

## APPENDIX B BOTANICAL SURVEYS

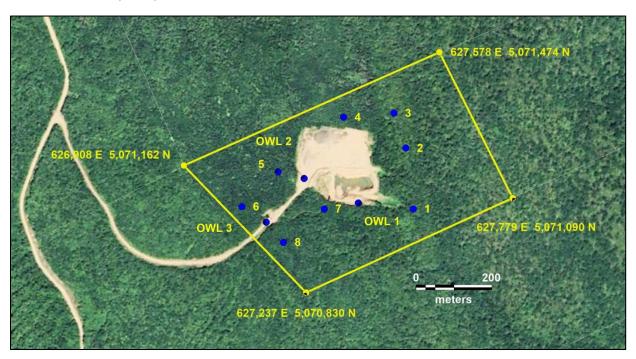


Spring & Fall Botanical Surveys of MacIntyre Mountain Quarry, MacIntyre Mountain Road, Inverness County, Cape Breton Island, Nova Scotia

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## Introduction

Spring and fall botanical surveys were conducted on June 25<sup>th</sup> and September 23<sup>rd</sup> and 24<sup>th</sup>, 2024, by botanist Ruth E. Newell, B.Sc. (Hons.), M.Sc., at the site of a proposed quarry expansion on MacIntyre Mountain Road, Inverness County, Cape Breton Island, Nova Scotia (Fig. 1). The purpose of these botanical surveys is to verify the presence/absence of plant communities and in particular, plant species which are either significant ecologically or from a conservation perspective.



**Figure 1**. Site of a proposed quarry expansion, Macintyre Mountain Road, Inverness County, Cape Breton Island, Nova Scotia (the blue dots, yellow numbers and text within and outside of the boundary lines, aside from the map coordinates, do not pertain to this study).

All vascular plants observed during these surveys as well as the habitats in which they occur and both their provincial general status ranks and the

Atlantic Canada Conservation Data Centre (ACCDC) subnational status ranks are provided in APPENDIX 1 at the end of this document. Information on these status ranks including status rank definitions can be found on the Wild Species 2020, The General Status of Species in Canada website (<a href="https://www.wildspecies.ca/">https://www.wildspecies.ca/</a>) and the Atlantic Canada Conservation Data Centre (ACCDC) website (<a href="http://www.accdc.com">http://www.accdc.com</a>).

## Results

## **Habitat Descriptions**

## WOODLAND

**1) Mixed Woodland** (20T 0627207 5071004, 20T 0627386 5071267, 20T 0627386 5071267).



Figure 2. Mixed woodland immediately southeast of the entrance road.

Mixed woodland (Fig. 2) is a relatively common habitat within the survey area. Vascular plant species observed within this habitat include Yellow and White Birch (*Betula alleghaniensis*, *B. papyrifera*), Red, Sugar and Moose Maple (*Acer rubrum*, *A. saccharum* and *A. pensylvanicum*), Balsam Fir (*Abies* 

balsamea), Red Spruce (*Picea rubens*), Cinnamon Fern (*Osmundastrum cinnamomeum*), Tall White Aster (*Doellingeria umbellata*), Bunchberry (*Cornus canadensis*), Goldthread (*Coptis trifolia*), Wood Aster (*Oclemena acuminata*), Hay-scented Fern (*Dennstaedtia punctilobula*), Wild Lily-of-the-Valley (*Maianthemum canadense*), Northern Starflower (*Lysimachia borealis*), Twinflower (*Linnaea borealis*), Spinulose Wood Fern (*Dryopteris carthusiana*), etc.

Additional species observed within this habitat during the Fall survey include Velvet Bentgrass (*Agrostis canina*), Colonial Bentgrass (*A. capillaris*), Poverty Oat grass (*Danthonia spicata*), Creeping Snowberry (*Gaultheria hispidula*), Northern Beech Fern (*Phegopteris connectilis*), White Spruce (*Picea glauca*), Downy Goldenrod (*Solidago puberula*) and Lance-leaved Violet (*Viola lanceolata*).

## Species of conservation concern:

There were no species of conservation concern observed within this woodland habitat during this survey.

**2) Mature Deciduous Woodland** (20T 0627494 5071115; 20T 0627531 5071108).



Figure 3. Mature deciduous woodland located east of the quarry pit.

Mature deciduous woodland occurs primarily east of the quarry pit.

Vascular plant species observed within this habitat (Fig. 3) include Red Maple (Acer rubrum), Sugar Maple (A. saccharum), Yellow Birch (Betula alleghaniensis), White Birch (B. papyrifera), Balsam Fir (Abies balsamea), American Mountain Ash (Sorbus americana) and Pin Cherry (Prunus pensylvanica). A variety of ferns are also present including Cinnamon Fern (Osmundastrum cinnamomeum), Hay-scented Fern (Dennstaedtia punctilobula), Northern Beech Fern (Phegopteris connectilis), Evergreen Wood Fern (Dryopteris intermedia) and New York Fern (Amauropelta noveboracensis).

Additional species observed within this habitat during the Fall survey include Rough Bentgrass (*Agrostis scabra*), Wild Sarsaparilla (*Aralia nudicaulis*), Bluebead Lily (*Clintonia borealis*) and Wild Lily-of-the-valley (*Maianthemum canadense*)

## **Species of conservation concern:**

American Beech (*Fagus grandifolia*) was observed to be scattered in mature deciduous woodland east of the quarry. This tree species has a Nova Scotia General Status Rank of S3S4 (yellow) and an ACCDC Subnational Status Rank of S3S4/vulnerable to apparently secure.

**3) Coniferous Woodland** (20T 0627184 5071114; 20T 0627207 5071240; 20T 0627411 5071281)



**Figure 4.** Coniferous woodland located southwest of the quarry pit (20T 0627184 5071114).

There are three main areas of primarily coniferous woodland within the survey area. These are located immediately adjacent to the existing quarry in three locations: southwest of the quarry pit (20T 0627184 5071114), the upper west side of the quarry pit (20T 0627207 5071240) and the northeast corner of the quarry pit (20T 0627411 5071281). Trees present within these areas are generally small in diameter and closely packed. It is possible that these areas are plantations however, on the ground it was generally not evident that the trees had been planted in rows.

Dominant tree species present within these three areas are Balsam Fir (Abies balsamea and Red Spruce (Picea rubens). Other tree species present to a much lesser degree include Yellow Birch (Betula allegheniensis), White Birch (B. papyrifera) and Red Maple (Acer rubrum). Shrub and herbaceous species present include Mountain Holly (Ilex mucronata), Velvet-leaved Blueberry (Vaccinium myrtilloides), Low Bush Blueberry (V. angustifolium), Starflower (Trientalis borealis), Bunchberry (Cornus canadensis), Goldthread (Coptis

trifolia), Mayflower (*Epigaea repens*), Twinflower (*Linnaea borealis*), Wild sarsaparilla (*Aralia nudicaulis*), Snowberry (*Gaultheria hispidula*), etc.

## Species of conservation concern:

There were no species of conservation concern observed within coniferous woodlands during these surveys.

## **WETLANDS**

**1) Marshes** (20T 0627301 5071072; 20T 0627303 5071059; 20T 0627215, 5071121) **and Swamps** (20T 0627384, 5071004; 20T 0627390 5070999)

Small marshes (Fig. 4) (20T 0627301 5071072; 20T 0627303 5071059; 20T 0627215, 5071121) and swamps (Fig. 5) (20T 0627384, 5071004; 20T 0627390 5070999) are scattered around the property either within or on the edges of the existing woodlands.

Herbaceous vascular plant species present within the marshes include New York Fern (*Amauropelta noveboracensis*), Cinnamon Fern (*Osmundastrum cinnamomeum*), Hay-scented Fern (*Dennstaedtia punctilobula*), Evergreen Wood Fern (*Dryopteris intermedia*), Beech Fern (Phegopteris connectilis), Bog Aster (*Oclemena nemoralis*), Tall White Aster (*Doellingeria umbellata*), Twinflower (*Linnaea borealis*), Rough Goldenrod (*Solidago rugosa*) Field Horsetail (*Equisetum arvense*). Shrub and tree species present include Moose Maple (*Acer pensylvanicum*), Red Maple (*Acer rubrum*), Sugar Maple (*Acer saccharum*), Yellow Birch (*Betula allegheniensis*) and American Mountain Ash (*Sorbus americana*), etc.



Figure 5. One of several small marshes scattered within the survey area.

Vascular plant species present in Figure 5 include Pink Lady's-slipper (*Cypripedium acaule*), Red Maple (*Acer rubrum*), New York Fern (*Amauropelta noveboracensis*) and Cinnamon Fern (*Osmunda cinnamomeum*).



Figure 6. One of several swamps located south of the quarry pit.

Vascular plant species occurring within the swamps (Fig. 6) include Bladder Sedge (*Carex intumescens*), Red Maple (*Acer rubrum*), Sugar maple (*Acer saccharum*), Yellow Birch (*Betula alleghaniensis*), Skunk currant (Ribes *glandulosum*), Black Sedge (*Carex arctata*), Brownish Sedge (*Carex brunnescens*) and Bebb's Willow (*Salix bebbiana*).

Trees and herbs present around the edges of these wetlands include Red Maple (*Acer rubrum*), Moose Maple (*A. pensylvanicum*), Yellow Birch (*Betula alleghaniensis*), Balsam Fir (*Abies balsamea*), Twinflower (*Linnaea borealis*) and Northern Beech Fern (*Phegopteris connectilis*).

## Species of conservation concern:

There were no species of conservation concern observed within these wetland habitats during this survey.

## **2) Seasonal Pond** (20T 0627464 5071138)

A seemingly seasonal, small pond (Fig. 7) occurs on the east edge of the open pit (20T 0627464 5071138). Vascular plant species present here include Field Horsetail (*Equisetum arvense*), Tall White Aster (*Doellingeria umbellata*), Rough Goldenrod (*Solidago rugosa*), Narrow-leaved Goldenrod (*Solidago graminifolia*), Cinnamon Fern (*Osmundastrum cinnamomeum*), Bulrush (*Scirpus* sp.), willows (*Salix* spp.), etc.

Additional species observed during the Fall survey within this habitat include Red Maple (Acer rubrum), Rough Bentgrass (Agrostis scabra), Yellow Birch (Betula alleghaniensis), Fowl Bluegrass (Poa palustris), Fireweed (Epilobium angustifolium), Fowl Bluegrass (Poa palustris), Common Woolly Bulrush (Scirpus cyperinus), Calico Aster (Symphyotrichum lateriflorum) and New York Aster (Symphyotrichum novi-belgii).



**Figure 7.** Seasonal wetland on the east side of the quarry pit. The dominant plant in the photo is Field Horsetail (*Equisetum arvense*).

## Species of conservation concern:

There were no species of conservation concern observed within this wetland during this survey.

## **Discussion**

No vascular plant species listed under either federal species-at-risk legislation or provincial species-at-risk legislation were observed during these surveys.

Nearly all vascular plant species documented, fall into the Nova Scotia general status rank categories of **GREEN** (**S5/secure**) and **EXOTIC** with GREEN indicating a plant with a secure conservation status within the province and EXOTIC meaning a species that is non-native to Nova Scotia.

The exception to the above is American Beech (*Fagus grandifolia*) which was observed in mature deciduous woodland east of the quarry pit and has a Nova Scotia General Status Rank of **YELLOW** (**S3/S4**) (vulnerable to apparently secure).

The Atlantic Canada Conservation Data Centre subnational status ranks, with the exception of the status rank of American Beech (*Fagus grandifolia*), all fall into the categories of **S4**, **S4S5**, **S5 or SNA**, also indicating that nearly all species documented on this site during this survey, are not of conservation concern (**S4 = Apparently Secure** - uncommon but not rare; some cause for long-term concern due to declines or other factors; **S5 = Secure** - common, widespread, and abundant in the province; **SNA = Not Applicable - a** conservation status rank is not applicable because the species is not a suitable target for conservation activities as for example, non-native (exotic) species.

Species listed in the APPENDIX not identified to species are not expected to be of conservation concern.

## **APPENDIX**

List of all vascular plant species observed on the MacIntyre Mountain Quarry property, Inverness County, Cape Breton Island, Nova Scotia during botanical surveys conducted on June 25<sup>th</sup> and Sept. 23<sup>rd</sup> & 24<sup>th</sup>, 2024, including the habitats in which they were found and their status ranks. Both the Nova Scotia General Status Rank\*and the Atlantic Canada Conservation Data Centre Subnational S-rank\*\* are provided for each species. Habitats surveyed include mature deciduous woodland (DW), coniferous woodland (CW), mixed woodland (MW), marshes (M), swamps (S) and seasonal ponds (SP).

Latin Name	Common Name	Nova Scotia General Status Rank*	ACCDC Subnational Status Rank**	Habitat(s)
Abies balsamea	Balsam Fir	S5/secure (green)	S5/secure	CW***, M, MW
Acer pensylvanicum	Moose Maple	S5/secure (green)	S5/secure	M, MW
Acer rubrum	Red Maple	S5/secure (green)	S5/secure	CW***, M, MW, S, SP***
Acer saccharum	Sugar Maple	S5/secure (green)	S5/secure	DW, MW, S
Agrostis canina	Velvet Bent Grasss	SNA (exotic)	Exotic	MW***
Agrostis capillaris	Colonial Bent Grass	SNA (exotic)	Exotic	MW***
Agrostis scabra	Rough Bentgrass	S5/secure (green)	S5/secure	DW***, SP***

Latin Name	Common Name	Nova Scotia General Status Rank*	ACCDC Subnational Status Rank**	Habitat(s)
Amauropelta noveboracensis	New York Fern	S5/secure (green)	S5/secure	CW***, DW***, M, MW, S
Aralia nudicaulis	Wild Sarsaparilla	S5/secure (green)	S5/secure	CW***, DW***
Betula alleghaniensis	Yellow Birch	S5/secure (green)	S5/secure	CW***, M, MW, S, SP***
Betula papyrifera	Paper Birch	S5/secure (green)	S5/secure	CW***, DW, M, MW
Betula populifolia	Gray Birch	S5/secure (green)	S5/secure	MW
Brachyelytrum	Northern	S5/secure (green)	S5/secure	M
aristosum	Shorthusk	,		
Carex intumescens	Bladder Sedge	S5/secure (green)	S5/secure	S
Carex brunnescens	Brownish Sedge	S5/secure (green)	S5/secure	M, S
Clintonia borealis	Yellow Bluebead Lily	S5/secure (green)	S5/secure	DW***, M
Coptis trifolia	Goldthread	S5/secure (green)	S5/secure	CW***, DW, MW, S
Cornus canadensis	Bunchberry	S5/secure (green)	S5/secure	CW***, DW, M, MW
Cypripedium acaule	Pink Lady's- slipper	S5/secure (green)	S5/secure	CW***, M, MW
Danthonia spicata	Poverty Oat Grass	S5/secure (green)	S5/secure	MW***
Dennstaedtia punctilobula	Hay-scented Fern	S5/secure (green)	S5/secure	M, MW
Diervilla lonicera	Northern Bush Honeysuckle	S5/secure (green)	S5/secure	DW, MW
Doellingeria umbellata	Hairy Flat-top White Aster	S5/secure (green)	S5/secure	CW***, M, MW, SP
Dryopteris campyloptera	Mountain Wood Fern	S5/secure (green)	S5/secure	DW
Dryopteris carthusiana	Spinulose Wood Fern	S5/secure (green)	S5/secure	CW***, MW
Dryopteris intermedia	Evergreen Wood Fern	S5/secure (green)	S5/secure	CW***, M, MW
Epigaea repens	Trailing Arbutus (Mayflower)	S5/secure (green)	S5/secure	CW***, MW
Epilobium angustifolium	Fireweed	S5/secure (green)	S5/secure	MW, SP***
Equisetum arvense	Field Horsetail	S5/secure (green)	S5/secure	SP
Euthamia graminifolia	Grass-leaved Goldenrod	S5/secure (green)	S5/secure	S, SP
Fagus grandifolia	American Beech	S3/S4 (yellow)	S3S4/vulnerable to apparently secure	DW***
Fragaria virginiana	Wild Strawberry	S5 (green)	S5/secure	SP***
Gaultheria hispidula	Creeping Snowberry	S5/secure (green)	S5/secure	CW***, M, MW***

Latin Name	Common Name	Nova Scotia General	ACCDC	Habitat(s)
		Status Rank*	Subnational	
			Status Rank**	
Ilex mucronata	Mountain Holly	S5/secure (green)	S5/secure	DW***, M,
	·	,		MW
Kalmia angustifolia	Sheep Laurel	S5/secure (green)	S5/secure	M, MW
Leucanthemum vulgare	Oxeye Daisy	SNA (exotic)	SNA	S
Linnaea borealis	Twinflower	S5/secure (green)	S5/secure	CW***, M,
				MW
Lycopodium clavatum	Running Clubmoss	S5/secure (green)	S5/secure	M
Lysimachia borealis	Northern	S5/secure (green)	S5/secure	CW***,
	Starflower			DW, MW
Maianthemum	Wild Lily-of-the-	S5/secure (green)	S5/secure	CW***,
canadense	Valley			MW,
				DW***
Monotropa uniflora	Convulsion-root	S5/secure (green)	S5/secure	CW***,
				MW***
Nabalus sp.	a rattlesnakeroot	-	-	DW, MW
Oclemena acuminata	Whorled Wood	S5/secure (green)	S5/secure	DW, M,
	Fern			MW, S
Osmundastrum	Cinnamon Fern	S5/secure (green)	S5/secure	CW***, M,
cinnamomeum				MW, SP
Oxalis montana	Common wood	S5/secure (green)	S5/secure	DW, M,
	Sorrel			MW
Phegopteris connectilis	Northern Beech	S5/secure (green)	S5/secure	M, MW***
	Fern			
Poa palustris	Fowl Bluegrass	S5/secure (green)	S5/secure	SP***
Picea glauca	White Spruce	S5/secure (green)	S5/secure	MW***
Picea mariana	Black Spruce	S5/secure (green)	S5/secure	M
Picea rubens	Red Spruce	S5/secure (green)	S5/secure	CW***,
				MW
Prunus pensylvanica	Pin Cherry	S5/secure (green)	S5/secure	MW
Pteridium aquilinum	Bracken Fern	S5/secure (green)	S5/secure	CW***,
	~	221	0=1	DW, MW, S
Ribes glandulosum	Skunk Currant	S5/secure (green)	S5/secure	M, S
Rubus hispidus	Bristly Dewberry	S5/secure (green)	S5/secure	M, MW
Rubus strigosus	Wild Raspberry	S5/secure (green)	S5/secure	S, SP
Rubus sp.	a blackberry	-	-	MW
Salix bebbiana	Bebb's Willow	S5/secure (green)	S5/secure	S, SP
Salix spp.	a willow	-	-	M, S, SP
Scirpus cyperinus	Common Woolly	S5/secure (green)	S5/secure	M***,
	Bulrush			SP***
Solidago puberula	Downy Goldenrod	S5/secure (green)	S5/secure	MW***
Solidago rugosa	Rough-stemmed	S5/secure (green)	S5/secure	M***, DW,
	Goldenrod			MW, SP
Sorbus americana	American	S5/secure (green)	S5/secure	DW, MW, S
	Mountain Ash			
Spiraea alba var.	White	S5/secure (green)	S5/secure	DW, S
latifolia	Meadowsweet			
Spiranthes cernua	Nodding Ladies-	S4? (apparently secure)	S4?/apparently	SP***
	tresses		secure	
Symphyotrichum	Calico Aster	S5/secure (green)	S5/secure	DW, MW,
lateriflorum				SP***

Latin Name	Common Name	Nova Scotia General Status Rank*	ACCDC Subnational Status Rank**	Habitat(s)
Symphyotrichum novibelgii	New York Aster	S5/secure (green)	S5/secure	SP***
Tussilago farfara	Coltsfoot	SNA (exotic)	SNA	S, SP
Vaccinium angustifolium	Late Lowbush Blueberry	S5/secure (green)	S5/secure	CW***, MW
Vaccinium macrocarpon	Large cranberry	S5/secure (green)	S5/secure	S
Vaccinium myrtilloides	Velvet-leaved blueberry	S5/secure (green)	S5/secure	CW***, DW, M, MW, S
Viburnum cassinoides var. nudum	Northern Wild Raisin	S5/secure (green)	S5/secure	DW, MW, S
Viola lanceolata	Lance-leaved Violet	S5/secure (green)	S5/secure	MW***

\*The Nova Scotia general status ranks used in this report are based on the ranks used in the 2020 Wild Species of Canada Report (available at <a href="https://www.wildspecies.ca/">https://www.wildspecies.ca/</a>); \$5 = Secure/green (at very low or no risk of extirpation in the jurisdiction due to a very extensive range, abundant populations or occurrences, with little to no concern from declines or threats; \$4 = Apparently secure/light green (at a fairly low risk of extirpation in the jurisdiction due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors; \$3 = Vulnerable/yellow (at moderate risk of extirpation in the jurisdiction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors; \$2 = Imperilled/orange (at high risk of extirpation in the jurisdiction due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors); NA = not applicable (non-native/exotic).

\*\*ACCDC: Atlantic Canada Conservation Data Centre explanation of status ranks used in this report (http://accdc.com/en/rank-definitions.html): S5 = Secure (common, widespread, and abundant in the province); S4 = Apparently Secure (uncommon but not rare; some cause for long-term concern due to declines or other factors); S3 = Vulnerable (Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation. ); S2 = Imperiled (imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province; SNA = Not Applicable (a conservation status rank is not applicable because the species is not a suitable target for conservation activities, e.g., a non-native species).

\*\*\*Additional species observed during the Fall survey within a specific habitat.

# APPENDIX C MAMMAL AND WILDLIFE SURVEY



# A GENERAL WILDLIFE ASSESSMENT FOR DEXTER CONSTRUCTION'S MCINTYRE MOUNTAIN QUARRY, INVERNESS COUNTY, NS



## MARK PULSIFER MSC EDGEWOOD ENVIRONMENTAL SERVICES Antigonish, Nova Scotia

## A GENERAL WILDLIFE ASSESSMENT FOR DEXTER CONSTRUCTION'S MCINTYRE MOUNTAIN QUARRY, INVERNESS COUNTY, NS

## 1.0 Introduction and Background

Edgewood Environmental Services was subcontracted by Envirosphere Consultants Ltd. to complete a general wildlife assessment to support regulatory submissions for the expansion of an aggregate quarry at McIntyre Mountain, Inverness County, Nova Scotia, UTM coordinates 20T 627333 E 5071170 N (Figure 1). The quarry is owned and operated by Dexter Construction Ltd.



Figure 1. Google Earth image (12 July 2023) of the study area (outlined in red) for the proposed McIntyre Mountain quarry expansion.

In Nova Scotia, developers of pits and quarries are required to submit an environmental assessment for developments that exceed 4 ha in size. Included within the formal environmental registration document is information on Valued Environmental Components (VECs) and potential mitigation options. One specific VEC addressed here is non-avian "wildlife", which for the purposes of this report refers to mammals and herpetofauna. Other faunal groups are addressed separately.

Various legislation in Nova Scotia protects wildlife, and biodiversity in general. The Nova Scotia Wildlife Act (1989), Species at Risk Act (1998), and Biodiversity Act (2021) protect species and habitats within the province from adverse impacts. The results of this survey will be used (in part) to address possible mitigation strategies for wildlife in general that may arise as a result of the quarry development, and specifically for any species at risk or species of conservation concern.

Potential impacts on all biodiversity are noteworthy; however, potential impacts on "species at risk" (SAR) or "species of conservation concern" (SCC) take priority because of their conservation status and potential vulnerability to human activities. In Nova Scotia, the responsibility for conservation of SAR/SCC is jointly shared by the Nova Scotia Department of Natural Resources and Renewables (NSNRR) under the provincial Endangered Species Act (NSESA), and by Environment and Climate Change Canada (ECCC) under the federal Species at Risk Act (SARA). Both jurisdictions maintain a listing of species prioritized by level of threat. The conservation status for a species is informed in part by population data supplied by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), the Atlantic Canada Conservation Data Center (ACCDC), and the General Status of Wild Species in Canada.

ACCDC records (Data Report 8027; 3 Apr 2024) for the area surrounding the McIntyre Mountain quarry property indicate that there are no known mammalian SAR within a 5 km radius. NSDNRR (2007) has identified McIntyre Mountain as potential habitat for the provincially endangered Canada lynx (*Lynx canadensis*). The closest record for lynx is 7.7 km from the study area. American marten (*Martes americana*) is also provincially endangered and the closest record is 37.9 km from the quarry site. ACCDC records further show that the closest records for any of the three provincially and nationally endangered bat species, little brown myotis (*Myotis lucifugus*), northern myotis (*Myotis septentrionalis*), and tricolored (*Perimyotis subflavus*) are 8.7 km from the survey site. Records do indicate that federally and provincially "threatened" wood turtle (*Glyptemys insculpta*) occur within a 100 km radius of the quarry, with the closest record being 3.0 km from the center of the property. Similarly, ACCDC records also indicate that two other freshwater turtle species of conservation concern (snapping turtle, *Chelydra serpentina*, and eastern painted turtle, *Chrysemys picta picta*, have been recorded within 17.0 and 63.3 km respectively from this site.

## 2.0. Study Area and Methodology

## 2.1 Study Area Description

The McIntyre Mountain quarry property is approximately 30 ha in size, and located 2.6 km due west of the Trans-Canada Highway 105 at Kingsville, Inverness County, Nova Scotia, at a location locally known as McIntyre Mountain. Elevation ranges from approximately 190 - 303 m above sea level. The quarry is easily accessible from the McIntyre Mountain Road. The western half of the survey area includes a mixture of 20 years-old regenerating cutover lands consisting of yellow birch (*Betula alleghaniensis*), beech (*Fagus grandifolia*), red maple (*Acer rubrum*), spruce-fir (*Picea* sp.-*Abies balsamea*), patches of mature balsam fir exhibiting windthrow and

small openings dominated by wood fern (*Dryopteris* spp.), raspberry (*Rubus idaeus*), and blueberry (*Vaccinium angustifolium*). The eastern portion of the study area is predominantly composed of a tolerant hardwood overstory of sugar maple (*Acer saccharinum*), yellow birch, and beech. The understory is dominated by 2 m balsam fir in several places. The mature tolerant hardwood canopy extends eastward off the property down an eastern-facing 24-29% slope for 1000 m. There are no watercourses on the property; however, areas within the quarry bottom have accumulated water < 30 cm deep.

## 2.2 Survey Methodology

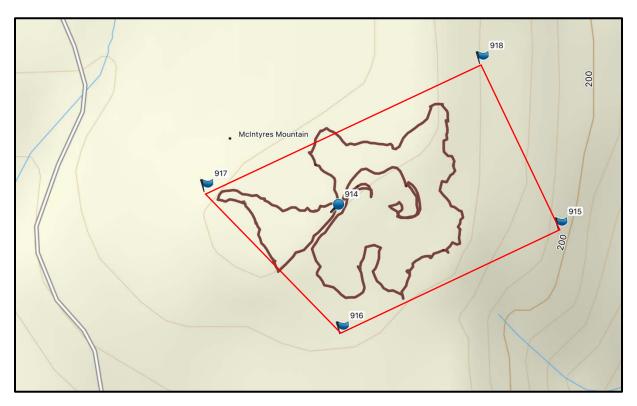


Figure 2. Approximately 4660 m walkover survey route completed on 12 June 2024 (Garmin BaseCamp®).

A walkover survey for mammals and herpetofauna was conducted throughout, or adjacent to the survey area identified in red in Figures 1 and 2. The survey was conducted on-foot by a single observer and was designed to intersect major habitats or forest stand types within the designated study area, or follow existing roads and trails within or adjacent to the study area (Figure 2). Because this was a reconnaissance survey, effort was not standardized. Observations within forest habitats were made along indeterminant survey routes. Evidence of species occurrence was confirmed by visual observation of individuals, skeletal parts, or egg masses; or indirect evidence, such as auditory calls, scat, tracks, dens, and foraging behaviours (grubbing,

rock and log rolling, browse, seed middens). GPS waypoints for points of interest were recorded using a Garmin Oregon 750t<sup>®</sup> GPS, and all photos were recorded with an Apple iPhone 15<sup>®</sup>.

## 3.0. Results and Discussion

The general wildlife survey was completed on 12 June 2024 between 0845 hrs and 1200 hrs. Environmental conditions during the survey were foggy with overcast skies, winds were light from the south, and temperature ranged from 12-15°C. The walkover survey distance was approximately 4660 m in length and traversed all habitat types present within the survey area with the exception of the steep slopes at the eastern portion of the study area. This area was considered unsafe for travel because of the slope gradient.

## 3.1 General Habitat

The following series of photos illustrate the variety of habitat types located within or immediately adjacent to the survey area. Figure 3 shows locations where images were taken.



Figure 3. Photo waypoints for Figures 4A-P taken during a reconnaissance survey on 12 June 2024.







Figures 4A-Q. A: Yellow birch, beech, red maple and balsam fir overstory with typical herbaceous understory of the approximately 20 years old regenerating stand. B: Typical small patch inclusion of spruce-fir regeneration within the tolerant hardwood regeneration. C: Example of uncommon large coarse woody material (CWM) found within the regenerating tolerant hardwood. D: Male spruce grouse (*Canachites canadensis*) in spruce canopy. E: Characteristic opening within regenerating hardwood stand that provides foraging opportunities for white-tail deer (*Odocoileus virginianis*) and snowshoe hare (*Lepus americanus*). F: Red squirrel (*Tamiasciurus hudsonicus*) seed-cone midden. G: Declining patch of balsam fir that has been impacted by windthrow. H: Eastern coyote (*Canis latrans*) scat at edge of quarry site. I: Mature yellow birch and beech stand east of the existing quarry with structural features more consistent with older forests, e.g., larger trees, scattered CWM, and pit and mound microtopography. J: Example of vernal pool. K: Hardwood overstory with advanced balsam fir regeneration creating a structurally complex understory habitat. L: Cavity in sugar maple that could potentially provide habitat for a variety of small mammals. M: White-tail deer scat. N: Young pole-stage yellow birch, and spruce-fir. O: Possible bobcat (*Lynx rufus*) scat with grouse

foot. P: Ponded water at the bottom of the quarry with white-tail deer tracks indicating that deer use these areas for a source of water. Q: Wood frog (*Lithobates sylvaticus*) larvae found in the quarry ponds.

Generally speaking, this site exhibited forest habitat features that were typical of 20 years old post-harvest regeneration (Figures 4A, B, E, N), and mature forest dominated by tolerant hardwoods such as sugar maple, yellow birch and beech, in association with spruce-fir (Figures 4I, K, L). Large diameter cavity trees and large CWD were scarce overall, and snag trees were present mainly in openings subjected to windthrow (Figures 4C, G, I, L). Edge habitats were present throughout the property (Figure 4B, E, G), with interior habitat conditions occurring in the eastern portion of the property strongly influenced by steep slopes. There were no significant waterbodies or watercourses on the property, or immediately adjacent. A single, ~ 3 m x 7 m vernal pool (Figure 4J) with no standing water was located during the survey.

## 3.2 General Wildlife Survey Results

The general wildlife survey revealed very little sign of non-avian wildlife in general. No evidence of mammalian or herptile species at risk was found. Survey results provided evidence for four regionally common mammal species and one ubiquitous amphibian species. White-tail deer (*Odocoileus virginianus*), red squirrel (*Tamiasciurus hudsonicus*), snowshoe hare (*Lepus americanus*), and eastern coyote (*Canis latrans*) were identified based on scat, tracks, browse, or foraging evidence (Figures 4F, H, M, O, P). Wood frog (*Lithobates sylvaticus*) larvae were common in ponded areas within the quarry (Figure 4Q). Additional species potentially present within or proximate to the study site were inferred from the availability of taxon-specific suitable habitats.

## 3.2.1 Mammals

By their nature, mammals tend to be nocturnal and therefore, inconspicuous. Consequently, their presence is often indicated by indirect sign (scat, tracks, calls, prey remains etc.) or inferred by habitat availability. Based on the type of habitats present, and the variety of animal sign observed at the study site, there is likely a range of large, medium, and small mammal species present at this site at different times of year.

Although no moose sign was observed, records indicate that moose have been reported 9.4 km from the center of the study area (ACCDC Report 8027). Moose home ranges generally cover tens of square kilometers, and encompass both mature and regenerating forest, wetlands, and riverine habitats. Regenerating hardwood browse species provide limited foraging and cover opportunities; however, it is possible that the study area could be included within the home range of one or more moose. Unlike the mainland, moose on Cape Breton Island are not a species of conservation concern.

Evidence of white-tail deer was found within the survey area in the form of browse, scat, and tracks (Figures 4M, P). Regenerating early successional shrub and tree species provide abundant food resources that are capable of supporting a local population of deer. Signs of winter browse and pellet piles indicate that deer are using the area for foraging and travel, year-round, although it is unlikely that many deer use these higher elevations when snow exceed 50 cm. Deer generally move from high elevation areas in late fall and winter to avoid deep snow conditions; however, during mild winters, snow may not reach critical depths and deer may utilize these habitats year-round. While deer sign was observed at this location, it was not abundant.

No black bear (*Ursus americana*) sign (e.g., scat, grubbings) was found, which is not surprising considering the absence of preferred foods such as berries at this time of year. However, black bear travel large distances in search of food so it is possible that the quarry property does provide some foraging habitat at other times of year.

Small to mid-sized mammals such as American marten (*Martes americana*) and fisher generally prefer mature and late seral forests with large diameter trees and abundant coarse woody material. With the relatively recent harvest in the western portion of the study area there was no evidence of these habitat elements in this area; and where mature forest did occur east of the existing quarry, suitable denning sites appeared to be limited, if present at all. Unfortunately, slope conditions in the eastern part of the study area made it impossible to assess habitat conditions.

Both fisher and American marten are present in Cape Breton; however, the closest records for both are 29 and 38 km respectively (ACCDC Report 8027). Eastern coyotes are common throughout the province and their presence in the study area was noted (Figure 4H). Tracks were common in and around the quarry, and scat was found at least once. The possibility of other mid-sized predators such as bobcat and Canada lynx was noted. A single old scat containing a grouse foot was observed (Figure 4O), and based on shape, and size, may be a bobcat or small coyote. Differentiating between bobcat and coyote scat is difficult when the scat is old. Bobcat and lynx generally prefer mature softwood cover at lower elevations, and wet areas frequented by snowshoe hare. Even though evidence of snowshoe hare browse was present at the study site, general habitat and absence of good prey species habitat suggests that bobcat or lynx would not be regular users of the study area, although it is possible that these species would use this habitat on a transient basis.

The absence of wetlands and watercourses indicates that aquatic furbearers normally associated with these habitats (e.g., river otter (*Lontra canadensis*), mink (*Neovison vison*), muskrat (*Ondatra zibethicus*) and raccoon (*Procyon lotor*) are not likely present. Forested upland habitats similar to the study area could provide suitable habitat for short-tailed weasel (*Mustela erminae*).

Bat surveys were not part of the survey protocol; however, the overall lack of old stands, with abundant standing deadwood structures (e.g., snag and cavity trees) would suggest that bats

are probably not present or common at the site. ACCDC records indicate that none of the three endangered bat species in Nova Scotia have been reported closer than 11 km from the study site (little brown myotis); however, it is very likely that bats do occur closer where there are foraging and roosting habitats (e.g., wet areas, large diameter old or dead trees). Bats are potentially vulnerable to blasting activities that may disrupt overwintering behaviours in hibernacula.

Snowshoe hare and red squirrel were present within the study area (Figure 4F). Squirrel seed-cone middens were found in several locations, and snowshoe hare browse was observed in openings (Figure 4E) on blackberry and raspberry canes, and blueberry plants. Both of these mammals are important prey species for lynx, and snowshoe hare are an important prey species for bobcat.

Slash (i.e., brush) piles from past harvest clearing, and residual forest patches within the proposed expansion area create edge habitat that are preferred by small mammals such as deer mouse (*Peromyscus maniculatus*). The general lack of abundant coarse woody material and late seral conditions would suggest that the red-backed vole (*Myodes gapperi*) and woodland jumping mouse (*Napaeozapus insignis*) are not present, or not present in any significant numbers. The absence of larger mature trees with cavities and cracks in the bole would likely preclude the presence of flying squirrels on site. Insectivores such as shrews (*Blarina* sp., *Sorex* spp.) are most common where there is complex ground cover and coarse woody material present. The overall absence of CWM would suggest that insectivores are not likely to be abundant at this site. Long-tailed shrews are uncommon to rare in Nova Scotia, and are associated with late seral-closed canopy hardwood forests on talus slopes (Woolaver *et al.*, 1998). The surveyed portion of the study area did not reveal suitable habitat for this species; however, the eastern portion of the property had steep slopes and may provide some potential for suitable habitat. ACCDC records indicate nine records of long-tailed shrews approximately 36 km from this site; however, the exact location is not known (ACCDC Report 8027).

## 3.2.2 Herpetofauna

No reptile species were observed at the site; although two provincial snake species are reported to occur in cutover areas, along roadsides, and in gravel pits similar to the habitats found at the study site (Gilhen, 1984). Habitat conditions present at the McIntyre quarry area would indicate the potential presence of Maritime garter snake (*Thamnophis sirtalis*), and northern redbelly snake (*Storeria occipitomaculata*). These areas would be used for thermoregulation (i.e., basking), while adjacent habitats with more complex vegetation structure near water could also be used for foraging. There have been no known occurrences of either wood turtle, snapping turtle, or eastern painted turtle reported by the ACCDC within 3, 17, or 63 kilometers of the study area respectively (ACCDC Report 8027). Suitable habitat conditions for wood turtles were lacking at this site; however, good habitat, and a confirmed wood turtle population (M. Pulsifer, pers. obs. 16 May 2024) does occur 1.5 km east of the study area in River Inhabitants.

Ponded areas within the study area contain at least one common amphibian species. Wood frog (*Lithobates sylvaticus*) larvae are present in the quarry where there is standing water. No other amphibian species were noted, and the absence of any natural aquatic habitats, or indications of permanency (e.g., vegetation) in the ponded water at the quarry probably precludes the likelihood of anything other than transient use by green frog (*Rana clamitans*) and American toad (*Bufo americanus*). Red-backed salamanders (*Plethodon cinereus*) are common in deciduous forests similar to those occurring adjacent to the proposed expansion site, especially where foraging opportunities exist in association with decaying CWM.

## 4.0 References

Atlantic Canada Conservation Data Center. 3 April 2024. Data Report 8027, MacIntyre Mountain, NS.

Gilhen, J. 1984. Amphibians and Reptiles of Nova Scotia. The Nova Scotia Museum of Natural History, Halifax, NS.

NSDNRR. 2007. Recovery plan for the Canada lynx (*Lynx canadensis*) in Nova Scotia. Nova Scotia Lynx Recovery Team. 32 pp.

Woolaver, L. G., Elderkin, M. F. 1998. *Sorex dispar* in Nova Scotia. Northeastern Naturalist Vol. 5, No. 4, 323-330.

## **5.0 Incidental Species Observations**

Red-eyed vireo	Vireo olivaceus	call
Black-throated green warbler	Setophaga virens	call
Spruce grouse	Canachites canadensis	observation
Pileated woodpecker	Dryocopus pileatus	foraging evidence
Yellow warbler	Setophaga petechia	call
Flycatcher	Empidonax sp.	call
Ovenbird	Seiurus aurocapilla	call
Hermit thrush	Catharus guttatus	call
Northern flicker	Colaptes auratus	call

## **APPENDIX D**

## ATLANTIC CANADA CONSERVATION DATA CENTRE REPORT



## DATA REPORT 8027: MacIntyre Mountain, NS

Prepared 3 April 2024 by C. Robicheau, Conservation Data Analyst

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## 5.0 Rare Species within 100 km

5.1 Source Bibliography



Map 1. A 100 km buffer around the study area

## 1.0 PREFACE

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

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

## 1.1 DATA LIST

Included datasets:

Contents
Rare or legally-protected Flora and Fauna in your study area
A list of Rare and legally protected Flora and Fauna within 100 km of your study area
Managed and Biologically Significant Areas in your study area
Rare Freshwater Fish in your study area (DFO database)

Central: Kimberly George

Kimberly.George@novascotia.ca

(902) 890-1046

## 1.2 RESTRICTIONS

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

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

## 1.3 ADDITIONAL INFORMATION

The accompanying Data Dictionary provides metadata for the data provided.

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

Plants, Lichens, Ranking Methods, All other Inquiries

Sean Blaney
Senior Scientist / Executive Director
(506) 364-2658
sean.blaney@accdc.ca

Data Management, GIS

Charity Robicheau
Senior Conservation Data Analyst
(902) 300-3512
charity.robicheau@accdc.ca

Animals (Fauna)
John Klymko
Zoologist
(506) 364-2660

john.klymko@accdc.ca

**Billing**Jean Breau

Financial Manager / Executive Assistant (506) 364-2657

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

For provincial information about rare taxa and protected areas, or information about game animals, deer yards, old growth forests, archeological sites, fish habitat etc., in New Brunswick, please contact Hubert Askanas, Energy and Resource Development: (506) 453-5873.

For provincial information about rare taxa and protected areas, or information about game animals, deer yards, old growth forests, archeological sites, fish habitat etc., in Nova Scotia, please contact Donna Hurlburt, NS DLF: (902) 679-6886. To determine if location-sensitive species (section 4.3) occur near your study site please contact a NS DLF Regional Biologist:

**Western**: Emma Vost (902) 670-8187

Emma.Vost@novascotia.ca

Eastern: Harrison Moore (902) 497-4119

Harrison.Moore@novascotia.ca

Western: Sarah Spencer

(902) 541-0081

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Eastern: Maureen Cameron-MacMillan

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Central: Shavonne Meyer

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Shavonne.Meyer@novascotia.ca

\_\_\_\_\_

**Eastern**: Elizabeth Walsh (902) 563-3370

Elizabeth.Walsh@novascotia.ca

For provincial information about rare taxa and protected areas, or information about game animals, fish habitat etc., in Prince Edward Island, please contact Garry Gregory, PEI Dept. of Communities, Land and Environment: (902) 569-7595.

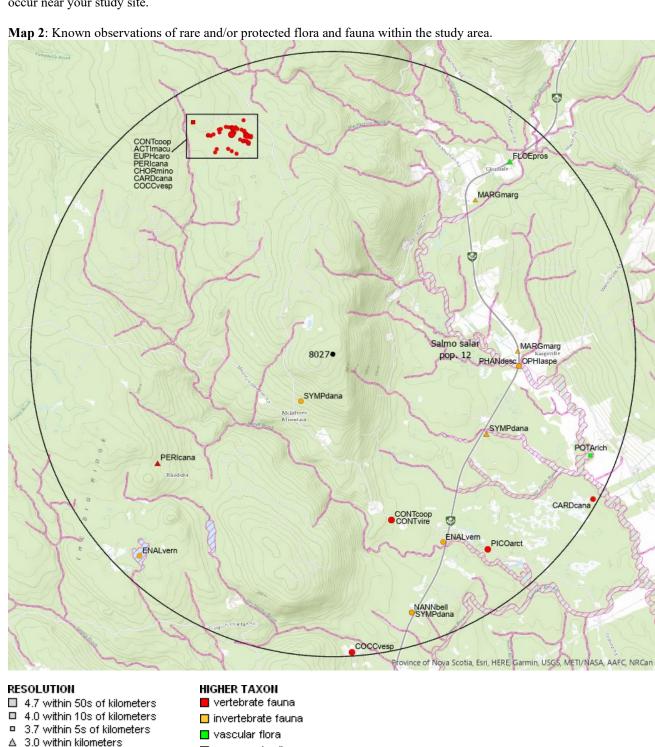
## 2.0 RARE AND ENDANGERED SPECIES

## 2.1 FLORA

The study area contains 2 records of 2 vascular and no records of nonvascular flora (Map 2 and attached: \*ob.xls), excluding 'location-sensitive' species.

## 2.2 FAUNA

The study area contains 74 records of 9 vertebrate and 14 records of 6 invertebrate fauna (Map 2 and attached data files - see 1.1 Data List), excluding 'location-sensitive species'. Please see section 4.3 to determine if 'location-sensitive' species occur near your study site.



- △ 2.7 within 500s of meters
- 2.0 within 100s of meters
- 1.7 within 10s of meters
- nonvascular flora

Managed Area Significant Area

## 3.0 SPECIAL AREAS

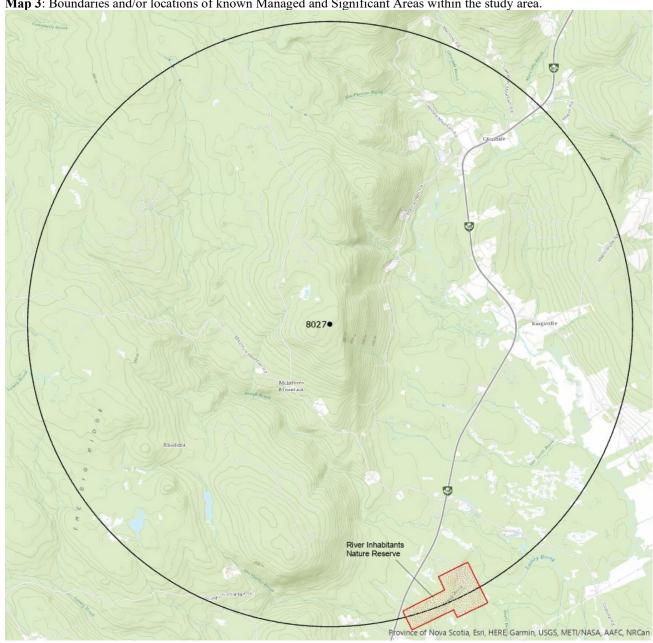
## 3.1 MANAGED AREAS

The GIS scan identified one managed area in the vicinity of the study area (Map 3 and attached file: \*ma\*.xls).

## 3.2 SIGNIFICANT AREAS

The GIS scan identified no biologically significant sites in the vicinity of the study area (Map 3 and attached file: \*sa\*.xls).

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



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## 4.0 RARE SPECIES LISTS

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

## 4.1 FLORA

	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)
Ρ	Floerkea proserpinacoides	False Mermaidweed	Not At Risk			S2S3	1	4.3 ± 1.0
Ρ	Potamogeton richardsonii	Richardson's Pondweed				S3	1	4.6 ± 1.0

## 4.2 FAUNA

	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)
Α	Euphagus carolinus	Rusty Blackbird	Special Concern	Special Concern	Endangered	S2B	1	$4.5 \pm 7.07$
Α	Cardellina canadensis	Canada Warbler	Special Concern	Threatened	Endangered	S3B	60	$3.7 \pm 0.01$
Α	Chordeiles minor	Common Nighthawk	Special Concern	Special Concern	Threatened	S3B	1	$4.0 \pm 0.15$
Α	Contopus cooperi	Olive-sided Flycatcher	Special Concern	Special Concern	Threatened	S3B	5	$2.9 \pm 0.15$
Α	Coccothraustes vespertinus	Evening Grosbeak	Special Concern	Special Concern	Vulnerable	S3B,S3N,S3M	2	$3.7 \pm 0.02$
Α	Contopus virens	Eastern Wood-Pewee	Special Concern	Special Concern	Vulnerable	S3S4B	1	$2.9 \pm 0.15$
Α	Perisoreus canadensis	Canada Jay				S3	2	3.4 ± 1.51
Α	Picoides arcticus	Black-backed Woodpecker				S3S4	1	4.1 ± 0.2
Α	Actitis macularius	Spotted Sandpiper				S3S4B,S5M	1	$4.5 \pm 7.07$
1	Margaritifera margaritifera	Eastern Pearlshell				S2	2	$3.1 \pm 0.5$
1	Phanogomphus descriptus	Harpoon Clubtail				S3	4	$3.1 \pm 0.05$
1	Ophiogomphus aspersus	Brook Snaketail				S3	2	$3.1 \pm 0.05$
1	Enallagma vernale	Vernal Bluet				S3	2	$3.6 \pm 0.05$
1	Nannothemis bella	Elfin Skimmer				S3S4	1	$4.5 \pm 0.05$
- 1	Sympetrum danae	Black Meadowhawk				S3S4	3	$0.9 \pm 0.05$

## 4.3 LOCATION SENSITIVE SPECIES

The Department of Natural Resources in each Maritimes province considers a number of species "location sensitive". Concern about exploitation of location-sensitive species precludes inclusion of precise coordinates in this report. Those intersecting your study area are indicated below with "YES".

## Nova Scotia

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

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

### 4.4 SOURCE BIBLIOGRAPHY

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

Data Report 8027: MacIntyre Mountain, NS Page 6 of 22

### # recs CITATION

- 59 Staicer, Cindy. 2023. 2022 SAR Bird field occurrences from the Landbirds at Risk Project, NS. Dalhousie University, 446 records.
- 11 Benjamin, L.K. 2009. D. Anderson Odonata Records for Cape Breton, 1997-2004. Nova Scotia Dept Natural Resources, 1316 recs.
- B Lepage, D. 2014. Maritime Breeding Bird Atlas Database. Bird Studies Canada, Sackville NB, 407,838 recs.
- 4 Staicer, Cindy. 2022. 2021 Landbird Species at Risk observations. Dalhousie University.
- 3 Benjamin, L.K. (compiler). 2007. Significant Habitat & Species Database. Nova Scotia Dept Natural Resources, 8439 recs.
- Newell, R.E. 2000. E.C. Smith Herbarium Database. Acadia University, Wolfville NS, 7139 recs.
- Blaney, C.S.; Mazerolle, D.M.; Belliveau, A.B. 2015. Atlantic Canada Conservation Data Centre Fieldwork 2015. Atlantic Canada Conservation Data Centre, # recs.
- 1 Brunelle, P.-M. (compiler). 2009. ADIP/MDDS Odonata Database: data to 2006 inclusive. Atlantic Dragonfly Inventory Program (ADIP), 24200 recs.
- Canadian Wildlife Service. 2019. Canadian Protected and Conserved Areas Database (CPCAD). December 2019. ECCC.https://www.canada.ca/en/environment-climate-change/services/national-wildlife-
- areas/protected-conserved-areas-database.html.
- 1 iNaturalist. 2020. iNaturalist Data Export 2020. iNaturalist.org and iNaturalist.ca, Web site: 128728 recs.
- 1 iNaturalist.ca. 2023. iNaturalist Data Export December 2022. iNaturalist.org; iNaturalist.ca.

## 5.0 RARE SPECIES WITHIN 100 KM

A 100 km buffer around the study area contains 33401 records of 150 vertebrate and 1043 records of 60 invertebrate fauna; 6155 records of 252 vascular and 3186 records of 132 nonvascular flora (attached: \*ob100km.xls).

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

Taxonomic	Onlandifin Name	Oamana Nama	000514/10	CARA	Duran Laural Burat	Prov Rarity	#	Distance (loss)	D
Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Rank	# recs	Distance (km)	Prov
A	Myotis lucifugus	Little Brown Myotis	Endangered	Endangered	Endangered	S1	78	11.0 ± 0.1	NS
Α	Myotis septentrionalis	Northern Myotis Atlantic Salmon - Eastern	Endangered	Endangered	Endangered	S1	7	90.1 ± 0.5	PE NS
Α	Salmo salar pop. 4	Cape Breton population Atlantic Salmon - Nova	Endangered			S1	43	$9.3 \pm 0.5$	NS
Α	Salmo salar pop. 6	Scotia Southern Upland population	Endangered			S1	16	35.7 ± 1.0	
Α	Eubalaena glacialis	North Atlantic Right Whale	Endangered	Endangered		S1	1	51.4 ± 1.62	NS
Α	Charadrius melodus melodus	Piping Plover melodus subspecies	Endangered	Endangered	Endangered	S1B	1463	$20.6 \pm 0.5$	NS
Α	Sterna dougallii	Roseate Tern	Endangered	Endangered	Endangered	S1B	58	$56.7 \pm 7.07$	NS
Α	Dermochelys coriacea pop. 2	Leatherback Sea Turtle - Atlantic population	Endangered	Endangered		S1S2N	2	$16.0 \pm 0.47$	NS
Α	Lamna nasus	Porbeagle Shark	Endangered			SNR	1	37.3 ± 1.52	NS
Α	Catharus bicknelli	Bicknell's Thrush	Threatened	Threatened	Endangered	S1B	57	$41.0 \pm 7.07$	NS
Α	Asio flammeus	Short-eared Owl	Threatened	Special Concern		S1B	8	58.2 ± 0.15	NS
Α	Glyptemys insculpta	Wood Turtle	Threatened	Threatened	Threatened	S2	7814	$3.0 \pm 0.01$	NS
Α	Riparia riparia	Bank Swallow	Threatened	Threatened	Endangered	S2B	1032	$6.6 \pm 7.07$	NS
Α	Chaetura pelagica	Chimney Swift	Threatened	Threatened	Endangered	S2S3B,S1M	130	13.2 ± 0.5	NS
Α	Limosa haemastica	Hudsonian Godwit	Threatened			S2S3M	16	$42.6 \pm 0.5$	NS
Α	Acipenser oxyrinchus	Atlantic Sturgeon	Threatened			S2S3N	1	$83.2 \pm 0.5$	NS
Α	Hydrobates leucorhous	Leach's Storm-Petrel	Threatened			S3B	33	16.4 ± 0.2	NS
Α	Tringa flavipes	Lesser Yellowlegs	Threatened			S3M	297	$23.6 \pm 0.3$	NS
Α	Anguilla rostrata	American Eel	Threatened			S3N	10	$5.7 \pm 0.2$	NS
Α	Sturnella magna	Eastern Meadowlark	Threatened	Threatened		SHB	2	$56.7 \pm 7.07$	NS
Α	Hylocichla mustelina	Wood Thrush	Threatened	Threatened		SUB	8	$42.5 \pm 7.07$	NS
Α	Salmo salar pop. 12	Atlantic Salmon - Gaspe - Southern Gulf of St.	Special Concern			S1	22	27.6 ± 1.0	NS
		Lawrence population	•						
Α	Antrostomus vociferus	Eastern Whip-Poor-Will	Special Concern	Threatened	Threatened	S1?B	3	$40.6 \pm 0.01$	NS
Α	Passerculus sandwichensis princeps	Ipswich Sparrow	Special Concern	Special Concern		S1B	14	$56.0 \pm 0.4$	NS

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
Α	Bucephala islandica	Barrow's Goldeneye	Special Concern	Special Concern		S1N,SUM	160	18.7 ± 0.2	NS
Α	Euphagus carolinus	Rusty Blackbird	Special Concern	Special Concern	Endangered	S2B	265	$4.5 \pm 7.07$	NS
Α	Balaenoptera physalus	Fin Whale	Special Concern	Special Concern	_	S2S3	2	$68.2 \pm 0.2$	NS
Α	Phalaropus lobatus	Red-necked Phalarope	Special Concern	Special Concern		S2S3M	1	80.7 ± 0.2	NS
Α	Morone saxatilis pop. 1	Striped Bass - Southern Gulf of St. Lawrence population	Special Concern	·		S2S3N	1	46.4 ± 1.0	NS
Α	Histrionicus histrionicus pop. 1	Harlequin Duck - Eastern population	Special Concern	Special Concern	Endangered	S2S3N,SUM	36	45.9 ± 16.6	NS
Α	Chelydra serpentina	Snapping Turtle	Special Concern	Special Concern	Vulnerable	S3	140	17.0 ± 0.01	NS
Α	Hirundo rustica	Barn Swallow	Special Concern	Threatened	Endangered	S3B	962	$5.3 \pm 0.05$	NS
Α	Cardellina canadensis	Canada Warbler	Special Concern	Threatened	Endangered	S3B	704	$3.7 \pm 0.01$	NS
Α	Chordeiles minor	Common Nighthawk	Special Concern	Special Concern	Threatened	S3B	275	$4.0 \pm 0.15$	NS
Α	Contopus cooperi	Olive-sided Flycatcher	Special Concern	Special Concern	Threatened	S3B	1113	$2.9 \pm 0.15$	NS
Α	Dolichonyx oryzivorus	Bobolink	Special Concern	Threatened	Vulnerable	S3B	560	$6.2 \pm 0.2$	NS
Α	Coccothraustes vespertinus	Evening Grosbeak	Special Concern	Special Concern	Vulnerable	S3B,S3N,S3M	887	$3.7 \pm 0.02$	NS
Α	Podiceps auritus	Horned Grebe	Special Concern	Special Concern		S3N,SUM	25	18.8 ± 0.2	NS
A	Contopus virens	Eastern Wood-Pewee	Special Concern	Special Concern	Vulnerable	S3S4B	532	2.9 ± 0.15	NS
A	Phocoena phocoena	Harbour Porpoise	Special Concern	opoolal concern	Valiforable	S4	19	15.4 ± 0.49	NS
,	i nococna priococna	Harbour Porpoise -	Opediai Condenii			04	13	10.4 ± 0.43	NS
Α	Phocoena phocoena pop. 1	Northwest Atlantic Population	Special Concern			S4	2	16.5 ± 0.2	
Α	Chrysemys picta	Painted Turtle	Special Concern	Special Concern		S4	3	97.2 ± 0.2	NS
Α	Chrysemys picta picta	Eastern Painted Turtle	Special Concern	Special Concern		S4	2	63.3 ± 1.0	NS
Α	Accipiter cooperii	Cooper's Hawk	Not At Risk	'		S1?B,SUN,SUM	3	53.4 ± 0.2	NS
A	Fulica americana	American Coot	Not At Risk			S1B	15	47.7 ± 0.5	NS
A	Chlidonias niger	Black Tern	Not At Risk			S1B	4	34.1 ± 0.05	NS
Α	Falco peregrinus pop. 1	Peregrine Falcon - anatum/tundrius	Not At Risk		Vulnerable	S1B,SUM	16	15.9 ± 0.15	NS
Α	Sorex dispar	Long-tailed Shrew	Not At Risk			S2	9	$35.9 \pm 0.5$	NS
Α	Aegolius funereus	Boreal Owl	Not At Risk			S2?B,SUM	8	44.3 ± 0.15	NS
Α	Lynx canadensis	Canada Lynx	Not At Risk		Endangered	S2S3	71	7.7 ± 1.0	NS
Α	Globicephala melas	Long-finned Pilot Whale	Not At Risk		· ·	S2S3	11	$47.3 \pm 0.43$	NS
Α	Hemidactylium scutatum	Four-toed Salamander	Not At Risk			S3	18	13.6 ± 1.0	NS
Α	Megaptera novaeangliae	Humpback Whale	Not At Risk			S3	12	15.5 ± 0.2	NS
Α	Sterna hirundo	Common Tern	Not At Risk			S3B	817	6.6 ± 7.07	NS
A	Sialia sialis	Eastern Bluebird	Not At Risk			S3B	19	28.9 ± 7.07	NS
A	Buteo lagopus	Rough-legged Hawk	Not At Risk			S3N	13	16.2 ± 0.5	NS
A	Accipiter gentilis	Northern Goshawk	Not At Risk			S3S4	190	15.6 ± 0.05	NS
A	Lagenorhynchus acutus	Atlantic White-sided Dolphin	Not At Risk			S3S4	4	15.5 ± 0.2	NS
A	Ammospiza nelsoni	Nelson's Sparrow	Not At Risk			S3S4B	135	6.6 ± 7.07	NS
A	Calidris canutus rufa	Red Knot rufa subspecies	E,SC	Endangered	Endangered	S2M	20	$33.6 \pm 0.5$	NS
A	Calidris canutus rura Calidris canutus	Red Knot	E,SC E,SC	Endangered E,T	Liluariyereu	S2M	16	57.1 ± 0.2	NS
A	Morone saxatilis	Striped Bass	E.SC	∟, 1		S2S3B,S2S3N	10	36.6 ± 0.2	NS
A	Salmo salar	Atlantic Salmon	E,T,SC			S1B,S1N	10	64.6 ± 0.96	NS NS
			E,1,5C		Fadanasad				
A	Alces alces americana	Moose			Endangered	S1	67	29.7 ± 0.01	NS
Α	Alces alces	Moose American Three-toed				S1	40	$9.4 \pm 0.2$	NS NS
A A	Picoides dorsalis	Woodpecker				S1? S1?B	7 6	35.3 ± 0.15 41.0 ± 0.2	NS
	Uria aalge	Common Murre							
A	Passerina cyanea	Indigo Bunting				S1?B,SUM	21	40.8 ± 0.15	NS
A	Nycticorax nycticorax	Black-crowned Night-heron				S1B	2	42.8 ± 7.07	NS
A	Oxyura jamaicensis	Ruddy Duck				S1B	14	51.1 ± 0.2	NS
A	Myiarchus crinitus	Great Crested Flycatcher				S1B	1	53.6 ± 3.42	NS
Α	Cistothorus palustris	Marsh Wren				S1B	1	98.2 ± 0.2	NS
Α	Mimus polyglottos	Northern Mockingbird				S1B	22	16.3 ± 7.07	NS
Α	Toxostoma rufum	Brown Thrasher				S1B	5	34.1 ± 0.15	NS
Α	Charadrius semipalmatus	Semipalmated Plover				S1B,S4M	476	17.9 ± 0.2	NS
Α	Calidris minutilla	Least Sandpiper				S1B,S4M	246	13.1 ± 0.05	NS

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
A	Anas acuta	Northern Pintail				S1B,SUM	41	43.2 ± 1.0	NS
A	Vireo gilvus	Warbling Vireo				S1B,SUM	8	$9.9 \pm 7.07$	NS
Α	Vespertilionidae sp.	bat species				S1S2	124	$8.7 \pm 0.1$	NS
Α	Pooecetes gramineus	Vesper Sparrow				S1S2B,SUM	10	$9.9 \pm 7.07$	NS
Α	Microtus chrotorrhinus	Rock Vole				S2	14	$35.9 \pm 0.5$	NS
Α	Vireo philadelphicus	Philadelphia Vireo				S2?B,SUM	18	16.8 ± 0.5	NS
Α	Alca torda	Razorbill				S2B	105	16.3 ± 0.2	NS
Α	Fratercula arctica	Atlantic Puffin				S2B	79	$49.9 \pm 0.35$	NS
Α	Empidonax traillii	Willow Flycatcher				S2B	9	45.3 ± 7.07	NS
Α	Molothrus ater	Brown-headed Cowbird				S2B	64	17.9 ± 7.07	NS
Α	Spatula clypeata	Northern Shoveler				S2B,SUM	15	$27.2 \pm 0.5$	NS
Α	Mareca strepera	Gadwall				S2B,SUM	14	$36.1 \pm 7.07$	NS
Α	Piranga olivacea	Scarlet Tanager				S2B,SUM	14	$30.9 \pm 7.07$	NS
Α	Calidris alba	Sanderling				S2N,S3M	198	$27.9 \pm 0.2$	NS
Α	Martes americana	American Marten			Endangered	S2S3	19	37.9 ± 1.0	NS
Α	Asio otus	Long-eared Owl			<u> </u>	S2S3	27	16.3 ± 7.07	NS
Α	Rallus limicola	Virginia Rail				S2S3B	12	27.3 ± 7.07	NS
Α	Rissa tridactyla	Black-legged Kittiwake				S2S3B	84	15.6 ± 0.2	NS
A	Petrochelidon pyrrhonota	Cliff Swallow				S2S3B	204	7.7 ± 2.5	NS
Α	Phalacrocorax carbo	Great Cormorant				S2S3B.S2S3N	584	15.5 ± 0.2	NS
Α	Cathartes aura	Turkey Vulture				S2S3B,S4S5M	20	$27.9 \pm 0.5$	NS
Α	Setophaga pinus	Pine Warbler				S2S3B,S4S5M	27	18.0 ± 0.2	NS
A	Bucephala clangula	Common Goldeneye				S2S3B,S5N,S5 M	387	15.9 ± 0.2	NS
Α	Icterus galbula	Baltimore Oriole				S2S3B,SUM	40	16.3 ± 7.07	NS
A	Pluvialis dominica	American Golden-Plover				S2S3M	40	41.0 ± 1.5	NS
A	Numenius phaeopus	Whimbrel				S2S3M	15	50.2 ± 0.2	NS
	Numenius phaeopus								NS
Α	hudsonicus	Whimbrel				S2S3M	80	41.0 ± 10.0	
Α	Phalaropus fulicarius	Red Phalarope				S2S3M	2	$79.5 \pm 0.2$	NS
Α	Perisoreus canadensis	Canada Jay				S3	640	3.4 ± 1.51	NS
Α	Poecile hudsonicus	Boreal Chickadee				S3	1405	5.6 ± 1.0	NS
Α	Spinus pinus	Pine Siskin				S3	840	$8.6 \pm 7.07$	NS
Α	Salvelinus fontinalis	Brook Trout				S3	90	$6.2 \pm 0.01$	NS
Α	Synaptomys cooperi	Southern Bog Lemming				S3	6	$35.9 \pm 0.5$	NS
Α	Pekania pennanti	Fisher				S3	8	29.1 ± 0.01	NS
Α	Calcarius Iapponicus	Lapland Longspur				S3?N,SUM	10	$42.3 \pm 0.2$	NS
Α	Spatula discors	Blue-winged Teal				S3B	143	18.5 ± 7.07	NS
Α	Charadrius vociferus	Killdeer				S3B	246	$6.6 \pm 7.07$	NS
Α	Tringa semipalmata	Willet				S3B	703	$6.6 \pm 7.07$	NS
A	Sterna paradisaea	Arctic Tern				S3B	105	13.8 ± 7.07	NS
Α	Coccyzus erythropthalmus	Black-billed Cuckoo				S3B	48	15.8 ± 7.07	NS
A	Tyrannus tyrannus	Eastern Kingbird				S3B	117	$8.6 \pm 7.07$	NS
Α	Pheucticus Iudovicianus	Rose-breasted Grosbeak				S3B	370	$9.9 \pm 7.07$	NS
Α	Alosa pseudoharengus	Alewife				S3B	44	$9.3 \pm 0.5$	NS
A	Somateria mollissima	Common Eider				S3B,S3M,S3N	573	$15.2 \pm 0.34$	NS
A	Tringa melanoleuca	Greater Yellowlegs				S3B,S4M	457	$15.8 \pm 0.2$	NS
A	Falco sparverius	American Kestrel				S3B,S4S5M	341	$7.7 \pm 0.5$	NS
A	Gallinago delicata	Wilson's Snipe				S3B,S5M	706	$6.5 \pm 0.15$	NS
Α	Setophaga striata	Blackpoll Warbler				S3B,S5M	219	$5.6 \pm 0.5$	NS
A	Cardellina pusilla	Wilson's Warbler				S3B,S5M	160	$16.3 \pm 7.07$	NS
Α	Pinicola enucleator	Pine Grosbeak				S3B,S5N,S5M	228	14.2 ± 1.49	NS
Α	Setophaga tigrina	Cape May Warbler				S3B,SUM	178	$5.6 \pm 1.0$	NS
Α	Branta bernicla	Brant				S3M	3	45.9 ± 16.6	NS
Α	Pluvialis squatarola	Black-bellied Plover				S3M	340	$25.3 \pm 0.5$	NS
		Ruddy Turnstone				S3M	173	13.0 ± 0.05	NS
Α	Arenaria interpres	Ruddy Fulfisione				SSIVI	173	13.0 ± 0.03	INO
A A	Calidris pusilla	Semipalmated Sandpiper				S3M	309	25.3 ± 0.5	NS