"This institution is an equal opportunity provider."

Partners News

July/August 2019

Protecting your wooded land for the future is essential to clean water, clean air, wildlife habitat, sustainable wood supply...all things that are necessary to society and health, and that are gone forever if the land is developed.

Contact Us

Partners in Forestry
Landowner Cooperative

6063 Baker Lake Road
Conover, WI 54519

partnersinforestry@gmail.com

715-479-8528

PIF's Website:
www.partnersinforestry.com

Have you paid your PIF dues?

Thank you, Dave Sladky for this photo taken in Lincoln County, WI during the storm on July 19, 2019.

Inside this issue:

Subject: Wildcat Falls

Greeting friends of Wildcat Falls,

We hope you are enjoying the summer.

Last year we unveiled our efforts to create a Community Forest at Wildcat Falls and many of you stepped up with a donation at an important time. I have some very good news to share with you. We recently learned that the project ranked number 4 in the nation out of 15 projects funded by the USFS Community Forest and Open Space Conservation Program. This grant alone assures us 50% of the budget.

Attached is a press release which we will send out soon, as we are awaiting for the USFS to send their release out announcing all the funded projects. The details of the situation are in the story.

This is a big step for us in our collective effort to permanently protect this great place.

We are reaching out to conservation foundations also, now that the project is no longer speculative. Now it is truly up to the community to make this project a success. I hope by this time next year we can realize our goal.

If you can make another donation, it would be very much appreciated.

More importantly, in order to expand the community, please share this good news with any one who may be willing to help.

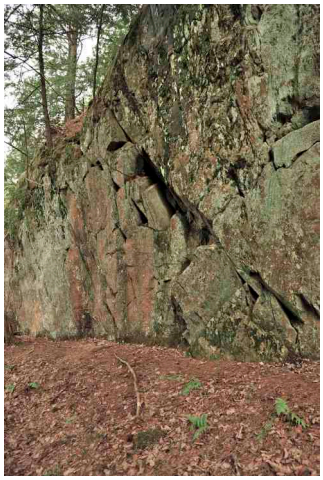
Most importantly, if you have any ideas or thoughts to assist in this effort, we welcome your thoughts.

We are happy to share this good news.

Thanks much. Please do not hesitate to ask any questions you may have.

Joe

Northwoods Alliance Inc.
6063 Baker Lake Road
Conover, WI 54519
phone: 715-479-8528
logcabin@nnex.net
www.northwoodalliance.org



Wildcat Falls gains further momentum toward a Community Forest

Northwoods Alliance (NWA) and its conservation partners are pleased to announce a significant advance toward establishing a community forest at Wildcat Falls, a forested tract just north of the Wisconsin border with unique ecological and recreational values. The project was recently awarded 50% of the funding necessary to complete the community forest, through a successful grant from the USFS Community Forest and Open Space Conservation program. This project ranked fourth in the nation, out of fifteen funded proposals in this competitive program. "We are grateful that the USFS recognized the immense conservation value of this project. Moving forward, the success of this project will depend on support from the community. We are optimistic, as we see strong community benefits from conserving this unique parcel", said NWA president Casey Clark. According to Clark, a Wildcat Falls Community Forest will permanently protect 160 acres, including a trout stream, waterfalls, valuable wetlands, unique rock mounds and impressive areas of old growth cedar-hemlock forest. NWA has lengthy and detailed biotic inventories of the parcel, and has worked for years to protect this forest for the public good.

The goals of this project are; 1) to ensure perpetual public access to Wildcat Falls and the special features around it while developing hiking trails with community input and promoting non-motorized recreation; 2) permanently protect and responsibly manage the broad range of habitats on the property, to ensure that the diverse aquatic and terrestrial flora and fauna continue to thrive; and 3) establish a model of a community-managed forestland. In addition, a Wildcat Falls Community Forest would support tourism and forestry as primary economic drivers of the local economy.

Director Joe Hovel summarized the financial situation for completing the Community Forest project, "Final figures will be determined by a certified appraisal, but our initial proposed budget to accomplish this goal is $295,000. With the Community Forest award of $147,500 and the $47,700 raised so far from over 80 donors in the community, we need to step up our efforts to raise the remaining funds. We are reaching out to conservation foundations for help, but it truly is community action which will make this project a success."

The Community Forest Program was authorized by Congress in 2008 to address forest fragmentation at the local level, and to engage communities as stakeholders in the management of the forests. In their efforts to engage the local community in protecting the Wildcat Falls property, NWA has partnered with a number of local and regional organizations. Our current list of partners includes: Copper Country Chapter of Trout Unlimited, Conserve School, Friends of Sylvania Wilderness, Keweenaw Land Trust, Northwoods Native Plant Society, Partners in Forestry Cooperative, Upper Peninsula Environmental Coalition, and the Wilderness Society as well as a number of individuals.

For more information on Northwoods Alliance Inc. and Wildcat Falls, please visit www.northwoodalliance.org or call Hovel at 715-479-8528

Photo: Rod Sharka

We continue to cover oak wilt because of its very real threat to forest health. Paul's perspective is from the northeast. At our Nov. '18 meeting Linda Williams covered this for us.

Oak Wilt

By Paul Hetzler, Cornell University Extension

It's hard to be cheerful in a job where I am expected to keep up on each newly arrived or imminent threat from invasive insects, novel plant diseases, and worrisome trends in the environment. Although I typically deflate everyone's happy-bubble when I give a talk, I've discovered we need not fret that the sky is going to fall.

The National Atmospheric Deposition Program (NADP) is a joint effort of research institutions, government agencies and nonprofit groups; their mission is to monitor stuff which falls to Earth that is not some form of water. Since one of the NADP's tasks is to study tiny particles of pollutants in the air, they will certainly notice if the sky starts to fall, and give us ample time to take cover.

Kidding aside, when we hear bad news day in and day out we usually get the sense there is nothing we can do about any of it. That helpless feeling is the worst; it breeds anxiety and apathy. However, the up-side of knowing about threats to our forests and gardens is that often we can make a difference. About 40% of the time, new invasive-species infestations are found by folks who knew about such issues, but who weren't actively looking because it was not their job.

In 2017, a small infestation of hemlock woolly adelgid (HWA) was found by a hiker near Lake George. This little creature (HWA, not the hiker) is lethal to hemlocks, and though it was horrifying to find it in the Adirondacks, that person likely averted a major crisis. He knew about HWA, reported it, and as a result, the infestation was eradicated.

Therefore I don't feel so bad presenting yet another threat to our forests, oak wilt, because as far as we know, it's not yet in northern NY State, and there are several things we can do to help keep it that way. First discovered in Wisconsin in 1944, (but not in the far north until the last decade) it is now in twenty-four States, with four outbreaks in New York State. The fungal pathogen that causes oak wilt is thought by many to have originated outside North America, but no one knows for sure.

What is for sure is that oak wilt is a death-knell for red oaks. It kills healthy red, black, pin, and similar "red type" oaks in two to six weeks. It is similar to Dutch elm disease in that is plugs up xylem tissue and blocks water uptake. Symptoms are sudden browning of leaves, usually in July or August, followed by leaf drop. Oak wilt spreads easily, and there is no known treatment. Lovely, I know.

"White type" species such as white, bur, and swamp white oaks can take from one to three years to die. This is not necessarily good news because they can infect nearby oaks without showing major symptoms.

Oak wilt is spread in two general ways; below ground and above ground. A tree's roots extend two to three times its branch length, and as they cross paths with roots from related species, they often form graft unions. We know little about this "tree internet," other than chemical signals can share news of, for example, the arrival of a pest from one edge of a wooded plot to the other. Sadly, root grafts also spread dreadful blights like Dutch elm disease, and now oak wilt. Such tree-to-tree spread, while important, is a lot slower than airborne transmission. Above ground, oak wilt is naturally spread by insects, especially sap beetles in the family Nitidulidae, a detail I mention because the word is endlessly fun to say. At least for me. Nitidulid beetles carry oak wilt spores from infected trees to fresh wounds on healthy oaks. The oak wilt fungus only makes spores on red-type oaks, on which sweet-scented spore pads develop. But all species of oak can be infected by a spore-covered nitidulid. Rarely, birds may carry oak wilt spores, and it was recently found that powerful spring and early summer windstorms (the risk of infection drops significantly after midsummer) can vector the pathogen.

We are the other vector, of course. In 2018, new infestations cropped up in Ontario County, nearly 200 miles from the nearest known oak wilt source. It is almost certain this was due to the transport of firewood.

We can help keep oak wilt away by changing a few habits. The easiest is to not bring firewood home with us when traveling. Trite as this may sound, it is vital. It's dangerous to think oak wilt is hundreds of miles away. As the residents of Canandaigua recently learned, it is as close as the first idiot who brings firewood back from visiting his (and it's always a guy who starts these calamities) buddy whose dead tree he helped cut up.

Between April 1 and July 15, the risk of spreading oak wilt is extreme if there is any exposed fresh-cut oak, whether a stump or a pruning wound. From July through September the risk is moderate. Obviously we might need to cut an oak branch or tree in this time. The work-around is to spray-paint the wound or stump immediately after cutting. I emphasize immediately because nitidulid beetles will find fresh oak sap within an hour. If possible, only prune or harvest oak from October through March.

Sorry for the echo, but if this pathogen does find us, our oaks will go the way of the American chestnut. By adopting these guidelines, we can vastly reduce the risk of seeing oaks vanish from our forests. If you suspect you have seen oak wilt, please contact your DNR forester. Never bring "free" firewood home to the North Country. It's a small thing to do to keep the sky from falling.

Preventing oak wilt can be a complex and frustrating concern. Here the Vilas County Highway Dept. chopped young oak along the road side in June. And after we do all we to prevent the disease, what about natures influences, such as storm damage and deer browse exposing wounds to the infection.

And on the county forest leaving an oak damaged like this during the oak wilt restriction season makes no sense.
At partnersinforestry.com you can view photo of root grafted oaks from our Nov. '18 session with Linda Williams.

Oak Wilt Concerns

It is interesting to read about oak wilt in the State of New York and compare this to central Wisconsin where we have experienced the disease for decades. With oak wilt becoming increasingly common in the far north I was taken aback by a couple recent experiences during the season when oak wilt is the most easily spread. Vilas County Highway Department, using a very destructive chopper type mower, doing extreme damage to oak sapling-poles along the county road in June. (see photos) And on the Vilas County Forest, a timber sale cutting oak in June and justifying the procedure by 'Oak Wilt Restriction is not necessary If you are converting to a non-oak type or if oak is not considered to be an important part of the stand's future.' In this case it appears they are converting a pine stand with an oak component to aspen-red maple. Another story there!

Joe's comment: I am perhaps a bit naïve to think we should give a damn a bit more than this. Parts of the north, and on the NHAL, we have the potential for growing a very high value red oak. I suspect red oak veneer is the highest value forest product leaving this area. (Envision the economic return if there was a high value processing facility here, multiplying the value of veneer logs many times prior to leaving the area. Perhaps, some day, a new county board will have a more logical and more grand vision and recruit such). Thus, just because oak is not a primary component in a particular stand, I see no reason not to protect that oak resource to the best of our ability, especially considering the possibility of high value oak growing nearby. If nothing else, it is the neighborly thing to do.

"Unless someone like you cares a whole awful lot; Nothing is going to get better. It's not."
—Once-ler, The Lorax

****

Thanks to Keren Tischler for sharing this fascinating feature, I think these links should also be in the coming newsletter and website so they are more widely shared.
Let us hear from you. Joe

A couple of years ago, I heard an interview with Canadian forest ecologist Suzanne Simard on her research about how trees communicate through mycorhizal networks, and here's a nice Ted Talk of hers if you haven't already seen it, as well as an animation by one of her students of the same concept.

https://youtu.be/Un2yBgIAxYs

https://youtu.be/V4m9SefyRjg

This is on my mind, as I've spent some time recently along a stretch of the river upstream of our road, where some early chanterelles are trying to fruit, even in the dry, hot weather we've experienced.
Here is also Suzanne Simard's faculty page link. From there you can get to her publications, some of which may be of interest.

http://simardlab.forestry.ubc.ca/people/?mc_cid=ed3bf0e88d&mc_eid=0e2ab7809d

****

Ethics

By Clyde Samsel

Many years ago I worked several summers on a ranch in North Dakota. I arrived when the biting fly season was in full force. The cattle would get circular bloody patches on their backs covered with biting flies. Those patches must have been very painful as the flies would drive the cattle crazy... it was a cruel thing to see. The cows tails would whip back and forth but could not reach the bloody wound. The flies seemed to know where to make their bites. The cows would run and run trying to shake the flies off... too no avail. Then we had the big round up to dehorn, vaccinate, castrate (just the bull calves and made them steers) and we sprayed the herd with DDT. And did we spray. We sprayed the cattle, the coral, the ground, the buildings. The farm house looked like we had white washed it. We killed the flies, millions and millions of them. It was a wonderful thing to see the cattle return peacefully to the pasture no longer running crazy in pain. But their tails were still going back and forth out of habit. I thought DDT was a most wonderful chemical – the world made better through chemistry. This was during the fifties.

The wild and indiscriminate use of DDT, I observed on the farm, was duplicated by the US Federal Government in an extensive aerial spraying program to kill mosquitoes and other pests. I lot of private citizens got sprayed whether they liked it or not. But there were some unintended consequences.

Many birds were killed and most noted, the American Eagle numbers began to drop dramatically. Not because they were killed out right but because their egg shells were so weakened that the chicks did not survive.

In 1962, Rachael Carson published her famous book *Silent Spring*. It took her four years to write the book receiving very little help from anyone. Late in life I finally read her book. I was surprised at the amount of research she had done. Never-the-less she was attacked viciously by the Chemical Industry for doing incomplete research which wasn't true. She knew the uncontrolled use of any chemical introduced into the environment can have a devastating long term consequences. We can measure the short term (acute) effects, but long term effects are more difficult to determine.

The story of Rachael Carson needs to be taught in every school. Every profession needs to recognize their obligation to practice sound ethics. Certainly the company that creates a new chemical has an ethical obligation to society to make known its effects on the environment.

Clyde is a long time PIF member, a tree farmer, saw shop operator and conservationist residing in central Wisconsin. Clyde was featured in Partners News June 2012.

Please share your opinions and experiences.

****

Hope the storm didn't create too much havoc for you. Estimates I'm hearing is that, statewide, as much as 250,000 acres are down or damaged. Hans Schmitt

TREE ECONOMICS

Hans Schmitt

This article is a discussion of tree economics and economics only. We are not taking into account applied silviculture, aesthetics or sentiments. This is just numbers and principles, so if that bores you, pass it by. The numbers presented here are approximates intended to illustrate the principles and will fluctuate (sometimes greatly) with market conditions.

There are numerous categories of forest products but we will discuss the most common; pulpwood, saw bolts, saw logs and veneer. Pulpwood tends to be either small or highly defective pieces of wood which are ground and used for paper, cardboard, wood pellets and such. Saw bolts are basically small saw logs. Bolts are sawn to produce pallets, popsicle sticks, golf tees and other wooden items which don't require high grade lumber. Saw logs are larger pieces of wood which are sawn for grade lumber to make furniture, cabinets, flooring, etc. Veneer logs are "turned" on a lathe to produce sheets of high grade, wooden facing material.

To understand the economic principles at play, a basic understanding of log grades is in order. To more fully understand the intricacies of log grades I would suggest you read the manual on northern hardwood log grade rules. It is guaranteed to confuse, confound and cure insomnia. Hardwood logs grades relate very closely to lumber grades with different grades of logs expected to yield predictable grades of lumber. The log grades are a combination of size, number and distribution of defects, and sometimes color (heartwood).

Now, let's imagine a well formed, healthy sugar maple tree which is about 10" DBH. The statewide average is about 2" of diameter growth over a 10 year period for a tree that is free to grow. Right now our tree contains a saw bolt and 4 to 6 sticks of pulp above that. The value of the tree, delivered to the mill is about $2 or $3 . If this tree is free to grow it will be 12" DBH in 10 years, and now, because of the increased diameter, it contains a #3 saw log, a bolt or two, and some pulp above that. The value on the tree has now jumped to about $12 -$15. This equates to about a 20% rate of return.

Let's grow out tree another 10 years. Now it is 14" in diameter, and once again, because of the increased diameter, it now contains a veneer log, probably a #3 log above that, a bolt and the obligatory pulpwood. The value of the tree has now climbed to about $45 - $50. During that period, the time value of money has begun to erode our rate of return which has now dropped into the 15% range. This process continues over time resulting in more diameter and volume. The butt log may become a prime veneer, and later, a slicer veneer while the upper logs also make at least some grade "jumps". As this is happening the time value of money continues to erode our rate of return. While the tree goes up in value, the rate of return goes down.

It is these grade jumps that enable the tree to present a reasonable rate of return. Research has shown that at about 18" -20" in diameter, trees are no longer capable of additional jumps. The grade and merchantable height are set. At that point what you are getting as a return is biological growth which equates to about 2%. This is the point we call "economic maturity".

Economic maturity should not be confused with biological maturity. An economically mature tree may live for many more years and sometimes there is good reason to hold it beyond this point. Furthermore trees attain their economic maturity at different times in their life cycle. Our example tree is a very well formed, healthy, vigorous crop tree capable of growing slicer logs. Not all trees possess these attributes and some are economically mature as soon as they contain 1 merchantable stick of pulp. That is why it is crucial that your forester is well versed in terms of tree/product values, both present and future and how this relates to the time value of money.

No economic discussion would be complete without the nasty intangibles called risk. Trees, not unlike people, are subject to the ravages of time and the misgivings of fate. Insects, disease, fire, wind, weather, logging damage and time can all have adverse effects on our timber and it's ultimate values. While we have little control over most of these agents, we can have an influence on time. Species such as red oak, white and yellow birch, white ash and many coniferous species will often develop dry rot with old age. This rot results in lost volume as well as mechanical instability. Black ash will often develop "ring shake" (separation of the annual rings). Species with values that are affected by color may also see reduced values, especially the maples. With hard and soft maple the value lies in the whitewood (sapwood) portion of the log with the heartwood generally seen and treated as a defect. Over time the heartwood portion of the tree develops faster than the sapwood can grow changing the ratio of the two, resulting in what is referred to as a "blown heart". This doesn't result in a loss of volume, which is the case with rot, it results in a reduction of grade. In many cases what may have been a high value veneer log will grade out as a number 2 or 3 sawlog. This means a loss of 50% to 75%, or more of the value of the log.

One last matter of risk and a caveat to economic returns is the market. While an economically mature tree is only earning about 2%, the market can have huge impacts on the return. Keep in mind that lumber is a fashion industry. Sometimes darker woods are hot, sometimes lighter woods are in vogue. The fickle market can turn your 2% into 8% or 10% if the market for that species climbs. The market swings both ways and 2% can just as easily become -6% or -8%.

Hopefully understanding the values related to growth and tree up-grade will help you better understand why forest managers strive to attain optimal levels of stocking and why we favor one tree over another. The goal is to maintain that sweet spot where we are optimizing growth, form, value and economic returns over time. Hope this hasn't bored you to tears. Enjoy the rest of the summer.

P.S. I apologize for referring to slicers without definition. A slicer log is a VERY high quality veneer log. It is processed by de-barking the log, cutting two opening faces then sawing it in half creating two pieces called flitches. The flitches are then struck against a stationary lathe to create strips of veneer. When you see the matching cathedral grain pattern on doors and such, that is sliced veneer.

****

PLANNING A TIMBER HARVEST, LET'S DETERMINE WHICH TREES TO CUT! (CONTINUING SERIES)

By John Schwarzmann, PIF VP and Forest Supervisor, Board of Commissioners of Public Lands

In managing any timber stand the stakes are high in deciding which trees to select for harvest and which trees should remain to grow. Selecting the right trees to cut, or to remain has influence on future timber growth, re-generation, potential revenue, wildlife habitat and even land values. In the short-term, the selection determines the timber product mix and economics of the current timber harvest. In the long term, it has a big impact on achieving a sustained yield of a diverse mix of forest products and robust revenue stream. Selecting the wrong trees to cut could curtail future growth, yield, and revenue to the point where forestry is no longer an attractive land use. Conversion of forests to competing uses such as real estate, game farms, or agriculture is often preceded by poor timber harvest decisions.

Before trees are selected for harvest, it is important to step back and view your property in a larger, forest-level context. What type of forest community is well adapted to the soils and the impacts of past land use are two primary issues that need careful consideration. Due to Wisconsin's recent Pleistocene geology, soils are very diverse and can dramatically change over very short distances. Mirroring that diversity, there are different forest communities that are adapted to some soils but not others. In general, sandy, dry soils support pine forests. As the silt proportion increases, the nutrient and moisture holding capacity go up. Loamy soils with more a more even mix of sand and silt will support oak and white pine dominated forests. Also, loamy soils that are closer to the water table and stay moist for longer periods, support extensive Eastern hemlock-yellow birch forests. The richer silty soils support the nutrient
demanding sugar maple, basswood and ash forests.

Due to past land uses that included massive clear-cuts, huge fires from 1870 to 1930, and the complete suppression of fire since then, the forest on your land may no longer contain a species mix well adapted to the soils. You and your forester should consider that maintaining an ill-adapted forest or one that is missing key species will grow slower and be prone to more mortality than a forest well adapted to the site. Foresters use a tool called the habitat type to match forest types to the soils. It uses "indicator" herb layer plant species as a guide. While past land use has altered forests, the herb layer is generally more intact and different plant communities are associated with the range of typical soil conditions.

Choosing a forest type to manage isn't like picking out a pair of shoes. Your options will be determined by your present forest and the mix of seedlings and saplings that can potentially become the next forest. Most of the time, if regeneration is lacking you may only be able to maintain your current forest type or gradually convert it another forest type if adequate numbers of young trees are present.

Another key attribute to consider is the age distribution of your forest. Forests that derived from a single large disturbance such as a clear-cut or massive fire, usually exhibit a small range in tree ages and are called "even-aged". Those forests are dominated by species that like a lot of light like jack pine and will again need a large disturbance to perpetuate that ecosystem. On the other hand, forests that are characterized by many small disturbances, like the blow down of individual trees generally have trees like sugar maple and Eastern hemlock that can thrive in shade and be perpetuated with more frequent small scale disturbances.
The timing, frequency and degree of disturbance created by your timber harvest will be strongly influenced by whether it represents an even or all-aged forest.

If your forest is even-aged, trees can be selected for harvest as a "thinning" or to create conditions for regeneration to become part of the forest canopy. In a thinning, the goal is to select trees for removal that are of poor form and vigor so that the

remaining trees have more light and available nutrients. The residual tees will respond to that release with robust growth. A thinning can promote forests with fewer, larger trees in comparison to an un-thinned forest, that are denser but have fewer large trees. Since timber value is closely tied to larger, faster growing trees, a thinning may promote both improved economic potential and aesthetic beauty of bigger trees. It is critically important to remove the trees with the smaller crowns. If the biggest trees are selected for cutting, and the small trees are released, they won't respond very well since their small crowns don't have enough leaf area for necessary photosynthesis. This practice could severely curtail the growth of your forest. Thinning can be carried out in younger forests where regeneration of a future forest is a long way off. The focus is on the existing trees in the canopy, allowing them to substantially increase in value by growing to optimal size and thus quality and value.

In a regeneration harvest, part or all of the over-story or canopy is removed to allow regeneration to capture all or part of the canopy. The quantity of trees to select or harvest is generally proportional to the shade tolerance and seedling requirements of the species mix in the new stand. The lower the shade tolerance, the higher the proportion of trees cut in the regeneration cut. For species such as jack pine or aspen that are very shade intolerant, most or all of the canopy must be removed. Those harvests are called clear-cuts and should only be carried out when adequate regeneration is assured. For species such as white pine or oaks that can withstand partial shade, a sequence of partial canopy removal harvests called shelter-wood cuts is used to maintain those species.

****

A Milestone: The Old Growth Forest Network dedicates its 100th forest.

Founded by Joan Maloof, the Old-Growth Forest Network is a Maryland-based, American forest conservation organization. The network is a registered 501(c)3 charitable organization. It has dedicated forests in 22 states including California, Colorado, Florida, Georgia, Hawaii, Maryland, Massachusetts, Michigan, New York, Ohio, Pennsylvania, and Virginia, Wisconsin and is expanding across the US.

Joan is Professor Emeritus at Salisbury University, and founded the Old-Growth Forest Network to preserve, protect and promote the country's few remaining stands of old-growth forest. She spends her time lecturing, writing, visiting forests, assisting private landowners, and supporting local groups trying to protect community forests from development.

****

Future Articles

Future issues of Partners News will continue the series on timber harvests with John Schwarzmann, more on forest management from Hans Schmitt, more on LWCF and updates on Wildcat Falls.

We always enjoy member feed back. Let us hear from you!

If you have questions that you would like to see addressed in the newsletter, suggestions for, or have articles for, future newsletters, please contact us at partnersinforestry@gmail.com or by mail:

Partners In Forestry
6063 Baker Lake Rd
Conover, WI 54519

****

Dear PIF & NWA,

I just read a depressing story summarized as:
'Many places are disappearing or transforming before our eyes: Pacific islands succumbing to sea-level rise; the Amazon rainforest withering because of unchecked development; the Gulf of California losing the vaquita porpoise to extinction by poaching.'

You are to be applauded for your local conservation efforts, at a time when all seems hopeless!
Jerry

****

PIF Note: We have long discussed the link from good forestry to clean water & fish habitat. For more on this topic see www.forestsforfish.org The Pilgrim River Watershed project is a model for this, visit the Pilgrim for some trout fishing.

Good Forestry and Clean Water & Fish Habitat

Paul Hetzler, Cornell University Extension

As many anglers know, trees and trout are closely related. Not in a family sense, of course. And not like the way in which tomatoes and fish were briefly married in a 1996 experiment at Oakland, California-based DNA Plant Technology in an attempt to get a frost-tolerant tomato (or possibly a saucy fish). If it weren't for tree cover, cold-water fish species would not survive in most of the streams they now inhabit.

Forests provide us with many "ecosystem services." I'm not a big fan of that term. It sounds like you can call up Ecosystem Services when camping and order wine delivered to your tent. These services or gifts range from the sublime (aesthetic beauty) to the mundane (dollar value of tourism).

They also include essential things like the production of oxygen, and the removal of airborne particulates. The impact of extreme storm events is dampened by forests in many ways. The canopy reduces the force at which rain hits the ground, which leads to less water running over the land, and more of it seeping into the groundwater. Canopy shade makes the winter snowpack melt slowly, reducing the risk of downstream flooding.

Forest soils are great at absorbing and filtering rainwater because tree roots hold the duff layer in place. Roots also help stabilize stream banks.

Limiting overland flow prevents erosion and keeps sediment out of waterways, but the benefits go well beyond that. When more rain and snowmelt end up as groundwater, as opposed to running off into surface water, it leads to much colder stream temperatures. A dense canopy helps keep water cool along the length of its course.

This makes fish happier because they can breathe easier. By way of explanation, anyone who has opened a carbonated drink knows that gasses certainly will dissolve in liquid. A near-freezing

seltzer bottle can be opened safely because cold water holds dissolved gas a lot better. Put the same bottle on the dashboard in the sun for an hour, though, and it will spray all over when you crack the top, because the gas is in a hurry to come out of solution.

The same principle holds true for dissolved oxygen in streams. Humans and other land species have the luxury of wallowing around in an oxygen-rich environment: about 21% of the Earth's atmosphere is made of this important molecule. The Occupational Safety & Health Administration (OSHA) states that rescue personnel must wear self-contained breathing apparatus if a site measures below 19.5%. Some people get woozy at 19% O_2 and death occurs at around 6% oxygen.

The highest possible concentration of dissolved oxygen (DO) in water is 14.6 parts per million at a temperature of 0.1 C or 32.2 F. To put this in perspective, the best a fish can hope for is 0.00146% oxygen in wicked-cold water. In general, trout and other salmonids need a minimum of 9 to 10 ppm of O_2, but can survive in as little as 7 ppm in water colder than 10 C or 50 F. Trout eggs are even more fastidious, becoming stressed below 9 ppm O_2 even in very cold conditions.

Forests do more than keep sediment out of, and a chill in, streams and rivers. They donate wood, which is a lot more important to healthy waterways than it sounds. In fact, in some areas where forests have been degraded or clear-cut, landowners are paid to install logs in streams to improve habitat. Fallen trees occasionally block a waterway and change its course, which may be stressful to organisms on a temporary and localized basis. But the vast majority of limbs and trunks which end up in streams help provide habitat for fish, as well as the things they eat. A partial or complete log barrier acts as a pool-digger, creating deep, cold sanctuaries. It helps wash gravel, making it more conducive to stonefly, mayfly and caddisfly nymphs (juveniles).

Anyone who owns a couple of acres or more of wooded land can help preserve or improve its health by getting a forest-management plan. This can be done by working with a forester. Contact PIF for advice. Timber harvests can be perfectly compatible with forest health, so long as they are conducted in accordance with your management plan, and are overseen by a responsible forester.

In fact, not only are sustainable timber harvests better for fish, they net more income in the long-term. All the while, they are able to maintain the ecosystem services on which we depend. Minus the tent-side wine delivery of course.

****

Please keep up to date on important information and share what you come across at www.partnersinforestry.com

For example we recently posted a story about tree ring analysis shared by Ron, and another about the threat to Ontario's Maple Syrup industry from climate change shared by Rick.

****

New Zealand's Other Export

Note from Joe:
Brent Boynton was a forestry exchange student who we hosted, from the University of Minnesota MAST program in 1997. Though after returning to his home country of New Zealand he did not pursue a forestry career, (Brent sells Honda automobiles) he did learn enough to remain vigilant on forestry matters. We have remained friends and he recently sent me this to share with anyone interested in forestry abroad.

BB: Thought you might be interested in New Zealand's other big export and that is the growing and harvesting of Pinus Radiata Trees which are gown here in large plantations, along with some facts on NZ forestry.

Milling of New Zealand's extensive native forests was one of the earliest industries in the European settlement of the country. The long, straight hardwood from the kauri was ideal for ship masts and spars. As the new colony was established, timber was the most common building material, and vast areas of native forest were cleared. Rimu, tōtara, matai, and miro were the favoured timbers. The Monterey pine (*Pinus radiata*) was introduced to New Zealand in the 1850s.[1] It thrived in the conditions, reaching maturity in 28 years, much faster than in its native California. It was found to grow well in the infertile acidic soil of the volcanic plateau, where attempts for agriculture had failed. Thomas William Adams experimented with *P. radiata* and other trees in Canterbury from the 1870s, and promoted the early forestry industry.[2] The Government initiated planting of exotic forests in 1899 at Whakarewarewa, near Rotorua. This was to address growing timber shortages as slow-growing native forests were exhausted.[3] In the 1930s, vast areas of land were planted in *Pinus radiata* by relief workers. The largest tract was the 188,000-hectare Kāingaroa forest, the largest plantation forest in the world. As the major forests matured, processing industries such as the Kinleith Mill at Tokoroa and the Tasman Mill at Kawerau were established.

Plantation forests of various sizes can now be found in all regions of New Zealand except Central Otago and Fiordland. In 2006 their total area was 1.8 million hectares, with 89% in *Pinus radiata* and 5% in Douglas fir (*Pseudotsuga menziesii*)[4] Log harvesting in 2006 was 18.8 million m^3, down from 22.5 million m^3 in 2003. This is projected to rise as high as 30 million m^3 as newer forests mature. The value of all forestry exports (logs, chips, sawn timber, panels and paper products) for the year ended 31 March 2006 was $NZ 3.62 billion, rising to $NZ 5 billion in 2018.[5] Australia accounts for just over 25% of export value, mostly paper products, followed by Japan, South Korea, China and the United States.[4] In 2018, wood products were New Zealand's third-biggest export (dairy products and meat were the larger), and forestry accounted for approximately 3% of national GDP, directly employing 20,000 people.[5] On the global stage, the New Zealand forestry industry is a relatively small contributor in terms of production, accounting for 1.5% of global wood supply for industrial purposes.

Joe: I was surprised to see the great diversity of trees grown there in addition to their native species, but in giving this thought we can look to our west coast which is influenced by elevation as well as climate. If anyone has a question about New Zealand, Brent is a personable guy and would be happy to communicate. Ironically, we have received comments from folks down under about the PIF website. Douglas Fir, redwood, oak, black walnut, firs, spruce, poplars, larch, cedars and more are grown in NZ along with the native species.

****

Just a year ago I would not have thought this story to be relevant to Partners News, but when Blue-green Cyano toxins appeared in Vilas County lakes last August the alarm went off on new threats to our health. As Paul's other story and the MDNR Forests for Fish program stress, there is a direct link to clean water and healthy forests.

Hoping to Be HAB-Not

Paul Hetzler, Cornell University Extension

Not only does it form the basis of the aquatic food web, algae can put a lid on bovine burps. It is also made into a substitute for fossil fuels, and is a heathy and tasty food supplement for humans. But in late summer and early fall, some algae can spread toxins through freshwater lakes and rivers, posing a risk to people, pets, fish, and more. Be on the lookout in northern States this season for outbreaks of algae.

The term itself has no strict definition, and is used to refer to any number of photosynthetic organisms, many of which are not even closely related. Everything from single-cell microbes to giant kelp measuring 150 feet long have been labeled as algae. Worldwide, there are more than 5,000 species of algae, and nearly all of them are beneficial.

As an example, research ongoing since 2017 at the University of California at Davis concluded that feeding a small amount of marine algae to cattle reduced their burps, a.k.a. methane emissions, by 99%. That may seem like a useless piece of trivia, but according to the UN Food and Agriculture Organization, cattle contribute more to global warming than all forms of transportation combined (methane is 23 times more potent as a greenhouse gas than carbon dioxide). Needless to say, algae may turn out to be one of our strongest allies in the fight against climate change.

For more than a decade, the US Department of Energy (DOE) has been researching single-cell algae as a fuel, calling it "one of the fuel sources of the future." Even though it is not yet a profitable endeavor, several private companies such as Florida-based Algenol and Sapphire Energy of California are now producing algal-based fuels. A DOE website adds that "since it [algae] takes CO2 out of the atmosphere, it is a nearly carbon-neutral fuel source." Not bad for pond scum.

Freshwater algal blooms differ from those in marine environments, such as the infamous "red tides" that bring potent neurotoxins. When folks report an algal bloom in our neck of the woods, they are talking about cyanobacteria, often called blue-green algae even though it can appear brown or reddish (never mind that most biologists do not recognize cyanobacteria as true algae). While not as dangerous as marine algal blooms, freshwater harmful algal blooms still pose a risk. The Department of Environmental Conservation (DEC) emphasizes that because there is no easy way to tell a HAB from a benign one, people should avoid swimming in areas with visible algae, and keep pets out of such waters and off the beach as well.

The problem is that blue-green algae secrete microcystin, a toxic substance which in humans can cause rashes, vomiting, diarrhea, and in a few individuals, a life-threatening reaction. Dogs are particularly vulnerable to HAB poisoning because they may pick up objects on the beach which have come in contact with harmful algae. Symptoms of canine microcystin exposure include unsteadiness, seizures, or difficulty breathing. An exposed dog should be seen by a veterinarian immediately.

HABs can also threaten drinking-water supplies. The US Environmental Protection Agency (US EPA) states that "Toxins from harmful algal

blooms (HABs) are increasingly contaminating source waters, as well as the drinking-water treatment facilities that the source waters supply." In August 2014, dangerous levels of microcystin forced the City of Toledo to issue a "Do Not Drink" order to more than 400,000 residents, leaving them without water for three days. The Ohio Health Department advised residents not to even brush their teeth with water from the faucet. The problem was a small HAB near the City's intake pipes in Lake Erie.

Harmful algal blooms seem to be occurring more often than they did historically. One reason is that water bodies tend to be warmer: summers are hotter than in the past, and the temperate season is longer than it used to be. A DEC web page says HABs "are likely triggered by a combination of conditions that may include excess nutrients (phosphorus and nitrogen), low-water or low-flow conditions, and warm temperatures." As you enjoy the great outdoors this summer and fall, please report any suspected blue-green algae blooms to your local health department.

****

And yet another concern; In June, the University of Maryland reported that U.S. bee keepers lost 40% of their living hives last winter. This was the worst decline recorded over 13 years in a nationwide survey. Scientists who reviewed 73 historical reports on insects concluded in an analysis published in the journal Biological Conservation that 40 percent of the world's insects are in such serious decline that they could become extinct. Worldwide, insects are going extinct eight times faster than mammals, birds and reptiles. Is that cause for alarm?

Entomologists will tell you that what we've been experiencing with insects up to now has been extinction with a lowercase "e." You'll hear them talk about "functional" extinction. That's when a species is no longer prevalent enough to support an ecosystem. Its absence causes hiccups. Animals that eat the missing insects, for example, have to eat something else. Or, leave the ecosystem. The more these connections are lost, the more unstable an ecosystem becomes. A 2013 paper in Nature found that if even 30 percent of a species is lost, the effects can be so devastating other species in that system can go extinct. "If insects were to vanish," Harvard entomologist E.O. Wilson said, "the environment would collapse into chaos."

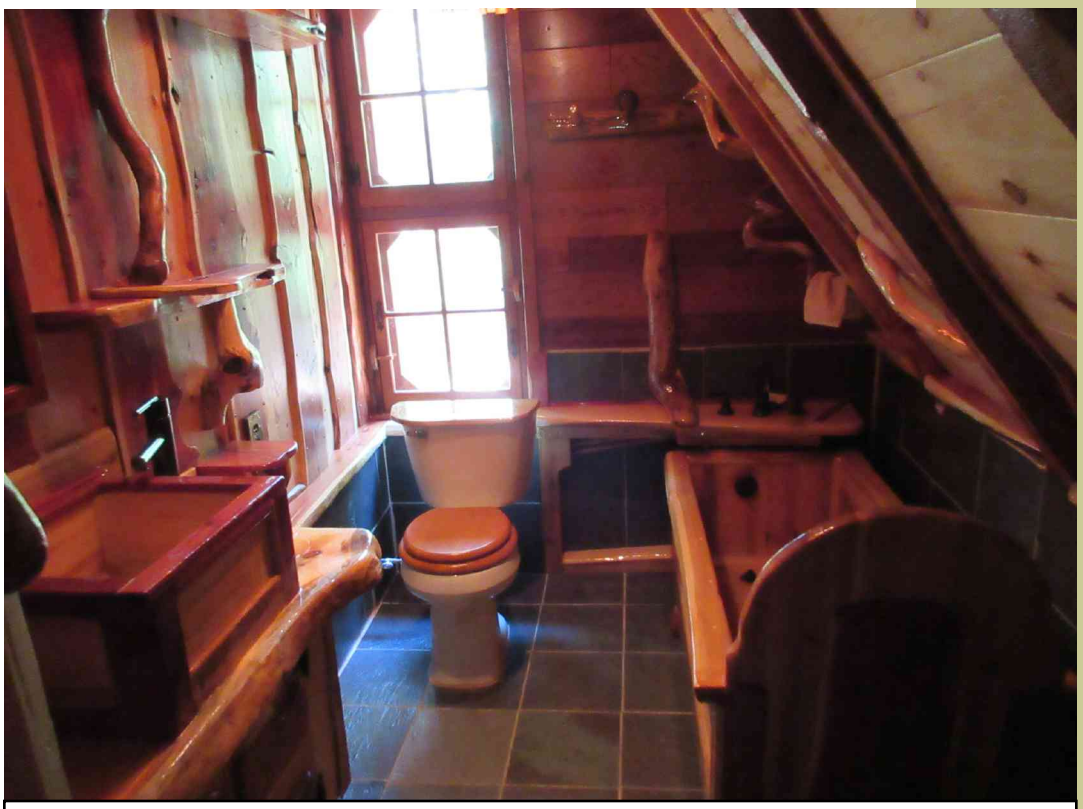
****

So long to GTAC!

With the passing of Jack Parker, the GTAC mine proposal once again came to mind. Jack had dubbed the proposal "The Penokee Superscam". The influential coal miner wishing to dub in iron was Chris Cline, who made a fortune reviving the Illinois coal fields. Cline died on July 4, 2019 as his private helicopter crashed immediately after takeoff, in the Bahamas, one day shy of his 61st birthday. His daughter and 5 others perished with him.

****

Wood crafters corner:



One of a kind. This charming hand crafted Northwoods bathroom features a wooden free standing tub and a vessel sink built with all local woods and accented with juniper from central Wisconsin. Oak, maple, red and white pine, spruce, hemlock, cedar, birch and cherry are all used in the tub. Numerous coats of marine epoxy are used over fiberglass cloth to waterproof the vessels. The wood is complimented by real Vermont Slate on the floor and lower walls, with old world style faucets and hinges.

Do you have a recent craft to share?

****

As a service to PIF members, contact Joe for special pricing in your needs for:

Napoleon wood stoves **Wood finishes and preservatives** **Garden and tree amendments**

Grass seed for trails **Tool handles, replacement handles**

****

Mosquitoes: Life Under Tension

by Guest Contributor

BITS AND PIECES

Reprinted from Northern Woodlands magazine

A good friend was in touch; her son was enduring allergic reactions to mosquitos and, like any good parent, she sought solutions. I told her that the most practical, non-toxic way to deal with the problem was to consider a mosquitos' lifecycle, and interrupt it where it starts.

Mosquitoes begin their lives in eggs laid singly or in rafts, in most cases on the surface of water. We have use mosquito egg rafts to run student experiments with the hatching larvae.

A female mosquito, potentially using your blood or mine for energy, delicately alights on the water to lay her eggs. Humans, operating at entirely different scales, fail to alight on water; we break through the surface and, if all goes well, we float. Alighting is not the same as floating – in fact some insects such as water striders are denser than water and therefore cannot float. Rather, insects are held up by surface tension.

Water molecules pull together, as you can witness when water beads up on a waxed surface. In a pond, or droplet on your tent fly, water molecules are more strongly attracted to each other than to gas molecules in air. Forces of attraction in water are strong and provide a skin-like structure on water that can support a small insect.

Surface tension is strong enough to hold up steel. To see, lay a sewing needle flat on tissue paper; lower the tissue into water and let it saturate and sink. If all goes as planned, the needle will remain on the surface. And steel needles do not float; prove it by touching it with your finger. When your salty skin breaks the surface tension, the needle will sink like any well-behaved piece of steel.

Mosquitoes are neither dense as steel nor absorbent like tissue paper. Their 'feet', or tarsal leg segments, repel water. Professor Wu and colleagues from Dalian University of Technology in China found that mosquito leg scales have nanoscale ridges and cross ribs that allow them to safely land and take off from the water surface. So hydrophobic are these scales that Professor Wu calculated they could bear more than 23 times the weight of a mosquito on the water surface, making a water strider's legs, which can support only 15 times that insect's weight, look positively wimpy.

When mosquito eggs hatch, the larvae, or "wrigglers," are vaguely tadpole shaped but smaller. They breathe air through a rear-mounted snorkel or siphon. The top of the siphon has five flaps that, when submerged, close to form a protective cone that keeps water out. When the siphon breaks the water surface, the flaps open to form a floating triangle shape from which the resting larva hangs. Like other arthropods, growing larvae shed their exoskeletons several times as they grow from hatchling to full-size larva. And then they transform to a pupae that's unique among insects.

When I think “pupa,” I remember my children’s copy of Eric Carle’s Very Hungry Caterpillar. The pupa, or cocoon, sits quietly until a spectacular adult emerges. Mosquito pupae hang from the surface tension, but at the first hint of danger, like the shadow of a passing bird or biologist’s net, they actively swim to depth. And when the danger passes, they bob right back up and take another breath. From the water surface, the adult mosquito, balancing precariously on the skin of its earlier self, emerges vertically, pulling legs and wings out from its still-submerged pupal husk. I would have thought it akin to taking your pants off, one leg at a time. But YouTube videos suggest otherwise: the legs pop out in pairs or all at once and the fly can immediately walk on water or take off directly.

Most facets of mosquito life depend on surface tension. An aerator added to a bird bath, or a pumped waterfall or fountain in a garden pond, is enough surface disruption to stymie mosquito plans.

Mosquitoes did just fine before bird baths and garden ponds; they reproduce in any standing water, and some species in very polluted and/or stagnant water. Air breathing helps them survive inferior water quality. We provide many suitable habitats: discarded buckets, tires, beer cans, even a water-filled hoof print will do. That tarp ignored on your woodpile all summer may well be the source of winged vampires. And a clogged gutter, from a mosquito’s point of view, is a linear pond in close proximity to fresh food on the hoof or sneaker.

So eliminating places for water to accumulate can reduce mosquito populations around your home. Perhaps you’ll eliminate some other tensions from your life in the process!

****

More Glyphosate concerns!

A Canadian government study release this spring showed that 197 of 200 honey samples tested included glyphosate residue. The study was conducted by the Alberta Ministry of Agriculture and Forestry, stated there is a 98.5% chance honey contains glyphosate residue. The authors stated the study results were alarming, and that they experienced delays because of the difficulty of finding any honey samples that were glyphosate free, even though many of these were taken on farms where glyphosate was not used. They summarized that the herbicide has become pervasive in the environment.

On another pesticide concern, the University of Saskatchewan has shown that tiny traces of Neonicotinoid pesticides impair a flying insect’s ability to spot predators and avoid collision with objects in their path. The results were published in the journal Neuro-Toxicology. Within and hour after exposure to minute traces of neonicotinoids or the metabolites, flying insects lost their ability to maneuver in flight. Grasshoppers, bees and locusts were among the insects affected the most.

****

Turning maple syrup forests into bird-friendly habitat: Cornell Ornithology Lab: By Alison Haigh

High in the branches of a maple tree sit the tattered remains of a muddy, grassy bird nest. I train my binoculars on the small lump, but it was built the previous year and is very much empty. Closer to eye level, it's harder to miss the metal spigot and tangle of blue tubing attached to the tree's trunk. This tree is one of the 6,000 tapped for Cornell University's signature maple syrup, and last year it also raised a family of birds. Birds and maple syrup share the same critical ingredient: healthy northern forests. Every year, millions of birds breed, feed and fledge in the same forests that are tapped for syrup (called "sugar bushes"). As long as a sugar bush stays tapped, it will remain a forest and not be cleared for development. Now the Cornell Lab of Ornithology is partnering with the Cornell Maple Program to help sugar bushes meet their full potential for bird habitat, sweetening the deal for birds and for the bottom line in the university's own sugar bush.

From maple monocultures to bird-friendly forests

Maple-syrup producers exert considerable control over the habitat in a sugar bush. What is good for birds in a forest is also good for maple producers in the long run: the health and sustainability of the crop. Aaron Wightman '97 oversees operations at the Arnot Research Forest in a Cornell University-owned forest south of Ithaca. After learning Audubon Vermont has worked with nearly 40 of that state's maple syrup producers on the Bird-Friendly Maple Project since 2014, he approached then-Cornell Lab of Ornithology conservation biologist Ron Rohrbaugh about managing a sugar bush for birds. Wightman was interested in helping the birds, but also in helping the forest he manages.

The understory of the oldest part of the Arnot sugar bush was thinned decades ago and deer have kept the shrub layer from regenerating, Wightman explains as we walk through the Cornell research forest on a delicately sunlit May morning. Here, slender maples tower over us like an arched cathedral ceiling. **Tiny beech and hornbeam seedlings pop out of the leaf litter – but there is nothing but empty space** between the canopy and forest floor.

Forest managers aim for an ideal diversity of tree species at a diversity of ages, with layers of branches and leaves at the top, middle and bottom. Without younger generations of trees growing up underneath the canopy layer, the entire forest community faces an abrupt decline when all those oldest-generation trees begin to die. Birds suffer, too, from a lack of diversity in sugar-bush habitat. For example, without a conifer component among the maple trees, birds like the blue-headed vireo, blackburnian warbler and sharp-shinned hawk are missing valuable nesting habitat. Fruiting trees and shrubs in a sugar bush, like black cherry, also provide critical energy supplies for birds fueling up for migration.

Next to the monoculture in Arnot Forest stands a plot that is a perfect model for bird-friendly management. The bright blue tubing disappears and reappears among the thick understory, winding around a few snags with holes drilled out by woodpeckers. There are more than just maples here; we stop to admire a black-throated green warbler flitting around in a hemlock, and a scarlet tanager in an oak tree.

Conservation biologist Steve Hagenbuch, who heads up Audubon Vermont's Bird-Friendly Maple Project, says sugar bushes that contain at least 25 percent non-maple trees support a greater diversity and abundance of birds than stands growing only maples. And he says syrup producers in the Audubon Vermont program are finding that managing a sugar bush for tree diversity is good for sugaring sustainability, too. A University of Vermont study found that sugar bushes with a bird-friendly ratio of tree diversity experienced insect outbreaks that were significantly shorter and less intense than in maple monocultures. "Is that a coincidence?" Hagenbuch asks rhetorically. "I don't think so. I think that speaks to a healthy, functioning forest, thanks to its structure and composition."

****

Bringing back the forest for birds

The quaint, colonial scenes on maple syrup bottles are misleading. Maple syrup is big business. By the barrel, syrup costs more than oil. Products like maple-derived alcohol, candies and even sports drinks have exploded in popularity. New York state alone taps more than 2 million trees, and its maple products were worth more than $30 million last year. But the boom in sugar bushes, as another form of farming monoculture, is compounding a tree diversity problem in the Northeast's forests.

Throughout the 1800s, settlers cleared nearly 90% of all forests in the Northeast for farmland, only to suffer season after season of poor yields in their harvests. After the settlers abandoned their farmland, the forests began to grow back. But wave after wave of invasive species, forest pests and diseases stunted the growth of young trees, leaving many forests lacking in successive generations of native trees. The irony, noted in the 2016 State of the Birds Report, is this: "In the East, there is more forest today than there was 100 years ago, yet forest stands lack the diversity of young and old trees that makes for prime bird habitat."

With habitat loss and degradation looming as the greatest threats to birds today, sugar bushes have the potential to offer a big conservation footprint for birds. "Conservation of anything – birds, habitat, anything – requires an all-hands-on-deck approach," Hagenbuch says. "We can't rely on only protected areas, or even the goodwill of people interested in wildlife. We need to integrate [bird conservation] into our businesses, create financial incentives and encourage people to think about the role that their land management has in conservation."

Bird-friendly maple syrup is only one part of how the food production systems of modern society can help address the massive loss of bird habitat. After all, the very same scarlet tanagers that spend summer in sugar bushes in New York, Vermont and Quebec fly to South America for the winter, where they may look for habitat among shade-grown coffee farms in Colombia.

Ultimately, Wightman hopes the sugar bush in Arnot Forest will be a model for bird-friendly maple production in New York, and for the international importance of sustainable food production. "Any healthy forest has a healthy bird population," he says. "That's how we should grow all our food."

Alison Haigh is a senior majoring in environmental science at Cornell University. This article originally appeared in the spring 2019 issue of Living Bird magazine, produced by the Cornell Lab of Ornithology.

****

Stay informed at www.partnersinforestry.com where Jim is continually adding content. For example:

The Wildlife society talk on Chronic Wasting Disease can be found at
https://tws.sclivelearningcenter.com/MVSite/MVVideo.aspx?SessionID=239550&presentationID=122838

Governor's Council on Forestry: 2017-2018 Report on WI Forests
https://councilonforestry.wi.gov/Documents/Publications/CoF_BiennialReport_2017-2018_final.pdf

And find a weather channel map to the storm damage from Friday July 19 which went from central to NE Wisconsin.

Have you checked out PIF's website? www.partnersinforestry.com
The website is for members to expose your business, service or tree farm, share thoughts, ideas, articles, photos, and links. This is your COOP, we need your input as much or more than your dues.

****

TROUBLE in FRACKVILLE! Boom turns to bust!

After a boom for near a decade, the frack sand industry in Wisconsin is experiencing hard times. The frack sand mining craze has literally transformed much of western Wisconsin, leaving massive mounds of waste sand and thousands of acres of open groundwater. Now some are concerned that the bankruptcy of some mining businesses will cause difficulty in realizing the required reclamation carried through. In recent years some political leaders have advocated for the loss of local control to boost the frack sand extraction industry, thus it will be interesting to see how the state control succeeds as these fracking businesses fall by the wayside. And worse yet if we see communities burdened with the after effects. And will the politicians removing local control have any responsibility to the local communities?

Reasons for the drastic decline in the industry in Wisconsin is related to the lower fuel prices which came into effect by 2015 and the discovery of fracking sand in Texas. Being much closer to the hot bed of the industry and to shipping ports for barges headed to the middle eastern oil producing countries, Texas, of course, will reap the industry sand rewards in the current climate.

****

Oneida County Forest……. This is bad news!

In a case of 'how can he be so stupid and disregard the public trust while giving the forestry community a black eye, the Oneida County Forest Director is under fire. John Bilogan is accused of serious infractions to the public trust, including denying easements to neighbors so he could purchase property with lake front at a reduced rate, and then use county owned equipment to develop the land, and convince the town to extend the town road to access the property. The public lands belong to us, we need to continually monitor the management and practices. Compliment when we agree, condemn when they go astray.

Joe's Comment: There is no place for this alleged breach of the public trust, we expect more from a public official. We must be vigilant watch dogs. Recall the proposed sale of Vilas County Forest land in 2015. We not only need to monitor the management, but also the activities of county board officials who dictate that management. It would be nice to see Forestry Committee members with a true link to science- based silviculture and see the forest for more than only the fiscal value of trees.

Pipeline sued!

The Bad River band of Lake Superior Chippewas has sued Enbridge pipeline in an attempt to remove a pipeline. This may be a story to follow as to the justification and issues leading up to the suit. The Bad River Band filed the lawsuit in federal court in Madison after stating that members are concerned that a pipeline failure could contaminate the Bad River reservation. The Line 5 pipeline carries oil and natural gas liquids from Canada to eastern Michigan. Twelve miles of it runs through the Bad River's reservation along the shores of Lake Superior and the Bad River itself. The tribe argues in the lawsuit that the 66-year-old pipeline could rupture on the reservation, and easements for the line expired in 2013. The lawsuit seeks an injunction forcing Enbridge to stop using the line and remove it from the reservation.

****