OHIO Woodlands Water Wildlife

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Hazardous Algal Blooms in Ohio's Ponds and Small Lakes

Bill Lynch, OSU Extension Program Specialist Aquatic Ecosystem Management

You may have read or heard about hazardous algae blooms (HABs) in Lake Erie and Grand Lake St. Mary's this year. Interestingly, there has also been a dramatic increase in HAB's in ponds and small lakes as well. Until 2007, I hardly received any calls or emails from pond and lake owners about HAB's. In 2008, I worked with about a dozen owners who were experiencing such blooms. In August and September of 2009, HAB's were the most frequent email and phone call subject with nearly 75 pond and lake owners who were having blooms of these algae contacting me. Nearly all of these landowners had encountered no previous problem with HAB's.

A typical *Microcystis* bloom in a small pond. Note the green slick and accompanying white foam and turquoise colored algae near shore.

What are HAB's? The taxa of planktonic algae that are causing these blooms were once known as blue-green algae but are now correctly called cyanobacteria. Cyanobacteria are bacteria that contain chlorophyll and therefore can make their own food from sugars and sunlight. Cyanobacteria are thought to be one of the first living organisms on earth.

The concern with cyanobacteria is that they form toxins inside their cells and under certain conditions can release those toxins into the water. This can pose a health hazard if toxin levels are high enough. Types of toxins include *neurotoxins* which affect the central nervous system, *hepatotoxins* which affect the liver and other internal organs and *dermatotoxins* which affect the skin. There are up to eight cyanobacteria taxa that can cause HAB's in Ohio, but the primary taxa causing blooms in ponds and small lakes is *Microcystis*.

How to Tell if You Have a HAB? The only way to definitively determine whether a water body has cyanobacteria is to take a sample and view it under a microscope. A person familiar with the various HAB taxa can make the exact identification. However, HAB's (particularly *Microcystis*) have certain characteristics that should raise a red flag for a pond or lake owner. Blooms often look like someone threw bright green paint on the water, particularly when the wind blows the floating cyanobacteria into slicks along the shore. Often, patches of white foaminess or turquoise algae are present within the slick. The worst blooms not only have the floating slicks, but the water itself is green throughout.

What Causes HAB's? No one is exactly sure why we've had such an explosive increase in HAB's the last several years. This has occurred throughout much of the Midwest. At the HAB infested ponds and lakes I've visited recently, the following conditions were evident at all:

- High measured nutrient levels, especially phosphorus.
- Protected water, with very little water movement.
- Low water levels.

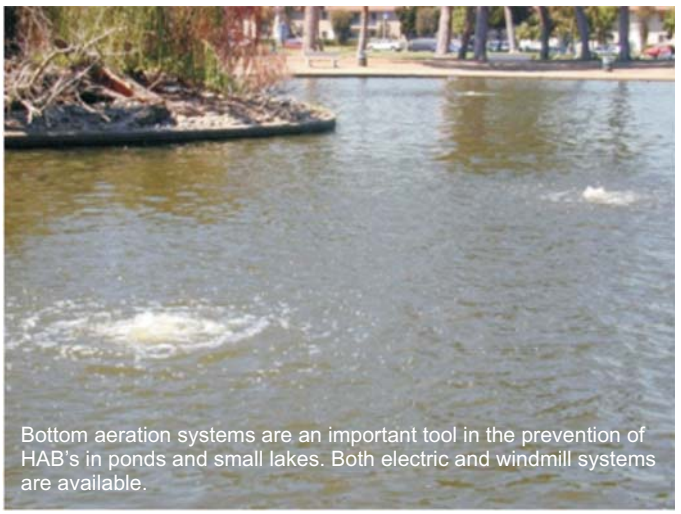
Historically, high water temperatures have been considered a contributing factor, but that does not appear to be true this past summer. A cool summer led to lower than average water temperatures. I believe elevated nutrient levels and higher than normal phosphorus levels are the primary causes of HAB's in ponds and small lakes. Major sources of unwanted nutrient additions to small water bodies include Canada geese visitation, lawn fertilization, poorly operating septic systems, and run off from agricultural areas. Also,

control of nuisance levels of aquatic plants and filamentous algae in June and July can cause a sudden release of nutrients and subsequent HAB's two to three weeks later.

What are the Health Concerns? If cyanobacteria release their toxins and toxin levels are high, humans and pets can be negatively affected. In humans, symptoms could include numbness of lips, tingling in the extremities, dizziness, headache, rash, abdominal pain, diarrhea, and vomiting. Fortunately, deaths are very rare! In pets, symptoms are weakness, staggering, convulsions, vomiting, and difficulty breathing. Deaths of pets and wild mammals have been reported.

How to Keep Your Family and Pets Safe? The following are general guidelines to keep families and pets safe from any adverse effects:

- Avoid contact with water that is pea green, has a floating bright green scum, or is generally discolored.
- Always immediately rinse yourself, family members or pets after swimming in natural waters. HAB's cannot always be seen, smelled, or tasted.



Bottom aeration systems are an important tool in the prevention of HAB's in ponds and small lakes. Both electric and windmill systems are available.

- If anyone or a pet becomes ill after exposure to pond or lake water, seek medical or veterinary attention immediately.
- Never drink pond or lake water, including pets.
- It is not wise to use natural waters as a residential source. Lax attention to a filtration system can cause periods of exposure to pathogens and HAB's.
- Never cook with water from areas suspected to have a HAB bloom. Boiling the water does not eliminate HAB toxins.
- Consider minimal consumption of fish fillets from water bodies experiencing a HAB event. Research has indicated most toxins are in the internal organs, but small amounts can be in the fillets.
- Do not treat HAB's with algaecides, as toxins can be released from dying cells.

- ***How to Avoid Having a HAB.*** In ponds and small lakes, it is possible to avoid a HAB or having it again in subsequent years by doing the following:
- Use lawn fertilizers sparingly, being sure not to over-fertilize or over-water after applying.
- Do not allow large numbers of Canada geese to set up residence. Scare them away!
- Prevent surface run-off from agricultural and livestock areas.
- Maintain native plants in as much of the watershed as possible to filter out nutrients before they reach the pond.
- Control nuisance aquatic plants and filamentous algae, if need be, in May and early June prior to these plants reaching maximum biomass in summer. Fewer nutrients will be released via decomposition.
- Perhaps most importantly, install a bottom aeration system (electric or windmill). Bottom diffuser systems reduce internal phosphorus cycling and can reduce the severity of and often prevent HAB's.

Summary. HAB's are increasing in Ohio's ponds and small lakes as nutrients levels become more problematic. While the presence of potential toxins and symptoms sounds alarming, the landowner should not panic. HAB's are still relatively rare in Ohio small water bodies and appear to be preventable with good aquatic stewardship of not only the water body, but also the watershed if possible. Bottom aeration appears to be a critical tool in preventing HAB's. Regular pond or lake walks can alert the landowner to the initial development of a HAB and appropriate safety precautions can be taken for the family, neighbors, and pets. A good rule-of-thumb with HABs is “if in doubt, stay out!” which translates to “better safe than sorry!”

Additional Sources of Information. The following websites can provide additional information on HAB's.

- Ohio EPA HAB information for Ohio Lakes: http://www.epa.ohio.gov/dsw/inland_lakes/index.aspx
- National Oceanic and Atmospheric Administration, Great Lakes HAB webpage: http://www.glerl.noaa.gov/res/Centers/HABS/habs.html
- U.S. Centers for Disease Control and Prevention, Harmful Algal Blooms webpage: http://www.cdc.gov/hab/cyanobacteria/facts.htm
- World Health Organization, a guide to toxic cyanobacteria in water: http://www.who.int/water_sanitation_health/resourcesquality/toxicyanbact/en/
- U.S. Geological Survey, guidelines for sampling cyanobacteria in lakes and reservoirs: http://water.usgs.gov/owq/FieldManual/Chapter7/7.5.html

Ohio's Largest Remaining Undeveloped Forest to be Preserved

State Obtains Private and Federal Funding to Assist with Purchase of 15,849-acre Vinton Furnace Experimental Forest American Electric Power, The Nature Conservancy, USDA Forest Service and The Conservation Fund Assist in Purchase

Ohio Governor Ted Strickland and Department of Natural Resources (ODNR) Director Sean Logan recently announced the state's intention to purchase the 15,849-acre Vinton Furnace Experimental Forest. The area represents Ohio's largest, last contiguous forested block still available for permanent protection.

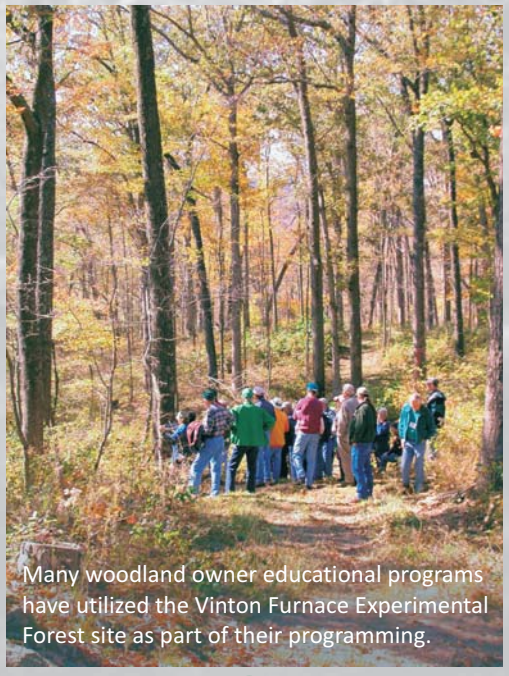
The Vinton Furnace Experimental Forest is one of the most biologically diverse ecosystems in the United States and home to more than 50 years of ongoing forest research. The state negotiated a $15.1 million purchase price, 70 percent of which will come from federal and private funds. ODNR will seek approval to release $3.9 million in already appropriated capital funds to complete the purchase of the Vinton County property by July 2010. The land will be managed as the Vinton Furnace Experimental State Forest.

"I am grateful for the public and private interests who have come together to help support Ohio's purchase of the forest. This will ensure protection of a beautiful natural area and also maintain an important national research facility," said Ohio Governor Ted Strickland. "This is an important part of our commitment to preserve our natural resources and land for future generations to enjoy."

"Vinton Furnace represents one of the most important forest research and demonstration sites east of the Mississippi River. It is used for sustainable forest management research, for practical training by Ohio's $15 billion wood industry, and as a popular hunting destination for sportsmen and women from across the state," said Logan. "This agreement will forever protect this forest, assure that its use serves the public, and that it will remain available as an ecological, recreational and economic resource for all the people of Ohio."

Located 75 miles southeast of Columbus, the forest is home to the state's largest known population of bobcats, and is also home to black bears, timber rattlesnakes, cerulean warblers and several rare plant species.

"The Vinton Furnace Experimental State Forest is an invaluable asset for Ohio," said Senator George V. Voinovich. "I am pleased that the private, state, and federal effort to protect the forest will be a success. It goes to show that when we harmonize our environment, energy and economy, everyone benefits."


Many woodland owner educational programs have utilized the Vinton Furnace Experimental Forest site as part of their programming.

"This partnership between the public and private sector will preserve Vinton Furnace for future generations of Ohioans," said Senator Sherrod Brown. "This isn't just about protecting our environment; it's about strengthening our state's forestry research for the 21st century."

The State will sign an 'Intent to Purchase' agreement with the current owners of the forest, an investment fund managed by The Forestland

Group, LLC, to acquire the 3,250-acre Vinton Furnace Experimental Forest, as well as 12,599 surrounding acres known as the Raccoon Ecological Management Area (REMA).

“This purchase is only possible with the investment of funds provided through American Electric Power, Rockies Express Pipeline, The Nature Conservancy, The Conservation Fund, the U.S. Fish & Wildlife Service, as well as with federal Forest Legacy program funds administered by the USDA Forest Service Northeastern Area State & Private Forestry,” said David Lytle, state forester and chief of the ODNR Division of Forestry. “The broad-based support of so many different public agencies, private companies and non-profit organizations demonstrates the significance of permanently protecting this great forest.”

“Not only does this project bring important funding home to Vinton County, it also preserves one of Ohio's great treasures while protecting more than 50 years of important research,” said U.S. Congressman Zack Space, 18th Ohio District. “This is truly a win-win for the economy of Southeastern Ohio.”

Since 1952, land at the Vinton Furnace has been dedicated towards forest use and sustainability research; an agreement formalized between previous owner Mead Corporation and the USDA Forest Service in 1965.

“Research conducted at the Vinton Furnace Experimental Forest deepens our knowledge of the growth and ecological function of the central hardwood forests,” said Michael Rains, Director of the USDA Forest Service's Northern Research Station. “A great deal remains to be learned as our forests continue to be threatened by an ever growing list of new pests and diseases. We applaud the State's effort to permanently protect this priceless resource, and we offer our ongoing commitment to maintain this research facility.”

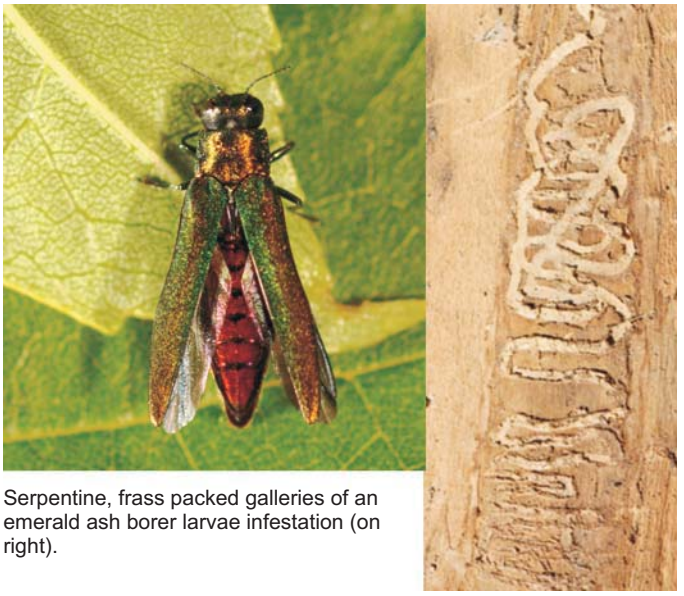
For more information on the Vinton Furnace Experimental Forest go to http://nrs.fs.fed.us/ef/locations/oh/vinton-furnace/

EAB University Wants You!

Amy Stone, OSU Extension Emerald Ash Borer Team Leader

Would you like an opportunity to learn more about the EMERALD ASH BORER (EAB), and never even have to leave your house or office? The United States Department of Agriculture's Forest Service is sponsoring **EAB University**, a web-based training program. The sessions are offered through the collaborative efforts of Michigan State University, Ohio State University and Purdue University. Each session is scheduled to last one hour in length and will run from 11:00 am - 12:00 pm (EST) on the schedule day. Here is the schedule -

- Introduction to EAB - November 5, 2009 (check out the archive),
- EAB 101: The History of EAB and Basic Information -



Serpentine, frass packed galleries of an emerald ash borer larvae infestation (on right).

November 12, 2009 (check out the archive)
- Pesticides & Biocontrols to Manage EAB December 3, 2009
- EAB Research Update, Part 1 - January 7, 2010
- EAB Research Update, Part 2 - January 14, 2010
- Utilization of Ash in the Wake of EAB - February 4, 2010
- Management of Woodlots to Prepare for EAB - February 11, 2010
- Regulatory Issues about EAB - March 4, 2010
- Helping Communities Prepare for and Live with EAB - March 18, 2010
- What Happens After Ash is Gone? - April 1, 2010
- 2010 EAB Awareness Week: Ways to Get the Word Out - April 8, 2010

Additional information about EAB University and registration is handled on the http://emeraldashborer.info website. Please register at least 24 hours prior to the session(s) you are interested in participating. Questions about the training can also be directed to Amy Stone, OSU EAB Outreach and Education Coordinator at 419-578-6783 or stone.91@cfaes.osu.edu

Sessions will be recorded and available to view after the session if you weren't able participate in the live presentation. Archived presentations will be posted on the http://emeraldashborer.info website.

Trading Tinsel for Treats

Marne Titchenell, OSU Extension, Wildlife Program Specialist

Ah, Christmas…it is almost here. Almost time to get out the stockings, candy canes, and red and green decorations. Almost time to start baking the Christmas cookies, drinking eggnog, and forgoing all dieting plans until the New Year. And it is almost time to obtain the most important item in celebrating Christmas…the Christmas tree.

Everyone enjoys bundling up in their warmest clothing and going out to the tree farms to choose the perfect Christmas tree, bringing it home, decorating it with shining lights and twinkling bulbs, and piling presents underneath it to be opened Christmas morning. But what happens to the Christmas tree after Christmas, when the holidays are over and all the presents have been opened? Here are some ideas for you wildlife lovers out there.

Chickadee in conifer. Photo credit Don Virgovic

While we all hope to avoid the Griswold Family Christmas experience of a squirrel launching itself out of the Christmas tree when said tree is inside our homes, a past-prime Christmas tree in the out-of-doors can become a squirrel's dream home with a little decoration. Place your old tree out in your yard propped against a tree, patio, or anywhere that allows a good view from your window. Now the fun part enjoy decorating your Christmas tree all over again! This time however, I would skip decorating with fragile glass globes and ornaments. Trade in the tinsel and bulbs for peanut butter and bird seed covered pines cones and garlands of cranberries, raisins, and peanuts. Create an edible 'string of pearls' with grapes, or cut thin slices of apples and oranges to be hung separately by colorful ribbons. Other ideas include hanging suet from your tree, millet, or bag of netting material stuffed with bird seed.

If you don't feel up to re-decorating your Christmas tree, simply prop it up against another tree or brush pile to create winter shelter for rabbits, fox, squirrels, birds, and other small mammals. If you have a pond, placing your Christmas tree underwater will create protective habitat for fish, amphibians, and aquatic insects in the spring, such as dragonflies. Just be sure to place it far enough away from places where people might be swimming once temperatures rise.

Finally, if you are feeling really ambitious…how about that Charlie Brown Christmas tree that is present in every Christmas tree farm or lot? Take pity on that sparsely needled conifer and donate it to the birds, squirrels, rabbits, and chipmunks. Who says you can't have multiple Christmas trees to decorate? Have fun and enjoy the wildlife viewing opportunities that your wildlife Christmas tree will bring you! Happy Holidays!

2010 Calendar of Classes

Thanks to all of you for a great 2009 of Woodland Stewards classes. We are currently working on our class and workshop calendar for 2010. You will see some of the regular classes but there will be some new classes thrown into the mix for 2010. One of those new classes will focus on invasive species their identification and control. Also, look for a new landowner conference to be offered in the northeastern part of the state in the fall of 2010.

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Check Us Out On The Web!
Look for newsletter articles, links to fact sheets and other publications by browsing our site. Registration for upcoming Woodland Stewards classes may also be done electronically.
Go to:
http://woodlandstewards.osu.edu
Kathy L. Smith
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