

THE MONARCH EMERGENCY – 2021 FAQ

WHAT'S THE SITUATION WITH MONARCHS RIGHT NOW?

Although there were once billions of monarchs in North America, their populations are crashing and the likelihood of extinction has increased dramatically. The eastern population that winters in Mexico has fallen by 85% since the mid-1990s. The western population that winters in California has declined by 99%.

WHERE IS THE PROBLEM THE MOST ACUTE?

Monarchs are struggling across the country but the western population of monarchs, which typically migrates from the Rocky Mountains and other areas in the west to winter in coastal California, is in a dire situation. The Xerces Society reported in January 2021 that just 1,914 monarchs were recorded overwintering on the California coast – the lowest number ever recorded. It's a 99.9% drop from the number of monarchs in the 1980s. There are now more Starbucks in California than overwintering monarchs.

HOW LIKELY IS IT THAT MONARCHS WILL GO EXTINCT IN NORTH AMERICA?

Without emergency help, it's almost certain that the western population of monarchs will collapse within 50 years. For the eastern population of monarchs, there's up to an 80%-chance they'll collapse within 50 years.

WHY IS THIS HAPPENING?

Since the 1990s, North American monarchs have lost about 167 million acres of summer breeding habitat to agricultural intensification and suburban sprawl. Milkweed, the monarch caterpillar's only food source, has been nearly eradicated from areas of the Midwest where monarchs were typically born. Scientists estimate that billions of milkweed plants have been wiped out due to increased herbicide use.

WHAT ABOUT PESTICIDES?

The widespread adoption of corn and soy crops that have been genetically engineered for herbicide tolerance has led to a dramatic increase in the use of glyphosate and other herbicides that largely eradicated milkweed. Large areas of monarch breeding habitat are also planted with cotton, wheat, and other crops that are treated intensively with various pesticides.

In addition to direct loss of milkweed and nectar flowers, monarchs are threatened by neonicotinoids and other systemic insecticides and a variety of agents used in agriculture, parks, yards, and commercial properties. Monarchs can be directly killed by exposure to insecticides used to treat pests such as moths, grasshoppers, and mosquitos.

WHAT ABOUT CLIMATE CHANGE?

Adding insult to injury, the climate crisis is undermining the stable weather conditions and predictable flowering seasons that monarchs need to complete their migration. Climate change also threatens these butterflies' overwintering habitat in the mountain forests of Mexico. Just as Joshua Tree National Park will soon no longer support Joshua trees, the International Monarch Biosphere Reserve in Mexico is expected to become climatically unsuitable for monarchs by the end of the century.

AREN'T MONARCHS REALLY COMMON?

They used to be. In fact, one observer in the 1850s saw the monarch migration in the Mississippi Valley and reported so many that clouds of them darkened the sky. An early account in California described tree branches breaking under the weight of so many gathered monarchs, and the masses of monarchs were depicted as "the personification of happiness." Until recent declines, monarchs were a common site during their epic migrations.

So, while there were once billions, they are now a shadow of their former abundance.

HOW CAN MONARCHS BE THREATENED WITH EXTINCTION IF THEY'RE STILL SOMETIMES FOUND IN PEOPLE'S YARDS?

During summer, monarchs are still found throughout most of the United States, but at only 10 percent of their former abundance. Monarchs need a very large population size to be resilient to threats from climate change, severe weather, predation, disease and large-scale mortality events. A single winter storm in 2002 killed up to 500 million monarchs in their Mexican overwintering grounds. Scientists predict that climate change will increase the frequency of drought, heat waves and severe storms that cause high levels of monarch mortality and significantly reduce the population size.



CAN SUCH A WIDESPREAD SPECIES REALLY GO EXTINCT?

There's a long and tragic record of rapid and unexpected declines of common species that ended in extinction. The passenger pigeon went extinct in the early 20th century even though it was one of the most abundant birds in the United States in the late 19th century. Some flocks were so numerous that by some accounts they darkened the sky for up to 14 hours at a time. Similarly, the Rocky Mountain grasshopper once ranged throughout western North America and was so numerous that a swarm that passed through Nebraska in 1874 was estimated to include more than 12 trillion grasshoppers. Due to habitat loss from plowing and irrigation, the grasshopper plunged to extinction in less than 30 years.

WHAT CAN BE DONE TO HELP MONARCHS RIGHT NOW?

If we're going to save North American monarchs, this is our moment to act. Here's what's needed:

- In Congress, pass The MONARCH Act of 2021 to provide \$125 million in emergency funds over five years to save the western monarch population.
- Immediately protect monarchs under the federal Endangered Species Act.
- Plant 1.5 billion milkweed plants to restore 100 million acres of monarch habitat.
- Launch a long-term initiative to scale back harmful pesticides in monarch habitat and create "safe zones" for yearly migrations.

HOW WILL PROTECTION UNDER THE ENDANGERED SPECIES ACT HELP MONARCHS?

Protection under the act will make it illegal to intentionally kill monarchs or modify their habitat without a permit. It will also lead to designation and protection of "critical habitat" to help recover abundant monarch populations. Federal scientists will develop a recovery plan to guide efforts to restore long-term, healthy

populations of monarchs. Federal protection will also bring much-needed funding to monarch conservation efforts and will increase awareness of the monarch's plight. It will make federal funding available to states to protect and restore monarch habitat.

WHAT WILL THE MONARCH ACT OF 2021 DO?

The Monarch Action, Recovery, and Conservation of Habitat Act of 2021 ("MONARCH" Act) will provide emergency funds to pull western monarch butterflies back from the brink of extinction. The Act dedicates \$125 million over five years to help monarchs in California, Oregon, Washington, Nevada, Arizona, Idaho and Utah. Specifically, the bill:

- Creates the Western Monarch Butterfly Rescue Fund, which will provide \$12.5 million per year to support on-the-ground conservation projects to stabilize and recover western monarchs.
- Provides \$12.5 million per year to implement the existing Western Monarch Butterfly Conservation Plan.

WHAT'S THE BEST THING I CAN DO RIGHT NOW TO HELP?

First and foremost, you should help push Congress and the Biden administration to take bold, decisive action to save monarchs. We need Congress to pass The MONARCH Act of 2021 to provide \$125 million over five years to protect the western population. We also need the Biden administration to immediately protect monarchs under the Endangered Species Act. These are two of the most critical steps toward saving monarchs.

HOW ELSE CAN I HELP?

People can also help monarchs by planting milkweed species native to the region where they live that haven't been treated with pesticides. It's important to make sure any milkweed or flowers you plant have not been treated with insecticides. Plants that say they have been protected from aphids can be toxic to pollinators. Check with the retailer or nursery to make sure they don't use neonicotinoids. Never plant tropical milkweed because it disrupts migration and isn't nutritious for caterpillars.

It also helps monarchs when consumers choose foods, especially corn and soy, that are organic and that have not been genetically engineered. Choosing fair trade avocados will also benefit monarchs.

The communities in Mexico that live around the forests where the butterflies overwinter need international support to abate poverty and improve quality of life. Supporting organizations that protect overwintering habitat is as important as planting milkweed.

CAN I HELP MONARCHS BY RAISING CATERPILLARS OR RELEASING COMMERCIALLY REARED BUTTERFLIES?

Buying monarchs to release at weddings or other events is harmful to natural populations because commercially reared monarchs harbor diseases and harmful genes. Raising caterpillars to release will not save the monarch migrations and can actually be harmful if best management practices aren't followed to prevent disease. If you're trying to protect caterpillars in your yard from predation, it's best to screen them in outdoors so they get daylight cues they need to develop properly. Monarch caterpillars you find in the wild should be left in the wild.

WHAT DOES THE PLIGHT OF MONARCHS SAY ABOUT THE FUTURE OF OTHER SPECIES?

We're in the midst of the planet's sixth extinction event. The United Nations predicts that 1 million species face extinction in the coming decades. Indeed, we lose about one species every hour. About 40% of all known amphibians – frogs, toads, salamanders – are at risk of extinction. More than a third of all marine mammal species – whales, dolphins, seals – are threatened with extinction. It's about the same for corals that make the world's reefs.

We can save monarchs and end the extinction crisis, but it takes leadership and a willingness to tackle the fundamental causes: habitat destruction, pollution, invasive species, climate change and human behavior.



Monarch caterpillar by Will Brown

HOW CAN I IDENTIFY A MONARCH?

Monarchs are large orange and black butterflies with a wingspan of about 4 inches. They have two rows of white dots on the black edges of their wings. They don't have white dots on the orange background like queen butterflies. They do not have a black line cutting across the lower half of their bottom wing like the similar-looking viceroy butterfly.

WHY ARE MONARCHS IMPORTANT?

Because of their population size and large range, monarchs play a role in pollination at a continental scale. Due to their sheer number, monarchs historically have played an important role in the food web throughout their life cycle. Monarch eggs, caterpillars, and adults are consumed by multiple organisms including numerous invertebrates. Millions of monarchs are preyed on annually by birds, mice and other predators on their overwintering grounds in Mexico. Migratory songbirds such as black-backed orioles and black-headed grosbeaks specialize in monarch consumption by eating specific body parts and discarding others. Small forest mammals such as the black-eared mouse also consume large numbers of monarchs.

WHAT ABOUT MONARCHS' CONNECTION TO PEOPLE?

Generations of schoolchildren have reared monarchs in classrooms, watching in wonder as striped caterpillars transform into large orange-and-black adult butterflies. The monarch's multigenerational migration is legendary — a journey of more than 2,000 miles from Mexico to Canada, undertaken by animals weighing less than a single gram.

Monarchs are familiar, beloved, and culturally significant throughout North America. Across their range, monarch festivals and parades are held to celebrate their migrations. In Mexico monarchs are widely represented in art and costume and often adorn depictions of the Virgin of Guadalupe, the patron saint. The arrival of monarchs in their overwintering grounds in Mexico coincides with Day of the Dead festivities and the butterflies are believed to represent the visiting souls of the departed.

Many people enjoy watching monarchs in their yards and gardens and harbor special memories of observing the migrations. The U.S. group Monarch Watch has registered more than 30,000 "Monarch Waystations" that volunteers have established to provide milkweed and nectar plants.

WILL ENDANGERED SPECIES ACT PROTECTION MAKE IT ILLEGAL FOR PEOPLE TO HANDLE MONARCHS?

The U.S. Fish and Wildlife Service can write a special rule that will allow citizen science initiatives, educational activities, monarch tagging, academic research and individual rearing to continue. There has been a lot of false information that listing would prevent individual households from raising a few caterpillars, but this is not the case. Commercial butterfly farmers have opposed protection because their activities are actually harmful to wild monarchs and could be affected by Endangered Species Act listing.

