

Vermont Woodlands Association and Vermont Tree Farm Program

A VOICE FOR HEALTHY FORESTS

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MEMBERSHIP NEWSLETTER



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Vermont Woodlands Association is a 501(c)(3) nonprofit corporation whose mission is to advocate for the management, sustainability, perpetuation, and enjoyment of forests through the practice of excellent forestry that employs highly integrated management practices that protect and enhance both the tangible and intangible values of forests - including clean air and water, forest products, wildlife habitat, biodiversity, recreation, scenic beauty, and other resources - for this and future generations. VWA objectives are to communicate the benefits of working forests, recognize exemplary actions of woodland owners and managers, provide educational opportunities, and represent its membership before governmental bodies.

The **American Tree Farm System**, first organized in 1941, is the Nation's oldest certifier of privately owned forestland. Tree Farm members share a unique commitment to protecting watersheds and wildlife habitat, conserving soil, and providing recreation; and at the same time producing wood products on a sustainable basis. The Vermont Woodlands Association strives to educate, train, and support private forest landowners in sound management practices concerning wildlife, water, wood, and recreation. We do this by managing and enhancing the American Tree Farm System® Program in Vermont.



NEWS FROM VWA

Lessons from a Hemlock

by Kathleen Wanner, Executive Director

It intrigues me how common things can often present opportunities for learning that were right under my nose for years. For nearly two decades, I've been "schlepping stuff" around the state and the region to set up exhibits for VT Woodlands. And you've probably heard me say that this is my favorite thing to do... to schmooze with the public and regale them with all the wonderful stories from such a vibrant and active organization. Quite often, though, I'm also gifted with learning from those who stop to visit. That was the case at this year's Farm Show. And it was quite peculiar the way it happened.

Our Hemlock tree cookie has been a staple of the VWA exhibit. It was

harvested in Randolph on a job that Paul Harwood managed. At about 3' in diameter, it was 317 years old when harvested. We know this because Put took it to an engineering school where they counted the inner rings with a high-powered electron microscope and discovered that in 100 years it grew only 2 inches. It's a wonderful story that truly amazes most people. You can see from the photo how we've used it to record events in history and particularly, the tree farm program.

At some point, I learned that hemlock is quite tolerant of shade and thus can patiently wait its turn. In conversation with visitors, we enjoy speculating on what might have happened in the forest



to finally give the then centenarian its opportunity to reach the sun.

This year, I was chatting with Bill, a landowner from New Hampshire who reminded me of my younger 1960s self. He suddenly said, "Boy, if only people could be as patient and tolerant as that Hemlock." Oh my! Why hadn't I thought of that before? And how would I craft my new tree cookie narrative to include this revelation? So I started to try it out with a few unsuspecting friends from the Working Lands Board.

Not only was I able to make a case for how much we all could learn about patience and tolerance from this magnificent Hemlock but I also had another AHA! moment while talking. Standing in the forest among its neighbors, the full story of the Hemlock was unknown. It had "look alike" kin but the breadth and bounty of its life was only revealed from the inside. Another life lesson!

I had several more opportunities to share my newly discovered story but the real question is... can I take these lessons from the Hemlock and learn to incorporate them into my own life? Perhaps as I walk through my own stand of Hemlocks, I'll be reminded of these powerful yet subtle life lessons. I sure hope so!



PRESIDENT'S COLUMN

The Lombard Log Hauler and Joseph Peavey

by Put Blodgett, *President*

Alvin Lombard, a native Mainer, was working on pulp mill patents when he was asked by a principal of Lawrence, Page and Newhall, Maine lumbermen, to invent something to replace horses for hauling logs long distances. In two days, he came up with the radical plan of a locomotive on caterpillar tracks. The first log hauler was patented on May 21, 1901 and built by the Waterville Iron Works.

Around the same time two California firms were pioneering similar ideas although one or both had to pay Lombard \$60,000 for patent rights. After lengthy legal battles, these two firms combined in 1925 into what is now known as the Caterpillar corporation today.

The first Lombards were made of cast iron which made them extremely heavy and subject to frequent breakage. The front rested on sled runners similar to a bob sled and was turned by one or two horses. It soon evolved to a man sitting at the front and turning a geared wheel to steer the runners. But cinders from the early wood burners rained down on him and a shed-like structure became standard to protect him.

Horses were still used for skidding from where trees were felled to the landing. As late as 1930, the Great Northern Paper Company of Millinocket owned more than 1,000 horses.

But the Lombards could haul up to eight sleds of logs long distances. For the long-distance hauling operation to be efficient it required three sets of sleds—one being loaded at the landing, one in transit and one being unloaded at the terminal. Big tubs of water on sleds with sprinkler attached watered the haul roads at night to freeze them in and make for easy sliding. But the haul roads had to be fairly gentle with no steep grades as the Lombards had no brakes and with the weight of the Lombard and several loaded sleds it made for a hairy ride downhill.

A 1907 operation had a haul distance of 7.5 miles with an actual speed of 4.6 miles per hour. Some operations had even longer hauls of up to 14 miles. The Lombard could haul 5 to 8 sleds at a time, depending on road conditions, and each sled loaded with 5,000 to 6,000 feet of logs.

Smaller, gas-powered Lombards eventually came into use. They were not able to haul as many sleds as their heavier predecessors but were smaller and more maneuverable and less likely to break down. I saw a couple of these in a storage shed at Churchill Depot on my first trip down the Allagash in the late 1960s. Diesel powered tractors started replacing gasoline in the 1930s.

It is ironical that the caterpillar, or as it was sometimes called 'track laying,' tread invented by Lombard became



Put Blodgett

the means of travel for the bulldozers that built the woods roads that allowed trucks to access the log landings and eliminated the need for the long-haul Lombards!

But we must never forget that the idea of the endless caterpillar tread that enables tanks and bulldozers the world over came out of the logging industry in the Maine woods!!

Another invention from the Maine woods, although not as earth shaking as the endless track, but very important to loggers, was the peavey. Moving logs, especially on log drives, was done by two-man crews. One had a long handle with a spike in the end, the other a long handle with a ring around it near the bottom to which a hook was attached that flipped and flopped and had to be set by hand. In 1858, a Stillwater, Maine blacksmith named Joseph Peavey was watching a log drive from a covered bridge. He had the eureka idea of securing the hook between two ears towards the bottom of the handle with the spike at the end of the same tool. From that time until mechanization, peaveys moved most of the logs that had to be handled by men. Two crossed peaveys mark his gravestone.

While Joseph Peavey's combination is generally properly given his name, it is sometimes called a cant dog or cant hook. Sometime in my youth I was told that it was because the old swinging

hook “can’t” dog or hook without being placed by hand. More recently, I was reminded that a cant is a log that is being or has been squared on a saw mill

carriage. Before automation, a small, short-handled peavey-like tool with a lip on the end rather than a spike, was used by a man to flip the cant so another side

could be squared immediately after the previous cut. This tool seems the more logical to be known as a cant dog.



Welcome New VWA members

Many thanks to all who have decided to join VWA. Our Voice for Healthy Forests is stronger because of you. No matter how you found us, we appreciate that you did. Every member makes a difference.

- Robert Gaiko, *Bethel VT*
- John Thoren, *St. Albans, VT*
- Donald Glendenning, *Wallingford, VT*
- Peter Lind, *No. Clarendon, VT*
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- Eric Gauthier, *Colchester, VT*
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- Wright C. Preston, *Richmond, VT*

Welcome New Tree Farmers

1723 & 1737 Town of Bennington
1735 Brian & Sandra Thomas, Shrewsbury



Thanks to our Tree Farm Inspectors

The success of the Tree Farm program is totally dependent on a dedicated corps of inspectors who help us uphold the high standard of excellence. We wish to thank our inspectors who enrolled new tree farms or completed inspections for us in the last three months.

- | | | |
|----------------|-----------------|--------------|
| Kathy Beland | Leonard Miraldi | Richard Root |
| Markus Bradley | James Roberts | Sam Schneski |

Information and Guidance to a Successful Timber Harvest



Timber harvests come with a lot of questions—some answers you need to know, some you don't. To help you answer those important questions about your woods, the Vermont Department of Forests, Parks and Recreation has created the **Landowner Guides to a Successful Timber Harvest**. They're simple and concise guides that handle topics including: Overview of a timber harvest, Water, Wildlife, Economics, and Working with Foresters and Loggers. Download the series or just the booklets that pertain to you at VTCutwithConfidence.com.

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NEWS FROM VERMONT DEPARTMENT OF FORESTS, PARKS & RECREATION

Sugaring in Vermont: A Snapshot

by Keith Thompson

In 2018, an estimated 47% of the country's maple syrup crop came from Vermont. Now the national leader in maple syrup industry, Vermont continues to increase the number of taps, the acres of forestland sugared, and the total production. From 2004 to 2018, the number of taps reported by the National Agricultural Statistics Service increased from 2,100,000 to 5,670,000, and syrup production from 500,000 gallons to 1,940,000 gallons. The value rose from \$14 million in 2004 to \$53.4 million in 2017. While these numbers stem from the best available data source, survey results likely underrepresent the number of taps, production volume, and value. Therefore, the contribution of sugaring to Vermont's economy and to the livelihoods of those in the industry is even greater than we know.

The Current Use program plays a major role in supporting sugaring and provides a method for analyzing this important management activity that affects our forests. Sugarbushes can be enrolled in the forestland or agricultural category of the program (by landowners' choice) but, note that sugarbushes enrolled in the forestland category must be described in a forest management plan and be managed according to the Minimum Management Standards established by the Commissioner of the Department of Forests, Parks and Recreation (FPR). To complement these standards, FPR developed the Sugarbush Management

Standards and Tapping Guidelines that set requirements and guidelines for management and tapping of trees in sugarbushes based, in part, on research out of Proctor Maple Research Center and the University of Vermont.

Data on sugarbush enrollment in the forestland category exists in hard copy management plans, making program-wide analysis difficult. However, in Franklin County, where sugaring operations have grown significantly, FPR's Franklin County Forester mapped parcels with sugarbushes enrolled in Current Use. The findings of the analysis are summarized here: *

- Current Use Forestland: 130,000 acres on nearly 1,100 parcels.
- Sugarbushes in Current Use: 455 parcels, totaling 39,960 acres.
- Forestland: 379 parcels enrolled, totaling 34,684 acres.
- Agricultural land: 77 parcels enrolled, totaling 5,276 acres.

*Equivalent data have not been compiled for other counties; to do so would require individual evaluation and mapping of 14,000 management plans and their associated stands. Based on experience, we believe that a higher percentage of Franklin County is managed for sap production than other counties, and therefore the data for Franklin County is not representative of the rest of the state.

In 2018, a new Forest Management

Activity Report (FMAR) was developed by FPR that now requires reporting on the total number of taps by parcel on Current Use enrolled forestland. The change enables FPR to better monitor management activity on enrolled forestland and, over time, will vastly improve the reliability of data on sugaring operations in Vermont and the ability to track it over time. The article *New in Current Use: Reporting Taps on the Forest Management Activity Report Form* discusses this requirement in more depth in following article.

New in Current Use: Reporting on Sugaring Activity

The Vermont Current Use program helps to conserve the state's working landscape and rural character by keeping forestland ownership affordable, connecting landowners to their land, and helping landowners protect the health of their forests. It also insures that parcels enrolled in the forestland category contribute to the forest economy through active management. Since its inception nearly 40 years ago, the Current Use program has enrolled over 15,000 forested parcels covering nearly 2 million acres of forestland. These forests all contribute valuable benefits

to Vermonters, including clean air and water, wildlife habitat, forest products, maple syrup, fall foliage, tourism, and outdoor recreation.

To help track the forest management occurring on enrolled forestland and the program's outcomes, landowners report on their management activity through the Forest Management Activity Report (FMAR) form. For years, this form has included a section for reporting of harvested timber volumes yet has never included a component to track tapping activity. Without specific information on the tapping that is occurring on enrolled forestland (where, when and how much), the Current Use program suffers from a blind spot. To track this important management activity, the

FMAR form has recently changed to require the reporting of taps. A couple details about the new requirement include:

Tapping that occurs this year, 2019, will need to be reported on a Forest Management Activity Report, due February 1, 2020.

Once taps are reported, where tap counts are stable, annual reporting of tapping activity is not always required. Specifics are available on the instructions for the form on the Forests, Parks and Recreation website at the end of this article.

Reporting through FMARs is an essential component of the program which helps to ensure compliance with

management plans, maintain integrity of the program, and better understand the good work the program does for Vermont and Vermonters.

Questions about these requirements should be directed to your county forester. The forms are available on the Department of Forests, Parks and Recreation website at https://fpr.vermont.gov/forest/your_woods/use_value_appraisal

For more information about sugaring in Vermont, see previous article on Sugaring in Vermont.

Vermont Native Plants vs. Invasive Plant Look-a-likes: Invasive Honeysuckles vs. native honeysuckles

by Elizabeth Spinney, *Invasive Plant Coordinator, Vermont Department of Forests, Parks & Recreation*

Winter walks through the woods can reveal many things to us—the tracks of our wildlife neighbors, the contours of the landscape, and with a practiced eye, the overwintering branches of woody understory plants like honeysuckle. In New England, there are present many members of the honeysuckle family (*Caprifoliaceae*), including native plants like American honeysuckle (*Lonicera canadensis*), and bush honeysuckle (*Diervilla lonicera*). However, several species of the genus *Lonicera* are considered invasive in

Vermont, including Amur honeysuckle (*L. maackii*), Morrow's honeysuckle (*L. morrowii*), Tatarian honeysuckle (*L. tatarica*), and Bell honeysuckle—a hybrid of Morrow's and Tatarian—(*Lonicera x bella*).

These invasive honeysuckles were introduced from Europe and Asia in the 1800s, primarily as ornamental plantings. In the 1960s, invasive honeysuckles were also utilized for erosion control and wildlife cover, and remained in use for several

decades before the full invasive nature of these plants was realized. Amur honeysuckle is rare in Vermont, and Morrow's, Tatarian, and the hybrid Bell honeysuckle are more common across the state.

During the growing season, these perennial plants have green, oval shaped, oppositely arranged leaves. These shrub species can grow from 6-20' in height.

INVASIVES, *continued next page*

INVASIVES, *continued from pg. 7*



Fruit and leaves of an invasive honeysuckle. Photo- E. Spinney, VT FPR

Flower color ranges by species, Morrow's has white to yellow flowers, Tatarian has pink, red or yellow flowers, and Amur has purple, white or yellow flowers. The flowers turn to twinned fruits in the fall that are orange to red.

Both of Vermont's native honeysuckles are widely distributed across the state, and at a quick glance, offer similar characteristics as the invasive honeysuckles. Regardless of the time of year, there is a consistent way to differentiate invasive shrub honeysuckles from Vermont's native honeysuckles. Break off a branch of older growth (indicated by the shaggy, brown-grey bark) to observe the center of the stem (pith). The native honeysuckles have a solid white pith, whereas all the invasive shrub honeysuckles have brown, hollow piths.

Other distinguishing features to differentiate native from invasive include looking at the leaves --- those of the bush-honeysuckle have a serrated leaf

edge while the invasives' have a smooth edge; American honeysuckle leaves have a smooth texture and the growth form is much smaller and less dense. Some other plants that may be confused for invasive honeysuckles include common snowberry, border privet (also invasive), and dogwoods (red-osier, silky, grey). These plants all have oppositely arranged leaves and can be found in the understory of Vermont woods.

All four of the invasive honeysuckles are listed on Vermont's Noxious Weed Quarantine, as Class B Noxious Weeds. This ranking means that these plants are not native to the state, are present in the state, and pose a serious threat to the state. <https://agriculture.vermont.gov/public-health-agricultural-resource-management-division/plant-health-and-pest-management/plant-2>

The strongest negative impact from these invasive shrubs are their tendency to form dense stands that exclude native forest understory plants, with

rippling effects-- reducing food sources for wildlife, replacing safe habitat for nesting birds, and some research is suggesting dense infestations can even be a haven for pests like ticks.

To learn more about all the honeysuckles found in Vermont, check out www.VTinvasives.org and these additional resources:

<https://www.minnesotawildflowers.info/shrub/fly-honeysuckle>

http://adkinvasives.com/species_of_concern/bush-honeysuckles/

<https://gobotany.newenglandwild.org/species/lonicera/canadensis/>

<https://gobotany.newenglandwild.org/species/diervilla/lonicera/>

<https://gobotany.newenglandwild.org/species/lonicera/morrowii/>

<https://gobotany.newenglandwild.org/species/lonicera/tatarica/>

<https://gobotany.newenglandwild.org/species/lonicera/maackii/>

http://www.dcnr.state.pa.us/cs/groups/public/documents/document/dcnr_010229.pdf



Hollow/brown pith of invasive honeysuckles. Photo- E. Spinney, VT FPR



NEWS FROM AUDUBON VERMONT

More than Words: Taking Action to Address Climate Change

by Steve Hagenbuch, Audubon Vermont

It seems everywhere we turn these days we hear something about our changing climate. Rightfully so as its impacts affect nearly every facet of our daily lives and the daily lives of birds too. According to a 2014 report published by the National Audubon Society, climate change is one of the greatest threats to birds and their habitat in the years ahead. Fortunately many Vermonters are doing their part by taking voluntary actions to reduce their carbon footprint. There are also ongoing policy debates regarding the institution of regulations to help curb the emission of CO₂ into the atmosphere. Just this week Audubon Vermont joined the Energy Independent Vermont Coalition to strengthen the local economy and reduce pollution. These are all steps in the right direction.

Despite these commendable efforts to cut back on carbon emissions there is a reality that can't be ignored. A changing climate is already upon us and we have an obligation to take action to address it. Through our individual actions we have the opportunity to help make our landscape as resilient and adaptable as possible to the uncertainties ahead. Our forests are one place where science can help inform management decisions. Promoting a healthy and resilient forested landscape will not only help ensure that birds like Blackburnian Warbler and White-throated Sparrow continue to find the habitat they need to thrive, it also offers a myriad of other

ecosystem goods and services. In fact healthy forests are part of the climate solution due to their ability to store massive amounts of carbon. It's a mutual benefit; we take care of the forests and the forests will help take care of us.

Audubon Vermont is currently working with the Vermont Department of Forests, Parks, and Recreation and the Northern Institute of Applied Climate Science on developing forest management approaches and strategies for aligning climate resilience and adaptation with bird habitat. The outcomes of this ongoing partnership are being integrated into planning at the Green Mountain Audubon Center in Huntington. This summer Audubon Vermont will update the forest management plan for the 255 acre property. For the first time climate resiliency will be among

the management objectives which prescribed actions will be targeted at achieving. Similar actions are being taken with landowners in the Cold Hollow to Canada Regional Conservation Partnership where Audubon Vermont is a partner providing bird habitat management recommendations. Each of these scenarios provide excellent examples of people not just talking about climate change, but taking action now to address the inevitable uncertainties that lie ahead.

To learn more about the actions Audubon Vermont and the Green Mountain Audubon Center are taking to help make forests adaptable and resilient please visit <http://vt.audubon.org/conservation/demonstrating-climate-adaption-strategies> and <https://forestadaptation.org/GMAC>

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The American Ash Tree: What's Next??? (Or, Can a Few Vermonters Save the World?)

by Alan Robertson

Introduction: This article started out as an attempt to provide information to affected Hemlock stand owners who were losing their trees to the Hemlock Woolly Adelgid (HWA). Unfortunately, or fortunately depending on your tree stand, the Emerald Ash Borer (EAB) was detected in Vermont, and, now, is firmly hunkered down in at least three geographical locations in the state. More unfortunately, that means that EAB will have more opportunities to quickly spread throughout the state. And the Hemlock, realistically, isn't going away anytime soon in Vermont because HWA is susceptible to cold temperatures and has experienced some severe winter mortality annually in the southern part of the state, so not a "doomsday" situation yet...

With this in mind, we've reoriented the article to ash trees to help Vermont forest landowners with some decisions they didn't even know they'd have or could be involved in.

First, is this the end of the ash tree species as we know it? The short answer is yes; over the next few years the EAB will continue to spread and probably won't stop until it reaches the northern limits of civilization in Canada. EAB has already found its way south past North Carolina where the damage is compounded due to the recent loss of all their Hemlock. But the bottom line is that most ash in the US, like the American elm, and in the far past, the American chestnut, will die. But is there hope for the future that this

tree could again be found throughout the United States? Yes, someday, and that is what this article is all about.

The US has seen several tree species severely compromised over the past century; the list includes, here in the east, the butternut, the American chestnut, the American elm, American beech, and some species native to the deep south. All are being lost due to invasive insects and diseases. The nature of the attacks on these trees is a critical element in their loss. All trees have the ability to adapt to changing conditions through naturally occurring genetic changes (mutations) or genetic variations occurring naturally within the species. And when change comes slowly, like over thousands of years, most trees eventually adapt. But when that change comes quickly, like when a Chinese pallet infested with beetles, or a batch of foreign-grown flowers infested with insects or fungus lands at a dock in the US, the quick introduction of the pest cannot be tolerated by the local plants, and they succumb.

But how can we address this too-rapid change model? By instituting our own methods of helping endangered tree species quickly change and adapt to the invasive threat, or using similar methods to make the life of the invasive insect or fungus as miserable as possible. And just as important, how much effort do we need to spend in the salvation of these tree species, and is it worth the effort to do this?

Arborists: EAB Treatments

The companies below have asked to be listed as resources.

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The answer to this last question is critical to justifying both the immediate effort and the vast time frame and resources we are looking at to restore a tree species which, first, will basically disappear. Just how valuable are the ash, elm, chestnut, and beech? Let us count the ways:

- Ecologically, all tree species have a niche in the forest. While biologists know a lot about trees, the incredible detail and minutia associated with each tree are still not entirely known or understood; we don't know what we don't know, and that makes the loss very scary.
- Economically, these trees (well, most of them) were incredibly valuable, could be made into a broad variety of valuable products, and were worth a lot of money; so, considerable economic loss...
- Aesthetically, these trees represent some of the most beautiful trees on the planet. All of them can get REALLY large, tall, and broad. So great were these trees that most, especially the Elm, were planted on virtually every street in the country east of the Mississippi. And finding comparable replacements is getting a lot harder...
- Culturally, these trees had found their way into the very soul of American society, and references may be found in stories, novels, poems, and histories.

So, the case has hopefully been made for expending the effort it will take to return these trees to our landscape. And it should be noted that the science behind all of the ways to bring these trees back is rapidly becoming less expensive as we learn more about tree genetics. We're talking about a few million dollars, not billions....

So, how do we bring these trees back? There are several strategies for doing



Tap hole

this, but first, how do we bring them back if they are all gone? Again, this is the crux of this article.

Generally, when looking at making the tree species less susceptible to the threat we are talking about an enhancement of genetic resistance, so that a more impervious tree will pass that resistance to future generations. Improved or enhanced genetic resistance may be done through selectively breeding for resistance, hybrid breeding, or resistance introduced through biotechnological means.

Quickly summarizing the science, selective breeding means finding some individual tree or trees which seem to have a better resistance to the threat than the rest. Efforts are then made through additional tree breeding generations to emphasize that trait. With American beech we have found a number of American beech that are resistant to the beech scale, the insect that initiates the beech bark disease, and was brought to the western hemisphere on infected European beech many decades ago. So, eventually (hundreds of years) the American beech may breed itself back to health. Elms with

enhanced resistance are also beginning to be available. Hybrid breeding means crossing the tree under threat with a close relative that is resistant to the disease or bug. The hybridization is accomplished over a few generations of crossing to bring out the resistance trait in the hybrid, and eventually end up with a resistant tree of the original species. The American Chestnut Foundation (TACF) is doing this right now with a back-cross breeding program involving the American chestnut and the Chinese chestnut with considerable success. Resistance introduced through biotechnological means includes a variety of new genetic technologies, including "CRISPR", which has been highlighted in articles in Time, National Geographic, and Smithsonian magazine. Biotechnological means include transgenic methods (gene or genetic material that has been transferred by any of a number of genetic engineering techniques from one organism to another that could not otherwise be conventionally bred. The introduction of a transgene [called "transgenesis"] has the potential to

ASH TREE, *continued on next page*

ASH TREE, *continued from pg. 11*

change the phenotype of an organism.) and cisgenic methods (gene or genetic material that has been transferred by any of a number of genetic engineering techniques between organisms that could otherwise be conventionally bred. Unlike in transgenesis, genes are only transferred between closely related organisms.). TACF is also using transgenic methods in bringing back the chestnut- a wheat gene has been introduced into the American chestnut to counteract the acids the chestnut blight fungus produces when it attacks the chestnut.

Getting back the question of how to salvage the trees if they are all gone is where we come into the picture. There is a need to keep a reservoir of native tree germplasm far into the future for use in propagating resistant trees. Like people, every tree has a slightly different gene makeup, and trees of the same species in different regions have slightly different genetic makeups too. So trying to grow a southern chestnut in New York probably won't work as well as working with New York chestnuts in New York. Vermont ash trees are slightly different than those in Michigan. If we are ever to bring ash back we should be working with trees from, and adapted to Vermont.

And, finally, the more genetic variation in the population of trees we try to bring back the better the chances that those variations will help trees of that species survive; we don't need in-bred trees for doing this work.

The answer to our question then, is we need to maintain a healthy number of ash trees scattered around Vermont (actually throughout its entire range) during the loss of the rest from the EAB. We do this through treating a few trees with chemicals that will give them protection

from the Emerald Ash Borer. The second half of this article will explain the process for saving a few trees.

Saving Some Trees

In the first half of this article we explained why saving a few trees is critical to any future effort to resurrect the species, specifically ash. But there are a lot of factors and decisions in this process to insure the right tree is treated the right way with the right chemicals at the right time by the right people.

Before we get into the decision process we need to be clear on some related issues. First, we are not advocating some major effort to save even a small percentage of the ash in Vermont. The cost would be ridiculously high, the effort would not be practical, and the amount of chemicals would be catastrophic to the environment. This is a very small strategic effort using a lot of science. Second, none of this would have been necessary had our country invested in stringent importation controls and given APHIS the tools needed to stop the problems from entering the country. You need to know that politics have been a major influence on the phytosanitary standards enacted by the government and APHIS has been hamstrung at several levels in their attempts to control the import of wood products and plant material. It is still a problem despite the clear destruction invasives have wrought in the US. Finally, we are talking about using chemicals and we have mentioned that some of the salvation techniques involve GMO's. These are controversial things to say in Vermont. The efforts we are discussing do try to minimize both the use and methods of chemical application, and the GMO's TACF has developed for the American chestnut still have to undergo some incredibly



The injection port plug installed for injecting the chemical.

stringent federal review by at least three agencies (USDA, EPA, and the FDA), taking years before they might be allowed out in the real world. The ash, if those techniques are used, would face the same or probably more scrutiny. Keep in mind that the trees under threat face certain extinction, and that it's too late to expect nature to step in and save the species...

Here is what you need to know if you think you might have some candidate trees:

- We are talking about ash trees commonly found in Vermont- White ash, Green ash, and Black (or Brown) ash. You need to know what the trees look like and which is which. You also need to know that there are male and female trees for all three and Black ash also exhibit both male and female traits on the same tree. Seek some reference works or advice from a forester if you're not sure what you have. In the deep forest you will need binoculars and good timing to tell the sex of the trees.
- The tree should be very healthy. Damaged trees (lightning damage, significant broken- off branches, wounds, missing bark, woodpecker damage, water sprouts at the base of the tree, thin volume of leaves or branches without many leaves) should not be chosen. The EAB is actually attracted to damaged trees because the insect uses chemical signals given off by the tree as well

as visual (silhouette) and color cues to find the tree.

- The tree should be structurally balanced, sound, and for trees in the woods, impressively straight and clear. Size diameters (DBH) should range 2” and up.

If the tree meets all of these standards it should also meet these criteria:

- It should be located on a good site- reasonably flat, good soils, not wet or swampy
- The tree, if not in the forest, should have value because of its landscape or aesthetic value
- The tree property should be at least 5 (preferably ten) miles away from the nearest EAB outbreak. While the insect only moves 2 miles a year the outbreaks in and around Vermont bring home our ignorance of exactly where the insect may be. Treating an infested tree can be a waste of money and effort; past a certain level of infection the tree may not recover if treated. Given the investment in time and energy to preserve the tree consider only very healthy trees- it is better to start treatment before the bug is detected than to wait until the bug is too close. See photos for levels of infestation

If you still have candidate trees after meeting the above standards, please consider how many trees you might be willing to spend money on. The aspects of this include how many and what size trees you have, the cost per tree, how many trees you might be considering for treatment, and how long would you expect to have to do this.

The first task is to complete an inventory of what ash you have. You would not need to capture every tree but for the decision process you do need to know the location, size, type of ash, and condition.

Cost is another issue. While it is possible to treat your own trees, primarily the very small ones, **don't do it yourself!** We highly recommend you seek a professional- an arborist- to treat large specimens or if you have a number of trees you are thinking of treating. The cost numbers we have here are from a North Carolina institution that hired an expert to treat 15 trees (trunk injection- the most expensive and reliable method) for a biennial (every two years!) cost of \$1600. The sum of the DBH of the trees was 225 inches making the cost roughly \$3.50 per inch of tree per year. Doing lesser numbers of trees will cost significantly more per tree especially if an arborist has to travel a distance, and if the tree is at a remote site. VWA is currently canvassing arborists in Vermont to see who will offer ash treatment services.

What are the treatment options?

There is only one method in Vermont that is better than the rest and is recommended because it limits the chemicals used, doesn't involve neonicotinoids (possibly harming honey bees) and acts more directly on the tree and, eventually, the insect:

Trunk Injections: Probably the most reliable method and the only method to be used on larger trees (over 8” DBH). First, the tree is literally tapped just like a sugar maple, but much lower, no higher than 18” from the ground; the drill bit being about 3/8”, the depth extending 5/8” to 2” into the sapwood. The number of injection sites (tap holes) depends on the tree diameter and averages every 4-8” of tree circumference. The equipment includes injection port plugs (see photo) which are left in the tree, the injection equipment and tubing, and the reservoir of diluted chemical. Dosage (amount of diluted insecticide) and the number of ports depend on the

tree size and the insect-EAB warrants higher dosages than many insects. The treatment lasts two years. Care should be taken to use sterile equipment to limit any tree infections from the treatment. Chemicals used include Emamectin benzoate (TREE-age), and Azadirachtin (Azasol and TreeAzin). The work should be done in mid to late spring after the trees have leafed out in weather conditions similar to the other treatment methods to insure maximum tree uptake. Because of the technical difficulty, the cost of the equipment, the strength of the insecticides, and the need for experience in doing the work, only experts should attempt the work, specifically a trained arborist. The VWA will have a listing on its website listing ISA certified arborists in Vermont providing these treatment options.

(NOTE: Experts do recognize soil drenches and injections around the tree trunk as an effective protective procedure, primarily around smaller trees, but the chemicals these treatments use are exclusively neonicotinoids which are linked to honey bee colony collapse disorder (CCD) and are not recommended in the state of Vermont; in any case only an International Society of Arboriculture (ISA) certified expert arborist should be using these methods)

Lastly, how many years will the treatments be necessary? No one knows, but at a minimum of 15 years. Like the Elm, once all the other trees are dead the insect will largely disappear and lighter treatments may be possible. By that time there should be further research into developing a resistant tree or finding biotechnological ways to control or eliminate the insect. In any case without some saved healthy ash trees restoring the species will be much more difficult.

For further information see the VWA website; questions should be directed to info@vermontwoodlands.org.

The role of Tree Farmers in training the next generation of forest workers

by Allen Yale

If we are going to successfully manage our woodlands, we will continue to rely on a skilled and knowledgeable supply of loggers. Statistics show that sixty percent of Vermont's logging business owners are over fifty years of age, and twenty-three percent are over sixty. The sustainability of the timber industry is dependent on the continual training of new loggers to fill the void as older loggers retire. Fortunately there is something we Tree Farmers can do to help.

For the past several years I have served on the advisory committee of the North Country Career Center's Natural Resources program. One of the aims of this program is to train young people who are considering a career in forestry. Some of the students will go on to college in the fields of natural resource management, while others will become loggers straight out of high school.

Over the years I have cooperated with this program. We have allowed classes to tour our woodlot as I explained my management policies and practices. In 2010, I took on a cooperative education intern. I involved her in various aspects of my management, including assisting my consulting forester in doing an inventory as part of the revision of my Current Use management plan. The following year, the entire natural resources class, under the supervision of their instructor, Fern Fontaine, harvested hemlock on my property for the construction of the deck of a post-and-beam barn on the grounds

of the Orleans County Historical Society. The students sawed these logs into timbers, which were then turned over to the Career Center's Building Trades students. They did the mortise-and-tenon work to turn these hemlock timbers into sills and joists for the barn deck. This project culminated with a traditional barn-raising at the Old Stone House Museum in Brownington, Vermont under the supervision of the Timber Framers Guild in the summer of 2012. This project won the Northeast Loggers Association's 2013 "best use of wood" award.

This past year I learned that the Career Center's Natural Resources program



wished to construct a post-and-beam building to house their sawmill and other lumber processing equipment. Again I volunteered to let the program harvest the timber they needed from my property, which is only four miles from the Career Center classrooms. This was an opportunity for these students to get some hands on experience in the woods. In September, Sam Nijensohn, the Natural Resources instructor and I walked my woodlot. We discussed which

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trees I was willing to have cut, the amount of wood they needed for the project, access roads and yarding areas. The first student activity in this project was to build water bars on the access roads. The first week of October, the real activity began as Sam's seniors participated in Level 3 and 4 of the Game of Logging at my place, under the tutelage of David Birdsall of the Northeast Woodland Training. (These students had taken Levels 1 & 2 last year as juniors.) I had never taken the Game of Logging, but was familiar with its precision felling techniques as covered in Level 1 and had used it for several years. Observing Level 3, I learned how to deal with side and back lean, as well as safely limbing and bucking stems under stress.

In early October, the class had brought their equipment to the site: a 4WD 60 HP John Deere tractor with a bucket and Farmi winch, a larger 2wd Ford tractor with forwarder, a 16 foot equipment trailer, and a one-ton dump truck. The trees cut during Game of Logging were part of the sawmill project, so in the following weeks Sam's seniors began skidding and yarding those stems.

The first week of November, Sam's juniors took Game of Logging, Levels 1 & 2. The students had entered the program with varying degrees of experience, from those who had worked in the woods to those who had never run a chainsaw or felled a tree. Prior to each Game of Logging session, the students had reviewed the Game of Logging booklet. Each day the class started in a temporary "classroom" in my barn where David Birdsall demonstrated the material for the day. David had excellent rapport with the students. He made it a point to know the students' names. He handled the class with humor and patience, making certain that each student was absorbing the information. After about three hours of instruction, the class then headed into the woods to practice what they had learned. Dave would demonstrate each step of process, always emphasizing safety, and then gave each student an opportunity



to fell a tree. It was a testament to both Dave's excellent instruction and the sound principles behind the Game of Logging, that the students each felled their tree within a couple of feet of their target. One student, who had never felled a tree before, dropped his tree right on the target stake.

One of the benefits I got from watching these students go through the game of logging was that usually I am the one holding the chainsaw and doing the felling. This experience gave me the opportunity to step back and watch the behavior of both the individual doing the sawing and the tree as it responded to the actions of the chainsaw operator. I was able, from a distance, to watch the top of a back-leaning tree approach vertical and then begin to fall in the desired direction as the student pounded on the wedge.

I got my first chainsaw when I was about seventeen and I had been working in the woods, off and on, for about sixty years, but I learned a lot about chainsaw safety, maintenance, and sharpening while observing these classes.

Over the next several weeks Sam's students cut, skidded, and yarded the logs they needed for the project. They learned how to draft a logging contract. They also

had an opportunity to tally the board feet in individual logs, compensating to sweep and other defects. They took turns participating in each step, including using the loader on their forwarder to load the logs on the flat-bed equipment trailer used to move the logs to the site at the career center where they would be sawn into timbers. In the end they harvest over seven thousand board feet of logs, hauling the tops and defective logs to the landing for the landowner to use as firewood.

This project didn't just help the Natural Resources program; the Heavy Equipment program unloaded the logs at the career center with their log loader. That class also prepared the site for the future sawmill building. Once the Natural Resources classes have sawn out the timbers, the Building Trades program will do the mortice-and-tenon joints as they learn timber-framing construction. Thus students from three trades with a link to woodland management benefited.

Many of you have undoubtedly taken the Game of Logging course, and it is not my aim to recruit those of you who haven't,

LOGGERS, *continued on next page*

LOGGERS, *continued from pg. 15*

to take it. (Although I would.) My point is to address the need for training the next generation of forestry professionals and the critical role of the state's career centers in preparing these future workers. Further, I would suggest that Tree Farmers have a place in this training. My experience with the North Country Career Center may serve as an example of some of the ways a Tree Farmer can participate in the training of future woodland professionals. My first activity was to join the advisory committee for the natural resources program at the local high school. This committee consists of the county forester, sugar makers, Tree Farmers, farmers, natural resource professionals, etc. The committee meets with the program instructor on a regular



basis to review the program and make suggestions on how it can be improved, or how they can help the program. Our local committee also administers the George Buzzell Scholarship Fund, which awards a small scholarship to students going on to further study in the natural resource field.

If you want to help train the next generation of woodlot workers or managers, you can identify and contact



the local natural resources program in the vocational secondary school in your area to see if your experience and land can contribute to their program.

Allen Yale entered the Tree Farm program in 1976. He is the 2012 Vermont Tree Farmer of the Year, the 2013 U.S. Regional Tree Farmer of the Year, and a member of the Vermont Tree Farm Committee. His tree farm is located in Derby, Vermont.



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VERMONT TREE FARM INSPECTOR'S LOG

Star Date - February 14, 2019: “For the Love of the Forest” or “Tools of the Trade”

by Kathy Beland, Co-chair VT Tree Farm Committee and Inspector Trainer

Last quarter, I wrote a lot about numbers and how we measure success. Though this will be a continuation of that writing, with results of the Tree Farm Inspector Survey, maybe this commentary is more a measure of our love for the forests of Vermont and to what extent we take that love! You will have to be patient to see how I connect those dots.

Since October, all Tree Farm Inspectors have been getting emails from me, prodding and poking them to complete an online survey regarding their role as a Tree Farm Inspector in Vermont. Emails were sent to 103 foresters. Some had not been inspectors in a few years, but were still active in the world of forestry in Vermont. Of those 103 requests, 46 eventually took the survey. I have had the honor of personally speaking to 41 of the 46 who completed the survey. Those numbers again... I keep trying to get away from them, but alas it is impossible.

Most of the questions in the survey were geared so that the Tree Farm Committee could determine how we could help the inspector fulfill his or her role in the Tree Farm Program. I believe the most important question on the entire survey was asking all of you how VT Tree Farm and ATFS could help you as an inspector. Those results are below.

As you can see, we have some work to do. This is a pretty clear outline of your needs, and we hear you! Throughout the survey, results seemed to be pretty consistent that we communicate often enough, but quite likely aren't providing all of the information and resources you need to promote and be the boots on the ground for Tree Farm. Most responding inspectors completed between 1 and 5 inspections in the past two years, however most also do not have any idea how many of their clients are enrolled in Tree Farm. This does not necessarily surprise me, as I would need to count my own Tree Farm clients myself to get that number.

It is not a number that I can just pull out of the air. Overwhelmingly, 80% of you would like to bring back the annual Tree Farm Inspector Field Day, something we did a couple of times, but let lapse the last two years. Duly noted, and will plan! As I expected, more than 70% of respondents expressed interest in participating in Tree Farm activities outside of the role of inspector. This definitely piqued my interest. The only problem is that some of you neglected to leave your name, so there was no way to identify our potential generous volunteers! However, if you left your name, you will be hearing from us!

Of this survey, the last question asking for additional comments was enlightening. The comments were helpful and insightful, giving me a lot of material to talk about when I began the follow up phone calls. I could be

LOG, continued on next page

ANSWER CHOICES	RESPONSES	
Tree Farm Promotional Materials	50.00%	21
More communication with inspectors	23.81%	10
Stipends for completing inspections	50.00%	21
More training to clarify standards	14.29%	6
Notification when inspections are due	73.81%	31
Total Respondents: 42		

LOG, *continued from pg. 17*

very specific about what came from all of those conversations, but really just wanted to offer applause to all of the foresters who make up our inspector corps. I still have about half of you to connect with, and intend to do so over the next few months. As a committee, Tree Farm needs to provide you all with some more useful tools if we want Tree Farm to remain as sustainable as our managed Vermont woodlands.

However, what we cannot provide is what you all already have inside of you. A stewardship mindset is what I believe to be most important as a forester. From these conversations over the past few months, it is clear to me that this mindset comes from a love of the forests and a passion for the natural resources of Vermont. This passion is reflected in what you are committed to and involved in outside of Tree Farm and your regular work day. A question I asked all of you was, "On what committees or boards are you serving?" Here is a list of all of those mentioned to me: VWA Board, Tree Farm Committee, Forest Stewards Guild, NESAF- assorted committees, Town Conservation Commissions, Selectboards, Tree Warden, Regional Planning Commissions, VT Coverts,



Coming back soon! Tree Farm Inspector Field Day!

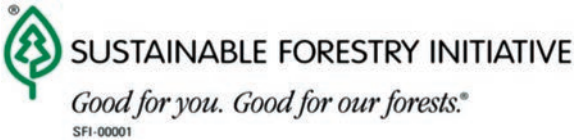
VINS, Conservation Districts, Vermont Land Trust, Upper Valley Land Trust, Current Use Advisory Board, Friends of Haystack, VT Endangered Species Committee, ATFS Woodlands Operating Committee, PLAC Advisory, Town Trail Steward, WLEB, VT Forest Industry Network Steering Committee, Cold Hollow to Canada, Private Lands Advisory Committee, NE Regional Conservation Partnership Network, Wetlands Advisory Board, Forester Licensing Board, VFPA, VFF, AIV, Kingdom Trails, Vo-Tech volunteers, Renewable Energy.

I am sure I missed some of these, but really wanted others to see what the foresters of

this state are doing! I took this to heart in looking at activity of inspectors with inspections or volunteering for Tree Farm events. The Tree Farm committee was also looking at this to have a place to honor inspectors with awards that did not focus just on numbers of inspections. You all are so busy and so involved in much of the decision making, and influence across the state, and in some cases on a national level. And to top that off, the majority of inspectors are private consulting foresters, running their own businesses or working for other small businesses. We are so blessed in Vermont to have you as part of Tree Farm, even if it is only one inspection per year.

All I can say to all of you, is thank you. Thank you for your commitment to woodland stewardship in Vermont. We will do our best to provide you the tools you need to continue to wear all these hats perched atop your heads! I believe Scotty said it best: "How many times da I have to tell ya.. the right tool for the right job!"





NEWS FROM SUSTAINABLE FORESTRY INITIATIVE

Vermont SFI® Update

by **Bill Sayre**, *Chair, Vermont SFI* and **Ed Larson**, *SFI VT Coordinator*

SFI Vermont continues to promote the principle of sustainability as our private forest landowners manage for the future. The use of a third-party certification program develops confidence in buyers and consumers of forest products that these forestlands are well managed today and will be here for generations to come. SFI® is an independent, non-profit organization dedicated to promoting forest sustainability and supporting the links between sustainable forests and communities through carefully targeted research, direct leadership of critical initiatives, and partnerships that effectively contribute to multiple conservation objectives. Nationwide, Forests certified to the SFI Forest Management Standard cover more than 300 million acres. Millions more acres benefit from the SFI Fiber Sourcing Standard. SFI's Forest Management,

Fiber Sourcing and Chain of Custody Standards work to ensure the health and future of forests. Through application of these certification standards, SFI's on-product labels help consumers make responsible purchasing decisions. In a 2017 survey, 41% recognize the SFI Logo. SFI Inc. is governed by an independent three-chamber board of directors representing environmental, social and economic sectors equally. Learn more at sfiprogram.org.

SFI and ATFS

Since participation in the SFI third-party certification program can be costly, landowners of smaller woodlots do not find participation as cost effective as our larger industrial timberland owners. In Vermont, very early in the implementation process, we recognized the Vermont Tree

Save the Date!

SFI VT Legislative Breakfast at The Vermont Statehouse

Thursday, March 21, 2019

8:00 – 11:00 AM

Panel Discussion follows

Farm System (ATFS) as a natural fit for SFI as the standards for Tree Farm Certification are very similar to SFI standards. SFI Inc. at the national level sought to be more aggressive and last year, released a new SFI Small Lands Group Certification Module to find an innovative approach to grow small family forest certification in the U.S. and Canada. During this process SFI Inc. sought feedback and discovered an opportunity to engage with the American Forest Foundation (AFF) to work together to grow opportunities for small landowners to certify their forestland. In a press release early February, the result is a collaborative process that rendered a revised version of the Module that will facilitate certification under the ATFS for small landowners in the United States, and under SFI in Canada. This program builds on the foundation of SFI's Fiber Sourcing Standard, and drawing on the strengths of ATFS forest management standard adding elements to clarify support for long-term landowner engagement, ongoing monitoring, and forest management practices consistent with the ATFS Standards of Sustainability. SFI and AFF will work together along with a Task Force to agree to final text of the Module which

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SFI, continued on next page

SFI, *continued from pg. 19*

will be submitted to the Programme for the Endorsement of Forest Certification (PEFC) for approval this Spring. Upon approval, fiber produced from lands certified under this program will be certified content for both PEFC and SFI labels and chain of custody systems.

Project Learning Tree

SFI VT continues to work with a transition team to reinvigorate Project Learning Tree (PLT) in Vermont schools and with other youth groups. The transition team includes FPR Officials, VWA and The Vermont Tree Farm Program. We held a stakeholders' meeting on November 30 and have worked towards a final 3-5-year work plan. We are now morphing the transition team into a steering committee expanding membership to

key stakeholders such as the Dept. of Education, UVM Extension, Vermont Forestry Foundation and others which will guide the PLT Coordinator and facilitators on meeting the PLT work plan.

Our next step is to recruit facilitators and provide a workshop to train facilitators on how to promote PLT and get the curricula into schools and other youth venues. Landowners, consulting foresters, teachers and others involved or interested in forestry and the forest products industry are excellent candidates to become a facilitator for Vermont's PLT Program.

If you have interest in becoming a facilitator please let us know, we do plan to put together a facilitator training workshop soon. What better way to contribute to your town and local school than to share your interest in child

education and to have a valuable tool to help them understand the importance of the forests around them.

PLT is widely recognized as an acclaimed education curriculum bringing understanding of our forest and forestry into the classroom. SFI and SFI VT have embraced the additional opportunity to reach out to community members, especially our youth and provide a platform of activities and projects that are hands on opportunities to learn about the importance of working forests, potential careers in our working forests and the benefits we derive from an active forest economy.

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NEWS FROM VT SUSTAINABLE JOBS FUND

Wood: Vermont's Locally Grown, Renewable Fuel

by **Christine McGowan**, Forest Program Director, Vermont Sustainable Jobs Fund

Vermonters have a long history of heating with wood, and most of us know there is nothing like the warmth of a well-stoked wood stove on a cold winter night. It is only in recent years, however, that advances in technology have made wood a convenient alternative to fossil fuels through whole-building, automated wood heat systems that are controlled by a thermostat. Today, Vermonters are poised to capitalize on a growing industry that not only supports the state's renewable energy goals, but also economic development, reduction of greenhouse gas emissions, and our cherished working landscape.

Automated Wood Heat

While cord wood is certainly part of the wood heat equation, the real opportunity lies in Automated Wood Heat systems, including woodchip and pellet boilers. "I don't believe there are many people out there who want to heat with cord wood who aren't already doing so," said Emma Hanson, Vermont's Wood Energy Coordinator, "but there are a whole lot of people who like their thermostat." Interest in the thermostat-controlled systems, which have been around for a few decades, is growing for a number of reasons—chief among them independence from fossil fuels, supporting local, renewable energy sources, and price stability.

Dave Frank and Marc DiMario, co-owners of SunWood Biomass in Waitsfield, were among the first to



Dave Frank, co-founder of SunWood Biomass, and Mané Alves, founder of Vermont Artisan Coffee & Tea Company, look over a wood pellet boiler system installed at the coffee company's Route 100 facility in Waterbury. Photo credit: Erica Houskeeper

introduce Automated Wood Heating systems to Vermont. The company provides design and installation services for residential and commercial systems throughout New England. "Wood can be used to cleanly and efficiently heat any size building," said Frank, pointing to recent installs at Vermont Artisan Coffee & Tea in Waterbury, Green Mountain Glove in Randolph, and Goddard College.

Wood Heat and the Local Economy

According to a 2016 study on heating with wood, 80 cents of every dollar spent on wood heat stays in state, versus only 22 cents of every dollar spent on oil or

propane. In 2016, that translated into an estimated \$70 million retained in the Vermont economy. "It's a triple bottom line decision," said Hanson. "Heating with wood supports the local economy, moves Vermont towards its goal of meeting 90% of total energy needs from renewables by 2050, and it stabilizes heating costs."

"Two years after we opened SunWood Biomass, Hurricane Katrina hit and sent oil prices skyrocketing," said

FUEL, continued on next page

FUEL, *continued from pg. 21*

Frank, who consults with residential and commercial clients on every aspect of automated wood heating, from feasibility to financing. “Since the price of wood increases only with the rate of inflation, all of a sudden we had an opportunity to talk to customers about wood through the lens of price stability. Unlike oil, which can vary dramatically with natural disasters and political winds, wood heat comes from our backyard, and probably from a logger who lives down the road.”

Maura Adams, program director for the Northern Forest Center agrees. “Heating with wood connects consumers directly to the working landscape,” said Adams. “Every time you heat with wood you are supporting jobs in forestry, wood processing and transportation.”

A Clean Source of Heat

Perhaps one of the biggest lingering myths around heating with wood is the perception that burning wood is bad for the environment. While it is true that older, residential wood stoves and outdoor wood boilers can contribute to poor air quality, new automated wood heat systems meet or exceed air quality standards and are actually reducing greenhouse gases. A 2016 independent study on the impact of using wood pellets on greenhouse gas emissions in the Northeast found that using wood pellets for heat reduces greenhouse gas emissions by more than half compared to oil or propane. Over 50 years, greenhouse gas emissions from pellets are 62% less than oil, 67% less than natural gas, and 56% less than propane.

Frank adds that Automated Wood Heat systems far exceed U.S. air quality standards and in most cases meet or exceed European standards. “Complete and clean combustion is the paramount

accomplishment of automated wood heat systems,” said Frank. “When wood is burned efficiently, you dramatically reduce carbon emissions and particulate matter. Our clean burning systems produce no visible emissions or smoke, and will create only a small box of ash about once a month.”

The pellets themselves are delivered via the same mechanisms through which customers receive oil. The pellets are pumped into a holding area and automatically fed into the boiler. “A customer doesn’t have any more or less contact with the pellets than they do with oil,” said Adams, who coordinates the Feel Good Heat campaign to educate consumers throughout the Northeast about the benefits of Automated Wood Heat. “There is no lugging wood from the shed to the house. The pellets are delivered through a hose right into a large storage hopper and heat is regulated with a thermostat. It’s the same process most people are accustomed to with oil systems, but from a cleaner, greener source.” According to the greenhouse gas emissions study, switching from oil to locally made pellets reduces a building’s carbon footprint by over 50% from day one.

For homeowners who are using older wood stoves and not ready to switch to whole-house automated wood heat, Hanson points to a rebate program that offers \$800 for switching to a newer, EPA certified wood stove. She also recommends that homeowners burn dry wood and not let fires smolder.

Keeping Forests as Forests

Vermont’s forests are one of its most abundant natural resources and, as long as trees are growing back at the same rate that they are cut down, wood is considered a renewable resource.



Vermont Artisan Coffee & Tea's 15,000 square-foot facility in Waterbury Center is heated with a wood pellet boiler system installed by SunWood Biomass.

Vermont forests have ample capacity to supply growing demand.

Hanson, who works for Vermont’s Department of Forests, Parks and Recreation, points out that Vermont is 76% forested and we are currently harvesting less than half the net growth in the forest. The key issue, she explains, is the decline in low-grade wood markets. “There are two types of wood — high and low. High grade wood is wood that might one day find itself on a carpenter’s shopping list. It may become a 2×4, a cabinet, or a floor board. Low grade wood becomes firewood, woodchips or, historically in our region, paper. However, the paper industry has been declining in recent years leaving a gap in the market for this low grade wood. It is absolutely essential to have healthy markets for both high and low grade wood – without the pair it is impossible to carry out a sustainable forest management plan.”

Growing demand for Automated Wood Heat is not only good for the economy and environment, but also critical for keeping Vermont’s forests as forests. “A well-managed forest can and will meet multiple goals, from renewable energy to wildlife habitat to recreation,” said Hanson, “but you have to have a robust market for low grade wood to make it all work.”

“It’s an interesting intersection of the traditional forest products industry

in Vermont and the renewable energy movement,” said Frank, who is also on the board of Renewable Energy Vermont. “There is only upside here — more work for local loggers, foresters and truckers, predictable pricing for homeowners and businesses, and less impact on the environment.”

Anyone interested in learning more, or in finding distributors and installers, can visit www.feelgoodheat.org and www.encyclopedia.com.

Vermont Forest Industry Network

Vermont’s forest products industry generates an annual economic output

of \$1.4 billion and supports 10,500 jobs in forestry, logging, processing, specialty woodworking, construction and wood heating. The new Vermont Forest Industry Network creates the space for industry professionals from across the entire supply chain and trade association partners throughout the state to build stronger relationships and collaboration throughout the industry, including helping to promote new and existing markets for Vermont wood products, from high quality furniture to construction material to thermal biomass products such as chips and pellets. For more information please visit www.vsjf.org.



Pellet boilers produce significantly less air pollution while generating heat more efficiently than their traditional counterparts.

David Russell walks through 365 days on a Vermont choose-and-cut Christmas tree farm

by **Christine McGowan**, *Forest Program Director, Vermont Sustainable Jobs Fund*

Most of us think about a Christmas tree for a few weeks in December, but David Russell, owner of Russell Christmas Tree Farm in Starksboro, Vermont thinks about them just about every day of the year. In fact, right now, he’s starting to think about the tree that might end up in your living room in 2025.

Open Thanksgiving through Christmas, Russell Farm sells between 1,000 and 1,500 Christmas trees every year, all of them grown on his 360-acre farm. David and his wife, Janet, retired from dairy farming in 2012 and made the transition to growing and selling Christmas trees, which now accounts for approximately 75% of their business. “It was an easy transition for us,” said David. “We were tired of dairy farming and had been selling Christmas trees on

the side since 1980, so we already had the business in place.”

Last year, Americans purchased 27.4 million real Christmas trees according to the National Christmas Tree Association, with just under one-third coming from choose-and-cut farms. David and his seasonal team of 20 employees work hard to make sure the experience at Russell Christmas Tree Farm is a memorable one. Visitors are greeted by Eli and Emmett, the farm’s horse team, for a sleigh ride and treated to hot chocolate by a warm fire. Once visitors have chosen and cut down their tree, Eli and Emmett bring them back down the hill while their tree is tied and transported back to their car. “We take the hassle out of the process,” said Russell, “so that families can enjoy their time here.”

Seasons on a Christmas Tree Farm

While the holidays are certainly high season at Russell Farm, David’s work is year round. After a well-deserved rest after Christmas (for both him and his horse teams), David will turn his full attention to the spring planting. He has already purchased Balsam and Fraser fir seedlings from Asack Tree Farm in Barton, Vermont and from a state run nursery in New Hampshire, which will go into the ground after the ground thaws. During the spring and early summer, the trees are fertilized and rows are mowed to keep weeds down, all in preparation for the first shearing, which predictably takes place right around July 10 every year.

TREE, *continued on next page*

TOURS, MEETINGS, & WORKSHOPS

BACKYARD SUGARING

Wednesday, March 6 • 6:30pm
471 North Main St., Rutland, VT

BIOCHAR - IS THERE A MARKET?

Thursday, March 7 • 9am-3pm
Hardwick Town House

SFI LEGISLATIVE BREAKFAST

March 21

NEW ENGLAND SOCIETY OF AMERICAN FORESTERS: FORESTS AND FORESTRY: CHANGING ADAPTING GROWING

March 27-29
South Burlington, VT

VWA ANNUAL MEETING

April 6
VTC, Randolph

VERMONT FOREST HEALTH MEETING

Thursday, April 18
Woodstock Union High School

AT MARSH-BILLINGS- ROCKEFELLER NHP, WOODSTOCK PREDATORS IN THE PARK

Saturday, March 2 • 9am-10:30am

WINTER TREE IDENTIFICATION

Saturday, March 9 • 10am-12pm
followed by lunch discussion
12pm-1pm

GUIDED WALKING TOUR OF BIRD-FRIENDLY FORESTRY

Saturday, March 18 • 8:30-11am

TREE, *continued from pg. 23*

“The buds burst late May or early June sending out tender new growth,” said Russell. “Once that growth has come in, we begin shaping the tree.” He warns, however, that his trees are sheared to their most beautiful natural shape and size. “If you want a perfectly manicured tree, you can buy a plastic one. Mine are guaranteed not perfect and that’s exactly how we want them.”

Late fall, David begins to ramp up and prepare for the holiday season ahead, and so do the horses. After a lazy summer grazing, David begins in earnest to work his teams, which include Eli and Emmett, and a brother and sister team, Carina and Jackson. “It amazes me how excited they are to bring each group up the hill, but they have to be in great condition for the work,” said Russell. “Or maybe,” he muses, “they are just excited that this could be the last trip of the day before supper.”

In their spare time, the Russells manage the 300-plus acres that are not dedicated to Christmas trees, harvesting 10-12 cords of firewood he’ll need for the winter and selling small amounts of pine and ash. They also raise grass-fed animals.

The Choose and Cut Tradition

It takes between seven and ten years for both Fraser and Balsam firs to grow to the most popular six- or seven-foot height, which is why David is currently thinking about your 2025 Christmas tree. For the next decade, he will be shearing, shaping and tending to trees that might be sold to the children of his current customers. “We have fourth generation families buying trees from us,” said Russell. “I just received a card from a woman who has been buying trees from us for 35 years.”

Most of the trees on Russell Farm are harvested around six to seven feet tall, but he can always find bigger trees



David Russell, owner of Russell Christmas Tree Farm in Starksboro, Vermont, gives visitors a ride on a horse-drawn sleigh. The farm sells between 1,000 and 1,500 Christmas trees every year, all of them grown on Russell’s 360-acre farm. Photo by Erica Houskeeper.

for customers who want them. “The biggest tree we’ve sold was to Shelburne Museum, and that one was about 25-foot,” said David. If a customer is looking for a very specific height in the 15- to 20-foot range, sometimes David will cut down a 30-foot tree and just sell the top. Erica Houskeeper, of Burlington, started going to Russell Tree Farm with her family two years ago. Her husband, Dave Barron, and their daughter Phoebe, returned to the farm once again last week to cut their own Christmas tree. “We were a little late in getting our tree this year, and my husband and I wondered if we should just buy one somewhere closer to home that’s already been cut,” she said. “When we suggested that option to our daughter, she begged us to go to Russell Farm. ‘It’s a tradition!’ she told us. So, we took a trip to Starksboro and found a beautiful 8-foot tree. It’s always such a magical experience at the farm.”

“Music to my ears,” said Russell. “We want everyone to leave happy. The sincere appreciation people express is the reason I do this. It fuels my fire and keeps me going on those long days.”



Dave Barron and his daughter, Phoebe, pull a freshly-cut Christmas tree through the snow Russell Tree Farm in Starksboro. Photo by Erica Houskeeper.

NEW MEMBER APPLICATION (Note: existing members will receive an invoice)

Vermont Woodlands Association is a 501(c)(3) nonprofit corporation whose mission is to advocate for the management, sustainability, perpetuation, and enjoyment of forests through the practice of excellent forestry that employs highly integrated management practices that protect and enhance both the tangible and intangible values of forests—including clean air and water, forest products, wildlife habitat, biodiversity, recreation, scenic beauty, and other resources—for this and future generations.

ANNUAL DUES INVESTMENT (check one)

Landowners

- 0 -100 acres..... \$40
- 101-200 acres..... \$50
- 201-500 acres..... \$60
- 501-1,000 acres..... \$70
- 1,001-5000 acres \$100
- Over 5,000 acres \$250
- Friend/Supporter \$40

Natural resource professionals

- Individuals..... \$50
- Firms and crews..... \$100

Wood products companies & equipment suppliers

- Individuals..... \$50
- Firms and crews..... \$100

- VWA Accredited Consulting Foresters** \$160
(Subject to VWA acceptance. Call for details.)

Name _____

Address _____

Town _____ State _____ Zip _____

Telephone _____ FAX _____ Email _____

Woodland town(s) _____ County(ies) _____

Woodland acres _____ Tree Farm member? _____ Enrolled in the Value Appraisal Program? _____

Forester _____

Please make checks payable to Vermont Woodlands Association and mail with the completed form to: VWA Treasurer, PO Box 6004, Rutland, VT 05702-6004.

MEMBERSHIP BONUS!

Northern Woodlands



As a benefit of membership, the Vermont Woodlands Association offers a free subscription to Northern Woodlands, a quarterly magazine that offers readers a “new way of looking at the forest.” Northern Woodlands mission is to encourage a culture of forest stewardship in the Northeast by increasing understanding of and appreciation for the natural wonders, economic productivity, and ecological integrity of the region’s forests. Members also receive the VWA newsletter published quarterly and E-News, offering articles of interest and educational opportunities for woodland owners.

northernwoodlands.org



PO Box 6004, Rutland, VT 05702
802 747 7900 • FAX 802 747 7989
www.vermontwoodlands.org



ANNUAL MEETING AGENDA & REGISTRATION

Saturday, April 6, 2019 from 8:30AM – 3:00PM
Judd Hall, Vermont Technical College, Randolph Center, VT

- 8:30 - 9:00 Coffee and registration in Judd Hall (on the left past Old Dorm)
- 9:00 9:45 Danielle Fitzko, new Director of Forests on FPR activities
Sam Lincoln, Deputy Commissioner on legislation & workers' comp
- 9:45 - 10:15 Eric Sorenson, VT Fish & Wildlife on Vermont Conservation Design
- 10:15 - 10:30 Coffee Break
- 10:30 - 11:15 Charlie Levesque—President Innovative Natural Resources Solutions on the future of low grade wood markets
- 11:15 - 12:00 Alan Robertson, VWA on American Forest Foundation trip to the Black Forest
- 12:00 - 1:00 Lunch Buffet— VTC catering
- 1:00 - 1:10 VWA membership meeting
- 1:10 - 1:25 Kathleen Wanner, VWA Executive Director's report
- 1:25 - 2:00 Tree Farm awards:
50 and 25 year Tree Farm awards
2018 Vermont Tree Farm Inspector of the Year
2018 Outstanding Tree Farmer of the Year presentation
- 2:00 - 3:00 John Nininger on building the log structure at the Moosilauke Ravine Lodge. John is a nationally-famous timber framer and the Ravine Lodge was the cover story for the 2017 fall issue of the Journal of the Timber Framers Guild.

Directions to VTC: I-89 to Exit 4. From ramp, turn onto Route 66 heading uphill (East). Go ¾ mile to the intersection at the top of the hill. Drive straight through the intersection to access the campus main entrance. Parking is to the right.

-----cut here-----

**Please complete & return with your payment of \$30 per person (members) or \$45 per person (non-members) to
VWA, PO Box 6004, Rutland, VT 05702-6004
Registration deadline: March 29, 2019**

Name: _____ Additional Name: _____
 Address: _____ City: _____ State: _____ Zip: _____
 Organization: _____
 Phone: _____ Email : _____
 Dietary restrictions: _____
 Charge my credit card : # _____ Exp : _____ CVE code : _____
 Check enclosed : _____ Amount : \$ _____

Note: You may also register online by visiting <http://www.vermontwoodlands.org/networking-opportunities.asp>

I would like to reserve a display table (\$10.00 member; \$25 non-member, first come, first serve)



110 Merchants Row, Suite 101
PO Box 6004
Rutland, VT 05702-6004

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*VWA's display was selected
as Best of Show for the
2019 Farm Show*

