

Minnesota MFA Woodlands

Minnesota Forestry Association

MFA: an organization of, by and for Minnesota's private woodland owners and friends.

www.MinnesotaForestry.org

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MFA Board Meetings
DNR Cambridge Office
10 a.m. – 3 p.m.
• July 9, 2019
• October 8, 2019

Conference Calls
8:30 – 9:30 a.m.
• June 11, 2019
• August 13, 2019
• September 10, 2019
• November 12, 2019
• December 10, 2019

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‘SISU’: Pat and Emily Lanin Member Profile

By Bruce ZumBablen

Sisu—a Finnish word that roughly translates as stoic determination, tenacity of purpose, grit, resilience, and hardiness, seems fitting in describing Pat and Emily Lanin's life. More to come on how sisu reflects these long-time MFA members and former MFA Board member (in Pat's case).

In the Outdoors section of the March 1, 2019, Minneapolis *Star Tribune*, Sarah Baker wrote a nice article on Pat and Emily's involvement in helping to form the Minnesota Road Runners Club (now the Minnesota Distance Running Association). Space in this newsletter precludes covering much of what Sarah wrote about Pat and Emily. But, here is a snapshot of their life and about their woodland in Crow Wing County.

Early on, from his self-described dirt-poor childhood on the Iron Range, Pat was drawn to the outdoors, spending more time outside than inside. While he hunted and trapped in his teens, he also became a runner and skier in high school when the track coach got him onto the track team. That began a life of long-distance running and cross-country skiing that followed him into his college years, teaching career and retirement.

He and Emily, who was also raised on the Iron Range, married right out of high school and moved to St. Paul, where Pat first worked as a lineman and then with 3M. While working at 3M, he was encouraged to go to college. Because he excelled in science in high school, he pursued a degree at the University of Minnesota to become a science teacher. He continued to work part-time at 3M. By the time he graduated in 1966, the couple had three kids.

In the 1970s, Pat and Emily bought a 145-acre woodland from local farmers. In 1987, they bought a house from a Finnish couple on a five-acre lake lot less than a quarter mile from their woodland; they moved up there in 1997 following retirement.

Pat retired from teaching (mostly with the Hopkins School District) after 31 years. Emily retired after 28 years with Northrup King Corp (now owned by Syngenta), where she had worked on a wheat breeding program.

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Pat deciding where to go next in Finland.



Pat skidding two red oak logs with a Farmi™ winch.



Emily hugging her sweetie maple tree.

Minnesota Forestry
Association

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Away from home for a time? Please contact the MFA office if you'll be away from home for an extended time and let us know when you'll be back. We'll hold onto the newsletter until you return so you won't miss a single issue!
[Information@
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or call 218-879-5100.

Dennis Thompson Resigns as MFA President

At the end of the April 19, 2019, MFA Board meeting in Cambridge, Dennis Thompson announced he had accepted the Assistant Land Commissioner position with the Aitkin County Land Department. With the new job, he said he could no longer serve as MFA's President. As per MFA's by-laws, Vice President David Roerick will serve as Acting President.

Dennis will continue to serve as MFA's Treasurer until the Board elects his replacement. We owe Dennis a big thank you for his years of dedicated service as a Board member and officer. He will be missed on the Board.



Dennis Thompson

Member Profile continued

The term "sisu" comes to my mind as overcoming adversity when I think of a couple events from Pat and Emily's 61-year marriage. Thirty-three years ago, Emily was diagnosed with stage four breast cancer with a 30 percent chance of surviving two years. She beat "it"—and by far. For over 20 years now, she has been a director for the local chapter of Race for the Cure and actively helps Pat with collecting sap for their maple syrup operation each spring. (This year's yield was 10 gallons of syrup for their own use, if you are wondering.)

Pat faced his own medical issue in 2013 after being hit by a drunken motorcycle driver while riding his bike. With broken teeth and ribs, a dislocated collarbone, road rash and cuts all over, Pat was flown by helicopter to a Twin Cities hospital. Five weeks later, he was back on his bike! Later that year, he had a chainsaw accident that cut through his boot, severing a chunk from his big toe. He said now you can't even see a scar. Tough? You bet!

Pat stays active managing the woodland. He harvests firewood each year, and occasional oak, birch, aspen, and ash sawlogs with a priority of salvaging windstorm- and lightning-struck trees. Much of it is sawn on a Peterson sawmill that is owned by a group of Northwoods Forestry Cooperative members. Pat has served as President of the coop for the past six years and has been the editor of its newsletter for 11 years. Emily handles the design and publishing of the newsletter.

When harvesting the timber on their property, Pat uses some of the same equipment that he sells as a dealer for Farmi equipment and LogRite tools. Much of the wood that furnishes their home came from their own woodlands: from the oak flooring, birch and big-tooth aspen paneling, to the black ash used for their cabinets. It takes about eight cords of firewood to heat their home via hot water from a boiler situated away from the house.

Three streams flow through their 145 acres as part of the headwaters of the Rum River. The property is enrolled in the Sustainable Forest Incentive Act, and was recently converted from an eight-year covenant to a 20-year covenant. The woodland is also a certified Tree Farm and steps have been taken to keep the land in the family by establishing a limited liability corporation to include Pat and Emily's children, five grandchildren and seven great-grand children.

The family enjoys using the property for hunting grouse and deer, hiking, and skiing or mountain biking on over four miles of 12-foot-wide groomed trails. Pat and Emily have given tours of their property using these trails (e.g. Master Naturalist).

Pat is quite proud of his Finnish heritage on his mother's side and has visited Finland three times. Ten years ago, he skied 275 miles from the Russian border to Sweden across part of Finland's Lapland in seven days. Sisu!

Kiitos (Finnish for "thank you") Pat and Emily for being such good MFA members.

The Endangered Trees of Minnesota

By AmberBeth VanNingen

Minnesota has trees—an estimated 15 billion of them covering over 17.4 million acres and representing 52 species. There are over 3.5 billion quaking aspen (*Populus tremuloides*) alone. Such grand numbers can easily overshadow the fact that some of our tree species are very rare. In fact, Minnesota's list of endangered, threatened, and special concern species contains five trees. Two of them, butternut (*Juglans cinerea*) and eastern hemlock (*Tsuga canadensis*), are both listed as endangered, meaning that they are vulnerable to extinction throughout all or a significant portion of their ranges in the state. Species become endangered for a variety of often interrelated reasons such as habitat loss, climate change, isolated populations, invasive species and diseases, and range restrictions. Let's look at these two endangered trees more closely.

Butternut is a medium to large hardwood tree with pinnately compound (when a row of leaflets forms on either side of an extended leaf stalk) leaves and thick, ridged gray-brown bark. It was somewhat common in the forests of eastern North America until the butternut canker came onto the scene in 1967. First reported in Wisconsin, the butternut canker is a fungal disease that is almost always fatal to butternuts. The fungus attacks the tree's cambium (the soft, thin layer between the bark and the wood) and leaves a black area of dead cambium just beneath the bark (a canker). The tree will die as cankers grow on the branch or trunk and in essence girdle the tree. Although its origin is not known, the butternut canker is suspected to not be native to North America. There is no known treatment or control for butternut canker, and few if any trees are immune. In 1992, Minnesota was the first state to enact conservation measures for butternut by placing a moratorium on the harvest of healthy trees. It was listed as a special concern species in 1996 and endangered in 2013.

Eastern hemlock is a large conifer with small evergreen needles and deep, furrowed bark on mature trees. Hemlock are old forest trees and can live up to 300 years. Although a common component of forests farther east, hemlock reaches the very edge of its range in eastern Minnesota. Although the species was likely never common in the state, the logging

era and subsequent tragic fires of 1918 wiped out all but a few trees. Currently, there are only about 10 known sites with eastern hemlock and fewer than 50 mature trees in Minnesota. The largest population consists of just nine mature trees, while other trees are solitary with little or no evidence of reproduction. Eastern hemlock was first listed as a special concern species in Minnesota in 1984 and elevated to endangered species status in 2013.

Given the rarity of these two tree species, you do have to make an effort to see them in the wild. The DNR's Scientific and Natural Areas (SNA) program is charged with protecting the best of Minnesota's natural heritage—places like old-growth forests, remnant prairies, unaltered shorelines, and rare species habitat. SNAs protect habitat for these rare trees.

Hemlock Ravine SNA is adjacent to Jay Cooke State Park and along the Willard Munger State Trail in Carlton County. True to its name, there are hemlock in the site—it contains the largest remaining population of eastern hemlock in the state—and a ravine. Hemlock like cool, wet areas and the ravine provides this special habitat. The ravine is very steep and especially dangerous when wet. To protect visitors and the hemlock that grows there, the area around the ravine is closed to visitors. Also on site are several fenced-in exclosures. These exclosures are protecting the hemlock and other plants from herbivory, mainly from white-tailed deer, porcupine, and snowshoe hare. A muzzleloader deer season, in conjunction with Jay Cooke State Park, is held in December to further reduce deer numbers in the area. An interesting aspect of hemlock at Hemlock Ravine is that reproduction has been good. Dozens of tiny hemlock can be found on the forest floor in the protection of the exclosures.

Butternut grows in central to eastern Minnesota including in a few SNAs. Many location records pre-date the appearance of canker fungus. Clear Lake SNA, near Clearwater on the Mississippi River in Sherburne County, and Kettle River SNA, east of Hinckley in Pine County, both have had butternut as part of their forests in the past.



Top: Yellow flags mark tiny hemlock seedlings inside fenced exclosures at Hemlock Ravine SNA. Photo by AmberBeth VanNingen, MN DNR.

Middle: A fence line shows the difference in biodiversity outside (left) and inside (right) of the exclosure at Hemlock Ravine SNA. Photo by Peggy Booth, MN DNR.

Bottom: Terrace forest at Clear Lake SNA. Photo by Kelly Randall, MN DNR.

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Emerald Ash Borer Risk Status in Minnesota

From My Minnesota Woods

The current active period for Emerald ash borer (EAB) began on May 1. EAB is a non-native insect transported from Asia to the U.S. and was first identified in Michigan in 2002. EAB feeds on the tissue of ash trees between the bark and sapwood and disrupts the nutrient and water flow of the tree, eventually killing the tree after several years of feeding in the trees.

The activity level of EAB helps decide when it is safest to work with ash trees.



Emerald ash borer near tell-tale drill hole. Photo from the City of Elk River, MN.

The EAB Active Period is May 1 – Sept. 30

- Avoid the removal of ash branches, stumps or trees. This is because insects may fly and infest nearby ash trees.
- If removal is required:
- Prune and remove ash trees if absolutely necessary.
- Chip at least the outer 1” of bark and wood on-site and transport to the nearest ash tree waste disposal site where they will quickly process the material.
- Or, transport at least outer 1” of bark/wood in an enclosed vehicle to the nearest ash tree waste disposal site that can quickly process the material. Material should be sealed until it can be chipped.

The EAB Low Activity Period is Oct. 1 – April 30

- Prune and remove ash trees as needed.
- Transport at least 1” of bark/wood to the nearest ash tree waste disposal site where it will be taken care of before May 1.

Ultimately, the identification of the Active and Low Activity periods helps to reduce the spread of EAB. If a tree is left alone during the Active Period, then EAB has a place to lay eggs and reside. But, because the adults will not emerge for one year, if the tree is cut down during the Low Activity Period, the eggs and adults will not have a chance of surviving and spreading.

Do the pruning and removal guidelines apply to the whole state?

It is important to follow the pruning and removal guidelines throughout Minnesota because the signs and symptoms of EAB can lay dormant in the tree for up to five years. It takes a year alone for the larvae to move throughout the tree. Trees can be different sizes and may react to the insect differently. If the tree is infested but not showing signs of EAB, pruning and transporting ash wood during the Active Period can move EAB to a region of the state which EAB was not present before. Without proper precaution, this can infest a new set of ash trees. It is important to adhere to the removal guidelines and keep ash firewood in one spot.

Which counties are considered EAB quarantined in Minnesota?

A quarantine is a temporary rule intended to help prevent a potentially dangerous or destructive pest or disease from spreading outside of a known infested area into new areas. EAB quarantines are designed to limit the movement of potentially infested firewood or other materials such as live wood, which might hold EAB larvae. To view the most recent update of the EAB quarantined areas, visit the Minnesota Department of Agriculture’s EAB status page.

Will “painting” the pruning wounds reduce the EAB risk if the tree is pruned in the high risk season?

No. Painting pruning wounds on a tree will not reduce the risk of EAB infesting the tree during the Active period. Painting any tree wounds is not recommended with the exception of wounds to oak trees during the high risk period for oak wilt.

Are any of our native ash trees (black, green, white) resistant to EAB?

No. EAB infests and kills all species of ash trees in Minnesota, including black, green and white ash.



Emerald ash borer larva. Photo from EAB Information Network.

Does the emerald ash borer attack mountain-ash and wafer-ash?

No. The mountain-ash and wafer-ash are not truly part of the *Fraxinus* genus.

Are there any ash trees that are resistant to EAB to some degree?

According to research from Ohio State University, Manchurian ash and blue ash offer some resistance to EAB to different degrees. Manchurian ash may be the most resistant to EAB.

What is the best way to handle the ash logs and debris once the tree has been removed or pruned?

The best way to handle ash logs and debris is to send them to the nearest ash tree waste disposal site to have them processed before May 1 in the Low Activity period. If you are dealing with this debris during the Active period, it is important to seal the debris and logs and transport them to the nearest facility to be processed immediately.

Is there any control for EAB once it's in the tree?

It may be helpful to use insecticides in the early stages of infestation. But keep in mind that once the insect infests the tree, the damage which is caused is irreversible. If the tree begins to show symptoms of damage such as canopy dieback beyond 30%, it may not be helpful to inject insecticides because of the volume of tissue loss and decreased ability for the tree to move the insecticide, nutrients, and water throughout the tree. Before canopy dieback reaches 30%, insecticides have been shown to be successful.

Is there any treatment to prevent EAB from entering and damaging an ash tree?

There are two common types of approaches of treatment which target the adult insect. These treatments include tree trunk injections and soil and root drenching applications. It



Adult Emerald Ash Borer on ash leaf. Photo from Purdue University

has been found that the injection treatment is less harmful on the environment and gives the tree direct injection into the tissue of the tree. It is common that the homeowner pay for these services and a licensed professional is needed in order to apply the insecticide.

Is it safe to mill any lumber from the ash tree that has been removed? If so, how?

It is safe to mill the lumber from ash trees if the wood does not leave the county it was cut down from, especially if it is a quarantined county and if the outer 1 ½-inch of sapwood is removed and disposed of to kill any EAB present.

Can the EAB be transported via wood chips?

If moving the ash wood is unavoidable, chipping will be the most cost effective approach and destroys the ability for EAB to reproduce. However, chips must be small enough (two sided and less than 1-inch) to successfully kill the EAB larvae and/or pupae.

What should I do if I suspect EAB damage on my property?

Contact the Minnesota Department of Agriculture's Arrest the Pest hotline (888-545-6684; arrest.the.pest@state.mn.us). Note the exact location of the tree and take a digital photo if possible.

Endangered Trees continued

They may still be there for the intrepid visitor to find. Both SNAs protect forests and shoreline along major rivers that provide habitat for butternut. This tree prefers the alluvial soils (deposited by flowing water) of river terraces above the floodplain. Look for the trees, dead or alive, in this habitat.

If you are interested in learning more on Minnesota's endangered trees, flowers, bugs, or other species, you can find more information at www.mndnr.gov/ets. Use the Rare Species Guide to find species information, check out the laws governing our rare species, or find out how to submit your own rare species records if you discover eastern hemlock, butternut, or other species in your forest adventures. Additional information on SNAs and SNA programs across Minnesota can be found at www.mndnr.gov/snas.

AmberBeth VanNingen is a Minnesota DNR Regional Scientific and Natural Areas Specialist, traversing the wilds south of Canada.

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Oak Plight is Example of Minnesota Forests Becoming Less Wildlife-Friendly

Oak plight gets attention of wild turkey followers.

By C.B. Bylander.

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The mighty oak isn't so mighty after all.

That is the growing reality in Minnesota, where red, white and bur oaks struggle to regenerate because of sapling-munching deer, invasive species and modest commercial demand, the latter a root cause for forests composed largely of older trees and relatively few young trees.

"The oak forest in southeast Minnesota is one our national habitat priorities," said Tom Glines, regional development director for the National Wild Turkey Federation. "It isn't what it used to be and what it is becoming is not what hunters and others who enjoy forest recreation will want in the future."

As such, Glines encourages turkey hunters to look beyond their gun barrels and into the future.

"The oaks that have long provided acorns for turkeys, deer, squirrels and other species to eat are not being adequately replaced," he said. "Instead, the forest is converting to buckthorn, honeysuckle, maple, basswood and other less wildlife-friendly species. It's not good. A maple doesn't drop an acorn."

Minnesota's oak plight has been long in coming. Before settlement, wildfires swept the state, and in doing so burned the brush and other plants that competed for the direct sunlight that young oaks need. As settlement went on, the biggest and best oaks were harvested. Shade-tolerant understory species spread like crazy, particularly unwanted buckthorn, as the forests evolved. Today, the majority of all of Minnesota's oak stands are 60 to 90 years old, with oak trees 40 years old or younger representing the smallest percentage. In fact, according to the Minnesota Department of Natural Resources, there are more oaks 100 years old or older than there are oaks age 40 and younger.

Glines said changing this age imbalance is a challenge. "The landscape is big, budgets are often small, and battling buckthorn is expensive. Realistically, partnerships are the only solution because no one entity can do it alone."

Larry Gates agrees. Gates is the chairman the Minnesota Forest Resources Council's Southeast Landscape Team. A longtime resident of the southeast, Gates and other team members aim to reinvigorate forest management on a 13-county landscape that covers 5 million acres. It is a big task. About 14.5% of that land — 725,125 acres — is forested.

"The key to meaningful change is helping private landowners see and solve the problem," Gates said. "Most



Matt Weegman, right, a biologist with the National Wild Turkey Federation, sees private landowners as part of the solution. He is shown with Gary Drotts of Brainerd who helps the wildlife group with oak habitat projects.

of the land in southeast Minnesota is privately owned. That's where most of the oaks are. And that's where most of the oaks will disappear over time unless we manage invasive species, develop long-term consistent funding strategies that cross all ownerships, and obtain broad public support for sustainable forest management."

On a personal level, Gates is doing his part to sustain oak on his property by direct-seeding hardwoods, hand-planting seedlings and suppressing invasive species. The direct seeding involves collecting large volumes of nuts from a variety of hardwoods, broadcasting with a fertilizer spreader, and discing them to a depth of 1 to 2 inches. By this process, Gates is retiring about 5 acres of agricultural land per year. A DNR forestry division cost-sharing program helps offset his expenses, and his seedlings are thick and vigorous.

"Personally, I see great potential for creating young oak forests on field edges that abut blufftops," Gates said. "In the old days, farmers didn't plant crops as close to the edge as they do now. A blufftop oak buffer compensation initiative could result in many positive benefits for recreation, ecology and the economy, including less sediment in trout streams, more high-quality habitat for wildlife, and commercial timber opportunities."

Partnerships are key

Matt Weegman, district biologist for the turkey federation, said his organization is increasing technical assistance to private landowners. In the months ahead, he said, the turkey federation will hire a forester who will work out of the DNR conservation service office in Rochester. "It's a similar approach to what Pheasants Forever is doing in the prairie," Weegman said. "We are doing this as part of our national 'Save the Habitat; Save the Hunt' initiative that aims to conserve or enhance 4 million acres of critical habitat in the years ahead."

Still, Weegman said it is important to partner with public landowners, too. He oversees 10 oak habitat improvement projects on state lands that are paid for by the Legacy Amendment's Outdoor Heritage Fund. These projects involve removing buckthorn, planting oak and taking steps to help it grow. This is being done, in part, because about 65 percent of the state's oak stands are past the preferred rotation age of 80 or so years, and the habitat value of these trees is eroding. Once an oak tree hits about 100 years old its ability to produce reliable acorn crops decreases, as does its ability to re-sprout from a stump.

"In recent years Minnesota has put a lot of emphasis on wetland, prairie and aspen management but less emphasis on oak forests," Weegman said. "That's a concern we are trying to address because a mostly old forest is not a healthy forest."

Weegman said private landowners concerned about their oak stands should seek advice from their soon-to-be-hired turkey federation biologist in Rochester, a private consulting forester, the DNR forestry office, or the county soil and water conservation district office.

"Oaks are amazing trees, but they are not fast out of the blocks," Weegman said. "Landowners who want to grow oaks can benefit greatly from the experience of others who've done the same."

C.B. Bylander is a freelance writer. He lives near Baxter, Minn.

Want to Become a Master Woodland Owner?

Why join the Master Woodland Owner program?

Have you ever wondered how many trees are on your property, and what species you have? Do you know how to gauge the health of your woods, or know what healthy woods look like? Do you know which wildlife species depend on your woods, or how your woods are changing? Do you think about the future of your property—your hopes and dreams for your land?

Nothing is better for Minnesota's family forests than improving their health, productivity, and resilience through the adoption of sustainable forest management practices. The Master Woodland Owner program is a cohort-driven educational program in which you will learn to become a more confident steward of your land from University of Minnesota experts, natural resource professionals, and other family forest owners.

Who can attend?

Any woodland owner or person responsible for managing woodlands in Minnesota or the Upper Midwest region is eligible to register. There is no minimum or maximum acreage requirement. Families and groups are welcome and encouraged to register multiple members—woodland management is often a shared responsibility!

How will you benefit?

Your property is special for many reasons. It may be a place where you spend time with family, hunt, or watch wildlife. Your investment in the Master Woodland Owner program will help you care for your land. You will come away with new options, new ideas, and develop specific actions that will provide a path to leaving your land in a better condition for future generations.

How is the program delivered?

The Master Woodland Owner program consists of online educational courses covering a range of woodland stewardship topics, as well as meeting as a group at in-person field tours and workshops. Whether online or in person, you will be learning alongside a cohort of family forest owners just like you.

Curriculum and overview

After completing the Master Woodland Owner program, you will be able to:

- Consider the different reasons and ways to manage your woods
- Identify common trees and invasive plants
- Map your property and conduct a woodland inventory
- Find and talk with natural resources professionals
- Select appropriate trees and know how to plant them
- Develop and refine goals for your property
- Discuss financial considerations of land ownership (including tax incentives and estate planning) with family and financial/tax advisors.

Registration

We are committed to providing quality landowner education that is affordable and attainable for family forest owners. Additional members of the same household or co-owners of the same property are eligible to receive a discounted registration. Registration dates are rolling. See our website at mwop.umn.edu or contact us for details on current cohorts and registration costs.

Upcoming Events

Find more events, and more information on these events, at the MFA website, www.MinnesotaForestry.org, or by calling MFA at 218-879-5100.

Assessing Vegetation Impacts from Deer Workshop

East Bethel
Wednesday, June 5, 6-8 p.m.

Cedar Creek Ecosystem Science Reserve, 2660 Fawn Lake Dr. NE, East Bethel, MN 55005. For more information, visit extension.umn.edu/event/avid-assessing-vegetation-impacts-deer-workshop-east-bethel.

West St. Paul
Thursday, June 6, 6-8 p.m.

Dodge Nature Center, 365 Marie Ave. W, West St. Paul, MN 55118. For more information, visit extension.umn.edu/event/avid-assessing-vegetation-impacts-deer-workshop-west-st-paul.

Cushing
Friday, June 7, 1-3 p.m.

Lake Alexander Woods Scientific and Natural Area 7163 Bear Road, Cushing, MN 56443. For more information, visit extension.umn.edu/event/avid-assessing-vegetation-impacts-deer-workshop-cushing.

Cloquet
Saturday, June 8, 9 a.m. – 1 p.m.

University of Minnesota Cloquet Forestry Center, 175 University Rd., Cloquet, MN 55720. For more information, visit extension.umn.edu/event/avid-assessing-vegetation-impacts-deer-workshop-cloquet.

Webinar: Treaty Rights and the Chippewa National Forest

Tuesday June 18, 12-1 p.m.

Speakers: Doug Thompson, USFS, and Andrea Brandon, The Nature Conservancy. Cost: \$20 per webinar or \$50 for the entire 2019 series. This webinar builds on the May "Understand Treaty Rights and Obligations" webinar. We will hear from Doug Thompson, Tribal Relations Specialist with the Chippewa National Forest, who will provide an overview on how treaty rights apply to the Chippewa National Forest. We'll then hear from Andrea Brandon of The Nature Conservancy, who will introduce the Sand Plains Pine Project, a current real-world applied example of how treaty rights are affecting land management. For more information or to register, visit sfec.cfans.umn.edu/2019-webinar-jun.

Master Woodland Owner: Avon Hills

(online course opens)

Thursday, June 20

Learn more and register at mwop.umn.edu/join-class/june-2019-avon-hills.

EmpowerU!

Cloquet

Saturday, July 13, 9 a.m. – 3 p.m.

University of Minnesota Cloquet Forestry Center, 175 University Rd., Cloquet, MN 55720. Learn to talk with a resource manager, local decision maker or elected official about invasive species in your community. This in-person workshop is the culmination of a four-week online course in which participants will gain the skills needed to meaningfully engage decision makers about invasive species issues. Learn more about the program and register at extension.umn.edu/courses-and-events/empoweru-advocating-invasive-species-management.



Minnesota Forestry Association

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Webinar: Oak Wilt: Biology, Distribution, and Management Approaches

Tuesday July 16, 12-1 p.m.

Speakers: Jennifer Juzwik, USFS-NRS, Laura Reuling, WI DNR, and John Lampereur or Ben Walker, CNNF. Cost: \$20 per webinar or \$50 for the entire 2019 series. Oak wilt is a disease affecting primarily red oaks. Recent range expansion to the north and west has caused concern among foresters. Methods to treat oak wilt outbreaks in forested settings are not well established. At this webinar we'll hear first from Jenny Juzwik, a research pathologist with the USFS Northern Research Station, about oak wilt in Minnesota. We'll then hear from Laura Reuling of WI DNR and John Lampereur of the Chequamegon-Nicolet National Forest about forest-based treatment options they have tested and described on the Great Lakes Silviculture Library.