



Evidence of Success: examples of NatureCounts driving positive impact for biodiversity

A key goal of NatureCounts is to empower researchers and conservation actors with the data and tools they need to have a positive impact for biodiversity. The critical need for reliable, accessible biodiversity data is emphasized in Target 21 of the Kunming-Montreal Global Biodiversity Framework.

Comprehensive data — like those found in NatureCounts — are “critical for creating baselines, regularly assessing progress and taking necessary action.”

To this end, NatureCounts aims to provide valuable data, expertise and knowledge to affect positive change for biodiversity. We track this impact using several metrics, such as the number of people visiting NatureCounts, the number of times users download data, and the number of scientific publications that rely on our work. Our community of data users make around 9000 data requests annually through our NatureCounts data portal and R package. Our work and data contribute to more than 300 publications per year and are being used by government partners to help shape policies that have a direct influence on conservation (e.g. land use decisions, species at risk nominations).

While NatureCounts was developed in Canada, we have been intentional in making the platform scalable and adaptable. It is increasingly being adopted by projects in the United States, and its successful use in a wide array of projects and applications demonstrates that it can be broadly applied.

Here we provide some recent examples to highlight the demonstrated conservation impact of NatureCounts:

1. Assessing the status of species across Canada and informing risk assessments

Assessing the status of species requires long-term population trends. NatureCounts houses nearly half a million such trends, in addition to the raw data upon which they are based. These trends and data are used to assess species both internally at Birds Canada and externally by government partners and other bodies. For example, data from NatureCounts have directly informed at least 50 Species at Risk status recommendations by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) for listing under the Canadian *Species at Risk Act* (for example, [Canada Warbler](#) and [Lesser Yellowlegs](#)). The data are also used to assess species status for the [Wild Species Reports](#), published by a working group of representatives from the provincial, territorial, and federal governments.

Data from NatureCounts are also frequently used in academic research on population trends and statuses, which informs both future study and policy decisions (for example, [owls in the Maritimes](#), [coastal waterbirds in British Columbia](#), [loons in the Canadian Arctic](#), and [ducks in Ontario](#)). Through NatureServe’s [Ecosystem-based Automated Range \(EBAR\) maps](#), NatureCounts data help to elucidate the

distributions of priority species. NatureCounts data have also informed the development and implementation of legally-required species recovery strategies, action plans, and management plans.

2. Increasing our understanding of the processes implicated in the climate change and biodiversity crises

NatureCounts data were used to [assess the impacts of climate change on all birds in the Canadian national parks system](#), and to provide general guidance to Parks Canada to help managers adapt their conservation actions to manage for both persistence of species projected to be lost, and for change to maintain a high diversity of species.

NatureCounts data were used in the iconic [3 Billion Birds Gone](#) scientific paper published in *Science*, which found that North America has lost 1 in 4 birds since 1970 and demonstrated the importance of birds as environmental indicators.

In addition, a 40-year dataset managed by NatureCounts was used to identify how climate change induced stresses acting through mercury acidification, fish abundance, and other pathways has driven the loss of the iconic Common Loon in the Great Lakes region of Ontario, and what can be done to stem this decline. The work was widely featured in [technical reports](#), the [scientific literature](#), and recently in the film [Loons: A Cry from the Mist](#).

NatureCounts has also contributed data to numerous research publications influencing conservation through knowledge generation. For example, data from NatureCounts have been used to [project changes in bird populations due to climate change](#), [predict the effect of land cover change on biodiversity in the Prairies](#), [assess climate-impact risk to species at risk](#), [understand the effect of changing landscapes on biodiversity in the Mixedwood Plains](#), and [predict the effects of climate change on biodiversity in the Boreal landscape](#).

3. Protecting critical habitat and sites of highest conservation value

[Key Biodiversity Areas](#) are identified using bird data from NatureCounts, and are a top priority in the global efforts to protect and conserve 30% of lands and waters by 2030 under the Kunming-Montreal Global Biodiversity Framework, and Canada's national plans to implement the framework. More local initiatives, like [Kootenay Connect Priority Places](#), also use NatureCounts data to inform land protection and management at smaller scales.

In addition, the detailed data on species occurrence in NatureCounts has been imperative for identifying and mitigating risk to critical habitat for several species at risk. For example, several patches of biodiverse Carolinian forest in southern Ontario have been prioritized for purchase or managed for biodiversity values by land trusts based on the data in NatureCounts. Further, NatureCounts data have been used to [inform wetland habitat restoration for critical shorebird species on Iona Island in British Columbia](#).

Numerous other studies have used data from NatureCounts to identify and inform the management of important habitat for birds, such as [the development of an Index of Biotic Condition for assessing the conditions of coastal wetlands on the Great Lakes](#), [an examination of how climate-induced range shifts may affect the effectiveness of protected areas](#), and [recommendations for fostering biodiversity in Calgary's urban wetlands](#).

4. Impact assessment to meet local, provincial and national regulatory compliance at a local scale

Environmental consultancies hired by development project proponents are frequent users of NatureCounts. Consultants require up-to-date, comprehensive information on which species use project development areas and surrounding sites (e.g., in order to mitigate harm to species at risk). For example, Stantec and Golder - two internationally recognized environmental consulting firms - rely on NatureCounts to obtain baseline information from which to assess project feasibility and impact. NatureCounts data have been cited in numerous impact study reports including [Alta Subdivision in Craigeith, Ontario](#), [Loyalist Heights Development in Picton, Ontario](#), [Cardinal Creek Village in Ottawa, Ontario](#), [the Vittoria Dam mitigation in Norfolk County, Ontario](#), [the development of a hunt camp in Combermere, Ontario](#), and many others.

5. Indigenous partnerships

NatureCounts data have been used to support Indigenous-led conservation, including the development of the [Fawn River Indigenous Protected Area Ecological Atlas](#), the creation of a bird identification resource for the communities of [Anguvigaq](#), and an upcoming Cree Geo data hub by the [Mushkegowuk Council](#).

6. Applied tools for nature-friendly management of working landscapes

Birds Canada is using data from NatureCounts to help grassland birds in the Prairies using the [Bird Friendliness Index](#). This biodiversity indicator identifies and communicates the impact of agricultural practices on biodiversity. This in turn opens the door to incentives for more nature-friendly farming practices, combating the threat of agricultural intensification which is the number one threat to global biodiversity.

The Canadian Forage and Grasslands Association is using data from NatureCounts to develop and implement a similar product: the [Habitat and Biodiversity Assessment Tool](#). This tool uses species occurrence and land cover data to identify actions agricultural producers across Canada can take on their own lands to help native species.

The [Canadian Renewable Energy Association](#) relies on the NatureCounts database for the most up-to-date bird and bat information to assess collision risk and inform monitoring of existing wind farms and siting of new renewable energy locations, based on the most comprehensive information available.

7. The State of Canada's Birds and Biodiversity Report Cards

Released in 2024, [the State of Canada's Birds](#) is a comprehensive online resource reporting on population trends, occurrence, and conservation goals for all regularly-occurring birds in Canada. It consists of a dynamic summary report that highlights important conservation stories and actions, and 463 detailed species accounts with live data integrations and expert interpretation. The State of Canada's Birds is built on data from NatureCounts and hosted on the NatureCounts platform, drawing heavily on the technical expertise of the NatureCounts team.

Several other publications on the state of biodiversity rely on NatureCounts for their baseline data and trends. Previous State of Canada's Birds reports in [2012](#) and [2019](#) were made possible by the NatureCounts database, synthesizing data from 30 bird monitoring programs led by Birds Canada and its community of >74,000 volunteers. Others include the [State of the Great Lakes Report](#) (2022) and the [Lake Simcoe Protection Plan 10-year report](#).

Summary

NatureCounts aims to provide the technological and data resources to enable the vital work of the conservation and research community. This document provides just a snapshot of the vast, ever-growing array of proven applications of these tools and data for the benefit of wild species and their habitats. As the NatureCounts platform continues to evolve and grow, so too will its impact on biodiversity and conservation.