

Table 1. Summary of 2016 COSSARO Evaluation Results

SPECIES (Common Name, <i>Scientific Name</i>)	CLASSIFICATION (UNDER ESA)	NEW COSSARO EVALUATED STATUS
Louisiana Waterthrush <i>Parkesia motacilla</i>	Special Concern	Threatened
River Redhorse <i>Moxostoma carinatum</i>	Special Concern	Special Concern
Spotted Gar <i>Lepisosteus oculatus</i>	Threatened	Endangered
Hoptree Borer <i>Prays atomocella</i>	N/A	Endangered
Lake Huron Grasshopper <i>Trimerotropis huroniana</i>	N/A	Threatened
Gray Fox <i>Urocyon cinereoargenteus</i>	Threatened	Threatened
Rainbow <i>Villosa iris</i>	Threatened	Special Concern
Lake Erie Watersnake <i>Nerodia sipedon insularum</i>	Endangered	Special Concern
Colicroot <i>Aletris farinosa</i>	Threatened	Endangered
Common Hoptree <i>Ptelea trifoliata</i>	Threatened	Special Concern
Eastern Persius Duskywing <i>Erynnis persius persius</i>	Extirpated	Extirpated
Nine-spotted Lady Beetle <i>Coccinella novemnotata</i>	N/A	Endangered
Unisexual <i>Ambystoma</i> (Small-mouthed Salamander dependent population) <i>Ambystoma laterale – texanum</i>	N/A	Endangered
Unisexual <i>Ambystoma</i> (Jefferson Salamander dependent population) <i>Ambystoma laterale – (2) jeffersonianum</i>	N/A	Endangered

SPECIES (Common Name, <i>Scientific Name</i>)	CLASSIFICATION (UNDER ESA)	NEW COSSARO EVALUATED STATUS
Unisexual <i>Ambystoma</i> (Blue-spotted Salamander dependent population) <i>Ambystoma (2) laterale - jeffersonianum</i>	N/A	Not at Risk
Spiny Softshell <i>Apalone spinifera</i>	Threatened	Endangered
River Darter (Saskatchewan-Nelson River populations) <i>Percina shumardi</i>	N/A	Not at Risk
River Darter (Southern Hudson Bay – James Bay populations) <i>Percina shumardi</i>	N/A	Not at Risk
River Darter (Great Lakes-Upper St. Lawrence populations) <i>Percina shumardi</i>	N/A	Endangered
Northern Sunfish (Great Lakes – Upper St. Lawrence populations) <i>Lepomis peltastes</i>	N/A	Special Concern
Northern Sunfish (Saskatchewan – Nelson River populations) <i>Lepomis peltastes</i>	N/A	Not at Risk
Pygmy Pocket Moss <i>Fissidens exilis</i>	Special Concern	Data Deficient
Porter's Twisted Moss <i>Tortula porteri</i>	N/A	Not at Risk

NOTE: N/A means the species has not been formerly assigned a status.

Attachment (1)

- COSSARO 2016 Species Summaries

<p>SPECIES Common Name, (<i>Scientific Name</i>)</p>	<p>SUMMARY OF SPECIES ASSESSMENTS</p>
<p>Louisiana Waterthrush (<i>Parkesia motacilla</i>)</p>	<p>The Louisiana Waterthrush is a rare breeder in Ontario, with main populations on the Norfolk Sand Plain and Niagara Escarpment, and with sporadic breeding in several other areas. It is much more widespread in the eastern United States, where approximately 99% of the population occurs. Louisiana Waterthrush is a habitat specialist; it breeds and forages mainly near clean flowing streams in large blocks of deciduous or mixed forest, and occasionally in deciduous swamps.</p> <p>The Norfolk Sand Plain population has declined in the past decade but other populations appear to have increased, or they may have been previously undetected. Nevertheless, the Ontario population is very low, estimated at between 235 and 558 birds. There is no single major cause of decline, but Louisiana Waterthrush is affected by several threats in Ontario, including habitat loss from logging and urban development, changes in water quality and flow from agricultural intensification, increased recreation in riparian habitats, and collisions with buildings or towers. The species is also threatened by deforestation on its wintering grounds in Central America.</p> <p>The Louisiana Waterthrush was assessed by COSSARO as Threatened based on its small population size in Ontario, combined with a number of current and emerging threats to its specialized habitat.</p>
<p>River Redhorse (<i>Moxostoma carinatum</i>)</p>	<p>The River Redhorse is one of many morphologically similar sucker (<i>Catostomus</i>) species in the genus <i>Moxostoma</i>, and while hybridization is known among sucker species, the River Redhorse is phylogenetically isolated. The River Redhorse is a large fish (up to 80 cm total length) that prefers shallow river habitat. Age of maturation varies from 5 to 17 years. The River Redhorse typically migrates to suitable spawning habitat in rivers and thus river fragmentation can impact population viability. Their distribution in Canada (Ontario and Quebec) is disjunct from the primary range in the central and eastern United States. Ontario populations are reported in the Thames, Grand, Trent, Mississippi, Ottawa and St. Lawrence rivers, as well as in the Bay of Quinte drainage basin.</p> <p>The River Redhorse is susceptible to habitat degradation due to agriculture run-off, pollution and fragmentation (i.e., turbidity, siltation, toxic and nutrient pollution and habitat fragmentation by dams). Population size data are not available, and while the number of capture sites has</p>

<p>SPECIES Common Name, (<i>Scientific Name</i>)</p>	<p>SUMMARY OF SPECIES ASSESSMENTS</p>
	<p>increased, the number of locations is probably stable in Ontario with the increased number of capture sites likely being due to intensified sampling. The historic Ausable River population is apparently extirpated. River Redhorse is listed as Special Concern in Ontario because it occurs in a small number of locations, and some subpopulations have been lost. Barriers and other forms of habitat degradation threaten many remaining locations. This species may become Threatened, if these stressors or threats are not addressed.</p>
<p>Spotted Gar (<i>Lepisosteus oculatus</i>)</p>	<p>The Spotted Gar (is one of only two gars native to Canada; the other is the Longnose Gar (<i>Lepisosteus osseus</i>). The global distribution of the Spotted Gar is disjunct and includes populations in the Great Lakes and the Mississippi River drainage basins. While the Spotted Gar in Ontario does exhibit significant genetic structuring, it does not have Designatable Units.</p> <p>In Ontario, the Spotted Gar occurs in three isolated wetlands in Lake Erie (Long Point Bay, Point Pelee National Park and Rondeau Bay) and while confirmed single specimens were collected in Hamilton Harbour and East Lake (Lake Ontario), no others have been collected at those sites despite targeted sampling. Genetic and tracking data indicate the Spotted Gar may move among the three Ontario locations, but they are not likely to cross open water. Spotted Gar prefer slow moving shallow waters with vegetation and they sexually mature at age 3. Females may lay over 10,000 eggs. This species is adapted to high water temperatures and low oxygen and can live to 10 years of age. While estimated population sizes are robust at two of their three Canadian locations, they are vulnerable to local habitat degradation through loss of suitable habitat from non-native plant invasion, removal of native aquatic vegetation, turbidity and nutrient loading. Changes in population size and location number are not available or are not reliable, due to a lack of historical records, widely varying monitoring efforts and unconfirmed reports of Spotted Gar.</p> <p>This species was assessed as Endangered based upon the degree of fragmentation, a projected decline in habitat area and ongoing vulnerability to habitat modification. This was an uplisting from the former status of Threatened.</p>
<p>Hoptree Borer (<i>Prays atomocella</i>)</p>	<p>The Hoptree Borer is a moth that feeds exclusively on the Common Hoptree (<i>Ptelea trifoliata</i>), and is the only member of the family <i>Praydidae</i> (<i>Lepidoptera</i>) that occurs in Canada.</p> <p>Adult moths are distinctively coloured, small to medium sized moths (17 mm to 20 mm</p>

<p>SPECIES Common Name, (<i>Scientific Name</i>)</p>	<p>SUMMARY OF SPECIES ASSESSMENTS</p>
	<p>wingspan or about 6 mm to 8 mm in length). The habits of the adults have not been adequately studied but they are expected to feed on some nectar source. The larvae are monophagous on the Common Hoptree (also assessed by COSSARO; June 2016) and while relatively non-descript in appearance (green to tan in colour with pale lateral lines, with mature larvae growing as large as 20 mm in length), they have a distinctive feeding behaviour. This moth is an internal feeder or “borer”; the larva feeds inside small branches, causing distinct die-off in the terminal parts of the host. Larvae pupate on the host plant, usually in close proximity to the larval feeding site.</p> <p>Due to its rare and cryptic behaviour, there is no population data available. Although the adults are distinctly marked. Hoptree Borer has only been found in two localities in southern Ontario (with the oldest record dating back to 1927). Although this may be a result of its limited range or lack of search effort, recent efforts to document its occurrence have found larvae in both localities, but have not found any in other significant stands of Common Hoptree in southern Ontario (Rondeau Provincial Park and Point Abino), despite evidence that the sampling period was ideal. The two locations where the Hoptree Borer has been found are either federally or provincially protected areas (the Pelee Island locality includes one subsite that is not within the provincially protected lands). Despite this protection, there is concern regarding the potential of loss of habitat from erosion and its impact on Common Hoptree at these two locations.</p> <p>The Hoptree Borer is assessed as Endangered by COSSARO based on its restricted distribution in southwestern Ontario, its high degree of specialization and the threat of habitat loss, with specific concern regarding the projected levels of erosion on the Point Pelee sand spit and its effect on the host plant population.</p>
<p>Lake Huron Grasshopper (<i>Trimerotropis huronia</i>)</p>	<p>The Lake Huron Grasshopper is endemic to shorelines of parts of the Great Lakes (Lake Huron, Lake Michigan, and southern Lake Superior) in Ontario, Wisconsin and Michigan (COSEWIC 2015). It is a cryptically-coloured, banded-winged grasshopper with distinct morphological characters separating it from closely-related species (COSEWIC 2015). Individuals of this species live for one year with adults occurring in June/July until September/October (COSEWIC 2015). It exclusively inhabits open dune habitat where its preferred food plants are located: Marram Grass (<i>Ammophila breviligulata</i>), Tall Wormwood (<i>Artemisia campestris</i>) and Long-leaved Reed Grass (<i>Calamovilfa longifolia</i>) (COSEWIC 2015). The species has a disjunct distribution due to the discontinuous nature of dunes, but adults are</p>

<p>SPECIES Common Name, (<i>Scientific Name</i>)</p>	<p>SUMMARY OF SPECIES ASSESSMENTS</p>
	<p>capable of flight and have colonized islands greater than 10 km offshore, suggesting that dispersal over long distances is possible (COSEWIC 2015).</p> <p>The Lake Huron Grasshopper is assessed as Threatened due to its small geographical range, endemism to the Great Lakes and indicators that the species and its sand dune habitat are vulnerable to ongoing, defined threats. In addition, the species is apparently extirpated from three sites where it formerly occurred.</p>
<p>Gray Fox (<i>Urocyon cinereoargenteus</i>)</p>	<p>Gray Fox (formerly referred to as Grey Fox on the SARO List) have been in Canada for at least several centuries. Although once thought to be vagrant or occasional, they are expanding into Canada northwards from the United States and appear to be sustained by immigration from the US. Two populations have recent evidence of breeding in Canada - Pelee Island and northwestern Ontario (Thunder Bay – Rainy River), with sightings of the species in other parts of southern Ontario. The estimated population size of Gray Fox in Ontario is much less than 250 mature individuals, which qualifies the species as Endangered. There is insufficient information to determine whether the species is declining in Ontario. Gray Fox are very vulnerable to Coyote predation, especially where Coyotes densities are high. Adjacent populations in the United States are generally healthy and stable or increasing, except for Ohio where the population appears to be declining. The species is harvested in all adjacent American jurisdictions. Gray Fox meets the COSSARO criterion for Endangered, based upon the very small population size (D1), but is designated as Threatened due to the plausible and very likely rescue effect from healthy and stable populations in the adjacent American jurisdictions.</p>
<p>Rainbow (<i>Villosa iris</i>)</p>	<p>Rainbow (formerly referred to as Rainbow Mussel on the SARO List) is a small freshwater mussel that gets its name from the silvery white and iridescent inner shell. Rainbow prefers small to medium-sized rivers, but can also be found in inland lakes. It is difficult to tell males and females of this species apart. It spawns in the late summer and releases glochidia (larvae) in the early spring after brooding them overwinter. Glochidia are parasitic on fishes, and have several potential host species. Adult Rainbow are filter feeders, whereas juveniles live completely burrowed in the substrate. In Canada, Rainbow are found only in southern Ontario.</p> <p>This species has likely been extirpated from the Niagara and Detroit rivers and most of its</p>

<p>SPECIES Common Name, (<i>Scientific Name</i>)</p>	<p>SUMMARY OF SPECIES ASSESSMENTS</p>
	<p>previously inhabited areas within Lakes Erie and St. Clair. A declining population remains in the St. Clair River delta. Relatively large populations remain in the Maitland, Saugeen and Trent River watersheds. Rainbow remains widespread in Ontario and is above the minimum values for Threatened according to both population size/decline and range size/decline. The quality of Rainbow habitat continues to decline in Ontario, and the two greatest threats to Rainbow, invasive species (particularly dreissenid mussels and Round Goby) and pollution have not been abated and may worsen over time.</p> <p>Rainbow has been downlisted to Special Concern. A widespread distribution and the identification of previously unknown populations (e.g., Bay of Quinte drainage) support the listing of this species as Special Concern.</p>
<p>Lake Erie Watersnake (<i>Nerodia sipedon insularum</i>)</p>	<p>Lake Erie Watersnake is a subspecies of the Northern Watersnake (<i>Nerodia sipedon</i>) that has distinct colouration (with fewer and smaller bands and/or more solid grey coloration) that differs from the mainland subspecies. Lake Erie Watersnake is endemic to the western basin of Lake Erie. In Canada, they are known to be extant on only three islands (i.e., Middle Island, Pelee Island and East Sister Island), with a possible fourth location on Hen Island. They have high site fidelity with fewer than 3% of individuals moving between islands each year.</p> <p>Lake Erie Watersnake has benefitted from the invasion of exotic Round Goby (<i>Neogobius melanostromus</i>) in Lake Erie, which now comprise 90% of the Lake Erie Watersnake diet. This shift in diet has led to greater growth rates and larger body sizes of Lake Erie Watersnake. On Pelee Island, vehicular traffic is a threat with dozens of Lake Erie Watersnake killed each year on roadways that are close to the shoreline. Shoreline development on private land also reduces habitat quality for this snake. Mortality from intentional persecution is suspected to be ongoing. Although population trend data are not available for the Canadian population of Lake Erie Watersnake, it is assessed to be of Special Concern due to its restricted range, small population size, and limited mobility between locations, on-going threats, and Ontario's high conservation responsibility.</p>
<p>Colicroot (<i>Aletris farinosa</i>)</p>	<p>Colicroot is a perennial herb in the lily family that occurs in prairie remnants in southwestern Ontario. It has a basal rosette of yellowish-green lance-shaped leaves and produces a 40 cm to 100 cm stalk of small white flowers in late June or early July. The distribution of Colicroot in</p>

<p>SPECIES Common Name, (<i>Scientific Name</i>)</p>	<p>SUMMARY OF SPECIES ASSESSMENTS</p>
	<p>Ontario and Canada is restricted to 8 (and possibly only 7) subpopulations in southern Ontario. It is extirpated from at least 7 additional sites since the 1880s. All of its occurrences are associated with moist sandy soils in open tallgrass prairie and meadow habitats. Two new subpopulations comprised of 4,256 individuals were discovered in Windsor in 2004 during surveys for the construction of the Right Honorable Herb Gray Parkway¹. The presence of these plants at restoration sites was not considered in COSSARO’s assessment, given uncertainty regarding the long-term persistence of these plants.</p> <p>The current wild population Colicroot is at least 6,800 individuals². There has been an estimated loss of 47% in the number of wild individuals over the last 3 generations (21 years to 30 years).</p> <p>Colicroot is Endangered in Ontario because it has a very restricted range in southwestern Ontario, occurs in only a few highly fragmented locations and the quality of the habitat has been declining.</p>
<p>Common Hoptree (<i>Ptelea trifoliata</i>)</p>	<p>Common Hoptree is a small tree in the rue family (<i>Rutaceae</i>) with aromatic, alternate trifoliolate leaves. The cream-coloured flowers bloom in early summer. The fruit is dry and disk-shaped and this species has a long history of medicinal and economic usage, including use by First Nations. It is a host or food source for several rare insects.</p> <p>In Ontario, Common Hoptree occurs almost entirely along or near the Lake Erie shoreline. Plants in Ontario belong to the subspecies <i>P. trifoliata</i> ssp. <i>trifoliata</i>. Globally, this subspecies occurs naturally across eastern North America. Common Hoptree is often found in areas of natural disturbance where it forms part of the outer edge of shoreline woody vegetation. It has insect-pollinated flowers, and the fruit is dispersed by wind or water. The seedlings readily establish in disturbed sites.</p> <p>Population data are limited for Common Hoptree. However, where comparable survey data for the 2015 and 2002 assessments exist, subpopulation sizes have increased. There is some uncertainty regarding how much of the difference is due to an increase in numbers versus an</p>

¹ In addition to these two subpopulations, four additional subpopulations were documented on private lands by the Ministry of Transportation during surveys.

² This COSSARO assessment does not include any transplanted individuals.

<p>SPECIES Common Name, (<i>Scientific Name</i>)</p>	<p>SUMMARY OF SPECIES ASSESSMENTS</p>
	<p>increase in survey effort in the most recent assessment.</p> <p>The largest change since the previous assessment is the documentation of more than 10,000 mature individuals in extensive surveys of Point Pelee National Park in 2007. The known Canadian population of Common Hoptree is now more than 10 times greater than the known population in 2002; adequate data are not available to determine any population trends.</p> <p>The Common Hoptree was downlisted from Threatened to Special Concern in Ontario, given the presence of substantially larger recorded population levels and new locations identified since 2002.</p>
<p>Eastern Persius Duskywing (<i>Erynnis persius persius</i>)</p>	<p>The Eastern Persius Duskywing is a globally rare eastern North American subspecies of the more widely occurring Persius Duskywing (<i>Erynnis persius</i>). It is a dark skipper, native to southwestern Ontario, where it has been documented only from St. Williams Conservation Reserve and Pinery Provincial Park. The Eastern Persius Duskywing was last observed in Ontario in 1979, and appears to be declining across most of its North American range.</p> <p>This species is a habitat specialist, restricted to pine-oak savanna and woodland that contain lupines, the skipper’s only known host plant in Ontario. Widespread loss and degradation of this habitat has occurred historically in Ontario, and undoubtedly contributed to the decline of this duskywing. Other threats contributing to its decline include browsing of lupines by White-tailed Deer and insecticide use.</p> <p>Substantial survey effort has been made in Eastern Persius Duskywing habitat over three decades, and yet this species has not been confirmed in 37 generations. Since 1979, two unconfirmed sightings have been reported in Ontario. However, Eastern Persius Duskywing is very similar to related duskywings, and cannot be conclusively identified without a supporting voucher specimen. The species is frequently erroneously reported and/or identified across its range.</p> <p>The Eastern Persius Duskywing is designated Extirpated in Ontario because there is insufficient information to conclude that any individuals of this species remain in Ontario.</p>

<p style="text-align: center;">SPECIES</p> <p>Common Name, (<i>Scientific Name</i>)</p>	<p style="text-align: center;">SUMMARY OF SPECIES ASSESSMENTS</p>
<p>Nine-spotted Lady Beetle (<i>Coccinella novemnotata</i>)</p>	<p>The Nine-spotted Lady Beetle is a native lady beetle species of the Family <i>Coccinellidae</i>. It is a generalist, which feeds on various soft-bodied insects, (e.g., aphids and their relatives). Adult beetles are approximately 4 mm to 7 mm long and they usually have nine distinct black dots on their elytra, along with other markings that make identification relatively easy. The Nine-spotted Lady Beetle occurs in a wide variety of habitats, both natural and artificial (including agricultural fields). Historically, the Nine-spotted Lady Beetle could be found throughout southern Ontario, extending as far north as Lake Superior, but there are no records in the province since the mid 1990's. Recent records in Quebec and New York indicate that it possible that the Nine-spotted Lady Beetle still occurs in parts of Ontario.</p> <p>The Nine-spotted Lady Beetle is assessed as Endangered based on the decrease in abundance over the past few decades due to several possible factors (invasive species, pesticide exposure).</p>
<p>Unisexual Ambystoma (<i>Ambystoma laterale</i>)</p>	<p>The all-female populations of Unisexual Ambystoma are members of the Mole Salamander family Ambystomatidae, which is endemic to North America. The Unisexual Ambystoma represent the oldest known lineage of unisexual vertebrates. The fertilization of eggs and initiation of development requires sperm from a sympatric, closely related species. Once development is initiated, the eggs normally discard the sperm genome and develop asexually. As a result, most of the offsp ring of unisexualsexuals have the same genotype as their mother and represent clonal reproduction. In rare cases, DNA from sperm is incorporated, thereby substituting one set of chromosomes for another or increasing the ploidy of the embryos (e.g., from triploid to tetraploid) by adding a set of chromosomes.</p> <p>The morphology of each group of salamanders is determined by the nuclear genome. Unisexualsexuals with two or more Blue-spotted Salamander (<i>A. laterale</i>) chromosome complements are black with various amounts of blue flecking, and have relatively short limbs and narrow heads (closely resembling Blue-spotted Salamander). Unisexualsexuals with two or more Jefferson Salamander (<i>A. jeffersonianum</i>) chromosome complements are larger animals that are grey to brown in colour with a small amount of blue flecking, relatively long limbs, and a relatively broad head (closely resembling Jefferson Salamander). Unisexualsexuals with two or more Small -mouthed Salamander (<i>A. texanum</i>) chromosome complements are grey with slender bodies and narrow</p>

<p>SPECIES Common Name, (<i>Scientific Name</i>)</p>	<p>SUMMARY OF SPECIES ASSESSMENTS</p>
<p>Spiny Softshell (<i>Apalone spinifera</i>)</p>	<p>Spiny Softshell turtles are long-lived, late-maturing turtles with a soft carapace. In Ontario, their range is now restricted to southwestern Ontario. Monitoring of the three largest nesting sites in the province reveal a decline of 45% of mature females over the 15-year period of 1999 to 2014. Habitat loss and predation by native predators are the greatest threats to nesting success with losses of up to 100% of unprotected nesting sites. Intensive nest site protection using wire cages as well as ex-situ egg incubation for the past 20 years has been successful at one site, though extensive habitat loss at that site in recent years may counter gains in recruitment resulting from the active stewardship efforts.</p> <p>The Extent of Occurrence of Spiny Softshell has decreased by 71.5% over the past two generations (35 years to 70 years) as it has disappeared from several locations throughout its former range in Ontario. All but four of the remaining locations where the species is found have an estimated population of 10 or fewer individuals. Spiny Softshell is assessed as Endangered in Ontario due to high rates of decline within the past three generations, which are suspected to continue due to ongoing threats, including habitat loss, predation, and disturbance from recreational activities.</p>
<p>River Darter (<i>Percina shumardi</i>)</p> <p>River Darter (Saskatchewan-Nelson River populations)</p> <p>River Darter (Southern Hudson Bay – James Bay populations)</p> <p>River Darter (Great Lakes-Upper St. Lawrence populations)</p>	<p>River Darter (<i>Percina shumardi</i>) is a very broadly distributed darter with populations ranging from Texas on the coast of the Gulf of Mexico throughout the Mississippi River basin north to watersheds draining into Hudson Bay; however, it is characterized by a disjunct and patchy global distribution. The River Darter is generally found in low abundance throughout its range, although this may in part be due to the use of inappropriate sampling gear.</p> <p>This fish matures at 1 year of age and can live for up to 4 years. It spawns in both river and lake habitats with cobble or clean gravel and substantial water flow. River Darter is known to migrate upstream (spring) and downstream (fall) seasonally. Little information exists on specific threats for this species in parts of its range, although introduced species, dams, habitat alteration (including shoreline hardening) and industrial, urban and agricultural effluents may contribute to their decline in some areas. River Darter was previously considered a single unit and designated Not at Risk in April 1989. However, it was recently re-assessed by COSEWIC as three separate DUs based on its presence in three National Freshwater Biogeographic Zones. All three separate designable units (DUs) occur (at least in part) within Ontario: DU1: Saskatchewan-Nelson River population; DU2: Southern Hudson Bay - James Bay</p>

<p>SPECIES Common Name, (<i>Scientific Name</i>)</p>	<p>SUMMARY OF SPECIES ASSESSMENTS</p>
	<p>Lakes - Upper St. Lawrence (southwestern Ontario) population. DU1 and DU2 have not been systematically sampled; however, it is likely they include healthy populations based on the availability and quality of the habitat. DU3 has been systematically sampled and there is good evidence for a significant decline in these subpopulations.</p> <p>Within Ontario, Saskatchewan-Nelson River populations (DU1) and Southern Hudson Bay - James Bay populations (DU2) are assessed as Not at Risk due to their relatively large distribution and lack of evidence of decline.</p> <p>Great Lakes-Upper St. Lawrence populations (DU3) of River Darter are assessed as Endangered due to their small range, low number of locations, and continuing declines as well as declines in habitat quality related to the presence of invasive species and habitat modifications.</p>
<p>Northern Sunfish (<i>Lepomis peltastes</i>)</p> <p>Northern Sunfish (Great Lakes – Upper St. Lawrence populations)</p> <p>Northern Sunfish (Saskatchewan-Nelson River populations)</p>	<p>The Northern Sunfish is a small, colourful member of the sunfish family occurring in northwestern and southern Ontario, in two Designatable Units (DUs), the Great Lakes - Upper St. Lawrence populations and the Saskatchewan - Nelson River populations. Some authorities and jurisdictions consider Northern Sunfish to be a subspecies of the Longear Sunfish, <i>Lepomis megalotis peltastes</i>, while others consider it a full species, <i>Lepomis peltastes</i>. Northern Sunfish is considered to be a full species by COSEWIC (2016).</p> <p>Although it occurs in shallow, vegetated, warm waterbodies, the Northern Sunfish is intolerant of siltation and sedimentation and is considered an indicator of good water quality. There are insufficient data for this species to determine population or abundance trends for either DU. Apparent population declines have occurred in Québec, and are inferred in southern Ontario based upon habitat trends. Major threats are siltation and turbidity resulting from agricultural and other human development, particularly in southern Ontario, and expanding or invasive aquatic species, such as Round Goby in southern Ontario, and Rusty Crayfish, Green Sunfish, and Largemouth and Smallmouth Bass in northwestern Ontario.</p> <p>An estimated 25% of the species' range occurs in Ontario. Most jurisdictions adjacent to Ontario reflect concerns about the population status of this species, except for Michigan where it is considered secure. The Northern Sunfish does not readily disperse and is considered a poor colonizer, and thus there is little potential for rescue effect.</p>

<p>SPECIES Common Name, (<i>Scientific Name</i>)</p>	<p>SUMMARY OF SPECIES ASSESSMENTS</p>
	<p>Northern Sunfish are not currently listed under the federal Species at Risk Act or the provincial Endangered Species Act. The species was considered a single unit and designated Not at Risk in April 1987. Northern Sunfish was recently re-assessed by COSEWIC as two separate designatable units (DUs); the Saskatchewan – Nelson River populations and Great Lakes – Upper St. Lawrence populations. In Ontario, the Saskatchewan – Nelson River populations of Northern Sunfish are assessed as Not at Risk while the Great Lakes – Upper St. Lawrence populations are assessed as Special Concern due to widespread water quality threats, the unquantified but apparent recent decline in abundance and area of occupancy, and the significant portion of the global distribution contained within Ontario.</p>
<p>Pygmy Pocket Moss (<i>Fissidens exilis</i>)</p>	<p>Pygmy Pocket Moss is a native moss species that occurs in a variety of habitats, usually in sites where the soil has been disturbed. In its morphologically recognizable phase (gametophore), Pygmy Pocket Moss is only present during a short time period, when environmental conditions are suitable. During the rest of its lifecycle, it occurs in the soil or at its surface as a morphologically indistinct protonema. No direct or indirect threats are known. In Ontario, it is only documented from 7 known localities, but available literature suggests that it is more provincially abundant and widespread, and that the currently recorded distribution is actually a result of the ephemeral window for detection of this species.</p> <p>Based on this information, Pygmy Pocket Moss is classified as Data Deficient. This designation differs from the COSEWIC designation, Not at Risk, as there was uncertainty in the completeness of the distribution data for Ontario.</p>
<p>Porter's Twisted Moss (<i>Tortula porteri</i>)</p>	<p>Porter's Twisted Moss is a tiny bryophyte less than 3 mm in height. It is dioicous, with male and female reproductive structures on separate plants, and is presumed to have an annual lifecycle. Porter's Twisted Moss is most likely to be confused with another member of the same family, Heim's Pottia. These two species can be distinguished by morphological and chemical features, which cannot be confirmed in the field.</p> <p>In Ontario, Porter's Twisted Moss is known from 15 subpopulations. One of these subpopulations occurred on Middle Island. It was destroyed due to habitat degradation caused by nesting Double-crested Cormorants. No population trend data is available for the remaining subpopulations, but most occur on public property, including National Park lands and</p>

<p>SPECIES Common Name, (<i>Scientific Name</i>)</p>	<p>SUMMARY OF SPECIES ASSESSMENTS</p>
	<p>Conservation Areas. It is likely that additional subpopulations remain undocumented, as this species tends to occur in inaccessible locations (i.e., steep cliffs).</p> <p>Porter's Twisted Moss is limited to the Carolinian zone of Ontario, where it is associated with exposed, calcareous palaeozoic rock. The Index of Area of Occupancy closely matches the extent of Palaeozoic rock in this region. It colonizes bare rock surfaces, and cannot tolerate competition from larger mosses or vascular plants. It can persist on weathered rock that has been moved from quarries, but apparently is unable to colonize freshly cut rock-faces.</p> <p>No information on population decline is available. One subpopulation is extirpated; no trends are available for the remaining 14 locations. Climate model projections suggest that areas with both suitable climate and exposed calcareous palaeozoic rock substrates will not exist in Ontario by 2100.</p> <p>After reviewing the available data, COSSARO assessed this species as Not at Risk, due to its long-term persistence at sites with few apparent threats.</p>