POPULATION STATUS OF CANADA'S MIGRATORY BIRDS

CANADIAN ENVIRONMENTAL SUSTAINABILITY INDICATORS
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Population status of Canada’s migratory birds

Birds are important to Canadians for many reasons, including the important ecological services they provide such as controlling insect and rodent populations and dispersing seeds. They also provide opportunities for bird watching and hunting. The indicator reports the proportion of bird species listed in the Migratory Birds Convention Act whose populations fall within acceptable bounds and provides a snapshot of the general state of birds in Canada.¹

Key results

In 2016, of the 358 bird species with adequate monitoring data:

- 57% had populations within acceptable bounds
- waterfowl and forest birds were the 2 groups with the highest proportion of populations within acceptable bounds (74% and 63%, respectively)
- only 12% of grassland and aerial insectivore birds had populations within acceptable bounds
- 12% of waterfowl had populations above acceptable bounds

Figure 1. Status of bird species listed in the Migratory Birds Convention Act in relation to population goals, Canada, 2016

Note: The grouping of bird species is the same as in the State of Canada’s Birds but includes only birds listed in the Migratory Birds Convention Act. “Species” as used here includes 354 species, 14 subspecies and 52 populations of birds. Fifty-four (54) species and 8 populations have insufficient data to be assessed and are not included in the figure. Of the 358 species with adequate monitoring data, 13 species are included in more than one category based on their feeding and habitat requirements, but are only included once in the total. For example, species grouped in the feeding behaviour category aerial insectivores may also be included in the habitat grouping forest birds. Source: Canadian Wildlife Service, Environment and Climate Change Canada (2019).

¹ All species that are listed in the Migratory Birds Convention Act and that regularly occur in Canada are considered. “Species” as used here include subspecies and populations of relevance to management.
Populations of waterfowl have benefited from efforts to conserve, enhance and restore wetlands. Many geese species, a type of waterfowl, have also taken advantage of the increased availability of waste grain in harvested farm fields. Populations of some Arctic geese species have increased to the point that they are now above acceptable bounds.

Of the 26 species of Canadian seabirds with sufficient data, 62% (16 species) have populations that fall within acceptable bounds. It should be noted, however, that not enough information is available for 49% (25 species) of seabirds to determine whether their populations fall within acceptable bounds.

Canada has lost 40% of shorebird populations and about 60% of grassland bird and aerial insectivore populations since 1970, with aerial insectivores and grassland birds representing the majority (80%) of birds recently assessed as endangered or threatened.

Conserving Canada’s birds requires a range of actions. At the end of the 19th century, many species of North American birds had been hunted almost to extinction. Increasing awareness of their plight led to national and international protections, including the Migratory Birds Convention, signed by Canada and the United States in 1916. This convention has provided the foundation for nearly a century of international cooperation on bird conservation. Commercial harvesting of birds was banned and regulations were enacted to promote sustainable recreational hunting in both countries. Many species such as herons and egrets, along with some waterfowl species, have recovered as a result of these protective measures. Habitat conservation is essential for the survival of birds, not just in Canada, but also along migratory routes, in wintering ranges and throughout the entire annual cycle.

About the indicator

What the indicator measures

The indicator reports the proportion of bird species listed in the Migratory Birds Convention Act whose populations fall within, or are above or below national population goals. It provides a snapshot assessment of the state of bird populations in Canada.

Some bird species are managed towards specific population levels (for example, some hunted species or species of conservation concern). While the indicator reports whether species’ populations are within acceptable bounds, it does not indicate if management goals are being met.

Why this indicator is important

Birds are important to Canadians. Bird watching is a popular activity and millions of Canadians feed birds in their backyards. Waterfowl hunting contributes to tourism, provides food and maintains traditions. Birds also provide ecological benefits by controlling insect and rodent populations, dispersing seeds, pollinating plants and playing other key roles in the functioning of ecosystems. These ecosystem services contribute to our economy and our well-being.

Bird populations fluctuate naturally in response to ecological conditions, but negative changes in bird populations reflect the overall effect of many different factors, including habitat loss, pollution, agricultural impacts, climate change, invasive species and hunting as well as other sources of direct mortality, such as collisions with windows and cat predation.

Because birds are sensitive to environmental changes, they can be used as an indicator of ecosystem health and the state of biodiversity. Tracking the status of Canada's birds can help identify the impact of these changes. When species’ populations do not fall within acceptable bounds, conservation actions can be taken to improve trends over time.

Healthy wildlife populations

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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 2025, increase the percentage of migratory bird species whose populations’ sizes fall within an acceptable range – neither too low nor too high – from a baseline of 57% in 2013.

Related indicators

The Trends in Canada’s bird populations indicator reports average population trends of various groups of native Canadian bird species.

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

The Global trends in bird species survival indicator provides a measure of the aggregated extinction risk over time and is an indication of the changing status of global bird biodiversity.

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

Data sources and methods

Data sources

Data on Canada’s migratory bird species’ populations draw from various monitoring programs that use a range of methods designed to survey different bird species or types of habitat.

More information

Many monitoring programs are designed by biologists, but enlist the help of volunteers in data collection. Some volunteer programs, like the North American Breeding Bird Survey, nocturnal owl surveys and marsh monitoring surveys take place during the breeding season. Other programs monitor birds during migration (for example, the Canadian Migration Monitoring Network and shorebird migration surveys) or in winter (Christmas Bird Count and Project FeederWatch). Checklist programs like eBird and Étude des populations d’oiseaux du Québec (in French only) encourage birders to record their observations every time they go birding.

Other programs, such as surveys of breeding waterfowl, Arctic shorebirds and colonial seabirds, are conducted entirely by biologists.

Environment and Climate Change Canada’s Canadian Wildlife Service collates the data from many of these monitoring programs, often in collaboration with Bird Studies Canada, Ducks Unlimited Canada and Nature Canada. Results are reported in the State of Canada’s Birds 2019 report and the Status of Birds in Canada 2019 website.

Species are classified into taxonomic or ecological groups with similar habitat or feeding requirements; the groups used here are drawn from the State of Canada’s Birds 2019. All bird species are included in the “All Migratory Bird Convention Act species” category.

Methods

The indicator summarizes the proportion of birds that regularly occur in Canada and are listed in the Migratory Birds Convention Act whose populations fall within or outside acceptable bounds. These population goals are guided by what constitutes a “healthy” population level and are determined using a science-based assessment of the minimum number of individuals required to sustain a population.

More information

It is possible for a situation of overpopulation to occur when a species is so abundant that it has negative impacts on other species or habitats, or conflicts with human uses (for example causing excessive crop
Therefore, population bounds may have minimum and maximum levels; a maximum level may not be defined unless it is relevant.

In the case of species for which management goals have been established (for example, long-term recovery goals for species at risk), the same goals have been used in this indicator, when possible. Where continental or regional goals exist for harvested bird species, the goals have been adapted to the national level based on the species’ distribution. In cases where different management goals exist for distinct populations within a species, each population is treated as separate species in the indicator.

A distinct population is a set of individuals from the same species that share the same habitat and location. Subspecies are geographically or otherwise distinct groups in a species between which there is little demographic or genetic exchange.

Prior to 2014, population goals did not exist for most bird species. Goals were established for these species, taking into account current and historical abundance, habitat capacity, the amount of information available, the ecological function of the species, and societal needs. Natural variations in numbers are known to occur in response to changing ecological conditions, and were taken into account when developing goals. Goals may be revised over time.

**Recent changes**

The specific groupings included have been updated to match the [State of Canada’s Birds 2019](https://www.canada.ca/en/environment-climate-change/services/birds-wildlife/monitoring/wetland-management.html) report. Individual species’ assessments have also been updated.

**Caveats and limitations**

Species whose populations fall within acceptable bounds may still be of conservation concern. Examples might include cases where trends are negative or where a species remains at the lower end of the acceptable bound for a number of years. Similarly, if populations for a group of related species remains near the boundaries of the acceptable bounds, it may signal the need for management or conservation intervention. However, it is important to note that natural fluctuations do occur and population estimates are rarely exact.

The indicator is restricted to species regularly occurring in Canada and listed in the *Migratory Birds Convention Act*. While the act covers most groups of migratory birds, groups of species such as birds of prey and *corvids* (crows and jays) are not included. In addition, not all species in the act are migratory (such as, the Downy Woodpecker, American Dipper and Black Oystercatcher). “Species” as used in the indicator includes subspecies and populations of relevance to the management goals for the species.

Population estimates contain some uncertainty and results should be interpreted with this in mind.

**Resources**

**References**


## Annex

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

Table A.1. Data for Figure 1. Status of bird species listed in the *Migratory Birds Convention Act* in relation to population goals, Canada, 2016

<table>
<thead>
<tr>
<th>Ecological group</th>
<th>Status in relation to population goal</th>
<th>Species</th>
<th>Species count</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Waterfowl</strong></td>
<td>Above bounds</td>
<td>Canada Goose (Ontario Temperate Breeders), Canada Goose (Prairies Temperate Breeders), Canada Goose (Quebec Temperate Breeders), Canada Goose (Southern BC Temperate Breeders), Greater Snow Goose, Lesser Snow Goose (Mid-continental), Lesser Snow Goose (Western Arctic), Ross's Goose</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Within bounds</td>
<td>American Black Duck, Barrow's Goldeneye (Eastern), Barrow's Goldeneye (Western), Blue-winged Teal, Brant (Eastern High Arctic), Brant (Western High-Arctic), Bufflehead, Cackling Goose, Canada Goose (Maritime Temperate Breeders), Canada Goose (North Atlantic population), Canada Goose (Southern Hudson Bay population), Canvasback, Common Eider (Northern), Common Goldeneye (Eastern), Common Goldeneye (Western), Common Merganser, Gadwall, Greater White-fronted Goose, Green-winged Teal (Eastern), Green-winged Teal (Western), Harlequin Duck (Eastern), Harlequin Duck (Western), Hooded Merganser, King Eider, Mallard (Eastern), Mallard (Western), Northern Shoveler, Red-breasted Merganser, Redhead, Ring-necked Duck (Eastern), Ring-necked Duck (Western), Ruddy Duck, Sandhill Crane, Trumpeter Swan (Interior), Trumpeter Swan (Pacific Coast), Trumpeter Swan (Rocky Mountain), Tundra Swan (Eastern), Tundra Swan (Western), Wood Duck (Eastern), Wood Duck (Western)</td>
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<td>Below bounds</td>
<td>American Wigeon, Canada Goose (Atlantic population), Common Eider (American), Common Eider (Pacific), Lesser Scaup, Northern Pintail</td>
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</tr>
<tr>
<td></td>
<td>Below bounds</td>
<td>Ancient Murrelet, Black-legged Kittiwake (Atlantic Population), Ivory Gull, Manx Shearwater, Northern Fulmar, Pink-footed Shearwater, Roseate Tern, Ross's Gull, Short-tailed Albatross, Common Tern&lt;sup&gt;(1)&lt;/sup&gt;</td>
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<td>Ecological group</td>
<td>Status in relation to population goal</td>
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<td>------------------</td>
<td>--------------------------------------</td>
<td>---------</td>
<td>---------------</td>
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<td>Shorebirds</td>
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<tr>
<td>Grassland birds</td>
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<td>Dickcissel, Grasshopper Sparrow, Western Kingbird</td>
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<td>Species</td>
<td>Species count</td>
</tr>
<tr>
<td>------------------</td>
<td>--------------------------------------</td>
<td>---------</td>
<td>--------------</td>
</tr>
<tr>
<td>Forest birds</td>
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<td>Aerial insectivores</td>
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<td>Violet-green Swallow, White-throated Swift</td>
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<td>Aerial insectivores</td>
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<td>Ecological group</td>
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<td>Species count</td>
</tr>
<tr>
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<td>--------------------------------------</td>
<td>---------</td>
<td>---------------</td>
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<td>Other landbirds</td>
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<td>American Tree Sparrow, Baltimore Oriole, Brown Thrasher, Clay-colored Sparrow, Eastern Phoebe, Field Sparrow, Gray-crowned Rosy-Finch, Harris's Sparrow, Kirtland's Warbler, Sage Thrasher, Snow Bunting, Song Sparrow, White-crowned Sparrow, Yellow-breasted Chat auricollis subspecies (Southern Mountain population), Yellow-breasted Chat virens subspecies</td>
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<td>Other landbirds</td>
<td>Insufficient data</td>
<td>Smith's Longspur, Yellow-breasted Chat, Bluethroat, Eastern Yellow Wagtail, Northern Wheatear, Gray-headed Chickadee, Prairie Warbler, White-eyed Vireo</td>
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</tr>
<tr>
<td>Other waterbirds</td>
<td>Below bounds</td>
<td>Black Tern, Black-crowned Night-Heron, Common Gallinule, Common Yellowthroat, Franklin's Gull, Great Blue Heron, Great Blue Heron fannini subspecies, Green Heron, Horned Grebe (Magdalen Islands population), Horned Grebe (Western population), King Rail, Mew Gull, Western Grebe, Whooping Crane, Yellow Rail, Common Tern[A]</td>
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<td>All Migratory Bird Convention Act species</td>
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<td>See above groups</td>
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<tr>
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<td>See above groups</td>
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</tbody>
</table>
Note: \([A]\) indicates a species that is listed in more than 1 species group. The grouping of bird species is the same as in the State of Canada's Birds but includes only birds listed in the Migratory Birds Convention Act. "Species" as used here includes 354 species, 14 subspecies and 52 populations of birds. Fifty-four (54) species and 8 populations have insufficient data to be assessed. Of the 358 species with adequate monitoring data, 13 species are included in more than one category based on their feeding and habitat requirements, but are only included once in the total. For example, species grouped in the feeding behaviour category aerial insectivores may also be included in the habitat grouping forest birds.

Source: Canadian Wildlife Service, Environment and Climate Change Canada (2019).
Additional information can be obtained at:

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