

S8

State of Canada's Frogs

Summary

This evaluation reports on the conservation status of frog species in Canada.

Key messages

- **Nearly half of Canada's frog species are at risk.**
- The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) has assessed 45% (13) of Canada's frog species as at risk (Endangered, Threatened, or Special Concern) (Attachment 1). One species (Blanchard's Cricket Frog) was last confirmed in the early 1970s and is probably extirpated from Canada.
- BC and Alberta have the highest number of at-risk frog species (Figure 1). Eight frog species are restricted to a single province.
- Ontario has the greatest diversity of frog species in Canada. BC and Manitoba also have a high number of frog species (Figure 1).
- Only one species of frog found in Canada, Oregon Spotted Frog, is on the IUCN Red List of the Threatened Species.
- Threats to frogs in Canada vary among species. The main threats include loss of wetlands from land conversion to agricultural or residential development, timber harvest, road mortality, invasive species, pollution, and emerging diseases.
- Frogs rely on both water and land habitat during their lifespan making them particularly sensitive to changes in their environment. Climate change may increase the risk of extinction as some species (e.g., Great Basin Spadefoot) experience drought conditions that reduce pond and wetland habitat needed for breeding.
- There are effective conservation actions to help reduce the threats to frogs in Canada including installing passages along roadways, captive breeding programs, and protecting and restoring frog habitats, particularly wetlands. Long-term monitoring programs are also needed to get a better understanding of population dynamics of at-risk frogs.



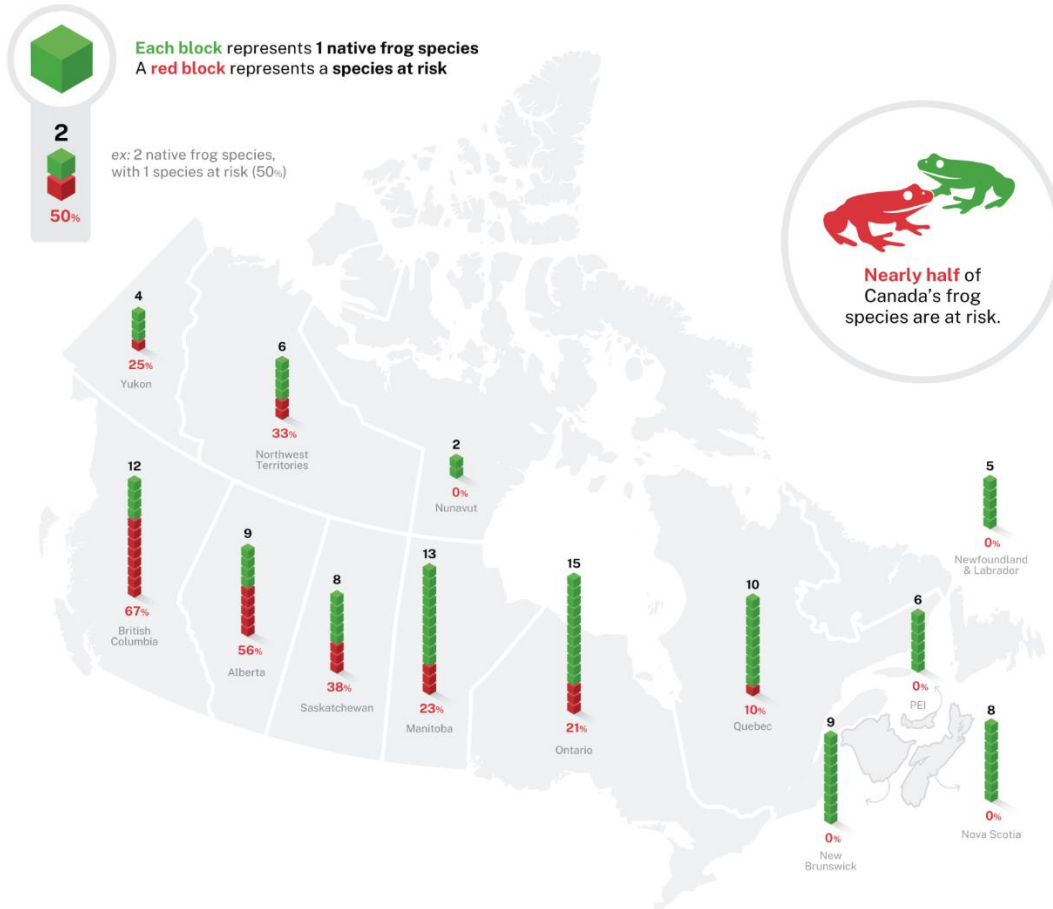
Western Chorus Frog Great Lakes - St. Lawrence - Canadian Shield Population (left) is listed as Threatened under COSEWIC. Oregon Spotted Frog (right) is an Endangered species only found in BC within Canada with less than 350 individuals remaining. Photos: avokes (iNaturalist); denis_k (iNaturalist)

Figures

Figure 1: State of Canada's Frogs

State of Frogs in Canada

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Calls to Action

Addressing the biodiversity crisis in Canada will require [transformative change](#). See our backgrounder on transformative change for more information. Specific actions for frog conservation include:

Federal, provincial, territorial & Indigenous governments:

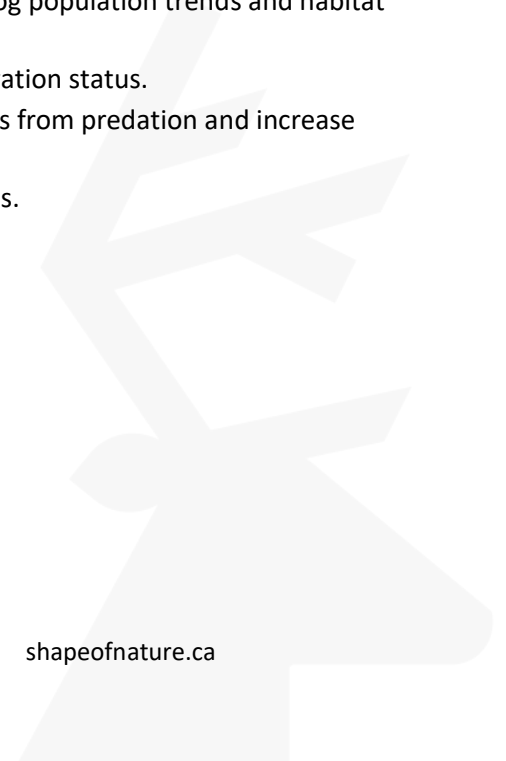
- Develop a robust 2030 National Biodiversity Strategy to implement the goals and targets of the [Kunming-Montreal Biodiversity Framework](#). Targets in the strategy to support frog conservation include habitat protection, restoration, and reducing pollution.
- Effectively manage and restore protected and conserved areas to protect the habitat for at-risk frogs.
- Develop and support policies to protect wetlands, vernal pools, and other key habitats for frogs.
- Support monitoring programs to track and stop the spread of Ranavirus and *Batrachochytrium dendrobatidis* (Bd), a deadly invasive chytrid fungus that can infect and kill frogs.
- Restore Indigenous stewardship practices that protect wetland diversity and promote ecosystem health and resilience.

Local governments & communities:

- Develop and report on frog monitoring programs.
- Inventory and map frog habitats such as wetlands and include this information in land use decisions.
- Collaborate with governmental agencies, Indigenous communities, non-governmental organizations, and local authorities to develop effective conservation strategies to protect frogs and their habitat.
- Identify 'hotspots' of road mortality for frogs. Install amphibian culverts or tunnels along highways and roads to ensure the safe passage of frogs.

Civil societies, community organizations, universities, colleges & museums:

- Support and advocate for the designation of Key Biodiversity Areas that include at-risk frog species and/or range-restricted species (e.g., Rocky Mountain Tailed Frog).
- Continue research to develop a better baseline understanding of frog population trends and habitat requirements for every frog species in Canada.
- Educate the public on the current threats to frogs and their conservation status.
- Develop and manage captive breeding programs to protect tadpoles from predation and increase native populations when released back into natural habitat.
- Fund and organize invasive species management actions in wetlands.



Businesses & corporations:

- Avoid projects that could impact at-risk frogs and their habitat and seek opportunities for 'nature-positive' actions that will improve their habitat.
- "Adopt" an at-risk frog species and fund communities and organizations that are protecting these species.

Everyone:

- Learn and talk about at-risk frog species found in your area.
- Contribute to citizen science efforts and report sightings of frogs through [iNaturalist](#), [FrogWatch](#) or the [Marsh Monitoring Program](#).
- Join societies and local groups that advocate for the conservation of frogs and their habitat.
- Participate in events to restore degraded wetlands or remove invasive wetland species such as Common Reed (*Phragmites australis*) to improve the quality of frog habitat.
- Support Key Biodiversity Areas or other conservation projects near you that help to highlight and conserve at-risk frog and other threatened species. Volunteer as a KBA caretaker or create a caretaker group.

Applications & Next Steps

Globally, amphibians are experiencing rapid population declines as the IUCN reports that 41% of all amphibians are at risk of extinction (Re:wild et al. 2023). As amphibians, frogs rely on both terrestrial and aquatic habitat to complete their life cycle and often have small geographic home ranges. Frogs are also ectotherms, meaning they rely on their surroundings to regulate their body temperature, making this group sensitive to changes in their environment. Frogs are exposed to numerous threats, largely due to human activities such as habitat destruction from agricultural and residential development, road mortality, and chemical pollution. This has led to nearly half (45%) of all Canadian frog species to be assessed as at-risk by COSEWIC. This percentage is similar to an analysis in 2013 that found 42% of amphibians (frogs and salamanders) were assessed as at-risk by COSEWIC (Lesbarrères et al. 2013).

One issue with amphibian conservation is the lack of data regarding population trends and species geographic distribution patterns (Currie and Marconi 2020). It can be challenging to estimate frog populations because of wide annual variations in their populations. Amphibians are also less studied compared to other vertebrates which reduces the accuracy to information about frogs and can therefore hinder the direction and effectiveness of conservation efforts. Amphibians are often left out of conservation policies compared to other vertebrate groups (i.e., mammals and birds) which exacerbates their risk of extinction (Nori et al. 2015). Given the limited resources and funding opportunities available, understanding the most effective conservation actions for frog species in Canada is critical.

Their sensitivity to changes in the environment such as rising temperatures and increased pollution makes frogs excellent indicators to monitor for the health of their terrestrial and aquatic habitat. Monitoring also supports assessment on the effectiveness of conservation actions. Monitoring frog populations can help track the effects of climate change on population dynamics and range shifts. Evidence suggests that some frog species (e.g., Great Basin Spadefoot) are experiencing drought conditions which can reduce the water table and limit available habitat needed for breeding (COSEWIC 2019).

Many scientists and organizations are working to protect and mitigate the threats to frog species in Canada. New conservation actions have involved installing culverts or tunnels under high traffic roadways adjacent to wetlands to mitigate amphibian road mortality (e.g., [SPLAT Project](#) on amphibian tunnels, [Long Point Causeway Improvement Project](#)). Captive breeding programs have also been initiated in Canada by organizations such as the [Wilder Institute](#) and [Wildlife Preservation Canada](#) which breed and reintroduce at-risk Northern Leopard Frog and Oregon Spotted Frog populations respectively with the goal of restoring populations in the wild. Other frog conservation strategies involve restoring degraded frog habitat such as wetlands and meadows. Research has found even habitat restoration projects that do not focus on amphibians (e.g., North American Waterfowl Management Plan) can benefit frogs (Stevens et al. 2002).

Future reports will include a more detailed assessment of threats and gaps in critical habitat identification and protection.

Other Information

All toads are frogs, but not all frogs are toads! Both frogs and toads are classified under *Anura*, a taxonomic Order. Frogs tend to live near water, have slimy or moist skin with long hind legs intended for hopping. In contrast, toads typically live farther from water sources, possess dry and warty skin, and have shorter hind legs meant for walking.

Some frogs have been introduced outside of their historical range in Canada. The four frog species found in Newfoundland (American Toad, Mink Frog, Green Frog and Wood Frog) are all introduced. In BC, Green Frog and American Bullfrog have been introduced and are considered invasive species.

NatureServe and the IUCN Red List use complimentary, but different criteria for assessing conservation status. Status assessments by NatureServe have been completed for a much larger number of species than IUCN Red List assessments.

Additional background in species assessments can be found in in our [backgrounder on species assessment](#) and these sites:

[IUCN Red List](#) [NatureServe](#) [COSEWIC](#)

Related SHAPES

- S1: Edge of Extinction
- S2: Globally Threatened Species
- S3: Species at Risk

Confidence & Limitations

High confidence – this information is based on published assessments by the Committee on the Status of Endangered Wildlife in Canada and the IUCN Red List, and status ranks assigned by NatureServe.

Species rankings are maintained and regularly updated by NatureServe and the IUCN and they provide the most comprehensive assessment of species ranks in Canada. Some status rankings may have changed since the query for this evaluation was done. The IUCN Red List generally does not include sub-species, varieties and populations. Populations in NatureServe are based on populations identified through Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assessments. See our backgrounder on species assessments for more information on the methods used by NatureServe, COSEWIC and the IUCN Red List.

Data Sources & Methods

The NatureServe Biotics database was used to identify the national and global status and range of species in Canada.

NatureServe Explorer: Select Location as “Canada”. Under “Classification”, search = “Animalia” + “Craniata” + “Amphibia” + “Anura”. The query includes subspecies, varieties, and populations, and species with provisional and nonstandard taxonomy. The query was generated on January 25, 2024, and is available in XL format.

Frogs that are not native to a province or territory (ranked SNA) are not included in the provincial/territorial totals. See notes in Attachment 1 for species with uncertain status.

The preliminary assessment of threats was based on published information in the IUCN Red List, COSEWIC assessments and ranking information by NatureServe. Threats were categorized based on the [IUCN threats classification](#).

See our backgrounder on species assessments for more information on the methods used by NatureServe, COSEWIC and the IUCN Red List.

Updates

This evaluation is updated every year on World Frog Day. Next update in 2025.

How to Cite

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For More Information

Contact us for more information or for a copy of the data:
<https://shapeofnature.ca/take-action/> or wcs canada@wcs.org

Version History

Version 1.0 (April 2024)



Attachments

Attachment 1: Canada's frog species

See [NatureServe](#) and [COSEWIC](#) for more information on ranks and categories.

Common Name	Scientific Name	COSEWIC Status	Distribution (NatureServe)
Blanchard's Cricket Frog	<i>Acris blanchardi</i>	Endangered	Canada (NX): ON (SX)
Eastern American Toad	<i>Anaxyrus americanus americanus</i>	Not Assessed	Canada (N5): MB (S4), NB (S5), NS (S5), ON (S5), PE (S5)
Western Toad - Non-calling Population	<i>Anaxyrus boreas pop. 3</i>	Special Concern	Canada (NNR): AB (SNR), BC (SNR), NT (SNR), YT (SNR)
Western Toad - Calling Population	<i>Anaxyrus boreas pop. 4</i>	Special Concern	Canada (NNR): AB (SNR), BC (SNR)
Great Plains Toad	<i>Anaxyrus cognatus</i>	Special Concern	Canada (N3): AB (S2), MB (S2), SK (S3)
Fowler's Toad	<i>Anaxyrus fowleri</i>	Endangered	Canada (N2): ON (S2)
Canadian Toad	<i>Anaxyrus hemiophrys</i>	Not at Risk	Canada (N4): AB (S3), MB (S4), NT (S3), ON (SU), SK (S4)
Rocky Mountain Tailed Frog	<i>Ascaphus montanus</i>	Threatened	Canada (N2): BC (S2)
Coastal Tailed Frog	<i>Ascaphus truei</i>	Special Concern	Canada (N4): BC (S4)
Cope's Gray Treefrog	<i>Dryophytes chrysoscelis</i>	Not at Risk	Canada (N4): MB (S4)
Gray Treefrog	<i>Dryophytes versicolor</i>	Not Assessed	Canada (N5): MB (S4), NB (S4), ON (S5), QC (S4), SK (S1)
American Bullfrog	<i>Lithobates catesbeianus</i>	Not Assessed	Canada (N5): BC (SNA), NB (S5), NS (S5), ON (S4), QC (S4)
Green Frog	<i>Lithobates clamitans</i>	Not Assessed	Canada (N5): BC (SNA), MB (S1), NB (S5), NF (SNA), NS (S5), ON (S5), PE (S4), QC (S5)
Pickerel Frog	<i>Lithobates palustris</i>	Not at Risk	Canada (N5): NB (S5), NS (S5), ON (S4), PE (S2), QC (S4)
Northern Leopard Frog - Rocky Mountain Population	<i>Lithobates pipiens pop. 1</i>	Endangered	Canada (N1): BC (SNR)
Northern Leopard Frog - Western Boreal/Prairie Population	<i>Lithobates pipiens pop. 2</i>	Special Concern	Canada (N4): AB (SNR), MB (SNR), NT (SNR), SK (SNR)
Northern Leopard Frog - Eastern Population	<i>Lithobates pipiens pop. 3</i>	Not at Risk	Canada (N5): LB (SNR), MB (SNR), NB (S5), NS (S5), ON (SNR), PE (S4), QC (SNR)
Mink Frog	<i>Lithobates septentrionalis</i>	Not Assessed	Canada (N5): LB (S5), MB (S3), NB (S5), NF (SNA), NS (S5), ON (S5), QC (S5)
Wood Frog	<i>Lithobates sylvaticus</i>	Not Assessed	Canada (N5): AB (S5), BC (S4), LB (S4), MB (S5), NB (S5), NF (SNA), NS (S5), NT (S5), NU (SU), ON (S5), PE (S5), QC (S5), SK (S5), YT (S4)

Spring Peeper	<i>Pseudacris crucifer</i>	Not Assessed	Canada (N5): LB (S1), MB (S5), NB (S5), NS (S5), ON (S5), PE (S5), QC (S5), SK (SNR)
Boreal Chorus Frog	<i>Pseudacris maculata</i>	Not Assessed	Canada (N5): AB (S5), BC (S4), MB (S5), NT (S4), NU (SU), ON (S5), QC (S2), SK (S5), YT (S1)
Pacific Treefrog	<i>Pseudacris regilla</i>	Not Assessed	Canada (N5): BC (S5)
Western Chorus Frog - Great Lakes - St. Lawrence - Canadian Shield Population	<i>Pseudacris triseriata pop. 1</i>	Threatened	Canada (N4): ON (S4), QC (S2)
Western Chorus Frog - Carolinian Population	<i>Pseudacris triseriata pop. 2</i>	Not at Risk	Canada (N4): ON (S4)
Northern Red-legged Frog	<i>Rana aurora</i>	Special Concern	Canada (N3): BC (S3)
Columbia Spotted Frog	<i>Rana luteiventris</i>	Not at Risk	Canada (N4): AB (S3), BC (S4), YT (S2)
Oregon Spotted Frog	<i>Rana pretiosa</i>	Endangered	Canada (N1): BC (S1)
Plains Spadefoot	<i>Spea bombifrons</i>	Not at Risk	Canada (N3): AB (S3), MB (S2), SK (S3)
Great Basin Spadefoot	<i>Spea intermontana</i>	Threatened	Canada (N3): BC (S3)

Notes:

- There are four observations of Canadian Toad from Ontario in iNaturalist that need to be confirmed.
- Sierran Treefrog (*Pseudacris sierra*) may occur in southcentral BC in the Kootenays but requires confirmation.
- The non-native Green Treefrog and Cuban Treefrog have been recorded in Ontario (iNaturalist) in the wild, but do not appear to be established.