"This institution is an equal opportunity provider."

Partners News

November/December 2018

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 TO NEW MEMBER(S)

Randy and Debbie Augustinak
Ardis Berghoff
Al Eschenbauch
Rick Plonsky
Joan Sayre

Inside this issue:

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PIF Board

Have you paid your PIF dues?

JOE'S COMMENTS

November 2018

What a great series of events we have had this year under our title "Appreciate Our Common Lands; A Hands on Celebration of the Benefits of Forest Land Conservation." And hands on the events have been, from folks collecting data and samples at the Wildcat Falls Bio-Blitz, the time in the bog with Quita at the Upper Wisconsin River, paddling across Palmer and Tenderfoot Lakes to hike in the magnificent old growth on the TNC Tenderfoot Reserve, a rugged fall color hike to Wildcat Falls and what a day we had with over 50 participants on November 3rd. Along with the warm and special day at the Pilgrim ceremony in July, these have been a constant reminder of the value our collective efforts for conservation can have.

Not so warm however, down in the Town of Springfield where I had talked this past spring of an unruly neighbor named Fred, things just do not improve too fast. In June at the settlement hearing, the court ruled in our favor, assessing Fred damages, however I felt also it went too easy on him. After the March trial where Summary Judgment went in our favor Fred did not stop his belligerent actions, he continued to block the roadway, pulled the survey stakes after we paid to have the easement surveyed as directed by the court and in May he went so far as to plow up the access road that had just been surveyed and affirmed by the court. At the June hearing Fred even wore a T shirt with profanity, which apparently skipped the judge's eye. Warned again by the judge at departure in June, Fred did not stop. He harassed and obstructed the path of our assigns, and in October went so far as to maliciously set a booby trap on the roadway. Supposedly the Sheriff is now looking for him as is a court server, as we are scheduled back in court on December 7th with our motion for Contempt. We are a society of laws, but with out respect for those laws what have we?

Just a couple days after the recent election Mary and I headed over to Winter, for the open house our CPA, Partners News contributor, forester friend Geary Searfoss hosted with the energetic young couple who is taking over his CPA business. In the morning we had a tour of Geary's tree farm and I was enthralled by his mushroom growing operation. I am mentioning this with the hope he writes about this for us all to read. By the way, when any of you get near Winter, check out and support the Winter Coop.

On the way back we stopped along the Flambeau River in the State Forest and took a short hike. Just experiencing once again the diversity of the natural resources in this state, I was reminded of the importance of protecting and sustaining these quality features. Many conservationists are happy to see a new administration stepping into leading our state. Lots of outdoor interests were not happy with the lack of respect our important resources have endured in recent years. Drastic cuts to Stewardship and the sale of state owned land topped that list. Let us work and hope for the best going forward.

If you have year end gifting in your sights this year, please consider a donation to Northwoods Alliance to help make the Community Forest at Wildcat Falls a reality.

And please do continue to contact your federal representatives concerning the reauthorization of LWCF, until such time as this critical program is permanently set in stone.

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Photo: CS Mason

Luke and Kathie White,
PIF Annual Meeting, November 3, 2018

PIF ANNUAL MEETING REPORT

CS MASON AND JOE HOVEL

At least 50 people from 8 up to 89 years old participated in the largest gathering of the year in our series "Appreciate Our Common Lands: A Hands-on Celebration of the Benefits of Forestland Conservation" on Saturday, November 3, 2018 in Boulder Junction at the Big Bear Hideaway. Partners in Forestry and the Northwoods Alliance hosted this event with support from the UW Center for Cooperatives.

The morning session began with hot coffee and tea, several kinds of muffins and fresh fruit to get everyone ready to head out into the woods. In the heart of the Northern Highland American Legion State Forest (NHAL), retired DNR wildlife biologist Ron Eckstein, PIF VP John Schwarzmann, forester-ranger Paul Stearns, and DNR forest health specialist Linda Williams led fascinating, informative discussions. The first discussion given by Linda was on the threat of Oak Wilt at an active oak wilt site in the NHAL. She described oak wilt symptoms and control measures, and answered many questions from the engaged attendees. The hands-on demonstration site gave property owners a very visual impact of oak wilt and its threat to healthy oak forests. Linda explained the biology and spread of Oak Wilt along with prevention, sampling and management strategies. Property owners can implement either a passive strategy which involves allowing the disease to progress which results in dead trees and open spaces which provide valuable feeding and nesting sites for wildlife; or an active management strategy involves combating oak wilt with a two-pronged approach to contain the disease by install a root graft barrier and removing and properly using trees inside a barrier. The UW Extension has information available to help forest owners on managing Oak Wilt, and members have received a USFS handout on oak wilt as well. Ron Eckstein spoke about the structure and composition of forests and tree species diversity. When thinning a forest, it is important to leave aspen and snags for wildlife. Sixty-one kinds of animals depend on snags. Deer browse continues to be a problem for forest regeneration and they love young birch and aspen trees.

About a mile down the road was the 2016 demonstration site of a controlled burn of 32 acres. Monitoring the progress of regrowth and reproduction John Schwarzmann and Paul Stearns explained the process and the results they are seeing. They explained the structure and composition of healthy forests and the need for tree species diversity--healthy young forests equals healthy wildlife. Oak trees are very important to wildlife and

Ron Eckstein

John Schwarzmann

Paul Stearns

Linda Williams

the problem with over browsing by deer and competition from other trees makes forest management challenging. For oak forests to do best they need full sun. To do our best we need to invest and keep oaks in the system. It takes time, money, and effort but “we’ll stick with it -- we’ll get there”.


Heather Kaarakka

Following the field trips in the NHAL, everyone headed back to the Hideaway and enjoyed a hearty buffet style lunch provided by Mary Hovel, Jean Joyce and a few other volunteers of delicious home-made soups, salads, fruits, veggies, cheese and more, as well as an array of fabulous desserts. Following lunch and wonderful camaraderie and conversation, we began our afternoon session with a presentation on our native bats of Wisconsin and the UP.

Heather Kaarakka, WDNR wildlife biologist, presented a very informative power point program on current bat research. She highlighted the different species native to Wisconsin, their habitats, and threats facing their existence. White-nose syndrome, a deadly fungal growth contracted in hibernation caves, has killed millions of bats across the United States and Canada. She shared current research in combating the disease and also helpful suggestions for homeowners to help bats by providing bat houses on their properties. Wind energy has caused the death of many bats and needs to be addressed to prevent further deaths. Bats reportedly eat their weight in insects in a day and are our greatest ally against mosquitoes and other biting insects. Other species in other countries are also pollinators. Her presentation invoked numerous questions and a lively discussion about the value of bats.


Photo: Rod Sharka

Dick Steffes Mike Dombeck Paul DeLong

After a short break, the program next moved to a trio of notable conservation experts who have had distinguished careers compiling over a century of conservation experience. A certain synergy existed between Paul Delong, Mike Dombeck and Dick Steffes who were all very comfortable discussing their impressive accomplishments and promoting the numerous benefits of forest land conservation practices, programs and activities. WXPR radio had termed these three as “conservation heavyweights.”

Mike talked about the history of forestry in the USA, as well as management in the national forests. In the 1990’s, Mike served the American people first as head of the Bureau of Land Management and then Chief of the US Forest Service. As a testimony to his career which began as an aquatic ecologist in the Upper Peninsula, Mike proudly held up a pair of bumper stickers from the MDNR “Forest for Fish” program. Mike’s early

career included his activism in protecting rivers during timber harvests. Gaining the eye of his superiors, he soon found himself on the West Coast and then in Washington DC. A notable memory this writer holds of his talk was the informal pie-chart Mike drew on a paper plate describing the federal budget. Shocking to me was the tiny portion dedicated to outdoor and conservation programs, most of them pre-funded by sources other than tax payer dollars. As you have learned in these pages in the past, for example, LWCF is a portion of off shore oil and gas revenues.

As a PIF board member, and a presenter in 2014 and 2016, Dick was no stranger to this group, and his stories continue to motivate us. His experience with WDNR and his advocacy for LWCF in DC are all discussed in past issues of Partners News. (See Jan. 2014, August 2016) As a longtime member attending his first annual gathering, Dan Wisniewski broke Dick's modesty a bit when he talked about the map and chart from Dick's retirement Party displaying the thousands of acres conserved by Dick's efforts.

Paul had an incredible rapport with the audience and his speaking style with an occasional pun was an uplift. Paul has extensive experience with WDNR and served as Chief State Forester from 2003 to 2016. Now as VP of Conservation for the American Forest Foundation, Paul is well versed in land owner activities as well as certification. The discussion went from LWCF, Forest Legacy, the Farm Bill as well as individual conservation practices by small land owners. Paul stressed that all of the above are imperative to future generations.

Horst Schmidt, President of the Upper Peninsula Environmental Coalition, praised our dedication in land protection and said that was the motivating reason they awarded the $10,000 grant to Northwoods Alliance to bolster the Wildcat Falls acquisition fund to create a community forest.

True to our slogan Local Wood for Global Good, door prizes included a rustic wood plank bench which was carried off by Ron Eckstein as well as handcrafted bird's eye sugar maple bread boards. Several lucky attendees also received books we are happy to highlight, by John Bates (Our Living Ancestors) and Paul Hetzler (Shady Characters).

We wish to thank everyone who has participated in this series of events as planners, leaders and participants; together we are striving for a better future.

Past events in this series of events included a bio blitz at Wildcat Falls, a tour of the habitat on the Upper Wisconsin River Legacy Forest stressing young forests for wildlife, a paddle -hike to the Tenderfoot Reserve discussing old growth, a fall color hike to Wildcat Falls as well as several smaller events. Still planned are a discussion and site visit on tip-mounds and an event on northern hardwood management.

From the winner of the bench '*the bench has found a perfect spot in our 3 season room-it is gorgeous! Thank you*'

Thanks so much for including us in the forestry get-together. It was very informative.

Outstanding line up of presenters!

Just the kind of event I am happy to be part of.

Best one yet, great informative day.

Good folks, great food, valuable information, thank you.

At the November 3 meeting we ran out of oak wilt hand outs. We have now restocked on these and several others from our friends at USFS State and Private Forestry. We have the How To Identify, Prevent and Control Oak Wilt, How To Recognize Common Diseases of Oak in the Midwest, How To Manage Eastern White Pine to Minimize Damage from Blister Rust and White Pine Weevil, How To Prune Trees, How To Recognize Hazardous Defects in Trees. Let us know if any of these can help you.

Oak Wilt Field Trip Photos

Photo contributed by Ron Eckstein

Photo: CS Mason

Photo: CS Mason

Photo: CS Mason

Meeting Photos

Photo: CS Mason

Photo: Rod Sharka

Photo: CS Mason

LAND AND WATER CONSERVATION FUND

"Watching the Sun Set"
By C. S. Mason

My recent trip to Washington D.C., on September 12-14, 2018, as an advocate from the UP for the reinstatement of the Land and Water Conservation Fund before the September 30 "sunset" date was definitely a baptism by fire. The Wilderness Society as a part of the LWCF Coalition (www.lwcfcoalition.org) planned and organized this "fly-in" to lobby Congress members and advocate to reauthorize and fully fund the Land and Water Conservation Fund. The LWCF Coalition is the umbrella group of more than 1,000 state and local land owners, small businesses, ranchers, sportsmen, veterans, outdoor recreationists and conservation organizations working to protect America's public lands and safeguard our shared outdoor heritage for future generations. I met Dawn Levey, an advocate and lobbyist for both the LWCF Coalition and Michigan United Conservation Clubs (https://mucc.org) at the Pilgrim River Legacy Forest dedication. She had driven over 450 miles from the lower peninsula to celebrate and see LWCF monies being used for conservation. We had a great conversation and she later contacted me at Joe's suggestion to represent the UP at the fly-in. There were advocates from almost every state in the country who had driven and flown in to participate and to express the importance of the LWCF to them, their communities, organizations, and state. The Coalition was well organized providing hotel accommodations, meals, an agenda, appointments, briefing, and final reception to share our experiences and thoughts.

Citizen advocates were given a folder with all of the information we would need for navigating "the hill" including maps and a scheduled appointment time for each team to meet with their representatives. We also were given information and guidelines with goals for every advocacy meeting and encouraged to tell our own message—our own local story and how the Land and Water Conservation Fund has positively affected our own communities. Dawn, a seasoned lobbyist, led our team from Michigan to the "hill" and helped us navigate the complexities of life in Washington D.C. She has been to D.C. many times lobbying for LWCF. My question here is *when will we be able to stop lobbying and having to beg for the LWCF to be permanently authorized in perpetuity to preserve, protect, and conserve our natural resources*?

The Land and Water Conservation Fund created by Congress in 1964 was designated to provide money to federal, state, and local governments to purchase land, water, and wetlands for the benefit of all Americans. It is one of the most important conservation tools we have to protect parks, forests and wildlife habitat. LWCF was authorized to receive $900 million annually but that amount has been met only once since 1965. Proposed by President John F. Kennedy, the LWCF is funded by a portion of revenues from offshore oil and gas leasing and reinvesting them in onshore conservation. It has been a major source of funding for federal and state acquisitions of land and

easements, including the Forest Legacy Program. It is not and has never been funded by any taxpayer revenues. LWCF is divided into two distinct fund areas: State grants and Federal funds for acquisition. The State fund is divided among all 50 states, D.C., and territories by population as well as other factors.

Prior to going to D.C., I learned everything I could find on the Land and Water Conservation Fund, including reading other lobbyists' experiences and even having a conversation with Dick Steffes, who was a citizen lobbyist in 2014 (*see PIF newsletter Aug. 2014*) which was extremely helpful. I looked at the National Park Service website and read about the impact the LWCF has had at the local and state level, in federal land acquisition, and even American Battlefield/monuments' protection.

The LWCF website and the Outdoor Industry Association website had the most amazing information detailed by state, so I printed out the pages on Michigan and learned that LWCF had funded such beautiful places as Great Lakes Northwoods, Keweenaw NHP, Pictured Rocks NL, Sleeping Bear Dunes, and even the most recent Pilgrim River Legacy Forest totaling $329,200,000 which also included habitat conservation and the Forest Legacy Program. There are too many funded programs to list here, so I encourage you to go the website. Not only can you look up Michigan but you can see the programs and projects in other states, perhaps some you have visited.

This was an experience similar to "Mr. Smith Goes to Washington" -- only the outcome was not quite so successful…not at all. An idealistic, newly appointed senator goes to Washington to fight corruption…a passionate, conservationist (me) with a handful of pictures of old growth forests and pristine waterfalls points out the obvious—one picture is worth a thousand words, right? How hard is it to point out the obvious? Battling not only the chaos and confusion—the ever-present "busy" in D.C., and the oppressive humidity and threat of impending hurricane Florence so that many people were bailing and leaving the city, I gave it my best, most articulate, passionate plea for conservation—the LWCF reauthorization—to every representative and senator I was assigned. Weren't pictures of bobcats, wolves, pileated woodpeckers, ancient old-growth forests of hemlocks and white pine, cascading waterfalls and meandering creeks impressive enough to awe and move anyone to do whatever it took within their power to protect? I ended up speaking with legislative aides and only one Congressman face to face—Rep. Jack Bergman, R-Michigan. He was very kind and thoughtful, and we discovered that we live on neighboring lakes. I cautioned him I might paddle over and "visit" him and hoped that he would vote for full funding of LWCF.

There were a few surprises that I had not anticipated nor could I. Before I went to D.C., I started querying people I came in contact with in various places including opportunities to speak with large groups of people about LWCF. To my surprise, many if not most had never heard of the Land and Water Conservation Fund, although I am sure, all had enjoyed the conservation benefits at some time in their lives somewhere. Another surprise was my own naivete that all of the lobbyists were

there for the same purpose—conservation of land, water, wilderness, wildlife—right? But interestingly enough and no value judgment on my part, I found that many were there for their own special interest—mountain biking, climbing, hunting, and cattle ranching to mention a few. Access to public lands is huge and not just in the sense of protecting and preserving but having access to land for your own personal recreation. Another surprise was the conflict with our national parks' maintenance and the use of LWCF monies – that Congress should appropriate and provide separate funds for the national parks. And one last surprise that caught me a little off guard was one legislative aide's take on LWCF that "why should they support it when their district had never received any of the fund's money?", which I do not know if that was true or not and probably neither did he. I asked him if he liked to travel and go places. Wouldn't he like to be able to visit other beautiful places that had been conserved by LWCF monies and enjoy them?

Our parting reception where all advocates met to share their experiences and hopeful outcomes of their lobbying efforts was one of mutual camaraderie and high hopes as we all had just received wonderful news. The chairman of the House Natural Resources Committee and a ranking member, had worked out a compromise to advance permanent reauthorization of LWCF through the committee. It was a breakthrough that recognized the overwhelming bipartisan support in Congress for America's most important conservation and recreation program. Two representatives also introduced legislation to provide the dedicated full funding LWCF needs to protect these places. The bill guaranteed federal offshore energy revenues be reinvested in essential conservation and recreation through LWCF. We were all elated and were counting on the 17 days until LWCF would sunset to be ample time to move the bills through the houses and into law. It wasn't to be and absolutely nothing happened during the time. Just a silent and empty promise and hope, quietly passing away.

On September 30, 2018, the sun set not only on the day but also on the LWCF as we have known it. So where does the bill stand now a month and a half later? What I could find out from the US Senate Committee on Energy and Natural Resources only updated to October 3, 2018, was that the committee reported S.569, a bill led by Ranking Member Maria Cantwell, D-Wash., to permanently reauthorize and mandate full funding of $900 million per year for the Land and Water Conservation Fund. On Sept. 30, 2018, the statutory collection and deposit authorities for LWCF expired, although $22 billion remains in the Fund and the program will continue to receive appropriations and disburse funds for the foreseeable future. Also among the bills reported was S. 3172, the Restore Our Parks Act, sponsored by Sen. Rob Portman, R-Ohio, and 30 other Senators. The bill would provide $1.3 billion per year for five years to help reduce the National Park Service's deferred maintenance backlog, which totaled $11.6 billion in FY 2017. The bill is supported by Secretary of the Interior Ryan Zinke and many outside stakeholders. As of October 3, 2018, the Senate Energy and Natural Resources Committee approved legislation permanently reauthorizing and fully funding the Land and Water Conservation Fund (LWCF) responsible for conserving lands and waters in every country in every state.

"Today's passage is the beginning of the future promised by Congress when it passed LWCF over a half century ago. This is America's most successful conservation program, creating parks and trails, protecting forests, expanding outdoor recreation opportunities and conserving critical watersheds, but it could never realize its full promise so long as it was neither permanent nor fully funded. Today's action begins to change that. That this proposal passed with broad bipartisan support shows how popular and effective this program is, and how important it is to continue. We encourage Congress to move quickly to approve this legislation so we can give LWCF the certainty and funding it deserves," stated Tom Cors, director of U.S. government relations for lands at The Nature Conservancy.

The LWCF is still in the land of uncertainty. It needs to pass through both houses with unanimous support and become the "law of the land" both literally and figuratively. We all can contact our representatives either by phone, email, or letter…it's up to us. This *land is our land* and I hope we all do right by it in protecting and conserving our beautiful natural resources.

"Always remember that managing land is an incredible privilege. Few people get to viscerally touch land anymore; to do so is an honor. Treat the land and the landowner that way and the respect will show to the end."
Joel Salatin

The LWCF was instrumental in protecting land at the Pricket Reservoir and at The Sturgeon River Gorge on the Ottawa National Forest.

In a 2008 tour of the Sturgeon River area, Mark Hovel captured this photo of Joe Kaplan at the North Country Trail. LWCF has bestowed endless recreation opportunities to us in the midwest while protecting clean water and wildlife habitat!

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Of the more interesting trees in our range, and certainly one of the old growth style trees we cherish at Wildcat Falls is Northern White Cedar. Other cherished old growth features on that project are hemlock and sugar maple, which we have covered in previous issues. White Cedar is also abundant in 120 year old stands along the Upper Wisconsin River. Please see page 1 in your booklet Forest Trees of Wisconsin for even more information.

Here are a list of facts, obtained from several sources, about the tree and the wood itself.

Porcupine Mountain State Park, Lake Superior shoreline.
Photo: Ron Eckstein

Northern White Cedar (Thuja occidentalis)

Common Name(s): Northern White Cedar, Eastern Arborvitae
Scientific Name: Thuja occidentalis
Distribution: Northeastern North America
Tree Size: 50-65 ft tall, 1.5-3 ft trunk diameter, often tapered
Average Dried Weight: 22 lbs/ft 3 (is very light)
Specific Gravity (Basic, 12% MC): .29, .35
Modulus of Rupture: 6,500 lbf/in2
Elastic Modulus: 800,000 lbf/in2
Crushing Strength: 3,960 lbf/in2 is soft
Shrinkage: Radial: 2.2%, Tangential: 4.9%, Volumetric: 7.2%
Color/Appearance: Heartwood is pale brown or tan, while the narrow sapwood is nearly white. Numerous small knots are common in the wood.
Grain/Texture: Grain is usually straight, with a fine, even texture. Moderate natural luster.
Endgrain: Resin canals absent; earlywood to latewood transition gradual, color contrast medium; tracheid diameter small to very small; zonate parenchyma.
Rot Resistance: Rated as durable to very durable regarding decay resistance; also resistant to termites and powder post beetles.
Workability: Northern White Cedar has good overall working

characteristics, and works easily with both hand and machine tools. However, the wood is both soft and weak, giving it poor screw-holding capabilities. Northern White Cedar glues and finishes well.
Odor: Northern White Cedar has a distinct (though moderate) cedar-like smell when being worked.
Allergies/Toxicity: Although severe reactions are quite uncommon, Northern White Cedar has been reported to cause skin irritation, runny nose, as well as asthma-like symptoms. Reported by the USDA to be among the most allergenic woods native to the United States.

Mary Bates with old white cedar in the North Otter Creek State Natural Area. Photo: John Bates

Pricing/Availability: Generally available in smaller sizes of lumber. Prices should be in the mid range for a domestic softwood.
Sustainability: This wood species is not listed as a species of special concern, however harvesting may not offer regeneration.
Common Uses: Fences, posts, shingles, piles, canoes, outdoor furniture, railroad ties, and paper (pulpwood).
Comments: In tree form, Thuja occidentalis is commonly referred to as Eastern Arborvitae — or simply just Arborvitae — and is widely used as an ornamental tree, with hundreds of different cultivars in existence. Perhaps the closest thing to Balsa that the United States has domestically, Northern White Cedar is one of the very lightest and softest of commercially available woods in the country. Yet the greatest value of this wood is not merely in its lightness, but in its resistance to decay, lending it to many exterior applications.

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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

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**

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ECO updates and concerns, or why we protect habitat through land conservation!

Turtles: According to Bioscience 61% of the known 356 turtle species are threatened or already extinct, and this could have ecological consequences.

Turtles can be major players in the ecosystem of food webs, as they can be herbivores, omnivores and carnivores. They can also be valuable seed dispersers for dozens of plant species, and even the primary dispersing agent for some plants. Some seed species are destroyed by turtle digestion, but others exhibit higher rates of germination following digestion.

Insects: The past two years has seen an explosion of dire warnings about the decline in insect populations. We often think of the large animal species, but insects?

"They're the unsung heroes of most ecosystems," says entomologist Helen Spafford, who helped write Entomological Society of America's 2017 position statement on endangered insect species.

We will pick a favorite beautiful species and offer these facts, as our coverage on pollinators, attempts to be informative and encouraging for habitat restoration. Facts about Monarchs, oh, and please plant some milkweed!

- *From the milkweed monarch caterpillars feed on a toxin is produced and stored in their bodies as a protective mechanism. This makes them taste terrible to predators and protects the vulnerable caterpillars.*
- *Monarchs can travel up to 100 miles a day as they migrate to their winter habitat.*
- *During migration, tens of thousands of monarchs will land on a single tree in certain areas along their migration route.*
- *Among the two species of Monarch butterflies, the one in North America differs from the one you will find in South America, but the Caribbean is home to both species. You can also see them in Australia, New Zealand, and several Islands lying between Australia and Tahiti, in parts of Europe and in Hawaii.*
- *The Monarch butterflies go through prolonged stages of metamorphoses, starting with its larva or caterpillar, shedding or molting its skin an amazing five times before the pupa stage.*
- *The caterpillar may eat its shed skin in four of its five molts in the stages referred to as "instar"*
- *In the fifth instar, 10 to 12 hours before shedding its skin for the fifth and last time, the Monarch caterpillar spins a silk for it to hang. After some initial wriggling the pupa skin hardens into a protective covering for the evolving monarch butterfly inside it.*
- *Depending on summer temperatures, the caterpillar stage continues for 9 to 14 days.*
- *The caterpillar is a voracious eater, capable of consuming an entire milkweed leaf in less than five minutes. They gain about 2700 times their original weight, and in the process, excrete an abundant quantity of "frass" (or waste).*
- *A black spot on an inside surface of its hind wing distinguishes the male Monarch butterflies from the females that have no such spot.*
- *The monarch butterfly does not have lungs; breathing takes place through tiny vents in the thorax or abdomen called spiracles, and an organized arrangement of tubes called trachea, distribute the oxygen through the Monarch's body system.*
- *They have a 10 cm wingspan and weigh between 0.25 to 0.75 grams.*
- *The wings flap slower than other butterflies at about 300 to 720 times a minute.*
- *Senses of smell and vision help the Monarch butterflies to assess its environment.*

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WHAT OUR MEMBERS HAVE TO SAY!

A Conservation Victory in Oneida County: Lynne Mine Referendum Defeated.

By Rick Plonsky 11/20/2018

On Nov. 6 2018, the citizens of Oneida County WI voted overwhelmingly against a referendum that read: *"After performing their due diligence, should Oneida County allow leasing of County owned lands in the Town of Lynne for the purpose of metallic mineral exploration, prospecting, bulk sampling and mining?"*

The non-binding referendum was rejected by a vote of 62% NO to 38 % YES and, the lopsided tally sent a strong message to the Oneida County Board: The citizens of Oneida County do not want a sulfide mine that threatens the water and watershed of the Willow River in the county forest.

The voters chose wisely. Sulfide mines contain overburden and tailings - the waste rock composed of sulfur bearing minerals - that often produces sulfuric acid when exposed to air and water. This acid (referred to as Acid Mine Drainage or simply AMD,) leaches heavy metals out of the surrounding rock and delivers the acidified metal-rich mixture into ground and surface water, with devastating effects on the surrounding environment.

The Willow Flowage Scenic Waters Area! A Conservation Gem

The Willow Flowage Scenic Waters Area is described by the WI DNR as:
"Surrounded by swamps, bogs and other watery lowlands, and is isolated from roads and development. This remoteness, along with its natural shoreline, draws visitors from around the state and region. For a wilderness experience described as 'almost Canada.' "

"An active forestry program is in place on the Willow Flowage to maintain prime wildlife habitat, emphasize forest diversity and to promote a natural and aesthetically pleasing appearance. Future thinnings of selected trees and occasional prescribed burns will help restore the shoreline to historic forest conditions dominated by long-lived tree species such as red and white pine."

Additionally, The Willow Flowage Scenic Waters Area, was designated by the Wisconsin DNR as an Outstanding Resource Water in 1997. "Of Wisconsin's 15,000 lakes and impoundments, 103 are designated as ORW—fewer than 1%." The DNR further describes an ORW thusly: "An Outstanding Resource Water is a lake, stream or flowage having excellent water quality, high recreational and aesthetic value and high quality fishing. ORW waters are free from point source or non-point source pollution." ORWs ***"warrant additional protection from the effects of pollution."***

Given that description, it is difficult to understand why some political leaders are actively promoting the County Forest in Lynne as an appropriate site to locate a sulfide mine. Whatever short term economic benefits the County could receive in the form of lease payments and short term employment, is certainly not worth the long term risk to the surrounding water and wetlands, which continues on in perpetuity.

An Added Victory:
A Community of Conservationists Comes Together, And Wins.

Once Act 134 was passed by the legislature and signed into law by the Governor, a sense of foreboding gripped those familiar with previous fights against a mine at Lynne. Without the protection of the now defunct Mining Moratorium bill, once again, the Willow was at risk. Fortunately, that core group of veteran

activists were quickly joined by a new wave of citizens outraged by Act 134, and concerned about the future of the Willow Watershed. They gathered at County Board hearings and rapidly coalesced into a grassroots organization that was named "Protect The Willow."

Once the County Board voted to approve a referendum vote, the group sprung into action. They bought a booth at the county fair, yard signs, banners and bumper stickers. They created a website, web based non-resident petition, and a *facebook* page, asked for donations for signs, radio spots and ads in the local newspapers. They wrote letters to the editor, and canvassed local neighborhoods.

Their efforts were noticed by conservation organizations; The River Alliance of Wisconsin and the John Muir Chapter of The Sierra Club offered much needed counsel and guidance. Other conservation groups such as the Northwoods Alliance and the Willow Region Sportsman Club offered help. The Lac Du Flambeau Band of Lake Superior Chippewa, offered support and ultimately funded expensive television ads to educate the electorate.

But, the opposition -better funded and professionally organized- was busy as well. Numerous glossy mailers featuring pastoral scenes of deer and flowers arrived in voter's mailboxes. The NRDA (a mining lobbying group,) proposed funding a UW Extension voter "education," effort, in conjunction with the Oneida County Economic Development Corporation, (a local business organization,) but was rebuked due to the obvious conflict of interest. Ultimately the project was funded through a Milwaukee County business organization working in with the OCEDC.

The education effort had three components: A diverse panel was organized for discussion and content, a Green Bay marketing firm was contracted to solicit volunteers for three focus groups to determine voter perceptions, and finally four forums were held across the county to "educate," the electorate. One last effort by the pro-mining forces was to commission Professor Noah Williams through the Center for Research On The Wisconsin Economy (CROWE) is funded by a grant from The Charles Koch Foundation and the Bradley Foundation,) to conduct a "study," on the economic benefits of a hypothetical Lynne mine. This study was released one week prior to the vote.

Despite this expensive effort, the voters were not deceived. Ultimately, the message from Protect the Willow resonated with the electorate.

However, this may not be the last fight over Lynne; several Supervisors have made it clear that this issue is not settled. Unless the Oneida County Mining Ordinance is amended, Lynne remains at risk. The good news is that regardless, a group of motivated, conservation minded citizens will be there to Protect the Willow.

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AT LEAST LEAVE THE WHITE PINE FOR THE BIRDS!

Joe Hovel

As unsightly as clear cutting of timber stands can be, it is often the exact prescription for wildlife and the only way to regenerate certain species. On the Upper Wisconsin River Legacy Forest for example, as is common in our pine barren stands, the jack pine matures and slowly dies as nature thins it out. Also our aspen stands, critical for wildlife, only regenerate properly after a complete coppice harvest. Commonly you will find aspen and jack pine in mixed stands on these sandy sites, thus the clear cut prescription is a basic and common practice. On the Legacy Forest last years tree planting was not a solid landscape, but more of a patch work as some areas responded with heavy aspen regeneration.

Young jack pine is critical in larger stands for the Kirtland Warbler and the Spruce Grouse will favor it up until the 35 year range or so. Thus the objective is to rotate these stands in order for the Legacy Forest to continue to harbor a wide variety of wildlife. A Snap Shot Wisconsin trail camera on the forest is managed by Vilas County Conservation Specialist Quita Sheehan and has demonstrated exciting numbers and variety of wildlife.

Often these jack pine-aspen stands are not pure, in that they contain more minor numbers of white pine, red pine, pin oak and white birch. Some managers may be faced with a decision to remove all these species, or retain the longer lived white and red pine for instance. I have always opted to leave the longer lived species growing for diversity and visual appearance, perhaps with out giving much thought to wildlife. I also favor encouraging the regeneration by seed of these species that remain.

In a conversation last winter with MDNR Service Forester Gary Willis, the wildlife aspect became very apparent. Gary explained to me, as I brought up the white pine discussion, that white pine harbors more than 40 species of birds. I have not been able to let that thought out of my mind, every time I look at white pine.

Thus recently as I observed a harvest on similar habitat about 15 miles south west of the Legacy Forest, I was saddened to see the crew removing even the mid age heavy crowned white pine. My foremost comment was 'At least leave the white pine.'

So I did some quick research on white pine and birds, and information was readily apparent.

- *Eastern White Pine - Pinus strobes and song birds*
- *Eastern White Pine attracts Pine Siskin*
- *Eastern White Pine is a tree that attracts birds*
- *Eastern White Pine Cones attract Crosbill.*
- Native to USA State distribution (USDA): AR, CT, DC, DE, GA, IA, IL, IN, KY, MA, MD, ME, MI, MN, NC, NH, NJ, NY, OH, PA, RI, SC, TN, VA, VT, WI, WV
- Large, fast-growing evergreen tree, ranging from 80 to 150 feet tall, with a 20 to 40-foot spread at maturity. Due to its sheer size and endless amount of needles the Eastern White Pine is a fantastic source of shelter for wild birds, many of whom regularly nest in the tree.
- Eastern White Pine cones also provide seeds that many forest
- dwelling birds appear to favor.
- Birds Most Commonly Associated with Eastern White Pine include:

* American Robin	* Black-Capped Chickadee
* Blue Jay	* Brown Thrasher
* Cedar Waxwing	* Crossbill
* Dark-Eyed Junco	* Evening Grosbeak
* House Finch Kinglets	* Mourning Dove
* Northern Cardinal	* Pine Siskin
* Purple Finch	* Red-Bellied Woodpecker
* Tufted Titmouse	* Warblers
* White-Breasted Nuthatch	* Yellow-Bellied Sapsucker

For a more thorough discussion of White Pine (Pinus strobus) see Partner News April 2016

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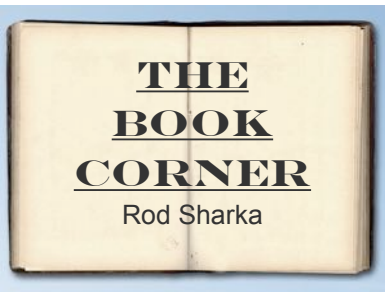

For this issue of the Partners News, may I recommend the following, newly published book for your reading pleasure:

Shady Characters; Plant Vampires, Caterpillar Soup, Leprechaun Trees, and Other Hilarities of the Natural World, by Paul Hetzler.

You already may be familiar with Paul Hetzler's work if you have read the last several issues of Partners News. Paul has graciously allowed us to reprint some of his articles on various nature topics in our newsletter. If you have enjoyed his humorous but informative articles, you will absolutely love *Shady Characters* . It is a compilation of similar stories spanning a wide range of nature topics grouped into nine chapters covering a wide range of subjects as Trees, Wildlife, Plant Life, Weather, Natural Resources, etc. From plant life ("Have you noticed a lot of bees up your nose lately?") to wildlife ("the safest way to handle a snapping turtle is to ask someone else to do it"), to weather (fascinating stories about "thundersnow" and hoarfrost), to trees, arthropods and more, Hetzler explores and explains the natural world in a clear, compelling and often humorous style.

The author is...as he puts it... "a lapsed Certified Arborist (not to be confused with a fallen arborist, which is more painful)". He is currently the Horticulture and Natural Resources Educator with the Cornell Cooperative Extension of St. Lawrence County, NY. He knows about nature in all its wonders, complexities, and hilarities, and weaves considerable wit into his broad range of wisdom. His book is valued for the hundreds of bits of natural science and lore, and practical information unknown to the average person, and this information is presented in such a humorous way as to make learning science fun.

Shady Characters would make a fine Christmas gift for anyone from young teens to old, retired folks who love (or should love) the natural world. That means everybody. The book may be purchased on Amazon by clicking here: https://www.amazon.com/dp/099860609X .

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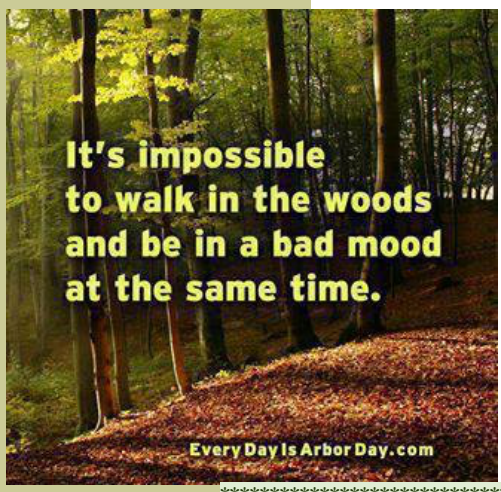
Improve mental health with exposure to trees and nature

Posted on November 7, 2018

If stress about the upcoming holiday season is beginning to build, put on your coat and hat, get yourself outside and walk around under your neighborhood trees. Exposure to nature reduces depression, anxiety and stress! Time spent in nature provides a wealth of mental health benefits.

Nearly 16 million adults experience major depression each year in the U.S, 40 million are affected by anxiety disorders, and 80% of us are afflicted by stress. Many of us lead busy, highly scheduled lives and problems with relationships and finances are not uncommon. If you live in the city, those numbers are even higher. Urban dwellers have a 20% higher risk for developing anxiety disorders, 40% for mood disorders and double for schizophrenia.

Looking for a simple solution? Researchers have repeatedly found evidence for improved mental health with exposure to nature. Trees and green environments support relaxation and reduce



stress. This improves overall metal health, mood and life function. There's an economic advantage too, reduced treatment costs and improved worker productivity. It is a wonderful gift from mother nature!

Even in the mid-1800's Frederick Law Olmstead, renowned landscape architect, wrote extensively about the mental health benefits of nature. He declared that time in nature provided "relief from ordinary cares, change of air, and change of habits" additionally it "increases the subsequent capacity for happiness and the means of securing happiness."

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UNCOMMON SENSE

Paul Hetzler, Cornell University Extension

There's an old saw that the trouble with common sense is that it is rare. I see the point, but it doesn't account for the fact not everything makes sense. Sure, we know that a relatively safe drug like aspirin is available over the counter, while opioid painkillers must be prescribed by a licensed medical doctor due to the potential for overdose or addiction. And because of the increased risk, driving a gasoline tanker requires more training than operating a car. Things like that make sense.

When it comes to pest control, we naturally assume that the same logic applies. Common sense would suggest the stuff your kid can buy at the garden center is safer than products restricted to trained, licensed pesticide applicators. However, this is not necessarily true.

Many restricted products are dangerous, no question. But in a lot of cases, they are "behind the counter" because it takes a good deal of training and skill to use them. Restricted products may need to be mixed at varying concentrations depending on the target pest and situation. They may need to be combined with other products, or diluted with water of a very specific pH range. So the fact you need a license to buy a certain pesticide is not a reliable indication of its toxicity.

Consider a common pesticide used around the home. Trichlorfon, also known as Metrifonate or Dylox, is mainly employed to control lawn grubs. According to a 2016 U.S. Environmental Protection Agency (EPA) report, "Average domestic usage of trichlorfon is about one million pounds active ingredient [equivalent to about 2.1 million pounds of product] per year. Total usage is allocated mainly to lawn care (74%) and golf courses (18%)."

When pesticides are approved by the EPA, the agency does not certify that those products are safe, but

rather that when a pesticide is used according to the label, the aggregate risk to human health and the environment "...does not exceed Agency concern." In cases where a product has been deemed hazardous even when used as directed, it takes many years to get it pulled off the U.S. market.

According to EXTOXNET, a collaborative pesticide information project of Cornell University, Oregon State University, the University of Idaho, U. Cal-Davis, and Michigan State University, with support from the USDA National Agricultural Pesticide Impact Assessment Program, "Trichlorfon is an irreversible acetylcholinesterase inhibitor. It decreases activity of the cholinesterase enzyme which is necessary for normal nervous system function. As with all organophosphates, trichlorfon is readily absorbed through the skin."

EXTOXNET files also state that even minor trichlorfon exposure can cause "...impaired memory and concentration, disorientation, severe depressions, irritability, confusion, headache, speech difficulties, delayed reaction times, nightmares, sleepwalking, and drowsiness or insomnia. An influenza-like condition with headache, nausea, weakness, loss of appetite, and malaise has also been reported." These symptoms may show up several weeks after exposure, and persist for weeks, months, or more than a year.

When chemicals are evaluated for toxicity, one of the most common parameters is called the "oral LD50," meaning the concentration in mg/kg or ml/kg (parts per million) of the substance which kills 50% of test animals, often mice or rats, after ingestion. However, when it comes to exposure to a neurotoxin where even an infinitesimal dose may have a significant effect in some individuals, it's absurd to consider oral LD50 as a measure of toxicity.

Trichlorfon has been banned in the EU, Brazil, Argentina, and New Zealand, and India has agreed to a complete ban starting in 2020. In the US, it is now restricted to nonfood applications. Not to pick on this product in particular, but that spray can or bag of pellets or dust at the garden center is not necessarily benign just because a small child can walk in and buy it. I support the use of pesticides to save tree species such as eastern hemlock or ash from extinction, but risking the health of one's neighbors, kids or pets for the sake of a prettier lawn is nothing short of criminal.

One of the most important considerations in pest control is to properly ID the target. Ants and bees are attracted to tree wounds made by sapsuckers, and may be blamed for the damage because they "look guilty." Likewise, a spider mite infestation may not be affected by an insecticide, because they are not insects. An understanding of both host and pest biology is also important. As an example, Japanese beetle damage to fruit trees in September has no impact on tree health, and should not be treated. For more information on pest management, go to nysipm.cornell.edu, or call your local Cornell Cooperative Extension office.

For more nature-based essays, visit paulhetzlernature.org where humor and science collide--amicably for the most part.

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The FOREST LEGACY PROGRAM and RURAL ECONOMICS

A fresh report on economic contributions of land conserved through the Forest Legacy Program was just released by the Family Forest Research Center. This project is centered on the economics of the Forest Legacy Program, and parallels our own local discussions on the Economics of Forestland Conservation. Go to the below link, click on projects and see Forest Legacy under current projects. The Pilgrim Legacy Forest is part of this report. There is also a load of important land owner beneficial material at this site.

http://www.familyforestresearchcenter.org/wp-content/uploads/2018/10/FLP-econ-full-report.pdf

Also an arc map of the project is at https://arcg.is/1C09qv0

PIF has long promoted land conservation for the economic, social, environmental and intrinsic benefits.

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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.

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Winter Tree Identification: Buds Are Your Buddies

Paul Hetzler, Cornell University Extension

Every winter I present several tree identification labs to Biology students. Cold or colder, it's always outdoors, but if the student evaluations are for real, it's always fun. Demonstrating how to tell one leaf-bereft hardwood from another is one thing; explaining why one should even bother is trickier.

The short answer is, "It's on the test." Beyond that there are more interesting and practical reasons. If you're camping, lost or stranded—or all of the above—you can get safe drinking water between early March and late June if you know which trees and other woody plants to find. In fall and early winter, knowing a leafless viburnum when you see one may score you some tasty, energy-filled berries.

Want to cut your own firewood? It's a huge waste of time to fell and buck up a load of poplar or basswood. And it's handy to know that in a pinch you can burn fresh-cut ash and cherry, something you can't really do with other hardwoods.

Want to start making syrup in your back lot? You'll have to locate sugar, silver or red maples, all of

which yield sweet sap. Tapping your oaks and ash won't help the cause. If you enjoy woodcarving, you know a prime carving wood is basswood. But its bark can resemble that of other tree species.

Bark in fact is not the best feature for ID. Sure, white bark means birch, but some birches have black, yellow or reddish bark. Typical bark patterns, such as diamond-shaped furrows for ash, can be absent depending on site conditions and tree health. Cherry and ironwood bark have light-colored horizontal dashes called lenticels, but only on young wood. Bark may provide a clue, but it can deceive you.

A better diagnostic tool is arrangement. Don't get a vase; this means whether twigs grow opposite one another or are alternate on the branch. Most trees are alternates (but not second-rate), so we focus on opposites: maple, ash and dogwood (MAD). The caprifolaceae family includes many shrubs and small trees, giving us "MAD Cap" for the opposites.

Smell and taste are honest indicators, but only for a few species. Twigs of yellow and black birch taste of wintergreen. Peel a cherry twig and you'll get a whiff of bitter almond. Red and silver maple can look similar, but the twigs of the latter smell rank when broken. Prickly-ash twigs numb the mouth.

Since all our native dogwoods are shrubs, the opposite-tree category comprises only maple and ash. That would sure narrow things down if not for the liars. Stuff happens to trees. Every twig on an ash or maple branch can be missing its "partner twig" on the other side of the branch. Breakage, fungal cankers, freeze damage and other things will do that, so don't trust branch arrangement.

Vulcans cannot lie (sorry—Trekkie thing), and neither can the buds. Look closely at a twig—are the buds opposite or alternate? Hopefully our human buds are as honest as are tree buds, which can tell us many things. Size, shape and location are clues.

Beech have long, lance-like buds. Balsam-poplars have sticky, aromatic buds. Red (soft) and silver maples have puffy, reddish buds. Sugar maple buds are brown and conical, like a sugar cone. Oaks have clusters of buds at the end of each twig. "Invisible" black locust buds hide under the bark.

Inside each bud is an embryonic leaf (and/or flower). To protect their tender charges, most tree buds have overlapping scales that open in spring. Basswood buds have few scales, and they vary greatly in size. Sugar maple buds have lots of uniform scales. Butternut and hickory buds have no scales. Even tiny features on scales can be diagnostic. The best winter tree ID tools are the buds. Remember that—it'll be on the test.

For more details on tree identification, see Cornell's booklet "Know Your Trees," available as a free download, or call your Cooperative Extension office.

PIF members should have the booklet Forest Trees of Wisconsin, How to Know Them from WDNR Division of Forestry to help with tree identification also.

For more nature-based essays, visit paulhetzlernature.org where humor and science collide--amicably for the most part.

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SHADY CHARACTERS

PAUL HETZLER is Horticulture and Natural Resources Educator for Cornell Cooperative Extension of St. Lawrence County, NY. His work has appeared in The Lancet, Prime Number, Highlights for Children, and in weekly natural history columns he writes for newspapers across northern New York State.

Partners News favorite, Paul Hetzler reached a milestone on October 5, 2018 with the release of his book **Shady Characters, *Plat Vampires, Caterpillar Soup, Leprechaun Trees and Other Hilarities of the Natural World.***

Should you wish to check out the book, the direct link is https://www.amazon.com/dp/099860609X

If you enjoy Paul's writing as we do exposing it, get yourself a copy of this book. From trees to porcupines, groundhogs, knot weed and big foot, you will not regret reading Shady Characters. PIF applauds Paul on this accomplishment and we wish him the best. We were proud to have a couple of these books as door prizes at the PIF Annual Meeting on November 3, 2018.

Author, Environmentalist and founder of 350.org Bill McKibbon said of Paul's book "You will—I guarantee—learn from these stories. And I also guarantee the learning will be a great deal of fun.

And continue to enjoy Paul's stories in Partners News.

Allegedly, Paul Hetzler's second book will be released in late December. The title is "Don't Be Such a Duck! Mallard Malfeasance, Incendiary Spiders, Killer Caterpillars, and Other true Stories"

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FASTER THAN A SPEEDING PLANT

Paul Hetzler, Cornell University Extension

When he first appeared eighty years ago, Superman was said to be "faster than a speeding bullet." Of course some bullets fly faster than others, but in 1938, common average speeds ranged from about 400 mph for a .38 special to around 580 mph for a .45 automatic. At the risk of getting on Superman's bad side, I question whether he could outpace today's AR-15 .223 round zipping along at 2,045 miles per hour. Plus he's a lot older now. In fact, I wonder if he's peppy enough to catch a speeding plant.

A quick look outside assures us that plants do not appear mobile, or if they are, they move too slowly to measure their progress. Good thing, considering the way we uproot weeds, cut grass, and chop limbs off trees. Were plants able to skulk about seeking revenge, no one would sleep well at night. The fact is, plants tend to stay put. Any gardener can tell you that even slugs can catch plants. So it seems unduly harsh to suggest the Man of Steel is slower than that.

There is a difference between moving fast and moving around. Plants may be rooted, but not all of them sit still. Most kids are mildly entertained when they encounter the mimosa, or sensitive plant. When touched, its leaf folds up within seconds in an orderly, if unhurried fashion. Mimosa plants learn from experience, though, and if you poke a leaf repeatedly, it eventually takes a break from reacting for several hours.

People of all ages are usually enthralled by the Venus flytrap, a carnivorous plant which snaps closed on insects, then creates an airtight pouch and dissolves its victims in an acid-filled external vegi-stomach. Despite its name, the flytrap dines mostly on ants and spiders, some beetles and grasshoppers, but very few flies. With faster reflexes than the mimosa, it can shut its trap in 100 milliseconds.

It can also count. When one of its trigger hairs is touched, the trap remains open, but when a second hair is stimulated within 20 seconds, the trap closes. Not satisfied with that performance, the meat-eating bog plant next counts to five. That is, it takes five more hair-triggers from a wriggling spider before it seals the airlock and pumps in the hydrochloric acid. If you ever get trapped in the jaws of a giant flesh-eating plant, remember this lesson: Don't struggle. Remain still for 12 hours, and the jaws will open again. You're welcome.

Venus flytraps are found in temperate wetlands to our south, but we have a plant that is much more fly than the flytrap. Dwarf dogwood or bunchberry is a common native wildflower which prefers cool moist soils. Sometimes found in mat-like groups, it has clusters of bright red berries, and blossoms that put NASA to shame. The bunchberry flower opens in 0.5 milliseconds, reportedly ejecting its pollen at 2,000 to 3,000 times the force of gravity (G), which would shred an astronaut, who normally feels no more than 3G during launch. No one knows why bunchberry does this, other than to show off, since it is pollinated by dozens of native bee species.

But the plant kingdom's rapid-movement **pièce de résistance** is the white mulberry tree. Native to China, it has been spread around much the world because it is necessary for the rearing of silkworms, which for the past 4,000 years have been producing the world's silk (not the same silkworms; they don't live that long). When the mulberry tree's staminate (male) catkins are good and ready, they open in 25 microseconds or 0.025 milliseconds, propelling their pollen at approximately 350 mph, just over half the speed of sound. Unlike bunchberry, mulberries are wind-pollinated, and may benefit from its pollen-bomb strategy.

As impressive as these feats are, no one really understands the exact processes by which plants move so fast that the most advanced high-speed photography cannot adequately photograph the events. What we need is someone faster than a speeding plant to examine this further. I wonder if an aging superhero could maybe be coaxed into such an endeavor.

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Anyone who has spent time in the Northwoods has experience with Ravens!

UNCOMMON RAVENS

Paul Hetzler and Raven Hetzler

Over the past decade, biologists have been busy studying one of our native mythological birds. At once the most widely distributed member of the crow family, and a figure revered across the globe by civilizations both ancient and modern, the common raven (*Corvus corax*) is anything but ordinary.

In Norse mythology, the god Odin had two ravens who flew around the world gathering information for him, and the Irish giant and culture-hero Cú Chulainn was honored by a visit from the goddess Morrígan who appeared as a raven. In the Pacific Northwest, Native American nations have for thousands of years respected the raven. To the modern Haida and Tlingit peoples, the raven is a bird of surpassing intelligence as well as a culture-hero who is responsible for creating humans, and is also an inveterate trickster, causing much mischief.

And in the Tower of London, a flock of at least six ravens have been kept since the late 1600s at great taxpayer cost (just to mention, today's ravens are not the original ones—they live about 40 years in captivity). A Ravenmaster is the guy whose life is dedicated to the care of this flock, for the simple reason that according to legend, ravens keep both the tower and the British monarchy from falling. Given the impending "Brexit," though, maybe someone should check on those birds.

There are at present six recognized subspecies of *Corvus corax*, all the more reason for not referring to them as common. These birds have been under the figurative microscope of late for reasons other than to find if they really do keep the Tower of London standing vertically. Biologists set about to quantify how smart ravens really are—which is VERY.

In studies conducted between 2015 and 2017 at Sweden's Lund University and published in the journal *Science*, researchers found that ravens were better than chimpanzees at problem-solving tasks. And that they were better than human four-year-olds in planning ahead to obtain a tool necessary to open a box containing treats. In the words of Mathias Osvath, a raven-cognition expert at Lund University, "I'm a little bit surprised they were that good. Monkeys have not been able to solve tasks like this."

The same research team also tested ravens' ability to barter, and found they were very disciplined at trading tokens for a high-value treat at a later time rather than for a common treat in the moment. (yet another reason to drop the moniker "common" raven, I say). They were considerably better at delaying gratification than any great-ape hominid previously tested.

An international study conducted in 2016 and published in *Nature Communications* proved that ravens could think in the abstract. Ravens inside a closed room would hide food if a small peephole was open, but not when it was shut, indicating they could imagine being spied upon. It could be evidence they are somewhat paranoid, though, but I don't think that was the point.

Perhaps the most significant finding is that ravens show evidence of displacement, the ability to relate information on events removed in space and time. While young ravens roost communally but disperse each morning to forage, a lone juvenile will apparently report the presence of a large food cache guarded by a few adults which it saw that day. The following day, a large number of young ravens will organize to drive off the few adults from the food source. I suppose this could be evidence of juvenile delinquency as well as the ability to plan for future, distant events. Ravens are now the only vertebrate known to share this trait with humans.

Along with their corvid cousins the magpies and rooks, ravens pilfer and cache shiny objects, often coins. No one is sure if this is curiosity, or whether it is to gain status. My son, whose name is Raven (true story), happens to work in the Economics Department at the University of Massachusetts at Amherst. He offered this alternate explanation:

"Also, a little-known fact: most corvids will collect coins because they are gold-standard holdouts who don't believe in fiat currency. These birds historically opposed the printing of so-called greenbacks (dollars not backed by gold reserves) during various wars, and today refuse to use paper money on ideological grounds. They prefer precious metals, but have a very difficult time distinguishing between precious and common metals—hence why they will generally take any shiny coins they can get.

The great exception is rooks, who are all chartalists—they believe the value of money is derived from the government's willingness to accept it in payment for tax debts—that this is in fact the defining characteristic that makes something money. These birds have thus generally adopted paper money and will always take a bill with higher face-value if given a choice. Rooks care about chartalistsm because they are naturally very law-abiding and are in fact one of the few bird species that regularly pay their taxes every year.

However, it's hard to know for certain because polling ravens is difficult—they rarely answer pollsters' phone calls, try to steal shiny things during in-person interviews, and are, anyway, mostly raven lunatics. Of course, both of these monetary theories are for the birds."

I'd say that's a very uncommon Raven.

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This Real Estate Listing is a testimony to wood construction

Santa's House Northwoods living and working at its best.

The North Pole - the World, 3 bd • 2 ba • Multiple tiny homes, currently Off Market
Estimated value®: $710,559
A toy-lover's paradise nestled on 25 idyllic acres. The property includes Santa's log main living quarters built circa 1822, a community of elf tiny homes built with wood, a state-of-the-art wood toy-making facility, timber garage with space for an all-weather sleigh and stables that board eight live-in reindeer, plus a bonus stall for red-nosed company.

Santa's Living Quarters
The home, constructed of log in the 1800s, is steeped in Old World charm but thanks to a recent renovation, offers modern-day amenities.

Find a floor-to-ceiling river rock fireplace for roasting chestnuts in the living room. The gourmet kitchen is a baker's dream, boasting an oven with 12 different cookie settings. Cookies are served directly from oven to table in the adjoining dining room, along with cocoa on tap.

Boughs of holly deck the hall leading to the master bedroom and two charming guest rooms. Tiptoe on the hardwood floors to Santa's quiet study where an impressive writing desk is flanked by the same sewing table used to make the original Teddy bear.

Elf Village
The elves live on-site in their own private accommodations. Like snowflakes, no two elf dwellings are exactly alike.

RSVP for your spot at the table in the tiny farmhouse if you love a good dinner party. The open concept floor plan allows for the host to prepare nibbles while entertaining guests by a crackling fire.

The rustic mini cabin is made of hand hewn logs and brimming with personality, which is evident from the serving cart stocked with robust potions, and the butcher block desk that nods to the elf's status as Head of Toys, Woodworking Division.

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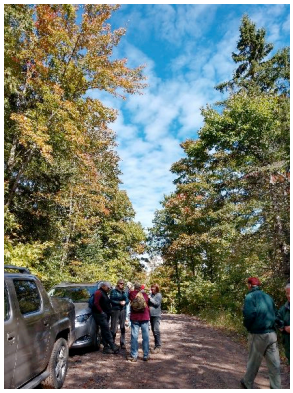

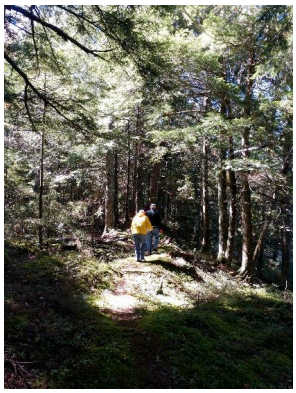

Wildcat Falls Community Forest Fall Color Hike
First Event in Series – "The Seasons of Wildcat Falls"

September 22, 2018, started out cloudy, cool, windy, and hinting at rain. Not a good day to consider hiking through a forest or any forest even one as beautiful as Wildcat Falls. But by midday, the sky cleared and the sun came out making it one of those spectacular days we all love in the fall. There was a lot of competition of worthwhile enjoyable things to do from National Public Lands Day with several outings and service projects planned, and also several local communities with fall celebrations and festivities. In spite of the difficult choices of what to do on a perfect fall day including "nothing" but enjoy the sunshine, over thirty enthusiastic people showed up ready to venture into the property and see and experience all of the different habitats that make Wildcat Falls such an amazing place and worthy of each and every conservation effort.

After a brief introduction about the Wildcat Falls' history and plans for creating it as a community forest, the group set off following the temporary trail markers to the falls. We all trekked through the old growth forest noting the different tree species, and other native plants and mushrooms still in bloom. The maples, birch, and aspen, still changing color and not at peak, contrasted with the dark green of hemlock and white pine. Various outcrops of granite and limestone hinted at the diversity of this unique environment. And of course, everyone was anxious to get to the falls which did not disappoint. Due to recent heavy rains, it was flowing rapidly and gloriously spilling down the rock outcrops into various pools and continuing on down the embankments into the creek. The scene provided many great photo opportunities including video with the sound of rushing water accompanying the footage. Fortunately, only one hiker slipped on the rocks as he tried to cross the creek and got wet up to his knees, but it was all good natured and fun. Hikers spent a good deal of time at the falls just enjoying the serenity and soothing sounds of the water and some even ventured over to the beaver pond to enjoy the wetlands.

Later, most of the group hiked to the granite escarpment and valley where Scott & Howe Creek meanders. The view is lovely and offers a panorama of wetland, valley, and forest along with amazing rock formations. Wildcat Falls is part of the Michigamme Formation, a series of overlying rock layers of similar nature, within the Marquette Range Supergroup which consists of many layers of sedimentary rock. Eventually, the whole group came back together from their wanderings and hung out together near the road, conversing and enjoying the camaraderie of a lovely afternoon spent in a lovely place…and all looking forward to returning again and again…

Photo by Joel DeAngelo of a mushroom, it is a strange one, taken on the September 2018 Wildcat Falls Community Forest Color hike.

Wildcat Falls Community Forest
"The Seasons of Wildcat Falls"

Winter Snowshoe Hike and Animal Tracking – date to be decided either in January or February – watch for announcement at northwoodsalliance.com or facebook. You can also sign up on our mailing list
We will be snowshoeing in to the falls, beaver pond, and granite outcrop on the lookout for tracks of bobcat, wolf, fox, fisher and who knows??? Look forward to it!

Spring Ephemeral & Birding Outing – date to be decided either in April or May –
We will be hiking in and looking for the first signs of spring in the native ephemerals that grow in the woods and wetlands. We also will be listening and looking for the resident and returning migratory birds that seek out this pristine habitat. Should be a great day after a long winter!

Summer Hike and Mushroom Foraging – date to be decided either late July or early August—watch for announcement on facebook or website.
We will be hiking in and looking for mushrooms, berries, nuts, and any late season edibles/plants and just enjoying a great day in a beautiful forest.

(cut here)

Wildcat Falls
Making It Your Community Forest

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Address_____

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You will receive a receipt for your personal tax records for charitable contributions. Northwoods Alliance is a 501c(3)organization and 509(a)2 public charity. Contact us at www.northwoodsalliance.org and www.partnersinforestry.com

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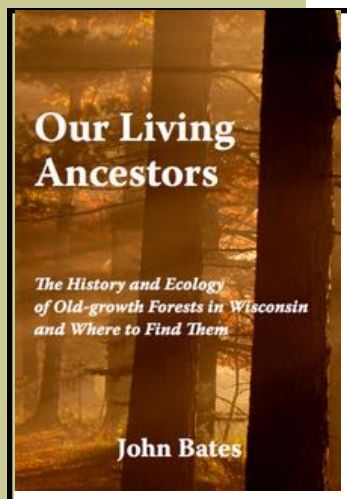

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