**FOX CREEK DYKE AND ABOITEAU**
**EIA REGISTRATION DOCUMENT**

Prepared for:

**City of Dieppe**
333 Ave. Acadie
Dieppe, N.B.
E1A 1G9

Prepared by:

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Submitted to:

**PROVINCE OF NEW BRUNSWICK**
**DEPARTMENT OF ENVIRONMENT AND LOCAL GOVERNMENT**
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December 6, 2019
Project No. 18171-1

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## APPENDICES

# REGISTRATION FORM

## PURSUANT TO SECTION 5 (2) OF

## THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATION 87-83

## CLEAN ENVIRONMENT ACT

## 1.0 THE PROPONENT

**(i) Name of Proponent:** City of Dieppe

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**(iii) Principal proponent contact:**

| | |
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**(v) Property Ownership:**

As indicated on the Drawings in Appendix A, the proposed project site, which includes a new aboiteau structure and upgrades to the existing dyke and trail system, is located on a variety of properties in the southeast area of Dieppe, N.B. The list of PIDs affected is found in Section 2.0 (vi).

These properties are not all currently owned by the City of Dieppe; however, it is noted that the City intends to acquire the necessary agreements and/or easements for the land proposed

for construction. The land acquisition process with the various property owners will be undertaken during design process.

## 2.0 THE UNDERTAKING

### (i) Name of the Undertaking:

Fox Creek Dyke and Aboiteau, City of Dieppe.

### (ii) Project Overview:

The Fox Creek Area, which is tidally influenced by the Petitcodiac River, is situated in Dieppe, New-Brunswick. It is a region where the impacts driven by current and anticipated climate change are considered significant. Due to the topographically low land area in conjunction with sea level rise and increased storm surge, recent flood events have caused road closures and significant damage to properties along Fox Creek.

The following relevant studies have been commissioned for adaptation to climate change in the Dieppe area:

- 2011: The report entitled "*Climate Change Adaptation Measures for Greater Moncton Area, New Brunswick*" (Amec Foster Wheeler) was released to provide information about the impacts of climate change in the Greater Moncton Area.
- 2014: The City of Dieppe Climate Change Committee published the *"Climate Change Adaptation Plan: Petitcodiac River Overflow Risk Due to Climate Change"*. From then on, the committee commissioned multiple studies in collaboration with Amec Foster Wheeler.
- 2015: The study "*Approach for Flood Protection in Response to Climate Change"* (Amec Foster Wheeler, 2015), assessed the overall impacts of climate change on existing infrastructures in the City of Dieppe and provided recommendations for the design of adaptative measures.
- 2016: The "*Hydraulic Analysis of the Fox Creek Section 4*" (Amec Foster Wheeler, 2016) was undertaken and focused specifically on evaluation of adaptation measures in the Fox Creek Area of the City of Dieppe.

Thus, the City of Dieppe has begun addressing and rehabilitating critical infrastructure identified in the multiple past studies. Recently, the City completed a major investment project to raise Amirault Rd. in the Chartersville Marsh, which was identified by these studies as the highest priority area. The Fox Creek basin was found to be the second highest in priority and identified as having a "Very High" classification under the Canadian Dam Association (CDA) Dam Safety Guidelines primarily due to the potential for loss of life (residential development) (AMEC Foster Wheeler, 2015). In the past years, the reliability and capacity of the existing structure has increasingly come into question. Accordingly, a new aboiteau structure and a raised dyke

was found to be a priority adaptative measures for the City. (AMEC Foster Wheeler, 2015). **This document focuses on the upgrades of existing infrastructure proposed for the project, the associated potential impacts on the environment, and the mitigation procedures proposed.**

The proposed project will mitigate the impacts, reduce the vulnerability brought by climate changes to the water levels in the Petitcodiac River, and reduce the on-going flooding issues in the Fox Creek area of Dieppe. In order to reduce the risk of flooding within the area, it is necessary to make improvements to the flood prevention system (aboiteau/dyke system) and drainage infrastructure.

The project will thus include the following:

- Raising the dyke elevation (phase 1) to a new crest elevation of 9.5m. This will provide significant improvements to protection levels from the Petitcodiac River, as sections of the existing dyke are currently near elevation 6.1-6.5m.
- (Future) A future phase is anticipated to be initiated by NBDTI that would see the dyke raised to its permanent elevation. Currently, that elevation is anticipated to be 11.3m
- Construction of a new aboiteau structure (culvert with tide gate) in order to improve the backflow prevention capabilities and to provide additional hydraulic capacity.
- The removal/decommissioning of the current two (2) wooden box culverts and two (2) HDPE pipe culverts (existing aboiteau).
- Re-establishment of the existing multipurpose trail at the crest of the dyke and merging both ends to the existing City of Dieppe Riverfront Tail system.
- Related work and property restoration where required.

In order to allow for future maintenance activities, the proposed trail will also serve as a service road on top of the newly raised dyke.

The majority of the project involves construction in environmentally sensitive areas. Furthermore, the construction of the new aboiteau, dyke upgrades, and related work falls within a Provincially Significant Wetland as illustrated on the Drawings in Appendix A. Potential impacts and mitigation measures will be discussed further in Sections 4 and 5 of this document. Due to the proximity of the proposed project site with watercourses (both Fox Creek and Petitcodiac River), known historical Acadian settlement in the area and existing historical aboiteau structures, the site has also been recognized as having a high potential for the presence of archeological resources (Amec Foster Wheeler, 2015). The Archeological Services Branch will be consulted to identify archeological requirements for this project and an archaeological assessment of the project site will be pursued if the province deems it necessary.

**(iii) Purpose / Rationale / Need for the Undertaking:**

As previously noted, the Fox Creek basin and the surrounding areas are identified as being susceptible to flooding risk due to the anticipated increase in water levels and storm surges in the area (Amec Foster Wheeler, 2011). In addition, the current inadequate dyke elevations and undersized aboiteau structure (Amec Foster Wheeler, 2016) only aggravate this problem. The ultimate goals of the work undertaken by this project are minimizing current and future flooding events in order to protect life and infrastructure assets while considering environmental and social impacts.

Flooding in the Fox Creek area has affected businesses and residents. In fact, in December 2014, a flooding event caused significant damages to a daycare located along the west side of Fox Creek. Until repairs to the building interior structure were completed, up to 98 children and 12 employees had to be relocated.

Photos from recent flood events are included in Figure 1 below.

**Figure 1: Examples of Past Flooding – Fox Creek Area, Dieppe, N.B.** [1] [2]


(2014) (2014)

The Fox Creek basin is tidally influenced by the Petitcodiac River which is subject to the highest tides in the world. The current dyke elevation, for which the localized low point is approximately 6.1m geodetic, is estimated to be exceeded more than 400 times annually (Amec Foster Wheeler, 2011). Furthermore, the 1 in 100 year projected high-water geodetic elevation (estimated at 10.25m for the Greater Moncton Area) (Amec Foster Wheeler, 2011) leaves this portion of the City vulnerable with respect of life safety and risk to public and private infrastructure. The City of Dieppe released an amendment to the City By-Laws which restricts all future development and construction of habitable spaces to a minimum geodetic elevation

[1] Amec Foster Wheeler, Hydraulic Analysis of Fox Creek Section 4 (Dieppe; 2016); p.20
[2] https://globalnews.ca/news/1722284/dieppe-daycare-destroyed-by-flooding/

of 10.5m. It is found that 120 residents, important undeveloped residential land and major transportation routes fall within the at-risk zone (Amec Foster Wheeler, 2011). Renewal and upgrades associated with this project will mitigate flooding of both commercial and residential properties in the area and help attract new development within the vicinity.

It is anticipated that raising the dyke and improving the aboiteau structure will significantly reduce the risk of flooding in the area. Furthermore, the existing aboiteau structure is in a state of disrepair and requires investment in the short-term (Amec Foster Wheeler, 2016). Therefore, improving the aboiteau's discharge capabilities and providing the additional hydraulic capacity to evacuate freshwater flows from the Fox Creek drainage basin is required.

In order to further reduce the impacts of flooding events, adapt to climate change rainfall events, and encourage economic growth and a prosperous community, the proposed stormwater mitigation and climate change adaptative procedures outlined herein are necessary.

Consideration has been given to various alternatives such as, zoning bylaws, buyouts/relocation, installing drainage systems and wetproofing existing infrastructure found below a 10.5m elevation (Amec Foster Wheeler, 2015). Another mitigation option included raising main roadways such as Amirault Street, Melanson Road (section between Fox Creek Road and Bourque Road), and the southern part of Fox Creek Road (Amec Foster Wheeler, 2015) in order to protect the area from flooding. However, the magnitude of the predicted increase in water levels and storm surges makes it unfeasible to raise the current infrastructure found in the at-risk region such as roadways, underground infrastructure, and buildings. Through a review of available options, Dyke and Aboiteau improvements were found to be the preferred solution (Amec Foster Wheeler, 2015).

A "do-nothing" approach is not acceptable in this case due to the inadequacy of the current infrastructure to perform effectively, further prioritized by increases in projected rainfall occurrences and rising sea levels. This alternative would force the abandonment of the zones within the floodplain and all topographically low-lying areas. The total cost of purchasing affected properties is estimated at 11 million. Furthermore, key transportation routes such as Amirault St. would be impassable to during high water events. Without the construction of the new aboiteau, as well as the related retaining walls and dyke upgrades, there is no way to effectively protect and drain the affected land and to mitigate climate changes related impacts from the area. Therefore, without this project, it is anticipated that the frequency and severity of flooding in the Fox Creek area will continue to increase and as a result, pose a safety hazard to the community.

**(iv) Project Location:**

This climate change and stormwater mitigation project is located along Fox Creek, a tributary of Petitcodiac River, south of Amirault Street in Dieppe, as shown on the attached drawings (Appendix A). Dieppe is in the county of Westmorland and is the southeastern part of the

Greater Moncton Area of New Brunswick. Because of the geographic scale of the project, comprising dyke upgrades along the existing multipurpose trail and a new aboiteau structure, the project spans a number of PIDs, as listed in Section 2.0 (vi). At this time, the City plans to put in place the proper agreements to access the land required for the new permanent structures, and the land transfer process will be finalized during design.

The enclosed Drawings 18171-1P-C01 and 18171-1P-C02 (Appendix A of this document) show a 1:50 000 scale map of the site in reference to the existing features, and the proposed construction details over an aerial photograph. Drawing 18171-1P-C03 shows preliminary details relating to the replacement of the existing aboiteau with a new culvert with tide gate including dyke upgrades. Exact placement of the aboiteau structure and dyke footprint are still subject to modification as the design progresses. Also enclosed, (Drawing 18171-1P-C04) the flood inundation mapping displays the current and the projected (2100) 1 in 100 year flood elevation for the Fox Creek area.

The latitude and longitude of the existing aboiteau structure which is located within the wetland 30m buffer are as follows (approximately):

- Latitude: 46.057337, Longitude: -64.704826

**(v) Siting Considerations:**

GENERAL SITING CONSIDERATIONS AND OTHER LOCATIONS CONSIDERED:

In selecting the proposed design, multiple possibilities were evaluated prior to establishing the feasible options. As noted earlier in section "(iii) Purpose / Rationale / Need for the Undertaking", raising and/or waterproofing the existing at-risk underground infrastructure and roadways was not considered feasible due to the extremity of the anticipated water level rise, leaving the dyke and aboiteau upgrade as the preferred option.

The proposed alignment has been selected to minimize impacts to environmentally sensitive features such as regulated and Provincially Significant wetlands. The proposed alignment takes advantage of the existing dyke where possible.

Therefore, the proposed configuration of the raised dyke and aboiteau is necessary to ensure the effectiveness of the overall floodwater mitigation system. With consideration given to the above restrictions, as well as the availability of suitable land, no other alternative is considered to be feasible.

## SELECTED PROJECT LOCATION

Due to the topography of the land available in the area and its location within the floodplain, the properties affected by the proposed project are currently undeveloped, and for the most part, an existing drainage corridor. The surrounding properties have some development, such as residential and commercial buildings.

In the case of the new aboiteau and dyke upgrades, the land is already being used for this purpose, although both will be shifted slightly as these will be re-aligned to minimize environmental impacts. The site is located on land that is currently undeveloped; the City will ensure the proper agreements are in place prior to physical work beginning.

The intent of this project is to raise the existing dyke to protect against the anticipated current and future water levels in the Petitcodiac River. Furthermore, with the planned re-use of native materials stripped from the site, it is anticipated that the resulting vegetation and habitats (once established) will be similar to the existing and that the net loss of current environmental features in the area will be minimized.

## PROTECTION OF THE WATER SUPPLY

Based on GeoNB mapping, there are no *Wellfield Protected Areas* or *Watershed Protected Areas* in the vicinity of the proposed project site.

## ZONING

Based on the September 20, 2018 zoning map obtained from the Planning and Development Department of the City of Dieppe, the area of the proposed stormwater mitigation project is primarily zoned “Conservation and Ecological Interest”.

The City will ensure proper agreements/easements are in place based on the final design. The City will communicate with the Planning and Development Department to confirm if the land will require rezoning and will take the necessary steps to do so as required.

## WETLANDS

Based on wetland mapping from GeoNB, there is a Provincially Significant and regulated wetland within the project area. Work within 30 m of the wetland will be minimized as much as possible. However, as shown on the attached drawings, the aboiteau structure, and the dyke upgrades are both located within the wetland. The anticipated disturbed area within the wetland is approximately 4600 sq.m and will be verified during detailed design. Photos of the existing aboiteau structure and wetland area are included in Figure 2 below:

**Figure 2: Photos of Existing Aboiteau Structure and PSW**

SPECIES AT RISK AND WILDLIFE

Englobe Corp. (Englobe) was retained by Crandall Engineering on behalf of the City of Dieppe to undertake a Species at Risk survey in the subject property, near Amirault Street in Dieppe, NB. The Species at Risk Survey carried out by Englobe Corp was based on the principles and practices currently used for environmental review and biophysical surveys.

The purpose of the Species at Risk survey was to determine the presence or absences of species at risk or critical habitat that may occur in the project area so as to avoid and mitigate negative impacts.

A background investigation was conducted to determine previous records of species at risk in the project area. As part of this investigation a request was made to the ACCDC who provided a report of flora and fauna in the area (Data report included in **Appendix C**). The New Brunswick Provincial Species at Risk List and Federal SARA Registry were also consulted to assist in preparing a list of potential at risk species for the site. Lastly, a species at risk survey was conducted on June 20th, 2019 at which time the site was visually inspected for unique

biophysical and terrestrial features, and surveys conducted for Birds, Wildlife and vegetation in the project area.

The field survey did not find any currently listed species at risk in the project area and the only at-risk species observed was a transient bald eagle seen flying at a distance. No other at-risk species or critical habitat was observed. Field observations revealed that the property is located in a mixed residential area and is currently undeveloped and is composed of disturbed Acadian Forest, freshwater wetland and saltmarsh.

Observations made during the field surveys noted the presence of significant amounts of mapped provincially significant wetland on the property. As wetland is protected by NBDELG (WAWA Regulation 90-80) it is recommended that the NB Department of Environment and Local Government is consulted so that potential future development does not negatively impact wetland.

Based on the information gathered and observations made by Englobe during field survey, the assessment has revealed no evidence of species at risk and did reveal sensitive environmental features such as freshwater wetland and saltmarsh on the property that are potential limiting factors for development. A summary of the findings from each survey completed can be found in **Appendix D**.

**(vi) Physical Components and Dimensions of the Project:**

LAND REQUIREMENTS

As part of this climate change mitigation and climate change adaptation project, approximately 0.55 km of dyke will be upgraded, including the construction of a new aboiteau structure. The attached Drawings in Appendix A show the overall location of the project relative to the environmental features of the region, including an aerial photograph view of the project site. As previously mentioned, the current drawings are assuming side slopes of 3:1, which will be confirmed as the geotechnical investigation progresses.

Where the project consists of raising the existing dyke elevation, a variety of properties are affected by the project. The PID's affected and their respective approximate disturbance areas are as noted below, however, they are subject to change as detailed design proceeds. As previously noted, the City will acquire the necessary land and/or easements.

| PID Number | Disturbed Area (sq. m) |
|---|---|
| 00924324 | 1,280 |
| 70360375 | 3,490 |
| 00946731 | 2,530 |
| 00946673 | 970 |

| | |
|---|---|
| 00924167 | 5,920 |
| 70157763 | 270 |
| 00924340 | 540 |

The total project footprint is approximately 11,000 $m^2$ (1.1 Ha), including ± 9,000 $m^2$ (0.9 Ha) within the 30m wetland buffer. Of the work within the wetland buffer area, ± 4500 $m^2$ (0.45 Ha) will occur within the wetland itself. Sediment control fencing and other protective measures will be detailed in contract drawings to delineate and restrict disturbance within the construction area.

PHYSICAL COMPONENTS AND INFRASTRUCTURE

In order to carry out the climate change mitigation and adaptation project, the following components and infrastructure will be required:

a. **New dyke structure:** The project will include the construction work to raise the existing dyke an elevation of 9.5m (current phase) with the ultimate goal of raising the crest to an elevation of 11.3m (1m above the current flood protection target). Construction will include stripping and grubbing where required, isolated tree clearing if necessary, excavation and grading of the dyke. The raised dyke across the western portion of the Fox Creek area will have a 5m wide crest and be generally side sloped at 3:1 with slopes increasing to 2:1 near the aboiteau structure. The length and positioning of the new aboiteau structure will be done to allow for future raising/widening of the dyke embankment.

   The trail on top of the newly elevated dyke will tie back down into the existing trail system at a maximum slope of 5%. A new, 3m wide multipurpose trail will be constructed at the crest of the upgraded dyke and will also allow for future maintenance (crushed rock surface). It is anticipated that suitable stripped organic materials and/or excavated materials will be re-used on-site where possible, for topsoil and/or fill material and imported crushed rock will be utilized for the trail's final travel surface. If insufficient material is generated in order to complete the work, suitable materials will be imported.

   The proposed elevation of the dyke was set in a recent climate change study, in which an analysis of predicted flood levels and the Canadian Dam Association (CDA) guidelines were used select the crest elevation. Accordingly, the dyke elevation (future) of 11.3m represents a flood elevation of 10.25m (Amec Foster Wheeler, 2011) plus an approximate 1.0m freeboard according to the CDA guidelines (Amec Foster Wheeler, 2015). The new dyke elevation was based on the 1:100-year projected water levels for the year 2100 and the studies also considered factors such as storm surge, freshwater flows, removal of the existing causeway (ongoing project). Consideration was given to tidal impacts which further limit the ability of

water to drain from the site. The new dyke elevation is designed to prevent inflow of water during high tide and to be sufficient for extreme storm conditions.

**b. New aboiteau structure**: Part of this project involves the replacement of an existing aboiteau structure that consists of two (2) wooden box culverts and two (2) HDPE pipe culverts with a new aboiteau structure with flap gates as shown on the attached drawing. At this stage of the project design, a hydraulic study is underway to determine the sizing of the new aboiteau. It is anticipated that the new aboiteau will be constructed while maintaining the existing structures in service throughout construction.

ADDITIONAL DETAILS

In addition to the new major physical features, the following should be noted:

It is to be noted that the purpose of this project is to address the current flooding risk and to prepare for the anticipated impacts of climate change. Therefore, the project will not result in an increased stormwater flow.

**a. Lighting and impervious surfaces**: There will be no lighting or impervious surfaces on the site.

**b. Set-backs or buffers:** Construction will require the following:

- 30 m from watercourses and NBDELG delineated wetlands (as per GeoNB), except as otherwise noted herein;

**c. Off-site facilities:** Off-site facilities will not be required for this project.

**d. Construction activities:** Various construction activities will be required as part of this project. During the construction of the dyke, the new aboiteau structure, and related works, imported and surplus material may be hauled between work areas on-site, and various materials and equipment will be hauled to and from the site. As a result, an increase of vehicular traffic will be observed during this period. However, except for during the construction of the project, no significant change to current activities should be observed except for occasional maintenance activities.

**(vii) Construction Details:**

The proposed upgrade to the Fox Creek basin area will consist of the construction of a new elevated dyke, aboiteau structure, and related components. Prior to beginning ground-

disturbing activities, silt fencing will be installed to protect the surrounding environment, and work carried out within the wetland and buffer area (as indicated on the Drawings) will adhere to the conditions that will be obtained from the NBDELG.

Access to the site is mainly via existing streets in the area; however, the trail will also be used for on-going access to the site, and temporary construction access roads are not anticipated but may be required as design progresses.

It is estimated that, from the start of the Tender Period to project completion, it will require roughly 15 - 20 working weeks, pending receipt of approval to proceed under the EIA registration. In order to achieve this, the following schedule is proposed (assuming that the comprehensive EIA Study is not required):

| COMPONENT | APPROX. DURATION | START | END |
|---|---|---|---|
| 1. EIA Registration and TRC Review | 8 weeks | December 2019 | February 2020 |
| 2. Engineering Design, Hydrological study, Tender Period and Award | 20 weeks | November 2019 | March 2020 |
| 3. Construction Period | 20 weeks | May 2020 | September 2020 |

The estimated hours of construction will be from Monday to Friday from 7:00 AM to 7:00 PM (spring/summer hours). Construction is estimated to begin in Spring 2020.

The following equipment is anticipated to be used for the construction procedures:

- Earthwork/Dyke construction: Excavators, dozers, dump trucks, compaction equipment.
- Construction of new aboiteau structure: Excavators, dozers, dump trucks, compaction equipment, and crane equipment for structure placement and sheet piling.

The actual work will be done by a qualified contractor to be selected through a public tendering process in accordance with the requirements of the Crown Construction Contracts Act. The specific contractors who will be involved, sources of materials, etc., cannot be confirmed until the tendering and contract award process has been carried out. Imported materials will include, where “imported” is interpreted to mean “brought in from off the construction site”:

- Imported granular material for trail and access roads, work on the dyke.

- Imported construction materials for the new aboiteau structure installation (pipes, concrete, rip-rap, etc.).

As previously noted, although the site is not densely wooded, some vegetation is present and isolated tree cutting and grubbing may be required. The material will be disposed off-site by the contractor. The topsoil and organic material will be stock-piled on-site during the construction (and protected with silt fencing) and will be re-used as topsoil where required. Although it is not anticipated that significant quantities of excavated material will be generated, any suitable excavated material will be used to build up the dyke or in other locations where fill may be required. If the excavated or stripped materials are found to be unsuitable, or in excess of what can be used on-site, they will be disposed of off-site by the Contractor.

Potential sources of pollutants during the construction period are anticipated to include:

- Exhaust and other emissions from construction equipment.
- Noise from construction equipment.
- Silt from disturbed surface areas. This will be minimized by requiring the contractor to install silt fences and other erosion protection devices around the work area. Any reinstatement required on disturbed areas will be completed as soon as is practical.
- Petroleum hydrocarbons from possible leaks, spills or accidents from construction equipment and vehicles. This will be minimized by requiring the Contractor to have spill kits on site and to conduct daily inspections of his equipment. Contractors will be required to follow the Environmental Management Plan (EMP) prepared for this project. A copy of the draft EMP is included in Appendix B. No refueling or maintenance of vehicles will be allowed to occur within 30 m of a watercourse or a wetland.

All waste generated during construction will be stored in containers and removed off-site by the Contractor.

The following sequence and procedures are recommended during the construction process. It is anticipated that multiple crews may be required, working on various portions of the work simultaneously.

1. Mobilization and installation of environmental protection devices;
2. Construction of aboiteau structure, and shoring, and raising dyke;
3. Property restoration and other related activities.

It was noted that much of the work is necessary within 30m of a provincially significant wetland and within the wetland itself. This includes the construction of the new aboiteau structure, dyke modifications, and related work. Such work will be subject to the conditions of both the

EMP and a future WAWA permit to be obtained from the NBDELG and the watercourse/wetland will be protected from silt run-off by installing silt fencing that will be maintained for the duration of the construction.

The proposed Environmental Management Plan has been prepared for review and is included in Appendix "B".

**(viii) Operation and Maintenance Details:**

It is to be noted that, generally, the components of this project (aboiteau, dykes, etc.) do not require significant operation and maintenance on a frequent basis. However, it could be expected that the NBDTI's personnel will periodically inspect, maintain and/or repair these components in the future. This could include items such as evaluating the performance of the new aboiteau structure during peak tides and during and after storm events. However, it is noted that the trail will already be in place following construction so that the Province can access the site to conduct such inspections and maintenance without further disturbing the surrounding environment.

At this stage, there is an ongoing hydraulic study to size the new aboiteau structure. The sizing of the aboiteau will be based on a PCSWMM stormwater model of the proposed upgrades. Various inputs will be used in the model, including rainfall predictions and tidal impacts. A 1 in 100-year return period, 24 hour event was selected as the design storm rainfall, with an allowance for the impacts of climate change. The proposed new infrastructure will be sized through an iterative selection in the PCSWMM model and checked in the CulvertMaster software package. The new infrastructure could be expected to have a useable lifespan of 50 - 100 years.

The aboiteau structure and dykes are owned and operated by NBDTI. The City of Dieppe is partnering with the Province on construction of improvements, recognizing the importance of the work to their overall Climate Change adaptation strategy.

**(ix) Future Modification, Extensions, or Abandonment:**

Effective stormwater conveyance and floodwater protection is an ongoing requirement; therefore, it is not anticipated that there will be future abandonment of the components installed as part of this project.

The current proposed works represent the first phase of construction, including the new aboiteau structure and construction of a dyke to elevation 9.5m. A future phase is anticipated to be initiated by NBDTI that would see the dyke raised to its permanent elevation. Currently, that elevation is anticipated to be 11.3m geodetic.

Due to the compressible nature of underlying soils, its further anticipated that the dyke will need to be "topped up" at some point in the future.

**(x) Project-Related Documents**

In addition to location plans and drawings, the following project related document is appended:

- Environnemental Management Plan - Draft (Appendix B).

The original dyke and aboiteau structure were built around 1950 and have been renovated multiple times in the past 50 years, however, there are no known past EIA assessments.

## 3.0 DESCRIPTION OF THE EXISTING ENVIRONMENT

**(i) Physical and Natural Features:**

The proposed upgrades and their respective locations are shown on the Drawings presented in Appendix A. The site is located in the low-lying flood plains in the western Fox Creek area of Dieppe.

In general, the site has varying gradients, as it traverses natural undeveloped lands over the course of approximately 0.55 kilometer. Along the new dyke route, the existing grade ranges from roughly 6.1 m to 9m in elevation. In general, the site drains toward Fox Creek.

Flood mapping available through the City of Dieppe website confirms that the project area is located within the floodplain, and the extents of the predicted the 1 in 100-year flood zone are indicated on Drawing 18171-1P-C04. Given the geographical setting of the land, the proposed project activities will not interfere with the current or future use of the property. Because the site is located within the floodplain, neither residential or commercial development is currently feasible due to major restrictions on development imposed by the current Municipal plan and Zoning By-law.

As noted in the previous sections, the proposed stormwater mitigation project is in the vicinity of the Fox Creek basin and includes some work within a provincially significant wetland, according to GeoNB's delineation.

The province's Online Well Log System was checked for a 500m radius of the project site and no wells were found. Furthermore, the project area is not located near the City's municipal water source or within its protected area.

As previously noted, the land affected is within the floodplain and current flood protection infrastructure is ineffective during high tides or storm events. To help minimize flooding to the Fox Creek Floodplain, the land will be re-shaped to raise the dykes, and the existing aboiteau structure replaced to improve fresh water flows. Native organic materials will be re-used on the dyke's side slopes. Therefore, the project will not result in a significant change in land use.

Therefore, it is anticipated that the resulting vegetation and habitats (once established) will be similar to the existing and that the net loss of current environmental features in the area will be minimized.

Fish passage is anticipated to be incorporated into the design through the use of fish gates on the aboiteau tide gates.

It is not anticipated that the project will result in significant changes to air quality or noise levels, although there could be some temporary changes to noise levels and air quality during construction.

**(ii) Cultural Features:**

There is a lookout that allows observation of the historic aboiteau immediately downstream of the project area. Also, it has been identified in past studies that this region has a high potential of archeological resources.

**(iii) Existing and Historic Land Uses:**

As previously noted, the site is located in the western region of Fox Creek in Dieppe which is located in a floodplain. The site is located in the low-lying portion of the City that is protected by the existing dyke system and therefore may have been used in the past as agricultural lands. However, due to the ground profile of the land and its location within the floodplain, it is mainly undevelopable land that has been in a natural state for many years.

There are both residences and commercial properties in the surrounding area, although much of the project will occur off-road. The project will enhance the current land use as well as protect the adjacent infrastructure from flooding damage.

There are no known signs of contamination or use as a dump site on this land.

## 4.0 SUMMARY OF ENVIRONMENTAL IMPACTS

The purpose of this project is to protect current infrastructure and properties from flooding as well as mitigating the risks associated with climate change (rising water levels and storm surge) in the Fox Creek basin. This will improve the local environment, reduce the vulnerability of the infrastructure currently within the floodplain and provide a safe and secure passage through the area. This section will summarize the possible impacts of the proposed work, and Section 5.0 will describe the measures that will be applied to eliminate or mitigate any impacts. The attribute headings as contained in Appendix “B” of the EIA Guide will be used here. Only possible issues will be listed.

In order to expedite the review of the information presented in this Registration Document, the proposed mitigation measures for each of the possible impacts described below will be indicated immediately following.

4.1 Air Quality:

a) Dust is possible during the construction phase when soil is exposed.

Mitigation: Construction contracts will require the contractor to apply water to control dust when directed. Regarding local streets affected by construction, the contractor will be required to keep them swept clean.

b) Odors are possible during the construction phase, primarily exhaust fumes from the trucks and equipment used.

Mitigation: Work will be limited to within 7:00 AM to 7:00 PM (spring/summer) normal working hours where practical.

4.2 Biology and Ecology:

a) Vegetative cover: the existing vegetation will be stripped to permit the construction of the newly raised dyke.

Mitigation: Vegetative cover must be removed to permit construction; stripped materials will be stock-piled and re-used on-site for restoration where possible and exposed soils will be seeded and/or stabilized to restore growth and prevent soil erosion.

b) Wetland: Work is required within a Provincially Significant Wetland. Potential impacts would be damage to wetland vegetation, silt runoff from the site while under construction, and contamination of the soil.

Mitigation: Any heavy equipment required for work within the wetland and its 30 m buffer must travel over heavy mats to further minimize impacts on the wetland.

Runoff protection including silt fencing will be placed and maintained during construction. Any soil areas will have cover re-established prior to silt fencing being removed. Material stripped from the site will be re-used where practical to avoid importing invasive plant species to the site, and the contractor will be required to wash equipment prior to it being brought to the site. All environmental mitigation strategies included in the EMP in Appendix “B” will be adhered to.

c) Watercourse: Installation and commissioning of the new aboiteau structure will require work within the current watercourse area and a

tidally influenced area. Increased risk of disturbance of the watercourse habitat exists.

Mitigation: The work area(s) will be isolated from the watercourse through the use of temporary shoring (sheet piling) to keep the work area dry. If an event is forecasted that would compromise the work site, the contractor will be required to stabilize the work site to prevent negative impacts to water quality.

4.3 Physical:

a) Typical construction noise is expected during construction.

Mitigation: Work will be limited from 7:00 AM to 7:00 PM (spring/summer) normal working hours where practical.

b) Surface water quantity:

Mitigation: Appropriate sedimentation and erosion control will be installed prior to construction. This includes silt fencing and properly managing water resulting from any required site de-watering operations. It is anticipated that pumped water will be directed to a sedimentation basin to allow only clear water to be discharged to the environment. In addition, TSS levels will be monitored during construction.

c) Groundwater quality would be affected in the event of a spill from construction machinery.

Mitigation: The Contractor will be responsible to have on site the proper leak and spill prevention equipment prior to the commencement of any work. In the event of a spill, the contaminated soils will be removed from the site and disposed of at an approved decontamination site. No refueling will be conducted within the 30m buffer zone and all other precautions necessary, as outlined in the EMP included in the Appendix "B", will be followed.

4.4 Community Structure:

a) Land Use Compatibility: the proposed project is compatible with current land uses since the land has remained undeveloped for many years. The City will discuss zoning implications with the Planning and Development Department of the City of Dieppe.

b) Temporary barriers to vehicular/pedestrian movement: Aboiteau installation and raising the dyke will result in temporary interruptions to access to the multipurpose trail.

Mitigation: Barriers to vehicular/pedestrian movement will be in place for the duration of the construction, and will be carried out applying appropriate safety, signage and flagging procedures. Residents that may be affected by construction will be notified in writing in advance.

c) Traffic volumes: They will be periodically increased but will not be significant during the construction period. The most significant increase in traffic will be from trucks providing transportation of excavated materials. Any traffic delays originating from construction activities will be temporary in nature and signage and flagging will be in accordance with NB DTI requirements.

d) Access to other properties will not be impacted by the project except as already noted under 4.4(b), Temporary Barriers. There are no long-term or permanent interruptions to access.

4.5 Lifestyle and Quality of Life;

a) Quality of life: the proposed project will have an overall beneficial impact on the quality of life for the residents of and visitors to the area by maintaining the Floodwater protection system integrity, mitigate flooding and protecting development within the affected area.

## 5.0 SUMMARY OF PROPOSED MITIGATION

Mitigation measures proposed for possible environmental impacts were included in Section 4.0 in order to more conveniently connect the relationship of mitigation with possible impacts. In addition, the following general mitigation measures are presented:

- Disturbed areas will be reinstated as soon as is practical, silt fences and other erosion protection devices around excavations and stockpiles will also be used until the fully grown.
- Stripping activities and construction limits will be limited to the necessary area to complete the work.
- The stipulations of the WAWA permit will be adhered to, for work within the wetland and buffer zone.
- The construction will be inspected by the City's engineering consultant.
- The Contractor will be responsible to have the proper leak and spill prevention equipment prior to the commencement of any work. In the event of a spill, the contaminated soils will be removed from the site and disposed of at an approved decontamination site.

- Prior to conducting work on the new aboiteau structure, the current infrastructure will remain in service to minimize site disturbance.

The net loss of wetland habitat is considered to be minimal since the existing land functions will not be significantly altered following the completion of the project. The PSW impacted by the aboiteau construction and new dyke (total footprint of +/- 0.9 Ha within the 30m wetland buffer) will be restored following construction by re-using native organic materials. This project's main objective is the protection of life and economic goods while minimizing environmental impacts, therefore the project is necessary to maintain public safety.

Since there will be an approximate net loss of wetland of 0.46 ha, it is anticipated that a 2:1 monetary compensation to Ducks Unlimited, or other compensation as approved by NBDELG, will be provided.

## 6.0 PUBLIC INVOLVEMENT

The project team is looking forward to holding a public consultation to present the project and give an overview of the overall project scope. The meeting will be publicly advertised in advance and direct communication will be made as required with specific groups and individuals, to enable any interested parties to attend.

Stakeholders such as City elected officials and First Nations will be notified in accordance with the "Guide to Environmental Impact Assessment in New Brunswick". Residents will have the opportunity to share their concerns during one or more "open house" sessions. The public involvement will be done as required under Appendix "C" of the EIA Guide.

## 7.0 APPROVAL OF THE UNDERTAKING

The following technical approvals are anticipated as being required for this project:

- Approval under the EIA Legislation from the NBDELG.
- Watercourse and Wetland Alteration Permit from the NBDELG for the work in the PSW Buffer zone.

## 8.0 FUNDING

Funding has been secured by the FCM's Municipalities for Climate Innovation Program for this project. Furthermore, New Brunswick Department of Transportation and Infrastructure are providing a financial contribution to the project.

## 9.0 SIGNATURE

Dec 9'19
Date

Mathieu Melanson, P.Eng.
Project Engineer
City of Dieppe

# APPENDIX A:

# Crandall Engineering Ltd. Drawings
# 18171-1P-C01 to C04

# APPENDIX A:

# Crandall Engineering Ltd. Drawings
# 18171-1P-C01 to C04

PROPOSED DYKE
RAISING AND ABOITEAU

500m RADIUS

NOTES

| NO. | DATE | REVISIONS | BY | APPR. |
|---|---|---|---|---|
| 0.0 | DEC 14/18 | ISSUED FOR EIA REGISTRATION | DO | LEL |

crandall

PRELIMINARY ONLY
DATE PLOTTED: Dec 21, 2018
NOT TO BE USED FOR CONSTRUCTION

PROJECT TITLE

FOX CREEK DYKE
AND ABOITEAU

DIEPPE N.B.

DRAWING TITLE

OVERALL
LOCATION PLAN

| Scale | Drawn By | Design By |
|---|---|---|
| 250m 0 500m<br>SCALE 1:50,000 | DO | LEL |
| | Checked By | Cadd Check |
| | Sheet 1 of 3 | |

File Name
18171-1P-C01.DWG

Drawing No.
18171-1P-C01

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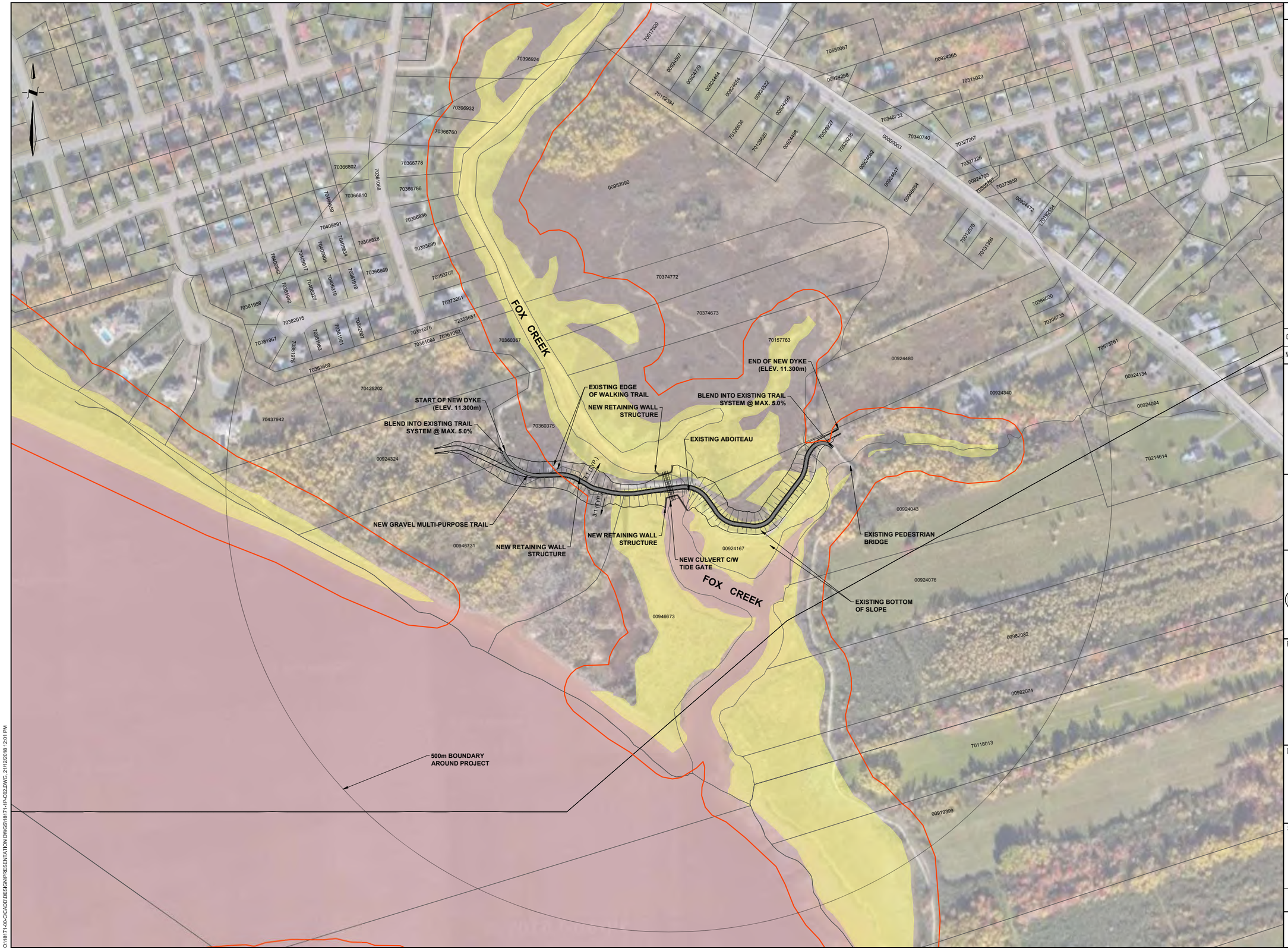


NOTES

LEGEND

PSW - 30m BUFFER

PROVINCIALLY SIGNIFICANT WETLAND (PSW)

| NO. | DATE | REVISIONS | BY | APPR. |
|---|---|---|---|---|
| 0.0 | DEC 14/18 | ISSUED FOR EIA REGISTRATION | DO | LEL |

Dieppe

crandall

PRELIMINARY ONLY
DATE PLOTTED: Dec 21, 2018
NOT TO BE USED FOR CONSTRUCTION

PROJECT TITLE

FOX CREEK DYKE AND ABOITEAU

DIEPPE N.B.

DRAWING TITLE

OVERALL SITE PLAN

| Scale | Drawn By | Design By |
|---|---|---|
| 7.5m 0 15m (1:750 FULL SCALE) | TWA | SEB |
| | Checked By: SEB | Cadd Check: GMG |
| | Sheet 2 of 4 | |

File Name: 18171-1P-C02.DWG

Drawing No.: 18171-1P-C02

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RUELLE CHEVREUIL COURT

RUE POINTE-AUX-RENARDS STREET

FOX CREEK

RIVIÈRE PETITCODIAC RIVER

START OF NEW DYKE (ELEV. 9.500m)

BLEND INTO EXISTING TRAIL SYSTEM

NEW CAST IN PLACE CONCRETE HEADWALL INLET STRUCTURE

R100 RIP-RAP SLOPE PROTECTION

NEW CAST IN PLACE CONCRETE CULVERT

EXISTING ABOITEAU

END OF NEW DYKE (ELEV. 9.500m)

BLEND INTO EXISTING TRAIL SYSTEM

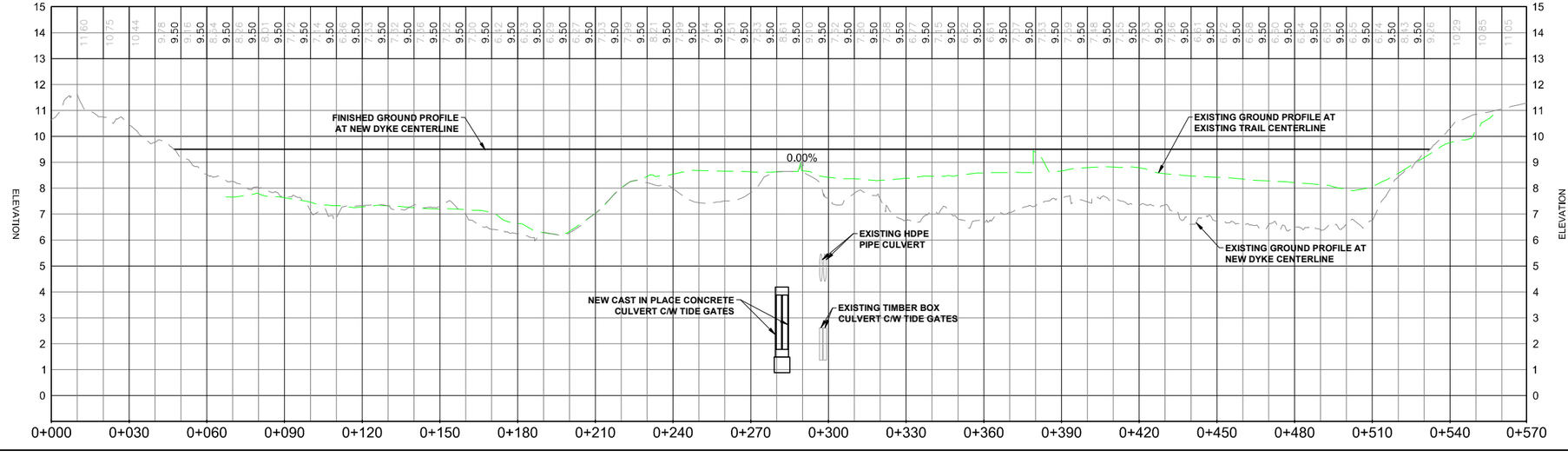
NEW GRAVEL MULTI-PURPOSE TRAIL

APPROXIMATE NEW TOE OF SLOPE

NEW CAST IN PLACE CONCRETE HEADWALL OUTLET STRUCTURE C/W TIDE GATES

R100 RIP-RAP SLOPE PROTECTION

EXISTING HISTORIC SITE (ABOITEAU)




NOTES

LEGEND

PROVINCIALLY SIGNIFICANT WETLAND (PSW)

PSW - 30m BUFFER

| NO. | DATE | REVISIONS | BY | APPR. |
|---|---|---|---|---|
| A.1 | DEC 4/19 | EIA REGISTRATION REVISED ALIGNMENT | JMB | SEB |
| A.0 | DEC 14/18 | ISSUED FOR EIA REGISTRATION | DO | LEL |

Dieppe

crandall

PRELIMINARY ONLY
DATE PLOTTED: Dec 03, 2019
NOT TO BE USED FOR CONSTRUCTION

PROJECT TITLE

FOX CREEK DYKE AND ABOITEAU

DIEPPE N.B.

DRAWING TITLE

NEW DYKE PLAN AND PROFILE

Scale
10m 0 20m
1:1000 Horizontal (Full Scale)
1m 0 2m
1:100 Vertical (Full Scale)

| Drawn By | Design By |
|---|---|
| GMG | SEB |
| Checked By | Cadd Check |
| SEB | GMG |

Sheet 3 of 4

File Name
18171-1P-C03 - ENGLISH TEXT.DWG

Drawing No.
18171-1P-C03

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FOX CREEK GOLF COURSE

FOX CREEK

FOX CREEK ROAD

AMIRAULT STREET

MELANSON ROAD

DIEPPE ROTARY PARK

FOX CREEK

ROAD ELEVATION ±7.80m

7.80

FOX CREEK

PETITCODIAC RIVER

PROJECT STUDY AREA

FUTURE 100 YEAR FLOOD ELEVATION:
ÉLÉVATION DES INONDATIONS FUTURES DE 100 ANS: 10.25m

CURRENT 100 YEAR FLOOD ELEVATION:
ÉLÉVATION ACTUELLE DES INONDATIONS DE 100 ANS: 9.25m

NOTES

RWM 30m BUFFER

REGULATED WETLAND

PSW 30m BUFFER

PROVINCIALLY SIGNIFICANT WETLAND

| NO. | DATE | REVISIONS | BY | APPR. |
|---|---|---|---|---|
| A.0 | JAN 03/19 | ISSUED FOR EIA | MA | PP |

crandall

PRELIMINARY ONLY
DATE PLOTTED: JAN 07, 2019
NOT TO BE USED FOR CONSTRUCTION

PROJECT TITLE

FOX CREEK DYKE
AND ABOITEAU

DIEPPE N.B.

DRAWING TITLE

FLOOD INUNDATION MAPPING

| Scale | Drawn By | Design By |
|---|---|---|
| 1:4000 | MA | MA |
| | Checked By: SEB | Cadd Check: MA |
| | Sheet 01 of 01 | |

File Name
18171-1P-C04 100YR STORM FLOOD ELEVATIONS.DWG

Drawing No.
18171-1P-C04

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# APPENDIX B:

# Environmental Management Plan
# Crandall Engineering Ltd. – December 21,2018

City of Dieppe

# ENVIRONMENTAL MANAGEMENT PLAN

**Fox Creek Dyke and Aboiteau**

Submitted to:

PROVINCE OF NEW BRUNSWICK
DEPARTMENT OF ENVIRONMENTAND LOCAL GOVERNMENT
P.O. Box 6000
Fredericton, N.B.
E3B 5H1

Prepared by:

**Crandall Engineering Ltd.**
1077 St. George Blvd., Suite 400
Moncton, N.B.
E1E 4C9

February 1, 2019
Project No. 18171-1

## TABLE OF CONTENTS

# SECTION 1 - INTRODUCTION

## 1.1 Introduction

The Environmental Management Plan (EMP) for the Fox Creek Dyke and Aboiteau project focuses on the activities related to the enhancement of the flood prevention structures and existing drainage system, including the construction of new an aboiteau, and dyke upgrades, and associated work. This Environmental Management Plan is divided into the following sections:

| | |
|---|---|
| Section 1 | Introduction |
| Section 2 | Site Work |
| Section 3 | Waste Management |
| Section 4 | Dust Management |
| Section 5 | Wetland and Watercourse General Measures |
| Section 6 | Noise Management |
| Section 7 | Clean-Up and Re-Vegetation |
| Section 8 | Historical Resource Protection |
| Section 9 | Emergency Response Plan |
| Section 10 | Environmental Effects Monitoring Plan |
| Section 11 | Emergency Contacts |

## 1.2 Purpose of the EMP

The EMP is an important component of the overall Project in order to protect the environment. This is a working document that is used by the project personnel in the field during construction as well as by employees of the City of Dieppe to ensure that commitments made in the Environmental Impact Assessment (EIA) registration document are implemented and monitored. Specifically, the purpose of this EMP is to:

a) Comply with the conditions and requirements of the "EIA" determination received by the New Brunswick Department of Environment and Local Government (NBDELG);
b) Provide a summary of potential environmental issues and protective/ mitigation measures to be implemented during construction;
c) Outline the City's commitment to minimize potential project environmental impacts, including those identified during the regulatory review process and the EIA.

## 1.3 Project Description and Schedules

### 1.3.1 Project Description

The City of Dieppe has initiated a storm water mitigation and climate change adaptation project in the Fox Creek basin area. The project involves the re-construction of the existing dyke, including the renewal of an aging aboiteau structure. The storm water mitigation strategies to be implemented in this project will allow for improved management of surface water in the area, reducing flooding risks.

This project consists of re-aligning, enhancing and raising the existing dyke system to reduce the vulnerability of current infrastructure in the area. As part of the project, a new aboiteau structure will be installed,

to replace the existing undersized and aging aboiteau on the existing dyke separating the City from the Petitcodiac River. In anticipation of increasing sea levels, storm surge and flooding events, the current dyke system will be raised by roughly (from current lowest point) 5.2m to, a proposed 11.3m geodetic elevation, including the reconstruction of the multipurpose trail / service road at the crest. The newly raised dyke will tie into the existing ground on each end and the trail will be sloped back to tie into the City's existing Riverfront Trail system.

In order to minimize effects on the Creek, the current infrastructure will remain in service throughout the work. In addition, silt fencing will be installed as appropriate prior to construction.

### 1.3.2 Schedule

The stormwater mitigation measures described herein are being proposed for construction with an anticipated start date of late Fall 2019. The following main tasks will be performed:

- Mobilization and installation of environmental protection devices;
- Clearing, grubbing and stripping where required;
- Construction of new elevated dyke system, including multipurpose trail/service roads;
- Construction of the new aboiteau structure and decommissioning of the existing structure.
- Property restoration and other related activities.

The new dyke will be constructed by importing borrow material and granular material, and although it is not anticipated that significant quantities of excavated material will be generated, any suitable excavated material will either be re-used on-site. Excess or unsuitable excavated material become the property of the Contractor to be disposed of off-site.

Environmental protection will include the installation of silt fence around each portion of the work prior to the start of any construction activities. This will remain in place and be maintained in good condition until the site is completely restored. In addition, it is expected that environmental impacts will be minimized by carrying out the work primarily during the winter months.

The Project is expected to be completed by Summer 2020.

## 1.4 EMP Communication

This Environmental Management Plan was developed for construction of the Project in accordance with all applicable federal and provincial environmental protection legislation and regulations as of the date of its preparation. This document will be included in the tender documents for the construction contract and will become part of the contract between the City and the Contractors involved.

The City, through its Consultant, will communicate its commitment to this EMP at the Contract's pre-construction meeting and the status of activities under the EMP will become a standard agenda item at all project meetings. A copy of the EMP will be provided to the Contractor's foreman, the City's personnel and the Consultant's resident services staff.

## SECTION 2 - SITE WORK

All activities relating to site work and the construction of the new dyke, aboiteau and all related structures will adhere to all relevant regulatory requirements, including but not limited to, the Environmental Impact Assessment Regulation under the Clean Environmental Act, Migratory Birds Convention Act, Species at Risk Act, and the Canadian Environmental Protection Act.

### 2.1 General

Appropriate measures will be made to diminish the risk of introducing invasive species to the area. These measures include:

a) Inspecting machinery and cleaning with a pressure water hose if necessary, as well as regular equipment inspection (before, during, and after construction), to ensure that vegetation is not transported from one site to another.
b) All machinery shall be cleaned before being brought on-site.

### 2.2 Clearing

Clearing involves the removal of trees, shrubs, brush and other vegetative cover. The measures listed below will be undertaken to prevent potential impacts upon valued environmental components. For this project, it is anticipated that only minor, isolated tree clearing may be required.

a) All clearing activities will be conducted when nesting is complete and chicks have naturally migrated from the area. For this project, any necessary clearing will be conducted outside of the regional annual breeding season for migratory birds (April 1 to August 31);
b) Activities will be minimized by establishing vegetated buffer zones around the nests;
c) The removal of shrubs within 30 m of all streams and/or wetlands will be minimized. If work is to be done within 30 m of a wetland and/or watercourse, the work must adhere to the conditions set forth in the WAWA permit;
d) Where possible, cleared materials shall be chipped and re-used on site;
e) Trees and brush shall be cut at ground level, leaving the stumps and root systems intact where possible;
f) Where possible, vegetation must be maintained along the banks of watercourses in sufficient quantity to provide for bank stability and shading;
g) All trees and slash lying on the ground within 15 m of the edge of the bank of a watercourse must be removed and disposed of such that it cannot enter a watercourse during high flow;

h) Any debris generated during the Project must be prevented from washing downstream and must be removed from a watercourse;
i) Organic material, such as topsoil, removed during construction is to be stockpiled and reused when possible, in areas as directed by the Engineer;
j) Prior to starting the stripping & clearing activity, erosion control measures must be installed where necessary and adequately maintained to prevent the discharge of sediment to a wetland and/or watercourse. This includes the installation of silt fences and the construction of "sedimentation" ponds (where required);
k) Clearing limits shall be flagged prior to the commencement of clearing by the Engineer.

## 2.3 Erosion Protection

With respect to erosion protection, the mitigation measures listed below shall be followed:

a) Install sediment fence and erosion control structures as shown on the Contract drawings for all activities potentially resulting in an increased presence of sediment;
b) All erosion and sediment control devices shall be inspected and maintained on a regular basis or after any significant rainfall until the Project site is permanently stabilized;
c) Erodible soils shall be covered with hay mulch if the area is not actively worked for more than one (1) week.

## 2.4 Dewatering in Work Areas

Work areas may require dewatering during construction. The following measures will be implemented, as required, in order to minimize the impact of dewatering:

a) All pumped water will be directed to a sediment control pond to remove silt from, and reduce turbidity of, water pumped from work areas before discharging to nearby ditches with erosion protection structures;
b) Total suspended solids (TSS) of the pumped water should be monitored throughout the construction process;
c) Where possible, water should be discharged to vegetated work areas in order to further reduce any potential impacts on a wetland and/or watercourse;
d) All discharged water will be encouraged to follow natural surface drainage patterns.

## 2.5 Pumps and Generators

A variety of equipment such as water pumps, hoses and generators are used during construction activities as well as accompanying support and supply facilities. Environmental concerns associated with the operation and use of such equipment include accidental spills of fuel or lubricating oil and chronic leaks, which may contaminate local water bodies and surface soils.

The following measures will be implemented in order to prevent or minimize potential impacts related to issues or equipment use and maintenance.

a) Fuel shall not be stored near generators or located within 30 m of a watercourse or wetland;

b) Drip pans shall be placed underneath pumps and generators located near watercourses and wetlands where practical;
c) Hoses and connections on all equipment shall be inspected daily for leaks and drips;
d) All leaks shall be reported immediately to the on-site supervisor, and shall be addressed to remediate the problem, as well as remediate the affected areas as discussed in Section 9: Emergency Response Plan;
e) Refueling and maintenance of equipment must take place in designated areas, on level terrain, a minimum of 30 m from any surface water bodies, wetlands, and potable water supply wells, with a collection system to contain oil, gasoline and hydraulic fluids.

### 2.6 Stripping & Grading

Stripping and grading activities are some of the most critical with regard to the control of erosion and sediment transport. Stripping consists of the removal of topsoil, and grading involves the shaping of new access roads and the overall site as well as drainage control.

a) All construction activities, including clearing and stockpiling of materials will take place outside of the 30 meter buffer from watercourses and wetlands as identified on the contract drawings, except where specifically required by the work;
b) Stripping of the organic vegetation mat and/or the upper soil horizons will be minimized and, where possible, they will be left in place;
c) The stripped organic vegetation mat and upper soil horizon material will be used, where practicable, to cover exposed areas and promote re-vegetation;
d) Stripping activities near watercourses and wetlands, particularly areas with steep slopes, should be avoided if possible and shall be minimized where specifically required for the work;
e) Where work is to occur within 30 m of a watercourse or wetland, the work must adhere to the conditions set forth in the NBDELG's WAWA permit;
f) The length of time that stripped areas are left exposed to the elements will be minimized to prevent unnecessary erosion. Refer to Section 2.3: Erosion Protection for further detail;
g) Stripped material may be temporarily stored in adjacent areas of the Project but shall be stored within the silt fence perimeter shown on the drawings. Appropriate surface water and sedimentation control measures will be implemented as needed for stockpile locations.

## SECTION 3 – WASTE MANAGEMENT

All waste generated during this project will be managed in accordance with all relevant regulatory requirements.

### 3.1 Descriptions of Effects of Wastes

Solid waste (*e.g.*, domestic waste, paper, cardboard, wood and other construction debris), if not properly controlled and disposed of, will be unsightly

and may cause human safety and health concerns and could result in a conflict with wildlife.

The release of untreated sewage is a concern to human health, drinking water quality, and aquatic ecosystems. No untreated sewage will be discharged during the construction activities.

There will be fuels and hazardous materials used in association with equipment operation and maintenance activities, which occur during construction activities. The major concern regarding the use of hazardous substances is their uncontrolled release into the environment through spillage, and the subsequent adverse effects on the terrestrial, and aquatic habitat, species, soil, groundwater quality and human health and safety.

It is noted that biodegradable alternatives to petroleum-based hydraulic fluids for heavy machinery are commonly available. The use of these biodegradable hydraulic fluids is encouraged, where possible.

## 3.2 Handling, Storage and Disposal

### 3.2.1 Solid Waste

The following measures will be implemented in order to mitigate potential impacts related to solid waste disposal:

a) All domestic solid waste will be collected, properly stored, removed, and disposed of at an appropriate site;
b) The site and working area will be kept clear of all scraps and garbage;
c) Materials such as paper, cardboard, wood, scrap steel and metal, and tires will be collected and offered for recycling where practical. All materials not able to be recycled will be disposed of in an approved facility;
d) Waste accumulated on site prior to disposal shall be placed in a secured location, so as to not pose a threat or concern to human health and safety, or wildlife.

### 3.2.2 Sewage

The following measures will be implemented in order to mitigate potential impacts related to sewage disposal.

a) Sanitary waste from construction activities will be handled using portable restrooms. These will be self contained units, and will not require additional water;
b) The portable restrooms located at the site will conform to the Canada *Occupational Health and Safety Act* and any City ordinances;
c) All septic waste will be collected by a licensed waste disposal operator and transported off site for disposal at a proper handling facility.

### 3.2.3 Fuel

The highest protocols will be implemented in association with the handling and storage of hazardous materials and hydrocarbons as mentioned in Section 9: Emergency Response Plan. These will include:

a) Transportation, storage and use of fuels will be conducted in compliance with government laws and regulations, including New Brunswick Regulation 87-97 Petroleum Product Storage and Handling under the *Clean Environment Act* and the *Transportation of Dangerous Goods Act*;
b) Machinery will be checked on a daily basis for leakage of lubricants or fuel and must be in good working order;
c) Refueling and maintenance of equipment will take place in designated areas, on level terrain, a minimum of 30 m from any surface water or wetland, with a collection system to contain oil, gasoline and hydraulic fluid. In addition to the condition stated above, equipment maintenance (greasing, refueling, and oiling operations) shall not be performed within ditches;
d) Ensure crews are aware of contingency plans in advance of the start of construction work;
e) All spills or leaks will be promptly contained, cleaned up and reported to the 24 hour environmental emergencies reporting system;
f) To ensure preparedness in the case of a hazardous spill, resources (skimmer, absorbent pads and overpack drums – refer to 9.3) required will be obtained and kept on site;
g) Greasy or oily rags or contaminated materials will be disposed of in an appropriate fire resistant receptacle. The contractor will be responsible to send the contaminated materials to the appropriate waste disposal site;
h) Waste oils and lubricants will be retained in a tank or closed container and be disposed of in an approved manner as directed by NBDELG.

## SECTION 4 – DUST MANAGEMENT

Excavated and work areas may produce dust in the time prior to the re-vegetation of the disturbed areas. The environmental concerns related to dust include human health effects and potential impacts on aquatic ecosystems and vegetation. Dust management will be conducted in accordance to the Air Quality Regulation-*Clean Air Act*. The measures provided below will be taken in order to mitigate potential impacts associated with dust management.

a) Cover truck loads of materials which could generate dust as necessary;
b) Dust from construction activities will be controlled where possible by using frequent applications of water or calcium chloride. Waste oil will not be permitted to be used for dust control;
c) Applications of calcium chloride shall be in accordance with the Guidelines available from Environment Canada.

## SECTION 5 – WETLAND AND WATERCOURSE GENERAL MEASURES

### 5.1 Mitigation Measures

Mitigation measures identified within the EIA have been included within this section, along with additional mitigation means:

a) Prior to construction within the 30 m buffer of wetlands and/or a watercourse, install sedimentation control along each side of the buffer zone wherever necessary. These devices shall be placed as shown on the drawings unless otherwise specified by the NBDELG and shall be maintained until the area has been stabilized and as approved by the Engineer;
b) Refueling of equipment shall take place outside of the 30 m setback buffer from any wetland and/or watercourse, with the exception of pumps used to dewater the site;
c) Work near wetlands and/or watercourses will be performed in a way such that deleterious substances including, but not limited to, sediment, fuel and oil do not enter a watercourse or wetland;
d) Machinery must be checked for leakage of lubricants of fuel and must be in good working order. Equipment maintenance must take place in designated areas, on level terrain, a minimum of 30 m from any surface water or wetland, with a collection system to contain oil, gasoline, and hydraulic fluids;
e) Basic petroleum spill clean-up equipment shall be kept onsite during construction;
f) Erosion control structures are to be used as shown on the drawings and where required as a result of the construction work;
g) All erosion and sedimentation control measures will be inspected and maintained prior to the end of each workday;
h) Construction debris and excavated material generated during the Project must be prevented from washing downstream, removed from the wetland and/or watercourse and Project area and disposed of in the proper manner;
i) Visual monitoring of all wetlands near the work area will take place prior to the end of each week, and during and after significant rain events, and any work necessary to ensure the effects are minimized will be undertaken;
j) There shall be no lay-down areas, grubbing and waste disposal piles, equipment/machinery storage, material/rock/fill storage, bullpens, yarding, etc. located outside the area fenced in with silt fencing as shown on the drawings;
k) Disturbed areas will be reinstated as soon as is practical, silt fences and other erosion protection devices around excavations and stockpiles will also be used. All hydroseeded areas will also be hay mulched;
l) Work within the wetland is to be carried out during the winter months, to limit the disturbance in the wetland. Any heavy equipment required for work outside of the permanent disturbance limits within the wetland and its 30 m buffer must travel over heavy mats to further minimize impacts on the wetland.

## 5.2 Culvert Installation (Aboiteau)

Watercourse crossings are structures at locations where an access route meets and traverses a wetland and/or watercourse, or a drainage route to same. In this project, this refers to culverts.

a) The culvert is to be installed so as to avoid ponding at the entrance which may cause property damage, accumulation of floating debris, culvert clogging, saturation of fills, or detrimental upstream deposits of debris and alteration of the fish habitat;
b) The outlet is designed to resist undermining and washout;
c) The site selected for the culvert crossing shall have a uniform gradient;
d) The culvert installation shall be done in accordance with the Contract drawings and specifications, and to any conditions required;
e) The invert of the culvert structure must be set a minimum of 150 mm below the channel bottom level at both the upstream and downstream ends to ensure that the water depth inside the culvert will be at least equal to that in the watercourse during low flow conditions;
f) Any excavation required for the culvert installation must be done with a backhoe or an excavator;
g) Prior to the onset of culvert installation, sediment control works should be installed to prevent sedimentation of the wetland and/or watercourse and be maintained until a vegetative cover is established;
h) The culvert must be installed on firm ground. A soft foundation should be replaced with clean, granular material to prevent sagging (Supporting structure to be confirmed);
i) The culvert must extend a minimum of 0.3 meters beyond the upstream and downstream toe of the fill placed around the structure;
j) All exposed erodible material resulting from cut and fill operations within 30 m of a watercourse must be stabilized to prevent siltation;
k) To prevent erosion, outlets and inlets shall be rip-rapped at both ends;
l) Backfilling material should be used which is of a texture that shall support the culvert and limit seepage and subsequent washing out;
m) Fill and construction debris shall be removed from the culvert area to a location above the peak flow level to prevent its entry into the stream;
n) No machinery may be stationed in the wetted portion of the channel; machinery operating from the shore may reach into the water with an extension;
o) Sediment barriers, such as silt fences or hay bales, must be placed along the toe of the slope of the fill material used to construct the approaches to the structures;
p) All exposed erodible material resulting from cut and fill operations within 30 m of the wetland and/or watercourse must be immediately stabilized to prevent siltation;
q) All erosion and sedimentation control measures will be inspected and maintained prior to the end of each workday;
r) Weather forecasts will be monitored and mitigation measures will be maintained or modified appropriately if heavy precipitation is anticipated.

## SECTION 6 - NOISE MANAGEMENT

A variety of noises associated with heavy construction activity can cause negative effects on wildlife resources in terms of their distribution and abundance. Noises associated with heavy equipment are temporary in nature.

Best management practices shall be implemented, wherever possible, to minimize potential impacts arising from a variety of noise sources. Mitigative measures taken will include the following:

a) All vehicles and generators will have exhaust systems in good condition without leaks and be inspected regularly; mufflers will be operating properly;
b) Noisy activities shall be scheduled to be done during normal daylight hours on workdays;
c) Proper functioning and monitoring of noise abatement equipment.

## SECTION 7 – CLEAN-UP AND RE-VEGETATION

The following will be performed in order to mitigate impacts which might result from construction activities:

a) As soon as possible following the construction activities, identify areas requiring planting or seeding for re-vegetation purposes. These will include:
    - Areas adjacent to a watercourse where erodible soil is exposed and where mechanical stabilization techniques are not deemed to be sufficient to guarantee stability or prevent uncontrolled introduction of sediment to a watercourse.
    - Any other areas deemed by the Engineer and as required by NBDELG to require quick re-vegetation.
b) Restoration of lands disturbed during construction will commence as soon as possible after construction activity has ceased. Although seasonal weather conditions may delay seeding, it should be commenced as soon as conditions permit. Restoration of this site will also include the reuse of previously stripped material and potentially placement of imported topsoil and Hydroseeding of affected areas;
c) Should seed mixes for herbaceous native species for the area not be available, it should be ensured that plants used in re-vegetation efforts are not known to be invasive. The seed mix and/or plants used in re-vegetation will be reviewed by qualified biologist prior to use;
d) The areas subject to restoration activities will be visually inspected periodically to ensure adequate results. Additional restoration activities will be performed as deemed appropriate;
e) Necessary interim measures will be implemented to prevent erosion prior to re-establishment of vegetation;
f) Silt fences and erosion control structures will remain in place until vegetation and resurfacing has matured to the point where erosion carried into watercourses is no longer a concern.

## SECTION 8 - HISTORICAL RESOURCE PROTECTION

If evidence of past activity or objects of an archaeological nature are discovered, the following mitigative measures shall be implemented:

a) All personnel will be informed of the historic resources potential of the area, of their responsibility to report any unusual findings, and to leave such findings undisturbed;
b) In the event of historic or prehistoric artifact discovery or archaeological site, the following list of procedures will apply:
    - Under the *Historic Sites Protection Act*, all archaeological sites and artifacts are considered property of the Crown, and must not be disturbed. The proponents or the contractor will take all reasonable precautions to prevent employees or other persons from removing or damaging any such articles or sites as they may be held liable for prosecution for all contraventions. Personnel working in the vicinity will be advised of the find. The site area will be flagged for protection and avoidance.
    - All work will cease in the immediate discovery area until authorities are advised of the discovery and, in consultation with a Resource Archaeologist, authorizes a return to work. If required, a full assessment will be conducted of the site and immediate area.
    - Archaeological materials encountered will be reported initially to the on-site supervisor, and immediately thereafter to Resource Archaeologist with the following information:
        i. Nature of activity;
        ii. Nature of the material discovered;
        iii. Precise location of the find.

## SECTION 9 – EMERGENCY RESPONSE PLAN

Contingency plans to deal with accidental spills have been developed and are presented in this Section. They will be modified as required during the execution of the Project. They are as follows:

### 9.1 Introduction

The transfer of fuel from tanker trucks to storage tanks or machinery, vehicle accidents involving heavy equipment, and leaks from fuel storage tanks and associated lines all offer the potential for fuel oil spills. Other hazardous liquid products associated with operations, such as hydraulic fluids, lubricating oil, and solvents will be used in relatively small quantities.

### 9.2 Action Plan

In the event of fuel or hazardous material spill, refer to the following procedures outlined below:

a) The individual who discovers a leak or spill shall immediately call for help and then attempt to stop and contain the leak or spill if safe to do so;
b) Any spill or leak on land or water (regardless of size) should first be reported immediately to the Contractor's foreman and the Engineer, upon implementation of (a) above. The Contractor will be responsible for notifying the proper authorities.

The Contractor's foreman shall halt work in the immediate area if necessary and report the spill to the project manager. In case of an environmental emergency, all calls should be directed by the Contractor to the 24-hour environmental reporting system (Maritime Provinces: 1-800-565-1633).

If the spill occurs near or in the water, the Canadian Coast Guard will be notified by the Contractor and specific action will be taken.

The on-site supervisor will have the full authority to take appropriate action without unnecessary delay. The following information shall be provided:

i. Name of person reporting the spill and phone number;
ii. Time of spill or leak;
iii. Time of detection of spill or leak;
iv. Type of product spilled or leaked;
v. Amount of product spilled or leaked;
vi. Location of spill or leak;
vii. Source of spill or leak;
viii. Type of accident – collision, rupture, overflow;
ix. Owner of product and phone number;
x. If the spill or leak is still occurring;
xi. If the spill or leaked product is contained, and if not, where it is flowing;
xii. Cleanup efforts already underway;
xiii. Wind velocity and direction;
xiv. Temperature;
xv. Proximity to water bodies, wells, water intakes, and buildings;
xvi. Snow cover and depth, terrain, and soil conditions.

c) The Contractor's foreman shall assume overall responsibility of coordinating a cleanup and maintaining this contingency plan up-to-date. Any spills that occur should be remediated to meet or exceed regulatory requirements. The Contractor's foreman will, in consultation with the regulatory authorities:

i. Assess site conditions and environmental impact of various cleanup procedures;
ii. Assess potential for fuel recovery versus burning;
iii. Deploy on-site personnel to mobilize pumps and empty appropriate storage drums to the spill site;
iv. Deploy on-site personnel to build containment dykes and commence dumping contaminant in drums or if drainage system is involved, leakage will be isolated by digging a sump, deploying a pollution boom around area or a combination of both;
v. Apply absorbents or utilize skimmers as necessary to prevent the spill from spreading;
vi. Dispose of all contaminated debris, cleaning materials, and absorbents by placing in appropriate containers and label for disposing;

vii. Take all necessary precautions to ensure that the incident does not recur.

d) The continuing monitoring of the site of the accidental release, and damage reporting will be the responsibility of the contractors.

### 9.3 Resource List

During construction, the following resources will be available at appropriate locations and distance from the Project site to readily mitigate accidental releases of stored fuels and/or hazardous materials.

a) Skimmer (for spills on water);
b) Suitable quantities of absorbent pads;
c) Overpack drums containing sorbent pads, sorbent booms, splash suits, shovels, rakes, tool kit, sledgehammer, buckets and stakes and flagging tape;
d) Emergency numbers and contingency procedures.

Small spill response kits and equipment will be strategically located in construction areas where materials handling or equipment activity presents and increased risk of spill (*i.e.*, refueling locations and hazardous waste storage areas). These kits shall be checked on a regular basis for content, and items shall be replaced immediately after their use.

## SECTION 10 – ENVIRONMENTAL EFFECTS MONITORING PLAN

In the event that an environmental effect should occur on site, certain measures will be taken in order to monitor and verify the effectiveness of the mitigation steps implemented on this project.

a) If the presence of sediment within the water is visible or questionable, a sample will be collected upstream of the construction zone, at the construction site and downstream of the construction site which shall be analyzed for total suspended solids (TSS);
b) Hoses and connections on all equipment shall be inspected daily for leaks and drips, with special attention to those located near wetlands and/or watercourses;
c) Visual monitoring of all wetlands will take place prior to the end of each week and any work necessary to ensure the effects are minimized will be undertaken;
d) All vehicles/generators will have exhaust systems inspected regularly and mufflers will be operating properly to better manage noise on the site;
e) The areas subject to reclamation activities will be visually inspected periodically to ensure adequate results. Additional reclamation activities will be performed as deemed appropriate;
f) The continuing monitoring of the site of the accidental release of a leak and damage reporting will be the responsibility of the contractor;

## SECTION 11 – EMERGENCY CONTACTS

In the event that an emergency should occur on site the following is a list of key contacts for each part of the project:

- Ambulance/Fire/Police: 911
- Canadian Coast Guard: 1-800-565-1633
- Contractor: To be determined
- Crandall Engineering (Shawn E. Burke, P. Eng.): 506-857-2777 (Office)
  506-857-2771 (Direct)
- Codiac Regional - RCMP 506-857-2400 or 911
- Enbridge Gas Pipeline: 1-866-763-5427
- NBDELG – Region 3 - Moncton: 506-856-2374
- NB Power: 1-800-663-6272
- City Engineer - (Mathieu Melanson, P.Eng.) 506-877-5016

The complete project address is as follows (accessible from local streets):

Fox Creek Dyke and Aboiteau
Fox Creek Area Between Amirault Street and Petitcodiac River
Dieppe, N.B.
E1A 7Z4 to E1A 7K2

Furthermore, a complete and up to date list of contacts (including the superintendent, foreman and inspector) will be given to the successful Contractor at the start of the project.

# APPENDIX C:

# ACCDC Data

# DATA REPORT 6389: Moncton, NB

Prepared 18 April 2019
by J. Churchill, Data Manager

**CONTENTS OF REPORT**




**Map 1**. A 100 km buffer around the study area

## 1.0 PREFACE

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

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

### 1.1 DATA LIST

Included datasets:

| Filename | Contents |
|---|---|
| MonctonNB_6389ob.xls | All Rare and legally protected *Flora and Fauna* in your study area |
| MonctonNB_6389ob100km.xls | A list of Rare and legally protected *Flora and Fauna* within 100 km of your study area |
| MonctonNB_6389sa.xls | All *Significant Natural Areas* in your study area |
| MonctonNB_6389ff.xls | Rare and common *Freshwater Fish* in your study area (DFO database) |

### 1.2 RESTRICTIONS

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

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

### 1.3 ADDITIONAL INFORMATION

The accompanying Data Dictionary provides metadata for the data provided.

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

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

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

**Plant Communities**
Sarah Robinson, Community Ecologist
Tel: (506) 364-2664
sarah.robinson@accdc.ca

**Data Management, GIS**
James Churchill, Data Manager
Tel: (902) 679-6146
james.churchill@accdc.ca

**Billing**
Jean Breau
Tel: (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**: Duncan Bayne
(902) 648-3536
Duncan.Bayne@novascotia.ca

**Western**: Sarah Spencer
(902) 634-7555
Sarah.Spencer@novascotia.ca

**Central**: Shavonne Meyer
(902) 893-6350
Shavonne.Meyer@novascotia.ca

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

**Eastern**: Lisa Doucette
(902) 863-4513
Lisa.Doucette@novascotia.ca

**Eastern**: Terry Power
(902) 563-3370
Terrance.Power@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

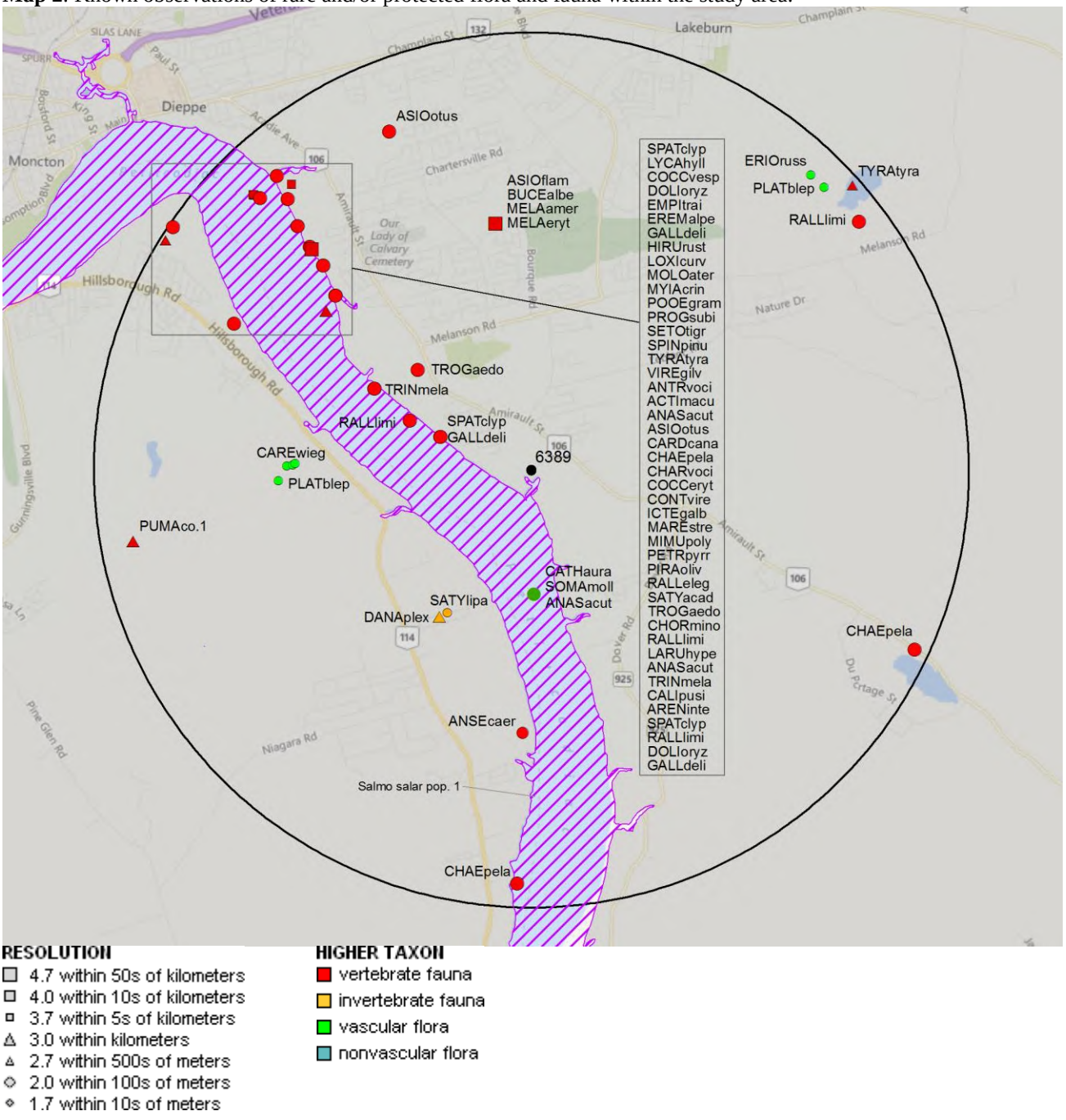
## 2.1 FLORA

The study area contains 6 records of 3 vascular, no records of nonvascular flora (Map 2 and attached: *ob.xls).

## 2.2 FAUNA

The study area contains 174 records of 46 vertebrate, 7 records of 4 invertebrate fauna (Map 2 and attached data files - see 1.1 Data List). Please see section 4.3 to determine if 'location-sensitive' species occur near your study site.

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



# 3.0 SPECIAL AREAS

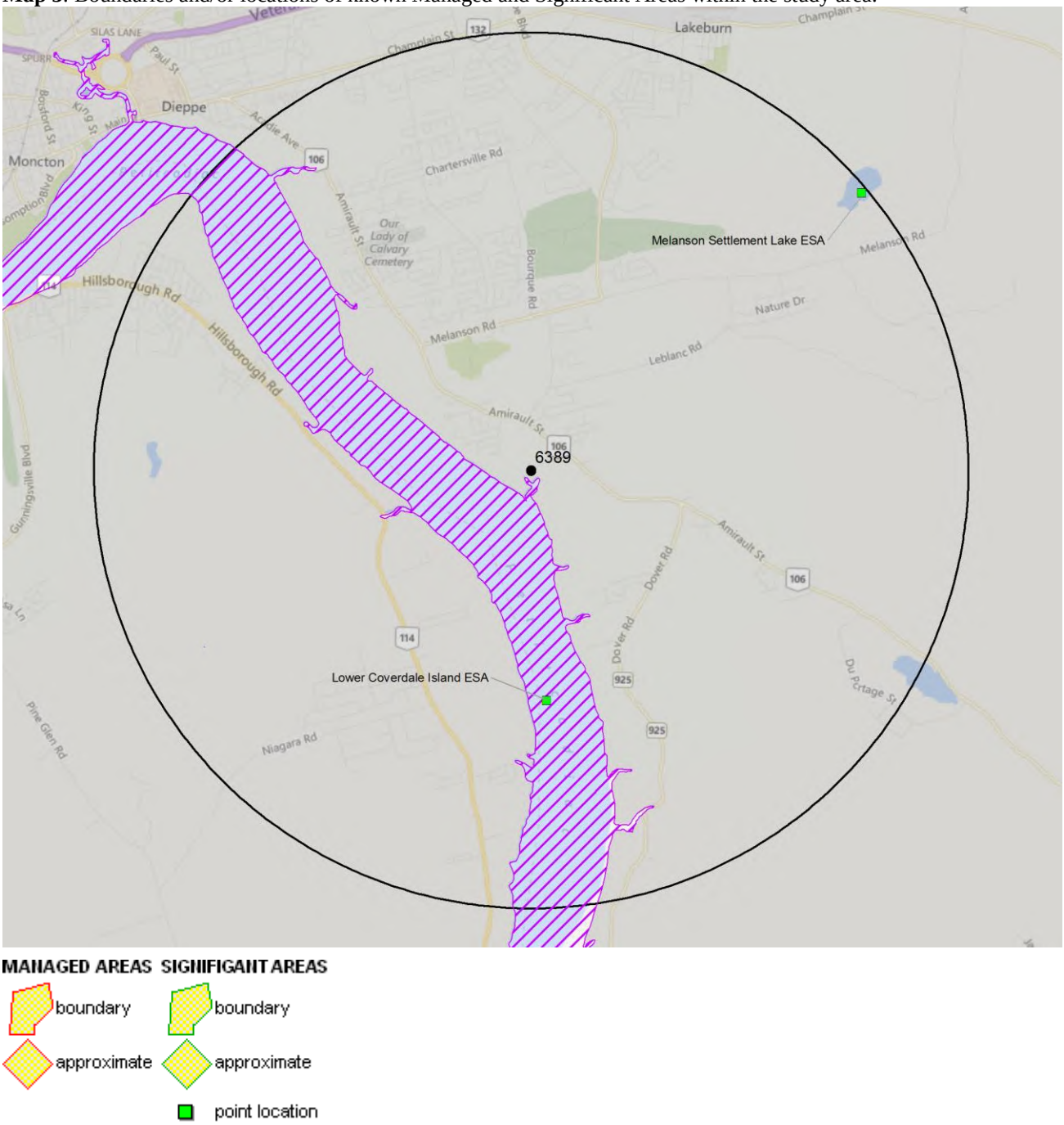
## 3.1 MANAGED AREAS

The GIS scan identified no managed areas in the vicinity of the study area (Map 3).

## 3.2 SIGNIFICANT AREAS

The GIS scan identified 2 biologically significant sites in the vicinity of the study area (Map 3 and attached file: *sa*.xls).

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



# 4.0 RARE SPECIES LISTS

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

## 4.1 FLORA

| | Scientific *Name* | Common Name | COSEWIC | SARA | Prov Legal Prot | Prov Rarity Rank | Prov GS Rank | # recs | Distance (km) |
|---|---|---|---|---|---|---|---|---|---|
| P | *Carex wiegandii* | Wiegand's Sedge | | | | S3 | 4 Secure | 3 | 2.7 ± 0.0 |
| P | *Platanthera blephariglottis* | White Fringed Orchid | | | | S3 | 4 Secure | 2 | 2.8 ± 0.0 |
| P | *Eriophorum russeolum* | Russet Cottongrass | | | | S3S4 | 4 Secure | 1 | 4.6 ± 0.0 |

## 4.2 FAUNA

| | Scientific *Name* | Common Name | COSEWIC | SARA | Prov Legal Prot | Prov Rarity Rank | Prov GS Rank | # recs | Distance (km) |
|---|---|---|---|---|---|---|---|---|---|
| A | *Rallus elegans* | King Rail | Endangered | Endangered | | SNA | 8 Accidental | 2 | 4.5 ± 7.0 |
| A | *Melanerpes erythrocephalus* | Red-headed Woodpecker | Endangered | Threatened | | SNA | 8 Accidental | 1 | 2.8 ± 64.0 |
| A | *Antrostomus vociferus* | Eastern Whip-Poor-Will | Threatened | Threatened | Threatened | S2B,S2M | 1 At Risk | 1 | 4.5 ± 7.0 |
| A | *Hirundo rustica* | Barn Swallow | Threatened | Threatened | Threatened | S2B,S2M | 3 Sensitive | 1 | 4.5 ± 7.0 |
| A | *Chaetura pelagica* | Chimney Swift | Threatened | Threatened | Threatened | S2S3B,S2M | 1 At Risk | 3 | 4.5 ± 7.0 |
| A | *Cardellina canadensis* | Canada Warbler | Threatened | Threatened | Threatened | S3B,S3M | 1 At Risk | 2 | 4.5 ± 7.0 |
| A | *Dolichonyx oryzivorus* | Bobolink | Threatened | Threatened | Threatened | S3B,S3M | 3 Sensitive | 3 | 3.0 ± 0.0 |
| A | *Asio flammeus* | Short-eared Owl | Special Concern | Special Concern | Special Concern | S2B,S2M | 3 Sensitive | 1 | 2.8 ± 64.0 |
| A | *Coccothraustes vespertinus* | Evening Grosbeak | Special Concern | | | S3B,S3S4N,SUM | 3 Sensitive | 2 | 4.5 ± 7.0 |
| A | *Chordeiles minor* | Common Nighthawk | Special Concern | Threatened | Threatened | S3B,S4M | 1 At Risk | 6 | 4.4 ± 0.0 |
| A | *Contopus virens* | Eastern Wood-Pewee | Special Concern | Special Concern | Special Concern | S4B,S4M | 4 Secure | 8 | 4.5 ± 7.0 |
| A | *Puma concolor pop. 1* | Eastern Cougar | Data Deficient | | Endangered | SNA | 5 Undetermined | 1 | 4.6 ± 1.0 |
| A | *Tringa melanoleuca* | Greater Yellowlegs | | | | S1?B,S5M | 4 Secure | 4 | 2.0 ± 0.0 |
| A | *Progne subis* | Purple Martin | | | | S1B,S1M | 2 May Be At Risk | 2 | 4.5 ± 7.0 |
| A | *Eremophila alpestris* | Horned Lark | | | | S1B,S4N,S5M | 2 May Be At Risk | 1 | 4.5 ± 7.0 |
| A | *Empidonax traillii* | Willow Flycatcher | | | | S1S2B,S1S2M | 3 Sensitive | 1 | 4.5 ± 7.0 |
| A | *Troglodytes aedon* | House Wren | | | | S1S2B,S1S2M | 5 Undetermined | 3 | 1.7 ± 0.0 |
| A | *Mimus polyglottos* | Northern Mockingbird | | | | S2B,S2M | 3 Sensitive | 6 | 4.5 ± 7.0 |
| A | *Pooecetes gramineus* | Vesper Sparrow | | | | S2B,S2M | 2 May Be At Risk | 2 | 4.5 ± 7.0 |
| A | *Mareca strepera* | Gadwall | | | | S2B,S3M | 4 Secure | 3 | 4.5 ± 7.0 |
| A | *Anser caerulescens* | Snow Goose | | | | S2M | 4 Secure | 1 | 3.0 ± 0.0 |
| A | *Larus hyperboreus* | Glaucous Gull | | | | S2N,S2M | 4 Secure | 2 | 3.6 ± 59.0 |
| A | *Asio otus* | Long-eared Owl | | | | S2S3 | 5 Undetermined | 2 | 4.2 ± 0.0 |
| A | *Spatula clypeata* | Northern Shoveler | | | | S2S3B,S2S3M | 4 Secure | 25 | 1.1 ± 0.0 |
| A | *Myiarchus crinitus* | Great Crested Flycatcher | | | | S2S3B,S2S3M | 3 Sensitive | 3 | 4.5 ± 7.0 |
| A | *Petrochelidon pyrrhonota* | Cliff Swallow | | | | S2S3B,S2S3M | 3 Sensitive | 5 | 4.5 ± 7.0 |
| A | *Loxia curvirostra* | Red Crossbill | | | | S3 | 4 Secure | 1 | 4.5 ± 7.0 |
| A | *Spinus pinus* | Pine Siskin | | | | S3 | 4 Secure | 2 | 4.5 ± 7.0 |
| A | *Cathartes aura* | Turkey Vulture | | | | S3B,S3M | 4 Secure | 1 | 1.4 ± 80.0 |
| A | *Rallus limicola* | Virginia Rail | | | | S3B,S3M | 3 Sensitive | 16 | 1.1 ± 0.0 |
| A | *Charadrius vociferus* | Killdeer | | | | S3B,S3M | 3 Sensitive | 12 | 4.5 ± 7.0 |
| A | *Coccyzus erythropthalmus* | Black-billed Cuckoo | | | | S3B,S3M | 4 Secure | 1 | 4.5 ± 7.0 |
| A | *Vireo gilvus* | Warbling Vireo | | | | S3B,S3M | 4 Secure | 4 | 4.5 ± 7.0 |
| A | *Piranga olivacea* | Scarlet Tanager | | | | S3B,S3M | 4 Secure | 1 | 4.5 ± 7.0 |
| A | *Molothrus ater* | Brown-headed Cowbird | | | | S3B,S3M | 2 May Be At Risk | 1 | 4.5 ± 7.0 |
| A | *Icterus galbula* | Baltimore Oriole | | | | S3B,S3M | 4 Secure | 8 | 4.5 ± 7.0 |
| A | *Somateria mollissima* | Common Eider | | | | S3B,S4M,S3N | 4 Secure | 1 | 1.4 ± 80.0 |
| A | *Setophaga tigrina* | Cape May Warbler | | | | S3B,S4S5M | 4 Secure | 1 | 4.5 ± 7.0 |

| | Scientific *Name* | Common Name | COSEWIC | SARA | Prov Legal Prot | Prov Rarity Rank | Prov GS Rank | # recs | Distance (km) |
|---|---|---|---|---|---|---|---|---|---|
| A | *Anas acuta* | Northern Pintail | | | | S3B,S5M | 3 Sensitive | 4 | 1.4 ± 80.0 |
| A | *Arenaria interpres* | Ruddy Turnstone | | | | S3M | 4 Secure | 1 | 4.9 ± 0.0 |
| A | *Melanitta americana* | Black Scoter | | | | S3M,S1S2N | 3 Sensitive | 1 | 2.8 ± 64.0 |
| A | *Bucephala albeola* | Bufflehead | | | | S3M,S2N | 3 Sensitive | 1 | 2.8 ± 64.0 |
| A | *Tyrannus tyrannus* | Eastern Kingbird | | | | S3S4B,S3S4M | 3 Sensitive | 3 | 4.5 ± 7.0 |
| A | *Actitis macularius* | Spotted Sandpiper | | | | S3S4B,S5M | 4 Secure | 7 | 4.5 ± 7.0 |
| A | *Gallinago delicata* | Wilson's Snipe | | | | S3S4B,S5M | 4 Secure | 14 | 1.1 ± 0.0 |
| A | *Calidris pusilla* | Semipalmated Sandpiper | | | | S3S4M | 4 Secure | 3 | 4.9 ± 0.0 |
| I | *Danaus plexippus* | Monarch | Endangered | Special Concern | Special Concern | S3B,S3M | 3 Sensitive | 3 | 1.9 ± 0.0 |
| I | *Lycaena hyllus* | Bronze Copper | | | | S3 | 3 Sensitive | 1 | 4.5 ± 7.0 |
| I | *Satyrium acadica* | Acadian Hairstreak | | | | S3 | 4 Secure | 2 | 4.5 ± 7.0 |
| I | *Satyrium liparops* | Striped Hairstreak | | | | S3S4 | 4 Secure | 1 | 1.9 ± 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".

### New Brunswick

| Scientific *Name* | Common Name | SARA | Prov Legal Prot | Known within the Study Site? |
|---|---|---|---|---|
| *Chrysemys picta picta* | Eastern Painted Turtle | | | No |
| *Chelydra serpentina* | Snapping Turtle | Special Concern | Special Concern | No |
| *Glyptemys insculpta* | Wood Turtle | Threatened | Threatened | No |
| ***Haliaeetus leucocephalus*** | **Bald Eagle** | | **Endangered** | **Yes** |
| ***Falco peregrinus pop. 1*** | **Peregrine Falcon - anatum/tundrius pop.** | **Special Concern** | **Endangered** | **Yes** |
| *Cicindela marginipennis* | Cobblestone Tiger Beetle | Endangered | Endangered | No |
| *Coenonympha nipisiquit* | Maritime Ringlet | Endangered | Endangered | No |
| *Bat Hibernaculum* | | [Endangered][1] | [Endangered][1] | No |

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 NB Species at Risk Act.

## 4.4 SOURCE BIBLIOGRAPHY

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

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# 5.0 RARE SPECIES WITHIN 100 KM

A 100 km buffer around the study area contains 30903 records of 136 vertebrate and 793 records of 63 invertebrate fauna; 5485 records of 278 vascular, 868 records of 184 nonvascular flora (attached: *ob100km.xls).

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

| Taxonomic Group | Scientific Name | Common Name | COSEWIC | SARA | Prov Legal Prot | Prov Rarity Rank | Prov GS Rank | # recs | Distance (km) | Prov |
|---|---|---|---|---|---|---|---|---|---|---|
| A | *Myotis lucifugus* | Little Brown Myotis | Endangered | Endangered | Endangered | S1 | 1 At Risk | 14 | 14.4 ± 1.0 | NB |
| A | *Myotis septentrionalis* | Northern Long-eared Myotis | Endangered | Endangered | Endangered | S1 | 1 At Risk | 12 | 14.4 ± 1.0 | NB |
| A | *Perimyotis subflavus* | Eastern Pipistrelle | Endangered | Endangered | Endangered | S1 | 1 At Risk | 17 | 17.2 ± 1.0 | NB |
| A | *Sterna dougallii* | Roseate Tern | Endangered | Endangered | Endangered | S1?B,S1?M | 1 At Risk | 1 | 91.3 ± 0.0 | NS |
| A | *Charadrius melodus melodus* | Piping Plover melodus ssp | Endangered | Endangered | Endangered | S1B,S1M | 1 At Risk | 1474 | 24.7 ± 0.0 | NB |
| A | *Dermochelys coriacea (Atlantic pop.)* | Leatherback Sea Turtle - Atlantic pop. | Endangered | Endangered | Endangered | S1S2N | 1 At Risk | 4 | 44.4 ± 1.0 | NB |
| A | *Salmo salar pop. 1* | Atlantic Salmon - Inner Bay of Fundy pop. | Endangered | Endangered | Endangered | S2 | 2 May Be At Risk | 70 | 22.9 ± 0.0 | NB |
| A | *Calidris canutus rufa* | Red Knot rufa ssp | Endangered | Endangered | Endangered | S2M | 1 At Risk | 710 | 13.8 ± 44.0 | NB |
| A | *Rangifer tarandus pop. 2* | Woodland Caribou (Atlantic-Gasp├⌐sie pop.) | Endangered | Endangered | Extirpated | SX | 0.1 Extirpated | 2 | 35.2 ± 1.0 | NB |
| A | *Sturnella magna* | Eastern Meadowlark | Threatened | Threatened | Threatened | S1B,S1M | 2 May Be At Risk | 49 | 17.7 ± 7.0 | NB |
| A | *Ixobrychus exilis* | Least Bittern | Threatened | Threatened | Threatened | S1S2B,S1S2M | 1 At Risk | 14 | 10.6 ± 0.0 | NB |
| A | *Hylocichla mustelina* | Wood Thrush | Threatened | Threatened | Threatened | S1S2B,S1S2M | 2 May Be At Risk | 71 | 11.2 ± 2.0 | NB |
| A | *Antrostomus vociferus* | Eastern Whip-Poor-Will | Threatened | Threatened | Threatened | S2B,S2M | 1 At Risk | 22 | 4.5 ± 7.0 | NB |
| A | *Hirundo rustica* | Barn Swallow | Threatened | Threatened | Threatened | S2B,S2M | 3 Sensitive | 1194 | 4.5 ± 7.0 | NB |
| A | *Catharus bicknelli* | Bicknell's Thrush | Threatened | Special Concern | Threatened | S2B,S2M | 1 At Risk | 11 | 11.9 ± 2.0 | NB |
| A | *Glyptemys insculpta* | Wood Turtle | Threatened | Threatened | Threatened | S2S3 | 1 At Risk | 571 | 5.5 ± 1.0 | NB |
| A | *Chaetura pelagica* | Chimney Swift | Threatened | Threatened | Threatened | S2S3B,S2M | 1 At Risk | 184 | 4.5 ± 7.0 | NB |
| A | *Riparia riparia* | Bank Swallow | Threatened | Threatened | | S2S3B,S2S3M | 3 Sensitive | 706 | 5.4 ± 0.0 | NB |
| A | *Acipenser oxyrinchus* | Atlantic Sturgeon | Threatened | | Threatened | S3 | 4 Secure | 3 | 24.9 ± 1.0 | NB |
| A | *Cardellina canadensis* | Canada Warbler | Threatened | Threatened | Threatened | S3B,S3M | 1 At Risk | 620 | 4.5 ± 7.0 | NB |
| A | *Dolichonyx oryzivorus* | Bobolink | Threatened | Threatened | Threatened | S3B,S3M | 3 Sensitive | 1266 | 3.0 ± 0.0 | NB |
| A | *Anguilla rostrata* | American Eel | Threatened | | Threatened | S4 | 4 Secure | 78 | 13.3 ± 1.0 | NB |
| A | *Coturnicops noveboracensis* | Yellow Rail | Special Concern | Special Concern | Special Concern | S1?B,SUM | 2 May Be At Risk | 5 | 28.4 ± 3.0 | NB |
| A | *Histrionicus histrionicus pop. 1* | Harlequin Duck - Eastern pop. | Special Concern | Special Concern | Endangered | S1B,S1S2N,S2M | 1 At Risk | 1 | 82.7 ± 0.0 | NS |
| A | *Falco peregrinus pop. 1* | Peregrine Falcon - anatum/tundrius | Special Concern | Special Concern | Endangered | S1B,S3M | 1 At Risk | 341 | 4.5 ± 7.0 | NB |
| A | *Asio flammeus* | Short-eared Owl | Special Concern | Special Concern | Special Concern | S2B,S2M | 3 Sensitive | 41 | 2.8 ± 64.0 | NB |
| A | *Bucephala islandica (Eastern pop.)* | Barrow's Goldeneye - Eastern pop. | Special Concern | Special Concern | Special Concern | S2M,S2N | 3 Sensitive | 104 | 6.8 ± 119.0 | NB |
| A | *Balaenoptera physalus* | Fin Whale - Atlantic pop. | Special Concern | Special Concern | Special Concern | S2S3 | | 1 | 49.5 ± 1.0 | NB |
| A | *Chelydra serpentina* | Snapping Turtle | Special Concern | Special Concern | Special Concern | S3 | 3 Sensitive | 3 | 9.0 ± 1.0 | NB |
| A | *Euphagus carolinus* | Rusty Blackbird | Special Concern | Special Concern | Special Concern | S3B,S3M | 2 May Be At Risk | 87 | 12.2 ± 0.0 | NB |
| A | *Contopus cooperi* | Olive-sided Flycatcher | Special Concern | Threatened | Threatened | S3B,S3M | 1 At Risk | 466 | 7.6 ± 7.0 | NB |
| A | *Coccothraustes vespertinus* | Evening Grosbeak | Special Concern | | | S3B,S3S4N,SUM | 3 Sensitive | 262 | 4.5 ± 7.0 | NB |
| A | *Chordeiles minor* | Common Nighthawk | Special Concern | Threatened | Threatened | S3B,S4M | 1 At Risk | 201 | 4.4 ± 0.0 | NB |
| A | *Phalaropus lobatus* | Red-necked Phalarope | Special Concern | | | S3M | 3 Sensitive | 18 | 6.4 ± 0.0 | NB |
| A | *Chrysemys picta picta* | Eastern Painted Turtle | Special Concern | | | S4 | 4 Secure | 22 | 71.2 ± 0.0 | NS |
| A | *Contopus virens* | Eastern Wood-Pewee | Special Concern | Special Concern | Special Concern | S4B,S4M | 4 Secure | 630 | 4.5 ± 7.0 | NB |
| A | *Podiceps auritus* | Horned Grebe | Special Concern | | Special Concern | S4N,S4M | 4 Secure | 50 | 24.5 ± 5.0 | NB |
| A | *Hemidactylium scutatum* | Four-toed Salamander | Not At Risk | | | S1? | 5 Undetermined | 4 | 61.8 ± 0.0 | NB |
| A | *Bubo scandiacus* | Snowy Owl | Not At Risk | | | S1N,S2S3M | 4 Secure | 50 | 5.8 ± 0.0 | NB |

| Taxonomic Group | Scientific Name | Common Name | COSEWIC | SARA | Prov Legal Prot | Prov Rarity Rank | Prov GS Rank | # recs | Distance (km) | Prov |
|---|---|---|---|---|---|---|---|---|---|---|
| A | *Accipiter cooperii* | Cooper's Hawk | Not At Risk | | | S1S2B,S1S2M | 2 May Be At Risk | 4 | 23.3 ± 0.0 | NB |
| A | *Fulica americana* | American Coot | Not At Risk | | | S1S2B,S1S2M | 3 Sensitive | 56 | 10.9 ± 0.0 | NB |
| A | *Aegolius funereus* | Boreal Owl | Not At Risk | | | S1S2B,SUM | 2 May Be At Risk | 10 | 32.4 ± 0.0 | NB |
| A | *Sorex dispar* | Long-tailed Shrew | Not At Risk | Special Concern | | S2 | 3 Sensitive | 6 | 29.0 ± 1.0 | NB |
| A | *Buteo lineatus* | Red-shouldered Hawk | Not At Risk | Special Concern | | S2B,S2M | 2 May Be At Risk | 24 | 12.2 ± 0.0 | NB |
| A | *Chlidonias niger* | Black Tern | Not At Risk | | | S2B,S2M | 3 Sensitive | 65 | 13.5 ± 7.0 | NB |
| A | *Lynx canadensis* | Canadian Lynx | Not At Risk | | Endangered | S3 | 1 At Risk | 13 | 20.7 ± 10.0 | NB |
| A | *Desmognathus fuscus* | Northern Dusky Salamander | Not At Risk | | | S3 | 3 Sensitive | 1 | 57.0 ± 0.0 | NB |
| A | *Sterna hirundo* | Common Tern | Not At Risk | | | S3B,SUM | 3 Sensitive | 578 | 6.6 ± 1.0 | NB |
| A | *Podiceps grisegena* | Red-necked Grebe | Not At Risk | | | S3M,S2N | 3 Sensitive | 50 | 24.6 ± 1.0 | NB |
| A | *Lagenorhynchus acutus* | Atlantic White-sided Dolphin | Not At Risk | | | S3S4 | | 2 | 26.0 ± 1.0 | NB |
| A | *Haliaeetus leucocephalus* | Bald Eagle | Not At Risk | | Endangered | S4 | 1 At Risk | 1108 | 1.4 ± 80.0 | NB |
| A | *Canis lupus* | Gray Wolf | Not At Risk | | Extirpated | SX | 0.1 Extirpated | 2 | 72.5 ± 1.0 | NB |
| A | *Puma concolor pop. 1* | Eastern Cougar | Data Deficient | | Endangered | SNA | 5 Undetermined | 119 | 4.6 ± 1.0 | NB |
| A | *Morone saxatilis* | Striped Bass | E,E,SC | | | S3 | 2 May Be At Risk | 39 | 24.9 ± 0.0 | NB |
| A | *Salvelinus alpinus* | Arctic Char | | | | S1 | 3 Sensitive | 3 | 68.3 ± 1.0 | NB |
| A | *Vireo flavifrons* | Yellow-throated Vireo | | | | S1?B,S1?M | 8 Accidental | 4 | 9.1 ± 0.0 | NB |
| A | *Tringa melanoleuca* | Greater Yellowlegs | | | | S1?B,S5M | 4 Secure | 1915 | 2.0 ± 0.0 | NB |
| A | *Aythya americana* | Redhead | | | | S1B,S1M | 8 Accidental | 10 | 8.4 ± 0.0 | NB |
| A | *Gallinula galeata* | Common Gallinule | | | | S1B,S1M | 3 Sensitive | 30 | 16.1 ± 0.0 | NB |
| A | *Antigone canadensis* | Sandhill Crane | | | | S1B,S1M | 8 Accidental | 12 | 28.6 ± 7.0 | NB |
| A | *Bartramia longicauda* | Upland Sandpiper | | | | S1B,S1M | 3 Sensitive | 49 | 7.1 ± 0.0 | NB |
| A | *Phalaropus tricolor* | Wilson's Phalarope | | | | S1B,S1M | 3 Sensitive | 27 | 6.4 ± 0.0 | NB |
| A | *Leucophaeus atricilla* | Laughing Gull | | | | S1B,S1M | 3 Sensitive | 9 | 5.6 ± 1.0 | NB |
| A | *Progne subis* | Purple Martin | | | | S1B,S1M | 2 May Be At Risk | 123 | 4.5 ± 7.0 | NB |
| A | *Thryothorus ludovicianus* | Carolina Wren | | | | S1B,S1M | 8 Accidental | 7 | 12.0 ± 5.0 | NB |
| A | *Oxyura jamaicensis* | Ruddy Duck | | | | S1B,S2S3M | 4 Secure | 103 | 9.7 ± 7.0 | NB |
| A | *Aythya affinis* | Lesser Scaup | | | | S1B,S4M | 4 Secure | 166 | 10.9 ± 0.0 | NB |
| A | *Aythya marila* | Greater Scaup | | | | S1B,S4M,S2N | 4 Secure | 10 | 25.9 ± 1.0 | NB |
| A | *Eremophila alpestris* | Horned Lark | | | | S1B,S4N,S5M | 2 May Be At Risk | 65 | 4.5 ± 7.0 | NB |
| A | *Sterna paradisaea* | Arctic Tern | | | | S1B,SUM | 2 May Be At Risk | 24 | 24.1 ± 7.0 | NB |
| A | *Fratercula arctica* | Atlantic Puffin | | | | S1B,SUN,SUM | 3 Sensitive | 3 | 55.2 ± 11.0 | NB |
| A | *Branta bernicla* | Brant | | | | S1N, S2S3M | 4 Secure | 34 | 24.6 ± 1.0 | NB |
| A | *Chroicocephalus ridibundus* | Black-headed Gull | | | | S1N,S2M | 3 Sensitive | 13 | 6.6 ± 0.0 | NB |
| A | *Butorides virescens* | Green Heron | | | | S1S2B,S1S2M | 3 Sensitive | 5 | 13.2 ± 7.0 | NB |
| A | *Nycticorax nycticorax* | Black-crowned Night-heron | | | | S1S2B,S1S2M | 3 Sensitive | 5 | 12.2 ± 0.0 | NB |
| A | *Empidonax traillii* | Willow Flycatcher | | | | S1S2B,S1S2M | 3 Sensitive | 65 | 4.5 ± 7.0 | NB |
| A | *Stelgidopteryx serripennis* | Northern Rough-winged Swallow | | | | S1S2B,S1S2M | 2 May Be At Risk | 4 | 66.2 ± 0.0 | NS |
| A | *Troglodytes aedon* | House Wren | | | | S1S2B,S1S2M | 5 Undetermined | 11 | 1.7 ± 0.0 | NB |
| A | *Rissa tridactyla* | Black-legged Kittiwake | | | | S1S2B,S4N,S5M | 4 Secure | 3 | 40.0 ± 0.0 | NB |
| A | *Calidris bairdii* | Baird's Sandpiper | | | | S1S2M | 3 Sensitive | 47 | 6.4 ± 0.0 | NB |
| A | *Cistothorus palustris* | Marsh Wren | | | | S2B,S2M | 3 Sensitive | 43 | 10.5 ± 0.0 | NB |
| A | *Mimus polyglottos* | Northern Mockingbird | | | | S2B,S2M | 3 Sensitive | 137 | 4.5 ± 7.0 | NB |
| A | *Toxostoma rufum* | Brown Thrasher | | | | S2B,S2M | 3 Sensitive | 26 | 17.1 ± 7.0 | NB |
| A | *Pooecetes gramineus* | Vesper Sparrow | | | | S2B,S2M | 2 May Be At Risk | 112 | 4.5 ± 7.0 | NB |
| A | *Mareca strepera* | Gadwall | | | | S2B,S3M | 4 Secure | 229 | 4.5 ± 7.0 | NB |
| A | *Pinicola enucleator* | Pine Grosbeak | | | | S2B,S4S5N,S4S5M | 3 Sensitive | 29 | 6.0 ± 7.0 | NB |
| A | *Tringa solitaria* | Solitary Sandpiper | | | | S2B,S5M | 4 Secure | 151 | 5.6 ± 0.0 | NB |
| A | *Anser caerulescens* | Snow Goose | | | | S2M | 4 Secure | 22 | 3.0 ± 0.0 | NB |
| A | *Phalacrocorax carbo* | Great Cormorant | | | | S2N,S2M | 4 Secure | 29 | 7.8 ± 2.0 | NB |
| A | *Somateria spectabilis* | King Eider | | | | S2N,S2M | 4 Secure | 4 | 24.7 ± 0.0 | NB |
| A | *Larus hyperboreus* | Glaucous Gull | | | | S2N,S2M | 4 Secure | 91 | 3.6 ± 59.0 | NB |
| A | *Asio otus* | Long-eared Owl | | | | S2S3 | 5 Undetermined | 27 | 4.2 ± 0.0 | NB |
| A | *Picoides dorsalis* | American Three-toed Woodpecker | | | | S2S3 | 3 Sensitive | 14 | 33.3 ± 7.0 | NB |

| Taxonomic Group | Scientific Name | Common Name | COSEWIC | SARA | Prov Legal Prot | Prov Rarity Rank | Prov GS Rank | # recs | Distance (km) | Prov |
|---|---|---|---|---|---|---|---|---|---|---|
| A | *Salmo salar* | Atlantic Salmon | | | | S2S3 | 2 May Be At Risk | 35 | 13.3 ± 1.0 | NB |
| A | *Spatula clypeata* | Northern Shoveler | | | | S2S3B,S2S3M | 4 Secure | 313 | 1.1 ± 0.0 | NB |
| A | *Myiarchus crinitus* | Great Crested Flycatcher | | | | S2S3B,S2S3M | 3 Sensitive | 57 | 4.5 ± 7.0 | NB |
| A | *Petrochelidon pyrrhonota* | Cliff Swallow | | | | S2S3B,S2S3M | 3 Sensitive | 506 | 4.5 ± 7.0 | NB |
| A | *Pluvialis dominica* | American Golden-Plover | | | | S2S3M | 3 Sensitive | 198 | 13.9 ± 0.0 | NB |
| A | *Calcarius lapponicus* | Lapland Longspur | | | | S2S3N,SUM | 3 Sensitive | 42 | 12.2 ± 0.0 | NB |
| A | *Cepphus grylle* | Black Guillemot | | | | S3 | 4 Secure | 67 | 36.0 ± 5.0 | NB |
| A | *Loxia curvirostra* | Red Crossbill | | | | S3 | 4 Secure | 127 | 4.5 ± 7.0 | NB |
| A | *Spinus pinus* | Pine Siskin | | | | S3 | 4 Secure | 341 | 4.5 ± 7.0 | NB |
| A | *Sorex maritimensis* | Maritime Shrew | | | | S3 | 4 Secure | 141 | 35.0 ± 1.0 | NB |
| A | *Eptesicus fuscus* | Big Brown Bat | | | | S3 | 3 Sensitive | 7 | 7.7 ± 1.0 | NB |
| A | *Cathartes aura* | Turkey Vulture | | | | S3B,S3M | 4 Secure | 148 | 1.4 ± 80.0 | NB |
| A | *Rallus limicola* | Virginia Rail | | | | S3B,S3M | 3 Sensitive | 144 | 1.1 ± 0.0 | NB |
| A | *Charadrius vociferus* | Killdeer | | | | S3B,S3M | 3 Sensitive | 866 | 4.5 ± 7.0 | NB |
| A | *Tringa semipalmata* | Willet | | | | S3B,S3M | 3 Sensitive | 802 | 15.7 ± 0.0 | NB |
| A | *Coccyzus erythropthalmus* | Black-billed Cuckoo | | | | S3B,S3M | 4 Secure | 101 | 4.5 ± 7.0 | NB |
| A | *Vireo gilvus* | Warbling Vireo | | | | S3B,S3M | 4 Secure | 59 | 4.5 ± 7.0 | NB |
| A | *Piranga olivacea* | Scarlet Tanager | | | | S3B,S3M | 4 Secure | 53 | 4.5 ± 7.0 | NB |
| A | *Passerina cyanea* | Indigo Bunting | | | | S3B,S3M | 4 Secure | 30 | 16.6 ± 0.0 | NB |
| A | *Molothrus ater* | Brown-headed Cowbird | | | | S3B,S3M | 2 May Be At Risk | 250 | 4.5 ± 7.0 | NB |
| A | *Icterus galbula* | Baltimore Oriole | | | | S3B,S3M | 4 Secure | 94 | 4.5 ± 7.0 | NB |
| A | *Somateria mollissima* | Common Eider | | | | S3B,S4M,S3N | 4 Secure | 187 | 1.4 ± 80.0 | NB |
| A | *Setophaga tigrina* | Cape May Warbler | | | | S3B,S4S5M | 4 Secure | 248 | 4.5 ± 7.0 | NB |
| A | *Anas acuta* | Northern Pintail | | | | S3B,S5M | 3 Sensitive | 135 | 1.4 ± 80.0 | NB |
| A | *Mergus serrator* | Red-breasted Merganser | | | | S3B,S5M,S4S5N | 4 Secure | 280 | 12.0 ± 1.0 | NB |
| A | *Arenaria interpres* | Ruddy Turnstone | | | | S3M | 4 Secure | 1020 | 4.9 ± 0.0 | NB |
| A | *Phalaropus fulicarius* | Red Phalarope | | | | S3M | 3 Sensitive | 4 | 37.3 ± 0.0 | NB |
| A | *Melanitta americana* | Black Scoter | | | | S3M,S1S2N | 3 Sensitive | 235 | 2.8 ± 64.0 | NB |
| A | *Bucephala albeola* | Bufflehead | | | | S3M,S2N | 3 Sensitive | 106 | 2.8 ± 64.0 | NB |
| A | *Calidris maritima* | Purple Sandpiper | | | | S3M,S3N | 4 Secure | 65 | 24.8 ± 0.0 | NB |
| A | *Synaptomys cooperi* | Southern Bog Lemming | | | | S3S4 | 4 Secure | 88 | 35.3 ± 1.0 | NB |
| A | *Tyrannus tyrannus* | Eastern Kingbird | | | | S3S4B,S3S4M | 3 Sensitive | 496 | 4.5 ± 7.0 | NB |
| A | *Actitis macularius* | Spotted Sandpiper | | | | S3S4B,S5M | 4 Secure | 848 | 4.5 ± 7.0 | NB |
| A | *Gallinago delicata* | Wilson's Snipe | | | | S3S4B,S5M | 4 Secure | 788 | 1.1 ± 0.0 | NB |
| A | *Larus delawarensis* | Ring-billed Gull | | | | S3S4B,S5M | 4 Secure | 272 | 6.0 ± 0.0 | NB |
| A | *Setophaga striata* | Blackpoll Warbler | | | | S3S4B,S5M | 4 Secure | 56 | 7.6 ± 7.0 | NB |
| A | *Pluvialis squatarola* | Black-bellied Plover | | | | S3S4M | 4 Secure | 1720 | 6.4 ± 0.0 | NB |
| A | *Limosa haemastica* | Hudsonian Godwit | | | | S3S4M | 4 Secure | 407 | 26.2 ± 0.0 | NB |
| A | *Calidris pusilla* | Semipalmated Sandpiper | | | | S3S4M | 4 Secure | 2377 | 4.9 ± 0.0 | NB |
| A | *Calidris melanotos* | Pectoral Sandpiper | | | | S3S4M | 4 Secure | 371 | 5.4 ± 1.0 | NB |
| A | *Calidris alba* | Sanderling | | | | S3S4M,S1N | 3 Sensitive | 1530 | 23.9 ± 0.0 | NB |
| A | *Morus bassanus* | Northern Gannet | | | | SHB,S5M | 4 Secure | 171 | 13.8 ± 44.0 | NB |
| A | *Lanius ludovicianus* | Loggerhead Shrike | | | | SXB,SXM | 1 At Risk | 1 | 12.2 ± 0.0 | NB |
| I | *Cicindela marginipennis* | Cobblestone Tiger Beetle | Endangered | Endangered | Endangered | S1 | 1 At Risk | 3 | 99.6 ± 0.0 | NB |
| I | *Gomphus ventricosus* | Skillet Clubtail | Endangered | | Endangered | S1S2 | 2 May Be At Risk | 2 | 64.5 ± 0.0 | NB |
| I | *Danaus plexippus* | Monarch | Endangered | Special Concern | Special Concern | S3B,S3M | 3 Sensitive | 92 | 1.9 ± 0.0 | NB |
| I | *Ophiogomphus howei* | Pygmy Snaketail | Special Concern | Special Concern | Special Concern | S2 | 2 May Be At Risk | 1 | 90.6 ± 0.0 | NB |
| I | *Alasmidonta varicosa* | Brook Floater | Special Concern | | Special Concern | S2 | 3 Sensitive | 33 | 21.0 ± 1.0 | NB |
| I | *Lampsilis cariosa* | Yellow Lampmussel | Special Concern | Special Concern | Special Concern | S2 | 3 Sensitive | 21 | 74.2 ± 0.0 | NB |
| I | *Bombus terricola* | Yellow-banded Bumblebee | Special Concern | | | S3? | 3 Sensitive | 13 | 24.3 ± 0.0 | NB |
| I | *Coccinella transversoguttata richardsoni* | Transverse Lady Beetle | Special Concern | | | SH | 2 May Be At Risk | 27 | 7.1 ± 1.0 | NB |
| I | *Appalachina sayana* | Spike-lip Crater | Not At Risk | | | S3? | | 1 | 92.0 ± 1.0 | NB |
| I | *Erora laeta* | Early Hairstreak | | | | S1 | 2 May Be At Risk | 1 | 16.4 ± 1.0 | NB |
| I | *Leucorrhinia patricia* | Canada Whiteface | | | | S1 | 2 May Be At Risk | 7 | 84.6 ± 1.0 | NB |
| I | *Plebejus saepiolus* | Greenish Blue | | | | S1S2 | 4 Secure | 2 | 33.9 ± 7.0 | NB |
| I | *Strymon melinus* | Grey Hairstreak | | | | S2 | 4 Secure | 1 | 27.3 ± 2.0 | NB |

| Taxonomic Group | Scientific Name | Common Name | COSEWIC | SARA | Prov Legal Prot | Prov Rarity Rank | Prov GS Rank | # recs | Distance (km) | Prov |
|---|---|---|---|---|---|---|---|---|---|---|
| I | *Somatochlora brevicincta* | Quebec Emerald | | | | S2 | 5 Undetermined | 2 | 27.5 ± 0.0 | NB |
| I | *Somatochlora tenebrosa* | Clamp-Tipped Emerald | | | | S2 | 5 Undetermined | 6 | 25.5 ± 1.0 | NB |
| I | *Ladona exusta* | White Corporal | | | | S2 | 5 Undetermined | 2 | 71.6 ± 0.0 | NB |
| I | *Coenagrion interrogatum* | Subarctic Bluet | | | | S2 | 3 Sensitive | 3 | 92.3 ± 1.0 | NB |
| I | *Callophrys henrici* | Henry's Elfin | | | | S2S3 | 4 Secure | 9 | 16.3 ± 0.0 | NB |
| I | *Elaphrus americanus* | a Ground Beetle | | | | S3 | 4 Secure | 1 | 39.4 ± 0.0 | NB |
| I | *Agonum crenistriatum* | a Ground Beetle | | | | S3 | 5 Undetermined | 1 | 7.1 ± 1.0 | NB |
| I | *Agonum consimile* | a Ground Beetle | | | | S3 | 4 Secure | 1 | 7.1 ± 1.0 | NB |
| I | *Lachnocrepis parallela* | a Ground Beetle | | | | S3 | 4 Secure | 1 | 36.2 ± 0.0 | NB |
| I | *Dyschirius setosus* | a Ground Beetle | | | | S3 | 5 Undetermined | 3 | 36.2 ± 0.0 | NB |
| I | *Harpalus fulvilabris* | a Ground Beetle | | | | S3 | 4 Secure | 1 | 38.8 ± 0.0 | NB |
| I | *Amara pallipes* | a Ground Beetle | | | | S3 | 4 Secure | 2 | 7.1 ± 1.0 | NB |
| I | *Carabus maeander* | a Ground Beetle | | | | S3 | 5 Undetermined | 1 | 7.1 ± 1.0 | NB |
| I | *Carabus serratus* | a Ground Beetle | | | | S3 | 4 Secure | 1 | 7.8 ± 1.0 | NB |
| I | *Hippodamia parenthesis* | Parenthesis Lady Beetle | | | | S3 | 4 Secure | 7 | 7.1 ± 1.0 | NB |
| I | *Xylotrechus undulatus* | a Longhorned Beetle | | | | S3 | | 1 | 12.9 ± 1.0 | NB |
| I | *Calathus gregarius* | a Ground Beetle | | | | S3 | 4 Secure | 1 | 55.6 ± 1.0 | NB |
| I | *Gonioctena americana* | a Leaf Beetle | | | | S3 | | 1 | 37.0 ± 0.0 | NB |
| I | *Trachysida aspera* | a Longhorned Beetle | | | | S3 | | 1 | 44.2 ± 0.0 | NB |
| I | *Hesperia sassacus* | Indian Skipper | | | | S3 | 4 Secure | 3 | 46.7 ± 0.0 | NB |
| I | *Euphyes bimacula* | Two-spotted Skipper | | | | S3 | 4 Secure | 13 | 10.2 ± 1.0 | NB |
| I | *Papilio brevicauda bretonensis* | Short-tailed Swallowtail | | | | S3 | 4 Secure | 12 | 46.9 ± 0.0 | NB |
| I | *Lycaena hyllus* | Bronze Copper | | | | S3 | 3 Sensitive | 122 | 4.5 ± 7.0 | NB |
| I | *Lycaena dospassosi* | Salt Marsh Copper | | | | S3 | 4 Secure | 114 | 25.3 ± 0.0 | NB |
| I | *Satyrium acadica* | Acadian Hairstreak | | | | S3 | 4 Secure | 17 | 4.5 ± 7.0 | NB |
| I | *Callophrys polios* | Hoary Elfin | | | | S3 | 4 Secure | 8 | 22.3 ± 0.0 | NB |
| I | *Plebejus idas empetri* | Crowberry Blue | | | | S3 | 4 Secure | 25 | 31.7 ± 7.0 | NB |
| I | *Speyeria aphrodite* | Aphrodite Fritillary | | | | S3 | 4 Secure | 17 | 9.3 ± 0.0 | NB |
| I | *Boloria bellona* | Meadow Fritillary | | | | S3 | 4 Secure | 1 | 98.5 ± 0.0 | NB |
| I | *Boloria chariclea* | Arctic Fritillary | | | | S3 | 4 Secure | 9 | 23.8 ± 7.0 | NB |
| I | *Polygonia satyrus* | Satyr Comma | | | | S3 | 4 Secure | 3 | 30.3 ± 5.0 | NB |
| I | *Polygonia gracilis* | Hoary Comma | | | | S3 | 4 Secure | 2 | 81.7 ± 15.0 | NB |
| I | *Nymphalis l-album* | Compton Tortoiseshell | | | | S3 | 4 Secure | 7 | 10.0 ± 10.0 | NB |
| I | *Gomphus abbreviatus* | Spine-crowned Clubtail | | | | S3 | 4 Secure | 7 | 79.8 ± 0.0 | NB |
| I | *Dorocordulia lepida* | Petite Emerald | | | | S3 | 4 Secure | 5 | 50.8 ± 1.0 | NB |
| I | *Somatochlora cingulata* | Lake Emerald | | | | S3 | 4 Secure | 3 | 52.3 ± 1.0 | NB |
| I | *Somatochlora forcipata* | Forcipate Emerald | | | | S3 | 4 Secure | 5 | 38.9 ± 0.0 | NB |
| I | *Williamsonia fletcheri* | Ebony Boghaunter | | | | S3 | 4 Secure | 16 | 11.1 ± 2.0 | NB |
| I | *Lestes eurinus* | Amber-Winged Spreadwing | | | | S3 | 4 Secure | 17 | 27.3 ± 1.0 | NB |
| I | *Lestes vigilax* | Swamp Spreadwing | | | | S3 | 3 Sensitive | 1 | 98.3 ± 0.0 | NS |
| I | *Enallagma geminatum* | Skimming Bluet | | | | S3 | 5 Undetermined | 4 | 91.2 ± 0.0 | NB |
| I | *Enallagma signatum* | Orange Bluet | | | | S3 | 4 Secure | 3 | 29.4 ± 0.0 | NB |
| I | *Stylurus scudderi* | Zebra Clubtail | | | | S3 | 4 Secure | 9 | 9.2 ± 0.0 | NB |
| I | *Alasmidonta undulata* | Triangle Floater | | | | S3 | 3 Sensitive | 52 | 24.8 ± 1.0 | NB |
| I | *Leptodea ochracea* | Tidewater Mucket | | | | S3 | 4 Secure | 28 | 29.6 ± 1.0 | NB |
| I | *Neohelix albolabris* | Whitelip | | | | S3 | | 1 | 91.2 ± 0.0 | NB |
| I | *Pantala hymenaea* | Spot-Winged Glider | | | | S3B,S3M | 4 Secure | 3 | 29.3 ± 0.0 | NB |
| I | *Satyrium liparops* | Striped Hairstreak | | | | S3S4 | 4 Secure | 28 | 1.9 ± 0.0 | NB |
| I | *Satyrium liparops strigosum* | Striped Hairstreak | | | | S3S4 | 4 Secure | 4 | 7.1 ± 0.0 | NB |
| I | *Cupido comyntas* | Eastern Tailed Blue | | | | S3S4 | 4 Secure | 5 | 34.7 ± 0.0 | NB |
| N | *Erioderma mollissimum* | Graceful Felt Lichen | Endangered | | Endangered | SH | 2 May Be At Risk | 1 | 64.2 ± 1.0 | NB |
| N | *Erioderma pedicellatum (Atlantic pop.)* | Boreal Felt Lichen - Atlantic pop. | Endangered | Endangered | Endangered | SH | 1 At Risk | 2 | 76.7 ± 0.0 | NS |
| N | *Peltigera hydrothyria* | Eastern Waterfan | Threatened | | | S1 | 5 Undetermined | 7 | 56.0 ± 0.0 | NB |
| N | *Anzia colpodes* | Black-foam Lichen | Threatened | | | S1S2 | 5 Undetermined | 2 | 49.7 ± 1.0 | NB |
| N | *Pectenia plumbea* | Blue Felt Lichen | Special Concern | Special Concern | Special Concern | S1 | 2 May Be At Risk | 2 | 76.7 ± 0.0 | NS |

| Taxonomic Group | Scientific Name | Common Name | COSEWIC | SARA | Prov Legal Prot | Prov Rarity Rank | Prov GS Rank | # recs | Distance (km) | Prov |
|---|---|---|---|---|---|---|---|---|---|---|
| N | *Pseudevernia cladonia* | Ghost Antler Lichen | Not At Risk | | | S2S3 | 5 Undetermined | 6 | 55.5 ± 0.0 | NB |
| N | *Aloina rigida* | Aloe-Like Rigid Screw Moss | | | | S1 | 2 May Be At Risk | 1 | 37.2 ± 0.0 | NB |
| N | *Aulacomnium heterostichum* | One-sided Groove Moss | | | | S1 | 2 May Be At Risk | 2 | 88.8 ± 0.0 | NB |
| N | *Campylostelium saxicola* | a Moss | | | | S1 | 2 May Be At Risk | 1 | 91.2 ± 0.0 | NB |
| N | *Dicranoweisia crispula* | Mountain Thatch Moss | | | | S1 | 2 May Be At Risk | 1 | 54.4 ± 0.0 | NB |
| N | *Didymodon rigidulus var. gracilis* | a moss | | | | S1 | 2 May Be At Risk | 1 | 61.8 ± 1.0 | NB |
| N | *Syntrichia ruralis* | a Moss | | | | S1 | 2 May Be At Risk | 1 | 69.9 ± 0.0 | NB |
| N | *Zygodon viridissimus var. viridissimus* | a Moss | | | | S1 | 2 May Be At Risk | 1 | 89.9 ± 0.0 | NB |
| N | *Collema tenax* | Soil Tarpaper Lichen | | | | S1 | | 2 | 79.5 ± 0.0 | PE |
| N | *Cladonia straminea* | Reptilian Pixie-cup Lichen | | | | S1 | 5 Undetermined | 5 | 48.0 ± 1.0 | NB |
| N | *Coccocarpia palmicola* | Salted Shell Lichen | | | | S1 | 2 May Be At Risk | 1 | 48.0 ± 1.0 | NB |
| N | *Peltigera malacea* | Veinless Pelt Lichen | | | | S1 | 5 Undetermined | 1 | 60.4 ± 1.0 | NB |
| N | *Bryoria bicolor* | Electrified Horsehair Lichen | | | | S1 | 2 May Be At Risk | 1 | 60.4 ± 1.0 | NB |
| N | *Hygrobiella laxifolia* | Lax Notchwort | | | | S1? | 6 Not Assessed | 1 | 61.7 ± 1.0 | NB |
| N | *Atrichum angustatum* | Lesser Smoothcap Moss | | | | S1? | 2 May Be At Risk | 1 | 98.5 ± 5.0 | NS |
| N | *Bartramia ithyphylla* | Straight-leaved Apple Moss | | | | S1? | 2 May Be At Risk | 2 | 55.3 ± 1.0 | NB |
| N | *Dicranum bonjeanii* | Bonjean's Broom Moss | | | | S1? | 2 May Be At Risk | 1 | 92.9 ± 0.0 | NS |
| N | *Dicranum condensatum* | Condensed Broom Moss | | | | S1? | 2 May Be At Risk | 1 | 54.4 ± 0.0 | NB |
| N | *Entodon brevisetus* | a Moss | | | | S1? | 2 May Be At Risk | 1 | 65.4 ± 10.0 | NB |
| N | *Eurhynchium hians* | Light Beaked Moss | | | | S1? | 2 May Be At Risk | 1 | 72.3 ± 0.0 | NB |
| N | *Homomallium adnatum* | Adnate Hairy-gray Moss | | | | S1? | 2 May Be At Risk | 4 | 42.2 ± 1.0 | NB |
| N | *Plagiothecium latebricola* | Alder Silk Moss | | | | S1? | 2 May Be At Risk | 2 | 61.0 ± 1.0 | NB |
| N | *Rhytidium rugosum* | Wrinkle-leaved Moss | | | | S1? | 2 May Be At Risk | 2 | 61.7 ± 1.0 | NB |
| N | *Seligeria recurvata* | a Moss | | | | S1? | 2 May Be At Risk | 3 | 38.9 ± 15.0 | NB |
| N | *Timmia megapolitana* | Metropolitan Timmia Moss | | | | S1? | 2 May Be At Risk | 2 | 88.9 ± 1.0 | NS |
| N | *Rhizomnium pseudopunctatum* | Felted Leafy Moss | | | | S1? | 2 May Be At Risk | 1 | 86.9 ± 0.0 | NB |
| N | *Cephaloziella spinigera* | Spiny Threadwort | | | | S1S2 | 6 Not Assessed | 2 | 62.6 ± 0.0 | NB |
| N | *Cladopodiella francisci* | Holt's Notchwort | | | | S1S2 | 6 Not Assessed | 4 | 45.6 ± 0.0 | NB |
| N | *Harpanthus flotovianus* | Great Mountain Flapwort | | | | S1S2 | 6 Not Assessed | 2 | 48.6 ± 1.0 | NB |
| N | *Jungermannia obovata* | Egg Flapwort | | | | S1S2 | 6 Not Assessed | 1 | 56.5 ± 0.0 | NB |
| N | *Odontoschisma sphagni* | Bog-Moss Flapwort | | | | S1S2 | 6 Not Assessed | 1 | 98.6 ± 0.0 | NB |
| N | *Pallavicinia lyellii* | Lyell's Ribbonwort | | | | S1S2 | 6 Not Assessed | 1 | 65.4 ± 1.0 | NB |
| N | *Radula tenax* | Tenacious Scalewort | | | | S1S2 | 6 Not Assessed | 1 | 56.5 ± 0.0 | NB |
| N | *Brachythecium acuminatum* | Acuminate Ragged Moss | | | | S1S2 | 5 Undetermined | 2 | 57.2 ± 2.0 | NB |
| N | *Bryum salinum* | a Moss | | | | S1S2 | 2 May Be At Risk | 1 | 61.0 ± 1.0 | NB |
| N | *Distichium inclinatum* | Inclined Iris Moss | | | | S1S2 | 2 May Be At Risk | 5 | 61.8 ± 1.0 | NB |
| N | *Ditrichum pallidum* | Pale Cow-hair Moss | | | | S1S2 | 2 May Be At Risk | 1 | 61.4 ± 1.0 | NB |
| N | *Drummondia prorepens* | a Moss | | | | S1S2 | 2 May Be At Risk | 1 | 91.2 ± 0.0 | NB |
| N | *Hygrohypnum bestii* | Best's Brook Moss | | | | S1S2 | 3 Sensitive | 5 | 54.3 ± 1.0 | NB |
| N | *Seligeria brevifolia* | a Moss | | | | S1S2 | 3 Sensitive | 4 | 89.6 ± 0.0 | NB |
| N | *Timmia norvegica* | a moss | | | | S1S2 | 2 May Be At Risk | 3 | 62.0 ± 0.0 | NB |
| N | *Timmia norvegica var. excurrens* | a moss | | | | S1S2 | 2 May Be At Risk | 1 | 62.0 ± 0.0 | NB |
| N | *Tortella humilis* | Small Crisp Moss | | | | S1S2 | 2 May Be At Risk | 7 | 55.8 ± 1.0 | NB |
| N | *Pseudotaxiphyllum distichaceum* | a Moss | | | | S1S2 | 2 May Be At Risk | 1 | 17.2 ± 1.0 | NB |
| N | *Umbilicaria vellea* | Grizzled Rocktripe Lichen | | | | S1S2 | 5 Undetermined | 1 | 61.4 ± 1.0 | NB |
| N | *Peltigera scabrosa* | Greater Toad Pelt Lichen | | | | S1S2 | 2 May Be At Risk | 4 | 46.4 ± 1.0 | NB |
| N | *Tritomaria scitula* | Mountain Notchwort | | | | S1S3 | 6 Not Assessed | 1 | 52.6 ± 1.0 | NB |
| N | *Amphidium mougeotii* | a Moss | | | | S2 | 3 Sensitive | 13 | 51.8 ± 0.0 | NB |
| N | *Anomodon viticulosus* | a Moss | | | | S2 | 2 May Be At Risk | 3 | 47.8 ± 10.0 | NB |
| N | *Cirriphyllum piliferum* | Hair-pointed Moss | | | | S2 | 3 Sensitive | 4 | 41.8 ± 1.0 | NB |
| N | *Dicranella palustris* | Drooping-Leaved Fork Moss | | | | S2 | 3 Sensitive | 8 | 48.6 ± 1.0 | NB |
| N | *Didymodon ferrugineus* | a moss | | | | S2 | 3 Sensitive | 1 | 61.6 ± 0.0 | NB |

| Taxonomic Group | Scientific Name | Common Name | COSEWIC | SARA | Prov Legal Prot | Prov Rarity Rank | Prov GS Rank | # recs | Distance (km) | Prov |
|---|---|---|---|---|---|---|---|---|---|---|
| N | *Anomodon tristis* | a Moss | | | | S2 | 2 May Be At Risk | 9 | 55.4 ± 10.0 | NB |
| N | *Hypnum pratense* | Meadow Plait Moss | | | | S2 | 3 Sensitive | 1 | 84.3 ± 0.0 | PE |
| N | *Isopterygiopsis pulchella* | Neat Silk Moss | | | | S2 | 3 Sensitive | 8 | 52.9 ± 1.0 | NB |
| N | *Platydictya jungermannioides* | False Willow Moss | | | | S2 | 3 Sensitive | 4 | 38.9 ± 15.0 | NB |
| N | *Pohlia elongata* | Long-necked Nodding Moss | | | | S2 | 3 Sensitive | 14 | 54.7 ± 0.0 | NB |
| N | *Pohlia sphagnicola* | a moss | | | | S2 | 3 Sensitive | 1 | 85.4 ± 0.0 | NB |
| N | *Seligeria calcarea* | Chalk Brittle Moss | | | | S2 | 3 Sensitive | 2 | 48.6 ± 0.0 | NB |
| N | *Sphagnum centrale* | Central Peat Moss | | | | S2 | 3 Sensitive | 8 | 49.1 ± 1.0 | NB |
| N | *Sphagnum flexuosum* | Flexuous Peatmoss | | | | S2 | 3 Sensitive | 3 | 52.2 ± 0.0 | NB |
| N | *Tayloria serrata* | Serrate Trumpet Moss | | | | S2 | 3 Sensitive | 7 | 31.4 ± 100.0 | NB |
| N | *Tetrodontium brownianum* | Little Georgia | | | | S2 | 3 Sensitive | 12 | 54.4 ± 0.0 | NB |
| N | *Thamnobryum alleghaniense* | a Moss | | | | S2 | 3 Sensitive | 14 | 27.5 ± 1.0 | NB |
| N | *Tortula mucronifolia* | Mucronate Screw Moss | | | | S2 | 3 Sensitive | 1 | 91.4 ± 3.0 | NS |
| N | *Ulota phyllantha* | a Moss | | | | S2 | 3 Sensitive | 4 | 61.9 ± 0.0 | NB |
| N | *Anomobryum filiforme* | a moss | | | | S2 | 5 Undetermined | 4 | 61.8 ± 1.0 | NB |
| N | *Cladonia macrophylla* | Fig-leaved Lichen | | | | S2 | 5 Undetermined | 3 | 54.1 ± 1.0 | NB |
| N | *Fuscopannaria leucosticta* | Rimmed Shingles Lichen | | | | S2 | 2 May Be At Risk | 7 | 63.9 ± 0.0 | NB |
| N | *Leptogium milligranum* | Stretched Jellyskin Lichen | | | | S2 | 5 Undetermined | 6 | 20.1 ± 0.0 | NB |
| N | *Nephroma laevigatum* | Mustard Kidney Lichen | | | | S2 | 2 May Be At Risk | 22 | 73.7 ± 0.0 | PE |
| N | *Anacamptodon splachnoides* | a Moss | | | | S2? | 3 Sensitive | 2 | 66.7 ± 1.0 | NB |
| N | *Andreaea rothii* | a Moss | | | | S2? | 3 Sensitive | 5 | 51.8 ± 0.0 | NB |
| N | *Anomodon minor* | Blunt-leaved Anomodon Moss | | | | S2? | 2 May Be At Risk | 1 | 47.6 ± 1.0 | NB |
| N | *Bryum pallescens* | Pale Bryum Moss | | | | S2? | 5 Undetermined | 1 | 75.9 ± 100.0 | NB |
| N | *Dichelyma capillaceum* | Hairlike Dichelyma Moss | | | | S2? | 3 Sensitive | 1 | 65.3 ± 3.0 | NB |
| N | *Hygrohypnum montanum* | a Moss | | | | S2? | 3 Sensitive | 2 | 52.0 ± 1.0 | NB |
| N | *Schistostega pennata* | Luminous Moss | | | | S2? | 3 Sensitive | 1 | 95.0 ± 100.0 | NB |
| N | *Seligeria diversifolia* | a Moss | | | | S2? | 3 Sensitive | 1 | 93.3 ± 0.0 | NB |
| N | *Sphagnum angermanicum* | a Peatmoss | | | | S2? | 3 Sensitive | 2 | 65.4 ± 10.0 | NB |
| N | *Trichodon cylindricus* | Cylindric Hairy-teeth Moss | | | | S2? | 3 Sensitive | 3 | 38.9 ± 15.0 | NB |
| N | *Plagiomnium rostratum* | Long-beaked Leafy Moss | | | | S2? | 3 Sensitive | 6 | 61.2 ± 0.0 | NB |
| N | *Ramalina labiosorediata* | Chalky Ramalina Lichen | | | | S2? | 5 Undetermined | 1 | 58.7 ± 1.0 | NB |
| N | *Collema leptaleum* | Crumpled Bat's Wing Lichen | | | | S2? | 5 Undetermined | 1 | 88.8 ± 0.0 | NB |
| N | *Nephroma arcticum* | Arctic Kidney Lichen | | | | S2? | 3 Sensitive | 1 | 58.8 ± 1.0 | NB |
| N | *Bryum uliginosum* | a Moss | | | | S2S3 | 3 Sensitive | 1 | 61.9 ± 0.0 | NB |
| N | *Calliergonella cuspidata* | Common Large Wetland Moss | | | | S2S3 | 3 Sensitive | 5 | 51.3 ± 5.0 | NB |
| N | *Campylium polygamum* | a Moss | | | | S2S3 | 3 Sensitive | 1 | 56.2 ± 0.0 | NB |
| N | *Palustriella falcata* | a Moss | | | | S2S3 | 3 Sensitive | 2 | 60.9 ± 0.0 | NB |
| N | *Didymodon rigidulus* | Rigid Screw Moss | | | | S2S3 | 3 Sensitive | 8 | 57.2 ± 2.0 | NB |
| N | *Ephemerum serratum* | a Moss | | | | S2S3 | 3 Sensitive | 4 | 68.7 ± 0.0 | NB |
| N | *Orthotrichum speciosum* | Showy Bristle Moss | | | | S2S3 | 5 Undetermined | 6 | 68.1 ± 4.0 | NB |
| N | *Pohlia proligera* | Cottony Nodding Moss | | | | S2S3 | 3 Sensitive | 14 | 38.9 ± 15.0 | NB |
| N | *Racomitrium fasciculare* | a Moss | | | | S2S3 | 3 Sensitive | 3 | 54.4 ± 0.0 | NB |
| N | *Racomitrium affine* | a Moss | | | | S2S3 | 3 Sensitive | 1 | 49.6 ± 1.0 | NB |
| N | *Saelania glaucescens* | Blue Dew Moss | | | | S2S3 | 3 Sensitive | 2 | 54.4 ± 0.0 | NB |
| N | *Sphagnum subfulvum* | a Peatmoss | | | | S2S3 | 2 May Be At Risk | 3 | 83.9 ± 0.0 | PE |
| N | *Taxiphyllum deplanatum* | Imbricate Yew-leaved Moss | | | | S2S3 | 3 Sensitive | 2 | 56.6 ± 1.0 | NB |
| N | *Zygodon viridissimus* | a Moss | | | | S2S3 | 2 May Be At Risk | 2 | 56.6 ± 1.0 | NB |
| N | *Schistidium agassizii* | Elf Bloom Moss | | | | S2S3 | 3 Sensitive | 3 | 49.6 ± 1.0 | NB |
| N | *Loeskeobryum brevirostre* | a Moss | | | | S2S3 | 3 Sensitive | 18 | 51.8 ± 0.0 | NB |
| N | *Cyrtomnium hymenophylloides* | Short-pointed Lantern Moss | | | | S2S3 | 3 Sensitive | 6 | 48.8 ± 0.0 | NB |
| N | *Cladonia acuminata* | Scantily Clad Pixie Lichen | | | | S2S3 | 5 Undetermined | 2 | 61.4 ± 1.0 | NB |
| N | *Cladonia ramulosa* | Bran Lichen | | | | S2S3 | 5 Undetermined | 4 | 56.4 ± 1.0 | NB |
| N | *Cladonia sulphurina* | Greater Sulphur-cup Lichen | | | | S2S3 | 5 Undetermined | 1 | 45.8 ± 1.0 | NB |
| N | *Dendriscocaulon* | a lichen | | | | S2S3 | 3 Sensitive | 1 | 91.6 ± 0.0 | NB |

| Taxonomic Group | Scientific Name | Common Name | COSEWIC | SARA | Prov Legal Prot | Prov Rarity Rank | Prov GS Rank | # recs | Distance (km) | Prov |
|---|---|---|---|---|---|---|---|---|---|---|
| | *umhausense* | | | | | | | | | |
| N | *Parmeliopsis ambigua* | Green Starburst Lichen | | | | S2S3 | 5 Undetermined | 1 | 65.3 ± 1.0 | NB |
| N | *Sphaerophorus globosus* | Northern Coral Lichen | | | | S2S3 | 3 Sensitive | 5 | 60.4 ± 1.0 | NB |
| N | *Hypnum curvifolium* | Curved-leaved Plait Moss | | | | S3 | 3 Sensitive | 16 | 51.8 ± 0.0 | NB |
| N | *Tortella fragilis* | Fragile Twisted Moss | | | | S3 | 3 Sensitive | 1 | 62.0 ± 0.0 | NB |
| N | *Schistidium maritimum* | a Moss | | | | S3 | 4 Secure | 6 | 57.7 ± 0.0 | NB |
| N | *Hymenostylium recurvirostre* | Hymenostylium Moss | | | | S3 | 3 Sensitive | 5 | 62.3 ± 1.0 | NB |
| N | *Collema nigrescens* | Blistered Tarpaper Lichen | | | | S3 | 3 Sensitive | 2 | 83.5 ± 0.0 | NS |
| N | *Solorina saccata* | Woodland Owl Lichen | | | | S3 | 5 Undetermined | 6 | 61.4 ± 1.0 | NB |
| N | *Ahtiana aurescens* | Eastern Candlewax Lichen | | | | S3 | 5 Undetermined | 1 | 86.2 ± 0.0 | NB |
| N | *Normandina pulchella* | Rimmed Elf-ear Lichen | | | | S3 | 5 Undetermined | 13 | 56.4 ± 1.0 | NB |
| N | *Cladonia farinacea* | Farinose Pixie Lichen | | | | S3 | 5 Undetermined | 5 | 54.3 ± 1.0 | NB |
| N | *Leptogium lichenoides* | Tattered Jellyskin Lichen | | | | S3 | 5 Undetermined | 6 | 61.4 ± 1.0 | NB |
| N | *Nephroma bellum* | Naked Kidney Lichen | | | | S3 | 4 Secure | 3 | 53.5 ± 1.0 | NB |
| N | *Peltigera degenii* | Lustrous Pelt Lichen | | | | S3 | 5 Undetermined | 3 | 56.9 ± 1.0 | NB |
| N | *Usnea strigosa* | Bushy Beard Lichen | | | | S3 | 5 Undetermined | 5 | 15.7 ± 0.0 | NB |
| N | *Leptogium laceroides* | Short-bearded Jellyskin Lichen | | | | S3 | 3 Sensitive | 4 | 49.7 ± 1.0 | NB |
| N | *Peltigera membranacea* | Membranous Pelt Lichen | | | | S3 | 5 Undetermined | 12 | 61.4 ± 1.0 | NB |
| N | *Cladonia carneola* | Crowned Pixie-cup Lichen | | | | S3 | 5 Undetermined | 1 | 55.8 ± 1.0 | NB |
| N | *Cladonia deformis* | Lesser Sulphur-cup Lichen | | | | S3 | 4 Secure | 5 | 54.1 ± 1.0 | NB |
| N | *Aulacomnium androgynum* | Little Groove Moss | | | | S3? | 4 Secure | 10 | 38.9 ± 15.0 | NB |
| N | *Bryum amblyodon* | a Moss | | | | S3? | 4 Secure | 1 | 85.0 ± 3.0 | NS |
| N | *Dicranella rufescens* | Red Forklet Moss | | | | S3? | 5 Undetermined | 1 | 62.0 ± 0.0 | NB |
| N | *Rhytidiadelphus loreus* | Lanky Moss | | | | S3? | 2 May Be At Risk | 1 | 61.8 ± 1.0 | NB |
| N | *Sphagnum lescurii* | a Peatmoss | | | | S3? | 5 Undetermined | 6 | 44.0 ± 0.0 | NS |
| N | *Stereocaulon subcoralloides* | Coralloid Foam Lichen | | | | S3? | 5 Undetermined | 1 | 58.7 ± 1.0 | NB |
| N | *Anomodon rugelii* | Rugel's Anomodon Moss | | | | S3S4 | 3 Sensitive | 2 | 92.8 ± 0.0 | NS |
| N | *Barbula convoluta* | Lesser Bird's-claw Beard Moss | | | | S3S4 | 4 Secure | 1 | 61.5 ± 15.0 | NB |
| N | *Brachythecium velutinum* | Velvet Ragged Moss | | | | S3S4 | 4 Secure | 3 | 57.0 ± 1.0 | NB |
| N | *Calliergon giganteum* | Giant Spear Moss | | | | S3S4 | 3 Sensitive | 1 | 80.0 ± 0.0 | PE |
| N | *Dicranella cerviculata* | a Moss | | | | S3S4 | 3 Sensitive | 4 | 53.2 ± 2.0 | NB |
| N | *Dicranella varia* | a Moss | | | | S3S4 | 4 Secure | 1 | 98.8 ± 3.0 | NS |
| N | *Dicranum majus* | Greater Broom Moss | | | | S3S4 | 4 Secure | 21 | 48.8 ± 0.0 | NB |
| N | *Dicranum leioneuron* | a Dicranum Moss | | | | S3S4 | 4 Secure | 2 | 21.3 ± 0.0 | NB |
| N | *Encalypta ciliata* | Fringed Extinguisher Moss | | | | S3S4 | 3 Sensitive | 3 | 61.6 ± 0.0 | NB |
| N | *Fissidens bryoides* | Lesser Pocket Moss | | | | S3S4 | 4 Secure | 7 | 57.7 ± 0.0 | NB |
| N | *Helodium blandowii* | Wetland-plume Moss | | | | S3S4 | 4 Secure | 1 | 76.5 ± 0.0 | PE |
| N | *Heterocladium dimorphum* | Dimorphous Tangle Moss | | | | S3S4 | 4 Secure | 5 | 51.8 ± 0.0 | NB |
| N | *Isopterygiopsis muelleriana* | a Moss | | | | S3S4 | 4 Secure | 22 | 48.8 ± 0.0 | NB |
| N | *Myurella julacea* | Small Mouse-tail Moss | | | | S3S4 | 4 Secure | 2 | 62.0 ± 0.0 | NB |
| N | *Physcomitrium pyriforme* | Pear-shaped Urn Moss | | | | S3S4 | 3 Sensitive | 1 | 73.5 ± 0.0 | NB |
| N | *Pogonatum dentatum* | Mountain Hair Moss | | | | S3S4 | 4 Secure | 5 | 53.7 ± 0.0 | NS |
| N | *Sphagnum compactum* | Compact Peat Moss | | | | S3S4 | 4 Secure | 4 | 78.8 ± 1.0 | PE |
| N | *Sphagnum quinquefarium* | Five-ranked Peat Moss | | | | S3S4 | 4 Secure | 1 | 55.7 ± 0.0 | NB |
| N | *Sphagnum torreyanum* | a Peatmoss | | | | S3S4 | 4 Secure | 2 | 69.9 ± 0.0 | NB |
| N | *Sphagnum austinii* | Austin's Peat Moss | | | | S3S4 | 4 Secure | 1 | 44.0 ± 0.0 | NS |
| N | *Sphagnum contortum* | Twisted Peat Moss | | | | S3S4 | 4 Secure | 1 | 69.9 ± 0.0 | NB |
| N | *Tetraphis geniculata* | Geniculate Four-tooth Moss | | | | S3S4 | 4 Secure | 14 | 49.6 ± 1.0 | NB |
| N | *Tetraplodon angustatus* | Toothed-leaved Nitrogen Moss | | | | S3S4 | 4 Secure | 2 | 74.2 ± 0.0 | NS |
| N | *Weissia controversa* | Green-Cushioned Weissia | | | | S3S4 | 4 Secure | 2 | 62.3 ± 1.0 | NB |
| N | *Abietinella abietina* | Wiry Fern Moss | | | | S3S4 | 4 Secure | 2 | 62.0 ± 0.0 | NB |
| N | *Trichostomum tenuirostre* | Acid-Soil Moss | | | | S3S4 | 4 Secure | 6 | 54.4 ± 0.0 | NB |
| N | *Rauiella scita* | Smaller Fern Moss | | | | S3S4 | 3 Sensitive | 1 | 84.2 ± 0.0 | NB |
| N | *Pannaria rubiginosa* | Brown-eyed Shingle Lichen | | | | S3S4 | 3 Sensitive | 5 | 61.9 ± 1.0 | NB |

| Taxonomic Group | Scientific Name | Common Name | COSEWIC | SARA | Prov Legal Prot | Prov Rarity Rank | Prov GS Rank | # recs | Distance (km) | Prov |
|---|---|---|---|---|---|---|---|---|---|---|
| N | *Ramalina thrausta* | Angelhair Ramalina Lichen | | | | S3S4 | 5 Undetermined | 11 | 46.4 ± 1.0 | NB |
| N | *Hypogymnia vittata* | Slender Monk's Hood Lichen | | | | S3S4 | 4 Secure | 23 | 46.4 ± 1.0 | NB |
| N | *Leptogium teretiusculum* | Beaded Jellyskin Lichen | | | | S3S4 | 5 Undetermined | 6 | 74.3 ± 0.0 | PE |
| N | *Cladonia floerkeana* | Gritty British Soldiers Lichen | | | | S3S4 | 4 Secure | 4 | 57.8 ± 1.0 | NB |
| N | *Xylopsora friesii* | a Lichen | | | | S3S4 | 5 Undetermined | 1 | 61.4 ± 1.0 | NB |
| N | *Montanelia panniformis* | Shingled Camouflage Lichen | | | | S3S4 | 5 Undetermined | 4 | 48.5 ± 1.0 | NB |
| N | *Nephroma parile* | Powdery Kidney Lichen | | | | S3S4 | 4 Secure | 9 | 30.4 ± 0.0 | NB |
| N | *Protopannaria pezizoides* | Brown-gray Moss-shingle Lichen | | | | S3S4 | 4 Secure | 19 | 60.3 ± 0.0 | NB |
| N | *Pseudocyphellaria holarctica* | Yellow Specklebelly Lichen | | | | S3S4 | 3 Sensitive | 27 | 15.3 ± 0.0 | NB |
| N | *Stereocaulon paschale* | Easter Foam Lichen | | | | S3S4 | 5 Undetermined | 2 | 31.2 ± 1.0 | NB |
| N | *Pannaria conoplea* | Mealy-rimmed Shingle Lichen | | | | S3S4 | 3 Sensitive | 17 | 75.0 ± 0.0 | PE |
| N | *Anaptychia palmulata* | Shaggy Fringed Lichen | | | | S3S4 | 3 Sensitive | 30 | 49.7 ± 1.0 | NB |
| N | *Peltigera neopolydactyla* | Undulating Pelt Lichen | | | | S3S4 | 5 Undetermined | 9 | 48.0 ± 1.0 | NB |
| N | *Cladonia cariosa* | Lesser Ribbed Pixie Lichen | | | | S3S4 | 4 Secure | 4 | 30.5 ± 0.0 | NB |
| N | *Hypocenomyce scalaris* | Common Clam Lichen | | | | S3S4 | 5 Undetermined | 1 | 58.7 ± 1.0 | NB |
| N | *Dermatocarpon luridum* | Brookside Stippleback Lichen | | | | S3S4 | 4 Secure | 56 | 45.8 ± 1.0 | NB |
| N | *Leucodon brachypus* | a Moss | | | | SH | 2 May Be At Risk | 13 | 50.7 ± 1.0 | NB |
| N | *Splachnum luteum* | Yellow Collar Moss | | | | SH | 5 Undetermined | 1 | 75.9 ± 100.0 | NB |
| N | *Cyrto-hypnum minutulum* | Tiny Cedar Moss | | | | SH | 2 May Be At Risk | 3 | 70.6 ± 10.0 | NB |
| N | *Pseudocyphellaria perpetua* | Gilded Specklebelly Lichen | | | | SNA | 3 Sensitive | 1 | 88.2 ± 0.0 | NS |
| P | *Juglans cinerea* | Butternut | Endangered | Endangered | Endangered | S1 | 1 At Risk | 14 | 46.8 ± 1.0 | NB |
| P | *Symphyotrichum laurentianum* | Gulf of St Lawrence Aster | Threatened | Threatened | Endangered | S1 | 1 At Risk | 42 | 80.5 ± 0.0 | NB |
| P | *Symphyotrichum subulatum (Bathurst pop)* | Bathurst Aster - Bathurst pop. | Special Concern | Special Concern | Endangered | S2 | 1 At Risk | 20 | 64.7 ± 0.0 | NB |
| P | *Isoetes prototypus* | Prototype Quillwort | Special Concern | Special Concern | Endangered | S2 | 1 At Risk | 11 | 84.2 ± 0.0 | NS |
| P | *Lechea maritima var. subcylindrica* | Beach Pinweed | Special Concern | | | S2 | 3 Sensitive | 486 | 45.5 ± 0.0 | NB |
| P | *Cryptotaenia canadensis* | Canada Honewort | | | | S1 | 2 May Be At Risk | 1 | 72.9 ± 1.0 | NB |
| P | *Antennaria howellii ssp. petaloidea* | Pussy-Toes | | | | S1 | 2 May Be At Risk | 3 | 91.4 ± 0.0 | NS |
| P | *Symphyotrichum subulatum (non-Bathurst pop)* | Annual Saltmarsh Aster | | | | S1 | 2 May Be At Risk | 12 | 68.6 ± 0.0 | NB |
| P | *Pseudognaphalium obtusifolium* | Eastern Cudweed | | | | S1 | 2 May Be At Risk | 27 | 51.8 ± 1.0 | NB |
| P | *Hieracium paniculatum* | Panicled Hawkweed | | | | S1 | 2 May Be At Risk | 3 | 93.9 ± 0.0 | NS |
| P | *Hieracium robinsonii* | Robinson's Hawkweed | | | | S1 | 3 Sensitive | 9 | 49.5 ± 0.0 | NB |
| P | *Solidago multiradiata* | Multi-rayed Goldenrod | | | | S1 | 2 May Be At Risk | 19 | 21.4 ± 0.0 | NB |
| P | *Cardamine parviflora* | Small-flowered Bittercress | | | | S1 | 2 May Be At Risk | 10 | 85.2 ± 0.0 | NS |
| P | *Draba arabisans* | Rock Whitlow-Grass | | | | S1 | 2 May Be At Risk | 37 | 51.6 ± 0.0 | NB |
| P | *Draba glabella* | Rock Whitlow-Grass | | | | S1 | 2 May Be At Risk | 8 | 61.7 ± 0.0 | NB |
| P | *Stellaria crassifolia* | Fleshy Stitchwort | | | | S1 | 2 May Be At Risk | 3 | 23.1 ± 5.0 | NB |
| P | *Chenopodiastrum simplex* | Maple-leaved Goosefoot | | | | S1 | 2 May Be At Risk | 6 | 36.5 ± 1.0 | NB |
| P | *Blitum capitatum* | strawberry-blite | | | | S1 | 2 May Be At Risk | 1 | 97.9 ± 1.0 | NB |
| P | *Suaeda rolandii* | Roland's Sea-Blite | | | | S1 | 3 Sensitive | 3 | 29.4 ± 0.0 | NB |
| P | *Hypericum virginicum* | Virginia St. John's-wort | | | | S1 | 2 May Be At Risk | 1 | 93.6 ± 3.0 | NS |
| P | *Corema conradii* | Broom Crowberry | | | | S1 | 2 May Be At Risk | 6 | 92.5 ± 0.0 | PE |
| P | *Vaccinium boreale* | Northern Blueberry | | | | S1 | 2 May Be At Risk | 5 | 27.5 ± 1.0 | NB |
| P | *Euphorbia polygonifolia* | Seaside Spurge | | | | S1 | 2 May Be At Risk | 13 | 61.2 ± 0.0 | NB |
| P | *Proserpinaca pectinata* | Comb-leaved Mermaidweed | | | | S1 | 2 May Be At Risk | 2 | 66.8 ± 5.0 | NS |
| P | *Primula laurentiana* | Laurentian Primrose | | | | S1 | 2 May Be At Risk | 45 | 62.1 ± 0.0 | NB |
| P | *Amelanchier fernaldii* | Fernald's Serviceberry | | | | S1 | 2 May Be At Risk | 2 | 20.6 ± 1.0 | NB |
| P | *Crataegus jonesiae* | Jones' Hawthorn | | | | S1 | 2 May Be At Risk | 1 | 82.9 ± 1.0 | NB |
| P | *Dryas integrifolia* | Entire-leaved Mountain | | | | S1 | 2 May Be At Risk | 14 | 20.7 ± 3.0 | NB |

| Taxonomic Group | Scientific Name | Common Name | COSEWIC | SARA | Prov Legal Prot | Prov Rarity Rank | Prov GS Rank | # recs | Distance (km) | Prov |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Avens | | | | | | | | |
| P | *Potentilla canadensis* | Canada Cinquefoil | | | | S1 | 5 Undetermined | 1 | 92.2 ± 0.0 | NB |
| P | *Geum fragarioides* | Barren Strawberry | | | | S1 | 2 May Be At Risk | 1 | 34.1 ± 1.0 | NB |
| P | *Salix myrtillifolia* | Blueberry Willow | | | | S1 | 2 May Be At Risk | 24 | 21.4 ± 0.0 | NB |
| P | *Saxifraga paniculata ssp. laestadii* | Laestadius' Saxifrage | | | | S1 | 2 May Be At Risk | 28 | 61.7 ± 0.0 | NB |
| P | *Agalinis purpurea var. parviflora* | Small-flowered Purple False Foxglove | | | | S1 | 2 May Be At Risk | 39 | 47.2 ± 0.0 | NS |
| P | *Viola sagittata var. ovata* | Arrow-Leaved Violet | | | | S1 | 2 May Be At Risk | 1 | 89.3 ± 2.0 | NS |
| P | *Carex annectens* | Yellow-Fruited Sedge | | | | S1 | 2 May Be At Risk | 3 | 28.0 ± 0.0 | NB |
| P | *Carex atlantica ssp. atlantica* | Atlantic Sedge | | | | S1 | 2 May Be At Risk | 8 | 40.2 ± 0.0 | NB |
| P | *Carex backii* | Rocky Mountain Sedge | | | | S1 | 2 May Be At Risk | 3 | 35.9 ± 0.0 | NB |
| P | *Carex merritt-fernaldii* | Merritt Fernald's Sedge | | | | S1 | 2 May Be At Risk | 1 | 36.5 ± 0.0 | NB |
| P | *Carex scirpoidea* | Scirpuslike Sedge | | | | S1 | 2 May Be At Risk | 6 | 72.7 ± 0.0 | NB |
| P | *Carex sterilis* | Sterile Sedge | | | | S1 | 2 May Be At Risk | 1 | 47.4 ± 2.0 | NB |
| P | *Carex grisea* | Inflated Narrow-leaved Sedge | | | | S1 | 2 May Be At Risk | 1 | 74.0 ± 5.0 | NB |
| P | *Scirpus pendulus* | Hanging Bulrush | | | | S1 | 2 May Be At Risk | 7 | 45.5 ± 0.0 | NS |
| P | *Sisyrinchium angustifolium* | Narrow-leaved Blue-eyed-grass | | | | S1 | 2 May Be At Risk | 3 | 56.3 ± 5.0 | NS |
| P | *Juncus greenei* | Greene's Rush | | | | S1 | 2 May Be At Risk | 10 | 38.5 ± 0.0 | NB |
| P | *Juncus stygius ssp. americanus* | Moor Rush | | | | S1 | 2 May Be At Risk | 17 | 41.8 ± 5.0 | NB |
| P | *Goodyera pubescens* | Downy Rattlesnake-Plantain | | | | S1 | 2 May Be At Risk | 5 | 35.4 ± 0.0 | NB |
| P | *Malaxis monophyllos var. brachypoda* | North American White Adder's-mouth | | | | S1 | 2 May Be At Risk | 6 | 81.3 ± 0.0 | PE |
| P | *Platanthera macrophylla* | Large Round-Leaved Orchid | | | | S1 | 2 May Be At Risk | 3 | 20.9 ± 0.0 | NB |
| P | *Calamagrostis stricta ssp. inexpansa* | Slim-stemmed Reed Grass | | | | S1 | 2 May Be At Risk | 2 | 36.8 ± 1.0 | NB |
| P | *Danthonia compressa* | Flattened Oat Grass | | | | S1 | 2 May Be At Risk | 16 | 24.0 ± 0.0 | NB |
| P | *Festuca subverticillata* | Nodding Fescue | | | | S1 | 2 May Be At Risk | 10 | 77.2 ± 0.0 | NS |
| P | *Potamogeton friesii* | Fries' Pondweed | | | | S1 | 2 May Be At Risk | 6 | 44.9 ± 0.0 | NS |
| P | *Cystopteris laurentiana* | Laurentian Bladder Fern | | | | S1 | 2 May Be At Risk | 1 | 71.0 ± 1.0 | NB |
| P | *Dryopteris filix-mas ssp. brittonii* | Britton's Male Fern | | | | S1 | 2 May Be At Risk | 2 | 25.4 ± 1.0 | NB |
| P | *Schizaea pusilla* | Little Curlygrass Fern | | | | S1 | 2 May Be At Risk | 9 | 56.1 ± 0.0 | NB |
| P | *Bidens heterodoxa* | Connecticut Beggar-Ticks | | | | S1? | 2 May Be At Risk | 1 | 93.7 ± 0.0 | NB |
| P | *Polygonum aviculare ssp. neglectum* | Narrow-leaved Knotweed | | | | S1? | 5 Undetermined | 4 | 35.3 ± 0.0 | NB |
| P | *Carex laxiflora* | Loose-Flowered Sedge | | | | S1? | 5 Undetermined | 2 | 92.5 ± 7.0 | NS |
| P | *Selaginella rupestris* | Rock Spikemoss | | | | S1S2 | 2 May Be At Risk | 7 | 64.5 ± 1.0 | NB |
| P | *Cuscuta cephalanthi* | Buttonbush Dodder | | | | S1S3 | 2 May Be At Risk | 5 | 26.3 ± 0.0 | NB |
| P | *Eriophorum russeolum ssp. albidum* | smooth-fruited russet cottongrass | | | | S1S3 | 5 Undetermined | 1 | 35.9 ± 1.0 | NB |
| P | *Neottia bifolia* | Southern Twayblade | | | Endangered | S2 | 1 At Risk | 31 | 21.2 ± 0.0 | NB |
| P | *Osmorhiza longistylis* | Smooth Sweet Cicely | | | | S2 | 3 Sensitive | 8 | 63.4 ± 1.0 | NS |
| P | *Ionactis linariifolia* | Flax-leaved Aster | | | | S2 | 3 Sensitive | 1 | 79.1 ± 5.0 | NB |
| P | *Symphyotrichum racemosum* | Small White Aster | | | | S2 | 3 Sensitive | 2 | 91.4 ± 0.0 | NB |
| P | *Pseudognaphalium macounii* | Macoun's Cudweed | | | | S2 | 3 Sensitive | 41 | 38.3 ± 5.0 | NB |
| P | *Impatiens pallida* | Pale Jewelweed | | | | S2 | 2 May Be At Risk | 9 | 72.4 ± 0.0 | NB |
| P | *Boechera stricta* | Drummond's Rockcress | | | | S2 | 3 Sensitive | 21 | 35.7 ± 0.0 | NB |
| P | *Sagina nodosa* | Knotted Pearlwort | | | | S2 | 3 Sensitive | 2 | 93.6 ± 0.0 | PE |
| P | *Sagina nodosa ssp. borealis* | Knotted Pearlwort | | | | S2 | 3 Sensitive | 2 | 92.8 ± 0.0 | PE |
| P | *Stellaria longifolia* | Long-leaved Starwort | | | | S2 | 3 Sensitive | 9 | 37.5 ± 1.0 | NB |
| P | *Atriplex glabriuscula var. franktonii* | Frankton's Saltbush | | | | S2 | 4 Secure | 7 | 34.2 ± 0.0 | NB |
| P | *Oxybasis rubra* | Red Goosefoot | | | | S2 | 3 Sensitive | 10 | 30.7 ± 0.0 | NB |

| Taxonomic Group | Scientific Name | Common Name | COSEWIC | SARA | Prov Legal Prot | Prov Rarity Rank | Prov GS Rank | # recs | Distance (km) | Prov |
|---|---|---|---|---|---|---|---|---|---|---|
| P | *Hypericum x dissimulatum* | Disguised St. John's-wort | | | | S2 | 3 Sensitive | 4 | 64.7 ± 0.0 | NS |
| P | *Triosteum aurantiacum* | Orange-fruited Tinker's Weed | | | | S2 | 3 Sensitive | 7 | 31.8 ± 0.0 | NB |
| P | *Shepherdia canadensis* | Soapberry | | | | S2 | 3 Sensitive | 41 | 16.8 ± 0.0 | NB |
| P | *Oxytropis campestris var. johannensis* | Field Locoweed | | | | S2 | 3 Sensitive | 26 | 83.9 ± 1.0 | NS |
| P | *Quercus macrocarpa* | Bur Oak | | | | S2 | 2 May Be At Risk | 4 | 96.2 ± 1.0 | NB |
| P | *Gentiana linearis* | Narrow-Leaved Gentian | | | | S2 | 3 Sensitive | 1 | 60.1 ± 50.0 | NB |
| P | *Myriophyllum humile* | Low Water Milfoil | | | | S2 | 3 Sensitive | 1 | 54.3 ± 1.0 | NB |
| P | *Proserpinaca palustris* | Marsh Mermaidweed | | | | S2 | 3 Sensitive | 3 | 93.1 ± 0.0 | NB |
| P | *Hedeoma pulegioides* | American False Pennyroyal | | | | S2 | 4 Secure | 8 | 67.7 ± 1.0 | NS |
| P | *Nuphar x rubrodisca* | Red-disk Yellow Pond-lily | | | | S2 | 3 Sensitive | 15 | 10.8 ± 0.0 | NB |
| P | *Polygaloides paucifolia* | Fringed Milkwort | | | | S2 | 3 Sensitive | 5 | 70.9 ± 1.0 | NB |
| P | *Persicaria amphibia var. emersa* | Long-root Smartweed | | | | S2 | 3 Sensitive | 1 | 91.1 ± 0.0 | NB |
| P | *Persicaria careyi* | Carey's Smartweed | | | | S2 | 3 Sensitive | 3 | 37.0 ± 1.0 | NB |
| P | *Anemone parviflora* | Small-flowered Anemone | | | | S2 | 3 Sensitive | 8 | 21.7 ± 0.0 | NB |
| P | *Hepatica americana* | Round-lobed Hepatica | | | | S2 | 3 Sensitive | 1 | 89.5 ± 1.0 | NB |
| P | *Crataegus scabrida* | Rough Hawthorn | | | | S2 | 3 Sensitive | 6 | 41.2 ± 1.0 | NB |
| P | *Crataegus succulenta* | Fleshy Hawthorn | | | | S2 | 3 Sensitive | 2 | 71.3 ± 0.0 | PE |
| P | *Euphrasia randii* | Rand's Eyebright | | | | S2 | 2 May Be At Risk | 7 | 73.4 ± 0.0 | PE |
| P | *Scrophularia lanceolata* | Lance-leaved Figwort | | | | S2 | 3 Sensitive | 2 | 69.6 ± 1.0 | NB |
| P | *Dirca palustris* | Eastern Leatherwood | | | | S2 | 2 May Be At Risk | 1 | 11.2 ± 1.0 | NB |
| P | *Sagittaria montevidensis ssp. spongiosa* | Spongy Arrowhead | | | | S2 | 4 Secure | 67 | 55.5 ± 0.0 | NB |
| P | *Symplocarpus foetidus* | Eastern Skunk Cabbage | | | | S2 | 3 Sensitive | 117 | 44.3 ± 1.0 | NS |
| P | *Carex comosa* | Bearded Sedge | | | | S2 | 2 May Be At Risk | 7 | 36.9 ± 0.0 | NB |
| P | *Carex granularis* | Limestone Meadow Sedge | | | | S2 | 3 Sensitive | 10 | 28.0 ± 0.0 | NB |
| P | *Carex gynocrates* | Northern Bog Sedge | | | | S2 | 3 Sensitive | 1 | 69.6 ± 1.0 | NB |
| P | *Carex hirtifolia* | Pubescent Sedge | | | | S2 | 3 Sensitive | 12 | 32.0 ± 0.0 | NB |
| P | *Carex livida* | Livid Sedge | | | | S2 | 3 Sensitive | 8 | 43.3 ± 0.0 | NS |
| P | *Carex plantaginea* | Plantain-Leaved Sedge | | | | S2 | 3 Sensitive | 1 | 63.1 ± 0.0 | NB |
| P | *Carex rostrata* | Narrow-leaved Beaked Sedge | | | | S2 | 3 Sensitive | 2 | 55.9 ± 0.0 | NB |
| P | *Carex sprengelii* | Longbeak Sedge | | | | S2 | 3 Sensitive | 2 | 77.5 ± 0.0 | NB |
| P | *Carex tenuiflora* | Sparse-Flowered Sedge | | | | S2 | 2 May Be At Risk | 9 | 41.4 ± 10.0 | NB |
| P | *Carex albicans* | White-tinged Sedge | | | | S2 | 3 Sensitive | 1 | 92.3 ± 0.0 | NS |
| P | *Carex albicans var. emmonsii* | White-tinged Sedge | | | | S2 | 3 Sensitive | 9 | 28.4 ± 0.0 | NB |
| P | *Cyperus squarrosus* | Awned Flatsedge | | | | S2 | 3 Sensitive | 1 | 98.8 ± 0.0 | NB |
| P | *Eriophorum gracile* | Slender Cottongrass | | | | S2 | 2 May Be At Risk | 50 | 21.0 ± 0.0 | NB |
| P | *Blysmopsis rufa* | Red Bulrush | | | | S2 | 3 Sensitive | 32 | 70.2 ± 0.0 | NB |
| P | *Juncus vaseyi* | Vasey Rush | | | | S2 | 3 Sensitive | 12 | 7.2 ± 0.0 | NB |
| P | *Allium tricoccum* | Wild Leek | | | | S2 | 2 May Be At Risk | 16 | 34.9 ± 0.0 | NB |
| P | *Calypso bulbosa var. americana* | Calypso | | | | S2 | 2 May Be At Risk | 2 | 38.9 ± 5.0 | NB |
| P | *Coeloglossum viride* | Long-bracted Frog Orchid | | | | S2 | 2 May Be At Risk | 14 | 23.1 ± 10.0 | NB |
| P | *Cypripedium parviflorum var. makasin* | Small Yellow Lady's-Slipper | | | | S2 | 2 May Be At Risk | 2 | 97.0 ± 7.0 | NS |
| P | *Goodyera oblongifolia* | Menzies' Rattlesnake-plantain | | | | S2 | 3 Sensitive | 1 | 80.5 ± 0.0 | PE |
| P | *Spiranthes lucida* | Shining Ladies'-Tresses | | | | S2 | 3 Sensitive | 1 | 39.2 ± 1.0 | NB |
| P | *Spiranthes ochroleuca* | Yellow Ladies'-tresses | | | | S2 | 2 May Be At Risk | 6 | 26.0 ± 0.0 | NB |
| P | *Dichanthelium linearifolium* | Narrow-leaved Panic Grass | | | | S2 | 3 Sensitive | 1 | 81.4 ± 0.0 | NB |
| P | *Elymus canadensis* | Canada Wild Rye | | | | S2 | 2 May Be At Risk | 1 | 17.4 ± 1.0 | NB |
| P | *Piptatheropsis canadensis* | Canada Ricegrass | | | | S2 | 3 Sensitive | 3 | 27.8 ± 10.0 | NB |
| P | *Poa glauca* | Glaucous Blue Grass | | | | S2 | 4 Secure | 24 | 58.1 ± 0.0 | NB |

| Taxonomic Group | Scientific Name | Common Name | COSEWIC | SARA | Prov Legal Prot | Prov Rarity Rank | Prov GS Rank | # recs | Distance (km) | Prov |
|---|---|---|---|---|---|---|---|---|---|---|
| P | *Puccinellia phryganodes ssp. neoarctica* | Creeping Alkali Grass | | | | S2 | 3 Sensitive | 2 | 37.0 ± 1.0 | NB |
| P | *Schizachyrium scoparium* | Little Bluestem | | | | S2 | 3 Sensitive | 18 | 92.1 ± 0.0 | NB |
| P | *Zizania aquatica var. aquatica* | Eastern Wild Rice | | | | S2 | 5 Undetermined | 5 | 60.2 ± 0.0 | NB |
| P | *Piptatheropsis pungens* | Slender Ricegrass | | | | S2 | 2 May Be At Risk | 5 | 35.7 ± 0.0 | NB |
| P | *Potamogeton vaseyi* | Vasey's Pondweed | | | | S2 | 3 Sensitive | 1 | 66.4 ± 0.0 | PE |
| P | *Asplenium trichomanes* | Maidenhair Spleenwort | | | | S2 | 3 Sensitive | 16 | 36.1 ± 1.0 | NB |
| P | *Anchistea virginica* | Virginia chain fern | | | | S2 | 3 Sensitive | 4 | 46.2 ± 0.0 | NS |
| P | *Woodsia alpina* | Alpine Cliff Fern | | | | S2 | 3 Sensitive | 4 | 49.1 ± 0.0 | NB |
| P | *Diphasiastrum sitchense* | Sitka Ground-cedar | | | | S2 | 3 Sensitive | 4 | 22.3 ± 0.0 | NB |
| P | *Selaginella selaginoides* | Low Spikemoss | | | | S2 | 3 Sensitive | 8 | 58.1 ± 0.0 | NB |
| P | *Toxicodendron radicans var. radicans* | eastern poison ivy | | | | S2? | 3 Sensitive | 5 | 46.1 ± 0.0 | NB |
| P | *Symphyotrichum novi-belgii var. crenifolium* | New York Aster | | | | S2? | 5 Undetermined | 5 | 48.3 ± 1.0 | NB |
| P | *Humulus lupulus var. lupuloides* | Common Hop | | | | S2? | 3 Sensitive | 2 | 63.2 ± 5.0 | NB |
| P | *Rubus x recurvicaulis* | arching dewberry | | | | S2? | 4 Secure | 5 | 13.6 ± 1.0 | NB |
| P | *Galium obtusum* | Blunt-leaved Bedstraw | | | | S2? | 4 Secure | 7 | 37.3 ± 10.0 | NB |
| P | *Salix myricoides* | Bayberry Willow | | | | S2? | 3 Sensitive | 1 | 21.4 ± 1.0 | NB |
| P | *Carex vacillans* | Estuarine Sedge | | | | S2? | 3 Sensitive | 1 | 40.1 ± 0.0 | NB |
| P | *Platanthera huronensis* | Fragrant Green Orchid | | | | S2? | 5 Undetermined | 1 | 78.0 ± 10.0 | NS |
| P | *Solidago altissima* | Tall Goldenrod | | | | S2S3 | 4 Secure | 1 | 37.6 ± 0.0 | NB |
| P | *Callitriche hermaphroditica* | Northern Water-starwort | | | | S2S3 | 4 Secure | 8 | 32.3 ± 0.0 | NB |
| P | *Elatine americana* | American Waterwort | | | | S2S3 | 3 Sensitive | 6 | 36.8 ± 0.0 | NB |
| P | *Bartonia paniculata ssp. iodandra* | Branched Bartonia | | | | S2S3 | 3 Sensitive | 23 | 52.8 ± 0.0 | NB |
| P | *Geranium robertianum* | Herb Robert | | | | S2S3 | 4 Secure | 85 | 44.1 ± 0.0 | NB |
| P | *Epilobium coloratum* | Purple-veined Willowherb | | | | S2S3 | 3 Sensitive | 5 | 36.2 ± 1.0 | NB |
| P | *Rumex pallidus* | Seabeach Dock | | | | S2S3 | 3 Sensitive | 7 | 58.6 ± 0.0 | NB |
| P | *Rubus pensilvanicus* | Pennsylvania Blackberry | | | | S2S3 | 4 Secure | 25 | 20.7 ± 0.0 | NB |
| P | *Galium labradoricum* | Labrador Bedstraw | | | | S2S3 | 3 Sensitive | 14 | 34.2 ± 0.0 | NB |
| P | *Carex adusta* | Lesser Brown Sedge | | | | S2S3 | 4 Secure | 8 | 8.3 ± 10.0 | NB |
| P | *Scirpus atrovirens* | Dark-green Bulrush | | | | S2S3 | 5 Undetermined | 1 | 68.4 ± 0.0 | PE |
| P | *Corallorhiza maculata var. occidentalis* | Spotted Coralroot | | | | S2S3 | 3 Sensitive | 7 | 20.5 ± 10.0 | NB |
| P | *Neottia auriculata* | Auricled Twayblade | | | | S2S3 | 3 Sensitive | 1 | 60.8 ± 0.0 | NB |
| P | *Spiranthes cernua* | Nodding Ladies'-Tresses | | | | S2S3 | 3 Sensitive | 19 | 21.2 ± 0.0 | NB |
| P | *Eragrostis pectinacea* | Tufted Love Grass | | | | S2S3 | 4 Secure | 6 | 8.4 ± 1.0 | NB |
| P | *Stuckenia filiformis* | Thread-leaved Pondweed | | | | S2S3 | 3 Sensitive | 2 | 31.6 ± 1.0 | NB |
| P | *Potamogeton praelongus* | White-stemmed Pondweed | | | | S2S3 | 4 Secure | 11 | 42.8 ± 0.0 | NS |
| P | *Ophioglossum pusillum* | Northern Adder's-tongue | | | | S2S3 | 3 Sensitive | 5 | 45.2 ± 0.0 | NS |
| P | *Panax trifolius* | Dwarf Ginseng | | | | S3 | 3 Sensitive | 23 | 24.5 ± 0.0 | NB |
| P | *Artemisia campestris ssp. caudata* | Tall Wormwood | | | | S3 | 4 Secure | 11 | 65.8 ± 10.0 | NB |
| P | *Artemisia campestris* | Field Wormwood | | | | S3 | 4 Secure | 2 | 99.6 ± 0.0 | NB |
| P | *Bidens hyperborea* | Estuary Beggarticks | | | | S3 | 4 Secure | 33 | 37.2 ± 1.0 | NB |
| P | *Erigeron hyssopifolius* | Hyssop-leaved Fleabane | | | | S3 | 4 Secure | 78 | 17.9 ± 1.0 | NB |
| P | *Nabalus racemosus* | Glaucous Rattlesnakeroot | | | | S3 | 4 Secure | 8 | 91.7 ± 0.0 | NB |
| P | *Symphyotrichum boreale* | Boreal Aster | | | | S3 | 3 Sensitive | 14 | 34.1 ± 0.0 | NB |
| P | *Betula pumila* | Bog Birch | | | | S3 | 4 Secure | 33 | 30.4 ± 0.0 | NB |
| P | *Turritis glabra* | Tower Mustard | | | | S3 | 5 Undetermined | 1 | 73.5 ± 0.0 | NB |
| P | *Arabis pycnocarpa* | Cream-flowered Rockcress | | | | S3 | 4 Secure | 13 | 25.1 ± 0.0 | NB |
| P | *Cardamine maxima* | Large Toothwort | | | | S3 | 4 Secure | 17 | 73.6 ± 0.0 | NB |
| P | *Subularia aquatica ssp. americana* | American Water Awlwort | | | | S3 | 4 Secure | 2 | 55.5 ± 0.0 | NB |

| Taxonomic Group | Scientific Name | Common Name | COSEWIC | SARA | Prov Legal Prot | Prov Rarity Rank | Prov GS Rank | # recs | Distance (km) | Prov |
|---|---|---|---|---|---|---|---|---|---|---|
| P | *Stellaria humifusa* | Saltmarsh Starwort | | | | S3 | 4 Secure | 19 | 23.3 ± 5.0 | NB |
| P | *Ceratophyllum echinatum* | Prickly Hornwort | | | | S3 | 3 Sensitive | 28 | 11.8 ± 0.0 | NB |
| P | *Hudsonia tomentosa* | Woolly Beach-heath | | | | S3 | 4 Secure | 219 | 36.5 ± 0.0 | NB |
| P | *Cornus obliqua* | Silky Dogwood | | | | S3 | 3 Sensitive | 53 | 90.5 ± 0.0 | NB |
| P | *Crassula aquatica* | Water Pygmyweed | | | | S3 | 4 Secure | 5 | 59.5 ± 0.0 | NB |
| P | *Rhodiola rosea* | Roseroot | | | | S3 | 4 Secure | 43 | 51.3 ± 0.0 | NB |
| P | *Penthorum sedoides* | Ditch Stonecrop | | | | S3 | 4 Secure | 27 | 29.0 ± 0.0 | NB |
| P | *Elatine minima* | Small Waterwort | | | | S3 | 4 Secure | 1 | 55.9 ± 0.0 | NB |
| P | *Geranium bicknellii* | Bicknell's Crane's-bill | | | | S3 | 4 Secure | 18 | 9.7 ± 0.0 | NB |
| P | *Myriophyllum farwellii* | Farwell's Water Milfoil | | | | S3 | 4 Secure | 9 | 37.9 ± 1.0 | NB |
| P | *Myriophyllum heterophyllum* | Variable-leaved Water Milfoil | | | | S3 | 4 Secure | 7 | 91.7 ± 0.0 | NB |
| P | *Myriophyllum verticillatum* | Whorled Water Milfoil | | | | S3 | 4 Secure | 13 | 38.3 ± 1.0 | NB |
| P | *Teucrium canadense* | Canada Germander | | | | S3 | 3 Sensitive | 114 | 27.4 ± 0.0 | NB |
| P | *Nuphar microphylla* | Small Yellow Pond-lily | | | | S3 | 4 Secure | 8 | 32.2 ± 0.0 | NB |
| P | *Epilobium hornemannii* | Hornemann's Willowherb | | | | S3 | 4 Secure | 3 | 59.9 ± 1.0 | NB |
| P | *Epilobium hornemannii ssp. hornemannii* | Hornemann's Willowherb | | | | S3 | 4 Secure | 1 | 60.0 ± 0.0 | NB |
| P | *Epilobium strictum* | Downy Willowherb | | | | S3 | 4 Secure | 29 | 18.2 ± 0.0 | NB |
| P | *Polygala sanguinea* | Blood Milkwort | | | | S3 | 3 Sensitive | 37 | 9.3 ± 0.0 | NB |
| P | *Persicaria arifolia* | Halberd-leaved Tearthumb | | | | S3 | 4 Secure | 95 | 14.5 ± 0.0 | NB |
| P | *Persicaria punctata* | Dotted Smartweed | | | | S3 | 4 Secure | 23 | 31.5 ± 5.0 | NB |
| P | *Fallopia scandens* | Climbing False Buckwheat | | | | S3 | 4 Secure | 61 | 26.7 ± 0.0 | NB |
| P | *Samolus parviflorus* | Seaside Brookweed | | | | S3 | 4 Secure | 120 | 20.3 ± 0.0 | NB |
| P | *Pyrola minor* | Lesser Pyrola | | | | S3 | 4 Secure | 5 | 46.0 ± 0.0 | NS |
| P | *Clematis occidentalis* | Purple Clematis | | | | S3 | 4 Secure | 10 | 35.2 ± 0.0 | NB |
| P | *Ranunculus gmelinii* | Gmelin's Water Buttercup | | | | S3 | 4 Secure | 47 | 21.2 ± 1.0 | NB |
| P | *Amelanchier canadensis* | Canada Serviceberry | | | | S3 | 4 Secure | 19 | 24.4 ± 0.0 | NB |
| P | *Rosa palustris* | Swamp Rose | | | | S3 | 4 Secure | 3 | 36.7 ± 0.0 | NB |
| P | *Sanguisorba canadensis* | Canada Burnet | | | | S3 | 4 Secure | 16 | 54.5 ± 0.0 | NB |
| P | *Galium boreale* | Northern Bedstraw | | | | S3 | 4 Secure | 10 | 53.9 ± 5.0 | NS |
| P | *Salix nigra* | Black Willow | | | | S3 | 3 Sensitive | 27 | 85.5 ± 50.0 | NB |
| P | *Salix pedicellaris* | Bog Willow | | | | S3 | 4 Secure | 42 | 16.2 ± 0.0 | NB |
| P | *Salix interior* | Sandbar Willow | | | | S3 | 4 Secure | 1 | 18.7 ± 1.0 | NB |
| P | *Comandra umbellata* | Bastard's Toadflax | | | | S3 | 4 Secure | 49 | 25.5 ± 0.0 | NB |
| P | *Limosella australis* | Southern Mudwort | | | | S3 | 4 Secure | 70 | 23.2 ± 0.0 | NB |
| P | *Pilea pumila* | Dwarf Clearweed | | | | S3 | 4 Secure | 62 | 29.5 ± 0.0 | NB |
| P | *Viola adunca* | Hooked Violet | | | | S3 | 4 Secure | 5 | 36.3 ± 0.0 | NB |
| P | *Viola nephrophylla* | Northern Bog Violet | | | | S3 | 4 Secure | 12 | 65.5 ± 0.0 | NB |
| P | *Carex arcta* | Northern Clustered Sedge | | | | S3 | 4 Secure | 9 | 33.3 ± 20.0 | NB |
| P | *Carex capillaris* | Hairlike Sedge | | | | S3 | 4 Secure | 19 | 51.8 ± 0.0 | NS |
| P | *Carex chordorrhiza* | Creeping Sedge | | | | S3 | 4 Secure | 54 | 33.7 ± 0.0 | NB |
| P | *Carex conoidea* | Field Sedge | | | | S3 | 4 Secure | 10 | 28.1 ± 0.0 | NB |
| P | *Carex eburnea* | Bristle-leaved Sedge | | | | S3 | 4 Secure | 11 | 31.4 ± 100.0 | NB |
| P | *Carex exilis* | Coastal Sedge | | | | S3 | 4 Secure | 6 | 56.9 ± 0.0 | NS |
| P | *Carex garberi* | Garber's Sedge | | | | S3 | 3 Sensitive | 1 | 30.5 ± 0.0 | NB |
| P | *Carex haydenii* | Hayden's Sedge | | | | S3 | 4 Secure | 4 | 14.6 ± 0.0 | NB |
| P | *Carex lupulina* | Hop Sedge | | | | S3 | 4 Secure | 20 | 29.0 ± 0.0 | NB |
| P | *Carex michauxiana* | Michaux's Sedge | | | | S3 | 4 Secure | 11 | 32.2 ± 1.0 | NB |
| P | *Carex ormostachya* | Necklace Spike Sedge | | | | S3 | 4 Secure | 6 | 32.4 ± 1.0 | NB |
| P | *Carex rosea* | Rosy Sedge | | | | S3 | 4 Secure | 14 | 66.0 ± 0.0 | NB |
| P | *Carex tenera* | Tender Sedge | | | | S3 | 4 Secure | 11 | 8.6 ± 0.0 | NB |
| P | *Carex tuckermanii* | Tuckerman's Sedge | | | | S3 | 4 Secure | 24 | 37.2 ± 0.0 | NB |
| P | *Carex wiegandii* | Wiegand's Sedge | | | | S3 | 4 Secure | 120 | 2.7 ± 0.0 | NB |
| P | *Carex recta* | Estuary Sedge | | | | S3 | 4 Secure | 16 | 28.7 ± 0.0 | NB |
| P | *Carex atratiformis* | Scabrous Black Sedge | | | | S3 | 4 Secure | 3 | 77.5 ± 0.0 | NS |
| P | *Cyperus dentatus* | Toothed Flatsedge | | | | S3 | 4 Secure | 77 | 60.8 ± 1.0 | NB |
| P | *Cyperus esculentus* | Perennial Yellow Nutsedge | | | | S3 | 4 Secure | 1 | 92.6 ± 0.0 | NB |

| Taxonomic Group | Scientific Name | Common Name | COSEWIC | SARA | Prov Legal Prot | Prov Rarity Rank | Prov GS Rank | # recs | Distance (km) | Prov |
|---|---|---|---|---|---|---|---|---|---|---|
| P | *Cyperus esculentus var. leptostachyus* | Perennial Yellow Nutsedge | | | | S3 | 4 Secure | 5 | 49.7 ± 0.0 | NB |
| P | *Eleocharis intermedia* | Matted Spikerush | | | | S3 | 4 Secure | 1 | 57.8 ± 0.0 | NB |
| P | *Rhynchospora capitellata* | Small-headed Beakrush | | | | S3 | 4 Secure | 2 | 75.2 ± 0.0 | NB |
| P | *Rhynchospora fusca* | Brown Beakrush | | | | S3 | 4 Secure | 10 | 43.5 ± 0.0 | NS |
| P | *Trichophorum clintonii* | Clinton's Clubrush | | | | S3 | 4 Secure | 24 | 59.8 ± 0.0 | NB |
| P | *Bolboschoenus fluviatilis* | River Bulrush | | | | S3 | 3 Sensitive | 4 | 14.7 ± 1.0 | NB |
| P | *Schoenoplectus torreyi* | Torrey's Bulrush | | | | S3 | 4 Secure | 5 | 11.0 ± 0.0 | NB |
| P | *Lemna trisulca* | Star Duckweed | | | | S3 | 4 Secure | 19 | 16.8 ± 0.0 | NB |
| P | *Cypripedium reginae* | Showy Lady's-Slipper | | | | S3 | 3 Sensitive | 35 | 33.8 ± 0.0 | NB |
| P | *Liparis loeselii* | Loesel's Twayblade | | | | S3 | 4 Secure | 33 | 30.4 ± 0.0 | NB |
| P | *Platanthera blephariglottis* | White Fringed Orchid | | | | S3 | 4 Secure | 177 | 2.8 ± 0.0 | NB |
| P | *Platanthera grandiflora* | Large Purple Fringed Orchid | | | | S3 | 3 Sensitive | 27 | 28.0 ± 1.0 | NB |
| P | *Bromus latiglumis* | Broad-Glumed Brome | | | | S3 | 3 Sensitive | 23 | 26.6 ± 0.0 | NB |
| P | *Calamagrostis pickeringii* | Pickering's Reed Grass | | | | S3 | 4 Secure | 7 | 43.7 ± 0.0 | NB |
| P | *Dichanthelium depauperatum* | Starved Panic Grass | | | | S3 | 4 Secure | 7 | 51.7 ± 0.0 | NB |
| P | *Potamogeton obtusifolius* | Blunt-leaved Pondweed | | | | S3 | 4 Secure | 34 | 28.9 ± 0.0 | NB |
| P | *Xyris montana* | Northern Yellow-Eyed-Grass | | | | S3 | 4 Secure | 45 | 21.3 ± 0.0 | NB |
| P | *Zannichellia palustris* | Horned Pondweed | | | | S3 | 4 Secure | 46 | 23.0 ± 0.0 | NB |
| P | *Adiantum pedatum* | Northern Maidenhair Fern | | | | S3 | 4 Secure | 1 | 89.5 ± 1.0 | NB |
| P | *Cryptogramma stelleri* | Steller's Rockbrake | | | | S3 | 4 Secure | 2 | 93.6 ± 0.0 | NB |
| P | *Asplenium viride* | Green Spleenwort | | | | S3 | 4 Secure | 15 | 36.1 ± 1.0 | NB |
| P | *Dryopteris fragrans* | Fragrant Wood Fern | | | | S3 | 4 Secure | 50 | 47.6 ± 0.0 | NB |
| P | *Woodsia glabella* | Smooth Cliff Fern | | | | S3 | 4 Secure | 44 | 47.6 ± 0.0 | NB |
| P | *Isoetes tuckermanii* | Tuckerman's Quillwort | | | | S3 | 4 Secure | 3 | 52.8 ± 0.0 | NB |
| P | *Diphasiastrum x sabinifolium* | Savin-leaved Ground-cedar | | | | S3 | 4 Secure | 16 | 20.8 ± 0.0 | NB |
| P | *Huperzia appressa* | Mountain Firmoss | | | | S3 | 3 Sensitive | 30 | 60.9 ± 0.0 | NB |
| P | *Sceptridium dissectum* | Dissected Moonwort | | | | S3 | 4 Secure | 9 | 21.9 ± 1.0 | NB |
| P | *Botrychium lanceolatum ssp. angustisegmentum* | Narrow Triangle Moonwort | | | | S3 | 3 Sensitive | 13 | 22.5 ± 0.0 | NB |
| P | *Botrychium simplex* | Least Moonwort | | | | S3 | 4 Secure | 6 | 30.7 ± 0.0 | NB |
| P | *Polypodium appalachianum* | Appalachian Polypody | | | | S3 | 4 Secure | 26 | 23.7 ± 1.0 | NB |
| P | *Crataegus submollis* | Quebec Hawthorn | | | | S3? | 3 Sensitive | 2 | 94.5 ± 7.0 | NS |
| P | *Mertensia maritima* | Sea Lungwort | | | | S3S4 | 4 Secure | 8 | 37.2 ± 0.0 | NB |
| P | *Lobelia kalmii* | Brook Lobelia | | | | S3S4 | 4 Secure | 1 | 99.3 ± 10.0 | NB |
| P | *Suaeda calceoliformis* | Horned Sea-blite | | | | S3S4 | 4 Secure | 38 | 6.0 ± 5.0 | NB |
| P | *Myriophyllum sibiricum* | Siberian Water Milfoil | | | | S3S4 | 4 Secure | 6 | 46.1 ± 0.0 | NS |
| P | *Utricularia gibba* | Humped Bladderwort | | | | S3S4 | 4 Secure | 4 | 35.6 ± 0.0 | NB |
| P | *Rumex fueginus* | Tierra del Fuego Dock | | | | S3S4 | 4 Secure | 108 | 6.5 ± 0.0 | NB |
| P | *Rubus chamaemorus* | Cloudberry | | | | S3S4 | 4 Secure | 36 | 26.5 ± 0.0 | NB |
| P | *Geocaulon lividum* | Northern Comandra | | | | S3S4 | 4 Secure | 37 | 5.8 ± 0.0 | NB |
| P | *Juniperus horizontalis* | Creeping Juniper | | | | S3S4 | 4 Secure | 14 | 21.2 ± 1.0 | NB |
| P | *Cladium mariscoides* | Smooth Twigrush | | | | S3S4 | 4 Secure | 7 | 35.6 ± 0.0 | NB |
| P | *Eriophorum russeolum* | Russet Cottongrass | | | | S3S4 | 4 Secure | 210 | 4.6 ± 0.0 | NB |
| P | *Triglochin gaspensis* | Gasp ├⌐ Arrowgrass | | | | S3S4 | 4 Secure | 69 | 28.8 ± 0.0 | NB |
| P | *Spirodela polyrhiza* | great duckweed | | | | S3S4 | 4 Secure | 16 | 34.3 ± 0.0 | NB |
| P | *Corallorhiza maculata* | Spotted Coralroot | | | | S3S4 | 3 Sensitive | 19 | 21.4 ± 10.0 | NB |
| P | *Calamagrostis stricta* | Slim-stemmed Reed Grass | | | | S3S4 | 4 Secure | 28 | 22.1 ± 2.0 | NB |
| P | *Calamagrostis stricta ssp. stricta* | Slim-stemmed Reed Grass | | | | S3S4 | 4 Secure | 16 | 38.0 ± 0.0 | NB |
| P | *Distichlis spicata* | Salt Grass | | | | S3S4 | 4 Secure | 94 | 21.3 ± 5.0 | NB |
| P | *Potamogeton oakesianus* | Oakes' Pondweed | | | | S3S4 | 4 Secure | 14 | 5.1 ± 0.0 | NB |
| P | *Toxicodendron radicans* | Poison Ivy | | | | S5 | 4 Secure | 2 | 80.5 ± 0.0 | PE |
| P | *Montia fontana* | Water Blinks | | | | SH | 2 May Be At Risk | 4 | 22.1 ± 1.0 | NB |
| P | *Barbarea orthoceras* | American Yellow Rocket | | | | SNA | | 1 | 82.7 ± 1.0 | NB |
| P | *Agalinis maritima* | Saltmarsh Agalinis | | | | SX | 0.1 Extirpated | 2 | 75.6 ± 50.0 | NB |

## 5.1 SOURCE BIBLIOGRAPHY (100 km)

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

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# APPENDIX B:

# Field Survey Results

## BIRD SURVEY RESULTS

| | | |
|---|---|---|
| Site: Fox Creek Aboiteau | Coordinates : 46.057345N 64.704877W | |
| Observers: Alain Clavette, Colin Forsythe | Temperature (C): 12 | Cloud cover: 80% |
| Date: 20/06/2019 | Time: 5:30am - 1:00pm | Wind Speed (Kmph): 10-15 |

| | | | Conservation Status | | |
|---|---|---|---|---|---|
| AOS Alpha Codes | Species name | Common Name | Cosewic | SARA | NB |
| BAEA | Haliaeetus leucocephalus | Bald Eagle | Not At Risk | Not At Risk | S1 Endangered |
| NOHA | Circus hudsonius | Northern Harrier | - | - | - |
| SWSP | Melospiza georgiana | Swamp Sparrow | - | - | - |
| CSWA | Setophaga pensylvanica | Chestnut-sided Warbler | - | - | - |
| BCCH | Poecile atricapillus | Black-capped Chickadee | - | - | - |
| RNEP | Phasianus colchicus | Ring-necked Pheasant | - | - | - |
| AMCR | Corvus brachyrhynchos | American Crow | - | - | - |
| BLJA | Cyanocitta cristata | Blue Jay | - | - | - |
| CEDW | Bombycilla cedrorum | Cedar Waxwing | - | - | - |
| AMRO | Turdus migratorius | American Robin | - | - | - |
| SWTH | Catharus ustulatus | Swainson's Thrush | - | - | - |
| TRES | Tachycineta bicolor | Tree Swallow | - | - | - |
| VEER | Catharus fuscescens | Veery | - | - | - |
| AMGO | Spinus tristis | American Goldfinch | - | - | - |
| AMRE | Setophaga ruticilla | American Redstart | - | - | - |
| YRWA | Setophaga coronata | Yellow-rumped Warbler | - | - | - |
| SOSP | Melospiza melodia | Song Sparrow | - | - | - |
| YEWA | Setophaga petechia | Yellow Warbler | - | - | - |
| MALL | Anas platyrhynchos | Mallard | - | - | - |
| COGR | Quiscalus quiscula | Common Grackle | - | - | - |
| ALFL | Empidonax alnorum | Alder Flycatcher | - | - | - |
| RWBL | Agelaius phoeniceus | Red-winged Blackbird | - | - | - |
| BBCU | Coccyzus erythropthalmus | Black-billed Cuckoo | Not At Risk | Not At Risk | S3B,S3M |
| GRCA | Dumetella carolinensis | Grey Catbird | - | - | - |
| NOPA | Setophaga americana | Northern Parula Warbler | - | - | - |
| NESP | Ammospiza nelsoni | Nelson's Sparrow | - | - | - |
| BAWW | Mniotilta varia | Black & White Warbler | - | - | - |
| NOFL | Colaptes auratus | Northern Flicker | - | - | - |
| PUFI | Haemorhous purpureus | Purple Finch | - | - | - |
| DOWO | Dryobates pubescens | Downy Woodpecker | - | - | - |
| CANG | Branta canadensis | Canada Goose | - | - | - |
| MODO | Zenaida macroura | Mourning Dove | - | - | - |

## VEGETATION SURVEY RESULTS

| | | | |
|---|---|---|---|
| Site: Fox Creek Aboiteau | | | Coordinates : 46.057345N 64.704877W |
| Observers: Alain Clavette, Colin Forsythe | | | Temperature (C): 12 |
| Date: | 20/06/2019 | Time: 5:30am - 1:00pm | |

| | | | Conservation Status | | |
|---|---|---|---|---|---|
| Number | Common Name | Species Name | Cosewic | SARA | NB |
| 1 | Trembling Aspen | *Populus tremuloides* | - | - | - |
| 2 | White birch | *Betula papyrifera* | - | - | - |
| 3 | Yellow Birch | *Betula papyrifera* | - | - | - |
| 4 | Northern Red Oak | *Quercus rubra* | - | - | - |
| 5 | Hawthorn | *Crataegus sp.* | - | - | 3 Sensitive |
| 6 | Norway maple | *Acer platanoides* | - | - | - |
| 7 | Mountain Maple | *Acer spicatum* | - | - | - |
| 8 | Red maple | *Acer rubrum* | - | - | - |
| 9 | Manitoba maple | *Acer negundo* | - | - | - |
| 10 | Pin cherry | *Prunus pensylvanica* | - | - | - |
| 11 | Service Berry | *Amelanchier sp.* | - | - | - |
| 12 | Pussy Willow | *Salix discolor* | - | - | 4 Secure |
| 13 | Cottony Willow | *Salix eriocephala* | - | - | 4 Secure |
| 14 | Black Spruce | *Picea mariana* | - | - | - |
| 15 | Red Spruce | *Picea rubens* | - | - | - |
| 16 | Tamarack | *Larix laricina* | - | - | - |
| 17 | Apple | *Malus pumila* | - | - | - |
| 18 | Showy Mountain Ash | *Sorbus decora* | - | - | - |
| 19 | Speckled Alder | *Alnus incana* | - | - | - |
| 20 | Tartarian Honeysuckle | *Lonicera tartarian* | - | - | - |
| 21 | High Bush Cranberry | *Viburnum opulus* | - | - | - |
| 22 | Broad-leaved Meadowsweet | *Spiraea latifolia* | - | - | - |
| 23 | Black Berry | *Rubus sp.* | - | - | - |
| 24 | Rasberry | *Rubus idaeus* | - | - | - |
| 25 | Rose sp. | *Rosa sp.* | - | - | - |
| 26 | Sweet Fern | *Comptonia peregrina* | - | - | - |
| 27 | Chokeberry | *Aronia sp.* | - | - | - |
| 28 | Field sow-thistle | *Sonchus arvensis* | - | - | - |
| 29 | Dandelion | *Taraxacum officinale* | - | - | - |
| 30 | White Clover | *Triolium repens* | - | - | - |
| 31 | yellow clover | *Trifolium aureum* | - | - | - |
| 32 | Red Clover | *Trifolium pratense* | - | - | - |
| 33 | Bull Thistle | *Cirsium vulgare* | - | - | - |
| 34 | Cow Vetch | *Vicia cracca* | - | - | - |
| 35 | Meadow Hawkweed | *Pilosella caespitosa* | - | - | - |
| 36 | Creeping Butter cup | *Ranunculus repens* | - | - | - |
| 37 | Strawberry | *Fragaria virginiana* | - | - | - |
| 38 | Spotted jewelweed | *Impatiens capensis* | - | - | - |
| 39 | Oxeye Daisy | *Leucanthemum vulgare* | - | - | - |
| 40 | Bunch Berry | *Cornus canadensis* | - | - | - |
| 41 | Curled dock | *Rumex crispus* | - | - | - |
| 42 | Wild sarsaparilla | *Aralia nudicaulis* | - | - | - |
| 43 | Common field horsetail | *Equisetum arvense* | - | - | - |
| 44 | broad-leaved Cattail | *Typha latifolia* | - | - | - |
| 45 | Bracken Fern | *Pteridium aquilinum* | - | - | - |
| 46 | Meadow goatsbeard | *Tragopogon pratensis* | - | - | - |
| 47 | Coltsfoot | *Tussilago farfara* | - | - | - |

**WILDLIFE SURVEY RESULTS**

| | | | |
|---|---|---|---|
| Site: Fox Creek Aboiteau | | Coordinates : 46.057345N 64.704877W | |
| Observers: Alain Clavette, Colin Forsythe | | Temperature (C): 12 | Cloud cover: 80% |
| Date: | 20/06/2019 | Time: 5:30am - 1:00pm | Wind Speed (Kmph): 10-15 |

| | | | | Conservation Status | | |
|---|---|---|---|---|---|---|
| Number | Common Name | Species Name | Observation / indicator | Cosewic | SARA | NB |
| 1 | Monarch butterfly | Danaus plexippus | Seen on trail outside survey area | Endangered | Special Concern | Special Concern S3B,S3M |
| 2 | Eastern Coyote | Canis latrans | Observed in Mash at arrival | - | - | Secure |
| 3 | Red Fox | Vulpes vulpes | scat seen on survey path | - | - | Secure |
| 4 | White-tailed Deer | Odocoileus virginianus | Foot prints seen in marsh | - | - | Secure |
| 5 | Common Raccoon | Procyon lotor | Foot prints seen in marsh | - | - | Secure |
| 6 | Red Squirrel | Tamiasciurus hudsonicus | Seen and heard in trees on survey path | - | - | Secure |
| 7 | Eastern Chipmunk | Tamias striatus | Seen in foreseted areas of survey path | - | - | Secure |
| 8 | Southern Red-backed Vole | Clethrionomys gapperi | Seen in marsh among grass | - | - | Secure |
| 9 | Canadian tiger swallowtail | Papilio canadensis | seen flying in marsh | - | - | Secure |