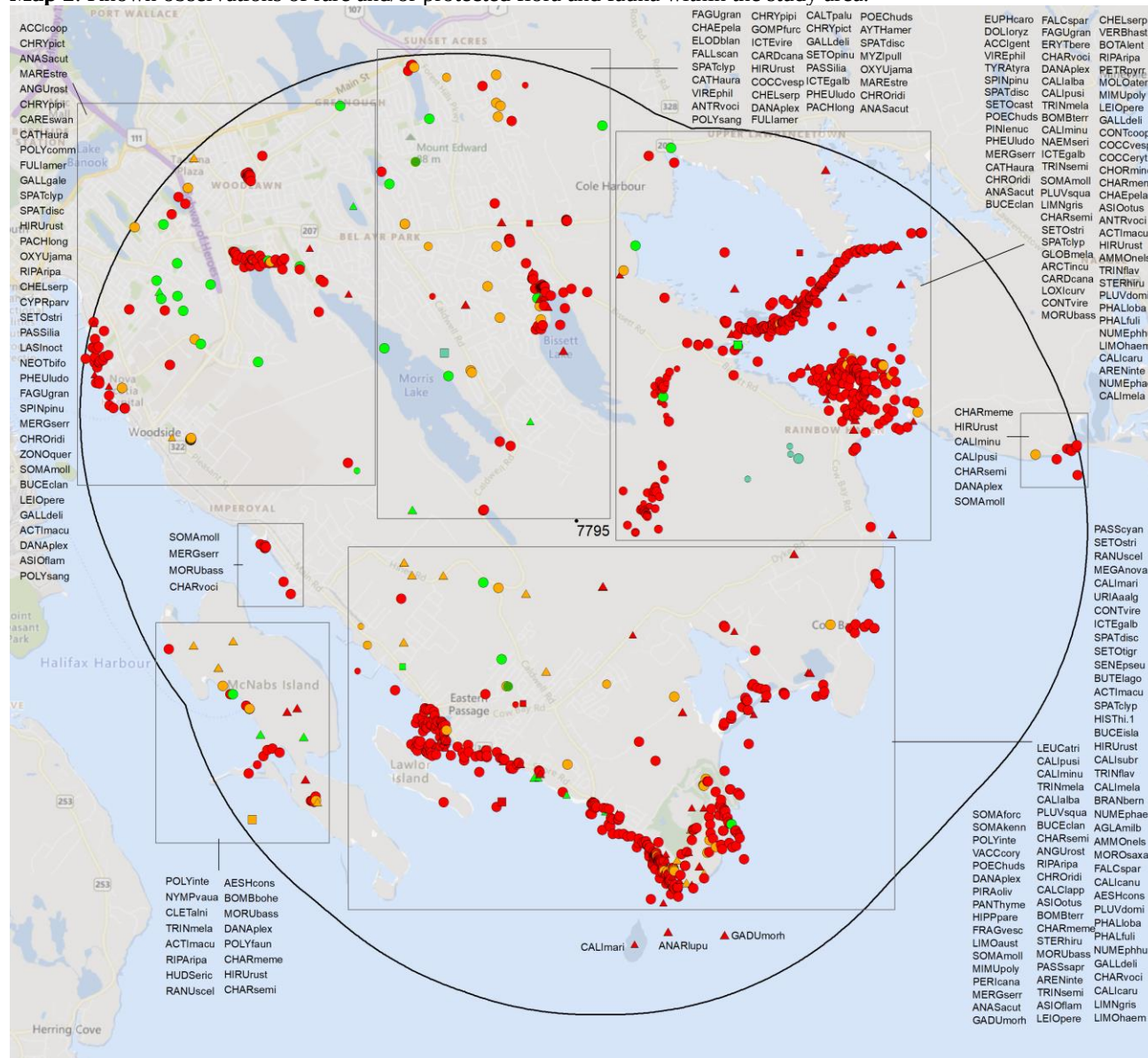
2.1 FLORA

The study area contains 44 records of 15 vascular and 5 records of 2 nonvascular flora (Map 2 and attached: *ob.xls), excluding 'location-sensitive' species.

2.2 FAUNA

The study area contains 1937 records of 99 vertebrate and 131 records of 18 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

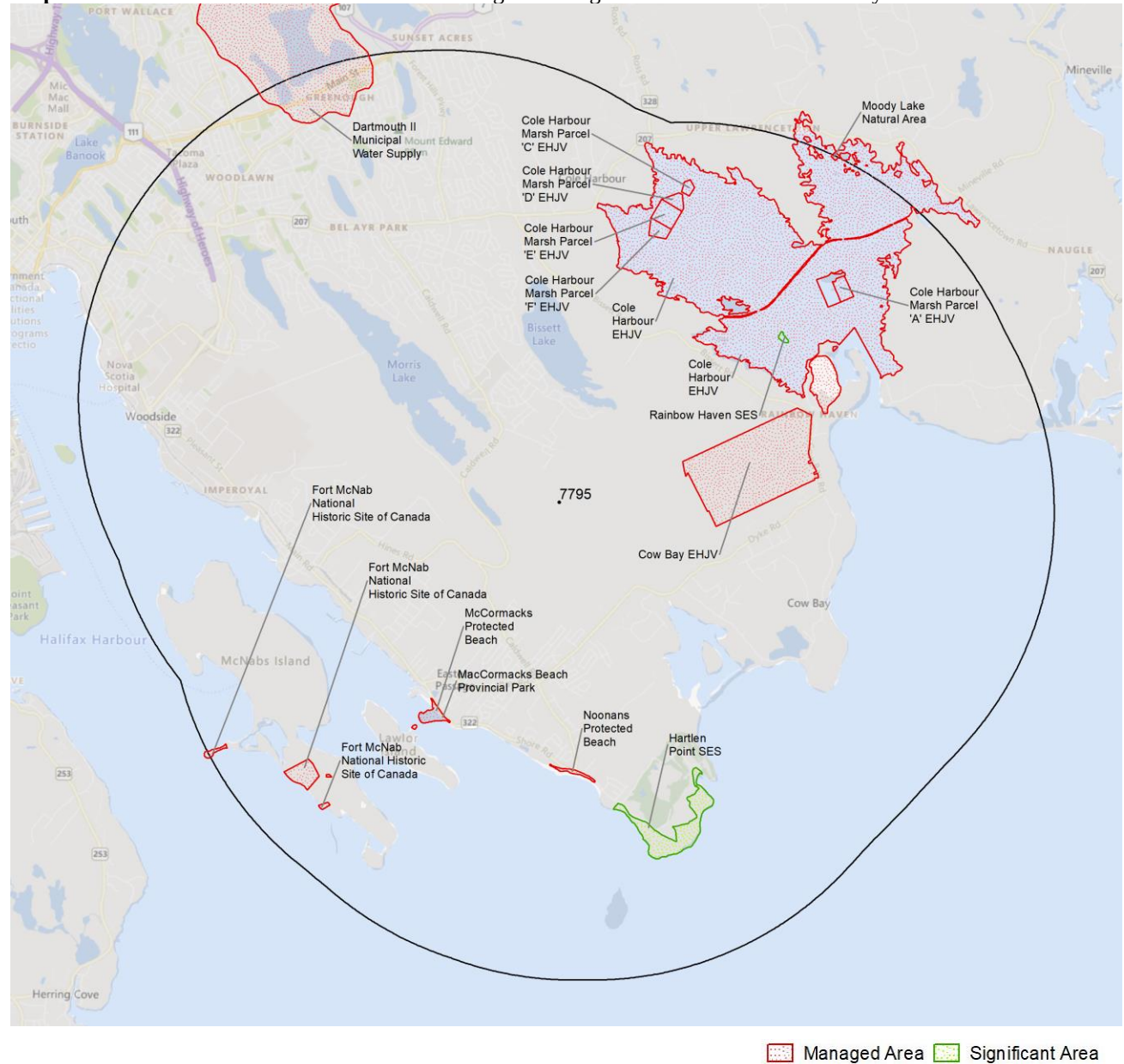
HIGHER TAXON

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

3.1 MANAGED AREAS

3.2 SIGNIFICANT AREAS

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 ($\pm$ the precision, in km, of the record). [P] = vascular plant, [N] = nonvascular plant, [A] = vertebrate animal, [I] = invertebrate animal, [C] = community. Note: records are from attached files *ob.xls/*ob.shp only.

4.1 FLORA

	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)
N	<i>Elodium blandowii</i>	Blandow's Bog Moss				S3?	1	3.0 $\pm$ 7.0
N	<i>Arctoparmelia incurva</i>	Finger Ring Lichen				S3S4	4	2.5 $\pm$ 0.0
P	<i>Clethra alnifolia</i>	Coast Pepper-Bush	Endangered	Threatened	Vulnerable	S2	1	5.4 $\pm$ 0.0
P	<i>Hudsonia ericoides</i>	Pinebarren Golden Heather				S2	1	4.9 $\pm$ 2.0
P	<i>Ranunculus sceleratus</i>	Cursed Buttercup				S2	4	3.8 $\pm$ 1.0
P	<i>Caltha palustris</i>	Yellow Marsh Marigold				S2S3	1	4.8 $\pm$ 0.0
P	<i>Senecio pseudoarnica</i>	Seabeach Ragwort				S3	2	3.6 $\pm$ 1.0
P	<i>Polygala sanguinea</i>	Blood Milkwort				S3	2	2.3 $\pm$ 1.0
P	<i>Carex swanii</i>	Swan's Sedge				S3	1	5.4 $\pm$ 0.0
P	<i>Cypripedium parviflorum</i>	Yellow Lady's-slipper				S3	1	6.8 $\pm$ 0.0
P	<i>Neottia bifolia</i>	Southern Twayblade				S3	1	6.2 $\pm$ 0.0
P	<i>Vaccinium corymbosum</i>	Highbush Blueberry				S3S4	1	1.6 $\pm$ 0.0
P	<i>Fagus grandifolia</i>	American Beech				S3S4	21	2.1 $\pm$ 0.0
P	<i>Fallopia scandens</i>	Climbing False Buckwheat				S3S4	1	1.5 $\pm$ 0.0
P	<i>Fragaria vesca</i>	Woodland Strawberry				S3S4	1	2.2 $\pm$ 0.0
P	<i>Limosella australis</i>	Southern Mudwort				S3S4	5	3.2 $\pm$ 3.0
P	<i>Verbena hastata</i>	Blue Vervain				S3S4	1	3.3 $\pm$ 7.0

4.2 FAUNA

	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)
A	<i>Charadrius melodus melodus</i>	Piping Plover melodus subspecies	Endangered	Endangered	Endangered	S1B	71	3.3 $\pm$ 7.0
A	<i>Icteria virens</i>	Yellow-Breasted Chat	Endangered	Endangered		SNA	4	3.4 $\pm$ 0.0
A	<i>Lasionycteris noctivagans</i>	Silver-haired Bat	Endangered			SUB,S1M	1	6.5 $\pm$ 0.0
A	<i>Asio flammeus</i>	Short-eared Owl	Threatened	Special Concern		S1B	3	3.3 $\pm$ 0.0
A	<i>Riparia riparia</i>	Bank Swallow	Threatened	Threatened	Endangered	S2B	50	2.7 $\pm$ 0.0
A	<i>Chaetura pelagica</i>	Chimney Swift	Threatened	Threatened	Endangered	S2S3B,S1M	3	2.4 $\pm$ 1.0
A	<i>Limosa haemastica</i>	Hudsonian Godwit	Threatened			S2S3M	16	4.4 $\pm$ 0.0
A	<i>Tringa flavipes</i>	Lesser Yellowlegs	Threatened			S3M	75	3.1 $\pm$ 0.0
A	<i>Anguilla rostrata</i>	American Eel	Threatened			S3N	4	3.6 $\pm$ 0.0
A	<i>Anthus vociferus</i>	Eastern Whip-Poor-Will	Special Concern	Threatened	Threatened	S1?B	2	1.3 $\pm$ 0.0
A	<i>Passerculus sandwichensis princeps</i>	Ipswich Sparrow	Special Concern	Special Concern		S1B	21	3.6 $\pm$ 0.0
A	<i>Bucephala islandica</i>	Barrow's Goldeneye	Special Concern	Special Concern		S1N,SUM	1	4.8 $\pm$ 0.0
A	<i>Euphagus carolinus</i>	Rusty Blackbird	Special Concern	Special Concern	Endangered	S2B	1	3.3 $\pm$ 7.0
A	<i>Phalaropus lobatus</i>	Red-necked Phalarope	Special Concern	Special Concern		S2S3M	3	4.4 $\pm$ 0.0
A	<i>Histrionicus histrionicus pop. 1</i>	Harlequin Duck - Eastern population	Special Concern	Special Concern	Endangered	S2S3N,SUM	1	4.7 $\pm$ 0.0
A	<i>Chelydra serpentina</i>	Snapping Turtle	Special Concern	Special Concern	Vulnerable	S3	9	3.3 $\pm$ 10.0
A	<i>Hirundo rustica</i>	Barn Swallow	Special Concern	Threatened	Endangered	S3B	19	3.3 $\pm$ 0.0
A	<i>Cardellina canadensis</i>	Canada Warbler	Special Concern	Threatened	Endangered	S3B	74	0.8 $\pm$ 0.0
A	<i>Chordeiles minor</i>	Common Nighthawk	Special Concern	Special Concern	Threatened	S3B	4	3.3 $\pm$ 7.0
A	<i>Contopus cooperi</i>	Olive-sided Flycatcher	Special Concern	Special Concern	Threatened	S3B	1	3.3 $\pm$ 7.0
A	<i>Dolichonyx oryzivorus</i>	Bobolink	Special Concern	Threatened	Vulnerable	S3B	2	3.3 $\pm$ 7.0
A	<i>Coccothraustes vespertinus</i>	Evening Grosbeak	Special Concern	Special Concern	Vulnerable	S3B,S3N,S3M	3	3.3 $\pm$ 7.0
A	<i>Contopus virens</i>	Eastern Wood-Pewee	Special Concern	Special Concern	Vulnerable	S3S4B	3	0.7 $\pm$ 0.0
A	<i>Chrysemys picta</i>	Painted Turtle	Special Concern	Special Concern		S4	17	2.7 $\pm$ 0.0

	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)
A	<i>Chrysemys picta picta</i>	Eastern Painted Turtle	Special Concern	Special Concern		S4	45	3.0 ± 0.0
A	<i>Calidris subruficollis</i>	Buff-breasted Sandpiper	Special Concern	Special Concern		SNA	3	4.8 ± 0.0
A	<i>Zonotrichia querula</i>	Harris's Sparrow	Special Concern			SNA	1	7.1 ± 0.0
A	<i>Anarhichas lupus</i>	Atlantic Wolffish	Special Concern	Special Concern		SNR	1	5.9 ± 0.0
A	<i>Accipiter cooperii</i>	Cooper's Hawk	Not At Risk			S1?B,SUN,SUM	1	6.7 ± 0.0
A	<i>Fulica americana</i>	American Coot	Not At Risk			S1B	5	2.7 ± 0.0
A	<i>Globicephala melas</i>	Long-finned Pilot Whale	Not At Risk			S2S3	2	4.2 ± 0.0
A	<i>Megaptera novaeangliae</i>	Humpback Whale	Not At Risk			S3	1	4.3 ± 0.0
A	<i>Sterna hirundo</i>	Common Tern	Not At Risk			S3B	30	3.4 ± 0.0
A	<i>Buteo lagopus</i>	Rough-legged Hawk	Not At Risk			S3N	1	4.6 ± 0.0
A	<i>Accipiter gentilis</i>	Northern Goshawk	Not At Risk			S3S4	4	3.3 ± 7.0
A	<i>Ammospiza nelsoni</i>	Nelson's Sparrow	Not At Risk			S3S4B	14	3.3 ± 7.0
A	<i>Calidris canutus rufa</i>	Red Knot rufa subspecies	E,SC	Endangered	Endangered	S2M	18	4.4 ± 0.0
A	<i>Calidris canutus</i>	Red Knot	E,SC	E,T		S2M	2	4.6 ± 1.0
A	<i>Morone saxatilis</i>	Striped Bass	E,SC			S2S3B,S2S3N	1	5.1 ± 0.0
A	<i>Gadus morhua</i>	Atlantic Cod	E,SC,DD			SNR	2	3.6 ± 0.0
A	<i>Uria aalge</i>	Common Murre				S1?B	1	4.3 ± 0.0
A	<i>Passerina cyanea</i>	Indigo Bunting				S1?B,SUM	2	4.1 ± 0.0
A	<i>Oxyura jamaicensis</i>	Ruddy Duck				S1B	7	2.7 ± 0.0
A	<i>Gallinula galeata</i>	Common Gallinule				S1B	1	6.1 ± 0.0
A	<i>Mimus polyglottos</i>	Northern Mockingbird				S1B	4	2.7 ± 0.0
A	<i>Charadrius semipalmatus</i>	Semipalmated Plover				S1B,S4M	103	3.0 ± 0.0
A	<i>Calidris minutilla</i>	Least Sandpiper				S1B,S4M	77	2.7 ± 7.0
A	<i>Anas acuta</i>	Northern Pintail				S1B,SUM	21	2.8 ± 0.0
A	<i>Vireo philadelphicus</i>	Philadelphia Vireo				S2?B,SUM	2	1.3 ± 0.0
A	<i>Molothrus ater</i>	Brown-headed Cowbird				S2B	1	3.3 ± 7.0
A	<i>Spatula clypeata</i>	Northern Shoveler				S2B,SUM	13	1.5 ± 0.0
A	<i>Mareca strepera</i>	Gadwall				S2B,SUM	4	2.8 ± 0.0
A	<i>Piranga olivacea</i>	Scarlet Tanager				S2B,SUM	4	1.8 ± 0.0
A	<i>Calidris alba</i>	Sanderling				S2N,S3M	46	3.4 ± 0.0
A	<i>Asio otus</i>	Long-eared Owl				S2S3	2	3.2 ± 0.0
A	<i>Petrochelidon pyrrhonota</i>	Cliff Swallow				S2S3B	1	3.3 ± 7.0
A	<i>Cathartes aura</i>	Turkey Vulture				S2S3B,S4S5M	11	1.4 ± 0.0
A	<i>Setophaga pinus</i>	Pine Warbler				S2S3B,S4S5M	2	4.0 ± 0.0
A	<i>Bucephala clangula</i>	Common Goldeneye				S2S3B,S5N,S5M	36	3.3 ± 0.0
A	<i>Icterus galbula</i>	Baltimore Oriole				S2S3B,SUM	4	3.1 ± 0.0
A	<i>Pluvialis dominica</i>	American Golden-Plover				S2S3M	14	4.4 ± 0.0
A	<i>Numenius phaeopus</i>	Whimbrel				S2S3M	12	3.7 ± 0.0
A	<i>Numenius phaeopus hudsonicus</i>	Whimbrel				S2S3M	14	4.4 ± 0.0
A	<i>Phalaropus fulicarius</i>	Red Phalarope				S2S3M	3	4.4 ± 0.0
A	<i>Perisoreus canadensis</i>	Canada Jay				S3	1	2.7 ± 0.0
A	<i>Poecile hudsonicus</i>	Boreal Chickadee				S3	6	1.0 ± 1.0
A	<i>Spinus pinus</i>	Pine Siskin				S3	2	3.3 ± 7.0
A	<i>Calcarius lapponicus</i>	Lapland Longspur				S3?N,SUM	1	3.6 ± 0.0
A	<i>Spatula discors</i>	Blue-winged Teal				S3B	14	3.1 ± 0.0
A	<i>Charadrius vociferus</i>	Killdeer				S3B	10	4.1 ± 0.0
A	<i>Tringa semipalmata</i>	Willet				S3B	148	2.9 ± 0.0
A	<i>Coccyzus erythrophthalmus</i>	Black-billed Cuckoo				S3B	1	3.3 ± 7.0
A	<i>Tyrannus tyrannus</i>	Eastern Kingbird				S3B	1	3.3 ± 7.0
A	<i>Pheucticus ludovicianus</i>	Rose-breasted Grosbeak				S3B	3	3.0 ± 0.0
A	<i>Somateria mollissima</i>	Common Eider				S3B,S3M,S3N	187	2.7 ± 0.0
A	<i>Tringa melanoleuca</i>	Greater Yellowlegs				S3B,S4M	160	1.0 ± 1.0

	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)
A	<i>Falco sparverius</i>	American Kestrel				S3B,S4S5M	3	5.1 ± 0.0
A	<i>Gallinago delicata</i>	Wilson's Snipe				S3B,S5M	7	3.3 ± 7.0
A	<i>Setophaga striata</i>	Blackpoll Warbler				S3B,S5M	7	2.2 ± 0.0
A	<i>Pinicola enucleator</i>	Pine Grosbeak				S3B,S5N,S5M	2	3.3 ± 7.0
A	<i>Setophaga tigrina</i>	Cape May Warbler				S3B,SUM	2	4.3 ± 0.0
A	<i>Branta bernicla</i>	Brant				S3M	1	4.8 ± 0.0
A	<i>Pluvialis squatarola</i>	Black-bellied Plover				S3M	132	3.0 ± 0.0
A	<i>Arenaria interpres</i>	Ruddy Turnstone				S3M	47	3.4 ± 0.0
A	<i>Calidris pusilla</i>	Semipalmated Sandpiper				S3M	89	3.0 ± 0.0
A	<i>Calidris melanotos</i>	Pectoral Sandpiper				S3M	20	4.0 ± 0.0
A	<i>Limnodromus griseus</i>	Short-billed Dowitcher				S3M	72	3.0 ± 0.0
A	<i>Chroicocephalus ridibundus</i>	Black-headed Gull				S3N	16	2.8 ± 0.0
A	<i>Loxia curvirostra</i>	Red Crossbill				S3S4	1	1.0 ± 0.0
A	<i>Botaurus lentiginosus</i>	American Bittern				S3S4B,S4S5M	1	3.3 ± 7.0
A	<i>Setophaga castanea</i>	Bay-breasted Warbler				S3S4B,S4S5M	1	3.3 ± 7.0
A	<i>Actitis macularius</i>	Spotted Sandpiper				S3S4B,S5M	29	3.3 ± 7.0
A	<i>Leiothlypis peregrina</i>	Tennessee Warbler				S3S4B,S5M	3	3.3 ± 7.0
A	<i>Passerella iliaca</i>	Fox Sparrow				S3S4B,S5M	4	3.4 ± 0.0
A	<i>Mergus serrator</i>	Red-breasted Merganser				S3S4B,S5M,S5N	45	3.3 ± 7.0
A	<i>Calidris maritima</i>	Purple Sandpiper				S3S4N	3	4.1 ± 10.0
A	<i>Morus bassanus</i>	Northern Gannet				SHB	10	3.0 ± 3.0
A	<i>Aythya americana</i>	Redhead				SHB	1	3.0 ± 0.0
A	<i>Leucophaeus atricilla</i>	Laughing Gull				SHB	3	3.4 ± 0.0
I	<i>Bombus bohemicus</i>	Ashton Cuckoo Bumble Bee	Endangered	Endangered	Endangered	S1	1	5.6 ± 1.0
I	<i>Danaus plexippus</i>	Monarch	Endangered	Special Concern	Endangered	S2?B,S3M	93	1.2 ± 2.0
I	<i>Bombus terricola</i>	Yellow-banded Bumble Bee	Special Concern	Special Concern	Vulnerable	S3	5	1.4 ± 0.0
I	<i>Pachydiplax longipennis</i>	Blue Dasher				S1	5	2.9 ± 0.0
I	<i>Polygonia comma</i>	Eastern Comma				S1?	1	7.4 ± 0.0
I	<i>Pantala hymenaea</i>	Spot-Winged Glider				S2?B	4	2.5 ± 1.0
I	<i>Nymphalis l-album</i>	Compton Tortoiseshell				S2S3	2	5.4 ± 2.0
I	<i>Aglais milberti</i>	Milbert's Tortoiseshell				S2S3	1	4.9 ± 1.0
I	<i>Somatochlora kennedyi</i>	Kennedy's Emerald				S2S3	2	2.5 ± 1.0
I	<i>Hippodamia parenthesis</i>	Parenthesis Lady Beetle				S3	1	3.4 ± 0.0
I	<i>Naemia seriata</i>	Seaside Lady Beetle				S3	1	3.7 ± 0.0
I	<i>Myzia pullata</i>	Streaked Lady Beetle				S3	1	3.0 ± 0.0
I	<i>Somatochlora forcipata</i>	Forcipate Emerald				S3	1	2.5 ± 1.0
I	<i>Polygonia interrogationis</i>	Question Mark				S3B	7	2.1 ± 2.0
I	<i>Polygonia faunus</i>	Green Comma				S3S4	2	5.4 ± 2.0
I	<i>Aeshna constricta</i>	Lance-Tipped Darner				S3S4	2	5.1 ± 1.0
I	<i>Gomphaeschna furcillata</i>	Harlequin Darner				S3S4	1	6.7 ± 0.0
I	<i>Erythrodiplox berenice</i>	Seaside Dragonlet				S3S4	1	5.0 ± 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?
<i>Fraxinus nigra</i>	Black Ash		Threatened	No
<i>Emydoidea blandingii</i>	Blanding's Turtle - Nova Scotia pop.	Endangered	Endangered	No
<i>Glyptemys insculpta</i>	Wood Turtle	Threatened	Threatened	YES
<i>Falco peregrinus pop. 1</i>	Peregrine Falcon - anatum/tundrius pop.		Vulnerable	YES
<i>Bat hibernaculum</i> 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.

# recs	CITATION
957	iNaturalist.ca. 2023. iNaturalist Data Export December 2022. iNaturalist.org; iNaturalist.ca.
495	Morrison, Guy. 2011. Maritime Shorebird Survey (MSS) database. Canadian Wildlife Service, Ottawa, 15939 surveys. 86171 recs.
190	iNaturalist. 2020. iNaturalist Data Export 2020. iNaturalist.org and iNaturalist.ca, Web site: 128728 recs.
123	Paquet, Julie. 2018. Atlantic Canada Shorebird Survey (ACSS) database 2012-2018. Environment Canada, Canadian Wildlife Service.
71	Lepage, D. 2014. Maritime Breeding Bird Atlas Database. Bird Studies Canada, Sackville NB, 407,838 recs.
49	eBird. 2020. eBird Basic Dataset. Version: EBD_relNov-2019. Ithaca, New York. Nov 2019, Cape Breton Bras d'Or Lakes Watershed subset. Cornell Lab of Ornithology.
39	Amirault, D.L. & Stewart, J. 2007. Piping Plover Database 1894-2006. Canadian Wildlife Service, Sackville, 3344 recs, 1228 new.
33	Staicer, C. 2021. Additional compiled Nova Scotia Species at Risk bird records, 2005-2020. Dalhousie University.
21	Erskine, A.J. 1992. Maritime Breeding Bird Atlas Database. NS Museum & Nimbus Publ., Halifax, 82,125 recs.
12	Benjamin, L.K. (compiler). 2012. Significant Habitat & Species Database. Nova Scotia Dept Natural Resources, 4965 recs.
10	Staicer, C. & Bliss, S.; Achenbach, L. 2017. Occurrences of tracked breeding birds in forested wetlands. , 303 records.
10	Staicer, Cindy. 2022. 2021 Landbird Species at Risk observations. Dalhousie University.
9	Brunelle, P.-M. (compiler). 2009. ADIP/MDDS Odonata Database: data to 2006 inclusive. Atlantic Dragonfly Inventory Program (ADIP), 24200 recs.
9	Feltham, Carter. 2022. Monarch (<i>Danaus plexippus</i>) and Milkweed MTRI records from the 2022 Field Season. Mersey Tobetic Research Institute.
9	Nova Scotia Dept Natural Resources, Forestry Branch. 2007. Restricted & Limited Use Land Database (RLUL). , http://www.gov.ns.ca/natr/FORESTRY/rlul/downloadrlul.htm .
8	Canadian Wildlife Service. 2011. Eastern Canada Seabirds at Sea (ECSAS), 3.27 Ed. Environment Canada, 305,783 recs.
7	Layberry, R.A. & Hall, P.W., LaFontaine, J.D. 1998. The Butterflies of Canada. University of Toronto Press. 280 pp+plates.
6	Canadian Wildlife Service, Dartmouth. 2010. Piping Plover censuses 2007-09, 304 recs.
6	Staicer, Cindy. 2023. 2022 SAR Bird field occurrences from the Landbirds at Risk Project, NS. Dalhousie University, 446 records.
5	iNaturalist. 2020. iNaturalist butterfly records selected for the Maritimes Butterfly Atlas. iNaturalist.
5	Ogden, J. NS DNR Butterfly Collection Dataset. Nova Scotia Department of Natural Resources. 2014.
4	Hicks, Andrew. 2009. Coastal Waterfowl Surveys Database, 2000-08. Canadian Wildlife Service, Sackville, 46488 recs (11149 non-zero).
4	Klymko, J. 2018. Maritimes Butterfly Atlas database. Atlantic Canada Conservation Data Centre.
4	Newell, R.E. 2005. E.C. Smith Digital Herbarium. E.C. Smith Herbarium, Irving Biodiversity Collection, Acadia University, Web site: http://luxor.acadiau.ca/library/Herbarium/project/ . 582 recs.
4	Scott, F.W. 2002. Nova Scotia Herpetofauna Atlas Database. Acadia University, Wolfville NS, 8856 recs.
3	Amirault, D.L. & McKnight, J. 2003. Piping Plover Database 1991-2003. Canadian Wildlife Service, Sackville, unpublished data. 7 recs.
3	Chapman, C.J. 2019. Atlantic Canada Conservation Data Centre 2019 botanical fieldwork. Atlantic Canada Conservation Data Centre, 11729 recs.
3	e-Butterfly. 2016. Export of Maritimes records and photos. Maxim Larrivee, Sambo Zhang (ed.) e-butterfly.org.
3	Mersey Tobetic Research Institute. 2021. 2020 Monarch records from the MTRI monitoring program. Mersey Tobetic Research Institute, 72 records.
3	NatureServe Canada. 2019. iNaturalist Maritimes Butterfly Records. iNaturalist.org and iNaturalist.ca.
3	Neily, T.H. & Pepper, C.; Toms, B. 2018. Nova Scotia lichen database [as of 2018-03]. Mersey Tobetic Research Institute.
3	Ogden, K. Nova Scotia Museum butterfly specimen database. Nova Scotia Museum. 2017.
3	Zinck, M. & Roland, A.E. 1998. Roland's Flora of Nova Scotia. Nova Scotia Museum, 3rd ed., rev. M. Zinck; 2 Vol., 1297 pp.
2	Benjamin, L.K. (compiler). 2007. Significant Habitat & Species Database. Nova Scotia Dept Natural Resources, 8439 recs.
2	Munro, Marian K. Nova Scotia Provincial Museum of Natural History Herbarium Database. Nova Scotia Provincial Museum of Natural History, Halifax, Nova Scotia. 2013.

# recs	CITATION
2	Munro, Marian K. Nova Scotia Provincial Museum of Natural History Herbarium Database. Nova Scotia Provincial Museum of Natural History, Halifax, Nova Scotia. 2014.
2	Paquet, Julie. 2019. Atlantic Canada Shorebird Survey ACSS database for 2019. Environment Canada, Canadian Wildlife Service.
1	Belland, R.J. Maritimes moss records from various herbarium databases. 2014.
1	Christie, D.S. 2000. Christmas Bird Count Data, 1997-2000. Nature NB, 54 recs.
1	e-Butterfly. 2019. Export of Maritimes records and photos. McFarland, K. (ed.) e-butterfly.org.
1	Ferguson, D.C. 1954. The Lepidoptera of Nova Scotia. Part I, macrolepidoptera. Proceedings of the Nova Scotian Institute of Science, 23(3), 161-375.
1	Hubley, Nicole. 2022. Monarch (<i>Danaus plexippus</i>) records submitted to MTRI from the 2021 field season. Mersey Tobeatic Research Institute.
1	iNaturalist. 2018. iNaturalist Data Export 2018. iNaturalist.org and iNaturalist.ca, Web site: 11700 recs.
1	Mackinnon, D.; Wright, P.; Smith, D. 2014. 2014 Common Tern email report, Eastern Passage, NS. NS Department of Environment.
1	NatureServe Canada. 2018. iNaturalist Butterfly Data Export . iNaturalist.org and iNaturalist.ca.
1	Newell, R.E. 2000. E.C. Smith Herbarium Database. Acadia University, Wolfville NS, 7139 recs.
1	Nova Scotia Department of Lands and Forestry. 2020. NS Lands Proposed or Pending Protection. NSDLF, 231 features. Received via email.
1	Nova Scotia Dept Natural Resources, Mineral Resources Branch. 2007. Restricted & Limited Use Land Database (RLUL). , http://www.gov.ns.ca/natr/forestry/rlul/download.asp . 767 recs.
1	Pronych, G. & Wilson, A. 1993. Atlas of Rare Vascular Plants in Nova Scotia. Nova Scotia Museum, Halifax NS, I:1-168, II:169-331. 1446 recs.
1	Richardson, Leif. 2018. Maritimes Bombus records from various sources. Richardson, Leif.
1	Roland, A.E. & Smith, E.C. 1969. The Flora of Nova Scotia, 1st Ed. Nova Scotia Museum, Halifax, 743pp.
1	Sabine, D.L. Bombus terricola specimens in Dwayne Sabine's personal collection. pers. comm. 2022.
1	Staicer, Cindy. 2023. 2022 SAR Bird ARU occurrences. Dalhousie University, 379 records.
1	Sutherland, B. 2000. NSNT Properties Data. Nova Scotia Nature Trust, 5 locations.
1	Treasury Board of Canada Secretariat. 2020. National Historic Sites. Directory of Federal Real Property. https://www.tbs-sct.gc.ca/dfrp-rbif/home-accueil-eng.aspx .

5.0 RARE SPECIES WITHIN 100 KM

A 100 km buffer around the study area contains 38530 records of 164 vertebrate and 1880 records of 69 invertebrate fauna; 7454 records of 269 vascular and 2990 records of 181 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 ($\pm$ 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	<i>Coregonus huntsmani</i>	Atlantic Whitefish	Endangered	Endangered	Endangered	S1	146	90.9 $\pm$ 1.0	NS
A	<i>Myotis lucifugus</i>	Little Brown Myotis	Endangered	Endangered	Endangered	S1	228	6.3 $\pm$ 0.0	NS
A	<i>Myotis septentrionalis</i>	Northern Myotis	Endangered	Endangered	Endangered	S1	20	40.4 $\pm$ 0.0	NS
A	<i>Perimyotis subflavus</i>	Tricolored Bat	Endangered	Endangered	Endangered	S1	22	40.4 $\pm$ 0.0	NS
A	<i>Emydoidea blandingii</i>	Blanding's Turtle	Endangered	Endangered	Endangered	S1	2	10.8 $\pm$ 0.0	NS
A	<i>Salmo salar pop. 1</i>	Atlantic Salmon - Inner Bay of Fundy population	Endangered	Endangered		S1	34	27.8 $\pm$ 0.0	NS
A	<i>Salmo salar pop. 6</i>	Atlantic Salmon - Nova Scotia Southern Upland population	Endangered			S1	35	15.0 $\pm$ 0.0	NS
A	<i>Charadrius melodus melodus</i>	Piping Plover melodus subspecies	Endangered	Endangered	Endangered	S1B	990	3.3 $\pm$ 7.0	NS
A	<i>Sterna dougallii</i>	Roseate Tern	Endangered	Endangered	Endangered	S1B	68	19.9 $\pm$ 0.0	NS
A	<i>Dermochelys coriacea pop. 2</i>	Leatherback Sea Turtle - Atlantic population	Endangered	Endangered		S1S2N	3	44.7 $\pm$ 5.0	NS
A	<i>Morone saxatilis pop. 2</i>	Striped Bass - Bay of Fundy population	Endangered			S2S3B,S2S3N	4	35.8 $\pm$ 0.0	NS
A	<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker	Endangered	Threatened		SNA	1	89.4 $\pm$ 0.0	NS
A	<i>Protonotaria citrea</i>	Prothonotary Warbler	Endangered	Endangered		SNA	1	19.7 $\pm$ 0.0	NS
A	<i>Icteria virens</i>	Yellow-Breasted Chat	Endangered	Endangered		SNA	24	3.4 $\pm$ 0.0	NS
A	<i>Lasiurus cinereus</i>	Hoary Bat	Endangered			SUB, S1M	23	16.0 $\pm$ 0.0	NS
A	<i>Lasionycteris noctivagans</i>	Silver-haired Bat	Endangered			SUB,S1M	9	6.5 $\pm$ 0.0	NS
A	<i>Lasiurus borealis</i>	Eastern Red Bat	Endangered			SUB,S1M	1	83.7 $\pm$ 0.0	NS
A	<i>Colinus virginianus</i>	Northern Bobwhite	Endangered	Endangered			7	26.7 $\pm$ 0.0	NS

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
A	<i>Asio flammeus</i>	Short-eared Owl	Threatened	Special Concern		S1B	31	3.3 ± 0.0	NS
A	<i>Glyptemys insculpta</i>	Wood Turtle	Threatened	Threatened	Threatened	S2	826	6.7 ± 1.0	NS
A	<i>Riparia riparia</i>	Bank Swallow	Threatened	Threatened	Endangered	S2B	1343	2.7 ± 0.0	NS
A	<i>Thamnophis saurita</i>	Eastern Ribbonsnake	Threatened	Threatened	Threatened	S2S3	15	86.5 ± 1.0	NS
A	<i>Chaetura pelagica</i>	Chimney Swift	Threatened	Threatened	Endangered	S2S3B,S1M	885	2.4 ± 1.0	NS
A	<i>Limosa haemastica</i>	Hudsonian Godwit	Threatened			S2S3M	102	4.4 ± 0.0	NS
A	<i>Acipenser oxyrinchus</i>	Atlantic Sturgeon	Threatened			S2S3N	9	40.8 ± 0.0	NS
A	<i>Hydrobates leucorhous</i>	Leach's Storm-Petrel	Threatened			S3B	58	8.3 ± 7.0	NS
A	<i>Tringa flavipes</i>	Lesser Yellowlegs	Threatened			S3M	934	3.1 ± 0.0	NS
A	<i>Anguilla rostrata</i>	American Eel	Threatened			S3N	110	3.6 ± 0.0	NS
A	<i>Sturnella magna</i>	Eastern Meadowlark	Threatened	Threatened		SHB	3	9.4 ± 0.0	NS
A	<i>Melanerpes lewis</i>	Lewis's Woodpecker	Threatened	Threatened		SNA	2	15.7 ± 0.0	NS
A	<i>Ixobrychus exilis</i>	Least Bittern	Threatened	Threatened		SUB	2	7.6 ± 0.0	NS
A	<i>Hylocichla mustelina</i>	Wood Thrush	Threatened	Threatened		SUB	31	30.9 ± 0.0	NS
A	<i>Antrostomus vociferus</i>	Eastern Whip-Poor-Will	Special Concern	Threatened	Threatened	S1?B	12	1.3 ± 0.0	NS
A	<i>Passerculus sandwichensis princeps</i>	Ipswich Sparrow	Special Concern	Special Concern		S1B	30	3.6 ± 0.0	NS
A	<i>Bucephala islandica</i>	Barrow's Goldeneye	Special Concern	Special Concern		S1N,SUM	20	4.8 ± 0.0	NS
A	<i>Euphagus carolinus</i>	Rusty Blackbird	Special Concern	Special Concern	Endangered	S2B	205	3.3 ± 7.0	NS
A	<i>Balaenoptera physalus</i>	Fin Whale	Special Concern	Special Concern		S2S3	3	23.5 ± 0.0	NS
A	<i>Phalaropus lobatus</i>	Red-necked Phalarope	Special Concern	Special Concern		S2S3M	11	4.4 ± 0.0	NS
A	<i>Histrionicus histrionicus pop. 1</i>	Harlequin Duck - Eastern population	Special Concern	Special Concern	Endangered	S2S3N,SUM	74	4.7 ± 0.0	NS
A	<i>Chelydra serpentina</i>	Snapping Turtle	Special Concern	Special Concern	Vulnerable	S3	358	3.3 ± 10.0	NS
A	<i>Hirundo rustica</i>	Barn Swallow	Special Concern	Threatened	Endangered	S3B	1031	3.3 ± 0.0	NS
A	<i>Cardellina canadensis</i>	Canada Warbler	Special Concern	Threatened	Endangered	S3B	898	0.8 ± 0.0	NS
A	<i>Chordeiles minor</i>	Common Nighthawk	Special Concern	Special Concern	Threatened	S3B	434	3.3 ± 7.0	NS
A	<i>Contopus cooperi</i>	Olive-sided Flycatcher	Special Concern	Special Concern	Threatened	S3B	697	3.3 ± 7.0	NS
A	<i>Dolichonyx oryzivorus</i>	Bobolink	Special Concern	Threatened	Vulnerable	S3B	556	3.3 ± 7.0	NS
A	<i>Coccothraustes vespertinus</i>	Evening Grosbeak	Special Concern	Special Concern	Vulnerable	S3B,S3N,S3M	527	3.3 ± 7.0	NS
A	<i>Podiceps auritus</i>	Horned Grebe	Special Concern	Special Concern		S3N,SUM	21	37.9 ± 0.0	NS
A	<i>Contopus virens</i>	Eastern Wood-Pewee	Special Concern	Special Concern	Vulnerable	S3S4B	766	0.7 ± 0.0	NS
A	<i>Phocoena phocoena</i>	Harbour Porpoise	Special Concern			S4	15	7.9 ± 7.0	NS
A	<i>Phocoena phocoena pop. 1</i>	Harbour Porpoise - Northwest Atlantic Population	Special Concern			S4	2	76.2 ± 0.0	NS
A	<i>Chrysemys picta</i>	Painted Turtle	Special Concern	Special Concern		S4	66	2.7 ± 0.0	NS
A	<i>Chrysemys picta picta</i>	Eastern Painted Turtle	Special Concern	Special Concern		S4	422	3.0 ± 0.0	NS
A	<i>Calidris subruficollis</i>	Buff-breasted Sandpiper	Special Concern	Special Concern		SNA	52	4.8 ± 0.0	NS
A	<i>Zonotrichia querula</i>	Harris's Sparrow	Special Concern			SNA	1	7.1 ± 0.0	NS
A	<i>Anarhichas lupus</i>	Atlantic Wolffish	Special Concern	Special Concern		SNR	5	5.9 ± 0.0	NS
A	<i>Acipenser brevirostrum</i>	Shortnose Sturgeon	Special Concern	Special Concern			1	91.9 ± 0.0	NS
A	<i>Accipiter cooperii</i>	Cooper's Hawk	Not At Risk			S1?B,SUN,SUM	12	6.7 ± 0.0	NS
A	<i>Fulica americana</i>	American Coot	Not At Risk			S1B	41	2.7 ± 0.0	NS
A	<i>Chlidonias niger</i>	Black Tern	Not At Risk			S1B	1	17.0 ± 0.0	NS
A	<i>Falco peregrinus pop. 1</i>	Peregrine Falcon - anatum/tundrius	Not At Risk		Vulnerable	S1B,SUM	48	4.4 ± 0.0	NS
A	<i>Sorex dispar</i>	Long-tailed Shrew	Not At Risk			S2	2	95.7 ± 0.0	NS
A	<i>Aegolius funereus</i>	Boreal Owl	Not At Risk			S2?B,SUM	4	39.3 ± 7.0	NS
A	<i>Lynx canadensis</i>	Canada Lynx	Not At Risk		Endangered	S2S3	2	82.3 ± 1.0	NS
A	<i>Globicephala melas</i>	Long-finned Pilot Whale	Not At Risk			S2S3	3	4.2 ± 0.0	NS
A	<i>Hemidactylium scutatum</i>	Four-toed Salamander	Not At Risk			S3	32	10.6 ± 0.0	NS
A	<i>Megaptera novaeangliae</i>	Humpback Whale	Not At Risk			S3	2	4.3 ± 0.0	NS
A	<i>Sterna hirundo</i>	Common Tern	Not At Risk			S3B	319	3.4 ± 0.0	NS
A	<i>Sialia sialis</i>	Eastern Bluebird	Not At Risk			S3B	50	10.1 ± 0.0	NS
A	<i>Buteo lagopus</i>	Rough-legged Hawk	Not At Risk			S3N	1	4.6 ± 0.0	NS
A	<i>Accipiter gentilis</i>	Northern Goshawk	Not At Risk			S3S4	113	3.3 ± 7.0	NS
A	<i>Glaucomys volans</i>	Southern Flying Squirrel	Not At Risk			S3S4	8	40.3 ± 2.0	NS

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
A	<i>Lagenorhynchus acutus</i>	Atlantic White-sided Dolphin	Not At Risk			S3S4	5	12.6 ± 2.0	NS
A	<i>Ammospiza nelsoni</i>	Nelson's Sparrow	Not At Risk			S3S4B	136	3.3 ± 7.0	NS
A	<i>Calidris canutus rufa</i>	Red Knot rufa subspecies	E,SC	Endangered	Endangered	S2M	644	4.4 ± 0.0	NS
A	<i>Calidris canutus</i>	Red Knot	E,SC	E,T		S2M	4	4.6 ± 1.0	NS
A	<i>Morone saxatilis</i>	Striped Bass	E,SC			S2S3B,S2S3N	29	5.1 ± 0.0	NS
A	<i>Gadus morhua</i>	Atlantic Cod	E,SC,DD			SNR	11	3.6 ± 0.0	NS
A	<i>Salmo salar</i>	Atlantic Salmon	E,T,SC			S1B,S1N	13	42.8 ± 0.0	NS
A	<i>Alces alces americana</i>	Moose			Endangered	S1	57	16.1 ± 0.0	NS
A	<i>Alces alces</i>	Moose				S1	6	26.9 ± 0.0	NS
A	<i>Uria aalge</i>	Common Murre				S1?B	7	4.3 ± 0.0	NS
A	<i>Passerina cyanea</i>	Indigo Bunting				S1?B,SUM	19	4.1 ± 0.0	NS
A	<i>Oxyura jamaicensis</i>	Ruddy Duck				S1B	13	2.7 ± 0.0	NS
A	<i>Gallinula galeata</i>	Common Gallinule				S1B	8	6.1 ± 0.0	NS
A	<i>Myiarchus crinitus</i>	Great Crested Flycatcher				S1B	27	8.1 ± 7.0	NS
A	<i>Cistothorus palustris</i>	Marsh Wren				S1B	2	74.7 ± 0.0	NS
A	<i>Mimus polyglottos</i>	Northern Mockingbird				S1B	75	2.7 ± 0.0	NS
A	<i>Toxostoma rufum</i>	Brown Thrasher				S1B	13	8.1 ± 0.0	NS
A	<i>Charadrius semipalmatus</i>	Semipalmated Plover				S1B,S4M	1883	3.0 ± 0.0	NS
A	<i>Calidris minutilla</i>	Least Sandpiper				S1B,S4M	1348	2.7 ± 7.0	NS
A	<i>Anas acuta</i>	Northern Pintail				S1B,SUM	68	2.8 ± 0.0	NS
A	<i>Vireo gilvus</i>	Warbling Vireo				S1B,SUM	19	13.7 ± 0.0	NS
A	<i>Vespertilionidae sp.</i>	bat species				S1S2	177	3.6 ± 0.0	NS
A	<i>Poocetes gramineus</i>	Vesper Sparrow				S1S2B,SUM	17	22.6 ± 7.0	NS
A	<i>Vireo philadelphicus</i>	Philadelphia Vireo				S2?B,SUM	31	1.3 ± 0.0	NS
A	<i>Alca torda</i>	Razorbill				S2B	26	11.8 ± 0.0	NS
A	<i>Fratercula arctica</i>	Atlantic Puffin				S2B	33	39.2 ± 0.0	NS
A	<i>Empidonax traillii</i>	Willow Flycatcher				S2B	25	7.9 ± 7.0	NS
A	<i>Molothrus ater</i>	Brown-headed Cowbird				S2B	133	3.3 ± 7.0	NS
A	<i>Spatula clypeata</i>	Northern Shoveler				S2B,SUM	28	1.5 ± 0.0	NS
A	<i>Mareca strepera</i>	Gadwall				S2B,SUM	35	2.8 ± 0.0	NS
A	<i>Piranga olivacea</i>	Scarlet Tanager				S2B,SUM	36	1.8 ± 0.0	NS
A	<i>Calidris alba</i>	Sanderling				S2N,S3M	1465	3.4 ± 0.0	NS
A	<i>Martes americana</i>	American Marten			Endangered	S2S3	2	16.6 ± 0.0	NS
A	<i>Asio otus</i>	Long-eared Owl				S2S3	22	3.2 ± 0.0	NS
A	<i>Rallus limicola</i>	Virginia Rail				S2S3B	18	12.5 ± 7.0	NS
A	<i>Rissa tridactyla</i>	Black-legged Kittiwake				S2S3B	16	39.2 ± 0.0	NS
A	<i>Petrochelidon pyrrhonota</i>	Cliff Swallow				S2S3B	211	3.3 ± 7.0	NS
A	<i>Phalacrocorax carbo</i>	Great Cormorant				S2S3B,S2S3N	93	7.1 ± 12.0	NS
A	<i>Cathartes aura</i>	Turkey Vulture				S2S3B,S4S5M	92	1.4 ± 0.0	NS
A	<i>Setophaga pinus</i>	Pine Warbler				S2S3B,S4S5M	42	4.0 ± 0.0	NS
A	<i>Bucephala clangula</i>	Common Goldeneye				S2S3B,S5N,S5M	282	3.3 ± 0.0	NS
A	<i>Icterus galbula</i>	Baltimore Oriole				S2S3B,SUM	70	3.1 ± 0.0	NS
A	<i>Pluvialis dominica</i>	American Golden-Plover				S2S3M	258	4.4 ± 0.0	NS
A	<i>Numenius phaeopus</i>	Whimbrel				S2S3M	20	3.7 ± 0.0	NS
A	<i>Numenius phaeopus hudsonicus</i>	Whimbrel				S2S3M	255	4.4 ± 0.0	NS
A	<i>Phalaropus fulicarius</i>	Red Phalarope				S2S3M	4	4.4 ± 0.0	NS
A	<i>Perisoreus canadensis</i>	Canada Jay				S3	499	2.7 ± 0.0	NS
A	<i>Poecile hudsonicus</i>	Boreal Chickadee				S3	536	1.0 ± 1.0	NS
A	<i>Spinus pinus</i>	Pine Siskin				S3	421	3.3 ± 7.0	NS
A	<i>Salvelinus fontinalis</i>	Brook Trout				S3	100	9.8 ± 0.0	NS
A	<i>Salvelinus namaycush</i>	Lake Trout				S3	2	33.4 ± 0.0	NS
A	<i>Sorex maritimensis</i>	Maritime Shrew				S3	1	86.4 ± 1.0	NS
A	<i>Synaptomys cooperi</i>	Southern Bog Lemming				S3	1	98.0 ± 0.0	NS
A	<i>Pekania pennanti</i>	Fisher				S3	9	32.2 ± 0.0	NS
A	<i>Calcarius lapponicus</i>	Lapland Longspur				S3?N,SUM	6	3.6 ± 0.0	NS
A	<i>Spatula discors</i>	Blue-winged Teal				S3B	67	3.1 ± 0.0	NS
A	<i>Charadrius vociferus</i>	Killdeer				S3B	532	4.1 ± 0.0	NS

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
A	<i>Tringa semipalmata</i>	Willet				S3B	1852	2.9 ± 0.0	NS
A	<i>Sterna paradisaea</i>	Arctic Tern				S3B	69	7.5 ± 0.0	NS
A	<i>Coccyzus erythrophthalmus</i>	Black-billed Cuckoo				S3B	39	3.3 ± 7.0	NS
A	<i>Tyrannus tyrannus</i>	Eastern Kingbird				S3B	175	3.3 ± 7.0	NS
A	<i>Pheucticus ludovicianus</i>	Rose-breasted Grosbeak				S3B	313	3.0 ± 0.0	NS
A	<i>Alosa pseudoharengus</i>	Alewife				S3B	33	15.7 ± 0.0	NS
A	<i>Somateria mollissima</i>	Common Eider				S3B,S3M,S3N	1013	2.7 ± 0.0	NS
A	<i>Tringa melanoleuca</i>	Greater Yellowlegs				S3B,S4M	2084	1.0 ± 1.0	NS
A	<i>Falco sparverius</i>	American Kestrel				S3B,S4S5M	230	5.1 ± 0.0	NS
A	<i>Gallinago delicata</i>	Wilson's Snipe				S3B,S5M	528	3.3 ± 7.0	NS
A	<i>Setophaga striata</i>	Blackpoll Warbler				S3B,S5M	135	2.2 ± 0.0	NS
A	<i>Cardellina pusilla</i>	Wilson's Warbler				S3B,S5M	71	8.1 ± 7.0	NS
A	<i>Pinicola enucleator</i>	Pine Grosbeak				S3B,S5N,S5M	131	3.3 ± 7.0	NS
A	<i>Setophaga tigrina</i>	Cape May Warbler				S3B,SUM	148	4.3 ± 0.0	NS
A	<i>Branta bernicla</i>	Brant				S3M	3	4.8 ± 0.0	NS
A	<i>Pluvialis squatarola</i>	Black-bellied Plover				S3M	2038	3.0 ± 0.0	NS
A	<i>Arenaria interpres</i>	Ruddy Turnstone				S3M	794	3.4 ± 0.0	NS
A	<i>Calidris pusilla</i>	Semipalmated Sandpiper				S3M	1678	3.0 ± 0.0	NS
A	<i>Calidris melanotos</i>	Pectoral Sandpiper				S3M	348	4.0 ± 0.0	NS
A	<i>Limnodromus griseus</i>	Short-billed Dowitcher				S3M	1293	3.0 ± 0.0	NS
A	<i>Chroicocephalus ridibundus</i>	Black-headed Gull				S3N	30	2.8 ± 0.0	NS
A	<i>Picoides arcticus</i>	Black-backed Woodpecker				S3S4	155	7.9 ± 7.0	NS
A	<i>Loxia curvirostra</i>	Red Crossbill				S3S4	220	1.0 ± 0.0	NS
A	<i>Botaurus lentiginosus</i>	American Bittern				S3S4B,S4S5M	168	3.3 ± 7.0	NS
A	<i>Setophaga castanea</i>	Bay-breasted Warbler				S3S4B,S4S5M	363	3.3 ± 7.0	NS
A	<i>Actitis macularius</i>	Spotted Sandpiper				S3S4B,S5M	751	3.3 ± 7.0	NS
A	<i>Leiothlypis peregrina</i>	Tennessee Warbler				S3S4B,S5M	381	3.3 ± 7.0	NS
A	<i>Passerella iliaca</i>	Fox Sparrow				S3S4B,S5M	89	3.4 ± 0.0	NS
A	<i>Mergus serrator</i>	Red-breasted Merganser				S3S4B,S5M,S5N	327	3.3 ± 7.0	NS
A	<i>Calidris maritima</i>	Purple Sandpiper				S3S4N	198	4.1 ± 10.0	NS
A	<i>Lanius borealis</i>	Northern Shrike				S3S4N	2	27.0 ± 0.0	NS
A	<i>Morus bassanus</i>	Northern Gannet				SHB	62	3.0 ± 3.0	NS
A	<i>Aythya americana</i>	Redhead				SHB	5	3.0 ± 0.0	NS
A	<i>Leucophaeus atricilla</i>	Laughing Gull				SHB	12	3.4 ± 0.0	NS
A	<i>Progne subis</i>	Purple Martin				SHB	1	7.6 ± 0.0	NS
A	<i>Eremophila alpestris</i>	Horned Lark				SHB,S4S5N,S5M	25	7.7 ± 0.0	NS
I	<i>Bombus bohemicus</i>	Ashton Cuckoo Bumble Bee	Endangered	Endangered	Endangered	S1	24	5.6 ± 1.0	NS
I	<i>Danaus plexippus</i>	Monarch	Endangered	Special Concern	Endangered	S2?B,S3M	896	1.2 ± 2.0	NS
I	<i>Danaus plexippus plexippus</i>	Monarch	Endangered	Special Concern		S2?B,S3M	2	57.1 ± 0.0	NS
I	<i>Barnea truncata</i>	Atlantic Mud-piddock	Threatened	Threatened		S1	10	79.7 ± 0.0	NS
I	<i>Bombus suckleyi</i>	Suckley's Cuckoo Bumble Bee	Threatened			SH	4	54.3 ± 5.0	NS
I	<i>Alasmodonta varicosa</i>	Brook Floater	Special Concern	Special Concern	Threatened	S3	5	44.5 ± 0.0	NS
I	<i>Bombus terricola</i>	Yellow-banded Bumble Bee	Special Concern	Special Concern	Vulnerable	S3	144	1.4 ± 0.0	NS
I	<i>Coccinella transversoguttata richardsoni</i>	Transverse Lady Beetle	Special Concern		Endangered	SH	4	51.4 ± 2.0	NS
I	<i>Gomphurus ventricosus</i>	Skillet Clubtail	Special Concern	Endangered		SH	2	33.3 ± 0.0	NS
I	<i>Cicindela formosa</i>	Big Sand Tiger Beetle				S1	1	92.8 ± 1.0	NS
I	<i>Erora laeta</i>	Early Hairstreak				S1	1	13.5 ± 1.0	NS
I	<i>Pachydiplax longipennis</i>	Blue Dasher				S1	28	2.9 ± 0.0	NS
I	<i>Polygonia comma</i>	Eastern Comma				S1?	21	7.4 ± 0.0	NS
I	<i>Polygonia satyrus</i>	Satyr Comma				S1?	7	13.0 ± 1.0	NS
I	<i>Somatochlora brevicincta</i>	Quebec Emerald				S1S2	1	15.9 ± 0.0	NS
I	<i>Tharsalea dospassosi</i>	Maritime Copper				S2	3	11.0 ± 5.0	NS
I	<i>Satyrrium acadica</i>	Acadian Hairstreak				S2	4	88.7 ± 2.0	NS
I	<i>Coenagrion resolutum</i>	Taiga Bluet				S2	2	21.2 ± 1.0	NS
I	<i>Margaritifera margaritifera</i>	Eastern Pearlshell				S2	65	30.5 ± 0.0	NS
I	<i>Pantala hymenaea</i>	Spot-Winged Glider				S2?B	6	2.5 ± 1.0	NS

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
I	<i>Nymphalis l-album</i>	Compton Tortoiseshell				S2S3	19	5.4 ± 2.0	NS
I	<i>Aglais milberti</i>	Milbert's Tortoiseshell				S2S3	19	4.9 ± 1.0	NS
I	<i>Somatochlora kennedyi</i>	Kennedy's Emerald				S2S3	3	2.5 ± 1.0	NS
I	<i>Enallagma geminatum</i>	Skimming Bluet				S2S3	2	93.6 ± 0.0	NS
I	<i>Stylurus scudderii</i>	Zebra Clubtail				S2S3	4	33.3 ± 0.0	NS
I	<i>Alasmidonta undulata</i>	Triangle Floater				S2S3	22	8.4 ± 0.0	NS
I	<i>Strophiona nitens</i>	Chestnut Bark Long-horned Beetle				S3	2	16.8 ± 0.0	NS
I	<i>Psephenus herricki</i>	Herrick's Water Penny Beetle				S3	1	75.1 ± 0.0	NS
I	<i>Carabus serratus</i>	Serrated Ground Beetle				S3	1	86.7 ± 0.0	NS
I	<i>Hippodamia parenthesis</i>	Parenthesis Lady Beetle				S3	3	3.4 ± 0.0	NS
I	<i>Disonychia pensylvanica</i>	Pennsylvania Flea Beetle				S3	1	92.8 ± 0.0	NS
I	<i>Chrysoschus auratus</i>	Dogbane Leaf Beetle				S3	1	37.4 ± 0.0	NS
I	<i>Naemia seriata</i>	Seaside Lady Beetle				S3	29	3.7 ± 0.0	NS
I	<i>Elateroides lugubris</i>	Sapwood Ship-timber Beetle				S3	1	15.0 ± 0.0	NS
I	<i>Chilocorus stigma</i>	Twice-stabbed Lady Beetle				S3	10	11.8 ± 0.0	NS
I	<i>Myzia pullata</i>	Streaked Lady Beetle				S3	5	3.0 ± 0.0	NS
I	<i>Monochamus marmorator</i>	Balsam Fir Sawyer				S3	1	29.4 ± 0.0	NS
I	<i>Trachysida aspera</i>	Rough Flower Longhorn Beetle				S3	1	10.5 ± 0.0	NS
I	<i>Dicerca tuberculata</i>	Swollen Jewel Beetle				S3	1	27.9 ± 9.0	NS
I	<i>Astylopsis sexguttata</i>	Six-speckled Long-horned Beetle				S3	2	22.4 ± 0.0	NS
I	<i>Satyrium calanus</i>	Banded Hairstreak				S3	71	7.8 ± 1.0	NS
I	<i>Callophrys lanoraieensis</i>	Bog Elfin				S3	23	19.4 ± 2.0	NS
I	<i>Strymon melinus</i>	Gray Hairstreak				S3	12	13.0 ± 1.0	NS
I	<i>Ophiogomphus aspersus</i>	Brook Snaketail				S3	2	39.6 ± 0.0	NS
I	<i>Ophiogomphus mainensis</i>	Maine Snaketail				S3	11	87.9 ± 0.0	NS
I	<i>Ophiogomphus rupinsulensis</i>	Rusty Snaketail				S3	21	33.3 ± 0.0	NS
I	<i>Epitheca princeps</i>	Prince Baskettail				S3	14	16.7 ± 0.0	NS
I	<i>Somatochlora forcipata</i>	Forcinate Emerald				S3	4	2.5 ± 1.0	NS
I	<i>Enallagma vernale</i>	Vernal Bluet				S3	5	19.4 ± 0.0	NS
I	<i>Polygonia interrogationis</i>	Question Mark				S3B	164	2.1 ± 2.0	NS
I	<i>Lepturopsis biforis</i>	Two-spotted Long-horned Beetle				S3S4	1	68.1 ± 0.0	NS
I	<i>Cecropterus pylades</i>	Northern Cloudywing				S3S4	5	87.4 ± 2.0	NS
I	<i>Amblyscirtes hegon</i>	Pepper and Salt Skipper				S3S4	26	8.0 ± 0.0	NS
I	<i>Cupido comyntas</i>	Eastern Tailed Blue				S3S4	28	21.6 ± 0.0	NS
I	<i>Argynnis aphrodite</i>	Aphrodite Fritillary				S3S4	27	15.8 ± 0.0	NS
I	<i>Polygonia faunus</i>	Green Comma				S3S4	14	5.4 ± 2.0	NS
I	<i>Oeneis jutta</i>	Jutta Arctic				S3S4	6	40.6 ± 1.0	NS
I	<i>Aeshna clepsydra</i>	Mottled Darner				S3S4	11	14.5 ± 1.0	NS
I	<i>Aeshna constricta</i>	Lance-Tipped Darner				S3S4	21	5.1 ± 1.0	NS
I	<i>Boyeria grafiana</i>	Ocellated Darner				S3S4	3	56.4 ± 1.0	NS
I	<i>Gomphaeschna furcillata</i>	Harlequin Darner				S3S4	14	6.7 ± 0.0	NS
I	<i>Somatochlora franklini</i>	Delicate Emerald				S3S4	2	43.0 ± 1.0	NS
I	<i>Erythrodiplex berenice</i>	Seaside Dragonlet				S3S4	7	5.0 ± 0.0	NS
I	<i>Nannothemis bella</i>	Elfin Skimmer				S3S4	21	14.6 ± 0.0	NS
I	<i>Enallagma vesperum</i>	Vesper Bluet				S3S4	4	43.0 ± 0.0	NS
I	<i>Amphiagrion saucium</i>	Eastern Red Damsel				S3S4	2	82.7 ± 1.0	NS
I	<i>Sphaerophoria pyrrhina</i>	Violaceous Globetail				SH	1	81.0 ± 5.0	NS
I	<i>Icaricia saepiolus</i>	Greenish Blue				SH	1	13.0 ± 2.0	NS
I	<i>Polygonia gracilis</i>	Hoary Comma				SH	1	82.8 ± 2.0	NS
N	<i>Erioderma mollissimum</i>	Graceful Felt Lichen	Endangered	Endangered	Endangered	S1	25	38.2 ± 0.0	NS
N	<i>Erioderma pedicellatum</i> (Atlantic pop.)	Boreal Felt Lichen - Atlantic pop.	Endangered	Endangered	Endangered	S1	426	18.4 ± 0.0	NS
N	<i>Peltigera hydrothyria</i>	Eastern Waterfan	Threatened	Threatened	Threatened	S1	16	58.7 ± 0.0	NS

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
N	<i>Pannaria lurida</i>	Wrinkled Shingle Lichen	Threatened	Threatened	Threatened	S2S3	155	15.1 ± 1.0	NS
N	<i>Anzia colpodes</i>	Black-foam Lichen	Threatened	Threatened	Threatened	S3	38	15.5 ± 0.0	NS
N	<i>Fuscopannaria leucosticta</i>	White-rimmed Shingle Lichen	Threatened			S3	18	19.3 ± 0.0	NS
N	<i>Heterodermia squamulosa</i>	Scaly Fringe Lichen	Threatened			S3	9	46.2 ± 0.0	NS
N	<i>Pectenia plumbea</i>	Blue Felt Lichen	Special Concern	Special Concern	Vulnerable	S3	250	7.6 ± 0.0	NS
N	<i>Sclerophora peronella</i> (Atlantic pop.)	Frosted Glass-whiskers (Atlantic population)	Special Concern	Special Concern		S3S4	30	18.5 ± 7.0	NS
N	<i>Pseudevernia cladonia</i>	Ghost Antler Lichen	Not At Risk			S2S3	19	11.8 ± 1.0	NS
N	<i>Fissidens exilis</i>	Pygmy Pocket Moss	Not At Risk			S3	15	57.2 ± 0.0	NS
N	<i>Chaenotheca servitii</i>	Flexuous Golden Stubble	Data Deficient			S1	1	89.2 ± 1.0	NS
N	<i>Aloina brevirostris</i>	Short-Beaked Rigid Screw Moss				S1	2	57.6 ± 2.0	NS
N	<i>Sematophyllum demissum</i>	a Moss				S1	1	23.2 ± 2.0	NS
N	<i>Cyrtio-hyphnum minutulum</i>	Tiny Cedar Moss				S1	1	89.2 ± 0.0	NS
N	<i>Blennothallia crispa</i>	Crinkled Jelly Lichen				S1	1	77.7 ± 0.0	NS
N	<i>Umbilicaria vellea</i>	Grizzled Rocktripe Lichen				S1	1	32.0 ± 5.0	NS
N	<i>Usnea perplexans</i>	Powdered Beard Lichen				S1	1	79.9 ± 0.0	NS
N	<i>Lathagrium cristatum</i>	Fingered Jelly Lichen				S1	3	64.9 ± 0.0	NS
N	<i>Fuscopannaria praetermissa</i>	Moss Shingles Lichen				S1	1	62.7 ± 0.0	NS
N	<i>Scytinium schraderi</i>	Wrinkled Jellyskin Lichen				S1	1	67.7 ± 0.0	NS
N	<i>Lichina confinis</i>	Marine Seaweed Lichen				S1	4	19.7 ± 0.0	NS
N	<i>Polychidium muscicola</i>	Eyed Mossthorns				S1	1	74.0 ± 0.0	NS
N	<i>Pseudevernia consocians</i>	Woollybear Lichen				S1	1	82.5 ± 0.0	NS
N	<i>Sticta limbata</i>	Powdered Moon Lichen				S1	4	47.6 ± 3.0	NS
N	<i>Peltigera lepidophora</i>	Scaly Pelt Lichen				S1	5	61.3 ± 0.0	NS
N	<i>Bryoria nitidula</i>	Tundra Horsehair Lichen				S1	2	15.0 ± 0.0	NS
N	<i>Hypogymnia hultenii</i>	Powdered Honeycomb Lichen				S1	14	15.1 ± 1.0	NS
N	<i>Calypogeia neogaea</i>	Common Pouchwort				S1?	1	75.4 ± 0.0	NS
N	<i>Jubula pennsylvanica</i>	a liverwort				S1?	1	51.6 ± 0.0	NS
N	<i>Aloina rigida</i>	Aloe-Like Rigid Screw Moss				S1?	3	57.6 ± 2.0	NS
N	<i>Imbricium muehlenbeckii</i>	Muehlenbeck's Bryum Moss				S1?	2	73.7 ± 0.0	NS
N	<i>Conardia compacta</i>	Coast Creeping Moss				S1?	1	38.5 ± 2.0	NS
N	<i>Tortula obtusifolia</i>	a Moss				S1?	3	69.3 ± 0.0	NS
N	<i>Didymodon tophaceus</i>	Olive Beard Moss				S1?	2	77.4 ± 4.0	NS
N	<i>Homomallium adnatum</i>	Adnate Hairy-gray Moss				S1?	1	93.3 ± 0.0	NS
N	<i>Paludella squarrosa</i>	Tufted Fen Moss				S1?	3	57.5 ± 0.0	NS
N	<i>Physcomitrium immersum</i>	a Moss				S1?	1	93.8 ± 0.0	NS
N	<i>Schistostegia pennata</i>	Luminous Moss				S1?	2	53.1 ± 0.0	NS
N	<i>Enchylium limosum</i>	Lime-loving Tarpaper Lichen				S1?	2	77.4 ± 4.0	NS
N	<i>Scytinium intermedium</i>	Forty-five Jellyskin Lichen				S1?	1	77.4 ± 4.0	NS
N	<i>Melanelia culbersonii</i>	Appalachian Camouflage Lichen				S1?	1	50.3 ± 0.0	NS
N	<i>Arrhenopterum heterostichum</i>	One-sided Groove Moss				S1S2	2	57.6 ± 2.0	NS
N	<i>Mnium thomsonii</i>	Thomson's Leafy Moss				S1S2	1	63.3 ± 2.0	NS
N	<i>Tortula acaulon</i>	Cuspidate Earth Moss				S1S2	1	99.2 ± 0.0	NS
N	<i>Plagiothecium latebricola</i>	Alder Silk Moss				S1S2	1	60.3 ± 5.0	NS
N	<i>Platydictya confervoides</i>	a Moss				S1S2	1	61.4 ± 0.0	NS
N	<i>Sematophyllum marylandicum</i>	a Moss				S1S2	2	23.5 ± 3.0	NS
N	<i>Timmia megapolitana</i>	Metropolitan Timmia Moss				S1S2	2	94.7 ± 1.0	NS
N	<i>Tortula mucronifolia</i>	Mucronate Screw Moss				S1S2	1	98.4 ± 3.0	NS
N	<i>Pseudotaxiphyllum distichaceum</i>	a Moss				S1S2	1	54.7 ± 0.0	NS
N	<i>Haplocladium microphyllum</i>	Tiny-leaved Haplocladium				S1S2	1	75.9 ± 5.0	NS

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
N	<i>Rhynchostegium serrulatum</i>	Moss							
N	<i>Enchylium bachmanianum</i>	Dark Beaked Moss				S1S2	1	46.3 ± 2.0	NS
N	<i>Placidium squamulosum</i>	Bachman's Jelly Lichen				S1S2	2	65.1 ± 0.0	NS
N	<i>Pilophorus cereolus</i>	Limy Soil Stipplescale				S1S2	1	68.4 ± 6.0	NS
N	<i>Rhizoplaa subdiscrepans</i>	Lichen				S1S2	1	94.7 ± 3.0	NS
N	<i>Parmotrema reticulatum</i>	Powdered Matchstick Lichen				S1S2	1	51.5 ± 1.0	NS
N	<i>Parmeliella parvula</i>	Scattered Rock-posy Lichen				S1S2	1	81.0 ± 0.0	NS
N	<i>Umbilicaria polyrhiza</i>	Netted Ruffle Lichen				S1S2	11	30.1 ± 0.0	NS
N	<i>Lecanora polytropia</i>	Poor-man's Shingles Lichen				S1S3	1	88.6 ± 0.0	NS
N	<i>Acarospora sinopica</i>	Ballpoint Rocktripe Lichen				S1S3	2	19.6 ± 1.0	NS
N	<i>Heterodermia galactophylla</i>	a lichen				S1S3	2	12.3 ± 0.0	NS
N	<i>Xylopsora friesii</i>	a cracked lichen				S1S3	1	51.4 ± 0.0	NS
N	<i>Stereocaulon grande</i>	Branching Fringe Lichen				S1S3	2	8.0 ± 0.0	NS
N	<i>Stereocaulon intermedium</i>	a Lichen				S1S3	1	97.8 ± 0.0	NS
N	<i>Anacamptodon splachnoides</i>	Grand Foam Lichen				S2	3	17.5 ± 0.0	NS
N	<i>Sphagnum platyphyllum</i>	Pacific Brain Foam Lichen				S2	1	11.2 ± 30.0	NS
N	<i>Sphagnum subnitens</i>	a Moss				S2	2	24.7 ± 3.0	NS
N	<i>Usnea flavocardia</i>	Flat-leaved Peat Moss				S2	1	47.0 ± 2.0	NS
N	<i>Cystocoleus ebeneus</i>	Lustrous Peat Moss				S2	1	24.9 ± 4.0	NS
N	<i>Hypotrachyna catawbiensis</i>	Blood-splattered Beard				S2	3	19.4 ± 0.0	NS
N	<i>Scytinium imbricatum</i>	Lichen				S2	3	51.5 ± 0.0	NS
N	<i>Nephroma arcticum</i>	Rockgossamer Lichen				S2	2	71.9 ± 4.0	NS
N	<i>Nephroma resupinatum</i>	Powder-tipped Antler Lichen				S2	1	11.8 ± 1.0	NS
N	<i>Placynthium flabellum</i>	Scaly Jellyskin Lichen				S2	11	17.0 ± 5.0	NS
N	<i>Moerckia flotoviana</i>	a lichen				S2?	1	37.3 ± 17.0	NS
N	<i>Riccardia multifida</i>	Scaly Ink Lichen				S2?	1	78.0 ± 0.0	NS
N	<i>Weissia muhlenbergiana</i>	Flotow's Ruffwort				S2?	2	50.2 ± 0.0	NS
N	<i>Atrichum angustatum</i>	Delicate Germanderwort				S2?	4	63.3 ± 1.0	NS
N	<i>Ptychostomum pendulum</i>	a Moss				S2?	2	89.2 ± 2.0	NS
N	<i>Drepanocladus polygamus</i>	Lesser Smoothcap Moss				S2?	1	57.6 ± 2.0	NS
N	<i>Dicranum condensatum</i>	Drooping Bryum				S2?	4	23.2 ± 2.0	NS
N	<i>Ditrichum rhynchostegium</i>	Polygamous Hook Moss				S2?	2	37.1 ± 0.0	NS
N	<i>Grimmia anomala</i>	Condensed Broom Moss				S2?	1	19.1 ± 1.0	NS
N	<i>Kiaeria starkei</i>	a Moss				S2?	1	70.6 ± 1.0	NS
N	<i>Orthotrichum anomalum</i>	Mountain Forest Grimmia				S2?	1	35.3 ± 10.0	NS
N	<i>Philonotis marchica</i>	Starke's Fork Moss				S2?	1	65.0 ± 2.0	NS
N	<i>Platydictya</i>	Anomalous Bristle Moss				S2?	2	88.1 ± 0.0	NS
N	<i>jungermannioides</i>	a Moss				S2?	1	45.9 ± 0.0	NS
N	<i>Cyrtomnium</i>	False Willow Moss				S2?	1	9.5 ± 5.0	NS
N	<i>hymenophylloides</i>	Short-pointed Lantern Moss				S2?	4	48.7 ± 0.0	NS
N	<i>Platylomella lescurii</i>	a Moss				S2?	4	64.9 ± 0.0	NS
N	<i>Phylliscum demangeonii</i>	Black Rock-wafer Lichen				S2S3	4	19.3 ± 5.0	NS
N	<i>Oxyrrhynchium hians</i>	Light Beaked Moss				S2S3	3	38.8 ± 2.0	NS
N	<i>Scorpidium revolvens</i>	Limprichtia Moss				S2S3	58	16.7 ± 0.0	NS
N	<i>Moelleropsis nebulosa</i>	Blue-gray Moss Shingle				S2S3	3	47.7 ± 0.0	NS
N	<i>Moelleropsis nebulosa ssp. frullanae</i>	Lichen				S2S3	11	7.0 ± 5.0	NS
N	<i>Ramalina thrausta</i>	Blue-gray Moss Shingle				S2S3	67	23.0 ± 1.0	NS
N	<i>Collema leptaleum</i>	Lichen				S2S3	2	82.3 ± 0.0	NS
N	<i>Usnea ceratina</i>	Angelhair Ramalina Lichen				S2S3	6	57.3 ± 0.0	NS
N	<i>Usnea rubicunda</i>	Crumpled Bat's Wing Lichen				S2S3	20	27.0 ± 0.0	NS
N	<i>Ahtiana aurescens</i>	Warty Beard Lichen				S2S3	9	21.0 ± 0.0	NS
N	<i>Usnocetraria oakesiana</i>	Red Beard Lichen				S2S3	4	17.2 ± 5.0	NS
N	<i>Cladonia mateocyatha</i>	Eastern Candlewax Lichen				S2S3			
N		Yellow Band Lichen				S2S3			
N		Mixed-up Pixie-cup				S2S3			

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
N	<i>Cladonia parasitica</i>	Fence-rail Lichen				S2S3	2	29.9 ± 0.0	NS
N	<i>Chaenotheca gracilenta</i>	a lichen				S2S3	1	8.6 ± 0.0	NS
N	<i>Scytinium tenuissimum</i>	Birdnest Jellyskin Lichen				S2S3	7	19.4 ± 0.0	NS
N	<i>Melanohalea septentrionalis</i>	Northern Camouflage Lichen				S2S3	1	79.8 ± 0.0	NS
N	<i>Myelochroa aurulenta</i>	Powdery Axil-bristle Lichen				S2S3	1	87.0 ± 2.0	NS
N	<i>Parmelia fertilis</i>	Fertile Shield Lichen				S2S3	8	72.8 ± 0.0	NS
N	<i>Hypotrachyna minarum</i>	Hairless-spined Shield Lichen				S2S3	2	40.4 ± 0.0	NS
N	<i>Parmeliopsis ambigua</i>	Green Starburst Lichen				S2S3	2	10.4 ± 0.0	NS
N	<i>Racodium rupestre</i>	Rockhair Lichen				S2S3	3	25.5 ± 1.0	NS
N	<i>Umbilicaria polyphylla</i>	Petalled Rocktripe Lichen				S2S3	2	25.9 ± 0.0	NS
N	<i>Usnea cavernosa</i>	Pitted Beard Lichen				S2S3	4	79.9 ± 0.0	NS
N	<i>Usnea mutabilis</i>	Bloody Beard Lichen				S2S3	1	79.9 ± 0.0	NS
N	<i>Fuscopannaria soledata</i>	a Lichen				S2S3	5	25.5 ± 1.0	NS
N	<i>Physcia subtilis</i>	Slender Rosette Lichen				S2S3	2	25.8 ± 0.0	NS
N	<i>Dimelaena oreina</i>	Golden Moonglow Lichen				S2S3	2	9.2 ± 0.0	NS
N	<i>Cetraria arenaria</i>	Sand-loving Icelandmoss Lichen				S2S3	13	67.0 ± 0.0	NS
N	<i>Cladonia coccifera</i>	Eastern Boreal Pixie-cup Lichen				S2S3	3	15.3 ± 2.0	NS
N	<i>Cladonia deformis</i>	Lesser Sulphur-cup Lichen				S2S3	2	67.3 ± 4.0	NS
N	<i>Cladonia phyllophora</i>	Felt Lichen				S2S3	2	99.2 ± 4.0	NS
N	<i>Usnea flammea</i>	Coastal Bushy Beard Lichen				S2S3	1	19.6 ± 1.0	NS
N	<i>Ephemerum serratum</i>	a Moss				S3	3	65.2 ± 5.0	NS
N	<i>Fissidens taxifolius</i>	Yew-leaved Pocket Moss				S3	14	43.8 ± 0.0	NS
N	<i>Anomodon tristis</i>	a Moss				S3	3	44.1 ± 15.0	NS
N	<i>Sphagnum contortum</i>	Twisted Peat Moss				S3	4	75.2 ± 4.0	NS
N	<i>Tetraplodon angustatus</i>	Toothed-leaved Nitrogen Moss				S3	2	47.0 ± 2.0	NS
N	<i>Collema nigrescens</i>	Blistered Tarpaper Lichen				S3	37	26.0 ± 0.0	NS
N	<i>Solorina saccata</i>	Woodland Owl Lichen				S3	11	44.8 ± 2.0	NS
N	<i>Fuscopannaria ahlneri</i>	Corrugated Shingles Lichen				S3	81	15.1 ± 0.0	NS
N	<i>Scytinium lichenoides</i>	Tattered Jellyskin Lichen				S3	33	16.7 ± 0.0	NS
N	<i>Leptogium milligranum</i>	Stretched Jellyskin Lichen				S3	9	57.3 ± 0.0	NS
N	<i>Nephroma bellum</i>	Naked Kidney Lichen				S3	6	17.3 ± 5.0	NS
N	<i>Placynthium nigrum</i>	Common Ink Lichen				S3	1	69.3 ± 0.0	NS
N	<i>Platismatia norvegica</i>	Oldgrowth Rag Lichen				S3	1	47.8 ± 0.0	NS
N	<i>Punctelia appalachensis</i>	Appalachian Speckleback Lichen				S3	5	98.1 ± 0.0	NS
N	<i>Viridothelium virens</i>	a lichen				S3	4	31.2 ± 2.0	NS
N	<i>Ephebe lanata</i>	Waterside Rockshag Lichen				S3	4	37.3 ± 17.0	NS
N	<i>Phaeophyscia adiastrum</i>	Powder-tipped Shadow Lichen				S3	1	9.2 ± 0.0	NS
N	<i>Phaeophyscia pusilloides</i>	Pompom-tipped Shadow Lichen				S3	9	8.9 ± 0.0	NS
N	<i>Peltigera collina</i>	Tree Pelt Lichen				S3	9	19.7 ± 0.0	NS
N	<i>Barbula convoluta</i>	Lesser Bird's-claw Beard Moss				S3?	3	15.5 ± 0.0	NS
N	<i>Calliergon giganteum</i>	Giant Spear Moss				S3?	1	54.4 ± 3.0	NS
N	<i>Drummondia prorepens</i>	a Moss				S3?	1	63.6 ± 5.0	NS
N	<i>Elodium blandowii</i>	Blandow's Bog Moss				S3?	4	3.0 ± 7.0	NS
N	<i>Mnium stellare</i>	Star Leafy Moss				S3?	3	58.2 ± 0.0	NS
N	<i>Sphagnum lindbergii</i>	Lindberg's Peat Moss				S3?	1	60.8 ± 0.0	NS
N	<i>Sphagnum riparium</i>	Streamside Peat Moss				S3?	2	38.2 ± 0.0	NS
N	<i>Cladonia stygia</i>	Black-footed Reindeer Lichen				S3?	3	31.1 ± 0.0	NS
N	<i>Anomodon rugelii</i>	Rugel's Anomodon Moss				S3S4	1	98.4 ± 0.0	NS
N	<i>Dichelyma capillaceum</i>	Hairlike Dichelyma Moss				S3S4	3	21.4 ± 3.0	NS

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
N	<i>Dicranum leioneuron</i>	a Dicranum Moss				S3S4	1	37.0 ± 0.0	NS
N	<i>Encalypta ciliata</i>	Fringed Extinguisher Moss				S3S4	1	98.4 ± 3.0	NS
N	<i>Splachnum ampullaceum</i>	Cruet Dung Moss				S3S4	2	37.3 ± 0.0	NS
N	<i>Thamnobryum alleghaniense</i>	a Moss				S3S4	2	82.5 ± 0.0	NS
N	<i>Tomentypnum nitens</i>	Golden Fuzzy Fen Moss				S3S4	4	47.7 ± 2.0	NS
N	<i>Schistidium agassizii</i>	Elf Bloom Moss				S3S4	2	47.8 ± 0.0	NS
N	<i>Hylocomiastrum pyrenaicum</i>	a Feather Moss				S3S4	1	10.1 ± 0.0	NS
N	<i>Bryoria pseudofuscescens</i>	Mountain Horsehair Lichen				S3S4	4	17.2 ± 1.0	NS
N	<i>Enchylium tenax</i>	Soil Tarpaper Lichen				S3S4	10	44.4 ± 0.0	NS
N	<i>Sticta fuliginosa</i>	Peppered Moon Lichen				S3S4	68	17.0 ± 5.0	NS
N	<i>Arctoparmelia incurva</i>	Finger Ring Lichen				S3S4	85	2.5 ± 0.0	NS
N	<i>Scytinium teretiusculum</i>	Curly Jellyskin Lichen				S3S4	9	22.3 ± 0.0	NS
N	<i>Leptogium acadense</i>	Acadian Jellyskin Lichen				S3S4	28	10.9 ± 0.0	NS
N	<i>Scytinium subtile</i>	Appressed Jellyskin Lichen				S3S4	26	25.4 ± 0.0	NS
N	<i>Cladonia floerkeana</i>	Gritty British Soldiers Lichen				S3S4	4	15.3 ± 0.0	NS
N	<i>Heterodermia speciosa</i>	Powdered Fringe Lichen				S3S4	36	50.8 ± 0.0	NS
N	<i>Leptogium corticola</i>	Blistered Jellyskin Lichen				S3S4	90	25.7 ± 0.0	NS
N	<i>Melanohalea olivacea</i>	Spotted Camouflage Lichen				S3S4	1	79.9 ± 0.0	NS
N	<i>Parmeliopsis hyperopta</i>	Gray Starburst Lichen				S3S4	1	99.2 ± 0.0	NS
N	<i>Parmotrema perlatum</i>	Powdered Ruffle Lichen				S3S4	24	9.5 ± 0.0	NS
N	<i>Peltigera hymenina</i>	Cloudy Pelt Lichen				S3S4	2	15.3 ± 2.0	NS
N	<i>Sphaerophorus fragilis</i>	Fragile Coral Lichen				S3S4	11	15.3 ± 2.0	NS
N	<i>Sclerophora peronella</i>	Frosted Glass-whiskers Lichen				S3S4	2	93.9 ± 0.0	NS
N	<i>Coccocarpia palmicola</i>	Salted Shell Lichen				S3S4	676	14.1 ± 0.0	NS
N	<i>Physcia caesia</i>	Blue-gray Rosette Lichen				S3S4	2	19.6 ± 1.0	NS
N	<i>Physcia tenella</i>	Fringed Rosette Lichen				S3S4	7	8.3 ± 0.0	NS
N	<i>Anaptychia palmulata</i>	Shaggy Fringed Lichen				S3S4	81	21.5 ± 0.0	NS
N	<i>Evernia prunastri</i>	Valley Oakmoss Lichen				S3S4	35	56.4 ± 0.0	NS
N	<i>Heterodermia neglecta</i>	Fringe Lichen				S3S4	95	13.9 ± 0.0	NS
P	<i>Clethra alnifolia</i>	Coast Pepper-Bush	Endangered	Threatened	Vulnerable	S2	3	5.4 ± 0.0	NS
P	<i>Juglans cinerea</i>	Butternut	Endangered	Endangered		SNA	30	7.7 ± 0.0	NS
P	<i>Fraxinus nigra</i>	Black Ash			Threatened	S1S2	754	12.6 ± 0.0	NS
P	<i>Liatris spicata</i>	Dense Blazing Star	Threatened	Threatened		SNA	4	7.9 ± 0.0	NS
P	<i>Lophiola aurea</i>	Goldencrest	Special Concern	Special Concern	Vulnerable	S2	19	91.7 ± 1.0	NS
P	<i>Lilaeopsis chinensis</i>	Eastern Lilaeopsis	Special Concern	Special Concern	Vulnerable	S3	140	82.9 ± 0.0	NS
P	<i>Isoetes prototypus</i>	Prototype Quillwort	Special Concern	Special Concern	Vulnerable	S3	10	98.3 ± 0.0	NS
P	<i>Floerkea proserpinacoides</i>	False Mermaidweed	Not At Risk			S2S3	2	85.4 ± 7.0	NS
P	<i>Acer saccharinum</i>	Silver Maple				S1	10	84.9 ± 0.0	NS
P	<i>Osmorhiza depauperata</i>	Blunt Sweet Cicely				S1	1	86.9 ± 5.0	NS
P	<i>Andersonglossum boreale</i>	Northern Wild Comfrey				S1	5	60.5 ± 1.0	NS
P	<i>Turritis glabra</i>	Tower Mustard				S1	1	90.1 ± 0.0	NS
P	<i>Lobelia spicata</i>	Pale-Spiked Lobelia				S1	5	82.8 ± 7.0	NS
P	<i>Ribes americanum</i>	Wild Black Currant				S1	4	59.4 ± 3.0	NS
P	<i>Fraxinus pennsylvanica</i>	Red Ash				S1	11	40.6 ± 5.0	NS
P	<i>Persicaria careyi</i>	Carey's Smartweed				S1	1	63.4 ± 3.0	NS
P	<i>Phytolacca americana</i>	Common Pokeweed				S1	4	13.0 ± 0.0	NS
P	<i>Podostemum ceratophyllum</i>	Horn-leaved Riverweed				S1	1	96.5 ± 0.0	NS
P	<i>Montia fontana</i>	Water Blinks				S1	1	10.3 ± 1.0	NS
P	<i>Lysimachia quadrifolia</i>	Whorled Yellow Loosestrife				S1	1	35.5 ± 0.0	NS
P	<i>Salix myrtillifolia</i>	Blueberry Willow				S1	1	46.7 ± 0.0	NS
P	<i>Salix serissima</i>	Autumn Willow				S1	2	46.4 ± 0.0	NS
P	<i>Carex garberi</i>	Garber's Sedge				S1	4	89.0 ± 0.0	NS
P	<i>Carex laxiflora</i>	Loose-Flowered Sedge				S1	1	97.9 ± 1.0	NS
P	<i>Carex plantaginea</i>	Plantain-Leaved Sedge				S1	4	85.6 ± 0.0	NS
P	<i>Carex viridula</i> var. <i>saxillitoralis</i>	Greenish Sedge				S1	4	60.7 ± 2.0	NS
P	<i>Scirpus atrovirens</i>	Dark-green Bulrush				S1	4	44.2 ± 0.0	NS

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
P	<i>Iris prismatica</i>	Slender Blue Flag				S1	1	98.0 ± 100.0	NS
P	<i>Sisyrinchium fuscum</i>	Coastal Plain Blue-eyed-grass				S1	1	93.8 ± 0.0	NS
P	<i>Juncus vaseyi</i>	Vasey Rush				S1	1	89.2 ± 0.0	NS
P	<i>Malaxis monophyllos</i> var. <i>brachypoda</i>	North American White Adder's-mouth				S1	3	92.1 ± 10.0	NS
P	<i>Spiranthes casei</i> var. <i>casei</i>	Case's Ladies'-Tresses				S1	1	80.7 ± 0.0	NS
P	<i>Dichanthelium xanthophyllum</i>	Slender Panic Grass				S1	10	89.0 ± 1.0	NS
P	<i>Elymus hystrix</i>	Spreading Wild Rye				S1	11	54.6 ± 1.0	NS
P	<i>Adiantum pedatum</i>	Northern Maidenhair Fern				S1	26	53.3 ± 1.0	NS
P	<i>Dryopteris goldieana</i>	Goldie's Woodfern				S1	1	75.4 ± 1.0	NS
P	<i>Equisetum palustre</i>	Marsh Horsetail				S1	1	95.1 ± 5.0	NS
P	<i>Botrychium lunaria</i>	Common Moonwort				S1	10	7.7 ± 0.0	NS
P	<i>Selaginella rupestris</i>	Rock Spikemoss				S1	1	59.6 ± 0.0	NS
P	<i>Solidago hispida</i>	Hairy Goldenrod				S1?	2	8.1 ± 7.0	NS
P	<i>Suaeda rolandii</i>	Roland's Sea-Blite				S1?	5	60.9 ± 2.0	NS
P	<i>Carex pensylvanica</i>	Pennsylvania Sedge				S1?	3	26.5 ± 0.0	NS
P	<i>Allium schoenoprasum</i>	Wild Chives				S1?	1	18.2 ± 0.0	NS
P	<i>Allium schoenoprasum</i> var. <i>sibiricum</i>	Wild Chives				S1?	1	83.4 ± 7.0	NS
P	<i>Crocanthemum canadense</i>	Long-branched Frostweed			Endangered	S1S2	2	27.1 ± 1.0	NS
P	<i>Cypripedium arietinum</i>	Ram's-Head Lady's-Slipper			Endangered	S1S2	308	55.4 ± 2.0	NS
P	<i>Sanicula odorata</i>	Clustered Sanicle				S1S2	6	57.3 ± 0.0	NS
P	<i>Draba glabella</i>	Rock Whitlow-Grass				S1S2	1	99.1 ± 0.0	NS
P	<i>Proserpinaca intermedia</i>	Intermediate Mermaidweed				S1S2	2	42.4 ± 0.0	NS
P	<i>Anemone virginiana</i> var. <i>alba</i>	Virginia Anemone				S1S2	5	83.4 ± 7.0	NS
P	<i>Carex haydenii</i>	Hayden's Sedge				S1S2	2	83.9 ± 1.0	NS
P	<i>Platanthera huronensis</i>	Fragrant Green Orchid				S1S2	1	56.8 ± 10.0	NS
P	<i>Euphrasia farlowii</i>	Farlow's Eyebright				S1S3	2	85.1 ± 0.0	NS
P	<i>Carex vacillans</i>	Estuarine Sedge				S1S3	2	50.8 ± 0.0	NS
P	<i>Zizia aurea</i>	Golden Alexanders				S2	41	69.3 ± 1.0	NS
P	<i>Antennaria parlinii</i> ssp. <i>fallax</i>	Parlin's Pussytoes				S2	33	55.4 ± 7.0	NS
P	<i>Rudbeckia laciniata</i>	Cut-Leaved Coneflower				S2	24	43.9 ± 7.0	NS
P	<i>Arabis pycnocarpa</i>	Cream-flowered Rockcress				S2	1	96.3 ± 0.0	NS
P	<i>Cardamine maxima</i>	Large Toothwort				S2	1	86.9 ± 0.0	NS
P	<i>Hudsonia ericoides</i>	Pinebarren Golden Heather				S2	177	4.9 ± 2.0	NS
P	<i>Desmodium canadense</i>	Canada Tick-trefoil				S2	12	82.5 ± 5.0	NS
P	<i>Hylodesmum glutinosum</i>	Large Tick-trefoil				S2	22	58.9 ± 0.0	NS
P	<i>Conopholis americana</i>	American Cancer-root				S2	18	86.3 ± 7.0	NS
P	<i>Anemonastrum canadense</i>	Canada Anemone				S2	12	9.5 ± 0.0	NS
P	<i>Hepatica americana</i>	Round-lobed Hepatica				S2	74	45.5 ± 0.0	NS
P	<i>Ranunculus sceleratus</i>	Cursed Buttercup				S2	24	3.8 ± 1.0	NS
P	<i>Galium boreale</i>	Northern Bedstraw				S2	5	90.3 ± 1.0	NS
P	<i>Gratiola neglecta</i>	Clammy Hedge-Hyssop				S2	6	64.7 ± 0.0	NS
P	<i>Dirca palustris</i>	Eastern Leatherwood				S2	75	40.2 ± 1.0	NS
P	<i>Carex gynocrates</i>	Northern Bog Sedge				S2	2	46.7 ± 0.0	NS
P	<i>Carex pellita</i>	Woolly Sedge				S2	2	67.4 ± 10.0	NS
P	<i>Carex livida</i>	Livid Sedge				S2	13	21.9 ± 0.0	NS
P	<i>Juncus greenii</i>	Greene's Rush				S2	5	9.9 ± 10.0	NS
P	<i>Allium tricoccum</i>	Wild Leek				S2	41	87.0 ± 0.0	NS
P	<i>Lilium canadense</i>	Canada Lily				S2	70	37.3 ± 1.0	NS
P	<i>Cypripedium parviflorum</i> var. <i>pubescens</i>	Yellow Lady's-slipper				S2	26	28.6 ± 7.0	NS
P	<i>Cypripedium parviflorum</i> var. <i>makasin</i>	Small Yellow Lady's-Slipper				S2	10	57.6 ± 0.0	NS
P	<i>Cypripedium reginae</i>	Showy Lady's-Slipper				S2	57	46.1 ± 0.0	NS

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
P	<i>Platanthera flava</i> var. <i>flava</i>	Southern Rein Orchid				S2	3	85.7 ± 7.0	NS
P	<i>Platanthera flava</i> var. <i>herbiola</i>	Pale Green Orchid				S2	11	84.7 ± 1.0	NS
P	<i>Platanthera macrophylla</i>	Large Round-Leaved Orchid				S2	3	68.1 ± 1.0	NS
P	<i>Bromus latiglumis</i>	Broad-Glumed Brome				S2	28	70.5 ± 0.0	NS
P	<i>Cinna arundinacea</i>	Sweet Wood Reed Grass				S2	60	70.7 ± 0.0	NS
P	<i>Elymus wiegandii</i>	Wiegand's Wild Rye				S2	6	8.1 ± 7.0	NS
P	<i>Festuca subverticillata</i>	Nodding Fescue				S2	8	66.2 ± 5.0	NS
P	<i>Piptatheropsis pungens</i>	Slender Ricegrass				S2	2	75.0 ± 10.0	NS
P	<i>Cryptogramma stelleri</i>	Steller's Rockbrake				S2	3	65.7 ± 0.0	NS
P	<i>Cuscuta cephalanthi</i>	Buttonbush Dodder				S2?	1	44.4 ± 0.0	NS
P	<i>Rumex persicarioides</i>	Peach-leaved Dock				S2?	1	59.6 ± 0.0	NS
P	<i>Crataegus submollis</i>	Quebec Hawthorn				S2?	5	43.2 ± 7.0	NS
P	<i>Carex peckii</i>	White-Tinged Sedge				S2?	4	45.8 ± 0.0	NS
P	<i>Thuja occidentalis</i>	Eastern White Cedar			Vulnerable	S2S3	7	41.9 ± 0.0	NS
P	<i>Osmorhiza longistylis</i>	Smooth Sweet Cicely				S2S3	15	60.1 ± 0.0	NS
P	<i>Erigeron philadelphicus</i>	Philadelphia Fleabane				S2S3	2	68.9 ± 1.0	NS
P	<i>Lactuca hirsuta</i>	Hairy Lettuce				S2S3	3	17.5 ± 7.0	NS
P	<i>Impatiens pallida</i>	Pale Jewelweed				S2S3	2	69.7 ± 0.0	NS
P	<i>Caulophyllum thalictroides</i>	Blue Cohosh				S2S3	68	44.9 ± 0.0	NS
P	<i>Draba arabisans</i>	Rock Whitlow-Grass				S2S3	7	97.9 ± 1.0	NS
P	<i>Boechera stricta</i>	Drummond's Rockcress				S2S3	7	87.7 ± 0.0	NS
P	<i>Stellaria humifusa</i>	Saltmarsh Starwort				S2S3	4	50.5 ± 0.0	NS
P	<i>Oxybasis rubra</i>	Red Goosefoot				S2S3	2	60.7 ± 2.0	NS
P	<i>Hypericum majus</i>	Large St John's-wort				S2S3	4	8.1 ± 7.0	NS
P	<i>Hypericum x dissimulatum</i>	Disguised St. John's-wort				S2S3	4	15.3 ± 10.0	NS
P	<i>Empetrum atropurpureum</i>	Purple Crowberry				S2S3	5	8.1 ± 7.0	NS
P	<i>Euphorbia polygonifolia</i>	Seaside Spurge				S2S3	12	69.9 ± 3.0	NS
P	<i>Myriophyllum farwellii</i>	Farwell's Water Milfoil				S2S3	8	41.9 ± 1.0	NS
P	<i>Hedeoma pulegioides</i>	American False Pennyroyal				S2S3	13	31.3 ± 5.0	NS
P	<i>Oenothera fruticosa</i> ssp. <i>tetragona</i>	Narrow-leaved Evening Primrose				S2S3	8	19.3 ± 7.0	NS
P	<i>Polygala polygama</i>	Racemed Milkwort				S2S3	1	9.9 ± 1.0	NS
P	<i>Polygonum aviculare</i> ssp. <i>buxiforme</i>	Box Knotweed				S2S3	8	58.2 ± 7.0	NS
P	<i>Polygonum oxyspermum</i> ssp. <i>raii</i>	Ray's Knotweed				S2S3	3	55.8 ± 1.0	NS
P	<i>Polygonum oxyspermum</i>	Sharp-fruit Knotweed				S2S3	1	23.9 ± 0.0	NS
P	<i>Rumex triangulivalvis</i>	Triangular-valve Dock				S2S3	9	25.5 ± 0.0	NS
P	<i>Primula mistassinica</i>	Mistassini Primrose				S2S3	17	75.1 ± 1.0	NS
P	<i>Anemone quinquefolia</i>	Wood Anemone				S2S3	15	9.9 ± 0.0	NS
P	<i>Caltha palustris</i>	Yellow Marsh Marigold				S2S3	25	4.8 ± 0.0	NS
P	<i>Amelanchier fernaldii</i>	Fernald's Serviceberry				S2S3	1	89.5 ± 7.0	NS
P	<i>Potentilla canadensis</i>	Canada Cinquefoil				S2S3	9	8.5 ± 0.0	NS
P	<i>Salix pellita</i>	Satiny Willow				S2S3	3	59.0 ± 2.0	NS
P	<i>Tiarella cordifolia</i>	Heart-leaved Foamflower				S2S3	6	42.8 ± 0.0	NS
P	<i>Agalinis purpurea</i> var. <i>parviflora</i>	Small-flowered Purple False Foxglove				S2S3	1	97.8 ± 0.0	NS
P	<i>Boehmeria cylindrica</i>	Small-spike False-nettle				S2S3	56	39.6 ± 0.0	NS
P	<i>Carex adusta</i>	Lesser Brown Sedge				S2S3	8	10.2 ± 0.0	NS
P	<i>Carex comosa</i>	Bearded Sedge				S2S3	4	63.9 ± 7.0	NS
P	<i>Carex houghtoniana</i>	Houghton's Sedge				S2S3	1	63.0 ± 1.0	NS
P	<i>Carex hystericina</i>	Porcupine Sedge				S2S3	4	95.0 ± 0.0	NS
P	<i>Eleocharis ovata</i>	Ovate Spikerush				S2S3	4	40.4 ± 0.0	NS
P	<i>Scirpus pedicellatus</i>	Stalked Bulrush				S2S3	7	40.7 ± 0.0	NS
P	<i>Vallisneria americana</i>	Wild Celery				S2S3	11	30.4 ± 1.0	NS
P	<i>Najas gracillima</i>	Thread-Like Naiad				S2S3	2	49.1 ± 0.0	NS
P	<i>Goodyera pubescens</i>	Downy Rattlesnake-Plantain				S2S3	16	42.3 ± 1.0	NS

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
P	<i>Spiranthes casei</i> var. <i>novaescotiae</i>	Case's Ladies'-Tresses				S2S3	3	56.7 ± 0.0	NS
P	<i>Spiranthes lucida</i>	Shining Ladies'-Tresses				S2S3	13	45.3 ± 1.0	NS
P	<i>Potamogeton friesii</i>	Fries' Pondweed				S2S3	10	83.6 ± 5.0	NS
P	<i>Woodsia glabella</i>	Smooth Cliff Fern				S2S3	1	96.1 ± 1.0	NS
P	<i>Botrychium lanceolatum</i> ssp. <i>angustisegmentum</i>	Narrow Triangle Moonwort				S2S3	4	58.9 ± 5.0	NS
P	<i>Botrychium simplex</i>	Least Moonwort				S2S3	4	28.0 ± 0.0	NS
P	<i>Ophioglossum pusillum</i>	Northern Adder's-tongue				S2S3	5	12.5 ± 7.0	NS
P	<i>Potamogeton pulcher</i>	Spotted Pondweed			Vulnerable	S3	8	68.1 ± 2.0	NS
P	<i>Angelica atropurpurea</i>	Purple-stemmed Angelica				S3	1	72.2 ± 0.0	NS
P	<i>Conioselinum chinense</i>	Chinese Hemlock-parsley				S3	1	62.4 ± 0.0	NS
P	<i>Hieracium robinsonii</i>	Robinson's Hawkweed				S3	2	81.2 ± 1.0	NS
P	<i>Iva frutescens</i>	Big-leaved Marsh-elder				S3	59	59.6 ± 0.0	NS
P	<i>Senecio pseudoarnica</i>	Seabeach Ragwort				S3	30	3.6 ± 1.0	NS
P	<i>Symphyotrichum boreale</i>	Boreal Aster				S3	5	32.2 ± 5.0	NS
P	<i>Symphyotrichum undulatum</i>	Wavy-leaved Aster				S3	125	21.7 ± 7.0	NS
P	<i>Symphyotrichum ciliolatum</i>	Fringed Blue Aster				S3	18	46.1 ± 0.0	NS
P	<i>Alnus serrulata</i>	Smooth Alder				S3	19	91.1 ± 0.0	NS
P	<i>Betula michauxii</i>	Michaux's Dwarf Birch				S3	31	23.6 ± 0.0	NS
P	<i>Betula pumila</i>	Bog Birch				S3	3	44.0 ± 0.0	NS
P	<i>Cardamine parviflora</i>	Small-flowered Bittercress				S3	14	37.3 ± 1.0	NS
P	<i>Palustricodon aparinoides</i>	Marsh Bellflower				S3	14	62.1 ± 1.0	NS
P	<i>Mononeuria groenlandica</i>	Greenland Stitchwort				S3	169	8.1 ± 7.0	NS
P	<i>Sagina nodosa</i>	Knotted Pearlwort				S3	56	8.6 ± 2.0	NS
P	<i>Sagina nodosa</i> ssp. <i>borealis</i>	Knotted Pearlwort				S3	10	23.9 ± 0.0	NS
P	<i>Stellaria longifolia</i>	Long-leaved Starwort				S3	11	31.1 ± 5.0	NS
P	<i>Ceratophyllum echinatum</i>	Prickly Hornwort				S3	6	72.6 ± 0.0	NS
P	<i>Triosteum aurantiacum</i>	Orange-fruited Tinker's Weed				S3	47	55.6 ± 0.0	NS
P	<i>Crassula aquatica</i>	Water Pygmyweed				S3	1	39.0 ± 0.0	NS
P	<i>Empetrum eamesii</i>	Pink Crowberry				S3	94	8.1 ± 7.0	NS
P	<i>Vaccinium uliginosum</i>	Alpine Bilberry				S3	4	14.2 ± 1.0	NS
P	<i>Halenia deflexa</i>	Spurred Gentian				S3	3	32.3 ± 0.0	NS
P	<i>Geranium bicknellii</i>	Bicknell's Crane's-bill				S3	9	61.5 ± 0.0	NS
P	<i>Myriophyllum verticillatum</i>	Whorled Water Milfoil				S3	3	59.3 ± 7.0	NS
P	<i>Epilobium strictum</i>	Downy Willowherb				S3	6	63.2 ± 0.0	NS
P	<i>Polygala sanguinea</i>	Blood Milkwort				S3	29	2.3 ± 1.0	NS
P	<i>Persicaria arifolia</i>	Halberd-leaved Tearthumb				S3	10	43.9 ± 0.0	NS
P	<i>Plantago rugelii</i>	Rugel's Plantain				S3	7	8.2 ± 0.0	NS
P	<i>Primula laurentiana</i>	Laurentian Primrose				S3	1	93.8 ± 7.0	NS
P	<i>Samolus parviflorus</i>	Seaside Brookweed				S3	43	9.6 ± 5.0	NS
P	<i>Pyrola minor</i>	Lesser Pyrola				S3	1	18.6 ± 0.0	NS
P	<i>Anemone virginiana</i>	Virginia Anemone				S3	19	56.5 ± 5.0	NS
P	<i>Cephalanthus occidentalis</i>	Common Buttonbush				S3	8	8.1 ± 0.0	NS
P	<i>Galium labradoricum</i>	Labrador Bedstraw				S3	79	43.7 ± 0.0	NS
P	<i>Salix pedicellaris</i>	Bog Willow				S3	54	30.9 ± 0.0	NS
P	<i>Salix sericea</i>	Silky Willow				S3	122	33.4 ± 1.0	NS
P	<i>Saxifraga paniculata</i> ssp. <i>laestadii</i>	Laestadius' Saxifrage				S3	1	92.1 ± 7.0	NS
P	<i>Lindernia dubia</i>	Yellow-seeded False Pimperel				S3	8	58.2 ± 0.0	NS
P	<i>Laportea canadensis</i>	Canada Wood Nettle				S3	46	39.9 ± 0.0	NS
P	<i>Pilea pumila</i>	Dwarf Clearweed				S3	9	7.4 ± 0.0	NS
P	<i>Viola nephrophylla</i>	Northern Bog Violet				S3	6	62.1 ± 1.0	NS
P	<i>Carex bebbii</i>	Bebb's Sedge				S3	24	57.6 ± 0.0	NS
P	<i>Carex castanea</i>	Chestnut Sedge				S3	39	43.7 ± 0.0	NS
P	<i>Carex cryptolepis</i>	Hidden-scaled Sedge				S3	11	32.9 ± 6.0	NS

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
P	<i>Carex eburnea</i>	Bristle-leaved Sedge			S3		11	67.6 ± 1.0	NS
P	<i>Carex hirtifolia</i>	Pubescent Sedge			S3		32	50.1 ± 7.0	NS
P	<i>Carex lupulina</i>	Hop Sedge			S3		62	20.0 ± 1.0	NS
P	<i>Carex rosea</i>	Rosy Sedge			S3		34	56.7 ± 1.0	NS
P	<i>Carex swanii</i>	Swan's Sedge			S3		4	5.4 ± 0.0	NS
P	<i>Carex tenera</i>	Tender Sedge			S3		4	58.2 ± 0.0	NS
P	<i>Carex tribuloides</i>	Blunt Broom Sedge			S3		13	46.4 ± 0.0	NS
P	<i>Carex tuckermanii</i>	Tuckerman's Sedge			S3		32	57.5 ± 2.0	NS
P	<i>Eleocharis nitida</i>	Quill Spikerush			S3		5	53.5 ± 5.0	NS
P	<i>Eleocharis flavescens</i> var. <i>olivacea</i>	Bright-green Spikerush			S3		7	13.8 ± 0.0	NS
P	<i>Eriophorum gracile</i>	Slender Cottongrass			S3		6	12.4 ± 1.0	NS
P	<i>Coeloglossum viride</i>	Long-bracted Frog Orchid			S3		3	82.1 ± 1.0	NS
P	<i>Cypripedium parviflorum</i>	Yellow Lady's-slipper			S3		577	6.8 ± 0.0	NS
P	<i>Neottia bifolia</i>	Southern Twayblade			S3		119	6.2 ± 0.0	NS
P	<i>Platanthera flava</i>	Southern Rein-Orchid			S3		31	88.8 ± 0.0	NS
P	<i>Platanthera grandiflora</i>	Large Purple Fringed Orchid			S3		82	9.7 ± 0.0	NS
P	<i>Platanthera hookeri</i>	Hooker's Orchid			S3		14	59.4 ± 0.0	NS
P	<i>Dichanthelium linearifolium</i>	Narrow-leaved Panic Grass			S3		6	63.9 ± 7.0	NS
P	<i>Piptatheropsis canadensis</i>	Canada Ricegrass			S3		8	17.6 ± 7.0	NS
P	<i>Poa glauca</i>	Glaucous Blue Grass			S3		1	58.9 ± 1.0	NS
P	<i>Potamogeton praelongus</i>	White-stemmed Pondweed			S3		2	73.0 ± 5.0	NS
P	<i>Potamogeton richardsonii</i>	Richardson's Pondweed			S3		4	62.4 ± 0.0	NS
P	<i>Potamogeton zosteriformis</i>	Flat-stemmed Pondweed			S3		15	31.4 ± 5.0	NS
P	<i>Asplenium viride</i>	Green Spleenwort			S3		3	95.3 ± 7.0	NS
P	<i>Dryopteris fragrans</i>	Fragrant Wood Fern			S3		4	95.1 ± 7.0	NS
P	<i>Sceptridium dissectum</i>	Dissected Moonwort			S3		2	85.8 ± 0.0	NS
P	<i>Polypodium appalachianum</i>	Appalachian Polypody			S3		18	10.5 ± 0.0	NS
P	<i>Persicaria amphibia</i> var. <i>emersa</i>	Long-root Smartweed			S3?		19	40.7 ± 0.0	NS
P	<i>Spiranthes ochroleuca</i>	Yellow Ladies'-tresses			S3?		26	19.1 ± 0.0	NS
P	<i>Diphasiastrum x sabinifolium</i>	Savin-leaved Ground-cedar			S3?		2	84.8 ± 0.0	NS
P	<i>Bidens vulgata</i>	Tall Beggarticks			S3S4		6	12.6 ± 0.0	NS
P	<i>Erigeron hyssopifolius</i>	Hyssop-leaved Fleabane			S3S4		25	57.7 ± 7.0	NS
P	<i>Hieracium paniculatum</i>	Panicled Hawkweed			S3S4		24	55.9 ± 11.0	NS
P	<i>Bidens beckii</i>	Water Beggarticks			S3S4		8	30.2 ± 0.0	NS
P	<i>Packera paupercula</i>	Balsam Groundsel			S3S4		104	55.3 ± 0.0	NS
P	<i>Atriplex glabriuscula</i> var. <i>franktonii</i>	Frankton's Saltbush			S3S4		13	66.5 ± 0.0	NS
P	<i>Shepherdia canadensis</i>	Soapberry			S3S4		113	49.8 ± 7.0	NS
P	<i>Vaccinium boreale</i>	Northern Blueberry			S3S4		3	40.7 ± 0.0	NS
P	<i>Vaccinium cespitosum</i>	Dwarf Bilberry			S3S4		62	19.1 ± 0.0	NS
P	<i>Vaccinium corymbosum</i>	Highbush Blueberry			S3S4		12	1.6 ± 0.0	NS
P	<i>Fagus grandifolia</i>	American Beech			S3S4		657	2.1 ± 0.0	NS
P	<i>Bartonia virginica</i>	Yellow Bartonia			S3S4		26	19.2 ± 7.0	NS
P	<i>Proserpinaca pectinata</i>	Comb-leaved Mermaidweed			S3S4		13	18.9 ± 1.0	NS
P	<i>Decodon verticillatus</i>	Swamp Loosestrife			S3S4		2	61.1 ± 0.0	NS
P	<i>Nuphar microphylla</i>	Small Yellow Pond-lily			S3S4		1	51.1 ± 0.0	NS
P	<i>Persicaria pensylvanica</i>	Pennsylvania Smartweed			S3S4		26	43.2 ± 7.0	NS
P	<i>Fallopia scandens</i>	Climbing False Buckwheat			S3S4		17	1.5 ± 0.0	NS
P	<i>Rumex pallidus</i>	Seabeach Dock			S3S4		1	29.3 ± 0.0	NS
P	<i>Pyrola asarifolia</i>	Pink Pyrola			S3S4		9	32.4 ± 50.0	NS
P	<i>Endotropis alnifolia</i>	alder-leaved buckthorn			S3S4		270	42.9 ± 0.0	NS
P	<i>Amelanchier spicata</i>	Running Serviceberry			S3S4		41	25.8 ± 0.0	NS
P	<i>Crataegus succulenta</i>	Fleshy Hawthorn			S3S4		1	17.8 ± 0.0	NS
P	<i>Fragaria vesca</i> ssp. <i>americana</i>	Woodland Strawberry			S3S4		65	40.1 ± 0.0	NS
P	<i>Fragaria vesca</i>	Woodland Strawberry			S3S4		16	2.2 ± 0.0	NS

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
P	<i>Galium aparine</i>	Common Bedstraw				S3S4	44	8.0 ± 0.0	NS
P	<i>Geocaulon lividum</i>	Northern Comandra				S3S4	4	67.1 ± 0.0	NS
P	<i>Limosella australis</i>	Southern Mudwort				S3S4	7	3.2 ± 3.0	NS
P	<i>Ulmus americana</i>	White Elm				S3S4	68	8.0 ± 0.0	NS
P	<i>Verbena hastata</i>	Blue Vervain				S3S4	145	3.3 ± 7.0	NS
P	<i>Viola sagittata</i> var. <i>ovata</i>	Arrow-Leaved Violet				S3S4	28	8.0 ± 0.0	NS
P	<i>Viola selkirkii</i>	Great-Spurred Violet				S3S4	3	53.1 ± 4.0	NS
P	<i>Symplocarpus foetidus</i>	Eastern Skunk Cabbage				S3S4	10	9.9 ± 0.0	NS
P	<i>Carex argyrantha</i>	Silvery-flowered Sedge				S3S4	6	61.9 ± 1.0	NS
P	<i>Sisyrinchium atlanticum</i>	Eastern Blue-Eyed-Grass				S3S4	4	73.4 ± 0.0	NS
P	<i>Triglochin gaspensis</i>	Gasp — Arrowgrass				S3S4	29	32.3 ± 0.0	NS
P	<i>Juncus acuminatus</i>	Sharp-Fruit Rush				S3S4	5	18.0 ± 0.0	NS
P	<i>Juncus subcaudatus</i>	Woods-Rush				S3S4	23	27.2 ± 0.0	NS
P	<i>Luzula parviflora</i> ssp. <i>melanocarpa</i>	Black-fruited Woodrush				S3S4	2	91.7 ± 0.0	NS
P	<i>Goodyera repens</i>	Lesser Rattlesnake-plantain				S3S4	5	69.5 ± 0.0	NS
P	<i>Liparis loeselii</i>	Loesel's Twayblade				S3S4	8	18.1 ± 0.0	NS
P	<i>Platanthera obtusata</i>	Blunt-leaved Orchid				S3S4	7	8.1 ± 10.0	NS
P	<i>Platanthera orbiculata</i>	Small Round-leaved Orchid				S3S4	4	53.1 ± 4.0	NS
P	<i>Alopecurus aequalis</i>	Short-awned Foxtail				S3S4	7	43.7 ± 0.0	NS
P	<i>Dichanthelium clandestinum</i>	Deer-tongue Panic Grass				S3S4	297	19.5 ± 0.0	NS
P	<i>Panicum philadelphicum</i>	Philadelphia Panicgrass				S3S4	3	58.2 ± 0.0	NS
P	<i>Koeleria spicata</i>	Narrow False Oats				S3S4	11	57.1 ± 1.0	NS
P	<i>Asplenium trichomanes</i>	Maidenhair Spleenwort				S3S4	12	82.0 ± 0.0	NS
P	<i>Equisetum pratense</i>	Meadow Horsetail				S3S4	14	57.3 ± 0.0	NS
P	<i>Diphasiastrum complanatum</i>	Northern Ground-cedar				S3S4	12	14.1 ± 1.0	NS
P	<i>Diphasiastrum sitchense</i>	Sitka Ground-cedar				S3S4	2	86.9 ± 1.0	NS
P	<i>Huperzia appressa</i>	Mountain Firmoss				S3S4	6	72.9 ± 7.0	NS
P	<i>Sceptridium multifidum</i>	Leathery Moonwort				S3S4	8	62.5 ± 10.0	NS
P	<i>Botrychium matricariifolium</i>	Daisy-leaved Moonwort				S3S4	4	7.9 ± 0.0	NS
P	<i>Viola canadensis</i>	Canada Violet				SH	2	63.9 ± 0.0	NS
P	<i>Greeneochloa coarctata</i>	Small Reedgrass				SH	1	13.5 ± 6.0	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.

# recs	CITATION
13205	Morrison, Guy. 2011. Maritime Shorebird Survey (MSS) database. Canadian Wildlife Service, Ottawa, 15939 surveys. 86171 recs.
6281	Lepage, D. 2014. Maritime Breeding Bird Atlas Database. Bird Studies Canada, Sackville NB, 407,838 recs.
5487	iNaturalist.ca. 2023. iNaturalist Data Export December 2022. iNaturalist.org; iNaturalist.ca.
2473	Paquet, Julie. 2018. Atlantic Canada Shorebird Survey (ACSS) database 2012-2018. Environment Canada, Canadian Wildlife Service.
2412	Erskine, A.J. 1992. Maritime Breeding Bird Atlas Database. NS Museum & Nimbus Publ., Halifax, 82,125 recs.
2225	Pardieck, K.L., Ziolkowski Jr., D.J., Lutmerding, M., Aponte, V.I., and Hudson, M-A.R. 2020. North American Breeding Bird Survey Dataset 1966 - 2019: U.S. Geological Survey data release, https://doi.org/10.5066/P9J6QUF6
1600	iNaturalist. 2020. iNaturalist Data Export 2020. iNaturalist.org and iNaturalist.ca, Web site: 128728 recs.
1062	eBird. 2020. eBird Basic Dataset. Version: EBD_relNov-2019. Ithaca, New York. Nov 2019, Cape Breton Bras d'Or Lakes Watershed subset. Cornell Lab of Ornithology.
931	Paquet, Julie. 2019. Atlantic Canada Shorebird Survey ACSS database for 2019. Environment Canada, Canadian Wildlife Service.
776	Blaney, C.S.; Mazerolle, D.M.; Belliveau, A.B. 2013. Atlantic Canada Conservation Data Centre Fieldwork 2013. Atlantic Canada Conservation Data Centre, 9000+ recs.
622	Cameron, E. 2008. Canadian Gypsum Co. survey 2007-08. Conestoga-Rovers & Assoc., 623 recs.
604	Neily, T.H. & Pepper, C.; Toms, B. 2018. Nova Scotia lichen database [as of 2018-03]. Mersey Tobeatic Research Institute.
596	Eaton, S. 2014. Nova Scotia Wood Turtle Database. Environment and Climate Change Canada, 4843 recs.
562	SwiftWatch. 2022. Total Chimney Swift counts from roost watches for the duration of the SwiftWatch program (2011-2021). Birds Canada.
465	Clayden, S. Digitization of Wolfgang Maass Nova Scotia forest lichen collections, 1964-2004. New Brunswick Museum. 2018.
405	Benjamin, L.K. (compiler). 2007. Significant Habitat & Species Database. Nova Scotia Dept Natural Resources, 8439 recs.

# recs	CITATION
338	Blaney, C.S.; Mazerolle, D.M.; Belliveau, A.B. 2015. Atlantic Canada Conservation Data Centre Fieldwork 2015. Atlantic Canada Conservation Data Centre, # recs.
336	Blaney, C.S.; Mazerolle, D.M. 2010. Fieldwork 2010. Atlantic Canada Conservation Data Centre. Sackville NB, 15508 recs.
326	Hicks, Andrew. 2009. Coastal Waterfowl Surveys Database, 2000-08. Canadian Wildlife Service, Sackville, 46488 recs (11149 non-zero).
312	Benjamin, L.K. (compiler). 2012. Significant Habitat & Species Database. Nova Scotia Dept Natural Resources, 4965 recs.
305	Belliveau, A.G. 2020. E.C. Smith Herbarium and Atlantic Canada Conservation Data Centre Fieldwork 2019, 2020. E.C. Smith Herbarium.
293	Wildlife Division. 2021. <i>Fraxinus nigra</i> records assembled to define and model habitat. Nova Scotia Department of Natural Resources and Renewables.
288	Blaney, C.S.; Mazerolle, D.M.; Belliveau, A.B. 2014. Atlantic Canada Conservation Data Centre Fieldwork 2014. Atlantic Canada Conservation Data Centre, # recs.
288	Newell, R.E. 2005. E.C. Smith Digital Herbarium. E.C. Smith Herbarium, Irving Biodiversity Collection, Acadia University, Web site: http://luxor.acadiau.ca/library/Herbarium/project/ . 582 recs.
288	Scott, F.W. 2002. Nova Scotia Herpetofauna Atlas Database. Acadia University, Wolfville NS, 8856 recs.
284	Amirault, D.L. & Stewart, J. 2007. Piping Plover Database 1894-2006. Canadian Wildlife Service, Sackville, 3344 recs, 1228 new.
263	Newell, R.E. 2000. E.C. Smith Herbarium Database. Acadia University, Wolfville NS, 7139 recs.
262	Phinney, Lori. 2020. Pre- and post White-nose Syndrome bat acoustic monitoring, NS. Mersey Tobeatic Research Institute, 1279 recs.
255	Neily, T.H. & Pepper, C.; Toms, B. 2013. Nova Scotia lichen location database. Mersey Tobeatic Research Institute, 1301 records.
210	Pronych, G. & Wilson, A. 1993. Atlas of Rare Vascular Plants in Nova Scotia. Nova Scotia Museum, Halifax NS, I:1-168, II:169-331. 1446 recs.
206	Wilhelm, S.I. et al. 2011. Colonial Waterbird Database. Canadian Wildlife Service, Sackville, 2698 sites, 9718 recs (8192 obs).
198	Neily, T.H. 2017. Nova Scotia lichen records. Mersey Tobeatic Research Institute.
174	Blaney, C.S.; Mazerolle, D.M. 2012. Fieldwork 2012. Atlantic Canada Conservation Data Centre, 13,278 recs.
165	Toms, B. 2018. Bat Species data from www.batconservation.ca for Nova Scotia. Mersey Tobeatic Research Institute, 547 Records.
156	Gallop, John. 2023. Species at Risk and Species of Conservation Interest records. McCallum Environmental.
154	Klymko, J. 2018. Maritimes Butterfly Atlas database. Atlantic Canada Conservation Data Centre.
149	Belliveau, A.G. 2018. Atlantic Canada Conservation Data Centre Fieldwork 2017. Atlantic Canada Conservation Data Centre.
145	Pepper, C. 2013. 2013 rare bird and plant observations in Nova Scotia. , 181 records.
143	Bryson, I.C. 2020. Nova Scotia flora and lichen observations 2020. Nova Scotia Environment, 139 recs.
143	Hagerman, Christianne. 2022. Wisqoq and Eastern White Cedar field work. E.C. Smith Herbarium, Acadia University.
138	Munro, Marian K. Tracked lichen specimens, Nova Scotia Provincial Museum of Natural History Herbarium. Atlantic Canada Conservation Data Centre. 2019.
130	Cameron, R.P. 2009. Cyanolichen database. Nova Scotia Environment & Labour, 1724 recs.
115	Blaney, C.S. 2000. Fieldwork 2000. Atlantic Canada Conservation Data Centre. Sackville NB, 1265 recs.
114	Churchill, J.L. 2018. Atlantic Canada Conservation Data Centre Fieldwork 2018. Atlantic Canada Conservation Data Centre, 907 recs.
112	e-Butterfly. 2016. Export of Maritimes records and photos. Maxim Larivee, Sambo Zhang (ed.) e-butterfly.org .
111	Brunelle, P.-M. (compiler). 2009. ADIP/MDDS Odonata Database: data to 2006 inclusive. Atlantic Dragonfly Inventory Program (ADIP), 24200 recs.
111	Munro, Marian K. Nova Scotia Provincial Museum of Natural History Herbarium Database. Nova Scotia Provincial Museum of Natural History, Halifax, Nova Scotia. 2013.
109	Blaney, C.S.; Mazerolle, D.M. 2011. Fieldwork 2011. Atlantic Canada Conservation Data Centre. Sackville NB.
108	iNaturalist. 2018. iNaturalist Data Export 2018. iNaturalist.org and iNaturalist.ca , Web site: 11700 recs.
102	e-Butterfly. 2019. Export of Maritimes records and photos. McFarland, K. (ed.) e-butterfly.org .
96	Belliveau, A.G. & Churchill, J.L.; Anderson, F.; Brooks, F. 2023. Lichen Inventory of Blue Rocks, NS. E.C. Smith Herbarium.
96	Brazner, J. 2016. Nova Scotia Forested Wetland Bird Surveys. Nova Scotia Department of Lands and Forestry.
95	Breen, A. 2019. 2019 Atlantic Whitefish observations. Coastal Action, 95 recs.
88	LaPaix, R.W.; Crowell, M.J.; MacDonald, M. 2011. Stantec rare plant records, 2010-11. Stantec Consulting, 334 recs.
87	McNeil, J.A. 2018. Wood Turtle records, 2018. Mersey Tobeatic Research Institute, 68 recs.
87	Richardson, Leif. 2018. Maritimes Bombus records from various sources. Richardson, Leif.
86	Layberry, R.A. & Hall, P.W., LaFontaine, J.D. 1998. The Butterflies of Canada. University of Toronto Press. 280 pp+plates.
83	Hubley, Nicole. 2022. Monarch (<i>Danaus plexippus</i>) records submitted to MTRI from the 2021 field season. Mersey Tobeatic Research Institute.
81	Staicer, C. 2021. Additional compiled Nova Scotia Species at Risk bird records, 2005-2020. Dalhousie University.
79	Belliveau, A.G. 2021. E.C. Smith Herbarium and Atlantic Canada Conservation Data Centre Fieldwork 2021. E.C. Smith Herbarium.
73	Bryson, I. 2020. Nova Scotia and Newfoundland rare species observations, 2018-2020. Nova Scotia Environment.
73	Cameron, R.P. 2011. Lichen observations, 2011. Nova Scotia Environment & Labour, 731 recs.
72	Manthorne, A. 2014. MaritimesSwiftwatch Project database 2013-2014. Bird Studies Canada, Sackville NB, 326 recs.
65	Belliveau, A.G. 2014. Plant Records from Southern and Central Nova Scotia. Atlantic Canada Conservation Data Centre, 919 recs.
64	Staicer, Cindy. 2022. 2021 Landbird Species at Risk observations. Dalhousie University.
62	Churchill, J.L. 2022. Atlantic Canada Conservation Data Centre Fieldwork 2022. Atlantic Canada Conservation Data Centre.
62	Nussey, Pat & NCC staff. 2019. AEI tracked species records, 2016-2019. Chapman, C.J. (ed.) Atlantic Canada Conservation Data Centre, 333.
62	Roland, A.E. & Smith, E.C. 1969. The Flora of Nova Scotia, 1st Ed. Nova Scotia Museum, Halifax, 743pp.
59	Blaney, C.S. 2020. Sean Blaney 2020 field data. Atlantic Canada Conservation Data Centre, 4407 records.
58	iNaturalist. 2020. iNaturalist butterfly records selected for the Maritimes Butterfly Atlas. iNaturalist.
56	Birds Canada. 2022. Maritimes Swiftwatch project data for 2022. Pers. comm., 155 records.
56	Toms, Brad & Pepper, Chris; Neily, Tom. 2022. Nova Scotia lichen database [as of 2022-04]. Mersey Tobeatic Research Institute.
55	LaPaix, R.W.; Crowell, M.J.; MacDonald, M.; Neily, T.D.; Quinn, G. 2017. Stantec Nova Scotia rare plant records, 2012-2016. Stantec Consulting.
55	Staicer, C. & Bliss, S.; Achenbach, L. 2017. Occurrences of tracked breeding birds in forested wetlands. , 303 records.
54	Zinck, M. & Roland, A.E. 1998. Roland's Flora of Nova Scotia. Nova Scotia Museum, 3rd ed., rev. M. Zinck; 2 Vol., 1297 pp.

# recs	CITATION
52	Staicer, Cindy. 2023. 2022 SAR Bird field occurrences from the Landbirds at Risk Project, NS. Dalhousie University, 446 records.
50	Churchill, J.L. 2020. Atlantic Canada Conservation Data Centre Fieldwork 2020. Atlantic Canada Conservation Data Centre, 1083 recs.
49	NatureServe Canada. 2019. iNaturalist Maritimes Butterfly Records. iNaturalist.org and iNaturalist.ca.
48	Belland, R.J. Maritimes moss records from various herbarium databases. 2014.
47	Cameron, R.P. 2009. Erioderma pedicellatum database, 1979-2008. Dept Environment & Labour, 103 recs.
46	Feltham, Carter. 2022. Monarch (Danaus plexippus) and Milkweed MTRI records from the 2022 Field Season. Mersey Tobeatic Research Institute.
42	Amirault, D.L. & McKnight, J. 2003. Piping Plover Database 1991-2003. Canadian Wildlife Service, Sackville, unpublished data. 7 recs.
41	Neily, T.H. & Pepper, C.; Toms, B. 2020. Nova Scotia lichen database [as of 2020-03-18]. Mersey Tobeatic Research Institute.
40	Cameron, E. 2007. Canadian Gypsum Co. survey 2005-07. Dillon Consulting Ltd, 40 recs.
40	Chapman-Lam, C.J. 2021. Atlantic Canada Conservation Data Centre 2020 botanical fieldwork. Atlantic Canada Conservation Data Centre, 17309 recs.
40	Neily, T.H. & Pepper, C.; Toms, B. 2015. Nova Scotia lichen location database [as of 2015-02-15]. Mersey Tobeatic Research Institute, 1691 records.
39	Mersey Tobeatic Research Institute. 2021. 2020 Monarch records from the MTRI monitoring program. Mersey Tobeatic Research Institute, 72 records.
38	Benjamin, L.K. (compiler). 2001. Significant Habitat & Species Database. Nova Scotia Dept of Natural Resources, 15 spp, 224 recs.
38	Nova Scotia Nature Trust. 2013. Nova Scotia Nature Trust 2013 Species records. Nova Scotia Nature Trust, 95 recs.
38	Porter, C.J.M. 2014. Field work data 2007-2014. Nova Scotia Nature Trust, 96 recs.
37	Pepper, C. 2021. Rare bird, plant and mammal observations in Nova Scotia, 2017-2021.
37	Tsehtik, M.; Leblanc, M.; Creaser, T. 2020. Coastal Action: 2020 Species at Risk Data. Coastal Action, 40 records.
36	Churchill, J.L. 2018. Atlantic Canada Conservation Data Centre Fieldwork 2017. Atlantic Canada Conservation Data Centre, 2318 recs.
33	Mazerolle, D.M. 2017. Atlantic Canada Conservation Data Centre Fieldwork 2017. Atlantic Canada Conservation Data Centre.
32	Atlantic Canada Conservation Data Centre. 2020. Cape LaHave Island observations from August 2020. Atlantic Canada Conservation Data Centre, 605 records.
32	Belliveau, A.G. 2016. Atlantic Canada Conservation Data Centre Fieldwork 2016. Atlantic Canada Conservation Data Centre, 10695 recs.
32	Blaney, C.S.; Spicer, C.D.; Rothfels, C. 2004. Fieldwork 2004. Atlantic Canada Conservation Data Centre. Sackville NB, 1343 recs.
32	Haughian, Sean. 2021. Update to lichen data from 2017-2021. Nova Scotia Museum.
32	Patrick, A.; Horne, D.; Noseworthy, J. et. al. 2017. Field data for Nova Scotia and New Brunswick, 2015 and 2017. Nature Conservancy of Canada.
31	Ogden, J. NS DNR Butterfly Collection Dataset. Nova Scotia Department of Natural Resources. 2014.
30	Cameron, R.P. 2018. Degelia plumbea records. Nova Scotia Environment.
29	Blaney, C.S.; Spicer, C.D.; Popma, T.M.; Hanel, C. 2002. Fieldwork 2002. Atlantic Canada Conservation Data Centre. Sackville NB, 2252 recs.
29	Mazerolle, D.M. 2018. Atlantic Canada Conservation Data Centre botanical fieldwork 2018. Atlantic Canada Conservation Data Centre, 13515 recs.
28	Pepper, Chris. 2012. Observations of breeding Canada Warbler's along the Eastern Shore, NS. Pers. comm. to S. Blaney, Jan. 20, 28 recs.
28	Staicer, Cindy. 2023. 2022 SAR Bird ARU occurrences. Dalhousie University, 379 records.
27	Canadian Wildlife Service, Dartmouth. 2010. Piping Plover censuses 2007-09, 304 recs.
26	Neily, T.H. 2019. Tom Neily NS Bryophyte records (2009-2013). T.H. Neily, Atlantic Canada Conservation Data Centre, 1029 specimen records.
25	MacDonald, E.C. 2018. CWS Piping Plover Census, 2010-2017. Canadian Wildlife Service, 672 recs.
25	MacDonald, E.C. 2018. Piping Plover nest records from 2010-2017. Canadian Wildlife Service.
25	Westwood, A., Staicer, C. 2016. Nova Scotia landbird Species at Risk observations. Dalhousie University.
24	Belliveau, A.G. 2018. E.C. Smith Herbarium and Atlantic Canada Conservation Data Centre Fieldwork 2018. E.C. Smith Herbarium, 6226 recs.
24	Belliveau, A.G. 2021. New Black ash site records near Kentville, NS. Acadia University, 47 records.
24	Benjamin, L.K. 2011. NSDNR fieldwork & consultant reports 1997, 2009-10. Nova Scotia Dept Natural Resources, 85 recs.
23	Klymko, J.J.D.; Robinson, S.L. 2012. 2012 field data. Atlantic Canada Conservation Data Centre, 447 recs.
23	Neily, T.H. 2013. Email communication to Sean Blaney regarding <i>Listera australis</i> observations made from 2007 to 2011 in Nova Scotia. , 50.
22	Belliveau, A. 2013. Rare species records from Nova Scotia. Mersey Tobeatic Research Institute, 296 records. 296 recs.
22	Breen, A. 2018. 2018 Atlantic Whitefish observations. Coastal Action.
22	LaPaix, Rich. 2022. Rare species observations, 2018-2022. Nova Scotia Nature Trust.
22	Nelly, T.H. 2006. <i>Cypripedium arietinum</i> in Hants Co. Pers. comm. to C.S. Blaney. 22 recs, 22 recs.
21	Hill, N.M. 1994. Status report on the Long's bulrush <i>Scirpus longii</i> in Canada. Committee on the Status of Endangered Wildlife in Canada, 7 recs.
19	Chapman, C.J. 2019. Atlantic Canada Conservation Data Centre 2019 botanical fieldwork. Atlantic Canada Conservation Data Centre, 11729 recs.
19	Hall, R.A. 2001. S.. NS Freshwater Mussel Fieldwork. Nova Scotia Dept Natural Resources, 178 recs.
19	Robinson, S.L. 2014. 2013 Field Data. Atlantic Canada Conservation Data Centre.
17	Anderson, Frances; Neily, Tom. 2010. A Reconnaissance Level Survey of Calciophilous Lichens in Selected Karst Topography in Nova Scotia with Notes on Incidental Bryophytes. Mersey Tobeatic Research Institute.
17	Ferguson, D.C. 1954. The Lepidoptera of Nova Scotia. Part I, macrolepidoptera. Proceedings of the Nova Scotian Institute of Science, 23(3), 161-375.
17	Hall, R.A. 2003. NS Freshwater Mussel Fieldwork. Nova Scotia Dept Natural Resources, 189 recs.
17	Neily, T.H. 2010. Erioderma pedicellatum records 2005-09. Mersey Tobiatic Research Institute, 67 recs.
17	Richardson, D., Anderson, F., Cameron, R., McMullin, T., Clayden, S. 2014. Field Work Report on Black Foam Lichen (<i>Anzia colpodes</i>). COSEWIC.
16	McNeil, Jeffie. 2023. 2022 Turtle Records. Mersey Tobeatic Research Institute.
16	Nature Conservancy of Canada. 2022. NCC Field data for Nova Scotia. Nature Conservancy of Canada.
16	Ogden, K. Nova Scotia Museum butterfly specimen database. Nova Scotia Museum. 2017.
15	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.
15	Neily, T.H. & Pepper, C. 2020. Nova Scotia SMP lichen surveys 2020. Mersey Tobeatic Research Institute.

# recs	CITATION
14	Cameron, R.P. 2014. 2013-14 rare species field data. Nova Scotia Department of Environment, 35 recs.
14	e-Butterfly. 2018. Selected Maritimes butterfly records from 2016 and 2017. Maxim Larrivee, Sambo Zhang (ed.) e-butterfly.org.
14	Manthorne, A. 2019. Incidental aerial insectivore observations. Birds Canada.
14	Munro, Marian K. Nova Scotia Provincial Museum of Natural History Herbarium Database. Nova Scotia Provincial Museum of Natural History, Halifax, Nova Scotia. 2014.
14	NS DNR. 2017. Black Ash records from NS DNR Permanent Sample Plots (PSPs), 1965-2016. NS Dept of Natural Resources.
13	Blaney, C.S.; Mazerolle, D.M.; Oberndorfer, E. 2007. Fieldwork 2007. Atlantic Canada Conservation Data Centre. Sackville NB, 13770 recs.
13	Holder, M. 2003. Assessment and update status report on the Eastern Lilaeopsis (<i>Lilaeopsis chinensis</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada, 16 recs.
13	Neily, T.H. 2012. 2012 <i>Erioderma pedicellatum</i> records in Nova Scotia.
13	Nova Scotia Nature Trust. 2014. Ladyslipper records from Saint Croix Nova Scotia, JLC Ed. Nova Scotia Nature Trust.
13	Powell, B.C. 1967. Female sexual cycles of <i>Chrysemy spicta</i> & <i>Clemmys insculpta</i> in Nova Scotia. Can. Field-Nat., 81:134-139. 26 recs.
13	Richardson, D., Anderson, F., Cameron, R., Pepper, C., Clayden, S. 2015. Field Work Report on the Wrinkled Shingle lichen (<i>Pannaria lurida</i>). COSEWIC.
13	Robinson, S.L. 2015. 2014 field data.
12	Basquill, S.P. 2012. 2012 rare vascular plant field data. Nova Scotia Department of Natural Resources, 37 recs.
12	Blaney, C.S. 2003. Fieldwork 2003. Atlantic Canada Conservation Data Centre. Sackville NB, 1042 recs.
12	Cameron, R.P. 2017. 2017 rare species field data. Nova Scotia Environment, 64 recs.
11	Archibald, D.R. 2003. NS Freshwater Mussel Fieldwork. Nova Scotia Dept Natural Resources, 213 recs.
11	Basquill, S.P. 2011 vascular plant field data. Nova Scotia Department of Natural Resources, 37 recs.
11	Blaney, C.S.; Mazerolle, D.M.; Hill, N.M. 2011. Nova Scotia Crown Share Land Legacy Trust Fieldwork. Atlantic Canada Conservation Data Centre, 5022 recs.
11	Stewart, J.I. 2010. Peregrine Falcon Surveys in New Brunswick, 2002-09. Canadian Wildlife Service, Sackville, 58 recs.
10	Bredin, K.A. 2002. NS Freshwater Mussel Fieldwork. Atlantic Canada Conservation Data Centre, 30 recs.
10	Neily, T. H. 2018. Lichen and Bryophyte records, AEI 2017-2018. Tom Neily; Atlantic Canada Conservation Data Centre.
10	Patrick, Allison. 2021. Animal and plant records from NCC properties from 2019 and 2020. Nature Conservancy Canada.
9	Bryson, I. 2013. Nova Scotia rare plant records. CBCL Ltd., 180 records.
9	Cameron, R.P. 2005. <i>Erioderma pedicellatum</i> unpublished data. NS Dept of Environment, 9 recs.
9	Cameron, R.P. 2006. <i>Erioderma pedicellatum</i> 2006 field data. NS Dept of Environment, 9 recs.
9	Edsall, J. 2007. Personal Butterfly Collection: specimens collected in the Canadian Maritimes, 1961-2007. J. Edsall, unpubl. report, 137 recs.
9	Gilhen, J. 1984. Amphibians & Reptiles of Nova Scotia, 1st Ed. Nova Scotia Museum, 164pp.
9	Klymko, J.J.D. 2018. 2017 field data. Atlantic Canada Conservation Data Centre.
8	Blaney, C.S.; Mazerolle, D.M. 2008. Fieldwork 2008. Atlantic Canada Conservation Data Centre. Sackville NB, 13343 recs.
8	Cameron, R.P. 2013. 2013 rare species field data. Nova Scotia Department of Environment, 71 recs.
8	Chapman, C.N. (Cody). 2020. Nova Scotia Black Ash (<i>Fraxinus nigra</i>) field observations by Confederacy of Mainland Mi'kmaq. Forestry Program, Confederacy of Mainland Mi'kmaq.
8	King, Katie; Jean, Samuel. 2021. Black ash observations near Booklyn, NS. E.C. Smith Herbarium.
8	Klymko, J. Butterfly records at the Nova Scotia Museum not yet accessioned by the museum. Atlantic Canada Conservation Data Centre. 2017.
8	McNeil, J.A. 2014. Blandings Turtle (<i>Emydoidea blandingii</i>) and Snapping Turtle (<i>Chelydra serpentina</i>) sightings, 2014. Mersey Tobeatic Research Institute.
8	McNeil, J.A. 2016. Blandings Turtle (<i>Emydoidea blandingii</i>), Eastern Ribbonsnake (<i>Thamnophis sauritus</i>), Wood Turtle (<i>Glyptemys insculpta</i>), and Snapping Turtle (<i>Chelydra serpentina</i>) sightings, 2016. Mersey Tobeatic Research Institute, 774 records.
8	Neily, T.H. & Anderson, F. 2011. Lichen observations from NRC site at Sandy Cove. , 97.
8	Phinney, Lori; Toms, Brad; et. al. 2016. Bank Swallows (<i>Riparia riparia</i>) in Nova Scotia: inventory and assessment of colonies. Merset Tobeatic Research Institute, 25 recs.
8	Sollows, M.C., 2008. NBM Science Collections databases: mammals. New Brunswick Museum, Saint John NB, download Jan. 2008, 4983 recs.
8	Webster, R.P. Atlantic Forestry Centre Insect Collection, Maritimes butterfly records. Natural Resources Canada. 2014.
8	Wilhelm, S.I. et al. 2019. Colonial Waterbird Database. Canadian Wildlife Service.
7	Blaney, C.S.; Mazerolle, D.M. 2009. Fieldwork 2009. Atlantic Canada Conservation Data Centre. Sackville NB, 13395 recs.
7	Blaney, C.S.; Spicer, C.D. 2001. Fieldwork 2001. Atlantic Canada Conservation Data Centre. Sackville NB, 981 recs.
7	Boyne, A.W. & Grecian, V.D. 1999. Tern Surveys. Canadian Wildlife Service, Sackville, unpublished data. 23 recs.
7	Cameron, B. 2006. <i>Hepatica americana</i> Survey at Scotia Mine Site in Gays River, and Discovery of Three Yellow-listed Species. Conestoga-Rovers and Associates, (a consulting firm), october 25. 7 recs.
7	Chapman, C.J. 2018. Atlantic Canada Conservation Data Centre botanical fieldwork 2018. Atlantic Canada Conservation Data Centre, 11171 recs.
7	Goltz, J.P. & Bishop, G. 2005. Confidential supplement to Status Report on Prototype Quillwort (<i>Isoetes prototypus</i>). Committee on the Status of Endangered Wildlife in Canada, 111 recs.
7	Klymko, J.J.D.; Robinson, S.L. 2014. 2013 field data. Atlantic Canada Conservation Data Centre.
7	Neily, T.H. & Pepper, C.; Toms, B. 2020. Nova Scotia lichen database [as of 2020-05-25]. Mersey Tobeatic Research Institute, 668 recs.
6	Adams, J. & Herman, T.B. 1998. Thesis, Unpublished map of <i>C. insculpta</i> sightings. Acadia University, Wolfville NS, 88 recs.
6	Basquill, S.P., Porter, C. 2019. Bryophyte and lichen specimens submitted to the E.C. Smith Herbarium. NS Department of Lands and Forestry.
6	Benjamin, L.K. 2006. <i>Cypripedium arietinum</i> . Pers. comm. to D. Mazerolle. 9 recs, 9 recs.
6	Benjamin, L.K. 2012. NSDNR fieldwork & consultant reports 2008-2012. Nova Scotia Dept Natural Resources, 196 recs.
6	Blaney, C.S.; Korol, J.B.; Crowell, I. 2023. 2022 AC CDC Botany program field data. Atlantic Canada Conservation Data Centre, 5293 records.
6	Clayden, S.R. 2005. Confidential supplement to Status Report on Ghost Antler Lichen (<i>Pseudevernia cladonia</i>). Committee on the Status of Endangered Wildlife in Canada, 27 recs.
6	Downes, C. 1998-2000. Breeding Bird Survey Data. Canadian Wildlife Service, Ottawa, 111 recs.
6	Gallop, John. 2021. Sheet Harbour rare lichen observations. McCallum Environmental.
6	Hall, R. 2008. Rare plant records in old fieldbook notes from Truro area. Pers. comm. to C.S. Blaney. 6 recs, 6 recs.
6	Klymko, J.J.D. 2012. Odonata specimens & observations, 2010. Atlantic Canada Conservation Data Centre, 425 recs.

# recs	CITATION
6	Matthew Smith. 2010. Field trip report from Avon Caving Club outlining the discovery of <i>Cypripedium arietinum</i> and <i>Hepatica nobilis</i> populations. Public Works and Government Services Canada.
6	McNeil, Jeffie. 2023. Ribbonsnake records from 2022. Mersey Tobeatic Research Institute.
6	Neily, T.H. Tom Neily NS Sphagnum records (2009-2014). T.H. Neily, Atlantic Canada Conservation Data Centre. 2019.
6	Nova Scotia Nature Trust. 2022. Ram's Head Lady Slipper observations from 2015 and 2019. , 6 records.
6	Whittam, R.M. 1999. Status Report on the Roseate Tern (update) in Canada. Committee on the Status of Endangered Wildlife in Canada, 36 recs.
5	Chaput, G. 2002. Atlantic Salmon: Maritime Provinces Overview for 2001. Dept of Fisheries & Oceans, Atlantic Region, Science Stock Status Report D3-14. 39 recs.
5	Holder, M.L.; Kingsley, A.L. 2000. Kinglsey and Holder observations from 2000 field work.
5	McNeil, J.A. 2019. Snapping Turtle records, 2019. Mersey Tobeatic Research Institute.
5	McNeil, J.A. 2020. Snapping Turtle and Eastern Painted Turtle records, 2020. Mersey Tobeatic Research Institute.
5	Pohl, G.P. Specimen data from Northern Forest Research Centre. Northern Forest Research Centre. 2022.
5	Porter, K. 2013. 2013 rare and non-rare vascular plant field data. St. Mary's University, 57 recs.
5	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.
5	Towell, C. 2014. 2014 Northern Goshawk and Common Nighthawk email reports, NS. NS Department of Natural Resources.
5	White, S. 2019. Notable species sightings, 2018. East Coast Aquatics.
4	Bateman, M.C. 2001. Coastal Waterfowl Surveys Database, 1965-2001. Canadian Wildlife Service, Sackville, 667 recs.
4	Cameron, R.P. 2009. Nova Scotia nonvascular plant observations, 1995-2007. Nova Scotia Dept Natural Resources, 27 recs.
4	Cameron, R.P. 2012. Additional rare plant records, 2009. , 7 recs.
4	Christie, D.S. 2000. Christmas Bird Count Data, 1997-2000. Nature NB, 54 recs.
4	Forsythe, B. 2006. <i>Cypripedium arietinum</i> at Meadow Pond, Hants Co. Pers. comm. to C.S. Blaney. 4 recs, 4 recs.
4	Haughian, S.R. 2018. Description of <i>Fuscopannaria leucosticta</i> field work in 2017. New Brunswick Museum, 314 recs.
4	Hughes, Cory. 2020. Atlantic Forestry Centre <i>Coccinella transversoguttata</i> collections. Canadian Forest Service, Atlantic Forestry Centre.
4	Klymko, J. Dataset of butterfly records at the New Brunswick Museum not yet accessioned by the museum. Atlantic Canada Conservation Data Centre. 2016.
4	Klymko, J.J.D. 2012. Insect fieldwork & submissions, 2011. Atlantic Canada Conservation Data Centre. Sackville NB, 760 recs.
4	McMullin, R.T. 2022. Maritimes lichen records. Canadian Museum of Nature.
4	McNeil, Jeffie. 2022. Ribbonsnake records, 2021. Mersey Tobeatic Research Institute.
4	Mills, Pamela. 2007. <i>Iva frutescens</i> records. Nova Scotia Dept of Natural Resources, Wildlife Div. Pers. comm. to S. Basquill, 4 recs.
4	Newell, R. & Neily, T.; Toms, B.; Proulx, G. et al. 2011. NCC Properties Fieldwork in NS: August-September 2010. Nature Conservancy Canada, 106 recs.
4	Olsen, R. Herbarium Specimens. Nova Scotia Agricultural College, Truro. 2003.
4	Sabine, D.L. <i>Bombus terricola</i> specimens in Dwayne Sabine's personal collection. pers. comm. 2022.
3	Basquill, S.P. 2009. 2009 field observations. Nova Scotia Dept of Natural Resources.
3	Benjamin, L.K. 2009. Boreal Felt Lichen, Mountain Avens, Orchid and other recent records. Nova Scotia Dept Natural Resources, 105 recs.
3	Benjamin, L.K. 2009. NSDNR Fieldwork & Consultants Reports. Nova Scotia Dept Natural Resources, 143 recs.
3	Bradford, R. 2004. <i>Coregonus huntsmani</i> locations. Dept of Fisheries & Oceans, Atlantic Region, Pers. comm. to K. Bredin. 4 recs.
3	Brunelle, P.-M. (compiler). 2010. ADIP/MDDS Odonata Database: NB, NS Update 1900-09. Atlantic Dragonfly Inventory Program (ADIP), 935 recs.
3	Chapman, Cody. Unreported Species at Risk Records across Nova Scotia. Chapman, Cody, 5 records.
3	Clayden, S.R. 1998. NBM Science Collections databases: vascular plants. New Brunswick Museum, Saint John NB, 19759 recs.
3	Cody, W.J. 2003. Nova Scotia specimens of <i>Equisetum pratense</i> at the DAO herbarium in Ottawa. , Pers. comm. to C.S. Blaney. 4 recs.
3	Doubt, J. 2013. Email to Sean Blaney with Nova Scotia records of <i>Fissidens exilis</i> at Canadian Museum of Nature. pers. comm. , 3 records.
3	Hill, N. and D. Patriquin. 2013. 2013 rare plant observations in Williams Lake Backlands area. Fern Hill Institute of Plant Conservation, Berwick, Nova Scotia, 3 records.
3	Oldham, M.J. 2000. Oldham database records from Maritime provinces. Oldham, M.J; ONHIC, 487 recs.
3	Sabine, M. 2016. NB DNR staff incidental Black Ash observations. New Brunswick Department of Natural Resources.
2	Amiro, Peter G. 1998. Atlantic Salmon: Inner Bay of Fundy SFA 22 & part of SFA 23. Dept of Fisheries & Oceans, Atlantic Region, Science Stock Status Report D3-12. 4 recs.
2	Bagnell, B.A. 2001. New Brunswick Bryophyte Occurrences. B&B Botanical, Sussex, 478 recs.
2	Basquill, S.P. 2011. Field observations & specimen collections, 2010. Nova Scotia Department of Natural Resources, Pers. comm. , 8 Recs.
2	Cameron, B. 2005. <i>C. palmicola</i> , <i>E. pedicellatum</i> records from Sixth Lake. Pers. comm. to C.S. Blaney. 3 recs, 3 recs.
2	Cameron, R.P. 2012. Rob Cameron 2012 vascular plant data. NS Department of Environment, 30 recs.
2	Canadian National Collection of Insects Arachnids, and Nematodes <i>Bombus</i> specimen database export. Government of Canada. 2022.
2	Frittaion, C. 2012. NSNT 2012 Field Observations. Nova Scotia Nature Trust, Pers comm. to S. Blaney Feb. 7, 34 recs.
2	Heron, J. 2022. <i>Bombus</i> records communicated to J. Klymko over email in autumn 2022. Pers. comm.
2	Hill, N.M. 2013. email communications to Sean Blaney and David Mazerolle regarding the discovery of <i>Listera australis</i> populations at Black River Lake and Middlewood. , 2.
2	Klymko, J. 2019. Atlantic Canada Conservation Data Centre zoological fieldwork 2018. Atlantic Canada Conservation Data Centre.
2	Klymko, J.J.D. 2011. Insect fieldwork & submissions, 2010. Atlantic Canada Conservation Data Centre. Sackville NB, 742 recs.
2	LaPaix, R.; Parker, M. 2013. email to Sean Blaney regarding <i>Listera australis</i> observations near Kearney Lake. East Coast Aquatics, 2.
2	Lock, A.R.; Brown, R.G.B. & Gerriets, S.H. 1994. Gazetteer of Marine Birds in Atlantic Canada. Canadian Wildlife Service, Atlantic Region, 137 pp.
2	Mazerolle, David. 2021. Botanical fieldwork 2019-20200. Parks Canada.
2	McAlpine, D.F. 1998. NBM Science Collections databases to 1998. New Brunswick Museum, Saint John NB, 241 recs.
2	Munro, M. 2003. <i>Caulophyllum thalictroides</i> & <i>Carex hirtifolia</i> at Herbert River, Brooklyn, NS. , Pers. comm. to C.S. Blaney. 2 recs.
2	Munro, M. 2003. <i>Dirca palustris</i> & <i>Hepatica nobilis</i> var. <i>obtusata</i> at Cogmagun River, NS. , Pers. comm. to C.S. Blaney. 2 recs.
2	Neily, T.H.; Smith, C.; Whitman, E. 2011. NCC Logging Lake (Halifax Co. NS) properties baseline survey data. Nature Conservancy of Canada, 2 recs.

# recs	CITATION
2	Newell, R. E., MacKinnon, C. M. & Kennedy, A. C. 2006. Botanical Survey of Boot Island National Wildlife Area, Nova Scotia, 2004. Canadian Wildlife Service, Atlantic Region, Technical Report Series Number 450. 3 recs.
2	Newell, R.E. 2006. Rare plant observations in Digby Neck. Pers. comm. to S. Blaney, 6 recs.
2	O'Neil, S. 1998. Atlantic Salmon: Eastern Shore Nova Scotia SFA 20. Dept of Fisheries & Oceans, Atlantic Region, Science. Stock Status Report D3-10. 4 recs.
2	Plissner, J.H. & Haig, S.M. 1997. 1996 International piping plover census. US Geological Survey, Corvallis OR, 231 pp.
2	Porter, Caitlin. 2021. Field data for 2020 in various locations across the Maritimes. Atlantic Canada Conservation Data Centre, 3977 records.
2	Shafer, A.B.A., D.T. Stewart. 2006. A Disjunct Population of <i>Sorex dispar</i> (Long-Tailed Shrew) in Nova Scotia. Northeastern Naturalist, 13(4): 603-608.
2	Standley, L.A. 2002. <i>Carex haydenii</i> in Nova Scotia. , Pers. comm. to C.S. Blaney. 4 recs.
2	White, S. 2018. Notable species sightings, 2016-2017. East Coast Aquatics.
1	Amirault, D.L. 2003. 2003 Peregrine Falcon Survey. Canadian Wildlife Service, Sackville, unpublished data. 7 recs.
1	Amirault, D.L. 2005. 2005 Peregrine Falcon Survey. Canadian Wildlife Service, Sackville, unpublished data. 27 recs.
1	Amiro, Peter G. 1998. Atlantic Salmon: Southern Nova Scotia SFA 21. Dept of Fisheries & Oceans, Atlantic Region, Science. Stock Status Report D3-11. 1 rec.
1	Anderson, Frances. 2022. <i>Heterodermia squamulosa</i> record near Lunenburg, NS. pers. comm.
1	Austin-Smith, P. 2014. 2014 Common Nighthawk personal communication report, NS. NS Department of Natural Resources.
1	Basquill, S. P. 2008. Nova Scotia Dept of Natural Resources.
1	Basquill, S.P. 2012. 2012 Bryophyte specimen data. Nova Scotia Department of Natural Resources, 37 recs.
1	Basquill, S.P.; Quigley, E. 2006. New <i>Minuartia groenlandica</i> record for NS. Pers. comm. to C.S. Blaney, Oct 6, 1 rec.
1	Basset, I.J. & Crompton, C.W. 1978. The Genus <i>Suaeda</i> (Chenopodiaceae) in Canada. Canadian Journal of Botany, 56: 581-591.
1	Belliveau, A. 2012. 2012 Atlantic Coastal Plain Flora observations. Mersey Tobeatic Research Institute, 1543.
1	Belliveau, A.G. E.C. Smith Herbarium Specimen Database 2019. E.C. Smith Herbarium, Acadia University. 2019.
1	Benjamin, L.K. 2003. <i>Cyripedium arietinum</i> in Cogmagun River NS. Pers. comm. to S. Blaney, 1 rec.
1	Blaney, C.S. 2017. Atlantic Canada Conservation Data Centre Fieldwork 2017. Atlantic Canada Conservation Data Centre.
1	Blaney, C.S. 2019. Sean Blaney 2019 field data. Atlantic Canada Conservation Data Centre, 4407 records.
1	Brach, A.R. 2019. Correspondence to Sean Blaney regarding <i>Calamagrostis cinnoides</i> specimen from Halifax NS. pers. comm., Harvard University Herbaria, 1 record.
1	Breen, A. 2017. 2017 Atlantic Whitefish observation. Coastal Action.
1	Brooks, Fiona. <i>Erioderma mollissimum</i> records in Lunenburg County, NS. Pers. comm., 2 records.
1	Bruce, J. 2014. 2014 Wood Turtle email report, Nine Mile River, NS. NS Department of Natural Resources.
1	Clayden, S.R. 2006. <i>Pseudevernia cladonia</i> records. NB Museum. Pers. comm. to S. Blaney, Dec, 4 recs.
1	Clayden, S.R. 2020. Email to Sean Blaney regarding <i>Pilophorus cereus</i> and <i>P. fibula</i> at Fidele Lake area, Charlotte County, NB. pers. comm., 2 records.
1	COSEWIC (Committee on the Status of Wildlife in Canada). 2013. COSEWIC Assessment and Status Report on the Eastern Waterfarn <i>Peltigera hydrothyria</i> in Canada. COSEWIC, 46 pp.
1	Creaser, Alissa & Belliveau, Alain <i>Bombus</i> specimens collected in Wolfville, Nova Scotia, in July 2022. E.C. Smith Herbarium. 2022.
1	Crowell, A. 2004. <i>Cyripedium arietinum</i> in Weir Brook, Hants Co. Pers. comm. to S. Blaney, 1 rec.
1	Crowell, M. 2013. email to Sean Blaney regarding <i>Listera australis</i> at Bear Head and Mill Cove Canadian Forces Station. Jacques Whitford Environmental Ltd., 2.
1	deGooyer, K. 2019. Snapping Turtle and Eastern White Cedar observations. Nova Scotia Environment.
1	Docherty, Joanne. 2022. Phone call to John Klymko about <i>Danaus plexippus</i> observation in Nova Scotia. Personal communication.
1	Eastman, A. 2019. Snapping Turtle observation at Brookfield, Colchester Co. NS. Halifax Field Naturalists Nova Scotia Nature Archive Facebook Page, 1 record.
1	Gilhen, J., Jones, A., McNeil, J., Tanner, A.W. 2012. A Significant Range Extension for the Eastern Ribbonsnake, <i>Thamnophis sauritus</i> , in Nova Scotia, Canada. The Canadian Field-Naturalist, 126(3): 231-233.
1	Golder Associates Ltd. 2021. Black Ash location from Goff's Quarry Expansion Environment Assessment, 2017. Golder Associates Ltd., 1 record.
1	iNaturalist.ca. 2022. iNaturalist records 2022. iNaturalist.ca (ed.) iNaturalist.org; iNaturalist.ca, Web site: 3 recs.
1	Jacques Whitford Ltd. 2003. Cananda Lily location. Pers. Comm. to S. Blaney. 2pp, 1 rec, 1 rec.
1	Klymko, J.J.D. 2012. Insect field work & submissions. Atlantic Canada Conservation Data Centre, 852 recs.
1	Lautenschlager, R.A. 2010. Miscellaneous observations reported to ACCDC (zoology). Pers. comm. from various persons, 2 recs.
1	MacKinnon, D.; Wright, P.; Smith, D. 2014. 2014 Common Tern email report, Eastern Passage, NS. NS Department of Environment.
1	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.
1	McKendry, Karen. 2016. Rare species observations, 2016. Nova Scotia Nature Trust, 19 recs.
1	NatureServe Canada. 2018. iNaturalist Butterfly Data Export . iNaturalist.org and iNaturalist.ca.
1	Neily, P.D. Plant Specimens. Nova Scotia Dept Natural Resources, Truro. 2006.
1	Neily, T.H. & Pepper, C.; Toms, B. 2019. Boreal Felt Lichen Observation, April 2019. Mersey Tobeatic Research Institute.
1	Neily, T.H. 2004. <i>Hepatica nobilis</i> var. <i>obtusata</i> record for Falmouth NS. Pers. comm. to C.S. Blaney, 1 rec.
1	Newell, R.E. 2004. <i>Hepatica nobilis</i> var. <i>obtusata</i> record. Pers. comm. to S. Blaney, 1 rec.
1	Niel, K. & Majka, C. 2008. New Records of Tiger Beetles (Coleoptera: Carabidae: Cicindelinae) in Nova Scotia. Journal of the Acadian Entomological Society, 4: 3-6.
1	Payzant, P. 2018. Satyr Comma record from Bible Hill, NS. https://novascotiabutterflies.ca .
1	Phinney, L. 2019. Little Brown Myotis maternal colony counts and birdSAR, 2019. Mersey Tobeatic Research Institute.
1	Scott, F.W. 1988. Status Report on the Southern Flying Squirrel (<i>Glaucomys volans</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada, 2 recs.
1	Skevington, Jeffrey H. 2020. Syrphid records used for the Field Guide to the Flower Flies of Northeastern North America. Canadian National Collection of Insects.
1	Sollows, M.C.. 2009. NBM Science Collections databases: Coccinellid & Cerambycid Beetles. New Brunswick Museum, Saint John NB, download Feb. 2009, 569 recs.
1	Sollows, M.C. 2008. NBM Science Collections databases: herpetiles. New Brunswick Museum, Saint John NB, download Jan. 2008, 8636 recs.
1	Sollows, M.C. 2009. NBM Science Collections databases: molluscs. New Brunswick Museum, Saint John NB, download Jan. 2009, 6951 recs (2957 in Atlantic Canada).
1	Stewart, P. 2013. email to Sean Blaney regarding the discovery of a <i>Listera australis</i> population at Blockhouse. Envirosphere Consultants Limited, 1.

# recs	CITATION
1	Toms, Brad. 2022. Non-Lichen Observations from Lichen SMP and NCC Property Searches. Mersey Tobeatic Research Institute.
1	Williams, M. Cape Breton University Digital Herbarium. Cape Breton University Digital Herbarium. 2013.

APPENDIX B

Vegetation Data

Table B.1 - Observed Vegetation in the MLSA

Species Name	Common Name
<i>Abies balsamea</i>	Balsam Fir
<i>Acer pensylvanicum</i>	Striped Maple
<i>Acer rubrum</i>	Red Maple
<i>Agalinis neoscotica</i>	Nova Scotia Agalinis
AGALINIS PURPUREA	Purple False-Foxglove
<i>Agrostis capillaris</i>	Colonial Bent Grass
<i>Agrostis scabra</i>	Rough Bent Grass
<i>Alisma triviale</i>	Northern Water Plantain
<i>Alnus alnobetula</i>	Green Alder
<i>Alnus incana</i>	Speckled Alder
<i>Amelanchier</i> sp.	Serviceberry
AMELANCHIER SPICATA	Running Serviceberry
<i>Anaphalis margaritacea</i>	Pearly Everlasting
<i>Aralia nudicaulis</i>	Wild Sarsaparilla
<i>Aronia melanocarpa</i>	Photinia melanocarpa
<i>Bartonia paniculata</i>	Branched Bartonia
<i>Bazzania trilobata</i>	Bazzania
<i>Betula alleghaniensis</i>	Yellow Birch
<i>Betula papyrifera</i>	White Birch
<i>Betula populifolia</i>	Gray Birch
<i>Bidens cernua</i>	Nodding Beggarticks
<i>Bidens frondosa</i>	Devil's Beggarticks
<i>Brachyelytrum aristosum</i>	Northern Shorthusk
<i>Bromus ciliatus</i>	Bromus ciliatus
<i>Calamagrostis canadensis</i>	Bluejoint Reed Grass
<i>Callitriche palustris</i>	Marsh Water-starwort
<i>Carex brunnescens</i>	Brownish Sedge
<i>Carex debilis</i>	White-edged Sedge
<i>Carex folliculata</i>	Northern Long Sedge
<i>Carex gracillima</i>	Graceful Sedge
<i>Carex gynandra</i>	Nodding Sedge
<i>Carex leptalea</i>	Bristly-stalked Sedge
<i>Carex lurida</i>	Sallow Sedge
<i>Carex nigra</i>	Smooth Black Sedge
<i>Carex novae-angliae</i>	New England Sedge
<i>Carex scoparia</i>	Broom Sedge
<i>Carex</i> sp.	a Sedge
<i>Carex stricta</i>	Tussock Sedge
<i>Carex trisperma</i>	Three-seeded Sedge
<i>Centaurea nigra</i>	Black Knapweed
<i>Centaureum pulchellum</i>	Branched Centaury
<i>Chamaedaphne calyculata</i>	Leatherleaf
<i>Chelone glabra</i>	White Turtlehead
<i>Cladonia</i> sp.	Reindeer Lichen
<i>Claytosmunda claytoniana</i>	Interupted Fern
<i>Clintonia borealis</i>	Yellow Bluebead Lily
<i>Coptis trifolia</i>	Goldthread
<i>Corema conradii</i>	Broom Crowberry
<i>Cornus canadensis</i>	Bunchberry
<i>Cypripedium acaule</i>	Pink Lady's-Slipper
<i>Danthonia compressa</i>	Flattened Oat Grass
<i>Danthonia spicata</i>	Poverty Oat Grass
<i>Daucus carota</i>	Queen Anne's Lace
<i>Dennstaedtia punctilobula</i>	Hay-scented Fern
<i>Deschampsia flexuosa</i>	Tufted Hair Grass
<i>Dianthus armeria</i>	Deptford Pink
<i>Dichanthelium acuminatum</i>	Woolly Panic Grass
<i>Dicranium</i> sp.	Dicraniums
<i>Diervilla lonicera</i>	Northern Bush Honeysuckle
<i>Digitaria ischaemum</i>	Smooth Crab Grass
<i>Doellingeria umbellata</i>	Hairy Flat-top White Aster
<i>Drosera intermedia</i>	Spoon-Leaved Sundew
<i>Drosera rotundifolia</i>	Round-leaved Sundew
<i>Dryopteris carthusiana</i>	Spinulose Wood Fern
<i>Dryopteris cristata</i>	Crested Wood Fern
ELEOCHARIS FLAVESCENS VAR. OLIVACEA	Bright-green Spikerush
<i>Epigaea repens</i>	Trailing Arbutus
<i>Epilobium ciliatum</i>	Northern Willowherb
<i>Erigeron annuus</i>	Annual Fleabane
<i>Erigeron canadensis</i>	Conyza canadensis
<i>Eriophorum angustifolium</i>	Narrow-leaved Cottongrass
<i>Eriophorum virginicum</i>	Tawny Cottongrass
<i>Euphrasia nemorosa</i>	Common Eyebright
<i>Eurybia radula</i>	Low Rough Aster
<i>Euthamia graminifolia</i>	Grass-leaved Goldenrod
<i>Festuca filiformis</i>	Hair Fescue
<i>Festuca rubra</i>	Red Fescue
<i>Fragaria virginiana</i>	Wild Strawberry
<i>Frangula alnus</i>	Glossy Buckthorn
<i>Gallium palustre</i>	Common Marsh Bedstraw
<i>Gaultheria hispidula</i>	Creeping Snowberry
<i>Gaultheria procumbens</i>	Eastern Teaberry
<i>Gaylussacia baccata</i>	Black Huckleberry
<i>Glyceria canadensis</i>	Canada Manna Grass
<i>Glyceria grandis</i>	Common Tall Manna Grass
<i>Glyceria obtusa</i>	Atlantic Manna Grass
<i>Glyceria striata</i>	Fowl Manna Grass
<i>Hamamelis virginiana</i>	Witch Hazel
<i>Hieracium umbellatum</i>	Umbellate Hawkweed
<i>Hylocomium splendens</i>	Stairstep Moss
<i>Hypericum canadense</i>	Canada St John's-wort
<i>Hypericum fraseri</i>	Triadenum fraseri
<i>Hypericum perforatum</i>	Common St. John's-wort
<i>Hypnum imponens</i>	Plume Moss
<i>Hypopitys monotropa</i>	Monotropa hypopithys
<i>Ilex mucronata</i>	Nemopanthus mucronatus
<i>Ilex verticillata</i>	Winterberry
<i>Impatiens capensis</i>	Spotted Touch-me-not
<i>Iris versicolor</i>	Harlequin Blue Flag
JUNCUS ACUMINATUS	Sharp-fruit Rush
<i>Juncus brevicaudatus</i>	Narrow-Panicled Rush

Table B.1 - Observed Vegetation in the MLSA

Species Name	Common Name
<i>Juncus canadensis</i>	Canada Rush
<i>Juncus effusus</i>	Soft Rush
<i>Juncus marginatus</i>	Grassleaf Rush
<i>Juncus pelocarpus</i>	Brown-Fruited Rush
<i>Juncus tenuis</i>	Slender Rush
<i>Juniperus communis</i>	Common Juniper
<i>Kalmia angustifolia</i>	Sheep Laurel
<i>Kalmia polifolia</i>	Pale Bog Laurel
<i>Larix laricina</i>	Tamarack
<i>Leersia oryzoides</i>	Rice Cut Grass
<i>Lemna minor</i>	Lesser Duckweed
<i>Leucobryum glaucum</i>	White Pincushion Moss
<i>Leucobryum</i> sp.	a Moss
<i>Linnaea borealis</i>	Twinflower
<i>Lonicera villosa</i>	Mountain Fly Honeysuckle
<i>Lotus corniculatus</i>	Garden Bird's-foot Trefoil
<i>Ludwigia palustris</i>	Marsh Seedbox
<i>Lycopus americanus</i>	American Water Horehound
<i>Lycopus uniflorus</i>	Northern Water Horehound
<i>Lysimachia borealis</i>	Trientalis borealis ssp. borealis
<i>Maianthemum canadense</i>	Wild Lily-of-The-Valley
<i>Maianthemum trifolium</i>	Three-leaved False Soloman's Seal
<i>Matricaria discoidea</i>	Pineapple Weed
<i>Mitchella repens</i>	Partridgeberry
<i>Monotropa uniflora</i>	Convulsion-Root
<i>Morella pensylvanica</i>	Northern Bayberry
<i>Muhlenbergia uniflora</i>	Bog Muhly
<i>Myrica gale</i>	Sweet Gale
<i>Nabalus trifoliolatus</i>	Three-leaved Rattlesnakeroot
<i>Nasturtium officinale</i>	Rorippa nasturtium-aquaticum
<i>Nuphar variegata</i>	Variegated Pond-lily
<i>Oclemena acuminata</i>	Whorled Wood Aster
<i>Oclemena nemoralis</i>	Bog Aster
<i>Oclemena</i> x <i>blakei</i>	a hybrid White Panicked American-Aster
<i>Oenothera biennis</i>	Common Evening Primrose
<i>Oenothera perennis</i>	Perennial Evening Primrose
<i>Onoclea sensibilis</i>	Sensitive Fern
<i>Osmunda claytoniana</i>	Interrupted Fern
<i>Osmunda regalis</i>	Royal Fern
<i>Osmundastrum cinnamomeum</i>	Cinnamon Fern
<i>Oxalis montana</i>	Wood Sorrel
<i>Oxalis stricta</i>	European Wood Sorrel
<i>Persicaria hydropiper</i>	Polygonum hydropiper
<i>Persicaria maculosa</i>	Polygonum persicaria
<i>Persicaria sagittata</i>	Polygonum sagittatum
<i>Picea glauca</i>	White Spruce
<i>Picea mariana</i>	Black Spruce
<i>Picea mariana</i> x <i>rubens</i>	Hybrid Spruce
<i>Picea rubens</i>	Red Spruce
<i>Pinus strobus</i>	Eastern White Pine
<i>Plantago major</i>	Common Plantain
<i>Pleurozium schreberi</i>	Scherber's Moss
<i>Poa compressa</i>	Canada Blue Grass
<i>Poa palustris</i>	Fowl Blue Grass
<i>Poa pratensis</i>	Kentucky Blue Grass
<i>Pogonia ophioglossoides</i>	Rose Pogonia
<i>Polypodium virginianum</i>	Rock Polypody
<i>Polytrichum</i> sp.	Polytrichum
<i>Pontederia cordata</i>	Pickernelweed
<i>Populus grandidentata</i>	Large-toothed Aspen
<i>Populus tremuloides</i>	Trembling Aspen
<i>Potentilla simplex</i>	Old Field Cinquefoil
<i>Prunus pensylvanica</i>	Pin Cherry
<i>Pteridium aquilinum</i>	Bracken Fern
<i>Ptilium crista-castrensis</i>	Knight's Plume Moss
<i>Quercus rubra</i>	Red Oak
<i>Ranunculus acris</i>	Common Buttercup
<i>Ranunculus repens</i>	Creeping Buttercup
RANUNCULUS SCLELERATUS	Cursed Buttercup
<i>Rhinanthus minor</i>	Little Yellow Rattle
<i>Rhododendron canadense</i>	Rhodora
<i>Rhododendron groenlandicum</i>	Ledum groenlandicum
<i>Rhynchospora alba</i>	White Beakrush
<i>Rhytidiadelphus triquetrus</i>	Electrified Cat's-tail Moss
ROSA BLANDA	Smooth Rose
<i>Rosa multiflora</i>	Multiflora Rose
<i>Rosa nitida</i>	Shining Rose
<i>Rosa palustris</i>	Swamp Rose
<i>Rosa virginiana</i>	Virginia Rose
<i>Rubus canadensis</i>	Smooth Blackberry
<i>Rubus chamaemorus</i>	Cloudberry
<i>Rubus hispidus</i>	Bristly Dewberry
<i>Rubus idaeus</i>	Red Raspberry
<i>Rubus pubescens</i>	Dwarf Red Raspberry
<i>Rubus</i> sp.	Rubus
<i>Salix bebbiana</i>	Bebb's Willow
<i>Salix discolor</i>	Pussy Willow
<i>Salix humilis</i> var. <i>humilis</i>	Upland Willow
<i>Sarracenia purpurea</i>	Northern Pitcher Plant
<i>Schoenoplectus subterminalis</i>	Water Bulrush
<i>Scirpus atrocinctus</i>	Black-girdled Bulrush
<i>Scirpus cyperinus</i>	Common Woolly Bulrush
<i>Scirpus hattorianus</i>	Mosquito Bulrush
<i>Scorzoneroides autumnalis</i>	Leontodon autumnalis
<i>Sium suave</i>	Common Water Parsnip
<i>Solidago canadensis</i>	Canada Goldenrod
<i>Solidago puberula</i>	Downy Goldenrod
<i>Solidago rugosa</i>	Rough-stemmed Goldenrod
<i>Solidago uliginosa</i>	Northern Bog Goldenrod
<i>Sorbus americana</i>	American Mountain Ash
<i>Sparganium americanum</i>	American Burreed

Table B.1 - Observed Vegetation in the MLSA

Species Name	Common Name
<i>Sparganium angustifolium</i>	Narrow-leaved Burreed
<i>Sphagnum</i> sp.	Sphagnum Moss
<i>Spiraea alba</i>	White Meadowsweet
<i>Spiraea tomentosa</i>	Steeplebush
<i>Spiranthes cernua</i>	Nodding Ladies'-Tresses
<i>Symphotrichum puniceum</i>	Purple-stemmed Aster
<i>Symphytotrichum novi-belgii</i>	New York Aster
<i>Symphytotrichum puniceum</i>	Purple-stemmed Aster
<i>Thalictrum pubescens</i>	Tall Meadow-Rue
<i>Thelypteris noveboracensis</i>	New York Fern
<i>Trientalis borealis</i>	Starflower
<i>Trillium undulatum</i>	Painted Trillium
<i>Tussilago farfara</i>	Coltsfoot
<i>Typha latifolia</i>	Broad-leaved Cattail
<i>Vaccinium angustifolium</i>	Late Lowbush Blueberry
<i>Vaccinium macrocarpon</i>	Large Cranberry
<i>Vaccinium myrtilloides</i>	Velvet-leaved Blueberry
<i>Vaccinium oxycoccos</i>	Small Cranberry
<i>Vaccinium vitis-idaea</i>	Mountain Cranberry
<i>Viburnum lantanoides</i>	Hobblebush
<i>Viburnum nudum</i>	Northern Wild Raisin
<i>Viola cucullata</i>	Marsh Blue Violet
<i>Viola lanceolata</i>	Lance-leaved Violet
* Captialized species are SOCC	

Table B.2 - Stand Data for the MLSA

Site ID	Field Description	Drainage Class	Estimated Stand Age	Forest Group (FG)	VT(2022)	Forest Maturity	Maturity Score	Forest Succession	Succession Score
ML1	semi-barrens	mesic	unknown	OW	OW2			Early	3
ML2	mature coniferous forest	subhygric	40	WB	WB1	Mature	2	Edaphic	2
ML3	tall shrub swamp	hygric	unknown	wetland	TSS	N/A	N/A	N/A	N/A
ML4	treed bog	hygric	unknown	wetland	swamp	N/A	N/A	N/A	N/A
ML5	mature coniferous woodland	subhygric	40	OW	OW2	Mature	2	Early	3
ML6	mature mixedwood forest	mesic	30	MW	MW9	Mature	2	Early	3
ML7	tall shrub thicket	mesic	unknown	wetland	TSS	N/A	N/A	N/A	N/A
ML8	mature coniferous forest	mesic	60	SP	SP5	Mature	2	Edaphic	2
ML9	coniferous treed basin swamp	hygric	60	WC	WC2	Mature	2	Edaphic	2
ML10	coniferous treed basin swamp	hygric	20	WC	WC2	Immature	3	Edaphic	2
ML11	tall shrub dominated stream swamp	hygric	unknown	wetland	TSS	N/A	N/A	N/A	N/A
ML12	tall shrub dominated swamp	hygric	unknown	wetland	TSS	N/A	N/A	N/A	N/A
ML13	mixedwood treed slope swamp	hygric	20	WM	WM3	Immature	3	Edaphic, Mid	2
ML14	tall shrub dominated slope swamp	hygric	unknown	wetland	swamp		2*		
ML15	immature hardwood forest	submesic	20	IH	IH8	Immature	3	Early	3
ML16	barrens	submesic	unknown	Barrens	S3		2*	S3	
ML17	immature hardwood woodland/barrens	submesic	10	IH	IH8	Immature	3	Early	3
ML18	fire barrens	mesic	10	Barrens	S1	Immature	3	S1	
ML19	immature coniferous forest	mesic	20	SP	SP6	Immature	3	Early to Mid	3
ML20	immature mixedwood forest	subhygric	20	WB	WB1	Immature	3	Edaphic	2
ML21	fire barrens	mesic	15	Barrens	S5	Immature	3	S5	
ML22	mature mixedwood forest	subhygric	70	WC	WC7	Mature	2	Edaphic, Early to	2
ML23	coniferous treed basin swamp	hygric	30	WC	WC2	Mature	2	Edaphic	2
ML24	coniferous treed woodland	submesic	40	OW	OW2	Mature	2	Early	3
ML25	mature coniferous forest	mesic	40	SP	SP6	Mature	2	Early to Mid	3
ML25b	coniferous treed basin swamp	hygric	40	WC	WC6	Mature	2	Edaphic	2
ML26	coniferous treed basin swamp	hygric	40	WC	WC2	Mature	2	Edaphic	2
ML27	barrens/treed bog	subhygric	unknown	WC	WC11			Edaphic	2
ML28	mature coniferous forest	subhygric	40	WC	WC2	Mature	2	Edaphic	2
ML29	barrens	mesic	unknown	Barrens	S5		2*	S5	
ML30	mixedwood treed basin swamp	hygric	50	WC	WC7	Mature	2	Edaphic, Early to	2
ML31	mixedwood treed swamp	hygric	40	WC	WC7	Mature	2	Edaphic, Early to	2
ML32	mixedwood treed swamp	hygric	40	WM	WM3	Mature	2	Edaphic, Mid	2
ML33	mixedwood treed swamp	hygric	50	WM	WM3	Mature	2	Edaphic, Mid	2
ML34	tall shrub swamp	hygric	unknown	wetland	TSS	N/A	N/A	N/A	N/A
ML35	mixedwood treed basin swamp	hygric	50	WM	WM1	Mature	2	Edaphic, Mid	2
ML36	hardwood woodland	mesic	15	IH	IH8	Immature	3	Early	3
ML37	low shrub dominated stream swamp	hygric	unknown	wetland	LSS	N/A	N/A	N/A	N/A
ML38a	Former mixedwood forest	imperfectly	unknown	MW	N/A	N/A	N/A	N/A	N/A
ML38b	former mixedwood swamp now marsh	hydric	unknown	wetland	swamp	N/A	N/A	N/A	N/A
ML39	mature mixedwood forest	mesic	50	CB	CB3	Mature	2	Mid to Late	1
ML40	barrens	well drained	unknown	Barrens	S5		2*	S5	
ML41	hardwood woodland	well drained	15	Barrens	S1	Immature	3	S1	
ML42	coniferous forest	imperfectly	60	SP	SP7	Mature	2	Edaphic	2
ML43	mixedwood treed stream swamp	hygric	30	WD	WD2	Mature	2	Edaphic, Early to	2
ML44	mature coniferous forest	mesic	30	SP	SP7	Mature	2	Edaphic	2
ML45	mature hardwood forest	well drained	40	IH	IH8	Mature	2	Early	3
ML46	mature mixedwood forest	mesic	50	MW	MW9	Mature	2	Early	3
ML47a	barrens	well drained	unknown	Barrens	S5			S5	
ML47b	immature hardwood forest	well drained	15	IH	IH8	Immature	3	Early	3
ML48	barrens	well drained	unknown	Barrens	S1		2*	S1	
ML49	immature hardwood forest	mesic	15	IH	IH8	Immature	3	Early	3
ML50	Treed Bog	hygric	60	WC	WC7	Mature	2	Edaphic, Early to	2
ML51	coniferous treed basin swamp	hygric	40	WC	WC7	Mature	2	Edaphic, Early to	2
ML52	mature mixedwood forest	mesic	50	CB	CB4	Mature	2	Mid	2
ML53	mature mixedwood woodland	mesic	50	CB	CB4	Mature	2	Mid	2
ML54	mature coniferous forest	mesic	60	SP	SP7	Mature	2	Edaphic	2
ML55	mature hardwood forest	mesic	50	IH	IH8	Mature	2	Early	3
ML56	mixedwood treed woodland	mesic	40	IH	IH8	Mature	2	Early	3
ML57	coniferous treed basin swamp	hygric	30	WC	WC1	Mature	2	Edaphic	2
ML58	mixedwood treed woodland	mesic	50	MW	MW9	Mature	2	Early	3
ML59	mature mixedwood forest	mesic	30	MW	MW9	Mature	2	Early	3
ML60	coniferous treed basin swamp	hygric	40	WC	WC7	Mature	2	Edaphic, Early to	2
ML61	mixedwood woodland	mesic	70	MW	MW9	Mature	2	Early	3
ML62	mature mixedwood forest	mesic	50	MW	MW9	Mature	2	Early	3
ML63	mature mixedwood forest	mesic	40	MW	MW9	Mature	2	Early	3
ML64	coniferous treed basin swamp	hygric	40	WC	WC2	Mature	2	Edaphic	2
ML65	mixedwood woodland	imperfectly	40	MW	MW9	Mature	2	Early	3
ML66	mixedwood treed swamp	hygric	50	WM	WM3	Mature	2	Edaphic, Mid	2
ML67	coniferous treed swamp	hygric	40	WC	WC11	Mature	2	Edaphic	2
ML68	coniferous treed woodland/swamp	mesic	40	WC	WC11	Mature	2	Edaphic	2
ML69	deciduous treed stream swamp	hygric	70	WD	WD2	Mature	2	Edaphic, Early to	2
ML70	coniferous treed swamp	hygric	60	WC	WC11	Mature	2	Edaphic	2
ML71	coniferous treed swamp	hygric	50	WC	WC11	Mature	2	Edaphic	2
ML72	coniferous treed woodland	mesic	50	OW	OW2	Mature	2	Early	3
ML73	mature mixedwood forest	mesic	50	MW	MW9	Mature	2	Early	3
ML74	mature mixedwood forest	mesic	50	MW	MW9	Mature	2	Early	3
ML75	coniferous treed swamp	hygric	40	WC	WC11	Mature	2	Edaphic	2
ML76	immature mixedwood forest	well drained	15	MW	MW9	Immature	3	Early	3
ML77	mature mixedwood forest	well drained	40	MW	MW9	Mature	2	Early	3
ML78	mature mixedwood forest	mesic	50	MW	MW9	Mature	2	Early	3
ML79	early successional balsam fir	mesic	10	SP	SP6	Immature	3	Early to Mid	3
ML80	mid-successional red spruce (may be hybrid), small stand	mesic	50	SH	SH4	Mature	2	Late	1
ML81	mid successional mixedwood	well to rapid	35	MW	MW2	Mature	2	Mid	2
ML82	mid-successional mixedwood	well to rapid	30	MW	MW2	Mature	2	Mid	2
ML83	early to mid successional intolerant hardwood with sparse spruce	well to rapid	30	IH	IH8	Mature	2	Early	3
ML84	mid-successional mixedwood	well	45	MW	MW2	Mature	2	Mid	2
ML85	early to mid successional mixedwood	well	35	MW	MW2	Mature	2	Mid	2
ML86	mid-successional mixedwood	well	60	MW	MW2	Mature	2	Mid	2
ML87	mid-successional mixedwood	mesic	40	MW	MW7	Mature	2	Early to Mid	3
ML88	early-successional mixedwood	mesic	40	SP	SP6	Mature	2	Early to Mid	3

Table B.3 - Vegetation Percent Cover Matrix for the MLSA

[illegible]

Table B.3 - Vegetation Percent Cover Matrix for the MLSA

Forest Group (FG)		Coastal Boreal Forest (CB)			Intolerant Hardwood Forest (IH)								Mixedwood Forest (MW)																	Open Woodland (OW)										
Vegetation Type (VT)		CB3	CB4	CB4	IH8	IH8	IH8	IH8	IH8	IH8	IH8	IH8	IH8	MW2	MW2	MW2	MW2	MW2	MW7	MW9	MW9	MW9	MW9	MW9	MW9	MW9	MW9	MW9	MW9	MW9	MW9	MW9	N/A	OW2	OW2	OW2	OW2			
Ground Vegetation	Abies balsamea	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	Acer rubrum	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	Aralia nudicaulis	0	0	0	2	0.5	0	0	0	0	0.5	0	0	10	0	1	2	0	0	0	0	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Bazzania trilobata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	1	0	0	1	0	1	10	0	5	5	0	0	0	0	0		
	Betula papyrifera	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	Calamagrotis canadensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	Carex folliculata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	Carex gracillima	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	Carex leptalea	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	Carex sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	Carex stricta	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	Carex tripserma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	Cladonia sp.	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	1	10	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	15
	Clintonia borealis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Coptis trifolia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Cornus canadensis	0	0	10	0	0	5	10	10	5	5	10	0	0	0	5	0.5	0	0	0	0	0	1	0	0	0	15	0	2	0	0	0	2	0	0	0	0	0	2	0
	Cypripedium acaule	0	0	0	0	0	0	0	0	0.5	2	0	0.5	0	0	0	0	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Dennstaedtia punctilobula	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Deschampsia flexuosa	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Dicranium sp.	0	1	2	0	0.5	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	2	1	10	0	1	2	0.5	0	10	2	2	0	0	0	5	0	0	
	Doellingeria umbellata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Dryopteris carthusiana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Dryopteris cristata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Epigaea repens	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	
	Eriophorum virginicum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Eurybia radula	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Gaultheria hispidula	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Gaultheria procumbens	0	0	0	0	1	0	5	0	0	5	0	2	0	15	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	5
	Glyceria canadensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Glyceria grandis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Glyceria striata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Impatiens capensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Iris versicolor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Hylocomium splendens	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Hypnum imponens	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	10	10	5	0	15	5	10	0	40	0	0	0	0	0	0	
	Leucobryum glaucum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Leucobryum sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Linnaea borealis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Ludwigia palustris	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Lycopus americana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Lycopus uniflorus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Maianthemum canadense	1	1	0	0	0	3	0	0	0	0	0	5	1	0	0	2	1	7	40	0	0	0	0	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0	
	Maianthemum trifoliata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Mitchella repens	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Monotropa uniflora	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Oclemena acuminata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Oclemena x blakei	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Onoclea sensibilis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Osmunda cinnamomea	0	0	0	0	0	0	5	5	15	0	15	0	0	0	0	0	0	2	0	2	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Osmunda claytoniana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																			

Table B.3 - Vegetation Percent Cover Matrix for the MLSA

Forest Group (FG)		Coastal Boreal Forest (CB)			Intolerant Hardwood Forest (IH)									Mixedwood Forest (MW)																			Open Woodland (OW)					
Vegetation Type (VT)		CB3	CB4	CB4	IH8	IH8	IH8	IH8	IH8	IH8	IH8	IH8	IH8	MW2	MW2	MW2	MW2	MW2	MW7	MW9	MW9	MW9	MW9	MW9	MW9	MW9	MW9	MW9	MW9	MW9	MW9	N/A	OW2	OW2	OW2	OW2		
Ground Vegetation	<i>Sarracenia purpurea</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	<i>Scirpus cyperinus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	<i>Solidago canadensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0		
	<i>Solidago rugosa</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0		
	<i>Solidago uliginosa</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	<i>Sparganium americanum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	<i>Sphagnum sp.</i>	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	15	0	0	0	0	0.5	0	0	0	0	0	0	0	0	0		
	<i>Symphotrichum puniceum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	<i>Thalictrum pubescens</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	<i>Trientalis borealis</i>	0.5	1	0	0	0	0	0	0	3	2	0	3	0.5	5	1	1	5	0	10	0	0	1	0	0	0	0	2	0	1	0	0	0	0	0.5	0	0	
	<i>Vaccinium angusifolium</i>	0	0	0	0	0	1	5	2	5	0	10	2	2	1	2	5	0	0	2	0	1	5	1	5	0	0	2	0	0	0	10	0	0	20	1	0	2
	<i>Vaccinium myrtilloides</i>	0	0	5	0	0	0	2	10	0	0	0	30	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	<i>Vaccinium oxycoccos</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Vaccinium vitis-idaea</i>	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

Table B.3 - Vegetation Percent Cover Matrix for the MLSA

Forest Group (FG)		Barrens								Spruce Hemlock Forest (SH)	Spruce Pine Forest (SP)									Wetland										Wet Boreal Forest (WB)	
Vegetation Type (VT)		S1	S1	S1	S3	S5	S5	S5	S5	SH4	SP5	SP6	SP6	SP6	SP6	SP7	SP7	SP7	LSS	swamp	swamp	swamp	TSS	TSS	TSS	TSS	TSS	WB1	WB1		
Vegetation Type	Species Name	ML18	ML41	ML48	ML16	ML21	ML29	ML40	ML47a	ML80	ML8	ML19	ML25a	ML79	ML88	ML42	ML44	ML54	ML37	ML4	ML14	ML38b	ML3	ML7	ML11	ML12	ML34	ML2	ML20		
Tree	Abies balsamea	0	0	0	0	0	0	0	0	0	0	35	30	65	60	15	0	0	0	0	0	0	0.5	0	0	0.5	0	20	20		
	Acer pensylvanicum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	Acer rubrum	0	1	0	0	0	0	0	0	0	2	0	10	0	10	20	10	0	8	5	0	0.5	0	0	0.5	0	0.5	25	0	30	
	Betula alleghaniensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Betula papyrifera	0	3	1	2	0.5	0	2	0.5	0	5	0	0	5	0	0	0	1	2	0	0	0	0	0.5	0	0	0	0	0	5	
	Hamamelis virginiana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Larix laricina	0	0	0	0	0	0	1	0	0	0	5	10	0	0	0	5	10	0	0	10	0	0	0	0	0	0	0	10	5	
	Picea glauca	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Picea mariana	0	0	0	0	0	0	5	0	0	0	50	25	20	5	0	30	50	50	0	30	0	0	0	0	0.5	0	0.5	1	15	0
	Picea mariana x rubens	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Picea rubens	0	0	0	0	0	0	0	0	0	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Pinus strobus	0	0	0	0	0	0	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Populus grandidentata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Populus tremuloides	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Prunus pensylvanica	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0	0	0	0	0	
	Quercus rubra	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Sorbus americana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	
Shrub	Abies balsamea	0	0	0	0	0	0	0	0	0	0	0	0.5	20	20	0.5	0	0	0	0	0	0	0	0	0	0	0	0	5		
	Acer rubrum	2	25	3	2	2	0	1	2	0	0	0.5	0	0	0	1	2	2	0	0	0	0.5	0	0	0	0	0	0	5		
	Alnus incana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	50	1	30	2	70	65	25	0	0		
	Alnus viridis	0	0	0	1	1	0	15	1	0	0	0	0	0	0	0	0.5	0	0	0	0	0	0	0	60	0	0	0	0	0	
	Amelanchier sp.	0	0	0	1	0	0	0	0	0	2	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Aralia nudicaulis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Aronia melanocarpa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	
	Betula papyrifera	10	10	2	5	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	5	0	0	0	0	1	0	
	Chamaedaphne calyculata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Frangula alnus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	
	Gaylussacia baccata	50	35	60	5	20	0	0	30	0	5	0	0	0	0	0	0	0	25	0	5	0	0	0	0	0	0	0	0	0	
	Hamamelis virginiana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Ilex mucronata	2	0	20	4	10	5	2	15	0	0	0	0	0	10	20	15	30	0	40	0	0	0	0	0	0	0	0	0	10	
	Ilex verticillata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	65	5	0	
	Juniperus communis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Kalmia angustifolia	35	30	50	20	60	60	70	50	0	5	0.5	0	20	0	15	30	55	20	0	20	0	0	0	0	0	0	2	0	20	
	Kalmia polifolia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Larix laricina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	
	Lonicera villosa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Morella pensylvanica	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Myrica gale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	1	0	0	0	0	0	0	0	0	0
	Picea mariana	2	0	0	0.5	1	25	2	0	0	0	0	5	10	15	0	10	35	5	0	10	0	0	1	0	0	0	0	10	0	
	Picea mariana x rubens	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Picea rubens	0	0	0	0	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			

Table B.3 - Vegetation Percent Cover Matrix for the MLSA

Forest Group (FG)		Barrens									Spruce Hemlock Forest (SH)	Spruce Pine Forest (SP)									Wetland										Wet Boreal Forest (WB)			
Vegetation Type (VT)		S1	S1	S1	S3	S5	S5	S5	S5	S5	SH4	SP5	SP6	SP6	SP6	SP6	SP7	SP7	SP7	SP7	LSS	swamp	swamp	swamp	TSS	TSS	TSS	TSS	TSS	WB1	WB1			
Ground	Abies balsamea	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Vegetation	Acer rubrum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	Aralia nudicaulis	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	Bazzania trilobata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	Betula papyrifera	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	Calamagrotis canadensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	5	15	0	0	0	0	0	0		
	Carex folliculata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0		
	Carex gracillima	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	Carex leptalea	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	Carex sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0		
	Carex stricta	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	0	0	0	4	0	0	0	0	25	0	0	
	Carex triperma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	Cladonia sp.	5	0	5	5	8	40	10	10	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Clintonia borealis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	
	Coptis trifolia	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Cornus canadensis	8	0	0	2	0	10	2	0	0	2	0	2	0	2	0	5	12	1	0	0	0	0	0	0	0	0	0	0	0	0	1	8	
	Cypripedium acaule	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Dennstaedtia punctilobula	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Deschampsia flexuosa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Dicranum sp.	0	0	1	2	2	0	0	2	0	2	0	2	1	0	0	0	2	0	2	0	2	0	20	0	0	0	0	0	0	0	10	2	0
	Doellingeria umbellata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35	0	0	15	20	10	0	0	0	
	Dryopteris carthusiana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Dryopteris cristata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Epigaea repens	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Eriophorum virginicum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Eurybia radula	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Gaultheria hispida	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Gaultheria procumbens	0	5	0	5	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Glyceria canadensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Glyceria grandis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	10	20	0	0	0	
	Glyceria striata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	
	Impatiens capensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	2	0	0	0	0	
	Iris versicolor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0	0	
	Hylocomium splendens	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	5	0	
	Hypnum imponens	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	
	Leucobryum glaucum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Leucobryum sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0
	Linnaea borealis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Ludwigia palustris	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	80	0	0	0	0	0	0	0	0
	Lycopus americana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
	Lycopus uniflorus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
Maianthemum canadense	0	3	0	0	0	0	0	0	0	0	0	0	0.5	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	
Maianthemum trifoliata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Mitchella repens	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Monotropa uniflora	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Oclemena acuminata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Oclemena x blakei	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Onoclea sensibilis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0		
Osmunda cinnamomea	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	1	30	0	
Osmunda claytoniana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Osmunda regalis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0		
Oxalis montana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Picea rubens	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Persicaria hydropiper	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	0	0	0	0	0	0	0	0	
Pleurozium schreberi	10	0	0	40	10	10	0	0	0	0	10	5	80	0	0	50	2	20	0	30	0	0	0	0	0	0	0	0	0	0	40	2	0	
Polytrichum sp.	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Pontederia cordata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	
Potentilla simplex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0		
Pteridium aquilinum	0	10	10	10	15	0	10	20	0	0.5	0	0	0	0																				

Table B.3 - Vegetation Percent Cover Matrix for the MLSA

Forest Group (FG)		Barrens								Spruce Hemlock Forest (SH)	Spruce Pine Forest (SP)									Wetland										Wet Boreal Forest (WB)	
Vegetation Type (VT)		S1	S1	S1	S3	S5	S5	S5	S5	SH4	SP5	SP6	SP6	SP6	SP6	SP7	SP7	SP7	LSS	swamp	swamp	swamp	TSS	TSS	TSS	TSS	TSS	WB1	WB1		
Ground	<i>Sarracenia purpurea</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Vegetation	<i>Scirpus cyperinus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0		
	<i>Solidago canadensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	10	0	0	0		
	<i>Solidago rugosa</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	5	0	0		
	<i>Solidago uliginosa</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	<i>Sparganium americanum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	1	0	0	0	0	0	0		
	<i>Sphagnum sp.</i>	0	0	0	10	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	15	0	0	0	0	0	50	60	15	2
	<i>Symphotrichum puniceum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	
	<i>Thalictrum pubescens</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	0	
	<i>Trientalis borealis</i>	0	0	0	0	0	0	0	0	0	0	0.5	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	
	<i>Vaccinium angusifolium</i>	4	5	2	15	10	5	1	1	0	0.5	0	0	0	0	1	5	1	0	0	2	0	0	0	0	0	0	0	0	10	
	<i>Vaccinium myrtilloides</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	<i>Vaccinium oxycoccos</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Vaccinium vitis-idaea</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

Table B.3 - Vegetation Percent Cover Matrix for the MLSA

Forest Group (FG)		Wet Coniferous Forest (WC)																				Wet Deciduous Forest (WD)		Wet Mixedwood Forest (WM)					
Vegetation Type (VT)		WC1	WC11	WC11	WC11	WC11	WC11	WC11	WC11	WC2	WC2	WC2	WC2	WC2	WC2	WC6	WC7	WC7	WC7	WC7	WC7	WC7	WD2	WD2	WM1	WM3	WM3	WM3	WM3
Vegetation Type	Species Name	ML57	ML27	ML67	ML68	ML70	ML71	ML75	ML9	ML10	ML23	ML26	ML28	ML64	ML25b	ML22	ML30	ML31	ML50	ML51	ML60	ML43	ML69	ML35	ML13	ML32	ML33	ML66	
Tree	Abies balsamea	30	0	0	0	15	15	0	0	0	15	1	0	0	30	3	0	8	0	0	0	2	0	15	8	0	5	5	
	Acer pensylvanicum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Acer rubrum	0	0	1	0	8	10	0	5	1	5	0	0	0	0	0	15	15	15	0	2	35	60	30	5	20	20	12	
	Betula alleghaniensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Betula papyrifera	5	0	0	0	0	0	0	0	0	0	0	0	0	8	2	0	3	0	0	0	8	0	5	5	2	2	0	
	Hamamelis virginiana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Larix laricina	5	10	5	0	5	5	2	15	0	0	5	10	3	0	30	30	10	10	15	25	10	0	0	0	0	10	8	
	Picea glauca	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Picea mariana	35	25	15	20	5	1	1	35	50	30	35	40	80	5	10	15	2	25	20	10	1	1	10	15	25	25	15	
	Picea mariana x rubens	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Picea rubens	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pinus strobus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Populus grandidentata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Populus tremuloides	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Prunus pensylvanica	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Quercus rubra	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Sorbus americana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Shrub	Abies balsamea	5	0	1	0	0	0	25	1	0	10	0	0	0	1	2	0	4	0	0	0	4	0	2	0	5	0	2
Acer rubrum		0	0	0	0	2	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	
Alnus incana		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	0	0	0	15	0	1	40	0	0	0	
Alnus viridis		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Amelanchier sp.		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Aralia nudicaulis		0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Aronia melanocarpa		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Betula papyrifera		2	0	0	0	4	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0.5	0	0	0	0	0	0	0	0
Chamaedaphne calyculata		0	15	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	30	0	0	0	0	0	
Frangula alnus		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Gaylussacia baccata		0	0	5	0	8	8	0	0	0	5	2	0	0.5	0	40	0	0	2	0	5	0	0	0	0	5	0	0	
Hamamelis virginiana		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Ilex mucronata		0	0	40	15	15	15	10	5	20	30	30	1	20	10	5	0	0	1	80	2	3	20	3	0	0	2	30	
Ilex verticillata		0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	10	0	
Juniperus communis		0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kalmia angustifolia		5	10	15	5	5	5	30	0	0	2	10	8	10	20	6	1	0	25	20	20	5	20	15	0	10	8	2	
Kalmia polifolia		0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Larix laricina		0	15	0	0	15	15	20	0	0	0	0	0	0	0	0	1	1	10	0	0	0	1	0	0	0	0	0	
Lonicera villosa		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	0	
Morella pensylvanica		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Myrica gale		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0
Picea mariana		3	12	1	20	2	10	15	1	20	10	2	15	0.5	5	2	10	5	8	10	5	5	0	5	5	15	5	1	
Picea mariana x rubens		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Picea rubens		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prunus pensylvanica		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Quercus rubra		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rhododendron canadense		0	5	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	30	15	0	0	2	0	0	0	0	0	0
Rhododendron groenlandicum		0	20	1	10	10	5	5	0	0	1	2	2	2	2	1	0	5	30	10	35	1	5	0	0	0	0	0	0
Rosa blanda		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rosa nitida		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Rosa palustris		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rosa virginiana		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sorbus americana		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Spiraea alba		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0.5	0	0	0	0
Vaccinium myrtilloides		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Viburnum lantanoides		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Viburnum nudum	0	15	5	2	4	0	0	20	0	0	0	2	2	0	5	15	0	20	50	0	10	5	5	0	10	15			

Table B.3 - Vegetation Percent Cover Matrix for the MLSA

[illegible]

Table B.3 - Vegetation Percent Cover Matrix for the MLSA

Forest Group (FG)		Wet Coniferous Forest (WC)																				Wet Deciduous Forest (WD)		Wet Mixedwood Forest (WM)					
Vegetation Type (VT)		WC1	WC11	WC11	WC11	WC11	WC11	WC11	WC11	WC2	WC2	WC2	WC2	WC2	WC2	WC6	WC7	WC7	WC7	WC7	WC7	WC7	WD2	WD2	WM1	WM3	WM3	WM3	WM3
Ground	<i>Sarracenia purpurea</i>	0	0	0.5	0	0	0	0	0	0	0	0	0.5	0	5	0	0	0	0	0	0	0.5	0	0	0	0	0	0	0
Vegetation	<i>Scirpus cyperinus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	<i>Solidago canadensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	<i>Solidago rugosa</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	<i>Solidago uliginosa</i>	0	0	0	0	0	0	0	0	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	<i>Sparganium americanum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	<i>Sphagnum sp.</i>	80	2	80	5	50	40	90	80	60	80	40	0	90	90	40	0	0	60	70	90	70	60	70	30	80	60	90	
	<i>Symphotrichum puniceum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	
	<i>Thalictrum pubescens</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	<i>Trientalis borealis</i>	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	<i>Vaccinium angusifolium</i>	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	
<i>Vaccinium myrtilloides</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
<i>Vaccinium oxycoccos</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	2	0	0	0	0	0	0	
<i>Vaccinium vitis-idaea</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

APPENDIX C

Wildlife Observations

Table C.1 Incidental Wildlife Observations Recorded During Field Programs

Scientific Name	Common Name	SARA ¹	COSEWIC ²	NS ESA ³	AC CDC ⁴
Birds					
<i>Archilochus colubris</i>	Ruby-throated Hummingbird	-	-	-	S5B
<i>Bombycilla cedrorum</i>	Cedar Waxwing	-	-	-	S5B
<i>Bonasa umbellus</i>	Ruffed Grouse	-	-	-	S5
<i>Branta canadensis</i>	Canada Goose	-	-	-	SUB, S4N, S5M
<i>Buteo platypterus</i>	Broad-winged Hawk	-	-	-	S5B
<i>Colaptes auratus</i>	Northern Flicker	-	-	-	S5B
<i>Cyanocitta cristata</i>	Blue Jay	-	-	-	S5
<i>Dryobates villosus</i>	Hairy Woodpecker	-	-	-	S5
<i>Falco columbarius</i>	Merlin	NAR	-	-	S5B
<i>Geothlypis trichas</i>	Common Yellowthroat	-	-	-	S5B
<i>Haemorhous purpureus</i>	Purple Finch	-	-	-	S4S5B,S3S4N,S5M
<i>Loxia leucoptera</i>	White-winged Crossbill	-	-	-	S4S5
<i>Megaceryle alcyon</i>	Belted Kingfisher	-	-	-	S4S5B
<i>Melospiza georgiana</i>	Swamp Sparrow	-	-	-	S5B
<i>Mniotilta varia</i>	Black-and-White Warbler	-	-	-	S5B
<i>Phasianus colchicus</i>	Ring-necked Pheasant	-	-	-	SNA
<i>Poecile atricapillus</i>	Black-capped Chickadee	-	-	-	S5
<i>Poecile hudsonicus</i>	Boreal Chickadee	-	-	-	S3
<i>Porzana carolina</i>	Sora	-	-	-	S5B
<i>Raptor</i> sp.	Unknown Raptor	-	-	-	-
<i>Regulus satrapa</i>	Golden-crowned Kinglet	-	-	-	S5
<i>Scolopax minor</i>	American Woodcock	-	-	-	S5B
<i>Setophaga magnolia</i>	Magnolia Warbler	-	-	-	S5B
<i>Setophaga palmarum</i>	Palm Warbler	-	-	-	S5B
<i>Setophaga virens</i>	Black-throated Green Warbler	-	-	-	S5B
<i>Sitta canadensis</i>	Red-breasted nuthatch	-	-	-	S4S5
<i>Spinus tristis</i>	American Goldfinch	-	-	-	S5
<i>Turdus migratorius</i>	American Robin	-	-	-	S5B,S3N
<i>Vireo olivaceus</i>	Red-eyed Vireo	-	-	-	S5B
<i>Zenaida macroura</i>	Mourning Dove	-	-	-	S4B,S5M
<i>Zonotrichia albicollis</i>	White-throated Sparrow	-	-	-	S4S5B,S5M
<i>Pandion haliaetus</i>	Osprey	-	-	-	S4S5B,S5M
<i>Setophaga ruticilla</i>	American Redstart	-	-	-	S5B
Mammals					
<i>Ursus americanus</i>	American Black Bear	-	NAR	-	S5
<i>Lynx rufus</i>	Bobcat	-	-	-	S5
<i>Canis latrans</i>	Eastern Coyote	-	-	-	S5
<i>Procyon lotor</i>	Northern Raccoon	-	-	-	S5
<i>Vulpes vulpes</i>	Red Fox	-	-	-	S5
<i>Tamiasciurus hudsonicus</i>	Red Squirrel	-	-	-	S5
<i>Lepus americanus</i>	Snowshoe Hare	-	-	-	S5
<i>Odocoileus virginianus</i>	White-tailed Deer	-	-	-	S5
Amphibians					
<i>Lithobates clamitans</i>	Green Frog	-	-	-	S5
<i>Lithobates palustris</i>	Pickrel Frog	-	-	-	S5
<i>Pseudacris crucifer</i>	Spring Peeper	-	-	-	S5
<i>Anaxyrus americanus</i>	American Toad	-	-	-	S5
Reptiles					
<i>Storeria occipitomaculata occipitomaculata</i>	Northern Red-bellied Snake	-	-	-	S5
<i>Thamnophis sirtalis pallidulus</i>	Maritime Gartersnake	-	-	-	S5
<i>Opheodrys vernalis</i>	Smooth Greensnake	-	-	-	S4

Notes:

- ¹ Species at risk in Canada listed under Schedule 1 the federal *Species at Risk Act* as Endangered (EN), Threatened (TH), or Special Concern (SC) (Government of Canada 2023).
- ² Species of conservation concern in Canada assessed by COSEWIC as Endangered (EN), Threatened (TH), Vulnerable (VU), or Special Concern (SC); not at risk species = NAR, Data Deficient = DD (Government of Canada 2023).
- ³ Species at risk in Nova Scotia listed under the provincial *Endangered Species Act* (NS) as Endangered (EN), Threatened (TH), Vulnerable (VU), or Special Concern (SC; Government of Nova Scotia 2023).
- ⁴ Species ranked as Critically Imperiled (S1), Imperiled (S2), or Vulnerable (S3) by the Atlantic Canada Conservation Data Centre (AC CDC 2023) and recorded within 5 km of the Project by desktop data source, where:
S1: Critically Imperiled – Critically imperiled in the province because of extreme rarity (often 5 or fewer occurrences). May be especially vulnerable to extirpation.
S2: Imperiled – Imperiled in the province because of rarity due to very restricted range, very few populations (6 to 20 occurrences or few remaining individuals). May be vulnerable to extirpation due to rarity or other factors.
S3: Vulnerable – Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer).
S4: Apparently Secure – Uncommon but not rare; some cause for long-term concern due to declines or other factors (80+ occurrences).
S5: Secure – Common, widespread, and abundant in the province.
S#S#: A numeric range rank (e.g. , S2S3) is used to indicate any range of uncertainty about the status of the species or community.
SH: Possibly Extirpated (Historical) – Species or community occurred historically in the province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could become SH without such a 20-40 year delay if the only known occurrences in a province were destroyed or if it had been extensively and unsuccessfully looked for. The SH rank is reserved for species or communities for which some effort has been made to relocate occurrences, rather than simply using this status for all elements not known from verified extant occurrences.
SU: Unrankable – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

APPENDIX D

ARIA Report



**HRM Serviced Communities
Background Study: Eastern
Passage (Morris Lake Expansion)
Archaeological Resource Impact
Assessment, Halifax Regional
Municipality, NS (2023)**

HRP #A2023NS168

Final Report

May 22, 2024

Submitted to:
Nova Scotia Department of
Communities, Culture, Tourism &
Heritage
1741 Brunswick Street 3rd Floor
PO Box 456, STN Central
Halifax, NS B3J 2R5

Prepared for:
Halifax Regional Municipality
5251 Duke Street, 3rd floor, Suite 300,
Duke Tower
Halifax, Nova Scotia B3J 1P3

Prepared by:
Stantec Consulting Ltd.
102-40 Highfield Park Drive
Dartmouth, Nova Scotia B3A 0A3

File: 160410459

HRM SERVICED COMMUNITIES BACKGROUND STUDY: EASTERN PASSAGE (MORRIS LAKE EXPANSION) ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT, HALIFAX REGIONAL MUNICIPALITY, NS (2023)

This document entitled HRM Serviced Communities Background Study: Eastern Passage (Morris Lake Expansion) Archaeological Resource Impact Assessment, Halifax Regional Municipality, Nova Scotia (2023) was prepared by Stantec Consulting Ltd. ("Stantec") for the account of Halifax Regional Municipality (HRM), (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Kyte,
Jonathan

Digitally signed
by Kyte, Jonathan
Date: 2024.05.22
10:14:58 -03'00'

Prepared by _____
(signature)

Jonathan Kyte, M.A., Archaeologist

Chris
Blair

Digitally signed
by Chris Blair
Date: 2024.05.22
11:00:34 -03'00'

Review by _____
(signature)

Chris Blair, BA., Senior Archaeologist

McFarlane,
Shawn

Digitally signed by
McFarlane, Shawn
Date: 2024.05.22
10:27:58 -03'00'

Review by _____
(signature)

Shawn McFarlane, B.ScF, RPF, Project Manager

Table of Contents

PROJECT PERSONNEL	I
1.0 INTRODUCTION	1
2.0 PROJECT DEVELOPMENT AREA	1
3.0 METHODOLOGY	2
3.1 BACKGROUD RESEARCH.....	2
3.2 ARCHAEOLOGICAL WALKOVER	2
4.0 BACKGROUND RESEARCH RESULTS	3
4.1 THE NATURAL ENVIRONMENT	3
4.2 CULTURAL AND HISTORICAL BACKGROUND	4
4.2.1 Pre-Contact Period.....	4
4.2.2 Historic Period.....	5
4.2.3 Registered Archaeological Sites near the PDA	7
4.2.4 Previous Archaeological Resource Impact Assessments	7
5.0 FIELD SURVEY RESULTS	8
5.1 WATERCOURSES.....	8
5.1.1 Cow Bay River	8
5.1.2 Eastern Shore of De Said Lake	10
5.1.3 Smelt Brook	10
5.1.4 Morris Lake North of Caldwell Road	11
6.0 SUMMARY AND RECOMMENDATIONS	11
7.0 CLOSING	12
8.0 REFERENCES	13

LIST OF FIGURES

Figure 1	Project Development Area: Eastern Passage (Morris Lake Exp.).....	Appendix A
Figure 2a	Prior Archaeological Assessment.....	Appendix A
Figure 2b	Survey Results	Appendix A
Figure 3	LiDAR with Survey Tracklogs.....	Appendix A
Figure 4	Cole Harbour Indian Reserve No. 30 Ca. 1879	Appendix A
Figure 5	Bayfield Chart 1853	Appendix A
Figure 6	Church Map 1865	Appendix A
Figure 7	Faribault Map 1906 & 1908.....	Appendix A
Figure 8	Aerial Photograph 1939	Appendix A
Figure 9	Aerial Photograph 1945	Appendix A
Figure 10	Aerial Photograph 1954	Appendix A



HRM SERVICED COMMUNITIES BACKGROUND STUDY: EASTERN PASSAGE (MORRIS LAKE EXPANSION) ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT, HALIFAX REGIONAL MUNICIPALITY, NS (2023)

LIST OF PHOTOGRAPHS

Photo 1	View southeast at conditions encountered at MPR-ARCH-265	Appendix B
Photo 2	View east from JRK-ARCH-209 at the identified medium potential area JRK-POLY-016	Appendix B
Photo 3	View northeast at an old road or ATV trail encountered at MPR-ARCH-266	Appendix B
Photo 4	View southwest from MPR-ARCH-266 at a deer blind encounter along the old road	Appendix B
Photo 5	View north of the Cow Bay River from the west bank at MPR-ARCH2-267	Appendix B
Photo 6	View southeast of the flooded-out area encountered at MPR-ARCH-267	Appendix B
Photo 7	View north of beaver dam encountered at MPR-ARCH-269.....	Appendix B
Photo 8	View north from JRK-ARCH-210 of the identified medium potential area JRK-POLY-020 located between the old trail and the Cow Bay River	Appendix B
Photo 9	View south at a bedrock oxbow feature or slight bend in the river, taken from JRK-ARCH-210.....	Appendix B
Photo 10	View north from MPR-ARCH-272 at the very rocky surface conditions encountered along the river.....	Appendix B
Photo 11	View south or the mainly slate bedrock and boulders encountered along the Cow Bay River at MPR-ARCH-272.....	Appendix B
Photo 12	View northwest from MRP-ARCH-273 of wet conditions encountered.....	Appendix B
Photo 13	View southwest from MPR-ARCH-273 at a flooded-out section of the river from beaver activity within the area	Appendix B
Photo 14	View north at JRK-ARCH-213 at surface conditions encountered along the east bank of the Cow Bay River	Appendix B
Photo 15	View southwest from CKM-ARCH-166 of the low wet area encountered along the east bank of the Cow Bay River.....	Appendix B
Photo 16	View east at JRK-ARCH-214 at a small drainage running east off the Cow Bay River along a higher boulder swale	Appendix B
Photo 17	View south at CKM-ARCH-167 showing a rocky boulder swale encountered along the river on the east bank	Appendix B
Photo 18	View east of a branch of the Cow Bay River encountered at JRK-ARCK-215.....	Appendix B
Photo 19	View north from JRK-ARCH-215 at the Cow Bay River.....	Appendix B
Photo 20	View west from JRK-ARCH-217 at the northern end of De Said Lake.....	Appendix B
Photo 21	View east up slope from CKM-ARCH-171 showing surface conditions encountered during the walkover	Appendix B



HRM SERVICED COMMUNITIES BACKGROUND STUDY: EASTERN PASSAGE (MORRIS LAKE EXPANSION) ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT, HALIFAX REGIONAL MUNICIPALITY, NS (2023)

Photo 22	View north at a potential fox hole or trench feature encountered at CKM-ARCH-172 with 20 cm scale	Appendix B
Photo 23	View south at forest and surface conditions encountered at JRK-ARCH-218	Appendix B
Photo 24	View east at the remains of an abandoned camp encountered at assessment note JRK-ARCH-219	Appendix B
Photo 25	View west at the trail from the lake to an abandoned camp encountered at assessment note JRK-ARCH-219	Appendix B
Photo 26	View north of the entrance of Smelt Brook which flows out form the southern end of De Said Lake at CKM-ARCH-174	Appendix B
Photo 27	View south of Smelt Brook at the southern end of De Said Lake and being a low wetland environment	Appendix B
Photo 28	View south at JRK-ARCH-220 of the boggy wetland encountered along Smelt Brook.....	Appendix B
Photo 29	View west from JRK-ARCH-220 at the east bank of Smel Brook from the foot of the former CNR bridge	Appendix B
Photo 30	View northwest at the bridge for the former CNR rail line taken at assessment note JRK-ARCH-220	Appendix B
Photo 31	View south at JKR-ARCH-221 of conditions encountered whilst walking south along both banks of Smelt Brook	Appendix B
Photo 32	View west at JKR-ARCH-221 of conditions encountered along Smelt Brook	Appendix B
Photo 33	View west from CKM-ARCH-177 of conditions encountered along Smelt Brook	Appendix B
Photo 34	View north of the confluence of Smelt Brook near a deer crossing at JRK-ARCH-222	Appendix B
Photo 35	View west at the deer blind identified at JRK-ARCH-223 near a dear crossing	Appendix B
Photo 36	View south from CKM-ARCH-177 showing conditions encountered at the lower end of Smelt Brook	Appendix B

LIST OF APPENDICES

Appendix A	Figures
Appendix B	Photographs



Project Personnel

Project Manager:	Shawn McFarlane, B.ScF., RPF
Background Research:	Jonathan Kyte, MA.
Site Visit:	Jonathan Kyte, MA., Mike Rooney, BA., Chase McLean, MA.
Report Writer:	Jonathan Kyte, MA.
GIS Specialist:	Megan Blackwood, Mike Rooney, B.A.
Quality Review:	Chris Blair, BA
Independent Review:	Robert Federico, MPA



1.0 INTRODUCTION

Stantec Consulting Ltd. (Stantec) was retained by the Halifax Regional Municipality (HRM) to conduct an Archaeological Resource Impact Assessment (ARIA), for the HRM Future Serviced Communities Background Study; Morris Lake Expansion study area, located in Eastern Passage, Nova Scotia (the Project). An ARIA is required to determine if there are heritage resources that may be affected by future ground disturbance in relation to housing and transportation developments. The ARIA was carried out as part of the background study for environmental, land-use suitability, transportation, and infrastructure for the Eastern Passage (Morris Lake Expansion) study area (Figure 1, Appendix A).

HRM is planning to expand housing development approvals in the Morris Lake Expansion Development Area to accelerate the provision of land for new housing. As part of the land-use suitability analysis, an ARIA must be completed to assess the potential for archaeological resources, including Mi'kmaw and African Nova Scotian communities, to be affected by the Project. The ARIA consisted of background research, and a field-based archaeological survey (walkover). During the background research for the Project, it was noted that a large section of the PDA was previously assessed as having low potential for archaeological resources (CRM Group 2023a, 2023b), but it appeared that two watercourses as well as the eastern shore of De Said Lake within the PDA may not have been covered in that previous assessment and thus were the focus of this ARIA. All work was completed in compliance with Nova Scotia's Archaeological Resource Impact Assessment (Category C) Guidelines (2014) as well as the *Special Places Protection Act* (Chapter 438 of the Revised Statutes, 1989).

The ARIA was conducted under Heritage Research Permit (HRP) No. A2023NS168 issued to Jonathan Kyte of Stantec. The fieldwork for the walkover component of the ARIA was conducted by Jonathan Kyte, MA, Mike Rooney, BA., and Chase McLean, MA., on November 22, 23, 29 and 30, 2023.

2.0 PROJECT DEVELOPMENT AREA

For the purposes of this report, the Project Development Area (PDA) is the area may be affected by the potential housing development and that was the subject of the ARIA. This area mainly consists of undeveloped lands to the north of Cow Bay Road and South of Caldwell Road in Eastern Passage, Nova Scotia. HRM initiated the background study to establish the appropriate portion of the PDA that are suitable for new housing development and future community planning work. The total size of the PDA is approximately 500 ha. The PDA is identified with the red outline in Figure 1 (Appendix A).



3.0 METHODOLOGY

3.1 BACKGROUD RESEARCH

Desktop historical background research was conducted for the Project using digital and archival information available from various government and non-government sources including published, unpublished, and on-line historical and environmental records. The scope of work for the desktop historical background research included, but was not limited to, the sources of information list below to gather information on general and specific history, including the Pre-Contact and Historic Periods, and known archaeological resources within the study area, to determine the potential for archaeological resources to be within the PDA:

- Review of relevant Maritime Archaeological Resource Inventory (MARI) forms for information relating to recorded archaeological sites within a 1 km radius of the PDA
- Review of previous archaeological investigations conducted within or near the PDA through consultations with Special Places Coordinator from the Nova Scotia Department of Communities, Culture, Tourism, and Heritage (NSCCTH)
- Review of historical maps and aerial photographs, maps, published sources, and historical and archival records of the PDA and adjoining properties to gain information on historical land use
- A review of the Canadian Register of Historic Places (CRHP)
- Engagement with the Kwiilmu'kw Maw-klusuaqn Negotiation Office's Archaeological Research Division (KMKNO's ARD) to gather information pertaining to traditional or historical use of the PDA
- Review of LiDAR and base mapping of the subject property to identify environmental and physiographic features such as topography and historic water margins that would influence human settlement and resource exploitation patterns
- Knowledge of the Stantec Archaeology Team
- Consultations with local historical experts, and archaeologist, as applicable

The results of the historical background research were used to identify leading archaeological and environmental indicators for the potential presence of archaeological resources within the PDA. The results of the research are presented in the sections that follow.

3.2 ARCHAEOLOGICAL WALKOVER

Stantec conducted the walkover of the PDA, to identify, visually inspect, and document previously unknown heritage resources, and identify areas of elevated archaeological potential. The walkover was completed via transects through the subject property to assess ground and topographical conditions. The findings of the walkover were documented, taking into consideration the results of the desktop historical background study, and following the Provincial Guidelines (Category C, 2014) as well as the experience, knowledge, and professional judgement of the Stantec Archaeology Team. Assessment notes were taken as reference points during the walkover for discussion and recorded into Field maps mobile phone application and labeled with the initials of the archaeologist and number of the assessment note



(e.g., JRK-ARCH-###). Where areas of elevated archaeological potential were identified, these locations were delineated using a mobile mapping device and labeled as polygons, with the initials of the archaeologist, "POLY", and the number of the polygon (e.g., "Polygon JRK-POLY-###"). During the walkover, surface-visible cultural features were noted and recorded as appropriate. These locations were recorded and labeled as archaeological assessment notes, or as "historically significant features," and labelled (e.g., "JRK-HSF-###").

Field data were collected using a mobile phone device running field maps, a data collection and field mapping software developed by ESRI. Digital field maps were generated for the Project that combine relevant environmental and project data in GIS-based layers. A digital copy of all data collected in the field is provided in the Survey Results plan, see Figure 2b, Appendix A. Additional field data collected using Field Maps included tracklogs.

4.0 BACKGROUND RESEARCH RESULTS

This section details the results of the historical background research gathered on the geology, environment, and cultural and historical background review of the PDA and broader area around the PDA.

4.1 THE NATURAL ENVIRONMENT

The PDA is located within the Quartzite Barrens Theme Region (Theme Region 833). The bedrock in the area is dominated by graywacke, with bands of slate, folded parallel to the coastline. The coastline in this area is divided up into headlands separated by long inlets where most are drowned river estuary and are not fault-controlled. Loose cobbly quartzite till forms the ground moraine and is overlain by drumlin composed of red brown Lawrencetown Till and can be seen as an eroding coastal bluff at Hartlen Point (Davis and Brown 1996).

The PDA is part of an indented drowned coastline where Cole Harbour forms a headland. Due to its exposure, there is an active reworking of the coastal sediment which has built a barrier beach at Rainbow Haven formed by Cow Bay. The irregular shape of the coastline is actively being smoothing out having sediments redistributed where sand and gravel are supplied from the erosion of deep glacial tills and glacial outwash deposited on the coast. This forms spits and barrier beaches which protect the shallow estuaries from ocean waves which allow marshland to develop within this area. The soils consist of well-drained Halifax gravelly sandy loams derived from quartzite. In areas of less relief, imperfectly drained Danesville soils is common, with peat, Rockland, and some small areas of poorly drained, mottled Aspotogan soil. Some areas of shaly loam Bridgewater soil have developed from parent material derived from slate. Finer textured Hansport soils being imperfectly drained, sandy clay is found in Eastern Passage (Davis and Brown 1996).

Coastal white spruce and balsam fir forests with maple and birch trees predominates. In areas containing farmland and drumlins, pure stands of with white spruce are common. Further inland the forest changes to spruce, fir, and pine stands (Davis and Brown 1996).



4.2 CULTURAL AND HISTORICAL BACKGROUND

4.2.1 Pre-Contact Period

The earliest period of human occupation in Nova Scotia is *Sa'qewe'l L'nu'k* (the Ancient People) or “Palaeo-Indian” period (12,000 – 8,000 BP), which saw the arrival of peoples who harvested caribou, possibly along with a variety of other fauna, following deglaciation of the region (Bonnichsen, Keenlyside and Turnmire 1991; Deal 2023). This period is best represented in Nova Scotia by the Debert-Belmont site complex near Truro, NS.

Sites of the following *Mu Awsami Kejihaw'k L'nu'k* (the Not so Recent People) or the Archaic Period (8,000-3,000 BP), are characterized in part by distinctive ground stone tool industries. In Nova Scotia, sites of this period are known primarily from interior locations, and for the most part date only to the latter half of this period (the Late Archaic). Nevertheless, it is inferred that people were present in the province throughout this period, and that their lifeways included a focus on harvesting the resources of the coast as well as interior waterways. The scarcity of evidence for occupation early in the period and on the coast is seen to reflect the effects of rising sea levels; such sites now being situated in marine environments (Deal 2023; Kyte 2024).

The last phase of the Pre-Contact Period, *Kejihawek L'nu'k* (the Recent People) or Woodland/Ceramic period (3,000- 500 BP), sees the appearance of ceramic technology in the context of wide-ranging interactions with other peoples of the greater northeast. Coastal archaeological sites are more clearly documented (albeit still threatened by rising sea levels and coastal erosion) and, in some cases, include substantial shell middens, indicating the harvesting of marine shellfish. Nevertheless, both marine and terrestrial resources figured in the seasonal round during this time, with some regional variation (Nash and Miller 1987; Davis 1991).

The PDA is within an area once part of a greater Mi'kmaw territory known as *Eskikewa'kik*, meaning “Skin dressers” (CMM 2007). The coastlines, islands, bays, harbours, and water systems would have been an important transportation route and resource base of the local Mi'kmaq and their ancestors for a long time prior to the founding of Halifax. A research inquiry was submitted for the PDA with KMKNO-ARD and their review revealed four traditional use sites within a one-kilometre distance of, but outside, the PDA used for fishing. There are no recorded archaeological sites within the PDA. There are three Mi'kmaw archaeological sites within a 5 km distance to the PDA: BdCu-02, BdCu-11, and BdCv-04 and are recorded diagnostic lithics, flakes, and shell midden (KMKNO-ARD 2024). More information on these sites is provided in Section 4.2.3 below.

The Mi'kmaw name for Eastern Passage is *Tuitnuk*, which means “the big passage” and the name for Morris Lake is *Loqutujk*, which means “place of scaffold or drying fish.” Mi'kmaw methods for naming a place is verb based, frequently reflecting the meaning of the area to the Mi'kmaq, such as resources available or the landscape features of the area. This type of naming relies on an intimate understanding and repeated use of an area (KMKNO-ARD 2024). The PDA is located 300 m to the southwest of the Cole Harbour Indian Reserve No.30 which is the closest Mi'kmaw Community and a part of Millbrook First Nation; this is situated between Morris and Bassitt Lakes.



HRM SERVICED COMMUNITIES BACKGROUND STUDY: EASTERN PASSAGE (MORRIS LAKE EXPANSION) ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT, HALIFAX REGIONAL MUNICIPALITY, NS (2023)

Historic references show during the mid to late eighteenth century that descendants of the Morris Family camped for many years at the outlet of Morris Lake (back of the Asylum), near Dartmouth. During the turn of the twentieth century Morris Lake was referenced as being named after an old Mi'kmaq family (Maurice) who resided at the outlet of Morris Lake for a long time. The Mi'kmaw name for this location was previously mentioned as a "place of scaffold or drying fish," suggesting the area was used for dried smoke meat and fish (eels, etc.) (KMKNO-ARD 2024). Soap was also noted as being produced in this location using a method of hollowing out a tree into a cauldron and using fire heated beach stones to boil and render. By 1877, Mi'kmaq woman from this area were noted for regularly selling trout in the Halifax Market (KMKNO-ARD 2024).

4.2.2 Historic Period

The Historic Period is defined as the period from the arrival of mostly European-derived peoples to North America, approximately 500 years ago, until the modern era. For Mi'kmaq communities, this period is referred to as *Kiskukew'k L'nu'k* (Today's People) or Contact Period (500 BP- Present), which saw the growth of European settlement in the region, and with it, a variety of changes for *Kiskukew'k L'nu'k* associated with trade, conflict, and disease (Whitehead 1991).

The first European population to have a presence at the mouth of Halifax Harbour were the Acadians during the late seventeenth century. There was some seasonal use by New Englanders during the first half of the eighteenth century for the fishery, although, there was not a large population of European settlement until the British founded Halifax in 1749. The community of Dartmouth was founded a year after on the east side of Halifax Harbour (Ward 1971).

The PDA is within an area originally considered a part of the Dartmouth Township. Most of the land was surveyed in 1772 for Joseph Chadwick, Benjamin Gerrish, and Jacob Hurd at South East Passage, being the name used during that time for Eastern Passage, and most of the land was granted about 1785. Land was surveyed for Martin Soward, Lieutenant Joseph Hawkins, and Colonel Hamilton and the grants extended from Horton's Brook to Hartlen's Point (PANS 1967). The majority of these grantees chose to live elsewhere but some of them settled within the community concentrated along Main Road in Eastern Passage.

The PDA is also near the community of Cow Bay. The community is named after one of the original grantees, Robert Cowie, who with Roger Hill, received a 1,400-acre grant in 1763, and Charles Palmer and Richard Monday had land there by 1772 (PANS 1967). Cow Bay was a summer resort area from Dartmouth and by about 1866 and sometime before 1923 the nearby beach was renamed Silver Sands (PANS 1967). The first gold discovery in Nova Scotia was made in 1857 during gold panning in the Cow Bay and Cow Bay River Area (CRM 2023). Several gold claims were made within the area called the Cow Bay Gold District (Faribault 1906), where a significant discovery of gold was made by D. M. Thomson in 1895. Following that a mill and rock crusher were erected on the Cow Bay River (PAND 1967). Under the name Cow Bay Mining Company, the crusher and mill operated for a short time then closed for several years before it was sold and reopened by I.W. Horn in 1899, and the name changed with transferred of ownership several more times before mining halted in the area shortly after 1905 (CRM 2023). The location of the mill and crusher were identified on the Faribault map just outside the PDA to the south along the Cow Bay River and just north of Cow Bay Road.



HRM SERVICED COMMUNITIES BACKGROUND STUDY: EASTERN PASSAGE (MORRIS LAKE EXPANSION) ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT, HALIFAX REGIONAL MUNICIPALITY, NS (2023)

A review of historical maps and land documents was conducted for the properties within the PDA and indicated that four historic land grants were issued for this location. The largest lot of 1,031-acres was originally granted to Jacob Horn Sr. et al, in 1798 (Crown Record Book 20 page 55). The lot consisted of land within the PDA from De Said Lake to Bissett Lake in the east and from De Said Lake south to just past the former Canadian National Railway (CNR) rail line. The lot was escheated in 1804 (Crown Record Book 18 page 50). Two historic lots consisting of 150-acres each located to the west of the previous lot were granted in 1786 to Benjamin Whitear (Crown Record Book 18 page 32) and Nathan Young (Crown Records Book 18 page 61). These three lots once had a section of the CNR Plan Mile 19 to 20 and crossed Smelt Brook and Cow Bay River. The fourth lot was granted in 1786 to John Forsythe et. al. and consisted of a 900-acre lot located to the north of Jacob Horn's Lot from De Said Lake to the tip of the peninsula of land that stretches north into Morris Lake (Crown Record Book 18 page 47). The Cole Harbour Indian Reserve No.30 was proposed and granted in 1879 and located just outside the PDA along the east side of Morris Lake (Anonymous 1879). A potential path or portage route is noted on the Reserve Plan in the general location of the PDA and is interpreted as forming a part of Cadwell Road (see Figure 4, Appendix A).

A review of historic maps revealed settlement had concentrated along Route 322 (sections of Main Road in Eastern Passage as well as the Cow Bay Road). The Bayfield Chart of 1853 (Figure 5, Appendix A) shows a concentration of buildings in Eastern Passage with both the locations of St. Peters Anglican Church (1832-1960) and St. Andrews's Roman Catholic Church (1850) and as well as other buildings are located outside of and to the west of the PDA (PANS 1967). Two buildings were noted on the eastern side of Cow Bay but are located outside the PDA (Bayfield 1853). No development within the vicinity of the PDA was noted on the A. F. Church Map of 1865 (Figure 6, Appendix A) as well as on the Geological Survey of Canada Maps (Figure 7, Appendix A) (Church 1865; Faribault 1906, 1908). A woods road is noted between De Said Lake and Morris Lake and stretched through the north section of the PDA near the same location of Caldwell Road. A building was marked along the road to the west but outside the PDA.

Due to German U-boat activity off the coast of Nova Scotia during the First World War, in 1918 the Canadian Government built an airbase for the use of American naval aircraft, located west of the PDA. The following year the base was turned over to full ownership to the Canadian Government and was named the Shearwater Naval Air Station (PANS 1967). During the 1920s and 1930s, development on the base had concentrated on waterfront infrastructure for utilizing floating aircraft. During the late 1930s with the war in Europe approaching, a land-based airstrip was constructed in 1938. During the Second World War additional land was purchased to expand the base (CRM 2023). By the middle of the 1950s the population increased within the area due to residential developments in relation to the base (PANS 1967). Review of aerial photographs showed activities relating to development of the Shearwater Base on the west shore of De Said Lake (Figures 8 and 10, Appendix A). Development or stripping of surface soils was noted on aerial photographs between 1931 and 1954 in the northwest section of the PDA to the south of Caldwell Road as well as the CNR rail line spanning east to west through the middle of the PDA (NSDNR 1931, 1945, 1954). The section of the CNR rail line within the PDA was constructed by the Federal government sometime between 1910 and 1916 for a branch line between Dartmouth and Musquodoboit Harbour (Verlinden 2018).



HRM SERVICED COMMUNITIES BACKGROUND STUDY: EASTERN PASSAGE (MORRIS LAKE EXPANSION) ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT, HALIFAX REGIONAL MUNICIPALITY, NS (2023)

A review of the Canadian Register of Historic Places (CRHP 2024) and the HRM Heritage Property Registry (HRM 2024) found four registered historic places or heritage sites located within 5 km of the PDA. These are: the Cole Harbour Farm built in 1801 by Loyalist Joseph Giles located to the north of the PDA along Cole Harbour Road; the Cole Harbour Meeting House (1830-1831) located on the Cole Harbour Road also north of the PDA; the Kaiser-Bell House (1821) located across the road from the Cole Harbour Meeting House, and the Lawlors Point Cemetery (1836) located along Cole Harbour. None of these historic places or buildings of heritage value will be impacted by the Project.

4.2.3 Registered Archaeological Sites near the PDA

A review of the NSCCTH MARI online database indicates that there are fifteen registered archaeological sites within a 5 km radius of the PDA including BdCu-2, BdCu-11, and BdCv-04. BdCu-2 was recorded in 1990 and is a pre-contact archaeological site located at Hartlen Point. It consists of two isolated finds; one quartz corner notched point recovered during shellfish harvesting along the shoreline; and one small end scraper. Both artifacts likely date to the Ceramic Period (Preston 1990). The nearest site to the PDA is BdCu-11 and was identified in 2013 as another isolated find consisting of a segment of a slate bayonet recovered along a trail next to the Cow Bay River, approximately 350 m south from the PDA, that dates to the late Maritime Archaic Period. BdCv-4 was documented in 1969, revisited in 1991, and consists of a Ceramic Period shell midden site located along the north shore of Back Cove (Wreck Cove) on McNab's Island, approximately 4 km from the PDA (JWEL 1991). Finds from these sites included historic period ceramics and pre-contact material consisting of quartz and chalcedony flakes, some quartzite, and ceramics which dated to the Middle Woodland Period prior to 1600 BP (Sheldon 1992).

In addition to the three registered pre-contact archaeological sites noted above, there are 12 historic archaeological sites within a 5 km distance of the PDA. Archaeologist Helen Sheldon's assessment for the Green Bay Estates development located in Cow Bay focused on mitigating BdCu-7 which was three historic foundations (Renarc Consulting 1996). Four other historic sites have also been reported around the Cole Harbour Provincial Park (BdCu-3, BdCu-4, BdCu-5, and BdCu-6). The remaining registered archaeological sites are located on McNabs Island and consist of six historic cellar features: (BdCv-10, BdCv-11, BdCv-12, BdCv-13, BdCv-14, and BdCv-15) and the A. J. Davis Bottling Plant being BdCv-10 (Stantec 2023).

4.2.4 Previous Archaeological Resource Impact Assessments

CRM Group Limited (CRM Group) completed two previous ARIAs within the PDA earlier in 2023.

The most recent ARIA report conducted by CRM Group noted above was provided to Stantec by NSCCTH staff which indicated that prior archaeological assessment work was carried out by CRM Group earlier in 2023 for Clayton Developments Limited. The reports consisted of the results from the shovel testing phase based the conclusions and recommendations made in the initial ARIA carried out earlier in the season (CRM Group 2023a, 2023b). CRM carried out testing within three identified areas of high archaeological potential with negative results. CRM recommended to be clear for development and no further investigation required, seen Figure 2b, Appendix A (CRM Group 2023b).



A large section of the PDA was previously assessed as low in archaeological potential by CRM Group although it appears that two watercourse sections within the PDA were not previously covered by a walkover, nor was the eastern shore of De Said Lake (see Figure 2a; Appendix A). No other previous archaeological resources impact assessments were conducted within the PDA. Relevant, information provided by these assessments is presented below.

5.0 FIELD SURVEY RESULTS

The walkover of the PDA focused on identified areas not previously walked over and assessed by CRM Group Ltd. earlier in the field season. The identified areas included sections of two watercourses that drain into Cow Bay and the eastern shore of De Said Lake in the northwestern section of the PDA. The results of the walkover, including assessment notes referenced in the text, can be seen in Figure 2b. Appendix A. The tracklogs from the walkover are overlayed over a LiDAR hill shade rendering of the PDA in Figure 3 (Appendix A).

5.1 WATERCOURSES

The walkover focused on segments of two watercourses that flow into Cow Bay: one is located in the south section of the PDA and consists of the Cow Bay River; the other is the eastern shore of De Said Lake and Smelt Brook in the western section. The only area not assessed during the walkover is the area north of Calwell Road along Morris Lake as the northern section of the PDA will not be impacted by future development.

5.1.1 Cow Bay River

The walkover began from the former CNR line called the Shearwater Flyer Trail (Shearwater Trail) heading southeast along the west bank of the Cow Bay River. Forest conditions consisted of a black spruce bog and or forested wetland environment that transitioned into undulating but dry mossy and rocky terrain (MPR-ARCH-265; Photo 1, Appendix B). There was however a small slightly higher terrace identified along the river at assessment note JRK-ARCH-209 (Photo 2, Appendix B), that was determined to have medium archaeological potential area and was identified at JRK-POLY-016 (Figure 2b, Appendix A). In general, however, the wider area was found to be low and wet with patches of sphagnum moss bog mixed with a rocky and undulating terrain especially along the riverbank. The JRK-POLY-016 was determined to be suitable for archaeological shovel testing and stood out from the general terrain along this section of the river and has medium potential.

Continuing southeast along the river, an open spruce bog was encountered where an ATV trail or old road was identified as well as a deer hunting blind at assessment note MPR-ARCH-266 (Photos 4 and 5, Appendix B) The trail led to a small lot of land situated along the river to the east of this area and located outside the PDA. Further down, the river had swelled due to recent seasonal rains as seen at MPR-ARCH-267 (Photo 3, Appendix B). Beaver dam activity exacerbated the flooding as observed at assessment notes MPR-ARCH-267 and MPR-ARCH-269 (Photos 6 and 7, Appendix B). This flooded out area was not found to have elevated archaeological potential due to the low, saturated, boggy ground conditions.



HRM SERVICED COMMUNITIES BACKGROUND STUDY: EASTERN PASSAGE (MORRIS LAKE EXPANSION) ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT, HALIFAX REGIONAL MUNICIPALITY, NS (2023)

The lower section of the west bank of Cow Bay River was accessed from the Cow Bay Road located to the south of the PDA. The shoreline was found to be low lying and level with the river in this location. The forest changed to a mix wood over dry duff terrain, with patches of standing water throughout. Frequent boulder scatters and deadfalls were observed. A trail was encountered along the river and ended in a relatively flat area between the trail and the river. The location was determined to have medium archaeological potential (JRK-POLY-020) due to the topographical conditions as noted at JRK-ARCH-210 (Photos 8 and 9, Appendix B). The river bends and forms a slight oxbow around a section of exposed slate bedrock in this area which also raises the archaeological potential of this location. JRK-POLY-020 is also approximately 350 m upstream from a known Pre-Contact period site BdCu-11.

Further north, the forest consisted of a mix of mainly semi-immature hard and soft wood. Several tree throws were encountered revealing poor soil development and having frequent cobbles and boulders beneath the humic layer. The tree throws were investigated, and no cultural material encountered. The bedrock is mostly slate in this location and the terrain is very undulating with a boulder ridden swale along the river (MPR-ARCH-272; Photos 10 and 11, Appendix B). The wet flooded out area was encountered again at assessment note MPR-ARCH-273 (Photos 12 and 13, Appendix B). The walkover continued back south along the west bank of the Cow Bay River and ended at the southern end of the PDA completing this section of the walkover. Overall, the area was found to have low archaeological potential due to low wet ground conditions encountered and in general the area was found to not have been suitable for past habitation or use, except for the two relatively flat areas with dry duff terrain that were identified as having medium archaeological potential based on suitable ground conditions and being near a registered archaeological site.

The east bank of the Cow Bay River was accessed from the for CNR line, now Shearwater Trail, and the walkover continued south along the river. The forest conditions consisted of a black spruce bog and wetland environment. The terrain was found to be very undulating with poor soil development as observed from tree throws and being very mossy having open bog and barren patches. The east bank was found to be dryer than the west bank although still had low wet areas that were encountered at assessment note JKR-ARCH-213 (Photos 14 and 15, Appendix B). The shoreline along the east bank was found to be relatively flat and low at the river at assessment note CKM-ARCH-166 (Photo 16, Appendix B) and the ground was saturated. The walkover continued southeast along the river and at JKR-ARCH-214 a small drainage at a confluence with the Cow Bay River was encountered (Photo 16, Appendix B). At CKM-ARCH-167 along the shoreline conditions included a rock and boulder swale along the river (Photo 18, Appendix A). The small watercourse follows the boulder swale feature into the landscape orientated to the east of Cow Bay River. This area had low potential for archaeological resources.

Further southeast down the river surface conditions remains the same mostly consisting of a black spruce bog forest with some alder growth and immature hardwood trees. The terrain continued to be undulating with frequent boulder scatters and having exposed bedrock and poor soil development as observed in tree throws present in this area. The river branches out at assessment note JRK-ARCH-215 (Photos 18 and 19, Appendix B) and the banks were found to be swollen at the time of the walkover due to recent seasonal snow melt and rain events. The edge of the PDA was reached, and the walkover continued back along the river to the northeast. Overall, the east bank of the Cow Bay River was found to be low in



HRM SERVICED COMMUNITIES BACKGROUND STUDY: EASTERN PASSAGE (MORRIS LAKE EXPANSION) ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT, HALIFAX REGIONAL MUNICIPALITY, NS (2023)

archaeological potential due to low, wet, rocky surface conditions encountered during the walkover as this section of the PDA would not have been suitable for settlement or other uses that would leave an archaeological footprint. No locations suitable for shovel testing identified in this area.

5.1.2 Eastern Shore of De Said Lake

The eastern shoreline of De Said Lake was accessed from a small property south of Caldwell Road. The property showed signs of disturbance to the surface soils in this location and this area may have been used by the military in relation to the Shearwater base as seen in aerial photos (NSDNR 1945). The property is currently in use and has a commercial fishing equipment storage area as observed during the walkover. Forest conditions consisted of a mix of spruce, alder and other hardwoods consisting of mostly immature growth. The area showed signs of past forest clearing activities. The terrain has a slope $> 25^\circ$ to the east from the shoreline of the lake at assessment notes JRK-ARCH-217 and CKM-ARCH-171 (Photos 20 and 21, Appendix B). A feature in the landscape was observed and appeared not to be natural. The feature appears to be a potential fox hole or trench emplacement encountered on a ridge along the lake at assessment note CKM-ARCH-172 (Photo 22, Appendix B). The feature appeared to be too small for a small outbuilding or camp, and resembles similar features observed by the permit holder at other former DND properties such as in Debert, Nova Scotia and typically created for military training purposes.

Further south along the lake forest conditions changed to a mix of immature to semi-mature mix of softwood and hardwood. The forest floor was sloped from the east down to the shoreline and was found to be undulating, very rocky, with patches of sphagnum (JRK-ARCH-218; Photo 23, Appendix B). Further south close to the end of the lake the remains of an abandoned camp with a path to the Lake was encountered at assessment note JRK-ARCH-219 (Photos 24 and 25, Appendix B). The southern end of the De Said Lake was reached at the start of Smelt Brook CKM-ARCH-174 (Photos 26 and 27, Appendix B). Smelt Brook flows in a south direction and empties into Cow Bay. The brook was easily transversed within this location and ended the walkover within this section of the PDA. Overall, this section of the PDA was found to be low in archaeological potential due to the sloped, wet, and rocky surface conditions encountered during the assessment and would have not been suitable for settlement or other uses that would leave an archaeological footprint. Some evidence of previous disturbance was noted that may be the result of DND activities from the middle of the twentieth century near the northern section of the lake, however, are interpreted as having historical or cultural significance.

5.1.3 Smelt Brook

The final section of the walkover was conducted along both banks of Smelt Brook. The section walked over was accessed from the Shearwater Trail and began from the foot of the former CNR rail line bridge at assessment note JKR-ARCH-220 (Photos 29 and 30, Appendix B) and continued south along the watercourse. Conditions were found to be low and wet with mostly alder growth that predominates the area on both banks of the watercourse (JRK-ARCH-221 (Photos 31 and 32, Appendix B) and CKM-ARCH-177 (Photo 33, Appendix B). Several animal paths were encountered at a point where the watercourse broke up into two branches at assessment note JRK-ARCH-222 (Photo 34, Appendix B). A deer blind was encountered at JRK-ARCH-223 (Photo 3, Appendix B) near the location of the confluence



and deer crossing. Continuing from assessment note CKM-ARCH-179 (Photo 35, Appendix B) conditions remained the same while walking south for the remainder of Smelt Brook to the end of the PDA near the Cow Bay Road. Due to the saturation, alder swale condition of the riparian area to the watercourse, this section of the PDA was determined to have low archaeological potential as it would have not been suitable for past settlement or other uses that would leave an archaeological footprint.

5.1.4 Morris Lake North of Caldwell Road

The only area of the PDA not assessed during the walkover is the area north of Caldwell Road along Morris Lake. The permit holder did not have access to the property at the time of the walkover and was informed by HRM that the northern part of the PDA was not to be impacted by future development. If future development or groundbreaking activities are planned for the area, then an additional ARIA will be required to properly assess the potential within this section of the PDA.

6.0 SUMMARY AND RECOMMENDATIONS

In general, most of the PDA was found to have low archaeological potential due to either sloping, saturated, or rocky conditions or a combination of these conditions that were encountered during the walkover, in combination with the general lack of documented use of the PDA noted during the background research. Despite these conditions, two areas within the PDA were identified as having elevated archaeological potential for archaeological resource along the west bank of Cow Bay River. If these areas cannot be avoided and are to be impacted due to Project related groundbreaking activities, then the following is recommended:

1. If the area identified as medium potential at JRK-POLY-016 will be impacted, then it is recommended that archaeological shovel testing be carried out at 10 m intervals within the identified area to properly assess the potential of this identified area. It is further recommended to confirm the extent of the shovel testing with NSCCTH prior to this work.
2. If the area identified as medium potential at JRK-POLY-020 will be impacted, then it is recommended that archaeological shovel testing be carried out at 10 m intervals within the identified area to properly assess the potential of this identified area. It is further recommended to confirm the extent of the shovel testing with NSCCTH prior to this work.

The area north of Caldwell Road along Morris Lake was not included within this assessment. If future development or groundbreaking activities are planned for the area, then an additional ARIA will be required to properly assess the potential within this section of the PDA.

It is important to note that while no Pre-Contact Period archaeological resources were identified during the field assessment, there is still potential for sub-surface archaeological resources to be present. If any archaeological resources are discovered during development, contractors or HRM are required to contact NSCCTH if potential archaeological resources are encountered during ground-breaking activities to assess the discovery and develop appropriate mitigation.



7.0 CLOSING

This report has been prepared as a requirement of Heritage Research Permit No. A2023NS168 for the sole benefit of HRM and may not be used by any other person or entity, other than for its intended purposes, without the express written consent of Stantec Consulting Ltd. (Stantec) and HRM. Any use which a third party makes of this report is the responsibility of such third party.

The information and recommendations contained in this report are based upon work undertaken in accordance with generally accepted scientific practices current at the time the work was performed. Further, the information and recommendations contained in this report are in accordance with our understanding of the Project as it was presented at the time of our report. The information provided in this report was compiled from existing documents, design and planning information provided by HRM, data provided by regulatory agencies and others, as well as the field survey carried out in 2023 specifically in support of this report. If any conditions become apparent that differ significantly from our understanding of conditions as presented in this report, Stantec requests that we be notified immediately, and permitted to reassess the conclusions provided herein. Any follow-up work recommended in this report must be reviewed and approved by Special Places, the Nova Scotia Department of Communities, Culture, Tourism, and Heritage.



8.0 REFERENCES

- Anonymous. 1879. "Cole Harbour Indian Reserve No. 30. Sketch Showing the Proposed Location of Indians at Dartmouth," Catographic Material. Library and Archives Canada. Electronic reference accessed March 4, 2024: <<https://recherche-collections-search.bac-lac.gc.ca/eng/home/record?app=founandcol&idNumber=3672449&q=Cole%20harbour.>>
- Bayfield, W. H. 1853. *Nova Scotia South East Coast Mars Head to Shut-In Island*, nautical chart surveyed by Capt. Bayfield in 1853. Electronic web reference accessed March 4, 2024, <https://easternshorearchives.ca/archivalcontent/historicmaps/Bayfield1853HalifaxtoPortersLake_web.pdf>
- Bonnichsen, R., D. Keenlyside, and K. Turnmire. 1991. Palaeo-Indian Patterns in Maine and the Maritimes. In *Prehistoric Archaeology in the Maritime Provinces: Past and Present Research, Reports in Archaeology 8*. Edited by M. Deal and S. Blair, pp. 1-36. Fredericton: Council of Maritime Premiers Committee on Archaeological Cooperation.
- Church, A.F. 1865. *Topographical Township Map of Halifax County, Nova Scotia*. Halifax: A.F. Church & Co.
- Confederacy of Mainland Mi'kmaq (CMM). 2007. *Kekina'muek: Learning about Mi'kmaq of Nova Scotia*. Donald M. Juien (Ex. Dir.) Government of Canada, Human Resources and Social Development Canada, Turo, NS. Electronic web reference accessed on November 7, 2023, <https://native-land.ca/wp-content/uploads/2018/06/Mikmaq_Kekinamuek-manual.pdf>
- CRHP (Canadian Register Historic Places). 2024. Electronic reference accessed on March 4, 2024. <<https://www.historicplaces.ca/en/results-resultats.aspx?m=2&Keyword=grand%20falls.>>
- Cultural Resource Management Group Limited (CRM). 2023a. *Dartmouth East Development – Screening and Reconnaissance Archaeological Resource Impact Assessment Final Report*, conducted under Heritage Research Permit A2023NS010. Report on file at the Special Places division of the Nova Scotia Department of Communities, Culture, Tourism, and Heritage. Halifax, NS.
- Cultural Resource Management Group Limited (CRM). 2023b. *Dartmouth East Development – Areas 1 & 2, Feature 1 Archaeological Resource Impact Assessment Archaeological Shovel Testing 2023, Eastern Passage, Halifax Regional Municipality Final Report*, conducted under Heritage Research Permit A2023NS079. Report on file at the Special Places division of the Nova Scotia Department of Communities, Culture, Tourism, and Heritage. Halifax, NS.
- Davis, Stephen A. 1991. The Ceramic Period of Nova Scotia. In *Prehistoric Archaeology in the Maritime Provinces: Past and Present Research, Reports in Archaeology 8*. Edited by M. Deal and S. Blair, pp. 1-36. Fredericton: Council of Maritime Premiers Committee on Archaeological Cooperation.



HRM SERVICED COMMUNITIES BACKGROUND STUDY: EASTERN PASSAGE (MORRIS LAKE EXPANSION) ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT, HALIFAX REGIONAL MUNICIPALITY, NS (2023)

- Davis, Derek S., & Browne, Sue. 1996. *The Natural History of Nova Scotia. Vol 2. Theme Regions*. Nimbus Publishing and the Nova Scotia Museum, Halifax.
- Deal, Michael. 2023. *Archaeology and The Indigenous Peoples of the Maritimes*, Memorial University Press.
- Faribault, E. R. 1906. *Province of Nova Scotia, Halifax County, Lawrencetown Sheet #53*. Geological Survey of Canada. Geological Map.
- Faribault, E. R. 1908. *Province of Nova Scotia, Halifax County, Halifax Sheet #68 & Lawrencetown Sheet #67*. Geological Survey of Canada. Geological Map.
- Halifax Regional Municipality (HRM) 2024. The Halifax Data Mapping & Analytic Hub, Heritage Properties HRM Open Data. Electronic reference accessed on April 23, 2024: <<http://www.halifax.ca>>
- Jacques Whitford Environment Limited (JWEL). 1991. *Heritage Research Permit A1991NS08. Heritage Resources Survey of McNabs Island*, written by Helen Sheldon archaeologist with JWEL. Report on file at the Special Places division of the Nova Scotia Department of Communities, Culture, Tourism, and Heritage. Halifax, NS.
- Kyte, Jonathan R. 2024. *Maritime Archaeological Survey of Holland Cove Site (BcCw-13) Phase 2*, report submitted to the Nova Scotia Department of Communities, Culture, Tourism and Heritage for work carried out under Heritage Research Permit A2023NS112.
- Kwilmu'kw Maw-klusuaqn Negotiation Office's - Archaeology Research Division (KMKNO-ARD). 2024. Response to request for information for traditional or historic Mi'kmaq land use via dated, February 14, 2024.
- Nash, R.J. and V.P. Miller. 1987. Model Building and the Case of the Micmac Economy. *Man in the Northeast*, 34: 41-56.
- Nova Scotia Department of Lands and Forests (NSDLF). 1946. *Crown Lands Grant Sheets #66*. Nova Scotia Department of Natural Resources (Revised). Halifax.
- Nova Scotia Department of Natural Resources (NSDNR). 1786-1946. Crown Records Sheet #66: Crown Record Book 18 page 32, Crown Record Book 18 page 47, Crown Record Book 18 page 50, Record Book 18 page 61, Crown Record Book 20 page 55, Crown Records Displaced Plan No. 227.
- Nova Scotia Department of Natural Resources (NSDNR). 1945-2002. Aerial photographs; 1945 (8781), 1954 (14228), 1964 (18351), 1982 (82318), 1992 (92350), and 2002 (02318-9).
- Preston, Brian. 1990. *Heritage Research Permit A1990NS05 Summary Report*, general permit to cover yearly general activities undertaken by the Curator of Archaeology, including response to emergency situations. Report on file at the Special Places division of the Nova Scotia Department of Communities, Culture, Tourism, and Heritage. Halifax, NS.



HRM SERVICED COMMUNITIES BACKGROUND STUDY: EASTERN PASSAGE (MORRIS LAKE EXPANSION) ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT, HALIFAX REGIONAL MUNICIPALITY, NS (2023)

Public Archives of Nova Scotia (PANS). 1967. *Place-names and Places of Nova Scotia*, Halifax: Nova Scotia: PANS.

Renarc Consulting. 1996. *Archaeological Impact Assessment of Green Bay Estates, Heritage Research Permit A1996NS27*. Report on file at the Special Places division of the Nova Scotia Department of Communities, Culture, Tourism, and Heritage. Halifax, NS.

Sheldon, Helen. 1992. *A Shell Midden In Halifax Harbour HRP A1992NS03*. Report on file at the Special Places division of the Nova Scotia Department of Communities, Culture, Tourism, and Heritage. Halifax, NS.

Stantec Consulting Ltd. (Stantec) 2023. *Archaeological Resources Impact Assessment for Construction of Land Based Test Facility at Hartlen Point, Eastern Passage, Nova Scotia (2023)*, Report on file at the Special Places division of the Nova Scotia Department of Communities, Culture, Tourism, and Heritage. Halifax, NS.

Verlinden, John. 2018 *Rail Service Begins on the Eastern Shore*, Musquodoboit Harbour Heritage Society, community heritage blog post. Electronic web reference accessed on March 4, 2024 <http://easternshorecooperator.ca/rail_service_begins_on_the_eastern_shore>

Ward, W. P. 1971. The Acadian Response To The Growth Of British Power In Nova Scotia, 1749-1755. *The Dalhousie Review*.

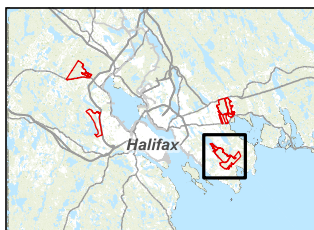
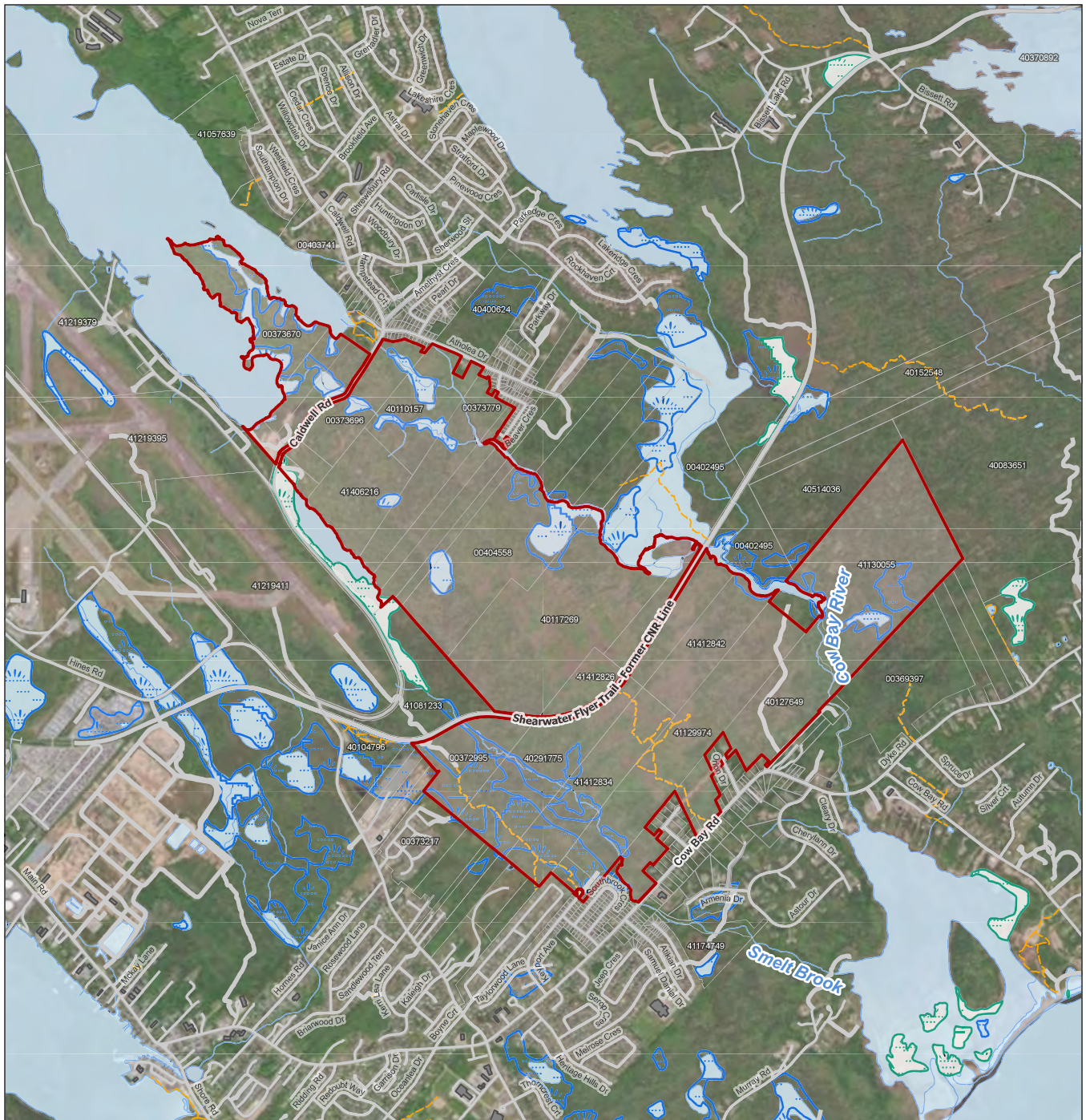
Whitehead, R.H. 1991. The Protohistoric Period in the Maritime Provinces. In *Prehistoric Archaeology in the Maritime Provinces: Past and Present Research, Reports in Archaeology 8*. Edited by M. Deal and S. Blair, pp. 1-36. Fredericton: Council of Maritime Premiers Committee on Archaeological Cooperation.

\\ca0213-ppfss01\work_group\1214\active\160410459\HRM_Archaeological_Assessments\Morris_Lake_Expansion_ARIA_2023
\\rpt_fin_160410459_Morris_Lake_Expansion_(Eastern_Passage)_ARIA_20240522.docx



APPENDIX A

Figures



Legend

- PDA
- Transportation
- Trail
- Highway
- Other Road
- Railroad

Other Features

- Waterways
- Waterbodies
- Designated Wetland of Special Significance
- Wetland
- Property Boundary
- Buildings

0 250 500 Metres
(At original document size of 8.5x11)
1:31,000



Project Location
Halifax Regional Municipality,
Nova Scotia

Prepared by SCHUBBS 2024-04-17

Client/Project
Halifax Regional Municipality
Future Serviced Communities
Background Studies

Fig ID: 160410459_040

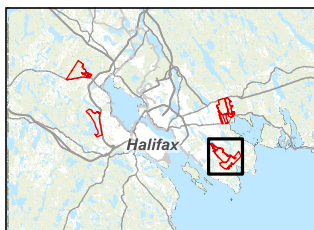
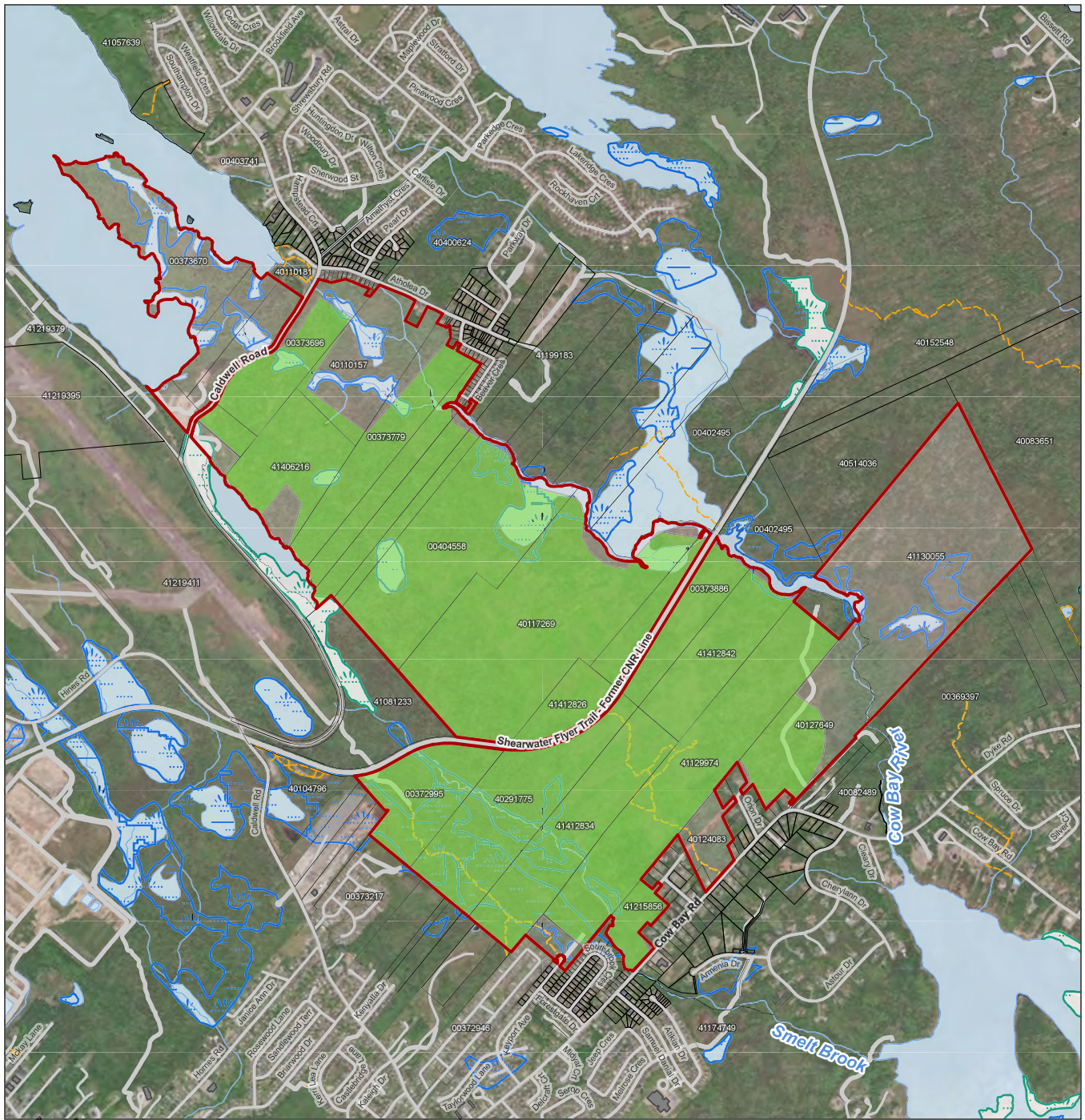
Figure No.

1

Title
**Project Development Area: Eastern
Passage (Morris Lake Expansion)**

Notes

1. Coordinate System: NAD 1983 CSRS UTM Zone 20N
2. Data Sources: Government of Nova Scotia, Department of Service Nova Scotia and Internal Services
3. Background: Government of Nova Scotia, Department of Service Nova Scotia and Internal Services



Legend



Archaeological Potential Area

Area of Low Archaeological Potential - No Further Assessment Required

Transportation

Trail
Highway
Other Road

Other Features

Waterways
Waterbodies
Designated Wetland of Special Significance
Wetland
Property Boundary
Buildings

0 250 500 Metres
(At original document size of 8.5x11)
1:25,186



Project Location
Halifax Regional Municipality,
Nova Scotia

Prepared by IPodrug on 2024-04-08

Client/Project
Halifax Regional Municipality
Future Serviced Communities
Background Studies

Fig ID: 160410459_040

Figure No.

2a

Title

Prior Archaeological Assessment

Notes

1. Coordinate System: NAD 1983 CSRS UTM Zone 20N
2. Data Sources: Government of Nova Scotia, Department of Service Nova Scotia and Internal Services
3. Background: Government of Nova Scotia, Department of Service Nova Scotia and Internal Services