

**NEW
BOARD
MEMBER
STEPS IN!**
See page 6.



**RECOGNIZING RETIRING
BOARD MEMBER,
GEORGE GIROD.** *See page 4.*

THE

HOWL

Fall/Winter 2021 - 2022

www.yellowdogwatershed.org

Bi-annual Newsletter
Volume 25, Issue 2

Preserving the Yellow Dog Watershed in its most natural state for the use of the public, now, and for the benefit of future generations.

YDWP AWARDED EGLE GRANT

By Rochelle Dale, Administrator

YDWP has been awarded a \$94,000 nonpoint source pollution grant from Michigan's Department of Environment, Great Lakes, and Energy (EGLE) to repair and restore an impaired road stream crossing on one of the Yellow Dog River's major feeder streams, locally known as Deer Creek. Past forest management practices and road building practices have left Deer Creek susceptible to sedimentation, which is then exacerbated by an old hollow log road crossing structure that forces the stream underground. This interrupts the natural hydrology, prevents sediment flow, and prevents aquatic organisms from travelling upstream. Over



Deer Creek crossing. Water is forced to flow underground, beneath the bridge, due to culvert failure.
Photos by Jan Zender.



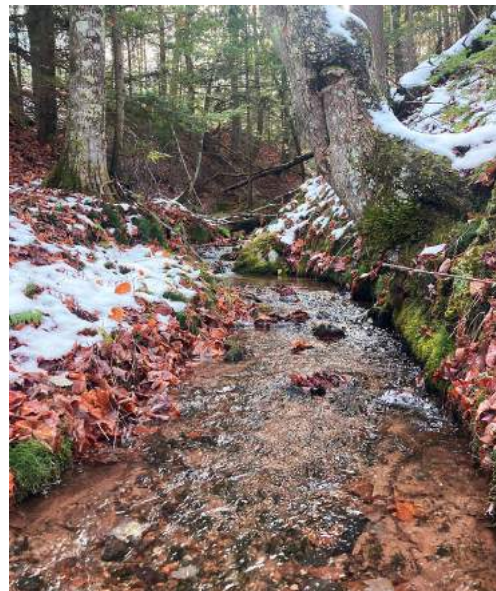
Small brook trout captured in a kick net on Deer Creek, downstream of the crossing. *Photo by Sarah Heuer.*

time the continued blockage will lead to upstream channel instabilities and potential failure of the crossing, leading to an instantaneous release of built up sedimentation measuring over 100 tons. This sudden expulsion of sedimentation would not only affect Deer Creek but also the Yellow Dog River that is only 245 feet away from the impaired crossing.

After the engineering plan and quality assurance policies have been approved by EGLE, the physical on-the-ground work can begin, hopefully in summer 2022. First will be the removal of the sediment build up upstream of the current crossing. Then we will remove the current impaired crossing and replace it with a timber bridge, thereby restoring the stream hydrology and sediment transport. When this currently blocked stream is opened, brook trout living in the Yellow Dog will be able

to find refuge in the upper reaches of Deer Creek as well as an additional mile of what seems to be ideal spawning territory. In addition, Deer Creek is a spring-fed stream that maintains a summer temperature well under 60 degrees. With changes in climate, its unimpeded flow into the Yellow Dog will become increasingly more important for cold-water recharge in maintaining high-quality waters and cold-water fisheries. During a walk through with the Brook Trout Committee in 2020, we targeted the repair of this obstructed crossing as a priority for enhancing brook trout habitat in the watershed. It is also listed as a major priority in YDWP's Watershed Management Plan.

This crossing has needed repair for many years, so we are excited finally to have this opportunity. We are not alone in this project. Thank you to our collaborators: Partners for Watershed Restoration, Superior Watershed Partnership, the Fred Waara Chapter of Trout Unlimited, Natural Resources Conservation Service, and JM Longyear.



Deer Creek, downstream of the culvert, flowing into the Yellow Dog. *Photo by Sarah Heuer.*

SHARE THE GIFT OF THE RIVER THIS HOLIDAY SEASON



Looking for the perfect holiday gift for the outdoor enthusiasts in your life? Consider purchasing a Yellow Dog Watershed Preserve annual membership in their name! YDWP is dependent on our members to fund conservation efforts such as stream monitoring, land management, and public education. Any outdoor enthusiast would be happy to know they are part of conservation efforts within the Yellow Dog watershed. The membership is good for one year after the purchase date, and your loved one will receive our biannual newsletter and acknowledgment in the next issue as a special thanks. Not only is membership a great gift for those who visit our preserve often, it's a way for anyone who isn't living in the area or who is physically unable to explore it to stay connected with the beautiful landscape. YDWP offers a variety of membership rates, so this gift is perfect for any budget and could even be shared with an entire family!

Visit our website and click "Membership" at the top of the screen to purchase a gift membership today! While you're on our site, check out our merchandise under "Shop", and pick up a shirt or hat to go with that membership! Please make purchases by 12/17/21 to assure they reach their destination before Christmas.

'Say It' in *The Howl*

The Yellow Dog *Howl* is published biannually by The Yellow Dog Watershed Preserve for its members and friends. We welcome your thoughts on environmental issues, stories of the history and legacy of the watershed, or anything you feel is related to our mission. Creative expressions are welcome too: art, poetry, photos, lyrics, etc.

Any comments, suggestions, articles, or artistic statements can be shared with Sarah Heuer at:

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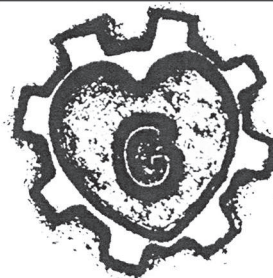
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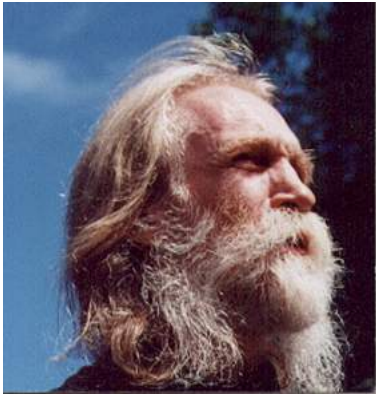
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FROM THE CHAIR: REFLECTIONS AND UPDATES

By Chauncey Moran



My ancestors came to northern Marquette County in the nineteenth century, seeking adventure and opportunity. That lure of the UP remains today. It has been nearly 30 years since I returned as a resident, walking in the diverse watersheds, especially the Salmon Trout, the Huron, and our beloved Yellow Dog, which are all located within walking distance of my family residence on Lost Creek, a headwater tributary of the Yellow Dog River. It remains apparent that, as the seasons and precipitation change,

so does the river corridor, naturally. However, some of those natural changes affect river ecology in a negative way and should be monitored, analyzed, and remediated when appropriate.

Since past activities and events in river watersheds alter what the river corridor is to become, we must study the past, record current trends, and create an effective plan for managing natural states of change. Several years ago, it seemed that few folks understood the importance of healthy river systems; however, in the recent decades, dedicated individuals have come forward to record, study, and evaluate collected data. In our watershed, much of this work is done by volunteer effort, complementing the labors of core YDWP staff, with emphasis on accurately collected data that is truthful and repeatable following specific protocols. Over nearly three decades, several folks have shown an unselfish and dedicated interest in aiding the Yellow Dog Watershed Preserve in achieving the highest levels of conservation for future generations. My confidence rests in the current and future River Keepers... who are after all Riverwalkers.....

With the grace of the Creator, your prayers, volunteer efforts, and financial support the organization has accomplished much and intends to continue with an eye on expanding youth involvement. For the care of the river will yield much fruit. As it is written in Jeremiah, "For he shall be as a tree planted by the waters, and that spreadeth out her roots by the river and shall not see when the heat cometh; but her leaf shall be green and shall not be careful in the year of drought, neither shall cease from yielding fruit" (Jeremiah 17:8). Remaining hopeful and faithful to that end.....

Riverwalkers

APPRECIATION FOR OUTGOING BOARD MEMBER & WELCOME NEWCOMER

After ten years of dedication and selfless time spent as Treasurer and electronic communications guru, George Girod has retired from the YDWP Board but will remain on our finance committee and instructional technology team. George was an active supporter of YDWP even before he became a Board member and will continue to bless us with his wisdom and insight. Thank you, George!

Filling the vacant position is Jacklyn Lenten, who has volunteered with YDWP planting trees, maintaining trails, water monitoring, and more. Jacklyn is passionate about the health of the environment, particularly sustaining water quality. She inspires others with her infectious enthusiasm and can-do spirit.

Our appreciation goes out to George and Jacklyn for their dedication to YDWP legacy building!



Chauncey Moran and Jacklyn Lenten installing a water pipe through a beaver dam to facilitate water drainage. Photo by Nancy Moran.

REMEDATION EFFORTS ON THE SALMON TROUT

Recently, the USGS reached out to the Great Lakes Indian Fish and Wildlife Commission (GLIFWC) to address the restrictive water flow at our monitoring site on the Salmon Trout East Branch, which has been tracked in the past by USGS, Yellow Dog Watershed Preserve, and GLIFWC at the behest of the Keweenaw Bay Indian Community (KBIC).

Gauges at this site measure temperature, specific conductance, and barometric pressure. Recently, beavers have created a series of dams here, which have restricted water flow, causing water temperatures to rise as well as elevating concentrations of suspended solids. These measurements, although accurate, are not consistent with conditions found upstream. A plan to drain the water to approximate past level and velocity was initiated by the installation of two water pipes. They were secured below the surface in order that the beaver would not react to a breach in the dam and apply additional mud, sticks and limbs, maintaining the water flow at its restrictive state.

Our efforts initially lowered the water level 4.8 inches within two hours without removing the entire dam. This was accomplished by creating two breaches in the dam and removing a small dam located between an island and a peninsula. The two breaches contained culverts to allow free flow of the water. To date 4.0 to 3.6 inches of water drop have been restored. Historic water level indicators on large boulders has revealed we are near normal flow for the season. To date (11/21/2021), no beaver dam building has reoccurred. We may install an additional culvert at a later date to facilitate equilibrium from any rise from event precipitation.

The data collected by USGS on the Salmon Trout East Branch is critical to understanding the effects of Eagle Mine and the complex network of activity surrounding it. Live data can be monitored online by following USGS.COM <https://waterdata.usgs.gov/nwis/uv?04043244>.

RETIRING BOARD MEMBER GEORGE GIROD REFLECTS ON THE ROOTS OF ENVIRONMENTAL STEWARDSHIP

By Brian Noell, Administrative Assistant



Photo by Ted Carland.

"The world is catching up with the Yellow Dog," says outgoing Board member and longtime YDWP Treasurer George Girod of the campaign to remake Big Bay into a hub for ecotourism. "Big Bay, as they say, is the 'end of the road,' and if we can bring people in for healthy outdoor recreation, we will all benefit." He takes some satisfaction in the fact that issues YDWP deemed important decades ago (and which were considered by some at the time to be extreme) are now enthusiastically discussed by community decision makers. Moreover, YDWP Board and staff have been asked to participate in discussions of Big Bay's future and to give advice based on our experience as stewards of public land. George is a pioneer of this cross-fertilization. A member of the Big Bay Parks and Recreation Committee as well as the YDWP Board, George has observed first-hand the shift in emphasis from resource extraction to preservation. From the adoption of Leave No Trace principles on Powell Township trails to the Big Bay Stewardship Council's own mission statement putting preservation of and access to wild lands in the forefront, George sees the growing influence of YDWP's own mission, "to preserve the Yellow Dog Watershed in its most natural state for the use of the public, now, and for the benefit of future generations."

George says the stature of YDWP in the community was earned through the passion and hard work of Board and staff over the years, building on the efforts of organization founders. The pivotal moment, he states, was the purchase in 2016 of over 600 acres of JM Longyear property along the Yellow Dog, most notably the parcel that is now the Community Forest. He recalls that YDWP had only \$75,000 in the bank when Longyear offered to sell all their riverfront land for 2 million dollars. The Board pledged unanimously to raise the money and get the deal done. George had been an officer in professional organizations during his career, and he knew this was an extremely heavy lift for a small grassroots group. He notes that the 1 million dollars eventually raised for the Longyear purchase amounts to an impressive achievement, which cemented the reputation of YDWP in the local community and beyond.

YDWP's mission statement obligated the organization to allow the public to enjoy the new acquisition. While it was important to achieve a balance between preservation and access, George believes that access is ultimately the only way to convince people of the value of preservation. "We are fighting for the right for everyone to enjoy the natural beauty of this place. If they fall in love with it, they will want to protect it," he says.

George got involved with YDWP in 2005, shortly after purchasing a 5-acre parcel near the Yellow Dog River. Living downstate at the time, he had fallen in love with Pictured Rocks and Isle Royale on backpacking trips, vowing someday to live halfway in between. George recalls with a chuckle that, during the walk-through of the land he now calls home, the realtor indicated the Yellow Dog River across the street with the disparaging remark that there was a "crazy group trying to prevent development along the river." He remembers, "I kept it to myself but immediately thought that was the group for me." A random encounter with Chauncey in the Big Bay laundromat led George to attend his first YDWP meeting. In 2011 he became a Board member and Treasurer simultaneously, guiding YDWP in financial matters until 2019.

George has had abundant experience in leadership of professional organizations, but he says that YDWP is special in that its Board members have "soft skills". He observes, "We have this way of treating everyone well, keeping them engaged, and allowing everyone to have a say. Everyone is important, has a role, and is respected." This culture of mutual esteem filters down to staff and beyond to donors, members, and volunteers. "We need to keep this atmosphere of love and friendship," he says. "When we meet from this spot, we all do our best by the river."

George is a believer in the impact that one's love of land and water can have on others, and, ultimately, on the political process itself. He recalls that on one of his early visits to the UP, he brought his mother-in-law, who had very little experience with wild places. As they strolled together at Presque Isle, he won her over to the place by sharing the blueberries he found along the wayside. Such encounters make conservationists out of ordinary people, says George. As a member of the Big Bay Parks and Recreation Committee, he is advocating for cultivation of native fruit trees and bushes along the planned interpretive trail, so that visitors, particularly children, may discover for themselves the small wonders of nature and embark on their own journey of preservation.

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COASTER BROOK TROUT RESEARCH & REHABILITATION PROJECTS

By Dr. Christopher Adams, Michigan Technological University



Christopher Adams releases a brook trout that has been implanted with a Radio Frequency Identification (RFID) tag.

Intro

Coasters are brook trout that inhabit in the upper great lakes, and some populations migrate into tributary habitat for part of their life cycle. They can reach larger sizes than stream resident brook trout, and many anglers dream of a once-in-a-lifetime encounter with one. Historically a popular sport fish in the Upper Peninsula, coaster numbers have dwindled due to overfishing, habitat degradation, and interactions with non-native species. There is a shared interest to rehabilitate these populations. Collaborative efforts by government agencies, university researchers, tribes, and non-profits are utilizing cutting-edge techniques to better understand coaster biology, a key step toward protecting and enhancing populations. The following overview highlights the diverse research and rehabilitation projects currently focused on coaster brook trout in Michigan waters of Lake Superior.

Protective Regulations and Population Monitoring

Protective fishing regulations are being used experimentally to determine if they may help to rehabilitate coaster brook trout populations in reaches of eight rivers in the Upper Peninsula. Angler take of brook trout in these sections is limited to one fish and a minimum of 20 inches. The intent of this regulation is to increase size and survival of brook trout, and therefore increase the likelihood of a migratory life history (coaster). To evaluate changes in brook trout population structure, the Michigan DNR conducts electrofishing surveys on these eight reaches and nearby control reaches so that comparisons may be made to waters without the protective regulation. In addition, the USFWS is conducting shoreline electrofishing surveys in the Keweenaw Waterway (KWW), Big Bay, Isle Royale and near Marquette to index coaster abundance and monitor trends over time. Other agencies are conducting this same work at key locations around Lake Superior.

Radio Frequency Identification Tagging

In order to obtain more detailed data on brook trout movement in one of the eight special regulation rivers, a fish movement study was done by Michigan Technological University (MTU), DNR, and USFWS. Brook trout in the Pilgrim River were implanted with radio frequency identification (RFID, similar to the chip you would put in your dog). In-stream RFID antenna stations were installed at four sites within the watershed to track the movement of tagged fish without having to physically recapture them. Antenna stations operated throughout the year and under ice cover, providing fish movement data during periods when other sampling methods are not possible. Approximately half of the brook trout tagged in the Pilgrim River migrated out into the KWW, which is connected to Lake Superior on both the East and West sides of the Keweenaw Peninsula. This confirmed that the Pilgrim River supports a migratory brook trout population, and some have migrated upstream well past the

boundary of the special regulation. Based on these findings, the DNR expanded the protective regulation to include the entire watershed. This work was funded in part by student research grants from several Trout Unlimited chapters: Copper Country, Fred Waara, and Kalamazoo Valley, as well as the Greater Lake Superior Foundation (this project was part of the author's dissertation from MTU). The Oak Brook Chapter (Illinois) recently donated to MTU to aid in continuing this work, and additional funding is being sought to expand this project.

Acoustic Tagging

While RFID tags are a great tool for studying in-stream movements, it is not feasible to use them on open water systems. As an alternative, acoustic tags actively send out a signal that may be detected a quarter mile from a receiver, therefore making them incredibly useful for tracking movement in larger scale environments. USFWS installed a network of over 30 acoustic receivers throughout the Keweenaw waterway and nearby waters of Lake Superior as part of a multi-species fish movement and spawning migration study. USFWS, DNR, and Michigan Tech will acoustically tag large brook trout from the Pilgrim River and potentially other KWW tributaries this fall to study their movement and migratory behavior in lake habitats over a 2-year period. This work will help focus ecological research and management efforts on appropriate geographic scales.

Microchemistry

Tagging studies are useful for documenting movements of individual fish, but are relatively labor intensive and costly. Inexpensive, non-lethal techniques to document coaster brook trout occurrence are needed by fish managers. Analysis of the chemical composition of bony structures and soft tissues may be the answer. These structures assimilate the different chemical constituents present in the lake or river in which the fish lives and they may indicate if an individual was living in Lake Superior or a tributary during earlier life segments. Traditionally, the otolith (ear bone) has been used for these studies on more abundant species. Obtaining otolith bones is a lethal procedure, and therefore is not suitable for populations of low abundance such as coasters. However, methods are being developed by Dr. Kevin Pangle at Central Michigan University in collaboration with the DNR and MTU, using this same technique on maxillary (upper lip) bones, which may be collected non-lethally. Dr. Brandon Gerig at Northern Michigan University and the DNR are examining the feasibility of using isotope signatures of brook trout fin clips (a soft tissue sample rather than a bony structure) to document Lake Superior-based foraging by stream-caught brook trout. Simply put, if recently produced fin tissue of a stream-caught brook trout shows a stable isotope signature indicative of Lake Superior forage items, then managers can infer that the fish had migrated into the river from the big lake. These studies were initiated as Michigan-based projects, but an additional project funded by the EPA has expanded this work to include samples of brook trout collected agencies from around the entire Lake Superior Basin.

Genetics

A question that often comes up regarding coasters is whether there is a genetic basis to the coaster life history. Researchers at Michigan State University led by Dr. Mariah Meek and Dr. Nadya Mamoozadeh are comparing genetic variation between resident and migratory brook trout from three geographic regions: the Pilgrim River near Houghton, the Nipigon region of the Lake Superior north shore, and a coastal area of Maine (where migratory brook trout are called "salters"). The tagging data collected on the Pilgrim River is an important component to this project because the life history of sampled individuals is known. Answering this question is important for understanding whether specific genetic variants must be present for brook trout to exhibit a migratory life history. This work will complement recent research to survey

(continued on page 8)

SAME RIVER, DIFFERENT WATERS: NEW BOARD MEMBER STEPS IN

By Jacklyn Lenten, Director

I was born and raised in Negaunee, just off County Road 510, so the Yellow Dog Watershed has always, quite literally, been in my backyard. I have early memories of driving up and down 510 as a sort of fall color tour, and I can recall a handful of times as a child when I actually hiked in the Yellow Dog Community Forest with my family. But, my real involvement with the Yellow Dog Watershed Preserve didn't start until years later. It's incredible to look back at pictures of my younger self standing at the first falls, completely ignorant to the conservation work the organization had been doing and blind to the role I'd have in protecting the watershed in the future.

My first formal experience with YDWP was in the spring of 2019. As an Environmental Science student at NMU, I heard the Yellow Dog Watershed Preserve was looking for volunteers for their stream monitoring program. I signed up thinking the experience would be a good way to boost my resume, but again, I had no idea how this one afternoon would be so impactful on my life. Of course I signed up my mom, Kathy Binoniemi, as well. If either of us is going to explore the woods, the other is coming along too. It's been that way as long as I can remember. So, on a Saturday morning, we drove up to the Yellow Dog office and met Sarah Heuer and Sergey, piled into her truck, and took off for a sampling site on the Salmon Trout River within the borders of the Huron Mountain Club. It was a great day collecting macroinvertebrates and the first of many adventures to come.

My next outing with the Yellow Dog Watershed Preserve wouldn't come until September 2020. As Co-Leader for the NMU Conservation Crew, I helped organize a team of students to participate in the YDWP annual tree planting event on Lost Creek. It was a cold, snowy day, and Chauncey Moran in particular seemed to take a liking to our group, since we were fresh, young faces. I was blown away by the community that formed around the Yellow Dog River, and it was an incredible day that I can recall vividly. We all huddled together under a canvas tent, taking shelter from the snow, eating warm soup, discussing our conservation interests, and exchanging contact information.

I think everyone can relate to networking dilemmas, when we share our excitement about something with someone else, discuss great ideas for the future, exchange contact information, but then neither party reaches out following that initial conversation, and those great ideas dwindle and never see the light of day. This was far from the case with myself and Chauncey. I think we both surprised each other following the tree planting event. He actually called, and I actually answered. Since first meeting Chauncey, we've had many adventures within the boundaries of the Yellow Dog Watershed. I've seen waterfalls many people don't even know exist; I've learned the most ef-



Jacklyn Lenten standing downstream of Hill's Falls in the Community Forest on the Yellow Dog River.
Photo by Jane Fitkin, October 2019.

ficient ways to haul firewood and how to tear out beaver dams without the use of explosives; but most importantly, I've gotten to hear the stories of the Yellow Dog Watershed Preserve.

The hands-on experience I got with Sarah, combined with the stories of Chauncey's lifetime in the watershed convinced me this is where I belong. It's not surprising so many people would fall in love with the watershed. It's breathtaking, and the bond these people share over their mutual love is equally astonishing. My hope is that my knowledge of the physical sciences and experience running the NMU Conservation Crew brings a new perspective to this organization. I want to jump into fundraising and outreach events and learn more about the chemistry and biology of the watershed. But, most importantly, this formal role on the Board of Directors allows me to learn about the people that call this place home, as well as their hopes and aspirations for the future of the watershed and the organization. I'm excited to learn from them, and I want to ensure that my ideas align with their values. I'm excited for years of adventures and growth, and I can't even begin to thank the people who led me to the place I'm in now. It truly is a dream come true.

What's up on da Dog, eh?

UPCOMING EVENTS

MARCH 5TH, 2022 YDWP ANNUAL SKI EVENT

Back country ski for intermediate to advanced skiers.

AUGUST, 2022 (DATE TBA) FLY FISHING WORKSHOP

Partnering with the Fred Waara chapter of Trout Unlimited, YDWP will host a 2 day workshop on the Yellow Dog River.

SEPTEMBER, 2022 (DATE TBA) YDWP PLEIN AIR FESTIVAL

Artist's paint their surroundings in the Community Forest, capturing the essence and spirit of the landscape.

FREE STROKES

By Kathy Binoniemi, YDWP member

A little over two years ago, my daughter Jacklyn Lenten, asked me if I would like to volunteer with the Yellow Dog Watershed Preserve doing stream habitat assessment and macroinvertebrate collection. Having no idea what that meant other than it involved water, I said yes.

That may seem like a strange introduction to what inspires me to paint what I paint, but that day I spent with Jacklyn, Sarah Heuer, and her beautiful German shepherd Sergey, on the banks of the Salmon Trout River was the beginning of several inspiring opportunities that getting to work with the YDWP has presented me with.

I have been drawing, and painting with acrylic as my medium of choice, since I was young. I am self-taught, and with acrylic it is easy to paint over whatever isn't turning out the way I hope. Lots of trial and error. I've done commissioned work: murals in the Negaunee City Building, The Depot



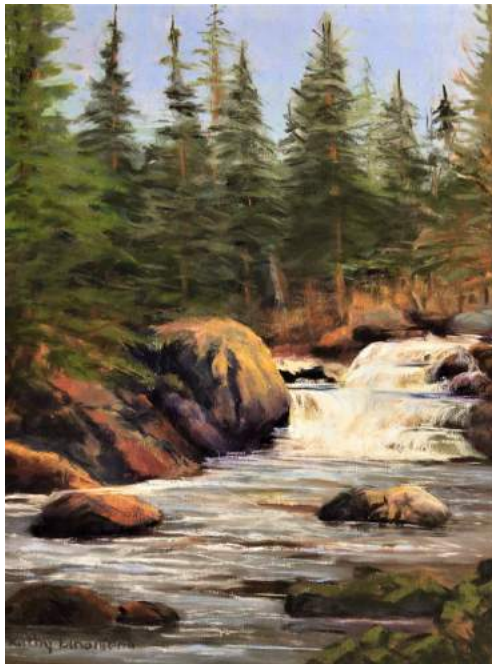
"Superior Bluffs," by Kathy Binoniemi.

in Negaunee, the cover of a book, and drawings of Model A Fords. I was even commissioned to create a drawing that is now carved into a client's headstone at their (future) final resting place in a California cemetery. A couple of years ago, however, I discovered pastels, and that changed everything. Pastels are pure powdered pigment and a binder in stick form. The old masters, Mary Cassatt and Edgar Degas, for example, worked in pastel. With pencil drawing and acrylic painting, my style has always been photorealistic. When I discovered pastel painting, I found that I could create the atmosphere or moodiness that was missing with photorealistic painting.

I was born and raised in the UP by a dad who loved the outdoors, and so woods, rivers, creeks, and swamps were an everyday part of my life from the beginning. I have raised my children, who are now raising my grandchildren, in the UP. I've always been drawn to landscapes, especially those with water. Being introduced to the out-of-the-way areas my daughter has been exposed to thanks to Sarah and Chauncey Moran, has increased my desire to paint the beauty of the wild UP. I want the viewer to remember the discovery of a place. If I can make them catch their breath at what they see or exclaim, "I know where that is!", I know I've done the place justice.

I was lucky enough to be "volunteered" for two more macroinvertebrate adventures this past October on Snake Creek and Clear Creek, and even though I've gotten a little better at telling stonefly larvae from caddisflies and scuds, I'm glad it's going to take many, many more stream habitat assessments in those out of the way places to be proficient... And I can't wait to see what creative inspiration that next stream/waterfall/swamp provides.

"UP Marsh," by Kathy Binoniemi.



"Yellow Dog River," by Kathy Binoniemi.



COASTER BROOK TROUT RESEARCH & REHABILITATION PROJECTS

(continued from page 5)



A group of migratory brook trout holding in a pool in the Pilgrim River during the summer of 2017. Photo by Christopher Adams.

genetic variation in brook trout from 36 rivers and shorelines around Lake Superior, a project made possible through a collaboration with MSU and USFWS, as well as efforts by MTU and natural resource agencies for the states of Michigan, Wisconsin, Minnesota, and the Keweenaw Bay, Red Cliff, Bad River, and Grand Portage Bands of Lake Superior Chippewa. Another important research question that genetic analysis is attempting to address relates to potential impacts of hatchery-reared fish on natural populations. Splake (brook trout crossed with lake trout) may pose a particular threat because of the overlap in habitat and potential to backcross with wild brook trout and lake trout. An article by Larry Brown in the summer 2020 issue of *Michigan Trout* discusses this issue in depth.

Restoration


Learning about the migration patterns and ecology of coasters is an important step, but what then can be done to rehabilitate populations? Protective harvest regulations were discussed earlier, but habitat restoration may be a key strategy in some locations. Perhaps the largest and most studied population of coasters in Michigan occurs in the Salmon Trout River north of Marquette. Dr. Casey Huckins and students at Michigan Tech University such as Darren Kramer (now with DNR) along with Dr. Ed Baker (DNR) and the Huron Mountain Club operated a counting weir from 2000 to 2012 to better understand the timing and abundance of coasters in this mid-sized Lake Superior tributary. In addition, surveys have been conducted annually to identify locations where spawning occurs. Overall, the coaster population has remained at a critically small size. Spawning sites are limited to a few reaches that have abundant gravel substrates and groundwater upwellings. Unfortunately, severe sedimentation from watershed degradation has inundated these sites with sand. Several years ago, Huckins's lab used a hand-held hydraulic dredge (SandWand™, Streamside Environmental) to actively remove sand from a key coaster spawning site resulting in improved spawning habitat and brook trout recruitment. In collaboration with Dr. Troy Zorn of the DNR, new funding has supported a project to continue and enhance this restoration to increase reproductive success of coasters into the future. While this is not a long-term solution, it may be the only chance at keeping this population viable until the bigger problems can be addressed, and the watershed stabilized.

Isle Royale Projects and Stocking in MI Waters

At Isle Royale, coaster populations are present in several locations around the island. In 2005, catch and release only regulations were placed on coasters and stream dwelling brook trout. Since then, shoreline electrofishing, netting, and RFID tagging projects led by Henry Quinlan (USFWS) have shown a steady increase in coaster abundance and expanded range at the island. Coast-ers at Isle Royale continue to be the source population for brood stock and

production fish reared at the USFWS Iron River and Genoa National Fish Hatcheries. Since creation of Isle Royale hatchery strains in 1995, over 1.2 million fish have been stocked in Michigan waters of Lake Superior or streams with access to the lake.

It should be clear from this article that a great deal of effort is being put toward improving understanding of coaster biology. Findings of these projects will help managers to better identify, protect, and restore coaster populations. The coming decade may be a critical time to be vigilant of and actively support coaster populations in the Lake Superior watershed before we lose them. This task seems daunting at times, but it is easy to stay enthusiastic about these incredible fish, especially if you are fortunate enough to encounter one in the wild.



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FALL TREE PLANTING ON LOST CREEK, 2021

We had another great turnout this year for the tree planting day on Lost Creek, a major tributary to the Yellow Dog River. Over 40 volunteers pitched in on October 16th amidst sunshine and intervals of light rain. The event was made possible by a \$5,000 grant from the Cleveland Cliffs Foundation and was coordinated by the Fred Waara chapter of Trout Unlimited, the Yellow Dog Watershed Preserve, and the PWR Brook Trout Committee.

Volunteers planted 1000 cedar and white pine plugs, and 250 potted cedar, white pine, and hemlock saplings. These long-lived conifer species will improve trout habitat by shading and cooling the river when they mature, and also provide bank stabilization and reduce sedimentation. Lost Creek enters the Yellow Dog River within the Yellow Dog Community Forest just upriver from Hills Falls. With summer temperatures increasing, these feeder streams will become increasingly important for aquatic habitat and for keeping the river cool.

The tree planting was immediately followed by the YDWP annual meeting at High Rock Lodge, where we were rewarded by warm food, beautiful vistas, bald eagles, and rainbows. Special thanks to John Highlen of the Fred Waara chapter of Trout Unlimited and Jeff Koch of Partners for Watershed Restoration for spearheading the event. Our gratitude goes out as well to all who volunteered their time and energy to make it a success!



Photos by Ted Carland, Jeff Koch and Chauncey Moran.



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BACK IN THE DAY: GO NORTH, YOUNG MAN

By Frank Farwell, YDWP member

*From the 1977 Guide to Cross Country Skiing by the Editors of SKI Magazine.
Reprinted with permission of the author.*

From Sault Ste. Marie, on the western bank of the St. Mary's River, to a point just west of the town of Ironwood, near the western tip of Lake Superior, Northern Michigan stretches from Canada to Wisconsin through woodlands rich in folklore and legend and ideal for cross country skiing.

Cross country skiing is more of a newcomer to the U.P. and other parts of the Midwest than mining and lumber, but its expansion and revival have been far more dramatic. It is fittingly so. The upper reaches of the Midwest are largely populated by Scandinavian stock, and within the last handful of years, Scandinavian-born students at the Marquette-based Northern Michigan University have led the Nordic ski program to national prominence. At last year's NCAA cross country finals, NMU students took two of the top four places.

A wave of enthusiasm for recreational cross country skiing has followed. The region encompassing the U.P., Minnesota, and northern Wisconsin is the fastest growing area for cross country in the U.S. Hence a wishful skier in an urban Midwest center has one sure-fire solution to join some of the best aspects of the Nordic scene: head north. One balmy March afternoon in Chicago last season I did just that.

Seven hours later I deposited my auto between snow drifts in Ishpeming, a small town tucked away in the center of the U.P., along with the National Ski Hall of Fame. My former college roommate greeted me, apologizing for the snow conditions.

"You should have seen it last week, before it started melting," Dave Brown remarked casually. I rolled my eyes. Many of the drifts along the sidewalk were nearly at eye level.

We began a marathon ski weekend the next morning with a 25km citizens race put on by the Ishpeming Ski Club. The race, Dave informed me, would get us loosened up for the object of our planning: skiing into the Yellow Dog Plains in the depths of the Michigamme State Forest north of Ishpeming.

A tube of klister and two dozen oranges later we turned in our racing bibs and drove east to Marquette, and then north towards Big Bay and the entry point to the Yellow Dog.

We ate a light picnic lunch from a day pack and then headed for a cabin about 15 miles to the west where a warm hearth, dinner – and a sauna – awaited.



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Editorial credit page from spring 1977 issue of SKI Magazine.

It was after 5 p.m. as we set out, but the thermometer still read well above freezing under a warm, late afternoon sun. We skied several miles on a long straightaway, and then dined briefly under the shelter of a wide-branched pine as a chilling rain began to fall. As we worked our way up a series of short inclines an hour later, the rain increased to a full shower. A few minutes later it turned to snow, falling so heavily we could barely discern the snowline from the row of pines above.

Our clothing was quickly soaked, and with the temperatures promising to dip well below freezing that night, once the showers passed, the combination of a wrong turn and no sleeping bags could spell real trouble.

By 9 p.m. the snow shower increased and had almost entirely covered tracks left by travelers headed for the same destination earlier that day. At each visible joining of trails or lumber roads we stopped and pored over our topo map with a flashlight. The snow whiteout had obscured a nearly full moon and had made an originally challenging task of navigating nearly impossible. If we had picked the proper route in this labyrinth of back trails and lumber roads, and if we were following the remains of the right east-west tracks, then all we need do was continue. If we had slipped at any one intersection – well, then it would be an interesting night.

About 10 p.m. we crossed a short bridge span over a river which faintly brought back memories of

other visits to the cabin during the summer. Through the black swirling of the wet snowfall the light shone on the headwaters of a river which matched our desired map location, about four miles east of the Baraga County line.

With the strength of renewed spirits, we jogged up a facing hill and then followed the pathway as it swung due west from the incline. We had no miner's lamps, and the flashlight was virtually useless except for an occasional spotlight survey of landmarks along the way.

We felt in the dark with the edges of our skis, carrying a wide stance and shuffling stride. Anything resembling good technical form would have been immediately knocked over by the undulations in the trail. Under the accumulated effort of the day we had long since swallowed our pride in terms of skiing with style. We were hunched over, grinding it out mile by mile. We took turns rebreaking the trail along the roadbed, sometimes feeling an estranged exhilaration in our fatigue.

"Where are we?" Dave asked no one in particular.

"Lost," I answered, as we both pushed off the top of a hill, skiing absolutely blind downhill like two sailing dinghies in a rolling sea at the dead of night.

Twenty minutes later we stopped half a dozen times in the space of 100 yards. At each stop the map came out, and we studied its miniature detail.

By the sixth stop, doubt smothered our revitalized hopes for finding a dry bed that night. There was no recognizable turn-off to the south as we had expected.

A few moments later we felt a new sensation at the tips of our skis: we were breaking trail. At the switch of the light we let out a joint sigh of relief. Under the glimmer of the flashlight stood a weathered sign marking the cutoff to the cabin, shining dimly from the trunk of a tree overhead.

On a final plateau of energy, we bushwhacked through the woods, missing the cabin on the first three tries in the dim visibility, and then finding it on the fourth. Inside we could hear the laughter of a good story, and saw the outlines of chairs gathered around the hearth of a mammoth fireplace. We piled our skis on the porch and forced open a swollen barn-type door. At once six heads turned our way. There was dead silence.

"Holy Mackinaw," Fred muttered through a gaping mouth, looking at his watch and then our snow-covered forms. "Get out the steaks."

Although we were thought to be waiting until Sunday morning to begin our trek in, they had set aside two enormous hunks of beef.

"How do you like your steak," a volunteer cook asked Dave, who looked on, like Robinson Crusoe suddenly delivered to the kitchen at Maxim's.

"Rare," Dave answered slowly, with an unbelieving smile.

And then we ate. Potatoes, steak, salad and other delights too quickly devoured to remember. We shoveled it in with both hands, and swamped it with soda, milk, coffee and anything liquid that was lying around.

And then we slept like two slabs of granite. We snored in front of the glowing hearth for a solid eight hours. Fred filled the night with tales of the past from chapters of his U.P. history manuscript. A veteran guide during the summers, he knew every inch of Marquette County, and remnants from every corner of it hung from the walls and rafters of the cabin as testimony.

Today there are few Fred Rydholms left even in places like Marquette County, and there is a surplus of the species who are no longer in firsthand touch with the open lands because it is no longer a necessity to deal with them.

In the U.P., and elsewhere, the rebirth of cross country skis in winter climates



*Fred Rydholm's cabin at Mudjekewis, destination of Frank and Dave.
Photo by Chauncey Moran.*

has begun to offset this trend. Jaded by the trappings of progress, people want to do something on their own, without the incessant growl of the internal combustion engine. Cross country allows just that.

In our deep, after-dinner slumber Dave and I missed some classic stories from Rydholm's storytelling vein: Dutch John's potato-gin (made from "Schwamp-water" and on which he nourished himself all winter); Indian Tom Wastakin's construction of a one-piece canoe paddle with an axe and single block of cedar, in less than one hour; the ghost of White Deer Lake, and several other gems. We would return to hear the details next season.

Sunday morning we steamed our weary limbs in a true Finnish sauna and then twice rolled in the snow. In the afternoon we retraced our trail in the daylight to the paved surface of the county road and the beginnings of civilization, perhaps not unlike hundreds of other Nordic skiers had done that weekend.

Back in Chicago two weeks later, I opened a letter from Dave and read that the trout fishing was not looking good: it had snowed six inches in Ishpeming.

Holy Mackinaw!

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LITTLE BIG GUYS: STONEFLIES, SCUDS AND TROUT POPULATIONS IN THE WATERSHED

By Sarah Heuer, Programs Coordinator

I've noticed a shift in focus since I started my field work with the YDWP. As time passes, I'm seeing things differently when it comes to river ecosystems. At first, I attended mainly to the "little things" and became proficient at macroinvertebrate identification. That became a key to deciphering the web of life that exists simply because clean water flows. Bugs are here in abundance and diversity, I have observed that for years, but what about the fish? I am not a fish biologist, but I can testify to the relationships I am beginning to discern between the fish in our waters and two particular macroinvertebrate species. Stoneflies and scuds are the 'little big guys' of our watershed, the meat and potatoes of the river ecosystem.

Collecting maple sap last April, I was peering into my buckets and surprisingly found a few small stoneflies swimming in the sap. Why? I had been unaware that winter stoneflies emerge from the river in the winter months to find a perch, molt and return to the river to mate and lay their eggs. According to biologists, Stark, Szezytko and Nelson, "It is common to collect several species of *Allocapnia* (a genus of small winter stoneflies in the family Capniidae common in the UP) at a single location on the same day. Adults can be extremely abundant during parts of their emergence period. Adults can also be collected with regularity high on streamside trees."

Many winter stoneflies have reduced wings or may have no wings at all, often resembling nymphs. So, whether they were nymphs or wingless adults in my buckets, it was an eye-opener for me and a misfortune for the stoneflies in their last and final quest to metamorphosize and reproduce.

We care about stoneflies because they are indicators of clean water, due largely to their less efficient respiration systems as compared with other aquatic insects. This means that they require higher amounts of dissolved oxygen. Their cold-loving nature allows them to flourish in the dead of winter, when a river's DO levels are at a peak. Their unusual multi-year lifespan (in the nymph stage), is advantageous for hungry predators, especially during times of the year when many other resources are scarce or inactive. Fly fishing enthusiasts know this and learn to fish winter stonefly hatches, using and tying flies which mimic the winter stonefly (also nicknamed "winter snowfly").

For for a hungry trout (and a fly fisherman) the most significant moment in an adult stonefly's life is when they deposit their eggs. They don't just drop them into the water; rather they slap their bodies against the surface to free the eggs from their abdomen. The sound they create grabs the trout's attention, unknowingly ringing the dinner bell for their underwater adversary...and for the fisherman in the shallows.



*Stonefly collected in November 2021 from one of our Salmon Trout sites in the Huron Mountain Club.
Photo by Sarah Heuer.*

Back in the water, their offspring have a short period of growth before entering a diapause state that lasts the entire summer. Dormancy is broken in the fall, and their growth accelerates during the coldest months of the year. This cycle of underwater growth continues for up to 3 years until once again they migrate from their aquatic abodes in order to procreate and ultimately perish in only a few weeks of terrestrial life. The stonefly's journey to adulthood, mating and reproduction is quite the feat for such a weak swimmer. Their adaptation to the unyielding, frigid winters makes life possible, both for themselves and the fish that depend on them as a food source in times of scarcity.

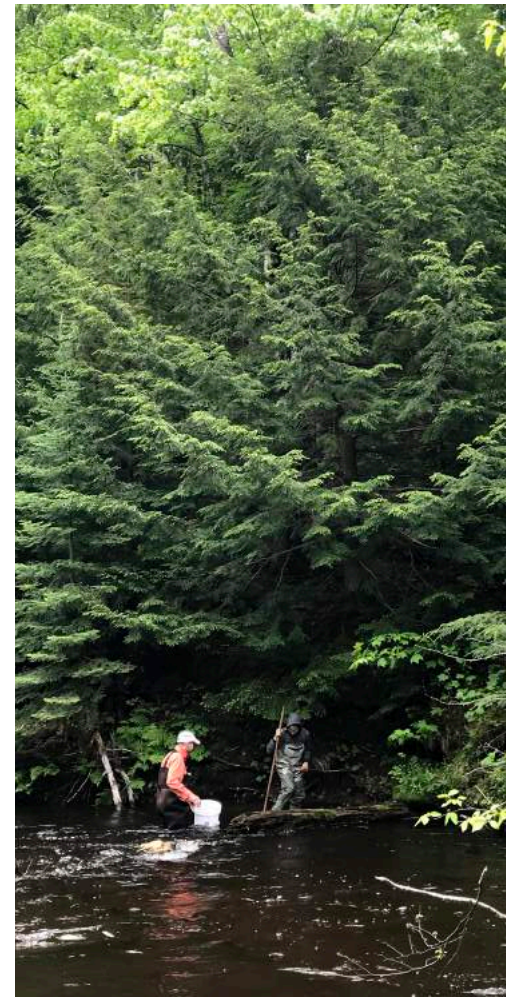
If the stonefly is the brook trout's winter food of choice, the scud, a macroinvertebrate species in the crustacean order Amphipoda, appears to be its preferred dining option the rest of the year. This fall's water monitoring yielded more brook trout captures than ever before in our kick nets. We found some of the most sizable trout in the Salmon Trout River and its tributaries. One of my volunteers, good friend and running partner, Keith Kuykendall, recalled a memory from his past that gave me a clue about the relationship between scuds and trout populations:

"The most obvious difference between the Salmon Trout and the Yellow Dog was the abundance of what Sarah calls 'scuds'. Growing up, I fished Spearfish Creek in the Black Hills of South Dakota with my father. He used an unorthodox technique where he placed live bait on a tiny hook and cast with ultra-light spin casting tackle. He used this setup to mimic the technique of fly fishermen, casting upstream and allowing the current to carry the baited hook to deep pools where the fish were. We fished for small brook trout. The creek had

some natural reproduction and, as here, my dad could recognize a native fish by its brighter color and bigger fight. The few we took home to eat were distinguishable by an orange-pink flesh vs. the pale white of hatchery fish. As with fishermen in the UP there was a certain contempt for the less-admired stocked trout. The live bait we used was always harvested from the same stream we fished, mayflies and caddisflies if that's all we found, but scuds (or as we called them freshwater shrimp) when they were available."

In his recollection of childhood fishing excursions, Keith strongly associated scuds with water where trout are found. He noticed that the Yellow Dog had very few, but the Salmon Trout was teeming with them. He also recognized in the Salmon Trout the type of vegetation he remembered from spots where he and his father could routinely find these macroinvertebrates, and the trout they were seeking.

This keen observation caught my attention. Upon reviewing our data sheets, I found that only 2 of



Sarah Heuer and Keith Kuykendall on the Salmon Trout, downstream of Lower Dam in the Huron Mountain Club. Photo by Kristi Mills.

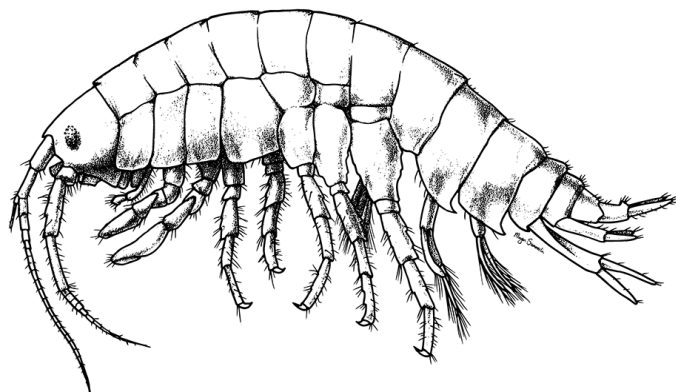
our 10 monitoring sites on the Yellow Dog contained scud populations, and almost all of our Salmon Trout sites were downtown scud city! The Yellow Dog sites that harbored numerous scuds had very similar habitats to areas on the Salmon Trout. They happened to be in the Jean Farwell Wilderness Area, before the river reaches Lake Independence, and on the Iron River, coming out of Lake Independence.

The scuds that we find here are of the *Gammarus fasciatus* species, which like to hang out in macrophyte beds (rooted aquatic plants and algae). They cling to these plants during the day to remain elusive from prey, but catch their “drift” (flowing downstream) in the early mornings/evenings during times of low light to forage on fresh greens. Trout that catch on to their patterns hungrily enjoy a plethora of these juicy morsels. When I think of our monitoring sites on the Salmon Trout, most all of them are particularly accommodating to scud populations: lots of underwater foliage and clean cool, calm waters.

Unlike stoneflies, scuds (often called “sideswimmers”) have good mobility. They use a cyclic motion in which they push water back in a power stroke, and return their legs forward in the return or recovery stroke. This push and pull movement is called drag – reducing drag on the return stroke is crucial for maximizing efficiency. When out of direct current, they are capable of quickly burrowing themselves in the riverbed to hide from predation.

Their lifespan is much shorter than that of the stonefly, only about 1 year. They are non-metamorphic, meaning they do not have a defined larva stage. Baby scuds look the same as adults. Scuds molt, shedding their exoskeleton many times throughout their lifetime, growing in size with each molt. They are considered scavengers, eating dead and decaying organic material and then recycling it back into the system as nutrients that are used by other members of the aquatic food chain.

Particularly interesting is that, when a scud is dying, it will commonly turn



*The scud species found in our waters: Gammarus fasciatus.
Illustration by Morgan Summerlin.*

orange or pink in color. The color of trout flesh actually comes from an orange pigment called carotene found in senescent scuds. When ingested, this pigment gets transferred to the tissue of the fish. Thus, native brook trout are “distinguishable by an orange-pink flesh,” as Keith observed.

The humble scud often is overlooked by fly fisherman, maybe due to its lack of luster and non-complex life cycle. But when trout are feeding opportunistically, you are likely to find scuds to be the first on the menu.

As I continue to survey the macroinvertebrate species that serve as key indices of river health, I discover more about other inhabitants that depend on them, and the conditions that favor their prosperity. The fish are here, but maybe it could be better for them. The bugs are our teachers. Where they thrive, others do too.





RIVER ADVOCACY UPDATE *By Rochelle Dale*

As 2021 winds its way to the end, we are completing work on a project funded last winter by Freshwater Future, an environmental organization helping grassroots groups protect water resources in the Great Lakes region. Township zoning regulations on construction setbacks along the Yellow Dog have up-to-now been inconsistent and inadequate. Moreover, landowners who build close to the river without adequate buffer strips have found their properties impacted by erosion, threatening yards, trees, and even homes (photo at right).

This \$3,000 grant made it possible for us to purchase parcel data from Marquette County and contact landowners within the Yellow Dog Watershed to inform them about the importance of buffer zones and native plant cultivation along the river and its tributaries. We also have advocated before Ishpeming, Powell, and Champion Township board and/or planning commissions to promote stronger building setbacks along the river corridor. These meetings have opened the conversation, and we will continue our discussions in the winter, when the commissions reconvene to discuss zoning revisions. Information on how to prevent erosion on your waterfront property by creating or maintaining natural buffer strips is now available on our website. Thank you Freshwater Future for your support!



*A cabin on the Yellow Dog built 40+ years ago in accordance with regulations still in effect is a illustration of the need for greater setbacks.
Photo by Chauncey Moran.*

KIRTLAND'S WARBLER POPULATION HOLDING STEADY *By Nancy Moran*

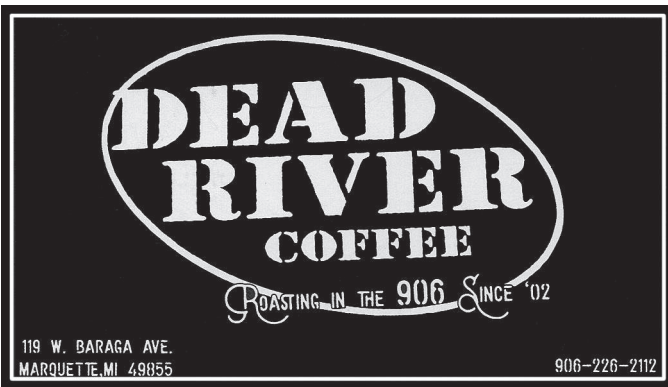
The Kirtland's Warbler Census conducted this past June throughout Michigan, Wisconsin, and Canada counted an estimated 2,245 pairs, with a record number of singing males tallied in the Upper Peninsula. 67 birds were heard singing, up from 40 in 2019. The birds found in the UP were on state land and in the Hiawatha National Forest.

A bird identified within the Yellow Dog Watershed Preserve later moved to nearby state land and was counted in the survey. Also, 22 singing males were found in recovering jack pine in the area of the Duck Lake Fire of 2012 (Luce County in the Eastern UP), which burned over 21,000 acres. The species is known to inhabit burned-over areas, which support a thick growth of jack pine necessary for nesting. In Wisconsin, 39 singing males were found, the majority in Adams County, where the population of the once endangered bird has been increasing since first detected in 2008. Ontario also saw a rise in the KW population, with 22 birds identified.

This was the first full census of the Kirtland's Warbler since 2015 (there was a partial census in 2017 and 2019), and it appears the bird continues to find new habitat and increase population. Still, the monitoring will continue, carried out by the Kirtland's Warbler Conservation Team, a consortium including US Fish & Wildlife, MDNR, WDNR, Canadian Wildlife Service, Huron Pines, Kirtland's Warbler Alliance, American Bird Conservancy, and California University of Pennsylvania.

So, now the birds are wintering in the Bahamas, where they are studied by local and U.S. researchers. We look forward to hear them singing in the jack pine in June as they journey to their nesting grounds once more.

*At left: Kirtland's Warbler wintering in the Northern Bahamas.
Photo from abacobirds.com.*



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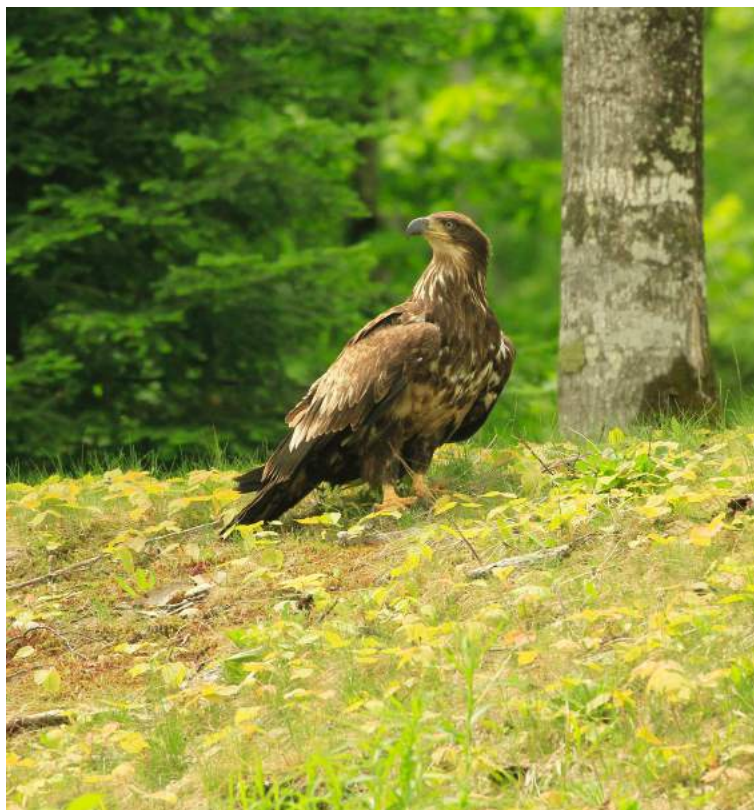


YDWP would like to recognize The Cedar Tree Institute for their tree planting efforts within the watershed.

On September 4th & 11th a total of 500 white cedar trees were planted within the Community Forest on the banks of Lost Creek and the Yellow Dog River.

Fifteen volunteers from all walks of life, including guests from Seattle as well as folks from Superior Housing Solutions, Wild Church, and the Community Presbyterian Church of Big Bay.

Thank you to all those who participated!



"These photos were taken in mid June 2020 in the afternoon, as I was returning from the plains looking for KW (Kirtland's Warbler), on the AAA just south of the Salmon Trout bridge. The adult eagle flew up in the nearby trees, while the young one and a few turkey vultures remained on the steep bank. I couldn't see any road kill, however something dead must have attracted them. I suppose eagles feeding on roadkill is not as nice a story as them catching prey, however it's still part of their nature to take care of carrion. The 'mom' bird has a band on the leg!"

-Nancy Moran.