

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

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

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Forest Insect and Disease Report from MN DNR

Orange Slime on Birch and Ironwood, and Other Weird Stuff on Tree Bark

By *Brian Schwingle, Central Region forest health specialist*

Turkey hunters in Dakota County and a homeowner in Morrison County spotted some paper birch trees this spring that had orange slime oozing down the bark. Another homeowner noticed the same stuff on her ironwood in Washington County in early May. This orange gunk, coupled with white foam, occasionally appears on birch trees. It's partly a result of orange-pigmented yeast growing on sap leaking from wounds, says Dr. Robert Blanchette, a tree pathologist with the University of Minnesota.

This orange yeast is just one of many microorganisms that grow on sap leaking from trees. Perhaps the most commonly seen organisms that grow on sap are sooty molds. Sooty molds are black fungi that feed on sugars in tree sap. Streaks of blackened bark colored by sooty mold often appear below tap holes in sugar bushes or below sapsucker holes drilled into sugar maples.

Additionally, there is a suite of organisms that feeds on dead outer tree bark or uses bark as a surface on which to grow. Several fungal species harmlessly feed on outer tree bark, creating a condition known as "smooth patch." White and bur oaks frequently have smooth patch. Lichens, a combination of a fungus and either algae or a type of blue bacteria, also are harmless and common on tree bark.

With all of the above cases, the organisms you see are not harming the tree. In the cases of orange yeast on birch and ironwood trunks or sooty mold on tree trunks, they indicate the tree has some sort of injury. In most cases, that injury is minor and not concerning.

Emerald Ash Borer Update

By *Brian Schwingle, Central Region forest health specialist*

The latest community to discover emerald ash borer (EAB) is Sauk Centre in northwestern Stearns County. This comes six months after the discovery of EAB to the southeast, along Interstate 94 in Clearwater, Wright County. These EAB infestations so many miles apart probably were

Continued on page 6



Top: Orange mold on birch trees. Bottom: Black mold on maple trees with sap tap buckets.

Don't miss the MFA Fall Field Days, Annual Meeting and State Tree Farm Awards. The event will be held Friday and Saturday, October 4-5, 2019, at the University of Minnesota Cloquet Forestry Center in Cloquet, MN. See the enclosed brochure or MinnesotaForestry.org for more information and registration form.

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.

Firewood Safety: It's the Law

As we find ourselves immersed in summer, remember that transporting firewood in Minnesota is a no-go because of the risk of introducing an invasive pest to a new area. Emerald ash borer (EAB), Thousand Cankers disease and many other forest pests and diseases can be accidentally transported in firewood, especially as the wood may not show visible symptoms. Be aware of the current regulations and quarantines, including:

- All firewood that is not approved by the DNR is banned on DNR lands. If you bring unapproved firewood with you to a state-administered campground, you will have to surrender the wood or be denied entry. If you are caught burning unapproved firewood on DNR lands, you may be fined.
- It is illegal to transport hardwood firewood out of Minnesota quarantined counties unless it is Minnesota Department of Agriculture certified firewood or follows specific regulations including a signed compliance agreement (available from the MDA). Moving uncertified hardwood firewood out of quarantined counties is illegal and is punishable up to a \$7,500 fine per violation per day.

You can avoid any hassle by buying MDA certified firewood, which has been treated to state standards and is safe to move throughout the state. Look for the MDA certified seal. Know the difference between MDA certified (heat treated for EAB and state certified) and DNR approved (local firewood for state lands only). MDA certified firewood may move unrestricted, but DNR approved firewood may not move out of a quarantine.

If you buy or sell packaged or bulk firewood, make sure it is labeled on each wrapper or invoice with harvest location by county and state.

What is Approved Firewood?

- Firewood sold at a state park is approved for use in that park. Check with park staff to determine if that firewood is approved to bring onto any other DNR lands.
- Non-ash firewood harvested from and purchased in the same county where it will be used (be sure to keep your receipt to show proof of purchase).
- Firewood harvested in Minnesota that has been certified by the MDA or the USDA Animal and Plant Health Inspection Service (be sure to keep your receipt to show proof of purchase).
- Kiln-dried, unpainted, unstained dimensional lumber that is free of any metal or foreign substances, or manufactured logs. Pallet wood is not approved firewood. Dimensional lumber does not require proof of purchase.

Report firewood violations to MDA. If you have any questions regarding safe-to-move firewood or suspect a tree has a reportable pest, contact the MDA's Arrest the Pest at Arrest.the.Pest@state.mn.us or 888-545-6684. Use Firewood Scout (firewoodscout.org) to see where you can purchase approved firewood.



CORRECTION

An error appeared on page 1 of the last issue of *Minnesota Woodlands* (June/July 2019) in the member profile of Pat and Emily Lanin. A photo captioned "Pat skidding two red oak logs with a Farmi winch" showed Pat definitely *not* skidding logs with a Farmi winch. The caption should have read, "Pat operating a Peterson Swing Blade Saw Mill." We apologize to Mr. Lanin and our readers for the error.

**Call Before
You Cut**

Thinking of harvesting timber from your land?
You will be sent a packet of information with
no cost or obligation to you.

218-879-5100

Butterwort Cliffs Scientific and Natural Area

By Anna N. Hess and AmberBeth VanNingen



Photo by Anna Hess.

The Highland Moraine follows the rocky ridges of Lake Superior from Duluth to Grand Portage, forming a long, narrow strip of ecological community known as the North Shore Highlands. It is characterized by bedrock, glacial till and pine forests, rivers running through ravines, the crystal clear waters of the big lake, and unpredictable weather. Embedded within this community is the narrow, 43-acre Scientific and Natural Area called Butterwort Cliffs.

According to local history, a small fur trade post established in 1823 signaled the arrival of European influences. Settlement began to occur in the area following the 1854 Treaty with the Ojibwe people. The area currently comprising Butterwort Cliffs was originally in state ownership in 1934, under the Department of Highways. Cascade River State Park was established in 1957 by the Minnesota Legislature. Following this, the state transferred control of these highway lands to the Division of Parks and Recreation. The unique features of this site would bring its nomination for inclusion in the Minnesota Department of Natural Resources Scientific and Natural Area Program.

Butterwort Cliffs has a relatively uncomplicated journey from recognition to designation. This site was nominated by the Commissioner's Advisory Committee in 1979, and recommended for inclusion in the Cascade River State Park management plan in 1981. Eventually established in 1990, this site was partially donated by The Nature Conservancy as a dedication to Tom Savage, known for his contributions to land protection along the north shore of Lake Superior. The SNA is designated as a secondary unit within Cascade River State Park; thus all management activities are planned in cooperation with park staff.

Butterwort Cliffs runs between Highway 61 and Lake Superior in Cook County, a slender strip of basalt cliffs and aspen-birch forest. Thomsonite, a rare geologic feature, can be found within the basalt cliff faces. The SNA benefits from the close proximity to the big lake, which provides moisture and moderate temperatures, forming a habitat type known as Wet Rocky Shore community. More than 20 arctic species call Butterwort Cliffs home, including the Hudson Bay eyebright, intermediate sedge, and the butterwort, which lends its name to the site. Disjunct species are, for various reasons, disconnected from their primary range. In the case of these arctic disjuncts, glacial retreat around 12,000 years ago left some species at the present day site, maintained by the unique conditions that keep the site cold and moist.

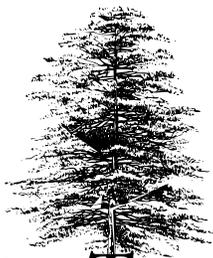
Aspen-birch forests are early-successional pioneer communities maintained through natural disturbance activities, including fire, erosion, grazing activities by large native browsers, and blowdowns. The aspen-birch community at Butterwort Cliffs developed 100-130 years ago following intense logging activities and periodic fires. It is estimated that the last fire in the area was around 1917-1918. The management of Butterwort Cliffs promotes a passive management plan of no intervention and natural succession. In the absence of natural disturbance or management activities that mimic natural processes, these aspen-birch communities will eventually evolve into a mature conifer forest, exhibiting a mix of pine and spruce, and eventually solid white pine. With these gradual changes to that community, there will also be a change in the associated groundcover.

Historically, catastrophic blowdowns were very infrequent, ranging hundreds to thousands of years between events at any specific site. However, in 1992, one such event occurred, knocking down many of the mature aspen trees. This event provided an opportunity for regeneration of younger aspen in the under-story, a natural part of the maturation for this type of community. Due to this reset, it may be some time before we see Butterwort Cliffs advance to a mature pine and spruce forest.

Because of the unique species inhabiting this site, as well as a Herring Gull colony and peregrine falcon nest, Butterwort Cliffs is a sanctuary, closed from April 1 – July 15 each year. Outside of that time period, visitors are welcome to traverse the narrow cliffside (being mindful of safety), to enjoy bird and wildlife watching, hiking, snowshoeing and skiing, and photography. No trails are available at this site, which may require climbing through a variety of raspberry plants and tree branches in the understory. A small parking area is located across Highway 61 on the north side of the road. If you are in the area, be sure to also visit the nearby Cascade River State Park.

Additional information on allowed uses of SNAs across Minnesota can be found at mndnr.gov/snas/rules.html

Anna Hess is a natural resource manager, engaging in scientific education and outreach throughout the Arrowhead. AmberBeth VanNingen is a Regional Scientific and Natural Areas Specialist, traversing the wilds south of Canada. Together, they work with the Minnesota DNR Scientific and Natural Areas Program throughout the Northeast portion of Minnesota.



Meet a Tree

Bur Oak

By *Kassandra Tuten, Editor*

Bur oak, *Quercus macrocarpa*, aka mossycup oak, is a large tree, 60-85 feet high and 24-48 inches in diameter, with spreading branches that form a broad, rugged, rounded crown. The bark of the bur oak is thick, grayish brown, and deeply and coarsely furrowed with scaly ridges.

Leaves of the bur oak alternate and are simple blades, 15-25 centimeters long and nearly half as wide. Leaves are obovate (egg-shaped with the narrower end at the base) to oblong, wedge-shaped at the base. The leaves are 5-9 lobed, and highly variable, but usually at least one leaf per shoot. Leaves are thick and firm, dark green and shining above while pale, finely white-pubescent beneath, turning yellowish brown or brown in the autumn.

The wood of the bur oak is hard, tough, close grained, very durable, and has a thin pale sapwood. Uses include furniture, flooring, interior trim, casks and barrels, fence posts and pilings. Bur oaks have tops somewhat resembling the apple tree in form but preserving the stiff appearance of the “gnarled oak.” The bur oak flowers May-June, and produces acorns during the autumn of its first season.

The bur oak grows farther to the west than any of the other Midwestern oaks, but does not grow in the south or along the east coast. Historically, it was an important bottom-land species, thriving where other oak species are not able to grow. Bur oaks are found in a variety of habitat types including oak savannas of the transition zone between deciduous forest and prairie. An oak savanna is a community of scattered oak trees above a layer of prairie grasses and forbs. The trees are spaced enough so that there is little to no closed canopy and the grasses and forbs receive plentiful amounts of sunlight.

Oak savannas were once widespread across the Midwest. Once common in Minnesota, the oak savanna is now a rare ecosystem. According to the National Park Service Oak Savanna website, before European settlement, oak savanna covered roughly 10 percent of the state. Now, there is only a fraction of that left.

“Conversion of oak savanna to agricultural land, changing deer and bison numbers and frequency of fires and rainfall and fluctuating nitrogen deposition and atmospheric carbon dioxide levels are all threatening this important ecosystem,” said ecologist Elizabeth Borer of the University of Minnesota in an interview with Ecology.com. Today, oak savannas are among the rarest plant communities on Earth.

The beauty of the oak savanna and, consequently the bur oak, is such that JW Hoyt, in 1860, described it as: “[The] most beautiful portions of the varied and picturesque surface of the country. Grouped here and there, like so many old orchards, on the summit of a gentle swell of land, or on the border of marsh, prairie or lake, there is nothing in the whole catalogue of American sylvia that equals these Burr Oaks for the charming, homestead-like expressions they give to the landscape.”

Bur oaks are also found in ravines and river floodplains, in clayey soils, upland oak forests with calcareous soils, and more. They tolerate flooding and saturated soils in spring and compete well in low, seasonally wet bottomlands. They are moderately shade-tolerant, slow-growing and long-lived (200-300 years). Young trees sprout readily from the root collar when injured, killed by fire or cut by humans.

Did You Know: The name mossycup oak refers to the densely fringed acorn cup.



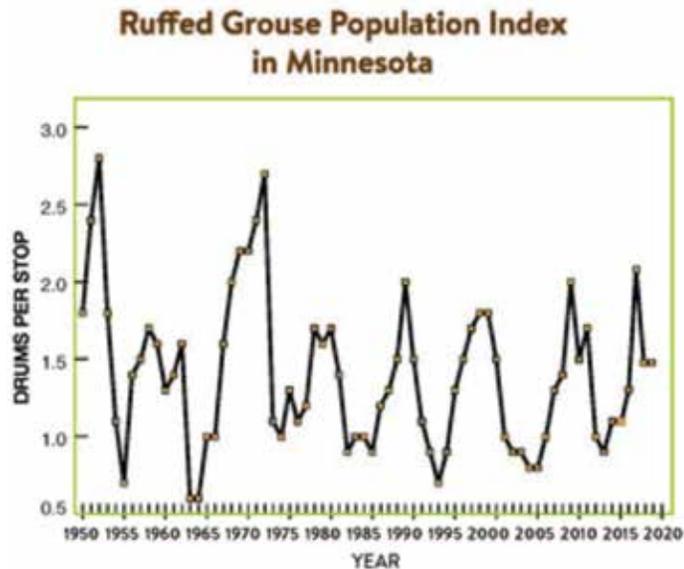
Grouse Counts Similar to Last Year

Minnesota's ruffed grouse spring drumming counts were similar statewide this year to last year.

DNR biologists have monitored ruffed grouse populations for the past 70 years and this year, DNR staff and cooperators from 14 organizations surveyed 131 established routes across the state's forested region.

Each year on the routes, surveyors count the number of grouse drums they hear. Drumming is the low sound male grouse make as they beat their wings rapidly and in increasing frequency to signal the location of their territory and attract females ready to begin nesting.

Drumming counts are an indicator of the ruffed grouse breeding population. Grouse populations tend to rise and fall on a 10-year cycle that can vary from 8 to 11 years, and Minnesota's most recent population peak was in 2017.



Grouse population chart going back to 1950.

2019 Survey Results

The 2019 survey results for ruffed grouse were 1.5 drums per stop statewide. The averages during 2013, 2014, 2015, 2016, 2017 and 2018 were 0.9, 1.1, 1.1, 1.3, 2.1 and 1.5, respectively. Counts vary from about 0.6 drums per stop during years of low grouse abundance to about 2 during years of high abundance.

Results this year follow a decrease from 2017 to 2018. In the northeast survey region, which is the core of Minnesota's grouse range, counts were 1.6 drums per stop; in the northwest there were 2.1 drums per stop; in the central hardwoods, 0.8 drums per stop; and in the southeast, 0.7 drums per stop.

Check the DNR's grouse hunting webpage for the 2019 grouse survey report and grouse hunting information.



Ruffed grouse.

What the Counts Mean for Hunters

Drumming counts are an indicator of the ruffed grouse breeding population, but the counts can't reliably be used to predict how many birds hunters will see in the upcoming fall. The number of birds actually present for hunters depends upon nesting success and chick survival during the spring and summer.

If production of young birds is low during the summer months, hunters may see fewer birds than expected based on counts of drumming males in the spring. Conversely, when production of young is high, hunters may see more birds in the fall.

Sharp-tailed Grouse

To count sharp-tailed grouse, observers look for males displaying on traditional mating areas, which are called leks, or dancing grounds.

Comparisons of the same leks counted in both years indicate that counts per lek were similar to last year in both survey regions and statewide. Declines of 23% in the east-central region were not significant, likely because fewer leks were surveyed in that region and small sample size can limit the ability to detect differences.

This year's statewide average of 10.2 sharp-tailed grouse per lek was similar to the long-term average since 1980. During the last 25 years, the sharp-tailed grouse index has been as low as seven birds counted per dancing ground.



Sharp-tailed grouse.

Forest Insect and Disease continued

caused by people moving infested firewood or wood along the interstate. Moving ash wood is ill-advised, not only because of EAB, but also because moving wood is illegal in many cases. The Minnesota Department of Agriculture (MDA) regulates the movement of ash wood in Minnesota, so visit their quarantine webpage for information on moving ash wood.

Switching gears, the memory of our winter is probably fading now (finally). Yes, it got cold and, yes, many overwintering EABs died from prolonged sub-zero exposure (somewhere between 40 and 99 percent died, according to a survey that MDA conducted). Keep in mind, though, that many EABs survived, and winters like this past one only slightly delay the wreckage EAB will bring to many woodlots and communities. For forests consisting mostly of ash, now is the time to plant other tree species so that EAB won't convert your wet forest to a wet meadow or a buckthorn swamp. The DNR is showcasing online some examples of preparing for EAB in our state forests. Also, the Great Lakes Silviculture Library summarizes an impressive Chippewa National Forest effort. If you are a small woodland owner, you may be eligible for financial assistance from the DNR to prepare your woods for EAB. Check out the DNR's Forest Stewardship webpage for details.

For communities with lots of ash along streets and in parks, EAB brings an overwhelming financial burden as it kills trees. The earlier communities start to prepare for EAB, the better. A combination of preemptive healthy ash tree removal, replacement with other tree species, and protective tree injections will help slow the movement of EAB and spread out the financial burden over time. The good news is that the 2019 legislative session produced \$1 million in funding for communities to begin managing EAB. Grant applications will be released later this summer through the DNR.

Leaf Disease on Ash and Oak

By Brian Schwingle, Central Region forest health specialist

I began noticing green ash leaflets falling on May 29 in Dakota County. Ash leaflet drop was reported in Isanti County and was probably happening elsewhere, too. Looking closely at the leaves, I saw they were subtly deformed. This is a telltale sign of the fungal disease anthracnose.

Anthracnose is a general term for a group of diseases that strikes many plants, causing dark spots on the leaves. It starts in the inner and lower canopies of trees in spring, and causes blotches on leaves, leaf deformity, and leaf loss.



Pictured from top: Ash leaves with anthracnose.

Apples leaves showing signs of apple scab. Photo credit: Penn State University, bugwood.org.

Leaf showing signs of BOB.

White pine with brown needles.

Anthracnose is just one of many types of fungal leaf diseases that broadleaf trees get during wet growing seasons. All of the rain southern Minnesota received from April 1 to early June occurred during leaf emergence, providing the perfect growing environment for anthracnose fungi.

Besides anthracnose on green ash, I also noticed anthracnose developing in the lower canopies of white oaks in Dakota County. Anthracnose also is likely deforming some sugar maple leaves in certain parts of southern Minnesota, too. Although anthracnose looks bad, it does not pose any serious health problem for the tree.

Other Fungal Diseases to Watch For

Crabapples are starting to show indications that they will develop severe apple scab later this summer. Brian predicts that bur oak blight, a fungal leaf disease that shows up in late summer, will be common this year, too.

Winter Drying Injury on Evergreens in Northern Minnesota

By Megan O'Neil, Northwest Region forest health specialist

When the snow finally started to melt after this year's long winter, many Northern Minnesota residents noticed their evergreens showed signs of winter drying injury. Symptoms included needles that turned brown or looked bleached. We received many reports of white pines with brown needles on one side or just the upper portion of the tree.

Winter drying injury happens when water evaporates through openings in the needles. The water loss occurs because the tree's roots are in frozen ground and unable to replenish the needles with water. Needle browning typically occurs from the tip downward to the base. Although it's more of a problem on recently transplanted trees, winter drying injury also will

affect established trees. Browning usually occurs on exposed upper branches, while lower branches protected by snow cover remain green.

Winter drying usually does not kill trees. As long as the buds are alive, the tree will produce new needles to replace the ones that have died.

If you have a yard tree that has signs of winter drying, you can prune out the dead tissue. To determine whether a limb is dead, simply use your thumbnail to scratch the bark and check for green tissue below. You also can check the buds for green living tissue.

Witches'-Broom on Red Pine

By Eric Otto, Northeast Region forest health specialist

Sometimes people forget to look upward when walking through a forest. If they do, they might see a witches'-broom. A witches'-broom is generally a deformity of the tree in which a dense mass of shoots grows from a single point. The exact cause of most witches'-brooms is unknown, but could be due to stress in the tree. Fungi, mites, aphids, and phytoplasmas (bacterial parasites) are some things that can cause this stress. A disruption of the normal functioning of the plant's hormones also can cause a witches'-broom. This



Red pine with large witches' broom.

disruption can occur when there is an increase in a plant hormone that promotes branching and a blockage in a plant hormone responsible for normal cell expansion and growth. Finally, it's also possible that the broom is caused by eastern dwarf mistletoe, a parasitic plant.

In Minnesota, witches'-brooms can be seen more commonly in balsam fir and black spruce than in red pine. Fir-broom rust, a fungal disease, causes brooms on balsam fir while eastern dwarf mistletoe can cause them on black spruce—the latter can be a problematic and prevalent forest health threat to black spruce production. This same species of mistletoe also can attack red pine, but this is less commonly seen.

10-Year Project Will Help Protect Wetlands

The Minnesota Department of Natural Resources (DNR) has completed a 10-year effort to provide much more accurate maps of Minnesota's wetlands. The update of the state's National Wetlands Inventory (NWI) used new technologies to produce a clearer picture of Minnesota's wetlands, lakes, rivers and streams.

The updated NWI gives resource managers and landowners a vital tool to aid wetland protection and restoration.

"These new maps are much more accurate, capture more detail and provide more information than the original NWI maps," said Steve Kloiber, the DNR manager of the NWI update project.

The new statewide GIS dataset reveals that there are 14.2 million acres of combined lake and wetland area in Minnesota. Of this total, 12.2 million acres are wetland, which are distinguished by having relatively shallow water or saturated soils with permanent vegetation under normal conditions.

The U.S. Fish and Wildlife Service originally mapped wetlands in Minnesota in the late 1970s and early 1980s as part of the National Wetlands Inventory. The recently completed DNR mapping project is the first time the NWI has been updated in Minnesota. The new maps reflect the latest technology in remote sensing and mapping, including high-resolution aerial imagery and Light Detection and Ranging (LiDAR) data.

The new wetland map data are available through an interactive mapping application on the DNR's website (arcgis.dnr.state.mn.us/ewr/wetlandfinder/) and can also be downloaded, free of charge, for use in geographic information system applications through the Minnesota Geospatial Commons (gisdata.mn.gov/).

Besides showing the location, size and type of each wetland, the updated map data include information on characteristics such as depth, duration and frequency of flooding, and how the wetland is situated in the overall landscape. That information is useful in assessing wetland

benefits such as water quality improvement, flood storage, and fish and wildlife habitat. The map data are widely used by landowners, local governments and state and federal agencies for land use planning, wetland permit screening and natural resource management.

As noted by Dillon Hayes, Mille Lacs County environmental resources manager, "We use wetland maps for many of our county functions, like water and transportation planning, shoreland management and wetland permitting. Having accurate, up-to-date wetland map data will be very helpful to the county."

While the new wetland map data are an improvement over the original NWI and are useful for planning and identifying the potential need for wetland permits, they are not sufficiently accurate on their own to determine all applicable wetland regulations.

Landowners considering work that may affect wetlands should contact their county soil and water conservation district or the DNR for advice on determining whether wetlands are present and the exact location of the regulated wetland boundary.

It is not possible to accurately compare the updated wetland data to the original NWI, because of the significant advances in remote imagery and mapping techniques. A 1984 University of Minnesota study based on soil analysis estimated that Minnesota has lost about half of the wetlands that existed prior to European settlement. Recent monitoring conducted by the DNR shows that the state's wetland acreage has been holding steady since 2006, although there has been a net conversion of higher quality, vegetated wetlands to open water ponds.

The NWI update project was funded by the Minnesota Environment and Natural Resources Trust Fund as recommended by the Legislative-Citizen Commission on Minnesota Resources. Other partners included the U.S. Fish and Wildlife Service, the University of Minnesota, St. Mary's University, Ducks Unlimited and the St. Croix Watershed Research Station.

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.

Webinar: Understanding Family Forest Landowners in the Lake States

Tuesday, Aug. 20, 12-1 p.m.

Across the United States, family forest landowners control more forests than any other ownership group. This is particularly evident in the Lake States where family forest landowners own and make decisions on approximately 25 million acres of forests. This webinar will discuss findings from the National Woodland Owner Survey and explore key behaviors and demographics about this important ownership group in the Lake States. Speaker: Stephanie Snyder, USDA Forest Service-Northern Research Station. For more information, visit sfec.cfans.umn.edu/2019-webinar-aug

Workshop: Adaptive Silviculture In the Driftless Area

Thursday, Sept. 5

National Eagle Center, Wabasha, MN

A tour of silvicultural treatments on the Minnesota and Wisconsin sides of the border, focused on climate adaptation in the unique Driftless Area. Stops will include upland and bottomland sites and a variety of plant communities. For more information, visit sfec.cfans.umn.edu/2019-workshop-adaptive-management

Webinar: On-the-Job Experimentation: How to Learn More from Your Daily Woods Work

Thursday, Sept. 19, 12-1 p.m.

We'll review a few basic principles you can use in your daily work to grow the confidence with which you interpret the outcomes of your work. Ideas like formulating specific questions, using replication, including control treatments and (very) basic structured analysis, can all help accelerate learning and continuous improvement in your work. Speaker: Eli Sagor, UMN-Cloquet Forestry Center. For more information, visit sfec.cfans.umn.edu/2019-webinar-sep

Walk in the Woods: A Meet-Up for Family Forest Landowners

Tuesday, Sept. 24, 10 a.m.-Noon

From 1 mile west of Wrenshall on Co Rd 101, take Thell Road 1/2 mile south to green gate on your right. Kettle River Woodland Council will host a tour on the Charlie Hanson property. Charlie will share his experiences and show us how his upland aspen with some hardwoods forest has responded to a 2016 timber harvest of 72 acres designed for early successional wildlife habitat. We'll be walking about 1/2 mile round trip. This is an outdoors event. Rain or shine. Dress accordingly. Cost/RSVP: Donations accepted. Contact Kelly Smith at Carlton SWCD, 218-384-3891 or kelly.smith@carltonswcd.org to register, or to host a future walk in your woods. Sponsored by Kettle River Chapter of Mn Forestry Association

Remote Sensing Tools for Timber Sale Prep and Administration

Tuesday, Oct. 8

University of Minnesota Cloquet Forestry Center, Cloquet, MN
Tools to share visual information about new timber sales including high-resolution PDF maps, still images and video from UAS (drones) to support all phases of the timber sale process.



Minnesota Forestry Association

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www.MinnesotaForestry.org

Change Service Requested



Webinar: Expanded Climate Adaptation Resources from NIACS

Tuesday, Oct. 15, 12-1 p.m.

The Northern Institute of Applied Science (NIACS) has led the development of climate adaptation strategies and approaches to help natural resource professionals respond to site-specific vulnerabilities. This webinar will describe some of the adaptation strategies and approaches that are currently available and applicable to – Urban Forests, Forested Watersheds, Wildlife Management and Tribal Perspectives. Speakers: Stephen Handler, Leslie Brandt, and Danielle Shannon, USDA NIACS. For more information, visit sfec.cfans.umn.edu/2019-webinar-oct