



North American Congress for Conservation Biology

NACCB 2018

Conservation Science, Policy, and Practice:
Connecting the Urban to the Wild

Policy Declaration to Support Conserving and Recovering the Monarch Butterfly

July 24, 2018

The monarch butterfly (*Danaus plexippus plexippus*) is one of the most familiar and iconic butterflies in North America and it is in serious decline. Its extraordinary multi-generational migration from the mountains of Central Mexico, across dozens of U.S. states to the southern portions of six Canadian provinces is one of the most famous natural events in the world. The eastern migration, which likely numbered in the billions historically has declined precipitously — an 80 percent drop compared to the 20-year average.¹ The smaller, western migration from the coast of California throughout states west of the Rocky Mountains has declined by 90% and is also at serious risk of extirpation — with its most recent population census in November 2017 at only 193,000 butterflies.²

In 2014, the Obama Administration noted that there was an “imminent risk of failed migration”³ and in December of that year determined that the butterfly may warrant protection under the U.S. Endangered Species Act.⁴ In Canada, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) uplisted the monarch to endangered status.⁵ Similarly, a peer-reviewed paper published in *Nature* in early 2016 by scientists from the U.S. Geological Survey concluded that there was up to a 57 percent risk that the eastern migration could be extirpated within in the next few decades.⁶

¹Rendon-Salinas, E., F. Martinez-Meza, A. Martinez-Pacheco, and M. Cruz-Piña. *Superficie forestal ocupada por las colonias de hibernación de la mariposa monarca en México durante Diciembre de 2017*. World Wildlife Fund Mexico Report. (Available online at: http://awsassets.panda.org/downloads/2017_Monitoreo_Mariposa_Monarca_en_Mexico_2017-2018.pdf).

²Schultz, C.B., L.M. Brown, E. Pelton, E.E. Crone, 2018. *Citizen science monitoring demonstrates dramatic declines of monarch butterflies in western North America*, *Biological Conservation* (in press) https://www.westernmonarchcount.org/wp-content/uploads/2014/11/Western-monarch-PVA_Schultz-et-al.-2017.pdf.

³ *Presidential Memorandum — Creating a Federal Strategy to Promote the Health of Honey Bees and Other Pollinators*, 79, Fed. Reg. 35,903 (June 24, 2014).

⁴ *90-Day Findings on Two Petitions*, 79 Fed. Reg. 78,775 (Dec. 31, 2014).

⁵ COSEWIC Assessment and Status Report on the Monarch *Danaus plexippus* in Canada 2016, <http://www.registrelep-sararegistry.gc.ca/default.asp?lang=En&n=C34F78B7-1> (last accessed July 24, 2018).

⁶ Semmens, B. X., D. J. Semmens, W. E. Thogmartin, R. Wiederholt, L. Lopez-Hoffman, J. E. Diffendorfer, J. M. Pleasants, K. S. Oberhauser and O. R. Taylor. 2016. *Quasi-extinction risk and population targets for the Eastern, migratory population of monarch butterflies (Danaus plexippus)*. *Sci Rep* 6: 23265.

On June 29, 2016 the leaders of Mexico, Canada, and the United States agreed to a *North American Climate, Clean Energy, and Environment Partnership Action Plan* that, among other items, set forth a goal to restore the monarch butterfly's eastern population to an approximate size of 6 hectares at the overwintering sites in Mexico, or approximately 225 million overwintering monarchs.⁷

The biennial North America Congress for Conservation Biology (NACCB) is one of the largest gatherings of conservation professionals in North America. The 2018 meeting in Toronto, Canada brings together more than 850 participants representing scientists, experts, researchers, Indigenous Peoples, policy makers, practitioners, students, and others. The theme of the 2018 NAACB meeting is to maintain and strengthen biodiversity across ecosystems embedded within urban, rural, and wild landscapes, and to support connections among practitioners, managers, and researchers working across all ecological settings. As such, the conservation of the monarch butterfly provides a fitting topic to focus on at the Congress because preserving and restoring the monarch will take innovative and effective conservation interventions in urban, rural and wild lands across virtually all the North American continent.

Monarch butterflies face a wide array of threats including (1) the dramatic loss of milkweed and the spread of non-native milkweeds that disrupt the migration cycle, (2) general habitat degradation and the loss of other habitats that provide host and nectaring plants along their migration routes, (3) the use of pesticides, (4) loss of wintering forest habitat due to deforestation and agricultural intensification, (5) harmful roadside and right-of-way management practices (6) predation by non-native insects, (7) the spread of pathogens, (8) the capture, sale, transport, and release of monarchs for commercial purposes, (9) and finally, climate change and the associated risks of more severe, exceptional storm events.

Comprehensive actions are needed to sustain the monarch butterfly at the international, national, state/provincial, and local levels. While stabilizing the eastern monarch population at 6 hectares in the over-wintering area is an important first step, further action will be needed to fully restore the monarch to levels that guarantee long-term persistence by building the eastern population back to its pre-decline numbers of at least 20 hectares. Urgent action is also required to stabilize the western monarch population, which may now be at imminent risk of extirpation.

Policy Declaration

Accordingly, the participants at the NACCB and the Society for Conservation Biology North America declare that bold conservation and restoration actions must be undertaken as soon as possible by governments and civil society at all levels to foster long-term success in protecting the monarch butterfly. We support and recommend the following actions be implemented to achieve the goal of restoring the monarch butterfly:

⁷ North American Climate, Clean Energy, and Environment Partnership Action Plan, June 29, 2016. Available: <https://obamawhitehouse.archives.gov/the-press-office/2016/06/29/north-american-climate-clean-energy-and-environment-partnership-action>

Continental/Multinational Recommendations:

- Evaluate whether a long-term population target above the 6 hectare/225 million individual level is needed to ensure the long-term recovery of the eastern monarch butterfly population.
- Identify a short-term population target to stabilize the western monarch population, and a long-term population goal to ensure its recovery.
- Develop a multinational goal to create, maintain, and restore native host and nectaring habitat along the entire spring and fall migratory routes from Mexico to Canada.
- Develop a multinational strategy to address climate change impacts to monarchs.

National-level Recommendations:

- Harmonize and expedite the review of insecticide pesticides in the United States and Canada — including the pyrethroid and neonicotinoid classes of pesticides — that have the potential to kill or injure monarch butterflies directly.
- Harmonize and expedite the review of herbicides impacts on milkweed survival, nectaring plants, and direct impacts on monarch butterflies. and quality of nectar plants.
- Develop funding mechanisms to restore 5 million acres of milkweed and nectaring habitat in the United States annually for at least 20 years and to restore 2 million acres of milkweed and nectaring habitat annually in Canada for at least the next 20 years.
- [Because global climate change threatens to render unsuitable the monarch's overwintering habitat, and because severe weather events related to climate change cause monarch mortality and disrupt the migration, all three nations should commit to bold actions to reduce greenhouse gas emissions.
- Address climate change impacts from severe weather, increased temperatures, lower precipitation on monarch butterflies during all stages of the species' migration.
- Develop new funding sources to address non-native species, such as invasive fire-ants, swallow-worts and other predators of the monarch butterfly.
- Consistent with the United Nations Declaration on the Rights of Indigenous Peoples, ensure appropriate recognition of the roles and responsibilities of Indigenous Peoples in their traditional lands and territories with regard to those actions or activities undertaken with respect to monarch conservation and the recommendations of this policy declaration.

State/Provincial Recommendations:

- Develop best practices for mowing and management of roadside habitats and rights-of-way to make them pollinator and monarch friendly including during both spring and fall migrations.
- Develop funding mechanisms to incentive long-term habitat restoration of milkweed and nectaring habitat on State and Provincial parks and other lands held in trust for the public.
- Develop a comprehensive framework for protecting overwintering habitat in California for the western monarch population.
- Review and consider new restrictions on the sale of non-native milkweed plants that can disrupt the migration of monarch butterflies.

- Review and consider new restrictions on the sale and release of monarch butterflies for commercial purposes. Address the threats from the release of captive monarch butterflies including disease transmission.

Local Recommendations:

- Develop best practices for mowing and management of municipal and local government-owned lands, including parks, open-spaces, roadside habitats and rights-of-way to make them pollinator and monarch friendly.
- Manage parks and wildlife areas to minimize harmful uses of herbicides and insecticides.
- Develop educational programs for the public, including gardeners and teachers on the planting of local, native milkweeds and nectaring plants.
- Engage the public to build support for local restoration and monarch monitoring programs.
- Develop educational materials, best practices and recommendations regarding the rearing and release of captive monarch butterflies.