EECO

Environmental Education Council of Ohio

Summer 2022

In Memory of Herb Broda

Our dear friend Herb Broda has left us. He passed away peacefully on September 1 surrounded by his family.

Herb's award-winning career in education spanned over 50 years. This included positions as a 6th grade teacher and principal (Apple Creek Elementary); elementary supervisor, assistant superintendent for curriculum and instruction, and interim superintendent (Tri-County ESC); professor of education (Ashland University); and student teaching supervisor (The College of Wooster). It is impossible to fully represent the impact Herb had on his students and colleagues over the years, but he will be remembered as a gifted teacher and a tireless champion for the field of education. His legacy lives on in classrooms around the world.

Herb is perhaps best known for his work and passion in the field of outdoor education. Countless educators continue to embody his "change of pace and place" philosophy of integrating the outdoors into all aspects of the learning experience. Herb's work in this area included a television documentary, numerous professional and scholarly articles, two books, and hundreds of workshops and presentations for local, state, national, and international organizations.

His incredible legacy of EE, friendship, mentoring, support and love for nature will never leave us. Please keep his family in your thoughts and prayers during this difficult time.

Reflectiive Walk in memory of Herb. His family are hosting calling hours and a reflective walk on Friday, September 30. The hike is taking place from 5-7pm at the Barnes Preserve in Wooster.

EECO Director, Brenda Metcalf shares this great memory about Herb.
It was the 1997 EECO Conference at Deer Creek. I had just received the first "Christy Dixon" Award, which was named after an amazing educator who had recently passed away at that point in time. I was brand new to the EECO world. I had not known Christy or any of the EECO leaders. To say that the ceremony was a bit overwhelming was an understatement. Herb, seeing me try and process everything and everyone around me, came up to me with his enormous smile and sweet disposition. He proceeded to tell me a bit about Christy and her love for teaching others about the natural world. At the end of his discussion about Christy and EECO, Herb proceeded to grab me by the shoulders, looked me straight in the eyes and said, "I expect great things out of you." I thought, "holy nuts, no pressure!" LOL! Six years later I became the EECO Executive Director. My first Winter Snow Conference, (where Herb was known as the Winter Snow King), I teased Herb and said it was all his fault that I was the new ED for EECO. We laughed over the years about how it was his fault that I was still with EECO. I will ALWAYS be grateful for Herb for expecting great things from me, for supporting me and for being an amazing friend. His legacy will not only live on in EECO, but all around the globe as people read his books and remember what an amazing environmental educator he was. His love of the natural world will always remain with us who were blessed to call him friend.

American Ginseng

By Joe Brehm, Rural Action

Fighting through an understory thick with invasive multiflora rose and the friendlier northern spicebush, I finally reach the creek. Clear, clean water tumbles over slick clay and grainy sandstone slabs from pool to pool on its deliberate journey towards the Hocking River. Western black-nosed dace and creek chubs swim for cover under sycamore root balls and into underwater crawdad burrows. Recent rains brought water levels up a few days ago and wiped clean the bars of sandy silt along the creek, an ideal substrate for memorializing wildlife traffic. Fresh tracks of a doe and her tiny fawn are obvious; the steep walls of their tracks make them easy to identify even from a distance. Mink tracks also dot the exposed banks, their spore still holding some water along the creek's edge. And finally, the fresh asymmetric footprints of a bobcat where it traveled along the creek in various gait patterns, but mostly walking. The crisp impressions of its teardrop shaped toes and large, three-lobed heel pad reveal the wild cat was here not long ago, probably within a few hours. Yearning to know what fungi may be fruiting in the damp forest, I head up the steep slope for a quick view of the forest floor. A few chanterelle mushrooms are just beginning to push up through the forest floor, the canopy of which is dominated by white oak and american beech.

Though the ridgetop above is enticing, I must head back to the car and on to work. The understory is thick with spicebush shrubs bearing a heavy crop of berries, still green. Something catches my eye in a small opening in the spicebush grove, and there stands a big four-pronged american ginseng plant. Its toothed leaves are full and green, and an umbel of small green berries rises up from the plant's center. In the late summer and fall, wood thrushes and their migratory kin will feed on the ripe red berries of both spicebush and ginseng, digesting the berry flesh but coughing up the seeds. In regurgitating the seeds, they are an essential disperser of these plants; without thrushes spreading their seeds, the ginseng progeny would only get a foot or less away from the parent plant, and only by the grace of gravity.

American ginseng (*Panax quinquefolius*) is such an important plant to several cultures in the Appalachian region due to its medicinal qualities (and market value), Rural Action has created an entire curriculum focused on the plant and its history, cultural importance, associated food webs, symbiotic relationships, and threat of overharvest. The curriculum is mainly for 4th-6th grade but we have also presented to high-school classes and FFA groups; we begin by showing a slideshow with information about american ginseng, its habitat, how to

A mature american ginseng plant with four "prongs" and red berries

tell it apart from look-alikes such as hickory seedlings and virginia creeper, and some other forest herbs with which it grows like goldenseal and blue cohosh. In the case of schools with a land lab or nearby forest, we will search for ginseng with students (most easily found either in August - late September, when the berries are red, or at the very end of the school year when ginseng first emerges).

Two other components of the curriculum are a game demonstrating the risk of the "tragedy of the commons" with a resource like ginseng that a person can legally harvest and sell. Since the Industrial Revolution, plants and animals for whom people create market value have suffered or become extinct, *entirely,* such as the Passenger Pigeon. Lastly, providing there is suitable habitat, we purchase ginseng seeds from our Sustainable Forestry team and plant them with students. Check out *https://ruralaction.org/our-work/sustainable-forestry/* for a ton of resources or to purchase seeds. We are happy to share this curriculum and slide show with any interested educators–please email *joe@ruralaction.org* if you would like to access the digital materials. We

Ginseng continued

also welcome feedback on potential changes–it's always helpful to have collaboration from colleagues on original curricula like this. Lastly, the Smithsonian Institute created an amazing online resource called American Ginseng Stories that makes an amazing addition to the resources already described here.

Over the past five years, we have introduced several hundred students and their teachers to american ginseng. In almost every class there is a student or teacher who is already familiar with ginseng, having hunted for it with family members. One student found his first ginseng plant at age four and was so knowledgeable as a fifth grader that he helped teach the rest of the class, and was beaming with pride as he had a chance to share this expertise. Other students have had epiphanies about the sheer number of medicinally important plants in their backyards and family forests. Still others get more focused on the economic benefits, scheming about the cars or video game systems they could buy in 10 years when their hypothetical ginseng patch becomes mature enough to harvest and sell.

One moment sticks in my mind, however, as I observed students playing the ginseng harvest simulation game that addresses the "tragedy of the commons" phenomenon. The other players in his group had chosen to select the maximum number of plants they harvested in this round. If he chose to do the same, their ginseng patch would be totally exhausted and the game would be over. He sighed and said, "well if I don't save some, nobody will," and chose to harvest the minimum so the ginseng would live on and the game continued.

Ohio Ginseng Collection Laws

https://ohiodnr.gov/rules-and-regulations/rules-and-regulations-by-division/wildlife/ohio-ginseng-management-program

Support EECO

...by making a donation

Would you like to help further environmental education in Ohio? Consider contributing an amount of your choice to EECO. All donations are tax-deductible and will help increase awareness of environmental issues in Ohio. You can donate through our annual campaign here. Or you can send a check made payable to the Environmental Education Council of Ohio to PO Box 1004, Lancaster, OH 43130. Or you can donate through the website by filling out the information at ***https://eeco.wildapricot.org/support***

Other ways to support EECO:

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

Save the Date
EECO 2023 Annual Conference

April 14-16 • Deer Creek State Park

More information including registration will be made available later in the year at *https://eeco.wildapricot.org/*

The Call for Presenters will soon be posted on the EECO website.

Consider an hour long session on Saturday, or possible whole or half day fieldtrips and workshops on Friday.

EECO Awards

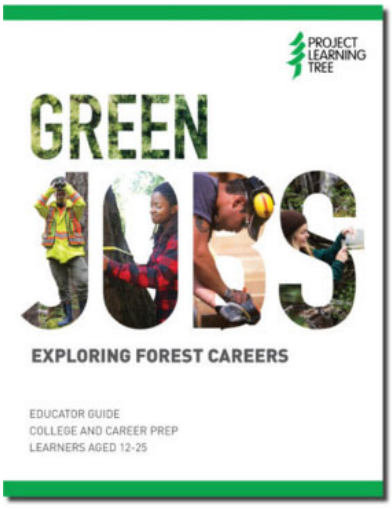
Each year EECO recognizes individuals and organizations that are providing exemplary EE and striving to preserve our natural environment in Ohio.

The Charley Harper Award
Given to an artist who has made a significant or outstanding contribution to EE in Ohio through various forms of art.
Clair Bailey

Outstanding Environmental Educator - formal education
Given to a preschool, elementary, middle school, high school or college teacher, administrator or curriculum specialist for outstanding contributions to EE in Ohio.
James Trogdon, Coventry Jr. High

Christy Dixon Award
Given to a young professional who has contributed significantly to environmental education in Ohio.
Sarah Cline

Outstanding Volunteer Award
Given to a volunteer who has made a significant or outstanding contribution to environmental education in Ohio.
Berman Layer, Fiver Rivers Metro Park



Publications Award
Given to a publication that has made a significant contribution to the public understanding of an environmental issue(s).
Presented to Sue Wintering and Project Learning Tree for the Green Jobs PLT Publication

Finlay-Johnson Award
Given to an EECO member for making a significant or outstanding contribution to EECO.
Lynn White

Outstanding Environmental Educator - nonformal education
Given to a nonformal educator for outstanding contributions to environmental education in Ohio.
Kathy Garza Behr

Organization Award
Given to a business or organization that has made a significant contribution to environmental education in Ohio
Presented to Dan Hodges of Tri-Moraine Audubon Society

EECO Lifetime Acheivement Awards

Given to an individual who has made a significant contribution to Environmental Education in Ohio.

Presented to Cathy Knoop for 2020

Presented to Sue Wintering for 2022

Environmental Career Ambassadors

Environmental Career Ambassadors are environmental professionals willing to make classroom or school career fair presentations for middle and high school grades about their careers and/or provide shadowing, internship, field trip, and scholarship opportunities to Ohio students. https://eeco.wildapricot.org/eca

For Schools- If you would like to have a Career Ambassador come to your classroom or event, please contact the EECO Executive Director director@eeco-online.org.

For Environmental Professionals - If you would like to be more involved by volunteering to be a Career Ambassador, please contact the EECO Executive Director director@eeco-online.org. You can also check out the Environmental Professionals Network (EPN) hosted by the School of Environment and Natural Resources at The Ohio State University. https://epn.osu.edu/.

101 Alternatives to the Chalkboard Educators Conference

Saturday October 1st
at YMCA Camp Kern, Oregonia

$30 for all 3 days Includes all sessions, programs, meals, and overnight accommodations. Scholarships and discounts available.

Email Dave Moran to register *dmoran@daytonymca.org*

More details will be posted at *www.eeco-online.org* soon.

This event made possible by YMCA Camp Kern, the Environmental Education Council of Ohio, and the Ohio Environmental Education Fund.

The "101" Conference is THE weekend outdoor education experience designed to inspire teachers and outdoor educators with creative ways to provide exciting learning experiences. Enjoy meaningful large and small group sessions, excellent company, and fine eating.

Would You Like to Present?

We are seeking session leaders and keynote presenters for this year's event!

Presenters are encouraged to offer 90 minute 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, history, education, and more. Camp Kern has 485 acres filled with many teaching resources (ponds, forest, prairie, log cabin, ravines, the Little Miami River, wetland, and more). Presenters are encouraged to take full advantage of what we have.

Session presenters are welcome to attend the entire conference at no charge.

If you have an interest in presenting or if you have any questions, contact Dave Moran *dmoran@daytonymca.org* at YMCA Camp Kern.

Volunteers

The Environmental Education Council of Ohio is in search of leadership for various committees and tasks. We also are looking for Environmental Career Professionals that can "chat" with students about their careers. If you would like more information please contact the EECO Executive Director at *director@eeco-online.org*

EECO is also seeking volunteers to assist at the Annual Conference, April 14-16 at Deer Creek State Park If you are interested in helping at the check -in, being a driver for a fieldtrip, or assisting in the silent auction, please contact Ann Drake at *drakea@brookvilleschools.org*

The Ohio Chemistry Technology Council's "Teachers, Industry and the Environment" Conference

October 12-14, 2022 in Columbus

The Ohio Chemistry Technology Council's Teachers, Industry and Environment (TIE) Conference is an exciting "hands on" experience for Ohio's 3rd through 8th grade science educators and is completely free through the support from the chemical manufacturing industry. The TIE Conference provides educators with a wide-range of science experiments and classroom tools that create interesting and entertaining lessons for students.

- The TIE Conference is aligned with state science teaching standards for STEM curriculums.
- Participating educators have the opportunity to visit a working facility that produces sophisticated chemicals for the health care and personal products industries.
- The TIE Conference materials provide educators with an abundance of information on the resources available to them, most at no cost.
- Hands-on demonstrations and experiments provide educators with interesting and exciting tools that are easily adaptable to the classroom.
- The TIE Conference provides networking opportunities for educators to share experiences and ideas with other educators.
- Educators have direct interaction with the Ohio Environmental Protection Agency and representatives from the chemical manufacturing industry.
- Graduate credits from Ashland University available (optional for all participants).

http://www.ohiochemistry.org/aws/OCTC/pt/sp/tieconference

Coleopterists Society: Youth Incentive Award

The Coleopterists Society, an international organization of professionals and hobbyists interested in the study of beetles, has established a program to recognize young people studying beetles. The Society has pledged to provide up to $1200 each year for the Youth Incentive Award Program. The Junior award is a monetary grant of $400 and the Senior award is $800. In addition, award recipients will each receive a one-year subscription to the society journal, The Coleopterists Bulletin.

This is for children of grades 7-12 only.

Applications for this year must be submitted by November 1, 2022.

The objectives of the Youth Incentive Award are to:

- Provide encouragement and assistance to young beetle enthusiasts (grades 7-12).
- Promote the study of beetles, the most diverse group of insects, as a rewarding lifelong avocation or career.
- Provide opportunities for young people to develop important life skills such as leadership, cooperation, communication, planning and conducting a scientific study, grant writing, and managing funds.
- Provide some financial support to enrich activities or projects.

Find out more at *www.coleopsoc.org/society-info/prizes-and-awards*

Ohio Environmental Education Fund

The OEEF was created by the General Assembly in 1990 to enhance Ohio citizens' awareness and understanding of environmental issues. It is administered by the Director of the Ohio Environmental Protection Agency (Ohio EPA) and provides approximately $1 million annually in grants to support environmental education efforts within the state of Ohio. The OEEF derives its funds from one-half of the civil penalties collected from violations of Ohio's air and water pollution control regulations. https://epa.ohio.gov/oee/

Grant Applications

The Ohio Environmental Education Fund (OEEF) invites applications for mini grants ($500 - $5,000) 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. Prospective applicants can start the application process by opening an account in Ohio EPA's eBusiness Center at https://ebiz.epa.ohio.gov/

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.

Electronic Letter of Intent Deadline is due in early January

Application Deadline is due mid January

Other OEE Education Resources

The Ohio EPA Office of Environmental Education is the state coordinator for:

Project WET, a K-12 interdisciplanary program designed to help young people gain the knoweldge, skills, and commitment on water quality issues. This curriculum is a collection of water-related activities that are hands-on, easy to use, and fun! More than 60 activities incorporate large and small group learning, whole-body activities, laboratory investigations, and a variety of other formats.

Getting Little Feet Wet, was developed specifically for teachers working with young children (ages 3-6). The curiculla contains 11 interactive, hands-on activities for young learners to explore different aspects of water—from water properties to water sounds.

Healthy Water, Healthy People (HWHP) is the secondary curriculum to Project WET. HWHP is intended for middle and high school type audiences, but can be adapted for other audiences and grade levels.

Find out more at *https://epa.ohio.gov/divisions-and-offices/environmental-education/educational-materials*

Grant Writing Workshops

The Ohio EPA Office of Environmental Education typically offers grant writing workshops around the state throughout the year. If interested in finding out more, please contact Dennis Clement at dennis.clement@epa.ohio.gov

- 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 Grant Writing Workshops

Registration is required for these FREE workshops at *dennis.clement@epa.ohio.gov* or call 614-644-2048 for additional information. ***Registration is by e-mail only***. When registering, please include your name and contact information (e.g., phone number) where you can best be reached.

Thursday, October 6, 2022 from 10a – 4p
At the Rolling Plains UMC, 3350 Moxahala Park Rd., Zanesville, Ohio 43701
EECO Region 6, and Ohio EPA, Office of Environmental Education. Our local sponsor will be the Muskingum Soil and Water Conservation District.
Registration deadline is September 30, 2022.

State Science Day

State Science Day is organized and sponsored by the Ohio Academy of Science, and is the equivalent of a state championship for student science projects. The primary objective of State Science Day is to provide an opportunity for young students to demonstrate their abilities and interests in science through individual experimentation and research. The OEEF provides $12,500 annually as a major sponsor of this event.

Find out more at *www.ohiosci.org*.

Ohio Environmental Education Fund
New General Grant Awards, Spring 2022

For the spring 2022 grant cycle, Ohio EPA awarded the following four general grants for a total of $162,693.
For more information, contact:
Office of Environmental Education
http://epa.ohio.gov/oee
oeef@epa.ohio.gov
(614) 644-2873

University of Toledo, Geography and Planning, "Engaging K-12 Students in Authentic Science and Stewardship: Connecting to the Land at Earth Heart Farms, S-22G021, $33,676.
Location: Erie, Lucas, Ottawa and Sandusky Counties.
Audience: Pre-School–University (elementary, middle and high schools).
Contact: Kevin Czajkowski, *kevin.czajkowski@utoledo.edu*, (419) 530-4274.
Provides a field sampling experience near Sandusky Bay for students and teachers from eight schools who are participating in UT's ongoing NASA-funded GLOBE Mission EARTH project. Teachers will learn about nutrient runoff and mitigation strategies to prevent Harmful Algal Blooms through a summer professional development workshop at the site. Students will make two visits to the site during the school year to learn about ongoing restoration measures such as designing a riparian buffer and planting native trees, shrubs and cover crops adapted to wet clay to slow nutrient runoff. Students will collect and submit data at the site via NASA's GLOBE data collection protocols, and develop their own science and stewardship projects, using Project Learning Tree's Adopt-a-Tree and Poet-Tree activities.

We Become, "Boardman Conservation Corps," S-22G022, $48,297.
Location: Mahoning County.
Audience: General Public.
Contact: Joshua Boyle, *josh@envcollabortive.com*, (330) 559-4961.
The Boardman Conservation Corps is a citizen science and education project that will build ecological and community resilience through volunteer conservation work in tree communities and water resource management. Planned Corps activities involve training 30 Team Leaders in hands-on community science techniques that inventory, monitor and improve the quality of tree communities, waterways and riparian buffers. The Corps will also engage 100-200 members of the public in volunteer activities, including water quality monitoring, streambank and riparian restoration, tree planting, and tree community inventory. The Corps will reach 300-400 people via outreach and education about the Corps' efforts to improve tree communities and watersheds, furthering knowledge of climate resilience solutions within one of the most socially and environmentally vulnerable communities in the state.

Oberlin College, Environmental Studies, "Curricular Integration of an Ultra-High Resolution PK-5 Environmental Dashboard for STEM Learning," S-22G-026, $49,543.
Location: Lorain County.
Audience: Pre-School-University (preschool and elementary schools).
Contact: John Petersen, *john.petersen@oberlin.edu*, (440) 775-6692.
Environmental Dashboard (ED), developed with US and Ohio EPA support, makes flows of water and energy through buildings and environmental conditions visible, engaging and teachable while linking these to smart environmental decision-making. Oberlin's new elementary school incorporates extensive green features (LEED Silver) including solar arrays that will meet 80% of the annual electrical needs. An ultra-high resolution ED system is being developed with separate funding to meter and display solar production and submeter electricity and water used for different end-uses such as mechanical, lighting, cafeteria, and classroom groups. OEEF funds will be used to enhance curricular integration and expand the searchable repository of ED-related lessons developed with prior OEEF funds (https://www.environmentaldashboard.org/edresources). The goal is to create innovative, authentic, and community-engaged learning experiences within and beyond STEM and a replicable model for other districts.

New Philadelphia City Schools, New Philadelphia High School, "The New Philadelphia City Schools Tick Project," S-22G031, $31,177.
Location: Carroll, Coshocton, Guernsey, Harrison, Holmes, Stark and Tuscarawas Counties.
Audience: Pre-School-University (elementary, middle and high schools).
Contact: Kip Brady, *bradyk@npschools.org*, (330) 340-5441.
This project seeks to engage students and teachers from the New Philadelphia City Schools in authentic research experiences that examine the ecological factors regulating the abundance of Blacklegged Tick *(Ixodes scapularis*) populations and the prevalence of *Borrelia burgdorferi* (the etiologic agent of Lyme Disease) within these populations. Students will measure tick abundance and associated habitat variables in local ecosystems, then use the tools of molecular biology back in the laboratory to extract DNA from the ticks, amplify Borrelia DNA using PCR, and evaluate ticks for Borrelia prevalence using gel electrophoresis. Students will produce high resolution maps of tick and Borrelia prevalence across the local landscape and share their results with the local community.

New Mini Grant Awards Spring 2022

Ohio EPA awarded the following five new mini grants for a total of $16,066.

Alpha – Alpha School, "Chimney Swift Tower," S22M-017, $2,500.
Location: Perry County.
Audience: Pre-school to University (Grades 7-12).
Contact: Jeffrey Baker, *jeffrey.baker@mvesc.org*, 740-404-3324.
Chimney swifts have become threatened due to lack of habitat. The solution proposed by the Ohio Department of Natural Resources (ODNR) Division of Wildlife and the Audubon Society is to construct towers for chimney swifts to live and breed in. The proposed tower is 16 feet high and would be placed in the Wild School Site, which is a part of the school property set aside as wildlife sanctuary by the ODNR. I am getting together volunteers to come in and work on the towers with student help. The requested grant is for material to build (2) towers since we already have chimney swifts in the school chimney awaiting habitat.

Mansfield City Schools – Springhill STEM Elementary, "Career and STEM Exploration through Project WET Lessons," S22M-018, $5,000.
Location: Richland County.
Audience: Pre-school to University (Grades K-3 and 4-6).
Contact: Andrea Murphy, *murphy.andrea@mansfieldschools.org*, 330-234-8457.
This grant will be utilized to provide Professional Development of the Project WET and Project Learning Tree Curriculum for teachers, grades preK-6th grade, at Springmill STEM Elementary. Through this training, staff will be prepared to utilize our on-site natural water source and outdoor classroom learning space to engage students in hands on-learning of conservation. The remainder of the grant will be utilized to provide additional lesson materials for teaching these lessons.

Eastwood Local Schools – Eastwood Middle and High Schools, "Trout in the Classroom," S22M-014, $2,060.
Location: Wood and Erie Counties.
Audience: Pre-school to University (Grades 8 and 11)
Contact: Eric Rutherford, *erutherford@eastwoodschools.org,* 419-833-6011.
Lessons for 8th Grade Science classes will focus on reproduction, adaptations, and natural selection, specifically what makes trout successful or unsuccessful in habitats over time, and how trout used to be a more common species in the streams around our school district. This connects to environmental health and land usage of Northwest Ohio, but also helps show the reproductive cycle and lifespan of trout and fish in general. The high school marine science class will be responsible for monitoring and caring for the fish as they grow. As we study the Portage River and Lake Erie, we will now have a unit that specifically focuses on trout. This class looks at different water quality readings where students are required to explain why specific organisms can be found in certain conditions. Students will learn to monitor water conditions in the aquarium. Over 1,000 students will be participating in this project.

Ohio Environmental Education Fund: mini grants continued

Perrysburg Exempted Village School District – Hull Prairie Intermediate, "Trout in the Classroom," S22M-015, $1,506.

Location: Wood and Erie Counties.
Audience: Pre-school to University (Grades 5 & 6).
Contact: Ethan Jessing, *ejessing@perrysburgschools.net*, 419-913-8948.
Trout in the Classroom affords students the equipment to raise trout from eggs to fingerlings and facilitate their releasing process in a DNR-approved location. We will focus in on the importance of this species in the biosphere and discuss water quality, pollution, and restoration efforts. This project is also a collaboration with the building's science teachers, as environmental/life sciences are of focus during these grade levels. Having a collaborative, student-centered project like this in our classroom will be a powerful teaching tool and serve as a device for students to learn their personal responsibility to protect the environment.

Friends of Old Woman Creek, "Environmental and Climate Change Science Career Development for Students through Weather Station Monitoring," S22M-016, $5,000.

Location: Erie County.
Audience: Pre-school to University (Grade 8 and Summer Migrant Education Program).
Contact: Jennifer Bucheit, *Jennifer.bucheit@dnr.ohio.gov*, 419-433-4601.
This project seeks to install a weather station at the Western Reserve Local School's campus to be monitored by two educators and their students, with assistance from Old Woman Creek National Estuarine Research Reserve (OWC NERR) staff. Station monitoring will provide educators and students knowledge, skills, and an opportunity for students to lead a Weather and Climate lesson with students served by the Willard Migrant Education Program. By locating the weather station in the uppermost portion of the watershed, the capacity of the OWC NERR to gather key meteorological data affecting flow events in the estuary will be enhanced as it will also contribute to a national program to monitor hydrological effects of climate change. This real-life application of how weather data is used to understand water quality and climate impacts in coastal Ohio will create a lasting program that students can participate in to gain knowledge and skills before heading to college or the work force.

Ohio Green Ribbon School Program

The U.S. Department of Education Green Ribbon Schools recognizes schools where staff, students, officials and communities have come together to produce energy efficient, sustainable, and healthy school environments and to ensure the sustainability and environmental literacy of graduates.

The award criteria are intended to focus on measurable outcomes when possible.

Eligibility: Pre-K-12 schools (public and private) and postsecondary institutions may apply as an individual building OR as a district. If a district has previously been awarded a Green Ribbon, only individual buildings may apply afterwards should significant improvements have occurred that support each of the three Pillars.

Criteria: Applications will be reviewed based on the applicant's demonstrated progress toward each of the goals in the three Green Ribbon Pillars, which are:

I. Net zero environmental impact;

II. Net positive impact on the health and performance of students and staff;

III. 100 percent of the school or district's graduates are environmentally and sustainability literate.

Application Deadline: November 18, 2022

Find out more and apply: *https://tinyurl.com/5np9uert*

Service Learning Summer Camp

By Lynn White, Butler Soil and Water Conservation District

Measuring trees for iTree. Kids were too short for measuring at breast height, so had to measure from the ground up.

Do you offer a summer day camp for kids? Have you thought about turning it into a service learning camp? In Hamilton, Ohio, the Hamilton Conservation Corp and Butler Soil and Water Conservation District did just that. We have just completed our second year and have the kids calling for more. Who would have thought, kids want to work!

Our Conservation Kids Program runs on Tuesdays throughout the summer. We target children ages 8 -14, though we do have a few younger siblings in attendance if a parent or guardian stays.

Over the past two summers, the kids have:

- Conducted a park cleanup. They provided data from the Debris Tracker app to the local park to show where trash cans and recycle bins were in need.
- Constructed butterfly puddlers for the wildlife garden.
- Gathered data for Ohio State Extension's Dandelion Detective citizen science program.
- Designed and painted a rain barrel to be taken to educational events.
- Painted educational posters on a variety of topics to be displayed in park kiosks.
- Planted native pollinator plants.
- Toured the drinking and waste water treatment plants prior to collecting stream biology data.
- Developed artwork for the new nature center in Riverside Natural Area.
- Created signs on the benefits of trees using data generated from iTree (see Project Leanring Tree).
- Labeled storm drains
- And much more.

Dandelion Detectives studing plants and insects.

Each day, we start the day with education. We learn a little background about the days topic through presentations, videos, and games. Then after lunch we get to work.

During the first year, we came up with the topics for the kids to work on. On the last day, we asked the kids for ideas for the following year. The tour of the drinking water plant and repeating water testing were chosen as a repeat project. As was the park cleanup. The students also wanted to help plant natives due to the new greenhouse at the nature center.

We were surpirsed by the number of parents that actually wanted to stay, and they were a great free help for our program, espcially when it came time to use the apps such as Debris Tracker and iTree.

If you would like to find out more, please reach out to Lynn White at *whitelr@butlercountyohio.org* or Kathy Schwable at *kaschwable@gmail.com*.

Rain barrel with native stream wildlife was designed by the young boy on the left. It was painted by all the children

Caring For Our Watersheds

By Gwen Roth, Hamilton County Conservation District

Caring For Our Watersheds (CFW) is a is an education program that engages high school (9-12) students in preserving and improving their local watersheds through student-led solutions. The program is curriculum-based and an excellent way to bring project-based learning to the classroom. Plus, students and their schools can win cash-prizes!

This past school year, students all over the state of Ohio were asked to identify a concern in their watershed and write a proposal about how they would fix said problem. Those proposals are reviewed by 2 sets of judges and narrowed down to the top 10 best proposals. Those top 10 teams are partnered with a mentor, given up to $1,000 and actually go and implement their idea. Afterwards, they come to the final competition and give a 5-minute verbal presentation about their project in front of a group of judges. The judges' scores will be combined with the scores from the written judging and prizes will be awarded. The school/club also receives matching monies.

CFW asks students to submit a proposal that answers the question, "What can you do to improve your watershed?" Students can work independently, or as a team of no more than four to research their local watershed, identify an environmental concern, and come up with a realistic solution. Student proposals are due in January, top 10 teams will be chosen in February, and the final competition takes place in April.

Students come up with such varied answers to the question, "What can you do to improve your watershed?" For example, this past April, Sonya Yurovski of Loveland High School won the 2022 Caring For Our Watersheds Ohio finals, with her idea to recycle contact lenses and packaging. She learned that over 20% of contact lens wearers in the United States flush their contact lenses on a regular basis, leading to almost 3 billion lenses being flushed yearly. These small plastic pieces are too small to be filtered out in the wastewater treatment systems and eventually end up in our waterways. Sonya recruited local eye doctors to install a TerraCycle box to recycle the used lenses and blister packaging they often come in. She also worked with the Metropolitan Sewer District of Greater Cincinnati to update their messaging to reflect not flushing lenses. Sonya even went a step further and contacted several lens manufacturers to try to get them to change their packaging as well. While this may be more of a challenge, Sonya is determined to continue this education and to recycle as many contact lenses and packing as she can.

Cleaning up after a game

Sonya was awarded a cash prize of $1,000 along with a matching grant to her school. Ten teams from high schools around the state presented their plans to better the quality of area watersheds at the final competition. All

A Participating Educator's Perspective

I first heard about the Caring for Our Watersheds Competition from an unknown colleague in 2014 who left a flyer for the competition in my mailbox. It was my second year of teaching but first year teaching Advanced Placement Environmental Science. After reading through the details, I knew I needed to get my students involved. I have had students submit proposals for the past eight years and will continue to do so as this is such a valuable experience.

What I like the most about this competition is that my students get to apply what they learn in class to real-world situations. They also get to use their creative problem-solving skills to come up with a solution to what they see as an environmental issue in their community. This helps show them that even small actions can make a large impact. If they make it into the top ten, they learn how to collaborate with their mentor who helps their idea come to life.

Teaching an AP course can be quite rigorous, but this competition fits seamlessly into my curriculum. I like to include it in the unit on land and water use, but you could easily fit it in with many of the other units in the AP curriculum. I would encourage other educators to try and do the same. You will be able to connect more with your students by helping foster ideas they are passionate about while teaching the content at the same time.

Kat Sickinger, M.A.
Upper School Science Teacher
Summit Country Day School

ten teams received a cash prize and a matching grant to the school they represent.

Nutrien's Caring For Our Watershed is an international initiative, to empower young minds to think creatively on this important environmental issue. Nutrien is a worldwide producer and retailer of fertilizers and other agricultural products and services. As the world's largest provider of crop inputs and services, Nutrien plays a critical role in Feeding the Future by helping growers increase food production in a sustainable manner. With nearly 20,000 employees and operations and investments in 14 countries, Nutrien's crop inputs and services reach every major growing region of the world.

Installing aerators to reduce water usage at school

The Ohio version of the program is organized by the Hamilton County Conservation District, with assistance from Nutrients for Life. This is the tenth year the Hamilton County Conservation District has organized the event in Ohio. The contest is open to students of grades 9 - 12 that live or go to school within the state of Ohio.

For more information on Caring For Our Watersheds (Ohio) and the Hamilton County Conservation District, contact Gwen Roth at (513) 772-7645 or *gwen.roth@hamilton-co.org* or go to *https://caringforourwatersheds.com/*

PROJECT LEARNING TREE OHIO

Happy Retirement Sue!

Join us in extending best wishes and congratulations to our amazing State Coordinator, Sue Wintering, who retired on April 29th from the Project Learning Tree Program and the Division of Forestry. Sue worked with the Division of Forestry for 28 years in her role, as well as held a long career in environmental education. While we are sad to see her go, we are thankful for the hard work that she put in over the years to make this program a success. Sue will continue to be a part of the program as a facilitator and mentor for others.

Changes At Project Learning Tree

By Drew Todd, ODNR Division of Forestry

As interim PLT-Ohio Coordinator, I'd like to quickly introduce myself, as well as confirm the Division of Forestry's commitment to this amazing program. But first, let me acknowledge Sue Wintering and the decades she dedicated to PLT as an educator and statewide coordinator. Because of Sue's PLT work, Ohio is recognized as a leader in this effort, but more importantly, under Sue's guidance forestry awareness has been unlocked for thousands upon thousands of Ohio school children. This is a level of effectiveness that with your help, we can hopefully maintain.

As for me, I was born, raised, and currently live in Grandview Heights, Ohio. I received bachelor's degrees in Forest Resource Management and Landscape Horticulture from Ohio State University, and a Business Administration degree from Franklin University. I worked for a design-build landscaping firm in Cincinnal prior to becoming a Regional Urban Forester with the ODNR Division of Forestry in 1979. Most of my 30 plus years with the Division was spent as Ohio's Urban Forestry Coordinator. Upon retiring in 2013, I was hired by the City of Hilliard, Ohio as their city forester. After six years with Hilliard, I retired to babysit and bicycle.

The resignation of a PLT coordinator can sometimes adversely affect the program and its state sponsor. By hiring an interim coordinator, the Division of Forestry is demonstrating their commitment to PLT and the smooth transition to a permanent full-time coordinator. Until that person is hired, which may take a few months, it will be my pleasure to help ensure the continuity of the program. With guidance from National PLT, help from our PLT-Ohio Board of Directors, and your patience, I know we can successfully weather this transition period. I look forward to hearing from and working with you.

Thank you all for your patience and understanding as we move forward. If you have any questions or concerns for Drew, you can contact him at an-*drew.todd@dnr.ohio.gov.*

Cool Facts About Trees and Fungi

By Gia Giammarinaro, Cincinnati Parks

- Trees are important for pollinators, too! For example, Oak trees (genus Quercus) are hosts to over 500 different pollinator species.

- Some trees don't fight fair, they poison the competition! Trees can produce compounds called allelopathic chemicals, which can inhibit growth or even seed germination of other plants. This happens in several local trees, but the black walnut is an expert! Black walnut trees have allelopathic chemicals in their leaves, the hulls of their nuts, and even in their roots – most concentrated at the drip line (that circle around the trunk created by the outermost leaves). Plants in the Nightshade family are particularly susceptible to the chemicals from black walnut trees. The moral of the story is: don't plant your tomatoes or peppers under a black walnut tree!
- Speaking of "drip lines," many of us were taught that the drip line is approximately where the roots underground leave off. That's not true, the roots of a typical tree extend WELL beyond the drip line. Like easily 2 – 3 times further out! The older the tree, the farther out the roots tend to expand.
- Gender isn't just an animal thing! Trees can be Monoecious or Dioecious. Monoecious, meaning "one house," relates to a plant having both male and female flowers. A monoecious plant can both make seeds and pollen. Dioecious means "two houses." Dioecious plants are either seed producing or make pollen. Gingko trees are great examples of dioecious trees. The fruit of a gingko tree smells… unpleasant, so landscapers tend to plant the male trees to prevent the smell of gingko fruit.
- Trees also have relationships. Lots of them. Trees have relationships with other trees, other plants, animals, even fungi! One amazing relationship between trees and fungi is something called mycorrhizae. Simply put, mycorrhizae means "fungus-root." The mycorrhizal fungi have relationships with tree roots.

- Over 90% of trees have a mycorrhizal relationship with a fungus!
- Mycorrhizal relationships are an example of a type of symbiosis called mutualism. In mutualism, both sides get some benefit. How does a tree benefit from working with a fungus? Mycorrhizae increase the surface area and length of roots. By doing this, they make the tree better at getting water and minerals. Mycorrhizae can increase the absorption area of a tree up to 50x!
- Most famous mycorrhizal fungus: this one is hotly contested, but we're going with Morel. Followed by Chanterelle.
- Most expensive mycorrhizal fungus: hands-down, the truffle$$! Love those truffle fries? Truffle oil, truffle salt? At upwards of $5,000 a pound, they aren't just the most expensive fungi but the most expensive of all foods!

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By joining EECO, you will receive:

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https://eeco.wildapricot.org/joinus

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Partnerships strengthen EE in Ohio, leading to a more environmentally literate population and a healthier environment. You are welcome to become a partner and friend to EECO. Please contact any of our regional directors, officers, adivisors, and board members to find out more about becoming a part of EECO.

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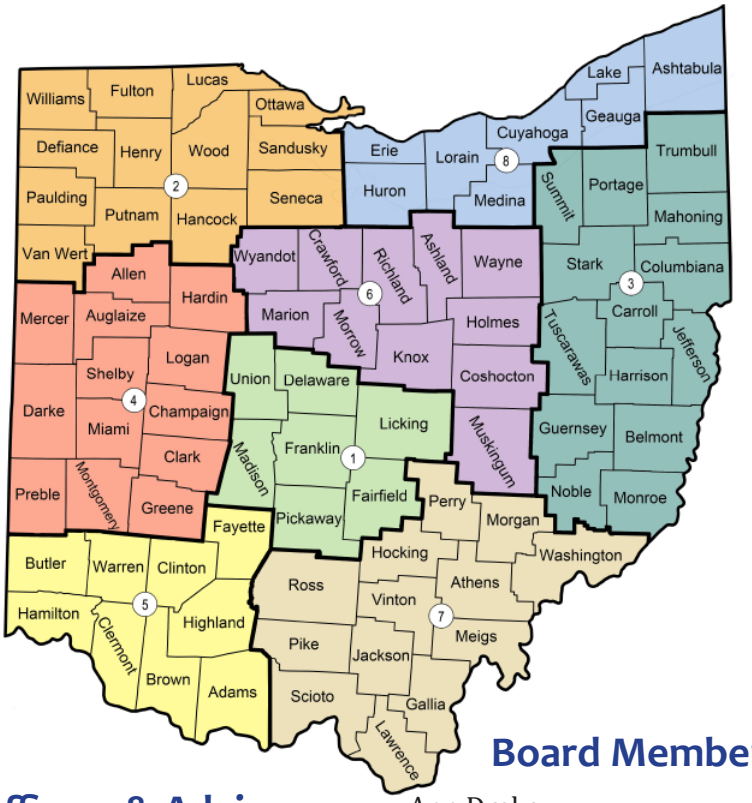

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