BRANCHING OUT

Maryland's Woodland Stewardship Educator

COLLEGE OF AGRICULTURE & NATURAL RESOURCES

University of Maryland Extension – Woodland Stewardship Education

http://extension.umd.edu/woodland

UNIVERSITY OF MARYLAND EXTENSION
Solutions in your community

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Fall is In the Air

Summer is a great time for the beach or hiking in the mountains, but the heat and humidity can make it difficult to work in the woods. Bugs, ticks, and abundant growth of vegetation of all kinds make it tough to get around. This summer was a hot one but fall is in the air and vegetation is starting to die back and fall colors are on the way. Navigating in the woods may still necessitate waiving a stick to break all the spider webs formed by weeks of hot and dry weather, but that is slowly changing with cool mornings and evenings and more temperate days. Wildlife is more noticeable as well as birds and mammals become more active looking for food or mates. Now is the time catch up on some maintenance in your woods and enjoy what nature has to offer.

One of the greatest challenges these days is controlling invasive species. Starting around July, your trees and shrubs start to prepare for the coming winter by taking the carbohydrates formed in the leaves through photosynthesis, and sending them into the roots for storage that will fuel the growth next spring. Now is the time to attack invasive species with the careful use of herbicides. There is general agreement among most people and experts that the judicious of herbicides are essential to have significant impact on most invasives.

Most herbicides are applied in late summer or fall to foliage, injected into the stem, or applied to the outside bark or cut stump of the tree, where it is then carried to the roots with other carbohydrates. With the increased flow to the roots starting in mid-summer, the applied herbicide is not only localized to the target stem, but it also has the greatest chance of killing the invasive plant, allowing native species to flourish. The purchase of 3-gallon backpack sprayer and the appropriate herbicide can result in good control of troublesome invasives like tree-of-heaven, mile-a-minute, vines, and others. As with all herbicides, it is important to read the label and use the proper techniques.

Luckily, there are some good practical, down-home resources for landowners on how to use herbicides and the correct herbicide to use. Two essential guides are *Manual Herbicide Application Methods for Managing Vegetation in Appalachian Hardwood Forests* (US Forest Service General Technical Report NRS-96) and *Herbicides and Forest Vegetation Management: Controlling Unwanted Trees, Brush, and Other Competing Forest Vegetation* (Penn State Extension). Follow their advice and you will be on proper track.

So get to work and enjoy the woods!

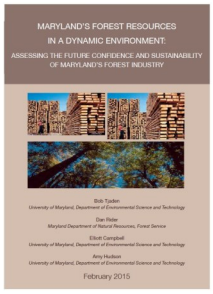
Inside this issue:

We're on Facebook!

The Woodland Stewardship Education program is on Facebook. We invite you to read about news and notes related to woodland management from across the region and the nation. We'll also share information about upcoming events and articles we think you'd find interesting.

Find our new page at https://www.facebook.com/UMDWSE, or search for "Woodland Stewardship Education program on Facebook.

New Report Examines the Future of Maryland's Forest Industry



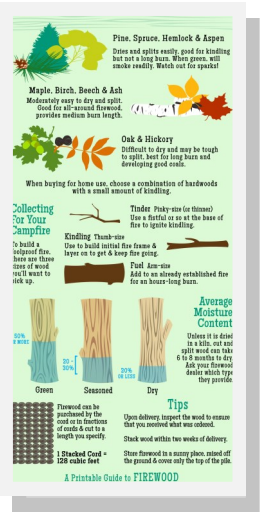
The forest products industry continues to be Maryland's fifth largest manufacturing industry, impacting each of the state's counties. It directly employs more than ten thousand residents with an annual employee compensation of over $650 million. Tax revenue totaling more than $25 million annually flows into the state's coffers. For every forest industry job in Maryland, three additional jobs are created. But the 2008 economic downturn dealt the industry a series of major setbacks as mills closed and operators consolidated their operations.

In an effort to understand how the forest products industry is perceived in Maryland, a team led by the University of Maryland's Bob Tjaden surveyed forest landowners, loggers, and forest industry landowners across the state. This comprehensive report documents the results of those surveys, including challenges and opportunities in a post-recession economy, such as fuel costs, emerging bio-energy technology, and market availability.

This research project was the first of its kind for Maryland. The authors hope that their results will serve as a baseline for future surveys. The report is available in Portable Document Format (PDF) at http://extension.umd.edu/sites/default/files/_docs/articles/Forest%20Industry%20Confidence%20Index%20Report.pdf .

Printable Guide to Firewood Available

A new printable guide to firewood is available from the New Hampshire Department of Agriculture and the University of New Hampshire Cooperative Extension. The 11"x 17" full –color guide provides handy tips about using various species for firewood, how best to build a campfire, and how to calculate a cord of wood.



The guide is downloadable from New Hampshire Public Radios website at http://nhpr.org/post/printable-guide-firewood-0 .

Now is the Time to Schedule Wood or Pellet Stove Cleaning

Pennsylvania Biomass Energy Association

The Environmental Protection Agency (EPA) recommends that wood-burning appliances be professionally installed and maintained by a certified technician to insure its safety and proper performance. The safety of your home and family depends on fully understanding and carrying out the critical manufacturer and building code requirements that include:

- Proper clearances between the wood-burning appliance and venting system and combustible materials.
- Proper protection of combustible floors.
- Proper assembly of appliance and venting components.
- Errors in installation (by a non-professional) may not be visible, and problems may not be apparent for a considerable length of time—and then only by a resulting home fire.

Furthermore, experienced professionals can properly size and place equipment for best heat distribution. The venting system (or chimney), in particular, is a critical area that requires professional involvement. This is the "engine" that drives the whole burning process, or causes it to perform poorly or fail. Professional decisions about the venting system to ensure adequate draft include:

- Proper sizing (particularly avoiding oversized flues).
- Proper height (often taller than minimum code requirements).
- Proper location (interior of the house when possible) or protection from extreme cold.
- Proper configuration (avoiding excessive horizontal runs and system turns in direction).
- A wood-burning appliance that is sized and placed properly with a venting system that delivers adequate draft will reduce wood consumption, produce more usable heat, and reduce maintenance from inefficient fires.

One of the best ways to find competent installation and maintenance professionals is to check their credentials. The Chimney Safety Institute of America (CSIA) is a non-profit, educational organization dedicated to chimney and venting system safety. The CSIA provides a directory that helps you find a certified chimney sweep. The National Fireplace Institute (NFI) is a non-profit certification agency that conducts nationwide education and testing of hearth professionals, and is a valuable source for certified hearth system planners and installers.

Seeing the Forest for the Trees … All Three Trillion of Them

Yale School of Forestry & Environmental Studies

A new Yale-led study estimates that there are more than 3 trillion trees on Earth, about seven and a half times more than some previous estimates. But the total number of trees has plummeted by roughly 46 percent since the start of human civilization, the study estimates.

Using a combination of satellite imagery, forest inventories, and supercomputer technologies, the international team of researchers was able to map tree populations worldwide at the square-kilometer level.

Their results, published in the journal *Nature*, provide the most comprehensive assessment of tree populations ever produced and offer new insights into a class of organism that helps shape most terrestrial biomes.

The new insights can improve the modeling of many large-scale systems, from carbon cycling and climate change models to the distribution of animal and plant species, say the researchers.

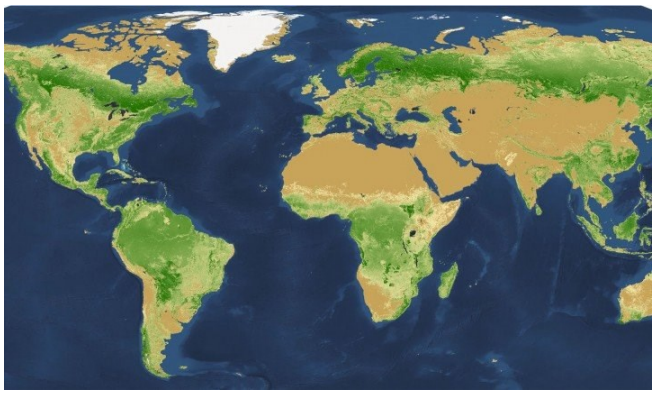
"Trees are among the most prominent and critical organisms on Earth, yet we are only recently beginning to comprehend their global extent and distribution," said Thomas Crowther, a postdoctoral fellow at the Yale School of Forestry & Environmental Studies (F&ES) and lead author of the study.

"They store huge amounts of carbon, are essential for the cycling of nutrients, for water and air quality, and for countless human services," he added. "Yet you ask people to estimate, within an order of magnitude, how many trees there are and they don't know where to begin. I don't know what I would have guessed, but I was certainly surprised to find that we were talking about trillions."

The study was inspired by a request by Plant for the Planet, a global youth initiative that leads the United Nations Environment Programme's "Billion Tree Campaign." Two years ago the group approached Crowther asking for baseline estimates of tree numbers at regional and global scales so they could better evaluate the contribution of their efforts and set targets for future tree-planting initiatives.

At the time, the only global estimate was just over 400 billion trees worldwide, or about 61 trees for every person on Earth. That prediction was generated using satellite imagery and estimates of forest area, but did not incorporate any information from the ground.

The new study used a combination of approaches to reveal that there are 3.04 trillion trees -- roughly 422 trees per person.



Using a combination of satellite imagery, forest inventories, and supercomputer technologies, the researchers were able to produce a global map of tree density at the square-kilometer pixel scale.

Credit: Image courtesy of Yale School of Forestry & Environmental Studies

Crowther and his colleagues collected tree density information from more than 400,000 forest plots around the world. This included information from several national forest inventories and peer-reviewed studies, each of which included tree counts that had been verified at the ground level. Using satellite imagery, they were then able to assess how the number of trees in each of those plots is related to local characteristics such as climate, topography, vegetation, soil condition, and human impacts.

"The diverse array of data available today allowed us to build predictive models to estimate the number of trees at each location around the globe," said Yale postdoctoral student Henry Glick, second author of the study.

The resulting map has the potential to inform scientists about the structure of forest ecosystems in different regions, and it can be used to improve predictions about carbon storage and biodiversity around the world.

"Most global environmental data is thematically coarse," said Matthew Hansen, a global forestry expert from the University of Maryland who was not involved in the study. "The study of Crowther et al. moves us towards a needed direct quantification of tree distributions, information ready to be used by a host of downstream science investigations."

The highest densities of trees were found in the boreal forests in the sub-arctic regions of Russia, Scandinavia, and North America. But the largest forest areas, by far, are in the tropics, which are home to about 43 percent of the world's trees. (Only 24 percent are in the dense boreal regions, while another 22 percent exist in temperate zones.)

The results illustrate how tree density changes within forest types. Researchers found that climate can help predict tree

density in most biomes. In wetter areas, for instance, more trees are able to grow. However, the positive effects of moisture were reversed in some regions because humans typically prefer the moist, productive areas for agriculture.

In fact, human activity is the largest driver of tree numbers worldwide, said Crowther. While the negative impact of human activity on natural ecosystems is clearly visible in small areas, the study provides a new measure of the scale of anthropogenic effects, highlighting how historical land use decisions have shaped natural ecosystems on a global scale. In short, tree densities usually plummet as the human population increases. Deforestation, land-use change, and forest management are responsible for a gross loss of over 15 billion trees each year.

"We've nearly halved the number of trees on the planet, and we've seen the impacts on climate and human health as a result," Crowther said. "This study highlights how much more effort is needed if we are to restore healthy forests worldwide."

Researchers from 15 countries collaborated on the study.

Southern Pine Beetle Devastating Trees in Dorchester County, MD

Maryland Department of Agriculture

The Maryland Department of Agriculture (MDA) announced in August that trees in southern Dorchester County are under the attack or at risk of attack by the Southern Pine Beetle. MDA's Forest Pest Management, Eastern Shore Office in conjunction with the Department of Natural Resources, Forest Service's Dorchester County Forester have identified 115 acres of trees that have recently been killed by the Southern Pine Beetle (SPB). Fifteen of these acres went from green asymptomatic trees to dead from mid-July to mid-August. This is an active and growing beetle population moving to the north and west. Click here for a map of the affected area.

"While the Southern Pine Beetle is a native pest, conditions have been favorable to the insect and the beetle numbers and destruction they have caused are resulting in outbreak conditions in Dorchester County," said Agriculture Secretary Joe Bartenfelder. "We want people to be aware of the situation and call us if they suspect beetle damage. Our MDA Forest Pest Management staff are available for site visits to identify and confirm the beetle."

The SPB is one of the most destructive insect pests of pines in the mid-Atlantic, most commonly found on the lower Eastern Shore and Southern Maryland. SPB is a native pest and generally is seen in low numbers. However, when trees are stressed due to weather conditions, SPB can take a hold and kill healthy trees. This beetle is roughly the size of a grain of rice and is red-brown to black in color. The SPB attacks loblolly pine and occasionally Virginia pine. Adult beetles will travel approximately 0.4 miles, however, they have the ability to disperse up to 2 miles.

Infested tree's needles will turn yellow two weeks following a SPB attack, and then turn red to brown within a month. Signs of attack from SPB include: "popcorn" like pitch tubes covering the outer bark, S-shaped galleries underneath the bark, and the presence of blue stain fungi.

Trees infested by SPB will rapidly turn brown. Photo courtesy bugwoodcloud.org

Treatment options to prevent the further spread of this pest include a salvage cut, cut-and-leave, pile and burn, and cut and chemically treat. All infested trees should be cut as well as a 50-100 foot buffer of healthy trees. Trees should be cut toward the center of the infestation to help disrupt the beetle's pheromones. If trees remain untreated the SPB will move to adjacent forests. Once this outbreak is under control, actively managing a forest to maintain healthy trees is the best way to prevent further attacks. Click here for more information on control measures.

Since 1989, Maryland has participated in a SPB survey throughout the southern United States using pheromone-baited traps. Populations have been below outbreak level since 1994. Additional information is available in MDA'sSPB fact sheet or on the Department of Natural Resources SPB webpage.

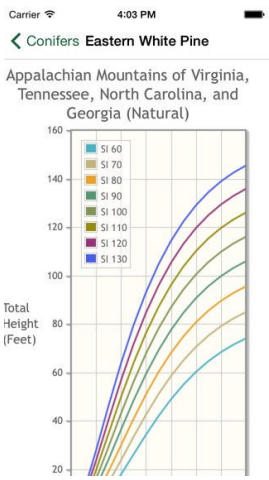
Please contact Eastern Shore Regional FPM Entomologist, Heather Disque at 410-822-8234, or Dorchester County Forester, Scott Daniels at 410-228-1861 with questions or concerns.

News and Notes

New Forestry App Updates an Essential Publication

Professional foresters have long relied on the "Service Forester's Handbook," a 135-page publication that helps them convert figures, calculate volumes and perform other essential calculations. It remains in use today although the handbook was last updated in 1986. Understanding that the content needed to be brought into the 21st century, William Hubbard, a Southern Region Extension forester with the Association of Southern Region Extension Directors, spearheaded the development of an app to complement the paper handbook.

Hubbard worked with University of Georgia Extension and technology specialists to develop the app for both Android and Apple platforms. In addition to the facts and figures found in the original guide, the app includes calculators to help foresters determine soil texture, tree stand density, and much more. Download it from the Apple Store here and from Google Play here.



New WSE Webinar Available

The next offering in the Woodland Stewardship Education Webinar series was held on September 17th at 12 noon. The webinar featured University of Maryland Extension Forest Stewardship Educator Lyle Almond. His presentation, "Nature-based Forestry: The Pro Silva Movement in Europe," provided an overview of a forestry practice that is sweeping across the continent. The Pro Silva movement promotes continuous cover forestry, which mimics natural forest stand development for optimizing social, ecological, and economic benefits. The webinar will include Almond's first-hand experience through his work in the nation of Slovenia.

The webinar is now available on our YouTube channel at https://youtu.be/zP9XEF6ULjg .

MFA & Maryland Tree Farm Committee Regional Meetings

Throughout 2015, the Maryland Forests Association (MFA) and Maryland Tree Farm Committee have been holding joint information meetings across Maryland. These evenings were designed to provide new and potential tree farmers with information about tree farming, and to share new national guidelines for current tree farmers.

The September 15th meeting at the Western Maryland Research & Education Center was recorded and is now available on the WSE YouTube channel at https://youtu.be/AxCkJxunHEA . For a schedule of additional regional meetings, see the Events calendar at the end of this issue.

Upcoming Maryland Woodland Stewards Workshop

The Woodland Stewardship Education program will offer the next Maryland Woodland Stewards workshop this coming Spring, from April 28 to May 1, 2016.

Since 1990, the Maryland Woodland Stewards program (and its predecessor, the Coverts Program) has trained over 400 Marylanders the value of sound forest management and the benefits of helping their neighbors to preserve the valuable ecosystems of Maryland's woodlands.

For more information about the Maryland Woodland Stewards program, visit the program's web page at http://extension.umd.edu/woodland/maryland-woodland-stewards .

Inventorying and Monitoring Wildlife in Your Woodlands

George Hurd, Penn State University

Wildlife is an integral part of woodlands. Landowners are often interested in monitoring wildlife on their property for a variety of reasons. You may want to assess the effectiveness of habitat management plans by monitoring various wildlife species' responses. Surveying habitat can provide you with a measure of your land's potential to attract and hold wildlife.

As a landowner, you probably already spend a great deal of time observing and thinking about your land. You might benefit from taking your observations a step further using a more deliberate, systematic approach. Understanding the relationship between wildlife and your woodland will help you improve both. With planning and management, you can favor certain habitat conditions and plants for wildlife using your property.

Here are two educational resources to help you understand how to conduct a more systematic wildlife inventory. One is the University of New Hampshire Extension publication, "A Landowner's Guide to Inventorying and Monitoring Wildlife in New Hampshire." Another is the Penn State publication, "Woodlands and Wildlife."

The "Woodlands and Wildlife" publication provides information on different Pennsylvania wildlife and habitats. "A Landowner's Guide to Inventorying and Monitoring Wildlife in New Hampshire" provides inventory checklists and data sheets to use with birds, mammals, amphibians, reptiles and insects. It also includes examples of data sheets for use during different seasons. For example, there is a snow track survey data sheet. These publications can help you create an inventory of habitats on your property, which is fundamental to creating a plan to develop or improve habitat conditions. The inventory links woodland conditions to wildlife use by guiding the user through a systematic process of where, when, and how to look for wildlife use on the land.

Great horned owls may visit or live in your woodlands without your knowledge. Photo by Roger Hill, USDA Natural Resources Conservation Service.

Not all animals are easy to observe. Many are secretive or nocturnal, making them difficult to detect. Indirect methods such as identifying tracks, scat, or burrows serve to help determine the presence of some animals. Remote cameras can also assist in the identification of hard-to-view wildlife species. A good source of information on using remote cameras is the Ohio State University Extension Factsheet, "The Basics of Using Remote Cameras to Monitor Wildlife."

Inventorying and monitoring wildlife populations enable you to see what habitats are favorable to certain wildlife and how your habitat management efforts affect the species living on your land. It may not make you an expert naturalist, but it can help you become an expert on your own land.

Alliance for Green Heat's Pellet Stove Challenge

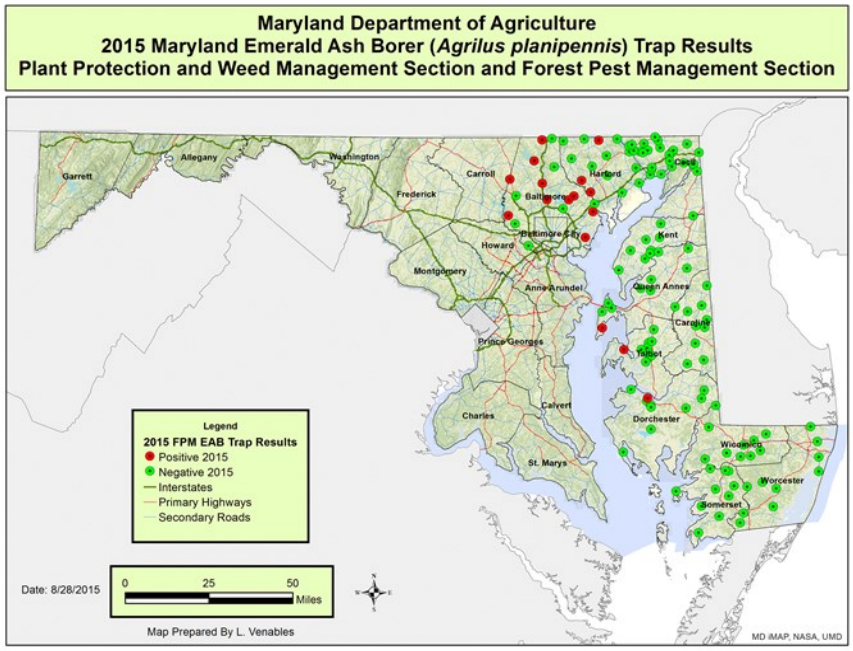
As reported in the last issue of *Branching Out*, the Alliance for Green Heat has expanded its Stove Design Challenge to include pellet stoves for 2016. The alliance is now accepting applications from designers for the testing, to be held March 21 to April 5, 2016.

Stoves can already be on the market, about to come onto the market, or still just a prototype. They must be fully assembled, operational, and ready for testing as of March 21. The only restrictions are that they are designed to be installed in the living space (in other words, not the basement) and to heat air, not water. The owner or manufacturer must pay all expenses to bring their design and themselves to the testing site in New York State.

Interested parties are encouraged to fill out the Alliance's Letter of Interest form, available at here. More details about the Design Challenge are available on their website at http://www.forgreenheat.org/decathlon/stove.html.

Emerald Ash Borer Found on Maryland's Eastern Shore

The emerald ash borer (*Agrilus planipennis*) is an exotic pest first found in southern Maryland in 2008. It expanded its range throughout all counties west of the Chesapeake Bay by 2014. Quarantines have been in place to help stop the movement of EAB to the Eastern Shore but pheromone traps put out in the spring of 2015 found three positive samples in Ken, Talbot, and Dorchester counties (see map at right).



While the borer is present in these locations, it will likely take some time for it to expand throughout the rest of the Eastern Shore. As populations of EAB increase, it will be followed by increasing mortality among ash trees. The borer will basically kill all species of ash trees in urban and rural areas, unless trees are treated with pesticide. The treatment of individual trees can be expensive (about $8-$10 per inch), and the tree must have at least 30% of its canopy intact. The Maryland DNR Forest Service has been working with many communities around the state to do tree inventories and help decision-makers identify trees to target for treatment. Their publication, "Saving your Ash Trees from the Emerald Ash Borer Beetle: A Homeowner's Guide", provides some guidelines.

Trees in woodland areas are usually too numerous to treat, so as the populations of EAB build up and mortality occurs, these trees will typically decay very quickly and fall to the ground. For woodland owners with larger trees of commercial size and value, it is worth contacting a professional forester to consider a timber harvest to salvage the trees and receive some income. The University of Maryland Extension publication, "Emerald Ash Borer and the Private Woodland Owner," provides more information.

Unlike many other trees that die from insects or disease, ash trees killed by EAB decay very quickly, making removal very hazardous. For homeowners with ash trees that they cannot afford to inject, they should consider the option of removal before mortality occurs to minimize the cost. Many arborists will not climb dead ash trees due to safety hazards. This means they will need to use cranes to facilitate the removal, which increases the cost of the job. It is best to consult with a few reputable arborists before making this decision.

The presence of EAB on the Eastern Shore also raises many concerns about the fate of large areas of pumpkin ash that occupy tidal areas of the major rivers of the Chesapeake Bay. At some time in the future, it is likely EAB will cause mortality of these trees, which stabilize tidal areas, reduce erosion, and provide wildlife habitat. The big question is what would take its place and is there some type of proactive practice that can be taken to minimize the impact. There is still some time to consider these questions, but the answers are uncertain at best.

This Issue's Brain Tickler ...

This Alabama native and his wife run a 2,900-acre tree farm on land she inherited in Georgia. They were named National Outstanding Tree Farmers in 1999. He has been recognized by the Georgia Conservancy and the National Arbor Day Foundation. The US Forest Service named him an honorary forester. He is also the co-founder of the popular environmental news and information website, the Mother Nature Network.

In addition, he's the keyboardist for the Rolling Stones. Who is he?

Photo by Fernando DeCillis, Chicago Tribune

Last issue's Brain Tickler was a photo of several bald cypress trees. Congratulations to Connie Hoge who correctly identified the tree and the more common name for pneumatophores: Cypress knees.

Events Calendar

For more events and information, go to
http://extension.umd.edu/woodland/events

October 14, 2015
6:00 PM—8:30 PM
Maryland Forests Association and Maryland Tree Farm Joint Regional Meeting
American Legion Wicomico Post 64, Salisbury MD

This joint meeting includes a brief meet and greet from 6-6:30 pm. Dinner will be served from 6:30-7:30 pm with short presentations to follow, including discussions of Emerald Ash Borer and the Northern Long-Eared Bat. At 7:30pm, there will be two concurrent presentations (the new inspection and certification program for Tree Farm, and a discussion on MFA related topics to include changes to the Sediment and Erosion Control Standards).

There will be a $10 registration fee for each meeting to cover the cost of the meal. Pre-registration deadline is October 7th.

An additional meeting will be held October 27th at the Baltimore County Ag Center.

Go to http://files.ctctcdn.com/1682a758001/f7708818-f001-40e1-bcf1-0228849a2229.pdf for more information.

October 15, 2015
9:00 AM—12:00 PM
Backyard Woodland Workshop and Field Tour
Washington County Agricultural Education Center, Boonsboro MD

Are you interested learning how better to manage the natural areas on your property or convert some lawn into natural area? Join Jonathan Kays, a Natural Resource Extension Specialist with the University of Maryland Extension, for "The Woods in Your Backyard Workshop & Field Tour." The workshop will be held at the Washington County Agricultural Education Center at 7303 Sharpsburg Pike in Boonsboro and a nearby demonstration site. This workshop will provide the basics of woodland and wildlife management for property owners with more than an acre, but is useful for smaller properties as well. Participants will learn how to make their woodlands work for them and learn techniques and practices that will help them develop a plan for their property.

The workshops costs $15.00 per person. To register, contact Diane Woodring or dwoodrin@umd.edu or at 301-791-1304.The registration deadline is Monday, October 5 .

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