

The New York Forest Owner

A PUBLICATION OF THE NEW YORK FOREST OWNERS ASSOCIATION

For people caring about New York's trees and forests

July/August 2016



Member Profile: Peter and Nancy Cann

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**THE NEW YORK
FOREST OWNERS
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A PUBLICATION OF THE NEW YORK FOREST OWNERS ASSOCIATION

VOLUME 54, NUMBER 4

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Please address all membership fees and change of address requests to PO Box 541, Lima, NY 14485. 1-800-836-3566. Cost of family membership/subscription is \$45.

This publication is printed on Finch Opaque, Smooth, 70 lb. text paper. Located in the beautiful Adirondacks, Finch has long understood that the viability of our business relies on the wise use—and reuse—of resources. Finch papers are made with renewable energy, post-consumer recycled fiber and elemental chlorine-free pulps. In addition, Finch Paper was the first integrated paper mill in the US to received both the Forest Management and Chain of Custody certifications from the Forest Stewardship Council and the Sustainable Forestry Initiative.

www.nyfoa.org

COVER: Peter and Nancy Cann stand on the suspension bridge they built over a stream on their property. For member profile see page 21. All photos courtesy of the Canns.

From The President

It seems like all the news about invasive pests in our forests is bad news, but there is hope. In May of this year, the USDA's Agricultural Research Service approved for release a host-specific parasitoid wasp to fight the emerald ash borer (EAB) and the USDA's Animal and Plant Health Inspection Service has set up a mass rearing facility. They plan to



produce tens of thousands of these wasps and release them in the northeastern US.

This wasp, named *Spathius galinae*, comes from Russia and only attacks

one other insect than the EAB — the gold spotted oak borer, which is itself a serious invasive pest of oak trees in California. It does not sting either EAB or humans. Instead, it simply lays eggs on the EAB larvae. The wasps locate the EAB feeding under the bark of the ash tree because infected trees smell different to the wasp. Using sensors in their legs to detect vibrations from feeding EAB, the wasp drills through the bark and lays a clutch of 9-15 eggs on the surface of the EAB larvae. Once the wasp's larvae hatch, they feed on and suck the juices out of the EAB larvae.

I learned quite recently that the emerald ash borer was recently found only about two miles away from my

woodlands. There is a fair amount of ash in my woods and I had resigned myself to the likelihood that they would all be dead in a few years. Whether or not the wasp will ever appear in time to save my ash trees remains to be seen, but I at least have a glimmer of hope.

The NYFOA rewards program continues to expand due to the efforts of the NYFOA membership committee led by Dean Faklis (see article on page 14). A growing list of businesses and organizations are now offering discounts to NYFOA members. For further details, see the NYFOA website homepage. I suspect that before long, NYFOA members can save enough money through this program to more than pay for their dues.

Ron Pedersen's term on the board expired in April of this year. He has a long history of dedicated service to NYFOA including being one of the original charter members, serving on the board of directors, serving as President among other offices, and co-chairing our Farm Show presence. He received the NYFOA Outstanding Service Award in 2007 and the Heiberg Award in 2013. Congratulations and a very heartfelt thanks to Ron for his many past contributions to NYFOA, and all he continues to do for NYFOA. Please be sure to thank Ron personally the next time you see him.

—Charles Stackhouse
NYFOA President

The mission of the New York Forest Owners Association (NYFOA) is to promote sustainable forestry practices and improved stewardship on privately owned woodlands in New York State. NYFOA is a not-for-profit group of people who care about NYS's trees and forests and are interested in the thoughtful management of private forests for the benefit of current and future generations.

Join! NYFOA is a not-for-profit group promoting stewardship of private forests for the benefit of current and future generations. Through local chapters and statewide activities, NYFOA helps woodland owners to become responsible stewards and helps the interested public to appreciate the importance of New York's forests.

Join NYFOA today and begin to receive its many benefits including: six issues of *The New York Forest Owner*, woodwalks, chapter meetings, and statewide meetings.

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New Member Snapshots

Tom Carey

Forest Land: 83 acres, Essex County

Objectives: Hunting, Forest Management, Firewood, Wildlife

Tom is the new owner of a 96-acre property, which consists of 83 acres of woodlands, seven acres of beaver ponds and six acres of lawn. He joined NYFOA through the kind friendship of Board members David Williams and Peter Smallidge.



Tom's primary activities at his forest are hunting and observing nature. A beneficial aspect of his ownership is that the property provides an ample source of firewood.

Tom's short-term goal is to confirm and maintain the property boundary. The previous owners did not post the land and the boundaries are not clearly visible. This is an essential task prior to planning any significant timber/firewood harvests.

His long-term goals include the improvement of the timber resource. He also plans to establish a small farm and garden in addition to introducing fish to the beaver ponds. Tom enjoys hunting, fishing and kayaking and his other interests include timber frame construction and furniture making.

Tom Battley and Belinda Bryce

Forest Land: 34 acres, Ontario County

Objectives: Conservation, Forest Management, Wildlife

Tom and Belinda now own the property that NYFOA's Dennison Family improved in the 1990's when they added a pond and cabin. Before then, about 40 years ago, someone planted Scotch and white pine, which dominates the upper portion of the land.

Tom has been working in the woods since he was a teenager in the 1960s. Tom's 11-year old cousin, Lorenzo (pictured here with Tom), has taken to the land. He loves working with Tom doing anything from dragging and piling brush to shoveling gravel. Recently, Lorenzo took great pleasure in cleaning the chainsaw and is getting ready to learn how to sharpen chains.



About thirty years ago Tom began spending time in Canadice, NY at a friend's property, clearing trails, building a deck, and enjoying the area. The patriarch of that family entered their property into the Finger Lakes Land Trust. Today, Tom and Belinda can walk to that property from their place, through the woods, in about fifteen minutes. Tom and Belinda's property is also in the Land Trust, which includes permanent easements that forbid timber harvesting for profit and any permanent development of the hardwood portions of their land.

Tom and Belinda's goals are to reduce invasive species on the land, thin the pine plantation and encourage the growth of hardwoods. Long term, they want their land to be part of the larger New York State permanent forest, protected from development. A forest for its own sake.

Tom is the executive director of New York Photonics, an advocacy and education group for New York's Optics, Photonics and Imaging industry. His partner Belinda, runs the Higher Education Opportunity Program at RIT and is also an accomplished artist.

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NYFOA Silent Auction

EMILY ANDERSON

NYFOA will be Rekindling its Silent Auction at its Next Annual Meeting

The NYFOA silent auction committee is currently seeking donations from members for an on-line and in-person event. Handmade items, gift cards, vacation stays and all other creative alternatives are being sought out. We hope this exciting auction will be able to showcase the many talents of NYFOA members and add value in attending the annual state meeting.

Our goal is to create an auction that is interesting and offers members a chance to raise money. The current goal is set at \$5,000 and the NYFOA membership committee is currently working to identify the beneficiaries.

More information can be found at www.nyfoa.org or by contacting Emily Anderson at aja74@cornell.edu. The NYFOA Silent Auction is coordinated by the NYFOA membership committee that includes Emily Anderson, Dean Faklis, Sid Harring, Bruce Revette, Lew Ward, and Dave Williams.



NYFOA STORE

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All items display the NYFOA logo.

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Welcome New Members

We welcome the following new members (who joined since the publishing of the last issue) to NYFOA and thank them for their interest in, and support of, the organization:

Name	Chapter	Name	Chapter
Ed Bennett	SOT	John Knapp	SOT
Thomas Carey	NAC	Devin Merkley	SOT
Robert Cook	CDC	Michael Morris	WFL
Bob Cooley	CDC	Christopher Prentis	LHC
Dolores Elliott	SOT	Sandra Rose	NAC
John Farrar	SAC	Bob & Elena Schiller	SOT
Ellen Graf	CDC	James Sublette	SOT
Kerry & Cheryl Henderson	CNY	Mary Trev Thomas	CDC
		Derek Zipprich	CNY

Ask A Professional

PETER SMALLIDGE



Peter Smallidge

Landowner questions are addressed by foresters and other natural resources professionals. Landowners should be careful when interpreting answers and applying this general advice to their property because landowner objectives and property conditions will influence specific management options. When in doubt, check with your regional DEC office or other service providers. Landowners are also encouraged to be active participants in Cornell Cooperative Extension and NYFOA programs to gain additional, often site-specific, answers to questions. To submit a question, email to Peter Smallidge at pjs23@cornell.edu with an explicit mention of "Ask a Professional." Additional reading on various topics is available at www.forestconnect.info

Tree and Log Scales

Question:

It is frustrating that there are three different log rules used in New York, especially for owners with property in two different regions. Why can't these different scales be standardized? (Kevin, CDC)

Answer:

Tree and log scaling rules were developed to aid in the buying and selling of trees and logs. The rules provide a method to estimate the volume of wood in the tree or log, and thus assign some value. Trees and logs are sold in units of board feet, and one board foot is 1" x 12"

x 12". The process of scaling measures the tree or log and estimates the volume of board feet. Large quantities of trees and logs are usually sold in thousands of board feet, denoted as MBF where the "M" represents *mille* the Latin for one thousand.

Because of the history of different log and tree rules within the forest products industry, and the ability to convert from one scale to another, it seems unlikely the state or the industry will undertake an effort to require the consistent use of a single rule. The procedural efforts and policy implications for such a requirement are beyond the scope of this article, but such an undertaking would require considerable effort and time. There are steps owners can take to reduce the frustration and financial risk from dealing with different rules.

An analysis of the various rules may facilitate an understanding of how they relate, and how to avoid confusion and error in their use. A thorough discussion of log and tree rules, summarized here, is provided by Dr. Daniel Cassens, Purdue University Department of Forestry and Natural Resources www.extension.purdue.edu.



Figure 1. Tom Gerow of Wagner Hardwoods explains log scaling and grading to students. Purchased logs are arranged in the log yard to facilitate viewing the log for features of quality and defect (i.e., grading) and to measure log length and diameter of the small end.



Figure 2. Estimating the volume of a tree begins with measuring diameter. The most accurate measurement is obtained with a diameter tape, or “d-tape” as pictured. Scale sticks and ocular estimation also provide estimates of tree diameter.

[edu/extmedia/fnr/fnr-191.pdf](http://www.nyfoa.org/edu/extmedia/fnr/fnr-191.pdf). Everyone interested in log and tree rules, or scaling timber, would benefit from the study of this bulletin.

The forest products industry is the primary user of these rules. Each sawmill has their favorite rule, and provide details and pricing for the trees and logs they buy based on that rule. Frequent users of rules will either convert volume estimates to their familiar rule, or will know how much over-run or under-run will exist when comparing two rules. The rules each have advantages that argue for their endurance, and disadvantages that cause frustration.

Over the last 200 years, almost 100 rules have been developed and used in the US or Canada. Three rules remain in common use in New York, and most of the Northeast. These include Doyle, Scribner, and International ¼”. Doyle and International rules are called formula rules because they were developed based on mathematical formulas. The Scribner rule is a diagrammatic rule because it was developed by creating diagrams of perfect circles to represent the small end of a log and estimating the number of board feet that could be cut. These rules all have the same intended purpose, that being to

estimate the number of board feet in a tree or log.

Scaling, the process of estimating volume, considers the geometric shape of the tree or log as a cone because it is roughly circular in cross-section but tapers between the small and large ends (Figure 1). Log scaling involves measuring the diameter on the small end and the length of the log. Tree volume estimates are essentially a series of stacked cones, each successive cone smaller than the preceding cones. Measurement of a cone requires knowing the length of the cone and one or both measurements of diameter for the ends of the cone. Tree measurements are complicated by only being able to easily measure the diameter on one end. Because the upper diameter of the tree’s cone is not easily measured, the tree rules assume some amount of taper and use one estimate of diameter. Tree rules are different from log rules, although they share the same names, because of differences in the way measurements are made to trees versus logs.

Scaling of logs measures the diameter inside the bark at the small end. Small end measurement accounts for the “saw’s perspective” which will cut in a straight line the length of the log. A 16 foot log,

for example, will only yield boards that are 16 feet long if they extend the full length of the log. The taper of the log may allow for a shorter, perhaps 8 foot board from the outside of the central cylinder on the thick end of the log. Only the International ¼” log rule accounts for taper. All the tree rules, as described below, account for taper.

Scaling does not directly account for volume lost to defects. If a log or tree has any significant areas of decay, rot, or sweep, the scaler will either make a deduction or will label the estimate as gross volume.

The three common rules have an interesting history and different advantages. Of the three common rules, Doyle is the oldest and most widely used. Edward Doyle likely published his rule in 1825, but the second edition in 1837 is the oldest existing copy. The Doyle log rule is simply:

(Doyle) Board feet per log = $(D-4)^2 \times (L/16)$, where D is the diameter inside the bark on the small end and L is the length of the log in feet.

The diameter is reduced by 4 inches to account for slabs and edgings, and no adjustment is made for taper. The reduction by 4 inches is excessive for small logs and insufficient for large logs. As a result, the volume of small logs is underestimated, but overestimated for large logs. The advantage and persistence of the Doyle rule is its simplicity and familiarity.

The Scribner rule was developed in the mid 1800’s. This rule was diagrammed to produce one-inch thick boards in widths of 4, 6 or 8 inches, and with a ¼” saw kerf. As with Doyle, taper is ignored. Different forms of the Scribner rule were developed, the most common known as “Scribner Decimal C.” The complications of a diagrammatic rule were adjusted to some extent, and the yield pattern can be predicted by this formula:

(Scribner) Board feet per log = $(0.79D^2 - 2D-4) \times (L/16)$, where D is the diameter inside the bark on the small end and L is the length of the log in feet.

continued on page 18

Wild Things in Your Woodlands

KAREN CEBALLOS

EASTERN MILK SNAKE (*LAMPROPELTIS TRIANGULUM TRIANGULUM*)



The eastern milk snake (Lampropeltis triangulum triangulum) is a medium-sized, boldly-patterned snake with smooth scales and a small, blunt head that is distinct from its body. While there is considerable color and pattern variation, milk snakes usually have a series of 30-47 large squarish blotches on top of their bodies, and a row of smaller, alternating blotches running along their sides. On adults, these blotches vary from reddish brown to a light or dark brown, bordered by a black line. Juveniles often have bright reddish brown or orange blotches. The background coloration varies from beige to gray. The underside of the milk snake is a creamy white color, with black squarish markings that form a checkerboard-like pattern. Another way to identify milk snakes is by the “V”, “U” or “Y” shaped blotch on the top of the head.

Adult milk snakes are generally between 24 to 52 inches in length, averaging around 33 inches for males and 30.75 inches for females.

Milk snakes are like the misunderstood teenagers of the snake family. While they are abundant throughout most of the state, they can sometimes be secretive and often may not be seen out in the open. People often confuse them for their more dangerous look-a-likes, and even their name is misleading. Hopefully we can clear up some of the mystery surrounding milk snakes in this edition of “Wild Things in Your Woodlands.”

The Eastern milk snake has a very broad range, reaching up to Quebec and Maine, westwards to eastern Minnesota and southwards all the way to Alabama. The Eastern milk snake is actually one of 24 subspecies of milk snakes, a species that boasts the biggest range of any native snake in North America. Milk snakes are found nearly everywhere in the United States, except for the West Coast, and can be found as far south as Venezuela and north into Canada.

With such a broad range, it’s

unsurprising that milk snakes thrive in a wide variety of habitats. They inhabit deciduous forests, rocky hillsides, open fields and ecotones (areas of transition between two types of ecosystems). Eastern milk snakes commonly dwell in human habitats, such as farms and power-line rights of way. Milk snakes are rarely encountered in the open, and the best way to find them is by searching under cover objects, like rocks, logs, boards, tin or other building debris.

People often find milk snakes hiding in barns, giving rise to the myth that these snakes were sucking on the cows teats and “milking” the cows. Milk snakes are actually drawn to barns for their warmth and abundance of their favorite foods: rodents! This makes milk snakes a highly beneficial species for farmers because they help to control rodent and other pest populations.

In ecosystems, milk snakes are also important predators of small mammals, birds and other snakes.

Their actual diet changes dramatically with age, where younger snakes feed mostly on other species of snakes (northern redbellied snakes especially, but eastern garter snakes, northern ringneck snakes and northern water snakes also make the menu). On the other hand, adults feed almost exclusively on small mammals, amphibians, eggs and, on the rare occasion, birds. Milk snakes are constrictors, meaning that they coil themselves around their prey and squeeze until the animal suffocates. After the prey is dead, the milk snake swallows its food whole.

Milk snakes are active from April to October, with peak activity in June. They are mainly nocturnal, but are also occasionally out during the daytime when it is warm enough. They enter brumation (like hibernation) in October, hunkering down in shale banks, wells and under debris.

Milk snake mating season occurs from March to May. Since they are

a solitary species, mating season and hibernation are the only times milk snakes will be found with others. Sometimes snakes will mate while still inside their winter den. Other times, females will exit their den and leave a pheromone trail behind for males to follow. Once the male finds a female, he will sometimes mate for several hours to prevent other males from copulating with the ovulating female.

About thirty days later, the female selects a warm, humid nest site and lays her eggs. Nests can be found in a variety of materials, including rotting wood, sawdust piles, rubbish heaps, loose soil and under rocks. The female usually lays around 10 white, leathery eggs each slightly longer than an inch and a half (though clutch size can range from 5-24). After laying the eggs, the female is freed from her motherly duties, and leaves the eggs to incubate.

Incubation varies from 49 to 61 days, and hatchlings first appear in mid-August. Using a special "egg tooth" to hatch out of their eggs, the baby milk snakes are about 9 to 10 inches long, and look like a smaller, more vividly colored version of the adults. The pattern of the eastern milk snake usually gets darker and duller with age. While young milk snakes are common prey, those that are able to avoid predation become fully grown within three to four years. This is not to say that adult snakes are free of predation, as raccoons, skunks, foxes and coyotes all prey on milk snakes.

When threatened, milk snakes will shake their tails in an attempt to mimic a rattlesnake and scare the predator away. The eastern milk snake does not actually have a rattle, but can create rattling noises from the shaking of dry leaves and vibrations. In some areas, the coloration of milk snakes mimics that of copperheads

or coral snakes, both venomous species. Mimicking venomous snakes is a useful strategy to help avoid predation.

Unfortunately for milk snakes, this tactic often backfires when humans mistake them for a dangerous species and kill them. This species is by far one of the most confusing species of snake, since its rattling behavior often tricks people into thinking they've encountered a rattlesnake. The eastern milk snake is also commonly confused with a copperhead because they have similar markings on their back. However, only the eastern milk snake has the characteristic "Y" or "U" markings on the back of its head, and the copperhead also lacks the milk snakes' underbelly checkerboard pattern. Other species frequently confused with the eastern milk snake are juvenile black rat snakes, northern black racer and the northern water snake.

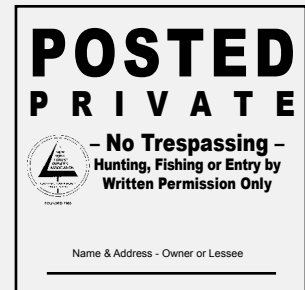
Even though they are commonly confused for dangerous species, the eastern milk snake is harmless and non-venomous. If an intruder approaches, they may vibrate their tail and strike a couple times, and they may even bite if cornered or captured (but wouldn't you?) Milk snakes may also release a musk or feces upon capture and handling. Regardless, milk snakes pose no real issues for humans, and they serve as a wonderful ally for anyone trying to limit rodents in their yard or buildings. 🐍

Karen Ceballos is a sophomore majoring in Environmental Science and Sustainability at Cornell University. She is also the Program Assistant for the New York Master Naturalist volunteer program.

Is there a certain animal that you would like to see featured in an upcoming "Wild Things" column? If so, email Kristi Sullivan at kls20@cornell.edu

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JEFF JOSEPH



Adding Value to Beech with Shiitake

As I've written about previously in these pages (Vol. 53, No. 3, pp. 8-9), my woodlot has a beech problem. Rather than being content to share space with all the other trees here, beech has a greedy temperament, and seems bent on taking over every square inch of ground with sprouts and root suckers. This, despite my efforts over the past five years to fight back by treating the freshly cut stumps when cutting firewood. I didn't treat the stumps the first eight years I cut beech in this woodlot, so have seen firsthand what a losing proposition that is. Take it from me, beech WILL overrun your woods if you're not careful.

I burn nothing but beech in my woodstove (it makes for great firewood), and have removed somewhere in the ballpark of 100 cords from my 33 acres in the past decade (for myself and to sell), but have not put

much of a dent in the population as yet. In truth, now that the trees have leafed out, the understory in some of my stands seems as beech-thicket dominated as ever, which is disheartening to say the least. Maybe I've made a small dent.

Since I realized that my firewood cutting alone would never allow me to gain any significant advantage over the continuing proliferation of beech sprouts, I decided in 2012 to start cutting even more pole- and sawtimber-sized beech (while of course treating the stumps), and began growing shiitake mushrooms exclusively on beech wood. The following is a brief description of what I do and some of what I've learned in the process.

There are a number of good resources offering a general overview of growing shiitake on logs in the northeast (see *Resources* at end), including an increasing number of hands-on NYFOA chapter or CCE workshops (check with your local chapter for details, or for getting in contact

with a resident 'expert' on the subject). As always, use all the proper protective gear and safe felling techniques when cutting, and although growing shiitake is quite easy and safe, be sure of your ability to identify what is—and is not—a shiitake mushroom at the outset.

Focusing production on beech—presuming one is going to treat the stumps to inhibit sprouting—necessitates taking the less common approach of inoculating the bolts (the hardwood substrate) in the fall instead of springtime, as treating the stumps with glyphosate at this time maximizes its effectiveness in inhibiting subsequent sprouting and root suckering. Accordingly, I have shifted my annual firewood cutting schedule to where I now do all my felling during the last week of September, and inoculate the freshly cut bolts shortly thereafter (the firewood is cut and split the following spring). September is actually a very nice time to be working in the woods, and as long as I am able to block out the time in advance, I have adapted readily to this schedule.

Much of the beech in our woodlots suffers from infection with the necrotic fungus, a condition commonly known as beech bark disease. I have used lightly infected stems and limbs in my shiitake operation, and so far they have performed admirably. I would be somewhat wary of using heavily infected wood though, even if the wood itself is sound, as the bark is often too pocked and otherwise damaged, which would likely lead to premature drying of the bolts, which would in turn kill off the shiitake mycelium within the log.

As an aside, I would highly recommend that if you are using beech (for firewood, shiitake, or whatever), that you keep an eye out for healthy trees with smooth intact bark, and to make all efforts to spare them whenever possible. They likely carry some genetic resistance to beech bark disease, and may thus hold the key to the regeneration of necrotic-resistant beech in the future.

Once the logs are fully colonized with mycelium (generally about 18 months after the initial fall inoculation), I start them on a forced-fruiting schedule by soaking them in stock tanks for a period of 24 hours, either twice or three times a year, depending on the weather and my available time. The fruiting cycle takes place over the next week to ten days. The logs then 'rest' until the next forced fruiting. Managing them this way

makes the harvest cycles predictable, and much more efficient than letting logs fruit at their own 'leisure.'

In the "lessons learned" category, from some hard (and maybe not-so-hard) experience, I would offer the following thoughts:

1) Even if your site isn't ideal, keep your logs close by, preferably in an area where you travel regularly, so that you can keep a proper eye on them. I lost some flushes at the outset due to choosing the 'perfect' shady spot near the creek versus a far more convenient one near the house; do be aware that direct sun and strong winds can dry your logs out beyond redemption fairly quickly;

2) Start small, and gradually increase the number of logs as your time and skills permit. I tried to do too much too early, which made things less fun than they could have been. That being said, in my opinion, 25 logs would be a minimum to start with if you want to learn all the variables and plan on sticking with it; I would strongly suggest investing in an angle grinder and using sawdust spawn for drilling and inoculating any more than this amount of logs;

3) Food and water: for best production select logs with a high sapwood to heartwood ratio. The shiitake mycelium wants to eat the sapwood only, and every tree is different in this regard; be careful to keep the bark of the bolts as intact as possible, as long as possible; it is the 'skin' that will help retain the moisture vital for the mycelium's survival and growth;

4) Keep your bolts small, in my mind ideally 4-5" in diameter by no more than 40" long. Many years ago I inoculated some very large (8-9" diameter) logs, thinking I would get better yields and higher overall production; what I got was very delayed fruiting, and a bad back. You've been warned;

5) Slugs are your enemy. Develop an assassin's mentality; you'll need it. When my logs are fruiting, I make morning and evening rounds, with a pocket knife. I'll spare you the slimy details;

6) When your logs are fruiting, cover them with tarps if it's going to rain, or their quality will be severely degraded. This is most important if you plan on marketing them, but is a good general practice, as they are much more visually appealing when kept dry through harvest time. This will of course make for a perfect slug hideout---see #5;

7) While I've dried them in a small dehydrator, by far the fastest and most efficient means of storing shiitake is to saute them for 5 minutes or so (with an ample supply of butter if you're so inclined) before freezing them in ziploc bags. Your house will smell great for a while afterwards;

8) Don't get into it for the money, or said another way, "Keep your day job." Not that you can't profit from shiitake, but if you start off thinking of the income as a bonus rather than a necessity, you'll be happier;

9) Get others involved whenever possible---it's more like leisurely fun and less like work; 'pay' helps with part of the crop;

10) While raising shiitake is not hard, it does require a degree of patience and willingness to perform specific tasks without fail at specific times of year, much of it long before you've harvested your first mushroom. I will say that the first big flush of shiitake was for me quite magical, and made it worth the wait.

11) Shiitake are super healthy and delicious. You should eat lots of them.

Shiitake have been grown on hardwood logs for centuries in Asia; the practice began here in the U.S. relatively recently, and there is still much to be learned, so once you master the basics, by all means experiment, and share the results! Thankfully there are increasing numbers of 'forest farmers' all across New York state who are growing shiitake (and many other species of edible/ medicinal fungi) successfully. 🍄

The greatest asset of NYFOA is the collective pool of knowledge and experience of its membership, so don't be shy about reaching out to your peers for advice or perspective about this or any other forest-related topic. If you have yet to do so, consider attending chapter meetings and/or events. Bring your friends and neighbors.

Helping you to more effectively, efficiently, and enjoyably work with your woodlot is our mission as an organization. On the other hand, should you have hard-won skills, knowledge, and experience from working with your own woodlot, find ways to share them with your fellow woodlot owners, and consider getting involved with your local chapter steering committee, as volunteers are what make NYFOA tick. Our organization, and our woodlands, will be better for it.

Resources:

"Best Management Practices for Log-Based Shiitake Cultivation in the Northeastern United States," UVM Center for Sustainable Agriculture, 2013.

www.blogs.cornell.edu/mushrooms/.
Shiitake spawn/tools/supplies: www.fieldforest.net.

Forest Connect Webinar: "Ecology and Management of American Beech," 2014 (YouTube).

Temperate Forest Mushroom Growers Network (Facebook).

Jeff Joseph works part-time as a slug exterminator in Willseyville, NY.



Discover New Ways to Care for and Enjoy Your Woods with MyWoodlot

JOSHUA VANBRAKLE



Every family woodlot, and every woodlot family, is unique. A new website by the Watershed Agricultural Council, a Walton, New York-based nonprofit, helps landowners discover land-based activities that fit them, their woods, and their lifestyle. It's called MyWoodlot.


"Think of MyWoodlot as a 24/7 library of on-the-ground projects landowners can do either by themselves or with professional help," says Tom Pavlesich, the Council's Forestry Program Manager and a NYFOA member.

MyWoodlot starts with 10 broad interests like nature, recreation, and timber production. Each interest is then divided into goals landowners can work toward, with each goal made up of several specific activities.

"We didn't want to be just another information source," Tom explains. "We wanted everything to be actionable."

Every activity includes links to how-to information to help landowners complete it. That information takes a variety of forms including factsheets, photo slideshows, videos, professional contact lists, and even a few smartphone apps.

Once landowners find activities they want to do, they can save them to a profile for easy future access and to track their progress. They can also ask questions and learn from each other through the site's forum.

MyWoodlot is available free for anyone to use thanks to funding from the US Forest Service and the New York City Department of Environmental Protection. To get started, visit www.mywoodlot.com. 

Joshua VanBrakle is the Research and Evaluation Forester with the Watershed Agricultural Council.

Wanted: Landowners for Member Profiles! As many of you know, we include a member landowner profile in each issue of the *Forest Owner* magazine. The next several issues of the *Forest Owner*, will be highlighting various aspects of forest regeneration or restoration. Do you have any experiences related to your efforts, successes, or failures with forest regeneration? If so, we would love to hear from you. If interested, please visit: <https://www.surveymonkey.com/s/OwnerProfile> and we will be in touch. The time commitment is only about 30 minutes for the interview.

Even if you don't have any stories to tell about regeneration we are still interested in hearing from you if you would like to be profiled in the *Forest Owner*. Any questions? Please contact me at the number or e-mail below.

Jeff Joseph
529 Prospect Valley
Willseyville, NY 13864
(607) 659-5995
jeffjosephwoodworker@gmail.com

Are you interested
in a particular topic
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an article about it.

Please send your
suggestions to:
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editor at mmalmshe@syr.edu
or
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Please share this magazine
with a neighbor and urge
them to join NYFOA.
By gaining more members,
NYFOA's voice will
become stronger!

Restore New York Woodlands Where we have been, and — Next Steps

JERRY MICHAEL AND STACEY KAZACOS



NYFOA announced our Restore New York Woodlands (RNYW) initiative in 2013 as the theme for our 50th Anniversary. Since then, practically every issue of *The New York Forest Owner* magazine has included articles on various aspects of the forest regeneration crisis and NYFOA chapters have held more than 50 woodswalks with a focus on regeneration.

NYFOA has reached out to other forest stakeholder groups and organized a coalition that presented a very successful symposium on the issue at SUNY ESF in 2015. Following the symposium, NYFOA and coalition partners developed several legislative and regulatory proposals intended to address the regeneration issue. The most significant of these was to earmark \$3 million from the expanded Environmental Protection Fund (EPF) for forest stewardship practices to establish successful regeneration of desirable native tree species. Specifically, this new fund would provide 50% cost share payments to private forest owners for the treatment of invasive and interfering vegetation and the construction of temporary deer enclosure fences.

Although letters were sent to the Governor and key legislators, and

meetings were held with some of them, there was a lot of competition for the new EPF money, and we were not successful in the current budget cycle. However, because the legislators we were able to speak with were supportive, we are optimistic that a broad-based letter-writing and personal visit campaign by the NYFOA membership can succeed in the 2017 budget cycle, which begins with the Governor's budget proposals this fall.

The RNYW Committee is preparing letters which we will provide to the NYFOA membership to send to the Governor and their respective Legislators in September. We are also preparing a brief presentation for board members and chapter officers to discuss with key legislators and committee members in their home district offices prior to the November elections. In addition, NYFOA will be participating with the Empire State Forest Products Association and the Council of Forest Resource Organizations in hosting key downstate legislators for summer visits to upstate sawmills, logging operations, and demonstration woodlots where the regeneration issue can be illustrated.

Further information about this urgent campaign will be forthcoming via email or direct mail to NYFOA members. 📧

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Would you like to receive an electronic version of future editions of *The Forest Owner*? If so, please send Liana an email (lgooding@nyfoa.org).

You will receive an email every two months that includes a PDF file of the publication. While being convenient for you – read *The Forest Owner* anytime, any place; this will also help to save the Association money as the cost of printing and postage continues to rise with each edition.

NYFOA Rewards its Members With Cash!

DEAN FAKLIS

Thanks to an idea advanced by NYFOA's First Family, Charlie and Sarah Stackhouse, NYFOA now has a special program called *NYFOA Rewards*. The benefit program is designed to offer substantial discounts to members when they make purchases at participating organizations. It was launched in March 2016, and while it's still in its infancy, it's growing nicely.

There are now eight firms partnering with us and in the first three months of operations, NYFOA members have saved somewhere in the neighborhood of \$1,000. Not bad for just getting started! One of our partners, David Williams, is also on the NYFOA board of directors and has already provided cumulative member discounts approaching \$500. The members that have done business with Dave are earning discounts well in excess of NYFOA's annual dues payment....they are getting paid to be members.

It's easy for our members to participate in *NYFOA Rewards*. The details of the discounts are located on the NYFOA webpage at: www.nyfoa.org/docs/about_nyfoa_docs/Business_Offering_Big_Discounts.pdf

That's a long link, and rather than type it in, you can access it from NYFOA's Home Page at www.nyfoa.org.

NYFOA Rewards is small and we want it to grow. We're working to add more and more participating vendors. The NYFOA membership committee has set a goal so that our members can have access to discounts, which are more than sufficient to pay NYFOA's annual dues. Kind of a free lunch!

If you know of a business or organization that would be a good fit for our members, please send me a detailed note (dfaklis@frontiernet.net) and I will reach out to them.

Please be sure to check the *NYFOA Rewards* webpage at least monthly for updates. And, to help us improve the program, tell us about your experiences, including how much you saved!

NYFOA Rewards – Organizations Offering Big Discounts to NYFOA Members!

NYFOA already offers a fine array of benefits to its members and the list keeps growing with the new *NYFOA Rewards* benefit program. The following organizations have agreed to provide NYFOA members with financial benefits through discounts on purchases. Your NYFOA membership is great for forests and your pocketbook too!

Forestry Suppliers, Jackson, MS (<https://www.forestry-suppliers.com/>)

- NYFOA members receive their best price. Order online or via phone by calling (800) 752-8461 and ask for Katie Patterson (pattersonk@forestry-suppliers.com), Becky Dawson (dawsonb@forestry-suppliers.com), or Beckie Tucker (tuckerb@forestry-suppliers.com). A quote will be provided with their best prices. Or use these exclusive NYFOA code letters at checkout: **FNY** for an automatic 10% discount. The letters are for NYFOA members only & distribution is controlled.

Arborchem, Mechanicsburg, PA (<http://www.arborchem.com/>)

- NYFOA members receive contractor pricing on select products (e.g. Accord XRT). Email: Todd Hagenbuch at thagenbuch@arborchem.com or call 570-401-7098.

FTD Florist

(<https://www.ftd.com/58251/>)

- This link is for NYFOA members only and its distribution is controlled. Enjoy 20% discount on all flowers, plants and gifts!

Voss Signs, Manlius, NY

(<http://www.vosssigns.com/products/>)

- NYFOA posted signs (aluminum and polymer) are available at a significant discount. See the latest issue of NYFOA's *Forest Owner* magazine for complete details, including the option to purchase sawyer-friendly aluminum nails at the same time.

David Abeel, Traverse City, MI (abeeldavid@hotmail.com)

- 10% discount on Windsor chair workshops.

Finger Lakes Boating Museum, Hammondsport, NY

(<http://www.flbm.org/>)

- Save nearly 30% on admission to this great museum in Hammondsport, NY. Bring your current copy of NYFOA's *Forest Owner* magazine to be eligible for \$5 admission, limit 2. Youth admission is free.

Dave Williams, Sawyer, Bainbridge, Chenango County, NY (kdwillmill@gmail.com)

- 10% discount on portable bandsaw milling. Discount does not apply to damaged blade fee or mileage charge for travel beyond 15 miles, one way.

Springwater Forest Products, Springwater, Livingston County, NY (<http://perluma.com/services/crates.htm> or dciperluma.com)

- \$500 discount on timber frame kits (cabins, sheds, studios, sugarhouses, tiny houses); 10% discount on green firewood, custom lengths available, pick up only; and a 20% discount wood shipping/storage crates (fine art, furniture, valuables, heavy items).



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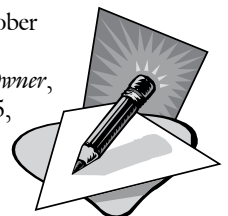
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MAGAZINE DEADLINE

Materials submitted for the September/October Issue should be sent to Mary Beth Malmshemer, Editor, *The New York Forest Owner*, 134 Lincklaen Street, Cazenovia, NY 13035, (315) 655-4110 or via e-mail at mmalmsh@sy.edu. Articles, artwork and photos are invited and if requested, are returned after use.



Deadline for material is August 1, 2016

Woodland Health

A column focusing on topics that might limit the health, vigor and productivity of our private or public woodlands

COORDINATED BY MARK WHITMORE

WHAT DO FOREST OWNERS NEED TO KNOW ABOUT CLIMATE CHANGE?

By DAVID WEINSTEIN

Over the next several decades, temperatures in the Northeast are projected to rise from 2 to 4°F. We usually think that plants love heat, especially when there is plenty of moisture around (and predictions are for precipitation to increase about 20%). However, most of our native tree species have evolved to take maximum advantage of the kinds of climate regimes that have been found around here for the last several thousand years. These regimes don't

include a period with a sudden uptick in temperatures like we are currently experiencing.

A case in point is one of our most beloved, economically valuable, and forest-dominating trees, the sugar maple. The US Forest Service indicates that sugar maple currently makes up about 20 % of the tree mass of our central New York forest. Even under the most optimistic scenarios of future climate, the US Forest Service's Climate Atlas projects that

the abundance of sugar maple will be cut in half over the next 50 to 75 years. In reality, the effect is likely to be more than that, reducing sugar maple abundances to about 5% of total forest volume.

This will happen because sugar maple trees will quickly find themselves stressed by the warmer temperatures. Their physiology allows them to increase the rate of photosynthesis a bit as the temperature climbs. However, their rate of respiration, the amount of that photosynthesis that has to be used up to maintain the live cells and get rid of internal heat, goes up much more quickly.

The net result is that these trees have less stored energy at the end of the growing season to maintain live tissues, heal wounds, fight off insect pests and diseases, prepare cells to withstand the freezing temperatures of winter, and make new leaves the next spring. And, of course, there is less sugar to move around during the next syrup season. Many of the tree species commonly found in our area respond similarly to elevated temperatures.

At the same time as the tree's defense

Top 12 NY forest canopy tree losers *			Top 12 NY forest canopy tree winners (in the absence of deer) *		
1	sugar maple	Acer saccharum	1	post oak	Quercus stellata
2	red maple	Acer rubrum	2	black oak	Quercus velutina
3	white ash	Fraxinus americana	3	white oak	Quercus alba
4	American beech	Fagus grandifolia	4	chestnut oak	Quercus prinus
5	black cherry	Prunus serotina	5	black locust	Robinia pseudoacacia
6	quaking aspen	Populus tremuloides	6	scarlet oak	Quercus coccinea
7	eastern hemlock	Tsuga canadensis	7	yellow-poplar	Liriodendron tulipifera
8	eastern white pine	Pinus strobus	8	pignut hickory	Carya glabra
9	yellow birch	Betula alleghaniensis	9	mockernut hickory	Carya tomentosa
10	paper birch	Betula papyrifera	10	blackgum	Nyssa sylvatica
11	bigtooth aspen	Populus grandidentata	11	bitternut hickory	Carya cordiformis
12	American basswood	Tilia americana	12	northern red oak	Quercus rubra

* Analysis by the US Forest Service Climate Change Atlas based on an expected change in importance value (<http://www.fs.fed.us/nrs/atlas/>).

systems are suffering from limited resources, the abundance of pest insects is likely to increase, as is the prevalence of diseases. Typically, one of the best defenses our native trees have is their ability to survive severe cold temperatures when the pests could not. However, as winters become milder, we have seen the winter die-back of pest insects diminish. Although sudden drops in temperature to very low levels are still capable of knocking populations like the hemlock woolly adelgid back, we have seen clear movements of viable populations of many pest insects marching slowly northward. Once in a weakened condition with less available storage reserves, our local trees have much less ability to fight off these insects and diseases.

Adding to this problem is the fact that the vast majority of our regional forests all started to grow at about the same time, when agriculture was abandoned over much of our landscape 80 to 120 years ago. That makes our forest canopy trees all a similar age. Pests and diseases like nothing better than having a dense food source, one tree after another, that all have a similar age-related morphology, physiology, and method of response to pest invasion. Pest populations expand the quickest, with the greatest success, when they do not have to adjust to a great deal of diversity in their hosts.

So what will we see across the landscape? It will take a long time for many of our large trees to die, so we probably will not see climate change directly create the suddenly brown summer hillsides that the hemlock woolly adelgid and the emerald ash borer are causing. However, we will see the mortality rates of our most abundant species skyrocket. Preliminary evidence suggests this is already occurring.

All is not lost, however. There is a complex of species that evolved to grow optimally under the climates currently to the south of us, in Pennsylvania, Virginia, and West Virginia, and that could grow

extremely well in the climates we will soon have. These are the oaks, most notably red, white, and chestnut oak, as well as a diversity of hickory species. If our forests were full of seedlings of these species today, the warming climate would give us a new, highly productive, and very valuable landscape after the canopy sugar maples, ashes, cherries, and birches start dying off.

However, as most forest owners know, our deer populations and their browsing activities have made it nearly impossible for seedlings and saplings of these more southern species to become established. The tree regeneration of our current valuable hardwood species is minimal in forests all across southern New York, and with the deer's taste for oaks, it is unlikely their seedlings will successfully be able to establish in our area.


This situation, dying canopy trees with no next-generation available to take over, will create abundant opportunities for less desirable species to become established, particularly if they do not taste very good to the deer. We already see solid understories of beech, striped maple, hornbeam (musclewood), and hop hornbeam (ironwood). The problem with these species is that they can dominate the light available near the forest floor, but do not turn into long-lived valuable timber species. Nor do their life history characteristics promote a diverse mixture of associated species.

Beyond these species, there will be plenty of opportunities for invasion by species less commonly currently found in our forests. Some of these might be welcome additions, such as tulip poplar. Maryland has already seen a climate-driven trend of conversion of mixed hardwood to tulip poplar dominated stands. However, invasive species can quickly move into an area because of their voluminous production of seeds that can travel great distances. They soak up all the available light, prevent other species from gaining a foothold, and do all of this without much of a need to produce long-lived

hardwood tissue. Consequently, invasives are a more probable bet to be found in these new forests.

What is to be done? To have forests with the kinds of properties we know and love, good amounts of all sizes of trees, a luxuriant herbaceous ground vegetation cover, and a broad mixture of species, we must help native species pre-adapt to the new climate conditions. We need to help the oaks and hickories take over the canopy openings. To do that, we have to limit the damage being done by deer herds, either by excluding deer (an expensive option for most forest owners) or limiting their populations to a more reasonable 10 to 12 individuals per square mile through much more aggressive management.

Just as diversity in native species will help keep an ecologically self-sustaining forest occupying the landscape, we need to diversify the ages of the trees in that forest. Diversity gives the native trees a chance to grab the light and nutrient resources that come available, and hold on to them, before the invasives have an opportunity to begin their self-promoting cycles of quick birth and quick turnover. We have to employ management techniques that greatly increase the probability of survival of the natives, including the use of new types of harvesting strategies and even the widespread planting of trees.

Our current landscape is dominated by forests heavily shaped by humans. We now have to play as big a role to adapt our forests to warming conditions so that they do not lose the properties that humans value, that aide their self-sustaining abilities, and that make them less vulnerable to our rapidly changing environment. 

David Weinstein is a Senior Research Associate, Department of Natural Resources, Cornell University

Mark Whitmore is a forest entomologist in the Cornell University Department of Natural Resources and the chair of the NY Forest Health Advisory Council.

Gross Volume of Trees, International 1/4 inch Log Scale Form Class 78

DBH	Merchantable height in number of 16-foot logs										
	1	1-1/2	2	2-1/2	3	3-1/2	4	4-1/2	5	5-1/2	6
In.	Volume in board feet										
10	36	48	59	66	73	-	-	-	-	-	-
11	46	61	76	86	96	-	-	-	-	-	-
12	56	74	92	106	120	128	137	-	-	-	-
13	67	90	112	130	147	158	168	-	-	-	-
14	78	105	132	153	174	187	200	-	-	-	-
15	92	124	156	182	208	225	242	-	-	-	-
16	106	143	180	210	241	263	285	-	-	-	-
17	121	164	206	242	278	304	330	-	-	-	-
18	136	184	233	274	314	344	374	-	-	-	-
19	154	209	264	311	358	392	427	-	-	-	-
20	171	234	296	348	401	440	480	511	542	-	-
21	191	266	332	391	450	496	542	579	616	-	-
22	211	289	357	434	509	552	593	627	661	-	-
23	231	317	394	467	552	608	663	714	766	-	-
24	251	345	441	523	605	664	723	782	840	-	-
25	275	380	484	574	665	732	800	865	930	-	-

Figure 3. A tree volume table based on the International 1/4" rule. An estimate the board foot volume of a tree is available at the intersection of the row associated with the dbh in the left column and the column for the correct number of logs. For example, a tree with a dbh of 20 inches and 2 logs has 296 board feet.

Although the Scribner rule is not common, users argue that it has the greatest consistency or precision of the rules.

The International rule was developed in Ontario in 1900 after extensive research into the shape and yield of several northeastern tree species. Of the three

rules, it is the most accurate predictor of the yield of lumber from a log based on measurements of log diameter and length. The rule accounts for taper by adding 1/2 inch of diameter for each 4 foot increment of length. The initial rule assumed a saw kerf of 1/8th inch, but yield was less than

expected. By adjusting the formula to a 1/4" kerf, yield of lumber better matched predicted volume. The simplicity of the other rules is lost on the accurate but mathematically robust equation for the International 1/4" rule:

$$\begin{aligned} \text{Board feet per log} = & (0.04976191 \times L \times D^2) + (0.006220239 \times L^2 \times D) \\ & - (0.1854762 \times L \times D) + (0.0002591767 \times L^3) - \\ & (0.01159226 \times L^2) + (0.04222222 \times L) \end{aligned}$$

where L is the log length in feet and D is the diameter in inches inside the bark on the small end of the log.

Although this is the most accurate of the rules, Cassens (see previous URL) reports it has not gained acceptance.

As previously mentioned, scaling a tree is similar in many respects to scaling a log. Scaling uses the same principle for measurements that allow estimation of the volume of a cone. Unlike the log, it isn't possible to measure the diameter on the small end of a tree. Also, the thickness of the bark needs to be considered.

Finally, disregard for taper of a log will underestimate yield, but disregard for taper on a tree will overestimate yield.

Simple techniques account for these

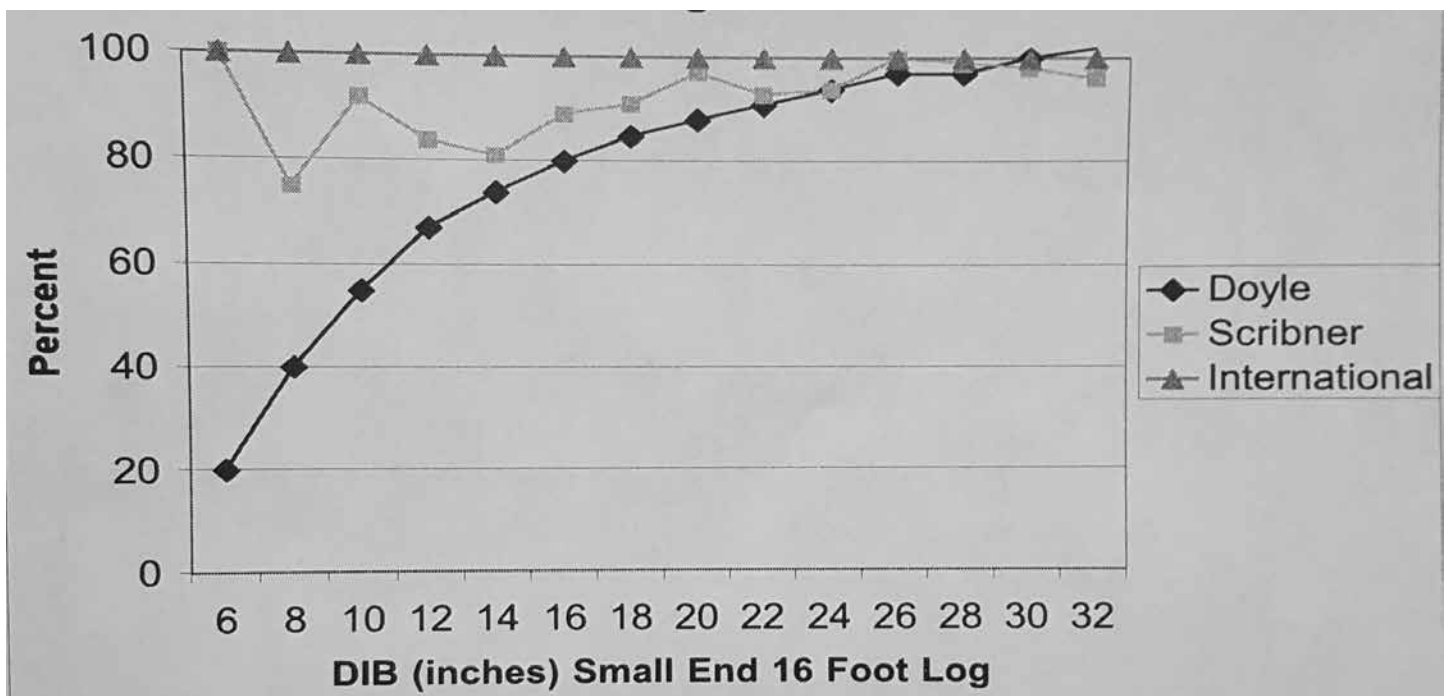


Figure 4. Using yield predicted by the International 1/4" rule as a basis, the deviance in volume estimated by Doyle and Scribner are apparent. The rules diverge for the smaller tree diameters, and converge when the small end diameter of the logs is between 22 and 32 inches. "DIB" is diameter inside bark. [Figure adapted from Figure 1, page 4, of D. Cassens, Log and Tree Scaling, Purdue University Cooperative Extension FNR-191.]

sources of measurement error. First, diameter is measured at a standard height of 4.5 feet above ground, known as “dbh” or diameter at breast height (Figure 2). Second, a tree is categorized into a form class that describes taper. These form classes were developed by James Girard, and describe the diameter at the small end of a 16 foot log as a percentage of the tree’s dbh. Thus, for example, Girard form class 78 predicts that small end diameter of a log will be 78% of that dbh. Finally, tree rules account for bark thickness.

While a log’s length can be easily measured, the merchantable height of a tree (i.e., the salable portion that is useful for sawlogs or firewood) is estimated with a clinometer, hypsometer, or based on the experience of the forester. An added complication to estimating merchantable height is to decide the location of the smallest usable diameter. If a sawmill only buys logs having a small end diameter of at least 10” or 12”, then the forester must estimate merchantable height based on an estimate of where the stem’s taper equals the threshold diameter. The measurements for dbh and merchantable height, usually reported as the number of 16 foot logs, is compared to a table to obtain an estimate of the trees board foot volume. Tables for log and tree rules are available for all three common rules (Figure 3).

A frustration for many woodland owners is the lack of agreement among these rules (Figure 4). The rules have little similarity except for the largest logs. Aside from the different rules leaving woodland owners unsure of tree or log volume, there are consequences to not knowing which rule is used and the behavior of the different rules.

The risk with differences among the rules is both perceived and real. As an owner, it seems unjust to be told that a tree has an estimated volume that is significantly smaller than the actual volume. Any claim of a tree’s volume is an estimate based on assumptions, as described above, and might be inaccurate but isn’t unjust. How that estimate is used may be unjust. There is also concern by woodland owners that when they sell timber, their timber volume will be underestimated. Finally, one buyer of logs might offer to pay a certain price per board foot, and a different buyer will

offer a different price per board foot, but use a different log rule. There are two ways to resolve these concerns. First, if you are scaling logs or trees either have the scaler use a particular rule, or obtain the original measurements and recalculate the volumes using the desired rule.

Second, when selling timber, it is best to arrange your harvest through a lump-sum bid sale and have all contractual discussions about the trees for sale stated in terms of dollars rather than board feet. Sale arrangements that involve percentage or per board foot can become messy. Sale arrangements in total dollar value avoid these problems. ▲

Reference

Cassens, D. 2001. Log and tree scaling techniques. Purdue University, Forestry and Natural Resources, Cooperative Extension Service. Publication FNR-191. www.extension.purdue.edu/extmedia/fnr/fnr-191.pdf

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Peter and Nancy Cann

BRIANA BINKERD-DALE

Peter Cann and his wife Nancy are both New York natives, hailing from Schenectady and Syracuse respectively. Peter came out to Syracuse as a Northeastern engineering student to work in a cooperative program for Carrier Corporation and has been in the area ever since. He spent 31 years as a Carrier design engineer, department manager, product planner and marketing manager, picking up an MS in engineering and a MBA along the way. After leaving Carrier, he became the Executive Director of the Madison County Industrial Development Agency and spent 11 years helping business grow and prosper in Madison County. Peter's next step was starting a flex time renewable energy business, Cann Geothermal Plus, from their house.

Nancy and Peter knew from the beginning that they wanted to be landowners. As newlyweds in the 1970s they bought a four family apartment building in Syracuse where they lived and saved money so they could buy land where they could build a house. In 1973 they found 70 acres (a little more acreage than they were looking for,

but a wonderful piece of land) close to Syracuse where they both worked. The land is located on the east side of the Canaseraga Creek Valley facing west. Their land is bounded by the Link Trail, a rail to trail hiking path following the old Lehigh Valley railroad bed. The highest part of the land, where they built their home (finished in 1975), has an elevation of about 900 feet, the land then drops 250 feet to the bottom of the valley where it crosses the creek. They have views of parts of Perryville, Chittenango, Radisson, Oswego, and Onondaga Lake from the house.

The 70 acres consist of about 30 acres of hardwood and 30 acres of softwood, dominated by maple, with some oak, basswood, ash, beech, hemlock, and black cherry. Ten acres of field rounds out their acreage. They have done one harvest and continue to work on woodlot improvement. When they first bought the land they worked with their local DEC forester to develop a management plan and become a certified tree farm, planting in abandoned fields around 7000 softwood seedlings acquired from the state. "Those Norway and white spruce



Peter and Nancy are active in many projects and organizations, including being members of Tree Farm.

and larch are pushing 30 feet tall now," Peter remarked. A project completed just last year was the installation of a one acre pollinator wildflower garden with the assistance of their local Soil & Water Conservation District office. Earlier projects included a multiflora rose elimination campaign and some ginseng planting as part of an agroforestry program.

There are also five ponds of various sizes on the property, all of which they created themselves, including a trout pond, a recreational pond and a pond by a creek and hemlock grove where they built a lean-to. Three spring fed streams run through the property to the Canaseraga, and they have about 3 miles of trails for walking, skiing, and snowshoeing. "With close to 40 years on the land, we've had lots of time to develop various projects," Peter mused. "You get an idea and you make it happen." They've learned a lot in the process; how to make a dam, what size pipe to put in for maximum flow... the pond below the house has a full liner to combat water loss, which also makes it easy to clean as it is possible to vacuum it. The frogs and green herons on the property are especially fond of that one.

All of the work on the property is done by Peter, Nancy and friends. They love to share their land with relatives



Peter and Nancy have several ponds. One pond is dedicated for trout and provides opportunity for feeding and watching the fish.

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and friends, new and old, as they enjoy hiking, skiing, snowshoeing, swimming in the ponds, birdwatching, and just relaxing. They mow and grade trails a few times a year, maintain ponds and place and maintain resting spots at various locations. When they bought the property, it was an abandoned dairy farm. “The hardwoods were unmanaged and many areas were overgrown with grape vines. What trails there were, were fast disappearing. We have reversed all that to a managed woodlot, open trails and fields, stands of hardwoods and beautiful ponds,” Peter said proudly.

The list of projects they have completed for their net zero home is no less impressive. Over the years they have installed a 2.4kW windmill, a 5kW solar array, and a micro hydro setup which consists of a small water turbine that runs off of water from their pond that runs down the hill. With a 70 foot change in elevation, a four inch firehose and one psi for every three foot of drop, they are able to produce just over 600 watts with the micro hydro, which can out-produce the windmill and solar array due to the continuous nature of the water flow.

Peter and Nancy now make more energy than they use. They’re connected to the grid via a net-meter and went into winter with 3000 kW of credit due to producing more energy than they needed ... they still have about 1000 kW of credit left. Micro hydro is relatively easy, Peter says, and would be his first recommendation for folks who are interested in alternative energy

production. Of course, he is no less excited about geothermal and heat pumps. “Thirty-five percent of the carbon produced in New York state is generated by space heating — put a heat pump in and you don’t have to do that anymore,” he said. A typical geothermal heat pump uses one unit of electric energy to access three units of stored solar energy from the earth to deliver a total of four units of energy to heat the house. From these numbers, geothermal is a 400% efficient system where you are only paying out of pocket for one unit while receiving four units of energy.”

Peter is driven to help others to move towards net zero carbon energy systems like that at his and Nancy’s home. “Geothermal eliminates on-site burning of fossil fuel while solar, wind, and/or hydro generate all the energy the house needs,” he explained. His first assignments at Carrier were developing heat pumps in the late 1970s and 80s: he and Nancy have heated and cooled with geothermal since the 1980s in their house, starting with prototypes that he built and updating them over the years.

Peter’s advice to other forest owners is safety first — know your equipment and how to operate it properly. Projects are a lot easier and faster with the right tools. They started out with a brush hog, and have since over the years added a Gator and a 4WD Kubota with a bucket, back blade, post hole digger, tiller, and a back hoe. “We were always setting priorities on what to acquire next,” Peter said. He completed a chainsaw safety course with



Peter inspects a microhydro gauging station used to support their net-zero renewable energy system. Multiple streams on the property with drop in elevation allow for harnessing the power of water.

the National Park Service through his membership with the North Country Trail Association, and is constantly aware of safe tractor operation on his hilly land. Still, it is possible to run into trouble in a hurry — he is currently recovering from a fall from a ladder that broke seven ribs. “Think ahead and stay vigilant!”

Peter heartily recommends joining NYFOA, which he says introduced him and Nancy to like-minded people, providing a forum to share ideas and learn as a community. He was inspired to become a Master Forest Owner (MFO) in order to help others with their woodlots, often times inspiring those he met to join NYFOA themselves. Being a forest owner has allowed Peter to integrate two of his passions — the love for the woods and the hands on mechanical engineer that enjoys planning and executing projects. He and Nancy most enjoy living on their land and having it there when they walk out the door, as well as sharing it with friends and neighbors — “Our land is available to friends old and new who respect it,” he said. 🌲

Briana Binkerd-Dale is a student in Environmental Biology and Applied Ecology at Cornell University. If you are interested in being featured in a member profile, please email Jeff Joseph at jeffjosephwoodworker@gmail.com



Nancy feeding the fish in one of their five ponds.



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