Environment and Climate Change Canada
Environnement et Changement climatique Canada

# GENERAL STATUS OF WILD SPECIES

## CANADIAN ENVIRONMENTAL SUSTAINABILITY INDICATORS

Canada

**Suggested citation for this document:** Environment and Climate Change Canada (2023) Canadian Environmental Sustainability Indicators: General status of wild species. Consulted on *Month day, year*. Available at: www.canada.ca/en/environment-climate-change/services/environmental-indicators/general-status-wild-species.html.

Cat. No.: En4-144/80-2023E-PDF
ISBN: 978-0-660-47037-5
Project code: EC22011



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
Email: enviroinfo@ec.gc.ca



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# CANADIAN ENVIRONMENTAL SUSTAINABILITY INDICATORS

# GENERAL STATUS OF WILD SPECIES

## January 2023

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# General status of wild species

Canada supports a remarkable diversity of life. About 80 000 species are known to exist in Canada, excluding bacteria and viruses. However, wild species face a variety of threats, including the loss, fragmentation and degradation of habitat, pollution, overexploitation and fishery bycatch and other incidental loss due to resource harvesting. Conserving wild species promotes biodiversity and maintains ecosystem services that Canadians rely on like pollination, controlling floods, and air and water filtration.

The Wild Species 2020 report considers 50 534 species in 46 species groups, which represent, at the time of reporting, the inclusion of more than half of Canada's species. 24 483 species were assigned a NatureServe numerical rank[1] (secure, apparently secure, vulnerable, imperiled and critically imperiled) and 135 species were classified as possibly extirpated or presumed extirpated.[2] 21 997 species were unrankable or unranked.[3] 3 919 species were classified as not applicable (either exotic or accidentally occurring)[4], meaning they are not considered to be suitable for conservation activities. The indicator summarizes the general status of species in Canada.

## Key results

- Of the 24 483 native species with a NatureServe numerical rank:
  - 19 600 species (80%) are ranked as secure or apparently secure
  - 4 883 species (20%) are at some risk of extirpation (ranked as vulnerable, imperiled or critically imperiled)
- 135 species are presumed extirpated or possibly extirpated (no longer found in Canada)

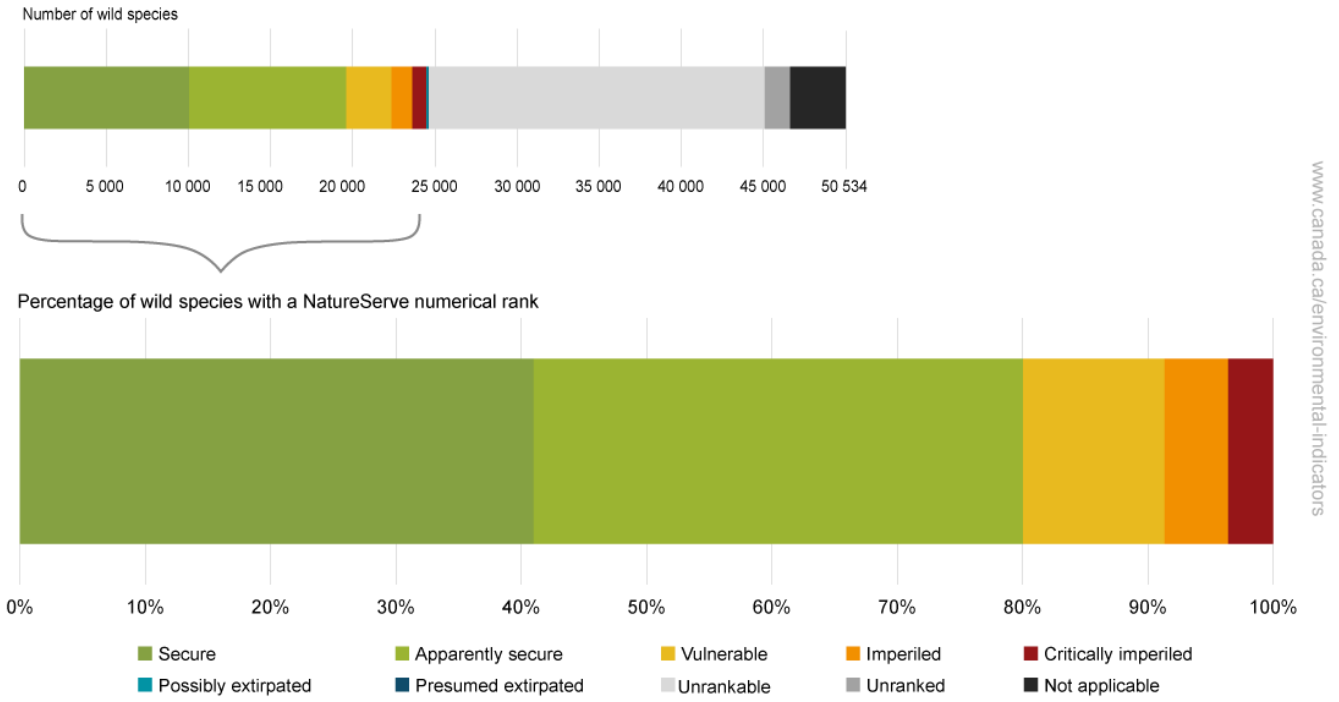
[1] The Wild Species reports use the ranking system developed by NatureServe, an international network of over 60 conservation data centres.

[2] Extirpated species are those that have disappeared from an area that they once occupied.

[3] Unranked species are those that have yet to be assessed, and unrankable species are those for which there is not enough information to be assessed.

[4] Accidental species are native species that are occuring without the influence of human activity, but infrequently and unpredictably outside their usual range. Exotic species are those that occur outside their natural range as a result of human activity.

**Figure 1. National conservation status of wild species, Canada, 2020**




Data for Figure 1

**Source:** Canadian Endangered Species Conservation Council (2022) Wild Species 2020: The General Status of Species in Canada, National General Status Working Group.

The status of wild species in Canada has been assessed every 5 years since 2000. Between 2000 and 2020, of those that have a NatureServe numerical rank, the proportion of species ranked as secure or apparently secure has varied between 70% and 80%. This variation is due mainly to the assessment of additional species.

Between 2015 and 2020, 8 107 species had a change in their conservation status rank at the national level, including 1 199 species that have an increased level of extinction risk and 1 186 species that have a reduced level of extinction risk. Among the 92 species that had a genuine change:

- 6 species had a reduced level of extinction risk due to an increase in their population size or distribution, of which one species was previously considered as possibly extirpated and a population of this species was recently discovered
- 18 species had an increased level of risk due to changes in population size, distribution, or threats to their species

Table 1 below highlights the various reasons for changes and the types of changes made to the status of wild species.

**Table 1. Change in the national conservation status of wild species, Canada, 2020**

| Reason for change | Increased risk | Reduced risk | New | Deleted | Change to or from unrankable, unranked or not applicable |
|---|---|---|---|---|---|
| Genuine change in status | 18 | 6 | 63 | 0 | 5 |
| New information available | 195 | 761 | 962 | 74 | 3 784 |
| New interpretation of the data | 45 | 6 | 1 | 0 | 0 |
| Taxonomic level change only | 11 | 3 | 118 | 134 | 22 |

| Reason for change | Increased risk | Reduced risk | New | Deleted | Change to or from unrankable, unranked or not applicable |
|---|---|---|---|---|---|
| Criteria revision | 888 | 362 | 7 | 0 | 293 |
| Incorrect data used previously | 42 | 48 | 35 | 114 | 110 |
| **Total** | **1 199** | **1 186** | **1 186** | **322** | **4 214** |

**Note:** A genuine change in status is observed when there are changes in, amongst other factors, a species' population, distribution, or threats. To see a list of the species that experienced a genuine increase or reduction in extinction risk, please refer to Annex B. A change in status due to a criteria revision indicates that there was a change in how the species is assessed.

### Conserving wild species

The first step in conserving wild species is identifying them and making a list. Once there is a list of known species, they can be examined to determine how secure their populations are in Canada. All species, with the exclusion of exotic and accidentally occurring species, should be conserved.

Overall, the risk of extinction is known for slightly more than half of all considered species in Canada. There are 2 253 species that may be at risk of extirpation (species classified as presumed extirpated, possibly extirpated, critically imperiled or imperiled), the majority of which are vascular plants, followed by lichens, macrofungi, and bryophytes. Of these, 137 species (6% of species that may be at risk of extirpation) have 75% or more of their range in Canada.

The most common threat that puts species at risk is the loss of habitat. Humans have altered habitat on land, in freshwater and in the oceans. Physical changes to habitat are common (for example, cutting trees to convert forests for other uses), but other human-mediated changes have had widespread impacts. For example, pollution, climate change and invasive species are affecting many groups.

Some groups of species also face more specific threats. For example, some species of vascular plants, mammals and fish are threatened by overharvesting. Corals are threatened by ocean acidification and mechanical damage, such as those caused by fishing gear, and sediment disturbance.

The most at-risk groups face a combination of threats. For example, threats to reptiles include habitat fragmentation and destruction, road mortality, collection as pets, predation, pollution, invasive species, and disease. Sea turtles are also threatened by loss and alteration of nesting beaches, consumption of garbage mistaken for prey, and injury from fishing equipment.

Information on the status of wild species is important in assessing the need for, and effectiveness of, various initiatives that contribute to species conservation. These initiatives contribute to reducing the threats that species may face or restore the ecosystems and habitats to which the species belong. For more information, please refer to the section on Why these indicators are important.

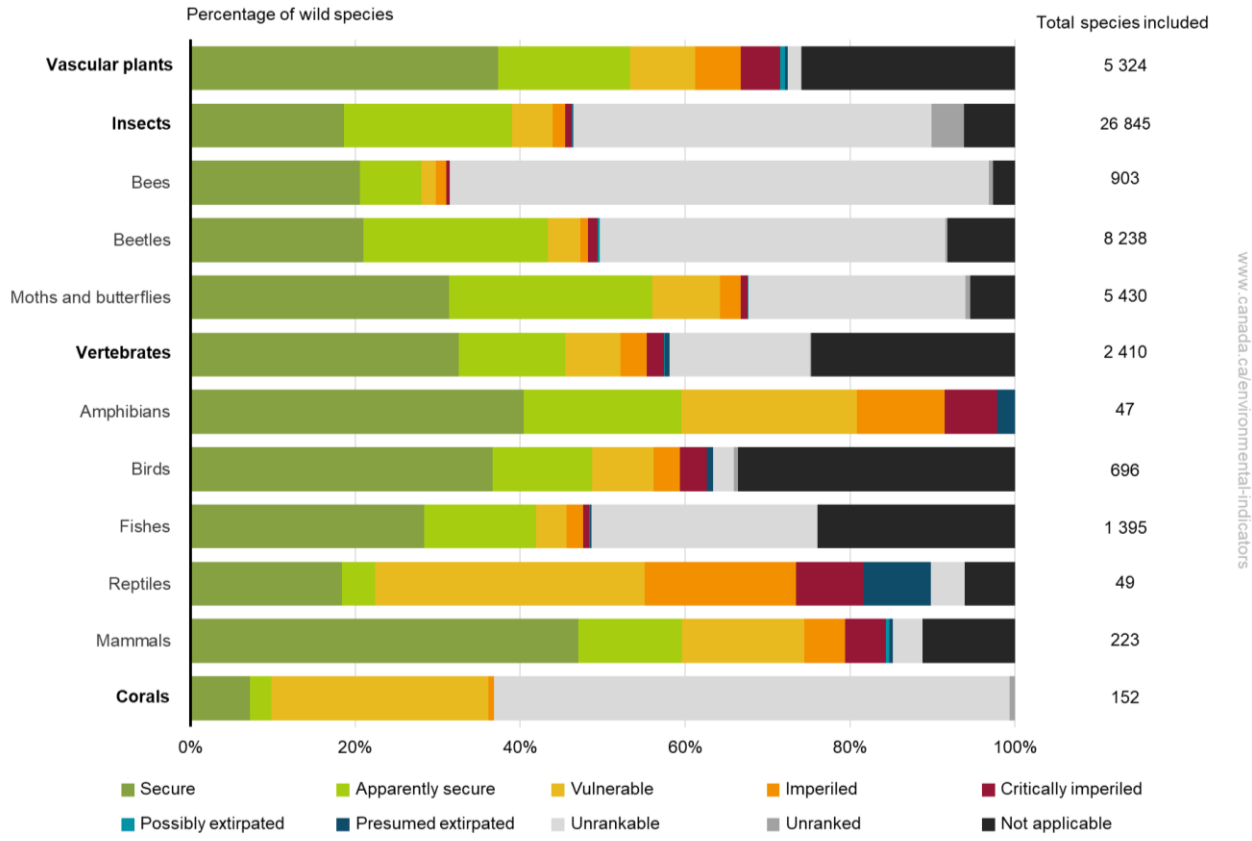
## General status of selected groups of wild species

The known species in Canada are divided among 5 different kingdoms: protozoa (about 1% of the known species, excluding viruses and bacteria), chromists (about 4%), fungi (about 16%), plants (about 11%), and animals (about 68%). The Wild Species report considers all species other than viruses and bacteria.[5] More than half of the species considered in the report are insects, which make up the majority of the animal kingdom.

### Key results

- 143 vertebrate species may be at risk (imperiled, critically imperiled, possibly extirpated and presumed extirpated), the majority of which are birds (50 species) and fishes (43 species)
    - Reptiles have the largest proportion of species that may be at risk (35%)
- Vascular plants have the largest number of species that may be at risk (598 species)
- Information is lacking for more than half of all known coral species (63%) and bee species (65%)

**Figure 2. General status of species in selected groups, Canada, 2020**




Data for Figure 2

**Note:** Ten (10) of the 46 groups considered in the Wild Species 2020 report are presented in the figure. All 16 insect species groups are summarized in the Insect category and all 5 vertebrate species groups are summarized in the Vertebrate category. For more information on other species groups, refer to the Status of wild species: Interactive chart.
**Source:** Canadian Endangered Species Conservation Council (2022) Wild Species 2020: The General Status of Species in Canada, National General Status Working Group.

There are 5 324 known vascular plants species in Canada. This species group includes the plants with which we are most familiar, such as flowering plants, ferns, and cone-bearing plants such as pine trees. The majority of the

[5] The mandate of the Wild Species reports is defined by the scope of the *Species at Risk Act* which considers all wildlife species that are not bacteria or viruses.

species in this group have been assigned a NatureServe numerical rank (secure to critically imperiled). Of those with a numerical rank, 75% are ranked as secure or apparently secure. 598 species may be at risk (species classified as imperiled, critically imperiled, possibly extirpated and presumed extirpated), including 36 species that are considered to be endemic to Canada, which means that they do not naturally occur anywhere else in the world.

Insects are the largest group with 26 845 species. Not all groups of insects are considered in the report yet. However, it includes a diverse range of species, such as ants, flies and beetles. Species groups containing familiar pollinator species, such as bees, moths and butterflies, are also considered in this category. Insufficient information exists for about half of all insect species. Of those assigned a NatureServe numerical rank, about 84% (or 10 460 species) are considered secure or apparently secure. Also, 676 species may be at risk of extinction. The 2 groups at most risk are the beetles (with 195 species that may be at risk, of which 12 are endemic to Canada) and moths and butterflies (with 188 species, of which 13 are endemic).

Vertebrates (mammals, fishes, birds, reptiles and amphibians), the species we think of most often when we think of wildlife, contain 2 410 known species and make up less than 5% of species considered in the report. Of those with a NatureServe numerical rank, 79% are secure or apparently secure, the majority of which are fish species. Fishes represent more than half of all vertebrates, and is also the group with the highest number of species that are unrankable (382 species). Of the vertebrates, fishes and mammals are the only groups with species that may be at risk that are endemic to Canada (3 fish and 2 mammal species).

Corals, another group of species in the animal kingdom, are a group of species whose conservation is recognized as a national and international priority. When considering species with a NatureServe numerical rank, only 27% are secure or apparently secure.

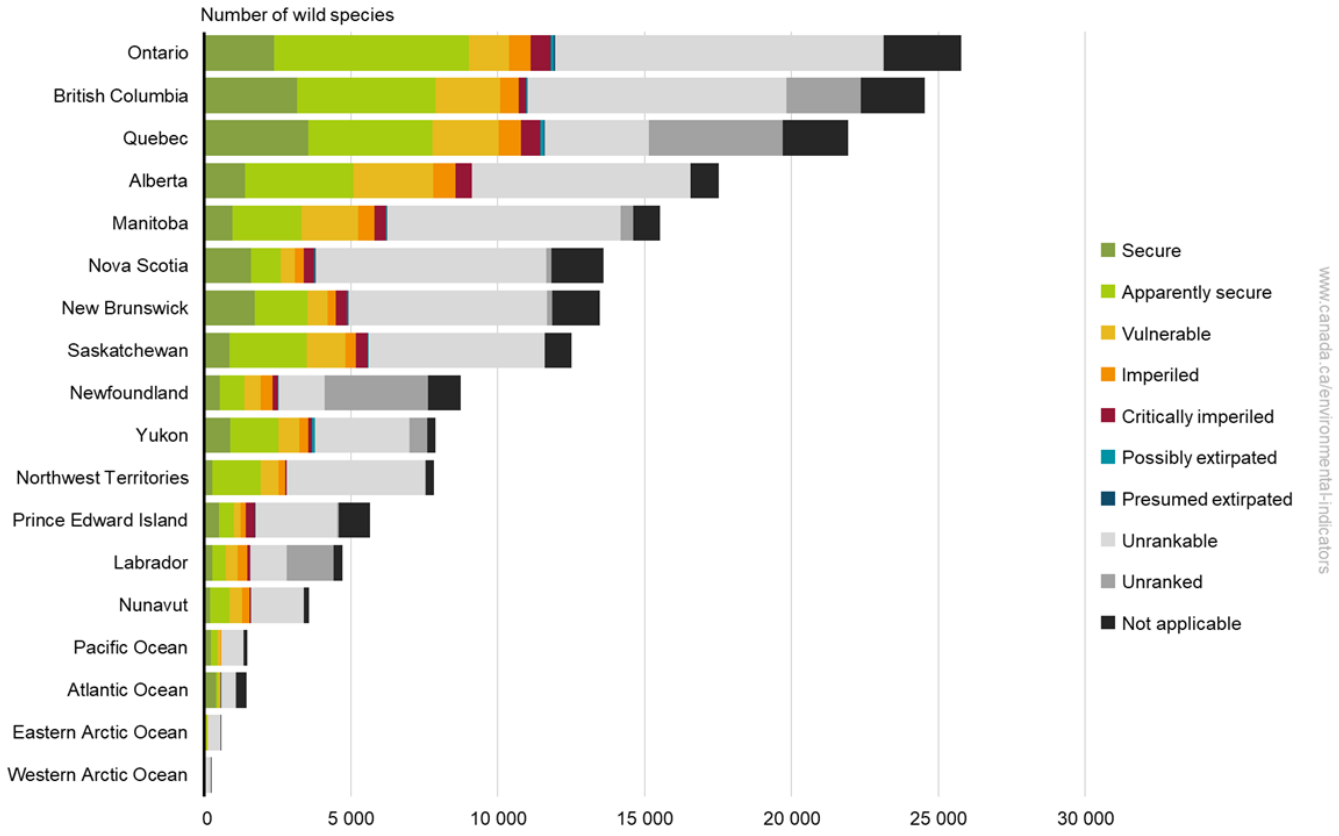
Several other large groups of organisms have not yet been assessed, including many insects, worms and seaweeds. These organisms perform critical roles in maintaining the healthy functioning of ecosystems on which all organisms, including humans, depend, such as water and air purification, crop pollination, soil formation and many other services.

# General status of wild species by region

## Key results

- Ontario, British Columbia and Quebec are the three regions with the highest number of species, as well as the highest number of exotic species
- Quebec, Ontario and Alberta have the highest number of species that may be at risk (species that are classified as presumed extirpated, possibly extirpated, imperiled or critically imperiled)
- The percentage of species that are unrankable or unranked ranges from 35% (Atlantic Ocean) to 73% (Eastern Arctic Ocean)

**Figure 3. Regional breakdown of the general status of wild species, Canada, 2020**




Data for Figure 3

**Note:** Refer to Figure 5 for a visual representation of the regional boundaries.
**Source:** Canadian Endangered Species Conservation Council (2022) Wild Species 2020: The General Status of Species in Canada, National General Status Working Group.

On average, each species is present across 3.7 regions, with birds, bryophytes, earthworms, and dragonflies and damselflies being the most widespread. There are 17 781 species that occur in only one region in Canada, with British Columbia having the highest percentage (38%). Species that have a smaller geographic distribution may tend to be more restricted to specific habitats, and may therefore be more vulnerable to changes in their habitat and at higher risk of disappearance.

While Ontario, British Columbia and Quebec have the highest number of species, in relation to the size of each region, Prince Edward Island has the highest richness of species (about 1.00 species per $km^2$), followed by Nova Scotia (0.25 species per $km^2$) and New Brunswick (0.18 species per $km^2$).

# Exotic species

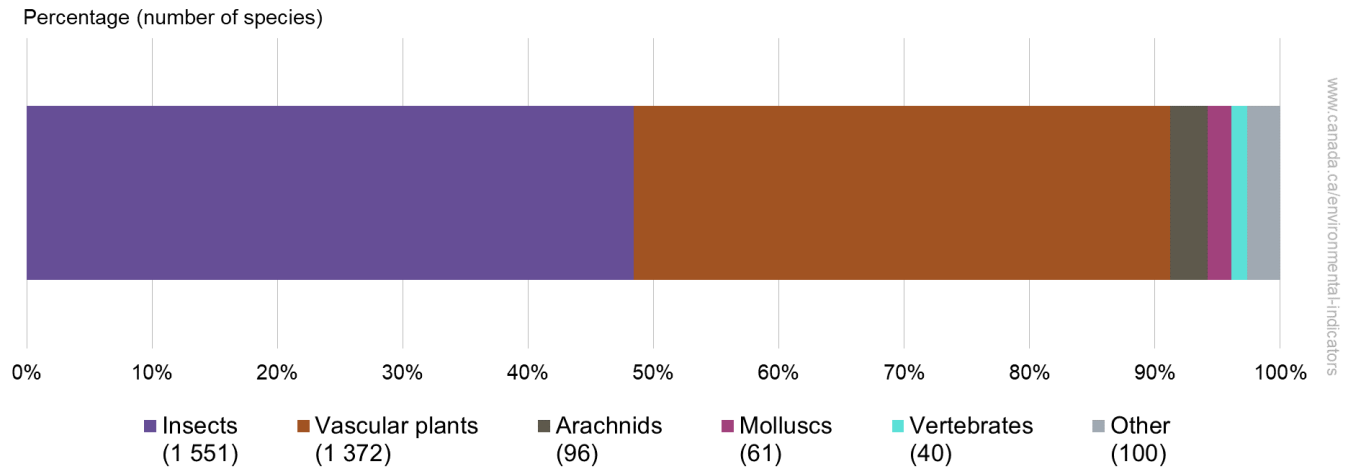
The species present in Canada include exotic species, which have moved beyond their natural range through human actions and persist in unmanaged populations. Some exotic species may become invasive, spreading and displacing native species or causing other damage to ecosystems. This indicator shows the proportion of exotic species belonging to specific species groups.

## Key results

At the national level,

- 3 220 known exotic species exist in Canada, representing 6% of species considered in the Wild Species 2020 report
- More than 90% of the exotic species are insects (1 551 species) or vascular plants (1 372 species)
- 161 new exotic species have been added since the Wild Species 2015 report

**Figure 4. Exotic species, Canada, 2020**




Data for Figure 4

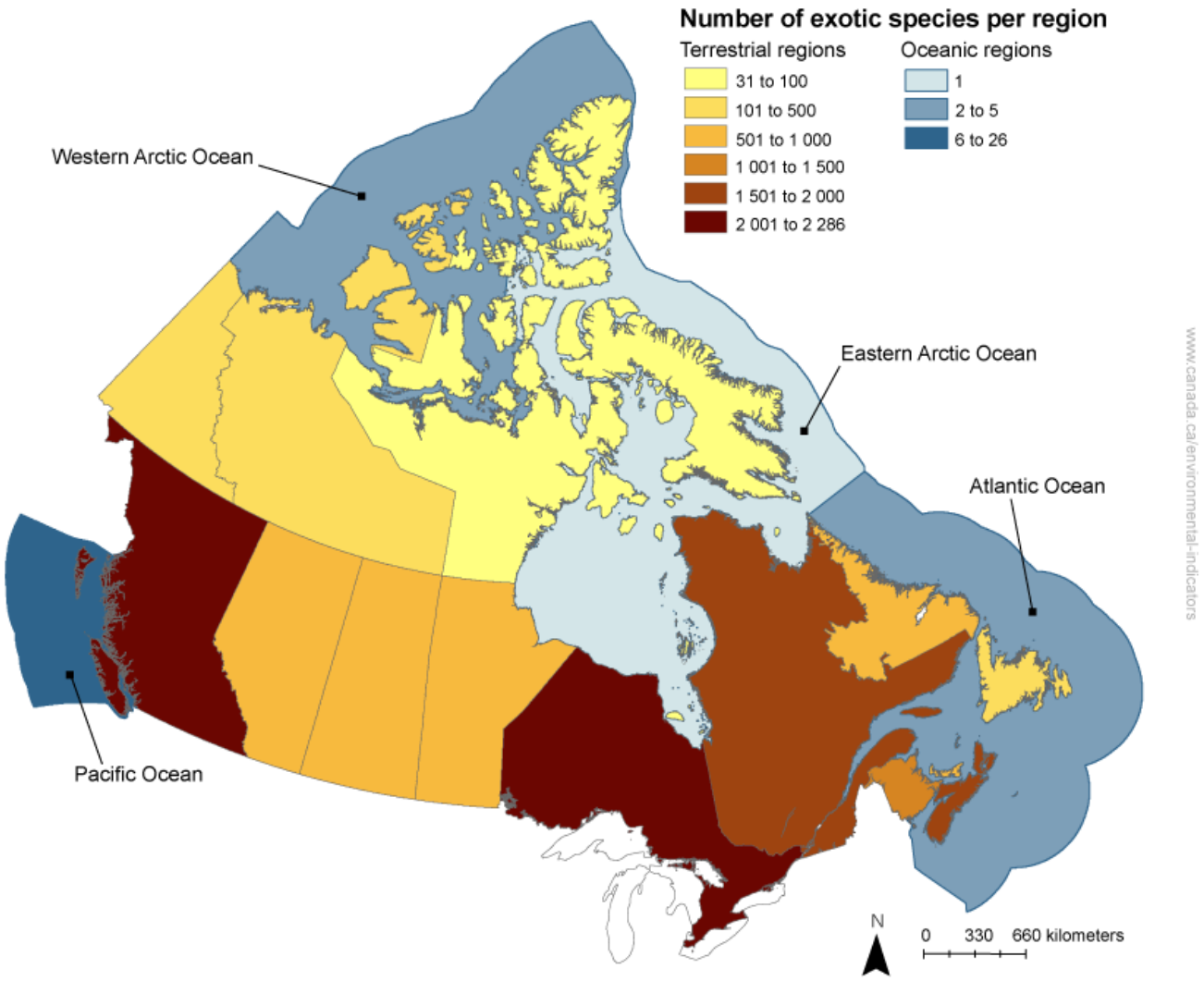
**Note:** Exotic species are species with the NatureServe rank of not applicable and are exotic in origin.
**Source:** Canadian Endangered Species Conservation Council (2022) Wild Species 2020: The General Status of Species in Canada, National General Status Working Group.

Exotic species can arrive in Canada in many different ways. Ornamental garden plants, live food, and species for display in terrariums and aquariums are all examples of organisms that are deliberately brought in and can escape into the wild. Some species are accidentally introduced. For example, imported species may be accompanied by weed seeds, or species may be unintentionally present in soil or aquarium water, ship ballast water, in packing materials, or in the mud under car fenders. In some cases, species entering Canada cannot be easily controlled; some animals can fly, swim or walk across borders.

Not all species that are transported to Canada escape and establish persistent populations. Of those that do, some begin to spread and can cause damage to ecosystems, the economy and society. Exotic species that become excessively damaging are termed invasive. Invasive species threaten native species in a number of ways. For example, they can use up space or other resources, or they may prey upon or cause disease in native species.

Exotic species were identified as part of an effort to assess the conservation status of wild species in Canada. Exotic species are present in Canada, but are not subject to conservation efforts.

**Figure 5. Regional distribution of exotic species, Canada, 2020**




Data for Figure 5

**Note:** Exotic species in freshwater ecosystems are attributed to the appropriate terrestrial regions. For example, those in the Great Lakes are attributed to the Ontario region. The Federal Marine Bioregions were used to define the ocean regions.
**Source:** Canadian Endangered Species Conservation Council (2022) Wild Species 2020: The General Status of Species in Canada, National General Status Working Group.

# About the indicators

## What the indicators measure

Extinction risks vary across groups, as does the state of knowledge. The main indicator summarizes the general status of species in Canada. It also highlights the general status of particular groups of species, as well as the general status in each region (provinces, territories, and oceanic regions). Another indicator reports on exotic species in Canada. Exotic species tend to occur more often in some groups and areas than in others.

The indicators use data from Wild Species 2020. Every 5 years, a Wild Species report by the Canadian Endangered Species Conservation Council provides information on a large number of Canadian wild species to assess the general status of species and species groups. This information can reveal early signs of trouble before species reach a critical condition. The reports also identify gaps in our knowledge of wild species.

## Why these indicators are important

The indicators provide a measure of extinction risk and an indication of the overall state of biodiversity in Canada, since the loss of a species is a loss of biodiversity. The leading cause of biodiversity loss in Canada and around the world is the loss of habitat to human development. Direct threats such as habitat loss and overharvest can be mitigated through actions, such as habitat protection and harvest regulation. Wild species also face the indirect effects of human activities, including invasive species, new diseases, and climate change. Exotic species can also alter how ecosystems function.

Given the variety of overlapping threats that can put species at risk, there are several initiatives that aim to conserve or restore Canada's wild species and the ecosystems that provide critical habitat, such as: increasing conserved areas on land and in the oceans, funding ecosystem restoration and conservation projects, reducing plastic pollution, and the Pan-Canadian Approach to Transforming Species at Risk Conservation in Canada (pdf; 558 kB).

## Related initiatives

This indicator supports the measurement of progress towards the following 2022 to 2026 Federal Sustainable Development Strategy Goal 15: Life on land – Protect and recover species, conserve Canadian biodiversity.

## Related indicators

Changes in the status of wildlife species at risk tracks changes in the level of risk for species assessed by the Committee on the Status of Endangered Wildlife (COSEWIC) in Canada. COSEWIC uses different categories than used in this indicator. A total of 322 at risk species are considered high priority for conservation in the Wild Species 2020 report. Of these, 78 have already been assessed by COSEWIC. The remainder could be prioritized for future detailed assessments.

Species at risk population trends provides an assessment of the recovery trends of species at risk listed under the Species at Risk Act.

Population status of Canada's migratory birds and Trends in Canada's bird populations provide a snapshot assessment of the state of Canada's birds and population trends for migratory birds.

Invasive alien species in Canada tracks the number of federally regulated and non-regulated invasive alien species that become newly established in Canada. It provides information on the subset of exotic species that become invasive.

# Data sources and methods

## Data sources

Data for the indicators are drawn from the Wild Species 2020 report. The Wild Species report provides an assessment of the general status of Canadian species in all provinces, territories and ocean regions, as well as at the national level.

### More information

The Canadian Endangered Species Conservation Council assesses the status of wild species every 5 years. The first assessment was done in 2000 for 1 670 species. New species and species groups have been added in each subsequent report. The Wild Species 2020: The General Status of Species in Canada report assessed the conservation status of 50 534 species in 46 species groups occurring in Canada. Of these, 24 483 native species were assigned a NatureServe numerical rank at the national level.

Species are assessed throughout Canada at the regional level (refer to the Status assessment section for a list of regions). The regional assessments inform the national assessment.

The General status of wild species indicators consider only the suite of wildlife species included in the Wild Species 2020 report. Knowledge of wild species varies among regions and among taxonomic groups. A conservation status rank was assigned only to species that have sufficient data to be assessed.

## Methods

Conservation status ranks are an assessment of the likelihood that a species will disappear from Canada (become extirpated). This is based on the method developed by NatureServe. NatureServe conservation status ranks are based on the rarity of the species, trends in population size and distribution, and the threats that are present. The NatureServe ranking system includes 10 conservation status ranks: secure, apparently secure, vulnerable, imperiled, critically imperiled, possibly extirpated, presumed extirpated, unranked, unrankable and not applicable. The NatureServe numerical ranks include species that are ranked as secure to critically imperiled. Unranked species are those that have yet to be assessed, and unrankable species are those for which there is not enough information to be assessed. Species that are not suitable for conservation activities, such as exotic species or accidental species, are classified as not applicable.

The main indicator summarizes the number and proportion of species in each NatureServe conservation status rank at the national level. Two subindicators provide information on the general status of selected groups of wild species and on the regional status of wild species. An additional indicator, the Exotic species indicator, reports the proportion of exotic species in 5 broad taxonomic groups: Insects, Vertebrates, Vascular plants, Arachnids and Molluscs. Other species are grouped in Other.

### More information

#### Status assessment

Status assessment is based on the best available knowledge.

1. For each species group, a species list is developed. The list contains the scientific names and the common names (if available) of the species that are known to occur or to have occurred in Canada.
2. In each region where the species is known to occur, a regional conservation status is assigned using the NatureServe Rank Calculator. Data come from a wide variety of sources, including museums, the scientific literature, scientists, Indigenous and community knowledge, and government sources. Each species has a status in each region where it occurs.

   There are 18 regions comprising 14 terrestrial regions (1 for each province and territory of Canada. Newfoundland and Labrador are treated as 2 regions) and 4 oceanic regions. The oceanic regions are: the Western Arctic Ocean (the Arctic Basin, the Western Arctic, and the Arctic Archipelago); the Eastern Arctic Ocean (the Eastern Arctic and the Hudson Bay Complex); the Atlantic Ocean (the Newfoundland-Labrador Shelves, the Scotian Shelf and the Gulf of St. Lawrence) and the Pacific Ocean (the Strait of Georgia, the Southern Shelf, the Offshore Pacific and the Northern Shelf).
3. For each species, a national status (Table 2) is derived from the regional statuses using a set of rules that cover most cases. For situations that are not covered by the rules, the national status is assigned using the NatureServe rank calculator.

Priority is given to reassessing taxonomic groups that were assessed in previous Wild Species reports. New taxonomic groups to be assessed are selected based on provincial and territorial priorities and

recommendations from other organizations, including the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), the Biological Survey of Canada, the Canadian Food Inspection Agency, and academia. The selection of taxonomic groups also reflects important conservation issues (for example, the protection of pollinators), existing knowledge and the resources available for assessment. The mandate of the program is to eventually include all known species in Canada (excluding viruses and bacteria).

**Table 2. Definition of conservation status categories**

| NatureServe code | Conservation status rank | Definition |
|---|---|---|
| X | Presumed extirpated | Species is believed to be extirpated from the jurisdiction (nation, province, territory, or ocean region). Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered. |
| H | Possibly extirpated | Known from only historical records but still some hope of rediscovery. There is evidence that the species may no longer be present in the jurisdiction, but not enough to state this with certainty. |
| 1 | Critically imperiled | At very high risk of extirpation in the jurisdiction due to very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors. |
| 2 | Imperiled | At high risk of extirpation in the jurisdiction due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors. |
| 3 | Vulnerable | At moderate risk of extirpation in the jurisdiction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors. |
| 4 | Apparently secure | At a fairly low risk of extirpation in the jurisdiction due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors. |
| 5 | Secure | At very low or no risk of extirpation in the jurisdiction due to a very extensive range, abundant populations or occurrences, with little to no concern from declines or threats. |
| U | Unrankable | Currently unrankable due to lack of information or due to substantially conflicting information about status or trends. |
| NR | Unranked | National or subnational conservation status not yet assessed. |
| NA | Not applicable | A conservation status rank is not applicable because the species is not a suitable target for conservation activities. This includes exotic species (that have been moved beyond their natural range as a result of human activity) or accidental species (naturally occurring infrequently and unpredictably outside their usual range). |

**Note:** Statuses are provided at the national and the regional (subnational) levels. At the national level, the NatureServe code is preceded by "N" and at the regional level, they are preceded by "S".
**Source:** Canadian Endangered Species Conservation Council (2022).

**Status of wild species indicators**

The main indicator summarizes the national NatureServe conservation status rank of species assessed in 2020. The status of species in 46 taxonomic groups was assessed: slime moulds, macrofungi, lichens, bryophytes, vascular plants, sponges, corals, bivalves, terrestrial and freshwater snails and slugs, cephalopods, leeches, earthworms, myriapods, decapods, horseshoe crabs, water mites, ticks, harvestmen, solifuges, pseudoscorpions, spiders, springtails, mayflies, dragonflies and damselflies, stoneflies, grasshoppers and relatives, true bugs, lacewings, beetles, sawflies, ants, bees, yellowjackets and relatives, caddisflies, moths and butterflies, scorpionflies, fleas, selected flies, sea stars, sea urchins, sea cucumbers, fishes, amphibians, reptiles, birds, and mammals. Two subindicators report the status by selected taxonomic groups and by regions.

**Exotic species indicator**

Exotic species are identified in Wild Species 2020. They are species classified as not applicable and are identified as exotic in origin. The Exotic species indicator compares exotic species in 5 broad groups:

- Insects: ants, bees, beetles, caddisflies, dragonflies and damselflies, fleas, grasshoppers and relatives, lacewings, mayflies, moths and butterflies, sawflies, scorpionflies, selected flies, stoneflies, true bugs, and yellowjackets and relatives
- Vertebrates: amphibians, birds, fish, mammals and reptiles
- Vascular plants
- Arachnids: harvestmen, pseudoscorpions, solifuges, spiders, ticks and water mites
- Molluscs: bivalves, cephalopods, and terrestrial and freshwater snail and slugs

Other species groups such as macrofungi, lichens, leeches, earthworms, myriapods, decapods, springtails and bryophytes are grouped in Other.

For more information on the methods, please consult the Wild Species report series.

## Recent changes

Previous indicators based on the Wild Species report series used a different ranking system (Canada General Status Rank). The indicators have been updated to reflect the new system (NatureServe numerical ranks). The regional indicator has been added to provide information on the abundance and status of wild species in each region. The exotic species indicator has been expanded to consider more taxonomic groups given the large number of new groups represented in the Wild Species 2020 report for the first time.

Past iterations of the indicator excluded species with a NatureServe conservation status rank of unranked, unrankable and not applicable. Now, the indicator reports all species included in the Wild Species report. In calculating the percentage of species that were classified to specific conservation status ranks, only the NatureServe numerical ranks (secure, apparently secure, vulnerable, imperiled and critically imperiled) were considered.

The species groups considered in the Wild Species 2020 report changed slightly from the Wild Species 2015 report. For example, the black flies, mosquitoes, horse flies, bee flies and flower flies species groups were merged in the Wild Species 2020 report as selected flies. Please consult the Wild Species report series for more information.

## Caveats and limitations

The number of species included in the Wild Species report series has increased from 1 670 in 2000 to 50 534 in 2020. However, there are still many species left to include; the vast majority of them are insects and other invertebrates.

Conservation status ranks consider only the risk of extirpation from Canada.

# Resources

## References

Canadian Endangered Species Conservation Council (2001) Wild Species 2000: The General Status of Species in Canada. Minister of Public Works and Government Services Canada. Retrieved on November 29, 2022.

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## Related information

2020 Biodiversity Goals and Targets for Canada

Species at Risk Public Registry

Canadian Biodiversity Strategy

Committee on the Status of Endangered Wildlife in Canada

Habitat stewardship for species at risk

Oceans Protection Plan

The IUCN Red List of Threatened Species

# Annexes

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

**Table A.1. Data for Figure 1. National conservation status of wild species, Canada, 2020**

| Status | NatureServe status code | Number of species |
|---|---|---|
| National conservation status rank | - | - |
| Presumed extirpated | NX | 40 |
| Possibly extirpated | NH | 95 |
| Critically imperiled | N1 | 873 |
| Imperiled | N2 | 1 245 |
| Vulnerable | N3 | 2 765 |
| Apparently secure | N4 | 9 562 |
| Secure | N5 | 10 038 |
| Unrankable | NU | 20 448 |
| Unranked | NNR | 1 549 |
| Not applicable (species is not a target of conservation activities) | NNA | - |
| Exotic | - | 3 220 |
| Accidentally occurring | - | 699 |
| **Total** | **-** | **50 534** |

**Note:** The ranking system developed by NatureServe, an international network of over 60 conservation data centres, is used.
**Source:** Canadian Endangered Species Conservation Council (2022) Wild Species 2020: The General Status of Species in Canada, National General Status Working Group.

**Table A.2. Data for Figure 2. General status of species in selected groups, Canada, 2020**

| Species group | Critically imperiled (N1) | Imperiled (N2) | Vulnerable (N3) | Apparently secure (N4) | Secure (N5) | Subtotal of species with numerical ranks | Presumed extirpated (NX) | Possibly extirpated (NH) | Unrankable (NU) | Unranked (NNR) | Not applicable (NNA) | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Amphibians | 3 | 5 | 10 | 9 | 19 | **46** | 1 | 0 | 0 | 0 | 0 | **47** |
| Ants | 0 | 0 | 5 | 22 | 113 | **140** | 0 | 3 | 47 | 0 | 15 | **205** |
| Bees | 4 | 11 | 16 | 67 | 186 | **284** | 0 | 0 | 590 | 5 | 24 | **903** |
| Beetles | 97 | 77 | 324 | 1 841 | 1 729 | **4 068** | 0 | 21 | 3 450 | 25 | 674 | **8 238** |
| Birds | 23 | 22 | 52 | 84 | 255 | **436** | 5 | 0 | 18 | 3 | 234 | **696** |
| Bivalves | 12 | 11 | 12 | 90 | 53 | **178** | 1 | 1 | 219 | 1 | 16 | **416** |
| Bryophytes | 75 | 146 | 184 | 296 | 387 | **1 088** | 1 | 4 | 287 | 2 | 24 | **1 406** |
| Caddisflies | 0 | 0 | 2 | 159 | 64 | **225** | 0 | 3 | 406 | 45 | 0 | **679** |
| Cephalopods | 0 | 0 | 0 | 23 | 10 | **33** | 0 | 0 | 67 | 0 | 0 | **100** |
| Corals | 0 | 1 | 40 | 4 | 11 | **56** | 0 | 0 | 95 | 1 | 0 | **152** |
| Decapods | 1 | 0 | 9 | 13 | 127 | **150** | 0 | 0 | 147 | 3 | 18 | **318** |
| Dragonflies and damselflies | 9 | 15 | 24 | 40 | 116 | **204** | 0 | 1 | 2 | 3 | 9 | **219** |
| Earthworms | 3 | 0 | 0 | 1 | 0 | **4** | 0 | 0 | 5 | 1 | 20 | **30** |
| Fishes | 11 | 28 | 51 | 189 | 396 | **675** | 3 | 1 | 382 | 0 | 334 | **1 395** |
| Fleas | 1 | 5 | 11 | 18 | 33 | **68** | 0 | 0 | 74 | 4 | 7 | **153** |
| Grasshoppers and relatives | 11 | 16 | 21 | 62 | 98 | **208** | 1 | 7 | 17 | 0 | 38 | **271** |
| Harvestmen | 0 | 2 | 1 | 6 | 0 | **9** | 0 | 0 | 23 | 0 | 6 | **38** |
| Horseshoe crabs | 0 | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 1 | 0 | 0 | **1** |
| Lacewings | 1 | 3 | 2 | 14 | 4 | **24** | 0 | 1 | 53 | 18 | 6 | **102** |
| Leeches | 0 | 0 | 0 | 11 | 9 | **20** | 0 | 0 | 49 | 2 | 2 | **73** |

| Species group | Critically imperiled (N1) | Imperiled (N2) | Vulnerable (N3) | Apparently secure (N4) | Secure (N5) | Subtotal of species with numerical ranks | Presumed extirpated (NX) | Possibly extirpated (NH) | Unrankable (NU) | Unranked (NNR) | Not applicable (NNA) | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lichens | 127 | 97 | 104 | 404 | 685 | **1 417** | 0 | 6 | 1 136 | 116 | 2 | **2 677** |
| Macrofungi | 76 | 151 | 310 | 1 424 | 457 | **2 418** | 0 | 1 | 4 300 | 217 | 15 | **6 951** |
| Mammals | 11 | 11 | 33 | 28 | 105 | **188** | 1 | 1 | 8 | 0 | 25 | **223** |
| Mayflies | 2 | 0 | 1 | 75 | 5 | **83** | 0 | 3 | 220 | 36 | 0 | **342** |
| Moths and butterflies | 47 | 136 | 448 | 1 336 | 1 704 | **3 671** | 2 | 3 | 1 426 | 34 | 294 | **5 430** |
| Myriapods | 1 | 0 | 1 | 2 | 14 | **18** | 0 | 1 | 86 | 0 | 33 | **138** |
| Pseudoscorpions | 0 | 0 | 1 | 2 | 0 | **3** | 0 | 0 | 20 | 1 | 0 | **24** |
| Reptiles | 4 | 9 | 16 | 2 | 9 | **40** | 4 | 0 | 2 | 0 | 3 | **49** |
| Sawflies | 0 | 0 | 1 | 84 | 0 | **85** | 0 | 0 | 459 | 98 | 60 | **702** |
| Scorpionflies | 3 | 0 | 2 | 10 | 2 | **17** | 0 | 0 | 8 | 0 | 0 | **25** |
| Sea cucumbers | 0 | 0 | 0 | 1 | 32 | **33** | 0 | 0 | 40 | 2 | 0 | **75** |
| Sea stars | 0 | 3 | 7 | 20 | 24 | **54** | 0 | 0 | 61 | 0 | 0 | **115** |
| Sea urchins | 0 | 0 | 0 | 1 | 13 | **14** | 0 | 0 | 17 | 1 | 0 | **32** |
| Selected flies | 31 | 62 | 368 | 914 | 536 | **1 911** | 0 | 3 | 2 980 | 200 | 78 | **5 172** |
| Slime moulds | 2 | 6 | 34 | 26 | 7 | **75** | 0 | 0 | 215 | 0 | 0 | **290** |
| Solifuges | 2 | 1 | 0 | 0 | 0 | **3** | 0 | 0 | 0 | 0 | 0 | **3** |
| Spiders | 17 | 30 | 39 | 422 | 344 | **852** | 0 | 0 | 481 | 31 | 75 | **1 439** |
| Sponges | 0 | 0 | 9 | 0 | 24 | **33** | 0 | 0 | 234 | 3 | 0 | **270** |
| Springtails | 0 | 0 | 0 | 22 | 0 | **22** | 0 | 0 | 318 | 37 | 8 | **385** |
| Stoneflies | 0 | 2 | 1 | 82 | 31 | **116** | 0 | 0 | 151 | 25 | 0 | **292** |
| Terrestrial and freshwater snails and slugs | 14 | 23 | 28 | 53 | 61 | **179** | 1 | 4 | 85 | 5 | 46 | **320** |

| Species group | Critically imperiled (N1) | Imperiled (N2) | Vulnerable (N3) | Apparently secure (N4) | Secure (N5) | Subtotal of species with numerical ranks | Presumed extirpated (NX) | Possibly extirpated (NH) | Unrankable (NU) | Unranked (NNR) | Not applicable (NNA) | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ticks | 0 | 2 | 3 | 6 | 11 | **22** | 0 | 0 | 10 | 0 | 17 | **49** |
| True bugs | 12 | 50 | 94 | 727 | 351 | **1 234** | 0 | 0 | 1 777 | 553 | 443 | **4 007** |
| Vascular plants | 254 | 293 | 418 | 852 | 1 989 | **3 806** | 20 | 31 | 84 | 4 | 1 379 | **5 324** |
| Water mites | 7 | 6 | 68 | 107 | 0 | **188** | 0 | 0 | 392 | 73 | 0 | **653** |
| Yellowjackets and relatives | 12 | 21 | 15 | 13 | 24 | **85** | 0 | 0 | 6 | 0 | 14 | **105** |

**Note: T**he text in parentheses shows the NatureServe code associated with the NatureServe conservation status rank. In the figure, all 16 insect species groups are summarized in the Insect category and all 5 vertebrate species groups are summarized in the Vertebrate category. For more information on other species groups, refer to the Status of wild species: Interactive chart.
**Source:** Canadian Endangered Species Conservation Council (2022) Wild Species 2020: The General Status of Species in Canada, National General Status Working Group.

**Table A.3. Data for Figure 3. Regional breakdown of the general status of wild species, Canada, 2020**

| Region | Critically imperiled (S1) | Imperiled (S2) | Vulnerable (S3) | Apparently secure (S4) | Secure (S5) | Subtotal of species with numerical ranks | Possibly extirpated (SH) | Presumed extirpated (SX) | Unrankable (SU) | Unranked (SNR) | Not applicable (SNA) | Total | Number of species found only in this region |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ontario | 664 | 742 | 1 367 | 6 639 | 2 378 | 11 790 | 119 | 37 | 11 182 | 14 | 2 634 | 25 776 | 3 920 |
| British Columbia | 249 | 648 | 2 198 | 4 702 | 3 171 | 10 968 | 43 | 10 | 8 803 | 2 545 | 2 170 | 24 539 | 6 780 |
| Quebec | 653 | 777 | 2 236 | 4 231 | 3 548 | 11 445 | 134 | 20 | 3 552 | 4 548 | 2 234 | 21 933 | 1 263 |
| Alberta | 560 | 747 | 2 714 | 3 702 | 1 386 | 9 109 | 11 | 5 | 7 440 | 3 | 955 | 17 523 | 885 |
| Manitoba | 387 | 550 | 1 935 | 2 365 | 950 | 6 187 | 24 | 12 | 7 954 | 431 | 914 | 15 522 | 665 |
| Nova Scotia | 376 | 294 | 489 | 1 011 | 1 588 | 3 758 | 20 | 9 | 7 858 | 177 | 1 782 | 13 604 | 508 |
| New Brunswick | 395 | 270 | 691 | 1 800 | 1 709 | 4 865 | 26 | 13 | 6 760 | 193 | 1 605 | 13 462 | 337 |
| Saskatchewan | 392 | 366 | 1317 | 2 632 | 851 | 5 558 | 38 | 8 | 5 984 | 11 | 912 | 12 511 | 278 |
| Newfoundland | 175 | 400 | 564 | 833 | 532 | 2 504 | 19 | 1 | 1 572 | 3 536 | 1 114 | 8 746 | 297 |
| Yukon | 124 | 302 | 705 | 1 661 | 881 | 3 673 | 98 | 1 | 3 226 | 602 | 280 | 7 880 | 335 |
| Northwest Territories | 57 | 225 | 599 | 1 644 | 282 | 2 807 | 1 | 0 | 4 724 | 3 | 282 | 7 817 | 207 |
| Prince Edward Island | 285 | 182 | 230 | 514 | 501 | 1 712 | 17 | 7 | 2 799 | 38 | 1 068 | 5 641 | 25 |
| Labrador | 109 | 323 | 396 | 464 | 274 | 1 566 | 8 | 2 | 1 243 | 1 593 | 289 | 4 701 | 27 |
| Nunavut | 56 | 242 | 438 | 646 | 208 | 1 590 | 1 | 1 | 1 804 | 2 | 162 | 3 560 | 166 |
| Pacific Ocean | 10 | 15 | 96 | 233 | 231 | 585 | 0 | 0 | 754 | 3 | 125 | 1 467 | 1 133 |
| Atlantic Ocean | 14 | 11 | 52 | 92 | 399 | 568 | 0 | 3 | 498 | 7 | 355 | 1 431 | 814 |
| Eastern Arctic Ocean | 1 | 5 | 13 | 48 | 54 | 121 | 0 | 0 | 434 | 1 | 36 | 592 | 109 |
| Western Arctic Ocean | 2 | 1 | 5 | 26 | 12 | 46 | 0 | 0 | 186 | 1 | 28 | 261 | 32 |

**Note: T**he text in parentheses shows the NatureServe code associated with the NatureServe conservation status rank. Refer to Figure 5 for a visual representation of the regional boundaries.
**Source:** Canadian Endangered Species Conservation Council (2022) Wild Species 2020: The General Status of Species in Canada, National General Status Working Group.

**Table A.4. Data for Figure 4. Exotic species, Canada, 2020**

| Group | Number of exotic species | Percentage of exotic species |
|---|---|---|
| Insects | 1 551 | 48 |
| Vascular plants | 1 372 | 43 |
| Arachnids | 96 | 3 |
| Molluscs | 61 | 2 |
| Vertebrates | 40 | 1 |
| Other | 100 | 3 |
| **Total** | **3 220** | **100** |

**Note:** Exotic species are species with the NatureServe conservation status rank of not applicable that are exotic in origin.
**Source:** Canadian Endangered Species Conservation Council (2022) Wild Species 2020: The General Status of Species in Canada, National General Status Working Group.

**Table A.5. Data for Figure 5. Regional distribution of exotic species, Canada, 2020**

| Region | Number of exotic species |
|---|---|
| Ontario | 2 286 |
| British Columbia | 2 011 |
| Quebec | 1 964 |
| Nova Scotia | 1 543 |
| New Brunswick | 1 420 |
| Prince Edward Island | 921 |
| Newfoundland | 870 |
| Alberta | 832 |
| Manitoba | 781 |
| Saskatchewan | 753 |
| Northwest Territories | 217 |
| Labrador | 177 |
| Yukon | 168 |
| Nunavut | 31 |
| Pacific Ocean | 26 |
| Atlantic Ocean | 3 |
| Western Arctic Ocean | 2 |
| Eastern Arctic Ocean | 1 |

**Note:** Exotic species in freshwater ecosystems are attributed to the appropriate terrestrial regions. For example, those in the Great Lakes are attributed to the Ontario region. The Federal Marine Bioregions were used to define the ocean regions.
**Source:** Canadian Endangered Species Conservation Council (2022) Wild Species 2020: The General Status of Species in Canada, National General Status Working Group.

## Annex B. Additional information

**Among the 92 species that show a genuine change in status (due to changes in population size, distribution, or threats) between 2015 and 2020, the following species had a reduced or an increased level of risk.**

**Species with a reduced level of risk:**

- Deepwater Redfish (Sebastes *mentella*)
- River Bluet (*Enallagma anna*)
- Anna's Hummingbird (*Calypte anna*)
- Red-bellied Woodpecker (*Melanerpes carolinus*)
- White-faced Ibis (*Plegadis chihi*)
- Protean Shield-backed Katydid (*Atlanticus testaceus*) – was previously considered as possibly extirpated and was recently rediscovered

**Species with an increased level of risk:**

- Lark Sparrow (*Chondestes grammacus*)
- Bank Swallow (*Riparia riparia*)
- Acadian Redfish (*Sebastes fasciatus*)
- Rufous Hummingbird (*Selasphorus rufus*)
- Yellow-banded Bumble Bee (*Bombus terricola*)
- Snowy Owl (*Bubo scandiacus*)
- Long-billed Curlew (*Numenius americanus*)
- Cerulean Warbler (*Setophaga cerulea*)
- Long-eared Owl (*Asio otus*)
- Western Wood-Pewee (*Contopus sordidulus*)
- Mew Gull (*Larus canus*)
- Western Green Hairstreak (*Callophrys affinis*)
- Eastern Red Damsel (*Amphiagrion saucium*)
- American Golden-Plover (*Pluvialis dominica*)
- Western Grebe (*Aechmophorus occidentalis*)
- American Beech (*Fagus grandifolia*)
- White Ash (*Fraxinus americana*)
- Black Ash (*Fraxinus nigra*)

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
Email: enviroinfo@ec.gc.ca