"This institution is an equal opportunity provider."

Partners News

July/August 2020

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

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Landowner Cooperative

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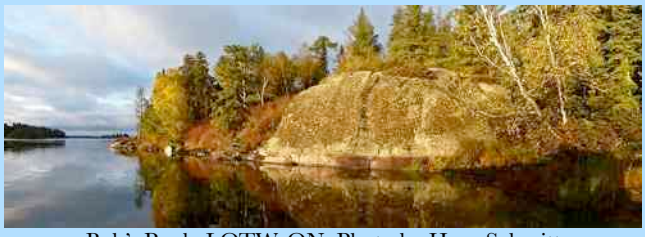
PIF's Website:
www.partnersinforestry.com

Have you paid your PIF dues?



Bob's Rock, LOTW, ON Photo by Hans Schmitt
More beautiful photos on page 22

Inside this issue:

CONSERVATION

In this issue of Partners News, we again showcase how we are grateful to and proud of our members who engage in valuable conservation activities, with Charlie's coverage of long time member Dave Gunnelson. In the past we covered many members' conservation accomplishments, such as Mark Beilfuss' efforts in just this past issue. Promoting and celebrating conservation, one could say, is in our blood. If you have carried out a significant practice such as a conservation easement or sale for conservation that we are not aware of, **please** contact us, as we want to openly highlight and thank you. Besides Partners News, PIF and the Northwoods Alliance are embarking on a new and exciting project, which will feature the good work and various conservation practices of landowners.

We have appreciated the ongoing support from the UW Center for Cooperatives (UWCC), and their renewed support is allowing us to begin a related project that we hope will benefit many of you. We are looking forward to publishing a booklet, titled *Northwoods Forest Conservation: A Handbook.* In this project we will feature perspectives on **conservation** from at least 10 accomplished conservationists or resource professionals in our network. We will openly celebrate conservation successes. And we will offer tips, advice, and suggestions on programs and practices that landowners can be involved in or use on their own properties. We hope to help you accomplish your conservation goals, from small practices to real estate transactions.

The need for this kind of resources has never been greater. The forest landscape has been transformed by fragmentation, abuse, and increasing building density over the past several decades. We are at a crossroads to establish harmony with natural resource management. We recognize the fact that conservation efforts represent a minority of land uses, as too many practices on the landscape seemingly disregard conservation on the quest for monetary return. We advocate for sustainability in forest resources, the local economy, and the collective efforts to accomplishing this.

A big thank you to the University of Wisconsin Center for Cooperatives for their ongoing and increased support. The support they give us has enabled our education and conservation efforts to benefit you and the public good.

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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.

WILDCAT FALL PROGRESS REPORT

Dear Friends of Wildcat Falls,

The early summer brought some very good news: following 2 ½ years of fundraising, we have now met our financial goal for acquisition of the Wildcat Falls property. Currently, the USFS is processing the grant award, and we anticipate closing on the acquisition in September, making Wildcat Falls a Community Forest under the Community Forest and Open Space Conservation program.

Under the program, community involvement is essential, and this often includes a committee of stakeholders hosting several meetings to finalize details for a **Community Forest Plan.** However, given the COVID situation, we will work to develop this plan for Wildcat Falls by engaging our network by email, discussing by phone, and talking while keeping safe distances outside. Now, we truly need to hear from you with your vision for future use of the community forest. As a friend of the project or a contributor, your feedback is critical.

Certain aspects of the plan are already established, emerging out of conversations over the past two years. These include:

- The old-growth cedar & hemlock will be protected, with no timber harvest on hemlock, cedar stands or near the rock outcrops, creek or wetlands.
- The public use does not include motors off the public roads.
- Fishing and hunting will be allowed in season with proper license.
- A hiking trail network has been established to the falls & one of the outcrops.
- Natural resource education will be encouraged.
- The well-stocked hardwood stands with substantial tree size will be ecologically managed on extended rotation, conducting harvests to remove poor quality, suppressed trees and culls while allowing sawtimber to develop to its full growth potential.

However, we still have numerous decisions to make as a community, and we need your feedback. We encourage you to fill out this brief survey, to provide any feedback that you wish. Your suggestions, feedback or concerns are very important as we work to develop the final community forest plan.
https://forms.gle/rCcN9wo8fUqfpSHj6
If it is easier for you, a simple email, letter or phone call will also suffice.

We are excited to see this project in its closing stages, and also wish to continuously thank the contributors to this effort to protect a public treasure. Contributions include over 100 donations from individuals, from $10 to $30,000. Donations from foundations and nonprofits include the Friends of Sylvania, John C Bock Foundation, James D and Jane P Watermolen Foundation, Upper Peninsula Environmental Coalition, James E Dutton Foundation, Community Foundation of the UP, Copper Country Chapter Trout Unlimited, Johnson Foundation at Wingspread, Weyerhaeuser Community fund, Conserve School, and the USDA Forest Service State and Private Forestry Community Forest Program.

We thank you for your feedback as well as your donations and support.

On June 24 the Discovering program aired on television, on PBS in Marquette, MI and also WLUC Channel 6. The second half of the program focuses on Wildcat Falls. https://www.youtube.com/watch?v=-u7ZXr4IY1g&list=UUuLPRcLZ2h_ETPc4NufxnLA&index=2&t=0s

We wish you a safe remainder to the summer. Do get out and enjoy beautiful places.

Northwoods Alliance Inc. nwa@nnex.net www.northwoodalliance.org 715-479-8528

Managing land for enjoyment and use in the long run

Dave Gunnulson takes steps to conserve his land for future generations July 19, 2020 by Charlie Mitchell

David Gunnulson is a man who has lived his entire life on family-owned farmland in Dane County and who went on to acquire several parcels of forested land in Florence County. The farm is in southern Wisconsin and Florence County is in the north, far enough apart to have different ecology, prairie in the south and forest in the north. But Dave's vision for both is the same: conserve and manage them in as natural a state as possible for the long run.

Dave is a descendent of Norwegian immigrants who arrived in America in 1839 and settled near Cambridge, in Dane County, Territory of Wisconsin. They started a farm and began tilling the land in 1840. Prairie grasses and flowers gave way to alfalfa and clover to feed dairy cows.

During the early 1840s, Dave's hard-working great-great-grandparents managed to purchase three additional 40-acre parcels. Unfortunately, Dave's great-great-grandfather died suddenly in 1846 when his wagon, laden with lumber, overturned on a trip back from Milwaukee. This accident killed not only the man but also his plans for the farm. When his wife died in 1853, Dave's great grandfather, age 11 and his sister age 9 were left dependent on relatives, but with 90 acres of land in trust.

Dave is proud to recount how, despite adversity and a minimal education, his great grandfather went on to exceptional achievement as a builder. In his career, he built four houses, several barns and a small inn. In 1880 he built a schoolhouse of brick, and in 1890 a church of brick and stone, all in the countryside. The church, at 52 x 54 feet, is a substantial structure, and with its distinctive architectural features, draws admiration from local residents. A UW professor considered it an example of charming design and brought students there on field trips.

Events may have excluded Dave's involvement with the farmland of his ancestors, but in 1943 when Dave was about six years old, Dave's father and grandfather purchased 40 acres from one of their relatives, and Dave was on his way to becoming a farmer. In 1969, his father and he purchased 120 acres from a related family, 40 acres of which had been owned by Dave's great great grandfather. In 1973 Dave purchased 59 acres from another relative and in 1986 he purchased 40

acres from a neighbor. All of this in addition to the original 90 acres which Dave eventually inherited.

Dave was born in one of the houses his great grandfather built, but eventually his family moved to an adjacent house that is larger - a house also built by his great grandfather – which is where Dave resides today. As his land holdings grew, Dave expanded his dairy herd and became a full-fledged dairy farmer. He grew corn and hay to feed his cows.

All of his land, a total of 349 acres, has been owned and lived upon by Norwegian immigrants and their descendants for five generations. Dave is proud of his Norwegian heritage, but he is cognizant that the land existed well before Europeans arrived and he is respectful of the natural history of the land. Previously inhabited, sparsely, by Winnebago people, Dave's acres of farmland are situated on a practically treeless prairie, a 15,000 acre grassland known as the Koshkonong Prairie. Koshkonong is a name which means "place where we live". Dave wants to keep the land livable.

Naturally occurring fires and fires set by the Winnebago did not allow trees to grow. Only about 25 acres of woodland exists on Dave's land, stretching for about a quarter of a mile along a stream.

The land had been planted in corn and soybeans for some years, but now Dave simply mows the land and harvests the hay, mainly brome and timothy grasses. Dave also maintains a small herd of beef cattle, and Dave uses some of the hay to feed them. The rest is sold to neighboring farmers to feed horses.

But Dave is interested in returning a portion of the land to nature for the beauty and satisfaction of it and so it can be a bird sanctuary. So far he has replanted 20 acres in native prairie grasses and flowers, with expert advice and assistance from the Madison Audubon Society staff and volunteers. The restored prairie provides ideal nesting for grassland birds, such as meadow larks, sedge wrens and dicksissels that nest only on the ground and depend on it for survival.

Bobolinks arrived in May as they usually do, and Dave delays his first mowing until after July 15, so the baby birds can hatch and leave the nests.

Dave, at age 83, is a widower and has no children to be heirs. He is in negotiations with a local land trust to create a "conservation easement" and deed restrictions that will conserve and protect his land in accordance with his principles, in perpetuity. Deed restrictions would limit development and

building on the land and define the commercial activities allowable even after the land is transferred to new owners. Dave is thinking this out carefully since he is planning to sell his land soon.

In addition to his farmland, Dave talks fondly of his wooded land in Florence County, near Tippler.

Years ago, early one morning he went into the forest and stood in there taking in the splendid view and the quiet. Then there was the serene call of a lone raven in the distance, and when the silence returned he realized how much he loved that land.

Last year, Dave conserved a 214-acre parcel of land which adjoined county forest land by selling it to Florence County to become part of the County Forest. That land is now preserved for recreational uses by the public and it increases the size of the Forest to better support wildlife. Dave considered that land very special, "perfectly beautiful". The Little Popple River runs through it, a charming, mostly swiftly running stream on the sloping terrain. And along with plantations of now maturing red pines and stands of white pine, jack pine and Balsam fir, there are wonderful marshes, the kind that make you stop and stare.

Dave bought the parcels of land in the 1970s, when they were available at affordable prices of $200 - 250 an acre. The investment paid off by the harvesting and sale of timber over the years. Dave saw land owners sell 40-acre parcels for financial gain to new owners who would build a house or a hunting cabin. That started back in the 1980s and 1990s, and Dave came to view dividing the land in small parcels as a blight, fragmentation that is not healthy for plants or animals.

Dave does not know what he would have done after acquiring his forested land without the help of Stuart Boren, DNR Florence County Forester, who helped him enroll in the DNR's Managed Forest Law program and who provided guidance on forest management, including planting and harvesting trees. Stu, now retired from the DNR, is still assisting Dave as a consultant.

It was not easy to accomplish the sale of that land to the County. To finance the purchase of the land, the County applied to the Knowles-Nelson Conservation Fund, a complicated multi- step process. It required the politically-charged process of approval by the County Board and by the State Representative. However, the land allowed for the popular idea of extension of snowmobile trails with space for a bridge over the river.

Dave proposed to allocate one-third of the purchase price to endow a scholarship fund for Florence County high school students who plan to "major" in conservation-related subjects in college. Dave

says that this offer was perceived by the County to be enough of a benefit to them to break the ice on the deal to purchase his land.

A foundation and trust were set up to manage the endowment of $105,000 for annual scholarships at qualified colleges. This year $5400 was awarded to a student graduating from Florence High School to study environmental sciences at UW Platteville.

Dave still has the challenge of divesting ownership of his other Florence County land holdings in an environmentally acceptable way, but he is determined to do it.

Dave is a long-time (dues-paying) member of PIF who appreciates the objectives of PIF. He says that he enjoys reading the newsletter and that the information that he gets from it has been helpful to him.

To manage and conserve land for the long run means thinking in terms of forever, because it makes no sense to ever terminate good stewardship.

Dave Gunnulson enjoys the company of a prairie flower in the field of restored prairie on his farm in Dane County. To Gunnulson, being a good steward of his land means making plans for it that extend into the future. Photo courtesy of Mark Martin, Madison Audubon Society

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OPINION (Partners News invites opinions on important issues from members)

The DNR Is Cutting Down Lakeshores and Thinks It's Fine. Let's Show Them It's Not.

Pitcher plant on a log on Whitney lake shoreline. The character of Whitney lake could be altered for decades!

Here it is, the heart of summer, when so many of us look forward to spending time on lakes here in the Northwoods. We love them for their wildlife, serenity and forested shorelines.

We also know that the DNR logs areas around lakes. They have for years. Sometimes they leave an appropriate buffer that shields the lake from heavy cutting farther inland. Sometimes they don't. It's puzzling why, periodically, they heavily cut close to a shore. It seems arbitrary and can be extreme.

That's what's going to happen on Whitney Lake in Boulder Junction. The DNR is going to nearly clear-cut hundreds of trees as close as 50 feet from the water. They will cut dozens of big white and red pines, and they're going to mow down smaller trees in swaths. They are cutting 32% of the shoreline (more than mile). What will be left in many places is a skimpy screen of trees – or no buffer at all – hardly enough to hide the barren areas that will stretch hundreds of yards inland.

The tree line will be noticeably shortened. They are also clearing an oak shelterwood stand and will leave just five trees per acre there, right up to the shore. This stand, like much of the shoreline, is sloped and hilly, so all the empty space and tree stumps will be highly visible for some distance inland.

The logging will begin cutting any day now. We know about this because we found the marked trees during a hike in April. "Public Notice" about the timber sale was a document buried on the DNR website, where few members of the public know to look: https://dnr.wi.gov/topic/TimberSales/salesNHAL.html

I am not against logging, and I think that the DNR does important, positive work in many areas. But I think their forest division's myopic determination to heavily cut *lakeshores*, leaving meager buffers, is appalling. And it is not just happening on Whitney. Of the 160 tracts the DNR currently has slated for cutting in the Northern Highland-American Legion State Forest (where this lake is located) some 40% involve cutting lakeshores. Among them are Trout, Big Arbor Vitae, Upper Gresham, White Sand, Big Muskellunge, Ballard, Mann and North Bass lakes.

Anyone who loves a lake with state-owned land should be worried. Here's why: Based on how they've treated us, DNR foresters do not seem to care about you or me. They also do not care about the impact aggressive logging has on a lake's shoreline. Some of them are willing to break their own best management practices and guidelines to fulfill a logging quota produced by their database in Madison and by political powers that be – both local and state-wide. They have hidden behind boiler-plate vagaries and cite state statute 28.04, which was pushed through in **2016** to push the DNR log 75% of state forest – and they're doing it at a feverish pace. There is little continuous canopy left in the Northwoods. They're also cutting where they rarely cut before. In addition to lakeshores, they're heavily logging trail systems, campgrounds, and the scenic roads people love to drive, including Rustic Road K and Highway M in Boulder Junction.

My neighbors and I did extensive research before we contacted the DNR. We were armed with GPS-marked satellite maps showing cut lines and deep knowledge of the DNR's handbooks and master plan. We understood water-quality issues and the silviculture reasons for harvesting timber. We obtained a Vilas County report that showed Whitney was one of the most pristine, biologically diverse lakes in the state. We conducted our own density survey and tree counts with the help of a forester with 30 years'

experience. We found that the DNR plans to leave barely HALF the trees that they should. Our density survey – which used 22 random plots along the shore – revealed they were going to leave an average of 32 sf basal area of residual trees. They should be leaving at least 60 sf BA. They claimed their own survey showed they would leave 83 sf BA, but a forester who is working with us said that wasn't possible. They refused to explain their results. They are not leaving their minimum buffer of 100 feet, except in a few places. And the trees they are leaving aren't well-distributed, another best practice they are violating. Instead, they are leaving clumps here and there, with barren spaces in between.

Moreover, we counted 77 big trees that they will remove within 150 feet of the shore. That includes dozens of big pines, even those approaching "Old Growth." Some have a diameter of 34 inches.

Our requested remedy to the DNR was clear and modest: *Please leave a shoreline buffer that at least meets your minimum guidelines for density and depth. Please leave more of the tall trees so that the shoreline height isn't severely shortened. And please do not cut the giant "legacy" pines that you plan to log.*

This request involved leaving a few more trees on just a few acres – trees whose value would hardly make a difference in the 225-acre timber sale. Plus, loggers dislike hand cutting big pines on hills close to lakes, so we thought they would be willing to compromise.

The DNR's response? They refused to budge. They are terrified of giving an inch, because then everyone will want adequate buffers on their lake. Imagine that! They would not acknowledge their violation of their own guidelines and the impact the heavy cutting would have. Instead, they made a feeble offer: they would not cut balsams scattered along the shore. These are small, short-lived trees of low market value that will fail to cover up the heavy cutting and – at the DNR's own admission – they're infested with budworm.

This is unbelievable and jaw-dropping, right? But it is reality and the norm. The DNR ignores citizens all the time. So does the international auditing body that certifies the DNR – the Forest Stewardship Council – and their affiliate, SCS Global Services. They won't even return our calls. And where is the Wisconsin Natural Resources Board? I testified before them June 24 and haven't heard a peep since. They need to investigate this.

Moreover, if this is happening on Whitney, it can happen on any lake you love with state-owned shoreline. And it can happen *repeatedly* – the DNR plans to sell more timber rights on Whitney, which will result in more than 50% of the shore to be cut soon. They are turning wooded lakeshores into cardboard boxes. Literally.

The only way this is going to change is if we make it more onerous for the DNR to keep whacking lakeshores than to actually give them adequate buffers from the start.

Will you help preserve Whitney's and other lakes with state-owned shoreline? Write and call the forestry supervisor in charge, Tom Shockley. He has always been polite to us and listens, but we always seem to get institutional answers in reply from him and the DNR hierarchy. Still, if more people speak out, it may get their attention.

Tom Shockley, DNR forestry supervisor 715-356-5211, ext. 259 Cell: 715-614-4443
Tom.Shockley@wisconsin.gov

Please cc the higher-ups at the DNR:
Joseph.Schwantes@wisconsin.gov
Heather.Berklund@wisconsin.gov
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JamesK.Warren@wisconsin.gov
JamesA.Yach@wisconsin.gov
preston.cole@wisconsin.gov
Laurie.Ross@wisconsin.gov
and myself acberghoff@gmail.com

Finally, contact your state legislators – and vote for candidates who do not endorse logging lakeshores. Demand they reverse 28.04. There is no long-term advantage to this unsustainable cutting, either for

forests, lakes or our communities. It is not good for tourism, local businesses, real estate or property values. And don't let the DNR's commonly made arguments about jobs sway you – saving trees on lakeshores will not cost jobs. Industries connected to all the areas I listed employ thousands.
No law says the DNR has to cut a lakeshore. It is agonizing, if you love a lake, to watch this happen. Speak out loudly to protect our lakes!

Thank you.
Ardis Berghoff
Whitney Lake, Boulder Junction, WI

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PIF note: Another great old-growth visit from John Bates, and his book Our Living Ancestors. This is a special place. I recall the 13" bluegills from Salish Lake in 1985!

Selected Old-Growth in the American Legion/Oneida County Complex: Lake Laura Hardwoods SNA

Location and Directions: Vilas County within the Northern Highland-American Legion State Forest. T41N-R8E, Sections 11, 12, 13, 14.
- From Star Lake, go east on County Highway K for 2 miles, then north on Deerfoot Road for 0.7 miles to a boat launch. Walk west into the site.
- To access the site from the south, at the intersection of County N and County K just to the east of the tiny one-store town of Star Lake, continue east on County K for 0.2 miles to an old road on the left (look for the "Salsich Lake Small Craft Landing" sign). Walk the road to access Lake Salsich and then the rest of the SNA. Or from the intersection of Cty. K and N, go east 2 miles, and turn left (north) on Deerfoot Rd. Follow it 0.7 miles to the boat landing on Lake Laura. An old, easily walked, unmarked logging road leaves the parking area near the shoreline of the lake and heads west, providing access to a portion of the SNA. One other option is to take West Laura Lake Rd. for 0.8 miles to an old snowmobile trail on the right. The trail makes a loop and comes back out onto the road about a half mile down. Driving West Laura Lake Rd., the northern border of the SNA, is the easiest option of all – it takes you through some beautiful old hemlocks.

Size: 852 acres

Forest Type: Hemlock-hardwoods

Age of the oldest-known trees: 263 yrs.-old (Tyrrell, 1991)

Status: Owned by the WDNR and established as a State Natural Area in 2007.

Description
Situated between Lake Laura and Salsich Lake, Lake Laura Hardwoods features some old-growth stands over 250 years old as well as mature stands that possess old-growth attributes within an overall second-growth forest. Canopy dominance varies from almost pure hemlock with white pine to pure hardwoods including sugar maple, yellow birch, and basswood. Reproduction throughout the SNA is primarily sugar maple, but hemlock and yellow birch are reproducing well near Salsich Lake. The understory in the eastern portion of the SNA is dominated by a monotype of Pennsylvania sedge, undoubtedly a result of invasive earthworms altering the soil.

University of Wisconsin ecologist, John Curtis, author of *The Vegetation of Wisconsin*, the long-standing "bible" for every college plant ecology student in Wisconsin, conducted research in the old-growth hemlocks along the southeast shore of Salsich Lake. This stand is easily visible from County Highway K.

Salsich Lake, a 48-acre soft-water seepage lake, supports the rare lake emerald dragonfly, which in Wisconsin, has only been found in Vilas County. Look for raptors like bald eagles and broad-winged hawks, nesting waterfowl like common loons, and classic songbird species associated with older hemlock hardwoods like pileated

woodpeckers, blackburnian warblers, and northern parulas. Evening grosbeaks sometimes also nest here near the southernmost edge of their breeding range.

The Northern Highlands State Forest master plan classifies this site as part of a larger "native community," which the plan refers to as the "Lake Laura Loamy Hills." This 8,268 acre area native community includes 6,896 acres of public land. The sandy loam soils here contrast to the sandy soils that comprise most of the NHAL, and which support more dry-mesic forests of red/white pines, red oak, and aspen.

Three groves of old-growth hemlock-hardwoods (Lake Alva Birch-Hemlocks, Lake Laura Hardwoods, and Plum Lake Hemlocks) have been established as passively managed, ecological reference forest sites within the larger native community site. The rest of the native community will be managed using extended rotations while retaining younger stands to "complement the old growth and retain structural diversity." An "extended rotation" means the DNR will harvest the trees at their "biological age," which is defined as when a tree or stand achieves its maximum merchantable volume. Biological age is quite different from old-growth age. The biological age for white pine, for instance, is around 80 to 120 years depending on the site, while white pines can live to be 400+ years old.

"Tramper trails" access the northern end of the native community site, leading south from Partridge Lake to Ballard Lake. Pick up the trail from the boat landing at Partridge Lake.

Old road at Lake Laura

Lake Laura Dedication Sign

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In our continuing series on Forest Ethics in cooperation with The Northern Logger and the author.

FOREST ETHICS

Can't We All Just Go Fishing?

by Marinne Pantinelli Dubay
SUNY College of Environmental Science and Forestry

Years ago, one of my students declared ethics to be a waste of time. His frustration was that ethics appeared to have no established order, no universal criteria that can be applied to any situation to determine whether a behavior is correct or not. He had heard enough to know that right-doing is often situational, subjective, circumstantially determined, that *the good* can sometimes be as varied as the approaches we use to achieve it, and the contexts which surround it. His frustration was in response to what he perceived as a missing center or nucleus, the absence of a "norm" or standard by which every ethically or morally weighted situation can be judged. He had correctly, if unwittingly, sized up the "postmodern turn" and his solution was that we should all just go fishing. As I reflect back on our conversation in moments of profound societal anxiety, I am mystified enough to go in search of rod and reel myself. However, being a philosopher and not a fisherwoman my response instead has been to look into how we got here.

I was taught that the ethics of a situation are established on a case by case basis to fit the parameters of the circumstance, that right-decisions cannot be made by putting elements like ingredients in a recipe through a philosophical mill to churn out an answer. I learned that there is no single way to arrive at a resolution, and surely if there were, philosophy does not provide such a pathway; one has only to look at philosophers whose ideas concerning ethics and morality are as divergent as Aristotle, St. Thomas Aquinas and Karl Marx. I learned that to assert any particular philosophical approach over and above another is coercive, and that the individual has the authority to determine her own way forward within the acceptable bounds of society.

This view of ethics is postmodern, which (to dramatically over-simplify) rejects the modern emphasis on a collective striving towards one universally agreed upon Truth and Reality -- that steady nucleus which my student was looking for. Modern society prior to this great decentering, operated within a dense network of belonging that constituted a guild, that provided the support and guidance to lead us as a people along one single path. A shift away from belonging to one world, to belonging to many happened slowly and arose out of changes including recognition of the individual rights and concerns of a diverse citizenry, rather than adherence to a dominant world-order. Like all of philosophy, this shift was in concert with what has become contemporary politics, community organization, how we conduct scholarship, the role of organized religion and (though I can't be sure perhaps) even fishing.

Our shift away from a unified world in favor of a pluralistic one can be credited with the emergence of civil rights, women's rights, freedom of religion. And for all its benefit, the postmodern world that we find ourselves in also includes a dizzying variety of often competing rules and codes that are as diverse as the social, political, professional realms to which we each now belong. All of which makes ethics and right-doing a challenge. One forester recently asked "how can we discuss the ethics of a situation without considering the accepted norms and practices of the profession?" The answer is, you shouldn't because professional belonging is one of the worlds that we

are bound by. But neither can you responsibly set aside the codes and agreements you have pledged to uphold within the other groups, societies and orders of which you are also a member. And following the direction of one, may put you in conflict with another, such that at any given time we are not only trying to do the right thing, but also to reconcile our action with a number of different sometimes opposing standards. Multiply that difficulty by at least two, or by any number of individuals with whom you find yourself in tension, who are also subject to the same complicated math and suddenly fishing starts to sound pretty good.

In this column I have acknowledged the complex reality of our postmodern situation as it relates to natural resource professions in order to encourage critical thinking, the cultivation of virtue, adherence to civic duty and patience. Yet still I am nostalgic for a modern world whose simplicity I have never known and whose hierarchies and strict laws would likely not even suit me. My longing is a response to the violent percussion of fracture and dis-ease that has become our song of songs. Held between the limits of these two worlds I go in search of a third, towards a new landscape of belonging and right-doing within the bounds of community in service to a higher law. The philosopher Alasdair MacIntyre advises us on how to proceed writing "What matters at this stage is the construction of local forms of community within which civility and the intellectual and moral life can be sustained through the new dark ages which are already upon us."

Our work is not to turn back the clock, but to persevere and to align our work as loggers, foresters and philosophers with the highest good even (or especially) when the sheer number of competing priorities we are holding, between individual benefit and community harm, short term advantage or long-term benefit makes the achievement of this aspiration so hard. This struggle, the frustrated words of my former student and my own vision of what is still possible calls to mind the 13th century Islamic poet Rumi who wrote "there goes a river, dragging an ocean behind it." And I'll bet Rumi was a fisherman.

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Future Articles

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

SPOTLIGHT ON THE PILGRIM RIVER CONSERVATION PROJECT

The Pilgrim River story has been an incredible tale of inspiration and conservation with a broad community. We encourage you to visit and enjoy the Pilgrim forest and we will continue to provide user updates.

PIF and NWA were proud to be an integral part of this story.

A Special Regulation for a Special River, by Bill Leder

In 2015 the Michigan Natural Resources Commission enacted 20 inch minimum size and 1-fish daily possession limits for brook trout on eight streams in the Michigan Upper Peninsula. The Pilgrim River, from its mouth to Paradise Road, was included. These streams are part of a Michigan Department of Natural Resources study pertaining to coaster brook trout.

Bill Leder

Coasters are an adfluvial form of brook trout that migrate between streams where they are born and Lake Superior. Due to habitat loss and over-fishing, only a very small population remains. The Pilgrim River is part of an active research program to better understand these beautiful fish. The regulation applies to all brook trout because it is very difficult, from their appearance alone, to determine the difference between coasters and brook trout that are stream residents exclusively.

In May 2019 the Michigan DNR held a public meeting in Houghton to obtain community input concerning extending the geographic reach of the special regulation. There was broad support, and no opposition. Subsequently, in April 2020, the NRC extended the regulation, which will run until at least 2025, to include the entire Pilgrim River and all its tributaries.

The Pilgrim Community Forest, Pilgrim Heritage Forest, and Pilgrim Headwaters Forest conserve four miles of river and 1,500 acres of watershed vital to coaster survival.

Bill is a PIF member, long time officer of Copper Country Trout Unlimited and serves on the board of the Keweenaw Land Trust.

Please see www.partnersinforestry.com for a legible sign on the fishing regulations and photos of Coaster Brook Trout!

A hardy group of guys, gals and a little one gathered on a June Saturday to maintain the Pilgrim Trails. The trails offer great scenery with river, hills and forests just a few miles from Houghton.

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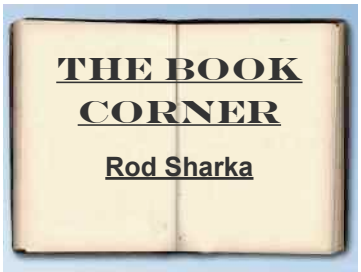

For this issue of the Partners News, may I recommend the following book for your reading pleasure: ***Timefulness: How Thinking Like a Geologist Can Help Save the World.*** **by Marcia Bjornerud**

Most humans tend to think of timespans in terms of days, years, decades, or even centuries. Or perhaps generations, human life spans, tree rotation cycles, or even ages of old growth forests. However, in terms of geologic time, these time periods are just a mere blink of the eye. In her book "Timefulness", Marcia Bjornerud makes the point that few of us have any conception of the enormous timescales of our planet's long history, and this narrow perspective underlies many of the environmental problems we are creating. The 4.55-billion-year lifespan of Earth can seem unfathomable compared to the brevity of human existence, but this view of time denies our deep roots in Earth's history—and the magnitude of our effects on the planet. *Timefulness* reveals how knowing the rhythms of Earth's deep past and conceiving of time as a geologist does can give us the perspective we need for a more sustainable future.

A Lawrence University geology professor and frequent *New Yorker* contributing writer, Marcia Bjornerud provides a fresh perspective on the relationship between humans and natural history. As an experienced field geologist, Bjornerud opens with a story about her first field research site on the Arctic Archipelago of Svalbard, a location so remote and austere that it appears timeless. (Indeed, Svalbard literally has "No Official Time" because of a long-standing border disagreement.) It is from this benchmark that she gained an appreciation for the passing of time—a theme built on throughout the remainder of the book.

Throughout the book, Bjornerud guides readers through a thought-provoking treaty that examines the geological history of planet earth. Chapter 1 revolves around a plea for reason and a socially responsible response to climate change. Here, she writes with subtle wit and a hint of cynicism about the average human's ignorance and disinterest about anything but the most superficial highlights from the planet's long history. The numerous examples Bjornerud details clearly illustrate her frustration with scientifically illiterate factions of human society who are constantly and deliberately trying to confuse the public with falsified accounts of natural history to promote doctrine that serves their own personal or political agendas. But she more than adequately counters their cockamamie claims with well-reasoned and tested scientific facts and arguments.

The second chapter tells of mapping the ocean using fossils and through natural radioactivity. Here, Bjornerud discusses in some detail the historical development of qualitative and quantitative methods of mapping out the geological history of earth. Though a fascinating explanation, even Bjornerud admits to this being the most technical material in the book and can be skipped by the scientifically challenged. I tend to disagree however, as I think knowledge of these methods takes the mystery of the question: "How do they know that?"

Chapter 3 looks at the intrinsic rhythms of solid earth, the paces of tectonics and landscape evolution, and how a geological perspective requires us to abandon any belief in the permanence of topographical features.

The fourth chapter tracks the evolution of the atmosphere and how changes in its composition have fluctuated with environmental upheavals and mass extinctions throughout time.

Chapter 5 begins with the discovery of the Ice Age (Pleistocene) and how modern understanding of climate change gradually emerged from that. Here, Bjornerud makes the case for the argument that we are now in a new geologic epoch…the Anthropocene.

The final chapter, as a concluding summary touching upon contemporary projects that deal with deep time, tries to demonstrate how time is present in varied contexts: photographic portraits of living organisms, paintings each bearing a singular date, an organ composition by John Cage, a 10,000 year-old clock, and the seed vault of Svalbard. Here, Bjornerud looks to the geologic future and outlines ideas for building a more robust, enlightened, time-literate society that is able to make decisions on intergenerational timescales.

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NATURE ON THE MOVE

Paul J Hetzler, ISA Certified Arborist since 1996

To a highly mobile species like humans, the fact that other animal species relocate their families – or entire populations – isn't surprising. We know that historical migrations have been the norm, though the fossil record shows that in general, these changes happened slowly. For example, the "Great American Interchange" in which northern animals spread southward and South American critters expanded north during the Pliocene Epoch, took a million years. Give or take a few, I assume.

Well, thanks to climate change, an eye-popping number of species are now actively seeking new real estate. As reported in an April 27, 2017 National Geographic article, half of all animals are moving apace into cooler habitats.

Land species are shifting – primarily north, but some to higher elevations – their home ranges at an average rate of a mile annually, while marine species are progressing toward the poles at about four miles per year. Some transitions are drastic. A study done at Plymouth University in the UK found that Atlantic cod have shifted northward 125 miles in the past decade.

Unless they are wondrously furtive, I'm pretty sure trees don't migrate. Yet a report from the US Forest Service's Northern Research Station indicates that 70% of Eastern tree species have already begun to shift their ranges to the north. The authors admit this is not a new phenomenon, but rather the hastening of an old one. They say that:

"Tree ranges in ancient times certainly shifted according to changing climates, but the changes were relatively slow. Fossil plant and pollen records show tree species' ranges shifted northward a rate of 50 km per century as temperatures rose after the retreat of the North American ice cap. Such shifts are sometimes called 'tree migration,' but they are really changes in a species' population density and range. The more accurate term is 'tree range migration.'"

OK, so Mother Nature apparently moved tree species an average of 50 kilometers (31 miles) every hundred years. This helps put in perspective a study report entitled "Shifting with climate? Evidence for recent changes in tree species distribution at high latitudes" which was published in the journal Ecosphere in July 2014.

The study, conducted by Laura Boisvert-Marsh, Catherine Périé and Sylvie de Blois, examined 11 tree species common to eastern North America: Balsam Fir, Red Maple, Sugar Maple, Yellow Birch, Paper Birch, American Beech, Hop-Hornbeam, White Spruce, Black Spruce, Trembling Aspen, and Eastern White Cedar. Specifically, they looked at range alterations between 1970 and 2014.

I admit that this is a highly technical paper, and I may have pulled a muscle trying to understand it all. The study assessed changes at several different latitude points, and also compared sapling redistribution with that of larger trees. In addition, the authors noted that factors other than climate change no doubt had an effect on tree range migration as well.

However, their report concluded that "Five out of the eleven species examined (Sugar Maple, Red Maple, Paper Birch, American Beech, and Trembling Aspen) showed significant northward migration." What stood out to me was that taken as a whole, they found that since 1970, "The average overall [range] shift was 111.2 km [69 miles] at 49° N." Contrast that with historical natural movement of 50 km in a century.

Scientists at the US Forest Service believe that by the end of the century, at least 8, and possibly as many as 27, tree species will have moved 200 kilometers (124 miles) north. In fact, they project that in the year 2100, sugar maple will exist almost exclusively in Canada.

There may well be exceptions. It's possible that enclaves of species which are projected to move out of the region will be able to survive in isolated nooks and crannies of the Adirondacks and other similar terrain. Variation of slope and aspect in the mountains creates "Climate Refugia," micro-habitats conducive to a broad spectrum of tree species. These refugia resist change – they are not immune to it, but adjustments happen more slowly there.

Change is sometimes good, but it's always scary. Luckily, we do have agency in determining our future. According to the Canadian Association for Educational Resources, "By 2100 the atmospheric CO_2 concentration (the gas responsible for most temperature change) will be between 540 and 970 ppm," depending how much carbon dioxide we pump into the air.

The huge discrepancy between those two numbers offers us a chance to slow the rate at which tree species march northward. It's hard to feel motivated when we know our decisions are a drop in the pool. Well, drops matter. It takes something like 50 billion drops to fill an Olympic-size pool. If each Earthling coughed up (figuratively, please) 6.4 drops, it would be full.

No matter where we live, everyone has access to a dropper of some sort. Maybe it's learning we don't need 4WD if we get snow tires. Maybe it's planting a tree. Or biking to work, or changing to LED bulbs. Every drop makes it less likely the next generation will ask "Hey Grandma (or Grandpa), tell me that story again about when maples grew here."

Paul Hetzler is an ISA-Certified Arborist and a member of the Society of American Foresters, the Canadian Institute of Forestry, ISA-Ontario, and NYS Arborists.

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TREE PROTECTION

Paul Hetzler, ISA Certified Arborist since 1996

As someone whose job it is to help preserve trees, I find it ironic that in nearly every case I am saving them from us. We injure their root systems, whack them with mowers and weed-eaters, plant them too deeply, and do many other things which jeopardize their health. It would be terrifying if they could fight back in the manner of Tolkein's magical Fangorn Forest. I mean, tree work is dangerous enough without mad maples and outraged oaks.

But trees are able to defend themselves against pests and diseases. They have both protective structures and protective processes, comparable in some ways to our immune systems. Thanks in large part to research done from the mid-1960s to the early 1980s by Dr. Alex Shigo of the US Forest Service, we know a great deal more about the way trees protect themselves than we did fifty years ago.

We have long known how, just as our skin keeps harmful bacteria on our outsides, bark acts as a shield against tree pathogens. Since they don't have the luxury of mobility to avoid hazards, trees need thicker "skin" than we do. Layers of living and non-living tissues protect tree

trunks, roots and branches from mechanical injury, drying out, as well as from diseases.

But when something breaches this first line of defense – rips through the bark – what happens inside the wood is fascinating. When an injury occurs, a tree will convert some of its stored sugars to make an array of defensive chemicals. It then distributes and deposits these compounds in a specific pattern internally around the wound. Dr. Shigo was the first to document this pattern, which he called CODIT – compartmentalization of decay in trees.

In making these CODIT compartments, trees make create four different chemical walls – two circular, one radial, and one more or less flat horizontally. Describing these walls is a bit esoteric, or maybe boring, but if you're interested in the details, this US Forest Service document https://www.nrs.fs.fed.us/pubs/misc/ne_aib405.pdf is superb.

In addition, trees have protective structures called branch collars, located at the base of each branch. Branch collars are more adept than regular trunk tissue at producing fungicides to form protective walls. This collar is usually a slightly enlarged "donut" ring at the base of the branch – it's essential not to damage or remove it when pruning. Especially on hardwoods, pruning cuts should be made just outside the branch collar, and never flush with the trunk.

I'd like to point out that wound closure, often referred to as "healing over," is not closely related to how much decay will occur. The extent of rot depends on how effectively a tree can wall off infections. Closure is good in as much as the vascular system no longer needs to detour around a wound, but closure doesn't protect against inner decay if the tree is too weak to chemically protect itself.

The success of this walling-off depends a lot on the species. Hard maple and white oak, for instance, can generate a strong CODIT response. Poplar and willow, on the other hand, barely manage to form any chemical walls, while species like red oak and soft maple do a mediocre job of it.

Overall tree vitality is another important factor. We know that if we're chronically stressed, malnourished, poorly hydrated or otherwise run down, we are a lot more vulnerable to illness. Likewise a sugar maple will not be able to form strong walls in a weakened state. By definition, landscape trees are stressed as compared to their forest-dwelling cousins. A street tree is worse-off yet, faced with reflected heat, limited root space, road salt, air pollution and more.

And obviously, the size of an injury makes a difference. Even a happy, healthy tree can have its defenses overwhelmed by a large wound. We've all seen enough trees which have lost their battle against decay.

Of course wood-decay fungi are not the only invaders with which trees contend. Foliar diseases in conifers are on the rise because weather patterns have changed drastically over the past 25 years. Frequent prolonged wet periods are punctuated by seasons of unprecedented dry soil conditions. Since about 2000, it is not uncommon for tree foliage – especially in the lower canopy – to remain wet for 20 to 30 consecutive days. Under such conditions, fungal pathogens have an advantage the likes of which they've never before had. As a result, red, Scots and white pines, and Colorado "blue" spruce are being ravaged by needle blights.

Much less is known about the way trees react to insect pests. We're aware that trees defend against insects by engaging their internal chemistry set to synthesize compounds, known to scientists as Bad Tasting Stuff, to repel them (insects, that is – not scientists). In many cases trees seem able to tailor their natural repellant to a specific bug. But these designer chemicals aren't perfect – just look at what tent caterpillars and gypsy moths can do.

It has recently come to light that trees have a kind of distant-early warning system. Apparently they can signal one another about what type of pest has arrived on the scene to munch foliage. This communication happens under the ground through root grafts, though the mechanism is not well-researched. Some biologists think that airborne chemicals might carry messages related to pests and diseases as well.

You can help maximize a tree's "immune system" by watering it during dry spells, mulching the ground 2 to 4 inches deep out to the dripline, and keeping vehicles off the root zone. In return, your tree will help keep you in optimal health by offering shade, beauty and companionship.

Paul Hetzler is a Certified Arborist and former Cornell Cooperative Extension educator.

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SHADY BUSINESS

Paul Hetzler, ISA Certified Arborist since 1996

One of the perks of having trees nearby is that social-distancing rules don't apply – you can hug as many as you like without risk of contracting Covid-19. Another benefit, of course, is shade. When the heat's on and you need to lie low for a while, it's great if some of your friends are shady characters. Especially if they're tall, mature types with solid builds. Yeah, trees are cool.

When the thermometer spikes, any shade is welcome. If you're lucky enough to have large trees where you live, not only can you get a break from the sun, but the air temperature will be cooler – as much as ten degrees – compared to out in the open. It's an awesome, natural, and free kind of air conditioning.

Speaking of which, if you use an air conditioner, having shade trees on the south and west sides of your home will reduce your cooling costs by a minimum of 30%, and perhaps as much as 50%. It's like getting a partial refund on your electric bill. Deciduous trees are ideal because they shield you in summer but allow sunlight through in winter when you want it.

On those blistering summer days when you think it's too hot to work outside, you're not alone – trees share your outlook. Photosynthesis, that amazing process which turns carbon dioxide and sunlight into sugar (thereby keeping the trees alive) and oxygen (thereby helping keep us alive), does not work well above 85 degrees. All that solar energy going to waste! Incidentally, leaves can get too hot in full sun even when the air temperature is moderate, much like the way an asphalt parking lot gets scorching in the sun.

This is why a tree's inner canopy is essential. Far from being ill-fated residents of an undesirable neighborhood, leaves that are shaded, and thus cooled, by the upper canopy are key players in a tree's survival, as they're the only ones on the job when it's too hot for their upstairs neighbors to work. So it's best not to get overly enthusiastic with pruning. Trees don't want their inner canopy "cleaned out" to any great extent.

Hopefully you're drinking plenty of water in the summer heat. It might surprise you that trees can run short of water, especially in hot, dry seasons like 2016, 2018, and this year. While we tend to think tree roots dive deep in search of a cool drink, 90% of tree roots are in the top 10 inches of soil, and 98% are in the top 18 inches.

A brown, dead-looking lawn will recover from drought in a matter of weeks, because grass has a mechanism to become dormant without suffering long-term harm. Trees, however, take several years to fully recover from an extended dry spell. Drought stress weakens a tree, making it more vulnerable to diseases and insects.

While many shady characters don't take well to a soaking, your tree will appreciate a thorough weekly drench. Forget the lawn – it can fend for itself. Please remember your trees, and water them thoroughly if it hasn't rained in more than a week.

I wish you all a healthy, well-hydrated summer, and lots of hugs with your shady associates.

Paul Hetzler is a Certified Arborist and a former Cornell Cooperative Extension educator.

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**

SIMPLY GREAT

Paul Hetzler

On the whole, Europeans did alright naming New World plants and animals. In example, they called a large brown bat species the big brown bat – kudos for accuracy. A few labels went off course, like the sunflower relative dubbed Jerusalem artichoke, even though it's unrelated to either. Some names are partly right: the tufted titmouse has a tuft, but it's a songbird, not a mouse.

And the great blue heron (Ardea herodias), the largest North American heron, is definitely great, but if you're thinking cerulean or cobalt, you'll be disappointed. Some are more brownish, and one subspecies in Florida is white. But hey, two out of three ain't bad.

To be fair, most great blue herons in our part of the world are primarily a light grey-blue at rest. When they take to the air, the darker blue flight feathers are exposed, showing off their snazzy two-tone flight suit. Juveniles tend to dress entirely in drab blue, but adults sport a bright orange-yellow beak, a white crown and a dark head crest. Obviously they're big, although females are about 10% smaller than males. The great blue (heron, not whale) ranges from 45" to 54" tall, with a wingspan between 66" and 79". Weight can vary from 4 to 7.9 pounds.

Great blues are found throughout most of North America depending on the season. Their breeding range can extend well into northern Canada, sometimes close to the Arctic, and their winter territory encompasses most of Central America. On the Pacific coast from Alaska south to Mexico and across the southern half of the US, herons may be found year-round.

One of the reasons great blue herons are so widely distributed is that they are generalist feeders, making them highly adaptable. Their menus range from fish, frogs and turtles (!) to insects, small mammals and water birds. Great blues hunt mostly in freshwater environments, but are at home in saltwater marshes and tidal pools as well. In fact, they sometimes frequent Caribbean islands as far south as the Lesser Antilles.

Equipped with harpoon-bills and impressive reflexes, herons are well-suited to hunting. But their bills are also used affectionately during courtship, to communicate (bill-snapping), and as you might expect, for protection.

Ages ago I became licensed by the New York State Department of Environmental Conservation as a Wildlife Rehabilitator. In studying for the written exam, one item which became etched into my mind was a drawing of a heron stabbing someone in the eyeball. Yeah. Turns out you have to cover an injured heron with a blanket before you pick it up. So whenever my daughter, whose name is Heron (really) picks up scissors or another sharp tool, I always afford her an added measure of respect.

Great blue herons start breeding in their second year, and if they live to their species potential, might continue for another fifteen years. They are monogamous during each breeding season, but get to "remarry" each spring. If herons could only write, I'm sure they'd have the hottest Harlequin Romance books in the business.

The preferred heron nest location is high in a mature tree in a wetland. In our region this means a dead tree within a beaver pond. In remote areas, human disturbance is more likely to disrupt their reproductive success, though herons have been known to acclimate to highways and other human infrastructure. They nest in groups, occasionally with hundreds of nests in a single colony. Apparently the correct term is a heronry, though I had always called it a rookery. In technical parlance, these nesting sites are "wicked cool."

The unkempt nests are striking to behold, being made of sticks, and 35 to 50 inches across with a depth of 20 to 35 inches. Generally the nests are used year after year, getting refurbished every spring. Egg clutches vary from two to six, with fewer down south, and more in the far north. In the northern US and southern Canada, the official mean is between 3.9 and 4.1, which I would call "four."

Since herons return to their nests by dusk, you can surmise the direction of a heronry by watching the direction it takes. If you are fortunate enough to find a heronry, bring binoculars and keep your distance. You may be treated to the return ritual when adults (both males and females incubate eggs and feed the young) return to the nest.

Adults may touch bills with their mate in a show of affection before lovingly barfing partly digested fish and frog mush into the open beaks of their babies. I have seen the young waiting for dad or mom to come back with carry-in food, their beaks pointed upward and waving gently like some strange nest- grass blowing in the wind.

For many years I lived on a beaver pond-studded piece of land in the St. Lawrence Valley. It had two different, though small, heronries, and a few herons would wing by each evening. Somehow they sensed I was on the screen porch watching, and they always let out their alarm call, a guttural "gronk" (sometimes translated as fronk or gronk; linguists are still puzzling it over), as they passed. But herons have a broader repertoire of voices. They coo and cluck to each other on the nest, and clack their bills. I still take note of the first heron sighting of the spring, and the last time I see one in the late fall.

Even though great blue herons are big, weapon-wielding birds that surround themselves with water, they still fall prey to eagles, hawks, and great horned owls (which also rate a two-out-of-three name accuracy). Since herons are a top or near-top predator, they are also vulnerable to environmental toxins which get magnified at each level of the food chain.

In the past they were frequently shot for the same reason that road signs get shot – they are big targets that even a fool can hit – but this is a lesser threat now. In spite of everything, the Audubon Society lists their population as "probably stable." I hope that's an accurate report.

Paul Hetzler is a former Cornell Extension educator who lives in Val-des-Monts, Québec. He usually capitalizes the word 'Heron.'

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More beautiful photos by Hans Schmitt

Young tamarack bog in the morning, Marathon County, WI

Peshtigo River, Forest County, WI

Whatcomb River, Whatcomb County, WA

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ANIMALS AREN'T SO DUMB

by Rod Sharka

As many of you know, one of the premier properties owned by The Nature Conservancy and featured in John Bates' book on old-growth *forests (Our Living Ancestors)* is the Guido Rahr Sr. Tenderfoot Forest Reserve here in Vilas County. One of the signed trails that loops around Mirror Lake on the reserve passes through a tamarack/black spruce/cedar swamp. Since the property was acquired in 2005 during the drought years, the trail through the swamp was dry most of the year. However, since the drought ended and lake levels have risen, the trail through the swamp became flooded throughout the year. As such, TNC's deputy director and I decided it was necessary to build a boardwalk over the flooded section so we didn't have to abandon the trail. This was accomplished by Joe, his son Mark, and I in October of 2017. This spring, I acquired a trail-cam and decided to position it overlooking the boardwalk to see how much traffic it got. To my surprise, the boardwalk was used by more critters than the 2-legged variety. Here are just a sampling of subjects that have found the boardwalk to be a convenient way to traverse the swamp without getting their feet wet. Who said animals were dumb.

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