

Our Next Coalition Meetings
will be on
October 13, 2022 and
January 12, 2023
10:00 AM at the
Conservation District Office
In Harrisville



Working Together to
Restore and Protect
Our Natural
Resources

The Challenging Task of Watershed Management

Back in 1999, when PRVEL was just being formed and a steering committee of just a few committed people were working with one of our partners, Huron Pines conservation organization, to discuss how best to begin the work needed to protect and preserve the 187,000 acres of the watershed, a management plan was



Pine River at County Line

conceived and developed into the tool we still use today. Major concerns which needed to be addressed were: water quality, sediment loading, water temperature related to fishery issues, protecting wildlife habitat, and eradication of invasive species. This plan is behind every project that is undertaken and often reviewed to be sure we are on track with our goals and objectives.

Of course, funding is always an issue, since much of the work needed requires more financially than our small group can generate, so we look to our agency partners (eg. US Forest Service, EGLE, USDA, Huron Pines) to assist us in developing projects that are “doable” and can utilize volunteer hours as part of the funding. Membership support is a vital part of our being able to plan projects, both financially and with “bodies in the field”.

Another vital part of management is monitoring and reporting on the health of the watershed through programs directly involving volunteers (including the board). These include: (1) spring and fall macro-invertebrate (insect) sampling of streams, (2) nutrient sampling/ measuring at five sites within the watershed every season (including E.Coli), (3) participation in the Crowd Hydrology program where anyone in the community can observe and report stream conditions (specifically height, which can be read from an in-stream gauge), and (4) observing and reporting of invasive species to get a better perspective on locations and dominance of these unwanted plants (reporting can be done online at [Midwest Invasive Species Information Network – MISIN](#)).

It has been said that “to whom much is given, much is expected”. If we apply this thought to how fortunate we all are to live in such a beautiful area of Michigan, perhaps we can all share our time and efforts at keeping the lands around us healthy and vibrant.

Macro-invertebrate Sampling Update
Pine River Water Quality “Very Good”

While the types and numbers of macroinvertebrates found during PRVEL’s twice-yearly sampling varies by site, season and recent conditions, overall stream quality has been consistent over the past couple of years. By tallying the numbers of various water-dwelling species and applying MiCorp’s algorithms, water quality in the Pine River watershed has been determined to be “very good.”

The most recent sampling occurred May 17 at the F30/Pine River road-stream crossing. Samples were obtained by Russ Williams and Dan Stock. Doc Miller provided assistance by transferring samples to the sorting table where Carole Plunkey, Cindi McGowen and Deb Miller sorted the aquatic critters into



specimen bottles for counting and identification.

Macroinvertebrate sampling is scheduled in spring and fall, with the next event planned for **September 8** at the **Pine River campground** site on the south branch of the river. A light lunch will be provided following the collection process.

Volunteering in this activity is an excellent opportunity to be involved in habitat and water-quality monitoring and to become more familiar with our watershed. PRVEL supporters as well as watershed residents are invited to participate and to observe PRVEL in

action. Contact Deb Miller at millerdb613@gmail.com if interested.

OUR TREE PLANTING PROJECT

The tree planting project along Van Etten Creek is forming up to occur in spring of 2023. We have been working with Michigan EGLE to clarify grant details and expect a finished draft soon. Our plan calls for planting 300 trees along the creek on Alcona County Road Commission property. The parcel is located along Barlow Rd near Pine River Trail in Greenbush Twp. This planting project will establish a forested riparian buffer that will provide for a number of conservation benefits.

The Alcona Conservation District is a key collaborator on this project. The EGLE grant will reimburse project costs up to around \$12,500 but does not provide any up front funds. The Conservation District will provide the up front working funds for the project and be made whole by the PRVEL with the EGLE grant funds.

Northern white cedar, balsam fir, and spruce, will be planted and protected with wire fence rounds to prevent deer browse. Other species may include balsam poplar, river birch, and willow. The size of the planting stock will be determined in the future based on availability and cost, with the intention to acquire the largest stock we can.



The project site

It will take a lot of effort to successfully plant 300 trees and install protective fencing. An enthusiastic group of volunteers is hoped for - so if you are up for a fun day with lunch provided please reach out, and stay tuned. The PRVEL can be reached through the Alcona Conservation District

(www.alconaconservation.org) at 989-724-5272, or email to alcona.conservation@macd.org.

2021 Phosphorous and Suspended Solids Monitoring Update

Stage measurements continued to be taken on the Pine River at the county line and the Van Etten River (Lower Van Etten Creek) where it leaves the lake to determine the relative impact of upstream and lake shore nutrients and solids. Since 2017, measurements have been taken on the South and West Branches and the Pine River (E/W) at F-30. Measurements were also taken on Van Etten Creek at the corner of Barlow Road and Pine River Trail.

Phosphorus (P) sampling was conducted in 2021 but no Total Suspended Solids (TSS) sampling was done. Stage levels were determined at the six locations throughout the sampling season.

The water level (stage) measurements taken were used to estimate the flow at the time of measurement. Measurements were collected during both high flow and low flow conditions from April through October in an attempt to characterize the quantity and quality of inflows in the system. Regression analyses were used to estimate the amount of P and TSS in the stream at each measurement time.

The estimated amount of phosphorus - P (16.4 lbs/day) entering the lake from the Pine River for the year was about 56 percent of the estimated ten year mean amount. The estimated amount of total suspended solids - TSS (4.46 tons/day) entering the lake was about 67 percent of the ten year mean. Both estimates are based on the regression method approach.

The P and TSS estimated amounts at the outlet from Van Etten Lake at the dam based on the regression analysis were 15.5 lbs/day and 0.86 tons per day respectively.

Additional flow stage curve measurements were made in 2021 to recalculate the West Branch flow curve and the apparent imbalance between the East and the East/West branch flows observed in 2020 appears to have been corrected. In early 2022, Huron Pines requested that the flow meter be returned as they needed on for their spring studies with the promise that it would be returned. It has not been returned to date.

The results of this analysis are summarized in Table 1 below.

Table 1
Pine River Tributary Sampling Results

	Flow, Q		Phosphorus, P		Solids, TSS	
	cfs	%	#/day	%	tons/day	%
So Branch (04)	57	45	4.3	38	7.5	39
East Br by difference	31	24	3.5	30	1.8	10
West Branch (41)	30	23	2.7	24	5.5	28
Van Etten Creek (11)	10	8	0.9	11	2.3	12
Pine River @ Co Line (01)	108		16		4.9	
Tributary estimate for balance (not including Duvall)						
	127	118	11.4	71	17.1	397
Van Etten River below Dam	141		15.5		0.9	

The current estimates of phosphorus and total suspended solids contributions to the lake from all sources are summarized in Table 2. These are estimates

from a mass balance model for the lake which will continue to be refined as additional sampling is completed.

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Working Together to Restore and Protect Our Natural Resources

P and TSS Update, continued from page 3

Source	Phosphorous	Total Suspended Solids
In	Lbs/Year	Tons/Year
Pine River	10804	2420
Other tributaries	657	102
Septic systems	1264	—
Lawn and woods runoff	380	Not estimated
Water fowl	351	—
Release of settled P	327	—
Precipitation	84	—
Out		
Sedimentation and uptake by plant growth by difference	(7625)	(2164)
Van Etten Creek below dam	6242	358

OBSERVATIONS

1. The Pine River is by far the major contributor of P and TSS to the lake. The indications are that the bulk of P and TSS are carried to the lake during spring melt runoff and during rain events.
2. Based on flow stage measurements made on the West Branch in 2021, the imbalance for the E/W flow seems to have been corrected. Hopefully, this corrected situation will continue in 2022.
3. Over the long term, the amounts of P and TSS leaving via the Van Etten River are consistently less than the amounts entering from all sources. The difference is due to a combination of settlement of solids after they enter the lake and uptake of P by aquatic growth which becomes a part of an internal recycle.
4. Limited Total Phosphorus sampling is being conducted in 2022 using the services of the Prein Newhof Laboratory of Grand Rapids, Michigan.
5. The rating curves are in need of refinement, particularly at higher flow periods, through the collection of additional stage/flow measurements using the velocity meter and standard procedures. This is contingent on the flow meter being returned from Huron Pines.

USAF Van Etten Lake Interim Remedial Actions Update

Construction is proceeding on the Interim Remedial Action designed to intercept groundwater flow from the base to Van Etten Lake at Ratliff Park designed to reduce the amount of PFAS chemicals reaching the lake. The existing treatment building has been expanded and the well control structure foundation and structures have been completed. The extraction wells and the performance monitoring wells have also been installed. On completion of the mechanical and electrical systems and the instruments installed, the system will be ready for operation. Completion and start-up is scheduled for mid-September.

In addition, a study contract will soon be awarded for another Interim Remedial Action at the Alert Aircraft Area in the NE corner of the base (yellow circle on the picture).



EFFECTS OF THE EMERALD ASH BORER ON THE FOREST

The emerald ash borer (*Agrilus planipennis*) is a shiny green beetle whose voracious maggot-like larva feeds just beneath the bark of the trees. It has swept through the forests leaving death and destruction in its wake. Native to eastern Asia, it has little impact on Asian ash species, which are able to mount defenses against the larvae. But in the late 1990s, it was accidentally introduced to North America, arriving near Detroit, Michigan, on wooden shipping material. When EAB reached the nearby forests, it encountered North American ash species that had no co-evolutionary history with the pest and almost no defense. The insect was inadvertently spread by people, moving on firewood, logs and even vehicles. It has invaded over 40 U.S. states and Canadian provinces.



After an EAB population reaches its peak, it rapidly crashes as its food source is eliminated. Rather than disappearing completely, however, a small number of EAB persist in most sites, likely feeding on smaller ash trees that were too small to attract the beetles' notice previously.

In a non-infected forest, standing dead ash trees, known as snags, provide habitat for many animals, including cavity-nesting birds, bats and insects. Several bat species roost in cavities and beneath the loose bark of dead trees. While there may be temporary benefits

from the increase in the number of snags caused by EAB, in the long term, the loss of the ash trees will mean fewer ash snags. Also, native insect larvae feeding on the dead trees may support larger-than-usual winter woodpecker populations. Also, under normal conditions, dead ash wood rapidly becomes brittle; tree limbs and whole trees fall, producing a pulse of coarse woody debris that provides habitat for another suite of forest animals. Salamanders and small mammals find refuge in the cool, protected areas in and beneath fallen logs. Similarly extensive canopy openings in riparian corridors following mortality alters stream temperatures and chemistry, and increases light availability. In the resulting open spaces, other plant species begin to claim the newly available

sunlight, water and nutrients, and they can grow rapidly. While some of these species are native trees, others may be invasive shrubs, which can quickly crowd out the rest. In forested wetlands, where the trees act like straws, constantly sucking up water during the growing season, the water table may begin to rise as dying ash forests take up less and less water. High water tables can hinder future regeneration and growth of ash and other native trees and plants.

Dead ash trees do not stand very long. Ash wood is very susceptible to rot and is

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Save the Date! 2022 MiCorps Conference - November 18

Join stream and lake monitoring volunteers and program coordinators from across Michigan to learn, network, and celebrate our collective achievements!

We invite you to save the date for the 2022 MiCorps Conference. We are looking forward to meeting in person once again on November 18 at the Ralph A. MacMullan Conference Center on Higgins Lake in Roscommon. Those traveling to the conference will have the option to spend the night at the RAM Center on Thursday, November 17, and to join us for a welcome reception that evening.

Registration and agenda information will be available on the [MiCorps.net](https://www.micorps.net) web site in the coming weeks.

Effects of EAB, Continued from page 5

substantially degraded structurally within a year of its death and sizeable ash trees may begin to fall down in the second or third year after death. Dead wood falls into rivers, creating many kinds of habitats, including pools, slow flowing areas and side channels. These waters and areas where periodic inundation occurs, are functionally linked to the aquatic systems they border, and may be particularly affected by the EAB invasion in areas where ash is dominant and abundant.

Riparian forests regulate transfer of energy to the forest floor and adjacent waterways via inputs of nutrients of leaf litter and coarse woody debris, and the canopy mediates light and temperature of the understory and shaded areas of waterways. Potential effects of ash tree deaths could also include changes in stream conditions with subsequent effects on aquatic organisms, particularly invertebrate communities. In the surrounding floodplain, high water washes the branches

and logs into piles and logjams.

The creation of complex habitat structure allows many fish species to live in the rivers and provides spawning areas. The seeds of ash trees, winged samaras, aided by wind dispersal, foster regeneration away from the parent tree. Produced in great numbers every four to 10 years during most years, these fruits also serve as a wildlife food source. Several animal species are known to feed on ash seeds, including squirrels, mice, ducks, turkeys and other birds. In streams and wetlands, the leaf litter is eaten by invertebrates like snails and caddisfly. The impacts of the loss of this food source are not known. In addition, little is yet known about how the loss of this high quality, nutrient rich ash litter will affect aquatic organisms. While riparian ash mortality can affect at least some groups of aquatic invertebrates, more research will be needed to assess long term impacts on biological communities.

Sources:

Legacy Effects of Emerald Ash Borer on Riparian Forest Vegetation and Structure

Patrick J. Engelken¹, M. Eric Benbow¹ and Deborah G. McCullough

Department of Entomology and Department of Forestry, Michigan State University, East Lansing, MI 48824, USA

A Forest Death in Three Acts

FROM WOODPECKERS TO WATER, THE EMERALD ASH BORER'S EFFECTS ARE WIDESPREAD

By Kathleen S. Knight, Charles E. Flower and Mark D. Nelson, *The Wildlife Professional*, May/June 2019

Watershed Wildlife Watch Porcupine

This prickly mammal's name comes from an old French word which means "thorn pig" - appropriate term once you've seen one - even if it's road kill (frequent cause of death). It is dark brown in color with a stocky body, short legs, and a thick tail. The most distinguishing feature of this large rodent is its quills, which are modified



PORCUPINE
via Wikimedia Commons

hairs of sharp, barbed spines (about 30,000 of them) which are used for defense. It also has a strong odor which increases when it feels threatened. Making

their dens in hollow trees or rocky areas, they often try to climb to get succulent buds from the far ends of branches and subsequently fall, getting injured by their own quills. But surprisingly, they possess antibiotics in their skin which protect against infection. They do not hibernate in winter, but stay close to their dens, being near-sighted and slow-moving.

They breed in the Fall and birth only one young, and are found in forests and grasslands. Porcupines can live up to 30 years

PRVEL Summer 2022 Newsletter

PRVEL Coalition Board

Chair - Russell Williams	jrusswill@gmail.com
Secretary - Deborah Miller	millerdb613@gmail.com
Treasurer - Dan Stock	dstock4239@charter.net
Carole Plunkey	caroleplunkey@charter.net
Scott Lingo	scott@targetrealestate.com

Non-Voting Advisors

US Forest Service	Huron Pines RC&D
USDA-NRCS	DNR/Fisheries
US Fish & Wildlife	DEQ/Water Quality

How Can You Volunteer to Help PRVEL?

Our conservation group is comprised totally of volunteers, all working together to make things happen for the benefit of the watershed. Please step forward and make 2022 and 2023 the years you help us make a difference in your neck of the woods.

Ways you can volunteer:

- Macro invertebrate sampling program – Spring and Fall
- Monitoring fishery – place temp loggers
- River Keepers/monitor watershed out in the field
- Write articles for the newsletter
- Serve on the watershed board of directors
- Project workers – out in the field (seasonal)

Contact via email
as shown above

- Deborah Miller
- Scott Lingo
- Carole Plunkey
- Dan Stock
- Russell Williams
- Russell Williams

Yes! I wish to support the water resource improvement efforts in the Pine River Van Etten Lake Watershed with my tax deductible contribution.

Please make your check payable to PRVEL Watershed Coalition and send to:

PRVEL Watershed Coalition
PO Box 680
Oscoda, MI 48750

Name

Street

City

State/Zip

Phone

E-mail