"This institution is an equal opportunity provider."

Partners News

Earth Day Special 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.

WELCOME NEW MEMBER(S)

Robert and Susan Ivancevich

Inside this issue:

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

PIF Board

Joe Hovel
Jim Joyce
Joe Koehler
Charlie Mitchell
Margo Popovich
John Schwarzmann
Rod Sharka
Richard Steffes

Have you paid your PIF dues?

PARTNERS IN FORESTRY COOPERATIVE & NORTHWOODS ALLIANCE INC. CELEBRATE 50 YEARS OF EARTH DAY

JOE'S COMMENTS

I write this shortly after we have sent out the March-April Partners News. A couple of recent actions lead us to keep in contact with you so soon once again. Tia Nelson, long-time friend and daughter of Earth Day founder Gaylord Nelson had sent me a very warm video clip, well done and worthy of everyone to see. We are happy to introduce the video, and share with you what Tia is up to these days. As the former Secretary of the Wisconsin Board of Commissioners of Public Lands, PIF has worked with Tia on a variety of forest conservation opportunities, and we are proud and grateful for these past accomplishments.

And I then reached out to several other contacts and leaders working in the arena of climate action to maintain a broad balance of positive action for you to be aware of. From the Northern Institute of Applied Climate Science at Michigan Tech whose work is helping our collective management goals, to GLIFWC and their persistent work on behalf of natural resources. And Rachel, only a young teen as a founding PIF member, has made serious impacts in actions for conservation as an aquatic ecologist.

Secondly, we recently learned that the UW Center for Cooperatives (UWCC) has pledged to renew and expand their support of the conservation mission these two groups carry out. Their support has been critical to several of our programs. Our educational series, two years running, titled *Appreciate Our Common Lands: a hands-on celebration of forestland conservation*, was inspired by their support. While this series has been extremely beneficial to sustainable forestry, with educational tours and hikes of the Upper Wisconsin River Legacy Forest, Tenderfoot Reserve and Wildcat Falls to name a few, the series has gone much deeper than that. Our end October 2018 meeting featuring conservation icons like Mike Dombeck, Paul DeLong and Dick Steffes exposed the quality of the series and garnered robust enthusiasm.

Given the current physical distancing required for safety and health, and having no idea of the timing and impact this will have on our series going forward, we want to keep in closer communication with you. This way we are assured to fulfill the spirit of our mission and remain true to the help from the UWCC. If we are unable to have well attended events, we even more want you to enjoy the outdoors. Through this concept we also ask for your participation. Save your field notes, mental or written, from your outings. Be it your own wood lot or a visit to the public forests, or a view of the spectacular old growth John Bates directs us to, your thoughts are important to us and to share. If you have questions about the management of your own woodlot, send them to us. Answering your questions with our forester team, via these publications, will benefit us all, and just may need to substitute for physical meetings for some time. We want to serve your forestry interests and benefit the health of our collective environment, so challenge our experts like Hans, John, Paul, Ron and more.

Being involved for mutual benefit is the COOP spirit, share your experiences and ask questions. We are a cooperative, a community, be an active part of it.

An ongoing thank you to the University of Wisconsin Center for Cooperatives for their continued support of the forestry & conservation education, land owner outreach, value added research and all the programs with which we try to positively affect the greater good.

Partners in Forestry is an eighteen year old cooperative with the mission of sustainable forestry and conserving working forest lands. Northwoods Alliance Inc. is a thirty five year old conservation group working for environmental justice, through education and local and regional actions. Teaming up this momentum and partnering with the UWCC and numerous other partners wherever practical has led to sound and tangible results we can all be proud of.

Recognizing some of our partners: Complimenting the UWCC, the USFS State and Private Forestry supplies us numerous publications for your benefit. The Michigan and Wisconsin Departments of Natural Resources have been steadfast partners for years on a variety of things.

The wide and diverse partnership with the Pilgrim River Watershed has been mentioned many times, and we are very grateful to those folks.

For current and ongoing projects such as creation of a **Wildcat Falls Community Forest** www.northwoodalliance.org the groups we are poised to recognize is diverse and growing; The Upper Peninsula Environmental Coalition, the Friends of Sylvania Wilderness, the James E Dutton Foundation, the John C Bock Foundation, the Johnson Foundation at Wingspread through Mike Dombeck, the Community Foundation of the Upper Peninsula, the Weyerhaeuser Community Fund and Copper Country Chapter of Trout Unlimited have all stepped up, along with dozens of you. To you, we are very grateful, a Wildcat Falls Community Forest will be a testimony to community involvement. If you are able to contribute to this great community project, it is much appreciated.

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Climate Change and Pests….a double threat!

According to Michigan State University researchers, and published in the journal *Science Daily*, each one degree Celsius increase in temperature will lead to a 10%-25% loss in crop yields. According to the study, the temperature increase will stress orchard and food crop plants, but more so also increases the metabolism of the pests causing them to eat more. And even more pronounced, areas before too cold for the pests is opened up to further pest destruction. The point of the research is to determine how well food plants can defend themselves from two or more stresses simultaneously.

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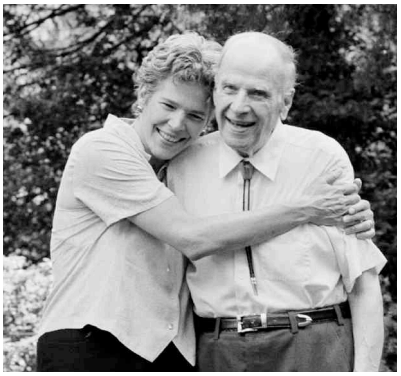
Tia Nelson, a lifetime of conservation and service.

Tia sent us a great feature to share, inspiring the idea for this special issue of Partners News, titled Earth Day 2020, a 50 year effort. John Schwarzmann worked under Tia when she was Secretary of the BCPL. We have long collaborated with these folks on forestry and conservation, and John has also served as PIF VP. We are excited to share Tia's film and highlight her fathers legacy with Earth Day.

The link to the movie is above the press release. (the links for the movie in the press release have been deleted)

Tia Nelson



Tia Nelson and her father, Gaylord Nelson

Dear John and Joe and team, I so much enjoyed our past work together in protecting Northwoods forests and have such fond memories of our successes. As you know, these days I remain active in conservation at the Outrider Foundation, and I want to share this special Earth Day tribute with you. I think your Partners in Forestry and Northwoods Alliance conservation network would enjoy this, as you folks have a very informative newsletter, great websites and certainly connect to a lot of good people. Keep up the good work.
Hugs, Tia

Here's the link to the film: https://outrider.org/features/earth-day-film/

When the Earth Moves Kicks Off Earth Day 2020 Online Events

Film reclaims the original vision of Earth Day and sends an urgent bipartisan message during a time of national crisis

Contact: Fred Frommer, media@outrider.org

MADISON, WI, March 23, 2020 – The timely short film *When the Earth Moves* is set to launch on April 15th on YouTube and at www.outrider.org, marking the commencement of the nation's week-long online celebration of the 50th anniversary of Earth Day. The film will be screened at virtual events and festivals, including the Smithsonian Earth Optimism Summit and the EarthX Film Festival. *When the Earth Moves* reclaims the authentic story and original vision of Earth Day as a bipartisan and socially just environmental movement and highlights the need for people across generations and on both sides of the political aisle to play an active part. It also calls attention to the urgent need for Americans to unite around a common goal and purpose.

The film features archival footage of the original 1970 Earth Day and its founder, Wisconsin U.S. Senator **Gaylord Nelson**, a Presidential Medal of Freedom recipient; as well as leading voices from the modern Earth Day movement, including Nelson's daughter and Outrider Foundation Managing Director **Tia Nelson**; former South Carolina Congressman and republicEn founder **Bob Inglis**; and youth activist and Sunrise Movement co-founder **Varshini Prakash**.

"I feel especially compelled to tell my father's story at this unique moment in history," says Tia Nelson. "He worked tirelessly his whole life to build an inclusive Earth Day movement, and today, 50 years later, the job is not yet done. It's imperative that we come together as a nation to protect our environment and renew our commitment to building a brighter future for all Americans."

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"*When the Earth Moves* demonstrates that when it comes to environmental issues like climate change, we're literally in this together – all of us, the whole nation and world," says Bob Inglis. "In solving them, we have the opportunity to model a way out of divisiveness, a way out of destruction, a way of respect and love. This is a huge challenge and an incredible calling."

"Building on the momentum generated by the millions of students who took to the streets on Earth Day 1970, we are the climate generation today," says Varshini Prakash. "We are promoting a new kind of environmentalism that is rooted in racial and economic justice, and waking and shaking millions more people to action."

The film is produced by Outrider Foundation, in partnership with Generous Films.

For more information, to access a screener of the film or to find out about covering the screenings, please contact: media@outrider.org

To learn more about the project, visit: https://outrider.org/earthday

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PIF reached out to Climate Specialist Stephan Handler for his suggestions on how land owners can view their own forest. Stephan resides near Houghton Michigan, and is a trail volunteer on the Pilgrim Forest, thus we have more than one thing to thank him for. The Pilgrim trails are another great Earth Week hike, depending on snow conditions!

From Stephan Handler: I'm part of the Wisconsin Initiative on Climate Change Impacts Forestry Working Group (https://www.wicci.wisc.edu/forestry-working-group.php), and we just published a new bulletin that might be interesting for your members. It's called a Private Landowner Climate Risk Scorecard, and it's designed to help people think about the property-level details that might influence how they choose to adapt to climate change. Here's a link to the PDF: https://www.wicci.wisc.edu/uploads/landowner-climate-scorecard-and-actions.pdf

A new booklet helps landowners consider climate risks

Our climate is changing, leading to rising temperatures and shifts in seasonal precipitation patterns. Many of you have experienced this change over the course of your lifetimes; winters have become milder and less predictable, and extreme rain events have become more common. All of us who value forests for wildlife habitat, clean water, sustainable forest products, and outdoor recreation will have to consider how to cope with change and adapt.

Fortunately, there are many common sense, practical things you can do right now to help forests cope with change. The University of Wisconsin-Madison Extension and Northern Institute of Applied Climate Science (NIACS) recently released "*Protect Your Woods for Tomorrow*," a booklet to help landowners and foresters alike.

How does it work?

In this booklet, you'll find four separate Woods Health Scorecards that are designed to help identify factors that might indicate an increased risk from climate change. Each scorecard addresses a separate topic related to overall woodland health - Forest Diversity and Composition, Forest

Structure, Tree Regeneration, and other Site-Level Risks. Separate questions and prompts will help you decide whether you fall in the higher risk, medium risk, or lower risk category.

For example, the Forest Structure scorecard (see example) asks you to consider Structural Diversity, Standing Dead Trees, Down Dead Wood, as well as Tree Crowns and Spacing. For Tree Crowns and Spacing, “higher risk” means that trees are inadequately stocked and too widely spaced, or trees are too crowded and competing for growing space. This would be a concern even if you weren’t thinking about climate change, but improper spacing can also intensify climate change impacts. An overcrowded stand would be at even greater risk of drought stress because too many trees will be competing for too little water.

Each Scorecard is accompanied by a companion set of Woods Health Actions. These actions are organized to correspond with items on the Scorecard. For example, if you gave your woods a “higher risk” rating for Tree Crowns and Spacing, the suggested action is to thin stands by identifying crop trees, creating room for desirable species of good form to grow. This is already common “normal” forestry, not a wild and crazy idea! But thinning and tending your woods might become even more important when considering how to reduce climate change risks.

What do I do with it?

Take this booklet out for a walk in the woods and try to give a rating for each question on the four scorecards. If you’re on a property with several forest types, you can give separate answers for each forest type.

Pay special attention to categories where your answers fall in the Higher Risk category. Review the Action Cards, and consider the Strategies that correspond with any of your Higher Risk answers. Do any of those Strategies seem like reasonable things to try?

Who created it?

This booklet was a team effort! The American Forest Foundation, Cornell Cooperative Extension, New England Forestry Foundation, NIACS, and The Nature Conservancy came up with the concept for forests in New York and New England. Kris Tiles from UW-Madison Extension modified it to work for woodlands in Wisconsin.

Where can I learn more?

- The Wisconsin Initiative on Climate Change Impacts (WICCI) is a one-stop-shop for useful information, including the Forestry Working Group page. www.wicci.wisc.edu
- The Climate Change Response Framework has resources on climate change impacts for forests, as well as a huge library of real-world examples of forest adaptation. www.forestadaptation.org

Author:

- Stephen Handler is a Climate Change Specialist with the USDA Forest Service Northern Research Station and NIACS. stephen.handler@usda.gov

FOREST STRUCTURE

WOODS HEALTH SCORECARD

When it comes to forest structure, more complexity is often better. Forest structure includes having a diversity of tree sizes and species, varying the number of trees per acre and ensuring the presence of dead wood — both standing and down. These conditions make your woods more likely to recover quickly from disturbance, with the added benefit of quality wildlife habitat.

STRUCTURAL DIVERSITY

Higher Risk ☐ ☐ ☐ **Lower Risk**

The forest contains trees that are primarily a single age or size, creating a simple canopy (see illustration below).

The forest includes trees of different sizes as well as multiple vertical layers (overstory, understory, etc.).

STANDING DEAD TREES

Higher Risk ☐ ☐ ☐ **Lower Risk**

No or few large standing dead trees are present.

There are noticeable numbers of standing dead trees (several per acre), and some are large.

DOWN DEAD WOOD

Higher Risk ☐ ☐ ☐ **Lower Risk**

Woody material, especially large pieces, is rare or absent from the forest floor.

There are noticeable amounts of dead wood, especially large pieces, on the forest floor.

TREE CROWNS AND SPACING

Higher Risk ☐ ☐ ☐ **Lower Risk**

Trees are too crowded and competing for growing space, or less commonly, trees are inadequately stocked and too widely spaced.

Trees have adequate growing space that enables them to have large, healthy crowns.

Example of the Forest Structure Scorecard in the *Protect Your Woods for Tomorrow* booklet.

Wisconsin Green Fire

We reached out to stalwart PIF volunteer Ron Eckstein with Wisconsin Green Fire and Wisconsin Wildlife Society. He supplied us numerous documents on forest related climate change. We have these at www.partnersinforestry.com -see the new section on climate issues under forest management heading. Please use and share things for the website, where you can keep up to date on many related issues. We also thank Ron for his leadership in the County Forest planning process. He has been deeply involved in drafting comments and conducting thorough research.

Looking further!

Ancient Trees do their part to combat climate change and protect biodiversity

Scientists have shown to be true what JRR Tolkien only imagined in the Lord of the Rings: giant, slow-reproducing trees play an outsized role in the growth and health of old forests. In the 1930s, the writer gave his towering trees the name Ents. Today, a paper in the journal Science says these "long-lived pioneers" contribute more than previously believed to carbon sequestration and biomass increase.

The authors said their study highlights the importance of forest protection and biodiversity as a strategy to ease global heating. They say it should also encourage climate scientist to shift away from representing all the trees in a forest as essentially the same. "This analysis shows that that is not good enough for tropical forests and provides a way forward," said Caroline Farrior, an assistant professor of integrative biology at the University of Texas at Austin. "We show that the variation in tropical forest species' growth, survival and reproduction is important for predicting forest carbon storage."

Long-lived pioneers – a term that has been around for decades – include species such as mahogany, Brazil nut trees and *Ceiba pentandra*, which are visible far above the rest of the canopy because they grow fast (at up to twice the speed of plants lower in the canopy) for hundreds of years. Researchers believe this is the result of a trade-off between stature and reproduction: they are able to put more energy into putting on biomass than into producing offspring.

The study is based on more than 30 years of data collected from old growth and secondary rainforest on an island in the middle of the Panama Canal. The scientists grouped the 282 different species of trees into five categories determined by growth, reproduction and longevity. This showed the relative roles of "fast" species that grow and die quickly, "slow" species that grow slowly and reach an old age, "infertile giants" that live long and reproduce over a long time, and "fertile dwarfs" and small shrubs and low treelets that grow slowly, die young, but produce a large number of offspring.

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

We reached out to several individuals and groups who have been leaders in climate action. These folks have an impressive history of great work in the natural resource arena. PIF is pleased to present the following story from Great Lakes Indian Fish and Wildlife Commission (GLIFWC) Climate Change Program Staff. This is the type of pro-active effort needed to mitigate damage to our forests. You can learn more at www.glifwc.org/ClimateChange

A bumper crop of miinikaanan on wiigwaasaatig and baapaagimaak

By: GLIFWC Climate Change Program Staff

Last year, for the first time since the Great Lakes Indian Fish & Wildlife Commission's (GLIFWC) Climate Change Program began in 2015, baapaagimaak (black ash) in northern Wisconsin produced a bumper crop of miinikaanan (seeds). Baapaagimaak is known to produce a large amount of miinikaanan every five to eight (or more) years. For the past four years, staff have found a handful of baapaagimaakoog scattered throughout the area with a small amount of miinikaanan only visible with binoculars and a trained eye. Last year, the long narrow miinikaanan with papery wings formed large clusters easily visible on baapaagimaakoog along roadsides even when driving by at 55 miles an hour.

The emerald ash borer, a non-local insect from Asia is a major threat to this culturally important being. Climate change is also negatively affecting baapaagimaak; drying conditions are expected to alter the high moisture areas in which baapaagimaak thrives with its shallow root systems.

In response to concerns from tribal members, and in an effort to help ensure baapaagimaak is available to future generations, GLIFWC climate change staff started a seed bank pilot project, first collecting miinikaanan in 2017. Last year GLIFWC climate change staff were busy collecting miinikaanan on the Chequamegon Nicolet National Forest from baapaagimaakoog as well as from wiigwaasaatigoog (paper birch), another culturally important plant being also threatened by climate change.

The window of time for collecting miinikaanan is small – typically two to three weeks at most. Baapaagimaak miinikaanan were collected in mid-September, as soon as the wings of the miinikaanan faded from green to yellow or brown. Before staff collected miinikaanan from any tree they offered asemaa (tobacco) and asked the tree for permission to harvest. Offering asemaa and asking permission to harvest exemplifies the Anishinaabe values of respect and reciprocity and recognizes the trees as fellow beings. While some collectors cut down entire trees to collect miinikaanan or shoot shotguns to knock them down from high branches, our goal is to collect miinikaanan with as little impact to the trees as possible. Since baapaagimaak is typically not very tall, staff used a pole pruner with multiple segments to snip a few branches and hand-pick the miinikaanan.

Paper birch miinikaanan were collected in early to mid-August when the catkins (the structures that store the miinikaanan) just started to turn brown. These were collected using an arborist's slingshot, which is necessary as wiigwaasaatig produces miinikaanan in the upper reaches of the canopy – too tall for a pole pruner. The slingshot is used to send a rope up over the branch, then a "pocket chainsaw" – a small narrow saw – is attached to the rope and pulled up and over the branch. With a quick back-and-forth motion, the branch is cut and dropped onto the ground and catkins are picked off the branches. Wiigwaasaatig typically produce a large crop of miinikaanan every other year.

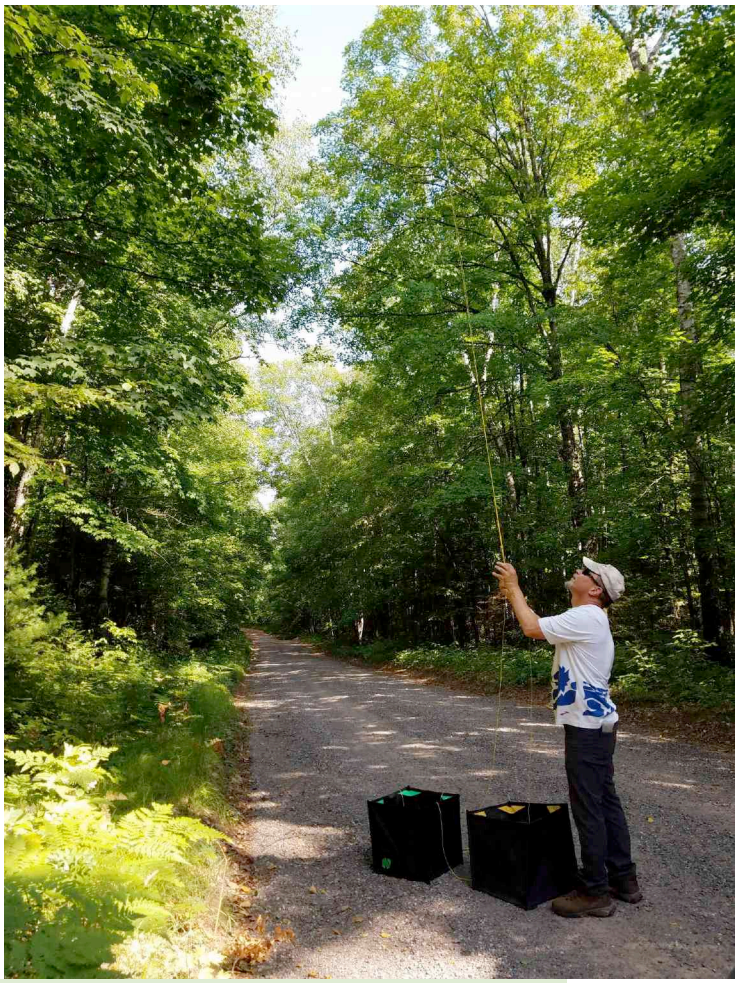
Once the miinikaanan are collected they need to be cleaned. For baapaagimaak this means sorting through the miinikaanan to remove any with insect holes, spider webs, mold, or anything else that might add moisture to the sample. For wiigwaasaatig the process is a bit more ambitious. Catkins are gently

broken apart and screened through a series of soil sieves until just the miinikaanan remain (removing the stem and the bracts). The wings of the miinikaanan are rubbed off and they are run through a seed blower to remove empty miinikaanan (miinikaanan without any genetic material inside) which can make up a large proportion of a sample.

Once cleaned, the miinikaanan are packaged and shipped to the National Center for Genetic Resources Preservation in Fort Collins, Colorado where they are stored indefinitely in a cold storage facility. They are stored at -18°C with low humidity, and in those conditions the miinikaanan can stay viable for decades. GLIFWC has a Material Transfer Agreement with the Center which ensures that GLIFWC and our member tribes retain ownership of the miinikaanan and must be contacted for any withdrawal requests.

Moving forward, GLIFWC is looking for partners to assist in the collection and storage of miinikaanan from baapaagimaak, wiigwaasaatig and other culturally important plant beings. If your tribe or organization currently collects miinikaanan, or would like resources on starting a miinikaanan storage program, please contact the GLIFWC Climate Change Program through our webpage below.

The Great Lakes Indian Fish and Wildlife Commission was formed in 1984 and is an intertribal agency providing natural resource management expertise, conservation enforcement, legal and policy analysis and public information services in support of its eleven Anishinaabe/Ojibwe member tribes rights to hunt, fish and gather off reservation in Wisconsin, Minnesota and Michigan, on lands and waters that were ceded by the tribes to the United States in the treaties of 1836, 1837, 1842 and 1854. The GLIFWC Climate Change Program was created in 2015 to explore the impact of climate change on treaty resources and Anishinaabe/Ojibwe culture. Climate Change Program projects include a Ceded Territory Climate Change Vulnerability Assessment, phenology study, inland and Great Lakes fisheries projects, this seed bank pilot project and *Dibaginjigaadeg Anishinaabe Ezhitwaad: A Tribal Climate Adaptation Menu*. For more information on the GLIFWC Climate Change Program or for contact information please visit www.glifwc.org/ClimateChange.



This article originally appeared in the Winter 2019 edition of GLIFWC's Mazina'igan.

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PROFILE OF A YOUNG CONSERVATION LEADER

By Rod Sharka

In honor of the 50th anniversary of the first Earth Day occurring on April 22, 1970, I thought it fitting in this special issue of the PIF News to recognize someone who is making tangible efforts in countering the impacts of climate change. The person I chose to profile is none other than our own Joe and Mary Hovel's daughter Rachel who, as a founding PIF member in her early teens, has become an internationally respected leader in conservation and is making significant contributions to our understanding of the impacts of climate change as well as addressing ways to cope. Although not directly associated with forestry, I think PIF News readers recognize the larger environmental picture and understand the connections between healthy lakes and rivers, and their dependence on healthy terrestrial environments surrounding them. The following profile was compiled from interviews with Joe and Mary, and from information obtained from Rachel's web page and published articles about her work.

Rachel Hovel

How a young teen as a founding PIF member became a recognized leader in conservation and tangible action countering climate change.

Rachel Hovel with charming spotted salamander

Almost 20 years ago, as a young teen, Rachel Hovel provided valuable input as she would accompany her dad to the meetings where a steering committee worked on forming Partners in Forestry Cooperative. Growing up in the woods and near water in Conover, Wisconsin, she possessed a keen interest in conservation, forestry, wildlife and especially the life in water from a young age. Schooled at home from grade school and through high school, according to her mom, Rachel would trek out in the woods, or to the lake or creek as soon as her days schoolwork was under control.

After finishing her high school requirements, she headed to Northern Michigan University (NMU) in 2005 with a deep interest in further learning. By 2006 she earned the Honors Program Student Leader award. As early as the summer of 2006 she was off to Alaska studying the Pacific Salmon. In 2007 after earning the NOAA Hollings Scholarship, the groundwork was set for numerous other awards, including a National Science Foundation Research Fellowship. In 2009 Rachel earned the Outstanding Graduating Senior award in the NMU Honor's program, graduating Summa Cum Laude in Aquatic Ecology.

Spending several summers in Alaska on salmon research made Rachel's transition to pursue her graduate studies, in the School of Aquatic and Fishery Science at the University of Washington, a sound fit. At the U of Washington, Seattle, she continued her salmon research in pursuit of her PhD. She had a very diverse education experience with summer research time in Alaska as well as the formal classroom and lab course work during the regular school year. Her tasks included teaching Creative Writing to graduate students to help these young ecologists be better able to communicate their science finding. She was recognized by the Dean's Excellence in Teaching award.

In 2015 Rachel was awarded a PhD in aquatic ecology, and her Dissertation was titled "Species diversity and environmental variability: patterns and processes of lacustrine fish community responses in a variable world".

While in the Seattle area, she was very active in outdoor activities, aside from her field work as a fishery scientist. Climbing the areas peaks as well as off-road bicycle racing became passions for her. You can read a feature about her in "spokeswomen racing":
https://spokeswomenracing.com/2017/07/11/rider-spotlight-rachel-hovel/

Adventure and physical challenge were always a draw to Rachel; her dad reminisced about her early interest in whitewater paddling; even prior to becoming a teenager. In his words, “the student became the teacher overnight”, as she excelled and outclassed his modest paddling skills almost immediately.

In 2017 Rachel was recruited to become a professor of ecology at the University of Maine. Her post is primarily as assistant professor of Biology and Ecology on the Farmington campus, but her influence spreads to the Orno Campus where she is on the Graduate Faculty in the Ecology and Environmental Science program. She teaches Aquatic Ecology, Evolutionary Biology and a class she created titled Global Change, as well as accepting numerous posts as guest lecturer and presenter.

She also leads in-depth research from the mountain lakes in Maine as well as in the Northwest Territories of Canada. In the Arctic her team works with the Gwich’in First Nation community in monitoring and mitigating the effects of climate change on one of their primary food sources, the Whitefish. According to published documents, the Arctic is adversely affected disproportionally to most of the world. ‘The dynamic of climate change is being acutely experienced in the Arctic, with direct implications for ecosystems, human communities and the string of connections in the social-ecological system’.

Richard Stewart, Abe Stewart, and Rachel Hovel sampling whitefish on the Peel River in the Arctic.

Rachel has had numerous documents published in peer review journals, has garnered numerous research grants and affected numerous lives by guiding, leading and teaching students and peers. From her participation in the 2018 Bio-Blitz at Wildcat Falls, to her role in commenting a rebuttal to the EIS on the mis-guided Peeble Mine in Alaska, to her research on the northern Appalachian Mountain lakes and way up into the Arctic Circle, we salute Rachel’s commitment to conservation and are proud to have her on our team. Her parents, Joe and Mary, have enormous reason to be proud of their exceptional daughter.

Below are provided some links, where you can follow some of the incredible accomplishments this early PIF teenager has achieved.

Links:
Maine Lakes
https://www.dropbox.com/s/rianltzngte183w/MATMagazine.jpeg?dl=0

https://www.dropbox.com/s/jgan0sy873u0wjm/Environmental%20Monitor%20%7C%20Monitoring%20Wilson%20Lake%20All%20Year%20Long%20from%20Underwater.pdf?dl=0

Pacific Salmon
https://www.tiredearth.com/news/climate-change-prompts-alaska-fish-change-breeding-behavior

Arctic
https://whitefishresearch.weebly.com/uploads/7/1/5/2/71522941/lower_mackenzie_whitefish_research_update_2019_small.pdf

https://www.whitefishresearch.weebly.com/uploads/7/1/5/2/71522941/whitefishproject_plainlanguagesummary_2018.pdf

https://www.cbc.ca/news/canada/north/mackenzie-delta-fish-camp-1.4758941

https://www.cbc.ca/news/canada/north/whitefish-peel-river-fort-mcpherson-researchers-1.4269158

http://sdw.enr.gov.nt.ca/nwtdp_upload/2018-19%20-%20REPORT%20-%20SFU%20(Hodgson)%20-%20CIMP195%20-%20Lower%20Mackenzie%20Whitefish%20Research%20Update_Final.pdf

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BIRD SONG OPERA

And now something completely different...a great distraction from the problems of the world...compliments of The Nature Conservancy. Enjoy.
http://volkerpannes.de/portfolio/bird-song-opera/?sf120503511=1&fbclid=IwAR0WEnVgnLYgnKd017NXqOUda60r72WnTMdw9JWHYyjjxUWjIet_EyZ3bTI

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Got Nature? You need nature on Earth Day and everyday!

By Paul Hetzler, ISA Certified Arborist

Earth Day is a time when we try and pay homage to the planet which sustains us. Many of us will engage in hikes, bike rides, or help clean up a stretch of beach or roadside. We all know it feels good to be immersed in nature. Finally, science has caught up to common sense, and there is now ample evidence that trees, grass and waterways not only soothe us, but are as essential to health as good food and clean water.

Animals deprived of nature habitat become violent. They begin to exhibit behaviors that are uncharacteristic to their species; social bonds break down and illness increases. This is true for all animals, even unusual ones.

OK, guess this animal: It's in the phylum Chordata, meaning it has a backbone, which rules out bugs and crawlies, not a big clue. Its class is Mammalia; females of this species produce milk to nurse their young. It's in the order Primate, which narrows it down a lot. Its family is Hominidae, its genus is Homo, and Sapien is the species.

Trick question (sorry); it's us. It's true that humans are set apart from other species in very significant ways, but we're still animals. As such, we're hard-wired to be immersed in the natural world. Dr. Frances Kuo from the University of Illinois at Champaign-Urbana says humans living in landscapes that lack trees or other natural features undergo patterns of social, psychological and physical breakdown that are strikingly similar to those observed in other animals that have been deprived of their natural habitat.

Among other findings, Dr. Kuo's research demonstrates that elderly adults live longer if their homes are near a park or other green space, regardless of their social or economic status, and that college students do better on cognitive tests when their dorm windows view natural settings.

Her research also shows that children with ADHD have fewer symptoms after outdoor activities in lush environments.

Worldwide, people are drawn to nature, even if it's only a picture. In particular, we find the savannah, where we first became human 200,000 years ago, very appealing. We gravitate toward similar landscapes such as parks, and we model our yards in the same way. Through our DNA, as well as other genetic material called epigenes, we're inextricably linked to the natural world.

This hard-wiring has been demonstrated by real-time brain imaging. The types of patterns one encounters in nature, whether in pine cones, nautilus shells, diatoms, snowflakes, tree branches, or sand dunes, are called fractal patterns. Bird song and the sound of waves breaking are similar patterns. Fractal patterns, it turns out, profoundly affect our brain waves in positive ways.

A February 2014 article in the guardian.com outlines how hospital patients in rooms with tree views have shorter hospital stays and less need for pain medication compared to patients without such natural vistas. It goes on to say that after just an hour in a natural setting, memory performance and attention span improves 20%.

Researchers at the University of Rochester report that exposure to the natural world leads people to nurture close relationships, value community more, and to be more generous.

As an arborist, I've long cited research showing that planting trees reduces crime substantially. Trees also increase property values, and incidentally, get people to spend more money. Whether it's plants at the mall or trees in the downtown shopping districts, people spend more greenbacks in green spaces.

Not only do we respond in to nature, we haven't lost our ability to engage with it. A recent study proved that humans can track pretty well by scent. Those with sight impairments have been using echolocation for some years now, but another recent finding is that we can echolocate nearly as well as bats.

When asked if humans need nature, Dr. Kuo replied "As a scientist I can't tell you. I'm not ready to say that, but as a mother who knows the scientific literature, I would say, yes." Whether we need it or just want it, we're at our best in nature, so take advantage of its many benefits.

Paul's book of nature essays, **Shady Characters: Plant Vampires, Caterpillar Soup, Leprechaun Trees and Other Hilarities of the Natural World (The Lexingford Series on the Natural World)** is at https://www.amazon.com/dp/099860609X

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What better way to celebrate Earth Week, than a good outing in the woods? With the help of John Bates and Our Living Ancestors we have a great suggestion in Vilas County. Get out and enjoy your land, or visit a public forest. Share your experience with us.

Plum Lake Hemlock Forest SNA

Location and Directions: Vilas County within Northern Highland-American Legion State Forest, T41N-R8E, Sections 16, 21, 22, 27, 28.

From the junction of State Highway 155 and County Highway N in Sayner, go west on County N for 2.1 miles, then north 4.2 miles on Razorback Road, then east 1 mile on Rearing Pond Road, then south at the T intersection 0.5 mile to the western boundary. Park along the road and walk southeast into the site.

To access the eastern portion of the site, from the junction of 155 and N in Sayner, go east and north on N for 4.8 miles, then southwest on Tramper's Trail (Hook Lake Road) 0.8 miles to a parking area. This one-lane dirt road no longer has a road sign – it is just before (south of) the entrance to the East Star Lake campground.

Size: 747 acres with approximately 240 acres of old-growth hemlock-hardwoods

Forest Type: Hemlock-hardwoods

Age of the oldest-known trees: 252 yrs.-old (Tyrrell, 1991)

July 1978 Plum Lake windfall on Trampers Trail

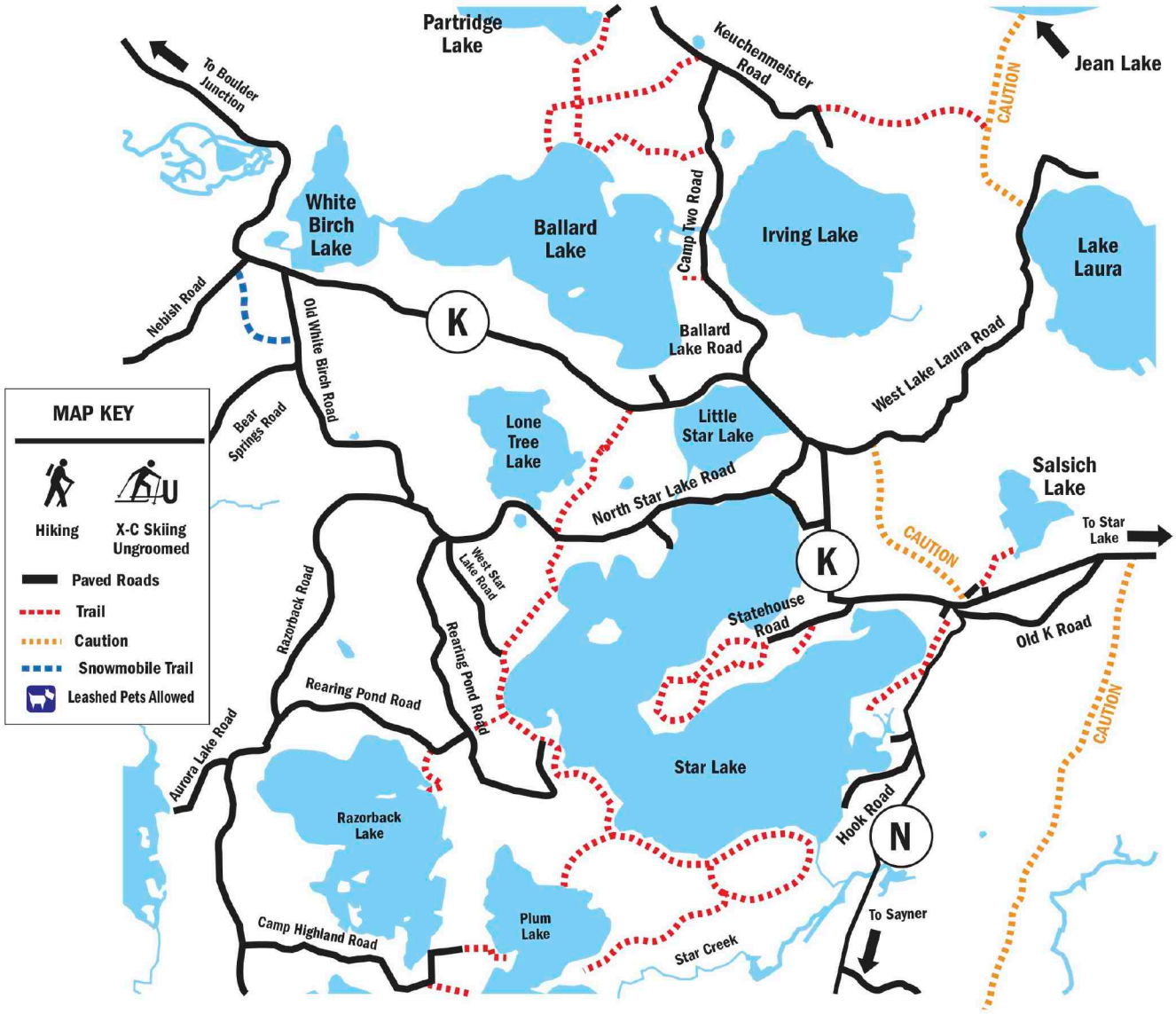
Status: Owned by the WDNR and established as a State Natural Area in 1953. Plum Lake Hemlock Forest stretches between Star Lake and Plum Lake and comprises one of the best hemlock-hardwoods stands remaining in Wisconsin. The stand is thought to primarily have originated from a fire that occurred around 1810, though there are hemlocks significantly older than this within the stand. The absence of nearly all white pine, except for some along the shoreline of Star Lake, and the presence of scattered stumps suggests that a selective cut of the super-canopy white pine occurred in the 1880's.

The area has a history of overbrowsing by wintering deer as evidenced by the sparse reproduction of hemlock. Snags and course woody debris litter the forest floor. A trail leads from the parking area at the eastern edge of the site to the end of a peninsula jutting into Plum Lake. The last quarter mile of this path shows the evidence of a number of cabins that once occupied the area and were built in the early part of the 20th century by the DNR to rent. You may note some introduced species near the trail like foxgloves that were likely planted around the former cabins.

This trail is part of a series of locally maintained “Tramper Trails” that provide access to the SNA and well beyond. Look for the “Tramper Trail” insignia along the trails – the trails are not signposted otherwise.

Across Star Lake was the site of the Star Lake saw mill, which was built in 1895 on the peninsula jutting into the lake. It’s estimated that nearly 2 billion board feet of pine timber was logged from lands around Star Lake. At any one time, the mill had 30 million board feet of lumber piled in its yards. The mill sawed its last log in 1906, the planning mill shut down in 1908, and forest fires charred the area in 1903, 1908, and 1910. In less than 15 years, Star Lake went from a boom town to a cutover/burned-over forest and ghost town.

In 1911, the first state tree nursery was established at nearby Trout Lake, also on logged and burned-over land. Two years later, some of those seedlings were transplanted onto the peninsula of land extending westward out into Star Lake, the first forest plantation from locally grown stock in Wisconsin. An interpretive state nature trail takes you through this now century-old stand, but is not within the SNA.



Trampers Trails Map

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Bits and Pieces

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.

Two Thousand Year Old Seeds

Ancient seeds have sprouted into date and palm trees, and they were named by the scientists; Adam, Jonah, Uriel, Boaz, Judith and Hannah. According to radiocarbon dating the seeds which are now growing these young trees are 2,000 years old. The experiment surprised even the team leader. Sarah Sallon is a physician at the Hadassah Medical Center and lead a group from Hebrew University in Jerusalem trying to renew ancient seeds from archeological sites.

Collecting seeds of all stages of disintegration, the team settled on 32 seeds that remained in 'beautiful condition'. They then soaked the seeds in water, added fertilizer and were excited at the result. The project began in 2005 when they sprouted the first ancient seed from the fortress Masada, and named the palm-date tree Methuselah.

Glyphosate still in the news!

It seems the controversy never ends with Glyphosate. A growing swell of support by governments world wide are recognizing the threat of the herbicide to human health. The African country Togo has joined a list of 20 countries banning glyphosate. In the US, Key West joined the University of Miami, the U of California and city of Los Angeles in banning glyphosate. Juries have awarded large sums in agreeing that the chemical has caused cancer. The World Health Organization is on record classifying glyphosate as probable carcinogen to humans.

However; the EPA (Environmental Protection Agency) has determined that glyphosate is not a carcinogen, and poses no threat to human health when used according to label directions. This pro-business ruling is a bolster to Bayer-Monsanto as they prepare for thousands of more lawsuits arising from Round Up users who had cancers. We determine, the controversy shall continue. If you use it, be safe!