



# The Thumb Naturalist

*Journal of the Thumb Land Conservancy*

Supporting nature and naturalists of Michigan's Thumb region  
and adjacent Ontario

## Issue 6

2026 August 3

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The Thumb Land Conservancy has been busy as usual, pushing the envelope of preservation, restoration, and outdoor recreation in our region.

In May, with a substantial grant through the Wetland Conservation Program of Ducks Unlimited, we acquired a new 32-acre preserve in Port Huron Township just a few miles west of Port Huron. The preserve contains extensive swamp wetlands, northern forest unique to the Port Huron area, part of the Stocks Creek and a major tributary.

With the help of many donors, including the Touma family and Community Foundation of St. Clair County, we completed the first \$50,000 match of a \$100,000 challenge grant from The Carls Foundation. This means we will soon have \$100,000 to pay stewardship and development staff, beginning in 2026. We have the opportunity to raise another \$100,000 in 2027.

In late May, we sold our Croissant Sanctuary south of Ortonville to RBF Construction in Flint. They agreed to a conservation easement on the parcel so that it remains protected.

The TLC is the designated steward of a 42-acre conservation easement on the west side of Presbyterian Villages of Michigan, The Village of Lake Huron Woods in Fort Gratiot. Stewardship funds recently became available and we will soon begin work.

This spring and summer, we are continuing preserve work within the Southern Lake Huron Coastal Park and beyond, including the information kiosk on the Bidwell Sanctuary, trails on the Touma Family Sanctuary, and more plant species inventories.

We again removed Garlic Mustard and other invasive weeds on our Dead End Woods Sanctuary.

Progress is slow on planning and developing park facilities on our Morley Sanctuary, but we push on with the help of the Bay Area Community Foundation and Bangor Township.

Last but not least, thanks to the work of Jeff Ronan of LochanDe It Services, our new TLC web site is progressively looking better and will soon have more to offer.

Bill Collins, Executive Director  
Thumb Land Conservancy



## Community Foundation of St. Clair County Grant

The TLC was informed on June 17 that we have been awarded a \$20,000 grant from the Community Foundation of St. Clair County to help pay for stewardship of our Southern Lake Huron Coastal Park in Fort Gratiot. The funds will be used to pay stewardship staff working on our Shorewood Forrest and Touma Family sanctuaries in Fort Gratiot. Most of our work will be invasive weed control, plant community improvement, wetland restoration, and trail maintenance.

The TLC thanks the Community Foundation of St. Clair County Board for choosing to invest in the Southern Lake Huron Coastal Park. We believe the coastal dune and swale forest of northeastern Saint Clair County is not only a natural treasure, but a significant community asset for outdoor recreation and education.



## New 32-Acre Forest Preserve

*Port Huron Township, Saint Clair County*

Thanks to another Wetland Conservation Program grant from Ducks Unlimited, along with a private donation, on May 8, the TLC purchased a new 32-acre preserve located at the northeast corner of Lapeer Road and Hueling Road in Port Huron Township. The property is part of one of the largest forest tracts remaining along the west side of Port Huron. Minus some residential development, about 500 acres of forest remain relatively non-fragmented and intact in this vicinity.

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## THE CARLS FOUNDATION

### The Carls Foundation Capacity Grant

With the \$20,000 grant from the Community Foundation of St. Clair County, the TLC has now raised the first \$50,000 of our \$100,000 match grant from The Carls Foundation, awarded on June 20 of 2025. It took us almost exactly a year to raise the first half of the match. If we are able to raise the next \$50,000 from local donors within our territory, we will have a total of \$200,000 to pay stewardship and development staff. For the TLC, this level of funding could be organization-changing, significantly increasing and strengthening our capacity to fulfill our mission in the long-term. We sincerely thank The Carls Foundation for believing in the TLC.

Swamp forest is extensive in this large forest tract, which explains why it has remained mostly undeveloped. This forest provides major surface and ground water detention in the Stocks Creek watershed, making it very important for alleviating downstream flooding and for maintaining water quality of Stocks Creek and the lower Black River. Stocks Creek enters the Black River near the I-94/I-69 crossing west of Port Huron, which flows to the Saint Clair River in Port Huron.

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*Outlined in yellow to the right: The new 32-acre TLC preserve. To the left: 52 acres preserved in Kimball Township.*

The new preserve is also only about one-third mile east of two preserves in Kimball Township consisting of the 9.5-acre Sharon Rose Leonatti Memorial Plant Preserve owned by the Michigan Nature Association, and the 42.4-acre Marzolf Preserve owned by the Saint Clair County Drain Commissioner. Together, these two preserves protect nearly 52 acres of northern forest complex along with a large flood detention basin that has developed into a natural wetland complex.

About two-thirds, or about 20 acres, of the new 32-acre TLC preserve consists of swamp forest wetland. The preserve is crossed by nearly 1,000 feet of the Stocks Creek and about 1,800 feet of the Baldwin Drain, a major tributary of Stocks Creek, making the preserve important to maintaining water quality in these watercourses.

The preserve consists largely of a northern forest complex unique to Port Huron, Kimball, and Clyde townships and the vicinity. This complex generally consists of extensive swamp forest interspersed with sandy upland forest dominated by northern plant species near the south edge of their range in eastern Michigan. But likewise, many southern plant species occur in this type of forest at the north edge of their range. As the Port Huron area is a mixing zone of northern and southern flora, due largely to the climate moderating effect of nearby Lake Huron, it is often difficult to determine whether some plant communities are northern or southern. What is very clear, however, is that because of the mix of northern and southern plant species, these forests are some of the most diverse in the Thumb.







*Stocks Creek on the new preserve. Photograph by Bill Collins.*

The new preserve leans toward the northern side of the forest community spectrum. Although logged about 20 years ago, it appears that most of the native plant species have remained, the canopy consisting largely of Quaking Aspen, Bigtooth Aspen, Red Maple, and Paper Birch. To a lesser extent are Eastern White Pine, Red Oak, and even Black Gum. Understory species include Paper Birch, Speckled Alder, and Witch-hazel. The ground or herbaceous layer includes Interrupted Fern, Cinnamon Fern, Ostrich Fern, Sensitive Fern, Royal Fern, Northern Lady Fern, Bracken Fern, sedge *Carex bromoides*, other sedges, Canada Mayflower, Jack-in-the-pulpit, Wild Sarsaparilla, and Wintergreen. Extensive colonies of Bloodroot occur on the south end of the preserve, in open areas along Stocks Creek.

There are few invasive weeds on the parcel. The primary weed is invasive Reed - *Phragmites australis* subspecies *australis*, which is mostly limited to the south end of the preserve near Stocks Creek where the land was historically cleared before logging and has remained relatively open. Much of the invasive Reed should gradually decline and die-off as the forest canopy reestablishes.



*Typical swamp forest on the new preserve. Photograph by Bill Collins.*





*Trail on the new preserve. Photograph by Bill Collins.*

A former logging trail extends around the preserve and should serve as a nice public walking trail as we are able to improve some portions. Walking along this sand trail feels very much like similar trails up-north with so much Paper Birch, Bracken Fern, and other generally northern vegetation. Being a relatively large forest area, surrounded on the north and east by more forest, the preserve should prove to be a haven for

migratory birds requiring interior forest habitat, and of significant interest to the birding community.

We sincerely thank Ducks Unlimited and the Wetland Conservation Program for enabling the TLC to purchase this new preserve. We especially thank Kali Rush, former Regional Biologist with Ducks Unlimited, for advocating on our behalf for this project. Kali is now a waterfowl specialist with the Wildlife Division of the Michigan Department of Natural Resources. From our introduction in 2020, Kali became a game-changer for TLC project funding and support.



## **Croissant Sanctuary Conservation Easement**

*Brandon Township, Oakland County*

On May 27, the TLC sold the 7-acre Croissant Sanctuary south of Ortonville to RBF Construction. In 2023, RBF bought the 2.7-acre commercial frontage along M-15 and are planning a small commercial development on that property. RBF now owns the adjoining 7-acre preserve to the east. As a condition of the sale, RBF agreed to place a conservation easement over most of the 7 acres, which they will use only for a small storm water detention basin and discharge of storm water from that basin to the wetlands on the Croissant Sanctuary.

With the conservation easement, the TLC continues to uphold our pledge to donor, Dr. Paul Croissant, to preserve most of the property. While we would have preferred to keep the sanctuary as a publicly-accessible preserve,



*Croissant Sanctuary. Photograph by Bill Collins.*

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Brandon Township was not cooperative and left us with little practical choice but to sell it. We are thankful that RBF Construction was willing to buy this land and protect it. They have been very generous and a pleasure to work with.



## The Village of Lake Huron Woods Stewardship Presbyterian Villages of Michigan

Fort Gratiot Township, Saint Clair County

The TLC is the designated steward for a 42-acre conservation easement on The Village of Lake Huron Woods property, adjacent to our Shorewood Forrest sanctuaries. The Department of Environment, Great Lakes, and Energy required this conservation easement as a condition to approving impacts to State-regulated wetland for Phase 2 of The Village of Lake Huron Woods development. EGLE has finally issued approvals that allow us to start work and draw annual funding from an endowment fund established by Presbyterian Villages of Michigan and administered by the Community Foundation of St. Clair County.



*Inundated wetland swale on the Lake Huron Woods preserve. Photograph by Bill Collins.*

Most of our work will consist of invasive weed control; the vast majority of that will be cutting and treating Common Privet. This is the same privet that residents planted as hedges around their yards, which then started invading the dune and swale forest decades ago. Privet berries are eaten by birds and spread far and wide. Some ground on the Lake Huron Woods conservation easement is covered by almost pure stands of privet. Older privet stems develop some quite imposing sharp spines that can make walking somewhat difficult.



*Privet shrub stems on the upland dune ridges of the Lake Huron Woods preserve. Photograph by Bill Collins.*



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## Bidwell Sanctuary Entrance

*Burtchville Township, Saint Clair County*

With the help of two Amish workers, David Miller and his son Joni, and our Steward, Jason Sawyer, the information kiosk at the Bidwell Sanctuary entrance is coming along. David and Joni installed the posts in early May. Jason started the roof structure in late May. There is a long way to go yet, but this is progress. Work has been on-hold since due to staff schedules and material acquisition. When finished, the kiosk will provide information about the Bidwell Sanctuary, Southern Lake Huron Coastal Park, project funders, and other information for visitors.



*Kiosk posts installed near the Bidwell Sanctuary entrance. Photograph by Bill Collins.*

## Touma Family Sanctuary Trail

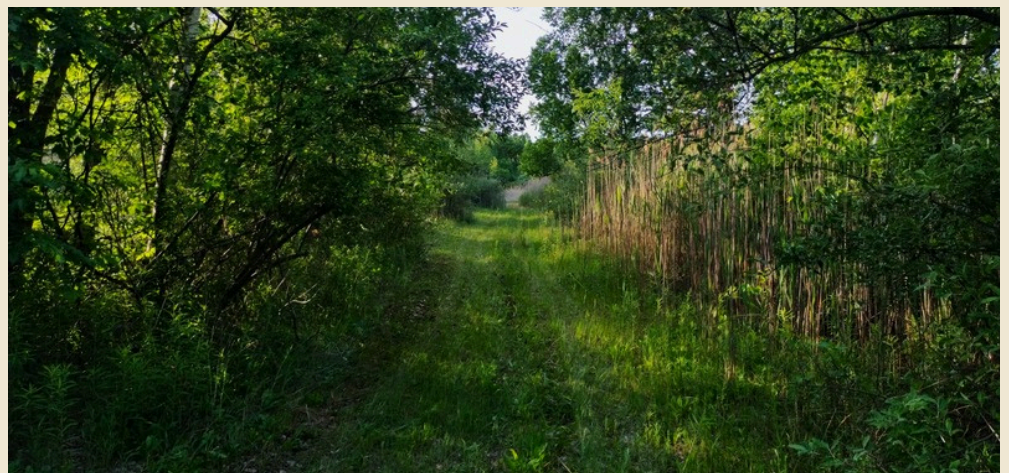
*Fort Gratiot Township, Saint Clair County*



*Darrin Koester brush-hogging an existing trail on the north end of the Touma Family Sanctuary. Photograph by Bill Collins.*

Until we conduct a plant species inventory and evaluate the preserve in detail, we will make use of the existing trail network which Darrin will maintain. We look forward to the public enjoying the Touma Family Sanctuary and to our planned wetland and vegetation restoration activities.

On June 15, TLC contractor, Darrin Koester of Koester Maintenance and Building Repair, brush-hogged existing trails and a parking area on the Touma Family Sanctuary. This parcel is a critical connection between the Shorewood Forrest sanctuaries to the south, and preserves to the north within the Southern Lake Huron Coastal Park. We now have a trail extending from Brace Road north ½ mile to the Galbraith Drain and Water Works Preserve of the Saint Clair County Drain Commissioner south of our Hamzavi-Peltier Sanctuary.



*Existing trail on the Touma Family Sanctuary. Photograph by Bill Collins.*



# Dead End Woods Sanctuary Garlic Mustard Removal

*Fort Gratiot Township, Saint Clair County*

For a 16th year, the TLC continued our annual spring removal of invasive Garlic Mustard on the Dead End Woods Sanctuary. The preserve is still looking great, especially as compared to our first year of work. We are still focused on a patch in the east of the sanctuary, likely where a lot of the invasion started. At this point, we are holding the line on this area as the seed bank gradually depletes itself.

On our first morning, TLC Steward Jason Sawyer and TLC Board Member Blake Short were already filling bags with Garlic Mustard when TLC Executive Director Bill Collins arrived. Bill was somewhat delayed by what at first sounded like a frog at the edge of a small vernal pool.



*The baby raccoon finally getting fed after a very long day. Photograph by Jason Sawyer.*

But no. It was a baby raccoon that appeared to have fallen from a possible nest in a nearby tree. We didn't see a nest or tree cavity, but judging by the height of limbs on the nearest trees, the poor thing fell at least 40 feet. It was fortunate to land in the soft swampy ground, but had it crawled just a few feet, it might have drowned. It's possible that an owl or hawk dropped it, but we didn't see any signs of injury. We left the baby near the base of a large tree hoping that it's mother might show up, but when we were done working in the afternoon, there was no sign she showed up. So, we hesitatingly took it to a wildlife rehabilitator, knowing they are loaded with baby raccoons in the spring.



*TLC Steward Jason Sawyer with the baby raccoon. Photograph by Bill Collins.*

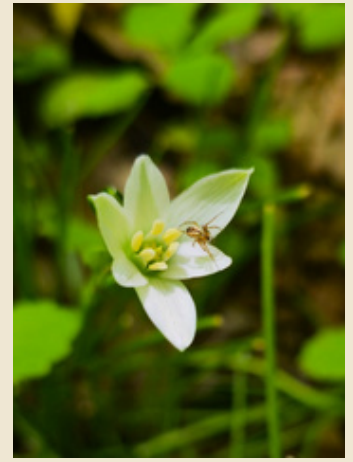
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Right: The usual spring wildflowers were in-bloom during our work. Jason seems to have found a new calling in nature photography. Left are the flowers of Wild Geranium, and right, an invasive hyacinth known as Star-of-Bethlehem growing in small clumps near the south edge of the sanctuary, undoubtedly spread from a residence. The spider on the flower appears to be an orbweaver, most likely *Mangora acalypha* otherwise known as the Cricket-bat Orbweaver, apparently because the dark mark on it's back resembles a bat used in the game of cricket. Some would say it looks more like an alien skull. These are common spiders in varied habitats across Michigan. Photographs by Jason Sawyer.



Wood Frog. Photograph by Jason Sawyer.



Pile of cooked and dried Garlic Mustard in the Collins garden. Photograph by Bill Collins.

## Morley Sanctuary Nature Park

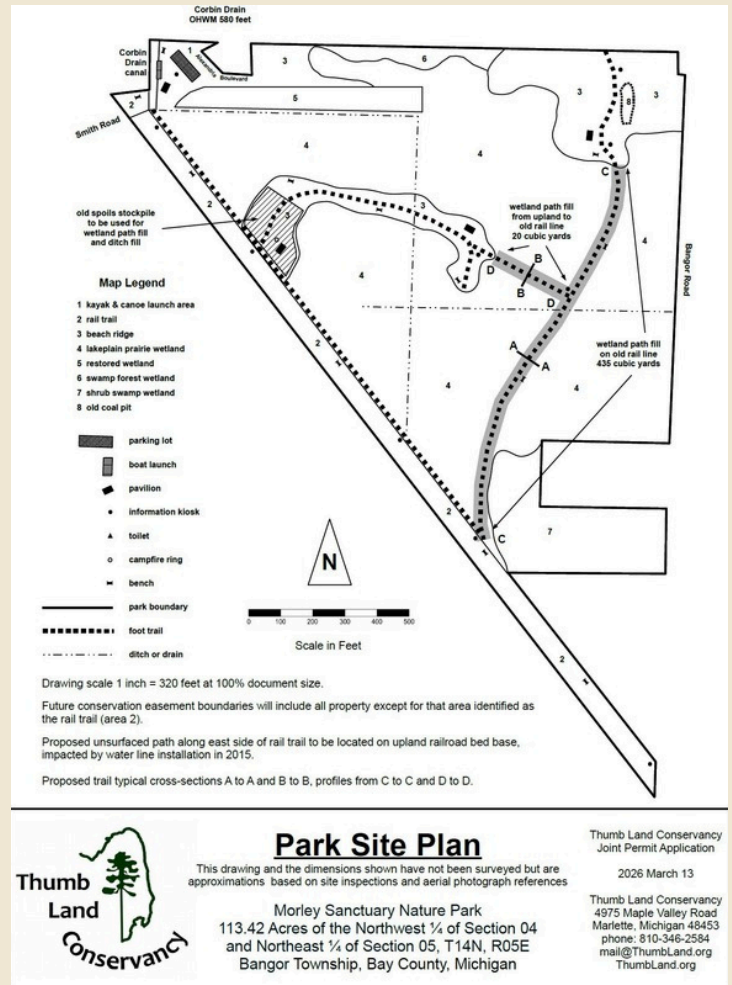
Bangor Township, Bay County

The TLC had a pre-application meeting with Michigan Department of Environment, Great Lakes, and Energy (MDEGLE) on May 11 regarding proposed wetland impact for a nature trail and stream impact for a small kayak/canoe launch on the Morley Sanctuary. The trail would create a loop between two major upland areas to avoid creating a dead-end hang-out that might promote vandalism, improve emergency access,

and provide a suitable trail to let visitors access the interior of the lakeplain prairie. Of the nearly half-mile trail, 1,960 feet would be located on an old rail spur that served a coal mine in the northeast of the property over 100 years ago. Only 390 feet of the proposed trail would consist of new wetland fill to connect the large central upland sand ridge to the trail on the old rail spur.

In summary, MDEGLE was unreasonable in their evaluation of the project. First, they should recognize that even after a large wetland enforcement action by the State against the previous landowner about 10 years ago, they left the property largely unprotected. The property went on the market about 3 years ago, and if not for funding from Ducks Unlimited and the efforts of the TLC, this imperiled lakeplain prairie community could very well have been under threat of farming and development again. Secondly, MDEGLE suggested they would require a board walk for the entire wetland portion of the trail. Can you imagine the expense of constructing and maintaining nearly a half-mile of boardwalk? Would the environmental impact of not filling a small amount of wetland be worth the demand for lumber on that scale, not only for initial construction, but future maintenance? Even if it was worth it, would the present wetland plants survive under a boardwalk? Is the potential liability of someone falling off the edge of a boardwalk worth it? What about emergency access? Responders would be more likely to drive through the wetland than on a narrow boardwalk. There is no surface water flow in this type of wetland, except in the ditches that were dug years ago to drain it. Surface and ground water movement in lakeplain wetland is almost all vertical; water rising during high water periods in the Great Lakes, and falling during low water periods. So, a boardwalk would not accommodate surface water flow any more than a few culverts. An dirt fill trail makes far more sense. After all, most of it was an old rail spur.

MDEGLE presented other issues that amounted to making mountains out of mole hills. While we are thankful for regulations that help to protect wetlands and other natural features, agencies



should occasionally step outside their regulatory world and look at the bigger picture. The 113-acre Morley Sanctuary contains about 93 acres of imperiled lakeplain prairie. The TLC is proposing to fill only about one-third of an acre for a nature trail, and that area having been previously degraded by a rail spur and farming. With better public access and interpretive signs, the proposed nature park development will provide a great outdoor recreation experience and help to educate the public about lakeplain prairie, of which less than 1% of the original extent now remains. The Morley Sanctuary could help to promote more public support for protection of such imperiled natural features.





Combined TLC Morley Sanctuary and Bangor Township park properties. Fetch GIS.

The real bright spot about the Morley Sanctuary has been the cooperative relationship that developed between Bangor Township and the TLC. Starting last fall, we have met with the Township to plan the development of the Morley Sanctuary along with the adjacent 27 acres owned by the Township. They generously offered to develop the park entrance on their property, which would include parking, toilets, and other amenities.

A trail to the south would connect the Township property with the Morley Sanctuary. One problem though; If MDEGLE does not approve a trail connection south through the wetland to the large central sand ridge, visitors will be limited to the northeast corner of the Morley Sanctuary. Regardless, we appreciate the opportunity Bangor Township has given us to make this project bigger and better.

## Brian Palik Introduction

by Bill Collins

Brian Palik is a TLC member, originally from Ithaca, Michigan. He earned his graduate degrees in botany and forestry from Michigan State University. Brian was my botany teacher in 1985. We soon became friends and I would often sit in his office space, reading whatever he was reading as we discussed interesting botany-related topics. One that we haven't forgotten was a paper about how many acorns a bluejay

can carry. I later assisted Brian a little with his masters and doctorate field work.

Similar to some of my earliest memories, Brian's interest in plants began in his parents' garden and with his father's love of trees. From those simple beginnings, he pursued a thorough knowledge of forest ecology.



Brian Palik in the Chippewa National Forest where he led an experiment for the U.S. Forest Service to test various climate-change adaptation strategies. Source: As Temperatures Rise, 'Climate Smart' Trees Sprout In Minnesota, Peter O'Dowd, Here & Now, WBUR.org, June 26, 2023.

Brian was a huge influence on me, introducing me to the latest findings in forest ecology, and opening my eyes to the very real and broad landscape-scale impact of forest reduction and fragmentation. It was in reading Brian's masters research paper: *Disturbance Versus Edge Effect In Sugar Maple/Beech Forest Fragments*, later published in *Forest Ecology and Management* in 1990, that I was awakened to the devastation of forest fragmentation across Michigan, North America, and much of the world. I knew it was bad, but until reading Brian's research, I didn't fully understand and could not articulate just how horrible it is.

Brian went on to work for the US Forest Service in Georgia and later, as a Senior Scientist of Applied Forest Ecology at the Northern Research Station in Grand Rapids, Minnesota for 30 years. Brian and colleagues developed the concept of "ecological forestry" consisting of

alternative forest harvest techniques that mimic natural disturbance, leave more native flora intact, maintain more sustainable forests, and make them more resilient in the face of pests, diseases, and climate warming. Brian recently retired, but unfortunately the Trump administration closed the research station, apparently because Trump believes we have "massive fields of lumber" that don't need to be studied or cared for.

Among Brian's other research projects, he has been tracking southern trees planted in northern Minnesota as a strategy to create resilient forests in the face of global warming and uncertain climate future. Brian says that the climate typical of southern Minnesota 20 years ago is now in northern Minnesota, having moved about 200 miles north in just two decades.



In 2020, Brian and co-authors Anthony W. D'Amato, Jerry F. Franklin, and K. Norman Johnson, published *Ecological Silviculture: Foundations and Applications*, a large and comprehensive book presenting silvicultural methods that emulate natural processes, sustain biological legacies, and allow time to take its course in shaping forest stands. These methods, dubbed “ecological forestry,” have been successfully implemented by foresters for decades managing a wide variety of forestlands.

In 2023, Brian and co-author Anthony W. D'Amato, published *Ecological Silvicultural*

*Systems: Exemplary Models for Sustainable Forest Management*. Unlike most timber models based on production agricultural methods, ecological silvicultural strategies protect threatened and rare species, sustain biological diversity, and provide habitat for game and non-game species, all while providing timber in profitable ways.

Like many others, Brian Palik believes it is imperative that we work to maintain useful woodlands. He says, “The forests at the end of the century are not going to be your grandfather’s forests. But they’re going to be the forest your grandchildren inherit.” There is something of both dread and daring optimism in this statement, characteristic of Brian. For more information about Brian Palik and his work, follow [this link](#).

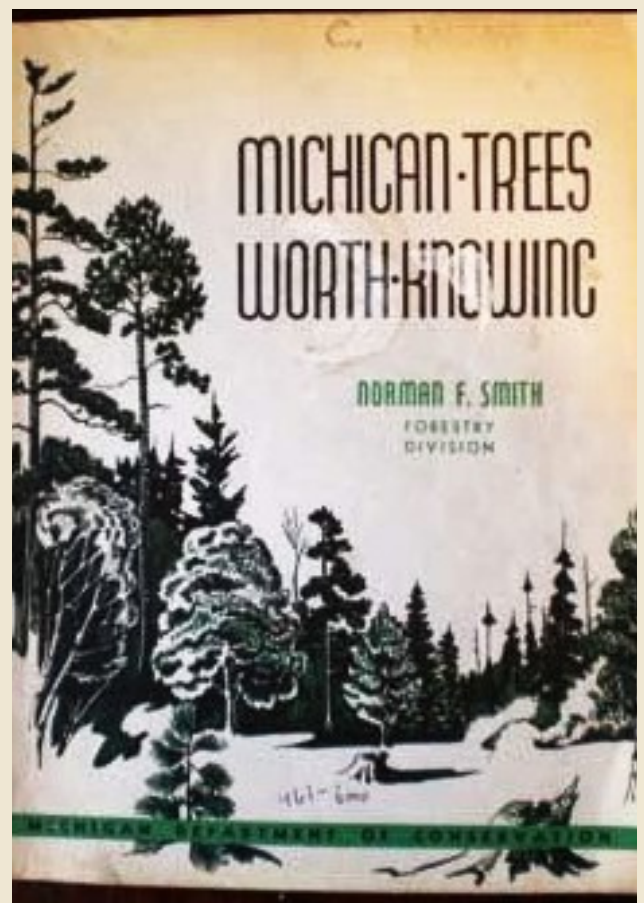
## The Ecological Forest

By Brian Palik

Memories link me to forests. My earliest memory is from five or six years old, picking wildflowers for my mom in a woodlot next to our home. This was in farm country in central lower Michigan in the mid 1960s.

Another memory is going up north on family camping trips. I bet you have noticed this— up north has an actual geography in Michigan. The boundary is not exact, but generally, the transition to northern forests begins just south of 44 degrees N latitude around Clare. The change is noticeable when you are traveling north on US 127.

It was on these trips that I first saw genuine forests. Unlike the small woodlots of southern Michigan, northern forests cover hundreds to thousands of acres. There may have been old-growth forests in the mix we camped in, but I was not aware of the term or if I saw any. I loved wandering in these forests. This is when I started trying to name tree species using a book I still have, that my mom gave me, called *Michigan Trees Worth Knowing*.



Cover of *Michigan Trees Worth Knowing* by Norman F. Smith.

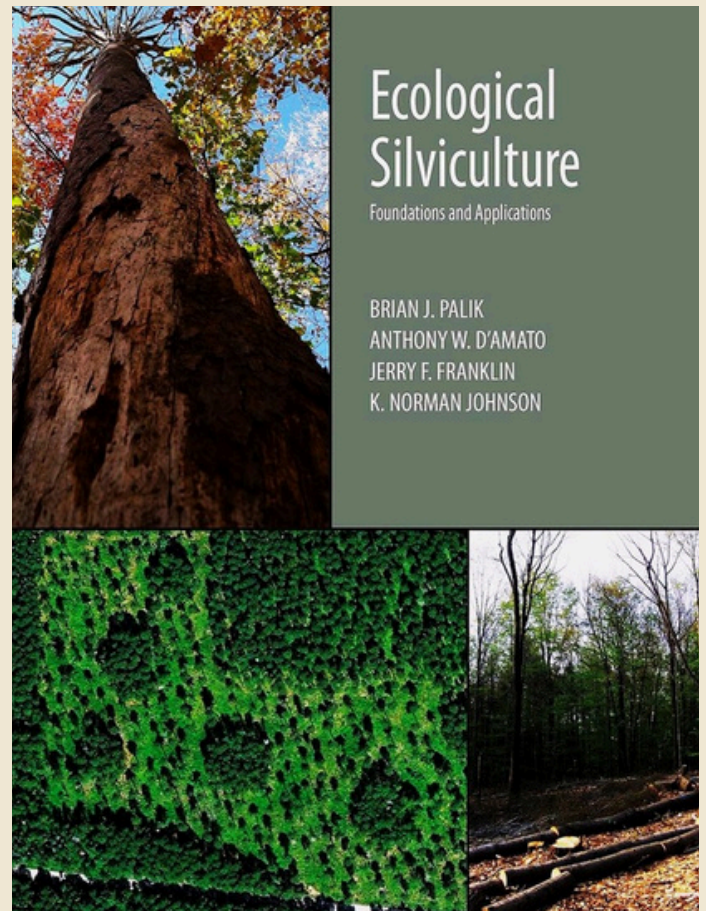
My wanderings eventually became a passion and career studying forests. I studied forests for nearly 40 years as an ecological scientist, mostly with the USDA Forest Service in northern Minnesota. My work sometimes took me into Michigan's Northwoods. In fact, your TLC Executive Director helped me collect data on one of my first studies near Harrison, Michigan. Over my career, I studied how forests work in nature and I used that understanding to devise better ways to manage them for all their benefits. Ultimately, this led to a new kind of forestry... an ecological forestry.

If you are not sure, forestry is the practice of managing forests for the things people value. While there are many aspects of forests that people appreciate, the focus in traditional forestry has often been placed on wood production above all else, or timber in the language of forestry. I call this timber-focused forestry. Timber-focused forestry has not been very ecological.

Through my research career, I came to realize that there is an alternative to timber-focused forestry—an ecological forestry. This approach still considers the value of timber but not at the expense of the other benefits forests provide—like spiritual well-being, clean water and air, places for recreation, physical healing, and an abundance of living things.

The abundance of living things in a forest is something you likely care deeply about, including trees, but also birds, frogs, squirrels, mushrooms—the list goes on. Ecologists refer to living things as the biotic part of the forest. Perhaps surprisingly, for ecologists, living things in a forest are also special when they die.

For trees, this includes leaves and branches on the forest floor and dead trees that are still standing or have fallen. Maybe even more surprisingly, ecologists think forests are special for their abiotic parts, things that are mostly non-living like soil and the water it holds, and air. It is true that soil contains many living organisms, like plant roots, microbes, and arthropods, but the bulk of it is sand, silt, clay, gravel, and dead organic matter, like humus. When we consider all the living, dead, and non-living parts together, and how they interact with each other, they form what is known as an ecosystem. Understanding forests as ecosystems is central to the story of ecological forestry. It is a forestry that nurtures whole ecosystems.



Cover of *Ecological Silviculture, Foundations and Applications, 2020* by Palik, D'Amato, Franklin, and Johnson.





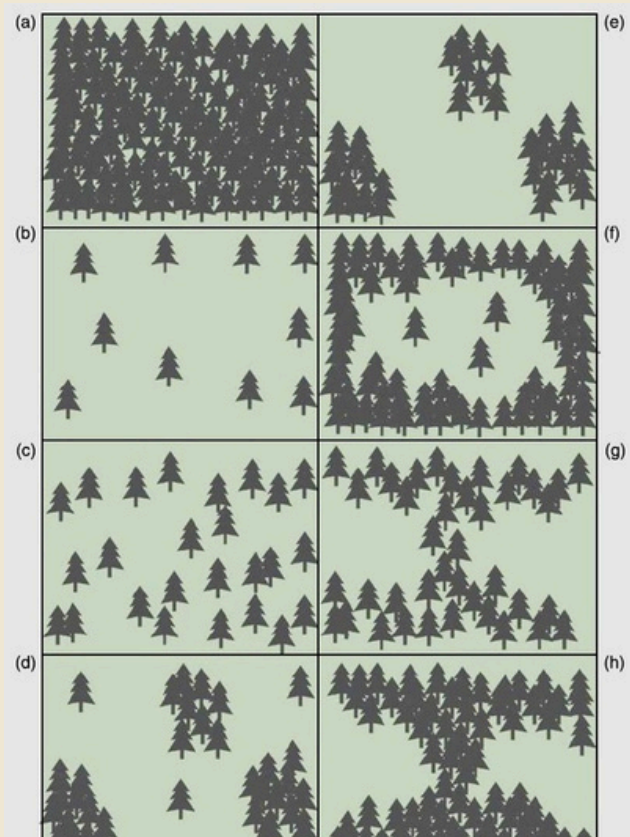
*What's at ground level and below is equally as important as what rises above.*

Because you care about trees, you may worry when they are cut down. This is called harvesting in forestry. While harvesting can elicit a negative feeling in people, remember that trees provide essential resources like construction lumber, printer paper, firewood, utility poles, and many other things. Trees must be harvested to supply these things; there is no other way.

It is true that cutting down trees can harm forests if done irresponsibly, but the practice of harvesting is not inherently negative. It depends on how it is done. It can be done in ways that nurture the whole ecosystem by mimicking the way nature kills trees, with for example, lightning or fire or wind or old age. Unfortunately, timber-focused forestry has not been very good at mimicking nature. Rather, timber-focused forestry views the forest as a collection of crop trees to be tended and harvested, like a field of corn. If you care about forests, this should concern you.

But ecological forestry is different, it is forestry that nurtures the ecosystem and all its parts. Ecological forestry is based on how forests look and work in nature. The idea is to use what nature does in a forest as a model for how forestry should be practiced. If you care about forests, this should excite you.

Ecological forestry is put into practice using something I call the toolbox of ecological forestry. The tools are simple things that can be done when managing a forest to nurture it as an ecosystem. One tool is called continuity. It's simple—if you have a harvest in your forest, the emphasis should be on the trees you leave behind, not the trees you remove...the trees left behind support the continuity of the ecosystem, like habitat trees for wildlife.

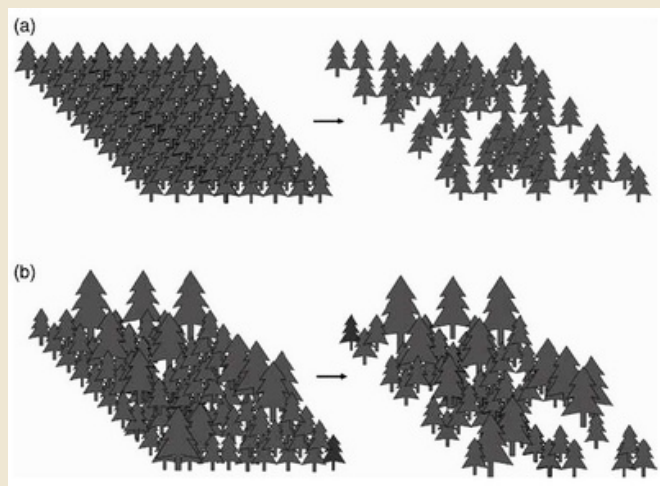


Examples of ecologically-based harvesting in older red pine forests: (a) uncut forest, (b, c) harvesting that leaves some uncut trees scattered across the stand, (d, e) harvesting that leaves some uncut trees in clumps, with or without also leaving some trees between the clumps, (f) a large opening with some uncut trees left within it, (g, h) large openings with and without also cutting some of the trees between the openings. Palik et al. Waveland Press, Inc.

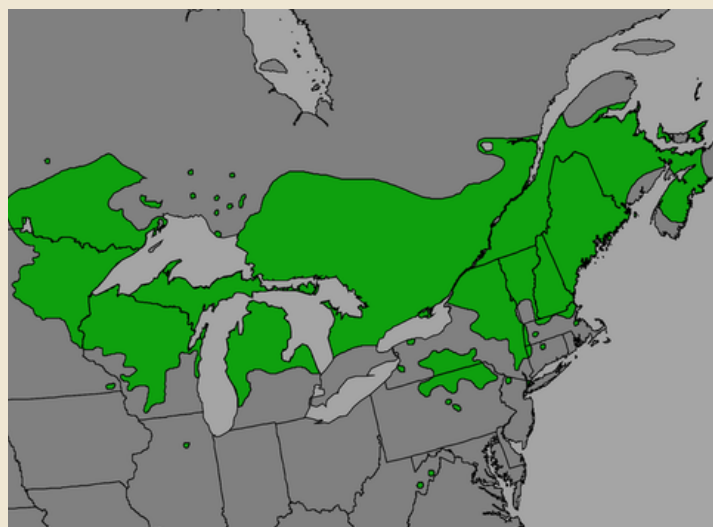
Another tool is called complexity and diversity. At any age, forests in nature are more complex in their structure than when they are managed for timber. By this I mean they have a range of tree sizes, they have healthy trees, they have dying and dead trees.

Older forests start to have openings in them where new tree seedlings establish. This complexity is important for the ecosystem, especially for the habitat it provides for other species.

Most forests also have a diversity of tree species, at least two or three, but often many more. The red pine forests I studied in Minnesota naturally have 10 or 11 tree species of varying abundance, but timber-focused forestry only cares about one species, red pine. It's worth a lot of money for framing lumber (e.g., 2 x 4s) and utility poles. It is okay to benefit from this, but what about all the other tree species in the forest? They may not be valuable economically, but they have great value as part of the ecosystem.



Examples of ecologically-based harvesting in young red pine forests, called thinning in forestry, to create more variability in tree habitat. Palik et al. Waveland Press, Inc.



Red Pine range in North America. Notice how like so many other northern species, this tree of the "Northwoods" reaches its southern limit in the Thumb at the southern end of Lake Huron. Wikimedia Commons.



There are a few other tools in the ecological forestry toolbox, but you get the idea...forests can be managed in ways that bring them closer to how they look and work in nature...for the benefit of people and the entire ecosystem.

My message to you is this—if there is a forest you care about, one in your neighborhood or perhaps where you vacation, and are wondering how or why it is being managed, remember that it can be done in an environmentally responsible way using an ecological forestry approach. Be aware that not every forester will know how to do this, so you might ask them about their philosophy and approach. Perhaps more importantly, if you've read this far, you now have an informed voice to speak up to decision makers about the value of forests as ecosystems and for ecological forestry as the way they should be managed.



*Turn of the 20th Century natural Red Pine forest on the Chippewa National Forest in Minnesota. Forest History Society, ForestHistory.org.*



*Modern day red pine forest managed using ecological principles. Photograph by Brian Palik.*

## Full Circle Sanctuary Spring Inventory

*Kimball Township, Saint Clair County  
By Blake Short, TLC Board Member*

During the spring of 2026, the first efforts to compile a floristic inventory of the Full Circle Sanctuary were completed over the course of approximately 3 weeks in May. The TLC has held this preserve since 2022, when it was purchased through the State land auction. The site was formerly owned by the Michigan Department of Natural Resources and was likely to be included in the Port Huron State Game Area (PHSGA); however, it appears to have never been posted with the typical signage

“Public Hunting Area”, likely due to its small size and isolation from the greater Flinchbaugh Road portion of the PHSGA.

Named in honor of the work of TLC friends Sister Veronica Blake and Sister Concepcion Gonzalez who founded and run the Full Circle EcoHouse of Prayer in Port Huron, the approximately 8-acre Full Circle Sanctuary is best described as a complex of southern hardwood swamp and mesic southern forest.

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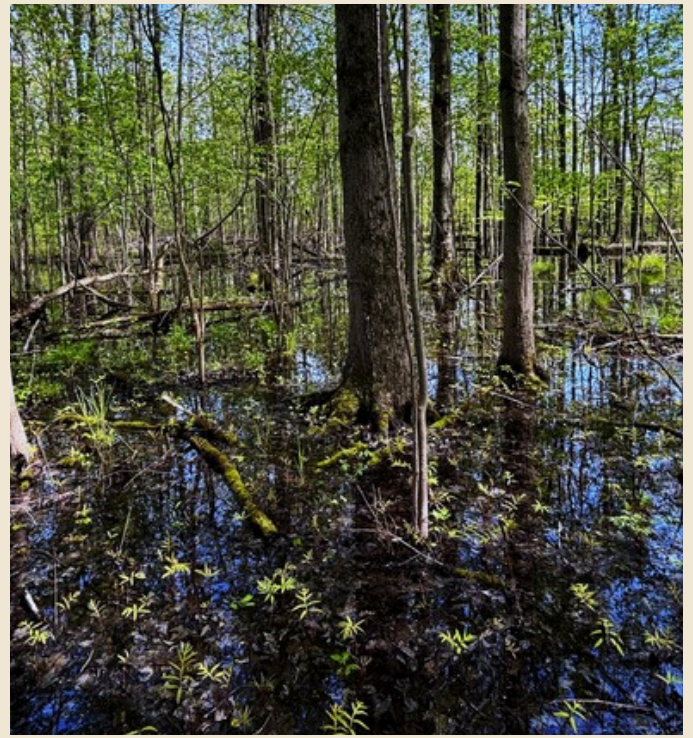


The overall landscape features low, undulating topography with numerous upland sandy knolls and ridges with low-lying sandy/mucky wetland depressions in between, as well as an extensive hardwood swamp in the southeast that is seasonally inundated. Complex microtopography is well-preserved and evidenced by a prevalence of pit-and-mound topography – a natural process driven by strong winds uprooting trees (windthrow), leaving a pit where the root mass once was and mounds where the root ball and tree trunk have decomposed. The pits often serve as vernal pools for a variety of herpetofauna. Sedge hummocks in the wetlands also contribute to the microtopography of the site, providing microhabitats for other flora and fauna.

The majority of the sanctuary exhibits little human disturbance with the exception of a degraded two-track driveway that leads to an old building foundation at the southern end of the site. Even more surprising is that the property has escaped heavy logging for what seems to be the better part of a century based on 1950s aerial imagery. One will quickly notice the dominance of large oaks (*Quercus* spp.) and red maple (*Acer rubrum*) scattered throughout this heavily forested site.



*Southern swamp forest on the Full Circle Sanctuary.*  
Photograph by Blake Short.



*Southern swamp forest on the Full Circle Sanctuary.*  
Photograph by Blake Short.

Because disturbance is low, invasive species cover is also low, which consists of small, localized pockets of multiflora rose (*Rosa multiflora*), autumn-olive (*Elaeagnus umbellata*), and honeysuckle (*Lonicera* sp.).

Plants! Lots of plants. Spring surveys revealed 98 native species across the entire sanctuary, a staggering number for such a small parcel. For now, a deep discussion of the metrics will be spared as more plants have yet to be identified and the inventory needs to be split into its representative natural communities. However, it will be helpful to understand a little bit about Coefficients of Conservatism (C-values). Plant species found across North America have been assigned C-values on a scale of 0 to 10, which essentially represents a species' tolerance to disturbance. High C-values (7-10) are assigned to climax-community specialists that require undisturbed or pristine environments, while low C-values (0-3) are assigned to ruderal species that thrive in disturbed conditions.



To date, approximately 10% of the species observed at Full Circle have a C-value that ranges from 7 to 10, highlighting the overall ecological integrity of the sanctuary. What is more notable, is the average C-value across all native species is 4.4. For reference, an average of 4.0 or greater typically represents high-quality, minimally disturbed habitats that are difficult or impossible to artificially recreate. What is more significant is that these species generally have healthy populations and are not one-off occurrences, further highlighting the overall quality and diversity of the sanctuary.



Common Trillium on the Full Circle Sanctuary.  
Photograph by Blake Short.

The mesic southern forest supports a continuous blanket of spring ephemerals under a hardwood canopy dominated by red oak (*Quercus rubra*), white oak (*Quercus alba*), and basswood (*Tilia americana*), although several other tree species are present. Ground cover is highly diverse but expect to see an abundance of wild geranium (*Geranium maculatum*), yellow trout lily (*Erythronium americanum*), spring beauty (*Claytonia virginica*), Jack-in-the-pulpit (*Arisaema triphyllum*), May apple (*Podophyllum peltatum*), common trillium (*Trillium grandiflorum*), red trillium (*Trillium erectum*), false spikenard (*Maianthemum racemosum*), and several others. Notable spring



Bishop's-cap – *Mitella diphylla*, C-value 8, on the Full Circle Sanctuary. Photograph by Blake Short.

flowers include wood-betony (*Pedicularis canadensis*), large-leaved shinleaf (*Pyrola elliptica*), bishop's cap (*Mitella diphylla*), and white baneberry (*Actaea pachypoda*).

The southern hardwood swamp and wetland depressions within the mesic southern forest are heavily dominated by tussocks of brome-like sedge (*Carex bromoides*), a graceful plant with slender, drooping tufts of leaves. Swamp buttercup (*Ranunculus hispidus*) is also a dominant component of the wetlands, and its bright yellow flowers can be seen scattered throughout the sanctuary's landscape. In the wetland depressions, moisture gradients provide ample microhabitat for a great diversity of wetland species. Spring blooms include golden ragwort (*Packera aurea*), foamflower (*Tiarella cordifolia*), dwarf raspberry (*Rubus pubescens*), pink spring cress (*Cardamine douglassii*), and the slightly later blooming southern blue flag (*Iris virginica*). The tree canopy is largely comprised of red maple and swamp white oak (*Quercus bicolor*), with a few scattered, and quite large cottonwoods (*Populus deltoides*).



Full Circle also supports a diverse cast of ferns, and so far, eight species have been identified. The most dominant upland species are Christmas fern (*Polystichum acrostichoides*) and lady fern (*Athyrium angustum*). While sensitive fern (*Onoclea sensibilis*) is the most prevalent in the wetlands, there are several populations of royal fern (*Osmunda spectabilis*) and interrupted fern (*Claytosmunda claytoniana*) interspersed across the sanctuary. Interrupted fern appears quite similar to cinnamon fern (*Osmundastrum cinnamomeum*) but gets its name from the fertile leaflets (pinnae) that bear the spores and quickly wither away from the stalk (rachis), leaving leaflet gaps in the frond – a useful identification feature. In contrast, cinnamon fern has a frond that is entirely fertile, rising vertically from the center of the plant while the remainder of the fronds are all vegetative.



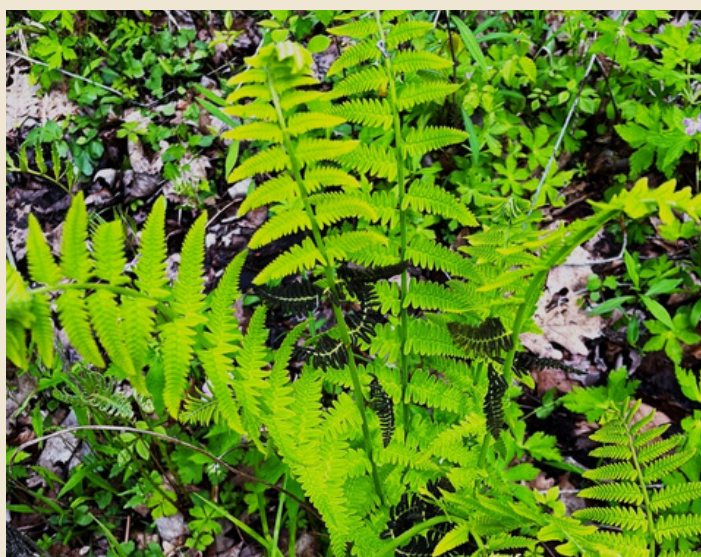
Brome-like sedge - *Carex bromoides*, C-value 8 (foreground), and Swamp Buttercup - *Ranunculus hispidus*, C-value 5 (yellow flowers) on the Full Circle Sanctuary. Photograph by Blake Short.

While this sanctuary is small, it has a lot to offer floristically, and there is no doubt more unique species to be found in the summer and fall. If you plan to pay a visit to this little gem, note that there are no walking trails, and please be sure to clean your boots before venturing into the woods to prevent introduction of non-native or invasive species. There is no designated parking area, but the road is minimally traveled and parking along the shoulder is doable. Happy botanizing, everyone.

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*Carex crinita* sedge, C-value 4 on the Full Circle Sanctuary. Photograph by Blake Short.



Interrupted Fern – *Claytosmunda claytoniana*, C-value 6 on the Full Circle Sanctuary. Photograph by Blake Short.



Eastern Garter Snake on the Full Circle Sanctuary. Photograph by Blake Short.



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## Sibley Prairie Update

The fundraising effort to acquire and protect the 440-acre Sibley Prairie site is moving steadily along, but there is still a very long way to go to raise the \$6 million needed to buy the land and near \$4 million to restore and steward the future preserve. While the Save Sibley Prairie Coalition would like to focus on just the acquisition at this time, most large funders want to know there is a substantial stewardship commitment before they will consider supporting a project of this scale.

The ecological significance of Sibley Prairie is obvious. Consisting of an extremely rare and imperiled complex of lakeplain prairie, oak savanna, flatwoods, shrub swamp, and marsh, this 440-acre site should be a top candidate for protection. Lakeplain prairie was originally of very limited distribution in Michigan, covering only about 0.4% of the land area. Today, only about 1,250 acres remain according to the Michigan Natural Features Inventory. In other words, 99.2% of the original lakeplain prairie in Michigan is gone.



A rough estimate is that about 250 acres of the 440-acre Sibley site is lakeplain prairie, with the rest consisting nearly as imperiled oak opening savanna and flatwoods, along with shrub swamp and marsh. So, about 20% of our remaining lakeplain prairie statewide is on the line with this Sibley Prairie site. Unless we protect it, 20% of Michigan's remaining lakeplain prairie is most likely gone to development.

Please help us spread the word and consider a generous donation. For more information, see the Save Sibley Prairie Coalition web site at: <https://savesibleyprairie.org/>



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# London State Fish Hatchery and Ohio Streams

*By Bill Collins, TLC Executive Director*

This past April, Cheryl and I traveled through Ohio and Kentucky. Among our interesting destinations, a visit with Doug Sweet, Superintendent of the London State Fish Hatchery near London, Ohio was long-overdue. Back in the early 2000s, Doug was the Curator of Fishes for the Belle Isle Aquarium in Detroit and assisted us with fish and mussel surveys in Saint Clair County, including Belle River near Memphis and Bunce Creek in Marysville. Doug worked on several other surveys in southeast Michigan, including Black River and Clinton River. Doug's work resulted in finding rare mussel and fish species, sometimes where their potential occurrence was originally dismissed. The last time Doug and I collaborated was about 15 years ago when we submitted a proposal for a fish and

mussel survey to the Sanilac County Drain Commissioner for maintenance dredging on the upper Black River. We didn't get the work.

The London State Fish Hatchery is located on over 80 acres in western Madison County, just west of London, Ohio. The facility was built in 1896 by the Ohio Fish Commission, a predecessor to the Division of Wildlife and is the oldest of the six hatcheries. The hatchery has 33 ponds containing a total of 8 acres of water, an outdoor covered raceway simulating a stream, nine indoor raceways, and a production building full of tanks and nine rearing troughs. Water is supplied by seven wells which can deliver up to 2,000 gallons per minute, but usually 500 gallons per minute. This cold-water supply and ponds allow the hatchery to raise muskellunge, rainbow trout and brown trout.



*Aerial view of the London State Fish Hatchery. Ohio Department of Natural Resources.*

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Here is a real coincidence. RBF Construction, otherwise known as "Rather Be Fishin" Construction, based in Flint, recently purchased our Croissant Sanctuary south of Ortonville and agreed to a conservation easement on the property. Several years ago, Brett Jory, Vice President of RBF, worked as an engineer in Ohio and designed an upgraded water supply system for the London State Fish Hatchery. What are the chances?

The London State Fish Hatchery is involved in fish production year-round and is the only Ohio production facility for brown trout. Muskellunge production starts in the spring, while trout production starts in the fall. Brown trout yearlings are produced for the Mad River and upper Clear Fork of the Mohican River. Rainbow trout are produced to stock public waters in central and southern Ohio for fall fishing. Muskie "advanced" fingerlings up to 12 inches are produced to stock select reservoirs statewide each fall. Fingerling rainbow trout are produced and sent to Kincaid Fish Hatchery for continued production to catchable size for spring stockings. In 2024, the hatchery produced over 23,000 brown trout yearlings over 2,500 rainbow trout catchables, and over 13,000 muskellunge advanced fingerlings. They also raise fathead minnows and carp fry to feed muskie raised in the hatcheries.

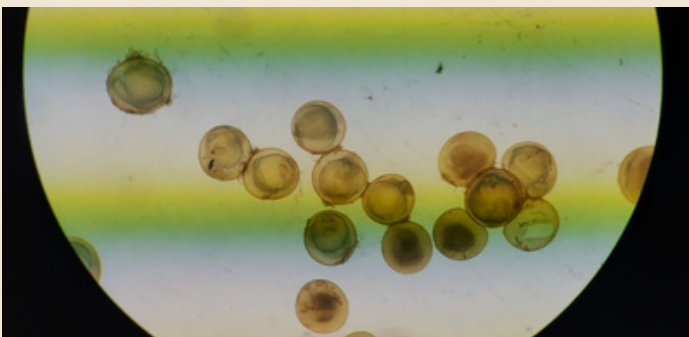


*Production building and troughs full of muskellunge fry. Notice the fry in the foreground trough. Photograph by Bill Collins.*



*Muskellunge fry. Photograph by Bill Collins.*

It just so happened that the day we visited the London State Fish Hatchery, it was their annual open house, so several employees of the Ohio Department of Natural Resources, Division of Wildlife, were at the hatchery to give us a tour and discuss their work. We toured most of the hatchery and production building with troughs full of tiny muskellunge and tanks full of brine shrimp to feed them now, and carp eggs that will provide carp fry to feed them later. The troughs were full of thousands of muskellunge fry, each an inch or less long, but already having the characteristic flattened beak-like snouts of muskellunge and pike. Fisheries biologists described the rearing process and displayed fish sampling and capture equipment, including a large capture net and electro-fishing boat.



*Carp eggs as seen through a microscope. Most of the carp embryos were moving inside their eggs. Photograph by Bill Collins.*



*Left to right in front of an electro-fishing boat: Steven Gratz, ODNR District 1 (central Ohio) Fish Biologist, Nick Radabaugh, Fisheries Management Supervisor, ODNR District 1, and Doug Sweet, Superintendent, ODNR, London State Fish Hatchery. Photograph by Bill Collins.*

The Ohio River basin, which includes portions of Pennsylvania, West Virginia, Ohio of course, Kentucky, Indiana, and Illinois, is particularly rich in native fish and mussel species. About 350 species of fish and 130 species of mussels species have been recorded from the basin; about 7% of all fish species but about 43% of all mussel species known from North America. The Ohio River basin supports the largest number of mussel species of any other river system on Earth, except for the Mississippi River system, but only because it includes the Ohio River system.

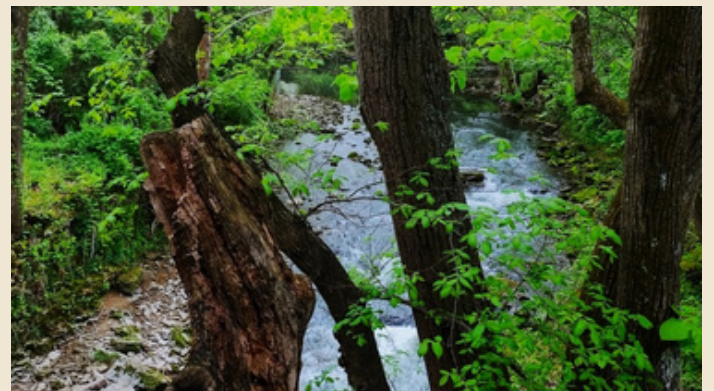
Thank you to Doug Sweet and the ODNR team running the London State Fish Hatchery and managing Ohio's waterways. These people are really the mostly unsung heroes of Ohio's and our nation's waterways and aquatic wildlife.

Especially after our visit to the London State Fish Hatchery, my attention was directed to the many creeks, streams, and rivers across Ohio as we crossed or drove beside them, including the Sandusky River, Mac-o-chee Creek, Mad River, Little Miami River, Yellow Springs Creek, Licking River, Big Darby Creek, Scioto River, Raccoon Creek, Hocking River, and Brushy Fork. Possibly my imagination, but it seems that rivers and streams are more prominent landscape features in central and southern Ohio as compared to southern Michigan. This may be because the waters flow longer distances before reaching the Ohio River. There is also more terrain relief in southern Ohio, causing more water to concentrate and flow.

There are approximately 3,300 named streams in Ohio, totaling over 60,000 miles in length. Those in the north flow to Lake Erie. Central and southern streams flow to the Ohio River.



*Sandusky River northeast of Tiffin, Ohio. What a joy to walk in the springtime sun along the rushing waters when it was still wintery in Michigan. The river banks were covered by southern vegetation like Sycamore, Ohio Buckeye, and Bladdernut, and full of warblers and other migratory birds. I don't need Florida when Ohio is "sub-tropical" enough for me (exaggeration). Photograph by Bill Collins.*

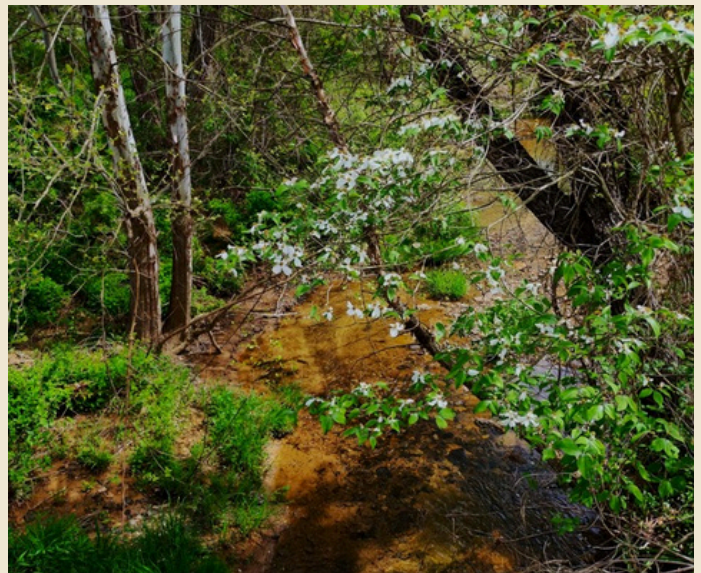


*The Little Miami River at Clifton Mill in Clifton, Ohio. Among the tree species shown here are American Basswood, Sycamore, and River Birch. Photograph by Bill Collins.*



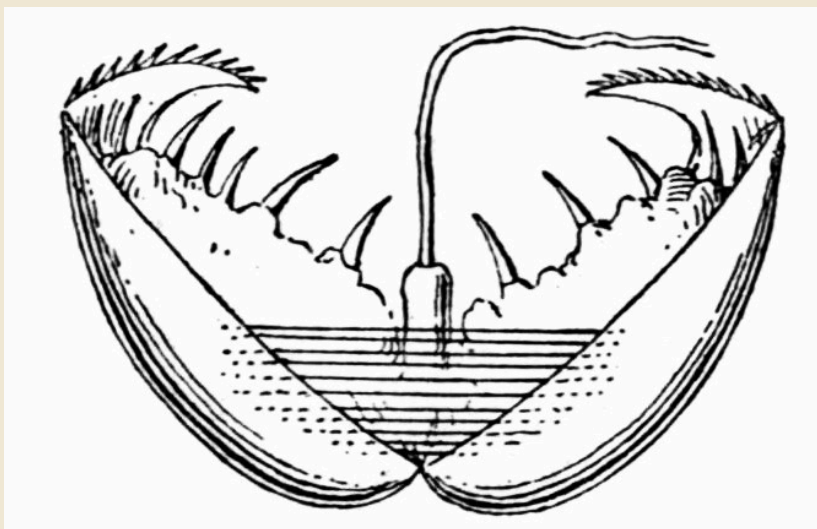
Over 170 species and subspecies of fish, and 80 species of mussels are recorded from Ohio waterways alone. Over one-quarter of all mussel species known from North America are in Ohio. The Big Darby Creek watershed is particularly known for rare mussels, some found nowhere else in the world. Over 40 mussel species are recorded from Big Darby Creek and tributaries. It's been said that the Big Darby Creek, for its size, has the greatest diversity of freshwater mussels in North America. There are more mussel species in Big Darby Creek than in all of Europe or Australia. Yet freshwater mussels are the most imperiled animals in North America, with perhaps 35 species now extinct, and 23 species rare or declining, including federally endangered northern riffleshell and clubshell.

Likewise, Big Darby Creek contains one of the most diverse fish communities in Ohio and the Midwest, with over 100 recorded species, at least 15 rare species, including various species of madtom (generally small and rare catfish of limited distribution), darters, and others. Big Darby Creek was the only recorded location of the Scioto madtom in the world, now thought to be extinct. Lake sturgeon possibly inhabited the creek before the late 1800s. Unfortunately, those and several fish species of the Big Darby Creek are thought to be extirpated.



*Brushy Fork at the Cox Covered Bridge near Creola, Ohio with Sycamore and Flowering Dogwood. Photograph by Bill Collins.*

It's not a surprise that diverse fish and mussel populations tend to occur in the same rivers and streams as the life-cycles of both are mostly inseparable. Male mussels release sperm into the water which fertilizes the female's eggs. Each egg develops into a mussel larva called a glochidium, which looks like a microscopic toothed pacman. Depending on the species, female mussels produce tens of thousand to millions of glochidia per year. The glochidia are released and attach to the gills or fins of a particular host fish, and very rarely an amphibian.



*Diagram of a glochidium: A pacman with an attitude. You may never think of humble bottom-dwelling filter-feeding mussels the same. Source: Wikimedia Commons: Step, Edward, Shell life: An Introduction to the British Mollusca. - London, New York: F. Warne & Co. (1901).*

Once attached, the glochidia transform over weeks and months into juvenile mussels that eventually separate from the host, fall to the stream bed, and begin life as a free-living mussel. In this way, new mussels are transported to suitable stream habitats. Each mussel is matched to a host fish, and sometimes amphibian, that share the same habitat needs. What an efficient yet delicate system. Eliminate or degrade the fish community, whether by altering the hydrology or catastrophic fish kill, and the mussel community follows.

Every watercourse is a precious natural treasure. The value of clean water and native aquatic life

cannot be over-stated. Small streams and creeks tend to be dismissed because of their generally seasonal flow, but many are as permanent as the land. Perennial rivers and streams fed by stable surface and ground water base flow are permanent features, as are the macroinvertebrates, fish, and mussels that inhabit them. They have flowed or held water for centuries, most since the last glaciers receded. Watercourses across our landscapes are worthy of more respect and care, if for no other reason than time. As Sting sang, "All this time, The river flowed ..." despite the goings on of men.

## **You Got The Power To Restore Nature's Matrix, in 2026** **Save Nature Any Place - Sustain Native Animals & Plants**

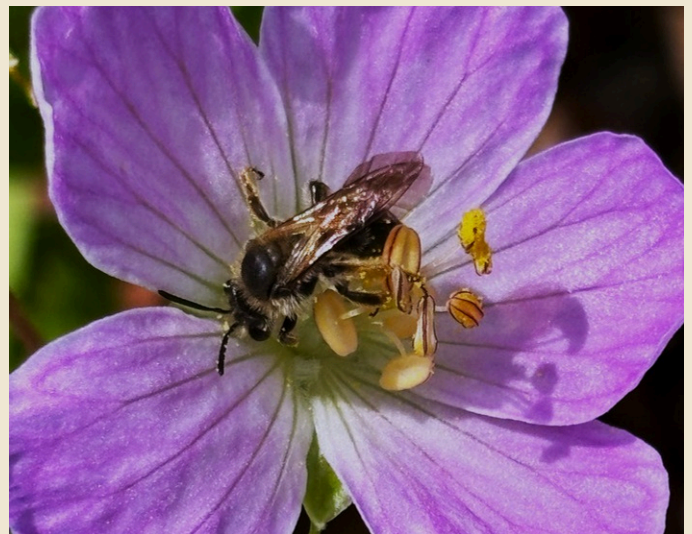
### **Pollinators 2026**

June 22 through 28 was Pollinator Week and June was Pollinator Month, but don't worry if you missed out. You can help pollinators every day, every week, and every month. Whether you leave an area unmowed long enough to at least allow some clover flowers to blossom, establish a meadow, plant flowering perennials, leave some fallen leaves for insect larvae, plant flowering trees and shrubs that serve as pollinator host plants, or place a conservation easement on your property, it all helps.

Pollinator Week was initiated and is managed by the Pollinator Partnership. In 2007, they worked hard to gain the U.S. Senate's unanimous approval and designation of a week in June as "National Pollinator Week". Since then, the Pollinator Partnership fostered the expansion of Pollinator Week into Pollinator Month with activities taking place worldwide.

More people are beginning to recognize the economic value and ecosystem services provided by bees, birds, butterflies, bats, beetles, moths, wasps, and flies.

Did you know that at least three-quarters of flowering plants rely on animals for pollination? Without them, there would be few if any seeds.



*A miner bee, genus Andrena, on a Wild Geranium flower at the TLC Full Circle Sanctuary. Photograph by Blake Short.*



There has been a lot of attention given to European honeybees, but did you know there are about 450 species of native bees in Michigan? Many of these also pollinate crops, but are vital to the pollination and long-term survival of native plants. Some native plant flowers are so specialized that they can be pollinated by only one species of bee, fly, or other insect.

For more information, see the Pollinator Partnership web site at: [Pollinator.org](http://Pollinator.org)

[Here](#) is a recent article from the Michigan State University Public Radio web site.



## New TLC Web Site

After about 16 years, the TLC has finally updated our web site. We have posted our news, annual reports, and other things during that time, but much of the site was way overdue for an update.

It's not perfect and still a work-in-progress, but we think it's far better than the old. A big thank you to our enduring web host, Jeff Ronan of LochanDe IT Services.



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