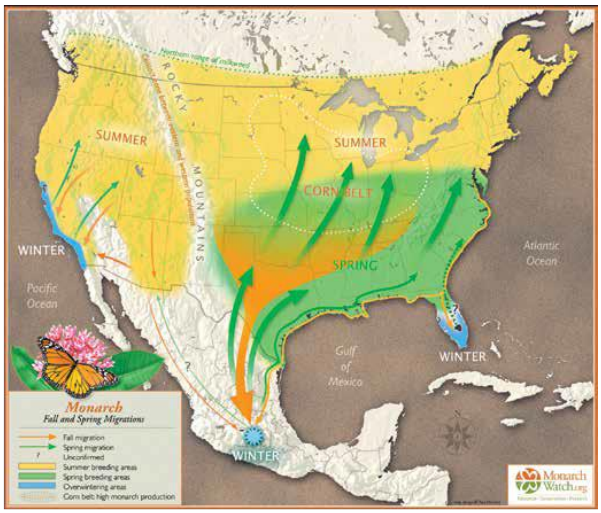
Conservation practices for Monarch Butterflies

Monarch butterflies (*Danaus plexippus*) are an ecologically and culturally significant species cherished by many internationally. Wisconsin is fortunate to be on the migration path and in habitat range of the eastern US monarch population. This population is well known for their amazing annual migration from central Mexico to North America, reaching as far north as Canada.

Monarchs in decline

Despite their splendor and public attention, the monarch population has declined significantly in the past two decades. Their alarming drop is thought to be primarily from losses in overall habitat availability, host plant populations, quality nectar sources, as well as habitat degradation and insecticide exposure. The increase in herbicide use over the last decade has contributed to a significant decrease in milkweed stems across their habitat, which monarch caterpillars depend on entirely for their food source. Monarch population health is also an indicator of how other pollinators are doing. Considering that pollinators are responsible for one third of our food supply through their pollination services, it is critical for humans to conserve the health of pollinator populations for the stability and security of our food system. Conservation efforts focused on Monarchs will be of benefit to many pollinators, and subsequently, the other animals that rely on insects for their food.



Monarch Butterfly Habitat Development Project

NRCS is working with landowners to address the decline in monarch and pollinator populations by implementing voluntary conservation efforts that establish new pollinator habitat, improve existing habitat and provide monarch-specific best management practices. Conservation efforts for monarchs support other pollinators, and have numerous benefits such as increased soil health, erosion protection, improved water retention, and can even increase the productivity and bottom line agricultural producers. NRCS offers technical and financial assistance to

develop conservation plans and implement conservation practices that benefit monarchs, pollinators, and landowners.

Monarch biology and habitat needs

On average, Monarch butterflies typically arrive to Wisconsin in May (https://journeynorth.org/) and their success is dependent on the nectar sources available. Adult monarchs need diverse sources of nectar from their arrival in spring, all the way through fall migration when they fly to their overwintering site in Mexico. An abundance of high-quality nectar species are needed, and at minimum, a project area should have 30% or more cover occupied with these nectar rich species. Breeding habitat for monarchs is primarily grassland habitat with plenty of milkweed available, as monarch larvae depend solely on milkweed species for food. A shortage of either milkweed or nectar sources can put their success and survival at risk. Adults also require protected sites for cover, such as trees, shrubs or tall grasses. Throughout all stages of their lifecycle, the monarch habitat must be protected from pesticides. Tactics such as minimizing pesticide use or strategically timed use of pesticides can help limit drift to monarch habitat. It is also important to conduct other agricultural practices, such as burning and tillage at the proper timing to limit any adverse impacts to monarchs. Conservation will require both nectar and breeding habitat establishment and maintenance throughout the state.

Monarch life cycle from egg (left), from caterpillar, chrysalis, and adult. P*hoto credit: Amber Barnes – Pollinator Partnership*

Monarch on Liatris sp., *photo credit: Amber Barnes – Pollinator Partnership*

What you can do on your property to support Monarchs

Landowners have enormous potential to help conserve monarchs, even by doing nothing – literally! Making some intentional management choices can preserve existing monarch habitat. Maintain any existing natural areas on your property that have blooming native wildflowers and shrubs, reduce mowing where possible, and leave some areas unmown for refuge.

There are many different looks and aesthetic outcomes when enhancing your property with pollinator habitat, and there is more than one approach. NRCS incentive programs can provide financial and technical support to incorporate pollinator habitat and/or best management practices for pollinators, into your land and/or current agricultural practices. Each program varies by timeline, acreage, and the type of habitat your life and property can support. There are dozens of conservation practices that can help monarch and pollinator populations. Below is a list of just *some* of the services in which NRCS provides landowners with technical and financial assistance. Please check with your regional NRCS office for more details and opportunities.

Wildlife Habitat Plantings can establish herbaceous or herbaceous and shrubby habitat, with the primary goal of providing food and cover for wildlife, such as Monarchs and pollinators. This practice can help convert land currently being used for other purposes, such as cropland or pasture, into high-quality habitat for Monarchs or other pollinators by seeding or planting a variety of native plants that are nectar-rich forbs and milkweed species. Wildlife Habitat Plantings (using CP 420) must use only regionally-local native species.(CP Wildlife Habitat Planting (420). Mixes designed for monarch habitat will include can include high quantities of milkweed species and high-quality nectar plants. Plant species selected will have a sequential but overlapping bloom time in order to provide continuous nectar sources for monarch and nursery milkweed for monarch's larvae. Species used will depend on soil moisture regime and support overlapping bloom periods the entire growing season, but should include a minimum of 3 blooming species at the early, mid and late season. Some high-value nectar plants for Monarchs include species such as goldenrods, asters, Golden Alexanders, Mountain Mint, ox-eye sunflower, purple coneflower, milkweed *sp*., blazing star *sp*., partridge pea, wild lupine, wild bergamot, spiderwort, evening primrose, black-eyed Susan, and many others (*uses CP 420*).

Conservation Cover includes standard or custom mixes of native or introduced plants, which include grasses, legumes and forbs. These mixes, as described above, should include (*uses CP 327 Conservation Cover, CP 386 Field Border*).

Brush Management – Returning degraded habitat to its natural state by removal of invasive species and woody encroachment into grasslands that is suppressing native species, such as milkweeds and flowering forbs that would be nectar sources.

Prescribed Grazing – Managing pastures by the timing and intensity of grazing to maintain high-quality forage and preventing over-grazing can coexist with the bloom of nectar-rich forbs and limit the disturbance of milkweed species during monarch breeding times.

Planting and managing forage – Establishing grass and legume mixes can offer some nectar sources to monarchs by including alfalfa and clover species. Timing the mowing or haying can increase bloom time and availability of nectar sources

Integrated Pest Management – Reducing the exposure of pesticides to monarchs is essential to their population health. IPM uses practices that reduce the impact of pesticides to wildlife while still maintaining control and protection from pests

Protect monarchs with windbreaks and hedgerows – Vegetative barriers can significantly reduce pesticide drift to areas of monarch and pollinator habitat. Species chosen for a windbreak/hedgerow can be further selected for high-quality nectar and milkweed species. There are many flowering trees and shrubs that are especially great for early blooming*CP 391 Riparian Forest Buffer, CP 612Tree/Shrub establishment*

Maintain monarch and pollinator habitat through management practices – Most grasslands and high-quality monarch habitat requires periodic disturbance to prevent woody or invasive plant encroachment and to encourage a high diversity of species. Without periodic disturbance, such as grazing, prescribed burning or haying, habitat can become dominated by grasses. Conducting these practices on the shoulder seasons, such as early spring or fall, will help ensure monarchs to be able to complete their full life cycle.

Annual/Short-term conservation plots -
Even land seasonally dedicated to providing nectar food sources can be extremely valuable to both monarchs and other native pollinators. An annual pollinator plot can consist of crops commonly used as cover crops, such as clovers or buckwheat. Other annual species such as sunflowers or borage are quick to establish, provide seasonal cover, and provide excellent foraging food sources for pollinators *(uses CP 327 conservation cover or CP 328 conservation crop rotation, CP 340 Cover crop)*

Additional Information

For more information about conservation planning, technical and financial assistance and appropriate conservation practices for monarchs, please visit your local USDA Service Center, or visit the Wisconsin NRCS website at www.wi.nrcs.usda.gov. Financial assistance for establishing native pollinator habitat is provided to producers through the Environmental Quality Incentives Program (EQIP), Conservation Stewardship Program, and the Agricultural Conservation Easement Program. Applications for conservation programs are accepted on a continuous basis. Please contact your regional NRCS field office to get started.