

2019-2038

WISCONSIN MONARCH CONSERVATION STRATEGY



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■ They are beloved creatures for many reasons, including their ability to travel up to 3,000 miles

MONARCH FALL & SPRING MIGRATION

This map illustrates the seasonal migration patterns of monarch butterflies across North America. The legend indicates the following:

- FALL MIGRATION:** Represented by orange arrows, showing the movement from the northern United States and southern Canada southward towards the Gulf of Mexico.
- SPRING MIGRATION:** Represented by green arrows, showing the movement from the Gulf of Mexico northward through the United States and into Canada.
- SUMMER BREEDING AREAS:** Indicated by yellow shaded regions in the northern United States and southern Canada.
- SPRING BREEDING AREAS:** Indicated by light green shaded regions in the central and southern United States.
- OVERWINTERING AREAS:** Indicated by blue shaded regions along the Pacific and Gulf coasts of Mexico.
- CORN BELT:** A dotted line outlines the Corn Belt region in the central United States, noted for high monarch production.

Three specific locations in Mexico are marked with blue circles and labeled "WINTER", representing the primary overwintering sites. The source is cited as U.S. Fish and Wildlife Service.

Wisconsin has important habitat for monarch butterflies that serves as both larval and adult food sources which support the monarch life cycle. Monarchs have four distinct stages: egg, larva (caterpillar), pupa (chrysalis), and adult. Monarch adults only lay their eggs on milkweeds, and it is the only plant that caterpillars can eat, so increasing the amount of native milkweeds in the state is vital to support a viable monarch population. Monarch adults eat nectar from blooming plants, so it is important to have monarch-friendly native flowers blooming from spring through fall. The Mid-America Monarch Conservation Strategy (MAMCS)

Adult
20-32 days
total

Egg
3-5 days

Chrysalis
8-13 days

Larva
9-14 days

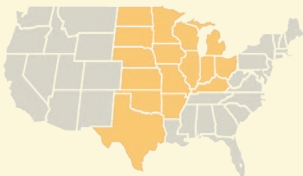
- To set voluntary timebound goals for statewide monarch recovery
- To coordinate priorities, identify gaps, and strengthen existing efforts within and between sectors statewide
- To attract resources for improved and increased statewide monarch conservation
- To integrate statewide efforts with regional and trilateral efforts between Canada, the United States, and Mexico

BACKGROUND



NATIONAL EFFORTS

In response to the unprecedented low population of monarchs during the winter of 2013-2014, a coalition of non-governmental organizations and citizens submitted a petition to the United States Fish & Wildlife Service (USFWS) to list monarchs as a threatened species under the Endangered Species Act (ESA). In December of 2014, the USFWS decided that the listing may be warranted and that a Species Status Assessment should be initiated. The listing decision is scheduled for release by the USFWS the summer of 2019.



REGIONAL EFFORTS

Due to the importance of regional collaboration for this effort, the Midwest Association of Fish & Wildlife Agencies (MAFWA), Pheasants Forever, and the National Wildlife Federation took a leadership role for monarch butterfly conservation shortly after the species was petitioned for listing under the ESA in 2014. In 2015 MAFWA committed to coordinate the creation of a 20-year plan that would summarize higher level strategies for the reversal of the decline of monarch butterflies and build upon existing efforts of federal, state, and local agencies, as well as private organizations and individuals. The Mid-America Monarch Conservation Strategy (2018-2038) includes input from 16 states in the



Eastern Migratory Flyway and identifies conservation targets, programs, and coordinated strategies to provide a blueprint for reversing the decline of monarchs (MAFWA 2018). MAFWA also created a governance structure to coordinate monarch conservation efforts throughout the Midwest, as well as Arkansas, Oklahoma, and Texas.

Since 2015, four workshops have been convened with representatives from MAFWA state agencies and the USFWS to discuss how to allocate regional and national habitat goals across state boundaries. One product of these workshops was the Mid-America Monarch Habitat Allocation Tool. This planning tool was developed to facilitate habitat goals and allocation decision making among states utilizing GIS data layers and data from the Thogmartin et al. 2017 "All Hands on Deck" publication to establish baseline milkweed densities by land use type and explore scenarios that could achieve milkweed goals by state and land use type (Thogmartin et al. 2017).

Map of Wisconsin illustrating the Wisconsin portion of the North Core Monarch Conservation Unit, a priority area for monarch conservation.

In September of 2017, the Mid-America Monarch Conservation Strategy Board of Directors set the goal of adding 1.3 billion stems of milkweed to the North Core Monarch Conservation Unit by 2038, with a baseline year of 2014 for counting new conservation efforts. While stems of milkweed are the metric for tracking progress, the MAMCS assumes that new milkweed stems will be embedded in a diverse matrix of nectar plants to support monarchs during breeding and migration.





WISCONSIN ACTIONS

In 2015, states within the eastern migratory path of the monarch butterfly began convening Monarch Summits to lay the foundation for a holistic coordinated statewide plan for supporting monarchs due to their drastic decline over the past 20 years. In May of 2017, 60 individuals from agencies, non-profit organizations, and businesses participated in the Wisconsin Monarch Conservation Summit. Representatives in Wisconsin from the Department of Natural Resources (DNR), the Department of Transportation (WisDOT), Department of Agriculture, Trade and Consumer Protection (DATCP), Pheasants Forever, Wisconsin Wildlife Federation, Sand County Foundation, and the Natural Resources Foundation of Wisconsin collaborated to host the event with full financial support from a U.S. Fish and Wildlife (USFWS) grant awarded to the National Wildlife Federation. The summit had participation from representatives from agriculture, protected lands, outreach and education, research, utilities, transportation, and urban sectors. Summit participants laid the foundation for a statewide strategy for achieving the habitat enhancement goals being established by the Mid-America Monarch Conservation Strategy (MAMCS). At the end of the summit, participants created a collaborative governance design for a new group—the Wisconsin Monarch Collaborative (hereafter “the Collaborative”)—to continue the work needed to create and facilitate implementation of the strategy. The goal of the Collaborative is to provide coordination and technical resources for public and private landowners to voluntarily add or enhance monarch habitat, share success stories, and track progress as individuals and organizations in Wisconsin help in the national effort to proactively recover monarchs. The Collaborative hired a full-time coordinator in January 2018 to facilitate its operations, prepare this strategy, and to coordinate implementation. The coordinator is

hosted by DNR and funded jointly by DNR and generous donations from NRF.

The Collaborative consists of five Working Groups:

- Agriculture
- Urban & Greenspace
- Rights-of-Way
- Protected Lands
- Research & Monitoring

A Coordination Team was created to support and guide the Working Groups and ensure that the Wisconsin Monarch

Conservation Strategy is effectively and efficiently implemented. The representatives on the Coordination team include Collaborative Working Group co-leads, plus agency representatives from the Wisconsin Department of Agriculture, Trade and Consumer Protection, the Wisconsin Department of Transportation, and the Wisconsin Department of Natural Resources. A Communications & Outreach Team was also created to coordinate communications activities for the Collaborative.



Swamp milkweed seedlings

PAUL SKAWINSKI

WISCONSIN'S HABITAT GOAL

Given the regional goal of adding 1.3 billion stems of milkweed, state monarch conservation groups were asked to set a state milkweed stem goal and were given two sets of projections to inform their goal-setting: scenario results from the Milkweed Habitat Allocation Tool, and an additional analysis that apportioned milkweed stem goals proportionally to states based solely on the percentage of land area that each state has in the North Core Monarch Conservation Unit. For Wisconsin, the Milkweed Habitat Allocation Tool recommended a goal of just over 119 million stems of milkweed, while the proportional land area method suggested a goal of nearly 138 million stems. There was broad agreement across the Collaborative Working Groups to use the Milkweed Habitat Allocation Tool recommendation and set the Wisconsin goal at 119,166,104 milkweed stems embedded in a matrix of diverse nectar sources throughout the state, with priority on the 54 counties in the North Core Monarch Butterfly Conservation Unit. Voluntary participation from many partners, representing all land use sectors will be essential to reach this goal.

GOALS & STRATEGIES



COMMUNICATIONS & OUTREACH

OVERVIEW

Communications and outreach strategies are key to successful conservation efforts. ■ By identifying communications tone and messages as well as participants, supporters, and influencers, the Communications & Outreach Team helps advance the Collaborative's goals by ensuring cohesive messaging between Collaborative members, and inspiring people and organizations to take action in this voluntary effort. ■ This team is made up of Communications & Outreach Liaisons and the Wisconsin Monarch Collaborative Coordinator. ■ There is one Communications & Outreach Liaison on each Working Group who serves as the communications and/or outreach expert in that sector.

GOAL 2

Ensure that creative and thoughtful partnerships are in place to facilitate monarch conservation work in Wisconsin.

Strategy 2.1

Identify key stakeholder gaps in the Wisconsin Monarch Collaborative and seek to close those gaps.

Assessment: Completion of a gap assessment within the first six months of implementation and a subsequent strategy to close the gaps.

Strategy 2.2

Ensure partners are engaged through consistent communications and strategic in-reach.

Assessment: Monitor frequency of communications and development of work plan for implementing strategic in-reach.

Strategy 2.3

Identify opportunities for increased and more robust partnerships among Collaborative members in order to meet Collaborative goals and strategies.

Assessment: Inclusion of partnership opportunities in future Wisconsin Monarch Summits, work plans, etc.

GOAL 1

Communicate clear, consistent, on-point messages about the Wisconsin Monarch Collaborative's goals and progress, as well as the conservation issues facing monarch butterflies and how individuals can help make a difference by supporting the work and communications efforts of the Collaborative's Working Groups.

Strategy 1.1

Dedicated communications and outreach experts will participate on the Communications & Outreach Team and as liaisons to Working Groups that are aligned with their expertise.

Assessment: By the end of the first year, Communications & Outreach liaisons will have representation on each Working Group and will ensure that communications messaging from each group is frequent and consistent.

Strategy 1.2

The Communications & Outreach Team members will assist Working Groups with communications and outreach issues on an as-needed basis.

Assessment: By the end of the first year there will be a process in place for supporting communications and outreach activities for Working Groups.

Strategy 1.3

Develop internal communications channels for the Wisconsin Monarch Collaborative.

Assessment: The Coordination Team will provide guidance on the best methods for communication between Working Group members.

Strategy 1.4

Develop a Monarch Collaborative Toolkit that will provide Wisconsin Monarch Collaborative members with ideas for social media, calls to action, talking points, etc. to improve statewide awareness of monarch decline, what's causing it, and how they can help make a difference.

Assessment: Completion of the Toolkit in the first year and revisions and updates as needed throughout the duration of implementation.

Strategy 1.5

Develop agreed-upon communications messages for targeted audiences.

Assessment: Members of the Communications & Outreach Team will identify education messaging for targeted audiences (e.g. Agriculture Working Group Strategy 1.1).



A handout with information about this Strategy document was created by Collaborative members, which will be distributed to the public.

GOALS & STRATEGIES



AGRICULTURE

OVERVIEW

Agriculture is the dominant land use within the monarch butterfly's midwestern summer breeding range. ■ Privately-owned farmland provides the single largest opportunity to create the widely distributed patchwork of habitat needed to grow monarch populations. ■ Field buffers, ditch banks, farmsteads, private roadways, and unproductive areas of farms all offer potential sites for various species of milkweed and other forbs needed to sustain not only monarchs but also the multiple bee species needed to pollinate many crops.

GOAL 2

Increase the presence of milkweed and other nectar-bearing forbs within the agricultural landscape in ways that do not compete with crop production.

Strategy 2.1

Improve habitat quality on land currently enrolled in USDA conservation easement and land-rental programs through management practices such as inter-seeding, prescribed fire, and removal of invasive species.

Assessment: Track the number of Conservation Reserve Program (CRP) and Agricultural Conservation Easement Program (ACEP) acres that receive treatment annually.

GOAL 1

Communicate benefits, opportunities, and methods of habitat enhancement to private agricultural land managers and those who support them.

Strategy 1.1

Define a consistent message to agricultural stakeholders on behalf of the Wisconsin Monarch Collaborative.

Assessment: Confirm agreement among Wisconsin Monarch Collaborative agricultural members of public messaging and talking points, updated annually.

Strategy 1.2

Maintain a "speakers bureau" of specialists available to promote habitat enhancement at agriculture events across Wisconsin.

Assessment: Track the number and type of specialists available statewide.

Strategy 1.3

Deliver presentations about monarch habitat at one or more events delivered by each major agricultural stakeholder group in Wisconsin.

Assessment: Track the number of presentations and audience reached annually.

Strategy 1.4

Provide certified crop consultants and other agricultural advisors with professional training for integrating habitat within an agricultural landscape.

Assessment: Track habitat-related trainings and continuing education credits earned by agricultural advisors annually.



Larry Alsum, of Alsum Farms near Spring Green, has been using unirrigated areas of his farm fields to plant wildflowers, milkweed and prairie grasses since the 1990s and now has about 17 acres of restored pollinator habitat.

COURTESY OF ALSUM FARMS & PRODUCE

Strategy 2.2

Create new habitat through enrollment of agricultural producers into USDA and other financial assistance programs.

Assessment: Track number of acres implementing monarch habitat through new contracts under CRP, Conservation Reserve Enhancement Program (CREP), ACEP, Environmental Quality Enhancement Program (EQIP), Conservation Stewards Program (CSP), and other federal, state or local programs.

Strategy 2.3

Improve habitat value of on-farm non-production lands through appropriately timed mowing, brush management or other practices that encourage milkweed propagation.

Assessment: Estimate changes in land management activities every three years.

Strategy 2.4

Establish new habitat on a portion of agricultural lands with lower return on investment for agricultural production.

Assessment: Monitor trends in the successful establishment of habitat on former cropland, especially through use of precision agricultural technology.

Strategy 2.5

Establish new habitat or encourage milkweed propagation on portions of idle lands around facilities used for livestock feeding, dairy production, grain storage, food processing, and other agricultural enterprises.

Assessment: Track the number of acres and number of facilities where habitat is established.

GOAL 3

Promote to agricultural stakeholders the most efficient and cost-effective means to establish, monitor, and protect monarch habitat.

Strategy 3.1

Publicize appropriate seed mixes and milkweed seed densities for specific site settings, field conditions, and management approaches.

Assessment: Track the publication of appropriate seed mixes to land managers and service providers.

Strategy 3.2

Publicize appropriate site preparation and seeding methods for specific site settings, field conditions, and management approaches (e.g. through demonstration sites).

Assessment: Track the publication of appropriate seeding methods to land managers and service providers.

Strategy 3.3

Promote the use of practices designed to minimize off-target movement or overspray of pesticides onto dedicated monarch habitat, field margins and sensitive areas.

Assessment: Monitor trends in the adoption of these practices.

Strategy 3.4

Increase volunteer participation in the Integrated Monarch Monitoring Program on agricultural land.

Assessment: Track the number of agricultural sites that are monitored by the Integrated Monarch Monitoring Program.



Chilton, Wisconsin FFA members creating monarch habitat.

SAND COUNTY FOUNDATION

GOALS & STRATEGIES



PROTECTED LANDS

OVERVIEW

Currently tens of thousands of acres of permanently protected land by state, federal, county, and local units of government; land trusts; conservation organizations; and tribes are or could provide monarch rearing and fall nectar habitat. ■ Many of these acres are already being managed for wildlife, and with additional work the lands can also greatly benefit monarchs and other pollinators. ■ A combination of new plantings (80% of habitat goal), interseeding (15%), along with habitat management (5%) will increase or maintain use by monarchs. ■ In addition to planting milkweeds, all projects should include species that benefit pollinators and bloom throughout the growing seasons, especially those species that monarchs nectar on in fall migration.

Strategy 2.2

Coordinate all partners working together to interseed monarch habitat by sharing expertise, seed/plants, and equipment.

Assessment: The Protected Lands Working Group will complete this much of this effort within three years of implementation, but this will be an ongoing strategy.

Assessment: The Protected Lands Working Group will work to implement one demonstration site showcasing interseeding techniques to improve monarch habitat in the next five years.

Strategy 2.3

Interseed species that benefit monarchs (milkweeds and fall nectar species) on existing grassland and savanna habitats that support suboptimal populations of milkweeds (host) and fall nectar species.

Assessment: Eighty percent of the interseeding will be completed in the first 10 years of implementation.

GOAL 1

Identify and establish new plantings for improving monarch habitat in Wisconsin's grasslands and savannas.

Strategy 1.1

Identify state, federal, county, and local units of government; land trusts; conservation organizations; and tribes that manage permanently protected lands along with the acreage of cropland or marginal habitat that could be restored to monarch habitat.

Assessment: The Protected Lands Working Group will complete most of this effort within two years of implementation; however other partners can join this effort anytime.

Strategy 1.2

Coordinate all partners working together to plant monarch habitat by sharing expertise, seed/plants, and equipment.

Assessment: The Protected Lands Working Group will complete much of this effort within three years of implementation, but this will be an ongoing strategy.

Assessment: The Protected Lands Working Group will work to implement one demonstration site showcasing new monarch habitat planting in the next five years.

Strategy 1.3

Plant monarch habitat and convert existing open areas to monarch habitat by planting milkweed seeds, and a diversity of forbs and grasses, especially fall nectar species.

Assessment: Eighty percent of the planted habitat will be completed in the first 10 years of implementation.

GOAL 2

Identify and interseed key monarch plants into existing grassland and savanna habitats.

Strategy 2.1

Identify state, federal, county, and local units of government; land trusts; conservation organizations; and tribes along with the acreage of permanently protected land that could be interseeded to monarch habitat.

Assessment: The Protected Lands Working Group will complete most of this effort within ten years of implementation.

POPULAR NATIVE MILKWEED SPECIES



BUTTERFLY WEED
(ASCLEPIAS TUBEROSA)
BLOOMS JUN-AUG



RED (SWAMP) MILKWEED
(ASCLEPIAS INCARNATA)
BLOOMS JUN-AUG



COMMON MILKWEED
(ASCLEPIAS SYRIACA)
BLOOMS JUN-AUG

For more information about Wisconsin's native milkweed species, please visit: wimonarchs.org/habitat.cfm



GOAL 3

Maintain monarch habitat in Wisconsin's grasslands and savanna with Best Management Practices that will provide for high quality breeding and fall migration habitat.

Strategy 3.1

Identify state, federal, county, and local units of government; land trust; conservation organizations; and tribes along with their acreage of monarch habitat that requires management including prescribed burning, brush removal and invasive species removal.

Assessment: *The Protected Lands Working Group will complete most of this effort within three years of implementation; however other partners can join this effort anytime.*

Strategy 3.2

Coordinate all partners working together to maintain monarch habitat by sharing expertise and equipment.

Assessment: *The Protected Lands Working Group will be conducting this work for the next 20 years.*

Strategy 3.3

Manage monarch habitat by prescribed burning, brush removal and invasive species removal.

Assessment: *The Protected Lands Working Group will be conducting this work for the next 20 years.*

GOAL 4

Report research and monitor results of establishing and maintaining monarch habitat on permanently protected lands.

Strategy 4.1

Conduct research on interseeding monarch habitat.

Assessment: *The Protected Lands Working Group will be conducting/ coordinating/assisting with this research for the next 10 years.*

Strategy 4.2

Conduct baseline assessments of milkweed and key nectar species prior to conducting habitat restoration or habitat management practices.

Assessment: *Members of the Protected Lands Working Group will complete baseline monitoring before a pre-selected number of land management actions.*

Strategy 4.3

Conduct monitoring on milkweed and key fall nectar species in restored and managed habitats.

Assessment: *Members of the Protected Lands Working Group will be conducting/coordinating/assisting with monitoring of milkweed and key fall nectar species in a pre-selected number of areas for the next 20 years.*

Strategy 4.4

Report research and monitoring results to the Collaborative.

Assessment: *The Protected Lands Working Group will be reporting results annually for the next 20 years.*



Julie Hillery of Boulder Junction has become an advocate for monarchs, emphasizing the need to increase milkweed stems to support the species. Each fall, she collects milkweed pods to harvest the seeds so others can add more of the plants that nourish monarch caterpillars and adults alike.

GOALS & STRATEGIES



RIGHTS-OF-WAY

OVERVIEW

Transportation and utility rights-of-way (ROWs) have been identified as unique opportunity areas for monarch and pollinator habitat conservation at the landscape level. ■ ROWs encompass thousands of acres of land, intersecting much of Wisconsin's landscape. ■ These systems are typically managed for the safe and efficient transport of goods, services and/or people. ■ However, with minor modifications to routine practices, ROWs can also be managed to promote monarch and pollinator conservation by creating, enhancing and maintaining diverse habitats

GOAL 1

Identify best management practices (BMPs) for improving monarch and pollinator habitat that are applicable to Wisconsin right-of-way areas.

Strategy 1.1

Research and review existing BMPs for creating, enhancing and maintaining monarch and pollinator habitat in Wisconsin ROWs.

Assessment: ROW Working Group of the Wisconsin Monarch Collaborative will complete this effort within one year of implementation.

Strategy 1.2

Identify applicable BMPs for creating, enhancing and maintaining monarch and pollinator habitat in Wisconsin ROW.

Assessment: ROW Working Group of the Wisconsin Monarch Collaborative will complete this effort within one year of implementation.

Strategy 1.3

Publish and share applicable BMPs and resources identified in Strategies 1.1 and 1.2 on the Wisconsin Monarch Collaborative website.

Assessment: ROW Working Group of the Wisconsin Monarch Collaborative will complete this effort within two years of Plan implementation.

GOAL 2

Implementation of best management practices for improving monarch and pollinator habitat applicable to Wisconsin right-of-way areas, where practical.

Strategy 2.1

Identify utility, transportation, and railroad partners that operate, maintain, and own land in Wisconsin.

Assessment: Complete during Wisconsin Monarch Collaborative implementation process. Welcome new partners throughout duration of Wisconsin's Strategy.

Strategy 2.2

Identify potential Wisconsin ROWs to create and/or enhance monarch and pollinator habitat.

Assessment: Strategy will be implemented within first three years of Plan Strategy implementation.



GOAL 4

Strategy 2.3

Implement pilot projects and demonstration areas showcasing various pollinator BMPs, with projects that represent the different types of ROW managers participating on the ROW Sector group.

Assessment: Implement five pilot projects or demonstration areas within five years of Strategy implementation.

Strategy 2.4

Identify and showcase industry champions that are leading monarch and pollinator conservation efforts in the state via demonstration sites.

Assessment: Champions represent organizations that are exceeding the Plan's goals by implementing successful monarch and pollinator initiatives, such as pilot projects and BMPs. Champions and demonstration sites will be showcased through the Wisconsin Monarch Collaborative and on the Collaborative's website.

GOAL 3

Increase collaboration among landowners, natural resources experts, volunteers, industry representatives, and decision-makers resulting in successful statewide rights-of-way monarch and pollinator initiatives.

Strategy 3.1

Identify and promote partnership opportunities in Wisconsin ROWs on the Wisconsin Monarch Collaborative website.

Assessment: Strategy will be implemented throughout duration of Plan, with additional emphasis and effort in first five years.

Strategy 3.2

Establish partnerships that create and enhance monarch and pollinator habitat in Wisconsin ROWs.

Assessment: Strategy will be implemented throughout duration of Plan, with additional emphasis and effort in first five years.

Support education and outreach efforts throughout the state for industry representatives, stakeholders and the public on the roles of ROWs in monarch and pollinator conservation and industry constraints in implementing conservation initiatives.

Strategy 4.1

Increase industry awareness about how monarchs and pollinators utilize Wisconsin ROWs.

Assessment: Strategy will be implemented throughout duration of Plan.

Strategy 4.2

Educate industry partners and decision-makers about the Wisconsin Monarch Collaborative and the BMPs identified by the ROW Sector group.

Assessment: Strategy will be implemented by ROW Sector group during first five years of the plan and will continue throughout the duration of the plan to encourage continued participation and welcome new partners.

Strategy 4.3

Educate industry decision-makers on the role of ROW for monarchs and pollinators in Wisconsin, emphasizing the business case, cost-benefit analyses and public interest in monarch and pollinator conservation.

Assessment: Working with industry partners and the Communications & Outreach Team, create education materials for industry partners to share with decision-makers. Create materials during the first two years of plan implementation and refine at least every five years, as needed. Share materials within and across sector groups and partners involved in the Collaborative.

Strategy 4.4

Increase public and stakeholder awareness about the role of Wisconsin's rights-of-way in monarch and pollinator conservation, and industry constraints in implementing monarch and pollinator conservation initiatives.

Assessment: Working with the Communications & Outreach Team, create outreach and education materials during the first two years of Strategy implementation. Refine materials at least every five years or as needed. Share outreach materials within and across sector groups and partners involved in the Collaborative. Encourage outreach efforts among partners annually throughout duration of the plan.



GOALS & STRATEGIES



GOAL 2

Build community familiarity with native plants and their benefits, and expertise in native plant garden care.

URBAN & GREENSPACE

OVERVIEW

Urban landscaping and greenspaces like public parks offer great opportunities to support monarchs. ■ Simple choices of which plants to install into a flowerbed at a park's entrance or along the foundation of a house can provide nectar sources and milkweeds for egg-laying. ■ With education and better availability of native plants, homeowners and greenspace managers can play a crucial role in providing monarchs with the resources that they need to thrive in our urban, suburban, and rural residential environments.

GOAL 1

Increase prevalence of monarch habitat (breeding and nectaring) in urban/suburban environments.

Strategy 1.1

Support creation of demonstration butterfly gardens using native plants at Wisconsin parks, schools, libraries, and other public places where large numbers of people can see and be inspired by them. Encourage the certification of these demonstration gardens as official Monarch Waystations.

Assessment: Track the installation of new demonstration gardens, and communicate with Monarch Watch to determine the number of new Monarch Waystations in Wisconsin and where they are located.

Strategy 1.2

Partner with groups such as Master Gardeners and Wild Ones chapters to provide outreach to local gardening groups, birding clubs, and other organizations with an interest in landscaping and gardening.

Assessment: Document successful collaboration activities between organizations on an ongoing basis.

Strategy 1.3

Work with Parks & Recreation Departments to encourage use of natives in park landscaping.

Assessment: Document successful collaboration activities with Parks Departments and other park managers on an ongoing basis.

Strategy 2.1

Create a Top 12 plant list for butterfly gardens, focusing on species that are appealing to a wide audience (versatile, sturdy, somewhat short, beautiful, etc.).

Assessment: Create list by July 2019 and post to Monarch Collaborative website.

Strategy 2.2

Promote Healthy Lakes funding (Healthylakeswi.org) to cost-share native plantings and rain gardens near lakes and rivers, which can be designed with monarch conservation in mind.

Assessment: Create map of new native planting installations assisted by the Healthy Lakes grant program.

POPULAR NATIVE MONARCH PLANT BLOOM TIMES

MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER
Prairie phlox (<i>Phlox pilosa</i>)					
	Butterfly milkweed (<i>Asclepias tuberosa</i>)				
	Common milkweed (<i>Asclepias syriaca</i>)				
	Anise hyssop (<i>Agastache foeniculum</i>)				
	Aromatic aster (<i>Symphyotrichum oblongifolium</i>)				
	Orange coneflower (<i>Rudbeckia fulgida</i>)				
	Swamp milkweed (<i>Asclepias incarnata</i>)				
		Showy goldenrod (<i>Solidago speciosa</i>)			
			Showy blazing-star (<i>Liatris ligulistylis</i>)		
			New England aster (<i>Symphyotrichum novae-angliae</i>)		
			Sweet black-eyed susan (<i>Rudbeckia subtomentosa</i>)		

Be sure to plant species native to Wisconsin and to pick a mixture of plants that bloom from spring to fall. Here are some monarch favorites to get you started, listed by bloom times. These monarch favorites were selected by the Urban & Greenspace Working Group members.

Strategy 2.3

Encourage demonstration gardens to also register as Monarch Waystations with associated signage displaying the purpose of these habitats. Provide "Proud Partner of Wisconsin Monarch Collaborative" stickers to owners/managers of demonstration gardens.

Assessment: Create map of new demonstration gardens and Monarch Waystations.

Strategy 2.4

Hold native plant garden open houses or tours. These tours would range from residential property "garden tours" to tours of nature center gardens, arboreta, and other public demonstration gardens.

Assessment: Document garden tours and organizations that work with Collaborative partners to promote these events.

Strategy 2.5

Hold workshops in which prospective native plant gardeners could bring along yard sketches/layouts to get expert advice on how to design a native garden on their property, and answers to questions about gardening with native plants.

Assessment: Document workshops and organizations that work with Collaborative partners to promote these events.

GOAL 3

Reach out to major landowners and professionals who can lead by example in their communities.

Strategy 3.1

Encourage outreach to corporations, universities, and private campuses with expanses of land that could be modified to contain monarch habitat.

Assessment: Document campuses that install monarch habitat and promote their partnership with the Monarch Collaborative.

Strategy 3.2

Seek out opportunities to reach professional landscapers, including conferences, to get landscapers more familiar with native plants and the benefits of using them.

Assessment: Document conferences that Collaborative partners attend.

Strategy 3.3

Work with appropriate media outlets including gardening radio shows (e.g. Wisconsin Public Radio's Garden Talk) to share information about establishing butterfly gardens, and addressing questions/concerns from the public.

Assessment: Archive media outreach efforts.



Urban Monarch Waystation habitat.



This planting served as a colorful wall of flowers to screen views of the neighboring properties.

GOALS & STRATEGIES



RESEARCH & MONITORING

OVERVIEW

To best support monarch butterfly recovery in the state, activities and efforts need to be supported by the best available science and be responsive to changes on the ground. ■ A comprehensive recovery plan should include ways of incorporating research and monitoring in guiding statewide efforts. ■ Moreover, as the Wisconsin Monarch Conservation Strategy is focused primarily on the addition of milkweed plants embedded in a matrix of diverse nectar plants, the Wisconsin Monarch Collaborative should utilize information from citizen science projects that inform where habitat efforts should be focused and measure the success of such efforts.

GOAL 1

Establish science-based criteria for determining habitat-based milkweed targets appropriate to Wisconsin, refining best available science-based strategies for optimal monarch habitat and monarch population gains for Wisconsin.

Strategy 1.1

Determine if habitat-based milkweed stem density assumptions are appropriate for Wisconsin, and collect relevant data to refine estimates.

Assessment: *Within the first year, have a list of milkweed species ideal for use in Wisconsin, and best management practices for establishment of target milkweed stem densities.*

Strategy 1.2

Identify regions in the state, or particular habitat types, where increasing milkweed plantings can have the greatest effect on monarch populations.

Assessment: *Within the first year, coordinate with the other working groups to identify where milkweed abundance is likely to be increased and evaluate potential monarch increases from that land.*

Strategy 1.3

Incorporate spatial considerations when planning milkweed restorations to ensure the greatest monarch population gains will be realized.

Assessment: *By the end of the first year, refine planting recommendations and where in the state planting should occur as informed by emerging landscape ecology research.*

GOAL 2

Develop monitoring approaches for both milkweed and monarchs that enable the tracking of progress towards statewide targets for both species.

Strategy 2.1

Determine the optimal method(s) for monitoring monarch populations, monarch habitat use, and monarch habitat quantity and quality in Wisconsin. Ensure that method(s) selected are integrated with ongoing regional or national efforts.

Assessment: *By the end of the first year, adopt and publicize unified sampling approaches and protocols that allow easy exchange of data on monarchs and milkweed habitat across efforts/programs/projects.*



Monarch Larva Monitoring Program training at the UW-Madison Arboretum.

THE MONARCH JOINT VENTURE

GOAL 3

Develop mechanisms for incorporation of monitoring results into broader statewide restoration efforts.

Strategy 3.1:

Increase participation in citizen science efforts and evaluate the Monarch Conservation Strategy's integration with these efforts. Several long-standing and new monarch citizen science projects can contribute valuable information to monarch science and conservation, and can help monitor milkweed, nectar resources, and monarch populations. Programs to consider include, but may not be limited to, Journey North, the Monarch Larva Monitoring Project (MLMP), and Integrated Monarch Monitoring Program (IMMP).

Assessment: By the end of the second year, quantify baseline (2018) participation in relevant citizen science programs and set a goal, including benchmarks if determined appropriate, for the quantity and spatial distribution of participation in citizen science program that are compatible with the monitoring methods in Strategy 2.1.

GOAL 4

Help establish criteria for a successful monarch recovery in Wisconsin and the targets and metrics to evaluate progress towards those goals.

Strategy 4.1

Monitor the status of monarchs, milkweeds, and their habitats, as they relate to the 20-year milkweed stem goals.

Assessment: By the end of the first year, develop benchmarks for stem goals (e.g., 5, 10, and 15-year midpoints) for each of the land use types (e.g., rights-of-way, agriculture).

Assessment: By the end of the third year, develop a process by which data from on-the-ground efforts can be summarized and compared to stem goal benchmarks.

GOAL 5

Support other working groups who require information on the best-management practices or target goals.

Strategy 5.1

Coordinate with other groups, including those within the Wisconsin Monarch Collaborative (e.g., Outreach & Communications Team) to inform strategies/outcomes, and provide expertise towards monarch recovery.

Assessment: Ensure Research & Monitoring Working Group representatives participate in other working group discussions/planning.

ACKNOWLEDGEMENTS

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- Additional supporters of the Collaborative are welcome and encouraged to reach out to the Wisconsin Monarch Collaborative Coordinator or Co-Leads in order to take part in the Collaborative activities. More information about the Collaborative and how to donate can be found at wimonarchs.org.