ENVIRONMENTAL IMPACT ASSESSMENT

HARVEY HIGH SCHOOL SEWAGE TREATMENT LAGOON DECOMMISSIONING

HARVEY, NB

Our File No.: 320-18-C

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EXECUTIVE SUMMARY

The Department of Transportation and Infrastructure is proposing to replace the Harvey High School existing sewage treatment system. The system, which includes a gravity main collection pipeline, aerated lagoon, and outfall pipe, has exceeded its designed life expectancy. The system will be replaced by a new, separate leach field system currently under construction.

The decommissioning project involves abandoning the gravity main in place, removing the five (5) manholes from the pipeline and infilling with rip-rap plugs at these locations, decommissioning the electrical entrance and chlorinator, removing the 8-foot security fence, draining the lagoon water, and infilling and grading the lagoon itself. Prior to discharging the water and infilling the lagoon, the water and sludge will be analyzed and must not exceed the applicable environmental standards.

An assessment of the potential environmental and socio-economic impacts for the proposed project was completed, and no significant adverse environmental impacts were identified for the wastewater treatment lagoon decommissioning project.

1. THE PROPONENT

1.1 NAME OF PROPONENT

The proponent is the New Brunswick Department of Transportation and Infrastructure.

1.2 ADDRESS OF PROPONENT

NB Transportation and Infrastructure
King Tower, Kings Place
PO Box 6000
Fredericton, NB E3B 5H1

1.3 CHIEF EXECUTIVE OFFICER

Mr. Chris Crowell, P. Eng.
Project Manager, Design Services
Transportation and Infrastructure
Phone: 506.444.4644
Chris.crowell@gnb.ca

1.4 PRINCIPAL CONTACT PERSON FOR THE PURPOSES OF THE EIA

Jonathan Burtt, B.Sc.F, EP.
Roy Consultants
364 York Street, Suite 201
Fredericton, NB E3B 3P7
Phone: (506) 472-9838, Ext. 2403

Email: jon.burtt@royconsultants.ca

1.5 PROPERTY OWNERSHIP

The project is located on provincial Crown Land, owned by the NB Department of Education, per Service New Brunswick (SNB) Planet (parcel identification number 75094615).

2. THE UNDERTAKING

2.1 NAME OF THE UNDERTAKING

The name of the undertaking is the *Harvey High School Sewage Treatment Lagoon Decommissioning*.

2.2 BACKGROUND

The New Brunswick Department of Transportation and Infrastructure is proposing the decommissioning of the existing sewage treatment lagoon at the Harvey High School located in Harvey, NB during the 2019 fiscal year. An upgraded sewage treatment system will be installed in 2018 under a separate regulatory process. The existing sewage treatment lagoon system consists of a gravity main, pipeline maintenance hatches (manholes), an aerated sewage lagoon, security fence, outfall pipe and access road. The lagoon currently discharges into a tributary of Lyons Stream, which is a tributary of the Oromocto River. The proposed project will involve the decommissioning of the existing infrastructure, removal of manholes, infilling of the lagoon and abandonment of the outfall pipe. The access road will remain in place.

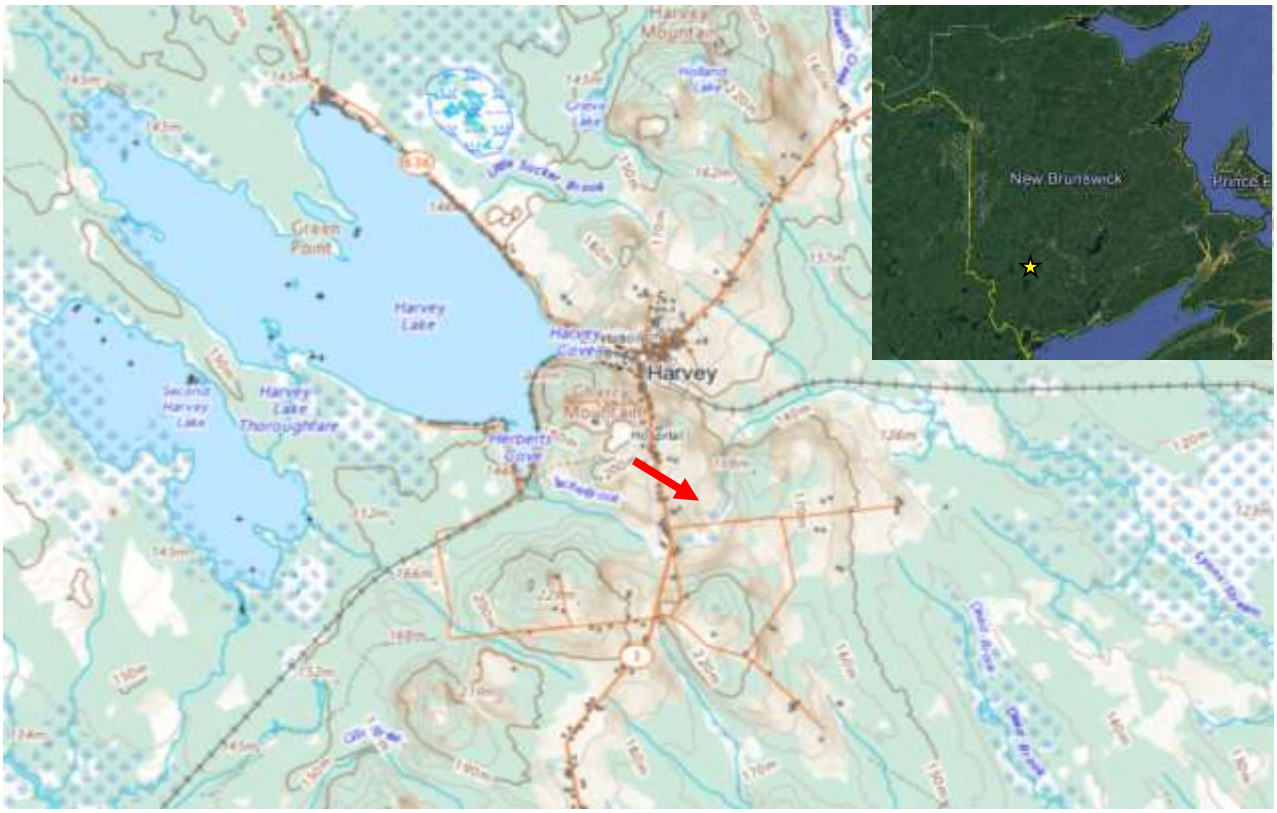

Figure No. 1: Project Location

2.3 PROJECT OVERVIEW

The New Brunswick Department of Transportation and Infrastructure (DTI) is conducting an environmental assessment of the proposed Harvey High School Sewage Treatment System Decommissioning as required by the *Environmental Impact Assessment (EIA) Regulation*, to determine the potential environmental impacts from the proposed works. The proposed project will involve the decommissioning of the existing infrastructure, removal of manholes, infilling of the lagoon and abandonment of the outfall pipe. The access road will remain in place.

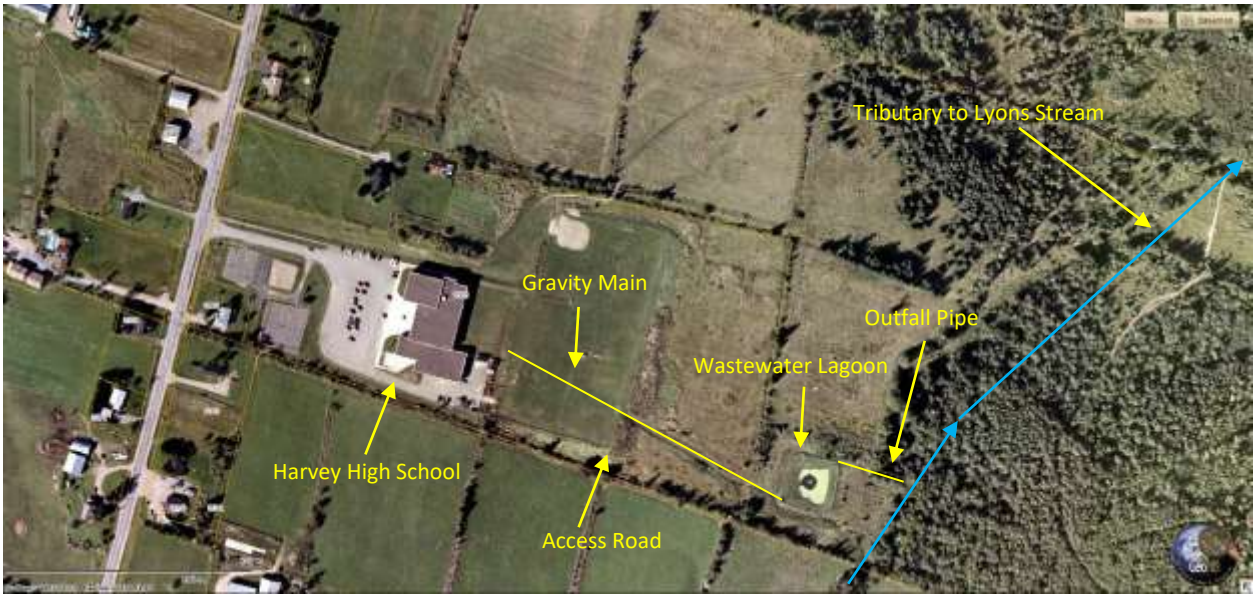

Figure No. 2: Existing Harvey High School Sewage Lagoon

The existing lagoon consists of an 8-foot security fence, aerator, electrical entrance, and the lagoon approximately 700m^2 in size. The depth of the lagoon is not known; however it is known that the lagoon is infilling and has not been maintained/dredged since its construction approximately 40 years ago. The outfall pipe is buried, and the end is encased in a concrete box in Lyon's Brook (photo 2). The gravity main pipeline is a 150mm buried concrete pipe extending from the school to the lagoon, with five (5) access hatches (manholes).

The proposed work will include the following components:

- Abandon the gravity main in place;
- Remove and infill the five manholes;
- Inlet, chlorination and outlet chambers to be abandoned and filled with pit run gravel;
- Remove the lagoon security fence, electrical entrance and aerator;
- Sample water and sludge for analysis and interpretation;
- Dewater and infill the lagoon with berm material crowned at 1% slope, and
- Abandon the discharge pipe in place.

The site will be graded to match the neighbouring slope, stabilized against erosion and will be revegetated with native flora species. No future use of the site is planned at this time.

Photo No. 1: Existing Sewage Lagoon

2.4 PURPOSE/RATIONALE/NEED FOR THE UNDERTAKING

The sewage lagoon at the Harvey High School is at its end-of-life and will require significant maintenance to enable its continued use. Furthermore, the New Brunswick Department of Transportation and Infrastructure (DTI) is installing an upgraded wastewater treatment system in 2018 which will not require a discharge to a watercourse, and therefore will have fewer potential environmental impacts. Furthermore, decommissioning the sewage lagoon will reduce the public safety hazard of having a lagoon near a school.

The null alternative was assessed but is not feasible. The lagoon is at its end-of-life and will cease to function properly without significant financial commitments. Abandoning the lagoon in place, including the manholes, could become a public health hazard given the proximity of the high school and the fact that the site is easily accessible but remote. Therefore, decommissioning the system was chosen as the most feasible approach.

Photo No. 2: Lagoon Outfall Pipe

2.5 PROJECT LOCATION

The proposed project is located at civic address 2055 Route 3, Harvey, NB (York County). The parcel is identified on SNB Planet as PID 75094615, and owned by NB Education. The parcel covers an area of 9.6 hectares and contains the Harvey High School, parking area, sports fields and lagoon site. The centre of the site is geo-referenced at LAT 45°43'11.56"N, LONG 67° 0'21.90"W.

The property is bordered to the north and south by residential properties and agricultural land use. Properties to the east are forested. To the west is Route 3 and residential properties.

Figure No. 3: Regulated Wetlands in Proximity to Subject Site (GeoNB)

No wetlands, either regulated or unmapped, are located within 30m of the project footprint. The nearest regulated wetland is located approximately 400 metres south and upstream of the subject site (Figure 3).

2.6 SITING CONSIDERATIONS

Siting considerations are not applicable, due to the existing nature of the project.

2.7 PHYSICAL COMPONENTS AND DIMENSIONS OF THE UNDERTAKING

The proposed project involves the decommissioning and/or abandonment of existing wastewater infrastructure, including the pipeline, pipeline manholes, lagoon electrical entrance, chemical disinfection system, lagoon, and outfall pipe. The proposed decommissioning project includes the following:

2.71 Pipeline

The pipeline consists of a buried 150mm diameter concrete pipe approximately 300m in length. The pipeline will be geo-referenced and left in-situ, as it does not represent an environmental concern or public safety liability. The end-of-pipe, where the pipe enters the lagoon, will be infilled with pit-run gravel and cobbles, and covered over as the lagoon is infilled.

2.72 Manholes

The pipeline contains five (5) access points, i.e. manholes along its length. The manholes, if left in place, could contribute precipitation to the pipeline, creating a conduit and potentially causing erosion down-gradient after the project is completed. However, the manholes are, more importantly, a significant public safety liability. As such, the manholes will be removed, rip-rap plugs installed at each location, and

backfilled. The steel manhole covers and concrete will be removed off-site and disposed of at an appropriate and approved waste-disposal site.

2.73 Water and Sludge Sampling

Prior to initiating any physical decommissioning of the lagoon itself, the water and sludge will be sampled and analysed to determine if it contains pollutants, such as heavy metals, hydrocarbons or significant bacteria levels, at levels which could result in significant impacts to the receiving water Lyons Brook. Results will be compared with the appropriate standards, such as the CCME Water Quality Standards for the Protection of Aquatic Life and the NB *Water Quality Regulation*. Based on these results, the wastewater will be either discharged into the receiving water, or pumped out and trucked to an approved wastewater treatment facility. The sludge in the bottom of the lagoon will be compared with the CCME Soil Quality Guidelines, and if appropriate will be left in situ or, if necessary, removed and disposed of at an approved disposal site, based on the results of the analysis. The final disposal of the sludge and wastewater will be coordinated with the Department of Environment and Local Government.

2.74 Electrical, Chemical Disinfection and Security Fence

The lagoon infrastructure will be decommissioned, including removal of the electrical infrastructure (buried cable and circuit breaker box). The chemical disinfection system will also be removed from site. Any remaining chemicals will be used at another DTI location or properly disposed of. The existing 8-foot high security fence and gate will be dismantled and taken off site for re-use or disposal at an approved waste facility.

Photo No. 3: Electrical Entrance and Chemical Disinfection (in background)

2.75 Lagoon Decommissioning

The lagoon, including the berms and wetted area is approximately 1,500m^2. The wetted area is approximately 700m^2. The depth of the lagoon is unknown at this time. Upon completion of dewatering, the lagoon berms will be pushed inward, and if necessary nearby fill will be excavated and used to complete the infilling. The site will be graded to blend in with the existing grades, and the exposed areas will be seeded to prevent soil erosion.

2.75 Discharge Pipe

The discharge pipe is encased in a concrete block at the edge of the unnamed western tributary of Lyons Brook. The pipe will be abandoned in place as the concrete box does not represent an environmental concern or safety liability (the watercourse is not navigable at this location).

2.9 APPROVALS

i. Item n, Schedule A of the *Environmental Impact Assessment (EIA) Regulation* requires that: "*all sewage disposal or sewage treatment facilities, other than domestic, on-site facilities*" undergo review. The decommissioning of the existing sewage lagoon system represents a significant modification to an existing system, and therefore requires registration under the EIA Regulation.

The original system was installed prior to the EIA Regulation, therefor no EIA was previously conducted on the system.

ii. No additional provincial permits or approvals are required.

The system has been operating subject to a DELG Approval to Operate; most recently, Approval no. S-2461 (Appendix E).

No demolition or development permit is required from the Southwest Regional Service Commission.

iii. The project does not require federal authorizations or permits; the project does not constitute a project under the *Regulations Designating Physical Activities*, is not located on federal land, does not require federal funding, and the proponent is not a federal authority.

3. DESCRIPTION OF THE EXISTING ENVIRONMENT

The subject site consists of one (1) parcel:

PID 75094615 – Harvey High School property located on Route 3, which consists of the high school building, paved parking area, tennis courts, sports field and the wastewater treatment lagoon. The remainder of the parcel is grassed/field.

The wastewater lagoon to be decommissioned is located on the southeastern corner of the property. The area surrounding the existing wastewater lagoon is a former agricultural field in the process of revegetating in trees and shrubs such as white birch, white spruce, red maple, black ash, pin cherry, speckled alder and high-bush cranberry. There are also a number of immature White Elm (*Ulmus Americana*) trees located on the slope of Lyons Brook.

3.1 TOPOGRAPHY

The topography of the subject site slopes east towards the tributary Lyons Brook. Surface water is overland, or in tree-lined ditches on each property boundary, and flows east towards Lyons Brook, or infiltrates into the overburden materials. The slope is generally shallow until within 30m of Lyons Brook, which is somewhat steeper at an estimated 3:1 gradient.

3.2 GEOLOGY

The subject site is underlain by three distinct types of Late Devonian- to Late Carboniferous-aged sedimentary rocks (NBDNR, 2008):

- Early to late Carboniferous-aged sedimentary rocks of the Pictou Group, Minto Formation consisting of grey, red-brown and locally maroon, cross- and horizontal –bedded, feldspathic and quartzose arenites and pebble arenites; grey to buff, cross- and horizontal-bedded and massive, polymictic, competent, round-clast conglomerate; lesser grey to locally red-brown, ripple- and parallel-laminated, fine-grained sandstone and siltstone; lesser red-brown to locally grey or green, massive to laminated mudstone and shale; minor nodular pedogenic calcrete and thin coal seams.

- Early to late Carboniferous-aged sedimentary rocks of the Mabou Group, Shin Formation consisting of greyish red conglomerate, arkosic sandstone and mudstone; fine- to medium-grained sandstone and minor calcrete.

Photo No. 4: Access Road to Lagoon

- Late Devonian to Early Carboniferous-aged sedimentary rocks of the Harvey Group, Harvey Mountain Formation consisting of buff to reddish brown, ash-flow tuff, ash-fall tuff, and flow-banded rhyolite; minor breccia.

Surficial geology of the area is comprised of Late Wisconsinan-aged morainal sediments consisting of lodgement till, ablation till and associated sand and gravel deposited directly by Late Wisconsinan ice or with minor reworking by water; generally 0.5 to 3m thick (Rampton, 1984).

3.3 GROUNDWATER

There are no municipal or industrial water supplies in proximity to the subject site. Residences in the region obtain their potable water from individual private wells. A review of the DELG Online Well Log System (OWLS) identified 16 domestic water supplies well within 1,000 m of the subject site.

Based on a well log search of the area within 1000 metres of PID 75094615, the local aquifer is comprised of fractured sandstone, granite and/or shale. From a review of sixteen (16) well logs, well depths which produce water range between 77 and 365 feet. One well was completed at 39 feet deep and was recorded as dry. Well yields ranged from 0 to 13 Igpm (0 to 85 m^3/day).

3.4 SURFACE WATER - WATERCOURSES

A mapped watercourse, a tributary to Lyons Brook, is located on the site near the eastern property boundary and flows to the northeast, towards the confluence of the East and West Branches of Lyons Brook, and further downstream to the Oromocto River. The existing wastewater lagoon outfall discharges into this watercourse, which is approximately 2.5m wide and 15cms in depth at the outfall location (photo 5), located in a U-shaped valley with a steep slope on the eastern bank.

The headwater of Lyons Brook is approximately 400m south, and consists of a wetland complex and Ducks Unlimited pond. The nearest large water body, Harvey Lake, is located 1.1 kilometers northeast of the subject site.

Photo No. 5: Lyons Brook

The headwater of Lyons Brook is approximately 400m south of the lagoon, and includes a Ducks Unlimited wetland complex. The nearest large water body, Harvey Lake, is located 1.1 kilometers northeast of the subject site.

Photo No. 6: View East Towards Lagoon

3.5 SURFACE WATER – WETLANDS

As shown in Figure 3, there are no Provincially Significant Wetlands (PSWs) or regulated wetlands within 30 meters of the site. A site visit confirmed there are no unmapped wetlands within or immediately downstream of the subject site.

3.6 VEGETATION

Vegetation within the subject footprint consists of mowed lawn along the pipeline within the high school athletic fields. From the edge of the sports field eastward, the subject site is a former agricultural field containing typical early-successional tree, shrub and wildflower species, including White Spruce (*Picea glauca*), White Birch (*Betula papyrifera*), Red Maple (*Acer rubrum*), Balsam Fir (*Abies balsamea*), Trembling Aspen (*Populus tremuloides*), Black Ash (*Fraxinus nigra*), White Elm (*Ulmus Americana*), Speckled Alder (*Alnus incana*), Pin cherry (*Prunus pensylvanica*), Highbush Cranberry (*Viburnum trilobum*), and Chokecherry (*Prunus virginiana*). Various wildflowers typical of a fallow field are present including Clover (*Trifolium* spp.), Aster (*Aster* spp), Goldenrod (*Solidago* spp,), Raspberry, Blackberry (*Rubus* spp.), Red-osier Dogwood (*Cornus sericea*), Hogweed (*Heracleum sphondylium*), and grasses.

3.7 WILDLIFE AND WILDLIFE HABITAT

The subject site consists of a former agricultural field in the process of successional revegetation. These areas are typically suitable habitat for a variety of small, medium and large wildlife species. Evidence of wildlife use of the site, observed during the August, 2018 site visit, included scat from a medium/large predator, and small game trails.

Based on site observations and the location of the lagoon – a field near a watercourse – the project site is considered suitable habitat for a variety of common wildlife species.

3.8 MIGRATORY BIRDS

The New Brunswick Department of Transportation and Infrastructure recognizes that migratory birds are an important consideration in any project. Environment Canada regulates the protection of migratory birds through the Migratory Birds Convention Act (MBCA), which protects migratory birds, their eggs, nests and their young through the *Migratory Birds Regulations* (MBR).

"Under Section 6 of the *Migratory Birds Regulations* (MBR), no person shall disturb, destroy or take a nest or egg of a migratory bird; or to be in possession of a live migratory bird, or its carcass, skin, nest or egg, except under authority of a permit. It is important to note that under the current MBR, no permits can be issued for the incidental take of migratory birds caused by development projects or other economic activities. Furthermore, Section 5.1 of the MBCA describes prohibitions related to deposit of substances harmful to migratory birds:

Migratory birds protected by the MBCA include all seabirds except cormorants and pelicans, all waterfowl, all shorebirds, and most landbirds (birds with principally terrestrial life cycles). Most of these birds are specifically named in the Environment Canada publication, *Birds Protected in Canada under the Migratory Birds Convention Act*, Canadian Wildlife Service Occasional Paper No. 1.

"5.1 (1) No person or vessel shall deposit a substance that is harmful to migratory birds, or permit such a substance to be deposited, in waters or an area frequented by migratory birds or in a place from which the substance may enter such waters or such an area.

(2) No person or vessel shall deposit a substance or permit a substance to be deposited in any place if the substance, in combination with one or more substances, results in a substance — in waters or an area frequented by migratory birds or in a place from which it may enter such waters or such an area — that is harmful to migratory birds."

Migratory birds observed on site included American Kestrel, Mourning Dove, and a variety of songbirds, including American Robin (*Turdus migratorius*) and Black-capped Chickadee (*Poecile atricapillus*).

3.9 SPECIES AT RISK

Canada's Species at Risk Act (SARA) is one of three major components in the Government of Canada Strategy for the Protection of Species at Risk. It is designed as a key tool for the conservation and protection of Canada's biological diversity and fulfills an important commitment under the United Nations Convention on Biological Diversity. New Brunswick also has a Species at Risk Act, which complements the federal Act.

The purpose of **SARA** is to:

- Prevent wildlife species from becoming extinct or extirpated (lost from the wild in Canada);
- Help in the recovery of extirpated, endangered or threatened species; and
- Ensure that species of special concern do not become endangered or threatened.

Information was requested from the Atlantic Canada Data Conservation Centre (ACCDC) for observations of rare and/or endangered wildlife species within a 5 km radius of the subject site (Tables 2, 3 and 4). Refer to Table 1 for S-Rank Definitions.

A review of each species' habitat requirements was completed and compared with site observations. A summary of this analysis is presented in section 4.

Table 1: ACCDC S-rank and Rarity Definitions

Atlantic Canada Conservation Data Centre (ACCDC) S-Rank **www.accdc.com/en/rank-definitions.html**	
S-RANK DEFINITIONS	
SX	Extinct or extirpated in province.
SH	Historically occurring but currently undetected in province.
S1	Extremely rare in province.
S2	Rare in province.
S3	Uncommon in province.
S4	Widespread, common and apparently secure in province.
S5	Widespread, abundant and demonstrably secure in province.
SE	Exotic in province.
SA	Accidental, infrequent and outside of range within province.
SNA	Ranking not applicable in province.
SNR	Not yet assessed in province.
BREEDING STATUS QUALIFIERS	
N	**Nonbreeding** - Conservation status refers to the non-breeding population of the species in the province.
B	**Breeding** - Conservation status refers to the breeding population of the species in the province.
M	**Migrant** - Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in the province.
?	**Inexact or uncertain:** Denotes inexact or uncertain numeric rank.

SPECIES AT RISK (SARA) (CANADA AND NEW BRUNSWICK)	
Extirpated	A wildlife species that no longer exists in the wild in Canada, but exists elsewhere in the wild.
Endangered (E)	A wildlife species facing imminent extirpation or extinction.
Threatened (T)	A wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
Special Concern (SC)	A wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.
NBERD GENERAL STATUS OF WILDLIFE	
At risk	Species for which a formal assessment has been completed, and determined to be at risk of extirpation or extinction. To be described by this category, a species must be either listed as endangered or threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), or the New Brunswick equivalent.
May be at risk	Species or populations that may be at risk of extirpation or extinction, and are therefore candidates for a detailed risk assessment by COSEWIC or the New Brunswick equivalent.
Sensitive	Species which are not believed to be at risk of extirpation or extinction, but which may require special attention or protection to prevent them from becoming at risk.
Secure	Species that are not believed to be at risk, may be at risk, or sensitive. These are generally species that are widespread and/or abundant. Although some secure species may be declining, their level of decline is not felt to be a threat to their status in the province.
COSEWIC	
X	Extinct in Canada and elsewhere.
XT	Extirpated in Canada but surviving elsewhere.
E	Endangered in Canada.
T	Threatened in Canada.
V	Vulnerable in Canada.
SC	Special Concern in Canada.
DD	Data Deficient: data inadequate for assessment.
NAR	Not At Risk in Canada.

A search of the Atlantic Canada Conservation Data Centre (ACCDC) database was conducted. The ACCDC provided a list of rare or uncommon plant and wildlife species within a 5-km buffer zone of the site. All species were cross-referenced with Schedule 1 of the Species at Risk Act (SARA), the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), and the Schedule A prohibitions of the New Brunswick Species at Risk Act (*Prohibitions Regulation* – Species at Risk Act 2013). Thirteen (13) legally listed fauna and two (2) legally listed flora were identified by the ACCDC scan as being present within a 5 km radius of the project site: Wood Thrush (*Hylocichla mustelina*), Barn Swallow (*Hirundo rustica*), Chimney Swift (*Chaetura pelagica*), Bank Swallow (*Riparia riparia*), Olive-sided Flycatcher (*contopus cooperi*), Canada Warbler (*Wilsonia canadensis*), Bobolink (*Dolichonyx*

oryzivorus), Evening Grosbeak (*Coccothraustes vespertinus*), Eastern Wood-pewee (*Contopus virens*), Cooper's Hawk (Accipiter cooperii), Canada Lynx (*lynx Canadensis*), Gray Wolf (*Canis lupus*), Eastern Cougar (*Puma concolor*), the Prototype Quillwort (*Isoletes prototypus*) and the Southern Twayblade (*Listera australis*).

Barn Swallow *(Hirundo rustica*) has a COSEWIC, SARA and Provincial Status of Threatened. Barn Swallows typically require open areas such as fields and grassland for feeding and nest under the eaves of structures like barns and in trees. Although the area may be suitable for foraging, taking into account the scope of work and the temporal and spatial extent of the project, and the habitat requirements of this species, the project is not anticipated to adversely impact the Barn Swallow.

Bank Swallow (*Riparia riparia*) has a COSEWIC and SARA status of Threatened. Bank Swallows typically require steep banks, such as riverbanks or ocean bluffs, stockpiled soil or gravel pits as nesting habitat, preferably near open terrestrial habitat for hunting flying insects (grassland, meadows, pastures, etc.) Although the area may be suitable for foraging, taking into account the scope of work and the temporal and spatial extent of the project, and the habitat requirements of this species, the proposed project is not anticipated to adversely impact the Bank Swallow.

Bobolink (*Dolichonyx oryzivorus)* has a COSEWIC, SARA and Provincial status of Threatened. Bobolinks prefer to nest in tall grasslands and hayfields, particularly field remnants reverting back to taller vegetation/shrubs. The subject site may contain suitable habitat for the Bobolink; refer to Section 4.4 for mitigation measures for impacts to this species.

Canada Warbler (*Wilsonia Canadensis*) has a COSEWIC, SARA and Provincial status of Threatened. Canada warblers prefer moist thickets or forested wetlands for breeding. Taking into account the scope of work and the temporal and spatial extent of the project, as well as the habitat requirements of this species, the project is not anticipated to adversely impact this species.

Canadian Lynx (*Lynx canadensis*) has a COSEWIC status of Not at Risk and a Provincial status of Endangered. Canadian Lynx are typically found in forested wilderness areas but can be found in other habitats provided there is minimal forest cover and sufficient prey. Canadian Lynx populations are closely tied to the population of its main prey, the snowshoe hare. Although the site may contain hunting and foraging habitat for the lynx, taking into account the scope of work and the temporal and spatial extent of the project, as well as their habitat requirements, the project is not anticipated to adversely impact the Lynx.

Chimney Swift (*Chaetura pelagica)* has a COSEWIC and SARA status of Threatened. Chimney Swifts nest in chimneys, hollow trees, caves or on cliff faces and are most common around towns with a high concentration of chimneys for nesting and roosting. They will forage for insects over open terrain, forest, ponds and residential areas. Taking into account the scope of work and the temporal and spatial extent of the project, as well as the habitat requirements of this species, the project is not anticipated to adversely impact this species.

Cooper's Hawk (*Accipiter cooperii)* has a COSEWIC status of Not at Risk. Cooper's Hawks are common woodland hawks but can also be found in parks, fields and roads if trees are present. They nest in trees located in areas of dense forest. The subject site may be suitable for foraging/hunting; however, taking into account the scope of work and the temporal and spatial extent of the project, as well as the nesting habitat requirements of this species, the project is not anticipated to adversely impact Cooper's Hawk.

Evening Grosbeak (*Coccothraustes vespertinus*) has a COSEWIC status Threatened. These birds often breed in Northern Canada in mature coniferous forests. Taking into account the scope of work and the temporal and spatial extent of the project, as well as the habitat requirements of this species, the project is not anticipated to adversely impact this species.

Eastern Wood-Pewee (*Contopus virens*) has a COSEWIC, SARA and Provincial status of Special Concern. It prefers deciduous forests and woodlands, but can be found in nearly any forest habitat, including small woodlots, provided they are relatively open. Taking into account the scope of work and the temporal and spatial extent of the project, as well as the habitat requirements of this species, the project is not anticipated to adversely impact this species.

Eastern Cougar (*Puma concolor pop. 1*) has a COSEWIC status of Data Deficient and a Provincial status of Endangered. The existence of Eastern Cougar in New Brunswick is anecdotal, and habitat preference for this species is therefore not known. This project is not anticipated to adversely impact this species.

Gray Wolf (*Canis lupus*) has a COSEWIC status of Not at Risk and a Provincial status of Extirpated. Gray Wolves have been exterminated in the Atlantic Provinces. The project is not anticipated to adversely impact this species.

Olive-sided Flycatcher (Contopus cooperi) has a COSEWIC, SARA and Provincial status of Threatened. They can be found in early post-fire landscapes perching on the tops of tall trees. They prefer to nest in trees along coniferous forest edges and forest openings (meadows, ponds, swamps, etc.) where they forage for flying insects. Taking into account the scope of work and the temporal and spatial extent of the project, as well as the habitat requirements of this species, the proposed project is not anticipated to adversely impact this species.

Wood Thrush *(Hylocichla mustelina)* has a COSEWIC, SARA and Provincial Status of Threatened. Wood thrushes prefer forest habitats and breed in deciduous and mixed forests where there are large trees. Ideal habitat includes trees over 50 feet tall, a moderate understory of saplings and shrubs, an open floor with moist soil and decaying leaf litter, and water nearby. Taking into account the scope of work and the temporal and spatial extent of the project, as well as the habitat requirements of this species, the project is not anticipated to adversely impact this species.

Isoetes prototypus, commonly known as **Prototype Quillwort**, is a perennial aquatic plant with straight, brittle leaves and a globular rootstock. This plant occurs in nutrient poor, spring-fed lakes or ponds 1.5 to 2.5 metres below water surface with well-defined shorelines and banks that are not marshy (wetland indicator code OBL). Taking into account the scope of work and the temporal and spatial extent of the project, as well as the habitat requirements of this species, the project is not anticipated to adversely impact this species.

Listera australis, commonly known as **Southern Twayblade**, is a very small orchid terrestrial typically found on open and forested peat bogs and swamps (wetland indicator code FACW). Taking into account the scope of work and the temporal and spatial extent of the project, as well as the habitat requirements of this species, the project is not anticipated to adversely impact the Southern Twayblade.

3.10 ENVIRONMENTALLY SIGNIFICANT AREAS

A review of the Nature Trust NB Environmentally Significant Area (ESA) database found four (4) ESAs within a 5 km radius of the subject site:

- ESA #559 Harvey Lake String Bog

This ESA, approximately 3.3 kilometers north of the project site, is located 3 kilometers north of Harvey Station, just east of Harvey Lake along Route 636. This ESA is identified as a biologically significant site for flora. Southern Twayblade (*Listera australis Lindl*.), formerly known only from Kouchibouguac National Park, was discovered here in 1988 and about 7 specimens have been identified in approximately 5 square metres of the bog, located in small openings in the treed bog in sphagnum under Black Spruce. This bog covers an approximate area of 181 hectares with 30% tree cover and is separated from Harvey Lake in the west by a mineral ridge. The deposit is composed of a raised dome with narrow margins, and several scattered lakes. Given the distance and location from the project site, the project is not anticipated to impact this ESA.

- ESA #669 Harvey Road Cuts

This ESA, approximately 1.2 kilometers north of the project site, is located within the Village of Harvey along Harvey Lake Road. This ESA is identified as a significant site for geology. The road cuts at the intersection of Route 3 and Cherry Street are Carboniferous flow-banded rhyolitic lava with columnar joints visible in the road cuts of similar volcanic rocks on the east side of Harvey Lake on Route 636. These hexagonal shaped joints are formed as the rocks cooled. Given the distance and location from the site, the project is not anticipated to impact this ESA.

- ESA #673 Second (Little) Harvey Lake

This ESA, approximately 3.7 kilometers west of the project site, is located west of Harvey. This ESA is identified as a biologically significant site for birds. The area around the lake supports one nesting pair of bald eagle. Given the distance from the project site, the project is not anticipated to impact this ESA.

- ESA #678 Holland (Tower/Harvey Mountain) Lake

This ESA, located approximately 3.6 kilometers northeast of the project site, is located North of Route 3 between Harvey and Acton. This ESA is identified as a biologically significant site for flora. Holland Lake is a cool, elliptical, undisturbed boreal pond that is forested right up to the edge of the water and measures approximately 1200 by 800 meters. The pond bottom is soft and flocculent and slopes off rapidly to water greater than 2 meters deep. It is one of very few lakes in the province with a straight bank formed by an adjacent cliff. Beaver activity raised the water level and flooded much of the shoreline forest a few years ago; the beaver lodge has since been removed and the water level returned to normal. Hinds (1986) lists two taxa of Isoetes with single occurrences at this lake: I. acadiensis Kott and I. tuckermanii A. Br. var. borealis A.A. Eaton. Field work in 1988 and 1989 led to the discovery of a new species: Isoetes prototypus D.M. Britton. This species is known to occur in only 6 lakes in the world: one (1) in New Brunswick, four (4) in Nova Scotia and one (1) in Maine. The area is used by a great variety of wildlife including Osprey, Loon, Otter, Beaver, Bear, Deer and Moose. Given the distance from the project site, the project is not anticipated to impact this ESA.

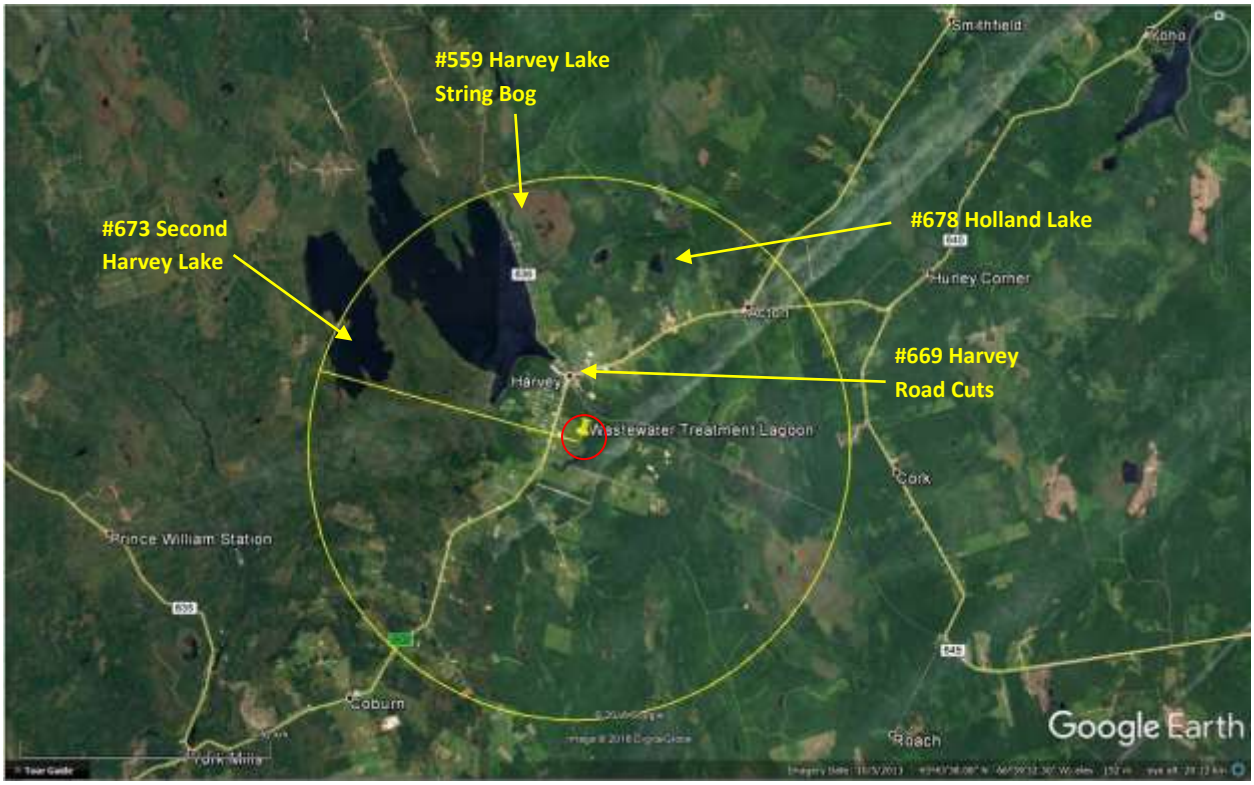

Figure No. 4: ESA Locations. Subject site is shown in red (GeoNB, 2018)

3.11 IMPORTANT BIRD AREAS

IBACanada.ca was consulted to determine which, if any, Important Bird Areas (IBA) were located near the proposed project. The site is not located within an IBA; the nearest in proximity is NB010: Lower St. John River (Sheffield/Jemseg) which is located approximately 34 kilometers northeast of the proposed project. Due to the location and distance to this important bird area, the project is not anticipated to adversely impact this area.

3.12 ATMOSPHERIC

No ambient air quality monitoring stations or industrial emitters are located in the Harvey region. Wood-burning fireplaces, campfires and vehicle emissions are the most likely contributors of particulate matter and VOCs in the region. Based on the rural nature of the area, the low population density and lack of significant air emissions in the region, the ambient air quality can be reasonably assumed as very good.

The proposed project may temporarily impact air quality at the project site; refer to section 4.5.

3.13 ARCHAEOLOGICAL AND HERITAGE RESOURCES

At this time, no information on archaeological resources at this site has been obtained. A request for archaeological resources information and probability mapping has been submitted to the Dept. of Tourism, Heritage and Culture's Archaeological Services Unit and will be provided to DELG upon receipt.

A search of the NB register of Historic Places website search engine did not identify any heritage resources within proximity of the project site.

3.14 LAND USE

The project is on Crown land owned by the New Brunswick Department of Education, and is within the planning area of the Southwest Regional Service Commission (SWRSC). The site is located along Route 3 in a rural, mixed residential / agricultural area.

One (1) Remediation Sites Management System Land Gazette environmental property flag exists for the subject property. A petroleum contamination file was opened in October 2008 for a spill within the high school's elevator, and unconditional site closure was achieved in 2010. The party responsible for remediation is listed as NB Education and the consultant is listed as ARC Geobac.

No adverse land use impacts are anticipated from the completion of the project. Based on communication with the SWRSC, no demolition permit is required for the proposed lagoon decommissioning.

3.2 SOCIO-ECONOMIC CONDITIONS

3.2.1 Population and Economy

According to the Canada Census Bureau, the 2016 population of the Town of Harvey was 358, down 1.4% from 2011. The average age is 44.4, and the majority of citizens are between the age of 14 and 65. Harvey is a rural community, many of whose residents are employed in and commute daily to, Fredericton. The primary economic drivers in Harvey are cottages/tourism, the sales and service industry and the transportation, trades and equipment operator industry.

The subject property is located outside of the Harvey village limits, within the local service district of Manners Sutton, in the Region 10 Southwest Regional Service Commission planning area.

The proposed project is not anticipated to adversely impact the population or economy in the Harvey region.

3.2.2 Heritage Sites

A review of information provided by www.Historicplaces.ca and the New Brunswick Register of Historic Sites' website shows there are no heritage sites in proximity to the proposed project.

3.2.3 Transportation

The project site is located off Route 3, a provincial arterial highway with an Annual Average Daily Traffic (AADT) of 1920. The proposed project is on the Harvey High School property, and is within a reduced-speed school zone within a 50km/h speed zone.

The proposed project is not anticipated to significantly impact transportation on Route 3, as it will not significantly increase the amount of vehicles entering and leaving the school site (equipment required for the completion of the project will be limited to an excavator, a dump truck and trailer, and personal employee's vehicles. No special access or transportation permit is anticipated for the project, as the project site will be accessed via the Harvey High School main entrance, and no oversized or overweight loads will be required.

Photo No. 7: Google Earth Street View of Route 3 at Harvey High School Entrance

4. ENVIRONMENTAL ASSESSMENT OF POTENTIAL IMPACTS

Based on the project description and the existing environment, the following potential Valued Environmental Components (VECs) were identified and assessed for the potential project/environment interactions from the completion of the proposed project:

a) Surface Water Quality: Water quality of Lyons Brook may be impacted from construction sediment migrating downhill;
b) Groundwater Quality: Groundwater quality could be adversely impacted in the event of a petroleum spill;
c) Wildlife: Wildlife within the vicinity of the project footprint may be temporarily disturbed or displaced from the completion of the project;
d) Migratory Birds: Birds within the area may be temporarily displaced or disturbed from the operation of heavy equipment;
e) Species at Risk: The Bobolink may be impacted by the operation of heavy equipment and excavation of the site;
f) Soil quality at the site could be degraded in the event of a petroleum spill;
g) Atmospheric Quality: Air quality parameters such as noise, dust and vehicle emissions may be degraded during construction, and
h) Archaeological and Heritage Resources, Aboriginal Traditional Land Use may be impacted by the project.

A qualitative rating system is used to evaluate the potential for interactions between the project and the VECs above. A rating was given to each Valued Environmental Component (VEC) based on the potential interaction between the project and the each VEC, and a rating was applied to each according to the information gathered and the professional judgment and experience of the consultant.

0 = No interaction anticipated.

1 = Interaction occurs; however, it is unlikely to result in a significant environmental effect even without mitigation, or it is unlikely to be significant because of mitigation measures.
2 = Interaction could potentially result in an environmental effect.

Where there is a potential for project-VEC interaction (ratings of 1 or 2), further discussion is provided in the following sections. For issues where there is limited interaction (ratings 0 or 1), a rationale is provided and the issue is not discussed further in the present report. Potential project-environment interactions are presented in Table 2.

The potential VECs that have a rating of zero for all activities indicate that particular VEC is not present within or in proximity to the project's footprint. The rationales for excluding these VECs from further assessment are discussed in the following sections.

Significance of potential environmental effects is also evaluated in this section, based on a consideration of four (4) characteristics of the project-VEC interaction:

Likelihood: what is the likelihood of the impact on the VEC?
Severity of the impact (spatial and temporal scale), and
Mitigation: What mitigation measures can be employed to minimize the impact, and how efficient?

Table No. 2: Potential Project-Environment Interactions Matrix

Activities / Potential VEC	Construction / Installation of the Physical Work	Operation / Maintenance of the Physical Work	Decommissioning / Abandonment of the Physical Work	Accidents and Unplanned Events
Biophysical				
Groundwater	0	0	0	1
Surface Water	0	0	1	1
Soil Quality	0	0	1	1
Wetlands	0	0	0	0
Wildlife	0	0	1	0
Migratory Birds	0	0	1	0
Species at Risk	0	0	1	0
Atmospheric Quality	0	0	1	1
Environmentally Significant Areas	0	0	0	0
Socio-Economic				
Archaeology and Heritage Resources*	0	0	0	0
Land Use	0	0	0	0
Economy and Jobs	0	0	0	0
Transportation	0	0	0	0

*****Archaeological resource probability mapping has been requested and will be submitted to the DELG upon receipt.

4.1 SURFACE WATER

Existing Conditions:

A branch of Lyons Brook is the receiving water for the sewage lagoon outfall, and is located approximately 55m downgradient of the lagoon fence. This watercourse is approximately 3m bank-width and is located within a U-shaped valley with mature trees within the riparian zone. The watercourse flows north and then turns east and south towards its confluence with the North Branch of the Oromocto River, approximately 16km southeast of the project site.

Project-VEC Interactions, Potential Environmental Effects:

At present, water quality in Lyons Brook is impacted by the effluent discharge from the lagoon outfall.

Description of Potential Impact 1: Completion of the project will result in the improvement to water quality in Lyons Brook, as the infilling of the wetland and removal of the lagoon outlet will remove the effluent from discharging into the brook.

Description of Potential Impact 2:
Excavation and infilling of the lagoon will result in exposed soil upgradient of Lyons Brook. During heavy precipitation events, erosion may occur and sediment could migrate into Lyons Brook, impacting water quality.

Recommended Mitigation 1:
The lagoon is approximately 55m upgradient of the watercourse; the vegetation ground cover in this area, consisting primarily of grasses and shrubs, will remain undisturbed to act as a natural filter to overland flow.

Recommended Mitigation 2:
Standard sediment and erosion controls will be employed at the lagoon site; sediment silt fencing will be installed downgradient of the lagoon excavation, all exposed and stockpiled soil will be covered with mulch or hay, and the completed site will be seeded (with native seed mix) to prevent erosion.

Significance of Potential Impacts:
Due to the short-term and temporary nature of the potential impacts from construction, and the improvement to water quality from decommissioning the lagoon, the project is not considered likely to adversely impact surface water quality and therefore is considered not significant.

4.2 WILDLIFE

Existing Conditions:
The project site is considered habitat to common New Brunswick wildlife species.

Project-VEC Interactions, Potential Environmental Effects:
During construction, the noise created by the use of motorized equipment and workers on site will disrupt and displace wildlife species within proximity of the site.

Description of Potential Impact 1:
Wildlife will be displaced from the site for the duration of construction.

Recommended Mitigation 1:
The project schedule has been designed to maintain as minimal a footprint, both spatially and temporally, as possible. This will result in a temporary disturbance to wildlife in the area, for approximately 3 weeks, over an area roughly 800m^2 in size.

Significance of Potential Impacts:
Due to the short-term and temporary nature of the potential impacts from construction, and the minimal project footprint required, impacts to wildlife on site are considered not significant.

4.3 MIGRATORY BIRDS

Existing Conditions:
The project site is within a rural, agricultural area in a field remnant, which contains suitable nesting and foraging habitat for a variety of migratory bird species.

Project – VEC Interactions, Potential Environmental Effects and Mitigation Measures:
Construction of the project may displace or disturb migratory birds in the vicinity of the project footprint.

Description of Potential Effect 1:
Noise generated by motorized equipment and workers will disturb and displace migratory birds from the vicinity of the project site.

Description of Recommended Mitigation 1:
The proposed timing and duration of the project will be scheduled outside of the bird nesting season to avoid disturbance of nesting birds. The project will be completed within a short time window to further reduce potential disturbance of any remaining migratory birds in the area.

Significance of Potential Impacts
Due to the temporary nature of the project, the scheduling of the works outside of the nesting season, and the short time required to complete the project, impacts to migratory birds are considered unlikely and not significant.

4.4 SPECIES AT RISK

Existing Conditions:
A review of the ACCDC report identified Bobolink as occurring in or near the project site. The project is in close proximity to potential habitat for Bobolink, a bird Species at Risk which generally inhabits tall grassy fields and prairies.

Project-VEC Interactions, Potential Environmental Effects:
Construction activities could disturb or displace Bobolinks.

Description of Potential Impact 1:
Bobolink may be inhabiting the site, or on adjacent properties. The use of motorized equipment will create sensory disturbance to this species, potentially displacing them further away from the site and outside their territory.

Description of Recommended Mitigation 1:
The proposed project is scheduled to take place during the Fall of 2018 or the spring of 2019, outside of the Bobolink nesting season.

Figure No. 5: Bobolink Nesting Calendar

Significance of Potential Impacts:
Due to the temporary nature of the project and the scheduling of the work outside of the Bobolink nesting season, impacts to Species at Risk are considered unlikely and not significant.

4.5 ATMOSPHERIC QUALITY

Existing Conditions: No industrial air emitters are found within the Harvey region. Air quality is considered very good to excellent.

Project-VEC Interactions, Potential Environmental Effects:
Air quality impacts, such as noise and greenhouse gas emissions from motorized equipment, will occur during the construction period.

Potential Environmental Impact 1 – Noise:
Decommissioning of the project will require the use of heavy equipment, such as a bulldozer or excavator, which will generate motor noise and the back-up signal. This may disturb or displace wildlife, including birds, from the immediate vicinity of the lagoon. It could also be a nuisance to nearby residences.

Potential Environmental Impact 2 – Greenhouse Gas Emissions
The use of motorized equipment will create greenhouse gas emissions in the form of diesel combustion by-products during the excavation, infilling and levelling of the site.

Recommended Mitigation 1:
The number of motorized equipment required for the project will be minimal, likely requiring only an excavator. Any motorized equipment on site will be properly maintained and muffled to reduce noise. The construction will be scheduled to be completed in as short a time window as possible, to minimize the temporal scale of any impacts. Work will be undertaken only during regular working hours to minimize noise on neighbouring properties.

Recommended Mitigation 2:
Motorized equipment will be properly maintained to prevent any excessive vehicle emissions. Idling of equipment when not in use will be prohibited, and the scheduled work period will be minimized to the greatest extent possible, to minimize the period of time where motorized equipment is used.

Significance of Potential Impacts
Due to the remote location of the lagoon in a low valley, the absence of nearby receptors (the nearest home is approximately 400m away, within only three (3) homes within 500m), the short work period, temporary nature of the work, and the proposed mitigation, impacts from noise and greenhouse gasses will be temporary, small-scale/limited, and therefore not significant.

4.6 ARCHAEOLOGY AND HERITAGE RESOURCES

A request has been made to the Archaeological Services Unit of the Department of Tourism, Heritage and Culture for any known archaeological resources in proximity to the subject site. The information will be forwarded to DELG upon its receipt.

5. ACCIDENTS AND UNPLANNED EVENTS

Accidents and unplanned events can occur during any project, and can contribute adverse environmental effects to a site, primarily through spills or accidental releases of hydrocarbons from heavy equipment.

Project-VEC Interactions, Potential Environmental Effects:
Use of heavy motorized equipment requires petroleum products, mainly diesel and hydraulic fluid. In the event of an accidental release, these products can adversely impact groundwater, surface water, soil and air quality.

Potential Environmental Impact 1 – Groundwater:
Hydrocarbons can adversely impact quality of groundwater at the site, including rendering groundwater non-potable to future potential users, and possibly impacting the aquifer water quality.

Potential Environmental Impact 2 – Surface Water Quality
Hydrocarbons can adversely impact quality of surface water, if a spill occurs in sufficient quantity to reach Lyons Brook.

Potential Environmental Impact 3 – Soil Quality
Hydrocarbons can adversely impact quality of soil in the location of a spill.

Potential Environmental Impact 4 – Air Quality

An accidental release of hydrocarbons could result in localized adverse impacts to air quality.

Recommended Mitigation:
Motorized equipment on site will be properly maintained and operated within their safe operating limits. Only trained and licensed heavy equipment operators will be used in the project. Each piece of motorized heavy equipment shall contain a spill kit suitable for cleaning up hydrocarbon spills. In the event of a spill, the spill will be immediately contained and the contaminated soil removed and stored, until proper disposal. All spills will be reported to the NB Dept. of Environment and Local Government office in Fredericton at 453-2690, or the 1-800-565-1633 Toll-Free Line if outside normal business hours.

Significance of Potential Impacts

Given the narrow time window in which the project will take place, and the mitigation measures described herein, adverse environmental impacts from accidents or unplanned events are considered unlikely, temporary, reversible and therefore not significant.

6. HAZARDOUS WASTE

The decommissioning of the lagoon is not anticipated to generate hazardous waste.

Solid waste from the decommissioning of existing infrastructure, such as steel manholes, concrete and security fencing, will be removed from the site and disposed of at an approved waste disposal facility or re-used if possible. The sludge and wastewater in the lagoon is not anticipated to contain hazardous waste; the final disposal of the sludge and wastewater will be conducted based on the results of the sampling and in discussion with the DELG.

7. CUMULATIVE EFFECTS

The completion of the proposed decommissioning will result in temporary and small-scale environmental impacts within the project footprint only, as well as an improvement to the water quality of Lyons Brook downstream. Based on the minimal temporal and spatial scale of the project, and the improvement of water quality impacts in Lyons Brook, no cumulative effects assessment is necessary for the proposed project.

8. IMPACT OF THE ENVIRONMENT ON THE PROJECT

The completion of the proposed decommissioning will result in a re-establishment of pre-lagoon conditions at the site. The project site is upgradient from Lyons Stream and contains well-drained soils, and is not known to flood during significant precipitation events. As the lagoon will no longer be accepting waste, any significant precipitation events will provide dilution to the lagoon water, thereby aiding in the effluent quality before it is emptied. Based on the minimal temporal and spatial scale of the project, and the removal of the lagoon infrastructure, the environment, including significant storm events and climate change projections, are not anticipated to impact the project.

9. PUBLIC INVOLVEMENT

The public involvement activities proposed for this project registration will be conducted as per the requirements of Schedule C of the *Guide to Environmental Impact Assessment in New Brunswick (2012)*, and will involve the following public involvement activities, based on a program submitted to and approved by DELG:

1. The proponent shall communicate directly with elected officials (i.e. the MLA and mayor), local service districts, community groups, environmental groups, and other key stakeholder groups (companies, agencies, interest groups, etc.) and First Nations as appropriate, enabling them to become familiar with the proposed project and ask questions and/or raise concerns.

2. The proponent shall provide direct, written notification (letter, information flyer, etc.) about the project and its location to potentially affected area residents, landowners and individuals (to be determined in consultation with Sustainable Development, Planning and Impact Evaluation Branch). The notification must include the following:
    a. A brief description of the proposed project;
    b. Information on how to view the Registration Document;
    c. A description of proposed location (map is desirable);
    d. The status of the Provincial approvals process (i.e.: "The project is currently registered for review with the Department of Environment and Local Government under the Environmental Impact Assessment Regulation, Clean Environment Act");
    e. A statement indicating that people can ask questions or raise concerns with the proponent regarding the environmental impacts; • Proponent contact information (name, address, phone number, E-mail); and
    f. The date by which comments must be received (See Section 6.0 of the Registration Guide).

3. When the EIA report is finished, it will be submitted to DELG and placed on the DELG Website at http://www.gnb.ca/0009/0377/0002/0016-e.pdf and shall make the Registration Document (and any subsequent submissions in response to issues raised by the Technical Review Committee) available for public review at 20 McGloin Street, 2nd Floor, Fredericton, N.B.

4. The proponent shall make copies of the project registration document (and any subsequent submissions in response to issues raised by the Technical Review Committee) available to any interested member of the public, stakeholder or First Nation and shall deposit a copy of this document along with any subsequent revision with the appropriate DELG regional office, where it will be available for public review.

5. The proponent shall make the project registration document (and any subsequent submissions in response to issues raised by the Technical Review Committee) available in at least two locations local to the project area (e.g.: the proponent's offices, a public library, a municipal office, another public location).

6. Within 60 days of project registration, the proponent shall prepare and submit to the Department of Environment and Local Government a report documenting the above public involvement activities, and shall make this report available for public review.

The public involvement strategy will also be submitted under separate cover to the DELG Project Manager for approval, and a summary report outlining the strategy and its results will be submitted for review within 60 days of the date of registration.

10. ABORIGINAL DUTY TO CONSULT

According to the 2011 Government of New Brunswick Duty to Consult Policy, "The Government of New Brunswick will consult with First Nations before an action or decision is taken that may adversely impact Aboriginal and treaty rights". These actions or decisions include:

- Regulations, Policies, Plans and Procedures
- Resource Management
- Crown Land Management
- Land Use and Environmental Regulation

The proposed decommissioning project is located on Crown Land, and falls under the category of "Land Use and Environmental Regulation" as there is a potential adverse impact to First Nations rights.

The nearest First Nations to the project site are the following Wolastoqiyik First Nations:

- Kingsclear First Nations (35km);
- St. Mary's First Nation (40km);
- Oromocto First Nations (45km);
- Woodstock First Nation (70km).

A project description, including map of the site, will be sent to the Chiefs of the above First Nations. The Wolastoquey Nation in New Brunswick (WNNB) will also be sent a copy of each letter.

If any additional information on the potential for archaeological resources or First Nations Traditional Use in the area of the project is obtained, it will be forwarded to DELG at that time.

11. APPROVAL OF THE UNDERTAKING

The following permits, approvals and authorizations are anticipated for the project to include but not be limited to:

Provincial

- Certificate of Determination – NB DELG

Federal

No federal approval or authorization is anticipated for this project.

12. FUNDING

The project is being funded by the NB Department of Transportation and Infrastructure.

13. CLOSING STATEMENT

This environmental impact assessment identified Valued Environmental Components which may potentially be impacted by the decommissioning of the Harvey High School Sewage Lagoon System. Significance was determined based on the criteria of *likelihood*, *scale*, *duration* and proposed *mitigation*.

VECs were identified and assessed as either not potentially impacted by the project, or potential impacts were not considered significant based on the above criteria.

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APPENDIX A:

Project Drawings/Figures

Review of Options to Upgrade the Watsewater Treatment and Disposal System at the Harvey High School - Site Layout

NATECH
Environmental Services Inc.
2492 Route 640, Hanwell, NB E3A 2C2
Ph.: (506) 455-1085 Fax: (506) 455-1088

DATE: 2018/02/26

FILE: HHS-18-01

SCALE: NB Stereographic Coordinates (m)

FIGURE: 1

New Nouveau Brunswick

Department of Transportation and Infrastructure

Ministère des Transports et de l'Infrastructure

Buildings Division

Division des Bâtiments

Consultant / Expert-conseil

Consultant / Expert-conseil

NATECH

Environmental Services Inc.

2492 Route 640, Hanwell, NB E2E 2C2

ph: (506) 455-1085, fax: (506) 455-1088

General notes / Notes générales

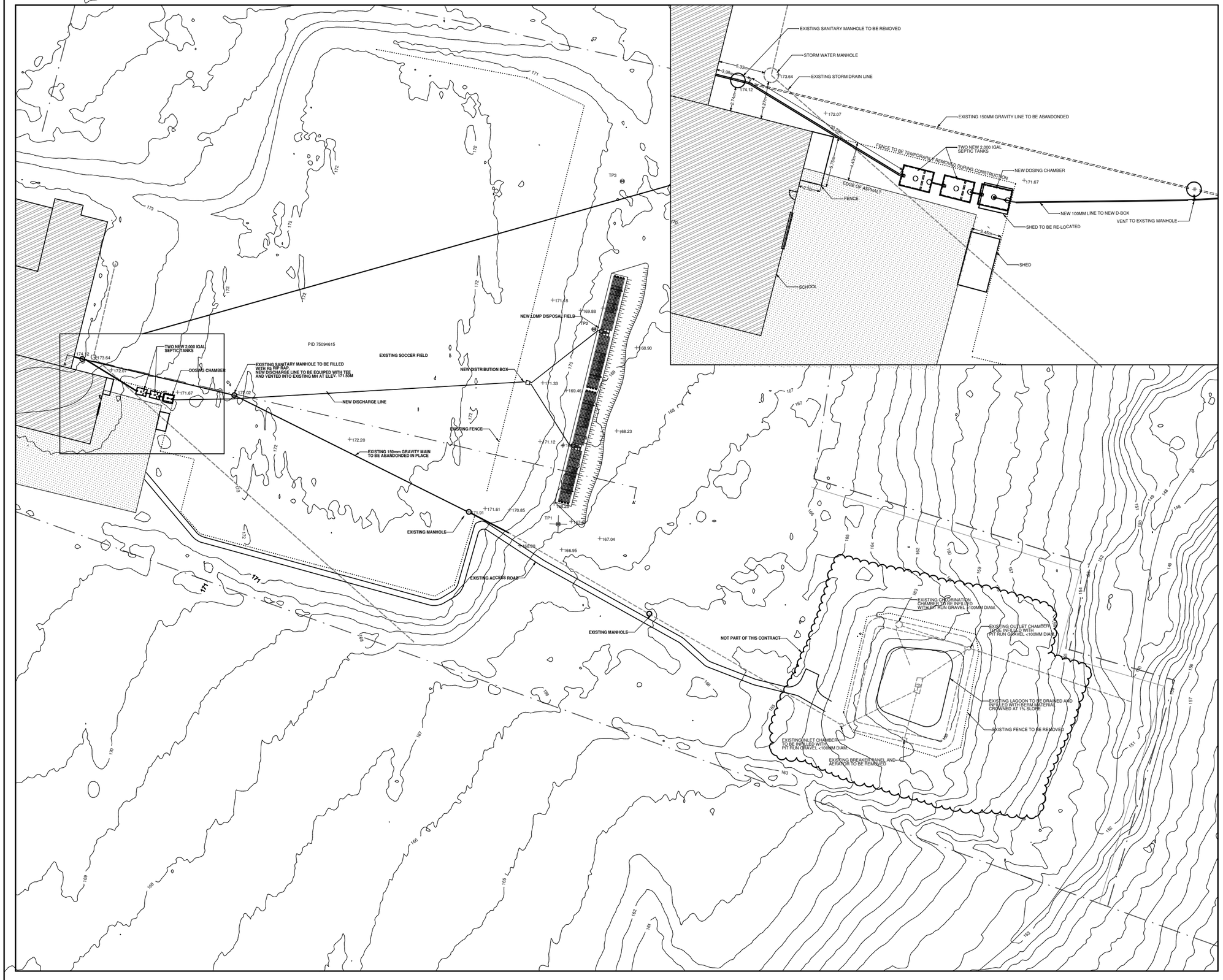
Revisions / Révisions	No/N°	Date
For Tender	03	2018 06 01
For Approval	02	2018 05 25
For Information	01	2018 02 23

ON-SITE DISPOSAL
SYSTEM INSTALLATION
HARVEY HIGH SCHOOL
HARVEY, NB

COVER

Date / Date: 2018 02 23	Stamp / Sceau
Scale / Échelle: 1 : 700	
Drawn by / Dessiné par: T. CLEGHORN	
Approved by / Approuvé par: J. SCHROER	
Consultant reference number / Numéro de référence de l'expert-conseil	

Project No. / N°du projet	Sheet No. / N°de la feuille
318-A26 BY8146	C-01



New Nouveau Brunswick

Department of Transportation and Infrastructure

Ministère des Transports et de l'Infrastructure

Buildings Division

Division des Bâtiments

Consultant

Expert-conseil

N

Consultant

Expert-conseil

NATECH

Environmental Services Inc.

2492 Route 640, Hanwell, NB E3E 2C2

ph: (506) 455-1085, fax: (506) 455-1088

General notes

Notes générales

Revisions / Révisions	No/N°	Date
For Tender	03	2018 06 01
For Approval	02	2018 05 25
For Information	01	2018 02 23

ON-SITE DISPOSAL SYSTEM INSTALLATION HARVEY HIGH SCHOOL HARVEY, NB

SITE LAYOUT

Date / Date: 2018 02 23

Scale / Échelle: 1 : 500

Drawn by / Dessiné par: T. CLEGHORN

Approved by / Approuvé par: J. SCHROER

Consultant reference number / Numéro de référence de l'expert-conseil:

Stamp / Sceau

Project No. / N°du projet: 318-A26 BY8146

Sheet No. / N°de la feuille: C-02

APPENDIX B:

Site Photos

Photo No. 1: Harvey High School

Photo No. 2: Access Road to Lagoon

Photo No. 3: Manhole at Sports Field

Photo No. 4: View of Lyons Brook Valley and Lagoon Site from School Sports Field

Photo No. 5: View of Lagoon from Upgradient

Photo No. 6: View of Lagoon looking north

Photo No. 7: Lagoon Electrical Entrance

Photo No. 8: Lagoon Gate, Manhole

Photo No. 9: Lagoon Looking West

Photo No. 10: Lyons Brook Tributary

Photo No. 11: Lagoon Discharge

Photo No. 12: 1945 DNR Site Aerial Photo

Photo No. 13: 1976 DNR Site Aerial Photo

Photo No. 14: 1976 DNR Site Aerial Photo

Photo No. 15: 2004 DNR Site Aerial Photo

APPENDIX C:

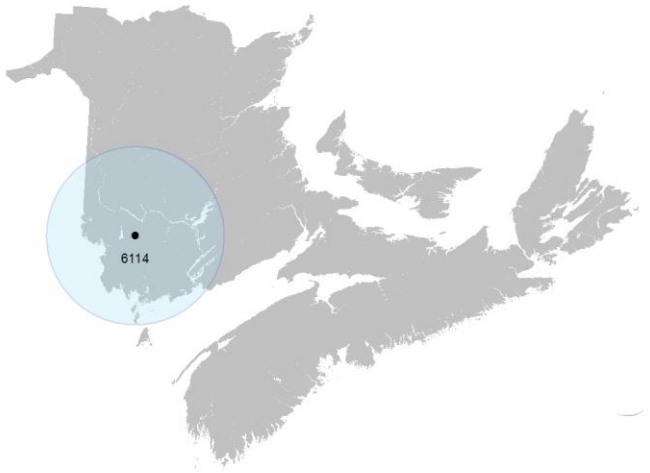
ACCDC Report

Atlantic Canada Conservation Data Centre
Centre de données sur la conservation du Canada atlantique

DATA REPORT 6114: Harvey, NB

Prepared 24 July 2018
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 (ACCDC) is part of a network of NatureServe data centres and heritage programs serving 50 states in the U.S.A, 10 provinces and 1 territory in Canada, plus several Central and South American countries. The NatureServe network is more than 30 years old and shares a common conservation data methodology. The ACCDC was founded in 1997, and maintains data for the jurisdictions of New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador. Although a non-governmental agency, the ACCDC is supported by 6 federal agencies and 4 provincial governments, as well as through outside grants and data processing fees. URL: www.ACCDC.com.

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

1.1 DATA LIST

Included datasets:

Filename	Contents
HarveyNB_6114ob.xls	All Rare and legally protected *Flora and Fauna* in your study area
HarveyNB_6114ob100km.xls	A list of Rare and legally protected *Flora and Fauna* within 100 km of your study area
HarveyNB_6114sa.xls	All *Significant Natural Areas* in your study area

1.2 RESTRICTIONS

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

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

1.3 ADDITIONAL INFORMATION

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

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

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

Animals (Fauna)
John Klymko, Zoologist
Tel: (506) 364-2660
jklymko@mta.ca

Plant Communities
Sarah Robinson, Community Ecologist
Tel: (506) 364-2664
srobinson@mta.ca

Data Management, GIS
James Churchill, Data Manager
Tel: (902) 679-6146
jlchurchill@mta.ca

Billing
Jean Breau
Tel: (506) 364-2657
jrbreau@mta.ca

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

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

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

Western: Duncan Bayne
(902) 648-3536
Duncan.Bayne@novascotia.ca

Western: Jason Power
(902) 634-7555
Jason.Power@novascotia.ca

Central: Shavonne Meyer
(902) 893-6353
Shavonne.Meyer@novascotia.ca

Central: Kimberly George
(902) 893-5630
Kimberly.George@novascotia.ca

Eastern: Lisa Doucette
(902) 863-7523
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

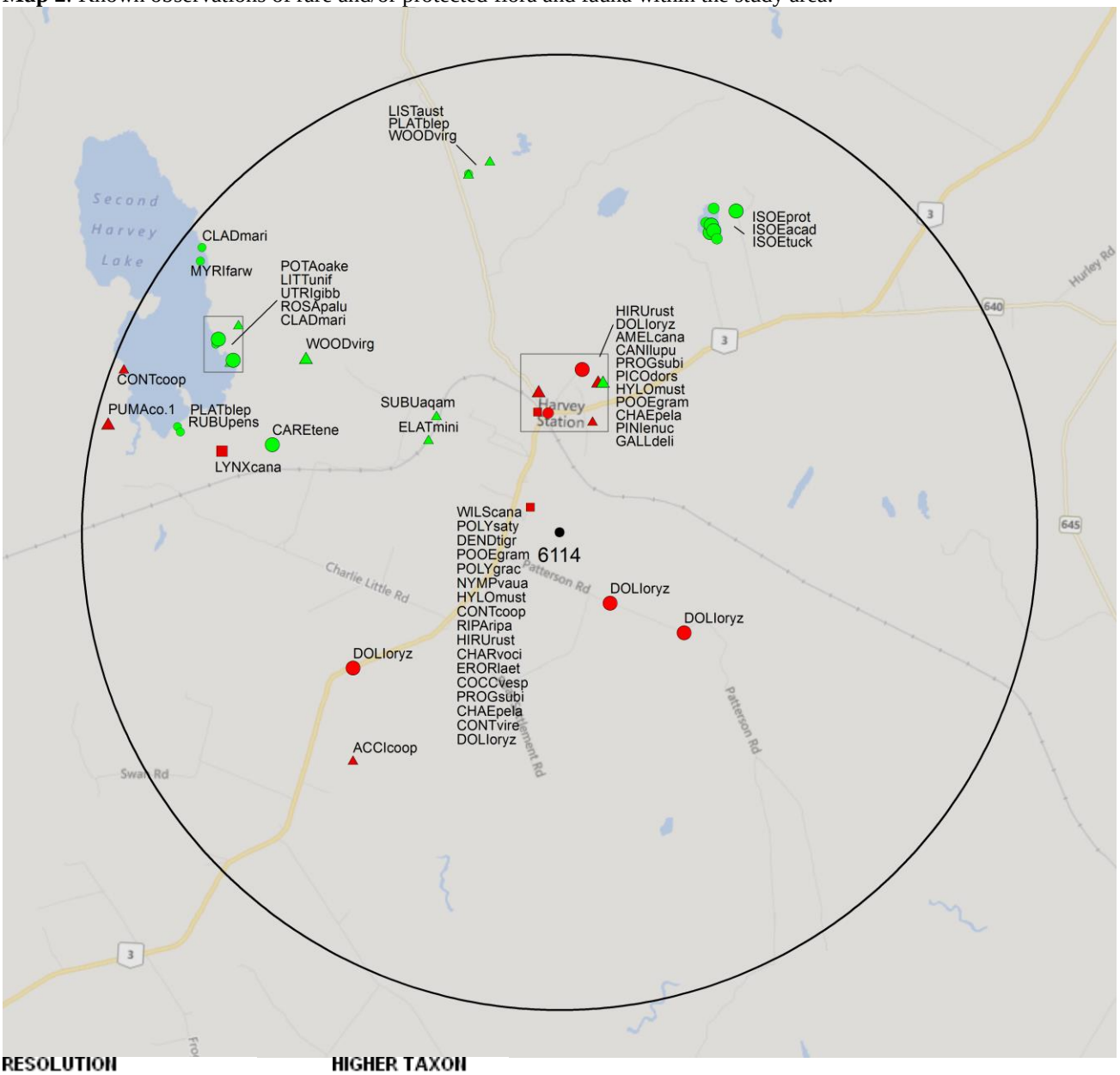
2.1 FLORA

The study area contains 54 records of 17 vascular, no records of nonvascular flora (Map 2 and attached: *ob.xls).

2.2 FAUNA

The study area contains 38 records of 20 vertebrate, 4 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.



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

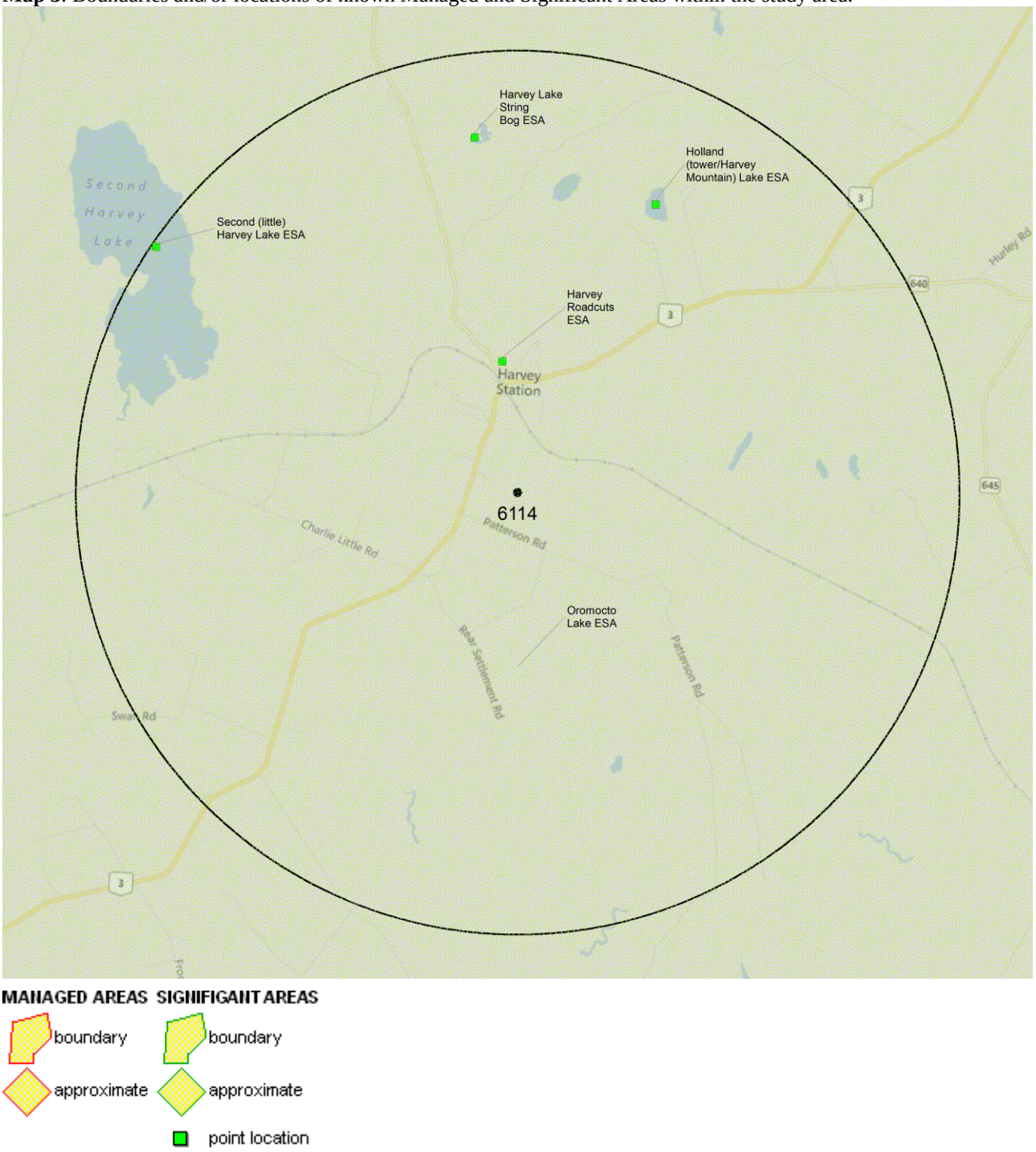
HIGHER TAXON
- vertebrate fauna
- invertebrate fauna
- vascular flora
- nonvascular flora

3.0 SPECIAL AREAS

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

3.2 SIGNIFICANT AREAS
The GIS scan identified 5 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	*Isoetes prototypus*	Prototype Quillwort	Special Concern	Special Concern	Endangered	S2	1 At Risk	19	3.5 ± 0.0
P	*Listera australis*	Southern Twayblade			Endangered	S2	1 At Risk	11	3.9 ± 0.0
P	*Woodwardia virginica*	Virginia Chain Fern				S2	3 Sensitive	4	3.2 ± 1.0
P	*Rubus pensilvanicus*	Pennsylvania Blackberry				S2S3	4 Secure	1	4.1 ± 0.0
P	*Isoetes acadiensis*	Acadian Quillwort				S2S3	3 Sensitive	2	3.6 ± 0.0
P	*Subularia aquatica var. americana*	Water Awlwort				S3	4 Secure	1	1.8 ± 0.0
P	*Elatine minima*	Small Waterwort				S3	4 Secure	1	1.7 ± 0.0
P	*Myriophyllum farwellii*	Farwell's Water Milfoil				S3	4 Secure	1	4.7 ± 0.0
P	*Littorella uniflora*	American Shoreweed				S3	4 Secure	1	4.1 ± 0.0
P	*Amelanchier canadensis*	Canada Serviceberry				S3	4 Secure	1	1.6 ± 1.0
P	*Rosa palustris*	Swamp Rose				S3	4 Secure	2	3.9 ± 0.0
P	*Carex tenera*	Tender Sedge				S3	4 Secure	1	3.1 ± 0.0
P	*Platanthera blephariglottis*	White Fringed Orchid				S3	4 Secure	3	3.9 ± 0.0
P	*Isoetes tuckermanii*	Tuckerman's Quillwort				S3	4 Secure	2	3.5 ± 0.0
P	*Utricularia gibba*	Humped Bladderwort				S3S4	4 Secure	1	4.1 ± 0.0
P	*Cladium mariscoides*	Smooth Twigrush				S3S4	4 Secure	2	3.9 ± 0.0
P	*Potamogeton oakesianus*	Oakes' Pondweed				S3S4	4 Secure	1	4.0 ± 0.0

4.2 FAUNA

	Scientific *Name*	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)
A	*Hylocichla mustelina*	Wood Thrush	Threatened	Threatened	Threatened	S1S2B,S1S2M	2 May Be At Risk	2	0.4 ± 7.0
A	*Hirundo rustica*	Barn Swallow	Threatened	Threatened	Threatened	S2B,S2M	3 Sensitive	5	0.4 ± 7.0
A	*Chaetura pelagica*	Chimney Swift	Threatened	Threatened	Threatened	S2S3B,S2M	1 At Risk	2	0.4 ± 7.0
A	*Riparia riparia*	Bank Swallow	Threatened	Threatened		S2S3B,S2S3M	3 Sensitive	1	0.4 ± 7.0
A	*Contopus cooperi*	Olive-sided Flycatcher	Threatened	Threatened	Threatened	S3B,S3M	1 At Risk	2	0.4 ± 7.0
A	*Wilsonia canadensis*	Canada Warbler	Threatened	Threatened	Threatened	S3B,S3M	1 At Risk	1	0.4 ± 7.0
A	*Dolichonyx oryzivorus*	Bobolink	Threatened	Threatened	Threatened	S3B,S3M	3 Sensitive	7	0.4 ± 7.0
A	*Coccothraustes vespertinus*	Evening Grosbeak	Special Concern			S3B,S3S4N,SUM	3 Sensitive	1	0.4 ± 7.0
A	*Contopus virens*	Eastern Wood-Pewee	Special Concern	Special Concern	Special Concern	S4B,S4M	4 Secure	1	0.4 ± 7.0
A	*Accipiter cooperii*	Cooper's Hawk	Not At Risk			S1S2B,S1S2M	2 May Be At Risk	1	3.2 ± 0.0
A	*Lynx canadensis*	Canadian Lynx	Not At Risk		Endangered	S3	1 At Risk	1	3.6 ± 10.0
A	*Canis lupus*	Gray Wolf	Not At Risk		Extirpated	SX	0.1 Extirpated	1	1.6 ± 1.0
A	*Puma concolor pop. 1*	Eastern Cougar	Data Deficient		Endangered	SNA	5 Undetermined	1	4.9 ± 1.0
A	*Progne subis*	Purple Martin				S1B,S1M	2 May Be At Risk	5	0.4 ± 7.0
A	*Pooecetes gramineus*	Vesper Sparrow				S2B,S2M	2 May Be At Risk	2	0.4 ± 7.0
A	*Pinicola enucleator*	Pine Grosbeak				S2B,S4S5N,S4S5M	3 Sensitive	1	1.3 ± 7.0
A	*Picoides dorsalis*	American Three-toed Woodpecker				S2S3	3 Sensitive	1	1.3 ± 7.0
A	*Charadrius vociferus*	Killdeer				S3B,S3M	3 Sensitive	1	0.4 ± 7.0
A	*Dendroica tigrina*	Cape May Warbler				S3B,S4S5M	4 Secure	1	0.4 ± 7.0
A	*Gallinago delicata*	Wilson's Snipe				S3S4B,S5M	4 Secure	1	1.2 ± 0.0
I	*Erora laeta*	Early Hairstreak				S1	2 May Be At Risk	1	0.4 ± 7.0
I	*Polygonia satyrus*	Satyr Comma				S3	4 Secure	1	0.4 ± 7.0
I	*Polygonia gracilis*	Hoary Comma				S3	4 Secure	1	0.4 ± 7.0
I	*Nymphalis l-album*	Compton Tortoiseshell				S3	4 Secure	1	0.4 ± 7.0

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]**	**YES**

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

4.4 SOURCE BIBLIOGRAPHY

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

# recs	CITATION
25	Goltz, J.P. 2012. Field Notes, 1989-2005. , 1091 recs.
15	Erskine, A.J. 1992. Maritime Breeding Bird Atlas Database. NS Museum & Nimbus Publ., Halifax, 82,125 recs.
15	Lepage, D. 2014. Maritime Breeding Bird Atlas Database. Bird Studies Canada, Sackville NB, 407,838 recs.
13	Blaney, C.S.; Mazerolle, D.M.; Klymko, J; Spicer, C.D. 2006. Fieldwork 2006. Atlantic Canada Conservation Data Centre. Sackville NB, 8399 recs.
7	Benedict, B. Connell Herbarium Specimens. University New Brunswick, Fredericton. 2003.
6	Goltz, J.P. & Bishop, G. 2005. Confidential supplement to Status Report on Prototype Quillwort (Isoetes prototypus). Committee on the Status of Endangered Wildlife in Canada, 111 recs.
5	Tims, J. & Craig, N. 1995. Environmentally Significant Areas in New Brunswick (NBESA). NB Dept of Environment & Nature Trust of New Brunswick Inc.
4	Thomas, A.W. 1996. A preliminary atlas of the butterflies of New Brunswick. New Brunswick Museum.
3	Tims, J. & Craig, N. 1995. Environmentally Significant Areas in New Brunswick (NBESA). NB Dept of Environment & Nature Trust of New Brunswick Inc, 6042 recs.
2	eBird. 2014. eBird Basic Dataset. Version: EBD_relNov-2014. Ithaca, New York. Nov 2014. Cornell Lab of Ornithology, 25036 recs.
1	Benedict, B. Connell Herbarium Specimen Database Download 2004. Connell Memorial Herbarium, University of New Brunswick. 2004.
1	Benedict, B. Connell Herbarium Specimens (Data) . University New Brunswick, Fredericton. 2003.
1	Erskine, A.J. 1999. Maritime Nest Records Scheme (MNRS) 1937-1999. Canadian Wildlife Service, Sackville, 313 recs.
1	Scott, Fred W. 1998. Updated Status Report on the Cougar (Puma Concolor couguar) [Eastern population]. Committee on the Status of Endangered Wildlife in Canada, 298 recs.
1	Sollows, M.C,. 2008. NBM Science Collections databases: mammals. New Brunswick Museum, Saint John NB, download Jan. 2008, 4983 recs.
1	Toner, M. 2001. Lynx Records 1973-2000. NB Dept of Natural Resources, 29 recs.

5.0 RARE SPECIES WITHIN 100 KM

A 100 km buffer around the study area contains 20382 records of 148 vertebrate and 1195 records of 82 invertebrate fauna; 10183 records of 380 vascular, 330 records of 110 nonvascular flora (attached: *ob100km.xls).

Taxa within 100 km of the study site that are rare and/or endangered in the province in which the study site occurs. All ranks correspond to the province in which the study site falls, even for out-of-province records. Taxa are listed in order of concern, beginning with legally listed taxa, with the number of observations per taxon and the distance in kilometers from study area centroid to the closest observation (± 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	62	2.8 ± 1.0	NB
A	*Myotis septentrionalis*	Northern Long-eared Myotis	Endangered	Endangered	Endangered	S1	1 At Risk	15	38.9 ± 1.0	NB
A	*Perimyotis subflavus*	Eastern Pipistrelle	Endangered	Endangered	Endangered	S1	1 At Risk	2	83.9 ± 0.0	NB
A	*Eubalaena glacialis*	North Atlantic Right Whale	Endangered	Endangered	Endangered	S1		1	78.2 ± 1.0	NB
A	*Sterna dougallii*	Roseate Tern	Endangered	Endangered	Endangered	S1?B,S1?M	1 At Risk	2	70.7 ± 5.0	NB
A	*Charadrius melodus melodus*	Piping Plover melodus ssp	Endangered	Endangered	Endangered	S1B,S1M	1 At Risk	7	80.3 ± 0.0	NB
A	*Dermochelys coriacea (Atlantic pop.)*	Leatherback Sea Turtle - Atlantic pop.	Endangered	Endangered	Endangered	S1S2N	1 At Risk	3	85.5 ± 0.0	NB
A	*Salmo salar pop. 1*	Atlantic Salmon - Inner Bay of Fundy pop.	Endangered	Endangered	Endangered	S2	2 May Be At Risk	10	44.9 ± 50.0	NB
A	*Calidris canutus rufa*	Red Knot rufa ssp	Endangered		Endangered	S2M	1 At Risk	39	69.2 ± 0.0	NB
A	*Pagophila eburnea*	Ivory Gull	Endangered	Endangered		SNA	8 Accidental	2	81.6 ± 12.0	NB
A	*Protonotaria citrea*	Prothonotary Warbler	Endangered	Endangered		SNA	8 Accidental	1	88.8 ± 2.0	NB
A	*Rangifer tarandus pop. 2*	Woodland Caribou (Atlantic-Gasp├⌐sie pop.)	Endangered	Endangered	Extirpated	SX	0.1 Extirpated	4	26.7 ± 1.0	NB
A	*Colinus virginianus*	Northern Bobwhite	Endangered	Endangered				4	77.2 ± 0.0	NB
A	*Sturnella magna*	Eastern Meadowlark	Threatened	Threatened	Threatened	S1B,S1M	2 May Be At Risk	40	22.3 ± 7.0	NB
A	*Ixobrychus exilis*	Least Bittern	Threatened	Threatened	Threatened	S1S2B,S1S2M	1 At Risk	29	36.1 ± 7.0	NB
A	*Hylocichla mustelina*	Wood Thrush	Threatened	Threatened	Threatened	S1S2B,S1S2M	2 May Be At Risk	217	0.4 ± 7.0	NB
A	*Caprimulgus vociferus*	Whip-Poor-Will	Threatened	Threatened	Threatened	S2B,S2M	1 At Risk	92	20.3 ± 7.0	NB
A	*Hirundo rustica*	Barn Swallow	Threatened	Threatened	Threatened	S2B,S2M	3 Sensitive	974	0.4 ± 7.0	NB
A	*Catharus bicknelli*	Bicknell's Thrush	Threatened	Special Concern	Threatened	S2B,S2M	1 At Risk	3	72.5 ± 7.0	NB
A	*Glyptemys insculpta*	Wood Turtle	Threatened	Threatened	Threatened	S2S3	1 At Risk	84	13.9 ± 0.0	NB
A	*Chaetura pelagica*	Chimney Swift	Threatened	Threatened	Threatened	S2S3B,S2M	1 At Risk	370	0.4 ± 7.0	NB
A	*Riparia riparia*	Bank Swallow	Threatened	Threatened		S2S3B,S2S3M	3 Sensitive	297	0.4 ± 7.0	NB
A	*Acipenser oxyrinchus*	Atlantic Sturgeon	Threatened		Threatened	S3	4 Secure	1	44.9 ± 1.0	NB
A	*Contopus cooperi*	Olive-sided Flycatcher	Threatened	Threatened	Threatened	S3B,S3M	1 At Risk	493	0.4 ± 7.0	NB
A	*Wilsonia canadensis*	Canada Warbler	Threatened	Threatened	Threatened	S3B,S3M	1 At Risk	1135	0.4 ± 7.0	NB
A	*Dolichonyx oryzivorus*	Bobolink	Threatened	Threatened	Threatened	S3B,S3M	3 Sensitive	780	0.4 ± 7.0	NB
A	*Chordeiles minor*	Common Nighthawk	Threatened	Threatened	Threatened	S3B,S4M	1 At Risk	387	14.2 ± 7.0	NB
A	*Anguilla rostrata*	American Eel	Threatened		Threatened	S4	4 Secure	39	18.8 ± 1.0	NB
A	*Melanerpes erythrocephalus*	Red-headed Woodpecker	Threatened	Threatened		SNA	8 Accidental	5	37.4 ± 5.0	NB
A	*Osmerus mordax pop. 2*	Lake Utopia Smelt large-bodied pop.	Threatened		Threatened			2	62.5 ± 10.0	NB
A	*Coturnicops noveboracensis*	Yellow Rail	Special Concern	Special Concern	Special Concern	S1?B,SUM	2 May Be At Risk	3	61.9 ± 7.0	NB
A	*Histrionicus histrionicus pop. 1*	Harlequin Duck - Eastern pop.	Special Concern	Special Concern	Endangered	S1B,S1S2N,S2M	1 At Risk	118	31.1 ± 0.0	NB
A	*Falco peregrinus pop. 1*	Peregrine Falcon - anatum/tundrius	Special Concern	Special Concern	Endangered	S1B,S3M	1 At Risk	192	1.3 ± 5.0	NB
A	*Asio flammeus*	Short-eared Owl	Special Concern	Special Concern	Special Concern	S2B,S2M	3 Sensitive	15	44.4 ± 7.0	NB
A	*Bucephala islandica (Eastern pop.)*	Barrow's Goldeneye - Eastern pop.	Special Concern	Special Concern	Special Concern	S2M,S2N	3 Sensitive	54	27.5 ± 1.0	NB
A	*Balaenoptera physalus*	Fin Whale - Atlantic pop.	Special Concern	Special Concern	Special Concern	S2S3		1	87.6 ± 1.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
A	*Acipenser brevirostrum*	Shortnose Sturgeon	Special Concern	Special Concern	Special Concern	S3	3 Sensitive	7	28.4 ± 10.0	NB
A	*Chelydra serpentina*	Snapping Turtle	Special Concern	Special Concern	Special Concern	S3	3 Sensitive	30	14.5 ± 0.0	NB
A	*Euphagus carolinus*	Rusty Blackbird	Special Concern	Special Concern	Special Concern	S3B,S3M	2 May Be At Risk	166	9.0 ± 0.0	NB
A	*Coccothraustes vespertinus*	Evening Grosbeak	Special Concern			S3B,S3S4N,SUM	3 Sensitive	265	0.4 ± 7.0	NB
A	*Phalaropus lobatus*	Red-necked Phalarope	Special Concern			S3M	3 Sensitive	67	69.6 ± 0.0	NB
A	*Phocoena phocoena (NW Atlantic pop.)*	Harbour Porpoise - Northwest Atlantic pop.	Special Concern	Threatened		S4		88	48.6 ± 100.0	NB
A	*Contopus virens*	Eastern Wood-Pewee	Special Concern	Special Concern	Special Concern	S4B,S4M	4 Secure	602	0.4 ± 7.0	NB
A	*Podiceps auritus*	Horned Grebe	Special Concern		Special Concern	S4N,S4M	4 Secure	131	45.2 ± 0.0	NB
A	*Tryngites subruficollis*	Buff-breasted Sandpiper	Special Concern			SNA	8 Accidental	18	87.9 ± 1.0	NB
A	*Bubo scandiacus*	Snowy Owl	Not At Risk			S1N,S2S3M	4 Secure	9	43.4 ± 1.0	NB
A	*Accipiter cooperii*	Cooper's Hawk	Not At Risk			S1S2B,S1S2M	2 May Be At Risk	13	3.2 ± 0.0	NB
A	*Fulica americana*	American Coot	Not At Risk			S1S2B,S1S2M	3 Sensitive	4	60.5 ± 7.0	NB
A	*Sorex dispar*	Long-tailed Shrew	Not At Risk	Special Concern		S2	3 Sensitive	2	65.1 ± 5.0	NB
A	*Buteo lineatus*	Red-shouldered Hawk	Not At Risk	Special Concern		S2B,S2M	2 May Be At Risk	57	14.3 ± 0.0	NB
A	*Chlidonias niger*	Black Tern	Not At Risk			S2B,S2M	3 Sensitive	136	29.7 ± 7.0	NB
A	*Globicephala melas*	Long-finned Pilot Whale	Not At Risk			S2S3		2	74.8 ± 1.0	NB
A	*Lynx canadensis*	Canadian Lynx	Not At Risk		Endangered	S3	1 At Risk	24	3.6 ± 10.0	NB
A	*Desmognathus fuscus*	Northern Dusky Salamander	Not At Risk			S3	3 Sensitive	91	20.3 ± 1.0	NB
A	*Megaptera novaeangliae*	Humpback Whale (NW Atlantic pop.)	Not At Risk	Special Concern		S3		2	78.2 ± 5.0	NB
A	*Sterna hirundo*	Common Tern	Not At Risk			S3B,SUM	3 Sensitive	171	15.5 ± 0.0	NB
A	*Podiceps grisegena*	Red-necked Grebe	Not At Risk			S3M,S2N	3 Sensitive	109	39.9 ± 0.0	NB
A	*Lagenorhynchus acutus*	Atlantic White-sided Dolphin	Not At Risk			S3S4		1	93.2 ± 1.0	NB
A	*Haliaeetus leucocephalus*	Bald Eagle	Not At Risk		Endangered	S4	1 At Risk	913	0.4 ± 7.0	NB
A	*Canis lupus*	Gray Wolf	Not At Risk		Extirpated	SX	0.1 Extirpated	3	1.6 ± 1.0	NB
A	*Puma concolor pop. 1*	Eastern Cougar	Data Deficient		Endangered	SNA	5 Undetermined	54	4.9 ± 1.0	NB
A	*Morone saxatilis*	Striped Bass	E,E,SC			S3	2 May Be At Risk	10	18.8 ± 1.0	NB
A	*Vireo flavifrons*	Yellow-throated Vireo				S1?B,S1?M	8 Accidental	15	41.7 ± 0.0	NB
A	*Tringa melanoleuca*	Greater Yellowlegs				S1?B,S5M	4 Secure	346	33.3 ± 0.0	NB
A	*Aythya americana*	Redhead				S1B,S1M	8 Accidental	4	70.4 ± 7.0	NB
A	*Gallinula chloropus*	Common Moorhen				S1B,S1M	3 Sensitive	19	29.1 ± 0.0	NB
A	*Grus canadensis*	Sandhill Crane				S1B,S1M	8 Accidental	9	26.0 ± 0.0	NB
A	*Bartramia longicauda*	Upland Sandpiper				S1B,S1M	3 Sensitive	36	39.7 ± 7.0	NB
A	*Phalaropus tricolor*	Wilson's Phalarope				S1B,S1M	3 Sensitive	43	35.9 ± 7.0	NB
A	*Leucophaeus atricilla*	Laughing Gull				S1B,S1M	3 Sensitive	38	38.7 ± 1.0	NB
A	*Progne subis*	Purple Martin				S1B,S1M	2 May Be At Risk	269	0.4 ± 7.0	NB
A	*Thryothorus ludovicianus*	Carolina Wren				S1B,S1M	8 Accidental	39	35.4 ± 0.0	NB
A	*Oxyura jamaicensis*	Ruddy Duck				S1B,S2S3M	4 Secure	45	39.1 ± 5.0	NB
A	*Uria aalge*	Common Murre				S1B,S3N,S3M	4 Secure	56	73.0 ± 0.0	NB
A	*Aythya affinis*	Lesser Scaup				S1B,S4M	4 Secure	199	38.1 ± 0.0	NB
A	*Aythya marila*	Greater Scaup				S1B,S4M,S2N	4 Secure	31	53.7 ± 7.0	NB
A	*Eremophila alpestris*	Horned Lark				S1B,S4N,S5M	2 May Be At Risk	30	20.4 ± 7.0	NB
A	*Sterna paradisaea*	Arctic Tern				S1B,SUM	2 May Be At Risk	43	70.7 ± 5.0	NB
A	*Fratercula arctica*	Atlantic Puffin				S1B,SUN,SUM	3 Sensitive	56	73.0 ± 0.0	NB
A	*Branta bernicla*	Brant				S1N, S2S3M	4 Secure	40	45.2 ± 0.0	NB
A	*Chroicocephalus ridibundus*	Black-headed Gull				S1N,S2M	3 Sensitive	30	38.7 ± 1.0	NB
A	*Butorides virescens*	Green Heron				S1S2B,S1S2M	3 Sensitive	23	35.9 ± 7.0	NB
A	*Nycticorax nycticorax*	Black-crowned Night-heron				S1S2B,S1S2M	3 Sensitive	16	22.8 ± 0.0	NB
A	*Empidonax traillii*	Willow Flycatcher				S1S2B,S1S2M	3 Sensitive	78	33.4 ± 1.0	NB
A	*Stelgidopteryx serripennis*	Northern Rough-winged Swallow				S1S2B,S1S2M	2 May Be At Risk	28	23.3 ± 7.0	NB

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A	*Troglodytes aedon*	House Wren				S1S2B,S1S2M	5 Undetermined	33	12.2 ± 0.0	NB
A	*Rissa tridactyla*	Black-legged Kittiwake				S1S2B,S4N,S5M	4 Secure	36	38.6 ± 1.0	NB
A	*Calidris bairdii*	Baird's Sandpiper				S1S2M	3 Sensitive	22	87.9 ± 1.0	NB
A	*Cistothorus palustris*	Marsh Wren				S2B,S2M	3 Sensitive	94	38.1 ± 0.0	NB
A	*Mimus polyglottos*	Northern Mockingbird				S2B,S2M	3 Sensitive	117	6.1 ± 7.0	NB
A	*Toxostoma rufum*	Brown Thrasher				S2B,S2M	3 Sensitive	101	10.3 ± 7.0	NB
A	*Pooecetes gramineus*	Vesper Sparrow				S2B,S2M	2 May Be At Risk	74	0.4 ± 7.0	NB
A	*Anas strepera*	Gadwall				S2B,S3M	4 Secure	78	39.3 ± 30.0	NB
A	*Alca torda*	Razorbill				S2B,S3N,S3M	4 Secure	41	75.2 ± 0.0	NB
A	*Pinicola enucleator*	Pine Grosbeak				S2B,S4S5N,S4S5M	3 Sensitive	49	1.3 ± 7.0	NB
A	*Tringa solitaria*	Solitary Sandpiper				S2B,S5M	4 Secure	114	18.1 ± 0.0	NB
A	*Oceanodroma leucorhoa*	Leach's Storm-Petrel				S2B,SUM	3 Sensitive	16	38.7 ± 1.0	NB
A	*Chen caerulescens*	Snow Goose				S2M	4 Secure	6	34.3 ± 0.0	NB
A	*Phalacrocorax carbo*	Great Cormorant				S2N,S2M	4 Secure	80	28.4 ± 0.0	NB
A	*Somateria spectabilis*	King Eider				S2N,S2M	4 Secure	7	72.3 ± 0.0	NB
A	*Larus hyperboreus*	Glaucous Gull				S2N,S2M	4 Secure	120	33.2 ± 0.0	NB
A	*Asio otus*	Long-eared Owl				S2S3	5 Undetermined	17	30.9 ± 0.0	NB
A	*Picoides dorsalis*	American Three-toed Woodpecker				S2S3	3 Sensitive	20	1.3 ± 7.0	NB
A	*Salmo salar*	Atlantic Salmon				S2S3	2 May Be At Risk	39	18.8 ± 1.0	NB
A	*Anas clypeata*	Northern Shoveler				S2S3B,S2S3M	4 Secure	74	33.0 ± 0.0	NB
A	*Myiarchus crinitus*	Great Crested Flycatcher				S2S3B,S2S3M	3 Sensitive	280	10.3 ± 7.0	NB
A	*Petrochelidon pyrrhonota*	Cliff Swallow				S2S3B,S2S3M	3 Sensitive	468	6.2 ± 0.0	NB
A	*Pluvialis dominica*	American Golden-Plover				S2S3M	3 Sensitive	58	38.5 ± 0.0	NB
A	*Calcarius lapponicus*	Lapland Longspur				S2S3N,SUM	3 Sensitive	17	38.0 ± 0.0	NB
A	*Cepphus grylle*	Black Guillemot				S3	4 Secure	279	59.8 ± 7.0	NB
A	*Loxia curvirostra*	Red Crossbill				S3	4 Secure	105	14.6 ± 7.0	NB
A	*Carduelis pinus*	Pine Siskin				S3	4 Secure	226	9.7 ± 7.0	NB
A	*Prosopium cylindraceum*	Round Whitefish				S3	4 Secure	3	36.1 ± 10.0	NB
A	*Salvelinus namaycush*	Lake Trout				S3	3 Sensitive	7	48.1 ± 0.0	NB
A	*Sorex maritimensis*	Maritime Shrew				S3	4 Secure	1	25.8 ± 1.0	NB
A	*Eptesicus fuscus*	Big Brown Bat				S3	3 Sensitive	45	1.6 ± 1.0	NB
A	*Cathartes aura*	Turkey Vulture				S3B,S3M	4 Secure	288	9.5 ± 0.0	NB
A	*Rallus limicola*	Virginia Rail				S3B,S3M	3 Sensitive	126	22.8 ± 7.0	NB
A	*Charadrius vociferus*	Killdeer				S3B,S3M	3 Sensitive	622	0.4 ± 7.0	NB
A	*Tringa semipalmata*	Willet				S3B,S3M	3 Sensitive	17	40.5 ± 0.0	NB
A	*Coccyzus erythropthalmus*	Black-billed Cuckoo				S3B,S3M	4 Secure	181	10.3 ± 7.0	NB
A	*Vireo gilvus*	Warbling Vireo				S3B,S3M	4 Secure	252	6.2 ± 0.0	NB
A	*Piranga olivacea*	Scarlet Tanager				S3B,S3M	4 Secure	289	10.3 ± 7.0	NB
A	*Passerina cyanea*	Indigo Bunting				S3B,S3M	4 Secure	131	22.3 ± 7.0	NB
A	*Molothrus ater*	Brown-headed Cowbird				S3B,S3M	2 May Be At Risk	261	9.7 ± 7.0	NB
A	*Icterus galbula*	Baltimore Oriole				S3B,S3M	4 Secure	208	22.2 ± 7.0	NB
A	*Somateria mollissima*	Common Eider				S3B,S4M,S3N	4 Secure	645	35.7 ± 199.0	NB
A	*Dendroica tigrina*	Cape May Warbler				S3B,S4S5M	4 Secure	141	0.4 ± 7.0	NB
A	*Anas acuta*	Northern Pintail				S3B,S5M	3 Sensitive	48	36.1 ± 7.0	NB
A	*Mergus serrator*	Red-breasted Merganser				S3B,S5M,S4S5N	4 Secure	99	10.3 ± 7.0	NB
A	*Arenaria interpres*	Ruddy Turnstone				S3M	4 Secure	145	69.2 ± 0.0	NB
A	*Phalaropus fulicarius*	Red Phalarope				S3M	3 Sensitive	16	69.6 ± 0.0	NB
A	*Melanitta nigra*	Black Scoter				S3M,S1S2N	3 Sensitive	193	35.7 ± 199.0	NB
A	*Bucephala albeola*	Bufflehead				S3M,S2N	3 Sensitive	705	28.4 ± 0.0	NB
A	*Calidris maritima*	Purple Sandpiper				S3M,S3N	4 Secure	128	63.2 ± 9.0	NB
A	*Uria lomvia*	Thick-billed Murre				S3N,S3M	5 Undetermined	31	74.7 ± 0.0	NB
A	*Synaptomys cooperi*	Southern Bog Lemming				S3S4	4 Secure	18	34.5 ± 1.0	NB

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A	*Tyrannus tyrannus*	Eastern Kingbird				S3S4B,S3S4M	3 Sensitive	548	6.2 ± 0.0	NB
A	*Actitis macularius*	Spotted Sandpiper				S3S4B,S5M	4 Secure	616	10.3 ± 7.0	NB
A	*Gallinago delicata*	Wilson's Snipe				S3S4B,S5M	4 Secure	640	1.2 ± 0.0	NB
A	*Larus delawarensis*	Ring-billed Gull				S3S4B,S5M	4 Secure	213	20.0 ± 0.0	NB
A	*Dendroica striata*	Blackpoll Warbler				S3S4B,S5M	4 Secure	29	36.1 ± 7.0	NB
A	*Pluvialis squatarola*	Black-bellied Plover				S3S4M	4 Secure	213	40.5 ± 0.0	NB
A	*Limosa haemastica*	Hudsonian Godwit				S3S4M	4 Secure	26	79.3 ± 0.0	NB
A	*Calidris pusilla*	Semipalmated Sandpiper				S3S4M	4 Secure	413	33.4 ± 12.0	NB
A	*Calidris melanotos*	Pectoral Sandpiper				S3S4M	4 Secure	124	33.0 ± 0.0	NB
A	*Calidris alba*	Sanderling				S3S4M,S1N	3 Sensitive	168	39.9 ± 0.0	NB
A	*Morus bassanus*	Northern Gannet				SHB,S5M	4 Secure	270	50.2 ± 0.0	NB
C	*Quercus macrocarpa - Acer rubrum / Onoclea sensibilis - Carex arcta Forest*	Bur Oak - Red Maple / Sensitive Fern - Northern Clustered Sedge Forest				S2		1	66.4 ± 0.0	NB
C	*Acer saccharinum / Onoclea sensibilis - Lysimachia terrestris Forest*	Silver Maple / Sensitive Fern - Swamp Yellow Loosestrife Forest				S3		1	33.4 ± 0.0	NB
C	*Acer saccharum - Fraxinus americana / Gymnocarpium dryopteris - Deparia acrostichoides Forest*	Sugar Maple - White Ash / Common Oak Fern - Silvery Glade Fern Forest				S3		2	90.8 ± 0.0	NB
C	*Acer saccharum - Fraxinus americana / Polystichum acrostichoides Forest*	Sugar Maple - White Ash / Christmas Fern Forest				S3S4		1	92.6 ± 0.0	NB
I	*Cicindela marginipennis*	Cobblestone Tiger Beetle	Endangered	Endangered	Endangered	S1	1 At Risk	48	73.1 ± 0.0	NB
I	*Gomphus ventricosus*	Skillet Clubtail	Endangered		Endangered	S1S2	2 May Be At Risk	48	35.6 ± 1.0	NB
I	*Danaus plexippus*	Monarch	Endangered	Special Concern	Special Concern	S3B,S3M	3 Sensitive	78	8.6 ± 0.0	NB
I	*Ophiogomphus howei*	Pygmy Snaketail	Special Concern	Special Concern	Special Concern	S2	2 May Be At Risk	17	11.9 ± 0.0	NB
I	*Alasmidonta varicosa*	Brook Floater	Special Concern		Special Concern	S2	3 Sensitive	1	11.9 ± 0.0	NB
I	*Lampsilis cariosa*	Yellow Lampmussel	Special Concern	Special Concern	Special Concern	S2	3 Sensitive	86	28.7 ± 1.0	NB
I	*Bombus terricola*	Yellow-banded Bumblebee	Special Concern			S3?	3 Sensitive	33	26.7 ± 0.0	NB
I	*Appalachina sayana*	Spike-lip Crater	Not At Risk			S3?		1	88.3 ± 1.0	NB
I	*Haematopota rara*	Shy Cleg				S1	5 Undetermined	1	34.5 ± 1.0	NB
I	*Lycaena dorcas*	Dorcas Copper				S1	2 May Be At Risk	17	28.7 ± 0.0	NB
I	*Erora laeta*	Early Hairstreak				S1	2 May Be At Risk	4	0.4 ± 7.0	NB
I	*Somatochlora septentrionalis*	Muskeg Emerald				S1	2 May Be At Risk	1	21.4 ± 1.0	NB
I	*Arigomphus furcifer*	Lilypad Clubtail				S1	5 Undetermined	8	49.3 ± 0.0	NB
I	*Polites origenes*	Crossline Skipper				S1?	5 Undetermined	5	36.4 ± 0.0	NB
I	*Plebejus saepiolus*	Greenish Blue				S1S2	4 Secure	3	36.4 ± 1.0	NB
I	*Ophiogomphus colubrinus*	Boreal Snaketail				S1S2	2 May Be At Risk	36	11.9 ± 0.0	NB
I	*Cicindela ancocisconensis*	Appalachian Tiger Beetle				S2	5 Undetermined	2	78.4 ± 0.0	NB
I	*Encyclops caerulea*	a Longhorned Beetle				S2		1	78.8 ± 0.0	NB
I	*Brachyleptura circumdata*	a Longhorned Beetle				S2		6	49.0 ± 0.0	NB
I	*Satyrium calanus*	Banded Hairstreak				S2	3 Sensitive	15	37.3 ± 0.0	NB
I	*Satyrium calanus falacer*	Banded Hairstreak				S2	4 Secure	6	31.2 ± 1.0	NB
I	*Strymon melinus*	Grey Hairstreak				S2	4 Secure	3	31.0 ± 1.0	NB
I	*Aeshna clepsydra*	Mottled Darner				S2	3 Sensitive	12	43.5 ± 0.0	NB

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I	*Somatochlora tenebrosa*	Clamp-Tipped Emerald				S2	5 Undetermined	5	8.7 ± 0.0	NB
I	*Ladona exusta*	White Corporal				S2	5 Undetermined	9	27.0 ± 0.0	NB
I	*Hetaerina americana*	American Rubyspot				S2	3 Sensitive	15	10.5 ± 0.0	NB
I	*Coenagrion interrogatum*	Subarctic Bluet				S2	3 Sensitive	1	52.4 ± 0.0	NB
I	*Ischnura posita*	Fragile Forktail				S2	2 May Be At Risk	10	35.4 ± 0.0	NB
I	*Callophrys henrici*	Henry's Elfin				S2S3	4 Secure	13	18.0 ± 0.0	NB
I	*Celithemis martha*	Martha's Pennant				S2S3	5 Undetermined	3	76.0 ± 0.0	NB
I	*Sphaeroderus nitidicollis*	a Ground Beetle				S3	4 Secure	1	60.2 ± 0.0	NB
I	*Lepturopsis biforis*	a Longhorned Beetle				S3		1	91.2 ± 1.0	NB
I	*Orthosoma brunneum*	a Longhorned Beetle				S3		1	69.4 ± 5.0	NB
I	*Elaphrus americanus*	a Ground Beetle				S3	4 Secure	1	49.3 ± 0.0	NB
I	*Desmocerus palliatus*	Elderberry Borer				S3		4	91.2 ± 1.0	NB
I	*Agonum excavatum*	a Ground Beetle				S3	4 Secure	1	49.3 ± 0.0	NB
I	*Clivina americana*	a Ground Beetle				S3	4 Secure	1	49.3 ± 0.0	NB
I	*Olisthopus parmatus*	a Ground Beetle				S3	4 Secure	1	60.2 ± 0.0	NB
I	*Paratachys scitulus*	a Ground Beetle				S3	5 Undetermined	1	49.3 ± 0.0	NB
I	*Coccinella hieroglyphica kirbyi*	a Ladybird Beetle				S3	4 Secure	1	91.2 ± 1.0	NB
I	*Hippodamia parenthesis*	Parenthesis Lady Beetle				S3	4 Secure	2	91.2 ± 1.0	NB
I	*Stenocorus vittigera*	a Longhorned Beetle				S3		1	49.3 ± 0.0	NB
I	*Gnathacmaeops pratensis*	a Longhorned Beetle				S3		5	91.2 ± 1.0	NB
I	*Pogonocherus mixtus*	a Longhorned Beetle				S3		1	91.2 ± 1.0	NB
I	*Badister neopulchellus*	a Ground Beetle				S3	4 Secure	1	49.3 ± 0.0	NB
I	*Saperda lateralis*	a Longhorned Beetle				S3		2	72.2 ± 0.0	NB
I	*Hesperia sassacus*	Indian Skipper				S3	4 Secure	11	14.2 ± 7.0	NB
I	*Euphyes bimacula*	Two-spotted Skipper				S3	4 Secure	14	22.2 ± 7.0	NB
I	*Lycaena hyllus*	Bronze Copper				S3	3 Sensitive	7	42.3 ± 0.0	NB
I	*Satyrium acadica*	Acadian Hairstreak				S3	4 Secure	11	44.7 ± 7.0	NB
I	*Callophrys polios*	Hoary Elfin				S3	4 Secure	10	13.8 ± 7.0	NB
I	*Plebejus idas*	Northern Blue				S3	4 Secure	8	71.8 ± 7.0	NB
I	*Plebejus idas empetri*	Crowberry Blue				S3	4 Secure	6	74.1 ± 1.0	NB
I	*Speyeria aphrodite*	Aphrodite Fritillary				S3	4 Secure	25	29.7 ± 7.0	NB
I	*Boloria eunomia*	Bog Fritillary				S3	5 Undetermined	2	74.1 ± 0.0	NB
I	*Boloria bellona*	Meadow Fritillary				S3	4 Secure	52	14.0 ± 1.0	NB
I	*Polygonia satyrus*	Satyr Comma				S3	4 Secure	19	0.4 ± 7.0	NB
I	*Polygonia gracilis*	Hoary Comma				S3	4 Secure	9	0.4 ± 7.0	NB
I	*Nymphalis l-album*	Compton Tortoiseshell				S3	4 Secure	13	0.4 ± 7.0	NB
I	*Gomphus vastus*	Cobra Clubtail				S3	3 Sensitive	59	25.0 ± 0.0	NB
I	*Gomphus abbreviatus*	Spine-crowned Clubtail				S3	4 Secure	42	10.5 ± 0.0	NB
I	*Gomphaeschna furcillata*	Harlequin Darner				S3	5 Undetermined	11	13.1 ± 0.0	NB
I	*Dorocordulia lepida*	Petite Emerald				S3	4 Secure	24	26.9 ± 1.0	NB
I	*Somatochlora albicincta*	Ringed Emerald				S3	4 Secure	1	93.3 ± 1.0	NB
I	*Somatochlora cingulata*	Lake Emerald				S3	4 Secure	10	13.9 ± 0.0	NB
I	*Somatochlora forcipata*	Forcipate Emerald				S3	4 Secure	21	23.2 ± 0.0	NB
I	*Williamsonia fletcheri*	Ebony Boghaunter				S3	4 Secure	16	17.8 ± 0.0	NB
I	*Lestes eurinus*	Amber-Winged Spreadwing				S3	4 Secure	9	5.4 ± 1.0	NB
I	*Lestes vigilax*	Swamp Spreadwing				S3	3 Sensitive	38	12.7 ± 1.0	NB
I	*Enallagma geminatum*	Skimming Bluet				S3	5 Undetermined	18	18.2 ± 0.0	NB
I	*Enallagma signatum*	Orange Bluet				S3	4 Secure	24	29.3 ± 0.0	NB

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I	*Stylurus scudderi*	Zebra Clubtail				S3	4 Secure	68	33.4 ± 0.0	NB
I	*Alasmidonta undulata*	Triangle Floater				S3	3 Sensitive	28	33.3 ± 0.0	NB
I	*Leptodea ochracea*	Tidewater Mucket				S3	4 Secure	65	18.4 ± 0.0	NB
I	*Striatura ferrea*	Black Striate				S3		1	35.5 ± 1.0	NB
I	*Neohelix albolabris*	Whitelip				S3		2	35.5 ± 1.0	NB
I	*Spurwinkia salsa*	Saltmarsh Hydrobe				S3		34	30.3 ± 0.0	NB
I	*Pantala hymenaea*	Spot-Winged Glider				S3B,S3M	4 Secure	6	42.5 ± 0.0	NB
I	*Satyrium liparops*	Striped Hairstreak				S3S4	4 Secure	7	35.9 ± 7.0	NB
I	*Satyrium liparops strigosum*	Striped Hairstreak				S3S4	4 Secure	1	42.6 ± 10.0	NB
I	*Cupido comyntas*	Eastern Tailed Blue				S3S4	4 Secure	8	20.4 ± 0.0	NB
I	*Coccinella transversoguttata richardsoni*	Transverse Lady Beetle				SH	2 May Be At Risk	2	76.5 ± 0.0	NB
N	*Erioderma pedicellatum (Atlantic pop.)*	Boreal Felt Lichen - Atlantic pop.	Endangered	Endangered	Endangered	SH	1 At Risk	1	92.0 ± 1.0	NB
N	*Degelia plumbea*	Blue Felt Lichen	Special Concern	Special Concern	Special Concern	S1	2 May Be At Risk	1	92.0 ± 5.0	NB
N	*Pseudevernia cladonia*	Ghost Antler Lichen	Not At Risk			S2S3	5 Undetermined	11	58.2 ± 0.0	NB
N	*Aphanorrhegma serratum*	a Moss				S1	5 Undetermined	1	97.3 ± 0.0	NB
N	*Bryum muehlenbeckii*	Muehlenbeck's Bryum Moss				S1	2 May Be At Risk	1	78.3 ± 1.0	NB
N	*Sphagnum macrophyllum*	Sphagnum				S1	2 May Be At Risk	2	55.3 ± 0.0	NB
N	*Coscinodon cribrosus*	Sieve-Toothed Moss				S1	2 May Be At Risk	1	89.2 ± 0.0	NB
N	*Atrichum angustatum*	Lesser Smoothcap Moss				S1?	2 May Be At Risk	1	65.7 ± 2.0	NB
N	*Calliergon trifarium*	Three-ranked Moss				S1?	2 May Be At Risk	1	80.5 ± 0.0	NB
N	*Dichelyma falcatum*	a Moss				S1?	2 May Be At Risk	2	40.3 ± 10.0	NB
N	*Dicranum bonjeanii*	Bonjean's Broom Moss				S1?	2 May Be At Risk	1	37.7 ± 1.0	NB
N	*Eurhynchium hians*	Light Beaked Moss				S1?	2 May Be At Risk	1	39.0 ± 1.0	NB
N	*Plagiothecium latebricola*	Alder Silk Moss				S1?	2 May Be At Risk	1	90.0 ± 0.0	NB
N	*Racomitrium ericoides*	a Moss				S1?	2 May Be At Risk	1	5.4 ± 3.0	NB
N	*Splachnum pennsylvanicum*	Southern Dung Moss				S1?	2 May Be At Risk	2	20.4 ± 0.0	NB
N	*Platylomella lescurii*	a Moss				S1?	5 Undetermined	1	48.8 ± 1.0	NB
N	*Jungermannia obovata*	Egg Flapwort				S1S2	6 Not Assessed	1	84.5 ± 0.0	NB
N	*Reboulia hemisphaerica*	Purple-margined Liverwort				S1S2	6 Not Assessed	1	65.9 ± 1.0	NB
N	*Brachythecium acuminatum*	Acuminate Ragged Moss				S1S2	5 Undetermined	3	39.0 ± 10.0	NB
N	*Bryum salinum*	a Moss				S1S2	2 May Be At Risk	1	76.4 ± 1.0	NB
N	*Campylium radicale*	Long-stalked Fine Wet Moss				S1S2	5 Undetermined	1	39.0 ± 1.0	NB
N	*Ditrichum pallidum*	Pale Cow-hair Moss				S1S2	2 May Be At Risk	3	14.7 ± 1.0	NB
N	*Drummondia prorepens*	a Moss				S1S2	2 May Be At Risk	1	79.7 ± 1.0	NB
N	*Fissidens taxifolius*	Yew-leaved Pocket Moss				S1S2	2 May Be At Risk	4	52.5 ± 0.0	NB
N	*Seligeria brevifolia*	a Moss				S1S2	3 Sensitive	1	68.8 ± 1.0	NB
N	*Sphagnum platyphyllum*	Flat-leaved Peat Moss				S1S2	5 Undetermined	3	14.7 ± 1.0	NB
N	*Tomentypnum falcifolium*	Sickle-leaved Golden Moss				S1S2	2 May Be At Risk	1	80.5 ± 1.0	NB
N	*Pseudotaxiphyllum distichaceum*	a Moss				S1S2	2 May Be At Risk	2	37.4 ± 1.0	NB
N	*Calypogeia neesiana*	Nees' Pouchwort				S1S3	6 Not Assessed	1	92.5 ± 1.0	NB
N	*Cephaloziella elachista*	Spurred Threadwort				S1S3	6 Not Assessed	1	80.8 ± 5.0	NB
N	*Porella pinnata*	Pinnate Scalewort				S1S3	6 Not Assessed	2	38.0 ± 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	*Amphidium mougeotii*	a Moss				S2	3 Sensitive	1	61.1 ± 8.0	NB
N	*Anomodon viticulosus*	a Moss				S2	2 May Be At Risk	4	89.0 ± 1.0	NB
N	*Cirriphyllum piliferum*	Hair-pointed Moss				S2	3 Sensitive	1	62.4 ± 1.0	NB
N	*Cynodontium strumiferum*	Strumose Dogtooth Moss				S2	3 Sensitive	1	61.1 ± 8.0	NB
N	*Dicranella palustris*	Drooping-Leaved Fork Moss				S2	3 Sensitive	2	82.6 ± 100.0	NB
N	*Didymodon ferrugineus*	a moss				S2	3 Sensitive	3	68.1 ± 0.0	NB
N	*Anomodon tristis*	a Moss				S2	2 May Be At Risk	1	9.6 ± 1.0	NB
N	*Hypnum pratense*	Meadow Plait Moss				S2	3 Sensitive	3	82.6 ± 0.0	NB
N	*Isopterygiopsis pulchella*	Neat Silk Moss				S2	3 Sensitive	1	85.3 ± 1.0	NB
N	*Meesia triquetra*	Three-ranked Cold Moss				S2	2 May Be At Risk	2	50.2 ± 0.0	NB
N	*Physcomitrium immersum*	a Moss				S2	3 Sensitive	6	39.0 ± 1.0	NB
N	*Sphagnum centrale*	Central Peat Moss				S2	3 Sensitive	1	52.7 ± 0.0	NB
N	*Sphagnum lindbergii*	Lindberg's Peat Moss				S2	3 Sensitive	4	76.4 ± 1.0	NB
N	*Tetraplodon mnioides*	Entire-leaved Nitrogen Moss				S2	3 Sensitive	3	74.4 ± 0.0	NB
N	*Tortula mucronifolia*	Mucronate Screw Moss				S2	3 Sensitive	1	88.1 ± 0.0	NB
N	*Ulota phyllantha*	a Moss				S2	3 Sensitive	1	76.4 ± 1.0	NB
N	*Anomobryum filiforme*	a moss				S2	5 Undetermined	1	39.0 ± 1.0	NB
N	*Fuscopannaria leucosticta*	Rimmed Shingles Lichen				S2	2 May Be At Risk	67	16.3 ± 0.0	NB
N	*Leptogium corticola*	Blistered Jellyskin Lichen				S2	2 May Be At Risk	1	65.6 ± 0.0	NB
N	*Anomodon minor*	Blunt-leaved Anomodon Moss				S2?	2 May Be At Risk	1	78.2 ± 1.0	NB
N	*Brachythecium digastrum*	a Moss				S2?	3 Sensitive	2	39.0 ± 1.0	NB
N	*Bryum pallescens*	Pale Bryum Moss				S2?	5 Undetermined	2	39.5 ± 1.0	NB
N	*Dichelyma capillaceum*	Hairlike Dichelyma Moss				S2?	3 Sensitive	1	17.4 ± 4.0	NB
N	*Dicranum spurium*	Spurred Broom Moss				S2?	3 Sensitive	2	63.0 ± 0.0	NB
N	*Schistostega pennata*	Luminous Moss				S2?	3 Sensitive	3	39.0 ± 1.0	NB
N	*Seligeria campylopoda*	a Moss				S2?	3 Sensitive	1	68.1 ± 0.0	NB
N	*Seligeria diversifolia*	a Moss				S2?	3 Sensitive	1	72.8 ± 0.0	NB
N	*Sphagnum angermanicum*	a Peatmoss				S2?	3 Sensitive	2	48.1 ± 1.0	NB
N	*Buxbaumia aphylla*	Brown Shield Moss				S2S3	3 Sensitive	2	52.2 ± 15.0	NB
N	*Calliergonella cuspidata*	Common Large Wetland Moss				S2S3	3 Sensitive	4	80.0 ± 10.0	NB
N	*Campylium polygamum*	a Moss				S2S3	3 Sensitive	1	34.1 ± 1.0	NB
N	*Didymodon rigidulus*	Rigid Screw Moss				S2S3	3 Sensitive	1	10.9 ± 8.0	NB
N	*Fissidens bushii*	Bush's Pocket Moss				S2S3	3 Sensitive	3	67.1 ± 1.0	NB
N	*Orthotrichum speciosum*	Showy Bristle Moss				S2S3	5 Undetermined	4	16.2 ± 4.0	NB
N	*Racomitrium fasciculare*	a Moss				S2S3	3 Sensitive	1	61.2 ± 0.0	NB
N	*Scorpidium scorpioides*	Hooked Scorpion Moss				S2S3	3 Sensitive	5	80.5 ± 0.0	NB
N	*Sphagnum subfulvum*	a Peatmoss				S2S3	2 May Be At Risk	4	56.5 ± 0.0	NB
N	*Taxiphyllum deplanatum*	Imbricate Yew-leaved Moss				S2S3	3 Sensitive	2	67.9 ± 0.0	NB
N	*Zygodon viridissimus*	a Moss				S2S3	2 May Be At Risk	2	55.0 ± 5.0	NB
N	*Schistidium agassizii*	Elf Bloom Moss				S2S3	3 Sensitive	2	55.0 ± 5.0	NB
N	*Cynodontium tenellum*	Delicate Dogtooth Moss				S3	3 Sensitive	1	76.4 ± 1.0	NB
N	*Hypnum curvifolium*	Curved-leaved Plait Moss				S3	3 Sensitive	1	55.0 ± 5.0	NB
N	*Schistidium maritimum*	a Moss				S3	4 Secure	1	76.4 ± 1.0	NB
N	*Cladonia strepsilis*	Olive Cladonia Lichen				S3	4 Secure	1	90.6 ± 0.0	NB
N	*Peltigera membranacea*	Membranous Pelt Lichen				S3	5 Undetermined	3	90.6 ± 0.0	NB
N	*Aulacomnium*	Little Groove Moss				S3?	4 Secure	2	52.7 ± 1.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
	androgynum									
N	*Dicranella rufescens*	Red Forklet Moss				S3?	5 Undetermined	2	18.4 ± 4.0	NB
N	*Sphagnum lescurii*	a Peatmoss				S3?	5 Undetermined	2	52.8 ± 1.0	NB
N	*Anomodon rugelii*	Rugel's Anomodon Moss				S3S4	3 Sensitive	5	85.7 ± 0.0	NB
N	*Barbula convoluta*	Lesser Bird's-claw Beard Moss				S3S4	4 Secure	1	10.9 ± 8.0	NB
N	*Brachythecium velutinum*	Velvet Ragged Moss				S3S4	4 Secure	5	18.4 ± 4.0	NB
N	*Dicranella cerviculata*	a Moss				S3S4	3 Sensitive	3	71.9 ± 6.0	NB
N	*Dicranum majus*	Greater Broom Moss				S3S4	4 Secure	3	52.2 ± 15.0	NB
N	*Fissidens bryoides*	Lesser Pocket Moss				S3S4	4 Secure	3	16.2 ± 4.0	NB
N	*Helodium blandowii*	Wetland-plume Moss				S3S4	4 Secure	2	85.3 ± 1.0	NB
N	*Heterocladium dimorphum*	Dimorphous Tangle Moss				S3S4	4 Secure	1	55.8 ± 2.0	NB
N	*Isopterygiopsis muelleriana*	a Moss				S3S4	4 Secure	6	5.4 ± 3.0	NB
N	*Myurella julacea*	Small Mouse-tail Moss				S3S4	4 Secure	1	61.1 ± 8.0	NB
N	*Physcomitrium pyriforme*	Pear-shaped Urn Moss				S3S4	3 Sensitive	5	39.0 ± 10.0	NB
N	*Pogonatum dentatum*	Mountain Hair Moss				S3S4	4 Secure	1	76.4 ± 1.0	NB
N	*Sphagnum torreyanum*	a Peatmoss				S3S4	4 Secure	4	53.1 ± 1.0	NB
N	*Sphagnum austinii*	Austin's Peat Moss				S3S4	4 Secure	1	83.3 ± 1.0	NB
N	*Sphagnum contortum*	Twisted Peat Moss				S3S4	4 Secure	1	88.2 ± 0.0	NB
N	*Tetraphis geniculata*	Geniculate Four-tooth Moss				S3S4	4 Secure	4	74.4 ± 0.0	NB
N	*Tetraplodon angustatus*	Toothed-leaved Nitrogen Moss				S3S4	4 Secure	1	76.4 ± 1.0	NB
N	*Tomentypnum nitens*	Golden Fuzzy Fen Moss				S3S4	4 Secure	1	51.4 ± 3.0	NB
N	*Trichostomum tenuirostre*	Acid-Soil Moss				S3S4	4 Secure	3	55.0 ± 5.0	NB
N	*Limprichtia revolvens*	a Moss				S3S4	4 Secure	2	55.1 ± 0.0	NB
N	*Rauiella scita*	Smaller Fern Moss				S3S4	3 Sensitive	4	63.0 ± 3.0	NB
N	*Cladonia floerkeana*	Gritty British Soldiers Lichen				S3S4	4 Secure	1	90.6 ± 0.0	NB
N	*Nephroma parile*	Powdery Kidney Lichen				S3S4	4 Secure	1	94.1 ± 0.0	NB
N	*Protopannaria pezizoides*	Brown-gray Moss-shingle Lichen				S3S4	4 Secure	1	51.7 ± 0.0	NB
N	*Pseudocyphellaria perpetua*	Gilded Specklebelly Lichen				S3S4	3 Sensitive	38	51.7 ± 0.0	NB
N	*Pannaria conoplea*	Mealy-rimmed Shingle Lichen				S3S4	3 Sensitive	5	50.9 ± 0.0	NB
N	*Dermatocarpon luridum*	Brookside Stippleback Lichen				S3S4	4 Secure	2	94.1 ± 0.0	NB
N	*Grimmia anodon*	Toothless Grimmia Moss				SH	5 Undetermined	2	88.4 ± 10.0	NB
N	*Leucodon brachypus*	a Moss				SH	2 May Be At Risk	3	50.4 ± 100.0	NB
N	*Orthotrichum gymnostomum*	a Moss				SH	2 May Be At Risk	1	59.4 ± 10.0	NB
N	*Thelia hirtella*	a Moss				SH	2 May Be At Risk	1	82.6 ± 100.0	NB
P	*Juglans cinerea*	Butternut	Endangered	Endangered	Endangered	S1	1 At Risk	400	23.9 ± 5.0	NB
P	*Polemonium vanbruntiae*	Van Brunt's Jacob's-ladder	Threatened	Threatened	Threatened	S1	1 At Risk	72	62.3 ± 1.0	NB
P	*Symphyotrichum anticostense*	Anticosti Aster	Threatened	Threatened	Endangered	S2S3	1 At Risk	59	29.5 ± 0.0	NB
P	*Symphyotrichum praealtum*	Willow-leaved Aster	Threatened	Threatened		SNA	7 Exotic	1	68.9 ± 1.0	NB
P	*Isoetes prototypus*	Prototype Quillwort	Special Concern	Special Concern	Endangered	S2	1 At Risk	21	3.5 ± 0.0	NB
P	*Pterospora andromedea*	Woodland Pinedrops			Endangered	S1	1 At Risk	24	29.4 ± 0.0	NB
P	*Cryptotaenia canadensis*	Canada Honewort				S1	2 May Be At Risk	3	60.5 ± 1.0	NB
P	*Sanicula trifoliata*	Large-Fruited Sanicle				S1	2 May Be At Risk	21	48.8 ± 0.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
P	*Antennaria parlinii*	a Pussytoes				S1	2 May Be At Risk	7	38.7 ± 0.0	NB
P	*Antennaria howellii ssp. petaloidea*	Pussy-Toes				S1	2 May Be At Risk	2	76.1 ± 1.0	NB
P	*Bidens discoidea*	Swamp Beggarticks				S1	2 May Be At Risk	3	59.1 ± 0.0	NB
P	*Pseudognaphalium obtusifolium*	Eastern Cudweed				S1	2 May Be At Risk	2	86.2 ± 0.0	NB
P	*Helianthus decapetalus*	Ten-rayed Sunflower				S1	2 May Be At Risk	20	30.6 ± 1.0	NB
P	*Hieracium kalmii*	Kalm's Hawkweed				S1	2 May Be At Risk	4	13.8 ± 0.0	NB
P	*Hieracium kalmii var. kalmii*	Kalm's Hawkweed				S1	2 May Be At Risk	4	13.5 ± 1.0	NB
P	*Hieracium paniculatum*	Panicled Hawkweed				S1	2 May Be At Risk	4	13.9 ± 1.0	NB
P	*Hieracium robinsonii*	Robinson's Hawkweed				S1	3 Sensitive	1	96.7 ± 0.0	NB
P	*Symphyotrichum laeve*	Smooth Aster				S1	5 Undetermined	6	44.5 ± 1.0	NB
P	*Canadanthus modestus*	Great Northern Aster				S1	2 May Be At Risk	12	80.2 ± 0.0	NB
P	*Cynoglossum virginianum var. boreale*	Wild Comfrey				S1	2 May Be At Risk	14	72.1 ± 0.0	NB
P	*Cardamine parviflora var. arenicola*	Small-flowered Bittercress				S1	2 May Be At Risk	5	80.5 ± 1.0	NB
P	*Cardamine concatenata*	Cut-leaved Toothwort				S1	2 May Be At Risk	11	18.8 ± 1.0	NB
P	*Draba arabisans*	Rock Whitlow-Grass				S1	2 May Be At Risk	7	84.7 ± 0.0	NB
P	*Draba breweri var. cana*	Brewer's Whitlow-grass				S1	2 May Be At Risk	10	41.3 ± 0.0	NB
P	*Draba glabella*	Rock Whitlow-Grass				S1	2 May Be At Risk	7	37.7 ± 1.0	NB
P	*Minuartia groenlandica*	Greenland Stitchwort				S1	2 May Be At Risk	1	66.5 ± 0.0	NB
P	*Chenopodium capitatum*	Strawberry-blite				S1	2 May Be At Risk	5	36.9 ± 6.0	NB
P	*Chenopodium simplex*	Maple-leaved Goosefoot				S1	2 May Be At Risk	7	34.5 ± 1.0	NB
P	*Callitriche terrestris*	Terrestrial Water-Starwort				S1	5 Undetermined	1	56.4 ± 0.0	NB
P	*Triadenum virginicum*	Virginia St John's-wort				S1	2 May Be At Risk	7	26.7 ± 0.0	NB
P	*Viburnum acerifolium*	Maple-leaved Viburnum				S1	2 May Be At Risk	10	69.5 ± 0.0	NB
P	*Drosera anglica*	English Sundew				S1	2 May Be At Risk	1	50.2 ± 0.0	NB
P	*Drosera linearis*	Slender-Leaved Sundew				S1	2 May Be At Risk	1	50.2 ± 0.0	NB
P	*Corema conradii*	Broom Crowberry				S1	2 May Be At Risk	1	89.3 ± 10.0	NB
P	*Vaccinium boreale*	Northern Blueberry				S1	2 May Be At Risk	1	62.5 ± 0.0	NB
P	*Vaccinium corymbosum*	Highbush Blueberry				S1	3 Sensitive	9	40.3 ± 0.0	NB
P	*Desmodium glutinosum*	Large Tick-Trefoil				S1	2 May Be At Risk	9	64.6 ± 1.0	NB
P	*Lespedeza capitata*	Round-headed Bush-clover				S1	2 May Be At Risk	8	72.4 ± 0.0	NB
P	*Gentiana rubricaulis*	Purple-stemmed Gentian				S1	2 May Be At Risk	14	33.7 ± 0.0	NB
P	*Lomatogonium rotatum*	Marsh Felwort				S1	2 May Be At Risk	2	89.4 ± 0.0	NB
P	*Ribes cynosbati*	Prickly Gooseberry				S1	2 May Be At Risk	1	67.6 ± 0.0	NB
P	*Proserpinaca pectinata*	Comb-leaved Mermaidweed				S1	2 May Be At Risk	1	64.3 ± 0.0	NB
P	*Pycnanthemum virginianum*	Virginia Mountain Mint				S1	2 May Be At Risk	4	82.9 ± 0.0	NB
P	*Decodon verticillatus*	Swamp Loosestrife				S1	2 May Be At Risk	3	33.7 ± 0.0	NB
P	*Polygala verticillata var. verticillata*	Whorled Milkwort				S1	5 Undetermined	2	60.9 ± 0.0	NB
P	*Lysimachia hybrida*	Lowland Yellow Loosestrife				S1	2 May Be At Risk	15	53.3 ± 0.0	NB
P	*Lysimachia quadrifolia*	Whorled Yellow Loosestrife				S1	2 May Be At Risk	14	70.7 ± 1.0	NB
P	*Ranunculus sceleratus*	Cursed Buttercup				S1	2 May Be At Risk	6	38.0 ± 0.0	NB
P	*Crataegus jonesiae*	Jones' Hawthorn				S1	2 May Be At Risk	5	36.7 ± 1.0	NB
P	*Waldsteinia*	Barren Strawberry				S1	2 May Be At Risk	27	47.3 ± 0.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
	fragarioides									
P	*Galium brevipes*	Limestone Swamp Bedstraw				S1	2 May Be At Risk	4	23.5 ± 5.0	NB
P	*Saxifraga paniculata ssp. neogaea*	White Mountain Saxifrage				S1	2 May Be At Risk	7	84.7 ± 0.0	NB
P	*Agalinis paupercula var. borealis*	Small-flowered Agalinis				S1	2 May Be At Risk	8	37.4 ± 0.0	NB
P	*Agalinis tenuifolia*	Slender Agalinis				S1	2 May Be At Risk	6	39.5 ± 0.0	NB
P	*Gratiola aurea*	Golden Hedge-Hyssop				S1	3 Sensitive	2	71.1 ± 0.0	NB
P	*Pedicularis canadensis*	Canada Lousewort				S1	2 May Be At Risk	20	35.1 ± 0.0	NB
P	*Viola canadensis*	Canada Violet				S1	2 May Be At Risk	84	66.5 ± 0.0	NB
P	*Viola sagittata var. ovata*	Arrow-Leaved Violet				S1	2 May Be At Risk	10	7.5 ± 0.0	NB
P	*Alisma subcordatum*	Southern Water Plantain				S1	5 Undetermined	8	7.3 ± 5.0	NB
P	*Carex annectens*	Yellow-Fruited Sedge				S1	2 May Be At Risk	1	68.6 ± 0.0	NB
P	*Carex backii*	Rocky Mountain Sedge				S1	2 May Be At Risk	5	41.0 ± 1.0	NB
P	*Carex blanda*	Eastern Woodland Sedge				S1	2 May Be At Risk	1	68.5 ± 0.0	NB
P	*Carex cephaloidea*	Thin-leaved Sedge				S1	2 May Be At Risk	22	22.0 ± 0.0	NB
P	*Carex merritt-fernaldii*	Merritt Fernald's Sedge				S1	2 May Be At Risk	2	66.4 ± 0.0	NB
P	*Carex saxatilis*	Russet Sedge				S1	2 May Be At Risk	13	86.3 ± 10.0	NB
P	*Carex sterilis*	Sterile Sedge				S1	2 May Be At Risk	12	28.4 ± 0.0	NB
P	*Carex grisea*	Inflated Narrow-leaved Sedge				S1	2 May Be At Risk	10	33.9 ± 1.0	NB
P	*Cyperus diandrus*	Low Flatsedge				S1	2 May Be At Risk	7	31.1 ± 0.0	NB
P	*Cyperus lupulinus*	Hop Flatsedge				S1	2 May Be At Risk	6	66.3 ± 0.0	NB
P	*Cyperus lupulinus ssp. macilentus*	Hop Flatsedge				S1	2 May Be At Risk	16	66.4 ± 1.0	NB
P	*Eleocharis olivacea*	Yellow Spikerush				S1	2 May Be At Risk	3	57.6 ± 1.0	NB
P	*Rhynchospora capillacea*	Slender Beakrush				S1	2 May Be At Risk	3	29.9 ± 0.0	NB
P	*Sisyrinchium angustifolium*	Narrow-leaved Blue-eyed-grass				S1	2 May Be At Risk	3	47.6 ± 0.0	NB
P	*Juncus greenei*	Greene's Rush				S1	2 May Be At Risk	1	71.6 ± 0.0	NB
P	*Juncus subtilis*	Creeping Rush				S1	2 May Be At Risk	1	69.8 ± 5.0	NB
P	*Allium canadense*	Canada Garlic				S1	2 May Be At Risk	11	23.5 ± 5.0	NB
P	*Goodyera pubescens*	Downy Rattlesnake-Plantain				S1	2 May Be At Risk	1	37.4 ± 0.0	NB
P	*Malaxis brachypoda*	White Adder's-Mouth				S1	2 May Be At Risk	12	28.8 ± 5.0	NB
P	*Platanthera flava var. herbiola*	Pale Green Orchid				S1	2 May Be At Risk	13	31.9 ± 0.0	NB
P	*Platanthera macrophylla*	Large Round-Leaved Orchid				S1	2 May Be At Risk	3	36.8 ± 1.0	NB
P	*Spiranthes casei*	Case's Ladies'-Tresses				S1	2 May Be At Risk	6	35.1 ± 0.0	NB
P	*Bromus pubescens*	Hairy Wood Brome Grass				S1	5 Undetermined	6	66.1 ± 0.0	NB
P	*Cinna arundinacea*	Sweet Wood Reed Grass				S1	2 May Be At Risk	22	63.0 ± 0.0	NB
P	*Danthonia compressa*	Flattened Oat Grass				S1	2 May Be At Risk	2	26.8 ± 0.0	NB
P	*Dichanthelium dichotomum*	Forked Panic Grass				S1	2 May Be At Risk	19	61.5 ± 0.0	NB
P	*Dichanthelium xanthophysum*	Slender Panic Grass				S1	2 May Be At Risk	2	98.1 ± 0.0	NB
P	*Elymus hystrix var. bigeloviana*	Spreading Wild Rye				S1	2 May Be At Risk	26	47.3 ± 0.0	NB
P	*Festuca subverticillata*	Nodding Fescue				S1	2 May Be At Risk	9	78.4 ± 0.0	NB
P	*Glyceria obtusa*	Atlantic Manna Grass				S1	2 May Be At Risk	6	50.2 ± 0.0	NB
P	*Sporobolus compositus*	Rough Dropseed				S1	2 May Be At Risk	17	28.0 ± 0.0	NB
P	*Potamogeton friesii*	Fries' Pondweed				S1	2 May Be At Risk	6	37.1 ± 5.0	NB
P	*Potamogeton nodosus*	Long-leaved Pondweed				S1	2 May Be At Risk	14	39.3 ± 1.0	NB
P	*Potamogeton strictifolius*	Straight-leaved Pondweed				S1	2 May Be At Risk	2	85.9 ± 0.0	NB
P	*Xyris difformis*	Bog Yellow-eyed-grass				S1	5 Undetermined	3	74.5 ± 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	*Asplenium ruta-muraria var. cryptolepis*	Wallrue Spleenwort				S1	2 May Be At Risk	3	84.6 ± 0.0	NB
P	*Dryopteris clintoniana*	Clinton's Wood Fern				S1	2 May Be At Risk	2	68.5 ± 0.0	NB
P	*Botrychium oneidense*	Blunt-lobed Moonwort				S1	2 May Be At Risk	8	34.4 ± 0.0	NB
P	*Botrychium rugulosum*	Rugulose Moonwort				S1	2 May Be At Risk	5	30.0 ± 1.0	NB
P	*Schizaea pusilla*	Little Curlygrass Fern				S1	2 May Be At Risk	16	81.7 ± 0.0	NB
P	*Hieracium kalmii var. fasciculatum*	Kalm's Hawkweed				S1?	5 Undetermined	4	39.3 ± 1.0	NB
P	*Cuscuta campestris*	Field Dodder				S1?	2 May Be At Risk	3	75.2 ± 10.0	NB
P	*Drosera rotundifolia var. comosa*	Round-leaved Sundew				S1?	5 Undetermined	2	86.2 ± 1.0	NB
P	*Galium trifidum ssp. subbiflorum*	Three-petaled Bedstraw				S1?	5 Undetermined	1	77.3 ± 1.0	NB
P	*Carex laxiflora*	Loose-Flowered Sedge				S1?	5 Undetermined	1	76.5 ± 0.0	NB
P	*Carex appalachica*	Appalachian Sedge				S1?	5 Undetermined	1	74.1 ± 0.0	NB
P	*Sisyrinchium mucronatum*	Michaux's Blue-eyed-grass				S1?	5 Undetermined	3	71.3 ± 0.0	NB
P	*Wolffia columbiana*	Columbian Watermeal				S1?	2 May Be At Risk	5	38.7 ± 0.0	NB
P	*Rumex aquaticus var. fenestratus*	Western Dock				S1S2	2 May Be At Risk	1	31.0 ± 1.0	NB
P	*Anemone multifida var. richardsiana*	Cut-leaved Anemone				S1S2	5 Undetermined	2	78.6 ± 5.0	NB
P	*Saxifraga virginiensis*	Early Saxifrage				S1S2	2 May Be At Risk	14	23.9 ± 0.0	NB
P	*Potamogeton bicupulatus*	Snailseed Pondweed				S1S2	2 May Be At Risk	5	41.8 ± 0.0	NB
P	*Selaginella rupestris*	Rock Spikemoss				S1S2	2 May Be At Risk	7	28.2 ± 0.0	NB
P	*Thelypteris simulata*	Bog Fern				S1S2	2 May Be At Risk	7	59.2 ± 0.0	NB
P	*Cuscuta cephalanthi*	Buttonbush Dodder				S1S3	2 May Be At Risk	2	83.0 ± 0.0	NB
P	*Listera australis*	Southern Twayblade			Endangered	S2	1 At Risk	15	3.9 ± 0.0	NB
P	*Osmorhiza longistylis*	Smooth Sweet Cicely				S2	3 Sensitive	7	32.6 ± 5.0	NB
P	*Sanicula odorata*	Clustered Sanicle				S2	2 May Be At Risk	22	33.0 ± 0.0	NB
P	*Pseudognaphalium macounii*	Macoun's Cudweed				S2	3 Sensitive	11	13.1 ± 1.0	NB
P	*Solidago simplex var. racemosa*	Sticky Goldenrod				S2	2 May Be At Risk	18	27.4 ± 1.0	NB
P	*Ionactis linariifolius*	Stiff Aster				S2	3 Sensitive	11	38.8 ± 0.0	NB
P	*Symphyotrichum racemosum*	Small White Aster				S2	3 Sensitive	10	34.8 ± 0.0	NB
P	*Impatiens pallida*	Pale Jewelweed				S2	2 May Be At Risk	5	67.6 ± 0.0	NB
P	*Alnus serrulata*	Smooth Alder				S2	3 Sensitive	57	39.2 ± 0.0	NB
P	*Arabis drummondii*	Drummond's Rockcress				S2	3 Sensitive	12	28.0 ± 0.0	NB
P	*Sagina nodosa*	Knotted Pearlwort				S2	3 Sensitive	5	75.4 ± 1.0	NB
P	*Sagina nodosa ssp. borealis*	Knotted Pearlwort				S2	3 Sensitive	1	86.8 ± 0.0	NB
P	*Stellaria longifolia*	Long-leaved Starwort				S2	3 Sensitive	9	39.0 ± 10.0	NB
P	*Atriplex franktonii*	Frankton's Saltbush				S2	4 Secure	1	68.9 ± 1.0	NB
P	*Chenopodium rubrum*	Red Pigweed				S2	3 Sensitive	4	80.2 ± 1.0	NB
P	*Hypericum dissimulatum*	Disguised St John's-wort				S2	3 Sensitive	2	34.9 ± 0.0	NB
P	*Triosteum aurantiacum*	Orange-fruited Tinker's Weed				S2	3 Sensitive	179	22.5 ± 1.0	NB
P	*Viburnum lentago*	Nannyberry				S2	4 Secure	130	14.2 ± 0.0	NB
P	*Viburnum recognitum*	Northern Arrow-Wood				S2	4 Secure	168	24.7 ± 0.0	NB
P	*Astragalus eucosmus*	Elegant Milk-vetch				S2	2 May Be At Risk	12	20.1 ± 1.0	NB
P	*Oxytropis campestris var. johannensis*	Field Locoweed				S2	3 Sensitive	12	22.1 ± 1.0	NB
P	*Quercus macrocarpa*	Bur Oak				S2	2 May Be At Risk	50	23.9 ± 0.0	NB
P	*Gentiana linearis*	Narrow-Leaved Gentian				S2	3 Sensitive	5	39.3 ± 5.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
P	*Myriophyllum humile*	Low Water Milfoil				S2	3 Sensitive	10	34.9 ± 0.0	NB
P	*Proserpinaca palustris var. crebra*	Marsh Mermaidweed				S2	3 Sensitive	24	17.0 ± 0.0	NB
P	*Hedeoma pulegioides*	American False Pennyroyal				S2	4 Secure	14	17.5 ± 0.0	NB
P	*Nuphar lutea ssp. rubrodisca*	Red-disked Yellow Pond-lily				S2	3 Sensitive	14	37.6 ± 0.0	NB
P	*Orobanche uniflora*	One-Flowered Broomrape				S2	3 Sensitive	15	34.7 ± 1.0	NB
P	*Polygala paucifolia*	Fringed Milkwort				S2	3 Sensitive	13	21.6 ± 0.0	NB
P	*Polygala senega*	Seneca Snakeroot				S2	3 Sensitive	34	22.6 ± 1.0	NB
P	*Polygonum amphibium var. emersum*	Water Smartweed				S2	3 Sensitive	42	23.5 ± 0.0	NB
P	*Polygonum careyi*	Carey's Smartweed				S2	3 Sensitive	15	32.1 ± 1.0	NB
P	*Podostemum ceratophyllum*	Horn-leaved Riverweed				S2	3 Sensitive	45	25.6 ± 0.0	NB
P	*Anemone multifida*	Cut-leaved Anemone				S2	3 Sensitive	4	28.7 ± 0.0	NB
P	*Hepatica nobilis var. obtusa*	Round-lobed Hepatica				S2	3 Sensitive	55	23.1 ± 0.0	NB
P	*Ranunculus flabellaris*	Yellow Water Buttercup				S2	4 Secure	20	43.5 ± 1.0	NB
P	*Ranunculus longirostris*	Eastern White Water-Crowfoot				S2	5 Undetermined	8	24.5 ± 1.0	NB
P	*Crataegus scabrida*	Rough Hawthorn				S2	3 Sensitive	9	76.6 ± 0.0	NB
P	*Crataegus succulenta*	Fleshy Hawthorn				S2	3 Sensitive	1	39.0 ± 5.0	NB
P	*Rosa acicularis ssp. sayi*	Prickly Rose				S2	2 May Be At Risk	14	94.0 ± 0.0	NB
P	*Cephalanthus occidentalis*	Common Buttonbush				S2	3 Sensitive	66	26.5 ± 0.0	NB
P	*Salix candida*	Sage Willow				S2	3 Sensitive	10	17.1 ± 1.0	NB
P	*Castilleja septentrionalis*	Northeastern Paintbrush				S2	3 Sensitive	7	75.6 ± 0.0	NB
P	*Euphrasia randii*	Rand's Eyebright				S2	2 May Be At Risk	8	80.3 ± 0.0	NB
P	*Scrophularia lanceolata*	Lance-leaved Figwort				S2	3 Sensitive	9	21.4 ± 100.0	NB
P	*Dirca palustris*	Eastern Leatherwood				S2	2 May Be At Risk	47	28.4 ± 1.0	NB
P	*Phryma leptostachya*	American Lopseed				S2	3 Sensitive	69	33.0 ± 0.0	NB
P	*Verbena urticifolia*	White Vervain				S2	2 May Be At Risk	28	21.9 ± 1.0	NB
P	*Viola novae-angliae*	New England Violet				S2	3 Sensitive	7	29.1 ± 10.0	NB
P	*Symplocarpus foetidus*	Eastern Skunk Cabbage				S2	3 Sensitive	71	15.8 ± 0.0	NB
P	*Carex comosa*	Bearded Sedge				S2	2 May Be At Risk	7	83.8 ± 0.0	NB
P	*Carex granularis*	Limestone Meadow Sedge				S2	3 Sensitive	8	23.4 ± 5.0	NB
P	*Carex gynocrates*	Northern Bog Sedge				S2	3 Sensitive	44	40.4 ± 0.0	NB
P	*Carex hirtifolia*	Pubescent Sedge				S2	3 Sensitive	78	25.1 ± 0.0	NB
P	*Carex livida var. radicaulis*	Livid Sedge				S2	3 Sensitive	5	83.2 ± 0.0	NB
P	*Carex plantaginea*	Plantain-Leaved Sedge				S2	3 Sensitive	106	61.9 ± 0.0	NB
P	*Carex prairea*	Prairie Sedge				S2	3 Sensitive	31	63.3 ± 0.0	NB
P	*Carex rostrata*	Narrow-leaved Beaked Sedge				S2	3 Sensitive	6	76.8 ± 0.0	NB
P	*Carex salina*	Saltmarsh Sedge				S2	3 Sensitive	2	87.9 ± 1.0	NB
P	*Carex sprengelii*	Longbeak Sedge				S2	3 Sensitive	44	34.0 ± 0.0	NB
P	*Carex tenuiflora*	Sparse-Flowered Sedge				S2	2 May Be At Risk	26	27.4 ± 0.0	NB
P	*Carex albicans var. emmonsii*	White-tinged Sedge				S2	3 Sensitive	4	73.2 ± 0.0	NB
P	*Cyperus squarrosus*	Awned Flatsedge				S2	3 Sensitive	31	38.8 ± 0.0	NB
P	*Eriophorum gracile*	Slender Cottongrass				S2	2 May Be At Risk	13	62.8 ± 0.0	NB
P	*Elodea nuttallii*	Nuttall's Waterweed				S2	3 Sensitive	9	39.2 ± 5.0	NB
P	*Juncus vaseyi*	Vasey Rush				S2	3 Sensitive	4	93.8 ± 0.0	NB
P	*Allium tricoccum*	Wild Leek				S2	2 May Be At Risk	17	48.7 ± 1.0	NB
P	*Najas gracillima*	Thread-Like Naiad				S2	3 Sensitive	11	52.5 ± 0.0	NB

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P	*Calypso bulbosa var. americana*	Calypso				S2	2 May Be At Risk	36	36.7 ± 1.0	NB
P	*Coeloglossum viride var. virescens*	Long-bracted Frog Orchid				S2	2 May Be At Risk	6	28.2 ± 5.0	NB
P	*Cypripedium parviflorum var. makasin*	Small Yellow Lady's-Slipper				S2	2 May Be At Risk	12	21.5 ± 1.0	NB
P	*Galearis spectabilis*	Showy Orchis				S2	2 May Be At Risk	54	48.7 ± 1.0	NB
P	*Goodyera oblongifolia*	Menzies' Rattlesnake-plantain				S2	3 Sensitive	1	73.4 ± 0.0	NB
P	*Spiranthes lucida*	Shining Ladies'-Tresses				S2	3 Sensitive	25	23.4 ± 0.0	NB
P	*Spiranthes ochroleuca*	Yellow Ladies'-tresses				S2	2 May Be At Risk	2	25.7 ± 5.0	NB
P	*Agrostis mertensii*	Northern Bent Grass				S2	2 May Be At Risk	1	96.3 ± 0.0	NB
P	*Dichanthelium linearifolium*	Narrow-leaved Panic Grass				S2	3 Sensitive	12	22.2 ± 0.0	NB
P	*Elymus canadensis*	Canada Wild Rye				S2	2 May Be At Risk	21	27.9 ± 1.0	NB
P	*Leersia virginica*	White Cut Grass				S2	2 May Be At Risk	42	32.6 ± 1.0	NB
P	*Piptatherum canadense*	Canada Rice Grass				S2	3 Sensitive	5	12.6 ± 1.0	NB
P	*Poa glauca*	Glaucous Blue Grass				S2	4 Secure	1	89.2 ± 2.0	NB
P	*Puccinellia phryganodes*	Creeping Alkali Grass				S2	3 Sensitive	9	60.2 ± 0.0	NB
P	*Schizachyrium scoparium*	Little Bluestem				S2	3 Sensitive	50	28.1 ± 1.0	NB
P	*Zizania aquatica var. aquatica*	Indian Wild Rice				S2	5 Undetermined	6	39.0 ± 5.0	NB
P	*Piptatherum pungens*	Slender Rice Grass				S2	2 May Be At Risk	4	96.0 ± 0.0	NB
P	*Potamogeton vaseyi*	Vasey's Pondweed				S2	3 Sensitive	10	20.3 ± 0.0	NB
P	*Asplenium trichomanes*	Maidenhair Spleenwort				S2	3 Sensitive	7	16.3 ± 0.0	NB
P	*Woodwardia virginica*	Virginia Chain Fern				S2	3 Sensitive	19	3.2 ± 1.0	NB
P	*Woodsia alpina*	Alpine Cliff Fern				S2	3 Sensitive	5	84.7 ± 0.0	NB
P	*Selaginella selaginoides*	Low Spikemoss				S2	3 Sensitive	4	75.5 ± 6.0	NB
P	*Toxicodendron radicans*	Poison Ivy				S2?	3 Sensitive	15	32.3 ± 1.0	NB
P	*Symphyotrichum novi-belgii var. crenifolium*	New York Aster				S2?	5 Undetermined	4	35.7 ± 1.0	NB
P	*Humulus lupulus var. lupuloides*	Common Hop				S2?	3 Sensitive	5	33.9 ± 0.0	NB
P	*Rubus recurvicaulis*	Arching Dewberry				S2?	4 Secure	4	37.0 ± 1.0	NB
P	*Galium obtusum*	Blunt-leaved Bedstraw				S2?	4 Secure	5	48.8 ± 1.0	NB
P	*Salix myricoides*	Bayberry Willow				S2?	3 Sensitive	17	17.9 ± 0.0	NB
P	*Carex vacillans*	Estuarine Sedge				S2?	3 Sensitive	3	61.8 ± 1.0	NB
P	*Platanthera huronensis*	Fragrant Green Orchid				S2?	5 Undetermined	3	40.4 ± 1.0	NB
P	*Solidago altissima*	Tall Goldenrod				S2S3	4 Secure	48	29.3 ± 0.0	NB
P	*Barbarea orthoceras*	American Yellow Rocket				S2S3	3 Sensitive	7	71.0 ± 0.0	NB
P	*Ceratophyllum echinatum*	Prickly Hornwort				S2S3	3 Sensitive	18	15.2 ± 0.0	NB
P	*Callitriche hermaphroditica*	Northern Water-starwort				S2S3	4 Secure	6	46.3 ± 0.0	NB
P	*Lonicera oblongifolia*	Swamp Fly Honeysuckle				S2S3	3 Sensitive	134	33.7 ± 0.0	NB
P	*Elatine americana*	American Waterwort				S2S3	3 Sensitive	8	55.0 ± 0.0	NB
P	*Bartonia paniculata*	Branched Bartonia				S2S3	3 Sensitive	4	81.7 ± 0.0	NB
P	*Bartonia paniculata ssp. iodandra*	Branched Bartonia				S2S3	3 Sensitive	12	55.8 ± 0.0	NB
P	*Geranium robertianum*	Herb Robert				S2S3	4 Secure	19	63.7 ± 0.0	NB
P	*Myriophyllum quitense*	Andean Water Milfoil				S2S3	4 Secure	71	72.1 ± 0.0	NB
P	*Epilobium coloratum*	Purple-veined Willowherb				S2S3	3 Sensitive	8	35.4 ± 1.0	NB

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P	*Rumex pallidus*	Seabeach Dock				S2S3	3 Sensitive	6	70.3 ± 1.0	NB
P	*Amelanchier sanguinea var. gaspensis*	Round-Leaved Serviceberry				S2S3	5 Undetermined	1	68.3 ± 0.0	NB
P	*Rubus pensilvanicus*	Pennsylvania Blackberry				S2S3	4 Secure	12	4.1 ± 0.0	NB
P	*Galium labradoricum*	Labrador Bedstraw				S2S3	3 Sensitive	98	50.2 ± 0.0	NB
P	*Valeriana uliginosa*	Swamp Valerian				S2S3	3 Sensitive	48	38.8 ± 0.0	NB
P	*Carex adusta*	Lesser Brown Sedge				S2S3	4 Secure	6	35.2 ± 10.0	NB
P	*Juncus brachycephalus*	Small-Head Rush				S2S3	3 Sensitive	6	47.8 ± 0.0	NB
P	*Corallorhiza maculata var. occidentalis*	Spotted Coralroot				S2S3	3 Sensitive	7	17.3 ± 1.0	NB
P	*Corallorhiza maculata var. maculata*	Spotted Coralroot				S2S3	3 Sensitive	3	36.7 ± 1.0	NB
P	*Listera auriculata*	Auricled Twayblade				S2S3	3 Sensitive	9	20.2 ± 0.0	NB
P	*Spiranthes cernua*	Nodding Ladies'-Tresses				S2S3	3 Sensitive	12	25.7 ± 5.0	NB
P	*Eragrostis pectinacea*	Tufted Love Grass				S2S3	4 Secure	14	28.8 ± 1.0	NB
P	*Stuckenia filiformis ssp. alpina*	Thread-leaved Pondweed				S2S3	3 Sensitive	9	78.0 ± 0.0	NB
P	*Stuckenia pectinata*	Sago Pondweed				S2S3	3 Sensitive	1	99.7 ± 0.0	NB
P	*Potamogeton praelongus*	White-stemmed Pondweed				S2S3	4 Secure	23	35.6 ± 0.0	NB
P	*Isoetes acadiensis*	Acadian Quillwort				S2S3	3 Sensitive	10	3.6 ± 0.0	NB
P	*Ophioglossum pusillum*	Northern Adder's-tongue				S2S3	3 Sensitive	9	24.8 ± 1.0	NB
P	*Botrychium tenebrosum*	Swamp Moonwort				S2S3	3 Sensitive	1	49.2 ± 0.0	NB
P	*Panax trifolius*	Dwarf Ginseng				S3	3 Sensitive	12	39.6 ± 1.0	NB
P	*Arnica lanceolata*	Lance-leaved Arnica				S3	4 Secure	11	64.3 ± 0.0	NB
P	*Artemisia campestris*	Field Wormwood				S3	4 Secure	22	31.9 ± 1.0	NB
P	*Artemisia campestris ssp. caudata*	Field Wormwood				S3	4 Secure	80	22.1 ± 1.0	NB
P	*Erigeron hyssopifolius*	Hyssop-leaved Fleabane				S3	4 Secure	26	37.0 ± 0.0	NB
P	*Prenanthes racemosa*	Glaucous Rattlesnakeroot				S3	4 Secure	59	18.0 ± 0.0	NB
P	*Tanacetum bipinnatum ssp. huronense*	Lake Huron Tansy				S3	4 Secure	36	22.1 ± 1.0	NB
P	*Symphyotrichum boreale*	Boreal Aster				S3	3 Sensitive	149	33.4 ± 10.0	NB
P	*Betula pumila*	Bog Birch				S3	4 Secure	43	34.1 ± 1.0	NB
P	*Arabis glabra*	Tower Mustard				S3	5 Undetermined	10	50.7 ± 0.0	NB
P	*Arabis hirsuta var. pycnocarpa*	Western Hairy Rockcress				S3	4 Secure	19	29.2 ± 1.0	NB
P	*Cardamine maxima*	Large Toothwort				S3	4 Secure	114	30.2 ± 0.0	NB
P	*Subularia aquatica var. americana*	Water Awlwort				S3	4 Secure	18	1.8 ± 0.0	NB
P	*Lobelia cardinalis*	Cardinal Flower				S3	4 Secure	378	11.9 ± 0.0	NB
P	*Stellaria humifusa*	Saltmarsh Starwort				S3	4 Secure	6	60.2 ± 0.0	NB
P	*Hudsonia tomentosa*	Woolly Beach-heath				S3	4 Secure	3	65.2 ± 0.0	NB
P	*Cornus amomum ssp. obliqua*	Pale Dogwood				S3	3 Sensitive	242	34.8 ± 0.0	NB
P	*Crassula aquatica*	Water Pygmyweed				S3	4 Secure	3	60.8 ± 1.0	NB
P	*Rhodiola rosea*	Roseroot				S3	4 Secure	27	67.5 ± 1.0	NB
P	*Penthorum sedoides*	Ditch Stonecrop				S3	4 Secure	69	19.5 ± 1.0	NB
P	*Elatine minima*	Small Waterwort				S3	4 Secure	55	1.7 ± 0.0	NB
P	*Astragalus alpinus var. brunetianus*	Alpine Milk-Vetch				S3	4 Secure	13	19.4 ± 0.0	NB
P	*Hedysarum alpinum*	Alpine Sweet-vetch				S3	4 Secure	35	73.3 ± 0.0	NB
P	*Gentianella amarella*	Northern Gentian				S3	4 Secure	12	26.6 ± 0.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
	ssp. acuta									
P	*Geranium bicknellii*	Bicknell's Crane's-bill				S3	4 Secure	7	60.3 ± 5.0	NB
P	*Myriophyllum farwellii*	Farwell's Water Milfoil				S3	4 Secure	21	4.7 ± 0.0	NB
P	*Myriophyllum heterophyllum*	Variable-leaved Water Milfoil				S3	4 Secure	51	57.2 ± 0.0	NB
P	*Myriophyllum verticillatum*	Whorled Water Milfoil				S3	4 Secure	22	19.3 ± 0.0	NB
P	*Stachys tenuifolia*	Smooth Hedge-Nettle				S3	3 Sensitive	14	29.1 ± 0.0	NB
P	*Utricularia radiata*	Little Floating Bladderwort				S3	4 Secure	54	20.0 ± 0.0	NB
P	*Nuphar lutea ssp. pumila*	Small Yellow Pond-lily				S3	4 Secure	22	33.9 ± 5.0	NB
P	*Epilobium hornemannii*	Hornemann's Willowherb				S3	4 Secure	3	74.5 ± 0.0	NB
P	*Epilobium strictum*	Downy Willowherb				S3	4 Secure	59	17.8 ± 0.0	NB
P	*Polygala sanguinea*	Blood Milkwort				S3	3 Sensitive	25	26.6 ± 0.0	NB
P	*Polygonum arifolium*	Halberd-leaved Tearthumb				S3	4 Secure	23	60.2 ± 0.0	NB
P	*Polygonum punctatum*	Dotted Smartweed				S3	4 Secure	2	46.0 ± 0.0	NB
P	*Polygonum punctatum var. confertiflorum*	Dotted Smartweed				S3	4 Secure	10	36.0 ± 0.0	NB
P	*Polygonum scandens*	Climbing False Buckwheat				S3	4 Secure	36	30.2 ± 1.0	NB
P	*Littorella uniflora*	American Shoreweed				S3	4 Secure	29	4.1 ± 0.0	NB
P	*Primula mistassinica*	Mistassini Primrose				S3	4 Secure	21	28.1 ± 1.0	NB
P	*Pyrola minor*	Lesser Pyrola				S3	4 Secure	2	79.8 ± 0.0	NB
P	*Clematis occidentalis*	Purple Clematis				S3	4 Secure	32	29.1 ± 0.0	NB
P	*Ranunculus gmelinii*	Gmelin's Water Buttercup				S3	4 Secure	41	48.8 ± 0.0	NB
P	*Thalictrum venulosum*	Northern Meadow-rue				S3	4 Secure	96	25.3 ± 0.0	NB
P	*Amelanchier canadensis*	Canada Serviceberry				S3	4 Secure	16	1.6 ± 1.0	NB
P	*Rosa palustris*	Swamp Rose				S3	4 Secure	46	3.9 ± 0.0	NB
P	*Rubus occidentalis*	Black Raspberry				S3	4 Secure	120	19.5 ± 0.0	NB
P	*Galium boreale*	Northern Bedstraw				S3	4 Secure	10	22.1 ± 1.0	NB
P	*Salix interior*	Sandbar Willow				S3	4 Secure	38	28.3 ± 1.0	NB
P	*Salix nigra*	Black Willow				S3	3 Sensitive	124	31.4 ± 1.0	NB
P	*Salix pedicellaris*	Bog Willow				S3	4 Secure	67	34.0 ± 0.0	NB
P	*Comandra umbellata*	Bastard's Toadflax				S3	4 Secure	1	76.6 ± 10.0	NB
P	*Parnassia glauca*	Fen Grass-of-Parnassus				S3	4 Secure	12	19.1 ± 10.0	NB
P	*Limosella australis*	Southern Mudwort				S3	4 Secure	1	62.7 ± 5.0	NB
P	*Veronica serpyllifolia ssp. humifusa*	Thyme-Leaved Speedwell				S3	4 Secure	4	32.6 ± 10.0	NB
P	*Boehmeria cylindrica*	Small-spike False-nettle				S3	3 Sensitive	149	32.3 ± 0.0	NB
P	*Pilea pumila*	Dwarf Clearweed				S3	4 Secure	59	31.4 ± 0.0	NB
P	*Viola adunca*	Hooked Violet				S3	4 Secure	7	16.4 ± 1.0	NB
P	*Viola nephrophylla*	Northern Bog Violet				S3	4 Secure	72	29.8 ± 0.0	NB
P	*Carex aquatilis*	Water Sedge				S3	4 Secure	2	81.6 ± 0.0	NB
P	*Carex arcta*	Northern Clustered Sedge				S3	4 Secure	56	14.3 ± 0.0	NB
P	*Carex atratiformis*	Scabrous Black Sedge				S3	4 Secure	1	89.2 ± 0.0	NB
P	*Carex capillaris*	Hairlike Sedge				S3	4 Secure	8	74.9 ± 0.0	NB
P	*Carex chordorrhiza*	Creeping Sedge				S3	4 Secure	79	17.9 ± 0.0	NB
P	*Carex conoidea*	Field Sedge				S3	4 Secure	23	27.9 ± 1.0	NB
P	*Carex eburnea*	Bristle-leaved Sedge				S3	4 Secure	7	80.1 ± 0.0	NB
P	*Carex exilis*	Coastal Sedge				S3	4 Secure	100	33.8 ± 0.0	NB
P	*Carex garberi*	Garber's Sedge				S3	3 Sensitive	14	36.3 ± 1.0	NB
P	*Carex haydenii*	Hayden's Sedge				S3	4 Secure	39	33.1 ± 1.0	NB
P	*Carex lupulina*	Hop Sedge				S3	4 Secure	115	33.5 ± 0.0	NB
P	*Carex michauxiana*	Michaux's Sedge				S3	4 Secure	57	37.7 ± 0.0	NB
P	*Carex ormostachya*	Necklace Spike Sedge				S3	4 Secure	18	13.5 ± 1.0	NB
P	*Carex rosea*	Rosy Sedge				S3	4 Secure	235	25.1 ± 1.0	NB
P	*Carex tenera*	Tender Sedge				S3	4 Secure	53	3.1 ± 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	*Carex tuckermanii*	Tuckerman's Sedge				S3	4 Secure	75	14.2 ± 0.0	NB
P	*Carex vaginata*	Sheathed Sedge				S3	3 Sensitive	14	31.1 ± 0.0	NB
P	*Carex wiegandii*	Wiegand's Sedge				S3	4 Secure	36	33.8 ± 0.0	NB
P	*Carex recta*	Estuary Sedge				S3	4 Secure	6	61.8 ± 0.0	NB
P	*Cyperus dentatus*	Toothed Flatsedge				S3	4 Secure	147	13.8 ± 1.0	NB
P	*Cyperus esculentus*	Perennial Yellow Nutsedge				S3	4 Secure	44	29.0 ± 1.0	NB
P	*Eleocharis intermedia*	Matted Spikerush				S3	4 Secure	9	31.9 ± 0.0	NB
P	*Eleocharis quinqueflora*	Few-flowered Spikerush				S3	4 Secure	28	32.4 ± 0.0	NB
P	*Rhynchospora capitellata*	Small-headed Beakrush				S3	4 Secure	27	27.5 ± 0.0	NB
P	*Rhynchospora fusca*	Brown Beakrush				S3	4 Secure	39	26.4 ± 1.0	NB
P	*Trichophorum clintonii*	Clinton's Clubrush				S3	4 Secure	54	46.0 ± 0.0	NB
P	*Schoenoplectus fluviatilis*	River Bulrush				S3	3 Sensitive	58	48.0 ± 0.0	NB
P	*Schoenoplectus torreyi*	Torrey's Bulrush				S3	4 Secure	31	20.6 ± 0.0	NB
P	*Lemna trisulca*	Star Duckweed				S3	4 Secure	22	71.6 ± 0.0	NB
P	*Triantha glutinosa*	Sticky False-Asphodel				S3	4 Secure	81	19.5 ± 1.0	NB
P	*Cypripedium reginae*	Showy Lady's-Slipper				S3	3 Sensitive	114	38.8 ± 0.0	NB
P	*Liparis loeselii*	Loesel's Twayblade				S3	4 Secure	26	26.6 ± 0.0	NB
P	*Platanthera blephariglottis*	White Fringed Orchid				S3	4 Secure	58	3.9 ± 0.0	NB
P	*Platanthera grandiflora*	Large Purple Fringed Orchid				S3	3 Sensitive	34	32.0 ± 1.0	NB
P	*Bromus latiglumis*	Broad-Glumed Brome				S3	3 Sensitive	30	29.4 ± 0.0	NB
P	*Calamagrostis pickeringii*	Pickering's Reed Grass				S3	4 Secure	104	47.1 ± 0.0	NB
P	*Dichanthelium depauperatum*	Starved Panic Grass				S3	4 Secure	23	37.8 ± 0.0	NB
P	*Muhlenbergia richardsonis*	Mat Muhly				S3	4 Secure	34	29.6 ± 0.0	NB
P	*Heteranthera dubia*	Water Stargrass				S3	4 Secure	61	19.0 ± 0.0	NB
P	*Potamogeton obtusifolius*	Blunt-leaved Pondweed				S3	4 Secure	39	9.0 ± 1.0	NB
P	*Potamogeton richardsonii*	Richardson's Pondweed				S3	3 Sensitive	16	39.4 ± 5.0	NB
P	*Xyris montana*	Northern Yellow-Eyed-Grass				S3	4 Secure	25	38.4 ± 0.0	NB
P	*Zannichellia palustris*	Horned Pondweed				S3	4 Secure	5	76.8 ± 0.0	NB
P	*Adiantum pedatum*	Northern Maidenhair Fern				S3	4 Secure	289	30.9 ± 5.0	NB
P	*Cryptogramma stelleri*	Steller's Rockbrake				S3	4 Secure	1	97.1 ± 1.0	NB
P	*Asplenium trichomanes-ramosum*	Green Spleenwort				S3	4 Secure	14	75.8 ± 0.0	NB
P	*Dryopteris fragrans var. remotiuscula*	Fragrant Wood Fern				S3	4 Secure	11	50.5 ± 0.0	NB
P	*Dryopteris goldiana*	Goldie's Woodfern				S3	3 Sensitive	187	32.8 ± 5.0	NB
P	*Equisetum palustre*	Marsh Horsetail				S3	4 Secure	8	31.3 ± 0.0	NB
P	*Isoetes tuckermanii*	Tuckerman's Quillwort				S3	4 Secure	18	3.5 ± 0.0	NB
P	*Lycopodium sabinifolium*	Ground-Fir				S3	4 Secure	12	37.3 ± 1.0	NB
P	*Huperzia appalachiana*	Appalachian Fir-Clubmoss				S3	3 Sensitive	1	87.6 ± 1.0	NB
P	*Botrychium dissectum*	Cut-leaved Moonwort				S3	4 Secure	53	14.3 ± 0.0	NB
P	*Botrychium lanceolatum var. angustisegmentum*	Lance-Leaf Grape-Fern				S3	3 Sensitive	17	21.6 ± 0.0	NB
P	*Botrychium simplex*	Least Moonwort				S3	4 Secure	12	18.7 ± 0.0	NB
P	*Polypodium appalachianum*	Appalachian Polypody				S3	4 Secure	25	19.3 ± 10.0	NB
P	*Utricularia resupinata*	Inverted Bladderwort				S3?	4 Secure	16	33.9 ± 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	*Crataegus submollis*	Quebec Hawthorn				S3?	3 Sensitive	20	14.1 ± 0.0	NB
P	*Mertensia maritima*	Sea Lungwort				S3S4	4 Secure	20	70.8 ± 1.0	NB
P	*Lobelia kalmii*	Brook Lobelia				S3S4	4 Secure	47	19.5 ± 1.0	NB
P	*Suaeda calceoliformis*	Horned Sea-blite				S3S4	4 Secure	3	38.3 ± 0.0	NB
P	*Myriophyllum sibiricum*	Siberian Water Milfoil				S3S4	4 Secure	31	35.6 ± 0.0	NB
P	*Stachys pilosa*	Hairy Hedge-Nettle				S3S4	5 Undetermined	5	31.2 ± 0.0	NB
P	*Utricularia gibba*	Humped Bladderwort				S3S4	4 Secure	39	4.1 ± 0.0	NB
P	*Rumex maritimus*	Sea-Side Dock				S3S4	4 Secure	1	81.3 ± 1.0	NB
P	*Potentilla arguta*	Tall Cinquefoil				S3S4	4 Secure	49	17.9 ± 0.0	NB
P	*Rubus chamaemorus*	Cloudberry				S3S4	4 Secure	49	74.1 ± 4.0	NB
P	*Geocaulon lividum*	Northern Comandra				S3S4	4 Secure	9	74.9 ± 1.0	NB
P	*Juniperus horizontalis*	Creeping Juniper				S3S4	4 Secure	3	76.4 ± 1.0	NB
P	*Cladium mariscoides*	Smooth Twigrush				S3S4	4 Secure	87	3.9 ± 0.0	NB
P	*Eriophorum russeolum*	Russet Cottongrass				S3S4	4 Secure	10	59.9 ± 1.0	NB
P	*Triglochin gaspensis*	Gasp ├⌐ Arrowgrass				S3S4	4 Secure	12	61.8 ± 1.0	NB
P	*Spirodela polyrrhiza*	Great Duckweed				S3S4	4 Secure	41	29.3 ± 0.0	NB
P	*Corallorhiza maculata*	Spotted Coralroot				S3S4	3 Sensitive	11	16.5 ± 0.0	NB
P	*Calamagrostis stricta*	Slim-stemmed Reed Grass				S3S4	4 Secure	1	76.1 ± 2.0	NB
P	*Potamogeton oakesianus*	Oakes' Pondweed				S3S4	4 Secure	35	4.0 ± 0.0	NB
P	*Montia fontana*	Water Blinks				SH	2 May Be At Risk	1	86.7 ± 1.0	NB
P	*Solidago caesia*	Blue-stemmed Goldenrod				SX	0.1 Extirpated	2	90.0 ± 1.0	NB
P	*Oligoneuron album*	Upland White Goldenrod				SX	0.1 Extirpated	3	64.9 ± 1.0	NB
P	*Celastrus scandens*	Climbing Bittersweet				SX	0.1 Extirpated	4	19.7 ± 100.0	NB

5.1 SOURCE BIBLIOGRAPHY (100 km)

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

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APPENDIX D:

Additional Information Requirements for Decommissioning of Existing Facilities

Additional Information Requirements for Decommissioning of Existing Facilities

Pursuant to Section 5(2) of the *Environmental Impact Assessment Regulation* of the Clean Environment Act, this document is intended to assist proponents in preparing a registration submission for projects involving the above-mentioned sector. It should be read in conjunction with the General Information Requirements as outlined in the latest version of the Registration Guide. Note that the following items are requirements **in addition to** those outlined in the Registration Guide. For further assistance, please contact the Project Assessment and Approvals Branch, Department of Environment at (506)-444-5382.

After reviewing a registration submission, the Technical Review Committee may require other information beyond the items listed below and in the Registration Guide.

Definition

These guidelines are applicable for projects involving the closure, decommissioning, abandonment or demolition of any undertakings listed in Schedule "A" of the *Environmental Impact Assessment Regulation*

To determine if registration is required for a specific project, please contact the Project Assessment Branch at the number listed above.

1.0 THE PROPONENT

See Registration Guide.

2.0 THE UNDERTAKING

(ii) Project Overview

- A complete description of all proposed activities associated with all infrastructure and facilities at all locations must be provided. It is important to understand that once it has been determined that the proposed undertaking will trigger an EIA, the scope of the EIA is not limited to those portions of the work specifically mentioned in Schedule "A". As an example, if the proposed activity is the closure of a food processing facility (not listed as an undertaking in Schedule "A") and an associated wastewater treatment plant (listed as an undertaking in Schedule "A") the EIA registration document must address the closure of the entire facility (food processing facility plus the waste water treatment plant).

- The intended final use of the site should be described (e.g. restored to pre-development conditions, sold to a new owner, redeveloped for a new use, etc.)

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

- The reason for the facility closure should be provided.

(v) Siting Considerations:

- Since the project deals with an existing facility, siting considerations are typically not required.

(viii) Operation and Maintenance Details:

- All proposed activities should be documented and the order in which they will occur should be described. The discussion should include any phasing of the proposed activities and the anticipated timing of each phase.

- Indentify the origin of any required fill materials

- Describe the proposed fate of valuable assets (power generation equipment, machinery, etc.)

- The registration document should include a summary table listing all wastes/ materials/ substances/chemicals that will be removed from the site, their estimated quantity, proposed transportation method and their proposed destination. Any materials that would be disposed of on site should also be summarized in a tabular format.

(x) Project-Related Documents

- The file numbers of any previously issued Approvals to Construct or Operate should be provided.

- Any previously completed Environmental Site Assessments should be included in the registration document as appendices.

- If the project was required to undergo a review under the EIA Regulation when it was first initiated, a copy of the registration document should be provided.

3.0 DESCRIPTION OF THE EXISTING ENVIRONMENT

Include all relevant environmental features as noted in the Registration Guide. Examples of issues that may be of particular relevance to this class of project include but are not limited to the following:

- Provide an inventory (key map, table and PIDs) of all properties/facilities involved in the project.

- A scalable drawing must be provided to show the locations of the various buildings structures, storage tanks, pipes, ponds, wells, water lines, transformers, etc. The plan should be annotated to clearly show which of the foregoing will be removed and which, if any, will remain in place.

- A description of any environmental monitoring activities (air, surface water, ground water, soil sampling etc.) which took place when the facility was in operation should be provided. All sampling locations, monitoring wells should be indicated on the above drawing.

- Provide a summary table for all existing monitoring wells listing well construction details (depth, screened intervals, intersected geology, etc.), sampling frequency, and sampled parameters.

- With reference to the above information, indicate which of the wells will continue to be sampled after the site is decommissioned.

- Provide a description of the history of any on-site disposal areas and the waste materials that may have been deposited at these locations; i.e. their composition (organics plastic, metal, etc.) and their identity (tree bark, packaging material, etc.). Will any materials in the disposal areas generate leachate? Is any leachate treatment or groundwater monitoring being proposed in relation to these sites?

- There should be a detailed inspection of buildings and facilities to identify any potentially hazardous materials such as asbestos, lead based paint, etc. The proposed fate of such materials should be described.

- Where it is anticipated that contaminants may exist, an environmental site assessment prepared in accordance with the Department of Environment's current version of the Guideline for the Management of Contaminated Sites must be conducted on the entire project site as part of the EIA. The environmental site assessment must be performed by a qualified site professional in accordance with the aforementioned Guideline. The environmental site assessment should examine all portions of the subject properties for potential sources of contamination. This assessment should also include areas located between potential sources of contamination. The management process for the remediation files that may result from the presence of chemicals of concern as determined by the environmental site assessment will have to be completed until a Record of Site Condition is acknowledged by the Minister of Environment. Typically, this

management process could occur following EIA Determination or approval, rather than as part of the EIA review.

4.0 SUMMARY OF ENVIRONMENTAL IMPACTS

All anticipated impacts should be described and discussed. These will depend on the scope and complexity of the project as well as the project location. See the Registration Guide for further information.

5.0 SUMMARY OF PROPOSED MITIGATION

Describe all mitigation measures that will be employed to minimize the potential environmental impacts identified above. These may include but are not limited to the following:

- A waste audit should be provided, detailing the types and volumes of waste, estimates of non-hazardous waste and reuse\recycling opportunities.

- Further to the above, the proponent should ensure that all non-hazardous waste is separated from hazardous waste prior to recycling or disposal. Landfilling of non-hazardous wastes from the facility should only be undertaken after the reuse and/or recycling of waste options have been employed. Any remaining wastes that cannot be disposed of in on-site landfills, should be disposed of in an existing provincially approved landfill capable of handling these wastes.

- Detail regarding proposed site supervision during the project should be provided. For example: a) Will there be a audit (inspection) of materials to be disposed of/recycled? b) Who will be responsible for ensuring that waste materials are directed to the proper facility (land fill, construction and demolition material disposal site, recycling facility, etc.)? c) Will there be a waste sign-off or manifest system to track shipments of materials?

- All PCB sources (including but not limited to electrical equipment such as transformers, capacitors, lamp ballasts, high voltage cables (PILC Cables), and contaminated soil) must be identified and removed prior to the demolition of any buildings, abandonment of the property, or removal from the property of electrical equipment or any other items or materials that are found to be contaminated with PCB's or that could potentially be contaminated with PCB's. This will entail the completion of a PCB audit to identify all PCB sources, the preparation of an inventory of PCB sources, the preparation of a work plan that describes how these will be dealt with, the approval of this work plan by the Department of Environment, and the subsequent implementation of that work plan (i.e. removal and shipment of these materials to approved PCB treatment/destruction facilities).

- Further to the above: i) All transformers that were decontaminated in the past must be sampled and analyzed to confirm that these units are still free of PCB's; ii) The audit should include

sampling for PCB impacted soil at locations where PCB equipment (i.e. PCB contaminated transformers) were in service. Any PCB impacted soil identified during the audit must be removed from the subject properties and shipped to an approved PCB treatment/destruction facility; iii) PCB capacitors (intact / non-leaking items only), PCB lamp ballasts, and other PCB items (other than transformers and PILC cables) can be handled by the demolition or electrical contractor, provided that the proponent ensures that the contractor has personnel on staff who are trained and knowledgeable of PCB containing equipment; iv) Because of the higher risk associated with the handling of transformers and high voltage cables (and associated potheads), these items must be handled by an approved PCB waste handling firm; v) With regard to PCB transformers, the work plan must discuss transformer preparation and draining procedures, loading, and transportation, as well as information about the intended carrier and receiver; vi) High voltage cables (PILC cables) and associated potheads identified as containing PCB's must also be removed. Sections of cable embedded into or running under concrete slabs or structures can be removed during the final phase of the project, if it is not practicable to remove them during earlier phases, provided that the ends of the cables protruding from the concrete slabs or structures have been properly sealed and protected from early project activities. Handling and removal of PILC cables will also need to be discussed in the work plan.

- How will existing outfall pipes and connections to municipal services (e.g. sewer and water) be addressed? (e.g. cut off and capped? removed? left in place?) What measures will be taken to protect the integrity of the municipal sewer and water system during decommissioning activities (back flow prevention, isolation, etc.)?

- How will water wells aned associated water lines be addressed?

- The proponent will typically be required to obtain a special permit from the Transportation Policy Branch, New Brunswick Department of Transportation (NBDOT), if loads are oversize and/or overweight and will have to submit an engineered traffic management plan. The NBDOT would also request that any chemicals contained in the equipment be removed prior to transit to reduce gross mass and prevent an accidental spill.

6.0 PUBLIC INVOLVMENT

See Registration Guide. For large scale decommissioning projects involving the remediation of contaminated sites, it may be appropriate to establish a Community Liaison Committee to keep the public advised as to the status of the project.

7.0 APPROVAL OF THE UNDERTAKING

- Will any proposed activities require municipal permits (building permits, demolition permits, etc.)?

- Appropriate Approvals to Construct needed for any proposed landfill closures and potentially for other activities as well

- If any PCB wastes or other hazardous wastes are intended for disposal or recycling outside the province, the Interprovincial Movement of Hazardous Waste Regulations (IMHWR) administered by Environment Canada under the Canadian Environmental Protection Act, 1999 (CEPA) would be applicable. These regulations set out the conditions which must be met in order to monitor and track the trans-boundary movement of hazardous wastes in Canada to ensure that they are recycled or disposed of in an environmentally sound manner. If any of the identified hazardous wastes are to be shipped for disposal or recycling outside Canada, then the Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (EIHWHRMR) under CEPA would apply.

8.0 FUNDING

See Registration Guide.

9.0 SIGNATURE

See Registration Guide.

10.0 SUBMISSION INSTRUCTIONS

See Registration Guide.

OTHER APPLICABLE GUIDELINES

- All applicable portions of the current version of the Department's Guideline for the Management of Contaminated Sites must be followed as part of the EIA Registration.

APPENDIX E:

Harvey High School Sewage Lagoon Approval to Operate

APPROVAL TO OPERATE

S-2461

Pursuant to paragraph 8(1) of the *Water Quality Regulation - Clean Environment Act,* this Approval to Operate is hereby issued to:

Anglophone West School District
for the operation of the
Harvey High School Domestic Wastewater Treatment Plant

Description of Source:	**Lagoon with one aerator having a partially submerged discharge to Lyon Stream via a 6-inch pipe. This facility is a seasonal Class I wastewater works as per the ACWWVCP.**
Source Classification:	**Fees for Industrial Approvals Regulation - Clean Water Act** **Class 16**
Parcel Identifier:	**75094615**
Mailing Address:	**1135 Prospect Street** **Fredericton, NB E3B 4Y4**
Conditions of Approval:	**See attached Schedule "A" and "B" of this Approval**
Supersedes Approval:	**S-1907**
Valid From:	**April 01, 2014**
Valid To:	**December 31, 2018**

Recommended by: JBishop
Environment Division

Issued by: _____ April 1, 2014
for the Minister of Environment and Local Government Date

SCHEDULE "A"

GENERAL INFORMATION

APPLICABILITY

This standard applies to all non-municipal wastewater works (with an average daily flow of 100 m^3 or less) operating within New Brunswick, but does not include conventional sewage disposal systems. This standard may be cited as the "Sector Standard for Non-Municipal Wastewater Works."

DEFINITIONS

"Approval Holder" means the person or entity to which the Approval is issued, as named on the first (certificate) page of this Approval.

"**Department**" means the New Brunswick Department of Environment and Local Government.

"Certified" means a valid certificate of qualification that states the class of the Operator issued by the Atlantic Canada Water and Wastewater Voluntary Certification Program.

"Operator" means a person who directs, adjusts, inspects, tests or evaluates an operation or process that controls the effectiveness or efficiency of the Wastewater works.

"statutory holiday" means New Years Day, Good Friday, Easter Monday, the day fixed by proclamation of the Governor-in-Council for the celebration of the birthday of the Sovereign (Victoria Day), Canada Day, New Brunswick Day, Labour Day, the day fixed by proclamation of the Governor-in-Council as a general day of Thanksgiving, Remembrance Day, Christmas Day, and Boxing Day. If the Statutory Holiday falls on a Sunday, the following day shall be considered as the Statutory Holiday.

"after hours" means the hours when the Department's offices are closed. These include statutory holidays, weekends, and the hours before 8:15 a.m. and after 4:30 p.m. from Monday to Friday, or any other time in which the direct contact cannot be made with the Department.

"normal business hours" means the hours when the Department's offices are open. These include the period between 8:15 a.m. and 4:30 p.m. from Monday to Friday excluding statutory holidays.

"environmental emergency" means a situation where there has been or will be a release, discharge, or deposit of a contaminant or contaminants to the atmosphere, soil, surface water, and/or groundwater environments of such a magnitude or duration that it could cause significant harm to the environment or put the health of the public at risk. This does not include wastewater overflows that are the result of excessive rainfall or snowmelt.

"ACWWVCP" means the Atlantic Canada Water and Wastewater Voluntary Certification Program.

"**Accredited**" means accreditation to ISO/IEC 17025 by the Standards Council of Canada (SCC), the Canadian Association for Laboratory Accreditation Inc. (CALA), or accreditation to ISO/IEC 17025:2005 from another body that is recognized to grant such accreditation per ISO-IEC 17011 criteria.

"$CBOD_5$" or "Carbonaceous Biochemical Oxygen Demanding Matter" means carbonaceous matter that consumes, by biochemical oxidation, oxygen dissolved in the water, over a period of five days.

"Suspended Solids" means any solid matter contained in effluent that is retained on a filter of 2.0 micrometer (um) or smaller pore size.

"Total Residual Chlorine" means the sum of free chlorine and combined chlorine, including inorganic chloramines.

TERMS AND CONDITIONS - EMERGENCY REPORTING

1a. Immediately following the discovery of an environmental emergency the Approval Holder shall notify the Department in the following manner.

During normal business hours, telephone the applicable Department Regional Office **until personal contact is made** (i.e. no voice mail messages will be accepted) and provide as much information that is known about the environmental emergency. The telephone numbers for the six Regional Offices within the Department are provided in the table below.

After hours and during normal business hours, when personal contact is not possible, telephone the Canadian Coast Guard **until personal contact is made** and provide as much information that is known about the environmental emergency. The telephone number for the **Canadian Coast Guard** is **1-800-565-1633.**

1b. Within 24-hours of the time of initial notification, a **Preliminary Emergency Report** shall be faxed by the Approval Holder to the applicable Regional Office within the Department using the fax numbers provided below. The Preliminary Emergency Report shall clearly communicate as much information that is available at the time about the environmental emergency.

Within five (5) days of the time of initial notification, a **Detailed Emergency Report** shall be faxed by the Approval Holder to the applicable Regional Office within the Department using the fax numbers provided below. The Detailed Emergency Report shall include, as minimum, the following: i) a description of the problem that occurred; ii) a description of the impact that occurred; iii) a description of what was done to minimize the impact; and iv) a description of what was done to prevent recurrence of the problem.

Office Location	Phone	Fax
Bathurst Regional Office	(506) 547-2092	(506) 547-7655
Miramichi Regional Office	(506) 778-6032	(506) 778-6796
Moncton Regional Office	(506) 856-2374	(506) 856-2370
Saint John Regional Office	(506) 658-2558	(506) 658-3046
Fredericton Regional Office	(506) 444-5149	(506) 453-2893
Grand Falls Regional Office	(506) 473-7744	(506) 475-2510

TERMS AND CONDITIONS - LIMITS

2. The Approval Holder shall ensure that the concentration of contaminants in the final effluent from the wastewater works does not exceed the limiting criteria specified in Schedule "B".

TERMS AND CONDITIONS - OPERATOR CERTIFICATION

3. The Approval Holder shall employ and have available the following Certified Operator(s) based on the Class of the wastewater works listed on the Certificate Page of this Approval.

Class of Wastewater Treatment (WWT)	Certification and Number of Operator(s)
I	Minimum one Class I
II	Minimum one Class II and one Class I

Additionally, the Approval Holder shall ensure that the Certified Operator has taken a basic course in wastewater collection systems.

For wastewater works with a discharge of less than 10 m^3/day, the Approval Holder shall employ, and have available, an Operator who, at a minimum, has completed a basic course in wastewater treatment.

TERMS AND CONDITIONS - TESTING AND MONITORING

4. The Approval Holder shall ensure that all samples are collected using the methods described in the latest edition of the ISO 5667-10, *Water quality - Sampling - Part 10: Guidance on sampling of waste waters,* or an alternative method approved, in writing, by the Department.

5. The Approval Holder shall collect grab samples of the final effluent at the frequency indicated below:

Parameters	**Frequency**[1]	
	Wastewater Treatment (WWT) Class I	***Wastewater Treatment (WWT) Class II***
Flow	Monthly	Bi-weekly
$CBOD_5$ and Suspended Solids	Monthly	Bi-monthly

6. The Approval Holder shall ensure that all parameters that are required to be analyzed by this Approval are analyzed by Accredited laboratories whose accreditation includes the analytical method used to make the determination.

7. The Approval Holder shall ensure that all equipment used at the wastewater works for monitoring parameters required by this Approval is calibrated in accordance with manufacturer's recommendations.

TERMS AND CONDITIONS - REPORTING

8. In the event of a small spill or leak of liquid materials, the Approval Holder shall act first to contain, and then to clean up the spilled or leaked material and mitigate any resulting impacts as soon as the spill or leak is detected. If the spill or leak results in an "environmental emergency" as defined in this Approval, the Approval Holder shall report the event in accordance with the Emergency Reporting section of this Approval. If the spill or leak is not an "environmental emergency", the Approval Holder shall report this event to the Department's applicable Regional Office by fax, within one business day, identifying the material spilled, the approximate amount of liquid spilled, the location of the spill and the method(s) used to clean up the liquid.

[1] *For wastewater works designed to meet the limits from May to October*: samples shall be collected from April toNovember
For seasonal wastewater works: samples shall be collected when the wastewater works is in operation.

9. **By February 15th of each year**, the Approval Holder shall submit an Annual Environmental Report to the Department. The report shall provide the following information for the previous calendar year:

   a) the laboratory certificates of analysis for all sampling and testing required in the Testing and Monitoring section of this Approval,
   b) a description of the sampling and testing location(s),
   c) a description of the method used to determine the flow rate of the final effluent,
   d) a summary report of all small spill and/or leak events at the wastewater works, including the date, location, approximate volume, and method of clean-up for each spill and/or leak,
   e) a summary report of all by-passing events that were directly caused by excessive rain or snow melt, including the date, location, and duration of the by-passing event,
   f) a summary report of all events at the wastewater works that were reported through the Emergency Reporting procedure described in this approval,
   g) a list identifying the Operator(s) and indicating the certification level of each, and
   h) the results of the calibration required under the Testing and Monitoring section of this approval.

SCHEDULE "B"

TERMS AND CONDITIONS - EFFLUENT PERFORMANCE STANDARDS

Pursuant to Sections 8(2) of the *Water Quality Regulation*, this Approval is subject to the following conditions:

1. When the wastewater works is in operation, the Approval Holder shall ensure that the concentration of contaminants in the final effluent from the wastewater works do not exceed the following limiting criteria:

    a) $CBOD_5$ shall not exceed 25 mg/L; and
    b) Suspended Solids shall not exceed 25 mg/L.

Prepared by: _____
Jennifer Bishop, P.Eng.