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SPECIES AT RISK POPULATION TRENDS

CANADIAN ENVIRONMENTAL SUSTAINABILITY INDICATORS

Canada

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Environment and Climate Change Canada
Public Inquiries Centre
12th Floor Fontaine Building
200 Sacré-Coeur Blvd
Gatineau QC K1A 0H3
Telephone: 1-800-668-6767 (in Canada only) or 819-938-3860
Fax: 819-938-3318
Email: ec.enviroinfo.ec@canada.ca

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December 2020

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Species at risk population trends

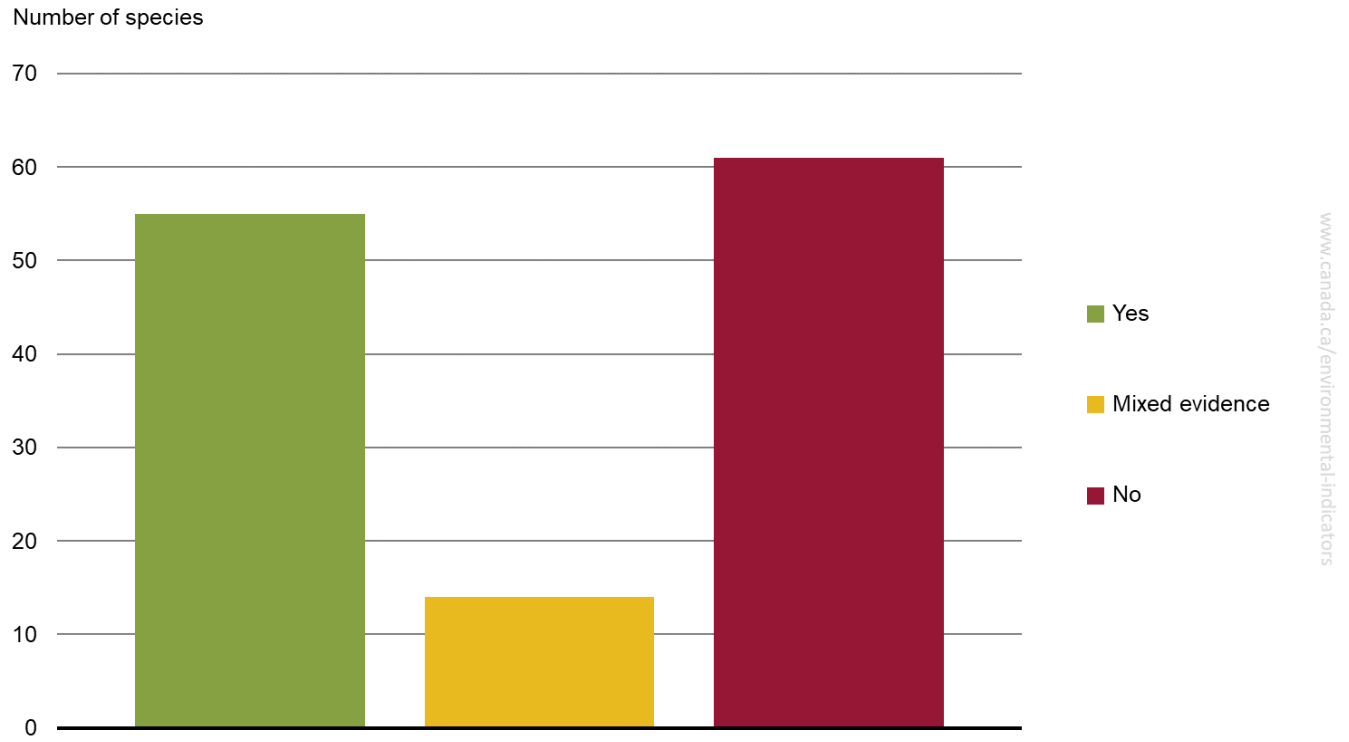
The *Species at Risk Act* includes, as part of its purposes, providing for the recovery of wildlife species that are extirpated, endangered or threatened; and managing species of special concern to prevent them from becoming endangered or threatened. For many of these species, objectives for the population and distribution are set out in a recovery strategy or management plan. This indicator provides a preliminary assessment of whether the recovery or management efforts are on track to meet these objectives. It is important to note that it may take many years to observe a population or distribution response in a species to these efforts.

Key results

Are population and distribution trends of species at risk consistent with recovery or management objectives? Of the 130 species for which trends could be determined:

- 55 species (42%) show progress towards their population and distribution objectives
- 61 species (47%) do not show progress
- 14 species (11%) show mixed evidence, meaning that some information suggests improving trends, but there is also some evidence of decline

Figure 1. Are population and distribution trends of species at risk consistent with recovery and management objectives? Canada, November 2019



Data for Figure 1

Note: There are also 59 species for which recovery or management objectives and reassessments exist, but insufficient evidence is available in the reassessment to assess trends. Information on these species can be found in the detailed data table. Categories account for the amount of time that has been available for recovery. "Mixed evidence" means that some information suggests improving trends, but that there is also some evidence of decline.
Source: Environment and Climate Change Canada, Fisheries and Oceans Canada, Parks Canada, and the Committee on the Status of Endangered Wildlife in Canada Secretariat (2020).

As of November 2019, final recovery strategies have been published for 332 extirpated, endangered or threatened species and management plans have been published for 110 species of special concern. Of those 442

species, 189 species with population and distribution objectives in their recovery strategy or management plan were reassessed by the Committee on the Status of Endangered Wildlife in Canada since their recovery strategy or management plan was finalized. Of the 189 species, 59 did not contain enough information to determine population and distribution trends. The indicator is, therefore, based on 130 species.

In 2019, 1 animal species was added and 2 animal species were removed from the indicator. There was also 1 animal species that changed from their population and distribution trends being consistent with the objectives, to no longer being consistent with the objectives.

- The bird species (Chestnut-collared Longspur) that was added did not show a trend consistent with their population and distribution objectives
- The 2 fish species (Coastrange Sculpin and Columbia Sculpin) were removed because their recovery strategies did not contain population and distribution objectives
- The most recent Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assessment for the Striped Bass fish (St. Lawrence River population) assessed the original St. Lawrence River population as extinct. Striped Bass from the Miramichi River were stocked in the St. Lawrence River and established a self-reproducing population. As these established fish originated from a different population the original St. Lawrence River population is considered to no longer exist.

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

About the indicator

What the indicator measures

The indicator shows whether population and distribution trends of species at risk are consistent with the objectives in final recovery strategies or management plans. Results should not be interpreted as a measure of recovery or management success until sufficient time has passed to allow species to respond and to allow enough information to be collected to assess the results of recovery or management efforts.

Why this indicator is important

The indicator provides a preliminary assessment of whether recovery or management efforts are on track. Species at risk are important elements of healthy ecosystems, and are protected to support biodiversity. In general, successful recovery or management of species at risk should stop or reverse significant declines due to human activity and should improve or stabilize the likelihood of the species' persistence in the wild.

Healthy wildlife populations

This indicator supports the measurement of progress towards the following 2019 to 2022 Federal Sustainable Development Strategy long-term goal: All species have healthy and viable populations. It is used to assess progress towards the target: By 2020, species that are secure remain secure and populations of species at risk listed under federal law exhibit trends that are consistent with recovery strategies and management plans.

In addition, the indicator contributes to the Sustainable Development Goals of the 2030 Agenda for Sustainable Development. It is linked to the 2030 Agenda's Goal 15, Life on Land and Target 15.5, "Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species."

The indicator also contributes towards reporting on Target 2 of the 2020 Biodiversity Goals and Targets for Canada: "By 2020, species that are secure remain secure, and populations of species at risk listed under federal law exhibit trends that are consistent with recovery strategies and management plans."

It also contributes to the Aichi Biodiversity Targets. It is linked to Target 12: "By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained."

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.

The Status of wild species indicator reports extinction risks across a broad set of species and can reveal early signs of trouble before species reach a critical condition.

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

Data sources and methods

Data sources

For species listed under the *Species at Risk Act* (SARA, the Act), population and distribution objectives are drawn from final recovery strategies (for extirpated, endangered and threatened species) or management plans (for species of special concern).

To evaluate progress towards the objectives, population and distribution data are obtained from the most recent assessment by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), from Reports on the Progress of Recovery Document Implementation and other publicly available data.

All documents are made available through the Species at risk public registry or can be requested from COSEWIC.

More information

Committee on the Status of Endangered Wildlife in Canada assessments

The Committee on the Status of Endangered Wildlife in Canada is an independent body of experts that determines the conservation status of Canadian wildlife species or other designatable units (subspecies, varieties, discrete and evolutionary significant populations) that are suspected of being at risk of extinction or extirpation. The assessment report compiles the available science to provide a comprehensive view of species status and may include Indigenous and community knowledge. 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 SARA and do not take political, social or economic factors into account.

Species at Risk Act recovery strategies and management plans

For species listed under SARA as endangered, threatened or extirpated on Schedule 1, a recovery strategy must be prepared by the competent minister(s) (Environment and Climate Change Canada, Parks Canada Agency or Fisheries and Oceans Canada, as appropriate). For species listed under SARA as special concern, a management plan must be prepared. The provisions of the Act come into force when species are added to SARA Schedule 1. See Table 1 for species at risk definitions.

Table 1. Species at risk definitions

Extirpated species	A wildlife species that no longer exists in the wild in Canada, but exists elsewhere in the wild.
Endangered species	A wildlife species that is facing imminent extirpation or extinction.
Threatened species	A wildlife species that is likely to become an endangered species if nothing is done to reverse the factors leading to its extirpation or extinction.
Species of special concern	A wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.

Source: *Species at Risk Act*, 2019

The *Species at Risk Act* allows the Government to adopt all or part of existing recovery strategies or management plans (SARA sections 44 and 69, respectively) for a Schedule 1 listed species, such as those developed by a province or territory, if it meets the requirements under the Act for content.

A recovery strategy includes a determination of whether recovery is feasible. If recovery is determined to be feasible, the recovery strategy must address threats to the survival of the species identified by COSEWIC, including any loss of habitat. It must also include other specific elements as outlined in SARA section 41 including population and distribution objectives. A multi-species or ecosystem approach may be used when preparing the recovery strategy if appropriate to do so. A proposed recovery strategy must be made available in the Species at risk public registry within 1 year of being listed on SARA Schedule 1 for endangered species, and within 2 years for threatened or extirpated species. A report on the implementation of the recovery strategy and the progress towards meeting its objectives must be completed and made available in the public registry every 5 years. Action plans must be prepared to support implementation of the recovery strategy. In general, action plans will outline specific measures required to meet the objectives of the recovery strategy.

Management plans are required within 3 years of listing for species of special concern, must include measures for the conservation of the species and may apply to multiple species. Implementation of management plans must be monitored, and a report assessing the implementation must be made available in the public registry every 5 years.

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 recommend approaches for recovery or conservation. For example, the objective of the recovery strategy for the Poor Pocket Moss is to maintain existing populations through habitat protection and stewardship, including limiting recreational access to sites. The recovery strategy goal for the North 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.

Species at Risk Act progress reports

If more recent population and distribution information was available in a Report on the Progress of Recovery Document Implementation than a COSEWIC report, this information was used. These reports generally describe actions taken towards recovery or management, and may or may not contain information on biological trends.

Methods

Population and distribution 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 the yes, no or mixed evidence categories.

More information

Species selection

All species for which final recovery strategies or management plans exist are considered, namely species listed as extirpated, endangered, threatened, or special concern. A species is included in the indicator if it meets the following criteria.

- Species listed as extirpated, endangered or threatened must be deemed feasible to recover
- The species' recovery strategy or management plan has objectives relating to population size, distribution or both
- Species have been reassessed (COSEWIC assessment or a Report on the Progress of Recovery Document Implementation) since the publication of the final recovery strategy or management plan, to allow for population and distribution trends to be compared to the objectives
- Sufficient information must be available to assess if the species' population and distribution trends are consistent with the recovery or management objectives

It is not deemed feasible to recover the following 9 species: Atlantic Walrus (Northwest Atlantic population), Dwarf Wedgemussel, Eskimo Curlew, Grey Whale (Atlantic population), Incurved Grizzled

Moss, Paddlefish, Pygmy Short-horned Lizard, Shortnose Cisco, and Timber Rattlesnake. As such, they have no population or distribution objectives and are not considered in this indicator.

The following 17 species are not considered in this indicator because their recovery strategies or management plans do not contain population and distribution objectives, but rather targets such as verification of the presence of the species in Canada: Blanchard's Cricket Frog, Brook Spike-primrose, Butternut, Coastrange Sculpin (Cultus population) (also Cultus Pygmy Sculpin), Columbia Sculpin, Frosted Elfin, Gravel Chub, Great Basin Spadefoot, Island Blue, Karner Blue, Kirtland's Warbler, Margined Streamside Moss, Mormon Metalmark (Prairie population), Ottoe Skipper, Pink-footed Shearwater, Puget Oregonian and Silver Hair Moss.

For 59 species, the evidence contained in reassessment documents was insufficient to assess whether progress was being made towards objectives. Information on these species is contained in the detailed data table.

Categorization

A comparison was made between the objectives and the population and distribution 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 1 of 4 categories, and the rationale was recorded.

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

The indicator is a count of the number of species placed in the first 3 categories. Species in the fourth category are not included in the indicator. Should a species become not at risk because it achieves its population and distribution objectives, the species will be categorized as a Yes in the indicator and remain in this category in future indicator updates. One (1) species, the Hooded Warbler, was no longer at risk since 2012 and is included in the Yes category in the indicator.

Listing of species at risk in Canada

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

1. Scientific assessment: 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 members of the Canadian Endangered Species Conservation Council, and 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*. Inclusion on Schedule 1 brings the provisions of the Act into effect.

Recent changes

New recovery documents allowed additional species to be included in the indicator. Documents are available through the Species at risk public registry or through contacting the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

The Coastrange Sculpin and the Columbia Sculpin were removed from the indicator because their recovery strategies did not contain population and distribution objectives.

Caveats and limitations

It takes time for a species' response to recovery management actions to become apparent. For example, while an insect population might begin to show signs of recovery in a few years, it can take decades to detect changes in tree or whale populations. Indicator results should not be interpreted as a measure of success in recovering or maintaining species until sufficient time has passed to allow species to respond and to collect enough information for assessment.

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 what is contained in recovery strategies or management plans. The evaluation of species trends may include data from time periods 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 of final recovery documents and the number of species that are reassessed by COSEWIC will increase, and trends will become more meaningful as populations have sufficient time to respond.

Resources

References

Committee on the Status of Endangered Wildlife in Canada (COSEWIC) (2019) Committee on the Status of Endangered Wildlife in Canada. Retrieved on September 23, 2020.

Government of Canada (2015) *Species at Risk Act*. Retrieved on September 23, 2020.

Government of Canada (2017) List of wildlife species at risk: schedule 1. Retrieved on September 23, 2020.

Government of Canada (2018) Species at risk: the act, the accord and the funding programs. Retrieved on September 23, 2019.

Government of Canada (2020) Species at risk public registry, A to Z species index. Retrieved on September 23, 2020.

Related information

Aboriginal Fund for Species at Risk

Aquatic species at risk

Habitat stewardship program 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 and distribution trends of species at risk consistent with recovery and management objectives? Canada, November 2019

Population and distribution trends consistent with objectives?	Number of species[A]	Species (common name)
Yes	55	Anticosti Aster; Atlantic Whitefish; Atlantic Wolffish; Banded Killifish (Newfoundland population); Banff Springs Snail; Blackstripe Topminnow; Black-tailed Prairie Dog; Bolander's Quillwort; Carmine Shiner; Common Nighthawk; Cucumber Tree; Fin Whale (Atlantic population); Frosted Glass-whiskers (Atlantic population); Haller's Apple Moss; Harlequin Duck (Eastern population); 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; Peregrine Falcon anatum/tundrius; Pink Coreopsis; Prairie Lupine; Rainbow Smelt (Lake Utopia small-bodied population); Rayed Bean; Rusty Blackbird; Savannah Sparrow, princeps subspecies; Short-tailed Albatross; Snuffbox; Soapweed; Sonora Skipper; Spoon-leaved Moss; Spotted Wintergreen; Spotted Wolffish; Sprague's Pipit; Steller Sea Lion; 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; Hooded Warbler
Mixed evidence	14	Blanding's Turtle (Nova Scotia population); Boreal Felt Lichen (Boreal population); Burrowing Owl; Common Hoptree; Eastern Mountain Avens; Louisiana Waterthrush; Olive-sided Flycatcher; Plymouth Gentian; Poor Pocket Moss; Poweshiek Skipperling; Rusty Cord-moss; Seaside Birds-foot Lotus; Water-plantain Buttercup; Woodland Caribou (Northern Mountain population)

Population and distribution trends consistent with objectives?	Number of species[A]	Species (common name)
No	61	Atlantic Salmon (Inner Bay of Fundy population); Baikal Sedge; Bear's-foot Sanicle; Beluga Whale (St. Lawrence Estuary population); Black-footed Ferret; Boreal Felt Lichen (Atlantic population); Channel Darter; Chestnut-collared Longspur; Copper Redhorse; Cryptic Paw Lichen; 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; Greater Short-horned Lizard; Island Marble; Kidneyshell; Killer Whale (Northeast Pacific southern resident population); Leatherback Sea Turtle (Pacific population); McCown's Longspur; Northern Abalone; Northern Saw-whet Owl, brooksi subspecies; Ord's Kangaroo Rat; Pink Sand-verbena; Piping Plover, circumcinctus subspecies; Piping Plover, melodus subspecies; Porsild's Bryum; 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; Streaked Horned Lark; Striped Bass (St. Lawrence River population); Tall Woolly-heads; Taylor's Checkerspot; Vesper Sparrow affinis subspecies; 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 59 species for which recovery or management objectives and reassessments exist, but insufficient evidence is available in the reassessment to assess trends. Information on these species can be found in the detailed data table. Categories account for the amount of time that has been available for recovery. "Mixed evidence" means that some information suggests improving trends, but that there is also some evidence of decline.
Source: Environment and Climate Change Canada, Fisheries and Oceans Canada, Parks Canada, and the Committee on the Status of Endangered Wildlife in Canada Secretariat (2020).

Additional information can be obtained at:

Environment and Climate Change Canada
Public Inquiries Centre
12th Floor Fontaine Building
200 Sacré-Coeur Blvd
Gatineau QC K1A 0H3
Telephone: 1-800-668-6767 (in Canada only) or 819-938-3860
Fax: 819-938-3318
Email: ec.enviroinfo.ec@canada.ca