

## Leaf Litter

By: Adam Downing, Virginia Cooperative Extension



Leaves - they have cooled you during the hot summer months and are now going out in a flame of glory, exhibiting their hidden colors. But then what? Leaf litter, as we call it in the woods, for some is a dreaded chore. For others, it is desirable free organic resource. And, (since local is the buzz word of the day) it doesn't get any more local than leaves from a tree in your yard.

Fallen leaves are valuable. They have relatively large amounts of elements such as calcium and potassium, both essential to plant growth. Additionally, they are a form of organic matter. Decomposing leaves enhance soil structure, help it to retain moisture, and encourage good root development. People pay good money for this. When you buy a bag of compost, it may very well have come from leaves.

Homeowners deal with leaves in a myriad of ways. While burning is perhaps the most fun, it's the most wasteful and environmentally damaging. Let's consider some other options.

The simplest way deal with fallen leaves, if the layer is not too heavy, is to mow them (without a catcher attached) until they are in pieces small enough to fall between the blades of grass so as not to smother your lawn. Dry leaves chop more easily than wet and it's best to get out there and mow more often rather than wait till they all fall. Use of a mulching blade may enhance your mower's ability to shred leaves. This is a good way to increase the organic matter content of your lawn.

Other ways to capitalize on the free fertilizer and organic matter your trees have bestowed upon you is to use the fallen leaves to mulch around trees, shrubs and in planting beds or add them to a compost pile. Many individuals choose to shred their leaves before mulching with them or composting. Shredding is not necessary but does provide an advantage by accelerating the decomposition process and reducing space requirements.

If you choose to compost your leaves, a bit of incorporated nitrogen may help the decomposition process. Nitrogen can be added with commercial fertilizers or with nitrogen-rich plant material, such as grass clippings. For more information on composting contact your local Extension Office or go on line at <http://www.ext.vt.edu/> and search "compost" for relevant publications.

I do a combination of the above. I like to allow a pile of leaves to sit on my garden through the winter and then till them in when spring comes. To do this, I rake the heaviest leaf fall areas and drag the leaves to the garden on a tarp. For most of the yard, I mow. Sometimes it takes a few passes but eventually the shredded leaves are small enough to fall between the blades of grass. Here they will decompose over winter while improving the soil.



Lastly, if you do not wish to deal with your leaves in any of the above ways, your municipality may have viable options. Check with your city or county for a leaf pick-up program or a drop-off site for leaves. Hopefully you'll find an option that doesn't waste this great resource.

*Adam Downing is the Forestry & Natural Resource Agent for Virginia's Northern District, [adowning@vt.edu](mailto:adowning@vt.edu), 540/948-6881.*

### EVENT CONTACTS

Contact	Name/Affiliation	Phone	e-mail/website
DCR	Department of Conservation & Recreation	804/786-1712	<a href="http://www.dcr.virginia.gov">www.dcr.virginia.gov</a>
AD	Adam Downing	540/948-6881	<a href="mailto:adowning@vt.edu">adowning@vt.edu</a>
PEC	Piedmont Environmental Council	434-977-2033	<a href="http://www.pecva.org">www.pecva.org</a>
HCEO	Highland County Extension Office	540/468-2225	<a href="mailto:mtngirl@vt.edu">mtngirl@vt.edu</a>
FWP	Forestry Webinar Portal	<a href="http://forestrywebinars.net">http://forestrywebinars.net</a>	
CCE	Clemson Cooperative Extension	<a href="http://www.clemson.edu/extension/natural_resources/continuing_education/nrol/registration.html">http://www.clemson.edu/extension/natural_resources/continuing_education/nrol/registration.html</a>	
BW	Bill Worrell	276/889-8056	<a href="mailto:bworrell@vt.edu">bworrell@vt.edu</a>
JF	Jason Fisher	434/476-2147	<a href="mailto:jasonf@vt.edu">jasonf@vt.edu</a>
NC	Neil Clark	757/653-2572	<a href="mailto:southeast@vt.edu">southeast@vt.edu</a>

## VIRGINIA FOREST LANDOWNER UPDATE



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Virginia Cooperative Extension  
Department of Forest Resources &  
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Virginia Tech  
Blacksburg, Virginia 24061

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# VIRGINIA FOREST LANDOWNER UPDATE

Events, news, and information promoting the stewardship of Virginia's forest resources.

### VIRGINIA FOREST LANDOWNER EDUCATION PROGRAM

Jennifer L. Gagnon, Editor  
Address all correspondence to:  
Virginia Forest Landowner Update  
228 Cheatham Hall (0324)  
Blacksburg, VA 24061  
ph: 540/231-6391; fax: 540/231-3330  
e-mail: [forester@vt.edu](mailto:forester@vt.edu)  
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## New Android App Helps Landowners Identify Trees in the Field

By John Peterson and John Seiler, Virginia Tech

The Dendrology at Virginia Tech website (<http://dendro.cnre.vt.edu/dendrology/factsheets.cfm>) offered by the Department of Forest Resources and Environmental Conservation (FREC) is a popular tree identification resource for forest landowners. The website provides information on 969 woody plants, a key for unknowns, and an "Ask Doctor Dendro" option for questions. Until now, however, this resource was not easily carried to the field.

Enter Bob Potts, a forest landowner, self-described amateur naturalist, a (mostly) retired programmer, and a frequent visitor to the Dendrology at Virginia Tech website. Potts approached the website creators, Dr. John Seiler and John Peterson, about the possibility of building a Google Android Application that would take VT Dendrology to the field. Potts' idea involved combining the VT Dendrology tree fact sheets and interview key with smartphone portability and GPS capabilities.



*Developers, (L-R) John Peterson, Bob Potts, and John Seiler, test the VTREE Android App in Blacksburg.*

Undaunted by a steep learning curve, the team went to work. Potts managed the heavy lifting involved with programming the App. Peterson created 3-D range maps and manipulated the database. Seiler lent his eye for design, stubborn product testing and end-user market research. Professional Web Application developer and College of Natural Resources graduate, Andrew Meeks, donated his time to solve technical issues. The result is **Virginia Tech Tree Identification**, a very powerful tool that is now available for landowners to use. For free!

**Virginia Tech Tree Identification** contains fact sheets for woody plants from all over North America with in-depth descriptions, range maps and thousands of color images of leaves, flowers, fruit, twigs, bark and form.

To identify a specific tree, users can narrow the species list for any location in North America using the phone's GPS, network signal, entered address or elevation. The application then becomes "Woody Plants of where ever you happen to be standing." For example, it can become the "Woody Plants of Southwestern Oregon," the "Woody Plants of Great Smoky Mountain National Park" or the "The Woody Plants of 37.108 lat., -80.452 long., elevation 2118."

Users can further narrow the species list by answering a series of very simple tree attribute questions such as: Where is it growing? What is the shape of the leaves? How are the leaves arranged? What do the flowers/fruits look like? If users have some knowledge of the species they are looking at, they can narrow the species list by typing a keyword such as oak, *Abies*, or palm. For example, typing *oak* results in a list which only contains oak species found in the defined area. Finally, users can send any tree-related question to Dr. Dendro, a tree expert in the FREC Department at Virginia Tech. Descriptions or photos of trees can be sent in and an expert will help with identification.

And, fans of Apple products, don't fret! The team will soon be working on an iPhone-friendly version of this App.

Download the Virginia Tech Tree Identification App from Google Play by searching for "Dendrology".

*John Peterson is a Laboratory Specialist Advanced in the Department of Forest Resources and Environmental Conservation, [jopeters@vt.edu](mailto:jopeters@vt.edu), 540/231-8942.*  
*John Seiler is an Alumni Distinguished Professor of Forest Biology in the Department of Forest Resources and Environmental Conservation, [jseiler@vt.edu](mailto:jseiler@vt.edu), 540/231-5461.*

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## Useful Resources

- Want to learn more about the emerald ash borer? Read Virginia Tech Entomology professor, Eric Day's, emerald ash borer fact sheet at: <http://pubs.ext.vt.edu/2904/2904-1290/2904-1290.html>.
- In the Winter 2012 edition of the VFLU, we featured articles about agroforestry practices. The Center for Agroforestry has a new publication *Profitable Farms and Woodlands. A Practical Guide in Agroforestry for Landowners, Farmers and Ranchers*. Obtain a free copy at [http://nac.unl.edu/profitable\\_farms.htm](http://nac.unl.edu/profitable_farms.htm).
- After the power line and tree damaging derecho in June, we've had many questions about protecting trees from storm damage. To answer these questions, visit Virginia Tech's Storm Damage Risk and Pruning website at: <http://urbanforestry.frec.vt.edu/stormdamage/>.

### CONTACT OUR SPONSORS AND STATE NATURAL RESOURCE MANAGEMENT AGENCIES:



Virginia Department of Forestry	Virginia Tech Department of Forest Resources & Environmental Conservation & Virginia Cooperative Extension	Virginia Forestry Association	Virginia Tree Farm Committee
900 Natural Resources Drive Ste. 800 Charlottesville, VA 22903 434/977-6555 <a href="http://www.dof.virginia.gov">www.dof.virginia.gov</a>	228 Cheatham Hall 0324 Blacksburg, VA 24061 540/231-6391 <a href="http://www.cnre.vt.edu/forestupdate">www.cnre.vt.edu/forestupdate</a>	3808 Augusta Ave Richmond, VA 23230 804/278-8733 <a href="http://www.vaforestry.org">www.vaforestry.org</a>	3808 Augusta Ave Richmond, VA 23230 804/278-8733 <a href="http://www.vaforestry.org/virginia_tree_farm.html">www.vaforestry.org/virginia_tree_farm.html</a>

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EVENTS CALENDAR			For the most complete listing of natural resource education events, visit the on-line events calendar at <a href="http://www.cnre.vt.edu/forestupdate">www.cnre.vt.edu/forestupdate</a>		
Contact	Date	Location	Event	Time	Fee
DCR	Oct. Nov. & Dec.	Virginia State Parks	<b>A variety of events and activities</b> For a complete list, visit: <a href="http://www.dcr.virginia.gov/parks">www.dcr.virginia.gov/parks</a> .	Varies	Varies
AD	Oct. 6	Madison	<b>Charcoal Makin' Open House</b> Join Virginia Cooperative Extension to learn about creating natural lump hardwood charcoal from waste wood. Samples of food cooked over the coals will be available.	8 - 12	Free
PEC	Oct. 7	Charlottesville	<b>Green Fire: Aldo Leopold and a Land Ethic for Our Time</b> This newly released documentary shares highlights from Aldo Leopold's life and extraordinary career, explaining how he shaped conservation and the modern environmental movement.	4:00	Free
HCEO	Oct. 8	Highland County	<b>Fall Forestry &amp; Wildlife Field Tour</b> Join natural resource professionals and landowners as we visit private, public, and industry lands to learn about wildlife management, wild versus prescribed fire, markets for your timber and Best Management Practices. The day will end with a tour of the fish hatchery and a discussion on raising trout.	8:30 - 4:45 check-in at 8:00	\$45/person*
FWP	Oct. 10	On-line	<b>A Practical Field Guide for Designing Conservation Buffers</b> Participants will learn to design vegetative buffers. Learn how buffers can be applied to protect soil, improve air and water quality, enhance fish and wildlife habitat, produce economic products, provide recreation opportunities, or beautify the landscape.	12:00	Free
CCE	Oct. 11, 18, 25, Nov. 1 & 8	On-line	<b>Natural Resource Opportunities for Landowners</b> This 5-session webinar series includes the following topics: Introduction to natural resource conservation; Natural resource enterprise considerations; Wildlife conservation; Forest management on your land; Natural resource appreciative values and uses such as recreation and stewardship.	7 - 8:30 p.m.	\$25/session or \$100 for all 5 sessions
BW	Oct.12	Wise County	<b>Fall Forestry &amp; Wildlife Field Tour</b> Join natural resource professionals and landowners as we learn about reclaiming former coal mine sites, protecting rural homes from wildfire, using prescribed fire for hardwood management, and growing woody biomass (specifically hybrid poplars) for biofuels.	9 - 4:30 check-in at 8:30	\$25/person*
PEC	Oct. 14	Gordonsville	<b>Fall Big Woods Walk at Montpelier</b> See the first sights of fall at Montpelier. Join the folks of Montpelier and take in the colorful autumn leaves on this guided tour of the 200-acre old-growth James Madison Landmark Forest known as the "Big Woods." The forest is designated a National Natural Landmark. The Big Woods Walk will begin at the Montpelier Visitor Center.	2:00	Free
FWP	Oct. 17	On-line	<b>The Restoration of the American Chestnut</b> This species was one of the most abundant and important trees of the eastern deciduous forest of North America, until decimated by chestnut blight, a disease caused by an exotic fungus. Learn about some of the recent progress made to restore this species.	12:00	Free
JF	Oct.19	Prince Edward County	<b>Fall Forestry &amp; Wildlife Field Tour</b> Prince Edward County has a rich history, from the Civil War to the Civil Rights movement. Join us as we explore the history and natural resources of this central Virginia county.	8:30 - 5:00 check-in at 8:00	\$30/person*
NC	Oct. 24	Charles City County	<b>Fall Forestry &amp; Wildlife Field Tour</b> Clean water, abundant and diverse flora and fauna, income and products, and an enriched spirit are some of the many benefits brought about by good forest management. This tour will take a jaunt down one of America's most historic highways. The John Tyler Memorial Highway in Charles City County showcases a jewel of Virginia in history, scenic beauty, and excellent land stewardship.	8:30 - 4:30 check-in at 8:00	\$45/person*
PEC	Oct. 27-28	Leesburg	<b>Vernal Pool Workshop</b> Morven Park, a 1,200-acre historic site just outside Leesburg, is partnering with Loudoun Wildlife Conservancy in a project to teach people how to restore or construct vernal pool habitats.	9 - 4:00	\$80*

\*Registration fee includes meal(s)

[Event Contacts on page 5](#)

## You Ain't From around Here! Exotic Invasive of the Quarter: Garlic Mustard (*Alliaria petiolata*) By: Jennifer Gagnon, Virginia Tech

The other day I was in the garden, looking at my 5-foot-tall horseradish plant, wondering when I should don goggles and rubber gloves and attempt a root harvest (I'm a little intimidated by the whole thing!). Horseradish is an invasive plant, so I always check carefully to make sure it hasn't spread outside the garden. Which got me to thinking about other edible invasives, namely garlic mustard, an exotic invasive so prolific, I can't believe I've gone 7 years without writing about it. This bugger is everywhere! In fact, in many woodland and floodplain environments in the Northeastern US, it is the dominant understory species.

Garlic mustard, which is indeed in the mustard family (along with cabbage and broccoli), has a lot of nicknames, such as garlic root, hedge garlic, Jack-in-the-bush, penny hedge, poor man's mustard, and my personal favorite, sauce-alone. This plant, native to Europe, western and central Asia, NW Africa, Scandinavia, and India, was first found in the US on Long Island, NY in 1868. Garlic mustard has been considered widespread and invasive since 2000 and is listed as noxious or restricted in AL, CT, MA, MN, NH, OR, VT, WV, and WA.

Like many of our invasive plants, garlic mustard was brought to the US intentionally – for culinary or medicinal purposes. The first-year leaves, flowers, and fruits have a mild garlic flavor and can be chopped up and used in salads and sauces (hence the nickname sauce-alone?). Unlike many of our invasive plants, which tend to reproduce in a variety of ways (recall our toothy friend hydrilla, with its 4 methods of reproduction!), garlic mustard only reproduces by seed, but it produces copious amounts of them (up to 7900 per plant). And it is capable of both cross and self-pollination (the self-pollinated plants produce clones).

But garlic mustard's success really lies in the fact that these plants are fierce competitors. Garlic mustard is the Ryan Lochte of the invasive world (without the grill).



A forest understory dominated by garlic mustard. Photo by: Daniel Herms, The Ohio State University.

First, garlic mustard produces secondary metabolites (such as glucosinolates, flavonoid glycosides and cyanide) which make the plants less palatable to herbivores, like deer. Deer browse on nearby native plants, essentially releasing the garlic mustard. Additionally, some studies link these metabolites to declines in mycorrhizal fungi in garlic mustard-infested soils. Mycorrhizae are present in healthy forest soils and form beneficial associations with the roots of native plants. These associations help increase root growth, reproductive success and competitiveness. Without them, many native species are at a strong disadvantage. And, there is some evidence that these metabolites may have an additional allelopathic effect, resulting in the exclusion of certain native species in close proximity to garlic mustard; however, the evidence is not conclusive.

Second, garlic mustard seeds remain viable (able to germinate) in the soil for up to 5 years, creating a large seed bank. Once plants are removed from a site, annual follow-up is necessary until the seedbank is depleted.

Third, although there are 69 species of insects and 7 species of fungi which keep garlic mustard under control in its native lands, these are not present in North American forests.

Finally, garlic mustard is one of the first bloomers in the spring, and second-year plants can get quite tall, allowing them to shade out slower and/or lower growing natives. Many native wildflowers (including spring beauty, wild ginger, bloodroot, Dutchman's breeches, hepatica, toothworts and trilliums) which are important sources of forage, pollen, nectar, fruits, seeds and roots, complete their lifecycles in the spring, and are being excluded from habitats with garlic mustard. These declines can have widespread ecological impacts. For example, declines in toothworts, the primary food for the West Virginia white butterfly larvae, are resulting in a decline of this already rare native butterfly.

### How to identify garlic mustard:

**Form** - In the first year, this biennial plant forms a rosette of leaves close to the ground which radiate out, spoke-like, from the central root stock. In the second year, the plants mature and reach 2-3.5' tall.

**Leaves** -The triangular to heart-shaped, strongly-veined, and slightly-wrinkled leaves grow from stalks, and have coarsely-toothed edges. First-year leaves can be up to 7" wide and will turn dark green to purple in the fall and overwinter in the snow. Second-year leaves are smaller (up to 2.5" wide) and grow from shorter stalks.

**Flowers** - Occur in dense button-like clusters on tall flower stalks (1-3.5'). The white flowers have 4 petals, are approximately 0.25" in diameter, and open in April-May.

### Garlic Mustard cont. from page 3



Images of garlic mustard first-year leaves, and flowers, seed stalks, and seedpods, formed in the second-year. Photos by: Tom Heutte, USDA Forest Service, Leslie J. Mehrhoff, University of Connecticut, Bruce Ackley, The Ohio State University, and Steve Hurst, USDA NRCS PLANTS Database.

**Fruits** - Seedpods grow on erect stalks formed from the flower clusters. The slender, 4-sided seed pods are 1-2.5" long, and are called siliques (how's that for a vocabulary word!). They start out green and turn tan when mature in June. Each pod contains 2 rows of shiny black seeds. The seeds do not float well and are probably not carried by wind, meaning long-distance dispersal is most likely a result of humans and wildlife.

**Roots** - Garlic mustard has a kinked taproot.

### How to get rid of garlic mustard

For small infestations, hand-pulling is effective, as long as all the root stock is removed. Second-year plants are easier to pull. Hand-pull, when the soil is moist, by grabbing the plant low on the stem. Ideally, plants should be pulled prior to flowering. Bag and remove all plants from the site, especially if they are in bloom, as they may have enough energy to produce ripe seeds. There are numerous native look-alikes (e.g., toothworts, trilliums, early saxifrage, and sweet cicely) so check to see if the taproot is kinked before pulling all the plants up. If hand-pulling isn't possible, wait until the plants bloom and cut the flower stalks (and bag and remove them from the site). This process will need to be repeated every year for at least 5 years to deplete the seed bank.

For widespread infestations, a foliar application of the herbicide glyphosate (the active ingredient in Roundup) is effective. Glyphosate is not a selective chemical, so it will kill any other species it comes into contact with. To minimize damage to desirable species, spray garlic mustard in early spring or late fall, when most native species are dormant.

To deplete the seedbank, monitor and repeat control measures annually. Reclaiming sites may require planting of native species.

And, as always, walk your property frequently to look for invasive problems. Anyone who has tried to clear 5 acres of kudzu (or multiflora rose or tree of heaven or any other species) knows it is far easier to control small infestations.

Jennifer Gagnon is a Project Associate in the Department of Forest Resources and Environmental Conservation, [jgagnon@vt.edu](mailto:jgagnon@vt.edu), 540/231-6391.

## Quarantine Updates

### Thousand Cankers Disease of Walnut

On July 21, 2011, the Virginia Department of Agriculture and Consumer Services (VDACS) established a temporary quarantine in an effort to prevent the artificial spread of this disease to uninfested areas of the Commonwealth. Effective January 2, 2012, the Thousand Cankers Disease Quarantine was made permanent. Localities included in the quarantine are Chesterfield, Goochland, Hanover, Henrico and Powhatan counties and the cities of Colonial Heights and Richmond. The quarantine prohibits the movement of all walnut plants and walnut plant parts, including logs, stumps, firewood, roots, branches, mulch and chips, out of the quarantined area.

### Emerald Ash Borer

VDACS has expanded the Emerald Ash Borer (EAB) Quarantine to include the entire Commonwealth of Virginia. This action became necessary after the recent detection of EAB in the counties of Buchanan, Caroline, Giles, Hanover, Lee, Prince Edward, Stafford and Warren. The quarantine previously included Arlington, Charlotte, Clarke, Fairfax, Fauquier, Frederick, Halifax, Loudoun, Lunenburg, Mecklenburg, Pittsylvania and Prince William counties and the cities of Alexandria, Danville, Fairfax, Falls Church, Manassas, Manassas Park and Winchester.

Under this statewide quarantine, the regulated articles, which include ash trees, green (non-heat treated) ash lumber and ash wood products, as well as hardwood firewood, are no longer subject to localized movement restrictions and may now move freely within the state.

For additional information about these quarantines contact VDACS at 804/786.3515, [www.vdacs.virginia.gov](http://www.vdacs.virginia.gov).