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

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This Last Issue of 2017 Is More Than Just 'The Year in Review'

Winter is now upon us, and with the end of the year comes countless "Best Of" and "Year in Review" lists, from movies to politics, from music to sports. Every category imaginable has one. And we're no different. You'll find our own 2017 Year in Review on page 4.

But there's much more in this last issue of the year besides a wrap-up. You can learn about our successful Forestry Friday workshop that covered selecting and applying forest herbicides on page 2. If you didn't have the opportunity to join us at WMREC on October 27th, you not only missed a beautiful fall day, but a morning filled with information and an afternoon of demonstrations and techniques. We recorded the highlights, so go to page 2 for links to the video playlist on our YouTube channel.

One of the most asked questions at the workshop, and received by this program in general, is how homeowners can obtain certification to apply these forest herbicides. We've summarized the necessary information, along with important links to Maryland Dept. of Agriculture websites, on page 11.

Of course, the end of the year is also a good time to start planning for the upcoming growing seasons. On page 8, you can learn about a shrub that does well in shady spots, is drought-resistant, is deer-resistant, but is a wildly successful invasive species that, among other things, provides great habitat for Lyme disease-harboring ticks and small mammals. Read about Japanese barberry in our Invasives in Your Woodland spotlight. On page 3, you'll learn about new research from a doctoral student working with our colleague at the University of Delaware, Doug Tallamy. Her research helps us understand the value and importance of native trees and shrubs in the mid-Atlantic region (specifically the areas including and adjacent to Washington, DC). Especially of interest is how certain tree species perform better at supporting native caterpillars, an important food source for many native birds. And on page 5, you'll learn about how you can join us for next Spring's session of our "The Woods in Your Backyard" online course.

Speaking of birds, have you found yourself confused by the nomenclature of two of our resident raptors? While "Red-shouldered hawk" and "Red-tailed hawk" sound similar, they are definitely different birds, occupying different niches in the ecosystem. in this issue, we look at the Red-shouldered hawk and its place in woodland environments. Read about these fascinating birds in our Woodland Wildlife Spotlight on page 7. (We covered the Red-tailed hawk in the Spring 2016 issue of Branching Out, available at this link.)

You'll also find inside the popular Brain Tickler and the Events calendar. We invite you to spend a few minutes reading this last issue of 2017. We hope everyone has a safe and happy holiday season, and extend our best wishes for the new year.

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Forestry Friday Workshop Participants Learn about Forest Herbicides

On October 27th, more than 50 participants gathered on a warm fall day at the Western Maryland Research and Education Center (WMREC) for the latest in the University of Maryland Extension's "Forestry Friday Workshop" series. This workshop, entitled "Selecting and Applying Forest Herbicides," brought together private landowners, land managers, and forestry professionals for classroom presentations and hands-on demonstrations.

Forestry Friday participants at WMREC, October 27, 2017

The morning was spent inside, as Industry professionals Todd Hagenbuch of Arborchem Products, Inc. and Bret Robinson of Land and Forest Conservation Company shared information about ways to fight both native and non-native invasive plant species. Aaron Cook of the Maryland Dept. of Natural Resources Forest Service discussed state cost-share programs that are available for landowners to better manage their property. Jonathan Kays of the University of Maryland Extension presented tips and hints for the proper choice and application of selected herbicides.

After lunch, the group moved outside to a series of demonstration stations on the WMREC grounds:

Cook and Kays (at right, top) shared a time-saving method for calibrating the proper amount of herbicide to be added to water in a backpack sprayer.

Hagenbuch and Robinson (right, center) demonstrated equipment that they use on the job, such as a four-gallon battery-operated backpack sprayer and a 200-gallon trailer mounted foliar applicator.

Phil Pannill, Project Manager for the US Fish & Wildlife Service (at right), demonstrated equipment and techniques related to basal stump and hack-n'-squirt herbicide application methods.

Recordings of the morning presentations and highlights of the afternoon sessions are available through the Woodland Stewardship Education YouTube channel. Go to this link to view the playlist.

Native Trees and Shrubs Provide More Food for Birds

Science Daily

University of Delaware doctoral student Desiree Narango is researching trees and shrubs planted in the lawns of homeowners throughout the Washington, DC, Maryland and northern Virginia areas to assess how those choices are impacting food webs.

Narango, who is working with Doug Tallamy, professor of entomology in UD's Department of Entomology and Wildlife Ecology, is also associated with the Smithsonian Migratory Bird Center and works through a citizen-science program called "Neighborhood Nest Watch." Narango is co-advised by Pete Marra, director of the Smithsonian Migratory Bird Center.

Through her research, Narango looks at breeding birds and the food resources they need, such as insects and caterpillars. Different trees vary in how much food they provide birds, and Narango said she has a network of homeowners in the D.C. metropolitan area who allowed her to use their yards for her study. Over the course of the four-year study, Narango has looked at 203 yards.

One thing that has stood out to her is the sheer number of different trees that are planted in these yards. "We focus on woody plants -- so trees and shrubs -- and we've documented over 375 different species in these 203 yards. Which is crazy," said Narango who added that it became apparent quickly that some trees are better than others with regard to sustaining food webs.

Narango notes their research shows "that native trees are better at providing caterpillars for birds, which is a really important food resource." She commented, "Native trees are better, hands down, but even among the native trees, there are some that are better than others so things like oaks and cherries and elms are highly productive for caterpillars, so they have lots of good food for the birds."

Narango added that there are a lot of non-native plants -- such as zelkova, ginkgo and lilac -- that don't provide any resources for breeding birds.

"Those species are true non-natives so they're not related to anything here, and they provide almost nothing in terms of caterpillars for birds," said Narango. "There are also species like Japanese cherry and Japanese maple that are non-native but are related to our native maples and cherries. We found that those species have an average of 40 percent fewer caterpillars than the native versions of that tree. If you had a choice between a black cherry and a Japanese cherry and if you're interested in food for birds, then you should choose the native version."

Narango said that a problem homeowners may face when trying to select native versions of plants is that a lot of the big box stores don't carry them.

Native birds, such as this black-capped chickadee, benefit from caterpillars that inhabit native trees. Photo courtesy Doug Tallamy

"There are a lot of really great small nurseries that have many native plants that are productive in terms of caterpillars and are also very beautiful," said Narango. "You definitely don't have to sacrifice beauty to get plants that are ecologically beneficial. There's a lot to choose from so you can have beauty, you can have fruit and then also have food for birds, too. It's all interconnected."

As for the most eye-opening aspect of her research, Narango said that it has to be the tremendous amount of diversity in bugs and birds in people's backyards. A lot of people think you need to go to the woods to see beautiful butter-flies or beautiful birds, but they're actually in people's back-yards, too," said Narango.

In the group's bird surveys, they documented 98 different bird species. Narango focuses on the Carolina chickadee and said that she would follow individual birds around to see what trees they were choosing. One of the major findings in her paper is that the number of caterpillar species a plant supports predicts how strongly chickadees prefer it.

"When these birds would choose a tree, all the other birds in the neighborhood were choosing those trees, too. So we would see these amazing warblers that don't breed in Delaware or in D.C. but are migrating through, and they're using all these suburban habitats on their way north. In a way, our chickadees were telling us what all of the birds want during that period," said Narango.

As a landscaper herself, Narango added that it was surprising to see how much life happened in her own backyard when she started planting the right species. “I planted this flower called ironweed, and the first year it was there, I had the specialist bees that use that flower and then I have caterpillars in my shrubs, and it's really cool how quickly you can see life be attracted to your yard when you plant the right species," she said.

2017 Year in Review

We at the Woodland Stewardship Education (WSE) Program hope that the educational materials we have provided over the last year have helped you to be a better steward of you property and to complete some project or activity that will benefit you and the land. The goal of this University of Maryland Extension program is to provide research-based information that helps people solve problems and find answers to questions they have so they can take informed actions. Our group is small but we work cooperatively with many partners to deliver programs and other educational opportunities.

Maryland is very fortunate to have excellent resource professionals available to provide technical assistance. Every county has a service forester with the MD DNR Forest Service to assist woodland owners develop forest stewardship plans, navigate state and federal cost-share programs, and provide sound advice. Many states do not have this level of assistance from their state forestry agency. Maryland also licenses professional consulting and industrial foresters; they assist landowners with forest stewardship planning, timber sales, tree planting, invasive species control and many other management and planning activities. You can find a list of all these individuals under the "Find a Forester" link on our website. Each forester has a license number provided by the state.

Extension foresters in Maryland are few but provide a valuable educational and research function for woodland owners by providing workshops, publications, newsletters, web-based information, and yes, even answers to those who call. The WSE program operates out of two main locations: the Western MD Research & Education Center near Hagerstown, and the Wye Research & Education Center in Queenstown. Our website, www.extension.umd.edu/woodland, provides a "one-stop-shop" of resources for woodland owners. The WSE program works closely with the MD DNR Forest Service and other partners to meet the educational needs of woodland owners.

So what kind of assistance has the University of MD Extension provided through the WSE program in 2017? All this information is highlighted on our progressive website but a short list is provided below. Of course, we are more than happy to answer questions if you call 301-432-2767 x315.

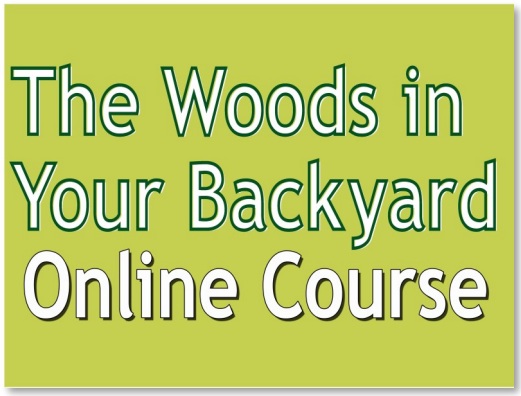
- **Branching Out Forest Stewardship Newsletter** - free quarterly electronic newsletter with articles of interest to woodland owners. Back issues are available here. Call us to get on the list or subscribe online. Starting in 2018, the 12-page newsletter will be consolidated to 8 pages.
- **Publications** – The Publications Library features three important publications from 2017:
  - Extension Bulletin 428, "Emerald Ash Borer Will Affect Maryland's Eastern Shore Wetlands," documents EAB's continued spread across the state in 2017, and notes that one of the greatest potential threats is the loss of green and pumpkin ash species that occupy tidal swamps around the Chesapeake Bay.


UNIVERSITY OF MARYLAND EXTENSION
Solutions to your community
Extension Bulletin EB-428
June 2017
Emerald Ash Borer Will Affect Maryland's Eastern Shore Wetlands

  - Fact Sheet 1059, "Maryland Consulting & Industrial Foresters Directory," provides up-to-date listings of services and areas of operation for the state's licensed consulting and industrial foresters.
  - Fact Sheet 1067, "Maryland Small Acreage Professional Foresters Directory," lists licensed professionals who provide services for landowners with smaller properties.
- **Workshop Recordings** – The WSE program makes an effort to record the audio presentations of workshops that would be of interest those that could not attend the actual workshop. The links are to playlists found on the WSE YouTube page.
  - Forest Health & Your Private Woodland Workshop (March 11, 2017, Cambridge MD) – Related to EB-428 (above), this workshop covered the many insect & diseases impacting private woodlands but it fo-cused on the impact of emerald ash borer on tidal hardwood wetlands.
  - Selecting and Applying Forest Herbicides (October 27, 2017) – presentations that cover the different ap-plications methods for herbicides and videos of the outside field sessions.
- **Woods in Your Backyard online course** – developed in 2016, this 12-week online course was offered in spring and fall of 2017 for 20+ participants each session. Learn more about the course, the upcoming Spring 2018 session, and a way to preview the course on page 5.

We thank you for your continued support of the WSE program, and look forward to serving you in the coming year.

"The Woods in Your Backyard" Online Course



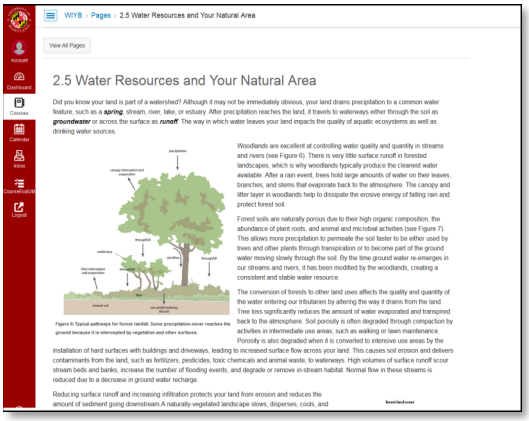
This month, 23 participants wrapped up the third session of "The Woods in Your Backyard" online course. The course is designed for those with small-acreage properties who want to learn how to care for or expand existing woodlands, or to convert lawn space to woodlands. This session's roster included individuals from across Maryland as well as from Virginia and Pennsylvania.

This self-paced, non-credit online course runs for twelve weeks. It is offered through the University of Maryland's Electronic Learning Management System, and is accessible from any Internet connection and Web browser.

The course closely follows the published guide of the same name (see page 10), but includes some important extras. Quizzes reinforce the important concepts of the text. Optional activities give participants the opportunity to share one or more of their stewardship journal entries, or photos or narratives of their woodland stewardship accomplishments. In addition, many of the course's units are accompanied with short videos, created and produced by Woodland Stewardship Education staff. These 2- to 5-minute videos demonstrate essential skills and techniques (such as tree identification or crop tree release) and share the experiences of other woodland owners.

The next session of the course is slated to run March 7 — June 10, 2018. The course costs $85.00. Each paid enrollment includes printed copies of "The Woods in Your Backyard" guide and workbook, plus a copy of *Common Native Trees of Virginia*. Registration through Eventbrite will open in February and runs through March 5, 2018.

Visit our website page about the course at this link for more information, including updated registration information and a way to preview the course at no charge.



Sample page from
"Water Resources and Your Natural Area"

This Issue's Brain Tickler ...

We had a bumper crop of these at WMREC this fall. Identify these nuts and the tree from which they came.

Photos courtesy G.R. Welsh, WMREC

The essential tool shown in last issue's Brain Tickler was a moisture meter.

News and Notes

One Hundred Trees

Ouimet and his team. Photo courtesy *The Journal* (Martinsburg WV)

In early November, fifteen-year-old Jacob Ouimet of Charles Town, WV planted one hundred trees as part of his Eagle Scout Leadership Service project. The plantings were inspired by his participation in a 50-tree project beside Bullskin Run near his home in Jefferson County. He approached the community homeowners' association with his idea to continue the reforestation through his Eagle Scout project.

Ouimet applied for and received a $1,500 grant from Capacon Institute, which paid for the trees, stakes, shelter tubes, and volunteer manpower. He also made three trips to the WV Division of Forestry to pick up the trees and marked each planting location so that the 12 selected species would be planted randomly.

Read more about his efforts at this link.

2017 Tax Tips for Forest Landowners

The USDA Forest Service has released its latest fact sheet of tax tips for forest landowners. The tips provided in the bulletin are intended to assist timber owners, foresters, loggers and their tax preparers. Readers need to remember that the examples provided are as information only. The fact sheet, prepared by Dr. Linda Wang, National Timber Tax Specialist for the Forest Service, is available at this link.

Additionally, the Forest Service has developed a publication that covers issues related to "casualty loss" (timber or landscape trees destroyed by hurricanes, fires, earthquakes, ice, hail, tornadoes, or other storms). This publication is available at https://timbertax.org/taxpolicy/Tax-Deduction-USFS2.pdf.

Maryland Wood Stove Maker Secures Investment Funding

MF Fire, a company founded in the wake of the Alliance for Green Heat's *Next Generation Wood Stove Challenge*, has secured $1.2 million in an initial funding round. According to the *Baltimore Sun*, investors include the University System of Maryland's Maryland Momentum Fund, and Bill Clarke, an investor focused on clean technology.

Ryan Fisher, co-founder of MF Fire. Photo courtesy *Baltimore Sun*

The company's founders, Ryan Fisher and Taylor Myers, are University of Maryland, College Park-educated fire protection engineers. They developed a wood stove for the Challenge, and then licensed the technology from the university. Fisher and Myers have teamed with Paul LaPorte, who now serves as MF Fire's CEO, to begin commercializing their stove, called "Catalyst." LaPorte said in a statement, "With our Catalyst smart wood stove, MF Fire is pushing the bounds of what is possible in wood heat."

Read more at this link.

We're Not The Only Ones

The challenges of invasive species exist across the globe. While global commerce has sent unwanted insects to ecosystems where they have no native predators, in some cases, invasive plant species have been transplanted deliberately before escaping into the environment. In the U.S., two prominent examples are kudzu and Callery pears.

In Australia, an African plant called lovegrass was transplanted for its potential as a pasture crop. Now it's considered an invasive, and farmers and scientists are working together to develop strategies for eradicating it. Read more about these efforts in the following article from "Ensia," a journal published with the support of the Institute on the Environment from the University of Minnesota: https://ensia.com/articles/invasive/

Woodland Wildlife Spotlight: Red-Shouldered Hawk

Red-shouldered hawks are a common resident in the mid-Atlantic states. They are medium-sized raptors, measuring 15-19" long with a wingspan of 37-42", that can be found perching on tree branches in bottomland hardwood stands, flooded deciduous swamps, and upland mixed deciduous-conifer forests. They prefer relatively open understories that enable them to soar between trees in search of prey.

Above: Adult Eastern Red-shouldered hawk. Photo © Jon Corcoran/GBBC, Maryland, February 2001. Below: Red-shouldered hawk in flight. Photo © striatus, Maryland, May 2010

Although much of the Red-shouldered hawks' original habitat in the Eastern United States has been lost to agriculture and residential areas, the species' population appears to be stable, with increases estimated since the 1960s. This is perhaps due to the banning of pesticides such as DDT as well as efforts to conserve and expand woodlands and riparian ecosystems. Today they may be seen not only in traditional habitat areas, but in suburban neighborhoods and parks, where tall trees and open spaces provide opportunities for hunting.

The Red-shouldered should not be confused with the Red-tailed hawk, which is found in some of the same habitats. There are distinct differences between the two. The Red-shouldered is somewhat smaller than the Red-tailed; when perching on branches or utility lines, it appears slimmer than the Red-tailed. A good gallery of side-by-side photos comparing the two is available here from the International Wildlife Rehabilitation Council. (For more on the Red-tailed hawk, read the Spring 2016 issue of Branching Out.)

Red-shouldered hawks are steady and strong fliers with wings held slightly forward when soaring, giving an impression of reaching into the air. The bodies have brilliant rufous under-feathers with faint white barring and dark streaking on the body which lends to a mostly orange appearance. The tail feathers are black with narrow white bands and fan out during flight.

One of the most distinctive features of the Red-shouldered hawk is its call, which enables observers to often hear them before seeing them. The clear, whistling rising kee-rah calls are conspicuous, especially in the spring, and tend to be repeated 5-12 times. The call may be imitated by blue jays. (This YouTube video includes a Red-shouldered hawk calling and a blue jay mimicking.)

Like many other North American hawks, the Red-shouldered hunts small mammals such as voles and chipmunks; amphibians such as frogs and toads; and reptiles such as snakes for its meals. They may also hunt the occasional small bird. They can hunt either from a perch or while flying.

Red-shouldered hawks that live in its northern range, from the Ohio River valley through the Great Lakes and northern New England, migrate to wintering grounds in the south, extending to Florida and the Gulf Coast of Mexico. Those that live in the mid-Atlantic states, especially in wetland forests, tend to stay in one area year round.

Regardless of their seasonal patterns, mated pairs return to the same nesting area for several years in a row, often using the same nest more than once. The nest is usually built by both males and females in a fork of a main trunk or at the base of branches high in a deciduous tree, as much as 65' off the ground. The birds construct the nest from sticks and line it with bark, moss, and green vegetation.

The female lays a clutch of 3 to 4 pale bluish-white eggs, blotched with brown and lavender, and does most of the incubating. The eggs hatch roughly 33 days later. The female stays with the young while the male hunts and brings food to her for her to feed the young. The young can leave the nest within 7 weeks of hatching and are fed by the adults for up to 10 weeks more before becoming independent.

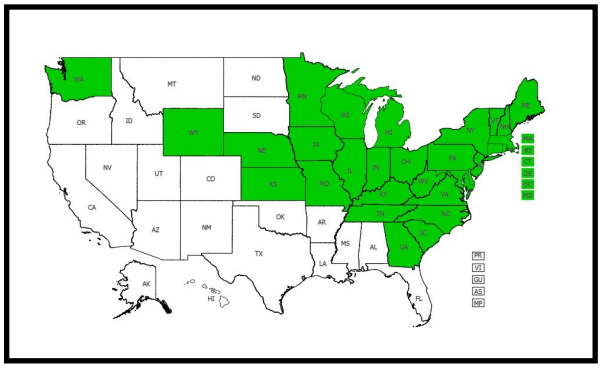
Invasives in Your Woodland: Japanese Barberry

Japanese barberry has been in the news recently, due in part to a multi-year study in Connecticut that is examining the relationship between white-footed mice, blacklegged ticks, and Japanese barberry. The initial results should give landowners pause about having this ornamental shrub as plantings around the house and as invaders in their woodlands.

What is it?

Japanese barberry (*Berberis thunbergii*) was introduced from Japan as an ornamental in the late 19th century. In the hundred-plus years since, it has been chosen by many landscapers because it does well in a variety of habitats. It tolerates shade, resists drought, and deer don't eat it. While this sounds like a perfect combination for ornamental planting, because deer do not browse it, it can outcompete native shrubs. It spreads rapidly through woodlands, open fields, and wetlands, and is now found in 31 states.

Japanese barberry as an ornamental planting. Photo by Leslie J. Mehrhoff, University of Connecticut, Bugwood.org



Japanese barberry distribution. Courtesy eddmaps.org.

Its umbrella-like foliage forms dense cover, creating perfect cover for mice and ticks. Researchers have discovered that humidity conditions beneath Japanese barberry are more conducive to tick activity than native shrubs, allowing the insects to be active up to 23 hours a day. According to Scott Williams, adjunct professor at the University of Connecticut Extension's Department of Natural Resources and the Environment, "When we measure the presence of ticks carrying the Lyme spirochete we find 120 infected ticks where Barberry is not contained, 40 ticks per acre where Barberry is contained, and only 10 infected ticks where there is no Barberry."

How does it spread?

As with many invasive plants, Japanese barberry is spread by birds that consume the berries and then excrete the seeds. Berries are also spread by hikers who pick them up in their boot treads. Additionally, it spreads by shoots below ground and by the tips of its branches, which will root freely when they touch the ground.

How can I identify it?

Japanese barberry is a small shrub that grows 2-8 feet in height, with thin, grooved branches with thin, straight spines, and that forms dense thickets that crowd out native plants. The leaves are up to 1 inch long and paddle-shaped. Its pale yellow flowers occur in drooping clusters of 2 to 5 and develop in mid-spring to early summer.

How can I control it?

Like many non-native plants, it leafs out early and retains its leaves into late fall. This can help you identify the infestation in your woodland. Some control efforts can even be performed in the mid-Atlantic states during winter, as long as the ground is not frozen.

Seedlings can be pulled out manually because of the shallow root system. Do so when the soil is moist. Larger plants can be removed with a spade. Mowing can be used as a first step, because the plant will re-sprout if not removed after cutting.

Herbicides have been shown to be effective when applied as basal bark or cut stump application. The USDA Forest Service suggests that chemicals are an option only when plants are difficult to remove mechanically.

Controlled burning has also shown to be effective where they have invaded fire-resistant environments. In other habitats, burning is not recommended.

For more information:

Learn more about Japanese barberry:

- Japanese Barberry (USDA Forest Service)
- Invasive Plants in Pennsylvania: Japanese and European Barbery (Pennsylvania DCNR)
- Japanese barberry (Michigan Dept. of Natural Resources)

Image Gallery:
Japanese barberry

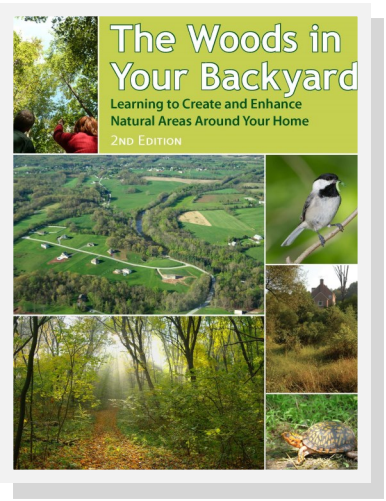
Japanese barberry leaves and fruits. Photo by Chris Evans, University of Illinois, Bugwood.org

Japanese barberry flowers. Photo by Richard Gardner, UMES, Bugwood.org

Japanese barberry infestations. Photos by Leslie Mehrhoff, University of Connecticut, Bugwood.org

Now Available!

The Woods in Your Backyard, 2nd Edition



The first edition of *The Woods in Your Backyard: Learning to Create and Enhance Natural Areas Around Your Home* was published in 2006. The guide helped thousands of landowners of 1 to 10 acres in the mid-Atlantic area enhance the stewardship of their land. They learned valuable techniques about caring for their natural areas, including how to convert lawn to woodland, how to enhance existing wooded areas, and how to cooperate with neighbors to enhance wildlife habitat.

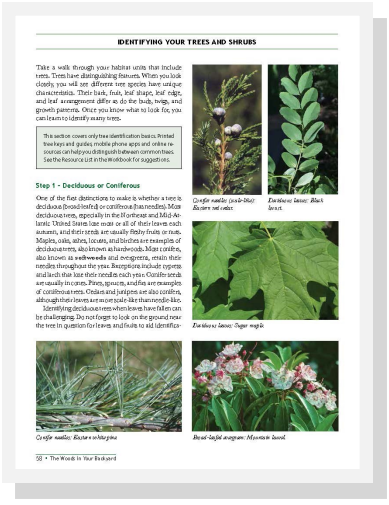
Now the guide has been revised and updated. Highlights of the new edition include:

- A new Foreword by Doug Tallamy, author of Bringing Nature Home
- Methods for documenting your natural area projects through a "stewardship journal"
- Tips for identifying your natural area's natural and wildlife habitats
- Expanded and up-to-date information related to non-invasive plant species
- Expanded information about water resources, including tips for creating and maintaining riparian buffers, and identifying and preserving wetlands
- A new section on best management practices for soil resources and conservation
- A fully revised and expanded Glossary

The 108-page guide contains more than 100 color photos and illustrations, and includes information tables, case studies, appendices, and an index.

Contributors include natural resources specialists at the University of Maryland, Penn State University, Virginia Tech and Forests for the Bay.

The 2nd edition of *The Woods in Your Backyard* is now available to order through Cornell University's Plant and Life Sciences Publishing (PALS, formerly NRAES). Each copy is $23.00, with quantity discounts available. For more information, click on the cover image or go to http://go.umd.edu/WIYB-2nd-edition to order.


IDENTIFYING YOUR TREES AND SHRUBS

Take a walk through your habitat units that include trees. Trees have distinguishing features. When you look closely, you will see different tree species have unique characteristics. Their bark, fruit, leaf shape, leaf edge, and leaf arrangement differ as do the bark, twigs, and growth patterns. Once you know what to look for, you can learn to identify many trees.

This section covers only tree identification basics. Printed tree keys and guides, mobile phone apps and online resources can help you distinguish between common trees. See the Resource List in the Workbook for suggestions.

Step 1 - Deciduous or Coniferous

One of the first distinctions to make is whether a tree is deciduous (broad-leaf/fall) or coniferous (has needles). Most deciduous trees, especially in the Northeast and Mid-Atlantic United States lose most or all of their leaves each autumn, and their seeds are usually fleshy fruits or nuts. Maples, oaks, ashes, locusts, and birches are examples of deciduous trees, also known as hardwoods. Most conifers, also known as softwoods and evergreens, retain their needles throughout the year. Exceptions include cypress and larch that lose their needles each year. Conifer seeds are usually in cones. Pines, spruces, and firs are examples of coniferous trees. Cedars and junipers are also conifers, although their leaves are more scale-like than needle-like.

Identifying deciduous trees when leaves have fallen can be challenging. Do not forget to look on the ground near the tree in question for leaves and fruits to aid identifica-

Conifer needles: Eastern white pine

Broad-leaflet evergreen: Mountain laurel

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Sample pages from the second edition.

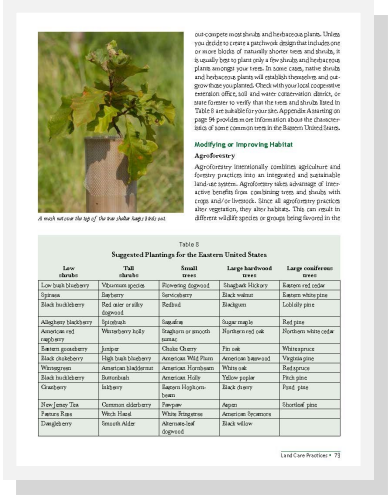
Table 8
Suggested Plantings for the Eastern United States

Low shrubs	Tall shrubs	Small trees	Large hardwood trees	Large coniferous trees
Low bush blueberry	Viburnum species	Flowering dogwood	Shagbark Hickory	Eastern red cedar
Inkberry	Barberry	Serviceberry	Black walnut	Eastern white pine
Black huckleberry	Red osier or silky dogwood	Redbud	Blackgum	Loblolly pine
Allegheny blackberry	Spicebush	Sassafras	Sugar maple	Red pine
American red raspberry	Winterberry holly	Staghorn or smooth sumac	Northern red oak	Northern white cedar
Eastern gooseberry	Juniper	Choke Cherry	Pin oak	White spruce
Black chokeberry	High bush blueberry	American Wild Plum	American basswood	Virginia pine
Wintergreen	American bladdernut	American Hornbeam	White oak	Red spruce
Black huckleberry	Buttonbush	American Holly	Yellow poplar	Pitch pine
Cranberry	Inkberry	Eastern Hophornbeam	Black cherry	Pond pine
New Jersey Tea	Common elderberry	Pawpaw	Aspen	Shortleaf pine
Farkers Rass	Witch Hazel	White Fringetree	American Sycamore	
Dangleberry	Smooth Alder	Alternate-leaf dogwood	Black willow	

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Obtaining a Private Herbicides Applicators License

The proper use of herbicides can help private landowners manage a variety of undesirable plant species in their woodlands. In some cases, herbicides are the most effective means for managing or eliminating invasive plants. In Maryland, private landowners can obtain a license for the use of such chemicals on their own property through the state Department of Agriculture (MDA).

According to the MDA, the applicant must be at least 16 years of age and pass "a written, closed book examination administered by MDA with a score of 70% or higher." The exam covers core knowledge of the chemicals, of various regulations relating to their use, and of label information and interpretation. The subject matter is based on information contained in training manuals available through county University of Maryland Extension offices.

Individuals can attend training sessions to assist applicants in preparing for the examination. These dates are set by the individual county offices; the current roster of training sessions and examinations is available from MDA here.

After completing the examination, the applicant will be notified of his or her score within 2 to 3 weeks. Upon successful completion, a fee of $7.00 is due for the actual license. The private applicator certificate runs from January 1 to December 31 and is good for three years.

During the third year of the license, MDA will mail the holder a renewal reminder. Recertification training provides applicators with new information, including pest control, health and environmental safety, and changes in laws and regulations. The training must consist of a minimum of 4 credits; 1 credit is equal to a half hour of training. More information on the requirements is available here.

WSE on Social Media

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

We also have a channel on YouTube. There you can watch recordings of past webinars, workshops, and relevant meetings. More than 90 videos cover topics including wild turkey biology and management, creating a wildlife-friendly landscape, and invasive insect management. Topics are organized by subject into playlists for ease of viewing.

Find our channel at https://www.youtube.com/user/

Events Calendar

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

January 9, 2018, 12:00 PM—1:00 PM &
7:00 PM—8:00 PM
Forest Management Responses to Invasive Insects
Webinar

Join Kimberly Bohn, Forestry Educator for Penn State Extension for this webinar. Bohn will discuss several considerations for managing forests while dealing with forest health issues. These include incorporating salvage operations with timber stand improvement or regeneration strategies and replanting options. For more information, click here.

January 9-12, 2018, 8:00 AM—3:00 PM
29th USDA Interagency Research Forum on Invasive Species
Loews Annapolis Hotel, Annapolis MD

Join state, local, university and federal researchers as they discuss a variety of topics related to non-native invasive species. Topics will include updates and challenges related to Emerald Ash Borer and gypsy moth. Learn more about the forum at this link, and register here.

January 20, 2018, 8:00 AM—3:00 PM
Local Forests, Global Needs: Carroll County Forestry Board Winter Workshop
VFW Post 467, Westminster MD

The workshop will include tips to better manage your property by identifying insects that are beneficial, ways to use pesticides wisely, and heating efficiently with wood and pellets, including measuring moisture content and choosing an efficient wood or pellet stove. This year there will also be a silent auction. All proceeds will provide tuition for two MD high school students to attend the Maryland Association of Forestry Board-sponsored Natural Resources Careers Camp.

Industry professional can earn ISA Certified Arborist, MD licensed Tree Expert, SAF, and MD Pesticide Applicator credits as well. Doors open at 8 AM.

For more information visit this link and click on the "events" tab. To register on-line, go to this link.

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All information, including links to external sources, was accurate and current at the time of publication. Please send any corrections, including updated links to Andrew A. Kling at akling1@umd.edu.

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