



Collaborative Campaigning for Food Sovereignty & Environmental Justice

Species at Risk Public Registry Office
Environment and Climate Change Canada
SARRegistry@ec.gc.ca

Comments from the Canadian Biotechnology Action Network (CBAN) in response to the consultation on the assessment of the status of the Monarch butterfly

December 15, 2022

Contact: Taarini Chopra, Canadian Biotechnology Action Network, campaigns@cban.ca

We are writing to urge Environment and Climate Change Canada to urgently designate the Monarch butterfly as endangered.

The COSEWIC recommendation to re-classify the Monarch butterfly as endangered, from its previous classification of special concern, was made in 2016. In the six years of inaction since then, this important and iconic species has continued to face multiple threats, and its populations have declined at an alarming rate.

Several other pollinator species, such as the two subspecies of Western bumble bee (*mckayi* and *occidentalis*) included in this consultation, face a similar litany of threats.

Background

“The Monarch is one of a few butterflies that migrate and their migration from southern Canada to Mexico has been described as an endangered biological phenomenon.”

– Species at risk public registry¹

Monarch butterflies in Canada are migratory, and follow one of two paths. The western subgroup travels between California and British Columbia, while the eastern subgroup, which represents the majority of the Canadian population, overwinters in a small area in Mexico and travels thousands of kilometres through the US to Southern Canada.

Over the last two decades, the eastern population has declined by over 80%, while western populations have collapsed by 99% in the last three decades and are now on the brink of extinction. The overwintering population in Mexico has been estimated to have declined by 83% between 1994 and 2015.²

The butterflies' migration often takes multiple generations. Adult butterflies mate in the overwintering grounds in Mexico, before flying north in February or March. Many then stop at breeding grounds in the Southern US, and lay eggs on milkweed there. The caterpillars that hatch feed on milkweed. Adult butterflies continue the journey. Some breed yet again in the US before reaching Canada, where they produce one to three more generations over the summer, before flying south to begin the cycle again.

The Impact of Glyphosate Use

“Milkweed decline is strongly correlated to with the use of herbicide-resistant crops.”
- COSEWIC Assessment and Status Report on the Monarch (*Danaus plexippus*) in Canada³

Monarch butterflies are facing a multitude of threats along their long migratory routes and at their overwintering sites, including habitat loss, climate change, and pesticide use. As detailed in the Assessment and Status Report, one of the most critical of these threats is the decline in milkweed species along their migratory route and in breeding grounds in the US due to the increased and widespread agricultural use of the herbicide glyphosate in particular.⁴

Milkweed species are an important food source for Monarch butterflies, the sole plant on which the butterflies lay their eggs, and the sole source of food for newly hatched caterpillars. Milkweeds grow in various habitats, including in fields and on roadsides, but their populations have been dramatically reduced with the increased and widespread use of the herbicide glyphosate on and around fields of genetically modified (GM or genetically engineered) herbicide tolerant crops in Canada and the US. This diminishing habitat essentially deprives the butterfly of its ability to breed.

Over the past two decades, as glyphosate use on corn and soy fields in the US has increased 20-fold, corn and soy fields in the critically important Monarch breeding ground of the US corn belt have lost 99% of their milkweed.⁵ The widespread adoption of GM crops has also driven up the use of glyphosate in Canada, where Monarchs breed during the summer.

All GM crops currently grown in Canada are herbicide tolerant (GM corn, canola, soy, white sugar beet, and alfalfa) and most are engineered to withstand applications of glyphosate. The adoption of genetically modified crops in Canada has remained relatively stable at a high adoption rate since 2014: In Ontario, it is estimated that over 80% of all corn, over 60% of soy, all white sugar beet and canola is genetically modified (very little alfalfa in Canada is GM).⁶

Data from the Food and Agriculture Organisation of the UN and subsequent Health Canada data shows that **herbicide sales in Canada have increased by 234% since GM crops were introduced** (1994-2020).⁷ Glyphosate is the top pesticide active ingredient sold in Canada.

The impact of glyphosate is particularly severe when used with GM glyphosate-tolerant crops. Because the GM crops are genetically modified to survive spraying of glyphosate, the herbicides can be used more frequently and at higher rates than with non-GM crops, and applied later in the season when milkweed is flowering. When glyphosate-tolerant crops are grown back-to-back, as they often are with glyphosate-tolerant corn and soy, milkweed populations are unable to recover.⁸

The 2015 report *Monarchs in Peril* from the US Center for Food Safety details the impacts of glyphosate-tolerant crops on Monarch habitat and populations. The report concludes that, “Monarchs are in imminent danger unless milkweed is restored to Midwestern crop fields. Milkweed cannot recover with continued heavy use of glyphosate on Roundup Ready crops.”⁹

As glyphosate-resistant weeds spread across North America, companies are replacing GM glyphosate-tolerant crops with GM crop plants that are tolerant to other herbicides, such as dicamba and 2,4-D.¹⁰ Most often these GM crops are stacked with multiple GM traits for tolerance to the use of multiple herbicides together, including glyphosate.

A wide range of other pesticides has also been found on milkweed plants, and scientists do not fully understand the ways in which these chemicals affect Monarch butterfly and other pollinator populations.¹¹ In addition, adult Monarch butterflies feed on nectar, and the increasing use of herbicides reduces the populations of other nectar plants near fields as well. The impacts of pesticide use on Monarchs also include, as discussed in the Assessment, the toxicity of neonicotinoid insecticides.

Other protections for the Monarch butterfly

In July 2022, the International Union for Conservation of Nature (IUCN) classified the migratory Monarch butterfly as endangered.¹²

In 2020, the Mexican government passed a decree to phase out glyphosate and genetically modified corn in Mexico by 2024.¹³ This phase-out has already begun, despite opposition from some US farm lobbies and pressure from US government officials.¹⁴ The Mexican government is also now considering a proposal to phase out another 183 chemicals used in pesticide products.¹⁵

In the US, the Monarch butterfly is currently on the waiting list for Endangered Species Act protection. The U.S. Fish and Wildlife Service has a 2024 deadline to propose the species for protection as threatened.

Recommendations

The future of the Monarch butterfly relies on our immediate action.

Protection of the Monarch butterfly requires the following federal government action:

- The Monarch butterfly must be urgently designated as an endangered species, as recommended by COSEWIC in 2016.
- An effective strategy to protect the Monarch butterfly and to recover its populations must be developed, including by reducing the use of pesticides that threaten pollinator habitat, particularly the widespread use of glyphosate.
- There is also a need for long-term planning to protect Monarch populations and wider pollinator biodiversity. This includes supporting a shift to agroecological approaches to agriculture that support biodiversity preservation and prioritize biodiversity goals such as preserving and expanding pollinator habitat.
- The Canadian government should support the Mexican government's decision to phase out glyphosate and ban imports of GM corn.
- The Canadian government should communicate concerns over the critical loss of Monarch habitat to the United States government
- The Canadian government should work with the Mexican and US governments to support Monarch protection across its migratory route.

We are currently facing an unprecedented global biodiversity crisis. Pollinators are one group of species that need urgent protection: nearly 90% of wild flowering plants, and a third of the world's food crops rely on insect pollination. Pollinators play an essential role in ecosystems, as well as in pollinating plants and crops upon which humans and other species depend. There is no time to waste in protecting Monarch butterflies and other pollinators in Canada.

The Canadian Biotechnology Action Network (CBAN) brings together 15 groups to research, monitor and raise awareness about issues relating to genetic engineering in food and farming. CBAN members include farmer associations, environmental and social justice organizations, and regional coalitions of grassroots groups across Canada: Canadian Organic Growers, Council of Canadians, Ecology Action Centre (NS), Ecological Farmers Association of Ontario, GE Free BC Network, Greenpeace Canada, Growers or Organic Food Yukon, Inter Pares, National Farmers Union, No More GMOs Toronto, GMO-Free PEI, Organic Agriculture Protection Fund of Saskatchewan, Union Paysanne, SeedChange, Vigilance OGM. CBAN is a project on the shared platform of MakeWay Charitable Society. www.cban.ca

¹ <https://species-registry.canada.ca/index-en.html#/species/294-90>

² <https://species-registry.canada.ca/index-en.html#/species/294-90>

³ https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/sr_Monarch_2016_e.pdf

⁴ https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/sr_Monarch_2016_e.pdf

⁵ <https://www.centerforfoodsafety.org/reports/3708/monarchs-in-peril-herbicide-resistant-crops-and-the-decline-of-monarch-butterflies-in-north-america>

⁶ <https://gmoinquiry.ca/wp-content/uploads/2015/03/where-in-the-world-gm-crops-foods.pdf>

⁷ https://gmoinquiry.ca/wp-content/uploads/2015/05/Are-GM-crops-better-for-the-environment_-E-web.pdf

⁸ <https://www.centerforfoodsafety.org/reports/3708/monarchs-in-peril-herbicide-resistant-crops-and-the-decline-of-monarch-butterflies-in-north-america>

⁹ <https://www.centerforfoodsafety.org/reports/3708/monarchs-in-peril-herbicide-resistant-crops-and-the-decline-of-monarch-butterflies-in-north-america>

¹⁰ <https://cban.ca/wp-content/uploads/Genetically-Modified-Crops-and-Herbicides-Dec-2020.pdf>

¹¹ <https://www.frontiersin.org/articles/10.3389/fevo.2020.00162/full>

¹¹ <https://www.theguardian.com/us-news/2021/jun/04/monarch-butterflies-california-conservation-milkweed>

¹² <https://www.iucn.org/press-release/202207/migratory-monarch-butterfly-now-endangered-iucn-red-list>

¹³ <https://www.reuters.com/markets/commodities/exclusive-mexico-proceed-with-gmo-corn-ban-seeks-international-grain-deals-2022-10-27/>

¹⁴ <https://www.theguardian.com/business/2021/feb/16/revealed-monsanto-mexico-us-glyphosate-ban> ; <https://www.wsj.com/articles/u-s-threatens-mexico-over-genetically-modified-corn-ban-11669812388>

¹⁵ <https://www.reuters.com/business/environment/mexican-lawmakers-push-wider-pesticides-ban-farm-groups-alarmed-2022-11-09/>