

STATE FISH AND WILDLIFE AGENCY ACTIVITIES TO BENEFIT THE MONARCH BUTTERFLY



A Report
Commissioned by the
Threatened and Endangered
Species Policy Committee of the
Association of Fish and Wildlife
Agencies



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COVER: Monarch butterfly (*Danaus plexippus plexippus*) on New England Aster (*Symphotrichum novae-angliae*) at Great Bay National Wildlife Refuge, Newington, NH. Photo Credit: Greg Thompson/USFWS. Obtained from: <http://images.fws.gov>

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EXECUTIVE SUMMARY

State fish and wildlife agencies across the United States are engaged in efforts to conserve and restore populations of the Monarch butterfly, *Danaus plexippus plexippus*. This report provides information about the activities of the state fish and wildlife agencies and their partners to benefit this butterfly and its larval, nectaring, and overwintering habitats within the United States. The report provides a brief introduction to Monarch butterfly conservation issues, discusses issues of state authority and Monarch butterfly conservation, provides a synopsis of how the Monarch butterfly is incorporated in the State Wildlife Action Plans, presents information about Monarch butterfly conservation activities in each of 43 states as provided by state fish and wildlife agency staff, and concludes with a list of resources for Monarch butterfly conservation efforts.

An Overview of State Engagement with Monarch Butterfly Conservation Efforts

1. Of the 49 states containing populations of the Monarch butterfly, 45 states and the District of Columbia report some level of engagement in current Monarch butterfly conservation efforts.
2. At least 29 states have included the Monarch butterfly in their State Wildlife Action Plan revisions.
3. At least 19 states and the District of Columbia have included the Monarch butterfly as a Species of Greatest Conservation Need in their revised State Wildlife Action Plans.
4. Some state agencies that lack explicit management authority over butterflies are incorporating Monarch butterfly habitat requirements (particularly larval and/or nectaring habitat) into their broader wildlife habitat management activities.
5. Key funding partners for Monarch butterfly conservation efforts nationwide include the U. S. Fish and Wildlife Service, USDA Natural Resources Conservation Service, U. S. Forest Service, and the National Fish and Wildlife Foundation.
6. Key conservation partners for Monarch butterfly conservation efforts include the U. S. Fish and Wildlife Service, USDA Natural Resources Conservation Service, U. S. Forest Service, National Wildlife Federation, Pheasants Forever, the Xerces Society, and the Pollinator Partnership.

Resource Needs Identified by State Fish and Wildlife Agencies

The following resource needs were identified by state fish and wildlife agency staff who are engaged in Monarch butterfly conservation activities.

- Better technical guidance regarding habitat restoration techniques and approaches for the Monarch butterfly.
- Better guidance regarding the placement and siting of habitat restoration projects for the Monarch butterfly within each state.
- Better information about Monarch butterfly population status and trends in each state.
- Technical assistance in designing restoration plantings for the Monarch butterfly.
- Person-power to implement restoration plantings for the Monarch butterfly.
- Additional funding.



Photo Credit: Rick L. Hansen; from U. S. Fish and Wildlife Service Image Library.

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INTRODUCTION

The Monarch butterfly, *Danaus plexippus plexippus*, is a familiar sight across much of North America. The adult butterfly has been called one of North America's most recognizable insects, with its large size and boldly patterned orange, black, and white coloration. Generations of school children have learned about development, metamorphosis, and the cycles of life by rearing this species through its four life stages, from tiny eggs to brightly striped caterpillars to golden-green chrysalides to the large strikingly colored adult butterflies.

In the mid-1970s, researchers discovered that millions of adult Monarch butterflies from the eastern and central United States overwintered at high-elevation sites in the mountains of Michoacán, México. Each fall, monarchs from the central and eastern United States fly south to this overwintering area, where they form gigantic clusters on trees and vegetation that are estimated to include as many as 50 million butterflies per hectare. In the spring, the overwintered adult butterflies fly north to northern Mexico and southern Texas, where they reproduce. The next two to three generations of butterflies work their way northward as far as south-central Canada over the spring and summer, until fall when the next migratory generation flies south to Mexico. This migration is made even more remarkable by the fact that the individual butterflies that are participating in the southward migration have never been to the migratory sites in Mexico—and in fact can be two to three generations removed. A similar migration is completed each year on the western coast of the United States, with butterflies migrating to Santa Cruz, the Monterey Peninsula, and elsewhere in California.

Beginning in the 1970s, researchers in the United States and Mexico began tracking the size of the overwintering populations in Mexico. From a peak of 21 hectares in the winter of 1996-1997, the area occupied by overwintering Monarch butterflies has shrunk, to a low of 0.67 hectares in the winter of 2013-2014. These declines prompted high-level action to try to save the migratory populations of this butterfly, as well as a petition to list the species as "Threatened" under the U. S. Endangered Species Act. These actions and responses have, in turn, led to new activities by state fish and wildlife agencies and their partners to benefit this iconic species.

NEW CONTEXT FOR STATE FISH AND WILDLIFE AGENCIES

Several key documents have appeared in the past several years that provide important new context and guidance for state fish and wildlife agencies interested in managing populations of the Monarch butterfly. Probably the best-known is President Obama's "Presidential Memorandum – Creating a Federal Strategy to Promote the Health of Honeybees and Other Pollinators." Issued on June 20th, 2014, this memorandum calls for federal and state agency action to stem pollinator declines and specifically identifies the State Wildlife Action Plans as a vehicle for the conservation of the Monarch butterfly and other pollinator taxa (The White House 2014). In 2013, the Heinz Center published a document entitled "Pollinators and the State Wildlife Action Plans: A voluntary guidance document for state fish and wildlife agencies" which synthesized information about butterflies and other pollinators contained in the original State Wildlife Action Plans and provided some initial guidance for states interested in engaging in pollinator conservation efforts. In September, 2014, the Directors of the U. S. state fish and wildlife

agencies unanimously passed a resolution in support of voluntary efforts to conserve the Monarch butterfly at the annual business meeting of the Association of Fish and Wildlife Agencies. In March, 2015, a new memorandum of understanding was signed by AFWA President Larry Voyles and USFWS Director Dan Ashe which encourages the states and USFWS to collaborate on projects that benefit the Monarch Butterflies and other pollinator taxa, including incorporating these species in State Wildlife Action plan revisions. Finally, the recent petition to list the Monarch butterfly as a Threatened species under the U. S. Endangered Species Act has generated considerable interest among states and their partners in voluntary and non-regulatory approaches to conserve this species and other declining pollinators.

ORIGIN AND SCOPE OF THIS REPORT

This report was commissioned by the Threatened and Endangered Species Policy Committee of the Association of Fish and Wildlife Agencies at their meeting in March, 2015. The members of the Committee felt that a report summarizing state efforts to conserve populations of the Monarch butterfly would be a useful contribution to the current discussions about the conservation status of this butterfly. The report is not intended to be an exhaustive catalogue of all state fish and wildlife agency activities to conserve the Monarch butterfly, but rather it is intended to serve as an illustration of the types and diversity of activities that are currently underway to conserve this iconic species.

METHODS

This report was formally commissioned by Chairman Nick Wiley at the meeting of the AFWA Threatened and Endangered Species Policy Committee in March, 2015, with the full concurrence and support of the committee. The commissioning of this report was mentioned by Director Wiley in his report on the activities of the committee at the AFWA Director's Forum in March, 2015.

Three approaches were used to gather information for this report.

First, a notice of AFWA's intent to collect information about state efforts to conserve the Monarch butterfly was sent to all Directors of State Fish and Wildlife Agencies through the Association's "Director's Line" publication in April, 2015.

Second, a set of specific questions about the conservation of the Monarch butterfly and other pollinator taxa were included in the AFWA survey of State Wildlife Action Plan coordinators, conducted in May, 2015. This survey included questions about how and whether the Monarch butterfly was being incorporated in the State Wildlife Action Plan revisions. More information about this survey and the specific questions that were asked is contained in the chapter of this report on the State Wildlife Action Plan revisions. The survey was implemented using an online Survey Monkey web survey instrument. We received responses from 45 states and territories to this survey.

Finally, a detailed questionnaire on monarch conservation activities was sent via e-mail to all 56 Wildlife Diversity Program Managers in each of the U. S. States and territories, with a requested response deadline of June 15, 2015. Completed questionnaires were received from 26 states.

THE MONARCH BUTTERFLY AND STATE AUTHORITY

Under the U. S. federal system of government, the legal authority to manage most of the species of wildlife that live in the United States is vested in the individual U. S. states (Amendment 10, U. S. Constitution: “The powers not delegated to the United States by the *Constitution*, nor prohibited by it to the States, are reserved to the States.”). As public trustees of wildlife, states manage wildlife for their citizens, working to sustaining wildlife populations for future generations (*See Baldwin v. Fish & Game Commission of Montana*, 436 U.S. 371, 386-387, 391 (1978)). Exceptions are those species such as endangered species or migratory waterfowl where federal law has created a special management authority for these species at the federal level and federal and state governments co-manage these species. In the case of species such as the Monarch Butterfly, which are not yet listed under the federal Endangered Species Act, management authority for the species resides with the states.

States may choose to exercise their management authority over wildlife in a variety of ways. All states have established some form of fish and wildlife management agency, either as a stand-alone cabinet-level agency or as a department within a larger natural resource management agency. The management authorities granted to these departments by state statute and regulations differ, however, and not every state wildlife agency has the formal authority to manage insects such as the Monarch butterfly. In some states, insects are managed by the state Department of Agriculture rather than the state wildlife agency. Some states have their own versions of the federal Endangered Species Act that gives the state authority to create a state list of endangered and threatened species, while other states do not.

For state wildlife agencies that do have management authority over insects, it may be appropriate to consider adopting actions that directly benefit the Monarch butterfly, such as listing the butterfly as a Species of Greatest Conservation Need in the state’s State Wildlife Action Plan, or contemplating a possible listing under state threatened and endangered species statutes.

For those states that lack direct management authority over insects, there may still be activities that the state wildlife agency can undertake that will benefit the Monarch butterfly. These measures can of course also be taken by those states that have direct management authority over insects as well. Habitat management work for game species such as pheasants, quail, and wild turkey often includes the planting of native forbs and shrubs, plants that could provide important nectar resources for adult Monarch butterflies. Inclusion of milkweed seeds in the native plant seed mixes used in wildlife habitat restoration projects for other species would also increase the availability of host plants for larval Monarch butterflies. And some states may be comfortable including the Monarch butterfly in their State Wildlife Action Plans even without express management authority, provided it is made clear that the priority species in the Plans also include those of partnering agencies such as the U. S. Fish and Wildlife Service or non-profit partners such as the National Wildlife Federation or Pheasants Forever. The key issue here is whether the state fish and wildlife agency views the State Wildlife Action Plan as a document that reflects solely the agency’s conservation priorities, or whether the document reflects broader conservation priorities within the state. Such decisions are at the discretion of the state fish

and wildlife agency, and different states may make different decisions as to whether or not to include the Monarch butterfly in their State Wildlife Action Plans.

STATE WILDLIFE ACTION PLANS AND THE MONARCH BUTTERFLY

The State Wildlife Action Plans are important tools for the management of wildlife diversity and non-game species in each state. As of 2006, each of the 56 U. S. state and territorial wildlife management agencies has developed a State Wildlife Action Plan. Links to these plans and current information about State Wildlife Action Plan activities in each state can be found at the Teaming with Wildlife website <http://www.teaming.com>

Each of the 56 state and territorial wildlife action plans contains information about the following eight required elements:

1. Information on the distribution and abundance of wildlife, including low and declining populations, that describes the diversity and health of the state's wildlife;
2. Descriptions of locations and relative conditions of habitats essential to species in need of conservation;
3. Descriptions of problems that may adversely affect species or their habitats, and priority research and survey efforts;
4. Descriptions of conservation actions proposed to conserve the identified species and habitats;
5. Plans for monitoring species and habitats, and plans for monitoring the effectiveness of the conservation actions and for adapting these conservation actions to respond to new information;
6. Descriptions of procedures to review the plan at intervals not to exceed 10 years;
7. Coordination with federal, state, and local agencies and Indian tribes in developing and implementing the wildlife action plan; and
8. Broad public participation in developing and implementing the wildlife action plan (AFWA 2012).

In 2006, all 50 states and 6 U. S. territories completed the first set of State Wildlife Action Plans. Of these original 56 plans, 40 mention butterflies, including 230 species and subspecies, as Species of Greatest Conservation Need. However, just three of the original plans (California, Kansas, and the District of Columbia) specifically mention the Monarch butterfly. California's plan mentioned the overwintering sites for the Monarch butterfly on the Monterey Peninsula as a conservation priority. Kansas's inclusion of the Monarch butterfly in its State Wildlife Action Plan appears to have been driven by public interest generated at least in part by the "Monarch Watch" program at the University of Kansas. And the heavily urbanized District of Columbia has small populations of most of its butterfly

species (M. Pfaffko, personal communication: 2014) and thus was one of the few jurisdictions to include many common and widespread butterflies (as of 2005) as Species of Greatest Conservation Need.

Revisions to the State Wildlife Action Plans are due to the U. S. Fish and Wildlife Service by October, 2015. To obtain information about the extent to which states will be including the Monarch butterfly in these revised plans, AFWA staff conducted online surveys of the 56 State Wildlife Action Plan coordinators in the spring of 2015. States had the option of checking one or more boxes describing the way(s) in which the Monarch butterfly was included in their plan. Possible responses included:

The Monarch butterfly is a Species of Greatest Conservation Need in our plan revision.

Twenty respondents checked this option, including Arkansas, Colorado, Connecticut Delaware, the District of Columbia, Georgia, Idaho, Iowa, Kansas, Maine, Minnesota, New Jersey, New Hampshire, Ohio, Oregon, Pennsylvania, Rhode Island, Vermont, Virginia, and Washington.

We mention the Monarch butterfly in our plan revision, but it is not a Species of Greatest Conservation Need. Seven states checked this option, including Massachusetts, Michigan, Mississippi, New Mexico, New York, Vermont, and Wisconsin.

We include habitat requirements for the Monarch butterfly in our habitat chapters. No states checked this option, although several State Wildlife Action Plan Coordinators noted that their activities for other species such as grassland birds or upland game birds would likely also benefit Monarch butterflies.

We include actions to benefit the Monarch butterfly (including habitat restoration) in our plan revision. Seven states checked this option, including Alabama, Maryland, Missouri, Nebraska, Oklahoma, and Rhode Island.

We include plans to monitor Monarch butterfly populations in our plan revision. No states checked this option, although many states subsequently indicated that they are participating in citizen science programs such as Monarch Watch and Journey North, and are interested in participating in larger-scale monitoring efforts for Monarch butterflies.

We are not including the Monarch butterfly in our plan revision. Thirteen states and territories checked this option.

This survey therefore indicates that 29 states have included the Monarch butterfly in some form in their 2015 State Wildlife Action Plan revisions. The actual number of states that include the Monarch butterfly in their plan revisions may be higher, as not all states completed the 2015 AFWA survey.

A 2013 report by The Heinz Center (2013) includes several specific recommendations for state wildlife agencies and partners to promote the conservation of the Monarch butterfly and other insect floral visitors and pollinators in the State Wildlife Action Plans. These recommendations included the following items:

- 1. Highlight and recognize pollinator species already included in the plans.** Many animal pollinator species were included as Species of Greatest Conservation Need in the State Wildlife Action Plans, even though these species may not have been explicitly recognized as pollinators. States could develop educational and outreach materials for pollinator species that are already mentioned as Species of Greatest Conservation Need in their plans and highlight their status as pollinators.
- 2. Highlight and recognize key pollinator habitats already included in the plans.** Certain landscapes support large numbers of native bees, wasps, butterflies, or other pollinator taxa. In particular, sand barrens, early successional woodlands, prairies, grasslands, and wet meadows are important areas of habitat for many pollinator species. Activities that protect or conserve these habitats will likely benefit many pollinator species, including the Monarch butterfly.
- 3. Conduct a status review for one or more pollinator groups.** This action would involve a state-wide review of the conservation status of all species within a particular group of pollinators. The review could be highly formal, as with a species listing process, compiling all available evidence about the population trends in particular pollinator groups. Or the review could utilize an expert judgment approach, basing its conclusions on the current consensus among specialists who are studying pollinators in a particular state. In addition to butterflies such as the Monarch butterfly, one prime group of pollinators which could be reviewed in many states are the bumblebees (Order Hymenoptera, family Apidae, genus *Bombus*). Bumblebees are a good candidate for inclusion in the SWAPs for several reasons. First, there is a relatively modest number of bumblebee species in North America, about 40 species total with a manageable number of species in each state. There are also several excellent field guides already available for the identification of U.S. species of bumblebees prepared by the Xerces Society, Pollinator Partnership, USDA Forest Service, and others. Other possible groups for focus could include carpenter bees, which are important floral visitors and pollinators of many flowering plant species; or feral honeybee colonies, which have experienced recent population declines.
- 4. Identify and emphasize habitat conservation activities that also benefit pollinators.** As with the Monarch butterfly, many Individual pollinator species require specific foraging and nesting habitats in order to maintain their populations. Some natural areas and habitat features such as hedgerows, abandoned fields, dead wood, bare soil or sand, and matured forest trees and shrubs can provide appropriate nesting and/or foraging habitats for multiple pollinator species. These areas could be the focus of land protection, conservation, and restoration efforts that promote healthy pollinator populations. States can also use protected conservation lands such as open spaces, wetlands, and state forests to encourage the growth of pollinator populations.
- 5. Promote the restoration of pollinator habitats in agricultural landscapes.** Through programs of the USDA Natural Resources Conservation Service and agricultural conservation groups, pollinator conservation measures can be implemented in agricultural settings in order to increase pollinator populations. These measures benefit wildlife and native plant species as well as the food crops that receive enough pollination to produce ample crop yields. There are a series of guides available from groups such as the Xerces Society and Pollinator Partnership that can help state wildlife agency personnel and their partners identify pollinator-friendly farming practices that can be implemented on

agricultural lands. Many of these practices also help to create habitat for other organisms such as birds, small mammals, reptiles, and amphibians. In addition, many pollinator-friendly best management practices for pesticide use, water use, and habitat restoration can be utilized by homeowners to promote population growth of various pollinators on their properties.

6. Develop and implement community outreach programs. Existing pollinator education programs developed by the Xerces Society, Pollinator Partnership, and the National Wildlife Federation could be used as models for the development of a statewide pollinator education program.

To these original recommendations we can also now add the development of monitoring programs for Monarch butterflies, including monitoring of larval hostplants, nectaring plants for adults, abundance and distribution of adult and larval butterflies, and the tracking of migratory individuals. Citizen science monitoring programs such as “Monarch Watch” and “Journey North” already exist to track various elements of the Monarch butterfly’s life history. The development of monitoring programs for Monarch butterflies and their host plants is an active area of investigation, and states may choose to integrate some or all of these new and emerging monitoring efforts and monitoring programs into their implementation activities for the State Wildlife Action Plans.



Photo Credit: Mark Musselman; from U. S. Fish and Wildlife Service Image Library

INDIVIDUAL STATE ACCOUNTS

The following sections highlight the activities of state fish and wildlife agencies in each of 43 states to benefit Monarch butterflies and their habitats. The information in these accounts has been provided by the State Wildlife Action Plan Coordinators and/or Wildlife Diversity Program Managers in each state. The draft text for these sections was reviewed again by the Wildlife Diversity Program Managers in August, 2015.



Photo Credit: E. B. Forsythe; from U. S. Fish and Wildlife Service Image Library

ALABAMA

Information provided by Traci Wood, Habitat and Species Coordinator, Alabama Division of Wildlife and Freshwater Fisheries.

According to the 2015 AFWA State Wildlife Action Plan Coordinator Survey, Alabama will be including actions that could benefit the Monarch Butterfly (including habitat restoration) in the revised State Wildlife Action Plan. The state is not otherwise engaged in this issue.

ARIZONA

Information provided by Thomas R. Jones, Acting Nongame Wildlife Branch Chief, Arizona Game and Fish Department.

Arizona Game and Fish Department does not have management authority over insects. Therefore, when the state developed its first iteration of the State Wildlife Action Plan, the Department made a decision to not include insects in the plan.

ARKANSAS

Information provided by Allison Fowler, Wildlife Diversity Program Coordinator, Arkansas Game and Fish Commission.

Arkansas is planning to include the Monarch butterfly in the state's State Wildlife Action Plan revision as a Species of Greatest Conservation Need. The state's non-game or Natural Heritage Program is planning to track information about populations of Monarch butterflies in the state. Arkansas is actively working to restore larval habitat for Monarch butterflies, but has not yet set an acreage target for restoration. The state is engaged in outreach and education efforts regarding Monarch butterfly conservation, with target audiences including schools and the general public. The U. S. Fish and Wildlife Service has been an important partner and funder of Monarch butterfly conservation efforts in Arkansas. Additional needs identified for Monarch butterfly conservation in Arkansas include additional funding, technical assistance in designing restoration plantings, better technical guidance regarding habitat restoration techniques and approaches, and better guidance regarding the placement and siting of habitat restoration projects within the state.

CALIFORNIA

Information contributed by Karen Miner, Nongame Wildlife Program Manager, California Department of Fish and Wildlife.

California reports that the state will be including the Monarch Butterfly in the State Wildlife Action Plan revision. The state Natural Heritage Program currently tracks populations of Monarch butterflies within the state. Key partners for California Department of Parks and Wildlife in Monarch butterfly conservation activities include the U. S. Fish and Wildlife Service, the Xerces Society, California Native Plant Society, and NatureServe. Funding for Monarch butterfly conservation in California has been provided by the State Wildlife Grants Program. Additional resources identified by California include additional funding, better guidance regarding the placement and siting of habitat restoration projects within the state, better information about Monarch butterfly population status and trends within the state, and resources for local partners to develop guidelines for planting appropriate native *Asclepias* host plants and protecting wintering sites. Wintering site issues in California include tension between vegetation management for fire prevention and non-native species control, and protection for documented wintering areas. Most of the overwintering sites occur on coastal State Parks property, but these sites also occur on lands owned by local jurisdictions and private entities. The Department will begin a dialog with our sister agency relative to the Monarch butterfly on State Park property.

COLORADO

Information provided by Eric Odell, Species Conservation Program Manager, Colorado Parks and Wildlife.

According to the 2015 AFWA State Wildlife Action Plan Coordinator Survey, Colorado is planning to include the Monarch butterfly as a Species of Greatest Conservation Need in their State Wildlife Action Plan revision.

CONNECTICUT

Information provided by Jenny Dickson, Connecticut Department of Energy and Environmental Protection Wildlife Division Supervising Biologist and Plan Coordinator.

The Monarch butterfly will be included as a Species of Greatest Conservation Need in Connecticut's State Wildlife Action Plan revision.

DELAWARE

Information provided by Rob Hossler, Wildlife Section Administrator, Delaware Division of Fish and Wildlife.

Delaware submitted comments to the U. S. Fish and Wildlife Service in response to the petition to list the Monarch butterfly under the U. S. Endangered Species Act, and is considering adding the species to its state list of threatened or endangered species. According to the 2015 AFWA State Wildlife Action

Plan Coordinator Survey, the Monarch butterfly will be a Species of Greatest Conservation Need in the forthcoming revision of the State Wildlife Action Plan. The state non-game or Natural Heritage program is planning to track information about populations of Monarch butterflies in the state. Delaware is working with partners to restore larval and nectaring habitat for the Monarch butterfly, but has not yet set acreage goals for restoration. Partners and funding for the state's Monarch butterfly conservation efforts include the U. S. Fish and Wildlife Service. Additional needs identified by Delaware include additional funding, technical assistance in designing restoration planting, better technical guidance regarding habitat restoration techniques and approaches, better guidance regarding the placement and siting of habitat restoration projects, and better information about status and trends in the state.

DISTRICT OF COLUMBIA

Information provided by Bryan King, Associate Director, Fisheries and Wildlife Division, District of Columbia Department of the Environment.

The District of Columbia included the Monarch butterfly as a Species of Greatest Conservation Need in the 2005 Wildlife Action Plan and the species will again be included as a Species of Greatest Conservation Need in the 2015 Wildlife Action Plan.

FLORIDA

Information provided by David Cook, Invertebrate Conservation Coordinator, Species Conservation Planning Section, Florida Fish and Wildlife Conservation Commission (FWC).

Florida submitted comments to the U. S. Fish and Wildlife Service in response to the petition to list the Monarch Butterfly under the U. S. Endangered Species Act. The state is working with partners to restore larval habitat for the Monarch butterfly, but has not yet set an acreage target for habitat restoration. Florida is engaged in outreach and education efforts regarding the Monarch butterfly, targeting the general public. The state indicates that it is participating in programs to monitor Monarch butterfly populations. Key partners for the state include the U. S. Fish and Wildlife Service, Monarch Watch, and the Northwest Florida Water Management District. Funding for Monarch butterfly conservation efforts has been provided through the U. S. Fish and Wildlife Service and internal agency funds. Additional needs identified by Florida include the need for better information about Monarch butterfly populations in the state.

For the last few years, David Cook (FWC) has been involved with a monarch counting and tagging project at St. Marks National Wildlife Refuge, located on the Gulf Coast south of Tallahassee, Florida. This project is coordinated with U. S. Fish and Wildlife Service staff at St. Marks. Volunteers from the public assist with the counting and tagging of monarchs migrating through the area in October and November.

An annual, and very popular, family-oriented event, the Monarch Festival, is held at St. Marks in late October and draws thousands to learn about monarch conservation.

In December, 2014, the Northwest Florida Water Management District (NFWFMD) received funding from U. S. Fish and Wildlife Service as part of the latter's pilot program to establish additional populations of butterfly milkweed (*Asclepias tuberosa*) on conservation lands in the Florida Panhandle to help support monarchs. The target property is a cooperative public wildlife and recreation area in Washington County known as the Fitzhugh Carter Tract of the Econfina Wildlife Management Area (and which NFWFMD refers to as the Sand Hill Lakes Mitigation Bank). FWC staff are cooperating with NFWFMD staff who serve as PIs on the project to establish an additional 3,250 butterfly milkweed plants on 11.89 acres of the property.

GEORGIA

Information provided by Jon Ambrose, Chief of Nongame Conservation, and Mary Pfaffko, Assistant Chief, Nongame Conservation Section, Georgia Wildlife Resources Division.

According to the 2015 AFWA State Wildlife Action Plan Coordinator Survey, Georgia will be including the Monarch butterfly as a Species of Greatest Conservation Need in the next State Wildlife Action Plan revision. The state will also be including actions to benefit the Monarch butterfly in their State Wildlife Action Plan.

HAWAII

Information provided by John P. Vetter, Forest Bird Recovery Coordinator, Hawaii Department of Land and Natural Resources.

Hawaii reports that, while the state does have populations of Monarch butterflies, the species is not native to the state and thus is not part of any active conservation effort at the present time.

IDAHO

Information provided by Beth Waterbury, Salmon Region Wildlife Diversity Biologist, Idaho Department of Fish and Game.

Idaho plans to include the Monarch butterfly in the state's revised State Wildlife Action Plan as a Species of Greatest Conservation Need. Conservation actions proposed in the Idaho SWAP include surveys to identify population distribution, relative abundance, and habitat quality; working with partners to address threats to flyways and breeding habitats; and expansion of public outreach and other

communication networks that support monarch conservation. The State of Idaho is currently engaged in several actions recommended in the 2008 North American Monarch Conservation Plan.

The States of Idaho and Washington, with partner The Xerces Society for Invertebrate Conservation, were recently awarded a multi-state SWAP Enhancement grant to conduct Monarch and milkweed surveys, develop a website to collect and disseminate information on western Monarchs and milkweeds, and develop Monarch and milkweed field training workshops for land managers and citizen scientists. Idaho's Habitat and Botany Programs are collaborating with U. S. FWS and NatureServe to conduct assessments of milkweed sites at Minidoka National Wildlife Refuge during the 2015 field season. These assessments will form the foundation for a geospatial database to populate a habitat suitability modeling project for the western monarch population.

Idaho habitat biologists are actively promoting the use of pollinator practices within the Conservation Reserve Program and advocating for increased use of forbs and diverse plantings to benefit Monarchs and other pollinators through Farm Bill programs. Idaho continues to work with U. S. FWS and USDA Natural Resource Conservation Service (NRCS) to request inclusion of Idaho in the NRCS national pollinator initiative. Idaho is also engaged in Monarch conservation outreach and education efforts on several fronts. In June 2015, staff from Idaho's Wildlife Diversity Program, Monarch Joint Venture, and Xerces Society presented a Monarch butterfly monitoring workshop targeted to citizen scientists.

Idaho's Botany Program plans to develop a guide to the native milkweeds of Idaho in collaboration with U. S. FWS and Xerces Society. The guide will highlight the six species of milkweed native to Idaho, all of which are used as larval host plants for the monarch butterfly. Idaho is also engaged in education and outreach efforts regarding Monarchs and milkweed targeting schools, government agencies, farmers and agricultural producers, cooperative weed management programs, Master Naturalists, and the general public. Funding for Idaho's Monarch butterfly conservation efforts has been provided by the State Wildlife Grants Program, Idaho Nongame Trust Fund, NRCS and Farm Bill programs, and non-profit organization and other private-sector partners. Additional needs identified by Idaho include additional funding, technical assistance in designing restoration planting, better technical guidance regarding habitat restoration techniques and approaches, better guidance regarding the placement and siting of habitat restoration projects, and better information about Monarch butterfly status and trends in the state.

ILLINOIS

Information provided by Ann Holtrop, Chief, Division of Natural Heritage, Illinois Department of Natural Resources.

The state of Illinois will include the Monarch butterfly in their State Wildlife Action Plan revisions. The state is currently working with partners to restore larval habitat as well as nectaring/foraging habitat for the Monarch butterfly, although acreage targets for habitat restoration efforts have not yet been set. In the current state fiscal year, Illinois will spend around \$750,000 in state funds on contracted

stewardship and an undetermined amount of non-contracted resources on habitat restoration, exotic species control, prescribed fire, and hydrological restoration, in order to maintain or enhance habitat. About one-third of all contracted stewardship addresses invasive species in general to offset the impacts to natural communities. Illinois is not specifically targeting Tropical milkweed in the state.

Illinois is also engaged in education and outreach efforts regarding Monarch butterfly conservation. Target audiences include schools and the general public. The state has a schoolyard habitat grant program to create and/or enhance habitat on school grounds as part of an outdoor education. A majority of awarded projects are designed as butterfly or pollinator gardens. There is information on the website about species-hostplant associations for butterflies as well as general information about pollinators including the Monarch butterfly. Last year, in conjunction with the U. S. FWS the state distributed 10,700 packets of milkweed seed to every K – 12 school in Illinois as well as public libraries, Colleges, Universities, Conservation World at the Illinois State Fair and Teachers conferences. Each year, Earth Day in the Park events are sponsored by the IDNR and held at many State Parks where native species are planted and exotic species are controlled. The Division of Education has also created Smart Board lessons specific to Monarch butterflies which are available online.

Illinois has also developed a dedicated Monarch Mania! Web Page:

<http://dnr.state.il.us/education/monarchgen.htm> There are nine video podcasts which can be accessed from the Web page as well as from the agency's podcast page at <http://dnr.state.il.us/education/podcasts.htm> and on iTunes and YouTube.

The U. S. Fish and Wildlife Service has been the primary partner for Monarch butterfly conservation efforts in Illinois. Funding support for Monarch butterfly conservation activities in Illinois has been provided by the U. S. Fish and Wildlife Service, private donations to the Schoolyard Habitat Program, internal agency funds, and the Illinois Wildlife Preservation Fund, a tax-deductible non-game check-off on the Illinois state income tax return.

Illinois DNR does not have a specific Monarch butterfly conservation plan, but many of the agency's recent and ongoing activities benefit all native plants and pollinators as well as the Monarch butterfly. The IDNR Division of Education sponsors educator workshops through the ENTICE program. These workshops offer Professional Development Hours for teachers. Last year, a workshop was held in conjunction with the Chicago Botanic Garden entitled "Monarch Mania." The IDNR also held an Illinois Pollinators workshop and a Monarch / Pollinator webinar. The Division of Natural Heritage maintains many of the highest quality natural communities in the state and restores or recreates hundreds of acres per year. It would be hard to quantify how much of those acres being managed would directly help the Monarch, but a large percentage would benefit pollinators in general.

INDIANA

Information provided by Philip Marshall, State Entomologist, Indiana Department of Natural Resources Division of Entomology and Plant Pathology.

Indiana is considering whether to incorporate the Monarch butterfly in the state's State Wildlife Action Plan revisions, as well as the state's State Forest Management Plan. The state is considering working with partners to restore larval and nectaring habitat for the species, but has not set an acreage target. The state is starting to engage in outreach and education efforts regarding the Monarch butterfly, with target audiences including schools, other government agencies, the general public, Master Gardeners, and farmers and agricultural producers. Current or potential partners include the USDA Natural Resources Conservation Service, U. S. Forest Service, Monarch Watch, Pollinator Partnership, Xerces Society, and the state's Pollinator Protection Plan effort. The state has not yet started activities and thus has not yet obtained financial support. Additional needs identified by Indiana include additional funding, technical assistance in designing restoration planting, person-power to implement restoration plantings, better technical guidance regarding habitat restoration techniques and approaches, better guidance regarding the placement and siting of habitat restoration projects, and better information about Monarch butterfly status and trends in the state.

IOWA

Information provided by Karen Kinkead, Wildlife Diversity Program Coordinator, Iowa Department of Natural Resources.

Iowa reports that the state will be including the Monarch butterfly in the State Wildlife Action Plan revision, and will be proposing inclusion of the species on Iowa's list of Species of Greatest Conservation Need. The revised State Wildlife Action Plan will also include habitat requirements and monitoring plans for all butterfly Species of Greatest Conservation Need, including Monarchs. Monarch butterflies are a species that the state currently surveys through its Multiple Species Inventory and Monitoring Program, but the state does not conduct surveys specifically for Monarchs. Iowa is working with partners to restore both larval habitat and nectaring/foraging habitat, but has not yet set an acreage target for restoration. The State is engaged in efforts to ramp up production of milkweed and add milkweed species to grassland restorations on state lands. The state is engaged in outreach and education efforts regarding the Monarch butterfly, with partners including the County Conservation Boards, NGOs (e.g. Blank Park Zoo and Reiman Gardens) for outreach efforts. Iowa DNR is a partner in the Plant.Grow.Fly initiative established by the Blank Park Zoo. The state provides information to those organizations which then provide information to the target audiences. Iowa is participating in programs to monitor Monarch butterfly populations, and has developed internal management guidelines to benefit the Monarch butterfly. Iowa DNR is developing a specific Landing Page for Monarch butterfly conservation, which would then lead folks to other pages for habitat or monitoring. Key partners for Monarch butterfly conservation activities in Iowa include the U. S. Fish and Wildlife Service, USDA Natural Resources Conservation Service, the Monarch Joint Venture, National Wildlife Federation, Blank Park Zoo, Reiman Gardens, Iowa Monarch Consortium, Iowa's County Conservation Board, Iowa Natural Heritage Foundation, and Pheasants Forever. Funding for Monarch conservation efforts in Iowa has been provided through the State Wildlife Grants Program, U. S. Fish and Wildlife Service, USDA Natural Resources Conservation Service and Farm Bill programs, donations from the Iowa Native Seed Growers

Association, Monarch Joint Venture and other non-profit organizations, and internal agency funds. Additional needs for Monarch conservation in Iowa include additional funding, person-power to implement restoration plantings, increased acres to dedicate to monarch habitat, and better guidance regarding the placement and siting of habitat restoration projects within the state, as related to regional and national priority areas for the species.

The Iowa Monarch Conservation Consortium was established in February, 2015, as a collaboration between numerous Iowa farmer, livestock producer, commodity and conservation organizations, Iowa State University's College of Agriculture and Life Sciences, the Iowa Department of Agriculture and Land Stewardship and the Iowa Department of Natural Resources. The Consortium will take a science-based approach in assisting farmers and communities in enhancing monarch butterfly reproduction.

Objectives of the research component include:

1. Develop cost-effective methods to establish and maintain milkweed species and companion flowering plants,
2. Determine breeding habitat characteristics that influence the success of monarch reproduction, and
3. Refine survey techniques to assess performance of the conservation program.

The consortium's extension and outreach program will draw upon all the member organizations to ensure the broad delivery of practical, science-based information on monarch butterfly conservation practices for Iowa's landscapes. The Consortium's website can be found at

<http://monarch.ent.iastate.edu/>

KANSAS

Information provided by Chris Berens, Ecologist, Ecological Services Section, Kansas Department of Wildlife, Parks, and Tourism (KDWPT).

Kansas reports that the Monarch butterfly was listed as a Species of Greatest Conservation Need (SGCN) within the state's State Wildlife Action Plan (SWAP) in 2005 and will remain in the plan through the forthcoming revision. A total of 25 insect species (bees, butterflies, moths, beetles) are designated as SGCN in Kansas due to endemic status and/or population status (listing status) within Kansas and the species range.

The state is working with partners to restore larval habitat and nectar foraging habitat for the Monarch butterfly, but has not set an acreage target for habitat restoration. KDWPT is establishing "Monarch Butterfly Waystations" on 14 KDWPT State Parks and at KDWPT owned/operated Nature Centers. Both KDWPT public land managers and KDWPT private lands biologist/ecologist are working on habitat restoration, exotic/invasive species control, prescribed fire, and other grassland management practices

in order to maintain or enhance habitat. These efforts will be conducted on both lands owned by KDWPT (State Wildlife Areas) and lands held under private ownership.

KDWPT is engaged in outreach and education efforts to benefit the Monarch butterfly with targeted audiences such as schools, the general public, Master Gardeners, other governmental agencies. The state reports that it is participating in programs to monitor Monarch butterfly populations by hosting and providing locations for Monarch butterfly tagging in conjunction with Monarch Watch. At one KDWPT Nature Center, an enclosed butterfly house exhibit is very popular with the public. This butterfly house provides live butterfly stock of monarch, painted ladies, and black swallowtails and highlights the importance of host plants, nectar sources for adults, and water sources that are located throughout the house. The KDWPT education section also provides the Outdoor Wildlife Learning Sites program that grants funds to schools to develop outdoor wildlife labs usually consisting of demonstration plots of native wildflowers and grasses as well as other native habitat features.

KDWPT using funds from Chickadee Checkoff has supported field studies on the status of several native pollinator Species of Greatest Conservation Need as designated by the state's State Wildlife Action Plan (SWAP). As part of these studies KDWPT and partners intend to produce a current list (1,786 species 1596 moths, 190 butterflies) of all species of Lepidoptera documented in Kansas from 1872 to date. Once the collecting, identification, and analysis of the species are complete this data will then be used to produce an on-line atlas of all species with data relating to geographical, ecological, and temporal distribution, "relative" abundance and flight periods. In addition, other studies are assessing the status of native pollinator, wildflower, and wildlife habitat quality responses to rangeland management practices (patch-burn grazing) in the Flint Hills ecoregion of Kansas.

Key partners in Kansas Monarch butterfly conservation include U.S. Fish and Wildlife Service, USDA Natural Resources Conservation Service, Midwest Association of Fish and Wildlife Agencies, Association of Fish and Wildlife Agencies, Pheasants Forever, Monarch Watch, National Wildlife Federation, Kansas Wildlife Federation, private donations to Chickadee Checkoff, private landowners and many other conservation partners too numerous to mention.

LOUISIANA

Information provided by Amity Bass, Louisiana Natural Heritage Program Manager, Louisiana Department of Wildlife and Fisheries.

The Monarch butterfly will be included in Louisiana's revised State Wildlife Action Plan. The state's non-game or natural heritage program currently tracks information about populations of the Monarch butterfly in Louisiana. Additional needs identified by Louisiana for Monarch conservation include additional funding and data about the status and trend of Monarch butterfly populations within the state. Conservation actions recommended in the 2015 Louisiana SWAP are focused primarily on providing habitat for both larval and adult Monarchs. Funding for such efforts may be provided via traditional State Wildlife Grants or the Competitive State Wildlife Grants Program.

MAINE

Information provided by Phillip deMaynadier, Wildlife Biologist, Research Assessment Section, Maine Department of Inland Fisheries and Wildlife.

According to the 2015 AFWA State Wildlife Action Plan Coordinator Survey, Maine will be including the Monarch butterfly as a Species of Greatest Conservation Need in the next State Wildlife Action Plan revision. Planned conservation measures for the Monarch in Maine (to date) include the completion of a statewide butterfly atlas that will provide some baseline data on the distribution and relative abundance of the Monarch and public outreach measures (talks and press releases) on rare butterflies and Monarch declines. Key partners for Monarch butterfly conservation in Maine include the U. S. Fish and Wildlife Service, Colby College and the University of Maine at Farmington. Funding for Monarch butterfly conservation in Maine has been provided through the U. S. Fish and Wildlife Service and the State Wildlife Grants Program, and internal agency funds. Additional needs identified for Monarch butterfly conservation in Maine include better technical guidance regarding habitat restoration techniques and approaches, better guidance regarding the placement and siting of habitat restoration projects within the state, and better information about Monarch butterfly population status and trends in Maine.

MARYLAND

Information provided by Jonathan McKnight, Associate Director, Natural Heritage Program, Maryland Wildlife and Heritage Service, and Ingrid Brofman, State Wildlife Action Plan Coordinator, Maryland Department of Natural Resources.

According to the 2015 AFWA State Wildlife Action Plan Coordinator Survey, the forthcoming revision of the Maryland State Wildlife Action Plan will include actions to benefit the Monarch butterfly, such as habitat restoration. The state will significantly expand ongoing efforts to increase available habitat for Monarch butterflies by creating patches of milkweed habitat (monarch breeding areas) and patches of general pollinator habitat (monarch foraging areas) on state-owned lands in the coastal migration corridor, both on the Coastal Plain and in the mountainous regions of the state. Existing open-area habitat will be enhanced using local milkweed species and ecotypes as well as local species and ecotypes of nectar plants, particularly those that flower during the fall migration. In addition, data collection efforts will be enhanced in the state in order to fully assess the status of the species in Maryland and focus future habitat improvement efforts in the most important areas. The monarch has been listed as a Species of Greatest Conservation Need in Maryland.

MASSACHUSETTS

Information provided by John O'Leary, State Wildlife Action Plan Coordinator, Massachusetts Division of Fisheries and Wildlife.

According to the 2015 AFWA State Wildlife Action Plan Coordinator Survey, the Monarch butterfly will be mentioned in the next edition of Massachusetts' State Wildlife Action Plan, although it is not a Species of Greatest Conservation Need.

MICHIGAN

Information provided by Amy Derosier, Wildlife Action Plan Coordinator, and Dan Kennedy, Endangered Species Coordinator, Michigan Department of Natural Resources Wildlife Division.

Michigan reports the Monarch butterfly is included in the revised State Wildlife Action Plan as a Species of Greatest Conservation Need. Michigan is working with partners on improving and restoring habitat for the Monarch butterfly, other pollinators and grassland birds. In southern Michigan the DNR is partnering with Pheasants Forever, Michigan United Conservation Clubs, U.S. Fish and Wildlife Service, Michigan Department of Agriculture and many Conservation Districts to implement the Pheasant Restoration Initiative. This Initiative promotes the establishment and maintenance of large blocks of grasslands to restore pheasant, grassland bird and pollinator habitat. Additionally, Michigan DNR staff works cooperatively with the U.S. Department of Agriculture to deliver pollinator friendly Farm Bill programs to agricultural producers interested in managing wildlife habitat. Lastly, Michigan uses State Wildlife Grant and competitive State Wildlife Grant funds to manage grasslands, barrens and savannas for pollinators and grassland sensitive bird species. Michigan has not set acreage goals for Monarch butterfly restoration; however, the above listed programs and initiatives allow our staff flexibility to restore larval and adult Monarch butterfly habitat.

Staff from the Michigan DNR will attend the Midwest Association of Fish and Wildlife Agencies sponsored Monarch workshop in Des Moines, Iowa in October 2015. Staff from the Midwestern states will share recent research findings, discuss how to organize a Monarch butterfly and pollinator summit, and develop a model for state Monarch butterfly and pollinator conservation. Additional needs include: 1) a better understanding of Monarch butterfly and milkweed distribution and abundance and 2) improved technical guidance regarding where to focus and implement habitat restoration projects to maximize benefits for Monarch butterfly and pollinator conservation.

MINNESOTA

Information provided by Faith Balch, Minnesota Wildlife Action Plan Coordinator, Division of Ecological and Water Resources, Greg Hoch, Division of Fish and Wildlife, and Ed Quinn, Division of Parks and Trails, Minnesota Department of Natural Resources.

Minnesota reports that the Monarch butterfly will be included in the revised State Wildlife Action Plan as a Species of Greatest Conservation Need. The state is working with partners to restore both larval habitat and nectaring/foraging habitat for the Monarch butterfly, but has not yet set an acreage target for restoration. Minnesota DNR has a very active invasive species program which may be used to target invasive species that are threatening the Monarch butterfly. The state is actively engaged in outreach and education efforts regarding the conservation of the Monarch butterfly, focusing on the general public as well as farmers and agricultural producers. Key partners include the U. S. Fish and Wildlife Service Region 3 federal monarch initiative, and the Monarch Joint Venture.

Minnesota DNR has developed pollinator Best Management Practice (BMP) and DNR staff are currently reviewing the Department's farming practice BMP to make it more sustainable. Greg Hoch, Division of Fish and Wildlife, Minnesota DNR recently gave a national webinar to the Monarch Joint Venture on restoration practices and also published an article in Pheasants Forever's magazine about Monarch butterflies: <https://sustainabilityatculver.files.wordpress.com/2015/05/pf-monarch-article.pdf> Restoration practices developed by Minnesota DNR often include 60 or more forb species, including milkweeds as well as dozens of nectar plants.

The Division of Parks and Trails reconstructs on average about 525 acres of diverse tallgrass prairie annually. Plantings typically include 25-35+ species of forbs, many of which can serve as nectaring sites for Monarchs. Over time, additional native forbs are inter-planted or colonize the sites. Overall, the division manages approximately 16,550 acres of remnant and restored prairie with a goal of 28,604 acres in the future based on our existing land base. Within this acreage are a variety of milkweed species which provide larval habitat for Monarch butterflies. The Division controls invasive species on about 9,000 acres per year to insure that Parks and Trails lands sustain high quality native plant communities. The Division's Conservation Education staff interact with approximately 220,000 people annually through over 7,000 programs and tours. Among those programs are several that include Monarchs and other insects such as Bugs & Blooms, Buzz about Bees, Monarch Butterfly tagging and The Monarch Butterfly.

MISSISSIPPI

Information provided by Kathy Shelton, Conservation Resources Management Biologist, Mississippi Museum of Natural Science, Mississippi Department of Wildlife, Fisheries, and Parks.

According to the 2015 AFWA State Wildlife Action Plan Coordinator Survey, the Monarch butterfly will be mentioned in the next edition of Mississippi's State Wildlife Action Plan, although it is not a Species of Greatest Conservation Need.

MISSOURI

Information provided by Kelly Rezac, Wildlife Diversity Coordinator, Missouri Department of Conservation.

The state of Missouri submitted comments to the U. S. Fish and Wildlife Service in response to the petition to list the Monarch butterfly under the Endangered Species Act. Missouri will be including actions to benefit the Monarch butterfly in their State Wildlife Action Plan revision and is exploring ways in which it might be effectively tracked. The state is working with partners to restore larval habitat as well as nectaring/foraging habitat but has not set acreage goals for restoration. Missouri is engaged in outreach and education efforts regarding the Monarch butterfly, with target audiences including schools, other government agencies, the general public, Master Gardeners, and farmers and agricultural producers. The state reports that it is participating in programs to monitor the Monarch butterfly. An article about state conservation efforts for the Monarch butterfly appears in the June, 2015, issue of the Missouri Conservationist: <http://mdc.mo.gov/sites/default/files/magazine/2015/05/20150601.pdf> (pp. 7-8). Key partners for Monarch butterfly conservation in Missouri include the U. S. Fish and Wildlife Service, USDA Natural Resources Conservation Service, National Wildlife Federation, Missouri Prairie Foundation, Quail Forever, and the Conservation Foundation of Missouri. Funding for Monarch butterfly conservation in Missouri has been provided by the U. S. Fish and Wildlife Service, USDA Natural Resources Conservation Service and Farm Bill programs, and internal agency funds. Missouri is hoping to tap into additional conservation resources through the Conservation Reserve Program and the National Fish and Wildlife Foundation. Missouri also recently hosted a statewide conservation strategy session bringing together a broad spectrum of conservation partners to discuss the conservation of the Monarch butterfly and other pollinator species (see flyer on next page).

A Collaborative Strategy to Benefit Monarchs and Pollinators of Missouri



As a leader in monarch butterfly and pollinator conservation, you are invited to participate in the development of Missouri's first statewide monarch conservation strategy.

University of Missouri - Columbia

July 13 at 1:00 - 5:00 p.m.

July 14 at 8:00 - 4:00 p.m.

In recent decades, populations of monarch butterfly and many pollinators have greatly plummeted. Conservation agencies and groups in Missouri, and around the country, are working hard to create and enhance habitats for monarchs and pollinators. However, there is no holistic statewide strategy to enhance those efforts.

On July 13-14, the Conservation Federation of Missouri, Missouri Prairie Foundation, National Wildlife Federation and the Missouri Department of Conservation are inviting representatives from agencies, NGOs, businesses, land owners and others to gather in Columbia, MO. The focus is not on national level policy issues, but rather developing a statewide blueprint/strategy for sustainable habitat enhancement to assist in the recovery of monarchs and pollinators in Missouri. This facilitated meeting will focus on three primary outcomes:

- *To set goals for monarch and pollinator habitat efforts in the state including strengthening existing work, identifying gaps and prioritizing actions.*
- *To create a holistic and coordinated statewide strategy for supporting monarch and pollinators.*
- *To develop a collaborative effort to attract resources needed to the state's monarch populations, while boosting populations of all pollinator species.*



Please RSVP to LColeman@confedmo.org by July 8.

A follow-up email will be sent with additional location and hotel information once you send in your RSVP.

This meeting is **BY INVITATION ONLY** because of the need to keep the planning process manageable. If you would like to request additional invitations for your organization, please contact LColeman@confedmo.org.

Thank you to the many sponsors who are making this meeting possible:



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HOWARD WOOD & NICOLE WOOD

MONTANA

Information provided by Lauri Hanauska-Brown, Nongame Wildlife Management Bureau Chief, Montana Fish, Wildlife & Parks.

During the initial planning stages, the Montana Fish, Wildlife & Parks (FWP) State Wildlife Action Plan (SWAP) Steering Committee decided that the revised plan would not include Montana's invertebrate species. With nearly 1,000 species of aquatic invertebrates in the state, and at least twice that number of terrestrial invertebrates, it is impossible at this point in time to develop a plan to comprehensively address invertebrate conservation in Montana. FWP and most of the partner agencies and organizations do not have the ability, capacity, or funding to properly address invertebrates and include them in this SWAP. Because Montana's SWAP addresses conservation actions using a landscape or habitat approach, many invertebrates will benefit from actions taken.

Montana's Natural Heritage Program is currently updating their online "Field Guide" with photos and species information for all invertebrate pollinators, including butterflies and moths. The Monarch Butterfly will be one of the first to be updated.

Montana has identified a need for person-power and additional funding in order to implement restoration plantings for Monarch butterflies.

NEBRASKA

Information provided by Kristal Stoner, Wildlife Diversity Program Manager, Nebraska Game and Parks Commission.

According to the 2015 AFWA State Wildlife Action Plan Coordinator Survey, the forthcoming revision of the Nebraska State Wildlife Action Plan will include actions to benefit the Monarch butterfly, such as habitat restoration.

NEVADA

Information provided by Jennifer Newmark, Wildlife Diversity Division Administrator, Nevada Department of Wildlife.

Nevada Department of Wildlife is not currently working on Monarch butterfly conservation as the agency does not typically focus on invertebrates. The Nevada Natural Heritage Program is evaluating whether the status of Monarch butterflies warrants tracking on their list, and will also be evaluating the conservation rank for the species within the state. In general, NDOW is working on habitat

improvements throughout the state that address issues such as non-native weeds and pinyon-juniper expansion; presumably, these efforts would also benefit Monarch butterflies. That being said, we have no current specific projects targeting Monarchs. Nevada's Wildlife Action Plan revision is complete and therefore will not include Monarchs as a Species of Conservation Priority.

NEW HAMPSHIRE

Information provided by John Kanter, Nongame and Endangered Wildlife Program Coordinator, and Emily Brunkhurst, Conservation Biologist, New Hampshire Fish and Game Department.

According to the 2015 AFWA State Wildlife Action Plan Coordinator Survey, New Hampshire will be including the Monarch butterfly as a Species of Greatest Conservation Need in the next State Wildlife Action Plan revision.

NEW JERSEY

Information provided by David Jenkins, Chief, Bureau of Endangered and Non-game Species, New Jersey Division of Fish and Wildlife.

According to the 2015 AFWA State Wildlife Action Plan Coordinator Survey, New Jersey will be including the Monarch butterfly as a Species of Greatest Conservation Need in the next State Wildlife Action Plan revision. However, the species will not be a "focal species" in the New Jersey State Wildlife Action Plan revision, meaning that there will not be actions in the plan specifically directed at Monarchs. New Jersey completed a status review of Lepidoptera in the state in January, 2015, and the expert panel concluded that the Monarch butterfly should be considered a species of special concern (i.e. just below "threatened"). New Jersey Division of Fish and Wildlife is working primarily on our own state lands (Wildlife Management Areas and State Parks/Forests) to incorporate milkweed and nectaring plants into management of fields. We are aware of partners (U. S. Fish and Wildlife Service, The Nature Conservancy, New Jersey Audubon Society) incorporating Monarch butterfly requirements into the management of lands that they administer. New Jersey Audubon Society is distributing larval and nectar plants from some of their nature centers, and the Monarch Joint Venture is working with Duke Farms in New Jersey to propagate and distribute plants. Although New Jersey Division of Fish and Wildlife is not directly involved in outreach and education efforts concerning Monarchs, other partners in the state such as New Jersey Audubon Society are engaged in such efforts. Likewise, although the state is not directly involved in the monitoring of Monarch butterflies, New Jersey Audubon Society has had a Monarch butterfly monitoring program at Cape May, New Jersey, for over 25 years (<http://www.njaudubon.org/SectionCapeMayBirdObservatory/MigrationMonitoringProjects/MonarchMonitoringProject.aspx>). Funding for Monarch butterfly conservation activities in New Jersey has come from internal agency funds such as Corporate Business Tax funds and mitigation funds for habitat work on state lands. Additional needs identified for Monarch butterfly conservation in New Jersey include

additional funding and person-power to implement restoration plantings. Finally, at least two bills have been introduced into the New Jersey Legislature to address Monarch butterfly conservation issues.

NEW MEXICO

Information provided by Matthew Wunder, Chief, Conservation Services Division, New Mexico Game and Fish Department.

According to the 2015 AFWA State Wildlife Action Plan Coordinator Survey, the Monarch butterfly will be mentioned in the next edition of New Mexico's State Wildlife Action Plan, although it is not a Species of Greatest Conservation Need.

NEW YORK

Information provided by Joe Racette, New York State Wildlife Action Plan Coordinator, New York State Department of Environmental Conservation.

According to the 2015 AFWA State Wildlife Action Plan Coordinator Survey, the Monarch butterfly will be mentioned in the next edition of New York's State Wildlife Action Plan, although it is not a Species of Greatest Conservation Need.

NORTH DAKOTA

Information provided by Sandra Johnson, Conservation Biologist, North Dakota Game and Fish Department.

North Dakota will include the Monarch butterfly in the state's State Wildlife Action Plan revision. The state is currently working with partners to restore nectaring and foraging habitat for Monarch butterflies, but has not yet set an acreage target for restoration. Key partners for Monarch butterfly conservation in North Dakota include the USDA Natural Resources Conservation Service, Pheasants Forever, and the North Dakota Beekeeping Organization. Funding for Monarch butterfly conservation in North Dakota has been provided by the USDA Natural Resources Conservation Service and Farm Bill programs, private-sector partners, internal agency funds, and the North Dakota Outdoor Heritage Fund. Additional needs identified by North Dakota include additional funding, technical assistance in the design of restoration plantings, person-power to implement restoration plantings, better technical guidance regarding habitat restoration techniques and approaches, better information about Monarch butterfly population status and trends in the state, and better coordination of efforts between state and federal agencies.

Common Milkweed (*Asclepias syriaca*) and Showy Milkweed (*Asclepias speciosa*) are referred to as Invasive or Troublesome weeds by the North Dakota Department of Agriculture. There are six counties

in North Dakota which have added Common Milkweed to their individual county and city noxious weed list. It has been suggested that milkweed be added to the list of noxious weeds in North Dakota. The widespread mindset that milkweed should be controlled or eliminated presents a challenge for Monarch butterfly conservation in North Dakota.

OHIO

Information provided by Kendra Wecker, Wildlife Diversity Coordinator, Ohio Division of Wildlife.

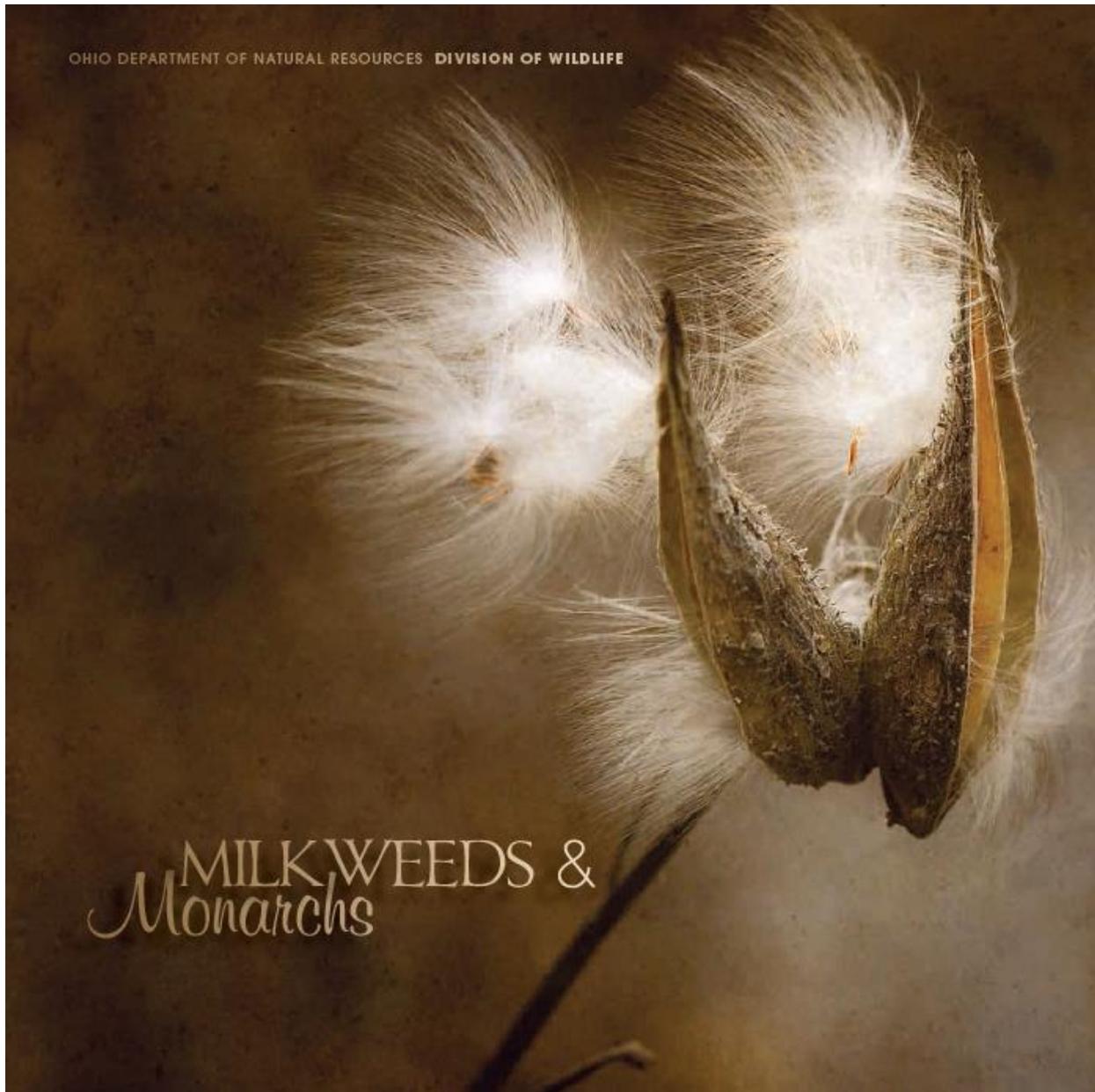
Ohio has produced a beautiful report, Milkweeds and Monarchs, which is available for download for free at:

<http://wildlife.ohiodnr.gov/portals/wildlife/pdfs/publications/id%20guides/Milkweeds&Monarchs.pdf>

Ohio will include the Monarch butterfly in the state's State Wildlife Action Plan revision as a Species of Greatest Conservation Need. The state Wildlife Diversity Program currently tracks information about the Monarch butterfly in the state. Ohio is working with partners to restore larval and nectaring/foraging habitat, but has not yet set an acreage goal for restoration. The state is engaged in outreach and education efforts to benefit the Monarch butterfly, with target audiences including other government agencies, the general public, Master Gardeners, farmers and agricultural producers, the Department of Transportation, and American Electric Power. Partners in the state's Monarch butterfly conservation activities include the U. S. Fish and Wildlife Service, USDA Natural Resources Conservation Service, Monarch Watch, Pollinator Partnership, Ohio Lepidopterists, Ohio Pollinator Habitat Initiative, Pheasants Forever, and The Ohio State University Extension Service. Funding for Ohio's Monarch butterfly conservation efforts has been provided by the U. S. Fish and Wildlife Service, USDA Natural Resources Conservation Service and Farm Bill funding, and internal agency funds. Additional needs identified by Ohio include additional funding, technical assistance in designing restoration planting, person-power to implement restoration plantings, better technical guidance regarding habitat restoration techniques and approaches, and better guidance regarding the placement and siting of habitat restoration projects in the state.



Photo Credit: S. Ron Singer; from U. S. Fish and Wildlife Service Image Library



OKLAHOMA

Information provided by Mark Howery, Wildlife Diversity Biologist, Oklahoma Department of Wildlife Conservation.

According to the 2015 AFWA State Wildlife Action Plan Coordinator Survey, the forthcoming revision of the Oklahoma State Wildlife Action Plan will include actions to benefit the Monarch butterfly, such as habitat restoration.

OREGON

Information provided by Andrea Hanson, Oregon Conservation Strategy Coordinator, Oregon Department of Fish and Wildlife.

According to the 2015 AFWA State Wildlife Action Plan Coordinator Survey, Oregon will be including the Monarch butterfly as a Species of Greatest Conservation Need in the next State Wildlife Action Plan revision.

PENNSYLVANIA

Information provided by Michael Pruss, Private Lands Chief, Pennsylvania Game Commission.

According to the 2015 AFWA State Wildlife Action Plan Coordinator Survey, Pennsylvania will be including the Monarch butterfly as a Species of Greatest Conservation Need in the next State Wildlife Action Plan revision.

Pennsylvania Game Commission (PGC) provides conservation planning assistance to the Pennsylvania offices of the Natural Resources Conservation Service, including developing conservation plans for private landowners for pollinator habitat plantings. The agency also provides use of 28 no-till seed drills to plant native grass and pollinator mixes free of charge to landowners enrolled in any USDA conservation program. Over 46,000 acres of native grass and forb plantings have been established through a variety of these programs in Pennsylvania.

Through the Voluntary Public Access and Habitat Improvement Program, PGC provides private landowners who are enrolled in the Hunter Access Program free habitat project improvements. This program has established over 6,000 acres of habitat in over 100 projects on private lands, many of which created herbaceous openings or include herbaceous plantings that benefit pollinators, including the Monarch butterfly.

The PGC manages thousands of acres of herbaceous and shrub openings through various practices, including mowing, burning and sharecropping. The state is evaluating its current practices to maximize the benefits to a wide range of disturbance dependent and associated species, including pollinators, Monarchs and other insects that contribute to the food base for a long list of bird and mammal species.

The states is collecting information and data on habitat management of herbaceous openings and the most appropriate timing of disturbance and monitoring techniques to evaluate the success of the treatments and the effects on dependent species, including Monarch butterflies. Agency staff are developing specific habitat and species monitoring protocols informed by this data to monitor our habitat projects targeting pollinator species.

The PGC was awarded two grants from the USFWS for 200 acres of Monarch butterfly habitat improvement on a Hunter Access property with great outreach potential, within 15 miles of a large

metropolitan center, associated with a large animal park, and adjacent to an existing State Game Land that is already focused on native herbaceous management.

RHODE ISLAND

Information provided by Amanda Freitas, Rhode Island Wildlife Action Plan Community Liaison, Rhode Island Division of Fish and Wildlife.

According to the 2015 AFWA State Wildlife Action Plan Coordinator Survey, Rhode Island has included the Monarch butterfly as a Species of Greatest Conservation Need in its 2015 State Wildlife Action Plan revision. Rhode Island has also included actions to benefit the Monarch butterfly in their revised State Wildlife Action Plan, such as recommendations for habitat restoration, increasing the supply of and demand for locally-sourced milkweed plants and seed; expansion of monitoring programs and research to better understand conservation issues and improve the success of habitat restoration efforts; policies and regulations restricting the use of herbicides in situations that can impact populations of plants important to pollinators; and education and outreach to spread awareness of the effects of herbicides and other pesticides on pollinators and other non-target organisms and methods to create and enhance pollinator habitats.

SOUTH CAROLINA

Information provided by John W. (Billy) McCord, South Carolina Dept. of Natural Resources.

South Carolina Department of Natural Resources was contacted early in 2015 by the Coastal Program of the US Fish and Wildlife Service (USFWS) office in Charleston, SC to inquire as to whether there were any monarch butterfly research needs for coastal SC. The local USFWS Coastal Program and the SCDNR entered into a Cooperative Agreement to be initiated in fall 2015 and winter 2015-2016. The Cooperative Agreement is titled "Cooperative Winter Tagging Study of Migratory Monarch Butterflies in South Carolina". The federal financial assistance for the cooperative study is sufficient only to essentially support the purchase of supplies and travel by SCDNR employees, with minimal contribution to salaries of SCDNR employees. The cooperative study has two primary objectives that will hopefully be achieved through the recruitment and training of volunteers to capture and tag monarch butterflies at various sites along the SC coast from mid-November 2015 through mid-April 2016.

The first project objective is to better document the distribution of wintering by monarch butterflies along the South Carolina coast by having project participants tag as many monarchs as is practical at various sites. The second goal is to attempt to obtain, primarily through recoveries of tagged monarchs, information on the presumed spring dispersal of monarchs that survive winter. There are currently no data related to the spring dispersal and breeding of monarchs that survived winter anywhere along the South Carolina coast.

SOUTH DAKOTA

Information provided by Eileen Dowd Stukel, Wildlife Diversity Coordinator on behalf of South Dakota Game, Fish and Parks Department.

South Dakota reports that the state is currently working with partners to restore larval habitat and nectaring/foraging habitat for the Monarch butterfly, although the state has not yet set an acreage goal for restoration. The state is engaged in outreach and education efforts regarding the Monarch butterfly, with target audiences including schools, other government agencies, the general public, Master Gardeners, and farmers and agricultural producers. South Dakota is participating in programs to monitor Monarch butterfly populations. Key partners for South Dakota's Monarch butterfly conservation efforts include the U. S. Fish and Wildlife Service, USDA Natural Resources Conservation Service, Pheasants Forever and Monarch Watch. Funding for Monarch butterfly conservation efforts in South Dakota has been provided by the U. S. Fish and Wildlife Service, Pheasants Forever and internal agency funds. Additional needs identified in South Dakota include technical assistance in designing restoration planting, person-power to implement restoration plantings, better technical guidance regarding habitat restoration techniques and approaches, and better guidance regarding the placement and siting of habitat restoration projects.

Specific efforts include the establishment of a "South Dakota Prairie Butterfly Garden" at a state recreation area near Pierre - Oahe Downstream Recreation Area. The garden was established in cooperation with the U.S. Fish and Wildlife Service, South Dakota State University Extension and volunteer help, with a grant from the USFWS' Let's Go Outside Fund. This demonstration area was established in 2013 and was the site of the first annual "Little Wings on the Prairie" Butterfly/Pollinator Festival in July 2015, featuring a variety of hands-on fun and learning activities. This site has been registered as a Monarch Waystation, and staff from SDGFP and the USFWS have tagged monarchs here. The website associated with this demonstration site includes an assortment of educational materials, including a Butterfly Activity Guide to assist teachers in incorporating butterfly conservation into K-12 curricula. The curriculum guide was funded through the SDGFP Wildlife Diversity Small Grant Program.

SDGFP and USFWS contributed butterfly gardening starter kits to attendees of the 2015 statewide convention of the South Dakota Master Gardeners. The kit included common and swamp milkweed seeds, propagation tips, and data sheets for monitoring response of monarchs and assessing the viability of the milkweed plantings. The hope is that this pilot project can be expanded in the future.

SDGFP included an article about pollinator status and management needs in the agency's fall 2015 edition of the "Landowners Matter" newsletter. This newsletter is sent to approximately 17,000 resident and nonresident landowners and is also available for viewing on the agency's website.

The SDGFP Outdoor Campus in Sioux Falls has been tagging and raising monarch butterflies since 2000. In the early 2000s the migration through the area was well documented by volunteers and studied by Monarch Watch. We have continued to raise monarchs, release them and participate in tagging when

butterflies are available. In 2000 we tagged 2,263 butterflies. In 2014, only 88 monarchs could be found to tag. Monarch tagging also occurs at several state parks and recreation areas.

Pheasants Forever initiated the Honey Bee & Monarch Butterfly Partnership program in April of 2015. Half of the acres enrolled in this program were seeded to a mixture of plants designed to provide habitat and nutritional needs of monarch butterflies. Landowners who enrolled in this program received free seed, a \$50 per acre annual rent for a 3 to 6 year contract, and a \$15 per acre planting incentive. Through its private lands programs SDGFP offers technical and financial assistance for a wide variety of wildlife habitat and grazing management practices. High diversity, native prairie plantings that directly benefit pollinators are becoming more popular, particularly with small acreage owners who may not qualify for some USDA pollinator programs. Projects completed through these programs are funded with state license revenue and/or a Federal Aid in Wildlife Restoration grant. SDGFP has also been incorporating pollinator plots on its Wildlife Division lands (Game Production Areas), including milkweeds for monarchs.

While not specifically targeted at monarch butterflies, SDGFP initiated a flowering food plot incentive through its annual food plot program in the spring of 2015. Traditionally, SDGFP provides landowners with free corn or sorghum seed, plus a \$20/acre payment annually, to plant food plots for wildlife. This past spring, SDGFP offered landowners a third seed option; one that was comprised of nine different annual flowering plants typically used in cover crop mixes (i.e. buckwheat, clover, flax, sunflower, etc.). Out of the roughly 10,000 acres annually enrolled in SDGFP's food plot program statewide, approximately 2,200 acres were planted to the new flowering food plot mix. While these annual flowering plots are not focused on monarchs in particular, they do provide foraging opportunities for a multitude of insects throughout spring, summer, and early fall. SDGFP is planning on providing the flowering food plot seed into the future, and hoping to increase the number of acres enrolled in the food plot program.

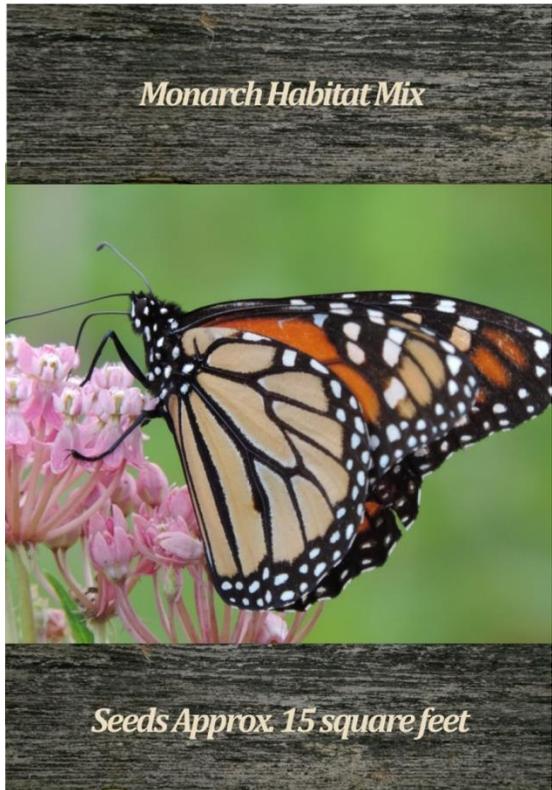
TENNESSEE

Information provided by Bill Reeves, Chief of Biodiversity, Tennessee Wildlife Resources Agency.

Tennessee will include the Monarch butterfly in the state's State Wildlife Action Plan revision. The state is working with partners to restore larval habitat and nectaring/foraging habitat for the Monarch butterfly, but has not yet set an acreage goal for restoration. The state is engaged in outreach and education efforts to benefit the Monarch butterfly, with target audiences including schools, the general public, Master Gardeners, and Nature Centers. Tennessee is developing its own state publication on Monarch butterfly conservation. Key partners in Monarch butterfly conservation in Tennessee include Mississippi River Corridor Initiative, Tennessee Parks and Greenways, National Wildlife Federation, Tennessee Wildlife Federation, Roundstone Native Plants, and The Nature Conservancy. Funding for Monarch butterfly conservation in Tennessee has been provided by the State Wildlife Grants Program

and the Mississippi River Corridor Initiative. The main resource need for Monarch butterfly conservation in Tennessee is additional funding.

Tennessee Wildlife Resources Agency is partnering with the Mississippi River Corridor Initiative, Tennessee Parks and Greenways, National Wildlife Federation, Tennessee Wildlife Federation, Roundstone Native Plants, and The Nature Conservancy to provide seed packets to the public for free. Each seed packet contains enough seed to cover 15 square feet and includes seeds from four milkweed species, seventeen nectar species, and three grass species.



Monarch Habitat Mix

Seeds Approx. 15 square feet

Monarch Habitat Mix

Butterfly Milkweed, Common Milkweed, Swamp Milkweed, Whorled Milkweed, Smooth Beardtongue, Lance Leaved Coreopsis, Blackeyed Susan, Spotted Beebalm, Slender Mountain Mint, Early Goldenrod, Bergamot, Spiked Blazing Star, Greyheaded Coneflower, Purple Coneflower, False Sunflower, Browneyed Susan, Cup Plant, Joe-Pye Weed, Iron Weed, Sneezeweed, Smooth Aster, Little Bluestem, Big Bluestem and Indian Grass.

Plant in well prepared, firm seed bed at a depth of 1/8 inch.

NATIONAL WILDLIFE FEDERATION

MISSISSIPPI RIVER CORRIDOR

TennGreen

TENNESSEE WILDLIFE RESOURCES AGENCY

ROUNDSTONE Native Seed LLC

TWTF TENNESSEE WILDLIFE FEDERATION

TEXAS

Information provided by Michael Warriner, Nongame and Rare Species Program Leader, Texas Parks and Wildlife Department.

Texas submitted comments to the U. S. Fish and Wildlife Service in response to the petition to list the Monarch butterfly under the Endangered Species Act. The state is actively working with partners to restore larval habitat and nectaring/foraging habitat for the Monarch butterfly, but has not yet set an acreage restoration goal. Texas is engaged in outreach and education activities focused on the Monarch butterfly, with target audiences including schools, other government agencies, the general public, Master Gardeners, and Texas Master Naturalists. The state reports that it is participating in programs to monitor Monarch butterfly populations, and has developed a dedicated web page related to Monarch

Butterfly conservation:

http://tpwd.texas.gov/huntwild/wild/wildlife_diversity/texas_nature_trackers/monarch/

Key partners in Texas Monarch butterfly conservation efforts include the U. S. Fish and Wildlife Service, USDA Natural Resources Conservation Service, and the Texas Comptroller of Public Accounts. Financial support has been provided by the U. S. Fish and Wildlife Service and internal agency funds.

Texas Parks and Wildlife Department (TPWD) has engaged an internal working group to formulate an agency response plan to further support monarch and native pollinator conservation. The TPWD Monarch/Native Pollinator Conservation Response Plan will be multi-faceted and potentially include expanded education, outreach, research, and on-the-ground management efforts. TPWD is actively participating in discussions with U.S. Fish and Wildlife Service (USFWS), the Natural Resource Conservation Service (NRCS), non-governmental organizations, and other state agencies to develop a cohesive, comprehensive strategy for monarch and native pollinator conservation efforts in Texas.

TPWD's revised Texas Conservation Action Plan (TCAP) is one of the few in the nation to have specifically assessed the state's pollinating insect Species of Greatest Conservation Need (SGCN). A total of 30 insect species (bees, butterflies, and moths) are designated as SGCN in Texas due to endemism and/or evidence of decline across the species range (Table 1). The monarch was not added to the TCAP given the globally secure status of the species.

Using funds from the State Wildlife Grant Program and Conservation License Plate Fund, TPWD's Wildlife Division has supported field studies on the status of several native pollinator SGCN. TPWD Wildlife Division has developed a citizen-science based project, Texas Milkweeds and Monarchs, through the online portal iNaturalist. A companion field guide to the 37 native milkweed species known to occur in Texas has also been developed. TPWD Wildlife Division staff have also developed native pollinator management guidelines to assist private landowners in creating wildlife management plans for ad valorem tax purposes. For the past five years, Wildlife Division staff has expended significant effort developing pollinator conservation resources and educating private landowners and other members of the general public regarding the value of native pollinating insects (specifically native bees) and how they can manage their lands to support these species.



Table 1. Native Pollinator/Flower-visitor Species of Greatest Conservation Need in Texas

Scientific Name	Common Name
<i>Andrena scotoptera</i>	A mining bee
<i>Apodemia chisosensis</i>	Chisos metalmark
<i>Bombus pensylvanicus</i>	American bumblebee
<i>Bombus sonorinus</i>	Sonoran bumblebee
<i>Bombus variabilis</i>	Variable cuckoo bumblebee
<i>Celotes limpia</i>	Scarce streaky-skipper
<i>Cisthene conjuncta</i>	A lichen moth
<i>Coelioxys piercei</i>	a cuckoo leaf-cutter bee
<i>Colletes bumeliae</i>	A cellophane bee
<i>Colletes saritensis</i>	A cellophane bee
<i>Decinea percosius</i>	Percosius skipper
<i>Eucera birkmanniella</i>	A longhorned bee
<i>Euphyes bayensis</i>	Bay skipper
<i>Eupseudomorpha brillians</i>	Brilliant forester moth
<i>Holcopasites jerryrozeni</i>	A cuckoo bee
<i>Macrotera parkeri</i>	A mining bee
<i>Macrotera robertsi</i>	A mining bee
<i>Megachile parksi</i>	a leaf-cutting bee
<i>Oxyelophila callista</i>	A snout moth
<i>Perdita atriventris</i>	A mining bee
<i>Perdita dolanensis</i>	A mining bee
<i>Perdita fraticincta</i>	A mining bee
<i>Perdita tricincta</i>	A mining bee
<i>Petrophila daemonalis</i>	A snout moth
<i>Piruna haferniki</i>	Chisos skipperling
<i>Protandrena maurula</i>	A mining bee
<i>Pygarctia lorula</i>	A tiger moth
<i>Satyrium polingi</i>	Poling's hairstreak
<i>Sphinx eremitoides</i>	Sage sphinx
<i>Stallingsia maculosus</i>	Manfreda giant-skipper

Photo Credit: Dr. Thomas G. Barnes; from U. S. Fish and Wildlife Service Image Library.

UTAH

Information provided by Jimi Gragg, State Wildlife Action Plan Project Leader, Utah Division of Wildlife Resources.

In 2015 Utah Division of Wildlife Resources (UDWR) is continuing its previous stance of excluding from consideration as Species of Greatest Conservation Need (SGCN), all organisms for which the state legislature has not assigned management authority to UDWR. Jurisdictional wildlife includes most native vertebrates, and all native mollusks and crustaceans, but no insects. Accordingly, the monarch butterfly has not been included as an SGCN.

Despite this, monarchs and many other pollinators will incidentally benefit from implementation of Utah's Wildlife Action Plan, which explicitly calls for landscape-scale restoration and stewardship of its key habitats. The core implementation mechanism for habitat management is Utah's Watershed Restoration Initiative, which measured annually currently directs \$10-\$15 million towards roughly 85,000 - 100,000 acres of functionally- or structurally-impaired habitats statewide. For terrestrial and riparian habitats, the principal interventions entail managing invasive exotic and problematic native plants (e.g., cheatgrass, juniper, and tamarisk), and recapturing the sites they occupied with diverse seed mixes of desirable grasses, forbs, and shrubs (e.g. Indian ricegrass, Palmer's penstemon, and big sagebrush). These vegetative interventions also release from former competition and dominance, diverse residual native stands - including milkweeds - which, like the seeded species, provide nectar and forage for adult and larval pollinators including monarch butterflies.

VERMONT

Information provided by Steve Parren, Wildlife Diversity Director, Vermont Department of Fish and Wildlife, and Mark Ferguson, Zoologist, Natural Heritage Inventory, Vermont Department of Fish and Wildlife.

The Monarch is included in the Grassland Butterfly group of Species of Greatest Conservation Need in Vermont's revised State Wildlife Action Plan. The state of Vermont is working with partners to restore larval and nectar/foraging habitat for Monarchs, although specific acreage targets have not yet been established. State land managers are identifying and tracking meadow management and other habitat work that may benefit pollinators, so that the state can have a better understanding of what activities are benefiting pollinators on state lands. State biologists are also working with state lands stewardship teams to bring pollinators to the discussion when planning habitat work, so that habitat management focused on birds and mammals is mindful of opportunities to benefit pollinators. In addition, USDA Natural Resources Conservation Service has expressly stated that they want pollinators considered in their farm bill conservation programs. State biologists are now working with NRCS in Vermont to figure out how to make that happen with WHIP and EQIP projects. There is a draft State Wildlife Grant proposal for specific work to benefit Monarchs and other pollinators, but the state has not yet secured

the needed funding. As part of the Agency of Natural Resources, Vermont Fish and Wildlife Department has recently listed three species of bumblebees as state endangered and threatened, and has convened a group to work on promoting pollinator conservation in Vermont. Additional needs identified for Monarch butterfly conservation in Vermont include additional funding; technical assistance in designing restoration plantings; person-power to implement restoration plantings; better technical guidance regarding habitat restoration techniques and approaches; and better guidance regarding the placement and siting of habitat restoration projects within our state.

VIRGINIA

Information provided by Chris Burkett, Wildlife Action Plan Coordinator, Virginia Department of Game and Inland Fisheries.

The monarch butterfly has been identified within Virginia's Wildlife Action Plan that was submitted to the US Fish and Wildlife Service in 2015. Virginia's Wildlife Action Plan also identifies seven species of bumble bees and 54 other species of moths and butterflies. A great many of these species, including the monarch and the bumble bees, are believed to benefit from agency efforts to manage and restore open and early successional habitats including abandoned agricultural lands, glades, young forests, and savannas. Efforts to conserve and restore these habitats include the following.

The oldest of these open habitat efforts is called Virginia's Quail Recovery Initiative. Northern Bobwhite are identified as a species of greatest conservation need in Virginia. In 2008, working with a suite of partners, DGIF staff completed the Northern Bobwhite Quail Action Plan for Virginia; a supplement to Virginia's Wildlife Action Plan. In partnership with the Natural Resources Conservation Service, DGIF works with private landowners to establish patches of native grassland habitats on private lands. While quail serve as the focal species for these efforts, biologists have indicated a diversity of species, including native pollinators, benefit from these habitat restoration practices.

More recently, DGIF staff work to implement aspects of the Northeast Habitat Technical Committee's Young Forest Initiative in Virginia. Much of Virginia's landscape is covered by mature forests which provide minimal opportunities for species that require grassland or shrubland habitats, such as monarch butterflies, bumblebees, and a suite of other species. When trees are harvested, the land can be managed to provide open habitat conditions while trees regrow. These open habitat conditions can be maintained for 10 to 15 years depending upon local conditions. DGIF staff work to create these conditions on public and private lands. DGIF personnel have also worked with the Virginia Department of Forestry to develop relevant Best Management Practices, and are working to incorporate open habitat conservation as a priority within DGIF's land management planning.

Finally, DGIF staff are exploring opportunities to partner with federal, state, and local agencies to establish open habitats on diverse public lands. In addition to wildlife management areas and national wildlife refuges, open habitats could be developed at fish hatcheries, national parks, state parks, military facilities, and on properties managed by non-conservation agencies.

WASHINGTON

Information provided by Ann Potter, Conservation Biologist – Insect Specialist, Washington Department of Fish and Wildlife, and Eric Gardner, Acting Wildlife Deputy Assistant Director, Washington Department of Fish and Wildlife.

Washington State is planning to include the Monarch butterfly in their revised State Wildlife Action Plan as a Species of Greatest Conservation Need, and will also include habitat requirements and actions to benefit the species. The state's Wildlife Diversity Division is planning to expand the tracking of information about populations of Monarch butterflies in the state. Washington Department of Fish and Wildlife is working to protect Monarch breeding sites on land that it manages. The state is planning to engage in outreach and education regarding the Monarch butterfly, if external funding can be secured. There are currently limited efforts to monitor populations of the Monarch butterfly but the state is planning to expand those efforts. Washington State also has plans to develop a dedicated web page or website for Monarch butterfly conservation if external funding can be identified. Key partners for Monarch butterfly conservation in Washington State include the Xerces Society, Idaho Department of Fish and Game, and local lepidopterists. Funding sources for Monarch butterfly conservation activities in Washington State include the State Wildlife Grants and Competitive State Wildlife Grants programs, non-profit and private-sector partners, and internal agency funds. Additional needs identified by the state include additional funding, better information about Monarch butterfly habitat needs, population status and trends in the state, better information on Monarch and milkweed distribution in Washington (there are currently vast unsurveyed areas of potential habitat), and the development of Best Management Practices to protect and manage sites occupied by Monarch butterflies.

WEST VIRGINIA

Information provided by Craig Stihler, Endangered Species Coordinator, and Susan Olcott, Wildlife Diversity Biologist, West Virginia Division of Natural Resources.

West Virginia will include the Monarch butterfly in the state's State Wildlife Action Plan revision. The state's non-game or Natural Heritage Program is planning to track information about populations of Monarch butterflies in the state. The state is engaged in outreach and education efforts regarding the Monarch butterfly, with target audiences including other government agencies, the general public, and Master Naturalists. West Virginia is also participating in programs to monitor Monarch butterfly populations. Key partners for the state include the U. S. Forest Service and West Virginia DNR - State Parks.

WISCONSIN

Information provided by Shari Koslowsky, Wildlife Action Plan Coordinator, Wisconsin Department of Natural Resources.

According to the 2015 AFWA State Wildlife Action Plan Coordinator Survey, the Monarch butterfly will be mentioned in the next edition of Wisconsin's State Wildlife Action Plan, although it is not a Species of Greatest Conservation Need. If it becomes a federal candidate species, it will automatically become a Species of Greatest Conservation Need in the state, and if population declines continue, it will also become a Species of Greatest Conservation Need.

WYOMING

Information provided by Glenn Pauley, Planning Coordinator, and Zack Walker, Statewide Nongame Bird and Mammal Program Supervisor, Wyoming Game and Fish Department.

Wyoming Game and Fish Department does not currently have management authority over invertebrates and thus is not currently engaged in Monarch butterfly conservation activities. However, the state Natural Heritage Program is exploring how and whether to track populations of Monarch butterflies in the state.



Photo Credit: Ryan Hagerty; from U. S. Fish and Wildlife Service Image Library

RESOURCES AVAILABLE FOR MONARCH BUTTERFLY AND POLLINATOR CONSERVATION

The following websites provide additional information about Monarch butterfly conservation efforts and provide a variety of resources for state fish and wildlife agencies and their partners who are interested in conserving this species and other pollinators.

U. S. Fish and Wildlife Service

<http://www.fws.gov/savethemonarch/>

USDA Natural Resources Conservation Service

<http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/plantsanimals/plants/?cid=stelprdb1044847>

U. S. Forest Service

http://www.fs.fed.us/wildflowers/pollinators/Monarch_Butterfly/index.shtml

Monarch Joint Venture

<http://www.monarchjointventure.org/>

National Wildlife Federation

<http://www.nwf.org/Pollinators/Monarch.aspx>

Pollinator Partnership

<http://www.pollinator.org/monarchs.htm>

Xerces Society

<http://www.xerces.org/monarchs/>

Monarch Watch

<http://www.monarchwatch.org/>

Journey North: Monarch Butterfly

<https://www.learner.org/jnorth/monarch/>

State Wildlife Action Plans and Pollinators

<http://teaming.com/sites/default/files/SWAP%20Pollinator%20Report%20FINAL%204-2013.pdf>

POTENTIAL FUNDING SOURCES

FOR MONARCH BUTTERFLY AND POLLINATOR CONSERVATION

Farm Bill Funding for Pollinator Conservation

This report from the USDA and Xerces Society highlights available funding in Table 1.

http://plants.usda.gov/pollinators/Using_Farm_Bill_Programs_for_Pollinator_Conservation.pdf

Funding Opportunities for Pollinator Protection in North America

This report describes pollinator-specific funding from the following organizations:

- National Fish and Wildlife Foundation
- Rasmussen Foundation
- Turner Foundation
- Wallace Genetic Foundation

http://www.cciforum.org/pdfs/NAPPC_Pollinator_Funding.pdf

North American Pollinator Protection Campaign (NAPPC)

The Pollinator Partnership administers this campaign which has provided support and coordination for pollinator conservation activities across North America. Their recent grants focus on honeybee health.

<http://pollinator.org/nappc/index.html>

National Fish and Wildlife Foundation (NFWF) Monarch Conservation Fund

In 2015, the National Fish and Wildlife Foundation (NFWF) established the Monarch Butterfly Conservation Fund to protect, conserve and increase habitat for these iconic insects and other pollinators. Created with an initial \$1.2 million commitment from the U.S. Fish and Wildlife Service, the fund will pool additional funding from other private and public donors and matching resources from grantees.

<http://www.nfwf.org/monarch/Pages/home.aspx#.VeRhZ5cWf-Y>

USDA Natural Resources Conservation Science (NRCS)

Several grant programs could be applied to pollinator-related work.

Conservation Innovation Grants (CIG)

<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/cig/>

Wildlife Habitat Improvement Program (WHIP)

<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/whip/>

Environmental Quality Improvement Program (EQIP)

<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/>

US FWS Wildlife and Sportfish Restoration Program (WSFR)

WSFR administers programs that can be used to support Monarch butterfly and pollinator conservation.

<http://wsfrprograms.fws.gov/Subpages/Pollinators/Pollinators.htm>