

Firewood Tips cont. from page 1

Tree-of-heaven is a common nonnative pest species that seeds into the landscape and can take over old fields. It grows straight and is easy-splitting, with burning qualities that are similar to maple. Avoid this species for firewood, even if a friendly logger offers it for free. The creosote produced by tree-of-heaven coats your chimney like obsidian, and it is really hard to scrape off.

Silver, red, and Norway maples get to be large trees with massive trunks and are common street trees. While maples are fine firewood for chilly days, urban maples have often been repeatedly topped and they are full of reaction wood, especially in the lower bole and in the big branches. This reaction wood can be very difficult to split. I've pushed several large bole sections into the woods and called them "wildlife habitat."

Use caution when splitting blackgum and sourwood. While they are locally abundant trees that can often be had for firewood, split them at your own risk. Some stove length pieces split fine, but random pieces will have an interlocking and twisted grain that will rattle your teeth and might make you lose a filling. Surprisingly, I have seen this phenomenon in cucumbertree, which is related to the VERY easy-splitting tulip-poplar.

Black walnut and hickory are closely related but burn very differently. The various hickories are some of the best firewood you can burn. Hickory wood is heavy and the smoke is so flavorful that people use it to smoke pork. Walnut seems to be flame-retardant unless it is very well seasoned, and it produces a thick acrid smoke that almost always seems to make its way back into the house. Beware black locust because it can cost you future help. I had a friend pursuing his PhD who wanted to help with firewood for the exercise and outdoor time. I selected a standing dead locust and we set to work. After cutting and splitting this tree, he never came back. Green black locust splits relatively easily, but standing dead black locust apparently turns to iron as it dries. This tree was so tough that it prompted me to give in and start looking for a wood splitter.

Learning the characteristics and barks of your stove wood is very important. You can actually match the species with the temperature for the day. For cool days that need just a quick warm-up, pine, tulip-poplar or yellow buckeye work great. Save cherry, maple, and (emerald ash borer-killed) ash for cooler days, and burn your hickory, oak and locust on the coldest days. I have learned to layer these in the woodshed, so that the light species are in the front. As the days get colder I mine back to the white oak. Likewise, I try to mix small diameter stove wood with large diameter. Small to get the fire going, large to sustain it. Small diameter stock is more important at the beginning and end of the season.

I write this essay at the end of a long winter that saw around 150 fire lightings and rekindlings and the burning of more than three full cords of wood. I might hang my head at the thought of going home to rekindle yet another fire tonight, but this writing is actually making me nostalgic for the curl of smoke from the first fire of the year on a cold and wet October night. Or maybe that first fire will be in September. I do have a glut.

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Firewood Survey cont. from page 4

owners, and firewood sellers. The study is led by Dr. Eric Wiseman, associate professor of urban forestry in the Department of Forest Resources and Environmental Conservation at Virginia Tech. His collaborators include Dr. John Munsell - an expert at Virginia Tech on private land stewardship and landowner behavior; and Dr. Mikaela Schmitt-Harsh - a faculty member at James Madison University who specializes in human dimensions of urban forestry. The study is supported in part by a US Forest Service grant obtained by VDOF. Also partnering on the study is the North Carolina Forest Service, which shares this interest to understand and promote firewood use.

- Earlier this year, researchers sent a survey to 5,000 households across Virginia and North Carolina. The study was designed to target single-family dwellings in distinct geographic regions of each state and strategically sample a mix of urban and rural households. By the end of data collection in April, the researchers had received nearly 800 survey responses. Analysis of the survey data is underway and expected to conclude this summer. The preliminary findings provide insight as to how folks use firewood and perceive its use:
- About 58% of survey respondents indicated they had burned firewood in the past three years and the most common use was burning firewood outdoors at home for cookouts and other leisure activities.
 - About 33% of survey respondents burn firewood for home heating and about half of those heat with firewood frequently.
 - Gathering firewood on personal property or other private property is the most common source of firewood for home heating; purchasing firewood is more common for outdoor recreation at the home or while on vacation.
 - The most important uses of firewood were leisure activities, forest health improvements, and reducing fossil fuel use.
 - Over half of respondents agreed that firewood is easy to find, is a sustainable energy choice, and connects people with nature.

Anyone interested in receiving a summary of the study findings later this year can sign up to be placed on a list at <https://tinyurl.com/FirewoodStudy>. Additional background details about the study are available at <https://firewood.frec.vt.edu>.

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VIRGINIA FOREST LANDOWNER UPDATE

SUMMER 2021



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

VIRGINIA FOREST LANDOWNER EDUCATION PROGRAM

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Firewood Tips from a Warmth-Loving Tightwad By: John Peterson, Virginia Tech

Living on the farm for the last 5 years has yielded some tremendous perks. For the first time in my adult life, I have a glut of firewood. Not enough to sell – I don't produce at THAT level – but it is definitely a glut. While not quite at energy independence, I suppose we could call this glutted state heat independence. For you to fully appreciate the joy surrounding my newfound wood security, you will need some background.

I started burning wood in 1994 and have never reconsidered. I remember this date precisely because a character trait, a deduction, and a weather event all collided that winter. First the character trait. I'm a tightwad, and as such, it always irked me to write that monthly check to the electric company. A new homeowner, I quickly deduced that the annoying whir of my spinning electric meter was intensified by my electric baseboards. Even more annoying than the whir of the meter was the sudden cessation of that whir with the two horrific ice storms Montgomery County experienced that winter. After 10 days with no power, I swore to never be cold (or even chilly) again. As soon as the weather lifted, I inspected the abandoned chimney and begged my father to bring over his old wood stove.

I suppose that I had actually earned that wood stove with my child labor. Way back then, it was expected that children participate in chores, and my chores included helping cut the 4 full cords of firewood that we burned every year. I even had my own Stihl 021 and splitting maul.

Although happy with my decision, I soon realized I had a supply issue. While the ice storms provided an immediate source of wood in the neighborhood, there was no sustainable way to cut enough firewood from my half-acre suburban yard.

In my quest for fire over the intervening years, I have burned wood from almost every imaginable local source and species. Local wood was not necessarily selected for forest health reasons, but for tightwad reasons. And I had to haul it with my minivan-pulled trailer. Consequently, if friends needed an apple tree removed, I was there with my minivan. Wood scraps discarded from a Virginia Tech study? "I'll take them!" Trimmings from under power lines were hauled away. Ad in the paper for a pickup truck full of split wood? Too pricey, but from the local logger I bought a load of full-length hardwood junk trees and cut them up in the yard. In hindsight, the neighbors were patient folks.

Moving out of suburbia to a 70-acre farm has afforded me the luxury of having an infinite amount of wood to cut. From trees that have fallen across roads, been struck by lightning, and removed in forest management activities (such as invasive species, poorly formed trees, and undesirable species), I can't keep up with cutting it all. Hence, the glut.

Lessons Learned

Unless you have a wood stove with a catalytic converter, it is fine to burn some pine. Mix it in with hardwood for best results. Pines have high heat content per unit weight and are great to heat up a house quickly. To reduce creosote, allow pine to burn with a little more air. Do not, under any circumstances, burn a large amount of pine taproots. Taproots in small quantities are called fatwood and are prized for lighting fires. If you should luck into a large discarded study of loblolly pine taproots you should keep walking and avoid this nearly certain chimney fire.



The woodshed midway through winter 2020-21. Photo by Jennifer Gagnon, Virginia Tech.

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EVENTS CALENDAR			For the most complete listing of natural resource education events, visit the on-line events calendar at https://forestupdate.frec.vt.edu		
Contact	Date	Location	Event	Time	Fee
DCR	July, Aug., & Sept.	Virginia's State Parks	A variety of events and activities For a complete list, visit: www.dcr.virginia.gov/parks	Varies	Varies
MP	Year-round	Statewide	Virginia Master Naturalist Volunteer Basic Training*** Some Master Naturalist chapters will be holding summer training courses for new volunteers, if conditions allow. Visit http://www.virginiamasternaturalist.org/chapters-a-map-and-contacts.html for a map of chapters and information on training schedules and application procedures as they become available.	Varies	Varies
15Forest	Fridays	Online	Fifteen Minutes in the Forest Join Virginia Cooperative Extension's Forestry Team (and their special guests) each Friday for a video on a natural resources-related topic. View previous videos on our YouTube Channel.	12:15	Free
JG	July 12 - Oct. 1	Online	Summer 2021 Online Woodland Options for Landowners This 12-week, on-line, self-paced class will teach you the basics of woodland management. Topics include: tree ID, woodland ecology, sustainability, soils, mapping, and silviculture. Registration includes a hands-on field trip and 5 books.	NA	\$45/family
JG	Aug. 27- 28	Galax	Southwest Virginia Beginning Woodland Owner Retreat *** This entry-level program covers the basics of keeping your woods and wildlife healthy and productive, while working towards meeting your ownership goals. A combination of classroom, field-trip, and hands-on activities are used to explore these concepts of sustainability. Registration is open!	Aug. 27 7:30 - 6 Aug. 28 7:30 - 1	No Lodging: Individual - \$55* Couple - \$90* Lodging: Individual - \$95** Couple - \$170**
TB	Aug. 27-29	Rutland, OH	Southern Ohio Forest Farming Conference***	TBA	TBA
KS	Sept. 8, 9, 15 & 16	Online	Legacy Planning: A Webinar Series for Woodland Owners Join the Generation NEXT Team to learn about steps for successful legacy planning. Registration fee includes a copy of the new publication: Legacy Planning: A Guide for Virginia Landowners.	3 - 4:30	\$25/family
JG	Sept. 24-25	Providence Forge	Southeast Virginia Beginning Woodland Owner Retreat*** See description of SW Retreat above. Registration opens in July.	Sept. 24 7:30 - 6 Sept. 25 7:30 - 1	Same as SW Retreat
JG	Oct. 22-23	Appomattox	Central Virginia Beginning Woodland Owner Retreat*** See description of SW Retreat above. Registration opens in August.	Oct. 22 - 6 Oct. 23 7:30 - 1	Same as SW Retreat
JG	October TBA	Virginia	Fall Forestry & Wildlife Field Tours*** Join VCE and partners for tours of sustainable woodland and wildlife management practices, wood product manufacturing facilities, and fellowship with woodland owners.	All day	\$45*/person; \$80*/couple
Real Forestry for Real Estate classes will resume in the winter of 2021-22. Stay tuned for details!					
*Meals included; **Meals and Lodging included; ***All current COVID-19 protocols will be followed.					

EVENT CONTACTS			
Contact	Name/Affiliation	Phone	e-mail/website
DCR	Virginia Department of Conservation & Recreation	804-786-6124	www.dcr.virginia.gov
MP	Michelle Prysby	434-872-4580	www.virginiamasternaturalist.org
15Forest	Fifteen Minutes in the Forest	ZOOM live: https://virginiatech.zoom.us/j/97509089739 YouTube: https://www.youtube.com/c/VirginiaForestLandownerEducationProgram Facebook live: www.facebook.com/VFLEP	
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You Ain't From Around Here! Moving Firewood is Still a Very Bad Idea By: Jennifer Gagnon, Virginia Tech

Two beetles, a disease complex, a moth, and a leafhopper climb onto some firewood...I'm certain there is a joke here somewhere. But actually, these critters, plus firewood, equal a problem that is no laughing matter!

Back in the Summer of 2007, in what seems like a previous lifetime, I wrote a "You Ain't from Around Here" column called: "Don't Move Firewood" (<https://tinyurl.com/VFLUFirewood>). Just about everything in my life has completely changed since then. But one thing that hasn't changed is that moving firewood is still a very bad idea! To help emphasize why moving firewood is a risky proposition (and in keeping with this edition's firewood theme), I'm revisiting some nonnative invasive species that are moved around via firewood.



The first nonnative invasive species I ever wrote about for the VFLU was the gypsy moth (<https://tinyurl.com/VFLUGypsyMoth>). The larval form of the gypsy moth (*Lymantria dispar*) feeds on leaves, preferably of oaks (although when populations are extremely high, they have been known to eat grass). Since 1970, the gypsy moth has defoliated over 75 million acres of forestland, resulting in \$22 million annually in damage and management costs. Generally, a single defoliation event will not kill a tree; however, two to three continuous years of defoliation, in conjunction with other stresses (e.g., drought) usually result in tree death. Gypsy moth populations are cyclical and may be affected by weather, abundance of natural predators, and extent of control operations. Although Slow the Spread Efforts have been successful, the gypsy moth quarantine was recently expanded deep into southwest Virginia.

The Fall 2008 VFLU featured an article on the emerald ash borer (EAB) (<https://tinyurl.com/VFLUEAB>). That summer, EAB (*Agrilus planipennis*) had been confirmed again in Fairfax County (there was a prior infestation in 2003 that was thought to be eradicated). The EAB is a small metallic green insect that lays eggs in the bark of ash trees. The larvae hatch and feed on phloem (the living tissue just under the bark). This eventually disrupts the transportation of sugars in the tree, leading to death. Since its initial detection in SE Michigan in 2002, and despite vigorous quarantine efforts, the EAB has continued to spread throughout the native range of ash. The infestation is so severe that as of January 14, 2021, all domestic quarantines prohibiting the movement of ash materials were deemed ineffective and were lifted. The economic impact of the EAB is estimated to be over \$282 billion.



In the fall of 2010, the Virginia Forest Landowner Update (VFLU) featured an article on thousand cankers disease of black walnut (<https://tinyurl.com/VFLUThousandCankers>), shortly after the first occurrence of the disease in the native range of black walnut (Tennessee). Thousand cankers is a disease complex that attacks walnut trees. The fungus, *Geosmithia morbida*, is introduced into black walnut by the walnut twig beetle, *Pityophthorus juglandis*, causing small cankers under the bark. The beetle introduces the fungus while it tunnels beneath the bark. As more beetles attack the tree, the number of cankers increases until they coalesce to girdle twigs and branches, restricting movement of nutrients and eventually killing the tree. Thousand cankers disease has become established in Virginia and has the potential to spread to uninfested areas by natural means or through the movement of infested articles.

A year after that article was published, the first occurrence of the disease was found in Chesterfield County, Virginia. As a result, areas of Virginia were put under quarantine. Fortunately, this disease has not spread aggressively and may be less of a concern than was originally feared. Hopefully it will stay that way because potential economic losses from this disease are in the billions.



The spotted lanternfly (*Lycorma delicatula*) was featured in the spring 2016 edition of the VFLU (<https://tinyurl.com/VFLUSLF>), and at that time had yet to be found in Virginia. Unfortunately, not long after, in January of 2018, it was first identified in Winchester and then in Frederick County, Virginia. Soon after, a quarantine was established for these areas.

All life stages of the spotted lanternfly feed on the phloem and consume massive amounts of sap. They also excrete substantial amounts of sugary liquid (honeydew), that harbors mold. Affected trees will have weeping wounds, resulting in accretions of honeydew around their bases. The bases of the trees and the surrounding soil turn black from sooty mold fungal growth. This invites not only disease, but also bees, wasps, hornets, and ants. In the native range of the spotted lanternfly, these impacts do not normally kill host plants; absence of natural predators outside their native range, however, can lead to over-infestation and cause diseases and mortality.

And while the food of choice for these insects is tree-of-heaven, unfortunately they feed on many desirable species as well. Affected species include apples, plums, cherries, grapes, peaches, nectarines, hops, apricots, almonds, pines, oaks, walnuts, poplars, willows, maples, and sycamores. As such, these insects could have a significant negative impact on Virginia's forestry, brewery, fruit, and viticulture industries.

Don't Move Firewood cont. from page 3

And last, but not least, is the Asian long-horned beetle (ALB) (*Anoplophora glabripennis*) featured in the Spring 2019 edition of the VFLU (<https://tinyurl.com/VFLUALB>). As of this writing, the ALB has not yet been identified in Virginia, but it has since been found in South Carolina.

Ultimately, ALB kills the trees it infests. Mortality is a result of multiple types of damage from all life stages of the insect. The most notable damage is caused when the adults exit the tree in the spring leaving very large (0.5" diameter), perfectly round exit holes in the wood and bark. These holes are visible all year and can be found on the main stem of the tree, branches, and exposed roots. These holes can produce excessive sap, attracting secondary insects and diseases to the tree.

ALB enjoys a wide variety of Virginia's native hardwood species. In fact, it feeds on species of ash, birch, elm, sycamore, maple, buckeye, mountain ash, poplar, and willow. All these species can support the full life cycle of ALB - from egg to adult - resulting in much damage.

Because all of these critters discussed above can be spread by moving firewood, a rule of thumb is to not move wood more than 50 miles from its source.

But, if you can't haul firewood from your home to your campsite, how can you still enjoy a cozy campfire? Many campgrounds will sell firewood for use on site or allow gathering of firewood (but at popular campsites, this may be hard to come by). Or you can buy certified heat-treated firewood. If you purchase/gather firewood at your destination, burn it all (or give leftovers to your neighboring campers). Don't bring unused firewood back home with you.

Visit the sites below for more detailed information on the insects and disease discussed in this article and on NOT moving firewood.

- Asian longhorned beetle <https://www.aphis.usda.gov/aphis/resources/pests-diseases/asian-longhorned-beetle>
- Don't Move Firewood <https://www.dontmovefirewood.org/>
- Emerald ash borer information network <http://www.emeraldashborer.info>
- Firewood Scout <https://firewoodscout.org/faq/>
- Gypsy moth quarantine <http://www.vdacs.virginia.gov/plant-industry-services-gypsy-moth.shtml>
- Gypsy moth slow the spread <https://www.gmsts.org/about.html>
- Spotted lanternfly.com <https://spottedlanternfly.com/>
- Spotted lanternfly quarantine: <https://tinyurl.com/SLFQuarantine>
- Virginia's firewood regulations <https://www.dontmovefirewood.org/map/virginia/>
- Thousand cankers <https://thousandcankers.com/>



Enjoy your summer outdoor adventures safely. Or recklessly if you prefer. Please just don't move firewood!

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Image credits: Gypsy moth caterpillar: Unknown Author, licensed under CC BY-SA; Emerald ash borer: PA Department of Conservation and Natural Resources Forestry; Spotted lanternfly: Lawrence Barringer, Pennsylvania Department of Agriculture, Bugwood.org; Asian long-horned beetle: Steven Valley, Oregon Department of Agriculture.

Virginia Tech and Virginia Department of Forestry Collaborate on Statewide Study of Household Firewood Use By: Eric Wiseman, Virginia Tech

Harvesting and burning firewood are among the best-known and best-appreciated aspects of forest utilization and stewardship. As a forest stewardship tool, firewood harvesting can be used to improve timber stands, reduce wildfire hazards, and eliminate invasive plants and pests. The sale and use of firewood also create a revenue stream from low-grade timber stands or from small forest tracts that cannot support a large-scale timber harvest. Firewood production is also gaining interest in urban areas as municipalities seek sustainable and revenue-generating options for dealing with large volumes of waste wood from both public and private lands. Bistros, breweries, and backyard barbecues drive demand for firewood in urban areas. All this firewood is a valued renewable source of heat, amenity, and recreation for both rural and urban inhabitants.

How do we connect firewood producers with firewood consumers so that firewood markets are viable and firewood harvesting can be leveraged as a forest stewardship tool? That is one of the goals of the Forest Utilization and Marketing Program of the Virginia Department of Forestry (VDof), which has been collaborating with Virginia Tech on a statewide study of household firewood use. The aim of the research is to generate data that VDof can use to guide its technical assistance programs for land managers, forest