

## **Ohio Pollinator Partnership Initiative**

**By Melissa A. Clark & Lori Stevenson, ODNR: Division of Wildlife, Private Lands Office**



Tribute to the monarch butterfly: Ohioans gather milkweed seeds to save a species Ohioans know if they want a sky filled with the wings of the monarch butterfly, it's going to take healthy habitat for monarchs and other pollinators. That's why hundreds of Ohioans worked together last fall to collect approximately 200 pounds of common milkweed seeds, totaling over 19 million seeds!

The massive statewide seed collection effort was spearheaded by the Ohio Pollinator Habitat Initiative, which is working to get the word out about why monarch butterflies are disappearing and help partners create monarch habitat.

Milkweed is the only food source for monarch butterfly caterpillars. The disappearance of milkweed across the U.S. has contributed to the 80% decline of the eastern monarch butterfly population over the last 20 years. Regionally adapted milkweed grows and blooms when monarchs need it most. The dried husks of the common milkweed pods are a treasure chest filled with biological gems - viable milkweed seeds. The decrease in local milkweed plants makes local seed collection efforts all the more important.



"If we want monarchs, we need to protect their awe inspiring multigenerational migration to and from Mexico," explains Marci Lininger, Ohio Pollinator Habitat Initiative Coordinator and U.S. Fish and Wildlife Service Ecological Services Biologist. "That means more milkweed across monarch habitat and speaks to the Initiative's motto 'All you can, where you can'."

From September 1 to October 31, 2017 Ohioans showed their overwhelming support for monarch conservation. Local agencies and individuals came together across 88 counties to collect, label and drop off their common milkweed pods. In preparation for this massive collection effort, Waste Management Inc. donated 90 specially marked collection bins and Soil and Water Conservation District offices served as drop off locations.

"The real method to the madness for collecting common milkweed pods was due to price of common milkweed seed," said Lininger. "Adding in common milkweed

**Continued on page 2**

## **Save the Date**

Find out more at  
[www.eeco-online.org](http://www.eeco-online.org)

### **OEEF Grant**

Letter of Intent due July 10, 2017  
Grant Due July 17, 2017, by 5 pm  
<http://epa.ohio.gov/oee/EnvironmentalEducation.aspx>

### **Grant Workshops**

August 3, 9:30 am until 3:30 pm. at the Harrison County Public Library in Cadiz, Ohio

October 19, from 8:30 am until 2:30 pm at the Summit County ESC, Tallmadge, Ohio.

### **101 Conference**

September 7 at Camp Kern, Oregonia, Ohio. See inside for details.

### **Inquiry-Based Learning Conference**

November 2-3, at Burr Oak State Park. See inside for details.

### **Winter Snow - STEM Conference**

February 2 & 3, 2018 at Camp Nuhop, Butler, Ohio. See inside for details.

### **EECO 51st Annual Conference**

April 12-15, 2018 at Maumee Bay State Park Lodge.

### **Water and Wildlife**

July 23-29, Stone Lab. Find out more and register at  
<https://ohioseagrant.osu.edu/education/stonelab/apply>

## Ohio Pollinator Partnership Initiative

seed to pollinator mixes doubled the price of our mixes and we decided that we could harvest the seeds ourselves and add it to our mixes once we purchased them.”

In 2016, over 2,500 gallons of pods were collected, enough to fill five truck beds! The majority of seeds collected are being grown into plugs. The inmates at MTC-North Central Corrections Complex under guidance of arborist Scott MacCready grew Milkweed plants from the seed that was collected. These seedlings were tended overwinter to increase survival rates for transplanting during the spring. These plants have been distributed to ODNR, Division of Wildlife District Offices for planting in pollinator gardens, to the Audubon Grange facility in Columbus, and to the Seneca & Athens SWCDs for landowners. About 5% of the seeds were given to participating Soil and Water Conservation Districts to thank them for their efforts in the statewide collection. The remaining seeds have been used for outreach and in seed mixes used to establish connected monarch habitats across the Ohio landscape. The seeds sprouting today are priceless, because they are also the seeds of hope for a future filled with monarchs.



Lingerer offered this advice to other states looking to start milkweed collection programs: “Early on you have to establish a firm foundation of partnership and interest. A shared understanding of goals and missions among our partners has given us the ability to make Ohio Pollinator Habitat Initiative a sustainable, long term grass roots program that will be around for future generations -of both Ohioans and monarchs”.

The Ohio Pollinator Habitat Initiative and other partners help create pollinator habitat to achieve the Pollinator Health Task Force’s goals of 7 million acres of pollinator habitat established across North America over the next 5 years and increase the Eastern population of the monarch butterfly to 225 million butterflies.

### Pollinator Resources

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

Curriculum  
Education Tools  
Activities  
Facts  
Helpful links  
Food and Fun

The amazing results of the 2016 collection would not be possible without the support of Ohio Pollinator Habitat Initiative’s partners including: Ohio Soil and Water Conservation Districts, Ohio Department of Natural Resources - Division of Wildlife, Waste Management Inc., Ohio Environmental Protection Agency, Ohio Department of Transportation, Ohio Department of Agriculture, Ohio State University, Wright State University, Master Gardeners, Ohio Certified Volunteer Naturalists, and many more.

For more information about the Ohio Pollinators Habitat Initiative contact: Lori Stevenson by email: [Lori\\_Stevenson@fws.gov](mailto:Lori_Stevenson@fws.gov)

## Ohio Prairie Association Annual Conference

**Saturday July 22nd, 9am-4:30pm**  
**Miami Whitewater Park, Harrison, Ohio.**

Day includes: Introduction to the ecology of Southwest Ohio then a fascinating presentation by Dr. David Lenz about the Ethnobotany of Ohio Prairie Plants, field trip to Fernald Preserve for a presentation and easy walk to learn about this 1,000 acre restored and created prairie and wetland site, return to Miami Whitewater Forest after lunch, for a hayride through the prairie. Topics will include rare species, controlling invasive plants, burning and a tour of the 40 acre prairie nursery. [www.ohioprairie.org](http://www.ohioprairie.org)

## Upcoming EECO News Themes

- **Fall - Invasives - deadline August 15**
- **Winter - Agriculture and EE - deadline Nov 1**

If you think there is a project, lesson, recipe, etc that we should highlight in any of these upcoming issues, please contact Lynn White at [whitelr@butlercountyohio.org](mailto:whitelr@butlercountyohio.org)

# Woodland Butterflies

*By Marne Titchenell, OSU Extension Wildlife Program Specialist*

When we think of an ideal place to see butterflies, we often picture an open sunlit field with beautiful splashes of color from many different wildflowers swaying in a gentle breeze under a bright blue sky. While this is a completely accurate portrayal of an ideal place to see butterflies, it isn't the only place. In fact, butterflies can be found just about anywhere, from remote natural areas to urban parks to our own backyards...to woodlands! Forests are rarely the first place we picture when we think of butterflies, but they provide the important resources butterflies are searching for – nectar plants and especially host plants.

So what are nectar and host plants? The flowering plants that provide high energy nectar for many adult butterflies are called nectar plants. Butterflies are fluid feeders, and while many rely on nectar as their primary food source, it isn't the only fluid they dine on. Other butterflies will feed on sap, over rip and decaying fruit, carrion, and even animal feces!

Host plants on the other hand, are the plants on which female butterflies lay their eggs. They are also food to the caterpillars once they've hatched. Host plants provide certain nutrients that different species of butterfly caterpillars must have. A monarch butterfly caterpillar needs the nutrients found in milkweed plants, whereas a great spangled fritillary caterpillar relies on those nutrients found in violets. This means butterflies are pretty picky about where they lay their eggs – only certain plants will be nurseries to certain butterflies. This is where it gets interesting!



*Red Admiral Butterfly*



*Red-spotted purple above with a ventral view below*

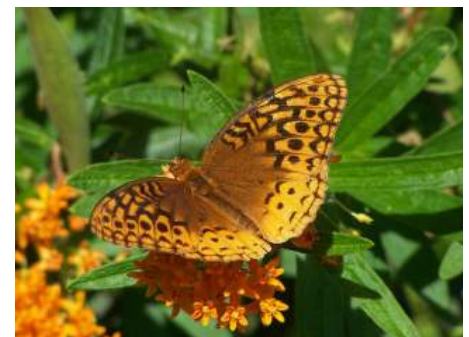


There are roughly 137 species of butterflies (including skippers) in Ohio, and each of those species will be looking for their preferred host plants. Let's consider several forest shrubs and trees that are butterfly host plants. Dogwood, cottonwood, and black cherry are all host trees for butterflies. The tiny blue spring azure, a butterfly seen before many other plants have bloomed in the spring, relies on dogwood as a host plant. Cottonwoods are host trees for the monarch look-alike, the viceroy and one of my personal favorites – the mourning cloak. This early spring butterfly (sometimes seen as early as March) is one of Ohio's only butterflies that overwinters as an adult. The mourning cloak is also a butterfly that prefers tree sap over flower nectar, specifically oak sap. Finally, black cherry is a host tree for my all-time favorite butterfly, the red-spotted purple. Not only is this butterfly beautifully colored with brilliant blue wings spotted with bright red-spots, but the caterpillar of this species is one of the bird dropping mimics. Now why would a caterpillar want to look like bird droppings? Well, to avoid getting eaten by a bird of course! As caterpillars munch 24/7 on lush green leaves, they become fat, nutritious, little food tubes themselves - excellent for hungry birds. Mimicking something unappealing (like bird droppings) is one of many ways caterpillars protect themselves.

The trees in Ohio's woodlands are not the only host plants of Ohio's butterflies. Shrubs and wildflowers also serve as host plants. The spicebush and pawpaw host the spicebush and zebra swallowtails.

Many butterfly enthusiasts argue that the zebra swallowtail, with its black and white striped wings splashed with crimson is Ohio's most elegant butterfly. Along the forest floor, violets, false foxglove, and nettles are hosts plants to the bright, orange great spangled fritillary, the brilliantly spotted common buckeye, and the frequent garden visitor, the red admiral.

In conclusion, woodlands provide habitat for many other pollinators as well. Species of beetles, flies, and of course bees, are pollinators that use woodlands to find part or all of their life cycle needs. For example, Ohio is home to 500 species of native bees, most of which are solitary, searching for nectar and places to nest. Woodlands provide rich sources of nectar (i.e. flowering buckeyes, yellow poplar, basswood, and maple), as well as nesting sites in tree cavities, under bark, in downed logs on the forest floor, and in hollow stems.



*Great Spangled Fritillary*

So when we think 'pollinator habitat,' let's be sure to make some room in our minds next to the image of a sunlit field of wildflowers, for a sun-dappled forest understory, lush with a diversity of wildflowers, trees, and shrubs. Ohio's woodlands are alive with butterflies, bees, and other pollinators!

# Why Native Plants Deserve Preservation

by *Gale E. Martin, Natives In Harmony Nursery*

Native plants are those that occur naturally in the area where they evolved. These plants are the basis upon which life in a given location has depended for centuries, whether it is animals, birds, butterflies or other pollinators. As a young girl growing up in Morrow County, I would disappear for hours, exploring the woods behind the house and identifying the plant life that surrounded my parents' farm. Many times, the only way my mother could get me to come in for supper or to do my chores was to send our hired hand out on a tractor to find me and drag me home. Those experiences, roaming the countryside with field guides in hand, taught me much about what wildlife could be found in the local landscape.

As the years passed, I realized that the opportunities for my grandchildren and great-grandchildren to experience nature as I had were fast disappearing. Something must slow down or stop the loss of our native plants, pollinators, and other creatures, and I felt compelled to do my part. What better way than to use Natives in Harmony, a native plant nursery dedicated to preserving Ohio's native plants, to promote, conserve and restore native Ohio landscapes, and habitats, to propagate and make available Ohio native plants and wildflowers, to educate and acquire knowledge about Ohio's flora and Ohio's natural history and educate others on how Ohio natural history relates to Ohio cultural history.

As the executive director of the Marion County Historical Society in Marion, Ohio for the last 13 years, I have monitored prairie remnants which remain in Marion County. These remnants are the tiny fragmented bits of the once expansive Sandusky Plains that once stretched from the Olentangy River on the east, to the Tymochtee Creek on the west, resulting in an area of about 200,000 acres. This vast prairie now exists only as tiny patches along railroad tracks and roadsides, and in pioneer cemeteries in Marion, Wyandot, and Crawford counties.

By collecting seed on these and other remnants, myself and others, are working to ensure that the genetic material used to establish native plantings is indigenous to Ohio. It is important to us that we provide the correct species needed to recreate habitat for Ohio's native pollinators and other useful insects as well as birds and other wildlife.

Native plants and the habitat they provide are vital to preserving our local biodiversity. When we plant a native garden, that patch, no matter how small, becomes an important local part of the growing nationwide effort to encourage and support the birds and other creatures that evolved in the wilds of what is now North America. Unfortunately, most of the plants available in conventional nurseries originated in other countries or are cultivated native plants which no longer provide the same benefits as their wild ancestors. Using these species may do more than sever the food web, they may in some cases become invasive pests which can crowd out native species and degrade habitat in natural areas.

For many years we, as a country, have continued to take ecologically important land, fragment it, and turn it into lawns containing non-native plants. Our unnatural obsession with the perfect lawn has managed to produce a green, monoculture carpet that does nothing to support functioning ecosystems or wildlife. Our decisions regarding what we do to our lawns have an effect on the native birds, the insects they need to survive, as well as moths, butterflies, and native bees.



Homeowners, landscapers, and local policy makers help the survival these creatures by encouraging the use of native plants in the landscape. An added benefit is that once established; native plants require little maintenance. Because natives are adapted to their local environmental conditions, they need less water, which also equates to saving money, and time.

We have heard about the plight of the Monarch and why we should plant milkweed, but what about the multitudes of other pollinators that are in need of host plants? A large number of butterflies and moths depend on very specific native plant species as larval food sources. For instance, Baltimore Checkerspot butterflies seek out turtle-head plants to lay their eggs on, but it is not uncommon for half-grown Baltimore Checkerspot caterpillars to move to a nearby penstemon and use it as a food source.

We encourage saying "no" to pesticides and fertilizers and "yes" to biodiversity and creating more sustainable landscapes. Did you know that native plants have developed their own defenses against many pests and diseases? Those plants that serve as host plants for beneficial insects may become a bit ragged but are not severely damaged by being a host to the insect or pollinator. Many pesticides kill indiscriminately, which means that beneficial insects become targets in the fight against other pests.



By reducing or eliminating pesticide use, we allow natural pest control to take over and also keep toxins out of our creeks and watersheds.

Choosing native plants allows us all to develop landscapes that coexist with nature, rather than compete with it. Planting several species of native perennials, grasses, shrubs, and trees provide food and shelter for many creatures throughout the growing season. Leaving seed heads and dried plant material in our gardens brings us opportunities to observe nature up close throughout the winter. Imagine the importance of native plants to birds; nearly all terrestrial birds feed their young insects. When you consider that native plants provide food for insects, and those insects provide food for birds, it helps drive home the fact that, as insects disappear, so will the birds.

Consider native trees; they have more to offer than the support of birds and the insects they depend on. They may also provide nectar or habitat for pollinators which might include hummingbirds, native bees, butterflies, moths, and bats. A native maple in your yard provides important early season sources of nectar and pollen for overwintering bees. The native basswood tree offers habitat for native bees and can also act as a host for the Eastern Tiger Swallowtail butterfly. Just about any native cherries, plums, and other similar fruit-bearing trees will attract bees in large numbers, and they also act as host plants for many species of moths and butterflies.

Going native with your landscape preserves the local natural heritage for future generations. Using these plants develops landscapes that coexist with nature, reduces lawn maintenance, and creates beautiful landscapes. Even the smallest change in your personal landscape can significantly increase the number and species of birds, bees and other pollinators found in your area.

Natives in Harmony Nursery wants to inspire the conservation of native plants through our demonstration plantings, through the donation of plants to non-profits and education. Help is always available by emailing [gale@nativesinharmony.com](mailto:gale@nativesinharmony.com) for a consultation, and outreach programs. In doing so, we can help provide habitat for wildlife and enable others to enhance their health and happiness. We are located at 4652 Township Rd 179, Marengo, Ohio. Feel free to call me at 419-688-9800. Please help Natives In Harmony create a better world for us all by planting native plants!



## Cool new Bird app from Cornell

### *An App to ID Your Bird Photos*

That's right: our Merlin Bird ID app just got an upgrade that analyzes photos on your phone and offers bird ID suggestions. Just snap a photo or choose one from your photo library, answer a couple of questions, and Merlin will offer smart suggestions about what North American species it might be. Read more at <http://ebird.org/> or download Merlin free for your iOS or Android device and try it out.

Can't Get a Photo? Merlin still offers uncannily good ID advice from a simple bird description—now

## Calling all Citizen Scientists Interested in Pollinators!

The Gardiner Lab at The Ohio State University Department of Entomology is seeking Citizen Scientists to aid in the study of insect pollination this summer! Our goal is to measure the amount of pollination provided to gardens in rural, suburban and urban landscapes. Measuring pollination is one way to gauge the health of our bee community. All that is required is a small garden space where you will be able to grow four sweet pepper plants and the willingness to follow an experimental protocol this summer!

Information on the Pollination Investigators experiment and details on how to sign up can be found at:

<https://u.osu.edu/pollinationinvestigators/>

Toolkits will be distributed by mid-April, and we are looking for 200 participants from around the state, so feel free to forward this email to others who may be interested.

For more information, contact: Mary Gardiner Associate Professor Department of Entomology, The Ohio State University Columbus, OH 43210 [Gardiner.29@osu.edu](mailto:Gardiner.29@osu.edu)



*Photos by MaLisa Spring  
Native solitary bee and bumble bee*

# Ohio Environmental Education Fund



The Ohio Environmental Education Fund (OEEF) invites applications for mini grants (\$500 - \$5000) and general grants (\$5,000 - \$50,000) for education projects targeting pre-school through university students and teachers, the general public and the regulated community. The Request for Proposals for the July 2017 grant cycle is now open. Application guidelines are posted at [www.epa.ohio.gov/oeef](http://www.epa.ohio.gov/oeef). Please review the application guidelines, and the OEEF Grant Preferred Characteristics for projects targeting the three different audiences, before completing an application.

Prospective applicants can start the process by opening an account in Ohio EPA's eBusiness Center. This can be found at <https://ebiz.epa.ohio.gov/>. Electronic letters of intent to apply must be submitted in the OEEF online grant service no later than 5:00 p.m. on Monday, July 10, 2017. Completed proposals must be submitted in the OEEF online grant service no later than 5:00 p.m. on Monday, July 17, 2017.

Ohio EPA encourages OEEF applicants to discuss their proposal ideas with OEEF staff members before completing their applications. OEEF staff members will be happy to provide a pre-review of draft applications as they are under development in the online grant service.

## Grant Writing Workshops

The Ohio EPA Office of Environmental Education offers grant writing workshops around the state throughout the year. If your organization would be interested in hosting a local workshop, please contact [oeef@epa.ohio.gov](mailto:oeef@epa.ohio.gov).

- **Grant Writing 101: Finding the Right Funder** (format: half-day interactive workshop) Prospecting tips to help you identify foundations, corporations, and government grant programs, and how to approach different kinds of grantmakers.
- **Grant Writing 102: Writing a Winning Proposal** (format: half-day interactive workshop) How to avoid common mistakes applicants make, and develop realistic objectives, activities and budgets. OEEF will be referred to during this session.

### Upcoming Workshops

- August 3, 9:30 am until 3:30 pm. at the Harrison County Public Library in Cadiz, Ohio
- October 19, from 8:30 am until 2:30 pm at the Summit County ESC, Tallmadge, Ohio.

Registration is free. Participants must email [dennis.clement@epa.ohio.gov](mailto:dennis.clement@epa.ohio.gov) to register.

## New General Grant Awards, Spring 2017

In the spring, 2017 application cycle, Ohio EPA awarded the following eight new general grants, for a total of \$239,941.

### **Green Columbus, "Neighborhood Tree Steward Program," \$39,791**

**Audience: General Public, Franklin County**

**Contact: Claus Eckert, [claus@greenbus.org](mailto:claus@greenbus.org), (614) 284-3481**

The project will provide outreach and education to Community Development Corporations, community leaders and residents about the benefits of trees. The audience will learn about the importance of trees, reforestation efforts taking place in their neighborhoods and become further engaged through hands-on learning and demonstrations of tree care techniques. An intro to Urban Forestry Workshop will be provided for Community Development Corporations and to support the Tree Plan for the City of Columbus. Four community outreach events and a series of six Neighborhood Tree Steward Training modules will also be hosted to establish a corps of Tree Steward volunteers. The project will reach 100-150 residents at community outreach events and train at least 100 Tree Steward volunteers.

### **Groundwork Cincinnati – Mill Creek, "Mill Creek Urban AgroForestry Program," \$36,745**

**Audience: Pre-school to University, Hamilton County**

**Contact: Alan Edwards, [alan@groundworkcincinnati.org](mailto:alan@groundworkcincinnati.org), (513) 731-8400**

Working with at least 800 middle school and high school students, Groundwork Cincinnati will provide a new Urban AgroForestry program for students participating in the Healthy River/Healthy People school program. Students will participate in hands on field work activities to learn about habitat restoration, reforestation, water quality improvements

### **Groundwork Cincinnati – Mill Creek, “Mill Creek Urban AgroForestry Program continued**

(wetland restoration, edible forest gardening, invasive plant species removal, etc.) as well as participate in in classroom presentations and discussions surrounding the impacts of climate change on the urban environment and stormwater runoff. These activities will improve urban wildlife habitat in the Mill Creek watershed, will be aligned with the Science Standards for the state, and compiled for teachers to easily match to their curriculum needs. Cincinnati Public Schools, Cincinnati Permaculture Institute and Taking Root will collaborate on the project.

### **Kent State University College of Architecture - Cleveland Urban Design Collaborative, “Habitat for Hard Places,” \$ 6,268**

**Audience: Regulated Community, Cuyahoga County,**

**Contact: Terry Schwarz, [tschwarz@kent.edu](mailto:tschwarz@kent.edu), (216) 357-3426**

The project will explore opportunities for restoring fish habitat in the Cuyahoga River ship channel with developers, property owners, and design students, inspiring better future development projects. Landscape architecture students will also be trained in design strategies that enhance urban environments for people and fish. A two-hour boat tour will be led for approximately 60 property owners, developers, landscape architecture students in the Cuyahoga ship channel. Images showing possible habitat restoration efforts in the ship channel from the perspective of fish in the river and humans living, working, and enjoying the riverfront will be produced and adapted for the Cuyahoga River Restoration website. A series of educational postcards will also be developed from the images and be distributed to the public. A public release event will be held in the Flats to promote the project and expand the project’s outreach efforts.

### **Metropolitan Park District of the Toledo Area, “See Yourself as a Scientist,” \$48,573**

**Audience: Pre-school to University, Lucas County**

**Contact: Heather Rae Norris, [heather.norris@metroparkstoledo.com](mailto:heather.norris@metroparkstoledo.com), (419) 461-0520**

The project focuses on scientific field experiences for middle school students as a way to understand their environmental career options and increase their interest in pursuing college and career technology classes to prepare them for success after high school. Thirty teachers will receive professional development training and resources in both GLOBE.gov investigative science methodology and natural science career exploration so they can continue the learning process with their students in academic year. Up to 900 Students will focus on citizen science students collect real world data, follow actual scientific protocols and report data back to actual scientist in NASA and NOAA. Student and teachers will become more scientifically literate and make informed scientific based decisions on environmental and other scientific issues as they mature. Through the See Yourself as a Scientist Grant, it is anticipated that real world data collection and hands on field experiences will provide a more engaging manner to present career and science curriculum than a classroom only experience. Students will participate in the Career Ambassadors educational programs, citizen science data collection, Google Hangouts with Metroparks staff highlighting careers.

### **Miami County Park District, “Habitat Heroes - Hug the Pollinators!,” \$49,914**

**Audience: Pre-school to University, Miami County**

**Contact: Cinda Hanbuch-Pinkerton, [cindahp@miamicountyparks.com](mailto:cindahp@miamicountyparks.com), (937) 478-1036**

The project will educate students/communities about the importance of pollinators and preserving and creating habitat. As a result, communities will understand the need and create pollinator habitat on school and private properties. Pollinator projects will include habitat exploration field trips and classroom activities. The project will also utilize the arts by creating pollinator songs to teach kids key habitat concepts and making pollinator costumes to reinforce those concepts. Kids will perform a culminating production of a “Habitat Hero – Hug the Pollinators” musical show for their families and community. A weekend festival featuring the Banana Slug String Band Pollinator Musical Show will also be held for the community. Over 10,000 kids and adults will participate in the school and library naturalist led programs and public pollinator festivals over the 2-year duration of the pilot program.

### **Ohio Department of Natural Resources - Ohio Clean Marinas & Clean Boater Program, “Stormwater and Wastewater Training for Ohio’s Marinas,” \$14,628**

**Audience: Regulated Community, Statewide**

**Contact: Heather Sheets, [heather.sheets@dnr.state.oh.us](mailto:heather.sheets@dnr.state.oh.us), (614) 582-1477**

The project will educate Ohio marina owners and managers statewide on stormwater and wastewater practices to reduce nutrient loading at their facility and encourage implementation of best management practices to improve water quality. Trainings will provide marina owners and operators with the education to aid them in complying with the NPDES Industrial Permit regulations and hands on demonstrations of BMPs to encourage voluntary adoption of these practices. Throughout the project, technical assistance will be provided to increase the number of marinas actively participating in reducing nutrient loading at their facility. Participants will learn how their actions impact water quality and how to sample for environmental parameters at their facilities through a series of workshops that we will hold across the state. Ohio Sea Grant, Muskingum Watershed Conservancy District, Franklin County Soil and Water Conservation District and Lake Erie Marine Trade Association will collaborate on the project.

## ***New General Grant Awards Continued***

### **Ohio Wetlands Association, “Ohio Vernal Pool Partnership Expansion,” \$ 25,200**

**Audience: General Public, Statewide**

**Contact: Raymond Stewart, [ray@ohwetlands.org](mailto:ray@ohwetlands.org), (440) 225-1279**

Vernal pool workshops will be held in the spring of 2017 and 2018 to raise awareness of the importance and unique ecology of vernal pools. A set of presentations and teaching resources will also be produced that can easily be adapted by local entities that will host their own vernal pool workshops. Data and observations will be reported using iNaturalist.org, a website that is a database and social networking site where participants can pose questions and use photographs to confirm observations. Participants will also receive media that includes Ohio’s Hidden Wonders Field Guide and a CD of frog sounds to help them identify vernal pool species.

### **Rivers Unlimited, “Citizens’ Water Quality Monitoring,” \$18,822**

**Audience: General Public, Butler and Hamilton Counties**

**Contact: Lisa Link, [lisa.link@riversunlimited.org](mailto:lisa.link@riversunlimited.org), (513) 324-2567**

A monthly water quality monitoring project will increase public awareness of water quality impacts in the lower Great Miami River watershed. Approximately 50 citizens will participate in water quality monitoring and lab analysis on the second Saturday of each month, from March through November. Presentations will include evaluation of water quality trends throughout the year and previous seven years, as well as comparison of pollution parameters at various sites throughout the Great Miami River and its tributaries. Residents will be engaged throughout the year through a public forum and multiple presentations for other non-profits and community organizations. Community members can then employ best management practices in the places where they live to improve the health of our environment.

## **STEM Conference 2017**

***September 26-27, 2017***

***University of Cincinnati and Northern Kentucky University***

The theme is “Partnerships, Networks, Pedagogy, Resources, Models – Stepping Up to the Challenges of STEM Educators,” and the conference will focus on shaping the STEM educators of tomorrow.

Conference Features:

- Showcase of Regional Resources (Scheduled during lunchtime)
- STEM Initiative Models (Learn about existing STEM Models)
- Interactive Workshop Sessions (You participate and walk away with resources)
- Poster Sessions (Held Wednesday)
- Industry Fieldtrips (Held Wednesday)
- Up to 6 Contact Hours

Find out more and register at <http://inside.nku.edu/artsci/centers/cinsam/p12teachers/stem-conference.html>

## **Your Thoughts....**

***on the Proposed Revisions to Learning Standards***

Based on feedback from hundreds of teachers and parents statewide, educators are suggesting improvements to Ohio’s Learning Standards in science, social studies and financial literacy. We ask you to share your thoughts about the proposed changes through a survey open now through Tuesday, July 18.

Take the Survey [www.ohio-k12.help/standards/](http://www.ohio-k12.help/standards/)

Review of the standards began in November, when we asked teachers, parents and community members for suggestions. Based on this input, advisory committees representing education organizations selected standards for revision. Educator working groups then proposed the changes presented in the survey opening today. Those taking the survey will see the rationale for the suggested revisions, which primarily clarify text or make adjustments to the grade levels when students learn related skills and knowledge. In addition, the survey asks for feedback on newly proposed high school anatomy and physiology standards, which teachers requested in the fall.

This survey is part of an overall effort to fine tune all of Ohio’s Learning Standards based on teachers’ experience with them during the past few years. Learn more <https://education.ohio.gov/Topics/Learning-in-Ohio/Standard-Revision-Overview/Standards-Revision-in-Science-Social-Studies-and-F>



# Who's Helping Pollinators in Ohio?

## Examples from recent Ohio Environmental Education Fund grant projects

### Ohio State University – Newark, Educational Programming on Pollinator Conservation and Habitat Restoration

Ohio State University – Newark created a permanent exhibit at the Wilds, a reclaimed mine site and conservation facility in Muskingum County, to link ongoing research on the effects of native plant restoration on pollinators. Summer camp staff, seasonal employees and interns participated in pollinator workshops that provided them skills to engage the public in pollinator-related topics and share research with visitors. Students attending summer camp learned about pollinators and collected data on the plant and pollinator species present at the site. Using technology and data collection, students got really excited about the pollinator observations and taxonomy of bees. For details, contact Karen Goodell at [goodell.18@osu.edu](mailto:goodell.18@osu.edu).

### Cincinnati Nature Center, Habitat Restoration - Speaker's Bureau

This project focuses on the Cincinnati Nature Center's outreach efforts to encourage people to create and maintain habitat for monarch butterflies and other pollinators. Through collaboration with the Natural Resources Conservation Service, local soil and water conservation districts and the newly formed Cardinal Land Trust, the Cincinnati Nature Center offers information to landowners about programs and services available to create or maintain pollinator habitat. Additionally, the Cincinnati Nature Center reached nearly 3,000 people through their educational efforts, distributing more than 100,000 milkweed seed packets to people in Southwest Ohio. An interactive exhibit will also be installed in the Visitor Center to teach about the importance of monarch and pollinator habitat. For details, contact Connie O'Connor at [coconnor@cincynature.org](mailto:coconnor@cincynature.org).



### Dayton Society of Natural History/SunWatch Indian Village, SunWatch Prairie Restoration

To increase biodiversity inside the SunWatch Indian Village/Archaeological Park, the Dayton Society of Natural History is reclaiming five acres of native prairie. Volunteers removed invasive species at the site and seeded native grasses to improve the prairie's biodiversity. Interpretive signs discussing the role and importance of native plantings, pollinators and prairie animals will be installed. Each year, an estimated 16,000 – 28,000 people of all ages and 6,000 – 7,000 students visit the park. For details, contact Lynn Hanson at [lhanson@boonshoftmuseum.org](mailto:lhanson@boonshoftmuseum.org).

### Medina County Beekeepers, Beekeepers Collaborating to Create Pollinator Habitats

The Medina County Beekeepers Association collaborated with businesses and other institutions that supplied grassy land to be prepared and transitioned to pollinator habitat. Local beekeepers worked with the land partners to manage and place native pollinator houses on the sites. The project also financed educational materials, seeds, signs, houses for native bees. Public presentations reached more than 600 people and 33 acres of land were converted to pollinator habitat. Land partners have agreed to maintain the pollinator habitats for at least five years. For details, contact Michele Colopy at [progdirector@pollinatorstewardship.org](mailto:progdirector@pollinatorstewardship.org).



### Five Rivers Metroparks, Discover Huffman Prairie

Since the site was rediscovered in 1986, successful habitat restoration work has been underway on the largest black soil prairie remnant in Ohio, the Huffman Prairie State Natural Landmark, in collaboration with the Wright-Patterson Air Force Base and Dayton Aviation Heritage National Historical Park. For details, contact David Nolin at [dave.nolin@metroparks.org](mailto:dave.nolin@metroparks.org).

### Catholic Charities of Summit County, Camp Christopher Wetland and Pollinator Species Initiative

Catholic Charities of Summit County will seed a wet meadow and native plant restoration to improve habitat for pollinator species. Smaller pollinator gardens will be established on site with replicable design plans for schools and organizations to take back to their own facilities. These smaller gardens will add to the network of "way stations" for pollinators to rebuild and sustain their populations locally. The Ohio Prairie Nursery, Summit Metro Parks and Geauga Park District are providing expertise on local soil types, native plant species, removal of invasive species, and revitalization of the existing seed bank. For details, contact Holly Bollin at [habollin@ccdogle.org](mailto:habollin@ccdogle.org).

### Miami County Park District, Habitat Heroes - Hug the Pollinators!

The park district is embarking on a new, multi-faceted project targeting children and adults. (Read the full description of the project in the Awarded OEEF General Grants section of this newsletter). The project will increase awareness and inspire behavior change to protect and increase pollinator habitat in Ohio. The project will provide hands-on pollinator habitat field trips, classroom activities and toolkits, performing arts experiences and habitat plantings on both schools and private properties. For details, contact Cinda Hanbuch-Pinkerton at [cindahp@miamicountyparks.com](mailto:cindahp@miamicountyparks.com).

# Bats: Learn all about these misunderstood animals and why they are important

**Thursday, July 20**

8:30 p.m.

## **Glacier Ridge Metro Park**

9801 Hyland-Croy Rd., Plain City, OH 43064

Learn about bats, how they use woodlots in central Ohio, and the important role that bats play in our environment. We will journey on a 1-mile nature walk listening to and recording bat echolocation calls with bat detectors as they hunt for their evening meal. Please bring comfortable walking shoes and a flashlight. Outdoor event.

The meeting point will be at the Picnic Shelter in the Metro Park. At Glacier Ridge Blvd Traffic Circle (2nd traffic circle) go west 0.7 miles to oval loop parking lot. Then meet at the Picnic Shelter.

For more information contact Jason Van Houten at 614-265-6703, [Jason.VanHouten@dnr.state.oh.us](mailto:Jason.VanHouten@dnr.state.oh.us)

## **Ohio Geological Survey Open House**

**September 8 & 9, 2017**

8:30 AM–3:30 PM

### **H. R. Collins Laboratory and Core Repository**

Alum Creek State Park, Delaware

Again, in 2017, the Ohio Geological Survey invites college and university Earth Science students and faculty to learn more about the products and services the Survey has to offer during an Open House.

The Collins Lab is the state archive of geological samples and data and the headquarters of the Ohio Seismic Network (OhioSeis). Presentations on a number of topics will be given by technical staff of the Survey's Energy and Mapping Groups and OhioSeis, including:

- The mission and activities of OhioSeis and the Energy Resources group.
- Techniques and equipment used by seismologic and geologic mapping staff.
- Important rock core used in current Survey projects.

Weather permitting, the day will include a short field trip to an important outcrop of Devonian shale. Two dates are available to accommodate different schedules. Each day will feature the same program. Attendees are encouraged to pack a lunch. Space is limited, so interested parties should respond as soon as possible with their preferred dates. Instructors: Please indicate how many students and approximate grade level (undergrad, grad, mix) will be in your group.

**RSVP by Friday, September 1, 2017 to:** D. Mark Jones at [Dalton.Jones@dnr.state.oh.us](mailto:Dalton.Jones@dnr.state.oh.us) (740) 548-7348, Ext. 126

## **OhioSeis Teachers Workshop**

**August 1, 2017**

10 am - 4 pm

### **Mohican Outdoor School**

5370 Bunkerhill North Rd, Butler, Ohio

Join us for this exciting day focused on enhancing the teaching of earth science at the middle school level. Refine your own understanding of earth science and develop new techniques to communicate seismology in the classroom.

This workshop is an opportunity to earn 5 contact hours for professional development by engaging in learning activities & resources designed to help instill a love of earth science your students will take to high school and beyond.

Featured Topics:

- Exploring Our Living Planet: Plate Tectonics
- What's Inside? – Imaging Earth's Interior Using Seismic Waves
- Ohio Quakes: Using Real Ohio Data in the Classroom
- Technical Session: Raspberry Shake Seismometer

Space is limited. Register online by June 30th at: [www.surveymonkey.com/r/39TX3FN](http://www.surveymonkey.com/r/39TX3FN)

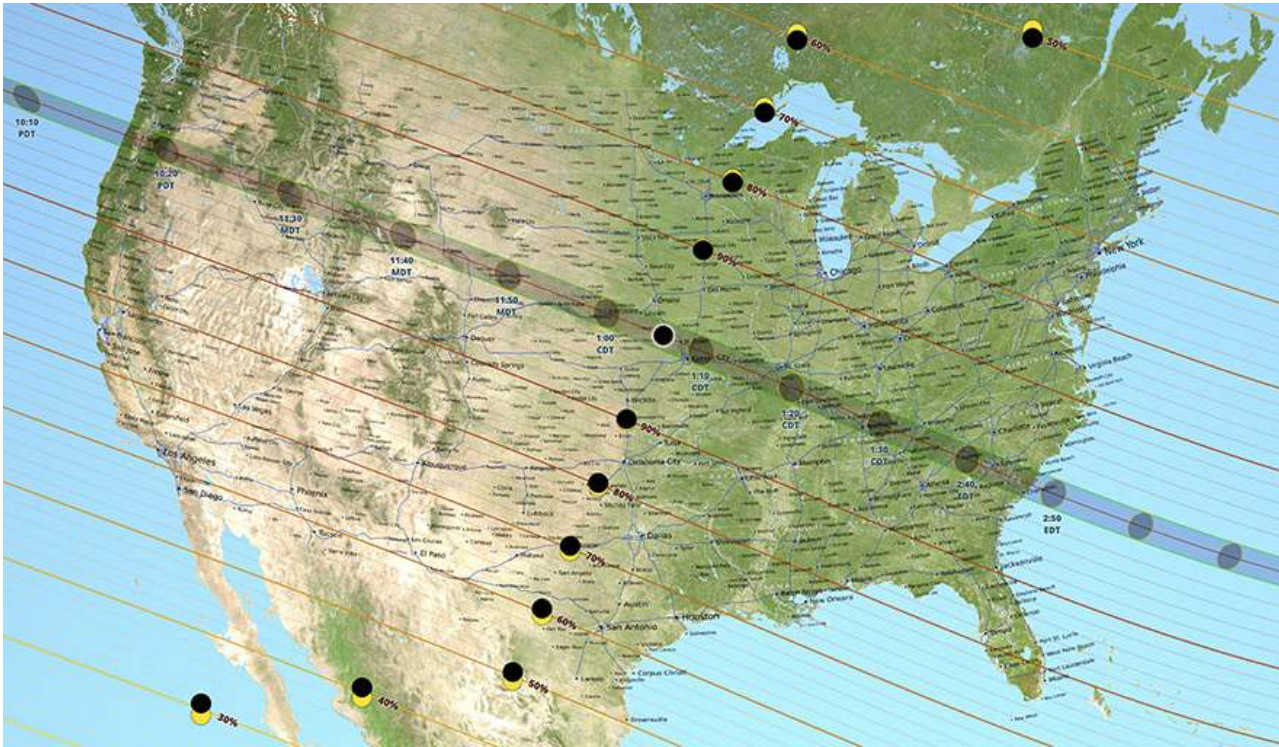
Contact: Sara Kowalke [sara.kowalke@dnr.state.oh.us](mailto:sara.kowalke@dnr.state.oh.us) (740) 548-7348 Ext. 129

# Total Solar Eclipse

from the *U.S. Department of Interior*  
[www.doi.gov/blog/2017-total-solar-eclipse-viewing-tips](http://www.doi.gov/blog/2017-total-solar-eclipse-viewing-tips)

On Monday, August 21, 2017, millions of people across the U.S. will get to see one of nature's most awe-inspiring sights -- a total solar eclipse.

A solar eclipse happens when the moon passes between the sun and earth, blocking all or part of the sun. For thousands of years, people have observed this phenomena, and this year many in the U.S. will get that chance! The last time the contiguous U.S. saw a total eclipse was in 1979, and the next total eclipse over the U.S. won't be visible until April 8, 2024.



## The path of the total solar eclipse

### Solar Viewing Safety Tips

- It is NEVER safe to look at the sun during the eclipse. The sun's rays will cause eye damage and should only be viewed through a solar filter (see <https://eclipse2017.nasa.gov/safety>) or special eclipse viewing glasses. Homemade filters or ordinary sunglasses (even very dark ones) are not enough to protect your eyes.
- Only park in designated areas. Please don't park along the sides of roads.
- Before you head out, make sure you are familiar with the area you are going to and ensure you have appropriate gear, equipment, and supplies.
- Please use designated routes and trails. Going off road disturbs wildlife and habitat.
- Bring plenty of water.
- Pack the sunscreen. Although this event is about the sun's rays being blocked, you'll probably spend some time waiting in the sun.
- Remember to pack it in, pack it out. Remove all trash (including any food scraps like apple cores).
- Be patient and don't expect all services to be available. Many small towns within the path of the eclipse expect their infrastructure and community services to be stretched to the limit. Be early and patient and expect traffic on rural roads. Don't expect cell reception as it is already spotty in rural areas and may be overtaxed by the high number of users.

Find more information and tips at [www.doi.gov/blog/2017-total-solar-eclipse-viewing-tips](http://www.doi.gov/blog/2017-total-solar-eclipse-viewing-tips)

### Solar Eclipse: The Mechanics of Eclipses Free Webinar

Monday July 3, 6:30 pm ET

FREE 1-hour Webinar for Educators in Grades 5-12

The NASA Educator Professional Development Collaborative at Texas State University is providing a 1-hour webinar.

Participants in this webinar will get an overview of the Sun, Earth, Moon system and the basic mechanics of how and why eclipses occur.

This webinar addresses the Next Generation Science Standard ESS1.

# Upcoming Training Opportunities

## **Project WET & Healthy Water Healthy People**

**July 18, 8 am - 4pm**

**Infirmiry Mound Park Bradley Center**, 4309 Lancaster Rd., Granville, OH 43023.

Workshops cost is \$5.

Email [information@lickingSWCD.com](mailto:information@lickingSWCD.com) or call 740-670-5330 for more information.

## **Forestry and Wildlife Educators Workshop**

**A Walk Through Ohio's Forests: The Good, The Bad, The Invasive**

**Tuesday, July 18 and Wednesday, July 19**

**The Ohio State University Mansfield**, 100 Ovalwood Hall, 1760 University Drive, Mansfield OH 44906

Interested in becoming trained in PLT (activities for grades K-12) and learning about forestry, climate impacts, wildlife, and invasive species? Join us at the Educator's Workshop. Attendees will receive the Pre K-8th grade Activity Guide, an additional activity guide for high school students and access to the NEW PLT E-Units (web-based curriculum guides)! Price for this workshop: \$60/person. Overnight accommodations are available on campus at \$30/night

Registration and additional information is available at <http://woodlandstewards.osu.edu/>

## **Water and Wildlife Training for Educators**

**July 23-29**

**OSU Stone Laboratory**, Gibraltar Island, Lake Erie

Become Certified to teach Project WET; Healthy Water, Healthy People; Project Wild; and Science and Civics. To apply, submit the Stone Lab course application found at [stonelab.osu.edu/applynow](http://stonelab.osu.edu/applynow).

Contact [stonelab@osu.edu](mailto:stonelab@osu.edu) or visit [stonelab.osu.edu](http://stonelab.osu.edu) for more information.

## **Let's Learn About Water: Project WET**

**August 11, 8:30 am - 3:30 pm**

**Greenacres Water Education Center**, 6040 Price Hill Rd, Milford, Ohio 450150

**Cost:** \$25 Attendees receive a Project Wet 2.0 Curriculum and Activity Guide, networking opportunities, a light breakfast and snacks, door prizes, fresh ideas and creative inspiration! Please pack a lunch for the day.

**Registration Deadline:** July 28, 2017 [www.eventbrite.com/e/project-wet-educator-workshop-tickets-35464583524](http://www.eventbrite.com/e/project-wet-educator-workshop-tickets-35464583524)

**Questions?** Contact Anne Lyon at [alyon@green-acres.org](mailto:alyon@green-acres.org) or 513-371-5474 (direct line)

## **Online Environmental Education Courses**

Northern Kentucky University is offering two 8-week online courses in Environmental Education Fall 17.

- Fundamentals of Environmental Education (EDU 545), Aug. 21-Oct. 14 – Provides an introduction to the field of EE, including the history and philosophy, methodologies, state initiatives, national standards and current trends.
- Environmental Issues (EDU 594-001), Oct. 18-Dec. 15 – Students will investigate, evaluate and reflect on global and regional environmental issues, as well as develop action-based appropriate solutions.

Email Kimberly Yates [yatesk2@nku.edu](mailto:yatesk2@nku.edu) for more information.

## **Advanced Project WILD Workshops**

### **WILD About Mussels**

Madison/Franklin County

August 4, 9 AM

### **Birds of Ohio**

Richland County

September 21, 9 am

Find out more about both of these advanced workshops at

<http://wildlife.ohiodnr.gov/education-and-outdoor-discovery/conservation-education-project-wild>

# Pollinator Activities

*Kaylin Callander, Lake Hope State Park, Ohio Division of Parks and Watercraft*

If you ask a group of people about bees they will immediately mention two things: they make honey and they can sting. As educators it's our job to bring to light some of the more complex ways bees interact with their environment. After all, they are responsible for a majority of our food production, playing a vital role to plants of all kinds. And they are also super fascinating!

There are hundreds of activities associated with honey bees and their native counterparts. My favorites are the lessons that touch on the more obscure and make it tangible to the audience. For example, pollination is a very important and complex process but it can be hard to see it happening or to understand what happens, especially if you are a kid. The following lesson touches on the process of pollination at a basic level and creates a very visual foundation for future lessons about reproductive plant parts and reasons how and why the bee finds the flowers in the first place.

## **Build a Bee**

The anatomy of a worker bee allows it to perform specialized jobs. Discuss a honeybee's anatomy by using pictures or diagrams, explaining what each part of the bee body does. Pay close attention to the hairs covering its entire body, including its eyes, as this is how they are able to collect the pollen.

Have participants wrap black and yellow pipe cleaners around their pointer finger. Release it from their fingers and add wax paper cutouts of wings with a dab of hot glue. Once it dries they have their own finger puppet to use for the rest of the lesson and to take home.



## **Pollination Observation**

A bee traps pollen on its hairy body as it gathers nectar from a flower blossom. When it visits another flower, pollen falls off the bee's body and pollinates - or fertilizes - that flower. This cross-pollination allows plants to reproduce. To demonstrate how bees transport pollen, have participants use their bees that they have made to "fly" to each flower around the space. If you have a large group, half can be flowers while the others pollinate and then switch the groups so everyone can experience both. You can cut out large flower shapes from construction paper or decorate paper plates to look like a blossom. Sprinkle a thin coat of powdered paint in the center of the flowers, using a different color for each. Each paint color represents the flower's pollen. Invite participants to gently land their bees on one flower center and then fly them to another. What happens as their bees move from flower to flower? The colors of pollen begin to mix! Explain that real bees transport pollen in a similar fashion in order to cross-pollinate flowers in nature.

Of course the production of honey is important and learning to respect insects in order to reduce the chances of being stung are good things to keep in mind when exploring the world of bees. However, with a few easy activities like this one that can be done at any age level, we can begin to expand their horizons in the hopes that they too can be stewards of the natural world just like us.

## **Pollinator Hats**

There are a wide assortment of pollinator hats and headbands that children can make from paper bowls, paper strips, pipecleaners, and other basic craft supplies.



# Update on LEED Schools in Ohio

*by Lisa Laney, Ohio Facilities Construction Commission*

Did you know that Ohio has more green school buildings than any other state? Ohio is fast approaching 300 Leadership in Energy & Environmental Design (LEED) Certified Schools through the US Green Building Council's LEED for Schools rating system. Since 2007, the Ohio School Facilities Commission (now the Ohio Facilities Construction Commission), has required all K-12 schools that received state funding to achieve a LEED Silver certification level. As of now, we have 435 registered LEED schools and 292 schools have achieved certification to date. The OFCC is having a March to 300 social media event to count down the last LEED certified schools to reach 300. This will probably run a month or two at the longest as we have 292 now and numerous projects in a final review status. The twitter handle for OFCC is @OHFacilities and the OFCC home page and Facebook pages feature the schools: <http://ofcc.ohio.gov/About.aspx>

## 101 Alternatives to Chalkboard Conference

*At YMCA Camp Kern  
Saturday, October 7, 2017*



The 101 conference is an outdoor education workshop experience designed to inspire with creative and fun ways to provide exciting learning experiences.

**Cost:** \$30. Includes all sessions, programs, meaks, and overnight accomodation (option of staying Friday and/or Saturday night). Scholarships available

Contact Dave Moran for more details [dmoran@daytonymca.org](mailto:dmoran@daytonymca.org) or 513-932-3756 x 1527

### **Call For Presenters**

Presenters are encouraged to offer active, hands-on experiences that would be of interest to both classroom and outdoor educators. Areas of interest include: natural history, art, teambuilding, environmental issues, technology, health, education, and more. Camp Kern ha 485 acres filled with many teaching resources (ponds, forest, prairie, log cabin, ravines, the Little Mimai River, wetlands, and more). Session presenters are welcome to join the entire conference at no charge.

Contact Dave Moran for more details about presenting or attending [dmoran@daytonymca.org](mailto:dmoran@daytonymca.org) or 513-932-3756 x 1527

## Inquiry-Based Learning Conference

*November 2-3, 2017  
Burr Oak State Park*

Hosted by Rural Action and Camp Oty'Okwa, the goals of this conference are to:

- 1) Model the integration of inquiry-based learning and environmental education into preK-12 classes;
- 2) Provide field-based experiences for teachers and non-formal educators to better inform inquiry-based learning and environmental education across the region;
- 3) Better connect Appalachian Ohio schools with environmental education providers careers related to sciences and the environment

### **Call For Presenters**

We are now seeking proposals for concurrent sessions and field trips. We ask that sessions focus on the following:

- Meeting Ohio's preK-12 academic standards through inquiry-based and/or EE (any subject area);
- Hands-on and inquiry-based activities;
- Best practices in using outdoor spaces such as land labs, schoolyards, or nearby public land;
- Include lesson plans that participants can take back to their classrooms, parks, nature centers, camps, etc.
- Academic and career opportunities for students in environmental fields

Please send Presentation Proposals to Joe Brehm at [joe@ruralaction.org](mailto:joe@ruralaction.org) using the form below by July 15th.



# Pollination and Honey Bees

*By Patty Siebert, Greenacres*

Don't you love eating peaches, nectarines, mangoes, apples, lemons, cantaloupes, cucumbers, melons, cashews, and kiwis? These plants are part of the \$15 billion in US crops pollinated annually by honey bees. Blueberries and cherries are 90% dependent on the honey bee pollination, while California almonds are 100% dependent. These farmers must have 1.8 million honey bee colonies come in from other states by commercial beekeepers to pollinate 1 million acres of almond trees, their \$2.3 billion-a-year crop.

Bees need to collect pollen, which provides them with protein, fats/lipids, minerals and vitamins, and nectar, a carbohydrate, to feed themselves and their brood. As they move among the flowers, worker bees use "flower fidelity"; traveling through only one kind of flower on any foraging trip. This makes honey bees great cross pollinators. They carry the pollen on the branched fur on their bodies and in their pollen baskets that will fertilize the next flower. What is most interesting is that bees have a strong positive charge to their bodies while flowers and plants are negatively charged. As a bee flies to a flower, the pollen can actually jump onto its fur!

During blooming, plants need to have enough pollinators so that they can make their seeds for the next year and people can get a sustainable crop. When you see misshapen apples, pumpkins, or other fruit, these are from flowers that were incompletely pollinated. For instance, an apple has many sections in its ovaries called carpels. When a carpel is properly fertilized, the carpel expands and covers the seeds. If there is no fertilization, the carpel stays small which leads to distorted fruit. Pollination can be seen as more of a process; parts of a flower can be fertilized while other parts may not.

The Bee Informed Partnership, along with the Apiary Inspection of America (with funding from USDA) found that beekeepers in the US lost 44% of their hives from April 2015-2016. What is particularly scary is that for the second year, many hives were lost in the summer when the hives should be thriving with the blooms and good weather. According to the Xerces Society, the US had 6 million colonies in 1945. Now we are at a 50-year low with 2.59 million colonies. There are many reasons for this: habitat loss (many fallow farm fields that used to be filled with flowers now planted in soybeans and corn, or people's housing has moved in), colony collapse disorder, varroa mites, non-native plants, pesticide use, and disease. Our native bees are facing the same threats.

How can you help these pollinators? Besides planting native plants in your yard for all types of bees, how about getting your own hives? Beekeeping is a fascinating hobby, your plants will get pollinated, and you will even get honey and beeswax. What could be more fun? Watching the bees return to your hive, landing, entering the hive covered with pollen, more bees pouring out – it can be as heartwarming as watching a fire. Time slips away.

The first step in beekeeping is joining your local beekeeping club. There you can sit in on their informative meetings, find best places to obtain your equipment, learn how to order your bees, and hopefully find a mentor that can help you along the way. I have kept my own bees for 17 years and it took me at least 5 years to join our beekeeping club. I wished I had done so years earlier.

Check with your zoning department to make sure you are allowed to keep bees in your area. If you can't, find a friend who might love to have your beehives in their yard. This is what I have to do now. What surrounds the area where the hives will be? Are there fields of flowers or are you up next to farmland? Will your bees get sprayed if chemicals are applied to the fields? Is there water nearby for the bees to gather? Do you have the time to take care of the bees? Test them for mites? Treat them for mites. It sounds like so much to do, but once you start keeping bees, it is hard to stop. If your bees die one winter, you will probably order a new package the next spring. Put yourself on a list for swarms. Enter your honey at the Fair for judging. It is hard to stop thinking about your bees.

Besides attending your local club meetings, there are beekeeping schools throughout the year. You can pick up so much new information there. The internet has lots of articles and YouTube videos. The learning is endless and you will make many friends with fellow beekeepers. You will wonder how you got along before becoming a beekeeper.

If you teach outdoors, we have a fun Honey Bee program at Greenacres that people love. We set up a screened in tent between two hives, put the children inside, and then open the hive right in front of them. Other stations include bee dance communication, having the children help us extract honey, and, of course, tasting of different honeys on crackers. To learn more about this inspiring educational program, please log onto [www.green-acres.org](http://www.green-acres.org) or call 513-371-5475.

When bees thrive, we all thrive.



# Your Regional Directors

## Region 1 - Central Ohio

Linda Pettit, Franklin SWCD  
T: 614-486-9613  
[lpettit@franklinswcd.org](mailto:lpettit@franklinswcd.org)

## Region 2 - NW Ohio

Jennifer Elsworth, Metro Parks of Toledo  
T: 216-870-1814  
[jennifer.elsworth@metroparkstoledo.com](mailto:jennifer.elsworth@metroparkstoledo.com)

## Region 3 - NW Central Ohio

Sheila Cubick  
T: 330.718.0186  
[SheilaC@zoominternet.net](mailto:SheilaC@zoominternet.net)

## Region 4 - SW Central Ohio

Donna Lewis, Clark County Park District  
T: 937-369-3101  
[dlewis@clarkcountyparkdistrict.org](mailto:dlewis@clarkcountyparkdistrict.org)

## Region 5 - SW Ohio

Errin Howard, Riverworks Discovery  
T: 513-451-5027  
[errin@riverworksdiscovery.org](mailto:errin@riverworksdiscovery.org)

## Region 5 - SW Ohio

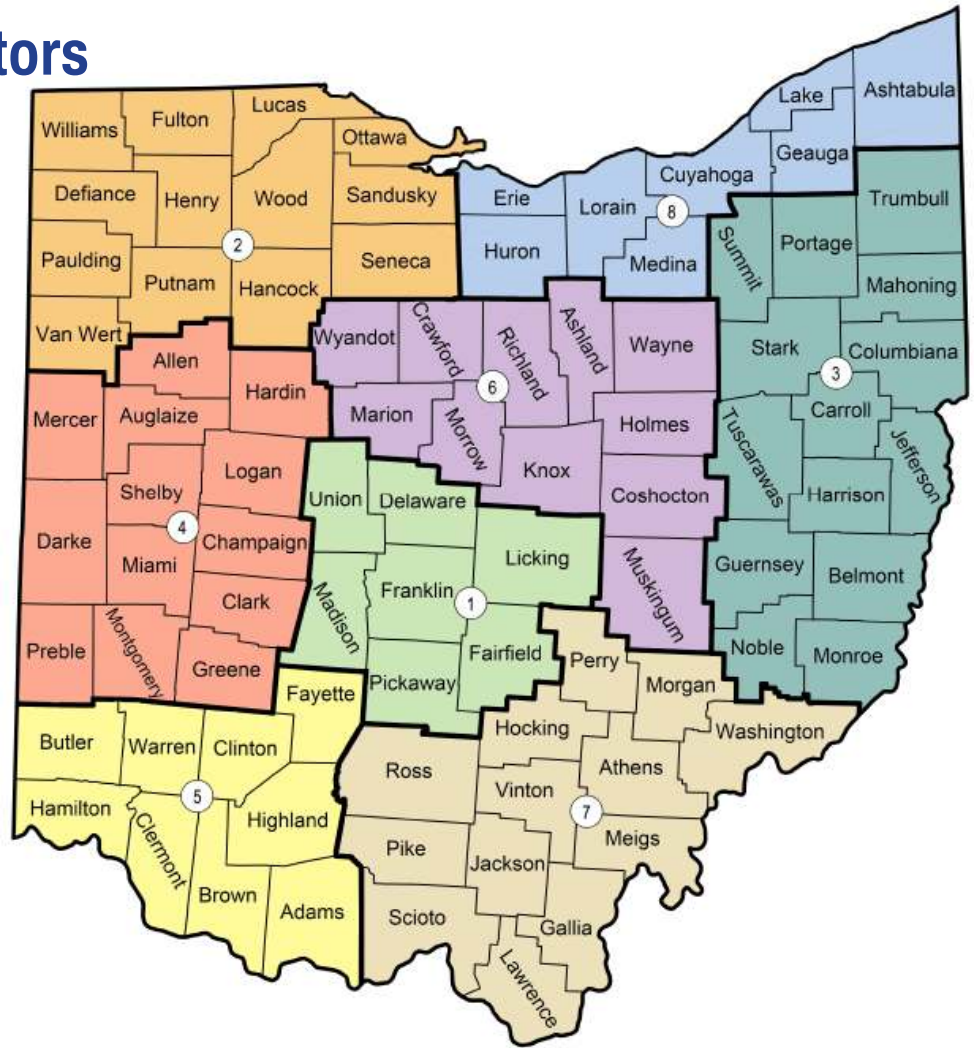
Sue Magness, City of Cincinnati OES  
T: 513/352.5332  
[Sue.magness@cincinnati-oh.gov](mailto:Sue.magness@cincinnati-oh.gov)

## Region 6 - N Central Ohio

Joanne Mudra  
T: 419-892-3521  
[jcmudra@gmail.com](mailto:jcmudra@gmail.com)

## Region 6 - N Central Ohio

Janet Ellsworth, retired, Mansfield City Sch  
T: 419-884-0818  
[wellsworth@neo.rr.com](mailto:wellsworth@neo.rr.com)



## Region 7 - S Central Ohio

Vicki Kohli, retired, Fairfield SWCD  
T: 740.653.8154  
[dakohli@frontier.com](mailto:dakohli@frontier.com)

## Region 8 - NE Ohio

Dawn Wrench, Earth Day Coalition  
T: 216/281-6468x225  
[dwrench@earthdaycoalition.org](mailto:dwrench@earthdaycoalition.org)

# Your Board Members

## EECO Officers, Advisors & Personnel

Executive Director  
Brenda Metcalf  
[director@eeco-online.org](mailto:director@eeco-online.org)

President 2017-18  
Allison Shaw  
[shaw@metroparks.net](mailto:shaw@metroparks.net)

Past President 2017-18  
Joe Brehm  
[joe@ruralaction.org](mailto:joe@ruralaction.org)

Vice President 2017-18  
Josh Dyer  
[jdyer@crowdordparkdistrict.org](mailto:jdyer@crowdordparkdistrict.org)

Treasurer 2017-19  
Amanda Kriner  
[akriner@richlandcountyoh.us](mailto:akriner@richlandcountyoh.us)

Secretary 2016-18  
Sue Matz  
[sgmatz13@gmail.com](mailto:sgmatz13@gmail.com)

Advisor— OEE, OEPA  
Carolyn Watkins  
[carolyn.watkins@epa.ohio.gov](mailto:carolyn.watkins@epa.ohio.gov)

Advisor— ODE  
David Schklar  
[David.Schklar@education.ohio.gov](mailto:David.Schklar@education.ohio.gov)

Advisor— ODNR  
Jen Dennison  
[Jen.Dennison@dnr.state.oh.us](mailto:Jen.Dennison@dnr.state.oh.us)

## EECO Board Members

Sophia (Fia) Turczynewycz  
[fia@cincinnati-zoo.org](mailto:fia@cincinnati-zoo.org)

Tracy Cindric  
[tracy.cindric@ode.state.oh.us](mailto:tracy.cindric@ode.state.oh.us)

Ken Green  
[Green4680@msn.com](mailto:Green4680@msn.com)

Ebony Hood  
[HoodE@neorsd.org](mailto:HoodE@neorsd.org)

Lija Kaleps Clark  
[lija@theenergycoop.com](mailto:lija@theenergycoop.com)

John Kurtz  
[johnk@kurtz-bros.com](mailto:johnk@kurtz-bros.com)

Dave Moran  
[dmoran@daytonymca.org](mailto:dmoran@daytonymca.org)

Denise Natoli Brooks  
[denise.natoli.brooks@gmail.com](mailto:denise.natoli.brooks@gmail.com)

Abby Rhodebeck  
[arhodeb@rei.com](mailto:arhodeb@rei.com)

Laura Schetter  
[lauraschetter@gmail.com](mailto:lauraschetter@gmail.com)

Lynn White  
[whitelr@butlercountyohio.org](mailto:whitelr@butlercountyohio.org)

Joshua York  
[Joshua.York@metroparks.org](mailto:Joshua.York@metroparks.org)