Ohio Woodlands, Water & Wildlife

The Ohio State University Extension

Winter 2011

An Ohio Woodland Stewards Program Publication

The Ohio Woodlands, Water, and Wildlife Newsletter is published in part with funding from the Renewable Resource Extension Act (RREA).

White Nose Syndrome: A Deadly Threat to Ohio Bats

Marne Titchenell, OSU Extension Wildlife Program Specialist

A cave has always been an optimal place for hibernating bats to spend the cold winter months…until now. Caves are no longer safe due to a deadly disease, called white nose syndrome (WNS). First discovered in New York during the winter of 2006, this disease has been sweeping through the northeastern United States leaving alarming mortality rates in its wake. What is it and why is it killing bats? These are the questions many biologists and scientists are determined to find out before it's too late.

White nose syndrome is named for the white fungus that collects primarily on the nose but also on the ears, wings, feet, and tails of infected bats. The fungus has been identified as *Geomyces destructans*, a cold loving fungus, which explains its appearance on bats hibernating in cool cave environments. Since its discovery in 2006, WNS had been found in the caves of 14 states, as far west as Oklahoma, and been confirmed in two Canadian provinces. Mortality rates of bats in caves with WNS have reached as high as 100% in some states. Ohio is not one of the states where WNS has been found, but given the current spread, we will likely not remain WNS free for much longer.

Bats with WNS display uncharacteristic behavior such as awakening often during hibernation, flying outside caves during the day, or clustering near the entrances of caves. Scientists believe infected bats are losing their fat reserves before winter is over, leaving them with no choice but to awaken and find food. However, their food source, insects, are hard to come by in the middle of winter. Many bats have been found outside of caves or nearby, emaciated, appearing to have starved to death.

How is it spread? The belief is primarily through bat-to-bat contact, and if you have ever seen the tight clusters bats form during hibernation, this allows the disease a very quick avenue in which to

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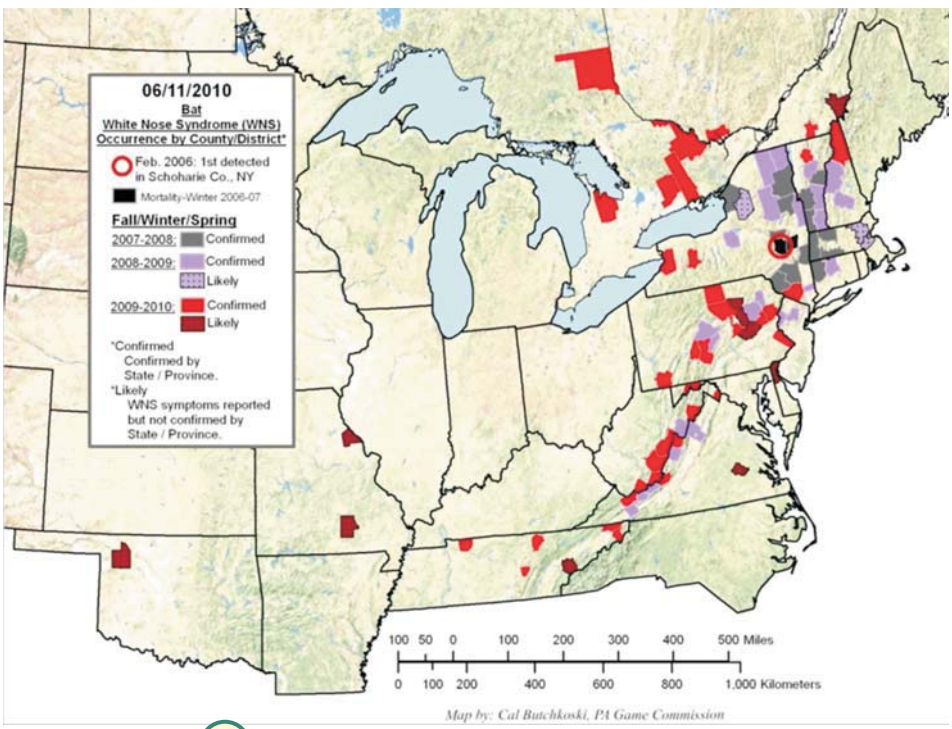
Closeup of white nose syndrome on a little brown bat.



2011 Ohio Maple Days Usher in Ohio's Sweet Season

Gary Graham, Natural Resource Specialist, OSU Extension

The 2011 Ohio Maple Days are scheduled for January 20th, 21st, and 22nd 2011. The three programs are held in Morrow, Wayne, and Geauga County allowing for maple producers to attend the program closest to them. The featured speakers will be Mr. Bob Crooks, Ms. Bridget Meiring, and Dr. Gary Graham.

Mr. Crooks is from MARCLAND Corporation out of Schroon, NY. Bob has developed and built many innovations that assist maple producers to work smarter not harder. His technology seminar will deal with new products like draw off systems that help producers make a more consistent product. He will also cover other new technologies on the market today to help producers of all size operations in sap collection to finishing syrup.

Ms. Meiring will talk on the First Detector program that was created by the National Plant Diagnostic Network (NPDN) to help promote awareness and early detection of high risk, exotic, and emerging plant pests through enhanced diagnostics and education. This program will certify you to be a first detector for the NPDN and the State of Ohio, and give you important updates on up and coming maple syrup production pests.

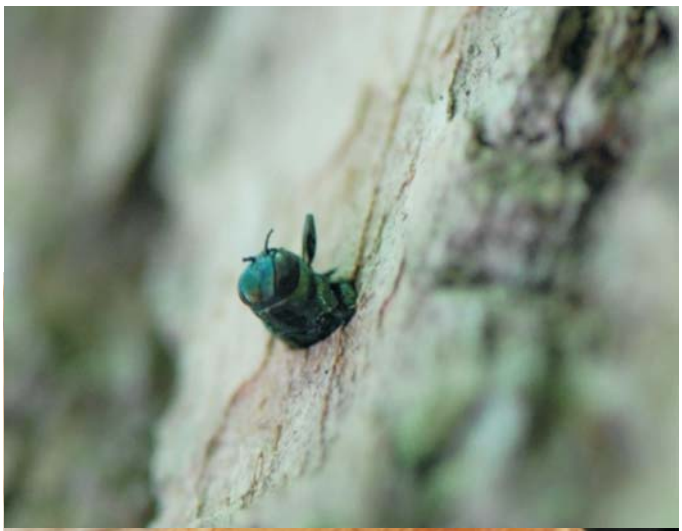
Dr. Graham will talk about marketing issues and whether or not your customers can find you. This looks at following laws on product labels to signs at the end of the drive. To end the day will be the Maple Nugget session which is a yearly report on the industry in Ohio, nationally and internationally as well as the latest news in the industry to prepare you for the 2011 maple season.

Topics this year as in the past will be to help all size producers from a couple dozen taps to thousands of taps. The meetings will be held on January 20th in Morrow County at the Lutheran Memorial Camp in Fulton, the 21st in Wayne County at the Mennonite Christian Assembly Church in Fredericksburg and on the 22nd in Geauga County at Joe Miller's Window Shop in Burton. The same program will be delivered at all three meetings that run from 8:00 AM to 4:00 PM with materials and a meal included with registration fees. If you would like to be sure to receive registration information please contact Lisa Troyer or Gary Graham at 330.263-3799 or troyer.43@cfaes.osu.edu or graham.124@cfaes.osu.edu

Emerald Ash Borer Quarantine Changes: What You Need To Know About Moving Firewood and Protecting Your Trees

On September 8th, the Ohio Department of Agriculture (ODA) expanded its emerald ash borer (EAB) quarantine to include all of Ohio's 88 counties. The 19 counties added to the quarantine are mostly from the east-central and southeastern portions of the state.

The quarantine expansion doesn't necessarily



mean that EAB - an invasive insect that kills ash trees - has been found in the newly quarantined counties; though it is possible the shiny green beetle is already there but has gone undetected so far. ODA made its decision due to recent confirmations of EAB in Wayne National Forest and taking into account infestations in neighboring states.

So what do these changes mean for Ohioans?

First, the movement of ash tree materials and hardwood firewood is no longer prohibited within the state. However, a federal quarantine, enforced by the U.S. Department of Agriculture (USDA), remains in effect. This quarantine makes it illegal to transport ash trees, parts of ash trees and all hardwood firewood out of the state of Ohio.

Despite the ease in restrictions, ODA and Ohio State University Extension are encouraging people to minimize the movement of firewood to avoid the further spread of EAB and other invasive insects and diseases that threaten trees. A good practice is to obtain firewood locally and to burn it completely.

Citizens can also help determine the actual spread of EAB in previously or newly quarantined counties by submitting samples (larva or adults) of suspect insects. Information on how to submit a sample is available at http://www.agri.ohio.gov/public_docs/forms/Plant/EAB/Plnt_4207-001.pdf. A guide for identifying EAB signs and symptoms can be downloaded at http://ashalert.osu.edu (look for under "Factsheets/Bulletins:).

The new quarantine situation does not translate into major changes regarding OSU Extension's recommendations regarding the treatment of landscape ash trees with insecticides. If you choose to treat your trees, Ohio State University experts currently recommend doing so if the trees are within 15 miles of a known EAB infestation. For an updated map showing where EAB has been confirmed, go to http://www.agri.ohio.gov/public_docs/eab_maps/eab-map-infestation.pdf. For information about treatment options, log on to http://ashalert.osu.edu/userfiles/EAB%20Insecticide%20Bulletin%20June%202009.pdf

Thousand Canker Disease of Walnut

Kathy Smith, OSU Extension Program Director – Forestry

Within the last decade researchers in the west have noticed an unusual decline in black walnut. Until recently it seemed to be a phenomenon of only the black walnut out west – a result of Thousand Canker Disease. However, this past summer this disease was discovered in Knoxville, TN. Many eastern states are now working on quarantines to try to minimize the spread of this disease.

There is much to learn about this disease but what

we do know is that it is caused by a newly identified fungus, *Geosmithia sp.* This fungus is transmitted by the walnut twig beetle which is native to Arizona, California and New Mexico but has invaded into western states where walnuts have been widely planted. The adult beetles are reddish brown in color and about 1/16 of an inch in length.

The early symptoms to look for include upper crowns that contain yellowing and ultimately wilting

Above: Yellowing foliage of black walnut.
Below: Cankers at the site of walnut twig beetle exit holes.
Photo Credit: Ned Tisserat, Colorado State University, Bugwood.org

foliage. This is followed by branches that die. The fungus causes thousands of tiny cankers to form under the bark with the twig beetles' galleries (hence the name Thousand Canker Disease).

What should you do? For right now it is more of an awareness issue. Right now visually looking for dieback is the best survey tool we have. For more information on this disease you can check out Missouri's Department of Agriculture website http://mda.mo.gov/plants/pests/thousandcankers.php . Here you will find links to pest alerts and slide shows that were presented at a conference on this disease last November. Stay tuned as we all learn more about this disease.

STUDY: THE BRIGHT RED OF CARDINALS MEANS LESS IN URBAN AREAS

COLUMBUS, Ohio – Normally, the brilliant red of a male cardinal signals to females that he is a high-quality mate. But that may not be true of cardinals living in urban areas, a new study suggests.

Researchers found that the bright red feather coloration of male northern cardinals (Cardinalis cardinalis) was less related to body condition for birds living in urban forests than it is for those in rural forests. In other words, even cardinals in relatively poor condition may appear bright red in urban areas.

“We found that the relationship between brightness and body condition was stronger in more rural landscapes than it was in urban areas,” said Amanda Rodewald, co-author of the study and professor of wildlife ecology at Ohio State University's School of Environment and Natural Resources. “That means urbanization has the potential to disrupt cues that birds have long used to assess quality and choose mates.”

Rodewald conducted the study with Todd Jones, an undergraduate student researcher at the time, and Daniel Shustack, a recent doctoral graduate. Their results appear in the current issue of The Wilson Journal of Ornithology.

The researchers studied 129 male and 145 female cardinals that were captured in 13 forests in central Ohio between 2006 and 2008. Each forest was rated as to the amount of urbanization surrounding it, and the researchers compared feather samples from cardinals at each site.

The feathers were photographed and the photos were analyzed by a software program that measured the hue, saturation and brightness of each feather. They also measured body mass and size of the cardinals to indicate their body condition, or health. Body condition considers how much a bird weighs after adjusting for its frame size.

The researchers did not find any relation between female body condition and plumage brightness and whether they lived in a more urban or more rural area.

For males, brighter feathers were indicative of birds in better condition in rural areas, but were not as indicative in urban areas.

In cardinals, as in some other birds, feather coloration is related to their diet. Diets high in carotenoids – pigments found in some fruits and other parts of plants – lead to brighter feather colors.

Previous studies indicate that forests within urban areas have nearly three times the amount of fruit and nearby bird feeders than exist in rural areas. Urban forests have many exotic and invasive species, such as Amur honeysuckle and multiflora rose, that provide abundant sources of carotenoid-rich fruits.

Male Northern Cardinal.

The fact that carotenoid-rich fruits are more available in urban areas, to birds over a wide range of conditions, may be one reason that brighter feathers aren't more indicative of healthy birds in urban areas, Rodewald said. In rural forests, only the highest-quality individuals may have access to carotenoids.

Rodewald is continuing this research by studying how plumage coloration is related to the quality of territories that birds secure and their ability to produce young.

The research was funded by the National Science Foundation, the Ohio Division of Wildlife, Schwab Associate Scholarship grant from The Ohio State University, and an undergraduate research grant from the College of Biological Sciences.

Media Contact: Jeff Grabmeier, (614) 292-8457; Grabmeier.1@osu.edu , Written by: Jessica Orwig

Kentucky to Host Ohio River Valley Woodland & Wildlife Workshop

Kentucky will be the host for the 2011 Ohio River Valley Woodland & Wildlife Workshop. The event will take place at General Butler State Resort Park in Carrollton, KY, Saturday March 26, 2011 (http://parks.ky.gov/findparks/resortparks/gb/ telephone toll free: 1-866-462-8853).

This year's agenda includes talks on lease hunting, timber marketing, minimizing the impact of EAB on your woodland, invasive species identification and control (both woodland and grassland species), timber taxes and many more! Presenters will be from Indiana, Kentucky and Ohio. Cost of the workshop is $40 and includes lunch and beverages throughout the day.

As soon as all the details are finalized we will post the information on our website (http://woodlandstewards.osu.edu). We hope to see you in Kentucky!

WNS, Continued from front page:

spread. There is also some evidence that points to humans as well. Humans may be capable of transporting spores of the fungus from one cave to another. Because of this reason, some recreational caves have 'closed their doors' to the public to help prevent the spread, or are requiring disinfectant protocols for caving gear and shoes.

There are 45 species of bats in the United States, and Ohio is home to 11 different species. Of these 11 species, over half hibernate in caves. If WNS reaches Ohio, almost every one of these species will be susceptible. While this would be detrimental to diversity, one thing is for sure - lower bat populations mean higher insects populations. The over one million bats that have died from WNS so

far would have been responsible for eating 700,000 tons of insects every year. The little brown bat, Ohio's most abundant bat, and a species highly susceptible to WNS, can easily consume 1000 mosquito-sized insects in one night. Bats are invaluable when it comes to insect control; the USDA reports that bats save farmers $1 billion every year on crop damage and pesticide costs.

So what is being done? Numerous state and federal biologists and scientists are investigating the disease and searching for a way to stop the spread. Just recently, a national white nose syndrome management plan was created to address the threat to hibernating bats. The plan is available at www.fws.gov/WhiteNoseSyndrome/ and open for public comment. There are some things that you can do, too, to help out bats. Any strange behavior by bats (flying outside during the day in the middle of winter, bats found with white fungus on nose, ears, wings, or feet) can be reported to WhiteNoseBats@fws.gov. You can also put up a bat house to provide bats the shelter they need during the summer months. Plans and tips for bat houses can be found at Bat Conservation International (www.batcon.org), or you can attend an Ohio Woodland Stewards Bats workshop this coming year. With WNS on the horizon for Ohio, anything you do, whether it's educating on their importance, disinfecting your cave gear, or putting up a bat house, will be helping bats out.

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Go to:
http://woodlandstewards.osu.edu
Kathy L. Smith
Program Director - Forestry
Ohio Woodland Stewards Program Coordinator

Contact Us!
For program information contact Mary Slyby at 614-688-3421
by email:
ohiowoods@osu.edu
or by mail at:
Ohio Woodland Stewards Program
School of Environment & Natural Resources
210 Kottman Hall
2021 Coffey Road
Columbus, OH 43210

Ohio Woodland Stewards Program
The Ohio State University
School of Environment & Natural Resources
210 Kottman Hall
2021 Coffey Road
Columbus, OH 43210

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