STATE OF ONTARIO'S PROTECTED AREAS

Species of Conservation Concern

2021

Ontario

State of Ontario's Protected Areas Indicator Report

Species of Conservation Concern

This indicator describes the status of species of conservation concern, which includes provincially tracked species and species at risk, within provincial parks and conservation reserves.

Status of the indicator

Status: Mixed

Trend (Long-range): Mixed

Why it is important

One of the objectives of the *Provincial Parks and Conservation Reserves Act, 2006* (PPCRA) is to protect provincially significant elements of Ontario's natural and cultural heritage and to maintain biodiversity, including species of conservation concern which includes provincially tracked species and species at risk. The PPCRA and the *Endangered Species Act, 2007* (ESA) contribute to the protection of habitat for species of conservation concern in the following ways:

- Provincial parks and conservation reserves permanently protect representative ecosystems and their biodiversity in a manner that prioritizes the maintenance of ecological integrity.
- The ESA further protects individuals of species identified as Special Concern, Threatened or Endangered, as well as the habitat of the latter two.

Conservation scientists, governments and others recognize the importance of significant species to ecological integrity. The goal of conserving ecological integrity is best addressed by maintaining or restoring the diversity of genes, species and communities expected for the region. This is consistent with the vision of integrity, which is "wholeness" – if parts are missing, the ecosystem is not whole (Parks Canada, 2019). Ecological systems that retain their native species and natural processes are hypothesized to be more resistant and resilient to natural and anthropogenic stresses over time (e.g., Wurtzebach and Schultz, 2016).

Protected areas are recognized as one way to protect declining species and represent one of the leading strategies for reducing extinction rates (Deguise and Kerr, 2006). Species of conservation concern often face additional pressures outside of protected areas that may be reduced within a provincial park or conservation reserve, particularly where threats are tied to habitat loss. The network of protected areas in Ontario plays an important role in helping to address the impacts of habitat loss by protecting and restoring healthy, resilient ecosystems and contributing to the recovery of species at risk.

How we monitor

Information on the presence of species within protected areas can come from several different sources. The Natural Heritage Information Centre (NHIC) in the Ministry of Northern Development, Mines, Natural Resource and Forestry (NDMNRF) maintains the most definitive information on the presence of species of conservation concern in Ontario. The NHIC tracks information about the location of species of conservation concern, plant communities, wildlife concentration areas and natural areas. The NHIC conducts fieldwork to collect this information, and works with partners across Ontario, including Ontario Parks staff, to add to the provincial record. Many agencies and

researchers use the provincial record to plan, conserve, and study Ontario's natural heritage.

The NHIC works with an organization called NatureServe, which is a North American based non-profit group that works with national, state and provincial governments and conservation scientists throughout North America to collect and manage information on biodiversity. NatureServe has developed standard methodologies to evaluate and assign conservation status ranks at the Global, National (Canada and the United States) and Subnational (state and province) level. The NHIC uses these methodologies together with the best available information on species occurrences and considering factors such as abundance, distribution, population trends and threats to assign the Ontario sub-national rank (S-rank) for all species found in the province. The S-ranks provide context into how common each species is and provides an estimate of the species' risk of going extinct or being extirpated. Species that have a higher likelihood of becoming extirpated or extinct are considered Species of Conservation Concern, and generally include those species that have S-ranks of S1 (Critically Imperiled), S2 (Imperiled) or S3 (Vulnerable), or are listed as Special Concern, Threatened or Endangered under Ontario's *Endangered Species Act, 2007*. These species are *tracked* by the NHIC, which means that the NHIC keeps a database of all known occurrences in of these species in Ontario and actively encourages biologists, naturalists, and other community members to submit records of them. For more information on S-ranks, including detailed descriptions for each classification, refer to the NHIC webpage on Ontario.ca (also included in the "Related Links" section below).

Term	Definition
Species of Conservation Concern	Species that are tracked by the NHIC in Ontario which generally include all species with S-ranks of S1, S2 or S3 and/or are Species at Risk
Provincially Tracked Species	Species that the NHIC keeps information on with respect to each occurrence of it within Ontario
Species at Risk	Species that are legally designated under Ontario's ESA (e.g., Special Concern, Threatened, Endangered, Extirpated)
Subnational Ranks (S-Ranks)	The conservation status of a species or plant community within Ontario (e.g., S1 – S5, SH, and SX)

There are several methods by which Ontario Parks collects information on species of conservation concern within provincial parks and conservation reserves. These methods include:

- Use and promotion of community science platforms. For example, Ontario Parks established an umbrella collection project in 2018 using iNaturalist to automatically gather and visualize species observations within defined geographic boundaries for each provincial park and conservation reserve to ensure accurate collection of species data. These observations are then verified for accuracy of identification before inclusion in broader reporting and data visualization. Ontario Parks actively promotes iNaturalist through social media, in-person programming and publications. Additionally, the Ontario Parks blog contains promotional content for this species reporting tool. NHIC incorporates observations from the Ontario Parks iNaturalist project within the Provincially Tracked Species Observation Database. These efforts have substantially contributed to the reporting of species of conservation concern in Ontario within provincial parks and conservation reserves.

- Reporting of species observation records to NHIC. Ontario Parks staff conduct a variety of targeted and opportunistic life science surveying, including species at risk monitoring, and contributes targeted or incidental observations to the Provincially Tracked Species Observations Database.
- Data sharing through third-party researchers. Under the PPCRA, Ontario Parks may provide authorizations to third parties to conduct research within provincial parks and conservation reserves. Applicants typically include individuals, organizations and agencies from federal and provincial governments, academic institutions, consulting firms and environmental non-government organizations. These authorizations support a wide range of research topics, including monitoring the presence of species of conservation concern and associated habitats. These projects contribute to the monitoring of species within provincial parks and conservation reserves since researchers are required to share data and reports upon completion of projects.

For the purposes of this indicator report, the status of species of conservation concern is interpreted through the following subsets of the NHIC database derived from a query of species occurrence records from January 1, 2010, to December 31, 2019 within provincial park and conservation reserve boundaries:

1. For the analysis of species at risk, only those species assigned a provincial designation under the ESA as Endangered, Threatened or Special Concern were used. Designations at the time of this analysis (Spring 2021) were used to simplify the study.
2. For the analysis of provincially tracked species, only those species that are tracked by the NHIC which generally includes those species with SRanks of S1, S2 or S3, although some species listed as S4 are included when they are species at risk.

Very careful interpretation of these figures is required because the data only include occurrences that have been reported, which tends to be for locations and species that have received the most monitoring effort. These figures should not be relied upon as the sole source of information, as there may be additional species of conservation concern not accounted for in this summary.

What's happening

Within provincial parks and conservation reserves during this reporting period (2010 to 2019):

- There was a total of 60,847 occurrence records for provincially tracked species including species at risk
    - This represents approximately 11% of all occurrence records in the province (based on the same query restrictions listed in the previous section).
    - 85.5% of provincial park and conservation reserve occurrence records were within the Southeast, Southwest and Algonquin administrative zones of Ontario Parks (refer to distribution map in Figure 1).
    - Approximately 75% of the occurrence records occur within the Mixedwood Plains Ecozone in Ontario
- These records represent 745 species or sub-populations of provincially tracked species including species at risk

- 144 of these species are designated as species at risk (SAR), including:
    - 61 endangered species or sub-populations of species
    - 44 threatened species or sub-populations of species
    - 39 special concern species or sub-populations of species
- Records were submitted for provincially tracked species and species at risk for 110 of the 295 conservation reserves and 272 of the 343 provincial parks.

Some factors that may affect the number of species and occurrence records in provincial parks and conservation reserves include:

- Greater survey efforts in provincial parks (and particularly those parks that have formal camping and day use facilities) compared to conservation reserves; 89.8% of occurrence records were within provincial parks. There is restricted accessibility in many conservation reserves.
- Higher level of species occurrence reporting in southern Ontario compared to northern Ontario due to a naturally higher rate of species at risk and provincially tracked species in the south. Additionally, provincial parks and conservation reserves in southern Ontario are more accessible and receive higher levels of visitation than those in northern Ontario.
- Changes in the Species at Risk in Ontario list (e.g., changes in status, designation of new species, etc.).

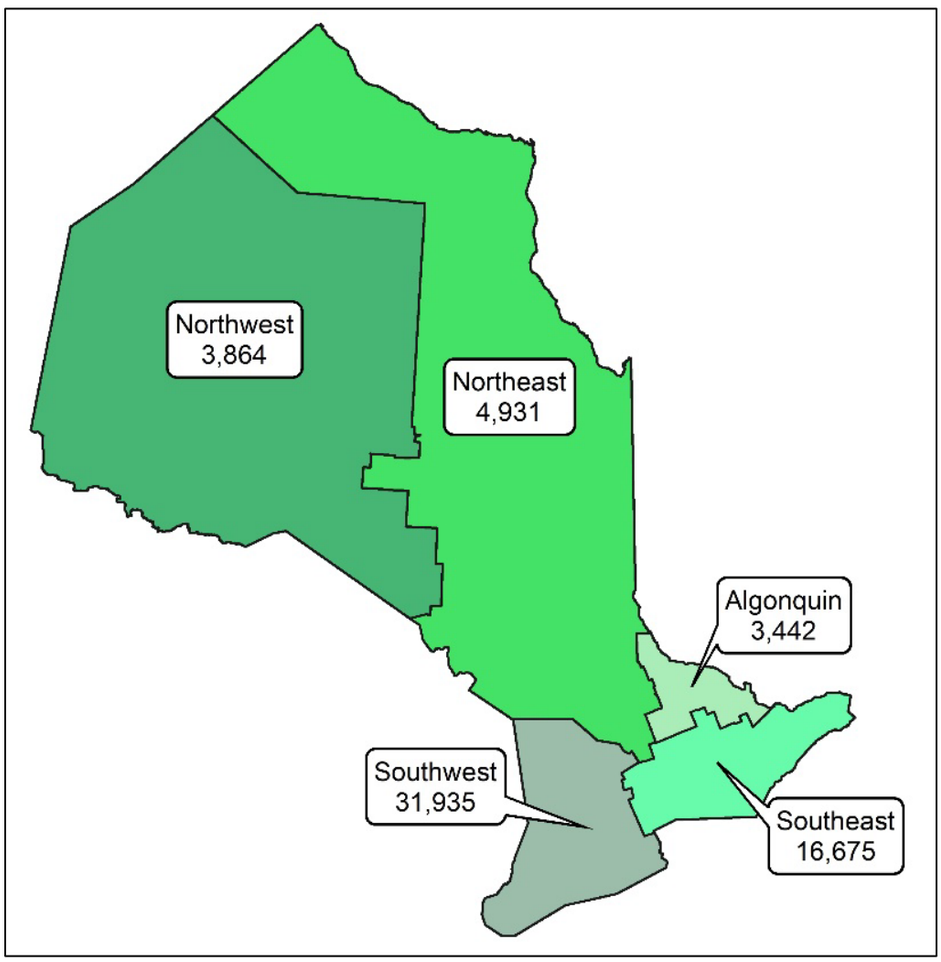


Figure 1: Distribution of species of conservation concern occurrence records within provincial parks and conservation reserves by Ontario Parks administrative zone.

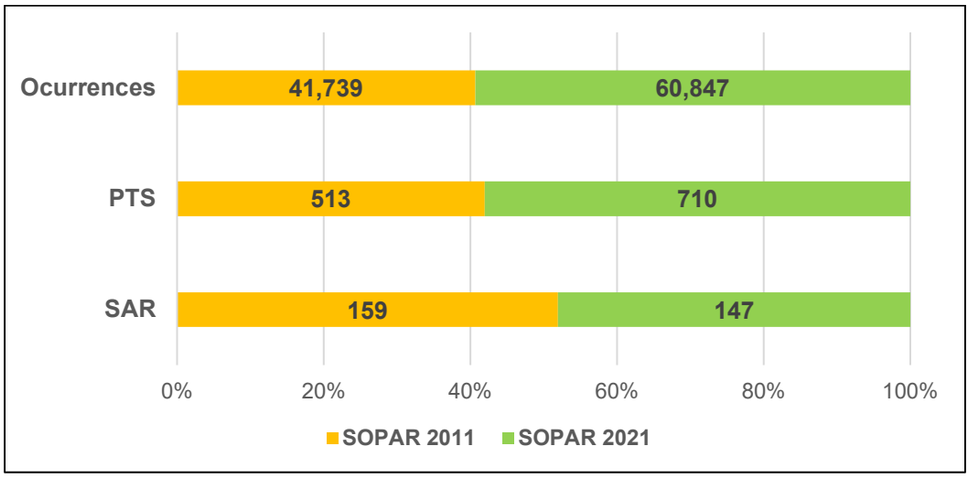


Figure 2: Analysis on change in the number of species occurrences, provincially tracked species (PTS) and number of species listed as species at risk (SAR) reported between SOPAR reporting periods.

As illustrated in Figure 2, an historical analysis of NHIC species of conservation concern occurrence records between the previous (2011) and current (2021) reporting period indicates:

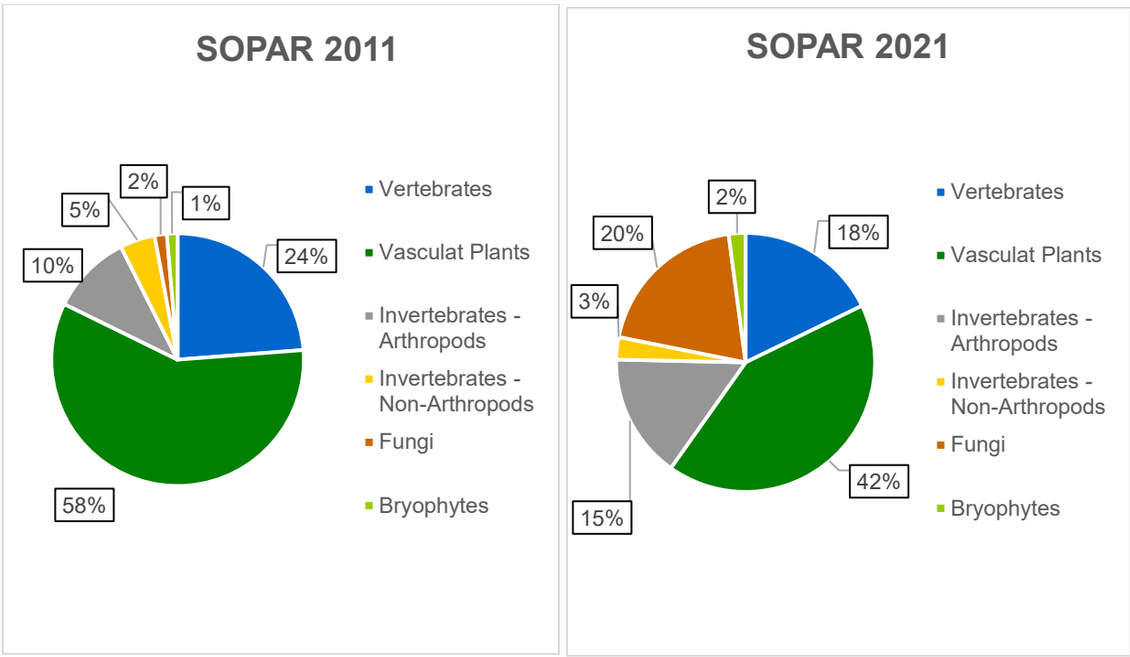
- The total number of species of conservation concern reported for provincial parks and conservation reserves has increased from 513 (SOPAR 2011) to 710 (SOPAR 2021).
- The total number of occurrences reported to NHIC for provincial parks and conservation reserves has increased from 41,739 records (SOPAR 2011) to 60,487 records (SOPAR 2021).
- The total number of species listed as species at risk that were reported declined
- While the total number of occurrence records within provincial parks and conservation reserves represents approximately 11% of the total occurrence records within the province, this is actually a decrease (in percentage) from the previous reporting period where provincial parks and conservation reserves accounted for approximately 25% of all occurrence records in the province.

This trend suggests significant increases in effort and ability to report species of conservation concern across Ontario, including within provincial parks and conservation reserves. The increase in available occurrence data for Ontario is important as many species face continued pressures contributing to declines in populations or sub-populations like the spread of invasive species or diseases, hyperabundant species, poaching, recreation, suppression of natural processes such as fire, habitat degradation, development and fragmentation. These records can inform specific management techniques to support and protect individual species and their habitat or to inform broader planning at the protected area or regional scale. Other reasons for these changes may include discovery and reporting of species through partnership, community and Ontario Parks monitoring efforts within provincial parks and conservation reserves.

Interestingly, there is a small decrease in the number of species (of species at risk) reported within provincial parks and conservation reserves for this reporting period. Although this may appear to suggest that there has been a loss of these species within parks and conservation reserves, this is not actually the case. The reason has more to do with reporting. Often specific species are targeted for inventory when they are coming up for review by the Committee on the Status of Species at Risk in Ontario (COSSARO). Once species are listed, they may not be revisited for some time while

efforts are focussed on other species. Additional reasons for this decline may include an absence of species occurrence records for species at risk that were reported in the previous SOPAR report but that may still exist. In some cases, there may have been local extirpations where species or subpopulations of species previously occurred.

In both reporting periods, the bulk of the records submitted to NHIC belonged to the Vertebrate and Vascular Plant taxonomic groups. Interestingly, however, records for Fungi increased 50-fold since the previous reporting period. The total number of records is still only just over 1% of the total, but the number of *species* represented by the records increased from 1.6% of all species to just under 20% of all the species reported. This is likely the result of the increased use of iNaturalist and interest from naturalists in fungi in general. iNaturalist is particularly useful for helping to learn fungi as it can use photographs to suggest a proper identification.



Figures 3 and 4: Change in proportion of species or subpopulations of species of conservation concern by taxonomic groups reported in provincial parks and conservation reserves between 2011 and 2021 SOPAR reports.

While the available information on species of conservation concern occurrences continues to grow within provincial parks and conservation reserves, Ontario Parks endeavours to continue using effective management approaches to stop or reduce the ongoing decline in these populations in order to maintain biodiversity and ecological integrity. For example, through implementation of recovery efforts and other management action undertaken by Ontario Parks, a vascular plant species called Bluehearts (*Buchnera americana*) at Pinery Provincial Park have seen an increase in population over this reporting period. In another example, intensive efforts are being undertaken in Presqu'ile Provincial Park to reduce road mortality rates for species at risk turtles.

In the case of Bluehearts, two factors enabled the population to increase. First, ongoing deer management has greatly reduced the loss of plants to overgrazing. Second, a small portion of a campground in the park was closed to enable restoration of Bluehearts habitat. Following habitat restoration by park staff over the years, this area is now home to the largest population of Bluehearts in the park. Although population numbers vary naturally from year to year, a record number of 2,429 plants were counted in 2018, far more than had been found in previous years. One of the success factors was the ability of the species to spread into an area that was once used as a campground footpath.

In the case of species at risk turtles such as Midland Painted (*Chrysemys picta*), Snapping (*Chelydra serpentina*), and Blanding's turtles (*Emydoidea blandingii*) in Presqu'ile Provincial Park, Ontario Parks staff have been actively engaged in decreasing road mortality through a combination of monitoring efforts and mitigation measures. In 2015, the first artificial nesting areas in the provincial park were created at two monitoring sites and fenced to deter turtles from travelling into their 'traditional' nesting areas on road shoulders. Additionally, as part of road upgrades, small wildlife ecopassages designed for reptiles and amphibians, along with speedbumps, were installed in late 2015. The ecopassages were intended to facilitate the safe passage of animals across (under) roads. In 2016, fencing was installed along both sides of roads in the vicinity of the identified high-risk sites; this fencing continues to be maintained and improved. In 2017, interpretive signs to indicate areas of high turtle traffic were installed near one of the artificial nesting areas, as well as near ecopassages. Turtles started nesting in the artificial nesting areas in 2017, and their nests were protected by Ontario Parks staff. Staff observations suggest that several nests in the artificial nesting areas have been successful. Ongoing work by staff includes maintenance of exclusion fencing and artificial nesting areas, continued protection of turtle nests, tracking of hatching from protected nests, and incidental observations of turtles nesting at the artificial nesting areas.

Under the ESA, the Government of Ontario seeks out third-party species experts to prepare a Recovery Strategy for each species listed as endangered or threatened. The recovery strategy gathers the best available information concerning the species and provides recommendations on specific strategies that could be implemented to aid in the species recovery. This is followed by a Government Response Statement summarizing which actions and priorities from the Recovery Strategy the government will undertake. MECP is then required to review and report on the progress made towards protecting and recovering a species in the form of a progress report. As part of the progress report development process, Ontario Parks provides information on any relevant activities or special projects undertaken by Ontario Parks staff. Further information can be found on the Species at Risk Progress Reports website.

Community science platforms such as iNaturalist, research partnerships and staff efforts all contribute to the monitoring of species of conservation concern and address information gaps in Ontario Parks' ongoing efforts to protect provincially significant elements of Ontario's natural heritage and maintain biodiversity. Examples of ways in which community science and NHIC occurrence data on species of conservation concern is used to inform protected area planning and/or management includes:

- Assisting Ontario Parks staff in determining the most appropriate locations within provincial parks for new development (e.g., new comfort stations) by helping avoid areas of the park used by species of conservation concern;
- Identifying areas in a park or conservation reserve that should be avoided for recreational activities or infrastructure (e.g., trails) to reduce disturbance to sensitive species; and
- During management planning, enabling the identification of specific actions that could be undertaken within the park to help protect them.

The status and long-range trend of species of conservation concern within provincial parks and conservation reserves is mixed given variability in several measures under this indicator, including:

- The amount of available information on species of conservation concern occurrences has increased and is anticipated to continue growing;
- The protection afforded to species at risk within provincial parks and conservation reserves has served to protect and perpetuate populations within

these protected areas, even where the species have continued to decline outside of protected areas; and

- Targeted management efforts within these protected areas contribute to the successful localized improvement of individual species of conservation concern but require dedicated resources to implement. Without such efforts, it is likely that some species populations would be less successful in their recovery and may see further decline within localized areas.

Indicator last updated:

December 2021

Data sources:

Protected Areas Section, Ontario Parks.

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Additional References:

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Parks Canada. *Ecological integrity*. Retrieved November 2021 from Parks Canada's website Ecological integrity - Science and conservation (pc.gc.ca)

Related links

- Species at risk progress reports
- Committee on the Status of Species at Risk in Ontario (COSSARO) – Species
- Natural Heritage Information Centre (NHIC)
- Ontario Parks iNaturalist Umbrella Project
  - Provincial Parks Project
  - Conservation Reserves Projects
    - Southeast Zone
    - Southwest Zone
    - Algonquin Zone
    - Northeast Zone
    - Northwest Zone
  - NatureServe Conservation Status Ranks