

EECO

Environmental Education Council of Ohio



Winter 2018

Agriculture in EE

Blanchard River Demonstration Farms

The Blanchard River Demonstration Farms Network (BRDFN) is a joint partnership between U.S. Department of Agriculture Natural Resources Conservation Services and the Ohio Farm Bureau Federation. BRDFN is a Great Lakes Restoration Initiative project designed to showcase and demonstrate leading edge conservation practices to improve Great Lakes water quality.

Project manager, Aaron Heilers, likes to show a mason jar filled with white pellets of commercial fertilizer. This represents the amount of phosphorus — 1 pound — that scientists estimate is escaping from each acre of farmland and contributing to algae blooms in Lake Erie and other waterbodies. Just like any pollution problem, the amount of pollution, in this case phosphorus loss, is small for each individual, but quickly adds up when looking across the watershed.



The project works with three demonstration farms: Stateler family Farms in McComb, Kurt Farms in Dunkirk, and Kellog Farms in Forest. Hundreds of people have visited the farms to see both traditional and new techniques for reducing agricultural nutrient runoff. The demonstration farms showcase agriculture's commitment to addressing the state's water quality challenges and what conservation measures work best for each individual farmer while still being affordable.

In addition to farm tours, the project researches new and standard conservation systems in reducing phosphorus and sediment. They also create opportunities for others to test their research, provide technical assistance and develop program implementation.

Find out more about the project at <https://blancharddemofarms.org/>

Save the Date

Winter Snow - STEM Conference

February 2 & 3, 2018 at Camp Nuhop, Butler
<https://eeco.wildapricot.org/events>

How to Guide Student Research and Community Engagement

Feb 9-10, 2018 at Cincinnati Nature Center, Milford
<http://www.cincynature.org/education/for-teachers-3/>

Ohio Wildlife Diversity Conference

Mar 6, 2018 more details soon at
<http://wildlife.ohiodnr.gov/calendar>

Ohio Amphibian and Reptile Conference

Mar 20, 2018 at 4H Center, Columbus
<http://ohparc.org/>

EECO 51st Annual Conference

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

Ohio Student Wildlife Research Symposium

April 12, 2018 at Maumee Bay State Park Lodge
<https://eeco.wildapricot.org/events>

Life on a Sandy Delta

June 3-9, 2018, at Camp Oty'Okwa, Hocking Hills

Winter Snow - Creative Ways to Teach STEM

2 - 3 Feb 2018

Camp Nuhop, Perrysville

Astronomy Night

Fun, interactive night of stargazing for astronomy lovers from beginner to expert! Spend some time learning winter constellations with Jason Larson, Director of the Richland County Park District.

Saturday Keynote

The Wonderful World of Ohio Owls, by Judy Semroc. This program presents information about the natural history, behavior, secrecy and more about Ohio Owls. Come and learn about tips to potentially locate our beloved Owls, especially in Winter!

Registration

Find out the full schedule and register at <https://eeco.wildapricot.org/>

Full Conference (Fri-Sat, 3 meals, snacks, and lodging)

Member \$110

Non-member \$135

Presenter \$95

Student \$85

Saturday Only (3 meals included - no lodging)

Member \$75.00

Non-member \$110

Saturday Night Lodging - \$25



My 4-H

By Alida Askill, Edgewood Middle School, Trenton

Most people think that 4-H and the county fair are just about taking animals and showing them, but there's so much more. My name is Alida Askill and I am the first 4-Her of my family. With support from my club "Wayne Town and Country" and family, I have represented Butler County at the Ohio State fair 4 times now. The only thing I have done so far is special interest projects. This is anything that doesn't involve showing animals. Instead, you take other things like posters and things that you have made. Special interest projects involve anything you can imagine. Some examples include canning, shooting sports, writing, sewing and much more.

There are a lot of projects involving natural resources such as Ohio Birds,



Why Trees Matter and Fishing. They all involve learning about our outside world. These are important topics for the health of this planet, animals, plants and humans as well. I have taken several natural resources projects and have enjoyed them.



Being in 4H has broadened my experiences and helped me figure out what I love to do. It helped me get the skills I needed to become a better version of myself. It would do the same for you.

4-H: Building Leaders for a Better Tomorrow

By Kevin Harris, OSU Extension• Butler County



I know parents have been busy trying to keep their kids busy this winter. As a parent of two young boys, I can feel your stress. The good news is that each day we get one day closer to spring and the

opening day for Major League Baseball. As parents, you have probably wondered what else I can do to keep my kids busy, but also have them learn in a fun environment year round. Then you need to take a closer look at the 4-H program.

First of all, if you did not grow up in 4-H you may be wondering what 4-H is all about. Many people assume it is about showing farm animals; however this is only a small part of the story depending upon your interests and local staff. Nowadays projects can include robotics, health, film making, and STEM projects to name a few.

4-H is an educational program for boys and girls age 5 – 19 years of age. The foundation for building our future leaders is rooted in providing youth with numerous learning experiences from 4-H projects, club meetings, social activities, tours, camps, fairs, fund-raisers, and community service projects. 4-H was born in Clark County, Ohio in 1902. In Butler County where I am based, the 4-H program consist of fifty-three 4-H clubs with a total enrollment of 1100 youth. Youth have the opportunity to select from over 250 educational projects that they can complete to take to the county fair. Projects range from animal science, food and nutrition,

workforce preparation, clothing and textile science, small engines and lawn care, money management, robotics and shooting sports.

4-H focuses on building our youth into leaders by strengthening life skills through countless educational experiences. What is the meaning of a life skill? A life skill is a learned ability. Life skills are those competencies that assist our youth in functioning well in the environments in which they live in today, as well as the environments they will live in the future. Examples of life skills include goal setting, self-motivation, critical thinking, sharing, and self-esteem, to name just a few. All 4-H professionals work to instill life skills into youth that will help them to become healthy and productive citizens in Ohio and the world.



Many counties offer 4-H open houses. These open houses allow parents and youth direct access to the wide variety of projects offered by their County 4-H Youth Development Program. Those attending will be able to view countless 4-H projects, meet the 4-H Youth Development staff, 4-H youth members, 4-H adult advisers and learn how to take the next step to be enrolled in the program. This will be the perfect time to also find out about all the 4-H clubs and learn about projects that you might have interest in. The deadline for 4-H enrollment and summer projects is April 1, 2018.

I would like to encourage parents and youth to go to <https://ohio4h.org/> to search for all kinds of projects, and information on our great program. You can also find contact info for your counties 4-H staff. Regardless of where you live, you will find an educational project that will appeal to you.

I would like to invite you to come and see us on February 3, 2018 at the Butler County Fairgrounds. For more information, please contact me at harris.2184@osu.edu or (513)-785-6650 .



Winter Growing in Hoop Houses

By Denise Natoli Brooks, Licking SWCD

The local food movement is growing rapidly throughout Ohio, but especially in Licking County. To respond to the demand for more local food and year-round availability, farmers have had to change how they do business. High tunnels are the tool many farmers incorporate into their operation because they have the ability to extend growing seasons earlier in the spring and later in the fall.

High tunnels, or sometimes referred to as hoop houses because of their hooped shape, are a simple frame structure usually made out of pipe and covered with a single layer of greenhouse grade plastic. Unlike greenhouses, high tunnels do not have electrical service, automated ventilation, or heating systems. These tunnels are equipped however with a source of water that generally feeds a drip irrigation system.



High tunnels come in all shapes and sizes, but they are generally tall enough to walk in and are a less costly version of a greenhouse. They are a great place to start seeds, experiment with alternative crops, and control pests.

Dick Jensen of Flying J Farm is able to have goods such as tomatoes available around 4 weeks earlier with his high tunnel. Why wait for the middle of summer for a tomato, when you can have one in May? Instead of extending his growing season into the winter months,



he uses the high tunnel to house his chickens. The high tunnel provides a better environment for the chickens through the winter and the chickens provide fertilizer for spring crops.



While getting to the market earlier in the spring is one advantage of the high tunnel, having produce available later into the fall is just as beneficial. Who doesn't want fresh lettuce at Thanksgiving? The Dilbone Family of Sunbeam Family Farm is able to provide a variety of produce to customers enrolled in their Community Supported Agriculture (CSA) until almost January.

But growing outside of the normal season still has risk. Cynthia Dilbone mentioned being able to control many of the environmental factors, but late frosts in the spring and early frosts in the fall are still a threat to the crops. Deciding when to plant becomes a balance of having early or late produce, versus the risk of low temperatures damaging crops.

Many school gardens can benefit from a high tunnel because they extend the growing season to cover more months when school is in session. What to do with all the fresh produce? At Granville High School in Granville, produce from their school garden gets delivered to the cafeteria and incorporated into student lunches. At Magnificat High School in Rocky River, produce is delivered to the Meals on Wheels program.

Though increasing control of Mother Nature's effect in a high tunnel may make it seem that growing in one would be rather simple, as it turns out hoop house growers are busy all year scheduling, planting, harvesting crops, and taking goods to the market. Imagine how students could build critical life skills by planning what and when to plant, planting and watering to ensure germination and growth, and harvesting a delicious and healthy product.

The Nature Conservancy opens Ashtabula County Nature Center



Recently, The Nature Conservancy held the Grand Opening of the Dr. James K. Bissell Nature Center at its Grand River Conservation Campus in Ashtabula County. The event celebrated the hard work staff and volunteers have contributed to making the dream of the first-of-its-kind environmental education center in Ashtabula County a reality.

The Nature Conservancy dedicated the Center to Dr. James K. Bissell, a leading Ohio botanist and career employee of the Cleveland Museum of Natural History. Bissell has been a strong advocate of conserving rare and unique habitats throughout northeast Ohio, especially within the Grand River Watershed.

Historically, the land now known as the Grand River Conservation Campus at Morgan Swamp Preserve has been home to the Calendar Farm, a private hunting retreat, and the Workmen's Circle's Camp Vladek as a Jewish community retreat. In 1965, the property was purchased by the City Mission of Cleveland to establish a Christian camp for urban youth. In 2001, The Nature Conservancy acquired the Campus through a donation from the City Mission.

A grant from the Ohio Environmental Education Fund (OEEF) helped contribute to The Nature Conservancy's

successful completion of the Dr. James K. Bissell Nature Center. OEEF provided funding to support three main exhibits interpreting the natural history of the Grand River Lowlands, which include a rotting log exhibit, a watershed map and a beaver and pond exhibit. The exhibits have become an integral part of the visitor experience at the Center and school programming at the Campus.

The Center not only provides visitors with the opportunity to learn about natural history through these interpretive exhibits, it also offers a Children's Discovery Area where children of all ages can discover nature through books, puppets, pelts and other touchable natural artifacts. Visitors are encouraged to get close-up to nature using magnifying glasses and microscopes to investigate prepared specimens including feathers, scales, and insect wings. Visitors are also encouraged to get outdoors to view wildlife and explore the many trails available at the Preserve.

The Dr. James K. Bissell Nature Center is open Saturdays and Sundays from the first weekend in April through the first weekend in December. More information about the Center is online at nature.org/bissellnaturecenter.



The New Kids on the Block: Central State University Extension

By Lisa Craig, CSU Extension Butler/Hamilton Co.

Central State University (CSU) is Ohio's newest 1890 Land-Grant institution. CSU Extension (CSUE) has County Agents co-located with Ohio State University Extension in 6 counties: Hamilton, Butler, Cuyahoga, Franklin, Montgomery, and Lucas. One of CSUE's agricultural aims is to advance agricultural technology. In other words, CSUE's goal is to become a leader in helping Ohioans to resolve many food and agricultural issues related to the agricultural, social, and economic problems that are linked to natural resources and food production. Our Extension presence in Butler and Hamilton counties is helping achieve this goal by connecting Southwest Ohioans to agriculture in both urban and rural communities.

CSU Extension in the Community

On November 11th, 2017 CSUE's Butler/Hamilton County Agent, Lisa Craig, presented at the 2nd Annual Family Science, Technology, Engineering, Agriculture, and Math (STEAM) Resource Fair, hosted by DOCERE and Orion Academy. This event showcased STEAM science projects completed by 2nd-12th grade students in Hamilton County. In addition to having their projects judged, students and their parents had the opportunity to tour vendor booths, including the CSU Extension table where they learned about vermiculture, growing plants indoors, making their own season extenders (cloches), and more. Adventurous adults and youth even took starter vegetable plants, donated by Gabriel's Place, home with them to put their newfound knowledge to the test.

Upcoming Programs

Few gardeners are content with the length of their growing season. With the unpredictable weather extremes experienced here in the Midwest, it becomes imperative to find ways to shield crops from harsh

conditions and damaging frost. On January 17th, 2018 at 6 p.m., Central State University Extension and the USDA Natural Resource Conservation Service (NRCS) will present

Extending the Growing Season-From Hot Beds to Hoop Houses at the Butler County Extension Office. This program provides helpful information on a variety of season-extending techniques and plant protection devices. Included in the program will be information about the NRCS's Environmental Quality Incentives Program (EQIP) which offers financial and technical assistance to agricultural producers. For additional information or to register, please contact Lisa Craig, CSUE's Butler/Hamilton County Agent, at lcraig@CentralState.edu

Central State University Extension will be sponsoring the Urban Agriculture Track at the 39th Annual Ohio Ecological Food and Farm Association (OEFFA) Conference, February 15-17th, 2018 in Dayton Ohio. Among the presentations offered will be Preventing Zoonotic Disease Transmission from Livestock. This presentation will detail common zoonotic diseases (a disease that may be transmitted between animals and humans), their risks, and practical prevention strategies. For additional information, please contact CSUE's Butler/Hamilton County Agent, Lisa Craig, at lcraig@CentralState.edu. You may register for the OEFFA Conference 2018 at www.oeffa.org/conference2018



EECO's EE Certification Program

Week of June 18th at Old Women Creek Reserve, Huron, Ohio

If you are interested and able to participate, please let Jennifer Bucheit Jennifer.Bucheit@dnr.state.oh.us know. The week-long workshop will highlight literacy, planning and implementation, assessing programs and more.

EE Certification Program Fee – \$500.00

Fee includes materials, lodging and meals during training and Saturday Registration at the EECO 2018 Annual Conference at Maumee Bay State Park Resort.

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. Application guidelines are posted at 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 Jan 9, 2018. Completed proposals must be submitted in the OEEF online grant service no later than 5:00 p.m. on Jan 16, 2018.

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.

- **Grant Writing 101: Finding the Right Funder.** 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.** How to avoid common mistakes applicants make, and develop realistic objectives, activities and budgets. OEEF will be referred to during this session.



Upcoming Workshops

Email Dennis Clement dennis.clement@epa.ohio.gov to register for the following combined 101/102 workshops.

- **Friday, March 9**, 9:30 a.m. – 3:30 p.m. Lebanon High School, Lebanon, Ohio 45036. Register by Mar 2.
- **Wednesday, April 4**, 9:30 a.m. – 3:30 p.m. Clark County Combined Health District, Springfield, Ohio 45504. Register by Mar 30. Lunch will be provided.
- **Tuesday, April 24**, 9:30 a.m. – 3:30 p.m. Black Swamp Nature Center, Paulding, Ohio 45879. Register by Apr 20.

Mini Grants Awards, Fall 2017

In the fall 2017 funding cycle, Ohio EPA awarded the following 10 mini grants for a total of \$34,369.

Athens City Schools – Athens Middle School, "Inquiring Minds: Soil and Water," \$4,153

Audience: Pre-School – University, Athens County

Contact: Mary Ann Hopple, mhopple@athenscsd.org, 740-541-1898.

Inquiring Minds: Soil and Water will focus on inquiry activities and experiments for all of the 7th grade students (approximately 200 students) at Athens Middle School in Athens, Ohio. We will be using activities from Project WET, Healthy Water Healthy People, the Wonders of Wetlands, and teacher-created opportunities to engage the students in topics related to water and soil, as found in the content standards for 7th grade from the state of Ohio. The activities will also help students develop their understanding of STEM as it relates to the content. Athens SWCD is collaborating.

Canal Winchester Local Schools – Canal Winchester Middle School, "How Does Runoff Affect Soil and Water Quality of a Wetland Ecosystem," \$500

Audience: Pre-School – University, Franklin County

Contact: Steven Bocock, sbocock@cwls.us, 614-833-2151

Students will perform water and soil testing of the wetland next to our middle school. The wetland is surrounded by multiple human activities that may contribute to soil and/or water quality problems. Students will determine the health of the water and soil and develop a plan to make changes to increase biotic diversity. The nationally known curriculum The Wonders of Wetlands will be used to facilitate this project. Columbus Metro Parks and the Ohio EPA, DSW are collaborating. Project would benefit 3 seventh grade middle schools.

Antwerp Local School District – Antwerp Local Schools, “Native Plant Prairie and Wildlife Area,” \$5,000,

Audience: Pre-School – University, Defiance and Paulding Counties

Contact: Linda Mabis, mabis_l@antwerpschools.org, 419-258-5421

The Native Plant Prairie Project is located on a two-acre section of the Antwerp Local Schools complex. The Project will include native plants, shrubbery, trees, a pavilion, picnic tables, water gardens, bird and bat houses, composting, use of solar lighting and pumps, and mail box with identification books to assist visitors as they observe plants, insects, butterflies, and birds. The overarching goal of the project is to promote and spread an environmental conservation message, provide habitats for butterflies, birds, pollinators, and aquatic life, and enrich student’s learning experience on this outdoor education learning lab. The project will benefit several groups of local community residents and 750 students in the district. Paulding SWCD, Toledo Metro Parks, Girls Scout Troop 20516, Paulding-Putnam Electric Co-Op, Paulding Area Foundation, Antwerp Rotary, and Paulding County Master Gardeners all are collaborating.

Slow Food Columbus, “Slow Food Columbus Low-Tunnel Environmental Project,” \$5,000

Audience: Pre-School – University, Franklin County

Contact: Christina Weatherholtz, cweatherholtz3151@columbus.k12.oh.us, 614-365-5556.

Students in the Columbus City Schools district will be engaged in environmental education activities to include awareness and water conservation in an outdoor garden-based learning program. Specific Ohio State Standards in the areas of Science, Social Studies, and Reading-Language Arts will be addressed using low-tunnel plant-based learning. Low-tunnel growing allows for students to plant seeds earlier in the season with a harvest ready before the end of the school year. The Slow Food Columbus School Garden Program includes low-tunnel supplies, professional development, and plant-based learning support to CCS. As an integral element of the environmental program, Franklin Soil & Water and Franklin Park Conservatory will use established curriculums such as Project Learning Tree and Project Wet. These collaborators will visit each of the twenty-one schools where students will learn about soil, water conservation, and how to direct sow & grow real food for healthy consumption. Over 549 students in Columbus City Schools would benefit from this project. Columbus City Schools, Franklin SWCD and Franklin Park Conservatory are all collaborating.

Cleveland Metropolitan School District – Campus International High School, “Stream and Water Quality Analysis,” \$2,035

Audience: Pre-School – University, Cuyahoga County

Contact: John Dutton, john.dutton@campusinternationalschool.org, 216-308-3940.

Biology students at Campus International High School in Cleveland metropolitan School District, an International Baccalaureate school, will participate in stream and water quality analysis activities on the Cuyahoga River and another body of water. The analysis will be a thorough biological, physical and chemical analysis to determine the overall health of the waterways including a determination of nutrient loads to use for further analysis in the classroom. Campus International High School is a new high school, starting with 125 ninth-grade students in the 2017-2018 school year, all of whom will be taking biology.

Columbus City Schools – Cedarwood Elementary, “Kindergarten Life Science Triad,” \$5,000

Audience: Pre-School – University, Franklin County

Contact: Heather Allen, hallen704@columbus.k12.oh.us, 614-397-1460

Around 180 Columbus City School kindergarteners will participate in the Kindergarten Life Science Triad, participating in hands-on activities and field trips to learn the Ohio life science standards, use science inquiry and application, and explore careers in the field of life science. The students will experience three in-class lessons led by a science specialist and three field trips to extend what the students learned during the in-class lesson. Students will complete a journal documenting the six experiences. The Columbus Zoo and Aquarium and Franklin Park Conservatory are collaborating. Columbus City Schools Spruce Run Outdoor Education Center will be the third venue of the triad.

Ottawa SWCD, “Augmented Reality Sandbox,” \$2,145

Audience: Pre-School – University, Ottawa County

Contact: Becky Simpson, becky.simpson@ottawaswcd.com, 419-898-1595

This grant will be used to purchase equipment to build a portable Augmented Reality Sandbox (ARS). The ARS is a 3D model that uses a hands-on approach to demonstrate different earth science concepts. This model uses a kinetic camera to project different landforms onto a sandbox. Participants can then change the landform by moving the sand to see how water flows and disperses over the watershed after a rain. We will use this as an

Ottawa SWCD continued

educational tool to demonstrate soil erosion, watershed awareness, non-point source pollution, landforms, and topography. Classroom presentations will be aligned with Ohio's science education standards. We anticipate that the model will be used in programs reaching over 3,000 students and adults.

Graham Local Schools – Graham Elementary School, "Graham Elementary Trout in the Classroom Aquaponics Adventure," \$5,000

Audience: Pre-School – University, Champaign and Logan Counties

Contact: Emily Kay Shreve, shrevee@grahamlocal-schools.org, 937-539-1521

This project will serve as an addition to our existing successful Graham Elementary Trout in the Classroom Project funded previously by OEEF. We intend to add another tank in our building. We are in the beginning stages of researching aquaponics, and we are hoping to use this process of filtering our tank water in one of our tanks. Our elementary school will be participating in the First Lego League project for the 17-18 school year, and we are in the beginning stages of researching ways to incorporate this year's theme of hydrodynamics to our TIC project. We are excited to add another tank and a new "layer" to our project for the 17-18 school year.

Holmes SWCD, "Learning About My Watershed," \$1,300

Audience: Pre-School – University, Holmes County

Contact: Michelle Wood, mwood@co.holmes.oh.us, 330-674-2811

We are requesting an Enviroscape Watershed/Nonpoint Source Model and carrying case to provide a hands-on, interactive demonstration of the sources and effects of water pollution and the conservation practices that can be adopted to minimize them. Holmes SWCD has used an Enviroscape model extensively for 20-25 years with our current model that is cracked and been repaired many times. Holmes SWCD staff provide in-classroom presentations that meet our primary objective of promoting clean water and healthy soil. The Enviroscape easily aligns with the ODE Learning Standards. Our staff provides presentations to approximately 1000 students annually. Of that 1000 students, our objective is to demonstrate the Enviroscape to at least 200 students, or approximately 8 different classes. East and West Holes School Districts are collaborating.

Imago, "School Yard Environmental Learning Stations," \$4,236,

Audience: Pre-School – University, Hamilton County

Contact: Ellie Falk, efalk@imagoearth.org, 513-921-5124.

Imago will work with Pleasant Ridge Montessori (a Cincinnati Public School) to design and implement environmental learning stations at the school's existing garden and nature scape. For the last three years, Imago has led weekly, standards-based outdoor education programs at the school. As we plan for the school's transition to greater ownership of the program, the proposed learning stations will give teachers an enhanced opportunity and ability to lead their own outdoor education lessons. Each station will be a physical space in the outdoor classroom and will also include lesson and activities for the teachers to use. Station examples include pollinator gardens, bird watching area, an arboretum and more. Not only will these stations create richer learning opportunities, they will also enhance schoolyard biodiversity. Moreover, the framework of the stations and the lessons developed can be replicated and applied to other Imago school partners. Pleasant Ridge Montessori School is collaborating.

Update on LEED Schools in Ohio

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. We now have 435 registered LEED schools and 292 schools have achieved certification to date.



Twitter handle for OFCC is @OHFacilities

OFCC home page and Facebook pages feature the schools: <http://ofcc.ohio.gov/About.aspx>

New General Grants, September 2017

In the fall 2017 application cycle, Ohio EPA awarded the following seven new general grants, for a total of \$ 207,860.

Brookville Local School - Brookville Intermediate School, "Brookville Biodiversity Project," \$20,136,

Audience: Pre-school to University, Montgomery County

Contact: Annette M Drake, drakea@brookvilleschools.org, (937) 833-6731

Approximately 100 seventh grades students will work collaboratively in small groups to investigate and solve the question: What is Brookville's biodiversity and how can you improve it? The goal of this project is to increase student awareness and knowledge of their local environment, to make informed decisions, and take action to improve their community. Students will develop critical thinking, problem-solving and decision-making skills by designing and completing an inquiry investigation. Evidence collected by students will be synthesized to design and create a proposal and final product that answers the proposed question. Students will then demonstrate their understanding by presenting their proposal & product to an authentic audience that include Dayton Metro Library, Brookville City Council, Five River MetroParks, parents & district administration. Student products will also be exhibited throughout the community.

Columbus Jewish Day School, "CJDS/EPA Storm Water Quality Enhancement, Education and Awareness Program," \$19,351

Audience: Pre-school to University, Franklin County

Contact: Gina Freeman, gfreeman@cjds.org, (614) 939-5311

The project will enhance the water quality of the storm water basin and wetland restoration within the Rose Run Creek Watershed by planting emergent plants, trees and shrubs near the storm water basin's edge. The project will also provide two comprehensive environmental stewardship curriculum professional development workshops for 21 faculty members. The workshops are based on Habit for Learning Guidelines and ODE Science Standards as they pertain to water and water quality. Approximately 65 students will participate in Grade Level project based learning units connected to Wetland Education. The goal of the project is to improve water quality of the storm basin and educate students and faculty about pertinent water quality issues. Exploration of careers in the environmental sciences and creation of a site-specific field guide will be additional project outcomes.

Columbus Public Health, "Air Monitoring Education Project," \$28,865

Audience: Pre-Kindergarten – University (High School), Franklin County

Contact: Richard Hicks, rickh@columbus.gov, (614) 645-7155

The project will monitor outdoor air quality in Columbus neighborhoods and provide educational information to residents on general levels of criteria pollutants found. Air monitoring stations will be installed at Columbus Public Health and Worthington Kilbourne H.S. Data collected from the air monitoring sensor stations will be used to increase awareness about outdoor air quality and pollution, its possible impacts to people and wildlife, and to offer strategies that can both reduce residents' individual contribution to air pollution and potential harmful exposures when high levels of pollution are present. An air quality kiosk will also be installed in the lobby at the Columbus Public Health where visitors can access air quality data. Kiosk promotional material will be produced to target department clients, visitors, partner organizations and nearby neighborhood associations. The project will educate more than 100 students about air quality and the kiosk has the potential to reach thousands of visitors to Columbus Public Health.

Logan County Soil and Water Conservation District, "Exploring Effects of Water Quality in Western Ohio," \$21,272

Audience: Pre-school to University, Auglaize, Darke, Hardin, Logan, Mercer, Miami and Shelby Counties

Contact: Dave Shellhaas, dshellhaas@mresc.org, (937) 599-5199

The project will provide curriculum resources, professional development and field experiences for seventh grade teachers and students in 45 school districts in seven west-central Ohio counties. The materials and activities of the project will focus on the concept of water quality in western Ohio. A major focus of the project will involve the issues surrounding the nutrient load in many watersheds and the recent blue-green algae concerns facing many bodies of water in western Ohio, as well as Lake Erie. Teachers will participate in professional development and field experiences that will provide opportunities to engage in water quality testing. Participating teachers will receive a Healthy Water, Healthy People Curriculum and a water testing kit.

General Grants Continued

Public Media Connect, "Let's Get Wild: Teachers Learn to Teach about Nature," \$37,000

Audience: Pre-school to University, Brown, Butler, Clark, Clermont, Clinton, Darke, Delaware, Fairfield, Fayette, Franklin, Greene, Hamilton, Highland, Jackson, Lawrence, Licking, Marion, Miami, Montgomery, Morrow, Pickaway, Preble, Richland, Ross, Scioto, Shelby, Union and Warren Counties

Contact: Tina Spaulding, tspaulding@thinktv.org, (937) 220-1670

This Project will train 600 preschool and school age teachers in Southwestern/Central Ohio to use nature as a tool to teach multidisciplinary and STEM topics to the children in their care. The curriculum book, Growing UP Wild will be used as the basis of the training, with a materials kit, story books and other materials to encourage teachers to use the hands-on lessons learned with children in their care. Local YMCA, child care centers, and Ohio Department of Job and Family Services sites will be used to host these workshops in these counties. An e-newsletter will be used to encourage teachers to attend as well as encourage more teachers to use the activities as they are included in the newsletter. This training is Ohio Approved and will provide three training hours for child care teachers who are required to receive at least ten hours per year of training.

The Ohio State University - Center for Automotive Research, "Fueling our Future: Introducing 7th Graders to Careers in Clean Energy," \$34,862

Audience: Pre-school to University (Grade 7), Champaign, Cuyahoga, Franklin, Madison, Portage, Stark, Summit, and Union Counties

Contact: James Durand, durand.14@osu.edu, (434) 996-6829

A 30' hydrogen fuel cell bus will be outfitted with a series of simple hands-on learning experiments that will introduce students to photovoltaics, wind, and fuel cell based energy conversion to teach 7th Grade Students about the environmental benefits of clean energy technologies. A trailer with a PV array and a wind turbine will also be used to demonstrate these clean energy technologies. Students will also learn about career opportunities in manufacturing, maintenance, and research and development in clean energy production and conversion. In addition to participating in activities on the bus, students will participate in classroom activities before and after the bus visits their school. Teachers will also be provided with professional development training in alternative energy technologies and careers in clean energy. The project is an initiative of the Renewable Hydrogen Fuel Cell Collaborative, which consists of The Ohio State University, Columbus State Community College, Ohio Fuel Cell Coalition, and the Stark Area Regional Transit Authority.

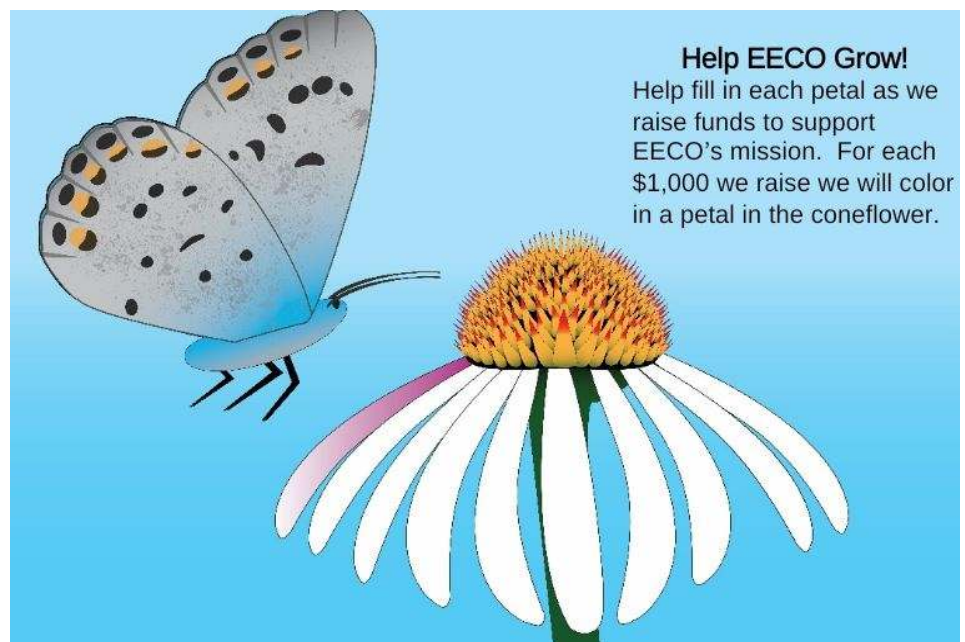
Help EECO Grow

Would you like to help further environmental education in Ohio? Consider contributing to EECO. All donations are tax-deductible and will help increase awareness of environmental issues in Ohio.

Find out more at <https://eco.wildapricot.org/support>

Other ways to support EECO:

- **Amazon Smile.** Select the "Environmental Education Council of Ohio" as your charity. Log into Amazon Smile every time you shop at Amazon.
- **Goodshop.** You can also shop hundreds of popular retailers at Goodshop, and your purchase will benefit EECO.
- **Direct Donation.** You can make a direct donation through your Google account. Your full donation goes directly to EECO.
- **Legacy Donation.** Consider making a legacy donation to EECO's endowment fund at The Columbus Foundation.



Help EECO Grow!

Help fill in each petal as we raise funds to support EECO's mission. For each \$1,000 we raise we will color in a petal in the coneflower.

Farm Industry & Education

By Amy Graves Colgan

Demand strong for agriculture-related jobs

The job market is strong for U.S. college graduates with expertise in food, agriculture, renewable natural resources or the environment. The U.S. Department of Agriculture has projected that between 2015 and 2020 there will be a nationwide shortage of qualified individuals to fill careers in these areas. Recognizing this shortage, Ohio's agriculture industry has been reaching out to grade school students to introduce them to the basics of agriculture (often with a STEM approach) as well as highlight the robust agriculture-related job market for everything from food scientists to farm-animal veterinarians to water resources scientists.

Some free agriculture related resources for teachers

For Your InFARmation

The Ohio Livestock Coalition has free teacher resources about the origins of food and livestock farming in Ohio. An annual contest allows teachers to enter to win a free, all-expenses-paid field trip to a livestock farm for the entire class and a \$250 gift card for classroom supplies. Visit <http://ohiolivestock.org/FYI/index.html>.

Pig farm virtual visit

Students can look inside pig barns and talk to farmers via live video chat from their classroom. The Ohio Pork Council offers the free virtual field trips via Google Hangouts, a video chat platform that can accommodate multiple classrooms at once. For more information, visit www.ohiopork.org/fieldtrip

American Farm Bureau Foundation for Agriculture

Free downloadable activities and lesson plans about agriculture, including a Discover Ag Careers booklet, are available at agfoundation.org/resources. The foundation also has a Food & Ag Resource Guide at www.agfoundation.org/ag-resource-guide.

GrowNextGen

GrowNextGen has reached more than 20,000 teachers and 500,000 students in Ohio and beyond. The program brings agriculture science to the classroom with industry leaders and teachers providing real-world educational tools. It's backed by funding from the Ohio Soybean Council and Ohio soybean farmers. Visit <https://grownextgen.org/> for lesson plans and more.

Feed the World

Classroom lessons, written by Ohio teachers, answer the question "How will we feed 9 billion people?" and address topics such as water quality, biotechnology, energy and ethanol, soil and sustainability. A weekly blog (at <http://ohiocorneducation.org/news/>) highlights agricultural education projects across the state. Access the lesson plans and more at <http://ohiocorneducation.org/>. The program is supported by the Ohio Corn & Wheat Growers Association.

Amy Graves Colgan is a freelance writer who has covered agriculture for 14 years.

2018 EECO Annual Conference

"On board with Environmental Education"

April 12-15, 2018 • Maumee Bay State Park

Conference strands include:

- Lake Erie and Water Education
- STEM & Careers
- Strategic Growth for Organizations
- Outdoor Education and Natural History
- Sustainability and Energy

Conference registration, sessions, fieldtrips, workshops and more will be posted shortly on the EECO website

<https://eeco.wildapricot.org/>

EECO Awards

Awards will be presented during the 51st EECO Annual Conference. If you would like to submit a nominee, please complete the form found at <https://eeco.wildapricot.org/awards> by February 28.

Finlay-Johnson Award

- given to an EECO member for making a significant or outstanding contribution to EECO.

Christy Dixon Award

- given to a young professional who has contributed significantly to environmental education in Ohio.

Outstanding Environmental Educator in the field of formal education

- given to a preschool, elementary, middle school, high school or college teacher, administrator or curriculum specialist for outstanding contributions to environmental education in Ohio.

Outstanding Environmental Educator in the field of nonformal education

- given to a nonformal educator for outstanding contributions to environmental education in Ohio.

Outstanding Volunteer Award

- given to a volunteer who has made a significant or outstanding contribution to environmental education in Ohio.

The Charley Harper Award

- given to an artist who has made a significant or outstanding contribution to environmental education in Ohio through various forms of art.

Organization Award

- given to a business or organization that has made a significant contribution to environmental education in Ohio.

Publications Award

- given to a publication that has made a significant contribution to the public understanding of an environmental issue(s).

Ohio Alliance for the Environment Award

- given to a business or industry that is dedicated to fostering a climate of cooperation for resolving environmental problems.

Ohio's State Soil

You can't talk about agriculture and not talk about the soil. Did you know that we actually have a state soil? You wouldn't be an Ohioian without knowing our state tree is a Buckeye. Less well known is that the Miamian Soil series is our state soil.

Miamian soils are the most widespread soils in Ohio. They occur on more than 750,000 acres in the state. As well as being geographically extensive, Miamian soils are well suited to a wide range of land uses, and are highly productive for agriculture. The large area of Miamian soil contributes to the fact that more than 50% of the land area of Ohio is classified as prime farmland. Corn, soybeans, and winter wheat are the primary crops. Originally, Miamian soils supported forests of deciduous species, such as white oak, maple, elm, ash, and hickory, though almost all areas of Miamian soil have been converted to broad acre agriculture.

The average annual precipitation ranges from 33 to 42 inches, and the average annual air temperature ranges from 51 to 55 degrees F.

The Miamian series consists of very deep, well drained soils that formed in a thin layer of loess and in the underlying loamy till, which is high in content of lime. The original vegetation consisted of deciduous forest species, principally white oak, maple, elm, ash, and hickory.

Find out more at www.soils4teachers.org/files/s4t/k12outreach/oh-state-soil-booklet.pdf.

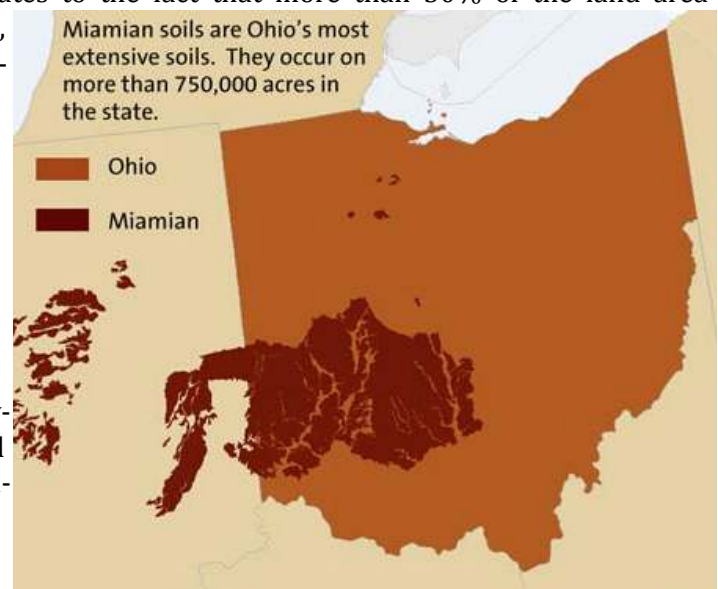


Image: Smithsonian National Museum of Natural History

Soil & Water Conservation Districts

by Emily Heppner, Ohio Dept of Agriculture



Every county in Ohio has a local Soil and Water Conservation District (SWCD). These SWCDs are independent political subdivisions of state government. Two years ago, at the state level, the Division of Soil and Water Conservation transferred to the Ohio Department of Agriculture from the Ohio Department of Natural Resources.

The Ohio Department of Agriculture was excited when the Division of Soil and Water Conservation was transferred and it looks to incorporate more education and outreach programs. Two of the main programs they work on now are the "Agriculture is Cool" program and Envirothon.



Agriculture is Cool

The Ohio Department of Agriculture, Ohio Farm Bureau, Ohio State Fair and the state's agricultural commodity groups sponsor the "Agriculture is Cool" program at the Ohio State Fair. Students in fourth grade can enter the scholarship contest by visiting interactive booths at the fair. After the fair, these students can write an essay and enter to win a \$500 scholarship.

Envirothon

The Envirothon is a high school competition designed to stimulate, reinforce and enhance student interest in the environment and natural resources. In addition, the Envirothon encourages cooperative decision-making and team building. Students are tested on their knowledge of soils, forestry, wildlife, aquatic ecology and current environmental issues. While each student on a team is challenged individually to contribute his or her personal best, the score that counts at the end of the competition is the team score. A team consists of five students, all from the same high school. An adult advisor (or advisors) must accompany the team, but is not permitted to assist the team during the competition.

High School students compete at one of the five Area Envirothons. The top four teams from each Area Envirothon go on to compete at the state competition held annually in June for the title of State Envirothon Champion. The winning team will then compete at the national competition, the NCF Envirothon, held in July at different locations throughout North America. Statewide over 1200 kids participate in the competition.

In Ohio, the Envirothon has been hosted by the local Soil and Water Conservation Districts since 1989. I encourage teachers to contact their local Soil and Water Conservation District for more information. Registration deadlines are fast approaching for this year's competition.



Your Local Soil and Water Conservation District

Even with the change at the state level, the local Soil and Water Conservation Districts (SWCD) continue to work on educating the public about natural resources and many have added new and innovative programs to their already extensive list of programs. Just as the geography in each county is different, so are the natural resource concerns of local residents. This means that no two districts provide the same locally-driven programs. Some district's focus on agricultural concerns, some mainly on urban issues such as construction and stormwater. One thing that all district's provide is education. Whether directed at students, farmers, or homeowners, this sharing of knowledge is a large part of working at a SWCD. Throughout the year, many SWCDs offer workshops and events for local residents on a variety of issues such as nutrient management or building rain gardens. Some District's are fortunate enough to house an education specialist who can provide classroom programs and resources. The best way to find out what is available locally, is to contact your SWCD. Find out how to contact your's at www.agri.ohio.gov/divs/SWC/SearchLocalSWCD.aspx or contact me at Emily.Heppner@agri.ohio.gov.

Meet EECO

Board Member Spotlight: Sue Gantz Matz

Susan Gantz Matz is a retired research manager who spends as much time as possible outdoors hiking and gardening and volunteers tutoring math and science, leading a Lego robotic group and helping the kids with their vegetable garden at an inner city school in Cincinnati. Sue spent almost 30 years in the polymer industry conducting or leading research to design materials for building, transportation and packaging, recycling and working on alternate feedstocks for polymers. She set up and led the science outreach group at LyondellBasell which has brought hands on science to the classroom and trained teachers and gives them supplies to lead hands on science in their classes. Sue has been a Girl Scout most of her life and has been on the Girl Scout of Western Ohio board for 14 years and is leading the outdoor property committee which gets her to places she really enjoys, the camps.

Sue earned her BS in Chemistry at Purdue University and MS and PhD in Chemistry at the University of Cincinnati.

What brought you to EECO? I have been involved with the TIE (teachers, industry and environment) conference for over 20 years. Carolyn Watkins is also involved and encouraged me to get involved with EECO as an industrial partner. I did and found many great resources that I could use in my educational outreach activities.

What would you like to see EECO accomplish in the next 5 years? I would love to see the organization grow and continue to expand the number of people who learn about the importance of and how to protect our environment.



Vicki and daughter Chelsea

Vicki Kohli, Regional Director, Retiring

By Brenda Metcalf, EECO Executive Director

On behalf of EECO I would like to thank Vicki Kohli for her over twenty years of commitment to this organization through her service as a Regional Director. Vicki decided to retire in 2017 as a Regional Director, but not from EECO! She will continue to help out EECO where she can. Vicki's creativity and dedication to advancing Environmental Education has been a lifelong endeavor. I met Vicki in 1991 when she was working as an Education Specialist for a

Recycling and Litter Prevention Program. I was fresh out of college and she was more than willing to share her knowledge of the solid waste jungle with me. We developed a lasting friendship. I will always be grateful to Vicki for her support, kindness, sense of humor and ability to cut to the chase to solve a problem. EECO will always be grateful to Vicki for those same reasons as well as her years of dedication to spread the mission and vision of EECO to thousands of nonformal educators, formal educators, students and general public participants in her workshops and events. Vicki is a rock star! Thank you Vicki, and we look forward to seeing you as often as possible at EECO events!



Vicki with other past and present regional directors

Contact EECO

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