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TRENDS IN CANADA'S BIRD POPULATIONS

CANADIAN ENVIRONMENTAL SUSTAINABILITY INDICATORS

Canada

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CANADIAN ENVIRONMENTAL SUSTAINABILITY INDICATORS

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May 2025

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Trends in Canada's bird populations

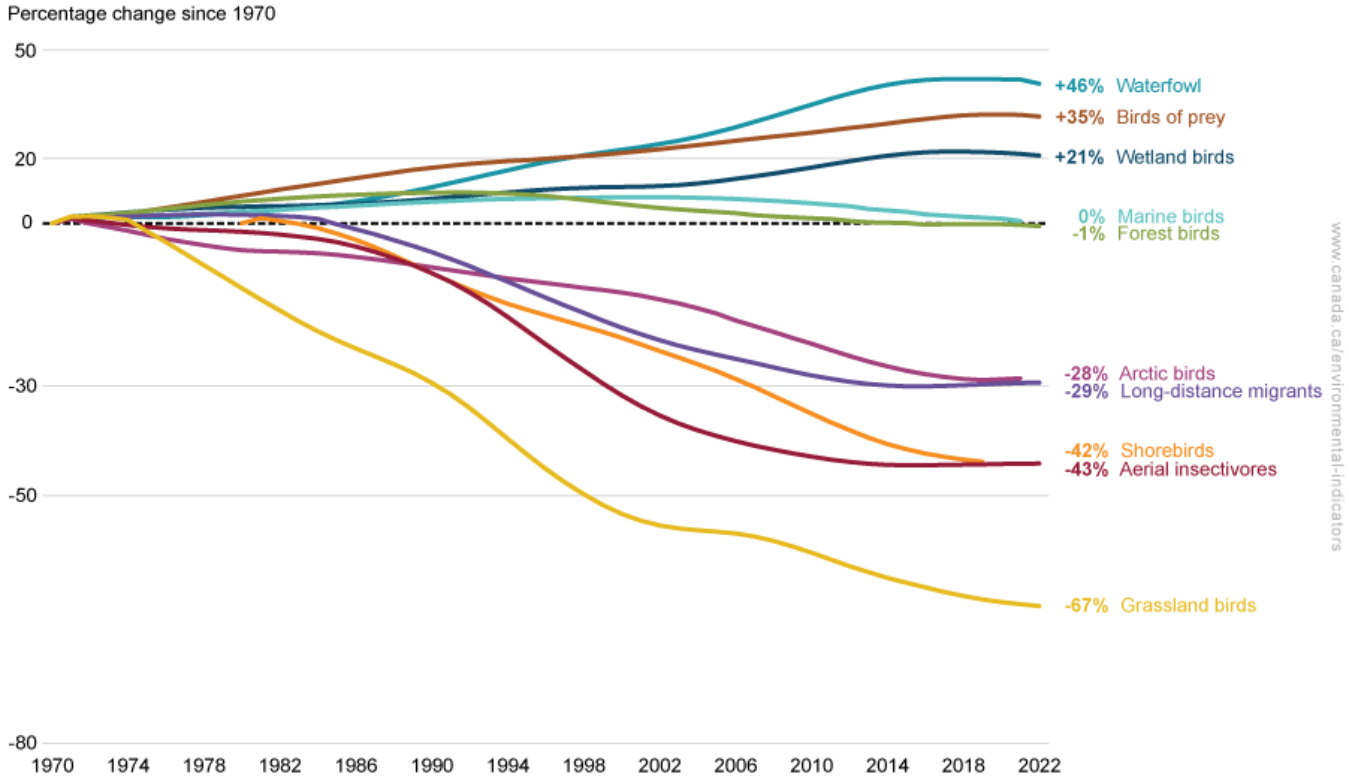
Birds are sensitive to environmental changes, such as habitat loss and pollution, so the health of bird populations can be used as an indicator of ecosystem health. While bird populations fluctuate naturally, rapid declines can signal the need for urgent conservation action. This indicator tracks changes in the population trends of various groups using native Canadian bird species that are representative of their ecological groups.

Key results

From 1970 to 2022, the trends in bird species groups varied:

- The following groups experienced an increase: waterfowl (by 46%), birds of prey (by 35%), and wetland birds (by 21%)
- The following groups experienced a decrease: grassland birds (by 67%), aerial insectivores (by 43%), shorebirds (by 42%), long-distance migrants (by 29%), and Arctic birds (by 28%)
- Marine and forest birds showed little change overall (less than 1%)[1]

Figure 1. Trends in bird populations by species group, Canada, 1970 to 2022



Data for Figure 1

Note: Data for shorebirds are only available beginning in 1980. This analysis is based on 331 species that are representative of their ecological groups and for which adequate monitoring data are available. Of the 331 species, 193 species are included in more than 1 species group based on their feeding or habitat requirements. For example, species included in the aerial insectivores feeding behaviour category may also be included in the forest birds group. For a complete list of bird species, please refer to the supplementary data table.
Source: Birds Canada and Environment and Climate Change Canada (2024) State of Canada's Birds.

[1] Little change means that the increase of some species within a group is offset by the decline of other species within the same group, resulting in little overall change.

Since 1970, 5 groups (grassland birds, aerial insectivores, shorebirds, long-distance migrants, and Arctic birds) have shown large declines. Canadian grassland birds have declined more rapidly (67% total decrease) than other groups, primarily due to habitat loss and fragmentation as a result of land conversion for agricultural land, urban expansion, roads, and the oil and gas industries. Climate change has also contributed as droughts and floods have become more frequent and severe. Grassland birds that depend solely on native grasslands for breeding and wintering have declined by 90%. Even species that can slightly tolerate agricultural lands have declined by 42%.

Aerial insectivores, like swallows, are birds that feed by catching insects in the air. This group has decreased by 43% since 1970, with swifts, swallows and nightjars representing most of the group's decline (60% decrease). Reductions in insect prey populations, presumably because of pesticide use, harmful farming practices, habitat loss and habitat degradation, are likely a key reason for the group's decline.

Canadian shorebirds, like plovers and sandpipers, primarily live along the coastlines of oceans, lakes, rivers and marshes. They have declined by 42% since 1980, when the earliest comprehensive data became available. Shorebirds live in varied habitats and have long migrations, making them vulnerable to many threats like habitat loss and disturbance at migratory stopovers.

Long-distance migrants include species that migrate to tropical regions, like Mexico, South America and, in some cases, Africa or Asia. Short-distance migrants include those that migrate to temperate regions of North America and Europe. Long-distance migrants have declined more since 1970 (29% decrease) than short-distance migrants (12% decrease) or species that remain in Canada (9% increase).[2] These migrants face many threats across many countries and landscapes, and require international cooperation for their conservation.

Arctic birds, hardy birds that live in Canada's expansive tundra, are hard to monitor. More than a quarter of these species have insufficient data for a trend analysis. Those species that do have data show that populations have dropped by 28% since 1970, with a notable steep decline in the mid-2000s, primarily due to the reduction in Arctic shorebird populations (54% decrease). This may be a warning sign of the effects of climate change on the Canadian Arctic. Improved monitoring and the adoption of Traditional Ecological Knowledge to data collection practices are essential to conserving these unique birds.

Bird populations fluctuate naturally in response to ecological conditions, but negative changes in bird populations reflect the overall effect of many different factors. Some of these factors include habitat loss and disturbance, pollution, agricultural impacts, climate change, invasive species, unsustainable hunting and declines in prey populations. Other sources of direct mortality, such as collisions with windows and cat predation, also affect bird populations. These factors act both in Canada and internationally, in countries where birds that breed in Canada migrate through and/or spend the non-breeding season.

Waterfowl, birds of prey and wetland birds are groups that show increases relative to 1970.These groups include species like geese, eagles, and herons. Waterfowl and birds of prey experienced a decline in their populations in the mid-1900s and have been recovering from this decline since the 1970s. Due to wetland habitat protection and restoration and increased waste grain in agricultural areas, wetland birds and waterfowl populations have increased by 46% and 21% respectively, though both groups are influenced by several goose and swan populations that have grown substantially (by 573%) since 1970. The birds of prey group has increased by 35%, thanks in part to endangered species legislations and policies that ban the use of the chemical pesticide dichlorodiphenyltrichloroethane (DDT).

[2] Birds Canada and Environment and Climate Change Canada (2024) State of Canada's Birds. Retrieved on January 9, 2025.

Trends within species groups

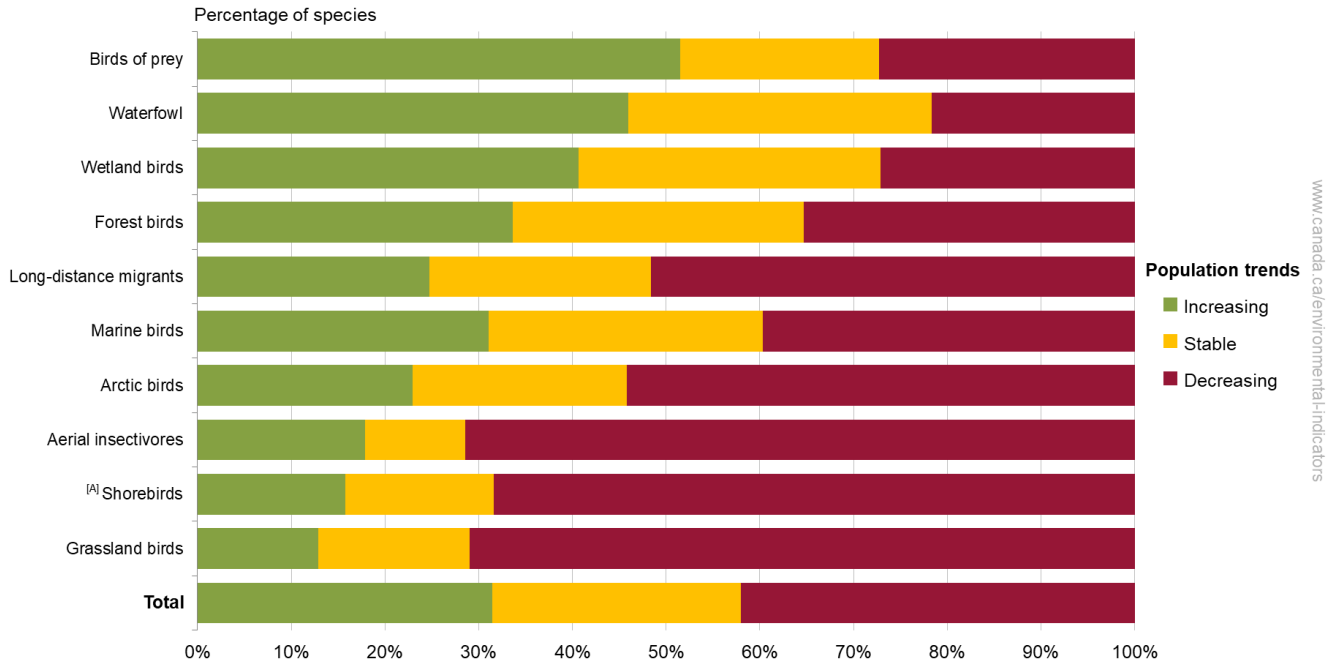
Each species group includes both decreasing and increasing species, which are averaged into a composite mean annual rate of change for the group. Changes in bird populations can also be viewed as the percentage of species whose populations have increased, have decreased or showed little to moderate change.

Key results

Overall, from 1970 to 2022 of the species for which sufficient data are available:

- 31% (104 species) had showed an increase
- 27% (88 species) showed little to moderate change
- 42% (139 species) had showed a decrease

Figure 2. Long-term changes in bird populations by species group, Canada, 1970 to 2022



Data for Figure 2

Note: [A] Data for shorebirds are only available beginning in 1980. This analysis is based on 331 species that are representative of their ecological group and for which adequate monitoring data were available. Of the 331 species, 193 species are included in more than 1 species group based on their feeding or habitat requirements. For example, species included in the aerial insectivores feeding behaviour category may also be included in the forest birds group. For a complete list of bird species, please refer to the supplementary data table.
Source: Birds Canada and Environment and Climate Change Canada (2024) State of Canada's Birds: Species accounts.

Overall, 51% of bird species have either increased or shown stable populations since 1970. The 2 species group with the greatest proportions of species that have increased are the birds of prey (49%) and waterfowl (46%). On the other hand, the 3 groups with the greatest proportions of species that have decreased are aerial insectivores (71%), grassland birds (71%) and shorebirds (68%).

About the indicator

What the indicator measures

The indicator reports population trends of Canada's native bird species from 1970 to 2022. Bird species are categorized into species groups based on their feeding and/or habitat requirements.

Why this indicator is important

Birds provide ecological benefits by controlling insect and rodent populations, dispersing seeds, pollinating plants and playing other key roles in the functioning of ecosystems. Not only do these ecosystem services contribute to our economy and our physical and mental well-being, but birds themselves do so as well.[3,4] Bird watching is a popular activity and millions of Canadians feed birds in their backyards.[5] Waterfowl hunting contributes to tourism, provides food and maintains traditions.

Because birds are sensitive to environmental changes, the health of bird populations can be used as an indicator of ecosystem health and the state of biodiversity. Many long-term monitoring programs exist because most bird species communicate via song and are easily detected; these provide data on population change dating back to the 1970s (or, in some cases, even earlier). Tracking the state of Canada's birds can help to identify the impacts of these changes, and can also help to set conservation priorities, evaluate management actions and track the recovery of species at risk.

Related initiatives

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

This indicator contributes to the Kunming-Montreal Global Biodiversity Framework. It is linked to Target 4: "Ensure urgent management actions to halt human induced extinction of known threatened species and for the recovery and conservation of species, in particular threatened species, to significantly reduce extinction risk, as well as to maintain and restore the genetic diversity within and between populations of native, wild and domesticated species to maintain their adaptive potential, including through in situ and ex situ conservation and sustainable management practices, and effectively manage human-wildlife interactions to minimize human-wildlife conflict for coexistence." It is also linked to Target 21: "Ensure that the best available data, information and knowledge, are accessible to decision makers, practitioners and the public to guide effective and equitable governance, integrated and participatory management of biodiversity, and to strengthen communication, awareness-raising, education, monitoring, research and knowledge management and, also in this context, traditional knowledge, innovations, practices and technologies of indigenous peoples and local communities should only be accessed with their free, prior and informed consent, in accordance with national legislation."

Related indicators

The Population status of Canada's migratory birds 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.

The General 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 (COSEWIC).

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[3] Stobbe E, Sundermann J, Ascone L, and Kühn S (2022) Birdsongs alleviate anxiety and paranoia in healthy participants. *Scientific Reports 12*: 16414. Retrieved January 28, 2025.

[4] Hammoud R, Tognin S, Burgess L, Bergou N, Smythe M, Gibbons J, Davidson N, Afifi A, Bakolis I, and Mechelli A (2022) Smartphone-based ecological momentary assessment reveals mental health benefits of birdlife. *Scientific Reports 12*: 17589. Retrieved January 28, 2025.

[5] Statistics Canda (2023) Flocking to their houses in the subirds. Retrieved on January 28, 2025.

The Species at risk population trends indicator shows whether population and distribution trends of species at risk that are listed under the *Species at Risk Act* are consistent with recovery or management objectives.

Data sources and methods

Data sources

The indicator is based on data from many different monitoring programs that use a range of methods designed to survey different bird species in different habitats. The indicator presents the best available estimate of population trends across species groups of native bird species occurring in Canada from 1970 to 2022.

More information

Many monitoring programs are designed by biologists but enlist the help of volunteers to collect the data. Some volunteer programs, like the North American Breeding Bird Survey, Nocturnal Owl Surveys and Marsh Monitoring Programs 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 through checklists every time they go birding. Other programs, like surveys of breeding waterfowl and Arctic shorebirds, are conducted entirely by professional biologists.

Environment and Climate Change Canada's Canadian Wildlife Service collates the data from many of these monitoring programs, in collaboration with Bird Canada, the National Audubon Society, Ducks Unlimited Canada and Nature Canada. The results are reported in the 2024 State of Canada's Birds report.

Methods

The 2024 State of Canada's Birds report considers 463 species of birds that are native to North America and that regularly occurred in Canada in 1970. They were classified into 10 ecological groups based on their habitat and/or feeding requirements: aerial insectivores, Arctic birds, birds of prey, forest birds, grassland birds, long-distance migrants, marine birds, shorebirds, waterfowl, and wetland birds.

Of the 463 species, 84 generalist species were difficult to classify into ecological groups, and as such were excluded from the analysis. Forty-eight (48) additional species did not have sufficient data to calculate trends from 1970 to 2022. Therefore, the analysis was based on the remaining 331 species. For a more complete list of all bird species included in the 2024 State of Canada's Birds report and how they are considered in the indicator, please refer to the supplementary data table.

The most appropriate data source for each species was selected from the available monitoring programs. To be comparable among species and data sources, each species population trend was modelled as a proportional change from the base year of 1970 to create a species index. These were then combined into a single composite index for each species group. The overall, long-term trends for each species group were determined based on the change in the final year relative to 1970.

More information

Distribution of native bird species

Approximately 14% of Canada's bird species are not yet well monitored. Species that have been excluded from the indicator include:

- Those that are difficult to survey (for example, Arctic-nesting birds, sea ducks and cryptic birds)
- Those for which surveys have only recently been developed and do not yet have long-term trend information (for example, nocturnal owls and pelagic marine birds)[6]

[6] Birds Canada and Environment and Climate Change Canada (2024) State of Canada's Birds. Retrieved on January 9, 2025.

- Generalist species (like American robins) because their population trends do not accurately reflect the population trends of the ecological groups they belong to

Calculating the indicator

Annual year-over-year population changes for each species were calculated using a hierarchical Bayesian general additive model that smooths annual fluctuations and accounts for the varying precision of each species' population estimates. This fills in missing data for some species (for example, some isolated marine bird colonies cannot be monitored every year) and adjusts the level of annual variation and differences in analytical techniques among monitoring programs and species so the indicator tracks medium- to long-term changes in populations. A second model estimates the composite mean annual rates of change across all species in a group, which propagates the uncertainty of each species estimate from the first stage of the modeling into the second stage. Species were only included if they occurred regularly in Canada in 1970 and had adequate data (that is, a long-term monitoring program that provided annual estimates of population status for 20 or more years).

For species with missing data in years at the start or end of the time series, it was assumed that the population did not change during the missing years. Years with missing annual indices (like for many shorebird species with no data prior to 1980) were given values equal to the first year with data (in other words, a conservative assumption of no overall change). The estimated variance was also increased, so that the imputed data for these species would have very little influence on the species group for those years for which data were missing.[7]

Each index by species group was then plotted on a percentage change axis to reflect changes in species' populations since the base year 1970. The scale was adjusted (non-linear scaling) so that negative percent changes would be visually comparable to the corresponding positive change required to return the index to its original value (population status in 1970). For example, a species group that decreased by 50% (reduced to half its original level) must then increase by 100% (or double) to return to the same population status as in 1970 (zero net change).

Averaging across species gives an overall estimate of a group's population status, but species vary within groups. For example, a stable trend may result from a group of species with small changes, or it may reflect a group of species with large but balanced increases and decreases. For this reason, individual species' trends were assigned to 3 status categories (increasing, stable [little to moderate change] or decreasing) to provide further detail on the overall population trends of the species group.

For the long-term changes in bird populations (Figure 2), bird species whose populations increased by more than 33% over the 52-year period from 1970 to 2022 were considered to be increasing, whereas species whose populations declined by more than 25% were considered to be decreasing. These thresholds are chosen because the percentage change values are not symmetrical above and below zero. Specifically, a 33% increase is required for a population to recover from a 25% decrease. Species that experienced smaller increases or decreases in their populations during the period were assigned to the stable (little to moderate change) category. These thresholds were used to reduce the influence of natural population fluctuations and data uncertainties on the categorizations.

For further details on the methodology used in calculating the indicator, please refer to the Methods of the 2024 State of Canada's Birds report.

Recent changes

The 2024 State of Canada's Birds report presents the best state of knowledge of birds in Canada, which has evolved since 2019. More precisely, the methods for analysis and assessment have improved. New data for many species that were data deficient before, like nocturnal owls, have also been added. The current indicator is revised to consider 2 additional bird groups: long-distance migrants and Arctic birds. The group known as seabirds in the previous iteration was renamed marine birds. Furthermore, generalist species, which were previously classified under "all other birds", were excluded in the current indicator. Finally, the data sources of

[7] Birds Canada and Environment and Climate Change Canada (2024) State of Canada's Birds: Methods. Retrieved on January 9, 2025.

previous iterations of the indicator relied on population-based reporting. This update instead leverages species-level assessments to report population trends.

Caveats and limitations

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

For some bird species, a best estimate of their population status was imprecise and/or based on a small proportion of the Canadian population. This is often the case for species that breed in isolated northern regions. Species with insufficient data to estimate indices were excluded, including those that were either difficult to survey (like those that breed in remote areas or are very rare) or species for which surveys had only recently been developed and did not yet have long-term trend information (like many owls and pelagic marine birds). Generalist species that are also able to thrive in a variety of environmental conditions and habitats, like American robins, are difficult to classify to specific ecological groups. As such, 84 species were also excluded from the indicator. For a complete list of bird species included in the State of Canda's Birds 2024 report, please refer to the supplementary data table.

Seventeen (17) species that expanded their ranges into Canada after 1970 were also excluded because of their influence on the composite index. These include: Anna's hummingbird, black vulture, black-necked stilt, blue-gray gnatcatcher, blue-winged warbler, California scrub-jay, Carolina wren, dickcissel, Eurasian wigeon, fish crow, gray flycatcher, great egret, red-bellied woodpecker, tufted duck, tufted titmouse, white-faced ibis, and wild turkey. For these species, the estimates of the percentage change in population size since 1970 were extremely large, because their Canadian populations in 1970 were approximately 0. Because the composite index is the average of the percentage change values across species, these extremely large values, if included, would overwhelm the influence of the other bird species within the group.[8]

Resources

References

Birds Canada and Environment and Climate Change Canada (2024) State of Canada's Birds. Retrieved on January 9, 2025.

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Related information

Bird conservation partnerships

Birds in Canada's forests

Birds protected in Canada

Migratory birds

[8] Birds Canada and Environment and Climate Change Canada (2024) State of Canada's Birds: Methods. Retrieved on January 9, 2025.

Annex

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

Table A.1. Data for Figure 1. Trends in bird populations by species group, Canada, 1970 to 2022

Year	Waterfowl (percentage change from 1970)	Birds of prey (percentage change from 1970)	Wetland birds (percentage change from 1970)	Marine birds (percentage change from 1970)	Forest birds (percentage change from 1970)	Arctic birds (percentage change from 1970)	Long-distance migrants (percentage change from 1970)	Shorebirds (percentage change from 1980)	Aerial insectivores (percentage change from 1970)	Grassland birds (percentage change from 1970)
1970	0.00	0.00	0.00	0.00	0.00	0.00	0.00	n/a	0.00	0.00
1971	-0.01	0.20	0.34	0.13	0.27	-0.53	0.02	n/a	-0.27	0.29
1972	0.00	0.48	0.74	0.26	0.61	-1.09	0.09	n/a	-0.58	0.37
1973	0.03	0.93	1.23	0.37	1.06	-1.68	0.19	n/a	-0.94	0.01
1974	0.06	1.54	1.75	0.48	1.61	-2.33	0.35	n/a	-1.31	-0.88
1975	0.10	2.35	2.26	0.62	2.25	-3.00	0.55	n/a	-1.63	-2.40
1976	0.16	3.28	2.70	0.78	2.93	-3.71	0.78	n/a	-1.88	-4.29
1977	0.42	4.30	3.05	1.02	3.65	-4.28	0.93	n/a	-2.07	-6.26
1978	0.79	5.35	3.33	1.30	4.29	-4.80	1.03	n/a	-2.19	-8.28
1979	1.22	6.46	3.53	1.62	4.91	-5.27	1.04	n/a	-2.32	-10.24
1980	1.62	7.53	3.68	1.98	5.51	-5.66	0.88	0.00	-2.46	-12.26
1981	2.09	8.61	3.84	2.33	6.04	-5.83	0.77	-0.25	-2.70	-14.22
1982	2.59	9.66	3.96	2.67	6.50	-5.94	0.51	-0.58	-2.95	-16.11
1983	3.19	10.67	4.07	3.03	6.92	-6.03	0.13	-1.10	-3.30	-18.01
1984	3.92	11.64	4.23	3.41	7.28	-6.19	-0.47	-1.84	-3.72	-19.71
1985	4.69	12.61	4.46	3.73	7.59	-6.47	-1.20	-2.78	-4.29	-21.28
1986	5.58	13.61	4.69	4.08	7.85	-6.84	-2.02	-3.88	-5.03	-22.69
1987	6.63	14.58	5.03	4.42	8.09	-7.24	-2.93	-5.17	-5.97	-24.04
1988	7.81	15.53	5.45	4.77	8.31	-7.68	-3.91	-6.60	-7.03	-25.39
1989	9.12	16.46	5.95	5.11	8.48	-8.17	-4.92	-8.11	-8.22	-26.88
1990	10.47	17.23	6.47	5.43	8.57	-8.62	-6.02	-9.66	-9.63	-28.62
1991	11.91	17.96	7.05	5.73	8.65	-9.13	-7.21	-11.10	-11.17	-30.63

Year	Waterfowl (percentage change from 1970)	Birds of prey (percentage change from 1970)	Wetland birds (percentage change from 1970)	Marine birds (percentage change from 1970)	Forest birds (percentage change from 1970)	Arctic birds (percentage change from 1970)	Long-distance migrants (percentage change from 1970)	Shorebirds (percentage change from 1980)	Aerial insectivores (percentage change from 1970)	Grassland birds (percentage change from 1970)
1992	13.39	18.54	7.59	5.99	8.64	-9.61	-8.45	-12.50	-13.00	-33.00
1993	14.88	19.06	8.16	6.24	8.52	-10.07	-9.78	-13.77	-15.01	-35.58
1994	16.35	19.51	8.69	6.39	8.29	-10.54	-11.11	-14.94	-17.24	-38.30
1995	17.81	19.88	9.20	6.51	7.93	-10.95	-12.50	-15.96	-19.60	-40.99
1996	19.19	20.34	9.64	6.64	7.41	-11.36	-13.89	-16.93	-21.95	-43.50
1997	20.43	20.77	10.01	6.77	6.79	-11.76	-15.22	-17.87	-24.26	-45.83
1998	21.54	21.27	10.28	6.86	6.11	-12.18	-16.53	-18.82	-26.53	-47.91
1999	22.51	21.78	10.45	6.96	5.38	-12.57	-17.83	-19.80	-28.72	-49.74
2000	23.42	22.35	10.56	7.03	4.63	-12.99	-19.07	-20.82	-30.79	-51.30
2001	24.35	22.97	10.65	7.06	3.95	-13.53	-20.19	-21.94	-32.64	-52.49
2002	25.41	23.60	10.86	7.06	3.29	-14.19	-21.24	-23.10	-34.27	-53.32
2003	26.57	24.31	11.21	6.98	2.77	-14.88	-22.18	-24.22	-35.68	-53.85
2004	27.96	25.03	11.74	6.83	2.30	-15.70	-23.00	-25.39	-36.85	-54.17
2005	29.50	25.80	12.48	6.64	1.90	-16.63	-23.76	-26.61	-37.85	-54.40
2006	31.24	26.57	13.33	6.40	1.56	-17.55	-24.49	-27.94	-38.73	-54.73
2007	33.10	27.29	14.24	6.11	1.26	-18.55	-25.21	-29.37	-39.50	-55.24
2008	35.05	27.99	15.22	5.75	0.91	-19.57	-25.95	-30.90	-40.20	-55.98
2009	37.04	28.68	16.22	5.34	0.57	-20.60	-26.68	-32.45	-40.83	-56.94
2010	39.07	29.40	17.28	4.88	0.27	-21.61	-27.34	-33.94	-41.41	-58.03
2011	41.07	30.16	18.38	4.41	0.03	-22.69	-27.93	-35.42	-41.91	-59.20
2012	42.91	30.96	19.47	3.93	-0.16	-23.72	-28.42	-36.81	-42.33	-60.34
2013	44.59	31.71	20.48	3.43	-0.30	-24.67	-28.82	-38.10	-42.65	-61.41
2014	45.95	32.51	21.39	2.95	-0.40	-25.53	-29.09	-39.22	-42.83	-62.38
2015	46.98	33.33	22.11	2.50	-0.46	-26.26	-29.22	-40.13	-42.91	-63.25
2016	47.63	34.09	22.55	2.07	-0.46	-26.88	-29.24	-40.86	-42.90	-64.05
2017	47.93	34.79	22.78	1.66	-0.42	-27.37	-29.17	-41.44	-42.84	-64.82
2018	47.98	35.33	22.80	1.30	-0.38	-27.70	-29.05	-41.90	-42.79	-65.52

Year	Waterfowl (percentage change from 1970)	Birds of prey (percentage change from 1970)	Wetland birds (percentage change from 1970)	Marine birds (percentage change from 1970)	Forest birds (percentage change from 1970)	Arctic birds (percentage change from 1970)	Long-distance migrants (percentage change from 1970)	Shorebirds (percentage change from 1980)	Aerial insectivores (percentage change from 1970)	Grassland birds (percentage change from 1970)
2019	47.95	35.63	22.67	0.96	-0.36	-27.90	-28.92	-42.29	-42.75	-66.12
2020	47.87	35.66	22.39	0.61	-0.40	-27.75	-28.75	n/a	-42.68	-66.60
2021	47.73	35.55	22.03	0.30	-0.50	-27.58	-28.65	n/a	-42.62	-66.95
2022	46.32	34.97	21.47	n/a	-0.72	n/a	-28.59	n/a	-42.58	-67.28

Note: n/a = not available. Data for shorebirds are only available beginning in 1980. This analysis is based on 331 species that are representative of their ecological group and for which adequate monitoring data were available. Of the 331 species, 193 species are included in more than 1 species group based on their feeding or habitat requirements. For example, species included in the aerial insectivores feeding behaviour category may also be included in the forest birds group. For a complete list of bird species, please refer to the supplementary data table.
Source: Birds Canada and Environment and Climate Change Canada (2024) State of Canada's Birds.

Table A.2. Data for Figure 2. Long-term changes in bird populations by species group, Canada, 1970 to 2022

Species group	Status	Species	Species count
Aerial insectivores	Increasing	Yellow-bellied flycatcher, Hammond's flycatcher, purple martin, Say's phoebe, white-throated swift	5
Aerial insectivores	Stable	Alder flycatcher, violet-green swallow, western kingbird	3
Aerial insectivores	Decreasing	Bank swallow, barn swallow, black swift, chimney swift, cliff swallow, common nighthawk, eastern phoebe, eastern wood-pewee, olive-sided flycatcher, western wood-pewee, Acadian flycatcher, dusky flycatcher, eastern kingbird, eastern whip-poor-will, great crested flycatcher, least flycatcher, northern rough-winged swallow, tree swallow, Vaux's swift, willow flycatcher	20
Arctic birds	Increasing	Cackling goose, greater white-fronted goose, Iceland gull, Lapland longspur, peregrine falcon, red-throated loon, Ross's goose, Smith's longspur, snow goose, thick-billed murre, tundra swan	11
Arctic birds	Stable	Baird's sandpiper, brant, common eider, common redpoll, hoary redpoll, least sandpiper, pacific loon, Ross's gull, rough-legged hawk, western sandpiper, willow ptarmigan	11
Arctic birds	Decreasing	American golden-plover, black-bellied plover, buff-breasted sandpiper, dunlin, glaucous gull, Harris's sparrow, Hudsonian godwit, ivory gull, king eider, long-billed dowitcher, long-tailed duck, pectoral sandpiper, rock sandpiper, ruddy turnstone, semipalmated sandpiper, snow bunting, snowy owl, stilt sandpiper, whimbrel, yellow-billed loon, gyrfalcon, purple sandpiper, sanderling, semipalmated plover, surfbird, white-rumped sandpiper	26
Birds of prey	Increasing	Bald eagle, barred owl, broad-winged hawk, eastern screech-owl, ferruginous hawk, great gray owl, merlin, northern saw-whet owl, osprey, peregrine falcon, turkey vulture, northern hawk owl, northern pygmy-owl, red-shouldered hawk, red-tailed hawk, sharp-shinned hawk, Swainson's hawk	17
Birds of prey	Stable	American goshawk, barn owl, Cooper's hawk, golden eagle, long-eared owl, prairie falcon, rough-legged hawk	7
Birds of prey	Decreasing	Burrowing owl, great horned owl, northern harrier, short-eared owl, snowy owl, spotted owl, western screech-owl, American kestrel, gyrfalcon	9
Forest birds	Increasing	Barred owl, blue-headed vireo, broad-winged hawk, cape may warbler, eastern screech-owl, great gray owl, hooded warbler, Hutton's vireo, northern parula, northern saw-whet owl, Philadelphia vireo, pileated woodpecker, pine warbler, red-breasted nuthatch, red-breasted sapsucker, spruce grouse, white-breasted nuthatch, yellow-bellied flycatcher, yellow-throated vireo, black-capped chickadee, black-headed grosbeak, black-throated blue warbler, brown creeper, hairy woodpecker, Hammond's flycatcher, Kirtland's warbler, northern hawk owl, northern pygmy-owl, northern waterthrush, orange-crowned warbler, pine grosbeak, red-eyed vireo, red-naped sapsucker, red-shouldered hawk, ruby-throated hummingbird, sharp-shinned hawk, varied thrush, warbling vireo, western tanager	39

Species group	Status	Species	Species count
Forest birds	Stable	American goshawk, American redstart, bay-breasted warbler, black-and-white warbler, black-backed woodpecker, blackburnian warbler, Canada jay, Cassin's vireo, chestnut-sided warbler, Clark's nutcracker, Cooper's hawk, dark-eyed junco, downy woodpecker, golden-crowned kinglet, long-eared owl, MacGillivray's warbler, magnolia warbler, mountain chickadee, ovenbird, pacific wren, pygmy nuthatch, red crossbill, red-headed woodpecker, rose-breasted grosbeak, ruby-crowned kinglet, ruffed grouse, Steller's jay, Swainson's thrush, Tennessee warbler, Townsend's solitaire, Townsend's warbler, veery, white-winged crossbill, winter wren, yellow-bellied sapsucker, yellow-rumped warbler	36
Forest birds	Decreasing	Band-tailed pigeon, Bicknell's thrush, blackpoll warbler, Canada warbler, cerulean warbler, Connecticut warbler, dusky grouse, eastern wood-pewee, evening grosbeak, gray-cheeked thrush, hermit thrush, marbled murrelet, mourning warbler, olive-sided flycatcher, pine siskin, prothonotary warbler, sooty grouse, spotted owl, western screech-owl, western wood-pewee, white-headed woodpecker, wood thrush, Acadian flycatcher, American three-toed woodpecker, black-throated gray warbler, black-throated green warbler, bohemian waxwing, boreal chickadee, Cassin's finch, chestnut-backed chickadee, dusky flycatcher, eastern whip-poor-will, great crested flycatcher, least flycatcher, Lewis's woodpecker, Louisiana waterthrush, Nashville warbler, purple finch, scarlet tanager, Vaux's swift, white-throated sparrow	41
Grassland birds	Increasing	Ferruginous hawk, lark sparrow, Swainson's hawk, upland sandpiper	4
Grassland birds	Stable	Brewer's sparrow, prairie falcon, sharp-tailed grouse, western kingbird, willet	5
Grassland birds	Decreasing	Baird's sparrow, bobolink, burrowing owl, chestnut-collared longspur, eastern meadowlark, grasshopper sparrow, greater sage-grouse, Henslow's sparrow, horned lark, lark bunting, LeConte's sparrow, marbled godwit, northern bobwhite, northern harrier, savannah sparrow, short-eared owl, Sprague's pipit, thick-billed longspur, vesper sparrow, western meadowlark, American kestrel, long-billed curlew	22
Long-distance migrants	Increasing	Black-chinned hummingbird, broad-winged hawk, cape may warbler, hooded warbler, northern parula, orchard oriole, osprey, Philadelphia vireo, yellow-bellied flycatcher, yellow-throated vireo, black-throated blue warbler, Bullock's oriole, golden-winged warbler, indigo bunting, Kirtland's warbler, northern waterthrush, purple martin, red-eyed vireo, ruby-throated hummingbird, solitary sandpiper, Swainson's hawk, upland sandpiper, warbling vireo	23
Long-distance migrants	Stable	Alder flycatcher, American redstart, Baird's sandpiper, bay-breasted warbler, black-and-white warbler, blackburnian warbler, blue-winged teal, calliope hummingbird, chestnut-sided warbler, least sandpiper, magnolia warbler, ovenbird, rose-breasted grosbeak, Swainson's thrush, Tennessee warbler, veery, violet-green swallow, western kingbird, Wilson's phalarope, yellow warbler, yellow-billed cuckoo, yellow-breasted chat	22

Species group	Status	Species	Species count
Long-distance migrants	Decreasing	American golden-plover, bank swallow, barn swallow, Bicknell's thrush, black swift, black tern, blackpoll warbler, bobolink, buff-breasted sandpiper, Canada warbler, cerulean warbler, chimney swift, cliff swallow, common nighthawk, Connecticut warbler, eastern wood-pewee, gray-cheeked thrush, Hudsonian godwit, lesser yellowlegs, mourning warbler, olive-sided flycatcher, pectoral sandpiper, prothonotary warbler, roseate tern, rufous hummingbird, semipalmated sandpiper, spotted sandpiper, stilt sandpiper, wandering tattler, western wood-pewee, whimbrel, wood thrush, Acadian flycatcher, Baltimore oriole, black-billed cuckoo, black-throated green warbler, common tern, eastern kingbird, Franklin's gull, great crested flycatcher, least flycatcher, Louisiana waterthrush, Nashville warbler, sanderling, scarlet tanager, Vaux's swift, white-rumped sandpiper, willow flycatcher	48
Marine birds	Increasing	Black guillemot, bufflehead, Caspian tern, double-crested cormorant, eared grebe, Iceland gull, lesser black-backed gull, northern gannet, razorbill, red-throated loon, western gull, ancient murrelet, Atlantic puffin, Barrow's goldeneye, common loon, Heermann's gull, red-necked grebe, thick-billed murre	18
Marine birds	Stable	Black-footed albatross, Brandt's cormorant, brant, common eider, common goldeneye, common murre, great cormorant, greater scaup, harlequin duck, horned grebe, pacific loon, red-breasted merganser, rhinoceros auklet, Ross's gull, surf scoter, tufted puffin, western grebe	17
Marine birds	Decreasing	Black scoter, black tern, glaucous gull, great black-backed gull, herring gull, ivory gull, king eider, Leach's storm-petrel, long-tailed duck, marbled murrelet, northern fulmar, pigeon guillemot, roseate tern, short-billed gull, yellow-billed loon, black-legged kittiwake, California gull, Cassin's auklet, common tern, Forster's tern, glaucous-winged gull, pelagic cormorant, white-winged scoter	23
Shorebirds [A]	Increasing	Black oystercatcher, greater yellowlegs, American avocet, solitary sandpiper, upland sandpiper, Wilson's snipe	6
Shorebirds [A]	Stable	Baird's sandpiper, black turnstone, least sandpiper, western sandpiper, willet, Wilson's phalarope	6
Shorebirds [A]	Decreasing	American golden-plover, black-bellied plover, buff-breasted sandpiper, dunlin, Hudsonian godwit, killdeer, lesser yellowlegs, long-billed dowitcher, marbled godwit, pectoral sandpiper, rock sandpiper, ruddy turnstone, semipalmated sandpiper, short-billed dowitcher, spotted sandpiper, stilt sandpiper, wandering tattler, whimbrel, American woodcock, long-billed curlew, piping plover, purple sandpiper, sanderling, semipalmated plover, surfbird, white-rumped sandpiper	26
Waterfowl	Increasing	Bufflehead, cackling goose, Canada goose, greater white-fronted goose, hooded merganser, ring-necked duck, Ross's goose, ruddy duck, snow goose, trumpeter swan, wood duck, Barrow's goldeneye, cinnamon teal, common merganser, gadwall, redhead, tundra swan	17
Waterfowl	Stable	Blue-winged teal, brant, canvasback, common eider, common goldeneye, greater scaup, green-winged teal, harlequin duck, mallard, northern shoveler, red-breasted merganser, surf scoter	12
Waterfowl	Decreasing	American black duck, American wigeon, black scoter, king eider, lesser scaup, long-tailed duck, northern pintail, white-winged scoter	8

Species group	Status	Species	Species count
Wetland birds	Increasing	American white pelican, Canada goose, Caspian tern, double-crested cormorant, eared grebe, hooded merganser, marsh wren, ring-billed gull, ring-necked duck, ruddy duck, sandhill crane, trumpeter swan, Virginia rail, wood duck, American avocet, Barrow's goldeneye, cinnamon teal, common loon, common merganser, gadwall, redhead, red-necked grebe, swamp sparrow, yellow-headed blackbird	24
Wetland birds	Stable	Alder flycatcher, blue-winged teal, canvasback, common goldeneye, common yellowthroat, great blue heron, green-winged teal, horned grebe, least bittern, mallard, Nelson's sparrow, northern shoveler, pied-billed grebe, red-winged blackbird, sedge wren, sora, western grebe, willet, Wilson's phalarope	19
Wetland birds	Decreasing	American bittern, black tern, black-crowned night heron, common gallinule, northern pintail, spotted sandpiper, American black duck, American coot, American wigeon, belted kingfisher, California gull, common tern, Forster's tern, Franklin's gull, green heron, willow flycatcher	16
Total[B]	Increasing	Species listed above within each species group	104
Total[B]	Stable	Species listed above within each species group	88
Total[B]	Decreasing	Species listed above within each species group	139
Total[B]	**n/a**	**Species listed above within each species group**	**331**

Note: [A] Data for shorebirds are only available beginning in 1980. [B] The total is the sum of the 331 species considered in the indicator. n/a = not applicable. Of the 331 species, 193 species are included in more than 1 species group based on their feeding or habitat requirements. For example, species included in the aerial insectivores feeding behaviour category may also be included in the forest birds group. For a complete list of bird species, please refer to the supplementary data table.
Source: Birds Canada and Environment and Climate Change Canada (2024) State of Canada's Birds: Species accounts.

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