



Pollinator Conservation Tools and Resources

Xerces Society for Invertebrate Conservation

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Senior Pollinator Conservation Biologist

Photo: Rollin Coville



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The Xerces Society for Invertebrate Conservation

The Xerces Society is a science based nonprofit organization that engages in education, outreach, applied research, policy, and restoration to protect invertebrates and their habitats.



Xerces blue butterfly (*Glaucopsyche xerces*), the first U.S. butterfly to go extinct due to human activities



Main Office: Portland, Oregon
Regional Offices: California, Connecticut, Iowa, Maine, Minnesota, Nebraska, New Jersey, New York, North Carolina, North Dakota, Oklahoma, Washington, Wisconsin

Photos: 2016 Xerces staff by Matthew Shepherd/Xerces Society. Blue butterfly by Dana Ross.

On the Ground Conservation

Pollinators Agricultural Biodiversity Endangered Species Aquatic Invertebrates Pesticides Urban Conservation



Roadside Best Management Practices for Pollinators

Pollinators and Roadsides: Best Management Practices for Managers and Decision Makers



January 2016



U.S. Department of Transportation
Federal Highway Administration

Roadside Best Management Practices that Benefit Pollinators

Handbook for Supporting Pollinators through Roadside Maintenance and Landscape Design



U.S. Department of Transportation
Federal Highway Administration

LITERATURE REVIEW: POLLINATOR HABITAT ENHANCEMENT AND BEST MANAGEMENT PRACTICES IN HIGHWAY RIGHTS-OF-WAY

PREPARED BY
The Federal Highway Administration
1200 New Jersey Avenue, SE
Washington, D.C. 20590

PREPARED BY
The Xerces Society for Invertebrate Conservation
in collaboration with
ICF International
Authors:
Alexandra

May 2015

IDENTIFYING THE CURRENT STATE OF PRACTICE FOR VEGETATION MANAGEMENT ASSOCIATED WITH POLLINATOR HEALTH AND HABITAT: AN INTERVIEW REPORT

THE FEDERAL HIGHWAY ADMINISTRATION
1200 NEW JERSEY AVENUE, SE
WASHINGTON, D.C. 20590

PREPARED BY: THE XERCES SOCIETY FOR INVERTEBRATE CONSERVATION AND ICF INTERNATIONAL

AUTHORS: JENNIFER HOPWOOD, SCOTT HOFFMAN BLACK, ALEXANDRA CHARLAP, PEPPER SANTALUCIA, SCOTT FLEURY



Available at:
https://www.environment.fhwa.dot.gov/ecosystems/vegmgmt_pollinators.asp

 xerces.org

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Roadside Revegetation

An Integrated Approach to Establishing
Native Plants and Pollinator Habitat

Draft Version 1.1 — September 2016



U.S. Department of Transportation
Federal Highway Administration

FHWA Revegetation Manual

Available in 2018: Updated classic 2007 manual

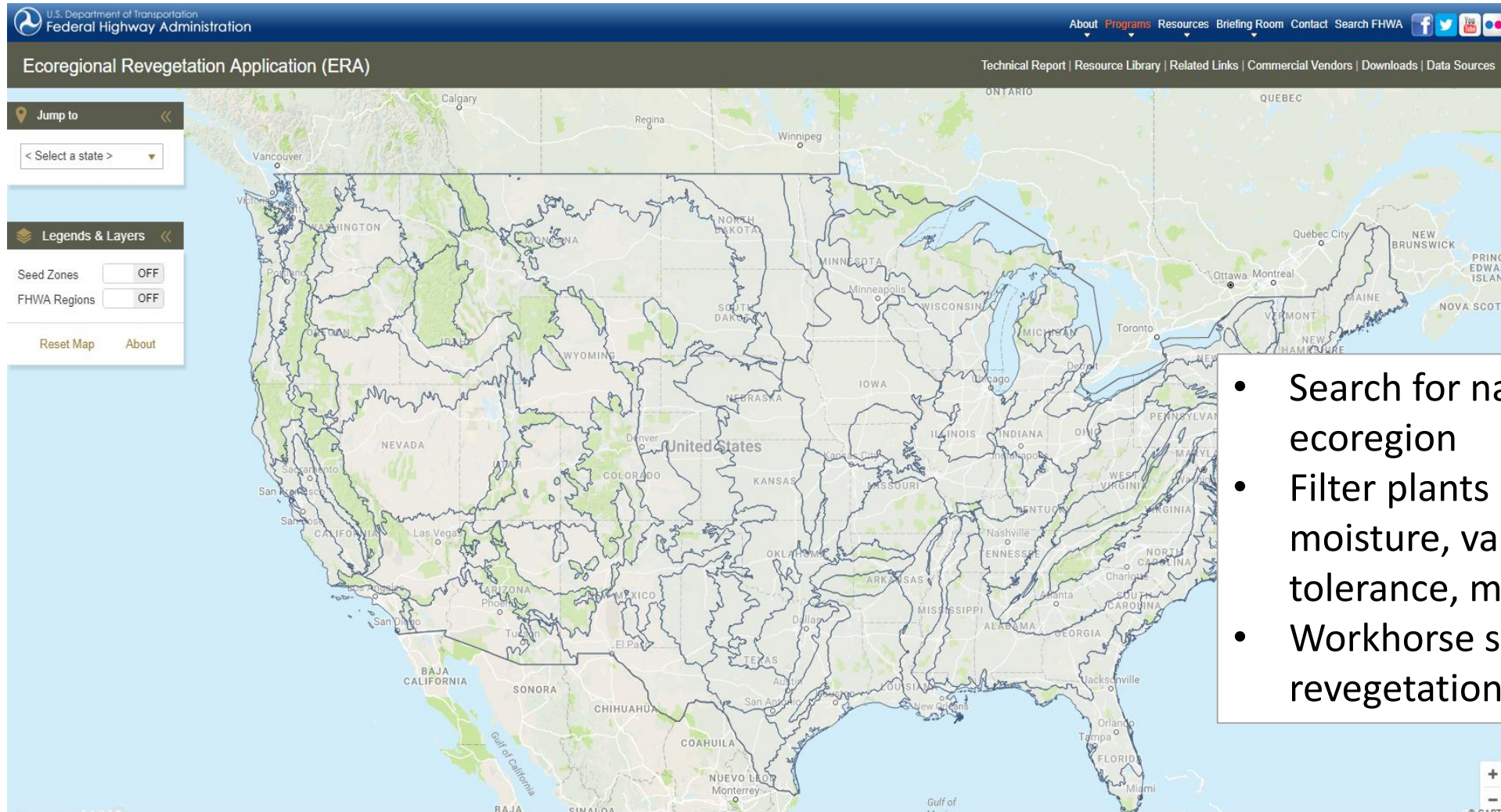
- Has a national scope, with regional case studies
- Updated revegetation recommendations, resource library
- Is peer-reviewed
- Includes information about pollinators, including:
 - Habitat needs (pollen, nectar, host plants, nesting, overwintering)
 - Objectives for pollinators during project design, including plant selection
 - Vegetation management and pollinators
 - Monitoring of habitat and pollinators

Available at www.nativerrevegetation.org



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FHWA's Ecoregional Revegetation Application Tool



- Search for native plants by ecoregion
- Filter plants by attributes (soil, moisture, value to pollinators, salt tolerance, more)
- Workhorse species for revegetation

<http://www.nativerevegetation.org/era/>

FHWA's Ecoregional Revegetation Application Tool

U.S. Department of Transportation
Federal Highway Administration

Ecological Revegetation Application (ERA)

Technical Report | Resource Library | Related Links | Commercial Vendors | Downloads | Data Sources

Jump to
< Select a state >

Legends & Layers
Seed Zones OFF
FHWA Regions OFF
Reset Map About

High Plains (Ecoregion 25)
(1 of 25) Workhorse Plants
Alkali Sacaton

Plant Type	Graminoid (perennial)
Scientific Name	<i>Sporobolus airoides</i>
Plant Family	Poaceae
Distribution in North America	L48 (N), CAN (N)
Distribution USA	AR, AZ, CA, CO, ID, KS, MO, MT, ND, NE, NM, NV, NY, OK, OR, SC, SD, TX, UT, WA, WY
Height (feet)	3
Flower Color	Yellow
Showy	No
Flowering Months	Jun-Aug
Sun Exposures	Sun, Part Shade
Soil Moisture	Wet, Moist, Dry
Soil Texture	
Pollinator Value	Medium
Pollinators	Nesting and Structure (Bees); Larval

View All Plants | Download

- Search for native plants by ecoregion
- Filter plants by attributes (soil, moisture, value to pollinators, salt tolerance, more)
- Workhorse species for revegetation

<http://www.nativevegetation.org/era/>

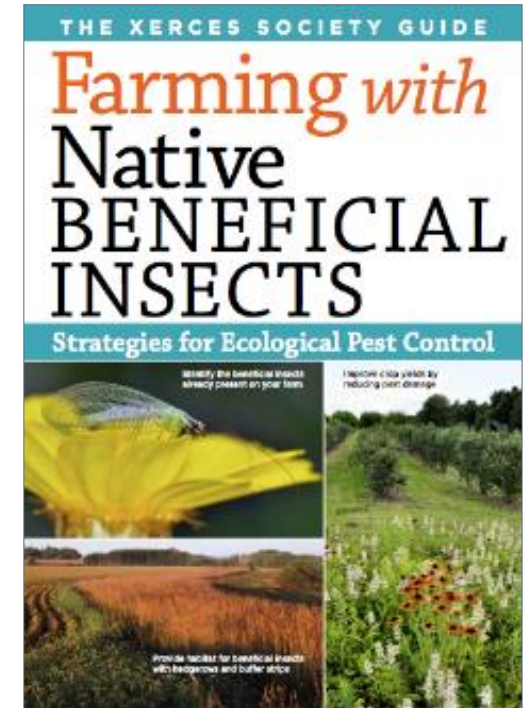
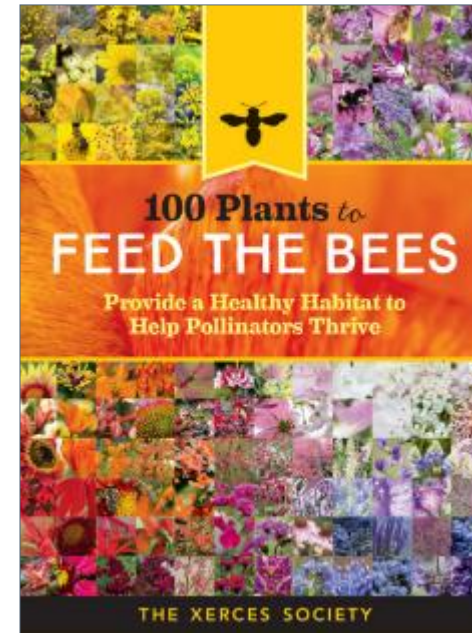
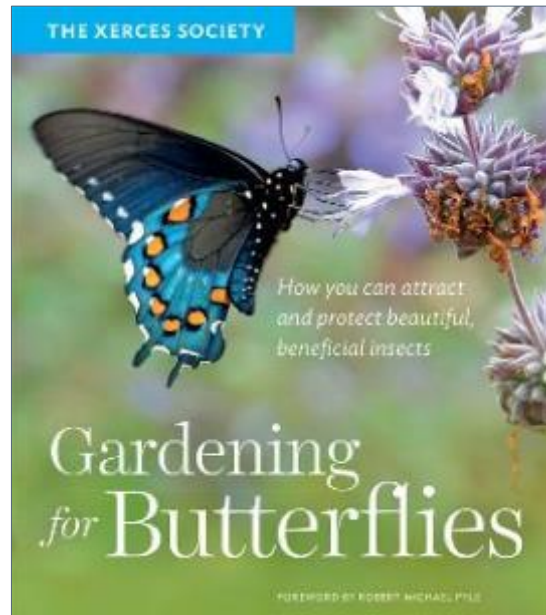
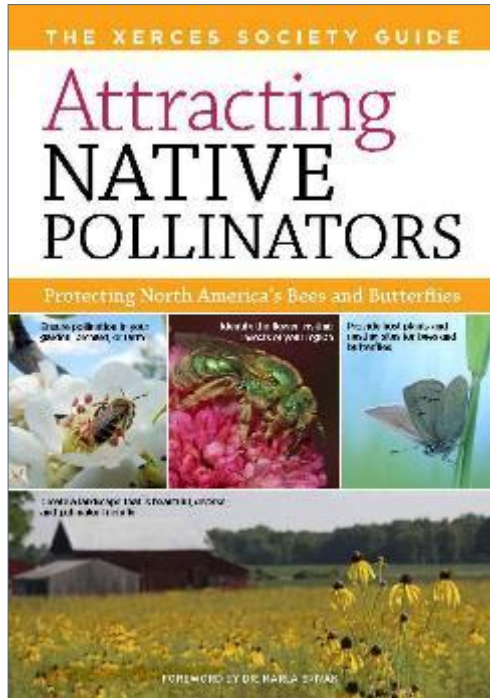
The Xerces Society: Resources



Guidance for planting and maintaining pollinator habitat



Xerces Society Books



Bee and Butterfly Monitoring Protocols

California Pollinator Project Citizen Scientist Pollinator Monitoring Guide

STREAMLINED BEE MONITORING
PROTOCOL FOR ASSESSING
POLLINATOR HABITAT

UPPER MIDWEST
CITIZEN SCIENCE MONITORING GUIDE
NATIVE BEES

MARITIME NORTHWEST
CITIZEN SCIENCE MONITORING GUIDE
NATIVE BEES & BUTTERFLIES

Katha
Matth
The X
Univer

UC DAVIS
UNIVERSITY OF CALIFORNIA

XERCES
SOCIETY
for Invertebrate Conservation

These tools include:

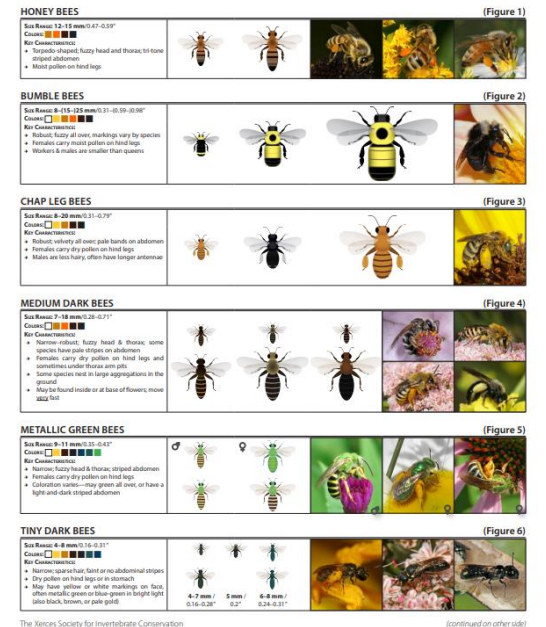
- Introduction to bee and butterfly identification
- Detailed monitoring protocol
- Data sheets

They can be used to assess:

- Pollinator habitat quality
- How pollinator communities change through time

Provide a metric that is more accessible than collecting specimens and is scientifically rigorous

CITIZEN SCIENCE MONITORING: MARITIME NORTHWEST *Bee Morphogroups Cheat Sheet*



Resource Center

Pollinator Conservation Resource Center

Information from Xerces and other sources, including:

Wildflower lists

Conservation guides

Bee nest construction guides

Links to identification guides

Pesticide guidelines

Native plant nursery directory

www.xerces.org/pollinator-resource-center

THE XERCES SOCIETY
FOR INVERTEBRATE CONSERVATION

about programs publications news invertebrates our work support

Pollinator Conservation Resource Center

Welcome to the Pollinator Conservation Resource Center, where you can find regional information about plant lists, habitat conservation guides, and more. Scroll over the map below and click on your region of the country. For questions or comments about the Resource Center, or to suggest additional content, please contact [eric.blades](mailto:eric.blades@xerces.org), Xerces Assistant Pollinator Program Director.

[Click here to donate](#)

Program Features

- [main page](#)
- [pollinator resource center](#)
- [agriculture](#)
- [organic farming resources](#)
- [managing habitats for pollinators](#)
- [gardens](#)
- [native bee self resources](#)
- [bumble bees in decline](#)
- [red list of bees](#)
- [resources for teachers](#)
- [xerces pollinator publications](#)

Program Highlights

- [Online presentation](#) on pollinator conservation basics in farm landscape
- The Xerces Society works with congressional staff to include [pollinators in the Farm Bill](#)
- Xerces organizes a [briefing to U.S. legislators](#) on Honeybees, Colony Collapse Disorder and native pollinators
- The National Research Council issues a [report](#) on the Status of Pollinators in North America
- Agriculturally important [bumble bees in decline](#)

This resource center is a collaboration of the Xerces Society and [Neal Williams at the University of California, Davis](#). Significant funding was provided by a grant from NEARE. Additional funding was provided by the USDA Natural Resources Conservation Service, the Columbia Foundation, Turner Foundation, Pante Rhee Foundation, Diancy Wildlife Conservation Fund, CS Fund, Wildwood Foundation, CBRES/Greater Milwaukee Foundation, Bullitt Foundation, Organic Valley, Organic Farming Research Foundation, The White Pine Fund/The Hawkaglen Foundation, and Xerces Society members.

NEARE **UC DAVIS** **NRCS** Natural Resources Conservation Service

Milkweed Seed Finder



<https://xerces.org/milkweed-seed-finder/>

Milkweed Seed Finder

Native milkweeds (*Asclepias* spp.) are essential for monarch butterfly (*Danaus plexippus*) caterpillars and support a diversity of pollinators with their abundant nectar. By including milkweeds in gardens, landscaping, wildlife habitat restoration projects, and native revegetation efforts you can provide breeding habitat for monarchs and a valuable nectar source for butterflies, bees, and other beneficial insects. As part of our [Project Milkweed](#), we have created this comprehensive national directory of milkweed seed vendors to help you find sources of seed. To learn more about monarch butterflies and how you can participate in conservation efforts, please visit the Xerces Society's [Monarch Butterfly](#) and [Western Monarch Conservation Campaign](#) pages or the [Monarch Joint Venture](#) webpage.

Please use the drop-down menus below to search for seed sources by species and/or state. Below the search function, you can read more about finding and selecting the milkweed seed that is right for your area.

Before using the Seed Finder, please note that:

- Milkweed seed is currently unavailable in several areas of the country. If you do not receive any results when you search by state, we have not learned of any milkweed vendors located there. Please search other states in your region for vendors who may carry local ecotype seed that is appropriate for planting in your area.
- A seed vendor's physical address does not always reflect the origin of the seed that they carry. **Please always ask vendors for information about seed origin and try to plant seed that is as locally sourced as possible.**
- Some of the vendors listed are wholesale only and require a minimum order amount.
- In most parts of the country, it is best to plant milkweed seed in the fall; however spring planting is possible in some areas. Please ask your regional seed vendor for planting recommendations.

Search For Native Milkweed Seed

Plant Species:

State:

Milkweed Availability and the Nursery Industry

At present, approximately 20 milkweed species are available as seed to varying degrees, although availability varies widely by region. Through [Project Milkweed](#), we have been working to change this in several states, but notable gaps in availability remain.

In addition to seed, several nurseries also sell milkweed transplants ("plugs"). Please ask your regional vendors about availability. For regional lists of native plant nurseries, visit our [Pollinator Conservation Resource Center](#).

Species Selection

We encourage you to only plant milkweed species that are native to your area. The Biota of North America Program's (BONAP) web-based North American Plant Atlas provides [county-level distribution information](#) for all *Asclepias* species in the lower 48 states (milkweeds are not native to Alaska and Hawaii). Please refer to BONAP's map color key for detailed information, and note that dark green indicates that the species is present within the state, while bright green shows that the species is documented to occur in that specific county. However, these maps do not convey the

Newsletter

Sign up for our newsletter to receive up to date information about our programs and events.

Contact Us

[Email us](#) with your questions and comments about pollinator conservation.

Learn About Your [Landscape](#):

Agriculture
Gardens
Natural Areas and Rangelands
Organic Farms
Parks and Golf Courses
Roadsides
Schools

Take Action!



Sign the Pledge!

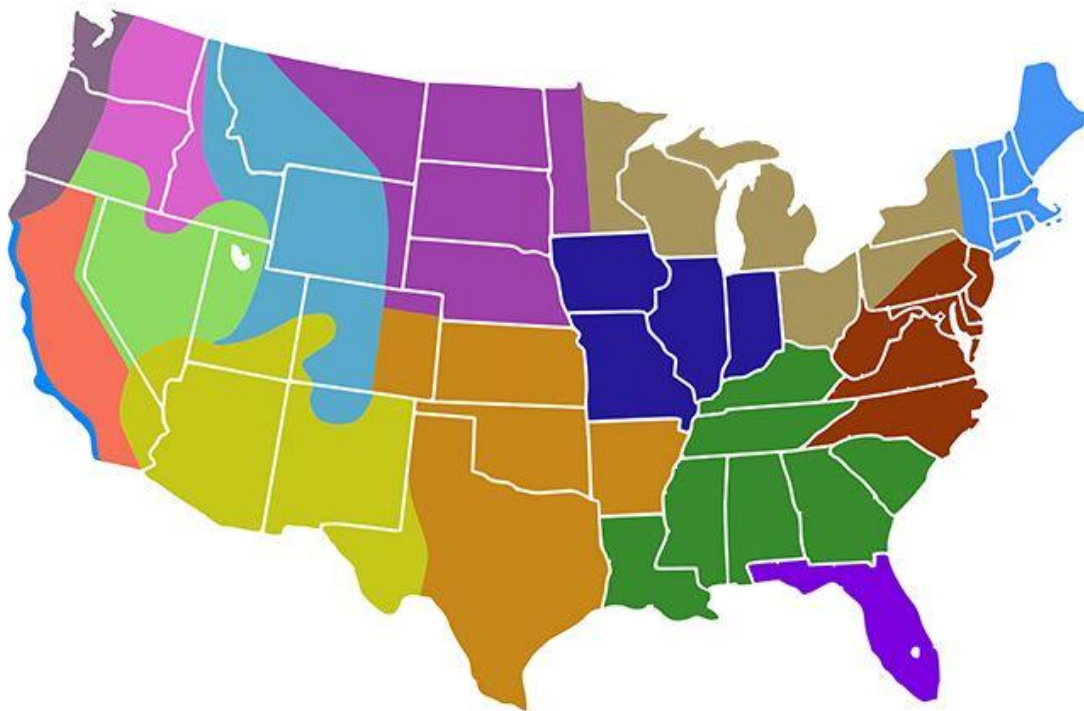
Sign the pledge and take action to help protect pollinators and their essential habitats! [Learn more.](#)

[Pollinator Conservation Resource Center](#)

Regional Monarch Nectar Plant Guides

Nectar guides include information on species which are

- Native & attractive to monarchs (documented visitation)
- Commercially available
- Hardy and appropriate for large-scale restoration
- In bloom during the time period when monarchs are in a particular region



Images: www.xerces.org

 **xerces.org**

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Citizen Science: Bumble Bee Watch



Bumble B

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Bumble Bee Identification Guide

[How to use this guide](#)

This is an identification guide to help you determine the species of bumble bee in your photo. This guide will only work for females, and is not comprehensive as there are many additional color forms, and many look alike species. [See this page](#) for more information about bumble bee anatomy. To use the ID guide, compare your photo(s) on the left to the illustrations and select the features of each body part that most closely match the features on the bee in your photograph. Once you have chosen the correct features, choose a matching species. For more help with this identification guide, watch this video.



Mouse your cursor over your photo to see more detail.

Identification Guide

Face:



Yellow face



Black face



Not Sure

Thorax:



All yellow



Yellow in front

Bumble Bees

You must select one of the choices below before submitting your sighting



Bombus caliginosus



Bombus insularis



Bombus occidentalis



Bombus occidentalis



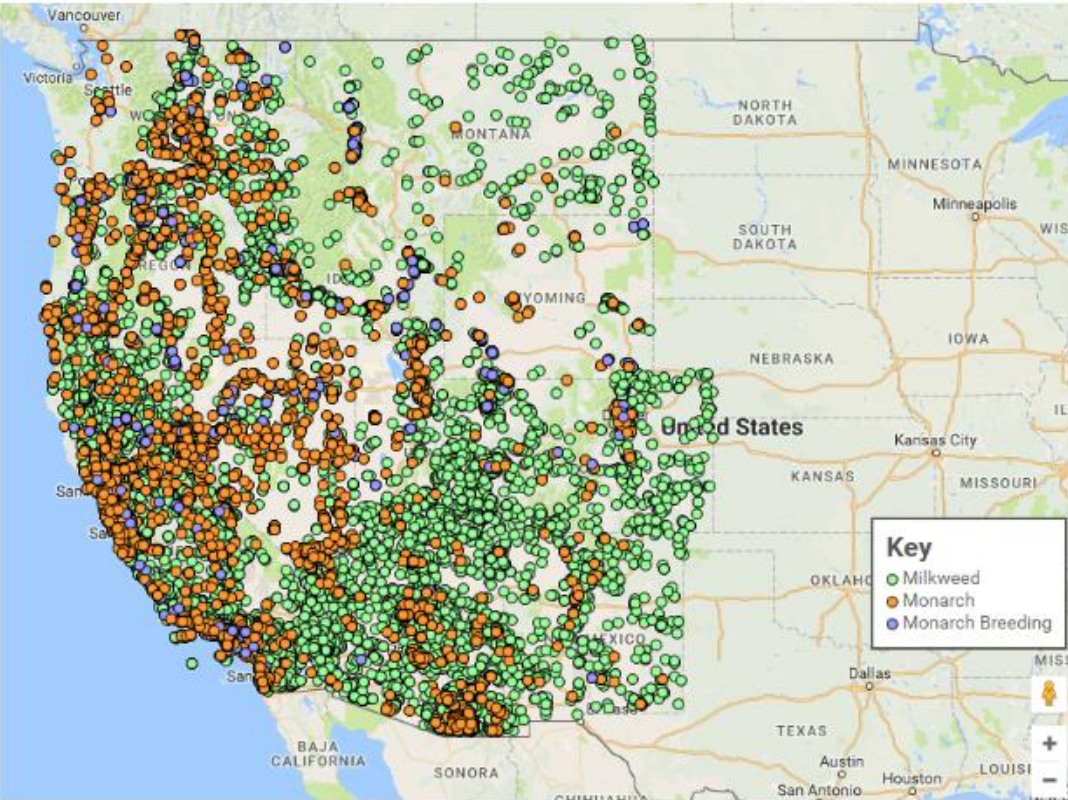
Bombus occidentalis



Bombus vosnesenskii

Western Monarch Milkweed Mapper





Check out sightings submitted in your area! [Explore now](#)



Key

- Milkweed
- Monarch
- Monarch Breeding

How to Submit a Sighting

-  Take a photo of a monarch and/or milkweed
-  Login and upload your photo(s)
-  Identify your sighting
-  Submit your sighting!!

Get started!



WESTERN MONARCH
MILKWEED MAPPER

Learn more and participate at
www.monarchmilkweedmapper.org

Thank you!!

Jennifer.Hopwood@xerces.org



Photo: Rollin Coville



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