Environment and Climate Change Canada
Environnement et Changement climatique Canada

CHANGES IN THE STATUS OF WILDLIFE SPECIES AT RISK

CANADIAN ENVIRONMENTAL SUSTAINABILITY INDICATORS

Canada

Suggested citation for this document: Environment and Climate Change Canada (2020) Canadian Environmental Sustainability Indicators: Changes in the status of wildlife species at risk. Consulted on *Month day, year*.
Available at: www.canada.ca/en/environment-climate-change/services/environmental-indicators/changes-status-wildlife-species-risk.html.

Cat. No.: En4-144/83-2020E-PDF
ISBN: 978-0-660-36674-6

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CANADIAN ENVIRONMENTAL SUSTAINABILITY INDICATORS

CHANGES IN THE STATUS OF WILDLIFE SPECIES AT RISK

December 2020

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Changes in the status of wildlife species at risk

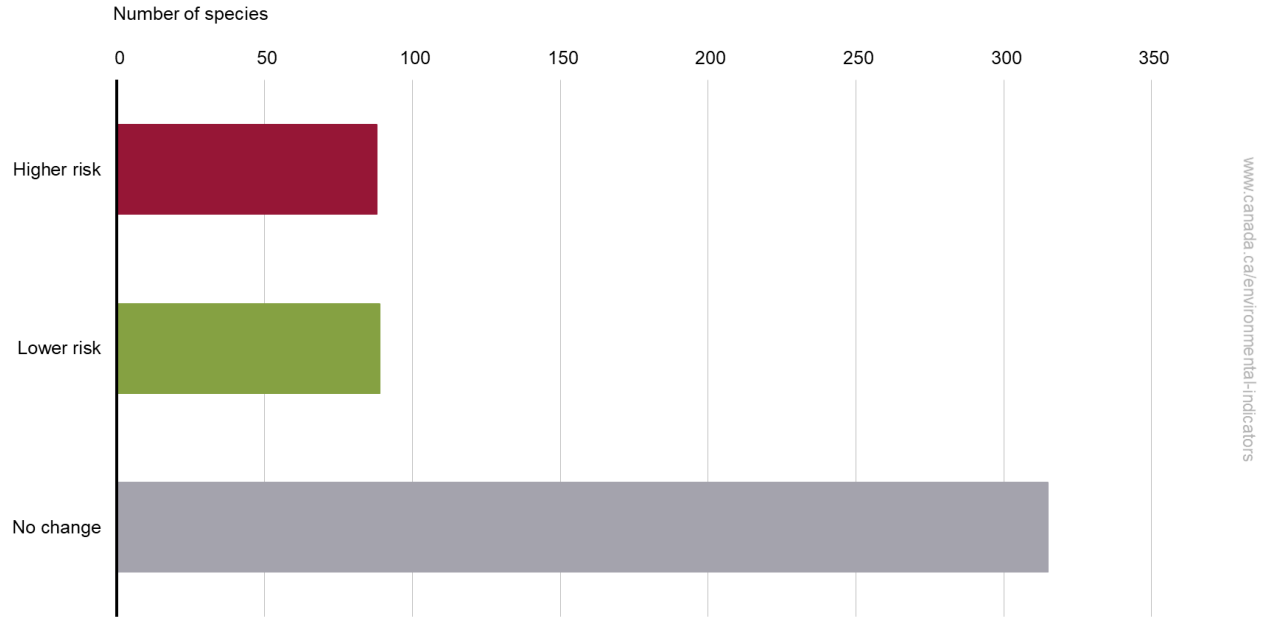
Wildlife species are essential to the integrity of ecosystems. However, some wildlife species are at risk of disappearing from Canada. Wildlife species that are thought to be at risk are periodically assessed. This indicator reports on changes in the status of wildlife species at risk when they are reassessed. Changes in status over time may help determine whether conditions for these wildlife species are improving.

Key results

Of the 492 wildlife species at risk that have been reassessed, and for which sufficient data are available to determine if there has been a change in status:

- 88 wildlife species (18%) are now in a higher risk category
- 89 wildlife species (18%) are now in a lower risk category
- 315 wildlife species (64%) show no change in status

Figure 1. Changes in the risk of disappearance of wildlife species from Canada, November 2019



Data for Figure 1

Note: In this analysis, wildlife species refers to a species, subspecies[1] or a genetically or geographically distinct population. Wildlife species disappearance may refer to extinction or extirpation (an extirpated species no longer occurs in the wild in Canada). Lower risk consists of species reassessed as no longer at risk as well as species in a lower risk category compared to the previous assessment.
Source: Committee on the Status of Endangered Wildlife in Canada (November 2019).

Monitoring wildlife species[2] is important in order to determine the status of wildlife species, including if they are at risk. Conservation actions are often required to prevent the disappearance of wildlife species at risk from Canada.

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assesses wildlife species that may be at risk and places them in a risk category. If conservation actions are effective, the risk level will generally

[1] Populations of the same wildlife species geographically separated that have developed genetic and morphological differences.

[2] A species, subspecies, variety or geographically or genetically distinct population of animal, plant or other organism, other than a bacterium or virus, that is wild by nature and is either native to Canada or has extended its range into Canada without human intervention and has been present in Canada for at least 50 years.

decrease over time. Nonetheless, depending on the life cycle of the species and the condition of its habitat, recovery may take many decades. In addition, some wildlife species are naturally rare in Canada, and these species are expected to remain at some level of risk.

Changes in risk level can be a result of improved information rather than actual changes in the condition of the wildlife species. This is more likely to occur for wildlife species that have improved in status than for wildlife species that have declined.[3]

Most wildlife species remain in the same category when they are reassessed. The changes that are observed most often occur between neighbouring categories.

In November 2019, 9 wildlife species were reassessed, of which 2 were in the endangered status category (a wildlife species facing imminent extirpation or extinction) in the previous assessment.

- The Western Harvest Mouse (*dychei* subspecies) remained in the endangered status category
- The Striped Bass (original St. Lawrence River population) was designated extinct[4]

In addition, the Western Harvest Mouse (*megalotis* subspecies), Coastrange Sculpin, and Chestnut-collared Longspur had moved from a lower risk category in the previous assessment to the endangered category in the most recent assessment. The other 4 species showed no change in their status.

About the indicator

What the indicator measures

The Changes in the status of wildlife species at risk indicator reports on changes in wildlife species designations for wildlife species assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). The committee is composed of independent experts who determine the national status of Canadian wildlife species, subspecies,[5] varieties[6] or other designatable units that are suspected of being at risk of extinction or extirpation.

Why this indicator is important

Recognition that a wildlife species is at risk of extinction or extirpation can focus management action. Successful management should reduce the risk of species loss. The conservation of wildlife species at risk is a key component of the Canadian Biodiversity Strategy, which aims to conserve biological diversity in Canada.[7] The conservation of such wildlife species is also the goal of the *Species at Risk Act*, which provides legal protection to prevent the extinction of wildlife species and secure the necessary actions for their recovery.

Ecosystems are composed of a variety of animals, plants and other organisms, each of which performs a specialized role. This diversity of life supports vital ecological processes and provides a wide range of resources known as ecological goods and services, such as pest management, oxygen production and water purification. The loss of species has detrimental impacts on ecosystems and the goods and services they provide.

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.

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[3] Moore A, Cyr A, Findlay S (2016) Do changes in COSEWIC status reflect changes in species' biological status. Report to the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), 10pp.

[4] While the original St. Lawrence River striped bass population was designated as extinct, a successful stocking program in 2002 has established a reproductive population of Striped Bass to the St. Lawrence River from the Miramichi River in New Brunswick. For more information, see COSEWIC's Announcement on the Striped Bass (St. Lawrence River population).

[5] Populations of the same wildlife species geographically separated that have developed genetic and morphological differences.

[6] Populations of plant organisms of the same wildlife species with a common set of characteristics.

[7] Government of Canada (2014) Protection of species at risk: federal, provincial and territorial accord. Retrieved on July 20, 2020.

In addition, the indicator contributes to the Sustainable Development Goals of the 2030 Agenda for Sustainable Development. It is linked to 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."

In addition, the indicator 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 Species at risk population trends indicator tracks population trends for wildlife species at risk that are listed under the *Species at Risk Act*.

The Status of wild species indicator reports extinction risks across a broad set of species and provides an indication of the overall state of biodiversity in Canada.

The Canadian species index indicator tracks average population trends for vertebrate species in Canada and is a good proxy measure of overall biodiversity trends.

Data sources and methods

Data sources

Data are from the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) database on wildlife species at risk. Individual wildlife species status reports are available in the Species at risk public registry.

More information

The committee meets twice a year to consider wildlife species reports, assess wildlife species' risk of extinction or extirpation, and designate a status category. The COSEWIC Secretariat maintains a database of the assessment results, which were summarized for this indicator. Documents related to wildlife species of interest can be found on the Species at Risk Public Registry. In general, wildlife species are reassessed every 10 years, or sooner if there is reason to believe there is a significant change in their status. The date of reassessment therefore varies widely within the dataset.

Wildlife species are assigned to 1 of 7 status categories: extinct, extirpated, endangered, threatened, special concern, not at risk or data deficient. As of November 2019, a total of 1 086 wildlife species had been assigned a status.

Table 1. Number of species by status category, Canada, November 2019

Status category	Number of species
Extinct	19
Extirpated	22
Endangered	363
Threatened	190
Special concern	235
Not at risk	198
Data deficient	59
Total	**1 086**

Methods

Wildlife species are assigned a status change based on their previous status. The Changes in the status of wildlife species at risk indicator uses the set of wildlife species that have been reassessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and have not been designated as data deficient in either of the last 2 assessments (492 species).

More information

Wildlife species assessment

COSEWIC is a committee of independent experts that assesses wildlife species that may be at risk of disappearing from Canada.

The assessment process is divided into 3 sequential steps:

1. selection of wildlife species requiring assessment to create the prioritized candidate wildlife species list
2. compilation of available data, knowledge and information to produce status reports
3. assessment of a wildlife species' risk of extinction or extirpation and corresponding designation (status category)

In general, wildlife species are reassessed every 10 years. If information received suggests that a species should be reassessed sooner, COSEWIC may do so.

Indicator calculation

In its assessments, COSEWIC notes a status change. Wildlife species that have been assessed only once are given the change status of new. For reassessed wildlife species, there are 6 possible change status categories: no change, in a higher risk category, in a lower risk category, no longer at risk, changed, and reassigned. The change status for reassessed species is based on the 2 most recent assessments.

The indicator includes wildlife species that have been reassessed and for which it is possible to assess the change in risk. Therefore, of the 1 086 wildlife species with an assigned status, the indicator excludes 594 species:

- wildlife species that have been assessed only once and have a change status designation of new (481 species)
- wildlife species that are data deficient in either assessment and have a change status designation of changed (21 species)
- wildlife species with a status change designation of reassigned (88 species), which is used in cases where the unit being assessed has changed based on new information, for example a species that is split into subspecies or geographical units
- wildlife species that are data deficient in both recent assessments, which are assigned a change status designation of no change by COSEWIC (4 species)

Table 2. Relationship between change status and indicator category

Committee on the Status of Endangered Wildlife in Canada change status	Definition	Changes in wildlife species' disappearance risk category
New	Wildlife species examined for the first time	Excluded from the indicator
Changed	Wildlife species moved to the data deficient category from a risk category or to a risk category from the data deficient category	Excluded from the indicator
No change	Wildlife species stays in the same category after reassessment	No change[A]

Committee on the Status of Endangered Wildlife in Canada change status	Definition	Changes in wildlife species' disappearance risk category
In a higher risk category	Wildlife species placed in a higher risk category after reassessment	Higher risk
In a lower risk category	Wildlife species placed in a lower risk category after reassessment	Lower risk
No longer at risk	Wildlife species moved to the not at risk category from a risk category	Lower risk
Reassigned	Wildlife species that has been assigned to a different designatable unit	Excluded from the indicator

Note: [A] Wildlife species with a change designation of "no change" and that are data deficient on both dates when an assessment was made are excluded from the indicator.

Caveats and limitations

Wildlife species may take a long time to recover, and some wildlife species are naturally rare in Canada. A change in status may occur only after significant biological change (for example, increases in abundance, population size or geographical range) has been detected. For these reasons, relatively few wildlife species should be expected to show changes in risk level when reassessed. Nonetheless, if management efforts are successful, we should expect to see more improvements than declines over time.

Wildlife species at risk are reassessed approximately every 10 years and only a portion of assessed wildlife species are considered in this indicator. As such, comparisons between years should be made with caution.

More information

Changes in risk level can be a result of improved information rather than actual changes in the condition of the wildlife species. Many wildlife species that show decreased risk are reclassified due to new information, rather than biological change. Changes in knowledge often involve the detection of additional populations, with the result that wildlife species are less at risk of extinction than previously believed. Changes due to new knowledge can happen quickly, while biological changes need time. Wildlife species that are at risk can take a long time to recover, especially if they are long-lived and slow to reproduce. Also, in some cases, recovery depends on improvements to habitat which may take many decades.

Some wildlife species may change risk level due to changes in the interpretation of the assessment criteria.

Wildlife species that are naturally rare may be considered to be at risk because they are more vulnerable to threats. The lack of change for these wildlife species should not be considered a conservation failure.

Knowledge of which wildlife species may be at risk is far from complete, and only a portion of those suspected to be at risk can be assessed. The Committee on the Status of Endangered Wildlife in Canada prioritizes assessments based on expert opinion. Early efforts focused mainly on vertebrates and plants, which are also the better-known wildlife species. As a result, these wildlife species are over-represented among those that have been reassessed. Similarly, more knowledge has been gathered on wildlife species in southern Canada and in terrestrial habitats.

Resources

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Annex

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

Table A.1. Data for Figure 1. Changes in the risk of disappearance of wildlife species from Canada, November 2019

Wildlife species group	Higher risk (number of species)	No change (number of species)	Lower risk (number of species)
Amphibians	3	13	1
Arthropods	4	21	2
Birds	14	53	14
Fishes (freshwater)	15	44	9
Fishes (marine)	6	9	6
Lichens	2	5	2
Mammals (marine)	6	22	4
Mammals (terrestrial)	5	26	7
Molluscs	2	17	6
Mosses	0	11	3
Reptiles	5	24	5
Vascular plants	26	70	30
Total	**88**	**315**	**89**

Note: In this analysis, wildlife species refers to a species, subspecies[8] or a genetically or geographically distinct population. Wildlife species disappearance may refer to extinction or extirpation (an extirpated species no longer occurs in the wild in Canada). Lower risk consists of species reassessed as no longer at risk as well as species in a lower risk category compared to the previous assessment.
Source: Committee on the Status of Endangered Wildlife in Canada (November 2019).

[8] Populations of the same species geographically separated that have developed genetic and morphological differences.

Table A.2. Supplementary data for Figure 1. Changes in the risk of disappearance of wildlife species from Canada, November 2019

	Extinct, latest assessment (number of species)	Extirpated, latest assessment (number of species)	Endangered, latest assessment (number of species)	Threatened, latest assessment (number of species)	Special concern, latest assessment (number of species)	Not at risk, latest assessment (number of species)	Total, previous assessment (number of species)
Extinct, previous assessment	11	0	0	0	0	0	**11**
Extirpated, previous assessment	1	18	0	0	0	0	**19**
Endangered, previous assessment	1	0	143	21	9	0	**174**
Threatened, previous assessment	0	0	36	48	30	5	**119**
Special concern, previous assessment	0	0	13	30	83	24	**150**
Not at risk, previous assessment	0	0	0	0	7	12	**19**
Total, latest assessment	**13**	**18**	**192**	**99**	**129**	**41**	**492**

Note: In this analysis, wildlife species refers to a species, subspecies[9] or a genetically or geographically distinct population. This detailed view shows the changes in status categories for wildlife species at risk from the previous assessment to the most recent assessment. The assessments are from various years up to November 2019.
Source: Committee on the Status of Endangered Wildlife in Canada (November 2019).

[9] Populations of the same species geographically separated that have developed genetic and morphological differences.

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