

## Orange Monarch Butterflies are Red Listed

By Dawn Pettinelli, UConn Home & Garden Education Center

If there is one animal that probably everyone in the U.S. would recognize, it would be the monarch butterfly with its distinctive orange, black and white wings. Each fall, adults embark on an incredible long migration. Not only is it arduous but the migrating butterflies have never been to their overwintering sites before! How they find their way is one of nature's wonders.

Monarchs are divided into east and west populations. Western populations move from the Rockies and Pacific Northwest to southern California while the eastern ones migrate down from Canada and northern states 3000 miles to Mexico where they overwinter in the high elevation oyamel fir forests. According to [www.journeynorth.org](http://www.journeynorth.org) only 2% of these forests remain intact largely believed to be due to logging and climate change.



The monarch butterfly's life cycle is intricately connected with that of milkweed (*Asclepius* spp.). As with all butterflies, monarchs undergo a complete metamorphosis with 4 life stages. Monarchs leave their overwintering grounds usually in March and begin the journey north laying eggs on milkweed plants and seeking out nectar plants as they travel. While adult butterflies can obtain nectar from many plants, the larva or caterpillar can only feed on various species of milkweed. It takes between 4 to 10 days for the eggs to hatch, depending on temperature. The black, white and yellow striped caterpillars are voracious eaters consuming large amounts of milkweed and grow to 2000 times their original mass passing through 5 instars (growth stages) in 10 to 14 days.

Because monarch larvae are specialized herbivores, they can only grow and develop on species of milkweed. The caterpillars are able to sequester a toxic compound called cardenolides from milkweed that provides them and adult butterflies with some defense against predators. Their orange and black coloration alerts potential predators that they are poisonous although some generalist predators, parasitoids and diseases are able to immune to this compound and it decreases as adults age.

Milkweeds provide both food and shelter for monarchs and used to be plentiful throughout the U.S. but as agricultural, industrial and urban acreage expanded, there are fewer areas for milkweed to grow. Also new technology has allowed farmers to expand production where there formerly were hedgerows, new pesticides have reduced native insect populations, herbicide resistant crops mean more herbicides are sprayed to control weeds, like milkweeds, and native plants are being encroached upon by invasive plant species. All of this is taking a toll on the abundance of milkweed plants and therefore, on monarchs.

Once caterpillars reach their final instar, they find a secure location and form a chrysalis. Initially bright green, it turns darker after 8 to 15 days when an adult monarch emerges to continue the journey north. Typically, it takes 4 or 5 generations for adults to reach us in Connecticut, which is pretty amazing. Adults accompany us northerners until day length decreases and milkweed ages and triggers migration to begin. While summer butterflies live 2 to 6 weeks, migratory generations can live for up to 9 months.

The monarchs have arrived in Connecticut and are happily nectaring at the Monarch Way Station at the UConn Soil Nutrient Analysis Lab. We have not noted any caterpillars yet. Despite our small attempts to provide food and shelter for monarchs, they are in precipitous decline. According to one source, the western population has declined by 99% between the 1980s to 2020 and the eastern population by 84% from 1996 to 2014.

Numerous factors are at play including logging, agriculture, increased use of herbicides due to herbicide resistant crops (Round-Up™ ready corn and soybeans, for example), roadside cutting and herbicide use to control invasives. Throw in increased drought or rainfall, temperature swings, fires, and floods due to climate change. Combined, these are difficult for monarchs, as well as humans, to navigate.

Because of their overall decline due to habitat loss and declining milkweed abundance, the IUCN (International Union for Conservation of Nature) has placed monarchs on their Red List of Threatened Species in July. Hopefully, this will draw international awareness to the plight of this magnificent creature.

Local gardeners can assist monarchs as well as other butterfly species. Plant various milkweed species in your gardens. Seek out other plants that provide nectar sources, whether they be annuals, like zinnias, or perennials such as New England asters. Avoid using pesticides except in extreme circumstances. In drought years, create pudding stations for butterflies and other beneficial insects as well as other creatures. Keep birdbaths full as insects need water as well as birds. Several honeybees were sipping water from the rims of watering cans as I filled them this past weekend.

If you want to know more about monarchs and what you can do to assist them or for other gardening inquiries, feel free to contact us, toll-free, at the UConn Home & Garden Education

Center at (877) 486-6271, visit our website at [www.homegarden.cahnr.uconn.edu](http://www.homegarden.cahnr.uconn.edu) or contact your local Cooperative Extension center.