

UK UNIVERSITY of KENTUCKY DEPARTMENT of ENTOMOLOGY

WEE BEASTIES

ENTOMOLOGY NEWSLETTER FOR EDUCATORS

SPRING 2006



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GIMME SHELTER! Attracting Insects to the Outdoor Classroom

Outdoor classrooms are great places to study insects and their relatives. To attract insects, an outdoor classroom doesn't need much: a few plants, some soil, and a little moisture. If you want even more insects, however, there are some things you can do to attract them. This article lists a few tips to increase insect diversity in your outdoor classroom.



1. INCREASE PLANT DIVERSITY Some insects need certain types of plants to live. If you install those plants, the insects are almost sure to follow. If there is a certain type of insect you want to attract, read about its life cycle and food preferences, and you might be able to find the right kind of plant to attract it. In general, if you have more types of plants in an outdoor classroom, more insects will arrive to exploit those plants.

Here are some specific examples of plants that tend to attract a large variety of insects:

Milkweed: attracts monarch butterflies, aphids, milkweed bugs, swamp milkweed beetles, and milkweed long-horned beetles. Vine or free-standing milkweed can be used.

Pea plants: attract various caterpillars and many bees and flies that visit for nectar. Predatory wasps will also visit to attack the caterpillars.

Goldenrod and Queen Anne's Lace (a.k.a. Wild Carrot): these and other native flowering plants attract bees, moths, butterflies, flies, and wasps, all of which visit the flowers to collect pollen and nectar. Crab spiders, ambush bugs, assassin bugs, and other predators soon colonize to feed on the pollinators.

"Butterfly Plants": there are many species of butterfly plants sold in gardening stores. These usually work well, and will generally attract other insects in addition to butterflies. For specific examples of good butterfly plants, visit our "How To Make a Butterfly Garden ENTFact" at:

<http://www.uky.edu/Ag/Entomology/entfacts/misc/ef006.htm>

Native Grasses: the Kentucky Department of Fish and Wildlife has information on how to establish native Kentucky grasses. These native grasses will attract native butterflies and other insects that you've probably never seen before.

Native Grass website: <http://fw.ky.gov/native.asp>

Weeds!: one of the best ways to attract insects is to simply allow weeds to grow. Weeds provide shelter and food for various insects. Encourage weed diversity

by controlling any one type of weed that starts to dominate. Let the weeds grow tall, but remove most of the woody types that may begin to take over after a few years so that you can maintain a mixture of grassy and woody plants.

Even if you don't try to attract specific insects, you can get a general increase in diversity by planting a mix of tall and short plants, grasses and woody plants, fruiting and non-fruiting plants, trees and shrubs, and any other variations you can think of.

2. PROVIDE SHELTER Many insects and their relatives hide during the day under rocks and pieces of wood. Scatter these items around your outdoor classroom to attract ground beetles, centipedes, millipedes, wolf spiders, sowbugs, ants, and many other creatures.

3. JUST ADD WATER To attract an entire spectrum of insect diversity, install a small pond in your outdoor classroom, or build your outdoor classroom around an existing body of water. If you build a pond, add rocks and pieces of wood to the bottom to attract even more creatures and to encourage aquatic plant growth. A permanent pond or stream will have a whole host of aquatic arthropod life. In a pond, you will find mosquito larvae, giant water bugs, aquatic beetles, fishing spiders, water scorpions, water striders, dragonfly naiads, and damselfly naiads. Adult dragonflies and damselflies will also be attracted to the area. A cool, clean, fast-moving stream will have most of the insects a pond will have, plus mayfly and stonefly nymphs, caddisfly larvae, dobsonfly larvae, along with crawfish and aquatic sowbugs.

SHELTOWEE TRACE: Update

In the Spring '05 Wee Beasties, we told you about a plan to investigate the Sheltowee Trace, Kentucky's 250+ mile National Recreation Trail. During September 2005, Part 1 of the plan was completed as experts from the University of Kentucky's College of Agriculture hiked 110 miles from the Kentucky-Tennessee border to the Wildcat Battlefield monument near London, Ky.

AWARENESS Along the way, we met with fellow Kentuckians, some along the trail and some in nearby towns and parks. We shared with them the recreational and educational opportunities available along the Sheltowee Trace. Most people knew that there was a trail in the area, but few realized that the Trace stretches for hundreds of miles across the Daniel Boone National Forest. Many Kentuckians leave the state to hike the Appalachian Trail, not knowing that we have an impressive National Recreation Trail right here in Kentucky. We want more people to know about the Sheltowee Trace and use it to explore Kentucky's natural resources.



EDUCATIONAL OPPORTUNITIES The Sheltopee is crammed with potential for outdoor investigations. For instance, we found an elementary school in McCreary County that was just a few hundred yards from a historic coal mine that intersects with the Sheltopee. Few people in the area knew about the mine. Students could easily begin an investigation into the long-term cultural and environmental effects of the mine. Their work could provide genuine contributions to archeological and historical knowledge in their region. We are very excited about this project because it allows Kentucky students to collect real data on a real problem and work with scientists to interpret the data. The scientists at U.K. benefit because, with the help of the students, they are able to gather much more data than they could otherwise.

FITNESS While hiking, all participants wore pedometers, and we were amazed to see that we walked over 20,000 steps most days. Twenty-thousand steps is about 10 miles, and most health experts recommend about 10,000 steps per days. Hiking is a fun and exciting way to get physical activity.



INSECTS! It goes without saying that we saw lots of plants and animals along the trail, including some amazing insects, spiders, and their relatives. The webs of orb-weaver spiders frequently crisscrossed the trail. Strange critters lurked in the foundations of abandoned buildings. We noticed that insects found in deep, humid valleys were much different from the ones found on dry ridgetops. One of the most common creatures seen along the trail, especially in the valleys, were 4" millipedes like the one pictured below. The insect on the left is a metallic wood-boring beetle.



The second part of our journey begins on September 23rd at the Wildcat Battlefield Monument - right where we stopped last year. We expect to meet more people along the trail and to see more incredible things as we make our way to Rowan County. When the hiking is done, we will gather our experiences, photos, and ideas to create an educational guide to the trail. Hopefully, people will follow our example and follow the Sheltopee Trace into Kentucky's wilderness.

For more information about this hike, visit the website at Kentucky AWAKE (<http://www.kentuckyawake.org/Sheltowee/default.cfm>) or contact Blake Newton at blaken@uky.edu.

CRITTER OF THE MONTH: CENTIPEDES



Centipedes are not insects, but they are very closely related. In fact, centipedes (along with their kin, millipedes) are more closely related to insects than spiders are. You can easily distinguish a centipede from an insect by counting the legs: insects always have six legs and centipedes always have many more legs, usually more than 20.

Centipedes are also unique because of their venomous fangs. Unlike spiders, whose fangs are a part of their mouths, centipede fangs are actually the front pair of legs. Centipedes use their fangs to capture termites, ants, insect larvae, and other creatures that live in soil. The centipedes that live in Kentucky should not be picked up. Their bites, like bee stings, are occasionally dangerous to allergic individuals. Some centipedes in other parts of the world have bites which are similar in severity to the bite from a venomous snake! Centipedes in Kentucky can grow to about 5", while some tropical varieties can exceed 1 foot in length.

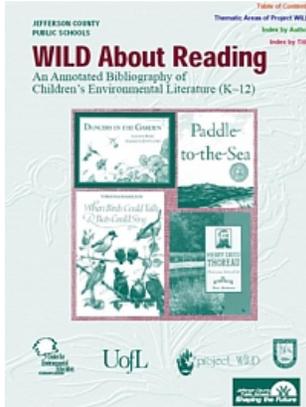
Pictured above is a "scolopendromorph" centipede that is in the process of shedding its exoskeleton. It looks pink in this picture, but when its skin hardens, it will be red-orange like the centipede pictured at the top of this newsletter.

For more information about centipedes, including how to distinguish centipedes from millipedes, visit the **Centipede Critter File**:

<http://www.uky.edu/Ag/CritterFiles/casefile/relatives/centipedes/centipede.htm>

Each issue, Wee Beasties will feature one of the critters from the **Critter Case Files**, University of Kentucky's on-line guide to insects, spiders, and related critters. Visit the Case Files at:
<http://www.uky.edu/Agriculture/CritterFiles/casefile/casefile.htm>

BOOKS



The Wild About Reading Annotated Bibliography of Children's Environmental Books

Edited by Jefferson County Public Schools

In April 2006, Jefferson County Public Schools (JCPS) Center for Environmental Education launched its *Wild About Reading Annotated Bibliography of Children's Environmental Books*. Kentucky teachers can use the books listed in this guide to find literature connections that support their science, natural resources, and environmental education curricula. Each book is aligned with Kentucky Core-Content standards and is annotated with comments and appropriate grade levels. Included in the bibliography are several great books about insects and entomology, including *Where Butterflies Grow*, by Joanne Ryder, and *Ecosystem of a Milkweed Patch*, by Elaine Pascoe.

The guide is available online in a PDF version from the JCPS website and also as a searchable database on www.Kentuckyawake.org.

Wild About Reading PDF version:

<http://www.jefferson.k12.ky.us/Departments/EnvironmentalEd/images/otherart/wildaboutreading.pdf>

Wild About Reading Searchable database:

<http://www.kentuckyawake.org/reading/>

UPCOMING EVENTS

The Entomology Department will be present with displays, insects, and information at the following events and locations during the upcoming months in 2005:

DATE	TIME	EVENT/LOCATION
5/27/06	10am - 3pm	Bugs-All-Day, Explorium, (859-258-3253), Lexington, Ky
6/5/06	All week	Kentucky Entomology Leadership Program, Jabez, KY
7/28/06	8pm-10:30pm	Night Insect Walk, Raven Run Nature Sanctuary, Lexington, KY
8/16/06	9am-11am	Family Insect Safari, UK/LFUCG Arboretum, Lexington, KY
9/16/06	TBA	College of AG "Roundup", University of KY campus

WEEBEASTIES MAILING LIST

Would you like to receive a PDF copy of each fall and spring *Wee Beasties* issue via email as soon as it is printed? If so, send us some email at blaken@uky.edu and we will put you on the list! If you don't like PDF, we will also send you a link to the HTML version of the issue when it is published.

Contact Information:

If you have ideas, experiences, or information that you would like to share or would like information about educational resources available through the University of Kentucky, Department of Entomology, write, phone, or email:

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