

Minding our monarchs



A properly planted butterfly garden contains a diversity of native plants that bloom across the growing season. Such a garden can earn Monarch Waystation certification from the Monarch Watch conservation program.

CONCERN AND CARE FOR THESE BEAUTIFUL BUTTERFLIES WILL HELP KEEP THE SPECIES GOING STRONG.

Paul Skawinski

If you had to name one butterfly, what would it be? For nearly every person in Wisconsin, the answer would likely be the monarch.

Perhaps you've been lucky enough to see a tiger swallowtail, a Karner blue or a Baltimore checkerspot. Wisconsin is home to more than 150 species of butterflies. But none is as well-known as the magnificent monarch.

The monarch butterfly, known to scientists as *Danaus plexippus*, occupies the eastern half of the United States and parts of the West Coast. It is typically seen in Wisconsin from mid-May to October. As one of our migratory butterfly species, the monarch leaves Wisconsin in autumn to seek warmer refuge in the mountains of central Mexico. Some monarchs along the coastlines of the U.S. will head to southern Florida or

southern California.

For several months, monarchs cluster in trees in the mountains of Mexico. This generation of monarchs will spend the entire winter in Mexico and fly back to the southern U.S. to lay eggs on young milkweed plants as they begin emerging from the ground. It will take an additional one to two generations before the population reaches the northern U.S. states in May.

The overall population of monarchs is calculated each year by estimating the area that the monarchs occupy in Mexican forests. The winter 2016-17 population was estimated at 2.91 hectares (7.2 acres), which translates to a population

of about 146 million monarchs. This is substantially lower than the long-term average of about 300 million, with a peak of 1 billion monarchs in 1996.

The population has been declining for many years. Unfortunately, milkweeds and native plants are often targets of herbicides that are applied in and around farm fields, eliminating sources of nectar and egg-laying sites for monarchs. Much of the monarch's migration route is over states where the dominant land cover is agricultural fields, so this represents a real concern.

While 146 million monarchs sounds like a gigantic number, many of these overwintering butterflies will perish before they can reproduce. Storms, vehicle collisions, predators and parasites continuously take their toll on the monarchs, leaving only the strongest (and perhaps the luckiest) to keep the species going. A single winter storm can have a devastating effect on their population.

Need for milkweed

In Wisconsin, the monarchs that spend their adult lives here in the summer have two things on their mind: eating and mating. Monarchs fuel up by drinking nectar from a wide variety of flowers.



PAUL SKAWINSKI

SHANE RUCKER

Before flying south on their long journey to Mexico in the fall, monarchs must first fuel up on nectar from a variety of flowering plants including swamp milkweed.

Since monarchs can be observed here for nearly six months, they must be able to find flowers that are blooming over that entire period. The most likely habitat to attract and sustain monarch populations is one containing a diversity of native plants that bloom in sequence across the growing season.

In addition to nectar sources, the females are searching for the only group of plants that can feed their babies — milkweeds. Without milkweeds, the monarch caterpillars cannot survive.

Wisconsin is home to about a dozen species of milkweeds, with the most abundant being common milkweed (*Asclepias syriaca*), swamp milkweed (*Asclepias incarnata*) and butterfly milkweed (*Asclepias tuberosa*). Wisconsin milkweeds occur in every habitat from marshes and lakeshores to prairies and forests.

Female monarchs use sensory organs on their legs called chemoreceptors to identify milkweeds. When a milkweed is located, the female will often lay a single egg on a milkweed plant and fly off to the next milkweed to lay another one.

Occasionally, females will struggle to find enough milkweed and will lay many eggs on a single plant, referred to

as “egg-loading.” This concentration of eggs is not good for the monarch population, since all of the caterpillars now have to compete with each other for food and these abundant caterpillars are more likely to attract predators.

Steer clear of insecticides

How can you help monarchs? First off, avoid using insecticides. You may be targeting other types of insects, but butterflies can easily be harmed by these chemicals as well.

Also, be wary of plants purchased at big chain stores. These plants often contain systemic insecticides called neonicotinoids, which move to all parts of the plant, including pollen and nectar. The plants become toxic for butterflies, bees and other insects that feed on them. If you buy plants without a sign saying they were not treated with systemic insecticides, ask a store manager if they can guarantee that they weren't.

Everyone can help provide food and egg-laying habitat for monarchs. A simple butterfly garden with many flowering plants will provide nectar sources. Adding milkweeds to the mix will provide monarchs with appropriate host plants to support the next generation.



DAVID MOSKOWITZ

That's not fuzzy bark or some odd fungus on these tree trunks but thousands of monarch butterflies packed together in early March at their winter roosting area, El Rosario Monarch Butterfly Preserve in Michoacán de Ocampo, Mexico.

>>> MONARCH FACTS

- The male monarch has two dots near the back of its wings, which distinguish it from a female. A female that is ready to mate will land next to a male on the ground. If the male is interested, he will scoop up the female and they will fly together into a tree or other vegetation to mate.
- It takes about a month to metamorphose from egg to caterpillar to chrysalis (a caterpillar with a self-produced veneer-type coating) to butterfly.
- Three newly hatched caterpillars will fit on a grain of rice, but as they eat milkweed, they grow to 1,000 times their initial size in two weeks.
- In fall, monarchs fly from Wisconsin to Mexico, taking about a month to fly up to 1,500 miles. They spend the winter in the mountain forests of central Mexico, and their children fly north in the spring. Their grandchildren fly further north and their great-grandchildren are born in Wisconsin and other northern states. Those monarchs then continue the cycle, flying back to Mexico.

Better yet, add multiple species of milkweed to extend the blooming season and provide a variety of colors. Swamp milkweed flowers range from pink to red, common milkweed is light pink and butterfly milkweed is a brilliant orange. Blooming milkweeds will attract all kinds of other pollinators as well, including other butterflies and a wide range of native bees.

Farmers can turn marginal cropland (areas that are difficult to farm because of wetness or other issues) into pollinator gardens. Wet edges of farmlands can be great places to plant swamp milkweed and many other wetland plants, which prefer moist habitats and would not be likely to become “weeds” in the drier crop fields.

Seeking energy sources

Monarchs need an abundance of flowers in the fall to supply them with the energy they need to fly all the way to Mexico. Three adult monarchs still weigh less than a dime, but these remarkable butterflies make a journey of up to 1,500 miles, flying more than 50 miles per day.

This journey is only possible if the monarchs can find enough nectar to fuel their southward flight. Plants in the aster family are especially important at this time, as many of them bloom from August to October. In fact, New England aster (*Symphotrichum novae-angliae*), shining aster (*S. firmum*) and frost aster (*S. pilosum*) can continue blooming into early November in Wisconsin.

The simplest way to start a butterfly garden is to till up an area of soil and install some native plants. Butterfly gardens are best planted in the sunniest place you have available. Butterflies need to warm their bodies before they can fly, so they like to be in the sun.

Look around your property for that place you hate to mow or an area you rarely use. Another great location for a butterfly garden is along a property line where the flowers can screen a road, neighboring house or other undesirable view.

Avoid using non-native plant species, which may become invasive and cause management headaches down the road. Native species tend to be more well-behaved, provide much more value to native wildlife and typically require no watering or fertilizer when planted in appropriate habitat.



PAT MCGRATH

Milkweed is the lifeblood of monarchs, providing a place for them to lay their eggs along with a food source of leaves for caterpillars and flower nectar for adult butterflies.

Occasionally, you may see native species for sale with unusual looking flowers. These varieties have been artificially bred or modified to alter their appearance and they often have little to no value to butterflies and other pollinators. If you don't see native species at your local garden center, don't be afraid to ask. Find a list of Wisconsin native plant retailers by visiting the DNR website at dnr.wi.gov and search for “native plant.”

The UW-Madison Herbarium has a collection of county checklists with names and photos of all the species known from each county. Keep in mind that these lists include all plants found in each county, including non-native species. Find the checklists at wisflora.herbarium.wisc.edu.

Citizen scientists needed

There are many opportunities available for citizens to help researchers learn more about monarchs. In fact, most large

studies on monarchs rely heavily on information provided by citizen volunteers. Consider joining one of these great citizen science projects.

Journey North: Each year, thousands of people report sightings of monarchs and emerging milkweeds during the spring migration and other important events during the fall migration. This information helps scientists track the leading and trailing edges of the monarch migration (learner.org/jnorth/monarch).

Monarch Watch: Volunteers catch and tag adult monarchs with tiny stickers that contain an identification code and reporting information. Recovery and observation of these tagged monarchs provide details on the current migration. When a tagged monarch is observed, a person can report it directly to Monarch Watch through a phone line or online reporting form. Some people raise monarchs from egg or larval stages and tag the adult monarchs before releasing them.

Monarch Watch also offers a Monarch Waystation certification program. Citizens can establish a butterfly garden and apply for Monarch Waystation certification and purchase a sign designating the site. These waystations provide crucial habitat for monarchs and a wide variety of other butterflies, bees, birds and other wildlife, while the signs inform people about the purpose of these habitats (monarchwatch.org).

Monarch Larva Monitoring Project: Volunteers report observations of monarch eggs and caterpillars, and milkweed plants. Comparisons of milkweeds with and without monarchs on a monitoring site offer information on plant traits that are attractive to monarchs. Some volunteers also monitor parasitic flies that attack monarch caterpillars (mlmp.org).

Monarch Joint Venture: Learn more about monarchs and how you can help study monarchs or contribute to their recovery through this partnership of federal and state agencies, non-government organizations and academic programs (monarchjointventure.org). 🦋

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