Environment and Climate Change Canada
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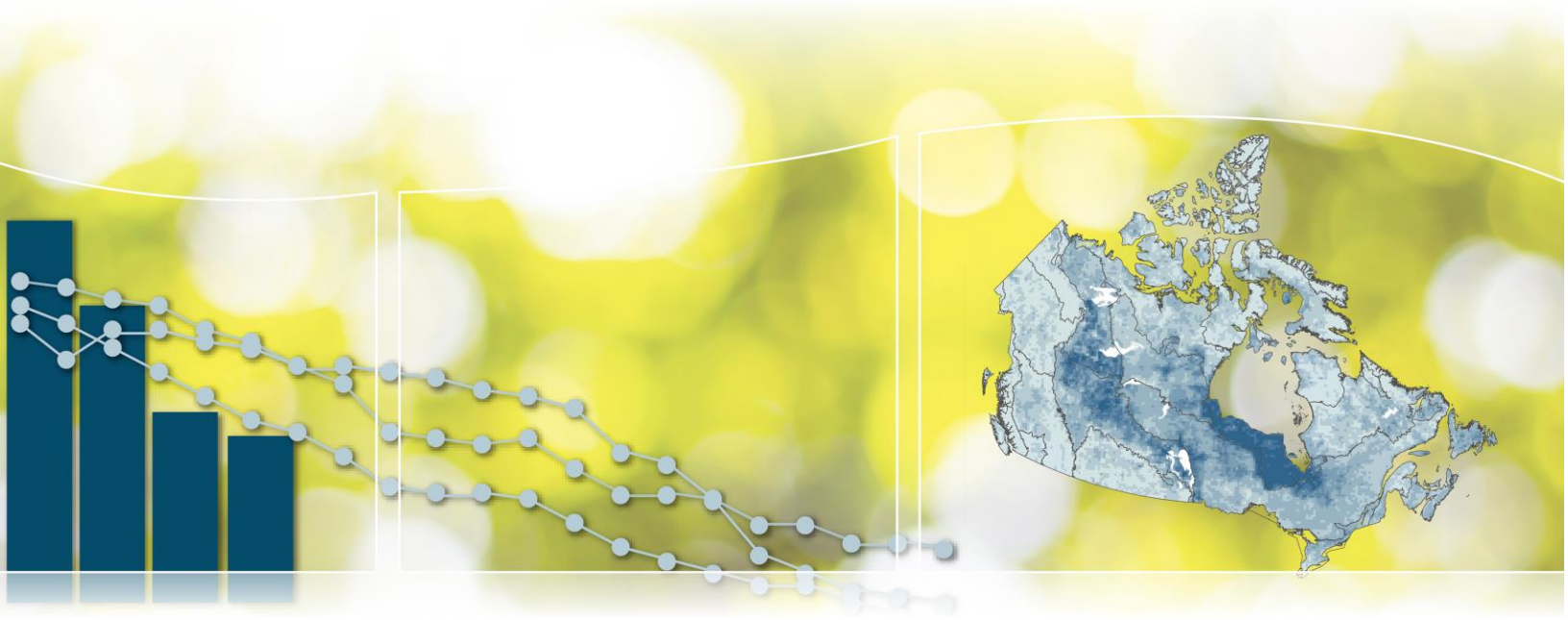
Canadian Environmental Sustainability Indicators

Species at risk population trends



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Canadian Environmental Sustainability Indicators

Species at risk population trends

June 2018

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Species at risk population trends

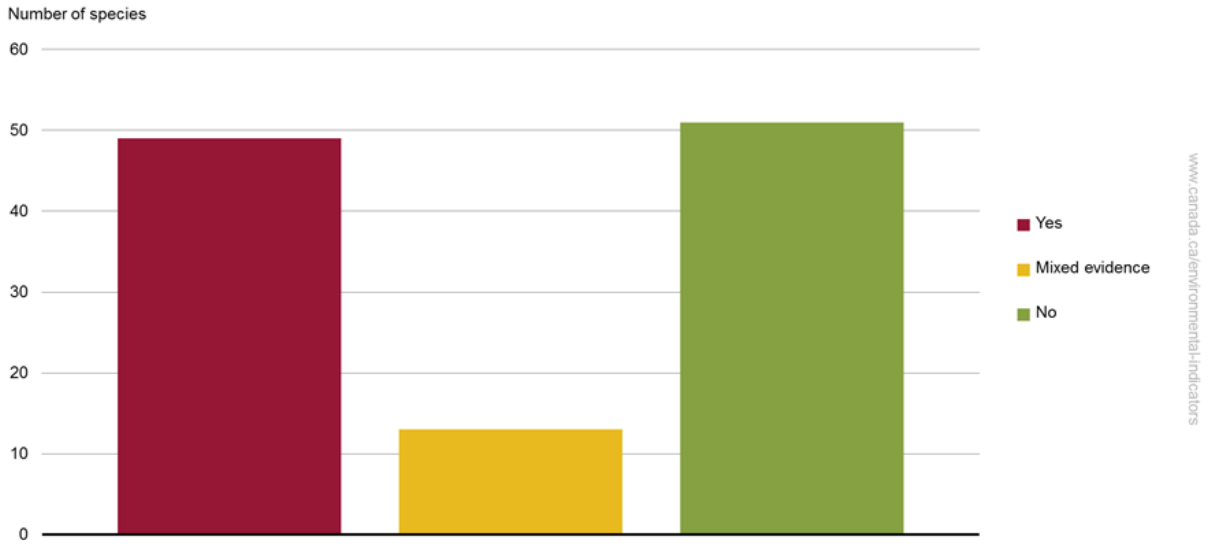
Some wildlife species in Canada are at risk of extinction. For many of these species, population objectives are set out in a recovery document. This indicator presents early signs of progress and provides a preliminary assessment of whether recovery efforts are working, recognizing that recovery may take many years.

Key results

Are population trends of species at risk consistent with objectives? For the 113 species for which population trends could be determined:

- 49 species (43%) show progress towards their population objectives
- 51 species (45%) do not show progress
- The remaining species show some indication of both improvement and decline

Figure 1. Are population trends of species at risk consistent with objectives? Canada, May 2017



Data for Figure 1

Note: Categories account for the amount of time that has been available for recovery. Mixed evidence means that there is a mix of positive and negative population trends.
Source: Environment and Climate Change Canada, Fisheries and Oceans Canada, Parks Canada, and the Committee on the Status of Endangered Wildlife in Canada Secretariat (2017).

As of May 2017, final recovery strategies or management plans had been published for a total of 378 species at risk. Of that total, 143 species with population-oriented objectives had been reassessed since their recovery documents were finalized. For 30 species, reassessments did not contain enough information to determine population trends. The indicator is therefore based on 113 species.

In 2017, 9 animal and 4 plant species were added to the indicator. Overall, there was no clear pattern of differences among groups of related species.

- of the 9 animal species, 3 showed an improving trend, 4 did not show progress and 2 had some indication of both improvement and decline

- of the 4 plant species, 3 showed an improving trend and 1 showed different trends at different sites

Recovery of species is affected by many factors, including life span, reproductive cycle, and the state of their habitat. It can also be affected by threats such as habitat loss and pollution. In addition, recovery of rare species can be difficult to detect, particularly if individuals are hard to find and identify.

About the indicator

What the indicator measures

The indicator assesses the recovery trends of species at risk for which final recovery documents and trend information are available. Results should not be interpreted as a measure of recovery success until sufficient time has passed to allow species to recover and to allow enough information to be collected to assess that recovery.

Why this indicator is important

The indicator provides a preliminary assessment of whether recovery strategies are working. We protect species at risk because they are important elements of healthy ecosystems. The indicator directly measures progress against Target 2 of the 2020 Biodiversity Goals and Targets for Canada and the Species at risk target in the 2016–2019 Federal Sustainable Development Strategy.

In general, successful recovery of species should arrest or reverse any unnatural decline and remove or mitigate anthropogenic pressures in order to improve or stabilize the likelihood of the species' persistence in the wild.

Related indicators

The Changes in the status of wildlife species at risk indicator tracks changes in status for species at risk assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

The Status of wild species indicator reports extinction risks across a broad set of species, using a different set of categories.

The Canadian species index indicator tracks average population trends for vertebrate species in Canada.

Healthy wildlife populations

This indicator supports the measurement of progress towards the following 2016–2019 Federal Sustainable Development Strategy long-term goal: All species have healthy and viable populations.

Data sources and methods

Data sources

This indicator is scoped to the Species at Risk Act (SARA) registry.

For species listed under SARA for which final recovery documents (a recovery strategy or a management plan) have been published, objectives relating to the size and distribution of the population are drawn from the documents.

To evaluate progress toward objectives, population trend data contained in later species assessments are considered. Most data are from the most recent assessment of the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). For some species, data are from Reports on the Progress of Recovery Strategy Implementation.

All documents are available from the Species at Risk Public Registry.

More information

Objectives: recovery strategies and management plans

The Species at Risk Act requires the Government of Canada to prepare recovery strategies for all listed Extirpated, Endangered, or Threatened species. It also requires the preparation of a management plan for all species listed Special Concerns. The Special Concerns listing means wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.

The Act allows the Government to adopt all or part of existing recovery/management plans for the species, such as those developed under the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), if it meets the requirements under the Act for content.

Species at Risk Act recovery documents

The goal of the Species at Risk Act is to prevent endangered or threatened plants and animals from becoming lost from the wild, and to help in their recovery. The Act is also intended to manage species of Special Concern and to prevent them from becoming Endangered or Threatened. For species listed as Endangered, Threatened or Extirpated under the Species at Risk Act, a recovery strategy must be prepared by Environment and Climate Change Canada, Parks Canada Agency or Fisheries and Oceans Canada, as appropriate. For species listed as Special Concern, a management plan must be prepared. The provisions of the Act come into force when species are added to the List of Wildlife Species at Risk.

Recovery strategies assess whether recovery is feasible, outline what threats need to be addressed, set objectives, broad strategies and approaches for the species' recovery, and identify critical habitat. When the required critical habitat cannot be fully identified, a recovery strategy includes a schedule of studies to complete the identification. Co-occurring species may share a strategy. Recovery strategies must be completed within 1 year of listing for species listed as Endangered, and within 2 years for species being listed as Threatened or Extirpated. Recovery strategies for species deemed recoverable are followed by action plans, which outline specific measures required to meet the objectives of the recovery strategy.

Management plans are required within 3 years of listing for species being listed as Special Concern. Management plans include conservation measures for species of Special Concern and their habitat and, when possible, are prepared for multiple species in a shared ecosystem or landscape.

Recovery strategies and management plans are as varied as the biology of, and threats to, the species they address. The documents consider the current and past abundance and distribution of the species, and also recommend approaches for recovery or conservation. For

example, the objective for the Poor Pocket Moss is to maintain existing populations through habitat protection and stewardship, including through limiting recreational access to sites. The goal for the Atlantic Right Whale is to have an increasing trend over 3 generations (about 60 years), by reducing mortality from ship strikes, entanglement in fishing gear, and habitat degradation.

Population trends: COSEWIC assessments and Species at Risk Act progress reports

In general, the latest available information on population trends was extracted from the most recent COSEWIC assessments.

COSEWIC is an independent body of experts that determines the status of Canadian wildlife species, subspecies, varieties or other designatable units that are suspected of being at risk of extinction or extirpation. The assessment report gathers the available science and may include Indigenous and community knowledge, to provide a comprehensive view of species status. The Committee reassesses species every 10 years or more often if warranted. It should be noted that COSEWIC reports, including reassessments, are independent of other work under the Species at Risk Act.

If more recent population information was available in a Report on the Progress of Recovery Strategy Implementation, this information was used. The Report on Progress generally describes actions taken toward recovery, and may or may not contain information on biological trends.

Methods

Population trend information for each species is compared to its objectives to determine whether it is on track to meet those objectives. Each species is assigned to 1 of 4 categories based on whether it is making progress toward objectives: yes, no, mixed evidence, or insufficient information. The indicator is a count of the number of species in each of the first 3 categories.

More information

Species selection

All species for which final recovery documents exist are considered; these are species listed as Extirpated, Endangered, Threatened, or of Special Concern. A species is included in the indicator if it meets 4 criteria:

1. species listed as Extirpated, Endangered or Threatened must be deemed feasible to recover
2. species must have objectives relating to population size, distribution or both
3. species must have been reassessed since the publication of the final recovery strategy/management plan, to allow a comparison to previous conditions
4. sufficient information must be available to categorize the species

For the purposes of this indicator, reassessed means that the species has been reassessed by the Committee on the Status of Endangered Wildlife in Canada, or that a Report on the Progress of Recovery Strategy Implementation has been prepared and contains information on the species population.

The following 10 species are not considered in this indicator because their recovery was deemed not feasible: Atlantic Walrus (Northwest Atlantic population), Dwarf Wedgemussel, Eskimo Curlew, Grey Whale (Atlantic population), Grizzly Bear (Prairie population), Incurved Grizzled Moss, Paddlefish, Shortnose Cisco, Tiger Salamander (Great Lakes population), and Timber Rattlesnake.

The following 11 species are not considered in this indicator because their recovery strategies contain only operational objectives, such as verification of the presence of the species in

Canada: Blanchard's Cricket Frog, Butternut, Gravel Chub, Island Blue, Kirtland's Warbler, Margined Streamside Moss, Mormon Metalmark (Prairie population), Ottoe Skipper, Pink-footed Shearwater, Puget Oregonian Snail and Silver Hair Moss.

For 30 species, the evidence contained in reassessment documents was insufficient to assess whether progress was being made toward objectives. Information on these species is contained in the detailed data table.

Categorization

A comparison was made between the recovery objectives and the trends in observed data, accounting as much as possible for the length of time elapsed between the recovery document and the reassessment, and for the biology of the species. Using a weight-of-evidence approach, species were placed into one of 4 categories, and the rationale was recorded:

1. population trends consistent with recovery objectives (Yes)
2. population trends not consistent with recovery objectives (No)
3. some information suggests improving trends, but there is also some evidence of decline (Mixed evidence)
4. available data is insufficient to determine population trends (Insufficient data to determine trends)

The indicator is a count of the number of species categorized in the first 3 groups.

Listing of species at risk in Canada

Canada has a 2-step process for listing species at risk in Canada:

1. Scientific assessment: the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assesses the status of wildlife species.

   Species potentially at risk are assessed by COSEWIC. A status report is completed by the committee and 1 of 7 risk categories is assigned: Extinct, Extirpated, Endangered, Threatened, Special Concern, Not at risk or Data deficient. Each species at risk is reassessed by COSEWIC at least once every 10 years, or at any time if there is reason to believe that the status of the species has changed.

2. Listing decision: COSEWIC provides advice to the Government of Canada, which makes a decision on whether to list.

   The assessments completed by COSEWIC are provided to the Minister of Environment and Climate Change Canada, who recommends to the Governor in Council which species to add to the List of Wildlife Species at Risk (Schedule 1) under the Species at Risk Act (the Act). Inclusion on Schedule 1 brings the provisions of the Act into effect.

Recent changes

For the 2017 update, reports on the Progress of Recovery Strategy Implementation were systematically considered as possible data sources.

New documents allowed additional species to be included.

Species with insufficient data to determine population trends are now excluded from the indicator.

Caveats and limitations

It takes time for a species' response to management actions to become apparent. For example, an insect population might begin to recover in a few years, while it can take decades to detect changes in tree or whale populations. Indicator results should not be interpreted as a measure of recovery

success until sufficient time has passed to allow species to recover and to collect enough information to assess that recovery.

Observations of rare species are often difficult to collect, and assessments are necessarily based on incomplete information.

More information

Coverage of species in the indicator is narrow compared to the number of wildlife species assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as at-risk, or compared to the number of species at risk listed on Schedule 1 of the Species at Risk Act.

While the indicator uses the best information available, it does not always precisely match the management actions. Species trend data may include periods of time prior to the finalization of recovery documents.

In selecting new species to assess, COSEWIC gives priority to species more likely to become extinct. COSEWIC is mandated to reassess species every 10 years, or more often if warranted. Under some circumstances, the reassessment may be delayed, resulting in uneven data availability across species.

With time, the number final recovery documents and the number of reassessed species will increase, and trends will become more meaningful as populations have sufficient time to respond.

Resources

References

Government of Canada (2015) Species at Risk Act. Retrieved on August 30, 2017.

Government of Canada (2016) Species at Risk Public Registry, A to Z Species Index. Retrieved on August 30, 2017.

Government of Canada (2017) Canada's Strategy. Retrieved on August 30, 2017.

Government of Canada (2017) Committee on the Status of Endangered Wildlife in Canada. Retrieved on August 30, 2017.

Government of Canada (2017) List of Wildlife Species at Risk, SARA Schedule 1. Retrieved on August 30, 2017.

Related information

Aquatic species at risk

Habitat stewardship for species at risk

Species at risk

Annex

Annex A. Data tables for the figures presented in this document

Table A.1. Data for Figure 1. Are population trends of species at risk consistent with objectives? Canada, May 2017

Population trends consistent with objectives?	Number of species[A]	Species (common name)
Yes	49	Anticosti Aster; Atlantic Whitefish; Atlantic Wolffish; Banded Killifish (Newfoundland population); Banff Springs Snail; Blackstripe Topminnow; Carmine Shiner; Cucumber Tree; Frosted Glass-whiskers (Atlantic population); Haller's Apple Moss; Harlequin Duck (Eastern population); Hooded Warbler; Hotwater Physa; Killer Whale (Northeast Pacific northern resident population); Killer Whale (Northeast Pacific transient population); Leatherback Sea Turtle (Atlantic population); North Atlantic Right Whale; Northern Bottlenose Whale (Scotian Shelf population); Northern Riffleshell; Northern Wolffish; Olympia Oyster; Paxton Lake Benthic Threespine Stickleback; Paxton Lake Limnetic Threespine Stickleback; Pink Coreopsis; Prairie Lupine; Rayed Bean; Rusty Blackbird; Savannah Sparrow, princeps subspecies; Short-tailed Albatross; Snuffbox; Soapweed; Sonora Skipper; Spotted Wintergreen; Spotted Wolffish; Sprague's Pipit; Steller Sea Lion; Striped Bass (St. Lawrence Estuary population); Sweet Pepperbush; Swift Fox; Vananda Creek Benthic Threespine Stickleback; Vananda Creek Limnetic Threespine Stickleback; Water-pennywort; Wavy-rayed Lampmussel; Western Prairie Fringed-orchid; Western Silvery Minnow; Whooping Crane; Wood-poppy; Yellow Lampmussel; Yucca Moth
Mixed evidence	13	Blanding's Turtle (Nova Scotia population); Boreal Felt Lichen (Boreal population); Burrowing Owl; Common Hoptree; Eastern Mountain Avens; Louisiana Waterthrush; Plymouth Gentian; Poor Pocket Moss; Poweshiek Skipperling; Rusty Cord-moss; Seaside Birds-foot Lotus; Water-plantain Buttercup; Woodland Caribou (Northern Mountain population)

Population trends consistent with objectives?	Number of species[A]	Species (common name)
No	51	Atlantic Salmon (Inner Bay of Fundy populations); Baikal Sedge; Bear's-foot Sanicle; Beluga Whale (St. Lawrence Estuary population); Boreal Felt Lichen (Atlantic population); Channel Darter; Coastrange Sculpin (Cultus population) (also Cultus Pygmy Sculpin); Copper Redhorse; Dakota Skipper; Deltoid Balsamroot; Eastern Yellow-bellied Racer; Enos Lake Benthic Threespine Stickleback; Enos Lake Limnetic Threespine Stickleback; Ermine, haidarum subspecies; Fernald's Braya; Flooded Jellyskin; Furbish's Lousewort; Golden Paintbrush; Goldencrest; Grass Pickerel; Greater Sage-Grouse, urophasianus subspecies; Island Marble; Kidneyshell; Killer Whale (Northeast Pacific southern resident population); Leatherback Sea Turtle (Pacific population); McCown's Longspur; Northern Abalone; Ord's Kangaroo Rat; Piping Plover, circumcinctus subspecies; Piping Plover, melodus subspecies; Prothonotary Warbler; Pugnose Minnow; Red Crossbill, percna subspecies; Red Mulberry; Roseate Tern; Round Hickorynut; Round Pigtoe; Salamander Mussel (also Mudpuppy Mussel); Silver Chub; Small Whorled Pogonia; Spotted Owl, caurina subspecies; Spotted Sucker; Taylor's Checkerspot; Warmouth; Westslope Cutthroat Trout (Alberta population); White Flower Moth; White-top Aster; Woodland Caribou (Atlantic-Gaspésie population); Woodland Caribou (Boreal population); Yellow Montane Violet, praemorsa subspecies; Yellow-breasted Chat, virens subspecies

Note: [A] There are also 30 species for which recovery objectives and reassessments exist, but insufficient evidence is available in the reassessment to assess trends. Categories account for the amount of time that has been available for recovery. Mixed evidence means that there is a mix of positive and negative population trends. The number of years elapsed is calculated as the date of the reassessment document minus the date of the final recovery document. It is based on document publication dates, not the date of the information within the document nor on the date that management action began.
Source: Environment and Climate Change Canada, Fisheries and Oceans Canada, Parks Canada, and the Committee on the Status of Endangered Wildlife in Canada Secretariat (2017).

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