

# EECONEWS



*Issue Focus: Creepy and Freaky....*

Summer 2012

Volume XXXI

Issue 3

## Ohio Spiders

*By Amy Cameron, Butler SWCD*

There is at least one in every group of hikers, the person who always falls to the back of the group or, at least, behind someone who is even the slightest bit taller than themselves. Why? To avoid as many spider webs as possible of course! If you are that person then this article is for you. Learning more about Ohio's spiders may alleviate some discomfort associated with the presence of this creepy crawler, thus making it easier for the startled educator to remain calm in front of impressionable minds.

There are approximately 39 spider families found in Ohio. To many, this list is too long. So, this article provides a brief overview of Ohio's three most abundant spider families.

**Sheet Web Weavers** Have you ever seen the spider webs covering your lawn? These sheet-like webs are woven by the sheet web weaver spiders. The sheet web weaver spider belongs to the family Linyphiidae, and is the most abundant family of spider in Ohio. There are two main components to their web; the horizontal web that is easily visible and the vertical strand that is nearly invisible to most insects. The unsuspecting insect flies into the vertical strand and falls into the sheet of web to be caught by the spider that is waiting on the underside of the web. The sheet web weavers are not poisonous to humans.



**Jumping Spiders** As their common name may insinuate, jumping spiders, belonging to the family Salticidae, are known for their jumping ability which they use as a defense mechanism when threatened, but mostly for active hunting. The bad news is unlike most spiders that run when they feel threatened, these spiders are likely to jump toward you using their keen eyesight. Also, they are diurnal, so you are more likely to run into them when you are out and about during the day. The good news is, they are not poisonous and they prey upon insects.

**Orb Weavers** When the leader of your hiking group squeals because he or she just walked into a conveniently spun web located smack dab in the middle of the trail corridor, chances are they just broke the beautiful wheel web of an orb weaving spider. Not to worry fearless leader, this spider poses no threat to humans and will run when approached by them. The orb weaver, in the family Araneidae, is found mostly outside. The orb weaver's web, attached to branches and other vegetation, consists mainly of two parts, the wheel and the spoke. The wheel is an adhesive silk used for catching prey, and the spokes are non-adhesive made for easy travel for the spider.

Though spiders are not the favorite of most people who may agree with Dreamworks' Megamind quote, "arachnis deathicus", the majority of Ohio's spiders are harmless toward humans and help control insect populations which can harm crops and spread diseases. So, the next time you brave the front of the line of hikers and run into a web, rest assured that it is more times than not one of the many harmless spiders of Ohio.

Here are some great Ohio Spider resources:

- [www.marion.ohio-state.edu/spiderweb/mainpage.htm](http://www.marion.ohio-state.edu/spiderweb/mainpage.htm)
- <http://ohioline.osu.edu/hyg-fact/2000/2060.html>
- [www.dnr.state.oh.us/Portals/9/pdf/pub5140.pdf](http://www.dnr.state.oh.us/Portals/9/pdf/pub5140.pdf)

### Save the Date

#### **OEEF Grant Submission**

Jan 8, Letter of Intent due

Jan 15, Grant Deadline

#### **101 Conference**

Oct 5-7, Camp Kern

#### **Winter Snow**

Feb 1-2, Camp Nuhop

#### **Annual Conference**

April 11-14, 2013, Mohican SP

# Everyone Needs Worms

By Denise Natoli-Brooks, Licking SWCD

Composting is nature's recycling process whereby biological material decomposes. This natural process has been going on since plants first appeared on the planet. Finished compost is rich in nutrients and supports new plant growth. We can easily harness this natural cycle to enhance our plants' health. From yard waste to vegetable scraps to leftover casseroles, composting significantly reduces the trash that goes in the landfills. Composting works indoors and outdoors, making it accessible to those with large spaces and small spaces.

Vermicomposting is an easy, year-round way to reduce organic waste and turn it into nutrient rich soil using worms. Red wiggler worms (*Eisenia fetida*) naturally eat twice their weight in organic matter every day. These voracious little creatures live well in large groups in an indoor bin. About 500 worms can live in a 15 gallon plastic bin. To keep the worms healthy, they need air holes drilled around the top of the bin and drain holes drilled in the bottom of the bin. For bedding, they love shredded paper, dried grass clippings, dried leaves, sawdust and coir (coconut bark often used for animal bedding), or a combination of the above. Once the compost bin is  $\frac{3}{4}$  full of moist bedding (think of a wrung out sponge), the worms are ready to eat. They love veggies and fruits, raw and cooked, but they do not like large quantities of crushed egg shells, citrus, onions and garlic. Moldy leftovers that have been in the fridge too long are also fair game; just make sure there isn't too much oil, cheese, meat, or other fats.

The worms do not need to be fed every day and feeding too much too often can lead to a stinky worm bin. You'll want to make sure their food is buried to reduce odor and that the moisture level remains like a wrung out sponge. When the worm bin is functioning well, there is a little earthy smell or no odor at all. Over time, the material in the bin will be eaten by the worms and in 3-6 months, their castings (poop) become the finished compost. The temperature of the bin should be between 59 F and 77 F, but the warmer the bin is, the faster the worms will make compost.

When there is mostly finished compost in the bin, move all the material to one side of the bin. Then put new bedding in the other side. The worms will follow the food. After a few weeks, you can take the finished compost out of the bin. Before using the compost, make sure to freeze it to kill any of the non-native worms or worm eggs to ensure they do not get into the natural environment. Another more labor-intensive method includes separating the worms from the finished compost by hand. This method works well with a group. Worms naturally do not like light, so if you build many little mountains of compost, the worms will migrate to the center. Carefully remove the outside layers of compost until you have a tiny pile of worms. The worms go back into the compost bin with fresh bedding. Use the finished compost to top dress house plants and to help vegetable and flower gardens produce more food. Gardens treated with all natural vermicompost tea will be more beautiful than you ever imagined. This easy and free process has inexpensive start-up costs and a healthy vermicompost system is self-sustaining.

Vermicomposting lends itself to scientific investigations and posing comparative questions about bedding materials, food scrap preferences, temperature and more. What type of bedding do compost worms prefer, only paper, only leaves or a combination of the two? Are worms more likely to eat food scraps faster in a bin with grass in the bedding or a bin with leaves in the bedding? The inquiry opportunities are endless. Plus worms make great pets; any age child can take part in their care. Just imagine being the kid who can brag about taking care of over 500 pets!



*Red worms just added to leaf litter*

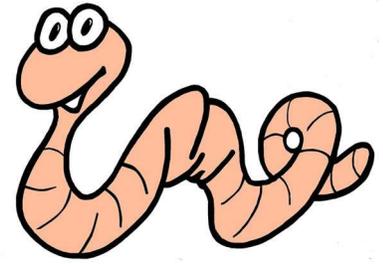
## Composting Resources

- Appelhof, M. (1982). Worms eat my garbage. Kalamazoo, MI: Flower Press.
- Appelhof, M., et. al. (1993) Worms eat our garbage: Classroom activities for a better environment. Kalamazoo, MI: Flower Press.
- [www.wormwoman.com/](http://www.wormwoman.com/)
- [www.nrri.umn.edu/worms/](http://www.nrri.umn.edu/worms/)
- [www.redwormcomposting.com/](http://www.redwormcomposting.com/)
- <http://compost.css.cornell.edu/FoodCompostpr.html>
- [www.wormmainea.com/](http://www.wormmainea.com/)

## Favorite Camp Song About Worms

### **Herman the Worm**

Cruisin' in my Mustang  
sippin' my ice tea, glug, glug, glug, glug, glug  
and along came Herman the Worm  
and he was this big (hold fingers up to show about an inch)  
and I said "Herman, wuz up man?"  
and he said "I swallowed a bug"



Start from the first verse again...Herman continues to get bigger as he eats larger animals each time.

The end:

I was cruisin' in my Mustang  
sippin' my ice tea, glug, glug, glug, glug, glug  
when along came Herman the Worm  
and he was this big (goes back to being small again)  
and I said "Herman, what happened?"  
and he said "I burped."

## Light Up Your Life with Fireflies

**By Denise Natoli-Brooks, Licking SWCD**

Fireflies bring one of nature's best light shows to meadows and lawns across Ohio this time of year. Have you ever wondered what the fireflies (a.k.a. lightning bugs) are doing when they blink on and off, fluttering around each evening? As we enjoy the spectacle, the fireflies are communicating, busily searching for mates and meals. Each species of fireflies has its own light pattern, similar to Morse Code. Some species flash quickly a few times in a row while others may flash once, then pause and blink a couple quick flashes. In this dating game, the female waits calmly near the ground, while the male flies around trying to find a female with the same blink pattern...but not is all as it seems. The female firefly is known to lure males of other species in, and once the love struck male arrives, the female eats him!

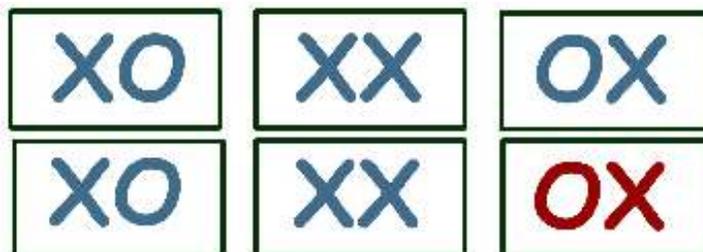
Try this firefly activity as an icebreaker or as a lesson on communicating without words. Create patterns of X and O on index cards. For example, make two cards with XXX, two cards with XO, two cards with XXO, etc. These letters represent firefly flash patterns.

Everyone receives one card that they must not let anyone else see. Their task is to find their mate without talking.

To flash like a firefly, cross your arms to make an X, and cup your hands to make an O. Give participants some background information about fireflies, but don't mention anything about the sneaky and voracious females. Do make sure to write some of the flash patterns in different colors.

After applauding the participants for successfully finding their mates, let them know that anyone who has a flash pattern written in red for example, represents a male that just got tricked and eaten by their would-be female mate. This last bit always gets smiles and laughs, and ultimately helps to break the ice.

Examples of Light Up Your Life with Fireflies cards, including the tricked male card in red, are below.



## Talking 'Bout Scat

By Joe Brehm, Rural Action

“It starts with ‘s’ and ends in ‘t’ but let’s be scientific and call it ‘scat’!” Thus begins the famous and catchy Scat Song, long used by environmental educators to introduce students and adults alike to the wonderful world of animal poop (also called “scat”). Here’s the song in action but be careful—it’s catchy:

[www.youtube.com/watch?v=OMARerlH8wE](http://www.youtube.com/watch?v=OMARerlH8wE)

A good friend of mine and fellow naturalist wishes that he could have majored in scat during our college years at the University of Montana. Why? Because you can tell volumes about an animal and its environment by what its digestive and excretory systems leave in the duff. To back up a step, you can also usually identify an animal to family and sometimes to species solely by its droppings.

Here are a few tips for identifying scat on the trail:

- Animals in the weasel family usually leave skinny, U-shaped scats.
- Scats from the dog family have tapered ends, whereas feline scats consist of more block-shaped, segmented scats. They love to leave scat on rocks, logs, or other prominent features on the landscape. Coyotes also frequently deposit scat at the crossroads of two trails.
- Bear scat looks quite a bit like another large mammal, *Homo sapiens*. A tip I love sharing from another seasoned Montana naturalist is that if you have enough bear scat to fill a baseball cap, you’re looking at Grizzly droppings. If not, it’s probably a black bear.
- Deer scats change substantially from summer to winter as their diet changes from green vegetation to twigs and bark. Summer scats are dark and lumpy whereas winter scats are more classic pellets.
- Raccoons drop multiple s-bombs in the same place, usually a large fallen log near water, and these spots are called latrines. This is most likely a means for communication. As naturalist and educator Brandon Good at The Wilds likes to say about communal rhino scat piles, they are the Facebook of the animal world. This would naturally be called Fecesbook and would redefine social media.
- Some butterflies such as the Red-Spotted Purple, glean nutrients for scat and are therefore amazing scat-finders. They can lead you to valuable information and make animal turds look incredibly beautiful.

Scat analysis can be done as casually or intensely as the educator wishes.

One can simply pluck and identify hair, seeds, and other debris in scat to get a better idea of an animal’s diet. This is a great way to begin studying seeds, as you will observe the same plant material in a variety of animal scats. Canine scat also reveals bone material in some scats, and this can be analyzed, as well. Legendary Ohio environmental educator Paul Knoop conducted an informal study at Aullwood Audubon Nature Center by analyzing dozens of owl pellets, all of which contained a species of lemming that most thought was rare in Ohio.

Whatever method of analysis you use, take precautions because scat from animals such as the coyote and raccoon can contain nasty and deadly viruses and parasites.

A great and safe way to bring scat to the classroom is to bake scat cookies and shape these edible treats into various Ohio mammal scats. Here are a few links with recipes, directions, and resources:

<http://alexml.blogspot.com/2009/10/raccoon-scat-recipe.html>, also see the “Who Dung It” link on this page.

[www.wildwoodtracking.com/mammals/index.html](http://www.wildwoodtracking.com/mammals/index.html)

<http://alaskabex.blogspot.com/2012/06/were-going-on-bear-hunt.html>.

One of the best mammal trackers in the country is Dr. Jim Halfpenny and I highly recommend any of his books (or classes, for that matter). Here is a link to an article about him: <http://bit.ly/Qiwr8H>. I also highly recommend *Mammal Tracks and Sign* by Mark Elbroch, which is a comprehensive field guide that will help you learn your tracks, scat, and other sign.



*Coyote scat with deer hair and unidentified bones*



*Canine scat with bluejay feathers*



*Goosey scat with Red-Spotted Purple (*Limenitis arthemis*) sipping nutrients right off the scat*

# Entomophagy

By Lara Askill, Metroparks of Butler County

Entomophagy (from Greek éntomos, “insect(ed)”, and phǎgein, “to eat”) is the consumption of insects as food. In the US, we are part of a cultural minority that finds bug eating gross. Pennsylvania State University professor Manfred Kroger says that our eating habits are conditioned by our culture. We see insects as the destroyers of crops and ruin-ers of picnics rather than a food source, while many cultures -- primarily in Africa, Asia and South America -- rely on creepy-crawlies as their main source of protein. Not only are bugs high in protein, they are low in fat! Here are a few recipes to help you add something a little different to your diet.

## **Dry Roasting Mealworms**

Separate mealworms from the packing material by placing in a colander and gently toss. Remove dead mealworms and any other bits of debris. Wash mealworms in colander under cold water. Place on paper towel and pat dry. They are now ready for cooking.

Place paper towel on cookie sheet. Spread mealworms on paper towel and place in 200 degree oven for 1-2 hours until thoroughly dry and crunchy. Now you have dry roasted mealworms.

## **Mealworm Dip**

2 cups low-fat cottage cheese	1 tablespoon parsley
1 1/2 teaspoons lemon juice	1 tablespoon chopped onion
2 tablespoons of skim milk	1 1/2 tablespoons dill weed
1/2 cup reduced calorie mayo	1 cup mealworms

Blend all ingredients in order (cheese, lemon juice, milk, etc) and then chill. Serve with chips and veggies.

## **Insect Flour**

After dry roasting insects, they should be fairly brittle and crush easily. Take your insects and put them into a blender or coffee grinder, and grind until they reach the consistency of wheat germ. Use in practically any recipe. Try sprinkling insect flour on salads, add to soups, or your favorite bread recipes.

## **Bug Blox**

By Ohio State University Extension

2 large packages of gelatin	2 1/2 cups boiling water (do not add cold water)
-----------------------------	--------------------------------------------------

Stir boiling water into gelatin and dissolve completely. Stir in dry roasted insects. Pour mixture slowly into 13 x 9 inch pan. Chill at least 3 hours. BLOX will be firm after one hour, but may be difficult to remove from pan.

Cutting BLOX: dip bottom of pan in warm water for 15 seconds to loosen gelatin.

## **Chocolate Chip Chirpie Cookies**

2 1/2 cups flour	1 teaspoon Baking soda	1 teaspoon salt
3/4 cup white sugar	3/4 cup brown sugar	2 eggs
1 teaspoon vanilla	12 oz bag of chocolate chips	1 cup butter, softened
1/2 cup dry roasted crickets	1 cup of chopped nuts	

Preheat oven to 375 degrees. Combine flour, baking soda and salt. Set aside. In a separate bowl, combine butter, sugar, brown sugar, and vanilla. Beat until creamy. Beat in eggs. Gradually add flour mix and insects, mix well. Stir in chocolate chips. Drop rounded teaspoonfuls onto ungreased cookie sheet. Bake for 8-10 minutes.

## **Worm Fritters**

1/3 cup creamed corn	1/4 teaspoon baking powder	pinch nutmeg and pinch pepper
1/3 cup canned corn	1/8 teaspoon salt	3-4 tablespoons corn meal
1 large egg	3 1/2 tablespoons butter	3 tablespoons all-purpose flour
1/2 cup corn oil	3/4 cup dried whole mealworms	

Beat egg until light and add corn. Then add flour, corn meal, baking powder, salt, pepper, and nutmeg. Melt butter and mix together. Roll in worms. Ladle 1/2 ounce portions into deep fryer containing hot oil (a wok will do). Serve hot with your favorite sauces.

## Asian Long Horned Beetle

By Amy Stone, OSU Extension - Lucas County

Is there really another invasive insect lurking in Ohio that could wreak havoc on our landscapes and forests? The answer is yes, but currently the insect known as the Asian longhorned beetle (ALB) is only known to be in Clermont County. An initial ALB infestation was discovered in Tate Township, just outside of Bethel, Ohio in June 2011. A second infestation was discovered in neighboring Monroe Township, and a result of firewood movement before the insect was discovered in September 2011. Most recently, a third infestation was discovered in Stonelick Township on July 20, 2012 - again the result of movement of firewood prior to the first detection. This outdoor infestation is the first for Ohio but not the first for the United States. In fact, this wood-boring insect from China was first identified in New York City in 1996, and then in Illinois, New Jersey, and Massachusetts. There also have been insects found in warehouses, but intensive survey work surrounding those finds determined that the insects had not escaped into nature.

While the emerald ash borer (EAB) --another invasive beetle that hitchhiked its way to North America from Asia in wooden shipping material -- kills ash trees by feeding on the tissue right under the bark that transports water and nutrients, the ALB larva feeds on the interior of trees. Eventually, this causes the trees to lose their structural integrity, literally crumbling apart. And unlike EAB (which only attacks ash trees), Asian longhorned beetles feed on a variety of hardwood trees, including maple, birch, elm, poplar, ash, horse chestnut, buckeye, hackberry, European mountain ash, London planetree, mimosa, willow and katsura. Such feeding behavior makes ALB particularly dangerous.

Signs of ALB infestation include perfectly round exit holes (about 3/8 to 1/2 inch in diameter) made by adult beetles on the bark as they emerge from trees; divots, pits, or pockmarks on tree trunks and branches where female beetles deposit eggs; frass (wood shavings and sawdust) produced by larvae feeding and tunneling; early fall coloration of leaves or dead branches; and running sap produced by the tree at the egg-laying sites, or in response to larval tunneling.

Most active during the summer and early fall, adult ALBs are 1 to 1 1/2 inches in length; have long antennae banded in black and white (longer than the insect's body); have a shiny, jet-black body with distinctive white spots; and may have blue color on their feet.

At this time Federal and state officials are asking residents to help minimize the spread of ALB and other dangerous insects by not moving firewood (where larvae can hide unseen), choosing instead to obtain firewood locally when going camping or enjoying other activities outdoors.

Community members can also help by being vigilant, checking their trees for symptoms of Asian longhorned beetle. USDA is also enlisting the help of private citizens, the nursery and landscape industries, and natural resources professionals as "beetle detectives" --encouraging them to look for signs of ALB in their neighborhoods.



*Adult male*



*Larvae*



*Asian Long Horned beetle damage to a tree*

*Images by Joe Boggs, OSU*

---

## About EECO

At the Environmental Education Council of Ohio (EECO) it is our mission to be a leader in the promotion and facilitation of Environmental Education (EE), and to nurture knowledge, attitudes and behaviors. We want a healthy and sustainable environment, and the key to this is education. Through EECO, individuals and groups are not only educated, but also develop partnerships with other individuals and organizations. These 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. If you would like more information regarding EECO, please feel free to contact Executive Director, Brenda Metcalf, directly at [director@eeco-online.org](mailto:director@eeco-online.org).

To learn more about the regional directors, board members, and the other people that make EECO possible, and to find out how to contact them please visit: [www.eeco-online.org](http://www.eeco-online.org)

# Upcoming Events, Conferences and Training

For more information visit [www.eeco-online.org](http://www.eeco-online.org)

## An Evening with John Hess in the beautiful Hocking Hills

**September 23, 5:30 pm**

Enjoy the evening with John Hess in the new dining lodge at Camp Oty'Okwa. John, with a PhD in Zoology, is a Professor of Biology, Emeritus at the University of Central Missouri.

John has presented programs throughout the U.S. and is recognized not only as a biologist, but also as a photographer, writer, and lecturer. His programs integrate the point of view of an experienced naturalist, the knowledge of a biologist who wants to understand the lives of species, with the aesthetic skills of an artist. Leaning heavily on the aesthetic component, his programs bring subjects to life, making their lives part of the audience's experience.

The evening with John will be in three parts. John will first share the intermission show that he developed for the The Darwin Project, a multimedia extravaganza assembled by the Friends of Chamber Music in Kansas City. It is a sequence of images built around the last sentence in Origin of the Species, "...from so simple a beginning, endless forms most beautiful and most wonderful have been, and are being evolved."

Following this presentation guests will enjoy a full salad, soup, bread, and dessert bar. Beverages will be provided, or guests may bring a beverage of their choice.

The evening will conclude with John's featured presentation, The Galapagos: Exploring Darwin's Tapestry. This presentation will make sense of the Natural History of the archipelago from its tectonic plates and hot spots to the impact of the Humboldt Current and the lives of its residents – the Galapagos "Royalty" – most of whom are endemic, and all are memorable for one reason or another. After focusing on these species, the program concludes by weaving the species into the fabric of the ecosystem, creating a tapestry – Darwin's Tapestry.

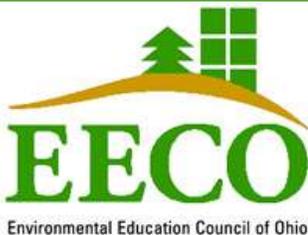
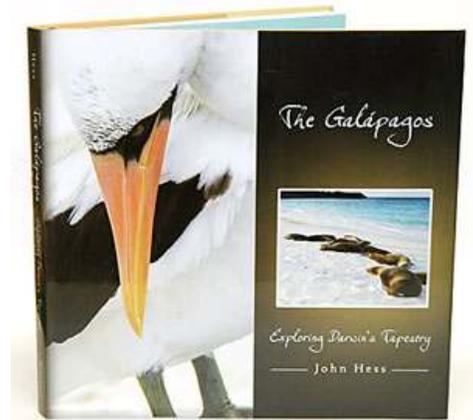
Signed books will be available: The Galapagos: Exploring Darwin's Tapestry, University of Missouri Press, 2009.

Tickets for the evening are \$20 and reservations are required.

Online registration: [www.campotyokwa.com](http://www.campotyokwa.com)

Checks for reservations should be mailed to: Camp Oty'Okwa, 24799 Purcell Road, South Bloomingville, Ohio 43152. Memo: Evening with John Hess.

For information: 740-603-3911



### EECO Annual Conference April 11-14, 2013 Mohican State Park

Join us on April 11-14 in the beautiful Mohican State Park for the 2013 Environmental Education Council of Ohio Annual Conference. Watch for the Call for Presenters at [www.eeco-online.org](http://www.eeco-online.org).

### 37th Annual 101 Educator's Conference

**October 5, 6, and 7, 2012 at YMCA Camp Kern (32 mi NE of Cincinnati)**

The "101" Conference is THE weekend outdoor education workshop experience designed to inspire teachers, outdoor educators, and all adults with creative and fun ways to provide exciting learning experiences. Enjoy large and small group sessions, campfires, good eating, and plenty more. As always, we will address specific Ohio Academic Content Standards.

- Cost: \$82 for all sessions, food, and lodging (\$42 for Saturday only). Discounts & scholarships are available.
- For more information contact Dave Moran at YMCA Camp Kern. 5291 SR 350 Oregonia, OH 45045 phone: (513)-932-3756 x1527, email: [dmoran@daytonymca.org](mailto:dmoran@daytonymca.org)

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