

APPENDIX K: Species-at-Risk Screening Assessment

**Ministry of Natural
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Guelph District

26th June, 2015

Ash Baron
Aquafor Beech Ltd.
55 Regal Road, Unit 3
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Dear Ms. Baron,

Thank you for your inquiry regarding the presence of species at risk in the Elfrida Conservation Areas and subwatersheds, in the City of Hamilton, Ontario.

Digital mapping for some natural heritage features is available from Land Information Ontario (LIO). MNR recommends contacting LIO to obtain relevant feature mapping. Datasets of potential interest (and the corresponding LIO dataset) include – wetlands ('Wetland' dataset), ANSI ('ANSI dataset), wooded areas ('Wooded Areas'), wintering areas ('Wintering Areas'), and fish spawning areas ('Spawning Areas').

Notwithstanding the recommendation to obtain mapping from LIO, MNR Guelph District shows the twenty Mile Creek Meander C ANSI, close to the study site and multiple Provincially Significant Wetlands in and adjacent to the study area of interest to you.

If you are interested in fisheries information for watercourses in the greater surrounding area to your study site, please contact Anne Yagi, Management Biologist at (905) 562-1196 to determine what information may be required.

I can inform you that there are records of the following Species at Risk in the vicinity of highlighted study area and/or in watersheds linked to the study area: Spoon-leaved moss, Black Bullhead, Grass Pickerel and Bobolink.

Please note that because the province has not been surveyed comprehensively for the presence of species at risk (SAR), the absence in the NHIC database of an EO in a particular geographic area does not indicate the absence of the species in that area. Consequently, the presence of an EO is useful to flag the presence of the species in the area, but is not an appropriate tool to determine whether a species is absent, or whether it should be surveyed for or not in a particular area.

Consequently, we provide the following advice with respect to determining the presence of species at risk on a property for which a land-use change or on-the-ground activity is being proposed (note that some of the following may not apply to a given type of proposed activity, or for a given study area):

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I. Habitat Inventory

The District recommends undertaking a comprehensive botanical inventory of the entire area that may be subject to direct and indirect impacts from the proposed activity. The vegetation communities and aquatic habitats in the study area should be classified as per the "Ecological Land Classification (ELC) for Southern Ontario" system, to either the "Ecosite" or "Vegetation Type" level. With respect to aquatic habitats in the study area, we recommend you collect data on the physical characteristics of the waterbodies and inventory the riparian zone vegetation, so that these habitats can be classified as per the Aquatic Ecosites described in the ELC manual.

II. Potential SAR on the property

A list of species at risk that have the potential to occur in the area can be produced by cross-referencing the ecosites described during the habitat inventory with the habitat descriptions of species at risk known to occur in the county or regional municipality within which the area is located. The list of species at risk known to occur in the Municipality of Hamilton is attached. The species-specific COSEWIC status reports (www.cosewic.gc.ca) are a good source of information on species at risk habitat needs and will be helpful in determining the suitability of the property's ecosites for a given species.

Please note that the Species at Risk in Ontario list (SARO) is a living document and is amended periodically as a result of species assessment and re-assessments conducted by the Committee on the Status of Species at Risk in Ontario (COSSARO). The SARO list can be accessed on the webpage http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/MNR_SAR_CSSR_SARO_LST_EN.html

COSSARO also maintains a list of species to be assessed in the future. It is recommended to take COSSARO's list of anticipated assessments into consideration, especially when the proposed start date of the activity is more than 6 months away, or the project will be undertaken over a period greater than 6 months. The list can be viewed by going to <http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/244543.html> and clicking on the link [Priority List of Species to be Assessed and Classified by COSSARO](#).

III. SAR surveys

The District is of the opinion that each species at risk identified under Step II should be surveyed for, regardless of whether or not the species has been previously recorded in the area, or whether previous records are historical in nature. The survey report should describe how each species at risk was surveyed for, and provide a rationale for why, if any, certain species appearing on the county/ regional municipal list were not the subject of the survey. These rationales must be based on evidence demonstrating either that: suitable habitat for the species is not present on the property or; the project will not have any impacts -including indirect impacts- on the species. Some SAR surveys require an authorization under the *Endangered Species Act 2007* and/or a Scientific Collector's Permit; please contact me if you require further direction regarding these.

Guelph District additionally recommends contacting the municipal planning approval authority and the conservation authority to determine if they have any additional information or records of interest for the study area.

Please contact me if your investigations reveal the presence of species at risk on the subject property. I will be happy to provide further advice regarding the provisions of the *Endangered Species Act* at that time.

Sincerely,

Michelle Martin
Management Biologist
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HAMILTON

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[List of Municipalities](#)

Species At Risk Designations

ENDANGERED	
THREATENED	
SPECIAL CONCERN	
EXTIRPATED	

	ESA Protection	Key Habitats Used By Species	Timing of Life History Events	How to Conduct a Proper Survey
AMPHIBIANS				
Jefferson Salamander (<i>Ambystoma jeffersonianum</i>)	Species Protection and Habitat Regulation	inhabit deciduous and mixed deciduous forests with suitable breeding areas which generally consist of ephemeral (temporary) bodies of water that are fed by spring runoff, groundwater, or springs.	Active: March – October Hibernates: October – March Breeding: Late March - Mid April	Contact MNR Guelph District SAR Bio to obtain a copy of the protocol
BIRDS				
Acadian Flycatcher (<i>Empidonax virescens</i>)	ESA Protection Species and General Habitat Protection	generally requires large areas of mature, undisturbed forest; avoids the forest edge; often found in well wooded swamps and ravines	Migrate South before Winter	Follow Breeding Bird Survey Protocol
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	N/A	prefers deciduous and mixed-deciduous forest; and habitat close to water bodies such as lakes and rivers; They roost in super canopy trees such as Pine	Breed and Nest - April or May Some Migrate South when water bodies freeze over	Follow Breeding Bird Survey Protocol
Bank Swallow (<i>Riparia riparia</i>)	Species and General Habitat Protection June 27, 2014	It nests in a wide variety of naturally and anthropogenically created vertical banks, which often erode and change over time including aggregate pits and the shores of large lakes and rivers	Migrate South before Winter	Follow Breeding Bird Survey Protocol
Barn Owl (<i>Tyto alba</i>)	Species Protection and Habitat Regulation	generally prefer low-elevation, open country; often associated with agricultural lands, especially pasture. Nests are located in buildings, hollow trees and cavities in cliffs.	Active Year Round Some leave for the Winter	Follow Breeding Bird Survey Protocol Night surveys may be helpful as they are very vocal

Barn Swallow (Hirundo rustica)	Known to Occur	Species and General Habitat Protection	prefers farmland; lake/river shorelines; wooded clearings; urban populated areas; rocky cliffs; and wetlands. They nest inside or outside buildings; under bridges and in road culverts; on rock faces and in caves etc.	Migrate South before Winter	Follow Breeding Bird Survey Protocol
Black Tern (Chlidonias niger)	Known to Occur	N/A	generally prefer freshwater marshes and wetlands; nest either on floating material in a marsh or on the ground very close to water	Migrate South for the Winter	Follow Breeding Bird Survey Protocol
Bobolink (Dolichonyx oryzivorus)	Known to Occur	Species and General Habitat Protection	generally prefers open grasslands and hay fields. In migration and in winter uses freshwater marshes and grasslands	Migrate South for the Winter	Contact MNR Guelph District SAR Bio to obtain a copy of the protocol
Canada Warbler (Cardellina canadensis; formerly Wilsonia canadensis)	Known to Occur	N/A	Generally prefers wet coniferous, deciduous and mixed forest types, with a dense shrub layer. Nests on the ground, on logs or hummocks, and uses dense shrub layer to conceal the nest.	Migrate South for the Winter Arrive in Ontario Early May	Follow Breeding Bird Survey Protocol
Cerulean Warbler (Setophaga cerulea; formerly Dendroica cerulea)	Known to Occur	Species and General Habitat Protection	generally found in mature deciduous forests with an open understorey; also nests in older, second-growth deciduous forests.	Migrate South for the Winter	Follow Breeding Bird Survey Protocol
Chimney Swift (Chaetura pelagica)	Known to Occur	Species and General Habitat Protection	historically found in deciduous and coniferous, usually wet forest types, all with a welldeveloped, dense shrub layer; now most are found in urban areas in large uncapped chimneys	Nesting - Late April to Mid- May Migrate South in September or Early October	Consult: Chimney Swift Monitoring Protocol. Bird Studies Canada, March 2009
Common Nighthawk (Chordeiles minor)	Known to Occur	N/A	generally prefer open, vegetation-free habitats, including dunes, beaches, recently harvested forests, burnt-over areas, logged areas, rocky outcrops, rocky barrens, grasslands, pastures, peat bogs, marshes, lakeshores, and river banks. This species also inhabits mixed and coniferous forests. Can also be found in urban areas (nest on flat roof-tops)	Migrate South for the Winter	Contact MNR Guelph District SAR Bio to obtain a copy of the protocol

Eastern Meadowlark (<i>Sturnella Magna</i>)	Known to Occur	Species and General Habitat Protection	generally prefers grassy pastures, meadows and hay fields. Nests are always on the ground and usually hidden in or under grass clumps.	Migrate South for the Winter	Contact MNR Guelph District SAR Bio to obtain a copy of the protocol
Eastern Wood-Pewee (<i>Contopus virens</i>)	Known to Occur	N/A	associated with deciduous and mixed forests. Within mature and intermediate age stands it prefers areas with little understory vegetation as well as forest clearings and edges.	Migrate South for the Winter	Follow Breeding Bird Survey Protocol
Eastern Whip-poor-will (<i>Caprimulgus vociferus</i>)	Known to Occur	Species and General Habitat Protection	generally prefer semi-open deciduous forests or patchy forests with clearings; areas with little ground cover are also preferred; In winter they occupy primarily mixed woods near open areas.	Nesting: May - July	Contact MNR Guelph District SAR Bio to obtain a copy of the protocol
Golden-winged Warbler (Vermivora chrysoptera)	Known to Occur	N/A	generally prefer areas of early successional vegetation, found primarily on field edges, hydro or utility right-of-ways, or recently logged areas.	Migrate South for the Winter	Follow Breeding Bird Survey Protocol
Henslow's Sparrow (<i>Ammodramus henslowii</i>)	Historically Known to Occur	Species and General Habitat Protection	generally found in old fields, pastures and wet meadows. They prefer areas with dense, tall grasses, and thatch, or decaying plant material	Migrate South for the Winter	Follow Breeding Bird Survey Protocol
King Rail (<i>Rallus elegans</i>)	Known to Occur	Species and General Habitat Protection	generally this species requires large marshes with open shallow water that merges with shrubby areas	Breed from Late April to mid-May Migrate South for the Winter	Follow March Monitoring Protocol
Least Bittern (<i>Ixobrychus exilis</i>)	Known to Occur	Species and General Habitat Protection	generally located near pools of open water in relatively large marshes and swamps that are dominated by cattail and other robust emergent plants	Migrate South for the Winter	Follow Marsh Monitoring Protocol; 10 day window of male calling (variable timing). Does not respond well to playback. Very difficult to detect.
Louisiana Waterthrush (<i>Seiurus motacilla</i>)	Known to Occur	N/A	generally inhabits mature forests along steeply sloped ravines adjacent to running water. It prefers clear, cold streams and densely wooded swamps	Migrate South for the Winter	Follow Breeding Bird Survey Protocol

Peregrine Falcon (<i>Falco peregrinus</i>)	Known to Occur	N/A	generally nest on tall, steep cliff ledges adjacent to large waterbodies; some birds adapt to urban environments and nest on ledges of tall buildings, even in densely populated downtown areas.	Active Year Round Lay Eggs around Easter Hatching occurs around Mother's Day Young fledge around Father's Day	Visit ideal habitat locations and listen/look for individuals in the vicinity.
Prothonotary Warbler (<i>Protonotaria citrea</i>)	Known to Occur	Species and General Habitat Protection	generally found in the dead trees of flooded woodlands or deciduous swamp forests; Carolinian zone	Migrate South for the Winter Eggs are layed from Late May - Early July	Follow Breeding Bird Survey Protocol
Red-Headed Woodpecker (<i>Melanerpes erythrocephalus</i>)	Known to Occur	N/A	generally prefer open oak and beech forests, grasslands, forest edges, orchards, pastures, riparian forests, roadsides, urban parks, golf courses, cemeteries, as well as along beaver ponds and brooks	Active from May to September	Follow Breeding Bird Survey Protocol
Short-eared Owl (<i>Asio flammeus</i>)	Suspected to Occur	N/A	generally prefers a wide variety of open habitats, including grasslands, peat bogs, marshes, sand-sage concentrations, old pastures and agricultural fields	Active Year Round	Contact MNR Guelph District SAR Bio to obtain a copy of the protocol
Wood Thrush (<i>Hylocichla mustelina</i>)	Known to Occur	N/A	Nests mainly in second-growth and mature deciduous and mixed forests, with saplings and well-developed understory layers. Prefers large forest mosaics, but may also nest in small forest fragments.	Migrate South for the Winter Arrive in Ontario in mid to late spring	Follow Breeding Bird Survey Protocol
Yellow-breasted Chat (<i>Icteria virens</i>)	Known to Occur	Species and General Habitat Protection	generally prefer dense thickets around wood edges, riparian areas, and in overgrown clearings	Migrate South for the Winter Arrive in Ontario Early May	Follow Breeding Bird Survey Protocol

FISH		Key Habitats Used By Species	Timing Of Life History Events	How to Conduct a Proper Survey
American Eel (<i>Anguilla rostrata</i>)	Known to Occur	Species and General Habitat Protection	all fresh water, estuaries and coastal marine waters that are accessible to the Atlantic Ocean; 12-mile creek watershed and Lake Ontario	Active Year Round • Electrofishing For information please contact your local MNR office, DFO, and Lakes and Rivers

Grass Pickerel (<i>Esox americanus vermiculatus</i>)	Known to Occur	N/A	generally occur in wetlands with warm, shallow water and an abundance of aquatic plants; occur in the St. Lawrence River, Lake Ontario, Lake Erie, and Lake Huron	spawn in Ontario from late March to early May	For information please contact your local MNR office, DFO, and Lakes and Rivers
Redside Dace (<i>Clinostomus elongatus</i>)	Known to Occur	<i>Species Protection and Habitat Regulation</i>	generally found in pools and slow-moving areas of small headwater streams with a moderate to high gradient	Spawning occurs in May	Contact MNR Guelph District SAR Bio to obtain a copy of the protocol
Silver Shiner (<i>Notropis photogenis</i>)	Known to Occur	<i>Species and General Habitat Protection</i>	generally prefer moderate to large, deep, relatively clear streams with swift currents, and moderate to high gradients	Spawning occurs in May and June	For information please contact your local MNR office, DFO, and Lakes and Rivers

INSECTS

	ESA Protection	Key Habitats Used By Species	Timing Of Life History Events	How to Conduct a Proper Survey
Monarch Butterfly (<i>Danaus plexippus</i>)	Known to Occur	N/A	exist primarily wherever milkweed and wildflowers exist; abandoned farmland, along roadsides, and other open spaces	<ul style="list-style-type: none"> • Watch for adults along roadsides and in open fields • Caterpillars feed on milkweeds: Common milkweed grows in open disturbed habitats (fields, roadsides, etc) and swamp milkweed grows in wet habitats (along streams, lakes, marshes) • Adults can be spotted from a distance; caterpillars must be looked for carefully on the host plant.
Mottled Duskywing (<i>Erynnis martialis</i>)	Known to Occur	<i>Species and General Habitat Protection June 27, 2014</i>	generally inhabits a range of grassland, shrubland, and savanna habitats that contain well drained soils and the presence of its host plants Prairie Redroot (<i>Ceanothus herbaceus</i>) or New Jersey Tea (<i>Ceanothus americanus</i>).	<ul style="list-style-type: none"> • Watch for adults near host plants or search for caterpillars on the host plant • • Adults can be spotted from a distance; caterpillars must be looked for carefully on the host plant.
West Virginia White (<i>Pieris virginienis</i>)	Known to Occur	N/A	generally prefer moist, deciduous woodlands. The larvae feed only on the leaves of the two-leaved toothwort (<i>Cardamine diphylla</i>), which is a small, spring-blooming plant of the forest floor.	<ul style="list-style-type: none"> • Watch for adults within moist, deciduous woodlands • Caterpillars feed on the two-leaved toothwort: Toothwort grows in damp, open, rich hardwood woodlands and blooms from April to June. • Adults can be spotted from a distance; caterpillars must be looked for carefully on the host plant.

MAMMALS		ESA Protection	Key Habitats Used By Species	Timing Of Life History Events	How to Conduct a Proper Survey
American Badger (<i>Taxidea taxus jacksoni</i>)	Known to Occur	Species and Habitat Regulation	generally prefer open habitats, whether natural (grasslands) or man-made (agricultural fields, road right-of-ways, golf courses)	Breed: Late Summer Semi-dormant over Winter	<ul style="list-style-type: none"> Determine if soils are suitable (sandy or loamy) Dens and Woodchuck burrows should be surveyed for use
Eastern Small-footed Myotis (Myotis leibii)	Suspected to Occur	Species and General Habitat Protection as of June 27, 2014	Overwintering habitat: Caves and mines that remain above 0 Maternal Roosts: primarily under loose rocks on exposed rock outcrops, crevices and cliffs, and occasionally in buildings, under bridges and highway overpasses and under tree bark.	Hibernates in caves and mines during winter	Contact MNR Guelph District SAR Bio to obtain a copy of the protocol
Little Brown Myotis (Myotis lucifugus)	Suspected to Occur	Species and General Habitat Protection	Overwintering habitat: Caves and mines that remain above 0 Maternal Roosts: Often associated with buildings (attics, barns etc.). Occasionally found in trees (25-44 cm dbh).	Hibernates in caves and mines during winter	Contact MNR Guelph District SAR Bio to obtain a copy of the protocol
Northern Myotis (Myotis septentrionalis)	Suspected to Occur	Species and General Habitat Protection	Overwintering habitat: Caves and mines that remain above 0 Maternal Roosts: Often associated with cavities of large diameter trees (25-44 cm dbh). Occasionally found in structures (attics, barns etc.)	Hibernates in caves and mines during winter	Contact MNR Guelph District SAR Bio to obtain a copy of the protocol
Woodland Vole (Microtus pinetorum)	Known to Occur	N/A	generally associated with deciduous forests in areas of soft, friable, often sandy soil beneath deep humus, where it can burrow easily.	Active Year Round	Contact MNR Guelph District SAR Bio to obtain a copy of the protocol

MOLLUSCS		ESA Protection	Key Habitats Used By Species	Timing Of Life History Events	How to Conduct a Proper Survey
Eastern Pondmussel (Ligumia nasuta)	Known to Occur	Species and General Habitat Protection	generally inhabit sheltered areas of lakes or slow streams in substrates of fine sand and mud	Active Year Round	<p>Please reference: Mackie, G, T.J Morris, and D Ming. "Protocol for the Detection and Relocation of Freshwater Mussel Species at Risk in Ontario Great Lakes Area (OGLA)." Fisheries and Oceans Canada. (2008): Print.</p>

Lilliput (<i>Taxolasma parvum</i>)	Known to Occur	Species and General Habitat Protection June 27, 2014	Found in a variety of habitats including small to large rivers, wetlands, shallows of lakes, ponds and reservoirs. They are common in soft substrates with over 50% of the substrate type comprised of sand and a mud/muck/silt combination. Typically occur with or near Green Sunfish, Bluegill, White Crappie, and Johnny Darter	Active Year Round	Please reference: Mackie, G, T.J Morris, and D Ming. "Protocol for the Detection and Relocation of Freshwater Mussel Species at Risk in Ontario Great Lakes Area (OGLA)." Fisheries and Oceans Canada. (2008); Print.
Rainbow Mussel (<i>Villosa iris</i>)	Known to Occur	Species and General Habitat Protection	most abundant in shallow, well-oxygenated reaches of small- to medium-sized rivers and sometimes lakes, on substrates of cobble, gravel, sand and occasionally mud	Active Year Round	Please reference: Mackie, G, T.J Morris, and D Ming. "Protocol for the Detection and Relocation of Freshwater Mussel Species at Risk in Ontario Great Lakes Area (OGLA)." Fisheries and Oceans Canada. (2008); Print.

MOSES

ESA Protection

Key Habitats Used By Species

Timing Of Life History Events

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PLANTS

ESA Protection

Key Habitats Used By Species

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How to Conduct a Proper Survey

American Chestnut (<i>Castanea dentata</i>)	Known to Occur	Species and General Habitat Protection	found in deciduous forest communities; this tree prefers arid forests with acid and sandy soils.	Flowers occur in Late Spring and Early Summer	<ul style="list-style-type: none"> Walk slowly and systematically in grid fashion, pausing to scan for plants every 5 meters Use a plant field guide to distinguish from similar species Perform detailed floristic inventory Look for distinctive fruits on the ground
American Columbo (<i>Frasera carolinensis</i>)	Known to Occur	Species and General Habitat Protection	most commonly associated with open deciduous forested slopes, thickets and clearings; grows in a variety of relatively stable habitats as well as on a wide variety of soils	Germination and development of the rosette begin in early spring; Flowers open in May; Fruit production continues until October or November	<ul style="list-style-type: none"> Walk slowly and systematically in grid fashion, pausing to scan for plants every 5 meters Use a plant field guide to distinguish from similar species Look for spikes from last years flowers
American Ginseng (<i>Panax quinquefolius</i>)	Known to Occur	Species and General Habitat Protection	grows in rich, moist, undisturbed and relatively mature deciduous woods in areas of neutral soil (such as over limestone or marble bedrock).	Flowering begins in June and continues until August; The fruit develop from July to August and ripen in August and September	<ul style="list-style-type: none"> Walk slowly and systematically in grid fashion, pausing to scan for plants every 5 meters Use a plant field guide to distinguish from similar species

Broad Beech Fern (<i>Phegopteris hexagonoptera</i>)	Known to Occur	N/A	generally inhabits shady areas of beech and maple forests where the soil is moist or wet	The frond of the Broad Beech Fern appears towards the end of May	<ul style="list-style-type: none"> Walk slowly and systematically in grid fashion, pausing to scan for plants every 5 meters Use a plant field guide to distinguish from similar species
Butternut (<i>Juglans cinerea</i>)	Known to Occur	Species and General Habitat Protection	generally grows in rich, moist, and well-drained soils often found along streams. It may also be found on well-drained gravel sites, especially those made up of limestone. It is also found, though seldomly, on dry, rocky and sterile soils. In Ontario, the Butternut generally grows alone or in small groups in deciduous forests as well as in hedgerows	Flowers from April to June. Fruits reach maturity during the month of September or October	<p>Walk slowly and systematically in grid fashion through suitable habitat pausing every 30 meters for a detailed scan of trees within sight. Areas with dense foliage or many saplings will require a more intensive survey to detect sapling butternut and yearlings</p> <p>Look for distinctive fruit on the ground</p>
Eastern Flowering Dogwood (<i>Cornus florida</i>)	Known to Occur	Species and Habitat Regulation	generally grows in deciduous and mixed forests, in the drier areas of its habitat, although it is occasionally found in slightly moist environments; Also grows around edges and hedgerows	flowering occurs in mid-spring, just as the leaves begin to develop. Fruit turns red at the end of summer.	<ul style="list-style-type: none"> Walk slowly and systematically in grid fashion, pausing to scan for plants every 5 meters Use a plant field guide to distinguish from similar species Easiest to detect during Spring when in flower <ul style="list-style-type: none"> Also look for distinctive bark
Few-flowered Club-rush (<i>Trichophorum planifolium</i>)	Known to Occur	Species and Habitat Regulation	generally found in Dry Fresh Oak deciduous forests and Dry Fresh Oak-Maple-Hickory deciduous forests (only found on RBG property)	Plants flower early before the forest canopy leaves in	<ul style="list-style-type: none"> Seaches for this species should only be done in March or April, when the species is most visible Walk slowly and systematically in grid fashion, pausing to scan for plants every 5 meters Distinguishing this species from similar species is difficult and requires collection of plant material, which requires a 17 (2)(b) permit
Green Dragon (<i>Arisaema dracontium</i>)	Known to Occur	N/A	generally grows in damp deciduous forests and along streams.	Flowering occurs in May and June	<ul style="list-style-type: none"> Walk slowly and systematically in grid fashion, pausing to scan for plants every 5 meters Use a plant field guide to distinguish from similar species
Hoary Mountain Mint (<i>Pycnanthemum incanum</i>)	Known to Occur	Species and General Habitat Protection	Oak savannas and prairies	Flowering occurs in July	<ul style="list-style-type: none"> Walk slowly and systematically in grid fashion, pausing to scan for plants every 5 meters Use a plant field guide to distinguish from similar species

Red Mulberry (<i>Morus rubra</i>)	Known to Occur	<i>Species and General Habitat Protection</i>	generally grows in moist forest habitats. In Ontario, these include slopes and ravines of the Niagara Escarpment, and sand spits and bottom lands; Can grow in open areas such as hydro corridors	Flowering occurs when leaves emerge in late spring. Fruit emerges in Mid-July.	<ul style="list-style-type: none"> Walk slowly and systematically in grid fashion, pausing to scan for plants every 5 meters Use a plant field guide to distinguish from the similar White Mulberry Distinguishing Red Mulberry and the hybrid Red and White Mulberry will require the collection of leaves for generic testing, which requires a 17(2)(b) permit
Spotted Wintergreen (<i>Chimaphila maculata</i>)	Historically Known to Occur	<i>Species and General Habitat Protection</i>	generally grow in sandy habitats in dry-mesic oak-pine woods. In Canada, they grow very close to the Great Lakes	Flowering occurs in late July to early August	<ul style="list-style-type: none"> Watch for the distinct evergreen leaves in suitable habitat May be easiest to search in fall and spring
White Wood Aster (<i>Eurybia divaricata</i>)	Known to Occur	<i>Species and General Habitat Protection</i>	generally grows in open, dry, deciduous forests. It has been suggested that it may benefit from some disturbance, as it often grows along trails.	Flowering occurs in early September, and sets fruit later in the month	<ul style="list-style-type: none"> Walk slowly and systematically in grid fashion, pausing to scan for plants every 5 meters Use a plant field guide to distinguish from similar species

REPTILES

	ESA Protection	Key Habitats Used By Species	Timing Of Life History Events	How to Conduct a Proper Survey
Blanding's Turtle (<i>Emydonidea blandingii</i>)	<i>Species and General Habitat Protection</i>	generally occur in freshwater lakes, permanent or temporary pools, slow-flowing streams, marshes and swamps. They prefer shallow water that is rich in nutrients, organic soil and dense vegetation. Adults are generally found in open or partially vegetated sites, and juveniles prefer areas that contain thick aquatic vegetation including sphagnum, water lilies and algae. They dig their nest in a variety of loose substrates, including sand, organic soil, gravel and cobblestone. Overwintering occurs in permanent pools that average about one metre in depth, or in slow-flowing streams.	Eggs are laid in June, with hatchlings emerging in late September and early October.	Contact MNR Guelph District SAR Bio to obtain a copy of the protocol

<p>Eastern Hog-nosed Snake (<i>Heterodon platirhinos</i>)</p>	<p>Historically Known to Occur and May Still Occur</p>	<p><i>Species and General Habitat Protection</i></p>	<p>generally prefer habitats with sandy, well-drained soil and open vegetative cover, such as open woods, brushland, fields, forest edges and disturbed sites. The species is often found near water.</p>	<p>Mating occurs in spring and in August and early September. Hatching occurs in late August or early September</p>	<ul style="list-style-type: none"> • In early spring, look for individuals near ideal hibernation sites • During egg-laying period (June), look for nesting females in sandy areas in early morning and late evening. • Rest of the season, survey intensively and systematically by flipping rocks and examining small shrubs in forest openings while listening carefully for hissing or retreat of the animal • More active at Dusk
<p>Eastern Ribbonsnake (<i>Thamnophis sauritus</i>)</p>	<p>Known to Occur</p>	<p>N/A</p>	<p>generally occur along the edges of shallow ponds, streams, marshes, swamps, or bogs bordered by dense vegetation that provides cover. Abundant exposure to sunlight is also required, and adjacent upland areas may be used for nesting.</p>	<p>Hibernate: October - April Mating: Early Spring Hatching: Early Fall (September)</p>	<p>Contact MNR Guelph District SAR Bio to obtain a copy of the protocol</p>
<p>Milksnake (<i>Lampropeltis triangulum</i>)</p>	<p>Known to Occur</p>	<p>N/A</p>	<p>generally occur in rural areas, where it is most frequently reported in and around buildings, especially old structures. It is also found in a wide variety of habitats, from prairies, pastures, and hayfields, to rocky hillides and a wide variety of forest types. They must also be in proximity of water, and suitable locations for basking and egg-laying.</p>	<p>Active at dawn and dusk in the spring and fall, and at night in the summer. Hibernate: Late October to Early May</p>	<p>Contact MNR Guelph District SAR Bio to obtain a copy of the protocol</p>
<p>Northern Map Turtle (<i>Graptemys geographica</i>)</p>	<p>Known to Occur</p>	<p>N/A</p>	<p>generally inhabits both lakes and rivers, showing a preference for slow moving currents, muddy bottoms, and abundant aquatic vegetation. These turtles need suitable basking sites (such as rocks and logs) and exposure to the sun for at least part of the day.</p>	<p>Active: At night Hibernate: October - April Hatching: Late August - Early September</p>	<ul style="list-style-type: none"> • scan shoreline in spring and partially submerged logs/rocks in summer for basking turtles • Be aware that map turtles do not allow as close of approach as other turtles before leaving a basking site • Snorkel in desired aquatic habitat! • Nesting season: search suitable habitat for nests

<p>Snapping Turtle (<i>Chelydra serpentina</i>)</p>	<p>Known to Occur</p>	<p>N/A</p>	<p>generally inhabit shallow waters where they can hide under the soft mud and leaf litter. Nesting sites usually occur on gravelly or sandy areas along streams. Snapping Turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits.</p>	<p>Nesting: Late May and June Hibernates: October - April</p>	<ul style="list-style-type: none"> • Scan offshore rocks and logs for basking turtles (10am-2pm) • Snorkel in desired aquatic habitat! • Nesting Season: Search known or preferred nesting habitat areas for females
<p>Spiny Softshell (<i>Apalone spinifera</i>)</p>	<p>Known to Occur</p>	<p>Species and General Habitat Protection</p>	<p>generally prefer marshy creeks, swift-flowing rivers, lakes, impoundments, bays, marshy lagoons, ditches and ponds near rivers</p>	<p>Lay eggs in June or July Hibernates over winter</p>	<ul style="list-style-type: none"> • Best time to survey is during nesting season when females are active laying eggs • Visual searches should be conducted in appropriate habitat

Common Name	COSEWIC Status	COSSAR Status	G-Rank	S-Rank	Hamilton	Data Source	Habitat Requirements	Assessment
American Badger	END	END	G5	S2	Rare	MNRF	Open grasslands and oak savannahs; dens in new hole or enlarged existing hole; sometimes makes food caches. (MNRF 2000)	Not present – Relatively suitable habitat present of the species (e.g. d
Eastern Small-footed Myotis	END	END	G4	S2S3	-	MNRF	In the spring and summer, eastern small-footed bats will roost in a variety of habitats, including in or under rocks, in rock outcrops, in buildings, under bridges, or in caves, mines, or hollow trees. In the winter, these bats hibernate, most often in caves and abandoned mines. They seem to choose colder and drier sites than similar bats and will return to the same spot each year.	Potentially present on site, however one Trinity Church Road. the karst as habitat.
Little Brown Myotis	END	END	G5	S4	Uncertain	MNRF	Overwintering habitat: Caves and mines that remain above freezing. Maternal roosts: Often associated with buildings (attics, barns, etc.). Occasionally found in trees (25-44 cm dbh).	Potentially suitable m present within NHAs S15, S18, Tw1, Tw2, T
Northern Myotis	END	END	G4	S3	Uncertain	MNRF	Northern long-eared bats are associated with boreal forests, choosing to roost under loose bark and in the cavities of trees. These bats hibernate from October or November to March or April, most often in caves or abandoned mines.	targeted surveys for t habitat were not comp (species unknown) w S11 and S12 during an trees and snags are c Cavity trees were not Note: NHAs S13, S15, and Tw5 were not inc of land access permis
Woodland Vole	SC	SC	G5	S3?	Rare	MNRF, NHIC	Generally associated with deciduous forests in areas of soft, friable, often sandy soil beneath deep humus, where it can burrow easily.	Potentially present present in NHAs S12, Tw4, and Tw5. Howe conducted as part of this small, primarily s
Canadian Flycatcher	END	END	G5	S2, S3B	Rare	MNRF	Generally requires large areas of mature, undisturbed forest; avoids the forest edge; found in well wooded swamps and ravines.	Not present – Prefer not present within or species not found dur
Golden Eagle	NAR	SC	G5	S2N, S4B	Rare	MNRF	Prefers deciduous and mixed deciduous forest; and habitat close to water bodies such as lakes and rivers.	Not present – Prefer species not detected
Bank Swallow	THR	THR	G5	S4B	Uncommon	MNRF	Sand, clay or gravel riverbanks or steep riverbank cliffs; lakeshore bluffs or easily crumbled sand or gravel; gravel pits, road cuts, grassland or cultivated fields that are close to water. Nesting sites are limiting factor for species presence. (MNRF 2000)	Not present – Prefer species not detected
Tree Swallow	THR	THR	G5	S4B	Common	MNRF	Prefers farmland, lake/river shorelines, wooded clearings, urban populated areas, rocky cliffs and wetlands. They nest inside or outside buildings, under bridges and in road culverts, or on rock faces and caves. (MNRF 2000)	Not present –Species bird surveys.

Black-crowned Night Heron	-	-	G5	S3B, S3N	Uncommon	NHIC	mature trees, in wetlands among emergent herbaceous vegetation, an on bare rock on islands (Peck and James, 1983). Known from Hamilton Harbour (Cadman et al., 2007).	Not present - Extirpated during survey
Black Tern	NAR	SC	G4	S3B	Extirpated	MNRF	Freshwater marshes and wetlands. (MNRF 2000)	Not present - Large present and species
Bobolink	THR	THR	G5	S4B	Uncommon	MNRF, NHIC	COSEWIC (2010, p. iv) defines bobolink habitat as follows: "Since the conversion of the prairie to cropland and the clearing of the eastern forests, the Bobolink has nested in forage crops... The bobolink also occurs in various grassland habitats including wet prairie, graminoid peatlands and abandoned fields dominated by tall grasses, remnants of uncultivated virgin prairie (tall-grass prairie), no-till cropland, small-grain fields, restored surface mining sites and irrigated fields in arid regions."	Not present - Potentially present in NHAs S1, S2, S3, S4, S5, S6, S7, S8, S9, S10, S11, S12, S13, S14, S15, S16, S17, S18, S19, S20, S21, S22, S23, S24, S25, S26, S27, S28, S29, S30, S31, S32, S33, S34, S35, S36, S37, S38, S39, S40, S41, S42, S43, S44, S45, S46, S47, S48, S49, S50, S51, S52, S53, S54, S55, S56, S57, S58, S59, S60, S61, S62, S63, S64, S65, S66, S67, S68, S69, S70, S71, S72, S73, S74, S75, S76, S77, S78, S79, S80, S81, S82, S83, S84, S85, S86, S87, S88, S89, S90, S91, S92, S93, S94, S95, S96, S97, S98, S99, S100, S101, S102, S103, S104, S105, S106, S107, S108, S109, S110, S111, S112, S113, S114, S115, S116, S117, S118, S119, S120, S121, S122, S123, S124, S125, S126, S127, S128, S129, S130, S131, S132, S133, S134, S135, S136, S137, S138, S139, S140, S141, S142, S143, S144, S145, S146, S147, S148, S149, S150, S151, S152, S153, S154, S155, S156, S157, S158, S159, S160, S161, S162, S163, S164, S165, S166, S167, S168, S169, S170, S171, S172, S173, S174, S175, S176, S177, 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Golden-winged Warbler	THR	SC	G4	S4B	Rare	MNRF	on field edges, hydro or utility right-of-ways, or recently logged areas. (MNRF 2000)	Not present - Extirpated during surveys.
Chipping Sparrow	END	END	G4	NHB	Extirpated	MNRF	Large, fallow grassy area with ground mat of dead vegetation, dense herbaceous vegetation, ground litter and some song perches; neglected weedy fields; wet meadows; cultivated uplands; a moderate amount of moisture needed; requires a minimum tract of grassland of 40 ha, but usually in areas >100 ha. (MNRF 2000)	Not present - Extirpated during surveys.
Long-billed Curlew	END	END	G4	S2B	Extirpated	MNRF	Generally requires large marshes with open shallow water that merges with shrubby areas (MNRF 2000)	Not present - Extirpated during surveys.
Least Bittern	THR	THR	G5	S4B	Rare	MNRF	Generally located near pools of open water in relatively large marshes and swamps dominated by cattail and other robust emergent plants (MNRF 2000)	Not present - Potential species not detected
Louisiana Waterthrush	THR	SC	G5	S3B	Rare	MNRF	Generally inhabits mature forests along steeply sloped ravines adjacent to running water. It prefers clear, cold streams and densely wooded swamps. (MNRF 2000)	Not present - Potential species not detected
Merula	SC	SC	G4	S3B	Rare	MNRF	Nests on tall, steep cliff ledges adjacent to large waterbodies; some birds adapt to urban environments and nest on ledges of tall buildings, even in densely populated areas. (MNRF 2000)	Not present - Potential species not detected
North Carolina Parula	END	END	G5	S1B	Rare	MNRF	Generally found in the dead trees of flooded woodlands or deciduous swamp forests; Carolinian Zone. (MNRF 2000)	Not present - Potential species not detected
Red-headed Woodpecker	THR	SC	G5	S4B	Rare	MNRF	COSEWIC (2007c, p. iv) defines red-headed woodpecker habitat as follows: "The Red-headed Woodpecker is found in a variety of habitats, including oak and beech forests, grasslands, forest edges, orchards, pastures, riparian forests, roadsides, urban parks, golf courses, cemeteries, beaver ponds and burns."	Not present - Potential species not detected
Short-eared Owl	SC	SC	G5	S2N, S4B	Rare	MNRF	Grasslands, open areas or meadows that are grassy or bushy; marshes, bogs or tundra; both diurnal and nocturnal habits; ground nester; destruction of wetlands by drainage for agriculture is an important factor in the decline of this species; home range 25-125 ha; requires 75-100 ha of coniferous open habitat. Also prefers old pastures and agricultural fields.	Not present - Potential species not detected
Wood Thrush	THR	-	G5	S4B	Common	MNRF	Sibley et al. (2001) describes of the habitat requirements of the wood thrush to include undisturbed moist mature deciduous or mixed forest with deciduous sapling growth often near a pond or swamp; as well as hardwood forest edges; the forest must have some trees higher than 12 metres.	Not present - Potential species not detected
Yellow-breasted Chat	END	END	G5	S2B	Rare	MNRF	Thickets, tall tangles of shrubbery beside streams, ponds; overgrown bushy clearings with deciduous thickets; nests above ground in bush, vines etc.	Not present - Potential species was not detected

Person Salamander	END	END	G4	S2	Rare	MNRF	deciduous forest, swamps, moist pasture, lakeshores. Uses temporary woodland pools for breeding. Hides under leaf litter, stones or decomposing logs.	any salamanders in the study area (NHAs) surveyed.
Blanding's Turtle	THR	THR	G4	S3	Rare	MNRF	COSEWIC (2005, p. v) defines Blanding's turtle habitat as follows: "Turtles of all ages occur primarily in shallow water, with adults and juveniles showing slightly different habitat preferences. Adults are generally found in open or partially vegetated sites, whereas juveniles are more reclusive by nature and prefer areas that contain thick aquatic vegetation including sphagnum, water lilies and algae. The Blanding's Turtle nests in a variety of loose substrates including sand, organic soil, gravel and cobblestone. Overwintering occurs in permanent pools that average about one metre in depth, or in slow flowing streams."	Not present – Preferred subject property. No surveys.
Eastern Hog-nosed Snake	THR	THR	G5	S3	-	MNRF	Sandy upland fields, pastures, savannahs, sandy beaches, dry open oak-pine-maple forest with sandy soils, prefer forest areas > 5 ha. (MNRF 2000)	Not present - Accor known from area 2 m historic record near L habitat not present w
Eastern Ribbonsnake	SC	SC	G5	S3	Rare	MNRF	COSWEIC (2002b, p. iv) defines ribbonsnake habitat as follows: "The Northern Ribbonsnake is semi-aquatic and most frequently found along wetland edges. Quiet, shallow water with low surrounding cover is preferred, although areas with good exposure to sunlight are also required. Gravid females may move away from water before nesting, as females and juveniles are occasionally found in upland areas."	Not present - Accor confirmed records in sightings at Fletcher Cootes Paradise. Pot present within NHAs not observed during s
Northern Map Turtle	SC	SC	G5	S3	Rare	MNRF	Large bodies of water with soft bottoms and aquatic vegetation, basks on logs or rocks or on beaches and grassy edges. Uses soft soil or clean dry sand for nest sites, may nest some distance from water. (MNRF 2000)	Not present - Accor (Schwetz, 2014), con sightings at Cootes P one record from Glan habitat not present or made during surveys
Western Milksnake	SC	NAR	G5	S4	Uncommon	MNRF	Wide variety of habitats including agricultural areas. Often overwinters underground, in rotting logs, or in the foundation of buildings.	Potentially present present within karst, f and potential foraging the study area and a detected during surve secretive nature of th difficult.
Midland Painted Turtle	SC	-	G5 T5	S4	Common	n/a	This turtle is found in a wide variety of aquatic and wetland habitats, including lakes, ponds, and rivers. They overwinter in the soft mud and leaf litter of the aforementioned habitats. Nesting sites usually occur on gravelly or sandy areas along streams. Midland painted turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits	Not present – Suitab for this species exists only), and Si6. Howe during surveys. NHAs may be used by this : Si8.

apping Turtle	SC	SC	G5	S3	Common	MNRF	and leaf litter. Nesting sites usually occur on gravelly or sandy areas along streams. Snapping turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits. (MNRF 2000).	Not present – Accor confirmed records on Hamilton Harbour. P species is not present adjacent lands.
iny Softshell	END	THR	G5	S3	Rare	MNRF	Highly aquatic turtles that rarely travel far from water. They are found primarily in rivers and lakes but also in creeks and even ditches and ponds near rivers. Key habitat requirements are open sand or gravel nesting areas, shallow muddy or sandy areas to bury in, deep pools for hibernation, areas for basking, and suitable habitat for crayfish and other food species. (MNRF 2000)	
merican Eel	THR	END	G4	S1?	Rare	MNRF	Habitat use by eels appears to be extremely diverse and access to a diverse array of habitats is fundamental (Secor 2007, 2010, Secor and Kerr 2009, MacGregor et al. 2009). In addition, there may be important micro-habitat requirements that have not been considered. For example, eels typically overwinter in soft substrates where they burrow into the upper layers of sediment (Jessop et al. 2009). These wintering grounds may be quite specific and need to be located and evaluated in Ontario waters where eels are still present.	Not present - Hamilton Creek and Lake Ontario on site.
ack Bullhead						MNRF		Not present – Suitable and species not colle
ass Pickerel	SC	SC	G5T 5	S3	Common	MNRF	Warm, slow-moving streams, ponds and shallow bays of larger lakes, with clear to tea-coloured water, and abundant aquatic vegetation. Bottom substrate is usually mud, but it has also been found over rock and gravel.	Not present – Only f the headwaters of the Suitable habitat not p
dside Dace	END	END	G3 G4	S2	Rare (Extirpated?)	MNRF	Found in pools and slow-moving areas of small streams and headwaters with a gravel bottom. They are generally found in areas with overhanging grasses and shrubs.	Not present - Accor Redside Dace is poss Suitable habitat not p
ver Shiner	THR	THR	G5	S2S3	-	MNRF	Prefer moderate to large size streams with swift currents that are free of weeds and have clean gravel or boulder bottoms, and moderate to high gradients.	Not present – Suitable
stern Pondmussel	END	END	G4	S1	-	MNRF	Typically found in sheltered areas of lakes and in slow-moving areas of rivers and canals with sand or mud bottoms.	Unlikely - Potentially downstream sections Creek, and Sinkhole moving and the botto Stickleback (Culea in East Pondmussel (D Stoney Creek and Si intermittent nature of limiting factor on the in this area.

									species is known from "farmyards, roadsides, and disturbed places. Other species have frequently been misidentified as this one. The knotweeds are often troublesome to determine, as any of the characters cited is open to exception and one must too often make a judgment on a balance of characters. The leaves of <i>P. erectum</i> may be similar to the shapes in <i>P. aviculare</i> , but run distinctly larger. Mature plants are rather strongly heterophyllous, with flowers (fruits) in axils of much-reduced leaves or bracts." (MFO, 2011).											Not present – Species Original historic record species. According to (Clappison) in 1897.
									Generally found in Dry Fresh Oak deciduous forests and Dry Fresh Oak-Maple-Hickory deciduous forests (only found on Royal Botanical Gardens property).										Not present – Suitable Tw1, and Tw4, but surveys. In Hamilton, Paradise.	
									Dry open woods and savannas (NHIC 2016), typically found in association with oaks (<i>Quercus</i> spp.).										Not present – In Har Paradise. Marginally study area; species n	
									Generally grows in damp deciduous forests and along streams (MNRF 2000).										Not present –Species	
									Oak savannas and prairies; dry sites.										Not present – Suitable species not detected Hamilton Harbour.	
									Marshes, edge of rivers, and oxbows (NHIC 2016).										Not present – Suitable adjacent to the study surveys.	
									Dry, open, sandy or rocky woods (NHIC 2016).										Not present – Species	
									Rich forests, both upland beech-maple and swamps in moist ground (MFO, 2011). In Hamilton, collected in 1889 at "0.5 mile city side of reservoir" (Schwetz, 2014).										Not present – Potential species within the study Tw1, and Tw4; however species in any of these study area, puttyroot NHAs Tw5 and Si4.	
									Moist woods and wooded river valleys. (MNRF 2000). According to the MNRF, Category 1 habitat for the species is lands within 25 m of a tree. Category 2 habitat is suitable (e.g. forested) habitat between 25 and 125 m of a tree (MNRF 2013).										Not present –Species	
									"Habitats for this species includes upland sand prairies, upland gravel prairies, hill prairies, upland savannas, rocky glades, and upland pastures. This plant is normally found in high quality natural areas, although it appears to thrive better when there are occasional wildfires or cattle grazing." (Illinois Wildflowers, 2015).										Not present – High-current within or adjacent species was not detected species was not included (Schwetz, 2014).	

loon-leaved Moss	END	END	G5	S2	n/a	MNRF	Generally known on soil substrates within seasonally flooded, variably wooded habitats; but also recorded on the base of tree roots or on rocks. Microhabitat availability, competition from neighboring plants, presence of leaf litter, and sensitivity to atmospheric pollution are limiting factors for this species. In Niagara, this species is known from the Willoughby Marsh Conservation area near Fort Erie. (Doubt, 2005) Mosses were not included in the Hamilton NAI (Schwetz, 2014).	Not present – Preferred subject property and surveys.
otted Wintergreen	END	END	G5	S1	Rare	MNRF, NHIC	Generally grows in sandy habitats in dry-mesic oak-pine woods (MNRF 2000)	Not present – Species surveys.
hite Wood Aster	THR	THR	G5	S2	Rare	MNRF	Generally grows in open, dry, deciduous forests. May benefit from some disturbance, as it often grows along trails. (MNRF 2000)	Not present – In Har
ellow Stargrass	-	-	G5	S3	Rare	NHIC	Prairies, meadows, and dry sandy woods (NHIC 2016).	Not present – In Har Cootes Paradise. Preferred subject property and surveys.
lichen	-	-	G5	S1S2	n/a	NHIC	"This species grows on calcareous rocks, characteristically in shaded sites such as overhangs and river gorges. It is boreal to temperate..." (CNALH, 2016 ¹). Previously recorded from the Niagara Escarpment near the junction of Hwy 8 and McNeilly Road in Winona.	Not present – Undisturbed nature of the fieldstones scattered could host this lichen not included in the Ha
lichen	-	-	GN R	S1S2	n/a	NHIC	Calcareous rocks. Previously recorded from the Niagara Escarpment near the junction of Hwy 8 and McNeilly Road in Winona (CNALH, 2016 ²).	Not present – Undisturbed nature of the fieldstones scattered could host this lichen not included in the Ha

Status of Endangered Wildlife in Canada)

ger exists.

er existing in the wild in Canada, but occurring elsewhere.

imminent extirpation or extinction.

o become endangered if limiting factors are not reversed.

t may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.

plemented by the MNRF's Committee on the Status of Species at Risk in Ontario (COSSARO).

ger exists anywhere.

longer exists in the wild in Ontario but still occurs elsewhere.

imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's Endangered Species Act (ESA).

at risk of becoming endangered in Ontario if limiting factors are not reversed.

th characteristics that make it sensitive to human activities or natural events.

ensus of the network of Conservation Data Centres (CDCs), scientific experts, and the Nature Conservancy to designate a rarity rank based on the range-wide status of a species, subspecies, or variant occurrences in the overall range or very few remaining individuals; or because of some factor(s) making it especially vulnerable to extinction.

nd 20 occurrences in the overall range or with many individuals in fewer occurrences; or because of some factor(s) making it vulnerable to extinction.

ween 20 and 100 occurrences; may have fewer occurrences, but with a large number of individuals in some populations; may be susceptible to large-scale disturbances.

00 occurrences; usually not susceptible to immediate threats.

ecure under present conditions.

re used by the Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in those factors within the political boundaries of Ontario.

mpertiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation or state/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 due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

but not rare; some cause for long-term concern due to declines or other factors.

and abundant in the nation or state/province.

age rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

ng Schwetz, 2014

	Breeding Birds	Fish	Herpetofauna
ions	A = abundant, > 1000 pairs H = locally significant	A = abundant, found in 60% of stations/watershed	A = abundant, > HHA squares
0 stations	C = common, 201 - 1000 pairs h = moderately significant	C = common, 40% of stations/watershed	C = common, 26-200 HHA squares
	U = uncommon, 21 - 200 pairs	U = uncommon, ≤ 25% of stations/watershed	U = uncommon, 11 -25 stations
tes	R = rare, 1-20 pairs	R = rare, ≤ 10% of stations/watershed	R = rare, 1 -10 stations
0 sites	ex = extirpated	H = locally significant h = moderately significant	ex = extirpated, no records from 1984-2000