MINNESOTA STATE AGENCY POLLINATOR REPORT

2018 | Annual Report

MINNESOTA

Big bluestem, common ox-eye, and hoary vervain in a rural Stearns County prairie.

TABLE OF CONTENTS

Introduction 3

Letter to the Governor. 4

State of the Pollinators 5

Interagency Pollinator Framework . . 8

An Emerging Scorecard. 14

Appendices

- Status of Executive Order. 16
- Governor's Committee on Pollinator Protection. 18
- Examples of Local Actions. 19

Cover photo: Courtney Celley, USFWS
Left: Prairie Restorations, Inc.

INTRODUCTION

The first annual report of the Interagency Pollinator Protection Team (IPPT) to the Environmental Quality Board (EQB) defined the challenges facing pollinators, articulated goals to meet the overall outcome, and described possible future actions. Building on this work, this second report provides a framework for interagency collaboration to meet goals addressing habitat, pesticides, and public engagement; and proposes ways to measure progress. It is also an invitation for all Minnesotans to join in this effort and build upon Minnesota's conservation ethic to safeguard pollinators.

Tom Koerner, USFWS

A female brown-belted bumble bee carrying orange pollen on its legs.

Interagency Pollinator Protection Team

Minnesota Governor Mark Dayton issued an executive order in August 2016 directing a team of state agency experts to take immediate action to restore pollinator health in the state. Under the order, the EQB was charged with establishing the IPPT.

Team members are from the Minnesota Departments of Administration, Agriculture, Corrections, Education, Health, Natural Resources, Transportation; the Minnesota Board of Water and Soil Resources; the Minnesota Pollution Control Agency; and the Minnesota Zoo.

Tony Ernst

A black swallowtail butterfly drinking nectar from a coneflower.

LETTER TO THE GOVERNOR

Governor Dayton announced the pollinator executive order in August 2016.

Minnesota Department of Agriculture

Governor Dayton,

We thank you for your efforts on behalf of pollinators. Under your leadership, Minnesota has taken important steps to improve pollinator habitat, reduce harm from pesticides, and engage Minnesotans in positive action for pollinators.

Your commitment recognizes the value that pollinators bring to Minnesota. A pollinator's simple act of transferring pollen from flower to flower – enabling many wild plants and domestic crops to reproduce – sets off a chain of events that are essential to ecosystem functioning and human health. Pollinators are critical to protecting the vitality of Minnesota's natural resources, ecosystems, economy, and way of life. Because pollinator decline has the potential to impact our food security and ecosystem services, all Minnesotans have a stake in restoring pollinator health.

This report provides a framework to guide interagency pollinator protection in response to your executive order. It serves to sustain important interagency pollinator efforts, and maintain Minnesota's role as a regional and national leader in pollinator protection. With much work yet to be done, we invite future state leadership to carry this important effort forward for the benefit of Minnesota's people, wildlife, and lands.

Sincerely,

Environmental Quality Board

STATE OF THE POLLINATORS

A variety of insects are considered pollinators, including bees, butterflies, moths, flies, and beetles. Many of these animals are challenged by multiple stressors such as habitat loss, non-target impacts of pesticides, climate change, diseases, and parasites. Public and agency concern about the state of pollinators has been spurred by commercial honey bee colony losses and the potential federal listing of additional pollinator species, such as the monarch butterfly and the yellow-banded bumble bee.

Pollinators in the Ecosystem

Pollination is essential for healthy ecosystems. The majority of flowering plants depend on pollinators — mostly insects — for pollination and thus seed production. Many native plants have evolved with native pollinators so that each depends on the other. Insects and the plants they pollinate form the foundation of food chains, providing food for birds and other wildlife. By conserving the diversity of pollinators, we promote the diversity of life that makes Minnesota's landscapes resilient.

Pollinators are needed for some Minnesota food crops, such as fruits, vegetables, and herbs. Honey bees and native pollinators contribute millions of dollars to our state's agricultural economy. Minnesota honey bees are important to the national agricultural economy, as well, because many bees raised in the state spend their winters pollinating crops in California, Texas, Florida, and other states.

Mike Dunn, roadsendnaturalist.com

Raising one clutch of chickadees requires thousands of caterpillars. Ninety-six percent of terrestrial birds in North America rear their young on insects.

STATE OF THE POLLINATORS continued

Pollinators at Risk

There are thousands of pollinator species in Minnesota, including over 400 species of bees. Several pollinators have experienced declines in population and distribution, with some once-common species now gone from the state. Despite efforts to reduce stressors, beekeepers continue to lose honey bee colonies at rates well above economically acceptable levels. These declines suggest that many other pollinators are at risk, but we lack definitive data on most of these species.

Improving our Knowledge

Moving forward, we need to improve our knowledge about key aspects of Minnesota pollinators. We will be able to intervene and conserve pollinators more effectively if we have a more detailed picture of population trends and distributions, high-priority habitat areas, and effects of potential threats and land management actions. In recent years, the state has funded important pollinator research, and we need to find ways to continue to do so.

Peter Leete

Rusty-patched bumble bee,
a federally-endangered species,
in a pollinator garden at the State Capitol.

MINNESOTA'S IMPERILED POLLINATORS

Federally endangered

Cale Nordmeyer, Minnesota Zoo

Poweshiek skipperling butterfly.

Christopher E. Smith

Karner blue butterfly.

Debbie Johnson

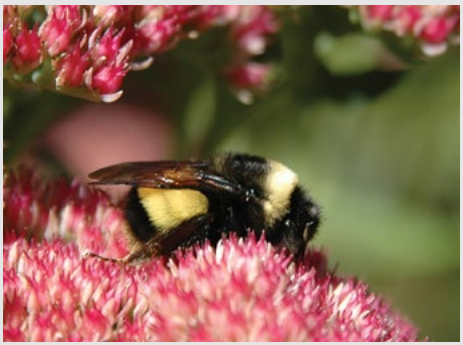
Rusty-patched bumble bee.

Federally threatened

Christopher E. Smith

Dakota skipper butterfly.

Under review for federal listing



Sandy Gillians

Yellow-banded bumble bee.

Christopher E. Smith

Monarch butterfly.

In addition to federally-listed species, Minnesota has 8 state-listed endangered pollinator species, 1 threatened, 10 species of special concern, and an additional 19 non-listed species in greatest conservation need.

INTERAGENCY POLLINATOR FRAMEWORK

DESIRED OUTCOME: Healthy, Diverse Pollinator Populations that Sustain and Enhance Minnesota's Environment, Economy, and Quality of Life

Ways to Measure Progress

- Change in distribution of bumble bee species.
- Population trends of select imperiled pollinator species.
- Percent of honey bee colonies lost annually.
- Acres occupied by overwintering monarch butterflies in Mexico.

Left to right: Olympia marble butterfly, bee fly, green sweat bee, and flower longhorn beetle.
Brett Whaley

The IPPT has identified three goals that will help achieve the desired outcome of healthy, diverse populations of pollinators. In addition, we have developed three key outputs that can focus state agency work over the next three to five years.

	Key Outputs
GOAL 1 Lands support diverse pollinators	More food sources for pollinators
GOAL 2 Judicious use of pesticides	Reduced impacts to pollinators from pesticides through integrated pest management (IPM)
GOAL 3 Minnesotans understand, value, and support pollinators	More action through community commitments

Snowberry clearwing moth.
Tony Ernst

Brett Whaley

This tiny fairy bee only collects pollen from prairie clover.

GOAL 1: Lands Throughout Minnesota Support Healthy, Diverse, and Abundant Pollinator Populations

Key Output: More food through flowering habitats

Call to Action

- GROW a diversity of native nectar- and pollen-rich flowering plants wherever possible, provide continuous blooms from early spring through late fall, and manage lands to benefit pollinators.
- ORGANIZE larger efforts across boundaries to support flowering habitats.
- INVEST in research and existing plans that increase flowering habitats.

Ways to Measure Progress

- Acres of land permanently protected, such as Wildlife Management Areas (WMAs), Reinvest in Minnesota (RIM) easements, and Conservation Reserve Enhancement Program (CREP) easements.
- Acres of land enrolled in habitat programs such as the Conservation Reserve Program (CRP).
- Acres of pollinator-friendly roadside right-of-way.

Dustin Demmer, Blazing Star Gardens LLC

Pollinator garden at Albert Lea High School.

Minnesota Department of Transportation

Flowers at the Interstate 35 and U.S. Highway 14 interchange three years after seeding.

GOAL 2: Minnesotans Use Pesticides Judiciously and Only When Necessary, in Order to Reduce the Harm to Pollinators From Pesticides While Retaining Economic Strength

United Soybean Board

A soybean farmer inspects leaves for pests.

The IPM Approach

1 **Prevent buildup of pests.**

2 **Monitor plants.**

3 **Intervene only when necessary using the most environmentally sensitive and effective method.**

Key Output: Reduced impacts to pollinators from pesticides through IPM

Call to Action

- ADOPT IPM to protect pollinators from pesticides in all landscapes.
- IMPROVE IPM by filling gaps in research and guidance.
- PROMOTE IPM through coordinated outreach and education.

Ways to Measure Progress

- Adoption of IPM methods.
- Funding for IPM research.
- Amount, type, and toxicity of pesticides used.

Where to use IPM

Managed natural areas

Farms

Gardens and landscapes

GOAL 3: Minnesotans Understand, Value, and Actively Support Pollinator Populations

Key Output: More action through community commitments

Call to Action

- LEAD by example.
- COMMUNICATE to enhance understanding and drive action.
- COLLABORATE to amplify impact.

Ways to Measure Progress

- Number of Minnesota gardens registered in the Million Pollinator Garden Challenge.
- Number of pollinator conservation workshops offered.
- Number of communities with pollinator resolutions.

City of St. Paul

The City of St. Paul partnered with Public Art Saint Paul to educate residents about pollinators with a pollinator bike.

Erika Bailey-Johnson

Bemidji's monarch festival featured foods with ingredients that require pollinators.

AN EMERGING SCORECARD

It is important to track our progress in restoring pollinator health in Minnesota. Understanding the status of pollinators and the effects of our work will allow us to continually adapt and enhance our success.

Tracking progress is challenging due to the large number of pollinator species in Minnesota, a wide variety of habitat needs, and multiple and interacting stressors. In light of this, the IPPT will select representative measures that provide insights into progress. We have a few metrics for 2018, but we need more information on other measures to determine trends.

Important Metrics for 2018

Judy Griesedieck

Annual honey bee colony loss

According to preliminary data, Minnesota bee-keepers lost 54% of their **honey bee colonies** from April 1, 2017 to April 1, 2018.
(Source: Bee Informed Partnership)

Prairie Restorations, Inc.

CRP enrollment acres

CRP enrolled lands, which often provide **flowering habitat**, declined by over 700,000 acres from 2007-2017, with another 200,000 set to expire in 2018.
(Source: USDA Farm Service Agency)

Christina DiFonzo, Michigan State University, Bugwood.org

Use of economic thresholds for pest control

Early survey results suggest that 80% of Minnesota soybean farmers scout for soybean aphids and use economic thresholds to trigger pest control, employing an **IPM approach**.
(Source: MDA)

Tony Ernst

Community pollinator resolutions

As of October 2018, at least 38 Minnesota **communities** have passed pollinator resolutions.
(Source: Pollinate Minnesota)

A SCORECARD FOR MINNESOTA'S POLLINATORS

The IPPT will begin using this scorecard in 2019. We will establish targets that allow us to assess status and trends.

Key Outputs	Measures of Progress	Trend	Status
Outcome: Healthy diverse pollinators	Change in distribution of bumble bee species		
	Population trends of select imperiled pollinator species		
	Percent of honey bee colonies lost annually		
	Acres occupied by overwintering monarch butterflies in Mexico		
Goal 1: More flowering habitat	Acres of land permanently protected, such as WMAs, RIM easements, and CREP easements		
	Acres of land enrolled in habitat programs such as CRP		
	Acres of pollinator-friendly roadside right-of-way		
Goal 2: Reduced impacts	Adoption of IPM methods		
	Funding for IPM research		
	Amount, type, and toxicity of pesticides used		
Goal 3: More action	Number of Minnesota gardens in the Million Pollinator Garden Challenge		
	Number of pollinator conservation workshops offered		
	Number of communities with pollinator resolutions		

Key to Trend

- Getting better
- Steady, no change
- Getting worse

Key to Status

- We are making progress
- Too early to assess or there is variability
- Progress is slower than anticipated

APPENDIX I: STATUS OF EXECUTIVE ORDER 16-07

Governor Mark Dayton signed *Executive Order 16-07: Directing Steps to Reverse Pollinator Decline and Restore Pollinator Health in Minnesota* in August 2016. Since then, state agencies have made significant progress on the tasks described in the order and implemented additional measures for pollinators.

Work to Date

- The EQB established and continues to convene the IPPT, a group of technical experts from state agencies, and the Governor's Committee on Pollinator Protection, a citizen stakeholder group representing a broad range of interests. Both committees published reports, and the IPPT initiated collaborative habitat and education projects.
- The Department of Agriculture reviewed pesticide product labels, clarified pest threshold label language for neonicotinoid insecticides, increased inspections and enforcement of label requirements, and developed several best management practices resources. Additionally, the Department of Agriculture supported treated seed program and pollinator protection account legislation, however, the legislation did not pass.
- The Department of Natural Resources updated its pesticide policy to define IPM principles in more detail, secured federal funding for pollinator research, and continues to: protect, restore, and enhance habitat that benefits pollinators; support the state pollinator coordinator; participate in the Mid-America Monarch Conservation Strategy, and work toward completion of the Native Pollinator Action Plan.
- The Department of Transportation (MnDOT) created, protected, and enhanced pollinator habitat on state-managed transportation lands; supported pollinator research on rights-of-way; participated in the development of a national monarch butterfly conservation agreement; and developed a stakeholder committee to discuss changes to MnDOT's mowing and haying permitting process, which published recommendations in February 2018.
- The Department of Corrections has created or enhanced 16 acres of pollinator habitat and conducted educational efforts with staff and offenders.
- The Department of Administration took measures to support pollinators on the State Capitol Complex, other state buildings, and

Environmental Quality Board

The interactive pollinator exhibit is available for lending to libraries statewide.

on leased property, including incorporating pollinator-friendly plants on the State Capitol Complex grounds and limiting the use of neonicotinoid-treated plants and pesticide products in state-funded projects, state contracts, and on state-leased properties, where applicable. IPM practices continued to be a main component of maintenance activities for the Capitol grounds.

- The Department of Health has advised the IPPT on pollinator issues as they relate to human health, such as pesticide safety, food security, and groundwater quality.
- The Board of Water and Soil Resources (BWSR) incorporated pollinator habitat into conservation programs (such as their CREP initiative that has a goal of 60,000 acres over five years), created and updated program policies and technical resources to enhance opportunities for pollinator habitat restoration, and guided improvements through evaluation.
- The Minnesota Pollution Control Agency (MPCA) worked with BWSR to develop guidance for creating, protecting, and enhancing pollinator habitat on closed landfill sites and collaborated with the Department of Education and the EQB on education efforts and exhibits.
- The Department of Education worked with the EQB and MPCA to develop and distribute the mobile pollinator library exhibit.
- The Minnesota Zoo is helping save prairie butterflies through the world's first reintroduction programs of two federally threatened and endangered species, and is studying what is needed to recover these pollinators in the wild. Newly planted educational pollinator gardens around the Zoo have attracted endangered rusty-patched bumble bees.

Future Work

This executive order served a critical role in institutionalizing cross-agency pollinator protection activities and creating momentum for continued collaboration.

Each agency contributes to this IPPT framework and pursues additional agency-specific pollinator activities. Moving forward, the IPPT will look to renew the executive order under new leadership, use this framework to organize efforts, track progress on goals, and broaden participation to include other agencies such as Minnesota State Colleges and Universities and the Metropolitan Council.

Erik Runquist, Minnesota Zoo

Reintroduced male and female Dakota skipper at Hole-in-the-Mountain Prairie Preserve.

APPENDIX II: GOVERNOR'S COMMITTEE ON POLLINATOR PROTECTION

The Governor's Committee on Pollinator Protection is composed of 15 citizen stakeholders representing diverse interests across the state. The committee delivered a report with 39 recommendations in November 2018 documenting a range of ideas for pollinator conservation. We have highlighted a few of their recommendations, and will look to this report for additional ideas and inspiration.

Related to **GOAL 1**

Establish a turf conversion and enhancement program focused on replacing or enhancing turf with flowering habitat in urban, suburban, and rural non-agricultural lands.

Prairie Restorations, Inc.

Native wildflowers are a colorful alternative to turf.

Related to **GOAL 2**

Increase education on IPM and proper pesticide application.

Sarah Foltz Jordan, Xerces Society

A blueberry farmer installed pollinator habitat to boost populations of beneficial insects that feed on crop pests. This could reduce or eliminate insecticide applications.

Related to **GOAL 3**

Increase pollinator-related resources in libraries.

Jolene Bradley

The pollinator library exhibit at the Brainerd public library.

APPENDIX III: EXAMPLES OF LOCAL ACTIONS

While this report articulates a framework for interagency cooperation for pollinators, this framework may be useful at all levels of action. Here are a few ways Minnesotans can take action for pollinators.

More Food Through Flowering Habitats

- Grow a pollinator garden at your home, school, or place of business by following guidance from the Xerces Society's Bring Back the Pollinators campaign (**xerces.org/bringbackthepollinators**).
- Find resources and guidance for pollinator habitat restoration and enhancement projects in the BWSR Pollinator Toolbox (**bwsr. state.mn.us/practices/pollinator**).

Reduced Impacts to Pollinators From Pesticides Through Integrated Pest Management

- To reduce the build-up of pests, consider a diverse mix of native plants for your landscape. These can provide habitat for beneficial insects that can keep pests in check.
- Practice IPM in your farm, vegetable garden, and landscaping.
- When practical, increase the diversity in your crop rotation to break pest cycles.
- Control pest hosts, such as buckthorn that overwinters soybean aphids.

For information, visit the University of Minnesota Extension's Yard and Garden website (**extension.umn.edu/yard-and-garden**) and IPM website (**mnipm.umn.edu**).

More Action Through Community Commitments

Be a pollinator promoter. Let your community's leaders know that pollinator health is important to you. Encourage them to actively support pollinators through a resolution or municipal recognition program such as the Mayor's Monarch Pledge or Bee City USA. For sample resolution text and other resources, visit Pollinate Minnesota (**www.pollinatemn.org**).

Trained volunteers, known as citizen scientists, survey roadsides for bumble bees through the Minnesota Bee Atlas Project.

Faith Krogstad

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EWR_461_19