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2021 Annual report from the Committee on the Status of Species at Risk in Ontario (COSSARO)

Read the classifications for 33 species assessed by COSSARO in 2021 to the Ministry of the Environment, Conservation and Parks. This report is posted on behalf of a provincial advisory agency.

Acknowledgements

Committee on the Status of Species at Risk in Ontario (COSSARO) wishes to acknowledge and thank the observers who attended and contributed to the dialogue in species assessment meetings. Observers in 2021 represented First Nations, government offices, companies, industry associations, sporting associations, conservation organizations, and academic institutions (listed below). The observers' attendance and interest in the work of COSSARO was helpful and is greatly appreciated.

- 8 Trees Inc.
- Algonquins of Ontario
- Auditor General of Ontario
- Dairy Farmers of Ontario
- Environment and Climate Change Canada
- Fleming College (professors and students)
- Frost Students Association, Fleming College
- Fur Harvesters Auctions Inc.
- Fur Institute of Canada

- Great Lakes Fishery Commission
- McMillan Vantage Policy Group
- Nature Conservancy of Canada
- Ontario Federation of Agriculture
- Ontario Federation of Anglers and Hunters (OFAH)
- Ontario Forest Industries Association
- Ontario Fur Managers Federation
- Ontario Ginseng Growers Association
- Ontario Nature
- Ontario Power Generation (OPG)
- Red Sky Métis Independent Nation
- SLR Consulting
- Species at Risk Program Advisory Committee (SARPAC)
- Temagami First Nation
- Walker Industries
- Wilderness Committee

We also wish to express our thanks to the following individuals and organizations, who chose through presentations and/or written submissions to contribute scientific information including Indigenous and community knowledge to COSSARO during 2021:

- Victoria MacPhail, PhD candidate, Faculty of Environmental and Urban Change, York University, Toronto
- Lisa Walter, Acting Sea Lamprey Program Deputy Director, Great Lakes Fishery Commission
- Dave Stanley, Senior Environmental Advisor, Ontario Power Generation (OPG)
- Robin Horwath, General Manager, Ontario Fur Managers Federation
- James Baker, Executive Director, Fur Institute of Canada

- Mark Ryckman, Manager of Policy, Ontario Federation of Anglers and Hunters (OFAH)
- Emma Horrigan, Conservation Projects and Education Manager, Ontario Nature

As members on COSSARO we are grateful to Hon. Jeff Yurek who served as the Minister of the Environment, Conservation and Parks (MECP) from June 20, 2019, to June 18, 2021. And we are grateful to Hon. David Piccini, as the Minister of MECP from June 18, 2021, onward, and his team at the MECP that serves as the Secretariat and support to COSSARO. We are grateful to the following MECP team members who worked hard to support COSSARO in 2021.

- Mary Balsdon
- Natalie Boyd
- Brie-Anne Breton
- Kirsten Corrigal
- Susan Ecclestone
- Megan McAndrew
- Sarah Parna
- Kathleen Pitt
- Rebecca Teare

We are also grateful to the Ministry of Northern Development, Mines, Natural Resources and Forestry (MNDMNRF) Natural Heritage Information Centre (NHIC) for providing important Ontario species data to COSSARO, that enabled our assessments. We also thank Colin Jones, the Provincial Zoologist, Invertebrates with the NHIC. He serves as a Province of Ontario member on the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). In that role he was able to support COSSAROs access to and understanding of COSEWIC considerations related to species assessments.

Introduction

The Committee on the Status of Species at Risk in Ontario (COSSARO) is an independent committee of experts which considers which plants and animals should be assessed as at risk in Ontario.

The *Endangered Species Act, 2007* (ESA) gives the committee legal recognition and specific responsibilities:

- Maintaining criteria for assessing and classifying species

- Keeping a list of species that should be assessed and classified (or reclassified) in the future
- Assessing, reviewing and classifying species
- Submitting reports regarding the classification of species and providing advice to the Minister of the Environment, Conservation and Parks

COSSARO can consist of up to 12 members with expertise in scientific disciplines or community knowledge or Indigenous Knowledge. A quorum of eight members is required for voting purposes.

In 2021, COVID-19 continued to affect COSSAROs activities, but the MECP secretariat team and COSSARO members continued to effectively and efficiently complete online meetings which continued to include observers in open sessions.

In 2021, COSSARO held four virtual meetings to complete the assessment of 36 species/designatable units. Of those 36 species, one was determined not to be eligible for assessment (Ringed Seal) and votes for two species were deferred until 2022 (Algonquin Wolf and American Ginseng). Voting on the remaining 33 species was completed at the four meetings held on:

- February 4 - 5, 2021
- April 8 - 9, 2021
- September 28 - 29, 2021
- November 18 - 19, 2021

On January 7, 2021, the MECP appointed one new member to COSSARO, Dr. Barbara Hard, Senior Biologist and Risk Assessment Specialist, Discipline Lead, Natural Sciences Canada, Arcadis Canada, PhD philosophy, Microbiology. That increased the membership on COSSARO to 11.

On April 15, 2021, Dan Kraus was reappointed for a two-year term as a member of COSSARO. His appointment extends until April 14, 2023. On December 12, 2021, the Chair (Tom Hilditch) was reappointed for a three-year term, extending until December 11, 2024.

Other members terms are expiring in 2022; we understand that renewals are being considered and addressed to ensure that COSSARO will continue to meet quorum in

2022.

Summary of status assessments

The table below, summarizes the results of assessments and voting completed on 33 species in 2021. These species are grouped by types of fauna/flora for ease of review. The order is the same used in Attachment 2 to this report.

From the table below, the following observation are offered; 14 species retained the same level of assessment. Two species increased in the status level (for example, moved upwards from Special concern to Threatened). Five species decreased in their status levels (for example, moved downwards from Endangered to Threatened). Ten species not previously assessed have been assigned a level of assessment of Special Concern, Threatened or Endangered.

Amphibians

Species English, French, Indigenous*, Latin names	Current Classification Under ESA	New COSSARO Evaluated status (2021)
Allegheny Mountain Dusky Salamander Salamandre sombre des montagnes *Desmognathus ochrophaeus*	Endangered	Endangered
Spring Salamander *Gyrinophilus porphyriticus*	Extirpated	Data Deficient

Birds

Species English, French, Indigenous*, Latin names	Current Classification Under ESA	New COSSARO Evaluated status (2021)
Barn Swallow Hirondelle rustique *Hirundo rustica*	Threatened	Special Concern
Canada Warbler Paruline du Canada *Cardellina canadensis*	Special Concern	Special Concern
Lesser Yellowlegs Petit Chevalier *Tringa flavipes*	N/A	Threatened
Red Knot (rufa Subspecies) –Tierra del Fuego / Patagonia wintering population Bécasseau maubéche de la sous-espéce rufa *Calidris canutus rufa*	Endangered	Endangered
Red Knot (rufa Subspecies) – Northeastern South America wintering population Bécasseau maubéche de la sous-espéce rufa *Calidris canutus rufa*	Endangered	Special Concern

Species English, French, Indigenous*, Latin names	Current Classification Under ESA	New COSSARO Evaluated status (2021)
Red Knot (rufa Subspecies) – Southeastern USA / Gulf of Mexico / Caribbean wintering population Bécasseau maubéche de la sous-espéce rufa *Calidris canutus rufa*	Endangered	Endangered
Short-eared Owl Asio flammeus *Hibou des marais*	Special Concern	Threatened

Fishes

Species English, French, Indigenous*, Latin names	Current Classification Under ESA	New COSSARO Evaluated status (2021)
Lake Chubsucker Sucet de Lac *Erimyzon sucetta*	Threatened	Endangered

Species English, French, Indigenous*, Latin names	Current Classification Under ESA	New COSSARO Evaluated status (2021)
Northern Brook Lamprey Lamproie du Nord *Ichthyomyzon fossor*	Special Concern	Special Concern
Silver Lamprey – Great Lakes Basin Lamproie argentée *Ichthyomyzon unicuspis*	Special Concern	Special Concern
Silver Lamprey – Saskatchewan-Nelson Rivers population Lamproie argentée *Ichthyomyzon unicuspis*	**Note**: New DU, was not on SARO List	Data Deficient

Insects

Species English, French, Indigenous*, Latin names	Current Classification Under ESA	New COSSARO Evaluated status (2021)

Species English, French, Indigenous*, Latin names	**Current Classification Under ESA**	**New COSSARO Evaluated status (2021)**
American Bumble Bee Bourdon américain *Bombus pensylvanicus*	N/A	Special Concern
Aweme Borer Moth Perce-tige d'Aweme *Papaipema aweme*	Endangered	Data Deficient
Davis's Shieldback Sauterelle de Davis *Atlanticus davisi*	N/A	Threatened
Pygmy Snaketail Ophiogomphe de Howe *Ophiogomphus howei*	Endangered	Endangered
Rapids Clubtail Gomphe des rapides *Gomphus quadricolor*	Endangered	Threatened
Reversed Haploa Moth Haploa inversé *Haploa reversa*	N/A	Threatened

Species English, French, Indigenous*, Latin names	Current Classification Under ESA	New COSSARO Evaluated status (2021)
Suckley's Cuckoo Bumble Bee Bourdon de Suckley *Bombus suckleyi*	N/A	Endangered

Mammals

Species English, French, Indigenous*, Latin names	Current Classification Under ESA	New COSSARO Evaluated status (2021)
Algonquin Wolf Loup algonquin *Canis sp.*	Threatened	Vote deferred until 2022
Beluga Whale - James Bay population Béluga Qilalugaq* *Delphinapterus leucas*	N/A	Not at Risk

Species English, French, Indigenous*, Latin names	**Current Classification Under ESA**	**New COSSARO Evaluated status (2021)**
Beluga Whale - Western Hudson Bay population Béluga Qilalugaq* *Delphinapterus leucas*	N/A	Not at Risk
Polar Bear Ours polaire Nanook* *Ursus maritimus*	Threatened	Threatened
Ringed Seal que annelé / phoque marbré Netsik* (Inuit/Labrador) Nattiq* (Inuit/North and East Baffin) Natiinat* (Inuit) Natchiq, Natchiit and Natik* (Inuit/North Slope) Natsiq/Natsik* (Inuit/Nunavik and Nunavut) *Pusa hispida*	N/A	Not eligible for assessment

Molluscs

Species English, French, Indigenous*, Latin names	Current Classification Under ESA	New COSSARO Evaluated status (2021)
Purple Wartyback Mulette verruqueuse *Cyclonaias tuberculata*	N/A	Threatened
Striped Whitelip Polyspire rayé *Webbhelix multilineata*	N/A	Endangered

Plants

Species English, French, Indigenous*, Latin names	Current Classification Under ESA	New COSSARO Evaluated status (2021)
American Ginseng Ginseng à cinq folioles *Panax quinquefolius*	Endangered	Vote deferred until 2022

Species English, French, Indigenous*, Latin names	Current Classification Under ESA	New COSSARO Evaluated status (2021)
Deerberry Airelle à longues étamine *Vaccinium stamineum*	Threatened	Threatened
Kentucky Coffee-tree Chicot févier *Gymnocladus dioicus*	Threatened	Threatened in: Elgin, Essex, Lambton, Middlesex, Norfolk, and Oxford Counties and in the Municipality of Chatham-Kent
Lakeside Daisy Hyménoxys herbacé *Tetraneuris herbacea*	Threatened	Special Concern
American Water-willow Carmantine d'Amériqu *Justicia americana*	Threatened	Threatened

Species English, French, Indigenous*, Latin names	Current Classification Under ESA	New COSSARO Evaluated status (2021)
Western Silvery Aster Aster Soyeux *Symphyotrichum sericeum*	Endangered	Threatened

Reptiles

Species English, French, Indigenous*, Latin names	Current Classification Under ESA	New COSSARO Evaluated status (2021)
Eastern Hog-nosed Snake Couleuvre à groin de l'Est *Heterodon platirhinos*	Threatened	Threatened
Common Five-lined Skink - Carolinian Population Scinque pentaligne *Plestiodon fasciatus*	Endangered	Endangered

Species English, French, Indigenous*, Latin names	Current Classification Under ESA	New COSSARO Evaluated status (2021)
Common Five-lined Skink - Great Lakes/St. Lawrence population Scinque pentaligne *Plestiodon fasciatus*	Special Concern	Special Concern

Notes:

- N/A means the species has not been formerly assigned a status in Ontario
- All English, French and Indigenous names of species are included in Status reports, where known. Indigenous names are highlighted with an asterisk and these names are not intended to be inclusive of all cultures and languages. Indigenous names are not based upon western scientific methods.

Nomenclature/Taxonomic changes

The following name change was discussed and voted on by COSSARO in 2021.

- Algonquin Wolf (*Canis sp.*) was changed to Eastern Wolf, *Canis sp. cf. lycaon*

Summary of 2021 COSSARO meetings and operations

Meetings

Committee on the Status of Species at Risk in Ontario (COSSARO), like most agencies and organizations, was affected by COVID-19 again in 2021. Meetings were held virtually rather than in person. The traditional two meetings per year were replaced with four virtual meetings. Each meeting included opportunities for observers to attend.

The following offers a brief summary of each of the 2021 meetings.

February 4-5, 2021

Dr. Barbara Hard was welcomed to her new role as a member of COSSARO. A presentation was made to COSSARO by Victoria MacPhail, PhD candidate, Faculty of Environmental and Urban Change, York University, Toronto, about American Bumble Bee.

About 25 students from Fleming College and their instructors attended this meeting to better understand the role of COSSARO and the process/criteria for the assessment of species.

April 8-9, 2021

COSSARO initiated this meeting with a Land Acknowledgement. All subsequent meetings will be introduced with that formal recognition. Members agreed that COSSARO would continue to explore and implement measures that would ensure we are aware of and including Indigenous knowledge.

A presentation was made to COSSARO by Lisa Walter, Acting Sea Lamprey Program Deputy Director, Great Lakes Fishery Commission about Northern Brook, and Silver Lamprey in the Great Lakes.

In addition to ongoing operations discussions, members made a point that COSSARO should find a way that we can have access more readily and reliability to jurisdictions in the US as input to fully considering the broader biologically relevant range (BBRGR). Discussions continued regarding the utility of US state data when uncertainties exist around the currency and accuracy of data and the reality that state rankings of species may not adequately reflect or represent trends in species population numbers.

During our species assessments in 2021, COSSARO continued to use an analytical tool referred to as the ”Working Draft of the COSSARO interpretation of select June 2019 legislative amendments”, provided in our 2020 COSSARO Annual Report (https://www.ontario.ca/page/2019-2020-annual-report-committee-status-species-risk-ontario-cossaro#section-6) .

September 28-29, 2021

No public presentations were made at this meeting, although Observers continued to attend. Attendance varied from meeting to meeting but generally included about 10 – 15 Observers.

COSSARO continues to emphasize the importance of ready access to the RAMAS® software to assist in species assessments. We understand that the province is working to facilitate that access.

The ongoing SAR audit was briefly discussed, and it appeared that all COSSARO members had been engaged in discussions with the Office of the Auditor General of Ontario.

November 18-19, 2021

The Fall, 2021 COSSARO meeting included a few species that attracted substantial interest from observers and presenters (i.e., Algonquin Wolf, American Ginseng, Eastern Hog-nosed Snake). Presentations were made by representatives of the Ontario Fur Managers Federation, the Fur Institute of Canada and the Ontario Federation of Anglers and Hunters. Written submissions were submitted by the Ontario Fur Managers Federation and by Ontario Nature.

Updates regarding other matters

In 2021, some additional time was invested in more direct dialogue with holders of Indigenous knowledge and with holders of scientific information and community knowledge. COSSARO engaged in direct dialogue with groups and individuals regarding their information for species that were suggested for new assessments and/or reassessments.

The website for COSSARO (http://cossaroagency.ca) continued to be helpful in keeping Ontario citizens apprised of COSSARO activities. The MECP continues to update and operate that website on behalf of COSSARO, actions that are appreciated by COSSARO members.

COSSARO continues to work with the province to update the 2017 Terms of Reference for the committee. Those updates are a work in progress.

In March 2021, the Office of the Ontario Auditor General began to contact members of COSSARO for interviews as input to the Auditor General's November 2021 Value-

for-Money Audit: Protecting and Recovering Species at Risk. COSSARO members are reviewing that report to determine whether there are any recommendations that could affect/improve the way COSSARO conducts its business.

The Chair of COSSARO was invited to, and made presentations to the following organizations in 2021:

- Fleming College February 1, 2021
    - instructors Cori Carveth, Karen Bellamy
- Species at Risk Program Advisory Committee (SARPAC), May 4, 2021
    - Chair, Bette Jean Crews
- Muskoka Watershed Council, November 26, 2021
    - Chair, Geoff Ross

2022 plan

Committee on the Status of Species at Risk in Ontario (COSSARO) expects to conduct its spring meeting online in 2022, as the pandemic will likely continue to impede the safe execution of in-person meetings. The status of the pandemic will be monitored to determine whether the Fall meeting will be able to be completed in person.

In addition to assessments of species considered at the previous Committee on the Status of Endangered Wildlife in Canada (COSEWIC) meeting, COSSARO is beginning to complete reassessments for species that have not been actively and currently considered by COSEWIC in their ongoing assessments. In 2022, these assessments will likely include: American White Pelican and Bald Eagle. Other species being considered include Black Tern, Upland Sandpiper, Purple Martin, and West Virginia White. The assessment of some of these species may depend upon the availability of funds to seek external expertise on status report consulting assignments.

Other species that could be addressed in 2022 are those which have been subject to the provision of additional and/or new data provided in the form of Indigenous and community knowledge. COSSARO is placing an emphasis on ensuring that assessments are based upon “the best available scientific information, including

information obtained from community knowledge and aboriginal traditional knowledge."

Preliminary 2021 meeting dates	Meeting focus
March 31 - April 1, 2022 (subject to confirmation)	Assessment focused on COSEWIC species assessed in November 2021 and Bald Eagle, American White Pelican
Sept 24 - 27, 2022 (subject to confirmation)	Assessment focused on COSEWIC species assessed in Spring 2022 and Black Tern, Golden Eagle

Species that will be assessed during 2022 are as follows:

- Incurved Grizzled Moss
- Eastern Foxsnake (Carolinian population)
- Eastern Foxsnake (Great Lakes / St. Lawrence population)
- Greater Prairie–Chicken
- Eastern Wolf (currently known as Algonquin Wolf on the SARO List)
- American Ginseng
- American White Pelican
- Bald Eagle

September 28 – 30, 2022 (subject to confirmation)

- To be determined

Species to be determined and scheduled for assessment in 2022 and 2023 (subject to confirmation)

- Purple Martin
- Upland Sandpiper
- Golden Eagle
- Black Tern
- Cougar
- Wild Rice
- West Virginia White
- Schweinitz's Sedge
- Ram's-head Lady's-slipper
- Methuselah's Beard Lichen
- Auricled Twayblade
- Little White Tiger Beetle
- Duke's Skipper
- Slender Clearwing
- Cupped Fringe Lichen
- Moose

Attachment 1: 2021 COSSARO membership

Ian Barrett, M.Sc.
Sr. Biologist, Sr. Manager of Environmental Projects, Colville Consulting Inc

Steven Paiero, Ph.D.
Curator, University of Guelph Insect Collection, School of Environmental Sciences, University of Guelph

Glenn Cunnington, Ph.D.
Project Manager, Integrated Watershed Management Initiatives, District Municipality of Muskoka

Derek Parks, M.Sc.
Director, Sr. Aquatic Specialist, Parks Environmental Inc

Jillian deMan, B.Sc. (Hons.)
Sr. Ecologist, Water and Natural Resources, Environment, AECOM

Darren Sleep, Ph.D.
Sr. Director, Conservation Science & Strategies, Sustainable Forestry Initiative Inc.

Tom Hilditch, B.Sc.
President, Colucent Environmental Inc.

Ashley Thomson, PhD, RPF
Assistant Professor, Faculty of Natural Resources Management, Lakehead University

Daniel T. Kraus, M. Sc.
Director of National Conservation, National Conservation Program Wildlife Conservation Society

Toby Thorne, M. Sc.
Coordinator, Native Bat Conservation Program, Toronto Zoo

Barbara Hard, Ph.D.
Senior Biologist, Discipline Lead, Natural Sciences, Arcadis Canada Inc.

Attachment 2: 2021 species summaries

Allegheny Mountain Dusky Salamander (*Desmognathus ochrophaeus*)

Allegheny Mountain Dusky Salamander (*Desmognathus ochrophaeus*) is classified as Endangered in Ontario by COSSARO.

The North American range of Allegheny Mountain Dusky Salamander occurs throughout the Appalachian Mountain system and along the southern shores of Lakes Erie and Ontario, extending to southern Quebec. The small and isolated Canadian distribution consists of two populations, one in southern Ontario, and one

in extreme southern Quebec, both adjacent to the US border. The Ontario population was first discovered in 1989, but not confirmed until 2004. In 2010, a second nearby stream was found to maintain this species, both within the Niagara Gorge, but separated by approximately 350 m. The total population in Ontario is likely less than 100 adults and the extent of occurrence is less than 4 km^2.

Allegheny Mountain Dusky Salamander is generally found in high elevation forested areas, in or directly adjacent to small seeps, springs, slow-flowing streams, seepages and wet rock outcrops with cool, well-oxygenated water. Natural cover includes rocks, moss, woody debris and leaf litter or damp subterranean retreats close to water. Such retreats provide protection from dehydration and predation, and serve as foraging, nesting, and nursery habitats. Hibernacula are comprised of wet subterranean refugia.

This species is in the family of lungless salamanders, Plethodontidae. Allegheny Mountain Dusky Salamander has a complex life cycle, including an aquatic larval stage. The larval stage can range from days to months depending on environmental conditions and food availability. Average lifespan is approximately 7 years, though 15 years is attainable.

Changes to the water supply and water quality within the waterbodies known to maintain the species represent the most important threat to the salamander directly, and to its habitat. Pollutants that impact groundwater and surface water can include effluents from urban areas, agriculture, industry, or air pollution. Stochastic events such as landslides within the Niagara Gorge could harm or destroy the limited remaining habitat. The species has limited dispersal ability, so opportunities for migration to new sites are likely unavailable.

Spring Salamander (*Gyrinophilus porphyriticus*)

Spring Salamander (*Gyrinophilus porphyriticus*) is classified as Data Deficient in Ontario by COSSARO.

Spring Salamander is one of the largest salamanders in the family Plethodontidae and is represented in Canada by the Northern Spring Salamander subspecies (G. p. porphyriticus). In Ontario, the species was purportedly known from a single remaining museum specimen, collected in a stream along the Niagara Peninsula in 1877 (“Welland Co, opposite Buffalo”). The additional two specimens collected in this area

during the same period have since been lost. Recent investigation into the remaining specimen casts doubt on its identity. Outside of this single reported Ontario location, the range extends from southern Quebec south to Mississippi, Alabama and Georgia.

The species is primarily associated with cool, well-oxygenated headwater streams with an abundance of rock or gravel, forest cover, and few predatory fish. Adults show some terrestrial activity along nearby shorelines, though larvae are restricted to streams. Larvae have a long development time, lasting 3 to 6 years. Maturation may take over a year after metamorphosis.

Threats in Ontario include reduction or alteration of water flow, and reduced water quality because of pollution, siltation, erosion and acidification brought about by agriculture, residential and recreational development, timber harvest and industry. Larvae are especially susceptible to siltation, decreases in dissolved oxygen and predation by fish. Since 1877, significant development has occurred in the general area the species was previously documented.

Since the last status assessment, a detailed investigation into the sole voucher specimen has resulted in doubt surrounding its taxonomic form. Under currently available methods, and due to the poor condition of the larval salamander, a positive identification of the specimen cannot be made.

The specimen, originally collected in 1877, was a primary reason for the species originally being listed as an extirpated Ontario species by both COSEWIC and COSSARO. With this new information, the specimen cannot currently be confirmed for certain as Spring Salamander (*Gyrinophilus porphyriticus*) and subsequently the validity of the Carolinian DU is in question.

Barn Swallow (*Hirundo rustica*)

Barn Swallow (*Hirundo rustica*) is classified as Special Concern in Ontario by COSSARO.

Barn swallow (*Hirundo rustica*) is a medium sized passerine. It is the most common global species of swallow. Barn Swallow occurs across Canada and has been documented breeding in every Province and Territory, primarily south of the tree line. In the Americas, this species also breeds in the United States, Mexico and Argentina. Barn Swallow is a long-distance migrant which overwinters in the southern United States, parts of Mexico as well as Central and South America. Barn Swallow is found throughout southern Ontario and can range as far north as Hudson Bay.

Barn Swallows nest principally in artificial structures including barns and other outbuildings, garages, houses, bridges, and road culverts. They prefer open habitats for foraging especially fields and agricultural lands. It is an aerial insectivore, and the diet consists of flies of all types, as well as beetles, bees, wasps, ants, butterflies, moths, and other flying insects.

Direct threats include changes to the natural system resulting in reduced quantity and quality of prey (flying insects), increased use of pesticides, changes in agriculture, residential and commercial development, infrastructure, climate change and pollution. These threats result in lower reproductive success and increased mortality. Other limiting factors are dependence on insect prey and low post-fledgling survival rates.

Canada Warbler (*Cardellina canadensis*)

Canada Warbler (*Cardellina canadensis*) is classified as Special Concern in Ontario by COSSARO.

Canada Warbler (*Cardellina canadensis*) is a small, brightly coloured songbird 12 - 15 cm in length. As with many songbirds, males are typically more brightly coloured than the females and immatures. Males have a bluish-grey tail and upper parts contrasting with a yellow throat and breast. In both males and females, black stripes form a collar on the breast, although this collar is less defined in the females. The bill is thin and there are yellow “spectacles” round the eyes. The adult plumages are similar throughout the year. The colour of the plumage, especially the collar on the breast, and the song of the Canada Warbler differentiate it from most other species of warblers that breed in Canada.

This small songbird has 80% of its breeding range in Canada and winters in the northern Andes Mountains. Long-term declines of the Canadian population began to slow down in 2003 and numbers have steadily increased since 2012, with an overall growth of 46% over the past decade. However, significant threats persist, most notably clearing of forests in South America for livestock farming and other agriculture. The threat status reflects the substantial improvement in the population trend, but concern remains that the species is at risk of becoming Threatened again if threats throughout its range are not managed effectively.

Lesser Yellowlegs (*Tringa flavipes*)

Lesser Yellowlegs (*Tringa flavipes*) is classified as Threatened in Ontario by COSSARO.

Lesser yellowlegs (*Tringa flavipes*) is a small shorebird that possesses a long neck, greyish plumage, and long, bright yellow legs. Although Lesser Yellowlegs is morphologically similar to Greater Yellowlegs, it is recognized as a distinct species based on phylogenetic studies.

The breeding range of Lesser Yellowlegs occurs in Alaska and Northern Canada, stretching from the Yukon to western Labrador. Within Ontario, Lesser Yellowlegs breed primarily within the Taiga Shield and Hudson Plains Bird Conservation Region (BCR7).

Lesser Yellowlegs populations are estimated to have declined 3.26% annually over the last three generations in the Canadian extent of BCR7 and 2.4% annually over the last three generations across their breeding range in Canada. The Lesser Yellowlegs is also considered to be declining globally.

Lesser Yellowlegs is classified as Threatened in Ontario based on meeting International Union for Conservation of Nature (IUCN) criteria A2bcd+4bcd. Ontario populations are inferred to have declined 28.8-32.8% over the last three generations (12 years, 2007-2019) based on Breeding Bird Survey (BBS) trends. A population decline of 20-60% is projected to occur over the next three generations.

The classification of Lesser Yellowlegs as Threatened in Ontario is consistent with COSEWIC (2020). This status of this species is consistent with the definition of Threatened under the *Endangered Species Act, 2007*.

Red Knot

Note: The Northeastern South America & Southeastern USA sub-populations of Red Knot were assessed as part of a different sub-species (the roselaari type), which did not have status in Ontario.

A review of the DU in 2019 led to COSEWIC moving the two into the rufa type and assessing them. As roselaari, they were considered threatened under COSEWIC, and not assessed by COSSARO.

Red Knot (rufa Subspecies) (*Calidris canutus rufa*)

Red Knot has six recognized subspecies, of which one occurs in Ontario: *Calidris canutus rufa*.

The Ontario population consists of birds from three separate designatable units (DUs), primarily distinguished by their differing overwintering grounds, along with variations in their morphology and genetics. Red Knots are present in Ontario solely as migrants, travelling between their Arctic breeding grounds and overwintering grounds in the southern USA or South America. As migrants, they are widely recorded in Ontario, while James Bay is considered a significant stopover location, used by as much as 25% of the subspecies.

Red Knot - Tierra del Fuego/Patagonia wintering population

Red Knot rufa subspecies, Tierra del Fuego/Patagonia wintering population, is classified as Endangered by COSSARO due to a 73% decline in the population migrating through Ontario, based on winter population surveys, and observed declines in habitat, which are projected to continue in future. This status is consistent with the current COSEWIC status.

Red Knot - Northeastern South America wintering population

Red Knot rufa subspecies, Northeastern South America wintering population, is assessed as Special Concern by COSSARO due to the expected likelihood of the species becoming threatened in future due to extensive and ongoing threats in its global range, and ongoing declines in many long-distance migratory shorebirds. This status is consistent with the current COSEWIC status

Red Knot - Southeastern USA/Gulf of Mexico/ Caribbean wintering population

Red Knot rufa subspecies rufa subspecies, Southeast USA/Gulf of Mexico/Caribbean wintering population, is classified as Endangered by COSSARO due to an estimated 33 - 84% decline in the population migrating through Ontario, based on winter population surveys and observed declines in habitat, which are projected to continue in future. This status is consistent with the current COSEWIC status.

Short-eared Owl (*Asio flammeus*)

Short-eared Owl (*Asio flammeus*) is classified as Threatened in Ontario by COSSARO.

Short-eared Owl has the most extensive global distribution of any owl, extending across most of North America and Eurasia, parts of South America, northern Africa, and various oceanic islands.

A small number of Short-eared Owl's breed in scattered locations across Ontario, with most breeding in Ontario occurring in the Hudson Bay Lowlands. Wintering distribution and abundance in Ontario vary annually in relation to weather conditions and prey abundance, and occurrences are typically limited to the Carolinian zone and the Kingston region. The Ontario population represents < 0.5% of the global population and < 2% of the Canadian population.

Despite a large global distribution and population, Christmas Bird Count and Breeding Bird Survey data from Canada and the United States indicates that Short-eared Owl is in widespread decline. Christmas Bird Count data available for Ontario estimates an annual decline of 2.56% in mature individuals between 1970 and 2019. Short-eared Owl is considered Least Concern globally by the IUCN, and it was assessed as threatened by COSEWIC in 2021. Threats relevant to individuals in Ontario include habitat shifting and alteration, loss of nesting and wintering habitat to urban expansion, changes in agricultural crops and intensification, collisions with vehicles and airplanes and potential negative impacts related to accumulation of toxins used for rodent control.

Short-eared Owl is classified as Threatened in Ontario based on meeting criterion A2b+4b; C1. No status modifiers were applied. There is an inferred decline of >30% in mature individuals over three generations (2007-2019) and this estimated decline is likely to continue in the future. The number of mature individuals in Ontario was also estimated to be 4,200-5,200, and it is estimated that the number of mature individuals will decrease by >20% over 2 generations.

Lake Chubsucker (*Erimyzon sucetta*)

Lake Chubsucker (*Erimyzon sucetta*) is classified as Endangered in Ontario by COSSARO.

Lake Chubsucker (*Erimyzon sucetta*) is a small, robust, deep-bodied member of the sucker family that inhabits clear, warm, well-vegetated, shallow (< 2.5 m in depth) wetlands. Lake Chubsucker in Ontario is limited to 11 extant localities, which are in Lake Huron, Lake St. Clair and Lake Erie, as well as a tributary of the Niagara River.

This species is widely distributed in North America, with a continuous distribution in the eastern United States from Virginia to Florida and west to Texas. The most northerly extent of Lake Chubsucker distribution includes the Great Lakes drainage, with the only Canadian specimens recorded from the southern Great Lakes. Lake Chubsucker is ranked S2 in Ontario, Michigan and Ohio, and is presumed to be extirpated in Pennsylvania and possibly extirpated in New York.

Threats to this species include siltation, increased turbidity, nutrient loading, and loss of its preferred wetland habitat (clear, still, well-vegetated waters) through habitat alteration, channelization, wetland drainage, pollution, changes to rates of flow, and possibly exotic species and climate change.

Lake Chubsucker (*Erimyzon sucetta*) is classified as Endangered in Ontario based on meeting criterion A3bce+4bce; B2ab(ii, iii, iv, v). No status modifiers were applied. There is an observed, estimated, inferred, and suspected reduction of >50% in total number of mature individuals, based on continuing decline in relative population status and in number of populations, a continuing decline in index of area of occupancy (IAO) and quality of habitat, the rapid expansion of invasive Phragmites and threats calculator overall impact of Very High – High.

The IAO for Lake Chubsucker was estimated at 300 km^2 and the species occurs at 3 - 5 locations in Ontario. There is also a continuing observed and projected decline in IAO, area and quality of habitat, and number of populations and mature individuals.

Northern Brook Lamprey (*Ichthyomyzon fossor*)

The Northern Brook Lamprey (*Ichthyomyzon fossor*) is classified as Special Concern in Ontario by COSSARO.

The Northern Brook Lamprey (Ichthyomyzon fossor) is indistinguishable from the closely related to the Silver Lamprey (*Ichthyomyzon unicuspis*) with which it shares a long larval phase. Northern Brook Lamprey sexually matures during metamorphosis before spawning and dying without feeding; adults are not parasitic.

This species is found in tributaries of all the Great Lakes with the exception of Lake Ontario and has been identified as a single population. Threats to Northern Brook Lampreys in Great Lakes tributaries is primarily associated with the control of invasive Sea Lamprey. Dams and barriers that exclude Sea Lamprey from the upper reaches of

tributaries occupied by resident Northern Brook Lamprey protect many populations of the latter species from exposure to lampricides. In populations in Northwestern Ontario, Northern Brook Lamprey may be susceptible to impacts from invasive species and climate change (for example, increased temperatures, decreased water quantity).

Silver Lamprey (*Ichthyomyzon unicuspis*)

Silver Lamprey are a small parasitic lamprey that is distributed in streams and lakes throughout the Laurentian Great Lakes basin and in the Saskatchewan and Nelson River watershed, providing for two distinct Designatable Units for COSSARO assessment consideration.

The Silver Lamprey (Great Lakes basin DU) is classified as Special Concern and the Silver Lamprey (Saskatchewan - Nelson Rivers population) is classified as Data Deficient in Ontario by COSSARO. Details are provided below, organized by DU.

Silver Lamprey - Great Lakes basin

In the Great Lakes basin (DU1), a major part of its range, about half of the streams that it inhabits have barriers or are subjected to ongoing chemical treatment for Sea Lamprey control. These control methods prevent migration to spawning areas or cause significant mortality to larval individuals, respectively. Throughout its range, it may be exposed to additional threats such as pollution from agricultural effluents, effects of water control structures, and increased temperatures and decreased water flows related to climate change. If these threats are not managed effectively, this species may become at greater risk of extinction. COSSARO designates the DU1 population as Special Concern on the above noted factors.

Silver Lamprey – Saskatchewan – Nelson Rivers population

Silver Lamprey – Saskatchewan – Nelson Rivers population (DU2) is found in widely disjunct, but limited, areas in streams and lakes in the Nelson and Winnipeg River basins of Manitoba and northwestern Ontario. The species is susceptible to fluctuating water levels as a result of water management and climate change. Due to limited available data for this population, within the province of Ontario, a COSSARO classification of Data Deficient has been assigned.

American Bumble Bee (*Bombus pensylvanicus*)

The American Bumble Bee (*Bombus pensylvanicus*) is classified as Special Concern in Ontario by COSSARO.

The American Bumble Bee (Bombus pensylvanicus) is a medium-sized bumble bee with a relatively long head and tongue length compared to many other bumble bee species in Canada. The distinctive dark wings and characteristic yellow and black abdominal banding pattern of females are diagnostic, and consistent throughout its Canadian range.

The American Bumble Bee is considered an important pollinator of a variety of plant species. While the species does not meet criteria for Threatened and Endangered in Ontario, threats to the species persistence – acting alone or in combination – remain in Ontario, and thus the species qualifies for Special Concern.

Aweme Borer Moth (*Papaipema aweme*)

Aweme Borer Moth (*Papaipema aweme*) is classified as Data Deficient in Ontario, by COSSARO.

The Aweme Borer Moth is one of the most rarely collected moths in North America. In Ontario, it has been collected in 1936 and most recently in 2005, 2016 and 2020 (COSEWIC 2006; COSEWIC 2020).

In 2015, Bog Buckbean was confirmed as the larval host plant with its primary habitat comprising of fens/peatlands (COSEWIC 2020). Prior to this discovery, neither its habitat nor host plant was known, and it was assumed that Aweme Borer Moth's preferred habitat was sand dunes and open oak habitats with a possible host plant being Blazing-star (Liatris sp) (COSEWIC 2006). So, until recently, survey efforts for this species have been focused on dry open oak savannah/dune habitats instead of peatlands in which it resides.

Davis's Shieldback (*Atlanticus davisi*)

Davis's Shieldback (*Atlanticus davisi*) is classified as Threatened in Ontario by COSSARO.

Davis's Shieldback is a relatively large (2 – 3 cm in length) flightless katydid that is grey-brown with some dark and pale mottling. The wings are reduced and are

partially hidden beneath a pronotal extension. They are thought to be omnivorous, feeding largely on other insects but may also feed on some plants or scavenge.

Currently, Davis's Shieldback is known in Ontario only from Norfolk County, where it is associated with oak woodland and savannah sites with well-drained sandy soils. It is also found throughout much of the northeastern USA.

Davis's Shieldback is considered Threatened based on having a small geographic range and having a decline in elements of occurrence, area of occupancy, number of locations and quality of habitat.

Pygmy Snaketail (*Ophiogomphus howei*)

Pygmy Snaketail (*Ophiogomphus howei*) is classified as Endangered in Ontario by COSSARO.

Pygmy Snaketail is the smallest of the snaketails with a total length of 31 - 34 mm and hindwing length of 19 - 21 mm. The wings of both sexes are tinged yellow in the basal half with extent and opacity of pigmentation greater in females. This wing colour pattern is rare among North American odonates. The background body colouring is dark brown and black, with extensive yellow markings on the dorsal abdomen and bright green on the thorax (COSEWIC 2018).

Pygmy Snaketail is reported as a species limited to relatively pristine running water and is in its northern extreme in Canada. Typical river widths of known populations are 80-100 m. It is generally recorded that Pygmy Snaketail nymphs require larger, relatively pristine rivers with significant areas of sand or gravel substrates and is assumed to be intolerant of eutrophication (COSEWIC, 2018). However, a new population has been recently discovered along the Grand River, an impaired river in a largely urban watershed in southern Michigan (Craves et al. 2020).

Pygmy Snaketail (*Ophiogomphus howei*) is classified as Endangered based on meeting criteria D1.

Rapids Clubtail (*Gomphus quadricolor*)

Rapids Clubtail (*Gomphus quadricolor*) is classified as Threatened in Ontario by COSSARO.

The Rapids Clubtail is a relatively small and brightly coloured dragonfly. Its eyes are bluish- green, with a light yellowish-green face that is striped with two dark lines, a brownish-black and yellowish-green striped body and transparent wings. Like all dragonflies, the Rapids Clubtail begins its life as an aquatic larva and transforms into a winged adult during the summer.

This dragonfly is typically found in clear, cool medium-to-large rivers with gravel shallows and muddy pools. Larvae occupy quiet muddy pools. Adult males perch on exposed rocks in the rapids. Males are quite territorial and make short flights over the water, repeatedly returning to the same perch. Adult females typically inhabit forests along riverbanks, and only visit shallows and pools when they are ready to mate and lay eggs.

The Rapids Clubtail is a globally rare to uncommon species found throughout eastern North America. Within this range it is locally distributed and there are large areas of habitat where it does not occur. Most populations of the Rapids Clubtail are located in the US Midwest, but its range extends from northern Alabama and Georgia to southern Ontario, and from Maine to eastern Minnesota. Its global population appears to be stable. Rapids Clubtail is listed as Endangered nationally was assessed as Endangered in Ontario in 2009. A federal recovery strategy for the Rapids Clubtail was released in 2019.

Population estimates of abundance or trends in Ontario are not available. This species is considered extirpated from the Credit River and was historically known from the Thames River. The Rapids Clubtail has been found in the Ausable, Grand and Nith Rivers since this species was last assessed in Ontario.

The primary threat to the Rapids Clubtail is the degradation of river habitats. Activities which impede or alter the quantity and quality of water in the rivers, such as dams and pollution pose threats. Such degradation has led to the apparent demise of this species on the Credit River and the decline of the population on the Humber River.

Rapids Clubtail is meets the criteria for Endangered in Ontario based on meeting criterion B2ab(iii), however the broader biologically relevant geographic range was applied as it is secure in Wisconsin, remains widespread in Minnesota and the global population appears to be stable.

This status differs than the COSEWIC status because broader biologically relevant geographic range was applied. It is secure in Wisconsin and appears widespread in Minnesota, and it has found in the Ausable, Grand and Nith Rivers in Ontario since this species was last assessed.

Reversed Haploa Moth (*Haploa reversa*)

Reversed Haploa Moth (*Haploa reversa*) is classified as Threatened in Ontario by COSSARO.

Reversed Haploa Moth has a wingspan of 33 - 48 mm with a dorsal wing pattern of brown bands and white patches, including a distinctive white triangular basal patch extending from the thorax through to the forewings; and three similarly sized, distinctive white costal patches. The hindwings are entirely white with some individuals displaying one to two small brown submarginal spots. The head, prothorax and palpi are ochre yellow. The thorax is white with a broad dorsal brown stripe. The legs are ochre yellow and lined with brown along the outer surface. The larvae are black with yellow to orange longitudinal stripes and an orangish to reddish dorsal stripe with bristly spines (COSEWIC 2019).

Reversed Haploa Moth is associated with oak savanna, oak woodland and dune habitats. They are polyphagous where they are able to eat on many plant species and are commonly associated with Eupatorium species (bonesets, thoroughworts or snakeworts) (COSEWIC 2019).

Reversed Haploa Moth (*Haploa reversa*) is classified as Threatened based on meeting criteria B1ab(i)(ii)(iii)(iv) and B2ab(i)(ii)(iii)(iv) where the extent of occurrence is 9,098 km^2, the index of area of occupancy is 36 km^2, there are 5 locations, an inferred decrease in extent of occurrence, index of area of occupancy, habitat quality and number of locations.

Suckley's Cuckoo Bumble Bee (*Bombus suckleyi*)

Suckley's Cuckoo Bumble Bee (*Bombus suckleyi*) is classified as Endangered in Ontario by COSSARO.

Suckley's Cuckoo Bumble Bee belongs to a clade of several cuckoo bumble bees and is most closely related to the Gypsy Cuckoo Bumble Bee. The Canadian population is considered a single designable unit. Historic records of Suckley's Cuckoo Bumble Bee

exist are sparse, occurring primarily in southern Ontario, with a handful of northern observations.

The species was most recently observed in Ontario in 1971. Beyond Ontario, Suckley's Cuckoo Bumble Bee is a primarily western Near Arctic species; it occurs in most Canadian jurisdictions but is less abundant east of the 100th meridian. The species' broader biologically relevant geographic range is not considered to extend beyond Ontario's neighboring jurisdictions where the species has also declined significantly and is considered possibly extirpated in Manitoba.

Cuckoo bumble bees are obligate social parasites of other nest-building bumble bee species. The species is primarily threatened by the decline of its host species: Western Bumble Bee in Western Canada, and Yellow-banded Bumble Bee in eastern Canada. These species are threatened by a number of factors likely including pesticide usage, pathogen spillover and loss of floral resources and habitat due to agricultural intensification. As parasitic species, cuckoo bumble bees are inherently less numerous than their hosts.

A reasonable search effort for bumble bees in Southern Ontario in recent years has produced no new observations of Suckley's Cuckoo Bumble Bee, however the survey effort in central and northern Ontario has been inadequate to confirm the species' status.

Suckley's Cuckoo Bumble Bee is classified as Endangered in Ontario, due to an inferred decline of greater than 50% based upon direct observation, a decline in its quality of habitat (host species populations) and the effects of threats including pathogens and pollutants. Although classification under the criteria of population decline specifies a period over the past 10 years, its application here meets the intent of the criteria. If this species still occurs in Ontario, it likely small and remains under threat and is facing imminent extirpation. The species does not currently qualify as Extirpated due to insufficient survey effort across the province.

The Ontario status differs from the COSEWIC status of Threatened due to the species' smaller population and greater declines in Ontario.

Algonquin Wolf (*Canis sp.*)

An assessment was conducted to determine whether the Algonquin Wolf is eligible for status assessment. The vote confirmed eligibility and this species will now be

assessed in 2022. The assessment work will ensure that all information provided by Observers in late 2021 is fully considered and assessed.

The Algonquin Wolf (https://www.ontario.ca/page/algonquin-wolf) is a member of the canine family. The Algonquin Wolf is a result of a long history of hybridization among Eastern Wolf, Grey Wolf and Coyote. The Algonquin Wolf is larger than a Coyote and smaller than a Grey Wolf. Proper identification requires genetic data as it is difficult to visually distinguish due to its similar appearance (coloration and markings) and overlap in size.

COSSARO determined through discussions in 2021, that, given the genetic complexity of this species, additional work was required to be completed to determine the eligibility for assessment. That work was presented at the November 2021, COSSARO meeting.

The species was determined to be eligible for assessment in 2022, and COSSARO adopted a name change for this species to better reflect the outcome of discussions regarding genetics. Algonquin Wolf will be referred to as Eastern Wolf, *Canis sp. Cf. lycaon*

Beluga Whale

Note: The species was listed as Special Concern. Following the Designatable Unit report on Beluga Whale (COSEWIC 2016), a new population structure was accepted by COSSARO.

Two populations are identified from Ontario: James Bay population and Western Hudson Bay population. The Western Hudson Bay population and James Bay population were assessed as Not at Risk in 2021. This is specifically addressed in the following two subsections of this table.

Beluga Whale (*Delphinapterus leucas*)

Belugas are medium-sized, toothed whales that are highly mobile and are able to tolerate a broad range of environmental conditions. Preferred habitat types appear to vary seasonally. Belugas occur in both coastal and offshore waters during the summer, with much of their summer distribution centered on estuaries. Most populations of Belugas overwinter in polynyas and areas where the ice cover is sufficiently broken to allow reliable access to the air.

Belugas are highly mobile, migrating seasonally with the formation and melting of sea ice. Belugas belonging to the James Bay DU aggregate in the summer in James Bay and possibly in southwestern Hudson Bay, with observations of this species in Ontario extending along the coast of James Bay. Belugas have been documented in river mouths and estuaries associated with the Albany, Attawapiskat, Ekwan, Harricana and Moose Rivers, and small aggregations of Belugas are also known to move at least 14 to 25 km upstream in the Moose River on the high tide.

Belugas global range is circumpolar in the Arctic and sub-Arctic. This species has an extensive distribution in northern Canada, occurring from the Beaufort Sea eastward to Baffin Bay and from the High Arctic southward to James Bay and the St. Lawrence Estuary. Belugas in Canada have been separated into eight Designatable Units, with the James Bay Population representing one of two DUs that occur in Ontario. Beluga populations are generally identified on the basis of their estuarine centres of aggregation during the summer open-water season.

Beluga Whale – James Bay Population

Beluga Whale (James Bay Population) is classified as Not at Risk in Ontario by COSSARO.

The number of mature individuals in the James Bay population was estimated to be 7,218 and this population is likely stable or increasing. Belugas in the James Bay population are primarily threatened by noise disturbance, which is considered a low impact threat.

The James Bay Population of Beluga Whale is classified as Not at Risk in Ontario based on not meeting criterion to be considered at risk.

Beluga Whale – Western Hudson Bay Population

Beluga Whale (Western Hudson Bay Population) is classified as Not at Risk in Ontario by COSSARO.

The number of mature individuals in the Western Hudson Bay Population was estimated to be 37,042 and this population is likely stable or increasing. Belugas in the Western Hudson Bay Population are primarily threatened by noise disturbance, which is considered a medium-low impact threat.

The Western Hudson Bay Population of Beluga is classified as Not at Risk in Ontario based on not meeting criterion to be considered at risk.

Polar Bear (*Ursus maritimus*)

Polar Bear (*Ursus maritimus*) is classified as Threatened in Ontario by COSSARO.

Polar Bear is a widely recognized species emblematic of global conservation and climate change issues. It is a seasonal resident of Ontario, moving to land in the summer after the break-up of seasonal sea ice in Hudson Bay and James Bay. The species' distribution in Ontario is limited to the shorelines of the two bays. The global population of Polar Bear extends across the Arctic region and is divided into 19 management units based upon the bear's population dynamics.

Ontario's population consists of bears from two management units, Southern Hudson Bay and Western Hudson Bay. These management units also overlap neighboring jurisdictions including Quebec, Manitoba and Nunavut. Although these are considered separate units, bears have been observed mixing between them, however movements between these two units and other management units are rare.

Due to these population dynamics, the combined area of the Southern Hudson Bay and Western Hudson Bay subunits is considered to be the broader biologically relevant range for Ontario's Polar Bears. These management units are among the most southerly Polar Bear populations, where threats from climate change are most acute, and appear to be undergoing a near uniform decline. Polar Bear are primarily threatened by climate change, and the associated loss of sea ice. Reductions in sea ice reduced the bears' ability to access their prey, leading to declines in body condition, reproductive success and abundancy. Polar Bears also face threat from human caused mortality and environmental contaminants, although these threats are considered low impact.

Polar Bear is classified by COSSARO as Threatened, due to a small and declining population. Recent census data indicates that there are fewer than 1000 Polar Bears in Ontario and a decline in population size was observed between the two most recent censuses. This status differs from the COSEWIC status of Special Concern, reflecting the smaller size and increased threats for the Ontario population.

Ringed Seal (*Pusa hispida*)

Because Ringed Seal only occurs in Ontario as a vagrant, it does not meet the eligibility requirements for COSSARO assessment, and therefore was not assessed.

Ringed Seal is a small phocid seal with five subspecies, one of which (Arctic Ringed Seal, *Pusa hispida hispida*) occurs in Canada. The seal occurs in Hudson Bay at the southern extend of its range. While it uses the sea ice and waters of the bay, the seal does not come ashore or enter rivers, except for occasional stranding's of individuals, which are considered vagrants.

Purple Wartyback (*Cyclonaias tuberculate*)

Purple Wartyback (*Cyclonaias tuberculata*) is classified as Threatened in Ontario by COSSARO.

The Purple Wartyback is a long-lived, medium-sized, heavy-shelled freshwater mussel that is restricted to southwestern Ontario. The species occupies small to large rivers with a range of flow conditions and favours a substrate comprised of cobble, gravel, and sand. It is believed to be extirpated from its historical distribution in the Detroit River and Lake Erie, but still persists in the Ausable, Sydenham, and Thames Rivers.

The habitat in which this species occurs is projected to continue to decline in quality, as a result of threats that include pollution (agricultural and urban run-off), climate change (droughts), invasive species (dreissenids and Round Goby), and dredging. Based on the limited number of sub populations and decrease and threats to suitable habitats, COSSARO designates the Purple Wartyback as Threatened within the province of Ontario.

Striped Whitelip (*Webbhelix multilineata*)

Striped Whitelip (*Webbhelix multilineata*) is classified as Endangered in Ontario by COSSARO.

The Striped Whitelip (*Webbhelix multilineata*) is a relatively large land snail (maximum shell breadth of adults: 2.0 – 2.5 cm) with a thin, depressed-globose shell (Pilsbry 1940). The shell has shallow grooves on the surface of the shell, and a reflected, white apertural lip in adults. The shell has a few to many russet-coloured spiral bands on a pale-yellow background. The animal is light to dark grey, which can give the shell a dark brown appearance. The species has a very limited and likely fragmented EOO

and IAO in Ontario, and threats to the species in its specialized habitat are likely to continue. As a result, the species is assessed as Endangered in Ontario.

American Ginseng (*Panax quinquefolius*)

Additional information was provided to COSSARO before and during the November 2021 COSSARO meeting. COSSARO determined that additional time was required to complete the assessment. This species will be addressed at the first COSSARO meeting in 2022. The following is provided as background information.

American Ginseng (Panax quinquefolius) is a long-lived perennial herb in the Araliaceae (Ivy Family), and individuals can live more than 50 years. It grows in rich, moist, undisturbed mature Sugar Maple (Acer saccharum), White Ash (Fraxinus americana) and American Basswood (Tilia americana) – dominated deciduous woods with deep, nutrient rich soil over limestone or marble bedrock. American Ginseng is an obligate understory species and plants are typically found under an overstory (canopy, subcanopy and shrub layer) that provides approximately 75% percent shade.

Mature plants have a single stem which has one to five leaves, and each leaf has five leaflets radiating from a central point at the end of the leaf stem. The fruit consists of bright red berries in a cluster. Plants can be between 20 cm and 70 cm in height.

American Ginseng plants take three to eight years to mature, and reproduction is through sexual reproduction only. In order to germinate, seeds require an 18-month dormancy period and the seed predation and seedling mortality are high, each seed has a less than 1% chance to reach maturity making Ginseng populations extremely sensitive to harvest.

In Canada it is found in southern Ontario and southwestern Quebec. In the US it ranges from Louisiana and Georgia to New England and Minnesota.

Deerberry (*Vaccinium stamineum*)

Deerberry (*Vaccinium stamineum*) is classified as Threatened in Ontario by COSSARO.

Deerberry is an upright, spreading, deciduous shrub and is closely related to blueberries and cranberries that rarely reaches more than one metre in height. The leaves are alternate, oval and smooth, and are dark green on top with a whitish colour

underneath. In early summer, Deerberry produces clusters of hanging white flowers. The fruit is a greenish-blue berry that contains a few seeds and ripens by August.

Deerberry ranges from New York, Ohio, and Missouri south to Florida and eastern Texas. It is generally common throughout its global range. In Canada it only occurs in two areas in Ontario – the Niagara region and the Thousand Islands. In Ontario Deerberry is found predominately in dry open woodlands on sandy and well-drained soils growing under oaks, Pitch Pine or White Pine.

There are five extant subpopulations of Deerberry in Ontario, mostly in Thousand Islands region. Several sites from the Niagara region are now extirpated. Most of the existing sites are within parks and protected areas. One new subpopulation has been established through translocation in Thousand Islands National Park. The primary threat to this species is fire suppression which leads to canopy closure and shading, and it is dependent on continued conservation management of these habitats. Its historical range in New York also appears to have also retracted, including the New York portion of the Thousand Islands.

Deerberry was already assessed as Threatened when the Endangered Species Act took effect in 2008 and is currently listed as Threatened under the federal Species at Risk Act. Deerberry is classified as Threatened in Ontario. While Deerberry meets the criteria for Endangered, it is designated Threatened because the species is not at risk of imminent extirpation and conservation efforts in the protected areas where it occurs.

Kentucky Coffee-tree (*Gymnocladus dioicus*)

Kentucky Coffee-tree is classified as Threatened in its native Ontario range, which includes Elgin, Essex, Lambton, Middlesex, Norfolk and Oxford Counties and the Municipality of Chatham-Kent.

Kentucky Coffee-tree (*Gymnocladus dioicus*) is a moderate-sized tree, which can grow to 15 - 25 metres in height. This species can live for more than 100 years and reaches sexual maturity at 25 - 50 years of age. Kentucky Coffee-tree occurs in the United States from Minnesota east to New York and south to Oklahoma, Arkansas, and Tennessee (COSEWIC 2021). Native sub-populations of Kentucky Coffee-tree in Ontario are primarily restricted to Essex, Chatham-Kent, Lambton, and Middlesex

counties. The extent of native sub-populations in Ontario represents approximately 3% of the global range of Kentucky Coffee-tree.

Kentucky Coffee-tree is a rare component of naturally occurring forest stands and is seldom abundant throughout its range. It is estimated that 429 - 527 mature individuals occur within 34 extent native sub-populations of this species in Ontario. The number of mature Kentucky Coffee-tree in Ontario is stable and may be increasing when manipulated population components are considered. Primary threats to this species in Ontario include fire and fire suppression, problematic native species at diseases, storms and flooding and other ecosystem modifications.

As noted above, Kentucky Coffee-tree is classified as Threatened in its native Ontario range, which includes Elgin, Essex, Lambton, Middlesex, Norfolk and Oxford Counties and the Municipality of Chatham-Kent, based on meeting criterion D1. No status modifiers have been applied. Between 429 and 527 known mature individuals occur in the native range of this species in Ontario.

Kentucky Coffee-tree is classified as Not at Risk in all other jurisdictions in Ontario, as more than 1000 individuals are known in Ontario when considering planted specimens.

Lakeside Daisy (*Tetraneuris herbacea*)

Lakeside Daisy (*Tetraneuris herbacea*) is classified as Special Concern in Ontario by COSSARO.

Lakeside daisy is a small perennial plant in the aster family that reaches up to 35 cm in height. Dark green, toothless leaves surround the base of the plant. They are generally narrowly lance shaped. The plant produces one to 10 flowering stems with a single flower head per stem. The flower heads consist of bright yellow ray florets and golden yellow disk florets.

Lakeside Daisy is a Great Lakes endemic that is globally at risk. Almost all the global population occurs in Ontario on the Bruce Peninsula and Manitoulin Island. It is found in grassland and pavement alvars, which are areas of exposed bedrock with very little soil. This rare habitat is maintained by natural disturbances, such as drought and fire.

Lakeside Daisy is classified as Special Concern in Ontario based on its global vulnerability, restricted range and high degree of provincial conservation

responsibility. The change in status of this species from the 2002 assessment (Threatened) is considered a non-genuine change based on additional fieldwork that more thoroughly documented the locations and change in interpretation of severe fragmentation. However, there has also been considerable effort to protect the habitat for this species since 2002 that has helped to reduce potential threats.

American Water Willow (*Justicia americana*)

American Water Willow (*Justicia americana*) is classified as Threatened in Ontario by COSSARO.

American Water-willow (*Justicia americana*) is an aquatic wildflower that occurs in slow-moving or still waters. It has linear leaves that are superficially similar to some true willow species, white and purple flowers and stems can grow up to one meter in height. It can propagate via seed or vegetatively, through creeping rhizomes, but in Ontario it is thought to be limited to vegetative propagation only. It is widely distributed throughout much of the eastern United States, and reaches Canada, where it is distributed from western Lake Erie into the St. Lawrence River, and up into southern Quebec.

The broader biologically relevant geographic range for Ontario is the Great Lakes – St Lawrence Basin. Globally, American Water-willow is secure but is considered a species of conservation concern in several northern jurisdictions and was recently assessed as Threatened by COSEWIC. In Ontario, American Water-willow is known from a small number of subpopulations, including some that are now considered lost and others that are historical. There is ongoing habitat degradation and threats from invasive species, and a general decline of numbers of mature individuals.

American Water-willow is considered Threatened based on a small area of occupancy, it has a small number of locations, and there is a continuing decline in extent of occurrence, area of occupancy, quality of habitat, decline in number of subpopulations, and a decrease in number of mature individuals.

COSEWIC (2021) has assessed this species to be Threatened based on Criterion A, with the Canadian population having significant losses in mature individuals largely from declines in one Quebec subpopulation but are not substantial enough using just Ontario's data.

Western Silvery Aster (*Symphyotrichum sericeum*)

Western Silvery Aster (*Symphyotrichum sericeum*) is classified as Threatened in Ontario by COSSARO.

Western Silvery Aster is an herbaceous perennial that produces 1 - 5 sparsely branched upright ascending or sprawling stems, 30 - 70 cm tall, with flower heads that are daisy-like with ray florets that are rose-purple and tubular florets that are yellow. Its alternately arranged lance-shaped leaves have distinctive silvery-silky hairs and are reduced in size ascending the stem (COSEWIC 2021).

Western Silvery Aster reproduces from small wind-dispersed seeds with a maximum dispersal of 14 - 50m from the parent plant. Habitat is typically associated with dry prairies, oak savannahs, fields, and occasionally open woods. In Ontario, it occurs within the Great Lakes- St. Lawrence Forest region, in provincially rare dry Bur Oak savannah habitat (COSSARO 2021).

Western Silvery Aster is classified by COSSARO as Threatened where it meets the criteria for Endangered but has been modified to Threatened based on its status in the broader biologically relevant range. Western Silvery Aster meets Endangered based on its small extent of occurrence and its index of area of occupancy for three locations and an inferred decline of habitat quality and decrease in the number of mature individuals.

Its status has been modified to Threatened, because it is generally considered Threatened within its broader biologically relevant range where it occurs in Manitoba and fourteen states from North Dakota south to Arkansas and Oklahoma, east to Michigan and Indiana with isolated occurrences in central Texas (COSEWIC 2021). It is most prevalent where there is tall-grass prairie, especially in Minnesota and Iowa (NatureServe 2021; Wilsey et al 2019; Kartesz 2013). This classification is consistent with the federal classification of this species by COSEWIC (2021).

Eastern Hog-nosed Snake (*Heterodon platirhinos*)

Eastern Hog-nosed Snake (*Heterodon platirhinos*) is classified as Threatened in Ontario by COSSARO.

Eastern Hog-nosed Snakes are currently found in two geographically distinct areas in Ontario: the Carolinian Region in the southwest and the Shield region in the central portion of the province bound by the French River and Lake Nipissing to the north, and east of Georgian Bay.

Outside of Ontario, Eastern Hog-nosed Snake is found throughout much of the eastern United States with a range that extends from Ontario south to Florida and the Gulf of Mexico, and from the Atlantic Coast west to parts of Texas, Oklahoma, Kansas, and Nebraska. Eastern Hog-nosed Snakes are found in one province, 34 states, and the District of Columbia.

Eastern Hog-nosed Snake feeds almost exclusively on toads, which are toxic to most predators. Eastern Hog-nosed Snake occurs in low densities and is highly vagile (mobile), which when considered together increases its susceptibility to urbanization, habitat fragmentation, and road mortality. The Carolinian and Shield regions of Ontario experience different levels of these threats with the Carolinian region typically having a higher threat level.

Common Five-lined Skink (*Plestiodon fasciatus*) Carolinian Population

Common Five-lined Skink (Carolinian population) is classified as Endangered in Ontario by COSSARO.

The Carolinian Designatable Unit is one of two units in Ontario and Canada; the two units are isolated physically, genetically, and ecologically. The Common Five-lined Skink is globally secure, but vulnerable in the northern extents of its range, and the Carolinian Designatable Unit does not have a broader biologically relevant geographic range beyond the extend of the Designatable Unit. The population has experienced a 30% decline in the number of mature individuals in the last 10 years and is now estimated to contain fewer than 5,000 individuals. The population has a small, declining, and fragmented Index of Area of Occupancy. Habitat fragmentation and road mortality are the key factors in this observed decline.

The Carolinian population of Five-lined Skink is classified as Endangered by COSSARO, due to its small and fragmented geographic that is experiencing a continuing decline and observed and projected declines in the area and quality of habitat and the number of sub-populations and mature individuals. Although superseded by endangered status, this species also qualifies as threatened due to observed declines

in the population size, and the small total number of individuals. This status is consistent with the current COSEWIC status.

Common Five-lined Skink (*Plestiodon fasciatus*) Great Lakes/St. Lawrence Population

Common Five-lined Skink (Great Lakes/St. Lawrence population) is classified as Special Concern in Ontario by COSSARO.

The Great Lakes/St. Lawrence population of Five-lined skiing is classified as Special Concern by COSSARO. Declines are suspected, but assessment is limited by lack of survey effort.

A range of threats, including predation, road mortality, and habitat loss are persistent and increasing, and the species is considered likely to become threatened if these factors are not reversed. This status is consistent with the current COSEWIC status.

Notes: BBRGR represents the "broader biologically relevant geographic range" as per section 5 (4)(b) of the *Endangered Species Act, 2007*.

Citations and references included in these summaries are expanded upon in background species' assessment reports.

Related

2019-2020 Annual report from the Committee on the Status of Species at Risk in Ontario (COSSARO) (https://www.ontario.ca/page/2019-2020-annual-report-committee-status-species-risk-ontario-cossaro)

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