

Muddy Hands

WOW! Summer Education Workshop



Portage and Geauga SWCD's will be offering a week-long summer workshop titled *Wonders of Watersheds*. This summer's workshop will be held *June 25th-June 29th*.

Throughout the week, teachers will be exposed to issues within the major watersheds of Geauga and Portage Counties (the Grand, Chagrin, Cuyahoga, and Mahoning Rivers). The impacts of nonpoint source pollution and the steps that can be taken to reduce pollution at its point of origin will also be a primary focus of the workshop. Field trips and hands-on activities will be incorporated throughout the week to give teachers a well-rounded educational experience.

Teachers will be trained in and receive the Project WET, Project Learning Tree, Project WILD/Aquatic WILD/ Science and Civics, and WOW! The Wonders of Wetlands curriculum and activity guides (Wow! All of that in one week!) The curriculum guides provide hundreds of hands-on lessons which are correlated to the *State of Ohio Board of Education Science Curriculum Standards*. These activities are guaranteed to keep students interested and excited about science and the environment while meeting the requirements of the curriculum standards.

Three graduate credits will be offered through Ashland University to interested teachers. Register early- workshop size will be limited to 30 participants (15 from each county). Please call Geauga or Portage SWCD for more information. Keep your eyes open for an informational brochure in the near future!

Reptile and Amphibian Regulations

Please remember, and remind students that amphibians and reptiles are protected under Ohio laws. Permits are required to collect frogs, toads, salamanders, turtles and snakes. These laws not only protect kids from such diseases as salmonella and giardia, but also protect the animals from over-collection, mishandling, and transmission of diseases when animals are released into different watersheds than they were caught in. Even catch-and-release of wild animals can damage their fragile skins, disrupt their eating habits, and leave them vulnerable to predation - binoculars are the best tool for studying amphibians. For more information on wildlife permits, please contact the Ohio Division of Wildlife.

Thank you to the Western Reserve Federation of Conservationists for sponsoring Muddy Hands and conservation education in Northeast Ohio

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New program at Geauga SWCD Riparian Rescue Grades K-12

What is the riparian zone? And, why is it so important in water resource management? How does nonpoint source pollution and habitat destruction affect the wildlife that depends on this delicate ecosystem for survival? Students will discover through hands-on activities and LIVE indicator species the concerns this fragile environment faces. Contact Geauga SWCD for scheduling.

Amphibian and Reptile Resources

In Ohio's Backyard: Frogs and Toads and Calls-<http://www.dnr.state.oh.us/publications/amphibians/frogs.htm>-Ohio Biological Survey

Ohio's Reptile and Ohio's Amphibian Booklets-Ohio Division of Wildlife Publications-www.ohiodnr.com/wildlife

Herps! Booklet-www.nairegions.org/4

www.livingunderworld.org

www.epa.state.oh.us/dsw/wqs/headwaters/index.html

Stream Quality Monitoring

Lake and Geauga SWCD's collect data on headwater streams. Data collection consists of temperature, shade, pH, and what material composes the stream bed. Aquatic insects and salamanders are also collected. Since aquatic insects and salamanders species have been studied to see how vulnerable they are to pollution, insect populations can be used to measure water quality. Contact your local SWCD to see how you can take part in the Stream Quality Surveys.



Muddy Hands

Soil and Water Information for Educators Brought to You by the Lake and Geauga County Soil and Water Conservation Districts

Spring



2007

Amphibians As Indicators

In North America, we are fortunate to have a diversity of amphibian species. We've all seen tadpoles, and chances are, many of us have raised them and watched them turn into frogs or toads. Even very young students know the stages of the amphibian life cycle.; however not many people are aware of how important amphibians are to the ecosystem, and what they can tell us about our changing world. This issue of Muddy Hands will take a look at current amphibian research on, even some that is occurring your watershed.

What are the Slippery Saying?

Many Americans are familiar with the early use of canaries to detect the presence of poisonous gasses in mines. This allowed time for miners to escape before potential asphyxiation or explosions. But did you know that we have other little creatures that are indicators of environmental changes? Some of these changes are affecting animal populations that could, in the long run, affect our health and life style.

According to a phone conversation with Tim Matson, Curator of Vertebrate Zoology at the Cleveland Museum of Natural History, Spotted and Jefferson Salamanders and Wood Frogs indicate by their decreasing populations at local breeding ponds, that we have a potentially serious problem .

Through observations at local breeding ponds, a similar decline in these and several other amphibian and reptile species in noted. Each March or April for a period of a week or less, during warm, rainy nights, at local vernal ponds an exciting phenomenon occurs. An ear drum-numbing chorus of thousands of tiny Spring Peepers and a few Wood Frogs (dark-brown mask on a moist, tan 2-3 inch body) can be heard. The Wood Frog call is an abbreviated duck quack. All this "noise" is necessary for the males to attract females and thus continue the species. There are small numbers of brightly colored Jefferson and Spotted Salamanders that ventured out on these rainy nights. The Jefferson Salamanders are 4-8 inches long and have blue flecks on their sides which seem to glow when flashlights light them up. The slightly larger stout-bodied Spotted Salamanders are distinguished by their bright yellow spots on a dark gray background. These characteristics can easily be observed while watching the Spotted Salamander circle mating dance.



Wood Frog Photo courtesy of ODNR

Salamanders have no ears although they pick up vibrations from the ground and water so approaching the vernal pond slowly is important. Salamanders also absorb oxygen through their skin which makes handling them a delicate process and should be done only when absolutely necessary.

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"There is no other door to knowledge that the door Nature opens; and there is no truth except the truths we discover in Nature."

Luther Burbank



What are the Slippery Saying? *(Continued from page 1)*

Amphibians have an incredible adaptation to survive the cold of Northeastern Ohio. Species like the Wood Frog can freeze solid when the weather gets too cold and then thaw as the weather warms. It is able to do this because glucose builds up in its cells as the temperature drops and acts as a cellular anti-freeze to keep the vital cells alive even as the extra-cellular spaces freeze solid.

Over the last 5-6 years, the numbers of salamanders seems to be decreasing. Although spring droughts have had an effect on the decreasing populations, recent research points to other factors. Increased UV light due to thinning of the ozone layer can cause problems with amphibian eggs hatching and global warming has apparently increased the growth of a deadly fungus that is killing millions of frog's worldwide. According to an article in the February 26, 2007 edition of the Plain Dealer, nearly one third of all amphibian species worldwide are in danger, and 170 frog species have gone extinct in the last decade! Recent studies by Tim Matson and Ed Quinn indicate an increase in copper in the breeding ponds found in Geauga and Lake County, which has led to significant decreases in the populations of Wood Frogs and Spotted and Jefferson Salamanders.

Other amphibians in Northeast Ohio experiencing population declines include the Spotted Leopard Frogs and Pickerel Frogs. Some of the problems that arise when we look into these concerns are the unknown origin of many contaminants. For instance, although copper in breeding ponds is a significant problem, no one knows for sure where the copper is coming from. As previously mentioned, canaries are to miners as amphibians are to the future of the human race. As amphibian populations face serious declines, insect populations (including disease-carrying mosquitoes) increase. Proper disposal of contaminants and reducing, reusing and recycling are some practices that will help ensure a healthy Earth for the future. Our little treasures are "talking" and we need to have the insight to listen, learn, and act accordingly.



Where's My Pond? Activity



Grades K-3rd

Native Ohio Wood frogs find their way back to the pond where they were raised to mate and lay their eggs. They search for the scent of the algae in their home pond.

Supplies:

- Cotton balls,
- Paper cups (small),
- Rubber bands
- Plastic wrap
- Scents: perfume, coffee, mint, lemon zest, bubble gum ("Bubbalicious" in various flavors has a strong scent and will work).

In this activity, place a scented cotton ball into the cups, secure plastic wrap over the top using a rubber band. Make at least 2 of every scent. Divide the class into 2 groups (Frogs and Ponds). The frogs must find their pond by matching their scent to the pond scent. Make sure you give the same scent to a frog and a pond.

Ask the students (frogs) if it was hard to find their pond? What would happen if their pond was filled in? What if pollution entered their pond? What if an invasive species was release into their pond? Ask students what can be done to help Wood frogs and other native Ohio wildlife.



Salamanders: Stream Specialist

Salamanders are usually shy, well-camouflaged, and small. They like to hide in wet places, and tend not to chase their prey, instead, wait for it to get close to them. An adult salamander typically has a small territory and doesn't stray far from home. In Lake County, these often-overlooked amphibians are getting quite a bit of attention.

Small stream ecosystems are dominated by salamanders, not fish, as a top predator. Adult salamanders feed on the aquatic insects and mollusks that live in or near the water. They are primarily carnivorous, but have also been observed eating algae and vegetation. Because they can survive out of water, salamander populations do not die off when a stream stops flowing on the surface. They can survive on the moisture of decomposing leaf litter and passing rain showers. Therefore, it may be possible for smaller streams to be judged on criteria based on salamander habitat, instead of fish habitat. This would allow regulators to protect high quality headwater streams, regardless of how many fish live there.

Traditionally, the quality of a stream was judged by its ability to support fish species. This method led to many small streams being classified as having poor water quality, simply because they weren't deep enough for fish, or because they dried up in some weather situations. A stream that is determined to be low quality often isn't protected from modification or destruction. Unfortunately, these small streams encompass the majority of a watershed, and almost all of the water that comes into a river starts out in a small headwater stream. Pollution problems in the main branch of a river can be traced to these small headwater streams.

Headwater streams are an important part of an ecosystem. They absorb and hold stormwater and reduce the downstream impacts of flooding. The vegetation that shades the stream keeps groundwater seeps cool and can bind soil particles and pollutants to prevent them from being carried through the river system. Small streams are also important as wildlife habitat; they provide numerous niches for different insect, amphibian, and small mammal species.



Breeding Frog Song Survey Activity



Grades 5 and up

Frog surveys are easy to conduct. Once you learn the distinct call of each species, all you have to do is find a wetland and listen. While calling is more common at night, it isn't unusual for frogs to be calling during the day as well, especially if it is overcast or raining. Furthermore, the breeding season is spread out over months, with wood frogs and spring peepers calling very early in the spring, and bullfrogs and green frogs calling well into July, sometimes even into August. You might even be able to hear frogs on your school property, if you have a pond, wetland, or detention basin nearby. Easily identified frog and toad calls, in order of mating season, include:

Wood frogs - very early in the year, a series of clucks or quacks

- Spring peepers - The name says it all...they peep in the spring
- Western chorus frogs - Starting in March they sound like a thumbnail on the teeth of a comb (and will sometimes call back if you do just that)
- Leopard frogs - Sound like two balloons rubbing against each other
- Bullfrog - multi-syllable, deep grunt, usually 3 syllables
- Green Frog - "gunk" A single, solitary, twang.
- Tree Frog - most common on warm, humid summer evenings - very loud trill that is not at ground level - usually 4' or more off the ground.

