MONARCH JOINT VENTURE

Monarch Conservation Implementation Framework

Updated 2024





Table of Contents

Introduction to the Framework 2

How to Use This Framework 3

Habitat Section 4

1. Create, improve, and/or protect habitat
2. Provide habitat technical assistance
3. Support plant material availability and accessibility
4. Track and report habitat conservation efforts
5. Certify habitat

Science Section 7

1. Collect data for existing research, monitoring, and/or community science programs
2. Facilitate a research or community science project
3. Analyze and publicly share data and results

Education Section 9

1. Provide educational training and outreach
2. Develop tailored educational resources
3. Share science-based communications
4. Utilize habitat areas for education

Partnership Section 12

1. Recruit and engage new audiences
2. Collaborate, exchange information, and share expertise
3. Support monarch conservation, research, education, and/or partnership via financial or in-kind contributions

Appendix 14

A. Population Status
B. National Monarch Conservation Targets
C. National Milestones, Goals, and Priorities

Introduction to the Implementation Framework

The Monarch Joint Venture (MJV) is a 501c3 nonprofit organization. We coordinate a network of over 120 partners across the United States committed to conserving monarch butterflies and their habitats. Our mission is to protect monarchs and their migration by collaborating with partners to deliver habitat conservation, education, and science across the monarch range. Our vision is thriving monarch populations that sustain the monarch migration into perpetuity and serve as a flagship for the conservation of other plants and animals.

The Monarch Joint Venture was formed in 2008 to uphold the United States' priorities in the North American Monarch Conservation Plan (NAMCP) (Commission for Environmental Cooperation, 2008). Based on the NAMCP, the Monarch Conservation Implementation Framework is a current guiding document for organizations and entities in the United States to engage in monarch conservation. It is maintained and regularly updated by the MJV as new feedback, research, and conservation priorities become available.

It will take widespread participation and collaboration among all sectors to reach our nation's monarch conservation targets and preserve the monarch migration for generations to come. The Framework is intended to be a dynamic document that provides direction for any individual or entity involved in or planning for monarch conservation work. The Framework is designed with monarchs in mind, but the impacts resonate further, as monarchs are a flagship for pollinators, grassland wildlife, environmental conservation, and sustainability.

The Framework serves as an important starting point for monarch conservation partners to prioritize and organize internal strategies for this work. Please note that this document is not intended as a step-by-step guide, but rather as an outline of the areas that need attention. These high-level strategies should be further developed at the individual, program, or organizational level - with measurable goals, evaluation, and specific details about relevant partnership opportunities, existing resources, or other needs.

How to Use This Framework

Intended Audience: The Framework is intended for use by any individual or entity implementing or funding monarch conservation activities (including, but not exclusive to, the MJV network) as a guiding document for the most important U.S. monarch conservation actions for both eastern and western monarchs.

How the Framework is Organized: The sections of the Framework are organized around the four pillars of MJV work: Habitat, Science, Education, and Partnership. Each section includes a resource list with projects and initiatives led by organizations participating in the MJV network.

MJV has dedicated staff in each program area who are available to assist you in developing your internal goals, strategies, and actions. Learn more about our team and how to contact them on our website monarchjointventure.org.

Considerations for Establishing Priorities: The actions outlined in the Framework are all important for monarch conservation. We recognize that individual or organizational priorities may vary depending on your areas of focus or expertise. Therefore, the Framework does not establish priorities relative to one another. We encourage you to establish priorities in your customized monarch conservation plans or strategies and to engage MJV staff to advise you on priority setting as needed.

Considerations for Inclusive Collaboration: It will take widespread collaboration, what we refer to as "all hands on deck," to reach our nation's monarch conservation targets. This requires a commitment to engaging with diverse audiences from across the monarch's North American range. Within all of the actions outlined in the framework, we encourage you to consider the social and cultural dynamics that impact how we approach these actions, often without realizing it. For example, ask yourself questions like, who or what might be missing? What barriers to participation might exist? How could you make your programs and processes more inclusive? Or, what alternative perspectives can you learn from?

MJV Conservation Pledge: The Framework relates directly to MJV's Conservation Pledge. MJV Partners complete the Pledge on an annual basis, committing to and reporting on at least two actions each year. Other individuals or entities implementing or funding monarch conservation activities may utilize the Pledge as a guide for their high-level actions.

For more information on the Implementation Framework, the MJV Conservation Pledge, or the MJV Partnership, please email partnership@monarchjointventure.org



HABITAT

1. Create, improve, and/or protect habitat

a. Promote the multiple benefits of monarch habitat on public and private lands (supporting farm operations, meeting sustainability goals, reducing mowing costs, improving soil health, biodiversity conservation, carbon sequestration, human/cultural connection to nature, etc.).
b. Develop or improve existing pollinator habitat programs (public and private, cost-share, incentives, easements, etc.) and improve awareness of and access to these programs.
c. Implement high-quality habitat across various sectors and land-use types (energy and transportation rights of way, working lands, public lands, tribal lands, gardens, school gardens, residential areas, municipal areas, etc.).
d. Obtain legal protections or incentives to protect and manage overwintering sites.
e. Develop and implement adaptive conservation plans to improve, maintain, and connect monarch habitat (breeding, migratory, and overwintering).
f. Minimize threats to habitat quality (reduce pesticide impact, adopt integrated management practices (IMP), control invasive species, manage woody encroachment, etc.).
g. Meaningfully engage diverse stakeholders in evaluating, designing, planning, and implementing local conservation projects.

2. Provide habitat technical assistance

a. Provide technical assistance and training to install, improve, and maintain pollinator-friendly habitat projects and land manager knowledge (program enrollment, precision ag, integrated pest management, integrated vegetative management, habitat maintenance, cover cropping, etc.).
b. Engage with diverse perspectives in habitat consultation and design, including local and traditional land stewardship practices.
c. While maintaining a focus on pollinator benefits, consider other important factors in landowner consultation and habitat design (threat exposure, land management requirements, climate resilience, etc.).

3. Support plant material availability and accessibility

a. Assess local/regional supply and demand for native plant materials.
b. Increase efforts to responsibly collect locally sourced native seeds, including engagement with diverse and traditional seed collection practices.
c. Support native plant material development and research.
d. Improve best practices for milkweed and nectar plant propagation.
e. Expand the commercial availability of native milkweeds and regionally-appropriate nectar plant seeds and plugs.
f. Provide clear information about where to obtain pesticide-free, native milkweed and regionally-appropriate nectar plant materials.
g. Increase incentives for using native and local plant materials (financial incentives, cost-share opportunities, etc.).
h. Ensure seed mix designs utilize science-based and/or traditional ecological best practices to maximize pollinator benefits (grass-to-forb ratio, local ecotype plant materials, native plant diversity, etc.).
i. Remove native plants from noxious weed lists, restricted plant lists, and local ordinances restricting their use.

4. Track and report habitat conservation efforts

j. Continuously update habitat project records, including planting and management activities.
k. Share conservation efforts with relevant databases, including tracked habitat efforts intended for other species but that also benefit monarchs.
l. Improve tools to streamline habitat mapping, tracking, and measuring collective progress toward conservation targets.

5. Certify habitat

a. Achieve and maintain industry certifications for pollinator-friendly practices.
b. Register or certify habitat projects with conservation programs.

Resource List:

Free or Reduced-cost Plant Material Programs and Resources

- Garden Grants for Educators List (Multiple funders, compiled by MJV)
- Habitat Kits (Xerces)
- High School Pollinator Habitat Grants (Sand County Foundation)
- Lawns to Legumes (Metro Blooms, Minnesota Board of Soil & Water Resources)
- Milkweed Marketplace (Monarch Watch)
- Monarchs and More Western Habitat Program (Monarch Joint Venture)
- Natural Resources Conservation Service Programs (NRCS)
- Partners for Fish & Wildlife (US Fish & Wildlife Service)
- Pollinator Habitat Outreach Project (Pheasants Forever/Quail Forever)
- Pollinator Help Desk (Monarch Joint Venture)
- Project Wingspan (Pollinator Partnership)
- Seed a Legacy (Bee & Butterfly Habitat Fund)
- Seeds for Bees (Project *Apis m.*)
- Solar Synergy (Bee & Butterfly Habitat Fund)

Plant Material Locators

- Grow Native! (Missouri Prairie Foundation)
- Milkweed Finder (Xerces Society)
- Milkweed and Wildflower Vendor Map (Monarch Joint Venture)

Habitat Tracking Programs and Databases

- Geospatial Habitat Database for ROW (UIC Energy Resources Center)
- HabiTally (Iowa Monarch Conservation Consortium)
- Monarch Conservation Database (U.S. Fish and Wildlife Service)
- Western Monarch CHAT (Western Association of Fish and Wildlife Agencies)

Habitat Certification Programs

- Bee Better Certified (Xerces Society)
- Bee Friendly Farming (Pollinator Partnership)
- Monarch Waystation (Monarch Watch)
- NABA Butterfly Garden Certification Program (North American Butterfly Association)



SCIENCE

1. Collect data for existing research, monitoring, and/or community science programs

a. Participate in community science programs.
b. Recruit additional and diverse participants for community science programs.
c. Contribute data to professional research projects.

2. Facilitate a research or community science project

a. Continue or develop projects which address information gaps.
b. Prioritize methods to understand and reduce barriers to inclusive participation.
c. Provide open access to project data.

3. Analyze and publicly share data and results

a. Assess the current status and trends of monarch populations and available habitat.
b. Understand factors that influence breeding and migration.
c. Assess the effects of threats and stressors on monarchs and habitat.
d. Evaluate habitat conservation activities to improve best practices.
e. Evaluate the co-benefits of monarch habitat for other species and broader environmental issues.
f. Evaluate the drivers and barriers to engagement in monarch conservation activities.
g. Integrate data from various programs and projects.
h. Engage multiple perspectives in the research process (incorporating traditional ecological knowledge, utilizing feedback from community science participants, etc.).
i. Publish and share new research.

Resource List:

Monarch Community Science Projects

- Butterfly Counts (North American Butterfly Association)
- Desert Refuge (Desert Botanical Garden)
- Eastern Monarch Tagging (Monarch Watch)
- iNaturalist Milkweed Observations (National Park Service)
- iNaturalist Texas Milkweeds and Monarchs (Texas Parks and Wildlife)
- Integrated Monarch Monitoring Program (Monarch Joint Venture)
- Journey North (Journey North)
- Monarch Larva Monitoring Project (Monarch Joint Venture, UW-Madison Arboretum)
- Parks for Pollinators BioBlitz (National Recreation and Park Assocation)
- Peninsula Point Monitoring Project (U.S. Forest Service)
- Project Monarch Health (University of Georgia)
- Western Monarch Count (Xerces Society)
- Western Monarch Milkweed Mapper (Xerces Society)
- Western Monarch Tagging (Southwest Monarch Study)

Explore more monarch community science opportunities on the MJV website use handout to help you decide what community science project is right for you.

Monarch Data and Research

- Annual Research Reviews (Monarch Joint Venture)
- Monarch Database Resource Guide (Monarch Joint Venture)
- Trinational Monarch Knowledge Network



EDUCATION

1. Provide educational training and outreach

a. Host, participate in, or support educational events, outreach opportunities, and festivals for participants of various ages and backgrounds.
b. Leverage the latest social science findings to adapt techniques and activities that promote conservation actions and behavior change in event participants.
c. Engage local interested parties to foster diverse event participation and culturally relevant, inclusive programming.
d. Equip educators, instructors, outreach volunteers, and others to share conservation information.
e. Cultivate and utilize education and outreach volunteers and volunteer networks.
f. Share volunteer resources and information across the monarch and pollinator community.
g. Host or support accessible community science trainings.
h. Implement event evaluations to assess and improve engagement and accessibility for future iterations.

2. Develop tailored educational resources

a. Develop or improve education materials (curricula, outreach activities, handouts, virtual resources, etc.).
b. Develop or improve habitat resources (regionally appropriate guides, plant lists, technical guidance, etc.).
c. Develop or improve science interpretive materials (explanations of complex topics, applications of peer-reviewed literature, community science resources, monitoring guides, etc.).
d. Develop or improve informational materials regarding policies or legislative initiatives that impact monarchs and pollinators.
e. Produce detailed information for practitioners and corresponding streamlined information for the public, decision-makers, and policymakers.
f. Ensure educational materials are available in multiple languages and meet other accessibility considerations.
g. Adapt resources to reach and serve local needs, ideas, and cultures.
h. Keep resources up-to-date and easy to access.

3. Share science-based communications

a. Distribute information through various media channels (press releases, interviews, social media, etc.).
b. Share pollinator habitat, conservation, and stewardship success stories.
c. Disseminate key takeaways and plain language summaries of relevant scientific studies and information.
d. Evaluate the outcomes of specific communication approaches and messaging to inform future strategies.
e. Develop "how-to" communications and social media templates, including toolkits, campaigns, and messaging.

4. Utilize habitat areas for education

a. Create pollinator demonstration gardens or habitats across various land-use types.
b. Incorporate local ideas, values, and cultural perspectives into demonstration habitat.
c. Implement interpretive signs or displays.
d. Host events or activities that promote the adoption of demonstrated conservation practices.

Resource List:

Monarch Curricula & Classroom Resources

- Milkweed in the Classroom (Pheasants Forever/Quail Forever)
- Monarchs & More Curriculum (Monarch Joint Venture)
- Monarch SOS app (Naturedigger)
- Symbolic Migration (Monarchs Across Georgia)

Pollinator Curricula & Classroom Resources

- Bee Smart Curriculum (Pollinator Partnership)
- Garden Grants for Educators List (Multiple funders, compiled by MJV)
- Mason Bee Edu (Crown Bees)
- Pollinator Education Toolkit (UMN Bee Lab)

Online Education & Training

- Monarch NECTAR Hub (MJV)
- Monarch Watch Conservation Specialists (Monarch Watch)
- Pollinator Steward Certification (Pollinator Partnership)
- Xerces Ambassadors (Xerces Society)



PARTNERSHIP

1. Recruit and engage new audiences

a. Engage government, community, tribal, and business leaders in monarch and pollinator conservation work and land stewardship.
b. Expand partnerships and opportunities for collaboration with underserved and underrepresented communities, neighborhoods, or audiences.
c. Collaborate with local interested parties to understand barriers and implement solutions to increase participation in monarch conservation activities.

2. Collaborate, exchange information, and share expertise

a. Convene or attend meetings with diverse interested parties (multiple sectors, various levels of decision makers, different backgrounds, etc.)
b. Maintain or participate in sector, topic-based, and/or regional working groups.
c. Engage in international coordination and cooperation across the North American monarch range.
d. Share new information and opportunities to collaborate.

3. Support monarch conservation, research, education, and/or partnership via financial or in-kind contributions

a. Donate financial or in-kind contributions (time, resources, etc.) to conservation organizations.
b. Provide conservation project grant funding.
c. Identify and pursue collaborative funding opportunities within and beyond the monarch community.
d. Diversify funding sources for pollinator conservation work by demonstrating connections between multiple social and environmental issues.
e. Develop fundraising and marketing resources to bring in new and diverse audiences and supporters.

Resource List:

National Initiatives

- Bee City USA (Xerces)
- North American Pollinator Protection Campaign (Pollinator Partnership)
- Operation Pollination (National Park Service)
- Parks and Pollinators (National Recreation and Park Association)
- Pollinator Pledge (Xerces)

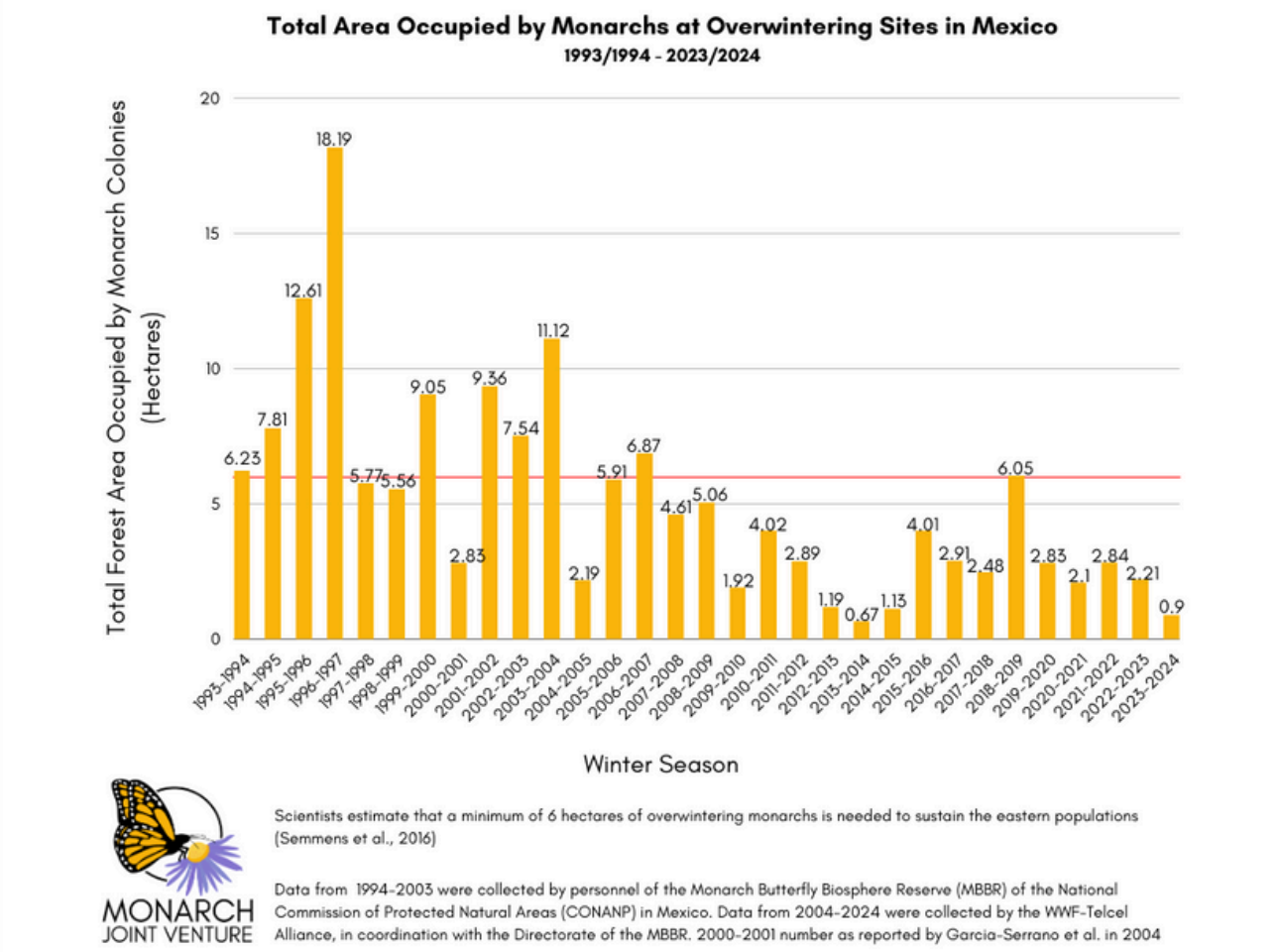
State-Level Collaboratives/Working Groups

- Arkansas Monarch Conservation Partnership
- Iowa Monarch Conservation Consortium
- Missourians for Monarchs
- Nebraska Monarch and Pollinator Initiative
- Ohio Pollinator Habitat Initiative
- Okies for Monarchs
- Wisconsin Monarch Collaborative (Natural Resources Foundation of Wisconsin)

Sector-Specific Working Groups

- Farmers for Monarchs (Keystone Policy Center)
- Right-of-Way as Habitat Working Group (UIC Energy Resources Center)
- SAFE North American Monarch (Association of Zoos and Aquariums)

Appendix A. Population Status



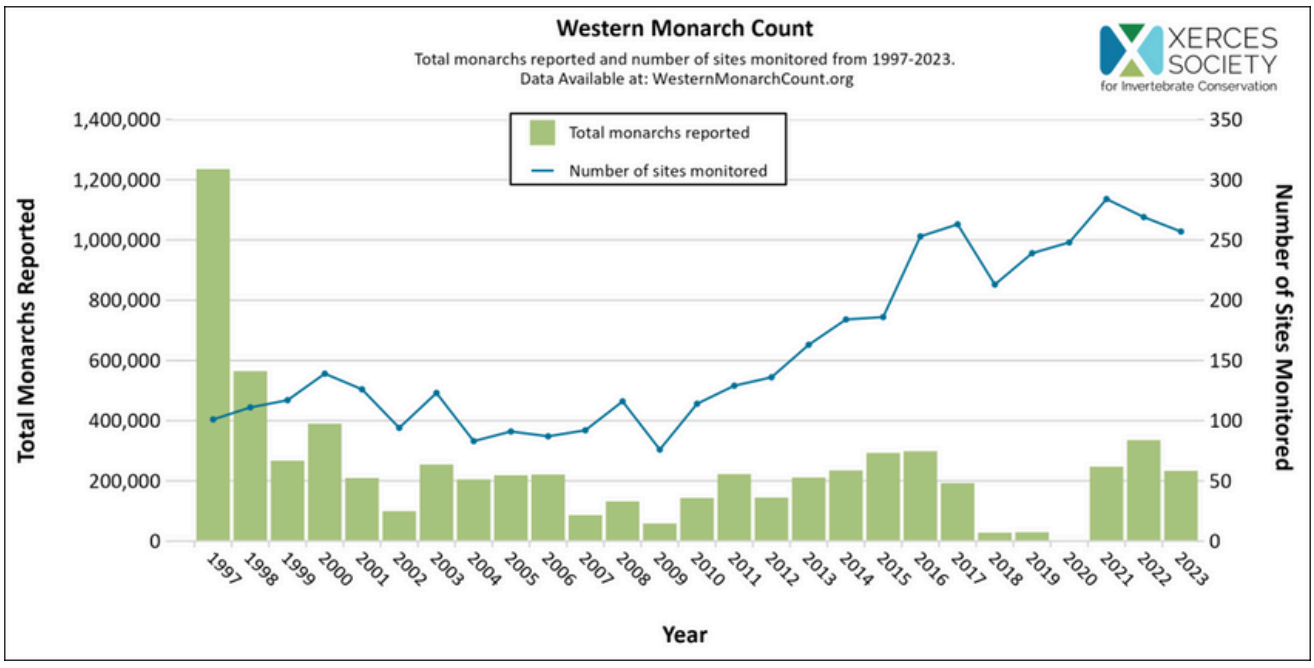


Image 2: Graph of western monarch population numbers from overwintering sites from 1997 - 2023.
Source: Data collected from the Xerces Society's annual Western Monarch Thanksgiving Count.
Graph created by the Xerces Society for Invertebrate Conservation.

Appendix B.
National Monarch Conservation Targets

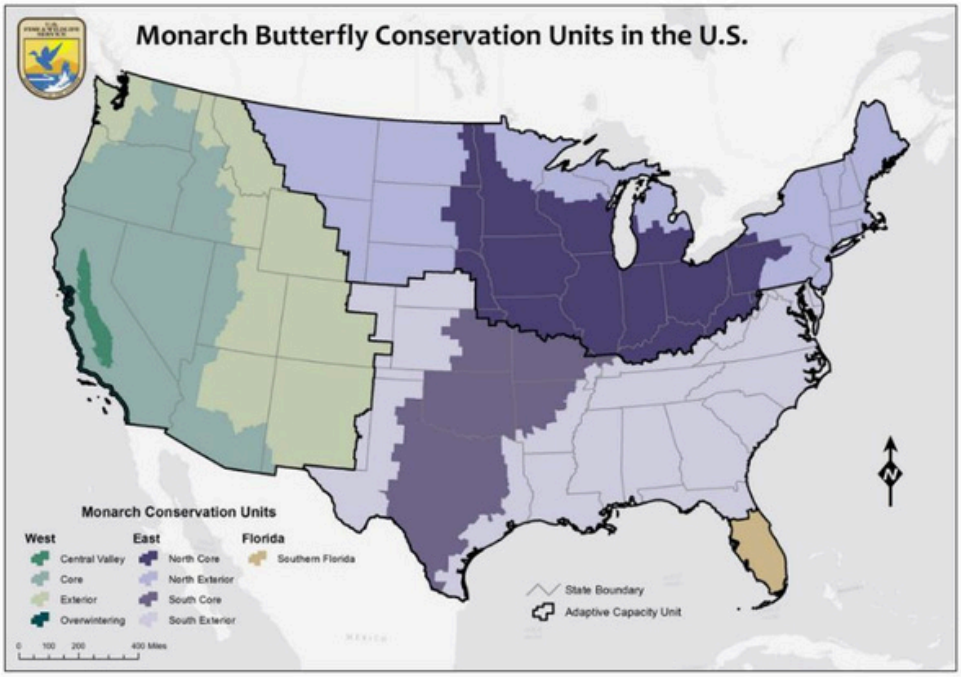


Image 3: Map of monarch butterfly conservation units outlined by the U.S. Fish and Wildlife Service. Source: U.S. Fish and Wildlife Service

Eastern Population Targets:

- Reach and maintain an area of 6 hectares of forest in Mexico occupied by overwintering monarchs by 2020 (Pollinator Health Task Force, 2015).
- Add a minimum of 1.3 billion milkweed stems and abundant nectar resources distributed throughout the North Core monarch breeding area (Midwest Association of Fish and Wildlife Agencies, 2018; Pleasants, 2017; Thogmartin et al., 2017).
- The restoration and enhancement of at least 7 million acres of pollinator-friendly habitat nationally (Pollinator Health Task Force, 2015).
- State milkweed density targets can be found in the Mid-America Monarch Conservation Strategy (Midwest Association of Fish and Wildlife Agencies, 2018).

Western Population Targets:

The *Western Monarch Butterfly Conservation Plan* (Western Association of Fish and Wildlife Agencies, 2019) outlines the following short-term objectives to be reached by 2029:

- Achieve a 5-year running average of 500,000 butterflies counted at 75 sites, with the highest counts during the Western Monarch Thanksgiving Count.
- Create an additional 50,000 acres of monarch-friendly habitat in California's Central Valley and adjacent foothills.
- Establish protection and management for 50% of all currently known and active monarch overwintering sites, including 90% of the most important overwintering sites.

Appendix C.
National Milestones, Goals, and Priorities

Several key milestones have led to the robust development of monarch conservation. Monarch researchers, community science programs, and other conservation groups have been actively working on monarch conservation for decades, with many early programs beginning in the 1990s. Below are more recent highlights:

- In 2008, the North American Monarch Conservation Plan (Commission for Environmental Cooperation, 2008) was released, and the Monarch Joint Venture was formed.
- 2014 brought a few important milestones, including a petition issued to the U.S. Fish and Wildlife Service to consider monarchs for listing, as well as a Presidential Memorandum that included provisions specifically for monarch butterflies.
- In 2015, the U.S. government published a National Strategy to Promote the Health of Honey Bees and Other Pollinators that affirmed the commitment of federal agencies to monarch conservation (Pollinator Health Task Force).
- In 2017, several key research milestones were published through efforts of the Monarch Conservation Science Partnership that were critical in informing conservation strategies and targets, including the "all hands on deck" model developed by Thogmartin et al. (2017).
- In 2020, the US Fish and Wildlife Service (USFWS) determined that listing the monarch butterfly under the Endangered Species Act is warranted but precluded.
- In 2022, The International Union for the Conservation of Nature (IUCN) added migratory monarchs to their Red List as an endangered species; this status was changed to vulnerable in 2023 due to a reevaluation of the data, and is not indicative of a population increase or stabilization.
- The USFS anticipates issuing a final proposed rule for monarchs, if still warranted for listing under the Endangered Species Act, in 2024.

These developments continue to drive monarch conservation efforts forward by engaging broader interest and participation to recover both the eastern and western North American monarch populations.