

# EECO

Environmental Education Council of Ohio



**Summer 2020**

**Grossology**

## Annual Conference Update

**Possible New Date: Sept 10 -13, 2020**

**Same Location: Hueston Woods State Park**

For the best interest of everyone's safety and well being we are waiting to see what the state park lodge and large group recommendations will be from the Governor and the Covid Taskforce. We will update social media and the website as we find out more.



*Turkey vulture*

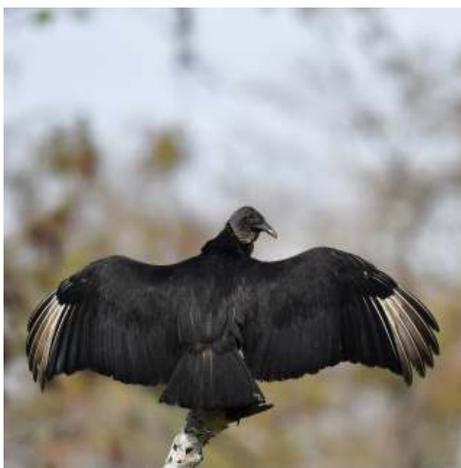
## Ohio's Vultures: The Clean-up Crew

**By Jen Dennison, Wildlife Education Coordinator,  
ODNR-Division of Wildlife**

When we think about wildlife, species are often classified into groups like herbivores (plant-eaters), carnivores (meat-eaters), and omnivores (plant and meat eaters). These groups form a cycle of energy in the environment that starts with plants and moves up through the food chain. But who often gets left out of the conversation are those creatures that come along after parts of that food chain die...the decomposers. They are nature's clean up crew and without them, we would be up to our necks in dead stuff!

Decomposers are a group of animals that rely on dead material to survive. They are specialists at consuming dead plant and animal materials and, through their waste, recycling those nutrients back into the environment. We usually think of things like earthworms, beetles, and other invertebrates. But one of the most overlooked and important animals in the decomposer group are the vultures. Ohio has two resident species of vultures; the turkey vulture and the black vulture.

The adult turkey vulture has a bare, featherless red head. Young turkey vultures have gray heads like the black vulture, but turkey vultures are a larger bird. Turkey vultures have longer wings and are taller. You can always pick out a turkey vulture from most other large birds by the way they hold their wings when they are flying or soaring, as they prefer to do. When soaring, turkey vultures always hold their wings in a dihedral, or upward V shape, and they tip back and forth as they soar. Vultures rely on warm thermal winds to soar long distances and to get clear views of the ground below



*Black vulture*

## Vultures, continued

as they search for dead animals. Turkey vultures have an excellent sense of smell of any bird species in the world and have excellent eyesight. They are the first to find a dead carcass because it is believed that they can smell rotting meat from as much as a mile away. The soaring and circling that you see is likely them trying to locate the source of the smell. Once they find the dead animal, they dig in with their sharp beaks and talons and try to get the choicest organs and flesh before other scavengers show up. Since their head is bald, they don't have to worry about the ickiness of getting guts on their feathers as they shove their heads into the carcasses. They will gorge themselves then step aside or be run off by the smaller black vulture. Once they have eaten, they will rest on the ground to digest their meal. If disturbed, they will try to fly away but sometimes have to resort to vomiting on their assailant in self-defense and to lighten their load.

The black vulture is the smaller of these two species and probably the less well-known. A southern species, they have been expanding north in recent years. Black vultures have gray heads and all black bodies except for shiny silver tips on their round and broad wings. These tips, when flying, appear to be more translucent, as if they had small rounded windows at the end of each wing. While they are smaller than their turkey vulture cousins, they are a bit more tenacious. They tend to lean more toward the predator side and hunt small mammals such as skunks, opossums, and calves. They can become a nuisance to cattle farmers. They tend to stay in their family groups for many months after the young have fledged. They soar high in the sky looking for carcasses or for turkey vultures that have already found carcasses. Black vultures don't have a great sense of smell, so they rely heavily on their larger cousins to find food for them. Once they spot a turkey vulture on a carcass, they'll come in as a group and run off the more solitary turkey vulture.

Vultures are important to the ecosystem not just because they clean up dead animals. Without these birds, there would be many more diseases in the ecosystem. Vultures have incredibly powerful stomachs that can digest decaying flesh and the accompanying bacteria. Botulism, cholera, salmonella and other diseases would be much more prevalent if it were not for this clean up crew. However, they can and do succumb to poisons such as lead and pesticides that can be found in dead animals.

So keep your eyes peeled to the sky in search of nature's clean up crew. And, while they may be gross and not very pretty, their jobs are some of the most important in the world. For more information about Ohio's vultures, go to [wildohio.gov](http://wildohio.gov)

## Vulture facts

- Vultures are protected under the Migratory Bird Treaty Act of 1918.
- Unlike some other birds, vultures have no syrinx (vocal organ for birds) and vocalize with grunts or hisses. These birds hiss when defending or attacking. Hungry young vultures grunt to be fed, and adults grunt during courtship displays.
- Vultures don't make nests for their eggs. They will use old buildings, ledges, caves, fallen logs, or the abandoned burrows of mammals or old nests of herons or other large raptors.
- In the morning, vultures will perch with their wings spread wide in an intimidating pose. This behavior helps to dry their wings so they can take flight, and warns the birds to kill bacteria on their bodies.
- Turkey vultures hunt alone but will congregate at night in large groups to roost in tall trees and on ledges and the tops of buildings. Black vultures spend more time together in their family groups but will not tolerate others outside their family group when feeding on a carcass.

## Show Your Love for EECO

### ....by making a donation

Consider contributing an amount of your choice to EECO. All donations are tax-deductible and will help increase awareness of environmental issues in Ohio. Find out more at <https://eeco.wildapricot.org/support>

Other ways to support EECO:

- **Amazon Smile.** Select "Environmental Education Council of Ohio"
- **Goodshop.** Purchases will benefit EECO.

### ... by purchasing FUNdraising tees!

Wear your support for EECO on your chest! We have a new storefront set up at

<https://eecoonline.qbstores.com>

where you can order shirts, caps, bags and more.

We can hold an EECO fashion show at the next EECO Annual Conference!



# Fly Fishing's Connection to Bugs

By Tim Cassani, Buckeye United Fly Fishers, Inc.



*Photo courtesy of David French and True North Trout*

Who are the folks with the funny hats, waving their arms frantically while standing in our streams and rivers? They're probably fly fishermen and women and very possibly members of BUFF (Buckeye United Fly Fishers). If I'm wrong about this ..... call for help.

BUFF is a non-profit organization dedicated to the preservation, conservation and wise use of our fishing waters and game fish, with a focus on the protection and improvement of our natural resources. Club activities are designed to meet social, conservation and educational needs. One of the activities happens to be fly tying. A good fly tier needs to know their bugs. So many fly fishers also happen to be amateur aquatic entomologists. From two sights on the Little Miami River, BUFF provides stream quality monitoring data to the ODNR. At [www.buckeyeflyfishers.com](http://www.buckeyeflyfishers.com) you can find a macroinvertebrate identification chart. We monitor to know the health of a stream and to assist in protecting it, but we also want to know what the fish are eating.

So, there is a devious purpose to our love of bugs. The better we can imitate them, with the crafty use of fur, feathers and foam, the more fish we can catch (and release). These artificial imitations can be suggestive, impressionistic or realistic. Check out the pictures on the right for more exacting versions of an adult mayfly, terrestrial (grasshopper) and a nymph.

These are some of the finest examples of fly tying. Most fly tiers are focused on imitating the size, action, color, texture and shape of flies. Fish have a distorted view of bugs on the surface due to refraction and turbulence, but below the surface, more exacting flies are required to fool fish.

The history of fly fishing and its connection to insects is very old. From Izaak Walton and Charles Cotton to Doug Swisher and Carl Richards, many have written and illustrated on the subject. The result has been a greater understanding of aquatic macroinvertebrates and their life cycles. Fly fishing has been described as a self-imposed technology handicap to increase enjoyment. You can practice the sport and the science but never really master it. Collecting bugs and practicing your casting can be nearly as much fun as the fishing itself.

Sometimes the most difficult sports and hobbies become the most interesting. As we participate in these activities, it is best not to measure ourselves by how much we've accomplished, but rather by how much fun we've had along the way. Fly fishing can provide an escape for some of the more unpleasant realities we have recently had to face. Stepping into a stream, with the sounds of rushing water, can help us leave our worries behind. Join a club like BUFF or another organization in your area. They can help train you. So get a funny hat (the Indiana Jones model is always a good bet) and get out there in our rivers and streams, check out the bugs and maybe take up the sport of fly fishing.

Find out more about BUFF at [www.buckeyeflyfishers.com](http://www.buckeyeflyfishers.com)



*Adult mayfly tie*



*Grasshopper tie*



*Mayfly nymph tie*

# River Bugs and Stream Quality Monitoring

By Christine Szymanski, ODNR• Scenic Rivers Program

If I were to ask you to tell me how healthy a river is, what factors would you consider? Would you suggest we look at the water chemistry to determine if it was polluted? What if I told you, “Pick up a rock.”

When our Scenic River Program takes members of the public on an exploratory river journey during our Stream Quality Monitoring Workshops, the sentiment is often, “Wow! I had no idea so much life was in the river!” In 2019, over 12,000 Ohioans participated in our stream programs to learn how to quickly determine water quality by the types of macroinvertebrates that live in and among the rocks on the bottom of a stream.

What is a macroinvertebrate? If you break the word up into its parts, it becomes clearer. “Macro” means large—so something large enough to be seen with the naked eye. “Invertebrate” is an animal without a backbone.



*Dragonfly nymph*

Examples of macroinvertebrates include snails, worms, crayfish, and the aquatic larval stage of terrestrial insects like mayflies and dragonflies.

To find the animals, we teach participants how to read the river to determine the best place to kick seine for macroinvertebrates. The main features we discuss are pools,

runs, and riffles. The pools can be identified by the still surface of the water and they provide refuge for big fish from predators—but it’s too deep to use our net, the 3’ x 3’ kick seine! The run comprises the long sections of fast moving water, but these are also too deep for sampling.

The sweet spot for kick seining occurs in the riffle—the shallowest but swiftest part of the stream. It is here that the water’s surface breaks over rocks, creating the visual of white caps. This disturbance at the meeting



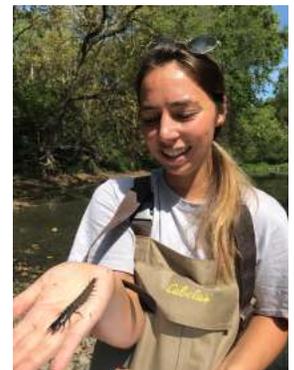
*Central Ohio Scenic River Manager Heather Doherty checking a rock in a riffle (ODNR)*



*Over 800 miles of streams in Ohio are designated under the Scenic River Law (Source ODNR)*

of the water and air creates a mixing of oxygen into the stream. It is because of this phenomenon that we can find more sensitive organisms living in this area. If we kick seine here, in the best habitat for sensitive animals, we can assess the stream’s health based upon the assemblage of macroinvertebrates we find—or don’t find.

A healthy stream will have several types of sensitive organisms like mayflies, stoneflies, caddisflies, and hellgrammites. But it will also have animals that are less sensitive, and even those that are tolerant of pollution. Ideally, we want to find many different types of animals which demonstrates a high level of biodiversity and a functioning food web. The fewer types of animals we find, the fewer possible links in the food chain can exist in that location.



*Intern Sadie Lankenau holding a hellgrammite larva (ODNR)*

In the food chain, insects that we find among the rocks become food for other insects and fish, and then food for larger fish, which in turn become prey for kingfisher, herons, and eagles. Beyond that, if the insects survive their larval stage, they complete their metamorphosis and become winged adults. When they emerge from the stream, they become a vital food source for birds, bats, and spiders. So much other life hinges upon the survival



*Participants identifying macroinvertebrates at a Workshop (ODNR)*

of the small bugs living among the rocks at the bottom of a stream.

After participating in Workshops, citizens have the opportunity to become volunteers for the State and monitor a state scenic river site three times a year. Their observations act as the “canary in a coalmine.” If they find

sensitive organisms and a healthy biodiversity of other animals, we can assume that the stream is functioning well. On the other hand, if their sample turns up less organisms than usual, the Division will investigate further. Potential impacts to the stream can be mitigated because of the observations by community members—

these citizen scientists.

If you are interested in attending a Workshop or would like more information on our program, please visit <http://watercraft.ohiodnr.gov/scenicrivers>. Some programming is delayed due to current Covid restrictions, but we will continue to update our online calendar as the situation progresses.

As we wait for group programming to return, please check out the Ohio Scenic Rivers Children’s Activity Book, available at [www.facebook.com/ohiodnap/](http://www.facebook.com/ohiodnap/) Inside you’ll discover more about the amazing animals that call the Scenic Rivers home. Please note, due to technical issues with the ODNR website, a direct link to it is not possible at this time. Once ODNR’s website is up and running again, you can search “Ohio Scenic Rivers Children’s Activity Book.”

## National Estuarine Research Reserve Education

There are lesson plans, live data with a graphing tool, and even a video gallery. There are 29 reserves around the country that are each designated to help protect and monitor the water quality and habitats within an estuary. Most are fresh water into salt water, but there are two in the Great Lakes - Old Woman Creek and Lake Superior NERR. <https://coast.noaa.gov/estuaries/>



## Water Quality Monitoring Credible Data Program: Level 1 Training

Wednesday, September 16, 2020, 8:00 a.m. – 4:30 p.m.

Butler Soil and Water Conservation District, 1802 Princeton Road, Hamilton, Ohio 45011

*Limited to 10 people and pending any on-going restrictions will this training happen*

This training will be hands-on with all participants getting in the water to learn techniques for biological, physical and chemical water quality monitoring. This is an entry level training intended for participants who desire basic water quality information. Level 1 was designed with educators in mind and may be appropriate for Soil & Water Conservation Districts, Park Districts, Health Departments, or anyone with an interest in Ohio water quality. The purpose of Level 1 is primarily to promote public awareness and education about surface waters of the state. Approval of Level 1 QDC will be automatic by the Ohio EPA after completion of this training. Healthy Water, Healthy People Curriculum will be used in this training.

**Please bring:** waders or shoes you don’t mind getting wet, a brown bag lunch / drink, and wear old clothing.

**Cost:** There are no fees associated with this training.

**For more information:** contact Dennis Clement, Ohio Environmental Protection Agency, Office of Environmental Education at 614-644-2048 or [Dennis.Clement@epa.ohio.gov](mailto:Dennis.Clement@epa.ohio.gov)

**Registration** for the training is by e-mail ONLY on or before September 11, 2020 at [dennis.clement@epa.ohio.gov](mailto:dennis.clement@epa.ohio.gov)

# Ohio Environmental Education Fund

Due to significant budget shortfalls related to the COVID-19 pandemic, state agencies are not able to award new grants funded from state dollars at this time. Ohio EPA will not offer an OEEF grant application opportunity in July 2020. We will work with EECO to notify environmental educators around the state whenever we are able to resume grantmaking.



## Teachers, Industry & Environment (TIE) Conference October 14-16, 2020 at the Embassy Suites in Columbus, Ohio

For more than two decades, the TIE Conference has allowed 3rd through 8th grade science teachers from across Ohio to experience an intensive two and a half days of dynamic presentations, experiments and workshops that enable them to take exciting hands-on science projects back to the classroom. Additionally, the TIE Conference is completely free for participating teachers through the support of scholarships from the chemical manufacturing industry.

**COVID-19 Update** - We know there is a lot of uncertainty right now, especially for our educators. We want to assure interested teachers that by registering for the TIE Conference at this time, they will NOT be held responsible for payment or confirming their attendance until we approach the conference. We remain hopeful that we can hold the TIE Conference this October and ask that you continue to share this amazing opportunity with your educators so we can secure their spot. OCTC will continue to monitor the events of COVID-19 and will send updates as needed. If you have any questions, please email us at [info@ohiochemistry.org](mailto:info@ohiochemistry.org)

Find out more at [www.ohiochemistry.org/aws/OCTC/pt/sp/tieconference](http://www.ohiochemistry.org/aws/OCTC/pt/sp/tieconference)

## 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. Ohio high school students, teachers, and career counselors need a better understanding of the wide variety of careers in environmental science and engineering. They also want to know about the specialized training and skills needed for these careers.

**Teachers**· If you are interested in finding out about the Career Ambassadors in your area, please contact us at [director@eco-online.org](mailto:director@eco-online.org).

**New Career Ambassadors Needed**· If you would like to be more involved by volunteering as a Career Ambassador, please fill out the form on our website and email back to us at [director@eco-online.org](mailto:director@eco-online.org).



## Project WET is Water Education Today

Educating people to understand water is taking on new urgency. To better address these challenges and honor the diversity of our users, we made a few changes in the spring of 2020.



project **WET**  
WATER EDUCATION TODAY

Since our founding, the WET acronym had stood for “Water Education for Teachers”. WET now means “Water Education Today”, signifying both the importance of tackling water challenges immediately and the impact that we are having in classrooms and far beyond.

Find out more at [www.projectwet.org](http://www.projectwet.org) and remember that Dennis Clement with the Ohio EPA OEE is the state coordinator for Ohio. To find out about upcoming workshops and WET resources contact [Dennis.Clement@epa.ohio.gov](mailto:Dennis.Clement@epa.ohio.gov)

# Getting Goopy and Coming Clean with EE Resources

By Linda Pettit, Franklin SWCD & Ryan Bourgart, Ohio EPA OEE

What could be more gross than pollution? As environmental educators one topic we tackle often is the negative environmental impact humans can have on their surroundings. We often use models to help our audience visualize these pollutants and the impact they can have. So the question is what can we use to simulate these everyday pollution problems in activities like Freddie or Frennie the Fish, Build a Watershed, or the EnviroScape models? Some that I have found to be effective include:

- Maple syrup or soy sauce for gas or oil
- Coconut or paper dots from hole punches for litter
- Brown sprinkles or raisins for pet waste
- Colored salt for fertilizers, pesticides, herbicides, etc. (Easy to make by shaking salt and a few drops of food coloring in a baggie or salt shaker.)

By the way – using Kool-Aid or Jell-O powder for lawn chemicals outside in the hot sun equals gross stuff after you add water! This increases the clean-up process a lot!! Bees walk around on the model eating the sweet powder, and the sun bakes everything onto the plastic and into every groove!



Working with the Drinking Water & Wastewater Treatment EnviroScape offers more opportunities for slimy pollutants, including:

- Cocoa powder and rice to represent sewage
- Chocolate pudding and oatmeal for sewage assist

Of course, anytime you allow students to work with water it can be a messy experience and asking them to try to clean dirty water can increase the challenge. The activity Sparkling Water from the original Project WET curriculum guide (or available for download from the Project WET website) encourages you to create dirty water with coffee grounds, soil, vegetable oil, and food scraps. This can make quite a goopy mess. Students are challenged to find the best method to clean this water. Materials provided include: sand, gravel, coffee filters, charcoal, baking soda and more. After a few attempts some student teams will produce cleaner water and learn about the water treatment process along the way.



Some activities involve a delicious messiness by using foods to help student understanding of a topic or concept. One example would be the Tasty Watershed where students express their understanding of a watershed by creating one on a graham cracker using frosting as the glue and marshmallows, gummi bears, Hershey's kisses, etc. to represent the different land forms and inhabitants in their watershed.

The Edible Landfill is another example of explaining a concept by making a tasty mess. Leachate pipes, gravel, and garbage are represented by licorice, cookie crumbs, and pudding respectively. You can access this activity at

To get a grasp on the nitty gritty, hands-on experience is a useful learning tool. Cleaning up the messy models can simulate environmental cleanup. For example, red dye pumped into and out of the groundwater flow model respectively simulates pollution and cleanup of aquifers.

We know that during this time, hands-on activities aren't as feasible, but models can still be useful as visual education tools. These activities can also be adapted to be created at home. If you have a question about any of these resources, please contact Linda or Ryan at [LPettit@franklinswcd.org](mailto:LPettit@franklinswcd.org) or [Ryan.Bourgart@epa.ohio.gov](mailto:Ryan.Bourgart@epa.ohio.gov).

## Activities Referenced

Freddie [www.texasthestateofwater.org/screening/pdf\\_docs/FreddieTheFish.pdf](http://www.texasthestateofwater.org/screening/pdf_docs/FreddieTheFish.pdf)

Frannie the Fish [www.groundwater.org/file\\_download/inline/206b1d58-e5ad-40b5-9393-8ed24f4ca2d1](http://www.groundwater.org/file_download/inline/206b1d58-e5ad-40b5-9393-8ed24f4ca2d1)

Build a Watershed [www.discovere.org/sites/default/files/Build%20a%20Watershed\\_090716.pdf](http://www.discovere.org/sites/default/files/Build%20a%20Watershed_090716.pdf)

EnviroScape models [www.envirosapes.com/](http://www.envirosapes.com/)

Sparkling Water activity <https://store.projectwet.org/sparkling-water-activity-download.html>

Edible Landfill <https://www.nj.gov/dep/seeds/hthtr/edible.pdf>

# Wetlands: Mucky, Diverse, and Wonderful

By Ryan Bourgart, Ohio EPA OEE

Nature is at its messiest in the depths of wetlands. To some nature enthusiasts these prolific ecosystems have earthy aromas, but to the nature averse these stench may lead to misunderstanding. By immersing people in the mud and elevating the messy, environmental education efforts can revive wetlands, overcoming the debris of misperception about these endangered ecosystems and sowing the seeds of understanding their importance.



Like rainforests, wetlands are among the most diverse ecosystems. By highlighting bizarre carnivorous plants (e.g. the radiant sundew (left) and alluring pitcher plant (right)) and weary sojourners who use the wetlands as respite (e.g. sandhill cranes), people can be charmed by the diversity of wetland life. At the scale of whole ecosystems, wetlands are as varied as the life they support. Marshes, swamps, bogs, and fens are all types of wetlands. “Fens flush, bogs clog” is an alliterative rhyme that can teach the difference between a fen and bog. Fens receive nutrients from groundwater moving through surrounding soil. Over time peat may clog up the fen separating it from the water and forming a bog (EPA).



We can help people understand the importance of the “ick” but until they get their hands dirty, they may not want to protect wetlands. Because kids are natural explorers who like getting messy, educators can encourage this kind of exploration into adulthood with EE activities. Project Wild Aquatic activity Wetland Metaphors helps students understand the important functions of a wetland by likening a wetland to a sponge, pillow, coffee filter, and more. Wetland Soils in Living Color from Project WET brings students out to wetlands to collect soil samples, learn about properties of wetland soils, and classify soil types using a color key. A Project WILD activity that can get kids digging around in a wetland is Eco-Enrichers, which allows them to make observations and comparisons about organisms in the soil to draw conclusions about soil conditions. Students can also browse wetlands looking for producers, consumers, and decomposers to create a multimedia display in Project Learning Tree’s Nature Recyclers. Wonders of Wetlands (WOW) is a curriculum dedicated to wetland education and is used by park districts, national wildlife refuges, and other environmental educators in Ohio. The curriculum has activities about the definition of wetlands, plants and animals, water quality and quantity issues, soils, and people. WOW workshops will most likely not be offered for the rest of this year, but if you are interested in more information about WOW, please contact Project WET state coordinator, Dennis Clement ([Dennis.Clement@epa.ohio.gov](mailto:Dennis.Clement@epa.ohio.gov)). If you are interested in purchasing a WOW guidebook, follow this link: <https://wetland.org/education/publications/>. These resources can decompose debris of misunderstanding and sow seeds of appreciating wetlands.

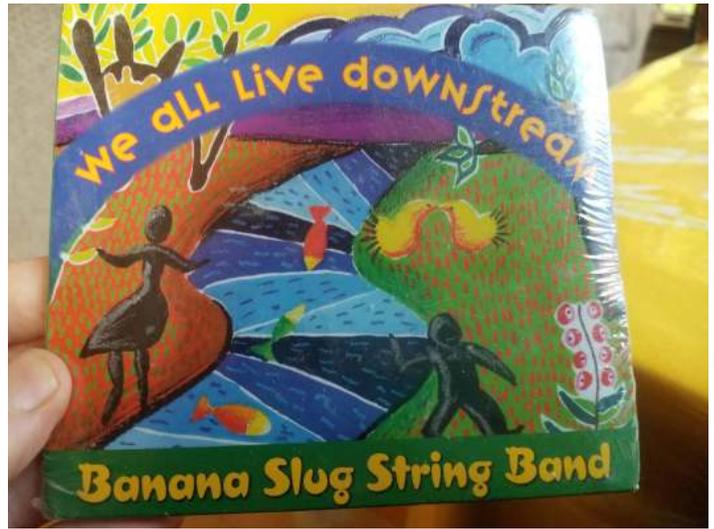
Muck misunderstanding abounded in the past. Ohio pioneers had to trudge through the sludge of the Great Black Swamp. Viewing it as an obstacle to settlement, the pioneers converted it to what they considered more useful agricultural fields. Once covering 1,500 square miles, the remnants of the Great Black Swamp are a reminder of the unique ecology and history of Northwest Ohio. The Soil and Water Conservation Districts (SWCDs) in the region (Lucas, Paulding, Defiance, Williams, Fulton, Lucas, Wood, Ottawa) host two formal and informal educator workshops, one on soil and the other on water quality. The water quality workshop has stations where participants learn about water quality activities for use in the classroom. Participants also see demonstrations of educational models of wetlands, nonpoint source pollution, drinking water treatment systems, and landfills. All who attend receive a flash drive of resources and a continuing education certificate. The workshop is planned for June but is likely to be canceled due to the pandemic. If interested, please check out SWCDs’ websites for future workshops.



The Banana Slug String Band (BSSB) is a groovy group that creates songs, music theater, and puppetry to engage kids in EE. These masters of creative education bring science alive, making it more fun and understandable. BSSB normally highlights the Miami County Park District’s Hug the Earth Festival the week before Mother’s Day every year. Because of the pandemic, they instead collaborated with the Miami County PD to release a four-part environmental education curriculum that integrates art, science, and music. This curriculum can easily be incorporated

to enhance classroom lessons and align with academic standards. Also designed to align with standards, their infectious songs are invaluable EE tools. Let Our Wetlands Stand celebrates and encourages exploration of the messy creativity of wetlands.

When you go to the wetlands get down low  
 Put your feet in the mud let it ooze between your toes  
 Stand real still and listen to the sound  
 The bounty of life is humming all around  
 Find a wetland near you and go there today  
 Get to know its wild side, try to keep it that way



*2008 Slug Music (BMI). All Rights Reserved. Unauthorized duplications is a violation of applicable laws*

Some of their songs show that the muddy can inspire sweet melodies, which stick in students' minds to help them learn. If you are interested in learning more about the band or Miami County PD, contact Doug Greenfield at [doug-dirtbssb@gmail.com](mailto:doug-dirtbssb@gmail.com) or Cinda Hanbuch-Pinkerton [cindahp@miamicountyparks.com](mailto:cindahp@miamicountyparks.com). Music, other forms of creativity, and other EE techniques can transform debris of misunderstanding about nature into the sprouting of appreciating ecosystem services and the flowering of action protecting wetlands.

Note: May is National Wetland Month. You can celebrate wetlands this month by exploring a wetland near you. You can also check out the Ohio Wetland Association, an organization dedicated to protecting, restoring, and enjoying wetlands.

## Resources

Banana Slug String Band - [www.bananaslugstringband.com](http://www.bananaslugstringband.com) Find out more about the band and lien to their music.

Curriculum - <https://www.miamicountyparks.com/node/1211>

Standards - <https://www.miamicountyparks.com/sites/default/files/media/mcpd/ACADEMIC%20STANDARDS.pdf>

Ohio Wetland Association - <https://www.ohwetlands.org/>

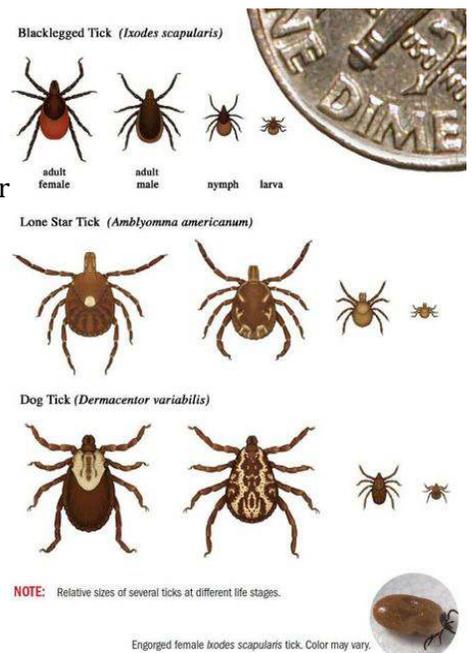
## Ticks

By Denise Natoli Brooks, Licking SWCD

Here is something productive to do with any ticks you find crawling on you. Dr. Risa Pesapane, assistant professor with Ohio State University, is collecting ticks to study the increasing risk of tick-borne disease in Ohio. She is asking for help in collecting ticks of any kind. It does not matter if the tick was attached or if it came from a human or a wild animal.

If you encounter ticks while in the field this spring, please consider sending them to Dr. Pesapane. To do so, simply place the tick(s) in a bag or container, label the bag with the county and the host (human or animal species) where it was found, and preserve it in one of 3 ways: freeze it as-is, or add a small amount of rubbing alcohol or hand sanitizer to the container. Then email Dr. Pesapane at [pesapane.1@osu.edu](mailto:pesapane.1@osu.edu) for a pre-paid shipping label. Feel free to send Dr. Pesapane any questions about the research.

Ohio Dept of Health has a tick ID card you can download at <https://odh.ohio.gov/wps/portal/gov/odh/know-our-programs/zoonotic-disease-program/resources/tick-id-card>



# Antlions: Ferocious Beasties!

By Alli Shaw, Sharon Woods Metro Park

Over the past several years, I've realized that many people have never heard of an insect called an antlion. Is it half ant and half lion? Mention doodlebug, and a few may have an a-ha moment and remember playing with them as children. There are a few song verses from the 1800s referring to doodlebugs and an astronaut



on Apollo 16 mission even likened the moon craters to antlion pits. But still most shake their heads, having never heard of the critter.

So what is an antlion or doodlebug? Both are the larva of a winged insect (also called an antlion) that dig a small



*Spotted Wing Antlion Adult, Photo: Joe Bgs, OSU Extension*

pit as a trap for hapless small insects. They belong to the order neuroptera, meaning "nerve" and "wing" - a descriptive

term for the intricately-patterned clear wings. Others in this order include fishflies (dobsonflies), lacewings and snakeflies. They fly at night and go unnoticed by the casual observer.

But back to the cool larvae. As a youngster, I used to play with these fierce insects at my Grandma's house. She lived near the Ohio River and had a sandy yard all around her house, as opposed to the red clay at my house, a few miles away. I would put ants into the tiny pits and marvel as they disappeared. We never had antlions at our house so this was a fun thing to do at Grandma's.

## Food chain in action

I had forgotten about them as I grew older until one day at work. Below the bay windows at our reservable Lodge, is the softest, finest soil that doesn't get much



rain at all. And we discovered little pits, no more than two inches across, in the ground. MANY little pits! How have I never

noticed these after all the years of working here? As a naturalist at Sharon Woods Metro Park in Westerville (just northeast of Columbus), it's my job to know what's in my park and be observant. I failed at this! To make up for lost time, my coworker and I excitedly looked for ants to sacrifice in the pits. What happened next was just the neatest thing: the sandy soil moves violently while the ant helplessly tries to scramble out. But to no avail. The antlion even flips grains of sand or soil at its prey to make escape even more futile. The massive jaws grab the insect and dinner is pulled under the sand. From there, nothing can be seen and the show is over. However the antlion is quietly injecting venom into the body of the insect, enzymes liquifying the insides. The juices are sucked out, the exoskeleton of the dry insect is flipped out of the pit and the antlion lies in wait for another meal. Some Star Wars fans may even liken it to the Sarlacc "sand monster" from The Return of the Jedi fame. You may even feel a little like Jabba the Hutt, tossing victims into the pit for your own entertainment! A new discovery of tons of pits near an old maple tree on our 5th grade field trip route proved to be quite exciting for hundreds of 5th graders last fall.

The antlion larva is small but mighty, with huge jaws and bristles all over its body. It's a voracious eater and continually growing. They molt a few times at this larval stage and tap out at a whopping 1/2" long. Next, it's time to spin a webby cocoon of silk from structures called a Malpighian tubule, an excretory system that some insects and other invertebrates have. The larva pupates and then emerges as a winged adult that looks nothing like its former self. Such is complete metamorphosis. Antlion adults resemble a damselfly and are nocturnal and therefore rarely noticed. Those of us who observe moths using lights and a white sheet usually find antlions mingling with the other nighttime fliers. The adults typically do not eat and have one purpose: to make more of themselves. After mating, females lay eggs in soft, sandy soil. And as complete metamorphosis goes, the egg hatches and the abovementioned cycle starts all over.

## Antlion Hunting

Are they only at nature preserves? Special areas? Nope! Antlions can often be found in any kind of sandy, fine soil. I have found them at the bottom of sandstone cliffs in unglaciated Ohio, under a hanging air conditioner unit in a flowerbed, in fine soil around a 150 year old sugar maple, and in Florida on vacation!

## Captive antlions

Antlions are great fun for children of all ages (uhem, you adults, too!) They are really easy critters to care for. Once you have found an antlion pit, determine if it is active. Toss an ant in and observe! If yes, use a trowel



to dig way down below a pit that you know has a larva at the bottom. To make sure you captured the larva, pour the

shovelful into a strainer, collecting the soil or sand in a container at least three inches deep. A plastic container with a lid (such as a "critter keeper" that you would find at a pet store) is the optimal container if you plan on raising your antlion to adulthood. The lid should be placed upside-down since opening these containers could result in jostling the antlion's habitat and messing up the pit. Antlions deposited into a container will quickly dig a new pit. They do this by scooting backwards in circles, flipping sand with their body and jaws.

Antlions will eat small ants, mealworms, and other insects or larvae that wiggle or move. Make sure you feed them twice-daily so they develop fully. Your beastie can be dug out of the pit and viewed with a hand lens or

even a low-power microscope. Antlions can bite if stressed, so handle them carefully. Keep the habitat away from any curious furry pets you may also be caring for. Remember that eventually, the larva will go through a period of inactivity during the pupal stage. Don't think it is dead! It will emerge as a winged adult but this may take several weeks. If you plan on raising them to adulthood, make sure there is a lid on the container and a stick is placed in the pit. The adult will need an area to climb and stretch its wings. Keep an eye on it everyday, as the adult should be released outdoors to locate a mate. Happy lion taming!



## Resources

BBC antlion video with wonderful sound effects: [www.youtube.com/watch?v=QSYpWaFsIRY](http://www.youtube.com/watch?v=QSYpWaFsIRY)

Hocking Hills Video [www.youtube.com/watch?time\\_continue=119&v=prkLsFJlHzM&feature=emb\\_logo](http://www.youtube.com/watch?time_continue=119&v=prkLsFJlHzM&feature=emb_logo) featuring Paul Knoop

Teacher resources: <https://www.antlionpit.com/www.html#wwwteacher>

## ZoomBees Pollinator Webinar Recordings, 2020

Find out phenology, bees in your backyard, and more in this series of webinars from Ohio State Extension <https://u.osu.edu/certify/zoombees-webinar-recordings-2020/>

Dan Herms: Introduction to Phenology (54m)

Jamie Strange: The Rusty Patched Bumble Bee and Bumble Bee Conservation (56m.)

Denise Ellsworth: The Bees in Your Ohio Backyard (62m.)

Heather Holm: Solitary and Specialist Bees (64m)

Doug Tallamy: Nature's Best Hope, (61m. We lost connection with Doug at minute 4, so you'll notice a short break)

MaLisa Spring: Introducing The Ohio Bee Survey, and Using iNaturalist to Identify Bees (67m.)

Denise Ellsworth: Theme Gardens for Pollinators (68m.)

Olivia Carril: Identifying Common Bees in Ohio (61m.)

Sam Droege: Collecting and Displaying Insects (75m.)

Rich Hatfield: Conserving Pollinators With Community Science, and an Introduction to the Xerces Society (64m.)

# Owl Pellets

By Sara Fehring, Hamilton County Soil & Water Conservation District

Did you know that owls and many other types of birds of prey eat their prey whole, even though they cannot digest the entire animal? Fur, bones, feathers and teeth are examples of indigestible parts of the owl's prey. So, what happens to the indigestible pieces? When the food reaches the owl's gizzard the digestible food is passed onto the intestines. The indigestible food is compacted and then regurgitated (spit out) in the form of an owl pellet. Owls typically create one pellet per day. The size of the pellet depends on how much the owl has eaten. Researchers use owl pellets to learn about the life cycle of the owl.

So, what should you do if you find an owl pellet? Grab a hand lens, tweezers and anything else that you may want to use and get to work dissecting the owl pellet. See if you can identify what the owl ate. Dissecting owl pellets can be fun for all, as you can see here in this video. To be honest, I am no expert when it comes to owls or owl pellets, or birds in general. However, while on a walk with my three-year-old daughter we found an owl pellet. Having dissected a few owl pellets before I knew what we had found. After dissecting the owl pellet and doing a bit of research I was able to learn additional information about owls and get my daughter excited as well.

<https://www.youtube.com/watch?v=SE5BIRJXISo>



## Save the Date

### Project WILD & Inquiry and Adventures Workshop

Wed, July 8, 9 am - 5 pm  
Cox Arboretum Metropark

Kettering Learning Lab, 6733 Springboro Pk.

Graduate degree (0.5) and 6 hours of Ohio approved credit is available, with no homework or papers to write.

**Cost:** \$25. Limited now to 10 people due to distancing.

**Contact** Joshua York [Joshua.York@metroparks.org](mailto:Joshua.York@metroparks.org) or register [www.metroparks.org/programs-events-finder/?program\\_number=E188&api=programs&type=program](http://www.metroparks.org/programs-events-finder/?program_number=E188&api=programs&type=program)

### Nature-Based Early Learning Conference

**Moving Online!**

July 29-July 31

Find out more about the conference at <https://naturalstart.org/nature-based-early-learning-conference>

### 101 Alternatives to the Chalkboard Educators Conference

October 2-3  
YMCA Camp Kern, Oregonia, OH

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.

**Cost:** \$30. Includes all sessions, programs, meals, and overnight accommodations. Scholarships and discounts available. Free for anyone who attends the September 2020 EECO Annual Conference.

**More info:** Contact Outdoor Education Director, Dave Moran, at [dmoran@daytonymca.org](mailto:dmoran@daytonymca.org) or 513-932-3756 x1527

**Call for Presenters.** Dave is seeking presenters for the 101 conference, if interested, please contact him.

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

# Contact EECO

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, advisors, and board members to find out more about becoming a part of EECO.

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