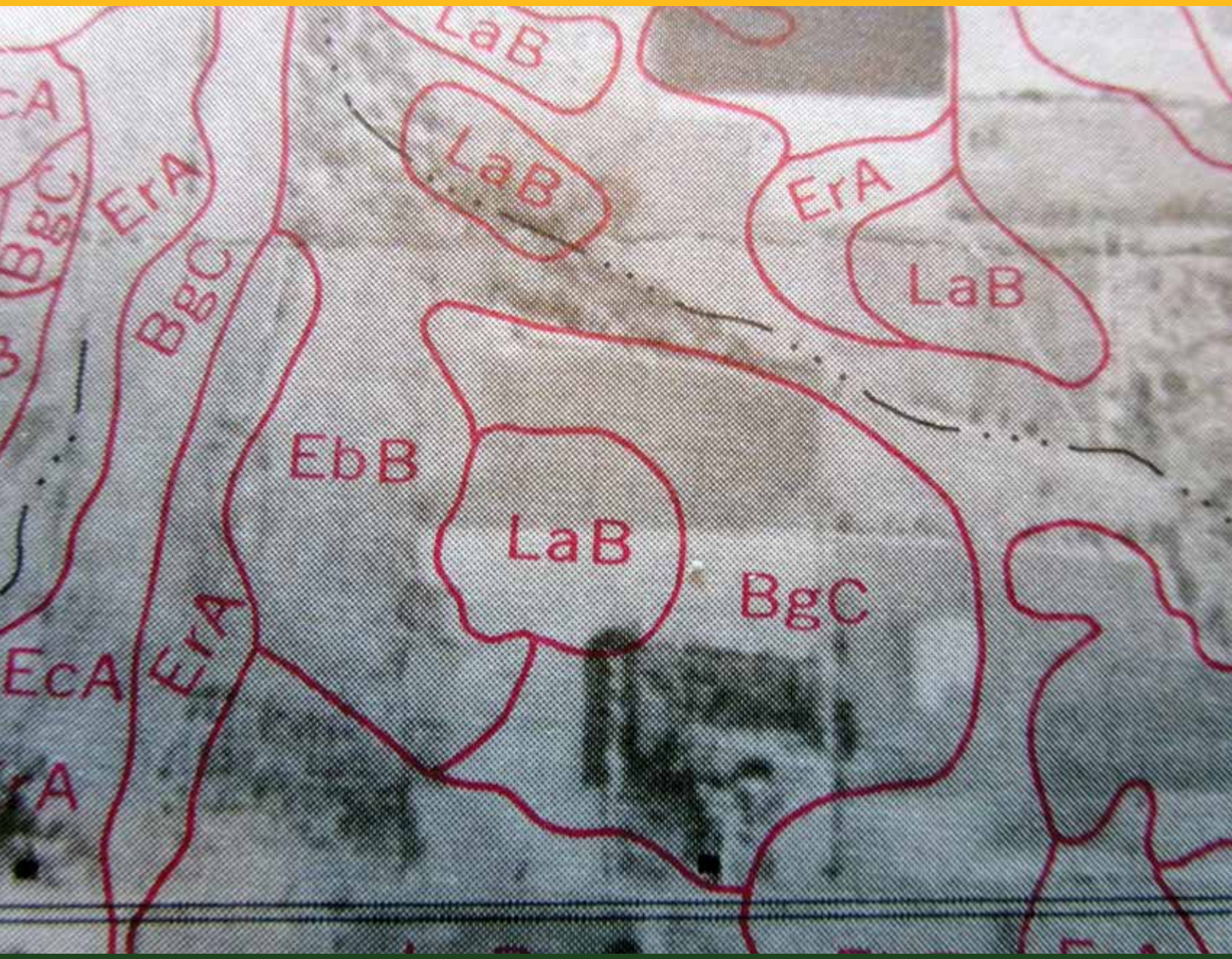
The New York Forest Owner

A Publication of The New York Forest Owners Association

Promoting woodland stewardship since 1963

September/October 2024



Matching Trees to Soils

Volume 62 Number 5

NYFOA
New York Forest Owners Association
www.nyfoa.org

In This Issue . . .

The New York
Forest Owner

A Publication of The New York Forest Owners Association
Volume 62, Number 5

Jeff Joseph, Managing Editor
Mary Beth Malmsheimer, Editor

The New York Forest Owner is a bi-monthly publication of The New York Forest Owners Association, PO Box 644, Naples, NY 14512. Materials submitted for publication should be sent to: ***Mary Beth Malmsheimer****, Editor, The New York Forest Owner, 134 Lincklaen Street, Cazenovia, New York 13035; Materials may also be e-mailed to mmalmshe@syr.edu; direct all questions and/or comments to jefffjosephwoodworker@gmail.com. Articles, artwork and photos are invited and if requested, are returned after use.* ***The deadline for submission for the November/December issue is October 1, 2024.***

Please address all membership fees and change of address requests to PO Box 644, Naples, NY 14512 or ckenney@nyfoa.org. (607) 365-2214. Cost of family membership/subscription is $55.

NYFOA
New York Forest Owners Association

www.nyfoa.org

Cover: Knowing and understanding your soil types leads to much better results when planting trees. This map shows the soils that Ed Neuhauser has to work with on his Groton, NY property. See article on page 4.

From The President

I have the honor of taking over the position of NYFOA President from Stacey Kazacos, whose shoes will be hard to fill. I want to thank Stacey for his many years of leadership of our organization and to ask that he stay around for awhile to continue to share his wisdom with NYFOA.

As this is my first chance to introduce myself to many of you, I thought I would give a little history about myself and what I like to do for fun. I attended college at SUNY ESF, obtaining my undergraduate and doctoral degrees in the 1970's. My favorite classes were organic chemistry, dendrology, limnology, and soils. From there I worked for six years at the Department of Agricultural Engineering at Cornell University running a chemistry lab, and then for 26 years at Niagara Mohawk Power Corporation (now National Grid) in Syracuse. Initially at Niagara Mohawk I worked in Research and Development and led projects evaluating industrial scale wind turbines, leaching and degradation of preservatives from wood poles, the use of large microwave ovens to rapidly dry high value lumber, control of zebra mussels in power plants, and development of willow biomass for energy production. With National Grid I worked in Environmental Affairs on projects evaluating the degradation of polycyclic aromatic hydrocarbons (PAH's) from coal tar in soils and sediments from the old manufactured gas plants that used to provide town gas, the predecessor to natural gas, to upstate NY cities and towns.

My wife Peg and I live on a 132 acre farm in the town of Groton, NY. Our farm has 50 acres of open fields, which are rented to a local beef farmer for hay, with the remainder of the property being in woods of various stages of regeneration. At the beginning when the property was first obtained in 1981, we removed the oil burner and have heated with firewood since. For over 30 years, we have had six families from local towns that come and cut firewood on our property each spring. I mark the trees to be felled by the folks who have Game of Logging training, skid the logs with my tractor and skidder to a landing site accessible to 2-wheel drive pickup trucks, and other folks buck and split the firewood, placing it right from the splitter into the trucks. Everyone gets as much firewood as they can use, and we get timber stand improvement and camaraderie.

After I retired in 2012, I started working on some long-term projects that I always wanted to do. Having grown up in a NYC suburb, I was very fortunate that from the time I was five years old, my parents took our family to the Catskills every summer to stay in an old farm house with access to a 30-acre lake and rowboats. The old farm house was in Bethel, NY, very close to Max Yasgur's farm which held the Woodstock Festival in August 1969. Max rented the fields in the place we

continued on page 11

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***, woodswalks, chapter meetings, and statewide meetings.

( ) I/We own _____ acres of woodland.
( ) I/We do not own woodland but support the Association's objectives.

Name: _____
Address: _____
City: _____
State/ Zip: _____
Telephone: _____
Email: _____
County of Residence: _____
County of Woodlot: _____
Referred by: _____

Regular Annual Dues:

( ) Student	$20
(Please provide copy of student ID)	
( ) Individual/Family	$55
( ) Life	$750

Multi-Year Dues:

( ) 2-yr	$100
( ) 3-yr	$150

Additional Contribution:

( ) Supporter	$1-$59
( ) Contributor	$60-$99
( ) Sponsor	$100-$249
( ) Benefactor	$250-$499
( ) Steward	$500 or more

( ) Subscription to Northern Woodlands $15 (4 issues)

NYFOA is recognized by the IRS as a 501(c)(3) tax-exempt organization and as such your contribution may be tax deductible to the extent allowed by law.

Form of Payment: ☐ Check ☐ Credit Card
Credit Card No. _____
Expiration Date _____ V-Code _____
Signature: _____

Make check payable to **NYFOA.** Send the completed form to:

NYFOA
PO Box 644, Naples, NY 14512
607-365-2214
www.nyfoa.org

Tree Planting: Matching Trees to Soils + Pruning for Stem Quality

By Ed Neuhauser

Why I sometimes plant trees:

In Northeastern forests we generally have too much competition among young regenerating trees and need to conduct some type of thinning, such as timber stand improvement (TSI), to achieve the optimal number and spacing of stems per acre to grow vigorous, high-quality timber. Usually my TSI activities are conducted to obtain firewood for myself and several other families who are not fortunate enough to own forest land. Since a portion of our land was recently used in farming, I have some areas that are unforested and that would be suitable for planting tree species that are shade intolerant.

In order to ensure their survival, young tree seedlings in our area have to be protected from deer. I have unfortunately not had good results with tree tubes, as the trees have ended up being spindly and not able to stand up on their own, as well as being frequently girdled by voles in the winter. I have had much better luck using 2" X 4" tree tubes or cages 4' high. I buy 100' rolls, cut out sections 44" long, resulting in 27 tree wire mesh cages per roll. I wrap each section together and stabilize it using two 2' 1" X 1" wooden stakes (Figure 1). I do not recommend using metal rebar to secure wire mesh cages, unless you enjoy the hissing sound of rebar puncturing tractor tires.

Black cherry (*Prunus serotina*) is an intolerant tree that needs full sun to get started. Even though the tree contains a form of cyanide to provide protection from being eaten, it often

Figure 1. Tree tubes or cages (such as shown here) are essential to protect young saplings from deer. Don't let all your hard work go to waste!

Figure 2. Author with a cherry sapling stunted by a less-than-ideal soil type.

is still eaten by deer, resulting in a poor quality tree for lumber. If black cherry trees are present in an open area and have been hammered by deer, one thing that you could try to do to generate high quality stems is to coppice them. Coppicing involves cutting the tree just above the groundline and allowing it to stump sprout. Coppicing works for most hardwood tree species, though it does not work for conifers at all, other than fire-adapted redwoods and pitch pine. Young trees coppice best, with older, mature trees losing the ability beyond a certain age.

You should place a tree cage around the cut stump immediately. Most likely you will get several sprouts developing at once and you should allow them to grow for a couple of years. Then gradually thin back to the best individual stem, keeping the wire mesh cage to protect the tree from getting girdled by bucks in the fall. Because you are taking advantage of an existing large root system, this can result in a tree 4' -6' tall in the first growing season. I have some coppiced cherry trees that are now 60'-80' tall and you cannot tell that they were coppiced.

If a seed source is not present in an area where you would like to encourage cherry, you could try growing cherry seedlings in a protected area in pots for 1 or 2 years and then planting the seedlings in the early spring. I have done this for many years using 8" pots that were dug into the ground to conserve moisture and protect the plants from cold temperatures in the winter. It is easy to get black cherry seedlings, simply go to a large black cherry tree growing in an open area and search for small sprouts and dig them out carefully, preserving the root mass as much as possible. Make sure to frequently water the seedlings when you first place them in pots, I have obtained very good survival rates as long as I kept the seedlings moist.

Be sure you don't select the two other common species of cherry that are present in New York, the fire or pin cherry (*Prunus pensylvanica)* and the choke cherry (*Prunus virginiana)*. Fire cherry is a smaller tree that seeds in heavily after disturbance in an area, such as a fire. It generally has a narrower leaf compared to black cherry and grows very rapidly. If you notice that a few of your potted cherry trees are really taking off, check the leaves to make sure that you have not selected fire cherry seedlings by mistake. This has happened to me a couple of times. Choke cherry grows mainly in a shrub form and has the widest leaves of the 3 cherry species mentioned here, with the fruit being astringent or puckery, hence the common name.

continued on next page

The effect of site soil on tree growth:

I have an area of about 3 acres that 30 years ago was in pasture. The site was dominated by a dense understory of grey dogwood (*Cornus racemose)* and an overstory of apple (*Malus domestica)*. The grey dogwood was reduced using broadcast herbicide spraying and the apple trees were killed using the drill and fill method, which was very efficient and successful.

In the early spring of 2017, over 100 black cherry trees that had been grown for over two years in pots were planted on the site. One of the big advantages of growing trees in pots and then planting them in the early spring is that I had a nice clump of roots and did not have to water these trees. The initial survival after the first year was very high, with over 95% of the trees surviving after one growing season. Some of the trees died after a couple of years. After seven years, a lot of the trees were less than 6 feet tall (Figure 2). In one part of the site, *all* of the trees were over 15 ft tall (Figure 3) and growing vigorously.

So what's to account for the radically different growth rates between these two groups of trees, planted on the same week of 2017? The main difference is the soil type that each was planted in. The soils of this site were part of the Langford-Erie soil association characterized by low lime levels and a strong fragipan. A fragipan is associated with acid conditions and are dense compact layers of soil that are found deep on a soil profile that restrict water flow and root penetration. When I dug out part of the basement of my house that still had a crawl space, I couldn't use a shovel to dig out the lower layer of soil, the fragipan was so dense that I had to use a pickaxe to get it out.

The wettest soil group that I had on my site was an Erie-Ellery channery silt loam with a 0 to 3 percent slope. The next wettest soil group that I had on the site was an Erie channery silt loam with a 3 to 8 percent slope. The driest soil that I had at my site was a Langford channery silt loam with a 2-8 percent slope. Channery is another way of saying gravelly. The main difference between the Erie soils and the Langford soil is that the fragipan layer is much deeper in the Langford soil, meaning that the Langford has a much deeper layer of well drained soil before the fragipan starts.

Figure 3. Example of the superior vigor of cherry when planted on a more suitable soil type. Compare this tree to the tree in Figure 2, which was planted at the same time.

Black cherry trees do not like to have their roots wet. A small group of trees died after 3-4 years, which were all growing on the sites that stayed wet for most of the year. These sites all had sensitive ferns (*Onoclea sensibilis*), a wetland indicator plant, growing on the site.

Figure 4. Y-shaped crotches like this one low on a stem are a common location for breakage and/or rot. It should be pruned so that only one dominant leader remains.

The name comes from the ferns' sensitivity to frost, as they die quickly when hit by the first frost in the fall. So you will not see black cherry trees growing on sites that have sensitive ferns, as the soil at that site is too wet for black cherry. All of these trees were growing on the Erie-Ellery channery silt loan with a 0-3 percent slope, the poorest drained soil.

The next group of trees that was less than 6' tall were all growing in the Erie channery silt loam with a 3-8 percent slope. While these trees were alive, they weren't doing great (Figure 2). Looking at 5 trees from this site, the diameter at 4.5' was 0.31" +/- 0.17", while the height was 55.4"+/-21.1".

The best group of trees was growing in the Langford channery silt loam with 3-8 percent slope and the much deeper fragipan (Figure 3). Matching your tree species to the site it prefers can have quite a difference in growth over the life cycle of that tree. Aspens (*Populus tremuloides*) grow best at the site on the Erie channery silt loam, but are outcompeted by black cherry and white ash on the Langford channery silt loam sites. Looking at 5 trees from this site, the diameter at 4.5' was 2.64"+/-0.66", while the height was 19.2'+/-4.6', or another way of looking at it, the height was 230.6"+/-55". So the black cherry trees growing on the Langford site were growing 4.4 *times* faster than the black cherry trees on the Erie site.

Pruning black cherry trees:

Another thing that you need to be conscious of and careful about is shaping young black cherry trees with appropriate pruning in order to end up with a straight and clean trunk. Figure 4 shows a closeup of the tree in Figure 3, with the tree branching off to form a 'Y' shape low on the stem. Leaving this 'Y' on the tree will result in the eventual failure of one of those branches and a tree worthless for lumber. Shortly after the picture was taken, one of those 'Y' branches was cut off the tree.

continued on next page

Figure 5. Example of the rapid compartmentalization of a pruning wound, if executed correctly.

Based upon my experience with black cherry trees, this cut will completely heal over in 2-3 years, resulting in a straight and clean trunk. Just 6 weeks after this branch was cut, the tree has already started healing over the cut (Figure 5).

I prune young black cherry trees every 2-3 years, trying to remove no more than ~ 30 % of the branches at a time. I have had very good luck with pruning to get a straight trunk, even removing a dominant J-hook to get a much weaker straight leader to become the dominant bud again. A J-hook is a branch that comes off the main trunk of a tree which is not the terminal leader of the tree. It is shaped like the letter J and has a very weak attachment point which frequently breaks in a few years, resulting in a log which has no commercial value.

The key is to prune lightly every couple of years to get the desired form. The wood around the very center or heart of the tree, which in some trees has a chambered pith like walnut or ash, is the lowest quality wood in a log. A sawyer will usually try to saw around the heart of the tree resulting in a 6" X 6" center cant which is usually used as pallet wood or is ground for mulch.

So to conclude, matching your tree species to your soils can have a very great effect on the growth rate and timber quality of your trees. As much as we all might like to, it's the unfortunate reality that we can't always be growing black cherry and black walnut on all of our soils. During woods walks in very sandy soils in the Catskills and southeastern Vermont, I noticed that the foresters in these areas were focused on growing high quality white pine—the few black cherry trees growing on these sites were not doing well at all. So instead of trying to fit a square peg into a round hole, focus on growing the best trees you can with the soils that you have.

Ed Neuhauser is NYFOA's new president. He lives in Groton, NY.

Wild Things in Your Woodlands

By Jessica Park

Brook Trout (*Salvelinus fontinalis*)

Brook trout are dark olive to brown freshwater fish with blue-haloed yellow or red spots speckling the body. The underside and lower fins are red, which often becomes more vibrant while the fish spawn in the fall. They are usually 10-25 inches in length as adults, but their growth is dependent upon season, age, temperature, water flow, and location.

Fingerlings (young trout) are patterned with parr marks, or thick vertical bars, which provide camouflage.

A fan-favorite among anglers and naturalists alike, the brook trout (also known as the brookie, the speckled trout, the brook char, among others) is native to eastern North America. However, in recent decades, their range has been altered significantly. Due to habitat loss and competition from non-native species, much of the brook trout's southern range was reduced, but they also expanded westward through human introduction and are now found from coast to coast. In New York, where they are the official State Fish, brook trout are found in cold, oxygen-rich lakes, ponds, rivers, and high elevation streams throughout the state, notably in the Adirondacks, the Catskills, and even in a few locations on Long Island.

The brook trout's diverse diet consists primarily of aquatic insects like caddisflies, stoneflies, and mayflies, but they also eat other fish, crustaceans, terrestrial insects, mollusks, amphibians, and even small aquatic mammals like voles depending on what is available. They are also known to eat other young brook trout fry and eggs during the annual spawn.

Every fall in the months of September and October, female brook trout nest in the gravel depressions they dig at groundwater upwellings in stream beds. They lay up to 5,000 eggs that then are fertilized by one or more male trout. Typically, the primary male will split his time courting the female and driving off peripheral males who frequently cannibalize eggs that are not theirs. From February to April, the eggs hatch into young trout, known as fry. During this vulnerable period, the fry must hide from predators in and among rock crevices. Surviving fry will mature into the parr-marked fingerlings over the summer months before repeating the cycle in the fall.

Since the 1800s, brook trout have been threatened by habitat loss from land development, damming, pollution, and competition with non-native species. Damming and other land-use changes can interfere with brook trout migration and reproduction in historical spawning grounds. In addition to chemical pollution and eutrophication from algae growth causing detrimental changes to the water, brook trout have also been harmed by air pollution through acid rain. Furthermore, as waterways grow warmer with climate change, this can stress local brookie populations and leave them more vulnerable to other damaging factors like competition with invasives such as smallmouth bass and brown trout. Despite these challenges, many organizations are working to restore brook trout populations through habitat restoration.

To help with such efforts, landowners are encouraged to keep

continued on next page

their watershed in mind and employ water-conscious practices. This can involve being aware of how one's water waste is disposed of and ensuring that water pollutants like chemical fertilizers and sediments do not run off into local waterways. The resulting algal blooms and silt deposition can raise water temperatures, smother trout eggs, and make it difficult for trout to hunt.

Planting native riparian vegetation around streams and rivers can offer brook trout more cover where they are present, stabilize stream banks, and help with temperature regulation. Monitoring and restoring blocked waterflow in culverts and dammed regions can also help establish more habitat connectivity, however it is important to not remove the large woody debris from streams that helps to provide pockets of cover for trout. With more responsible land management practices in mind, we can help to maintain our New York waterways and the creatures that rely on them, including the beautiful and charismatic brook trout.

Jessica Park is a Program Assistant for the New York State Master Naturalist Program, directed by Kristi Sullivan at Cornell University's Department of Natural Resources and the Environment. More information on managing habitat for wildlife, and the NY Master Naturalist Volunteer Program, can be found at https://blogs.cornell.edu/nymasternaturalist/ Photo credit: Ryan Hagerty, USFWS.

Would you like to see an article about a particular topic we haven't covered?

Please send your suggestions to:
Mary Beth Malmsheimer, editor
at
mmalmshe@syr.edu
or
Jeff Joseph, managing editor at
jeffjosephwoodworker@gmail.com

From the President (continued)

stayed and taught me to skin catfish in the early 1960's.

As a result of having the chance to experience the woods in the Catskills, I was determined to eventually have water and woods of my own to enjoy. We were able to build a 3 ½ acre pond in 2015, working with the Army Corps of Engineers and the DEC to obtain the necessary permits. Both agencies were very easy to work with. After stocking the pond with fathead minnows and common shiners, I let them reproduce for one year and then stocked the pond with two species of sunfish, yellow perch, and pickerel. It's great having my friends bring their grandkids to go fishing in the pond. Beavers moved in shortly after the pond was completed and wood ducks and mergansers breed on the pond.

Living in an old house constructed in the 1820's with fieldstone basement walls, it made little sense to try to have a wood shop with large, expensive iron tools in a damp basement that would rust them in short order. In 2016 my ever-patient wife Peg agreed to let me get a Wood-Mizer LT-35, the smallest hydraulic sawmill that Wood-Mizer sold at that time. We are fortunate to have on our property a five acre stand of red pine that was planted in 1927 and thinned in the 1940's, resulting in trees that currently average about 185 board feet of lumber per tree. I started cutting and drying the boards, battens, and studs needed to construct my woodshop. I worked with an engineering firm to develop the specifications for the concrete foundation, and the foundation was poured in the spring of 2018. I erected the walls of the woodshop with the help of friends that same summer, and in the fall, with the help of a local Amish crew, I was able to put up the attic trusses and metal roofing for the building. The 36' X 56' building is insulated and has a woodstove, which gets rid of all my carpentry mistakes, as well as a heat pump for warmth.

Initially I was sawing my logs in an open field, which, due to full exposure to the elements, limited the available days for me to saw each year. In 2022 I started the construction of a (now completed) sawmill building which has allowed me have a much more pleasant sawing experience, getting me out of the hot sun, rain, and wind. Now even if it's dark, I can saw to my heart's content. Both the woodshop and sawmill building were oriented to allow optimal placement of PV systems, which provide all of the electrical power we need.

How did NYFOA assist with all of these projects? NYFOA provides the opportunity to attend all sorts of informative meetings, and to visit folks that have experience in areas that I do not have. Prior to each of the projects listed above, I attended pond building workshops, visited folks that had built woodshops, and had folks come to my place to teach me proper sawing techniques. NYFOA's peer-to-peer transfer of information is one of the greatest strengths of our organization. As President, one of my many goals will be to expand efforts in this area.

Feel free to contact me with your questions, comments, suggestions, and/or concerns. I look forward to continuing to expand NYFOA's reach, and furthering our effectiveness as a source of information and inspiration for woodlot owners across our state.

–Ed Neuhauser
NYFOA President

Storing Lumber: A Cautionary Tale

By Jeff Joseph

A little over twenty years ago, not long after I had purchased my home and adjacent woodlot, I hired a neighbor with a sawmill to saw up some white pine for lumber to repair an aging shed on the property. It felt quite gratifying to have this opportunity to work with wood from my own woodland for the first time, and with it I managed to give the old, and to be honest, rather shoddy structure a new lease on life. As the lumber from the trees I felled and had milled ended up being substantially more than what the repair project required, I, in my naivete at the time, stacked the remainder of the still green/wet lumber on a vacant corner of my lawn, in a tight, compact pile, and, horror of horrors, covered it with a tarp, to keep it 'protected' until I had time to figure out what to do with it. Basically, as I would soon come to learn, a perfect storm of what *not* to do.

Well, time passed, life got busy, and, unsurprisingly, things didn't end well for my pine stash. Some months later I needed a few 2x4s for another project, and remembered the stack of pine. When I first uncovered it, all seemed fine, until I removed the first board from the pile. Then all hell broke loose, as hundreds of agitated carpenter ants exploded into action, trying to protect 'their' newfound home from this unwelcome invasion. I did manage to salvage a few boards from the pile, but the majority of it was riddled with freshly bored galleries (Figure 1) where they raise their young, and so ended up cut up into a many-years' supply of expensive kindling. Lesson learned.

Fast forward to 2010, when I received EQIP funding for some timber stand improvement (TSI) on the most overstocked portions of my woodlot. While much of the culled timber was of poor quality and ended up just laying where it fell (or cut into firewood), a good deal of it was sizeable enough, and, if I didn't mind cutting around some defects, perfectly adequate to be used as sawtimber. Being of limited financial means, but full of energy (Ah, youth), I bought myself a chainsaw mill (and a Husqvarna 395 to power it) to turn all those cull trees into lumber for my 'day job' as a woodworker. After a short learning curve, and then a *truly ridiculous* amount of labor that I wouldn't care to repeat, I cut up dozens of logs of hard maple, soft maple, basswood, black cherry, white ash, yellow birch, beech, aspen, and a little elm, and hauled all the lumber out on my back (no $ for a tractor, or even an ATV at the time).

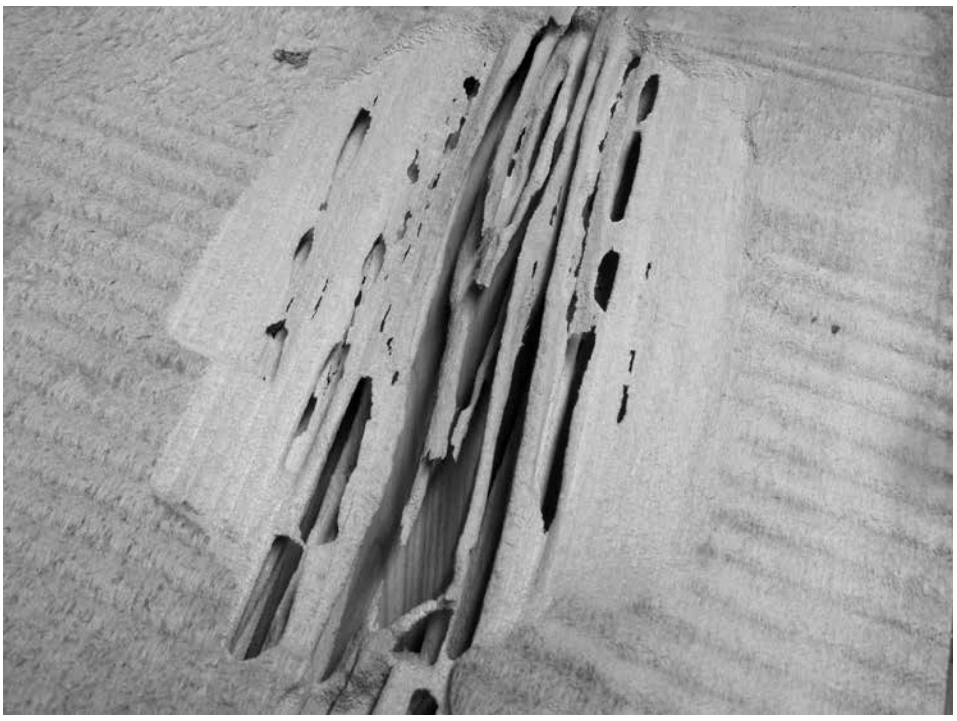


Figure 1. Carpenter ant galleries.

With all that sweat equity, this lumber had a personal value far beyond its equivalent price on the market. So when it came time to stack and dry it, I assured myself that I would do things right this time, and not repeat my past mistakes. I bought a bunch of cinder blocks to elevate the stacks off the ground, laid them out in a grid on a flat and level section of ground, and then laid pressure treated 4x4s on top of the blocks to support and distribute the weight, and to allow for 8' wide piles. I then laid the sawn boards on the 4x4s, with air space between the boards, and with dry stickers laid between the layers. Once each pile was complete, I put sheets of metal roofing on top, extending beyond the pile in both width and length to shed rainwater, and weighted the sheets down with more cinder blocks to keep them from being blown off in strong winds. Then,

Figure 2. Disturbed carpenter ant colony in basswood board.

because air-drying hardwood lumber is an excruciatingly slow process, I just forgot about these piles for a while, other than to periodically run a weed whacker around their perimeters to keep the grass and weeds from growing up and around the edges and inhibiting air flow.

A few years later, all this lumber had dried as much as it could in its ambient, outdoor environment (which is still quite high in moisture content in our humid part of the world), so after waiting until an extended dry spell when the wood would be as low in bound moisture out as possible, I broke open the piles, and brought the lumber into my barn. I store air-dried lumber in my uninsulated and unheated barn to try and acclimate and dry it a little further before finally bringing it into my fully conditioned (+/-47% relative humidity year-round) workshop for final drying and stabilizing before putting it to use. Without this step, bringing hardwood lumber too quickly into a very dry environment can cause all kinds of warping/bowing/twisting, and even internal checking.

This multi-step drying regimen is not an exact science, as it can vary a lot with annual fluctuations in temperature and rainfall, and is quite a laborious process. It certainly would not be required if the lumber were to be used solely for outdoor projects or other rough uses, but if you had ever painstakingly built a cabinet only to see all of its parts warp or even develop cracks once installed in a centrally-heated home, or laid a series of floorboards tightly, only to see them develop exceedingly wide gaps in their first winter near the woodstove or heat registers, you would understand the need for such caution.

I now had a large inventory of partially dry lumber from the EQIP thinning, so after moving it all into my barn, I stacked it vertically against the external walls to economize on space, and to allow for some airflow between boards. Except for pulling out an occasional board as needed, I again pretty much forgot about this hardwood stockpile for a good long while. Many years actually—thinking that it would just be there ready for its final acclimatizing once I was ready for it. But finally in 2023 I got around to a major reorganization of my barn, and so needed to move some of this lumber around for the first time in over a decade.

There were two very unwelcome surprises waiting for me. First, even after years of air-drying, basswood and ash at least still held on to enough moisture in their cells to attract carpenter ants, who again had infested a number of boards that were standing with their faces close together (Figure 2). Without ample space between the boards it seems that the ants more readily find enough moisture in the wood, and also perhaps feel safer about starting a colony there. Second, the conditions in my unheated barn were near perfect for powder post beetles to infest the lumber, at least the more susceptible species (Figure 3). Beech was a near total loss (so much so that I would only kiln dry beech in the future); hard and soft maple, aspen, and ash had substantial damage; cherry, birch, basswood, and elm were mostly spared, perhaps being less palatable to

continued on next page

Figure 3. Powder post beetle damage in maple board.

them, or less prone to retaining moisture once air dried.

Yet again I ended up with a lot of expensive (at least in terms of my labor, in this case) kindling, as all the powder post beetle infested wood needed to be culled out and burned before the infestations got worse, and much of the carpenter ant infested wood was full of gallery tunnels. So the upshot for me from all this, and the hard-won lesson that I wanted to impart here is that if you've got lumber in storage in conditions like mine, even if you've made an effort to do all the right things, you really have to inspect it at least semi-regularly to ensure that it is not being stealthily infested and degraded. I thought storage in my barn was 'safe,' when in fact the conditions were in the 'Goldilocks' zone of not-too-wet and not-too-dry to be preferred by these two insect pests.

I used a moisture meter to check the moisture levels in each of the most damaged species, and found that even after all these years of air drying, in the humid mid-summer basswood held 17% moisture, beech was about the same, with the maples and ash only slightly less—all of this a reminder of wood's hygroscopic nature, absorbing and releasing (and reabsorbing etc.) ambient moisture over the entirety of its lifespan. Interestingly, after ridding the lumber stacks of all carpenter ants, a short time later, now feeling rather paranoid, I went back to check again, and found a colony in an adjacent bundle of eastern white cedar shingles, which my moisture meter showed to be only at 10% moisture content, which is, according to the literature, entirely too dry for carpenter ants to want to set up shop in. So vigilance is required, even in unlikely targets, such as the cedar, which they probably only resorted to after being evicted from the basswood and ash. Thankfully, as yet I have seen no sign of them infesting either the timbers or the siding of the barn, both of which are hemlock. But I'll undoubtedly be checking ALL the wood out there more regularly from here on.

One final piece of the puzzle in my case is that I slab- or flitch-cut all of these boards with the chainsaw mill, and did not edge them afterwards, as would be common practice with a sawmill, so many retained at least some bark on their edges, making them more prone to insect infestation, as bark seems to be particularly enticing to and/or protective of wood colonizing insects.

So in sum, hopefully, lesson(s) learned—air drying wood is a process, not an event, and it can sometimes run in reverse, with the wood regaining moisture it had lost. It's never just *done*, at least not until the wood is stored or put to use in an environment with tightly controlled and stable levels of temperature and humidity.

Jeff Joseph is the managing editor of this magazine.

2024 NYFOA Spring Appeal Donors

The New York Forest Owners Association thanks the people and organizations that supported our programs and publications in during our spring appeal. Your help is essential to our work.

STEWARD ($500 or more)
Mike Arman
Hugh Canham
James and Susan Curtis
Guy Garnsey
Fred McCrumb
Don Moeller
Constance Steger
Art and Pat Wagner

BENEFACTOR ($250- $499)
Phil Arnold
Bob Bleier
Bob Bleier CPFA
Joe and Sue DeGeorge
Shari and Dick Gibbs
Rick Hildenbrandt
Leeds Log Yard LLC
Charles and Sarah Stackhouse
Jon Stetler

SPONSOR ($100- $249)
Daniel Anderson
Don and Judith Ashley
Greg and Kathie Bucher
Jim Cheesman
Daniel Cleveland
June and Neil Eberley
Theodore First
Troy Firth
John and Connie Gilbert
Glenwood Heights Tree Farm
John T. Hastings
Idleweiss Farms
Brice June
Paul King
Alfred and Debbie Klein
John Knapp
Harry Komrowski
Andrew Maguire
Gerald Michael
Ed Neuhauser and Peg Coleman
Mr and Mrs Michael B. O'Connell
Peter S. Paine Jr., Red Farm
Charles Palm
Henry Pauly
John and Gayle Rembold
Ruth Sommers
James Tryon
Sharon Van Niel
Phil and Valerie Walton
Cal Welch
Tom and Anna Welch

CONTRIBUTOR (up to $99)
Carl Albers
Patricia Blesi
James Bock
Dick and Gloria Brennan
Steven Buttiker
Gennaro Cibelli
Tom Daly
Brian Deverell
Joseph Dushaw
Mike and Joyce Ermer
Sandy Festa
Janice Glover
Thomas and Kathleen Graber
The Holden Family
John and Linda Holmes
Gil Holtz
Ken Hopler
Mark Horberg
Bob and Ellen Irwin
James and Joan Keebler
Lou Kosko
Richard Kraft
William Leone
Greg and Kathy Lessord
Paul Litynski
Martin C. Lougen Jr.
William Maracle
Patricia Middlebrook
Jean-Pierre Moreau
Donald Mower
Don Nelson
Greg Northway
Greg Northway Sr.
Gerald Pacillo
Edward Piestrak
James and Maureen Rattoballi
Richard Regan
Joseph Reinschmidt
Jack Russen
Robert Sandberg
Vanessa Scinta
Gerald W. Smith
Jeff Spicer
Peter and Anna Tcherepnine
Spencer Thew
William Thompson
John and Peg Underwood
Steve and Mary Valley
Anton Wagner

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

Elm Zigzag Sawfly: The Last Straw for Elm?

By Nicholas Durinzi

Elm zigzag sawfly (EZS), a new invasive in North America, was officially reported in Quebec, Canada in 2020. Originating from Asia, this hymenopteran feeds exclusively on the leaves of elms (*Ulmus* spp.) and as of 2024, populations have been found in Vermont, Maryland, Ohio, Massachusetts, Pennsylvania, Virginia, North Carolina, and New York. In New York, EZS was first found in St. Lawrence County in 2022, but surveys by the Forest Health unit of the New York DEC the last 2 years have confirmed its presence across 23 of the state's 62 counties. The arrival of this new invader is yet another detrimental agent introduced by humans, adding to the mounting troubles of elms in North America.

Problems for elm began over 150 years ago with the introduction of elm leaf beetles from Europe. Elm leaf beetles are defoliators that act primarily as stressors, but rarely kill trees. Elm yellows is a

Figure 1. Elm zigzag sawfly larva feeding on American elm.

Figure 2. Top left: Elm zigzag sawfly adult. Top right: Two elm zigzag sawfly larvae feeding on American elm. Bottom left: Elm zigzag sawfly pupa. Bottom right: Elm zigzag sawfly egg.

disease caused by phytoplasmas and spread by planthoppers. It spreads slowly due to its movement being limited to that of its vector. However, once it enters an area, it proves extremely deadly for any nearby elm. Dutch Elm Disease (DED) was introduced to the United States in the 1930s and is the most notorious pathogen affecting elm. DED is a fungus spread from tree to tree by both native and introduced elm bark beetles. It has been the cause of the majority of elm dieback in the United States. At risk of further decline are the six elm species native to the United States, three of which are found in New York: American elm, slippery elm, and rock elm. Unfortunately, survival is only growing more challenging for elms with EZS now spreading across eastern North America.

Now, you may be wondering what exactly a sawfly is. Sawflies are an understudied group, generally only receiving attention when one becomes a pest. The 'saw' part of their name comes from the shape of their saw-like ovipositor which is used to create slits in plant material for their eggs to be inserted into. For someone not familiar with insects, they can be a little confusing because they have similar characteristics to several groups of insects.

Sawflies belong in the Order Hymenoptera with ants, bees, and wasps. Adults are wasp-like in appearance with the main difference being how the thorax and abdomen are attached. Whereas ants, bees, and wasps have a 'waist' between the abdomen and thorax, sawflies are stockier and have a broader connection. Sawflies' stockiness could be confused with a true fly (Order Diptera), but they can easily be distinguished by their four wings versus flies' two. Their larval stage adds to the confusion by resembling caterpillars (Order Lepidoptera). The caterpillar-like larval stage can be differentiated from true caterpillars by looking at the number of prolegs. Sawflies have at least six pairs, whereas caterpillars have five or fewer. Lepidopterans also have crochets – tiny hooks – on their prolegs, which sawflies do not. Prolegs should not be confused with true legs. All caterpillars and sawfly larvae have three pairs of true legs that are slender, jointed, and located just after their head. Prolegs are found farther down the body and appear globular and stocky.

Adult EZS can immediately be differentiated from most other sawflies by looking at their antennae (Figure 2). EZS

continued on next page

belongs to the Family Argidae, which is characterized by its three segmented antennae. Argid sawflies are relatively uncommon in the United States, having only about 60 known native species. EZS are about 6 – 7mm (about 0.25 in) long and entirely black and shiny apart from their yellow legs and smoky-colored wings. EZS larvae can be distinguished from other sawflies by black stripes on the head that run through the eyes and "T"-shaped black markings on their back two pairs of true legs (Figure 1). Additionally, although EZS is not the only sawfly that feeds on elm, it is the only one that feeds in a characteristic zigzag pattern (from which they get their name, Figure 2), which helps aid in finding and identifying this new invader.

EZS oviposit their eggs in the tips of the serrations of the leaf margin (Figure 2). After 4 – 8 days, the eggs hatch, and larvae begin feeding in a zigzag pattern between veins of the leaf until they reach the midrib. After reaching the midrib a larva will either chew through a vein if it is large enough or leave its feeding gallery and start a new one. A single larva can completely strip a leaf, leaving only the midrib.

Larvae feed on elm leaves for 15 – 18 days until they are large enough to pupate. In general, once a larva is done feeding, it will move to the underside of a leaf and begin spinning a loose gold-colored cocoon out of silk (Figure 2). When the cocoon is complete, the larva will pupate over the course of a few days, during which time they turn from green to black. Adults emerge after 4 – 7 days and begin laying eggs immediately. They generally live for 1 – 6 days and can potentially lay up to 49 eggs (the number documented in Europe). The last generation of larvae of the year, rather than moving to the underside of a leaf, drop from the tree and spin a cocoon in the soil in which they will spend the winter.

Another unique aspect of EZS is that there are no males. They are all females and can reproduce asexually, i.e. they can start laying eggs without mating. This strategy is used by many insects and other invertebrates (and even a few vertebrates). It is, perhaps, most famously used by aphids, the notorious garden pests. Anyone who has had the annoyance of dealing with aphids knows that if you miss just one, there will be just as many as you killed back in a few days. Similarly, with EZS, only one adult needs to make it to a tree to establish a new population.

EZS have a short life cycle, going from egg to adult in only about 26 – 42 days. This short turnaround allows EZS to have multiple generations a year. These multiple generations allow multiple opportunities for EZS to increase its range every year, which combined with being strong fliers, may explain how they spread so far in North America in a relatively short time. In northern NY, we have documented 3 generations, however, the exact number of generations of EZS in the United States is still being determined and may vary in different parts of the country. In their native range, it's known to have four generations, and in parts of Europe, it has up to six generations a year.

In Europe, pesticide sprays are the most effective way of managing EZS larvae. However, due to there being several generations a year, reinfestation of trees is likely to occur. Therefore, repeated spraying is the only way to effectively keep trees uninfested, which could have potentially detrimental effects on native species that are already being impacted due to elm decline.

Biological control (biocontrol) is an alternative way of managing a pest, which can avoid unintended casualties caused by pesticides. Biocontrol is the use of natural enemies (predators, parasitoids, pathogens), usually from the pest's native range, to manage its population. A good biocontrol agent is host-specific, meaning it only targets the intended species, and is effective at managing populations of that species. Few predators and parasitoids of EZS are known from its native range, and work in Europe indicates they are not particularly effective at managing populations. At SUNY ESF, we are looking into native and non-native predators and parasitoids that may be causing mortality of EZS with early indications that there are several.

Though pesticides offer a temporary solution, they are not practical long-term. With six native species of elm already in serious decline due to ELB, elm yellows, and DED, elms have already had three strikes against them, but still seem to be hanging on. With EZS now identified as a fourth stressor, both slowing the spread of EZS and finding effective management strategies are important to invest in at this stage.

Nicholas Durinzi is a Masters student in Entomology in the Department of Environmental Biology at SUNY ESF.

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

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
Peter Bien	SAC
Ingeborg Boudreau	CDC
Lynne and John Delesky	SAC
Russell Freeman	CDC
Samuel Gowan	CDC
David Holcomb	SAC
Rosemary Mix	CDC
Allyson and Norris Muth	SOT
Astrid Ross	SOT
Chris and Julia Reedy	CNY
Nicholas Russell	CDC
Kim Schneider	NAC
Peter Shunney	CDC

NYFOA E-NEWS

NYFOA is excited to resurrect it's digital newsletter, and relaunch it with a new format and purpose.

This will be an important tool for us to disseminate timely information and updates, action alerts, or other interesting content to the membership.

It will be sent out as needed, not on a formal schedule, so watch for it to hit your email inbox periodically; if it shows up, it's about something we think you should know.
If you want to make sure you or another partner in your family membership gets the E-News and are not sure if we have your email address, **please email us at info@nyfoa.org** to request being added to the distribution list.

Member Profile: Nick Jensen

Coordinated and edited by Jeff Joseph

Please provide a brief background on yourself:

My name is Nick Jensen. I am 53 years old. I am a Wealth Advisor for Mercer Advisors. I am originally from Baldwinsville, NY but settled in the Finger Lakes region in 2001 after spending over a decade in Rochester. While in Rochester I attended RIT and then purchased a home in the northeast side of the city where I spent the early part of my career. I have three adult children and one grandchild.

How much land do you own? How much of the land is wooded?

I own just over 100 acres. Originally it was 120 acres but then my brother purchased 20 where he and his wife built a house and raised a family. Approximately 40 acres is mature timber. Another 40 acres is agricultural fields. The balance is successional field/ forest.

Where is your woodlot located?

The property is located in Steuben County in the town of Prattsburgh.

When did you take ownership of your land? Was it from within the family or outside the family? If outside the family, what attracted you to purchase that particular parcel?

It was purchased in the summer of 2001 just before 9/11. I knew a realtor who would mail me listings containing acreage. I fell in love with the Finger Lakes region and made an offer.

What motivated you to become a woodlot owner? What motivates you to engage in the active management of your woodlot?

My primary motivation to own land was to have a vacation/hunting property. After the purchase, I quickly came to the realization that I needed to live there full-time and sell my home in Rochester. Because I had harvestable timber already, I stopped by the NRCS office to pick up some of their literature. Reading through that literature, I learned about the concept of sustainable forestry practices, the role that consulting foresters play, the volunteer based MFO program, and, of course, NYFOA.

I also learned about the Farm Bill and the alphabet soup of cost share programs available to landowners. After engaging with an MFO volunteer, I engaged with Future Forest Consulting to mark the property and get it logged.

Who participates in the management decisions and the actual work? Where do you obtain information to guide your decisions?

I have been the main driver of management decisions with consultation from my family and experts in the field. I have done much of the day to day work myself but hire out the larger projects.

Describe the overall makeup of the land, the topography, surface water, surrounding landscape, etc.…

In retrospect, I had no idea what I was doing when selecting this property. Besides the stunning views that attracted us, we were blessed to have harvestable timber, well-drained soil, and south facing exposure. Also, lots of road frontage and a dead-end road maintained by the town. Finally, a great supply of non-sulphery water provided by a gravity fed hand dug

Nick and family enjoy riding horses and even do the occasional log pulling with the Haflinger.

continued on next page

The family rat terrier likes to help with chores.

well. The elevated position of the property also tends to deter poachers who might be a tad out of shape.

Describe the land's vegetation. Types of trees that dominate? Presence of and type of understory vegetation?

The woodlot is mainly beech / maple. Red oak is well represented along with cherry, white oak, hickory, walnut, and a few persistent ash trees. Understory trees include striped maple, serviceberry, and hophornbeam. The successional areas contain white pine, red maple, yellow birch, apple, and many Norway spruce, walnut, white oak, and sycamore trees that my family and I have planted over the years. The fields have been mowed once per year later in the summer. In 2024, the top two fields were planted in corn. They haven't seen the plow for a generation. The crop is looking great!

Provide a summary timeline of your experience with the land since you bought it. What have been your major projects? What did you learn during those projects?

We had a timber harvest within the first year of ownership. Shortly thereafter we planted 1000 Norway spruce trees. From there we participated in various cost share projects including EQIP, CRP, and WHIP. I mostly did this work myself with consultation from the DEC and NRCS. In 2023 I was advised that I should consider re-applying for some cost share programs. It had been over a decade since my last involvement. I qualified for EQIP again and am in year 1 of a new 5-year contract. Later this summer, my son and I will be putting in two acres of food plots for deer and turkey hunting. Several years ago, I created an LLC and had the property re-titled to the LLC. About every decade there is some developer looking to option the land either for wind turbines or fracking (in the pre-ban days). So far, I have just collected option money with no development. Seems my land is just far enough out that the developers often dial back their initial maps to exclude my property.

How has the land changed since you bought it?

Many of the formerly open areas have become successional forest. I have seen many species of birds and insects that I did not see in the early years. We always enjoy the return of the bobolinks which usually happens around the first week of turkey season. Also the many different butterfly species are a real pleasure to see.

What is your biggest challenge when it comes to managing the property and the woods?

Time followed by money. There's always a new piece of equipment on the wish list. In the fall, I view firewood gathering as my gym membership. So that helps justify the time constraint. Also now that my kids are grown I am not always off coaching one of their swim practices or shuttling them around.

What are some things you have done to learn how to understand and manage your land more effectively?

I find immense value in NYFOA membership. There is a great deal to be learned from fellow forest owners. The practical application, what has gone well, what they would do differently, tools used, etc. Plus the fellowship in hanging out with people

Nick and his three boys.

who share in the same love of their land and world we live in. I am always inspired by the projects others are doing with their property.

What advice would you give to other woodlot owners, or to those considering buying woodland?

Just do it. Buy dirt. You will make mistakes along the way, and it is a lot of work. But it is an investment that you and your family can really enjoy. Being a financial advisor who has a keen interest in real estate and timberland, I often say one can think of land as the bond portion of a diversified portfolio. It will hold its value and at least keep up with inflation. Timber harvests can be viewed as the occasional coupon payment on the bonds. Going for a walk on your land is much more pleasurable than looking at an investment statement.

What do you enjoy the most about being a forest owner?

I always like learning new things about the ecosystem and hopefully creating a space for flora and fauna to thrive.

In what ways, if any, do you interact with your neighbors or community as it relates to your woodlot?

There are many people in my community that share a love of land and recreating on it. Living in the community where my property is located, I have regular interaction with like-minded people.

Which NYFOA chapter are you affiliated with? How has membership in NYFOA benefited you as a woodland owner?

I am Secretary of the Western Finger Lakes (WFL) chapter of NYFOA. In addition, I am the statewide Treasurer of NYFOA. I have been involved in the organization for many years. I always learn from my fellow members and am proud to call them friends.

The best-dressed hunter in town.

Maple sugaring on the property.

The New York
Forest Owner
A Publication of The New York Forest Owners Association

Non-Profit Org.
U.S. Postage
PAID
Syracuse, N.Y.
Permit No. 999

NYFOA
New York Forest Owners Association