



*Association, Inc.* 11 University Way, Suite 4, Brattleboro, VT 05301  
802-257-7967 ext. 302

WOODLOT TIPS



## WINTER 2011

### Programs

*(Save these dates!)*

#### **Wednesday, March 16, from 2 – 4 p.m. — Tour of Cersosimo Lumber Company Chip Mill**

Cersosimo Lumber Company recently constructed a wood chip mill that converts pulp quality logs into clean wood chips, suited to a variety of uses. The chips can be used to heat Cersosimo kilns and physical plant, can be marketed to others using chips for heat, or further processed in other products. Cersosimo has invited Woodland Owners Association members to see the mill in operation.

The chip mill is located on Peck Road in Vernon, about three miles south of the sawmill. To reach the site travel south on Rte. 142 from Brattleboro. The chip mill is plainly visible from the road.

**Saturday, March 19, from 9 a.m. to noon — Setting the Table for Wildlife by Caring for**

**Wild Apple Trees.** Sign up now for a workshop focusing on the art and science of releasing and pruning wild apple trees. Wild apple trees are an important food resource for wildlife and grow best in full sunlight. They normally become established in clearings or on the edges of fields, but as the forest matures around them they become shaded and lose their vigor. Apple trees can also ‘crowd’ themselves as internal branches compete for space. Both of these scenarios limit fruiting. By following a few simple steps you can improve the growing conditions for the trees, improve flowering and fruiting, and potentially provide food and cover for a variety of game and nongame wildlife species.

Join Sam Schneski, Windham and Windsor County Forester; Aaron Hurst, Vermont Forest Parks and Recreation State Lands Forester; and Mary Beth Adler, Vermont Fish and Wildlife Habitat Technician, for a hands-on workshop for landowners. Topics for discussion and demonstration include tree and area selection, release techniques and guidelines, basic pruning techniques, and maintenance for the long term. Bring along your pruning saw, loppers and clippers to try your hand at making some cuts. Pack a pair of snowshoes as well.

The workshop is hosted by James Stack and Ron Theissen at Skygate Farm in Andover, Vt., and is sponsored by Vermont Coverts: Woodlands for Wildlife, Inc. There is a \$5 registration fee, proceeds to be donated to Vermont Coverts. Space is limited to 20 people. To register and for more information, please contact James Stack at [james.skygate@gmail.com](mailto:james.skygate@gmail.com) or 802-875-3909.

Vermont Coverts is a non-profit organization dedicated to educating landowners about sound forest management and wildlife stewardship.

**Saturday, April 9, at 9:15 a.m. *sharp* for carpooling at 9:30 from the West Brattleboro Fire station parking lot on Western Ave. (Route 9) — Unique Sugarhouse Tours**

The Woodland Owners’ Association (WOA), along with Vermont Woodlands Association, are co-sponsoring a tour of two sugarhouses in Whitingham. The outing is part of the Vermont Woodland Association’s “*Walk in the Woods*” series. This tour will offer stark contrasts between two very different operations in the same town. The Corse Farm is high-tech, state-of-the-art sugaring, with reverse osmosis technology and advanced pipeline and vacuum tubing systems. In contrast, the Morses only use buckets, gather their sap using horses and historic Tomahawk wooden tanks.

We’ll be visiting the Corse Farm first, and then travel over to the Morses’ Farm, known as “Maple Hill Farm.” The first stop will be the Corse farm at 10 a.m.

For those who wish to travel directly to the Corse Farm from directions other than Brattleboro, please meet us there at 10 a.m. From Wilmington: take Route 9 east a mile or so, then head south on Route 100 towards Jacksonville. Go 3.7 miles south on Route 100 and make a RIGHT turn on to the Wilmington Cross Road. At the next junction, bear RIGHT onto Fuller Hill Rd. and go to a “T” junction. Make a LEFT onto Corse Road and go to the sugarhouse on your right at 773 Corse Road. We’ll spend about an hour or so there, and then take the 10-minute drive over to Maple Hill Farm. For more information, please contact Windham County Forester Bill Guenther at (802) 257-7967 Ext. 305 or [bill.guenther@state.vt.us](mailto:bill.guenther@state.vt.us)

***Some information provided by the farms that we will visit:***

**Corse Farm** has been part of Whitingham’s history since 1868. The combination maple and dairy farm currently is operated by fifth and sixth generations of family who have actual production records that date back to 1918. The Corse Farm has the largest and most extensive sugaring operation in town with approximately 10,000 taps. Annual production normally falls in the 2,500 to 4,000 gallon range. In addition to their own maple trees, the Corses harvest sap from maple trees on the property of 12 other Whitingham landowners. When available, sap is also purchased from other local sugar makers. The maple season is very labor intensive. During the season, three full time

and several part time workers are hired. Most return year after year as it becomes an annual tradition. A large reverse osmosis system is used to remove about 75 percent of the water from the sap before boiling. The syrup is finished on a custom-built 6' x 20' set of evaporator pans, which are wood-fired. The finished syrup is filtered through a large filter press before being packaged for sale. The delicious syrup is sold in retail containers at the farm, by mail order, and through retail outlets in the area.

**Maple Hill Farm (Morses')** is a small, diversified dairy farm. Steve and son Jason are the main work force along with their wives, Terry and Cathy, when needed. The farm covers 375 acres with 75 acres of hay and pasture and 300 acres of woodland. The dairy herd consists of 30 milkers and 20 replacement heifers. The woodland provides logs and firewood. Our consulting forester, George Weir (also WOA President), helps us decide what trees to cut where. We use a four-wheel-drive tractor that has a log brush grapple on the loader and a winch on the back. A Treefarmer forwarder keeps the logs clean and helps sort them on the landing.

A team of black Percheron horses play a major role in the maple sugaring operations at Maple Hill Farm. For a few weeks starting in mid-March, the Morse family carries on the tradition of making maple syrup. For generations the Morses have taken great pride in producing the finest "delicate-flavored" fancy grade syrup the old-fashioned way by hanging buckets on the maple trees, gathering sap with a team of horses and boiling it down with a wood fire. The Percheron mares used to pull the sap sled are the broodmares that raise the Morgan-Percheron foals to be trained and sold at the farm.

**Thursday June 23, at 4:15 p.m. — Tour of Putney Furniture Maker Richard Bissell's Shop**

The Woodland Owner's Association will sponsor a tour of Richard Bissell's furniture making shop in Putney. He is a craftsman and artist in the design and manufacture of Shaker, Mission and custom furniture, as well as Windsor chairs. Richard has been designing and building handmade furniture one piece at a time since 1982. He also does a considerable amount of custom furniture and built-ins from minor customization of standard pieces to designing and building completely new designs.

We will meet in the parking lot behind the Putney Town Offices at 127 Main Street in Putney Village. From there we'll carpool at 4:30, since there is limited parking at Richard's shop. The tour will last about an hour.

For more information, please contact Windham County Forester Bill Guenther at 257-7967 Ext. 305.

**Saturday, June 25, from 10 a.m. to 2 p.m. — Black Mountain Hike: a Visit to the Flowering of the Mountain Laurel.**

WOA will be teaming up with The Nature Conservancy (TNC) to co-sponsor a hike into the Black Mountain Natural Area.

One of the many unique features of Black Mountain is the mountain laurel, normally found to the south of us. At the time of our hike, it typically is in full flower with showy white and pink blossoms. The Natural Area also supports stands of pitch pine and scrub oak, a rarity in Vermont. The hike will be led by Jon Binhammer, TNC's Director of Land Protection, along with Windham County Forester Bill Guenther.

We'll also get to observe some trail improvements to the steep slopes that were done with a Vermont Youth Conservations Corps (VYCC) crew last summer. The hike will be a strenuous and somewhat steep trip up from the West River to the West Summit. If time permits, we will also hike over to the East Summit, where the old cabin once stood. Both summits offer good views with the latter offering an impressive vista down the Connecticut River. If we only go to the first summit, the round trip distance is three miles, and going to the East Summit adds about another

two miles, for a round trip total of five miles. Participants will need to wear good hiking boots, bring bug dope, plenty of water and a lunch. The hike will be held rain or shine.

There is limited parking at the trailhead, so we will meet at the Dummerston Covered Bridge on Route 30 and carpool from there. The trailhead is just two miles from the covered bridge. ***We will leave the covered bridge at 10 a.m. SHARP.*** For more information or any questions, please contact Bill Guenther, Windham County Forester at 257-7967, Extension 305.

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## President's Column

*By George Weir*

I promised myself I would follow Bill Schmidt's and Stu Thurber's example and remain positive in the President's Column. What I report here varies from that, but at least it has a positive side: in Vermont when government fails you, you have recourse through the citizen legislature. I am thankful for that.

Last fall the Department of Fish and Wildlife proposed a hunting rule that would increase opportunities for harvesting antlerless deer. The rule would have established a four-day muzzleloader season in October, thus adding to the present eight-day December season, and would have added a week to archery season. An initial survey of 500 hunters indicated support for the proposed rule, so the Department of Fish and Wildlife recommended the rule to the Fish and Wildlife Board, which held three hearings on the rule. Given WOA's long advocacy for increased harvesting of antlerless deer in areas where deer damage forest regeneration, the WOA Trustees submitted testimony in favor of the rule.

As often happens with public involvement, those who oppose came out in force at the hearings. As a result, the Fish and Wildlife board rejected the recommended rule.

Two years ago, David Deen submitted bill H.16. It would allow landowners, by permit, to harvest antlerless deer where they were damaging regeneration. The bill passed the House in 2009 and went to the Senate Natural Resources Committee for consideration in 2010. That committee declined to consider the bill, and it died. Of note, Fish and Wildlife opposed the bill, and Forest, Parks and Recreation decided, in deference to Fish and Wildlife, to remain neutral. WOA asked for an opportunity to testify on the bill and did not receive a reply to our request.

Dave Deen and the House Fish, Wildlife and Water Resources Committee made improvements to H.16 and Dave re-submitted it in the new session as H.13. Put Blodgett, WOA member and president of the Vermont Woodlands Association, and I discussed a strategy on how WOA and VWA should respond to H.13. We decided that before providing testimony, we should meet with the new Commissioners of Fish and Wildlife and Forest and Parks to determine their plans, if any, to address locally troublesome deer populations. We requested that meeting, but did not receive a reply. So we both recently testified before the House Fish and Wildlife Committee in favor of the bill.

Not surprisingly, the Administration, both the Division of Forest, Parks and Recreation and the Fish and Wildlife Dept., submitted testimony opposing H.13. In its testimony, Fish and Wildlife stated it would develop an alternative plan to address local deer overabundance. I'm skeptical. There is nothing in previous actions of Fish and Wildlife or in the Vermont Deer Management Plan that indicates support for significant changes in deer management. Further, if Fish and Wildlife could not even get an increase of a few days to muzzleloader season, why would anyone believe they could put in effect a plan that would significantly increase the harvest of antlerless deer, even locally?

Given the administration's opposition, it's hard to be optimistic about H.13's future. But we need to continue to support it, and if it fails, to continue to press Fish and Wildlife and Forests and Parks for change. Without success, we have long asked Fish and Wildlife to consider the observed condition of the forest understory as a factor in deer management decisions. It seems completely sensible, and we will have to keep trying.

# Woodland Secret No. 1: Water Uptake

*By Arthur H. Westing, Former WOA Trustee*

When you look at the trees in your woods, what you are seeing in the forest before you is about 65 to 75 percent of its woody biomass. The remaining 25 to 35 percent represents the trees' below-ground root systems. The functions performed by a tree's root system are essentially two-fold: on the one hand, it anchors the tree in place and keeps it upright; and on the other, it draws in water with its dissolved nutrients — indeed, simply huge amounts of such water throughout each growing season.

But as it turns out, a tree's roots are simply not up to the job, so for every known species of tree — and, indeed, perhaps as well for all other plants growing in natural systems — the roots of each tree species have formed an intimate relationship with some particular species of fungus to help them out here. This relationship of “symbiosis” [sym- = together; -biosis = life] is of benefit to both partners. The fungi live within the tree's feeder root cells and draw their nourishment from the tree (fungi not themselves being able to synthesize their own food). They in turn send out a huge array of fungal hairs (hyphae) that increases the tree's water absorption of the order of 100-fold. And those same fungi often perform one or

more additional functions of use to their host tree: some of them ward off pathogenic (disease-causing) fungi; others make the roots less sensitive to heat stress; and yet others prevent or at least impede the uptake of toxic substances.

The crucial symbiotic relationship I have been describing is referred to as a “mycorrhizal” one [myco- = fungus; -rhizal = root]. So a forester may value a woodland site for the fine trees it supports, whereas the mycologist with him is admiring all of those great fungal host plants.

A sufficiency of water is, of course, crucial to a tree's survival, but species are variously sensitive to too much of a good thing. For example, Red maple (*Acer rubrum*) and Sycamore (*Platanus occidentalis*) can cope with occasionally water-logged soils, whereas Red oak (*Quercus rubra*) is less able to do so.

Finally, the symbiotic relationships between certain tree species and some very special bacteria I leave for another time.

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## Schneski's Mini-Maple, Guilford, Vt. (The 2010 Season in Review)

*By Sam Schneski, Windham and Windsor County Forester*

Let me start off by stating one basic fact. If you own a maple tree or can be granted permission by someone who does own one to tap it, you can make your own syrup. It is a pretty simple process. Time consuming, yes, but still simple. Boiling down sap with an average sugar concentration of around two percent can be done by many different means and at various levels of efficiency. I have been lucky enough to experience the gratification of sugarmaking from different levels of the maple operation spectrum. An operation that has 50 taps is very different from one that has 500 taps which is very different than one that has 5,000 taps which is in turn quite different than a 15,000 tap operation.

I started sugaring 11 years ago at a nonprofit called Merck Forest and Farmland Center in Rupert, Vermont. When I started, they had an established (yet very out of date) 1,000 taps on pipeline and 300 buckets. We had no vacuum and boiled on an old (but very easy to run) 4 x 12 evaporator. That means 4 feet wide by 12 feet long, divided into two: a smaller portion as the front pan (syrup pan) and a larger portion as the back pan (flue pan). The front pan is where the most concentrated liquid flows to eventually be finished into syrup, which has a specific gravity and becomes syrup around 219 degrees Fahrenheit. This changes a little from day to day with changes in barometric pressure. The flue pan is designed to preheat sap into a more concentrated

liquid before getting to the front pan. The concept of the flues is the same as that of older house radiators: to increase the amount of hot surface area in a given space.

After working at Merck for a few seasons, we began to upgrade, and when I left to go back to school we had a state-of-the-art 5,000 tap sugarbush on vacuum with a 6' x 16' evaporator and a steam-away unit. The unit is a network of "V" trays, steam pipes, and air pipes that is designed to preheat the sap and increase the sugar level, which in turn increases efficiency up to 75 percent. By running the sap through the V trays, the steam from the flue pan below heats the sap from the bottom side. These days I hear Merck is up to around 12,000 taps with multiple vacuums and a Reverse Osmosis (RO) machine. The RO was developed for desalinating ocean water for drinking water on ocean vessels. Some smart sugarmakers figured out that the same principle could apply in sugarmaking. To slightly oversimplify, water particles are separated from sugar particles by getting pushed through microscopic filters that the sugars won't fit through, thus turning a sap that might have had an original sugar concentration of 2 percent to 11 percent and up. This increases efficiency by reducing boiling time.

After going to forestry graduate school and spending a few years getting re-settled back in Vermont, my family and I moved to Guilford, where I was excited to see a dumpy old shed and some snarly old sugar and red maples on our property. In the spring of 2009 I couldn't avoid it anymore. I had the maple sickness. I missed sugaring and couldn't pass a sugarhouse without thinking, "How are they doing this year, what's the sugar content, what grades of syrup are they making, I wonder how many taps they put out, buckets or tubing?" The only way to gain back my sanity would be to put out a few taps myself. So I tapped six trees with the 5/16" metal health spouts, which create a smaller wound that heals faster and is just as productive as the older 7/16" holes.

I then went to work scavenging cinder blocks and a grate to create an outdoor (but contained) firebox on which I could put some five-gallon pots. The rule of thumb is that in an average year one tap should yield one quart of syrup (sometimes more, sometimes less). I had six taps and made a gallon and a half of medium amber so I was happy with the outcome.

Like most people who have done any sugaring, as soon as the season was over I began to plan for next year; how to get bigger and better and not spend much money. First, I knew I could build a cupola on top of the shed to let the steam out and a roofed stand behind it for the sap holding tank. I could use boards that I had milled out with my chainsaw and some cheap metal roofing. This could relatively inexpensively turn my dumpy shed into a "sugarhouse."

As far as an evaporator was concerned, from my experience at Merck, I knew what I wanted — a little 2' x 4' evaporator that had a front pan and flue pan and was pretty similar to a basic larger rig. It turns out that these things cost around \$3,500 and up new (!) and they are very hard to find used. I think the reason behind the lack of affordable used small evaporators is because they hold their value and there is an increasing trend in the industry for the back yard sugarmaker who puts out 20–200 taps.

After much penny pinching and research, I ended up buying a substantially cheaper 2' x 3' that is essentially all one pan with a small preheater box that rests on top of the back of the "front pan." I got 60 buckets from a friend, since he had gone to tubing, and bought a stock tank from Agway to dump the sap into, then ultimately feed the evaporator. I also had a bunch of firewood from a 34-inch dead beech that was leaning back over the shed (now referred to as the sugarhouse) that I wanted to cut down before putting anything of value in the building. Now I had to put some finishing touches on the building, including plumbing the tank to the evaporator, getting firewood stacked and ready, cleaning out old mouse nests, and various odds and ends. All of this had to be done while allotting enough time to share some childcare responsibilities with my wife to ensure she wouldn't resent "the hobby." It depends on whether you ask Laurie or me, but I think I did a good job juggling the two things. I jokingly like to point out that at least I'm not up to no good out on the mean streets of Vermont.

Anyway, the season was marginal at best; sap flowed early and ended early and never got very sweet. We didn't have the right temperature and weather conditions to get any really good flows without vacuum. As a retired county forester friend of mine pointed out, it was my best year yet on this set-up. That's the right attitude.

There is a theory known as “The Jones Rule of 86,” which helps to estimate sap sugar content and relate it to the gallons of sap needed to produce a gallon of syrup. Determine your sap’s sugar content using a sap hydrometer and divide that number by 86 to determine how many gallons of sap are needed for one gallon of syrup. We’ve all heard the 40 to 1 ratio, which means, on average, it takes 40 gallons of sap to produce 1 gallon of syrup. Using the Jones Rule of 86, we can determine that a sugar content of 2.1 percent is needed to meet this ratio. That being said, I had sap with a sugar content of almost 4 percent the first time I checked my first tank of sap (I should have stopped checking then...). An hour later, after I had gathered more sap, it was down to 2 percent, still not bad. By the end of my first night of boiling, it was down to 1.8 percent and never went up again all season. I had some nights of boiling to 2 or 3 a.m. with a sugar content of almost 1 percent! Was it still worth it? Of course it was. I was still making syrup!

By the end of the season I had made eight gallons, just slightly more than half of what I should have made, but I was still happy with it. That’s a lot of Christmas presents! I made a little bit in all of the grades from the best, Fancy, to Medium, to Medium

Amber, to Dark Amber, to B (bulk) and then C (cooking grade, also bulk).

During that spring 2010 season our almost two-year old was getting interested and could say all of the key words and phrases in life, like: “sugar maple”, “sugarhouse”, “check buckets”, “sap boils to syrup”, “maple syrup”, and “Daddy’s outside in the sugarhouse.” With kid number two on the way that summer, I didn’t think I’d be doing much upgrading for 2011, but rather just sitting tight and improving on small inefficiencies. So far, besides a new sugarwood shed (that is full) and some tubing to speed up the truck tank offloading process, things are pretty much the same for this year.

Sugaring is an ongoing learning process, and there is a vast array of knowledge out there in our little state, ranging from the old-timers full of knowledge and tricks to the newbies who are just figuring things out, and the people somewhere in between like myself. If you are interested in sugaring or any aspect of it, we invite you to attend the Windham County Maple Association’s next annual meeting on Tuesday, November 2, 2011. As a County Forester I am always happy to meet with an aspiring sugarmaker as well. Give me a call! Stay tuned for next year’s report....

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## How to Understand Your Deed and Find Your Boundaries

*By Diana Todd, WOA Trustee*

Walking your bounds is a satisfying experience. For many landowners, the lines that divide their land from that of their neighbors were established by early settlers, often as long ago as the late 1700s. Some boundaries are marked by stone walls, some by remnants of barbed wire, others by blazes and paint marks on trees. Finding these old marks establishes a direct link to the people who cared for your land long before you owned it. If you know the shape of your parcel and if it has distinct boundary marks, walking your bounds can be a relatively easy bushwhacking walk in the woods. But if you have only a vague sense of where your boundaries are, or if the ancient marks have faded away, figuring out where your boundaries are can become a substantial challenge. If you have a legal need to know precisely where your boundaries

are, hire a surveyor. But if you just want to know for your own interest, try to figure it out by referring back to your deed. If you don’t have a copy of your deed in your personal records, you can get a copy at your Town Hall.

If you are lucky, your deed will include a series of “metes and bounds” established by a (relatively) modern surveyor. Each side of your parcel will be described with a compass bearing and a distance. If you are unlucky, your deed will

### ***What is a “mete”?***

It is a boundary line, a limit, as used in “metes and bounds.” It is originally from the Latin meta (pronounced with a long “e” as meeta), a turning post.

only say “bounded on the north by lands of Smith and Jones, on the east by lands of Adams, Jefferson and Washington . . .” and so forth. In that case you would have to research the earlier deeds for the same parcel, working your way back until you find one that actually describes the metes and bounds. In that case, you will likely turn up a deed that gives metes and bounds in measurement units, such as rods and links, that are no longer commonly used today. Whether you find modern or outdated descriptions of the angles and distances, turning those into compass bearings to follow on your own in the woods requires some interpretation.

**Interpreting Modern Survey Language**

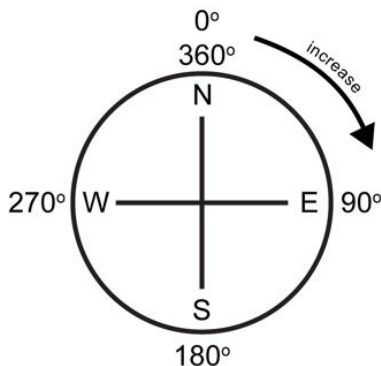
An example of (relatively) modern survey language contained in a deed is:

*Beginning at a point in a stone wall on the southerly side of Town Road #4 on the easterly boundary line of the Hall Cemetery so-called; thence running*

*S 16° 50' W along the stone wall and lands of the Hall Cemetery a distance of 88 feet, more or less, to a corner in the stone wall; thence running*

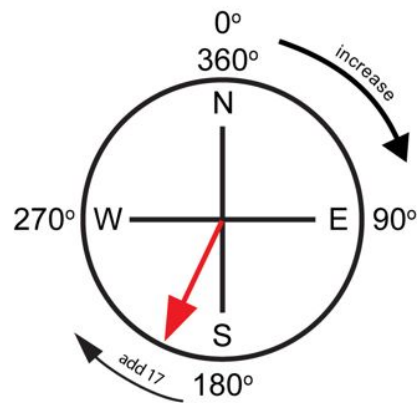
*N 73° 45' W along the stone wall and lands of the Hall Cemetery a distance of 85 feet, more or less, to a corner in the stone wall on lands now or formerly of Howatt; thence running ...*

Compasses have 360 degrees. Each degree is divided into 60 minutes, and each minute is divided into 60 seconds. Degrees are noted with a small superscript letter “o” (°), minutes are noted with an apostrophe (’), and seconds are noted with quotation marks (”). North is 0° or 360° (they are the same thing), east is 90°, south is 180° and west is 270°. The reading increases clockwise around the face of the compass.



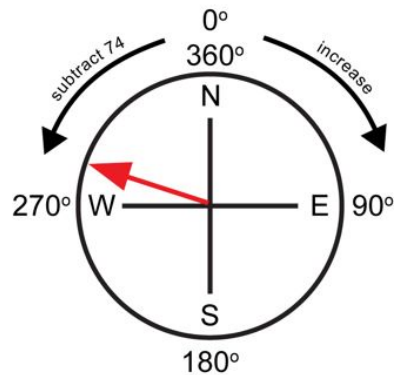
The first bearing in the deed quoted above is read as “South sixteen degrees fifty minutes west.” How do you translate that into a compass bearing?

First, no handheld compass is accurate enough to bother trying to read minutes or seconds, so round up or down to the nearest full degree, in this case, “South seventeen degrees west.” Then, starting at south, or 180°, rotate west seventeen degrees. Since west is clockwise on the compass from south, you are increasing, so add the seventeen degrees to the south bearing,  $17^\circ + 180^\circ = 197^\circ$ .



$$S17^\circ W = 180^\circ + 17^\circ = 197^\circ$$

The second bearing in the deed above is read as “North seventy-three degrees forty-five minutes west.” Round to the nearest full degree, to “North seventy-four degrees west.” Start at north, or 360°, and move to the west seventy-four degrees. Since west is counter-clockwise from north, you must subtract the westerly degrees, giving  $360^\circ - 74^\circ = 286^\circ$ .



$$N74^\circ W = 360^\circ - 74^\circ = 286^\circ$$



To determine a compass heading for any survey bearing, simply start at the first cardinal point (north, south, east, or west) in the notation, then rotate the specified number of degrees toward the second cardinal point mentioned. If the rotation is clockwise around the compass, add the degrees to the degrees for the cardinal point. If the rotation is counter-clockwise, subtract.

***Interpreting Older Survey Language***

Modern surveyors typically specify bearings starting from either north or south. Older surveys will specify bearings off of any of the four cardinal points. Here is a sample from a deed dated 1828:

*“ . . . thence west thirty degrees south four rods and ten links thence west forty three degrees South fifteen rods and twenty links thence west one degree south eighteen rods and fifteen links thence west thirty four degrees north twenty two rods and twenty links . . . ”*

Rewriting into tabular and numerical form brings clarity to the language;

W30°S	4 rods 10 links
W43°S	15 rods 20 links
W1°S	18 rods 15 links
W34°N	22 rods 20 links

Determine the compass bearings as before. The first, for example, starts at west (270°), then rotates 30° south, or counter-clockwise.  $270^\circ - 30^\circ = 240^\circ$

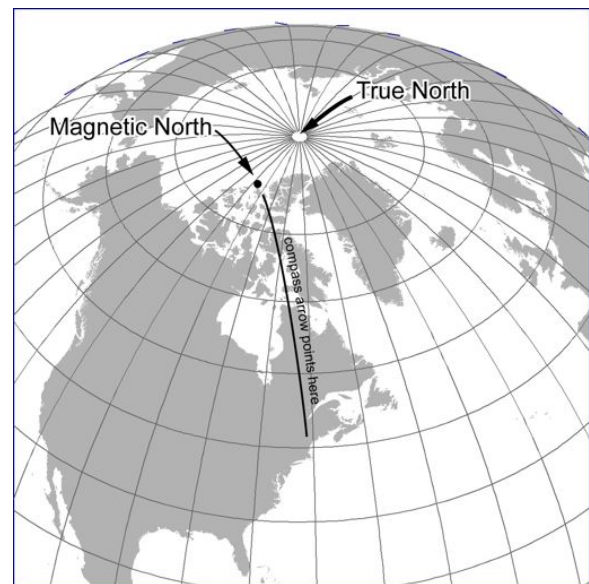
Change the rods and links into feet. One rod equals 16.5 feet. Twenty-five links equal one rod. One link equals 7.92 inches. A formula for changing rods and links to feet is:

$$[\text{rods} + (\text{links}/25)] \times 16.5 = \text{feet}$$

***Fine tuning for Declination***

Now you have a list of compass bearings and distances. But if you go out in southern Vermont to follow those bearings, you might not end up following your boundaries. Why not? Declination. That is the term used for the difference between magnetic north and true north.

We define true north and true south as the points about which the earth rotates. These points are stable; they don't change over time. True north is in the Arctic Ocean, not near any land mass. Magnetic north, on the other hand, is among the islands of northern Canada. Magnetic north is the central focal point of earth's electrical field. The magnetized north needle in a compass aligns itself with this electrical field. In southern Vermont, the difference between the direction to true north and the direction to magnetic north is about 15°. It is easy to visualize the direction of this 15° shift by picturing North America, the true north pole, and the magnetic north pole in northern Canada. In southern Vermont, your compass north needle points west of true north.



Surveyors list bearings based on readings from a magnetic compass. However, the location of the magnetic north pole changes over time, and the changes can be significant over one human lifetime. When the towns in southeastern Vermont were first being settled, the declination was about 8°, about half of what it is today. If the survey in your deed was completed less than 50 years ago, you can probably follow the compass bearings determined from the deed without any further ado. But if the survey is older than that, it would be a good idea to find out what the declination was at the time the survey was done, and adjust your compass bearings accordingly.

To determine a historic declination, go to <http://www.ngdc.noaa.gov/geomagmodels/USHistoric.jsp>

and enter the zip code of your location to get the latitude and longitude, then enter the date of the deed survey into the form. The site will calculate the historic declination at that place and time. The historic declination will be less than today's declination. Again, round to the nearest full degree and calculate the difference from today's declination in southern Vermont of about 15° west. To correct your deed-specified bearings so that you can follow a compass bearing today, do you add or subtract the calculated difference in declination? You add.

Here's one way to visualize it. Picture a surveyor from a time when the declination was ten degrees west taking a magnetic compass bearing on a stone wall boundary line that actually aligns with true north. The north arrow on his compass will not point to true north. It will point ten degrees west of true north, to the spot in northern Canada where the electric field emanated in his day. Sighting along his compass on the line of the stone wall to true north, his compass will

read 10°, and the surveyor will record that bearing in the deed as N10°E. A century or more later, you read the deed which says that the stone wall boundary runs at 10° east of north. But when you take out your compass, the north needle now points fifteen degrees west of true north because the magnetic pole has shifted. When you sight along the stone wall towards true north, your compass will read 15°. If you followed the 10° bearing from the historic deed you would not follow the stone wall; you would be heading slightly west of the boundary and getting further and further away from the actual line with each step you take. To determine the correct reading to follow today, you need to subtract the historic declination from today's declination, then add that value to the bearings that are listed in the historic deed. In the example above, subtract 10° from 15° to get a difference of 5°, then add that 5° to the N10°E bearing to get today's heading of 15°. Another example: if the declination was 8° at the time of the survey and the bearing you determine from the historic deed is 227°, the declination difference is 15 - 8 = 7° and the direction you should travel is 227 + 7 = 234°.

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## “Big Three” Insects: Threats and Management

*By George Weir, Consulting Forester and WOA president*

### **HWA**

Hemlock Woolly Adelgid has moved slowly into Windham County. HWA kills trees by attacking the shoots and thereby interfering with carbohydrate production. In most cases it takes several years for the tree to die, and vigorous trees can survive infestation. HWA's appearance in Vermont may relate to recent warmer winters, since the insect does not tolerate extreme sub-zero Fahrenheit temperatures. A short period of very cold weather dramatically reduces the HWA population

### ***Silvicultural Options***

There is no need to consider pre-salvage. For most of the year the insect is found only on the shoots, so a landowner can harvest and ship logs from infected trees. Mills have entered into compliance agreements with the state that allow them to receive the logs.

Throughout spring and early summer the insect has a mobile crawler stage that could result in insects attaching to log shipments. Therefore August through March harvesting is recommended. Loggers working in summer should wash down their equipment when moving logs from an infested site.

Many hemlocks may succumb in heavily infested stands. Landowners may want to plan for and undertake regeneration harvests in such stands. As with any regeneration harvest, assurance of a seed source or presence of desirable seedlings and saplings prior to harvest and creation of the appropriate light regime to accomplish the regeneration goal are essential.

In my view, HWA will become naturalized in Windham County but will not greatly threaten our forests.

We can hope that occasional cold winters and the emergence of natural enemies will keep populations at a low level.

### **ALB**

The Asian Longhorned Beetle is a destructive tree-killing insect that attacks many hardwood species. It kills trees by boring numerous holes in the stem, interfering with the tree's life processes, and sending the tree into prolonged decline. Fortunately, ALB is large and can be easy to identify, wounds on the stem are also large, and ALB does not move rapidly outward from an infested tree to other trees or areas. However, if undetected for a number of years, as in the Worcester, Mass., outbreak, ALB populations will build up and cause significant tree mortality and economic loss.

The federal government has the goal of eradicating ALB. Because the insect is slow moving, eradication is a possibility. But eradication involves the expensive process of finding and destroying infested trees. As Barbara Burns pointed out at our annual meeting, the Worcester infestation could make or break the control effort. How much money is the government willing to spend? The outbreak in Worcester went on for about a decade before detection, and the insect has spread to neighboring towns. To date the eradication effort has required destroying approximately 30 thousand trees and cost close to 200 million tax dollars. Could a time come when the federal government abandons the effort?

### ***Silvicultural Options***

Again there is no need to consider pre-salvage, but all landowners should learn to identify ALB and the signs of infestation. Assuming the federal government continues to take responsibility for ALB control, if ALB arrives in Windham County, the government would create a quarantine zone of several square miles around the area of ALB detection. If the quarantine zone included your woodland, you would not be able to move forest products until the government had confidence the eradication effort had succeeded. The likelihood that ALB would show up in your woodland is remote, even if the land is within the quarantine area. Management would simply involve deferring planned harvests.

In my view, with constant vigilance and continuing federal response to outbreaks, ALB should not threaten our woodlands. I have my fingers crossed.

### **EAB**

Emerald Ash Borer is a cause for nightmares. The insect is tiny and difficult to detect; the holes it makes in the stem are minute; and EAB can live for several years under the bark of a tree that will certainly die without a significant change in the tree's outward appearance. EAB kills trees by making extensive galleries beneath the bark that interfere with nutrients moving in the stem. EAB can migrate rapidly to nearby trees and may spread to other areas before people are aware of the initial outbreak. Whereas ALB has contributed to the death of an estimated 50,000 trees, EAB has killed upwards of 40 million trees. Early efforts to eradicate the insect completely failed, and the federal government has abandoned that goal.

The insect is established near Woodstock, New York, and near Montreal, Canada. Because it can go undetected on shipments of woody materials and has jumped hundreds of miles on transported firewood and other products, EAB may arrive in Vermont within a few years. Fortunately, EAB only attacks ash.

### ***Silvicultural Options***

Landowners should plan their response to the threat EAB poses. There are various management options that differ based on a number of factors. All options require knowing how much ash you have in your woodland.

For stands with very little ash, the no-action option may make sense. Including enough trees in a harvest to interest a mill or logger and make the effort worthwhile would probably require harvesting other species. If the next planned harvest is a long way off and the stand is developing well, it may make more sense to accept the demise of ash rather than to prematurely harvest other trees. Conversely, if the stand is ready for treatment, proceed with cutting.

Landowners should consider pre-salvage in stands with a high percentage of ash. In young stands, pre-salvage may take the form of thinning. In mature stands harvesting will create wide canopy openings that allow regeneration to advance. In that case, landowners should plan for a regeneration harvest that creates conditions favorable for desired regeneration.

Two other things are important for landowners to

consider. First, how much risk are you willing to accept? If you own very little ash, the risk is minor, and even if you choose pre-salvage, you might wait to act until EAB was present in Windham County and the threat imminent. If you own a lot of ash, the risk is great, and you might consider acting immediately. It often takes many months to accomplish all the tasks involved in a harvest, so acting early could make sense.

Second, landowners will have to decide how much

ash to harvest. I have heard different ideas on this, ranging from harvesting every ash in the stand to simply harvesting a higher percentage of valuable ash than previously planned, reserving some for growth and as seed source for regeneration. Realistically, if EAB attacks your woodland, it may kill every ash, not just mature trees, but saplings as well.

All landowners will have to make their own decisions. Again, it depends on how much risk you are willing to accept.

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## Kudos to Nick Haskell

*Nick Haskell was named Student of the Year by the New Hampshire Division of the Society of American Foresters. Nick is a Woodland Owners Association scholarship recipient studying Forestry at the Thompson School of Applied Science at the University of New Hampshire (UNH). Recently he sent the following report on his activities.*

This past fall I participated in a community event with the UNH Woodsmen Team. It was at the DeMerritt Hill Apple Orchard, in southern New

Hampshire. (The apple orchard had lost most of its crop that year due to a late spring frost.) The DeMerritt Hill Apple Orchard invited the UNH Woodsmen Team to provide a demonstration of our woodsmen skills to the general public. This allowed the apple orchard to publicize their orchard and it brought them more customers. During the presentation I carved (with a chain saw) a rabbit and a beaver. I also demonstrated safe chopping and sawing techniques. I enjoyed working with my other team members during this event.

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## Library Corner

WOA member Tom Prunier has generously contributed some 50 books to the library, ranging from comprehensive field guides to fiction strongly rooted in the natural environment. You can find an updated list of the library holdings on the WOA website, at <http://www.woodlandownersassociation.org/Library%20Holdings.html> Better yet, stop by the County Forester's office and browse through the collection. Whether you are looking for practical guidance on fish farming, a cookbook for venison, or just some entertaining reading about the outdoor environment, the library has something to suit you.

Meanwhile, many thanks to Tom for his generosity!

### *A couple of new arrivals ...*

Roger B. Swain, *Earthly Pleasures — Tales from a Biologist's Garden*, Charles Scribner's Sons, 1981.

If you're in the mood for some entertaining reflections on aspects of the New England environment, try this book. The short essays are not only about

gardens; in fact, the very first is titled "Time, Energy, and Maple Syrup," and presents the author's musings on the costs versus the benefits of sugaring (in case you're wondering, it's all worth it). Other essays consider the personalities of squirrels and woodchucks, the structure of tree bark, the effects of road salt on vegetation, ways to attract bees to a garden, and the discoveries about cabbages, duckweed, parsnips, and tomatoes. Swain hosted "The Victory Garden" on PBS and served as science editor of *Horticulture* magazine, and has a farm in southern New Hampshire.

Eric Sloane, *A Reverence for Wood*, Ballantine Books, 1965.

Eric Sloane combined his talents as a writer, a researcher, and an artist to explore how the special characteristics of wood influenced the development of the American Northeast. Each chapter in this short, engaging, and beautifully illustrated book ex-

amines aspects of the relationship among people, trees, and wood. The narrative begins in 1965 with the dismantling of an old barn, and goes back three centuries, devoting one chapter to each century. The text and drawings illuminate topics as diverse as the advantages of various types of wooden pins and joints, how different saw marks reveal the age and original purpose of a board, the design of barn doors, how the ubiquitous New England stone walls

evolved from the original wooden “snake rail” fences, and the history of the Westfields “Seek-No-Further” apple. No wonder that Joseph Jenks, who designed some of the American colonies’ early currencies, such as the “pine tree shilling,” said “What better thing than a tree, to portray the wealth of our country.”

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## How My Father Became a Forest Ghost

*By Margaret MacDonald*

My father, Shepard Stone, took the responsibilities of woodland ownership seriously. He spent every summer weekend in 1963 — the year my parents bought our property in South Newfane — taking lessons from a neighbor on how to use and maintain a chainsaw. Over the years he became quite competent for an amateur. He learned about safety practices, selective cutting, and how to notch trees so that they fell (more or less) where he wanted them to. He delighted in showing off his tree felling skills to (often skeptical) friends from around the world. In the late 1970s a visiting physicist from the Soviet Union remarked scornfully “We have *peasants* to do that!”

From the mid-1970s until the late 1980s, my parents spent much of the year in Berlin, Germany, where my father ran a small institute. Every day after lunch he would take a walk in the nearby Grunewald — the “greenwood” where hikers could sometimes still see wild boars. One afternoon he came across a crew of three men — two Turkish “guest workers” and their German foreman — dressed in workmen’s overalls and wearing hard hats. They were staring with evident dismay at a large tree. In their nearby vehicle were a chainsaw and other logging equipment. My father, interested and somewhat amused, asked the

foreman what they were doing. The foreman, startled to be addressed on such a topic by an elderly gentleman in a navy blue pinstriped suit, explained that they had been told to cut this tree and were trying to figure out how to get it to fall in the right direction.

“Where do you want it?” asked my father. The foreman pointed. My father smiled. “May I?” he asked. He borrowed the foreman’s hard hat, picked up the chainsaw, waved the astonished men off to a safe distance, started the saw, and took down the tree, which luckily came to rest in precisely the right place. My father returned the saw and the hat to the foreman, said polite goodbyes, and resumed his walk, leaving the three men gaping after him.

It was not the best example of safe logging. But from the perspective of the German crew, it was an outright impossibility. Men in pinstriped suits do not cut trees. It simply isn’t done. I still imagine that for a long time afterwards the workers in Berlin’s parks and recreation department exchanged awed whispers about the well-dressed ghost who emerged from the forest, cut a tree, and then disappeared, never to be seen again.



**WOODLAND OWNERS ASSOCIATION**

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**Upcoming Programs — Save these dates!**

*(See inside for details.)*

<b>Wednesday, March 16, from 2 – 4 p.m.</b>	<b>Tour of Cersosimo Lumber Company Chip Mill</b>
<b>Saturday, March 19, from 9 a.m. to noon</b>	<b>Setting the Table for Wildlife: Wild Apple Tree Care</b>
<b>Saturday, April 9, at 9:15 a.m.</b>	<b>Unique Sugarhouse Tours in Whitingham</b>
<b>Thursday June 23, at 4:15 p.m.</b>	<b>Tour of Putney Furniture Maker Richard Bissell’s Shop</b>
<b>Saturday, June 25, from 10 a.m. to 2 p.m.</b>	<b>Black Mountain Hike: Flowering of the Mountain Laurel</b>

***Mission of Woodland Owners Association***

WOA is a non-profit association of woodland owners and managers, members of the wood products industry, and other interested parties in the Windham County Region who advocate both sustainable management practices and the enjoyment of forests and their ecosystems. In support of these ends, WOA offers educational opportunities for all age groups. Areas of interest include: biodiversity; clean air and water; cultural and historic resources; fair and equitable taxation of woodland; forest products; recreation; scenic beauty; and wildlife habitat. We recognize that these concepts are continually evolving