



2021

Michigan Conservation  
Results Report

The Nature  
Conservancy



## TABLE OF CONTENTS

A FOUNDATION OF SCIENCE.....4-7

RESILIENCE, REBUILT.....8-11

RISING TO OPPORTUNITY.....12-13

PARTNERSHIPS FOR IMPACT.....14-17

EXPANDING HORIZONS  
FOR SOIL & WATER.....18-21

FACES OF TNC.....22-23



**Patrick Doran**  
*Associate State Director*

COVER: Kayakers near the mouth of the Two Hearted River in the Upper Peninsula. © Michael D-L Jordan/dlp

ABOVE: A professor holds an eastern hemlock branch showing the young, bright green needles. © Ian Shive

## Big, Bold, *Necessary*

Nature is a part of us. It's the water we drink, the forests that protect our atmosphere and the soil that grows our food. Our future is inseparable from nature's future, too. Our planet faces tough challenges but, with nature's help, we can overcome them.

In 2021, TNC made big strides for Michigan's lands, waters, wildlife and people by collaborating with many partners—including nature itself. I'm proud to share highlights of these accomplishments with you in this report: from research that's addressing key questions for fisheries restoration to **15,000 acres protected** in the Upper Peninsula that conserve an incredible piece of Michigan's forest legacy (see page 12).

From the heart of the Great Lakes, our Michigan team is making a tangible contribution to TNC's global 2030 goals. These are the bold, science-based goals that lay out what TNC needs to achieve this decade to help shape a greener, healthier world.

What does that mean? It means high-priority conservation projects based on proven science. It means policies and investments that support nature and its solutions for climate mitigation, clean water and more. It means brave new partnerships and system-scale innovation.

Let's demonstrate what is truly possible for Michigan by doing the big, bold work this decade calls for—with urgency, at scale, **together**. Thank you for your partnership!

In conservation,

Patrick J. Doran

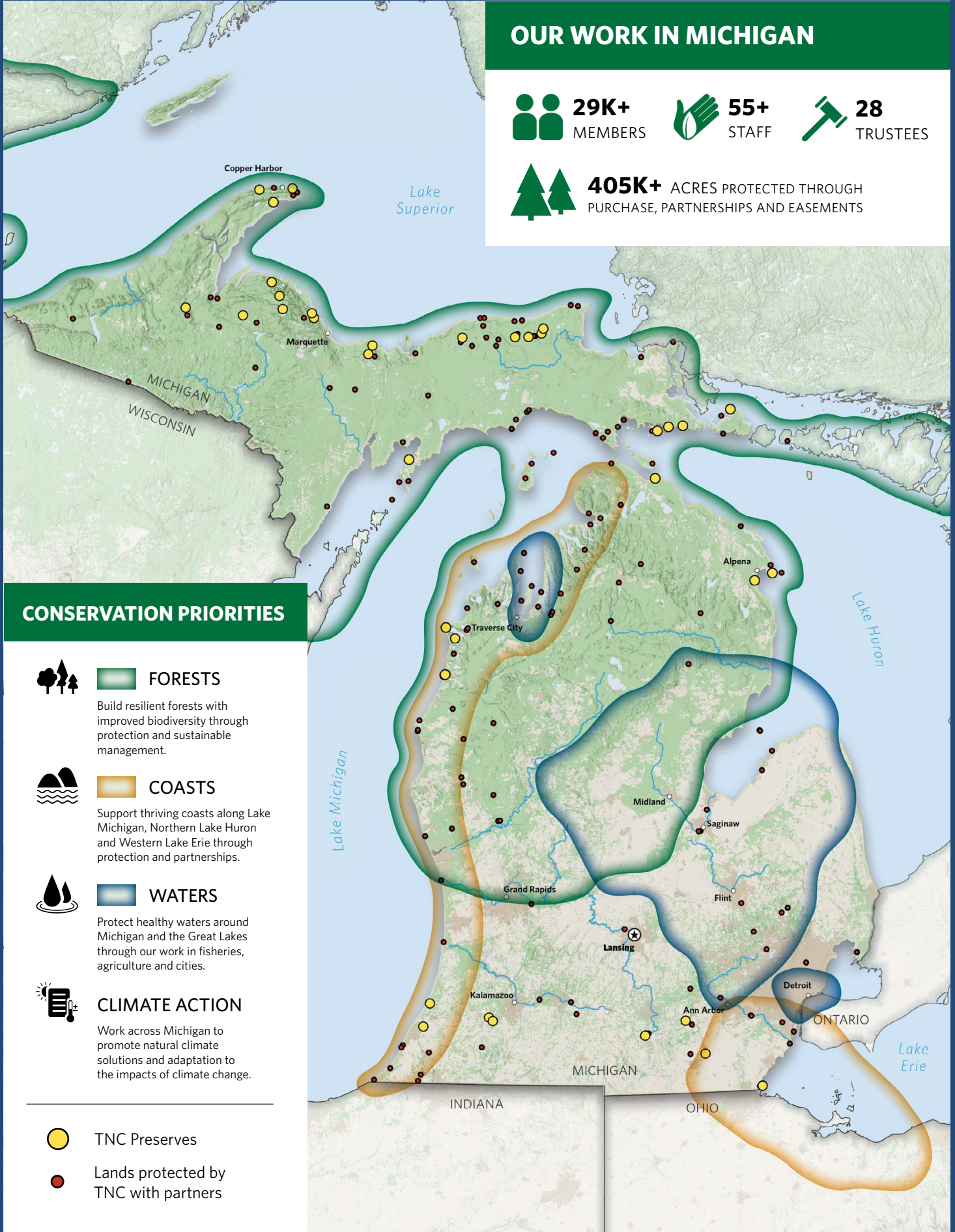
# OUR WORK IN MICHIGAN

 **29K+**  
MEMBERS

 **55+**  
STAFF

 **28**  
TRUSTEES

 **405K+** ACRES PROTECTED THROUGH  
PURCHASE, PARTNERSHIPS AND EASEMENTS



## CONSERVATION PRIORITIES



### FORESTS

Build resilient forests with improved biodiversity through protection and sustainable management.



### COASTS

Support thriving coasts along Lake Michigan, Northern Lake Huron and Western Lake Erie through protection and partnerships.



### WATERS


Protect healthy waters around Michigan and the Great Lakes through our work in fisheries, agriculture and cities.



### CLIMATE ACTION

Work across Michigan to promote natural climate solutions and adaptation to the impacts of climate change.

 TNC Preserves

 Lands protected by TNC with partners

# A FOUNDATION OF SCIENCE

THE NATURE CONSERVANCY'S work is grounded in science. We answer fundamental conservation questions to inform tangible, lasting results across all of our strategies—for Great Lakes fisheries, coastal resilience, clean water and much more.



## The Way Forward for Fisheries

There is considerable interest in the restoration of the Great Lakes coregonids, a group of related native fish species that play an economically and ecologically important role in this vast freshwater system. Kiyi and lake whitefish are two of these coregonids. Once prevalent throughout the Great Lakes, both species have declined in number: kiyi now live only in Lake Superior, and the Lake Michigan and Lake Huron whitefish populations are roughly half of what they were only 20 years ago.

Science will show the way to restoration. TNC is working with partners to **contribute a strong evidence base for potential restocking efforts for kiyi and whitefish**, by first addressing key data needs.

### *Kiyi*

Since 2017, TNC has been working with a commercial fisher and the U.S. Geological Survey (USGS) to collect kiyi during winter in the icy waters of Lake Superior and determine when they spawn and the best way to catch them at that time. The results suggest that kiyi have a larger spawning window than some of their coregonid relatives, approximately mid-December to late-January.

This gives us a better chance of being able to **successfully catch, spawn and rear kiyi in hatcheries**—something TNC will be working on with partners from the Sault Ste. Marie Tribe of Chippewa Indians and the Little Traverse Bay Band of Odawa Indians. Experimentally

spawning and rearing kiyi is an important next step for fisheries managers to be able to consider re-establishing this species outside of Lake Superior.

### *Lake Whitefish*

This fall, TNC worked with the Sault Tribe and Michigan Department of Natural Resources (MDNR) to complete our fourth year of surveying for spawning lake whitefish in Michigan rivers. So far, our findings suggest that tributary-spawning whitefish in Lake Michigan are limited to Green Bay tributaries. If whitefish could be re-established in Michigan rivers, where they once thrived, it could help **compensate for decreasing Great Lakes populations**.

The research team found no whitefish in the six rivers they surveyed, but this answers an important question—a reintroduction effort would be **unlikely to compromise an existing population**. Now, TNC is working with the Sault Tribe, the Little Traverse Bay Band and MDNR on a whitefish-egg overwintering experiment, to begin developing an approach for holding whitefish eggs in river habitats so that they can imprint on that habitat and return later as adults to spawn.

ABOVE (left): TNC staff and MDNR partners sample whitefish from the Escanaba River in 2018. © Matt Herbert/TNC; ABOVE (right): Matt Herbert, TNC conservation scientist, holds a bowfin that was caught while sampling for whitefish in the Manistee River. © TNC

# Grand Traverse Reef Restoration: 5 Years Later

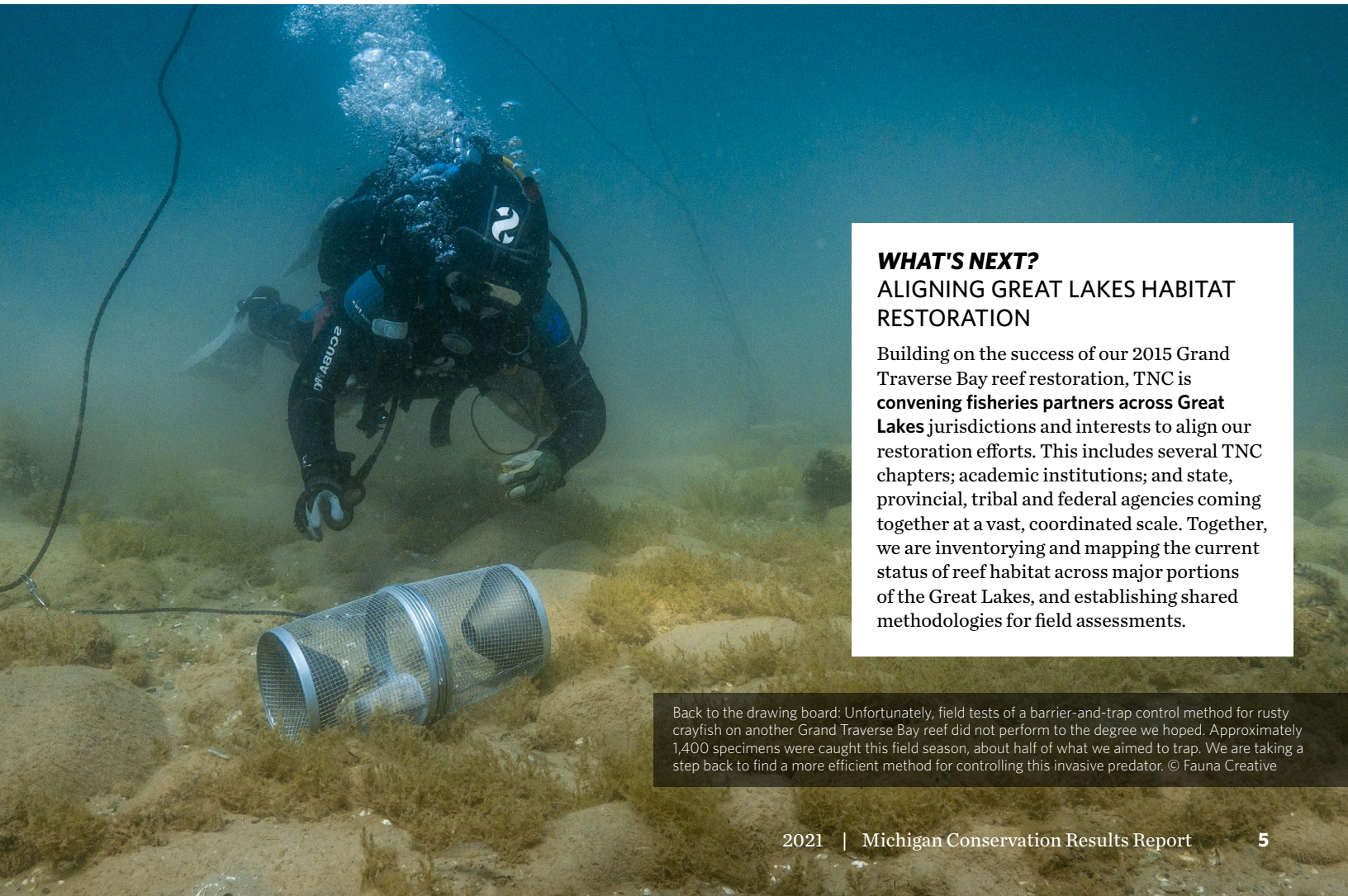
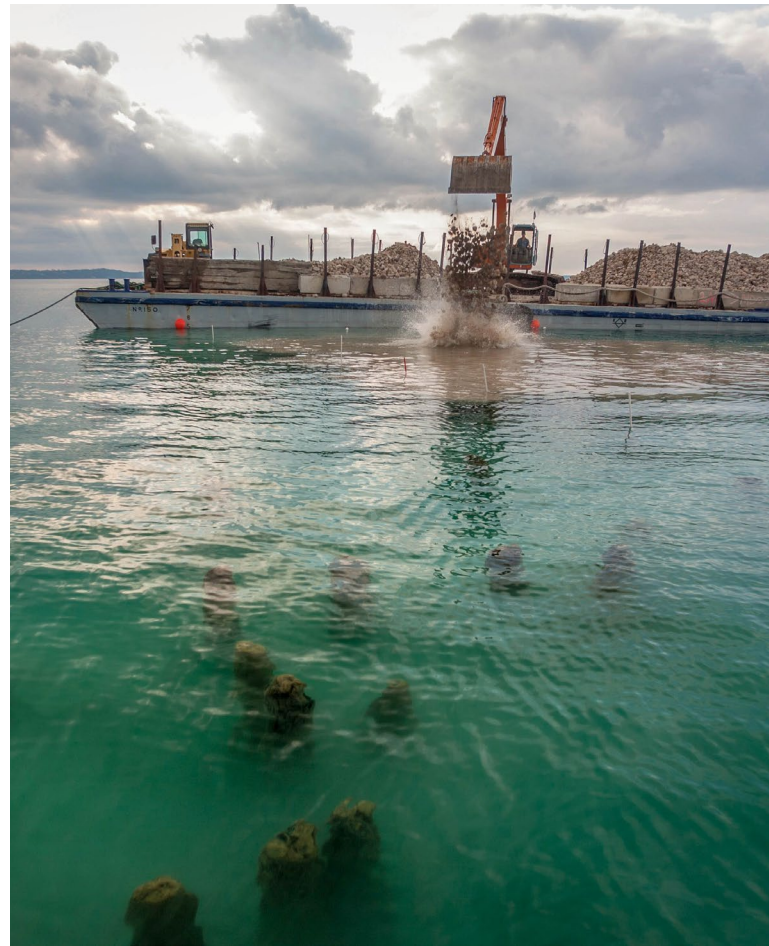
In 2015, TNC, MDNR and Central Michigan University researchers used 450 tons of cobble rock to rebuild a degraded reef at the Elk Rapids reef complex in Grand Traverse Bay. At that time, we committed to at least **five years of monitoring fish egg and larval fish survival** to ensure this restoration effort had the intended impact on local fish populations.

Five years later, here's what we've observed:

- Cisco (lake herring) generally use the entire reef complex, with a preference for depositing eggs at depths of 15 to 20 feet.
- Whitefish prefer shallower reefs for their eggs, around 10 feet below the surface.
- Our restoration **substantially improved reef habitat** by making the rock layer larger and deeper, thus increasing the amount of space for eggs to settle and be protected.
- **Egg retention is higher on the restored reef** than on control reefs, meaning fewer eggs are getting lost during storms or eaten by invasive predators.

Our observations are corroborated by the experience of local anglers, who have noted **improvements in their catches** that they attribute to the project. While this single study is not enough to draw broad conclusions about reef restoration, its success provides important insights and has already inspired similar efforts elsewhere in the Great Lakes.

RIGHT: The Grand Traverse reef restoration project benefited from multiple years of data that allowed for a thorough site analysis prior to restoration. © Big Foot Media

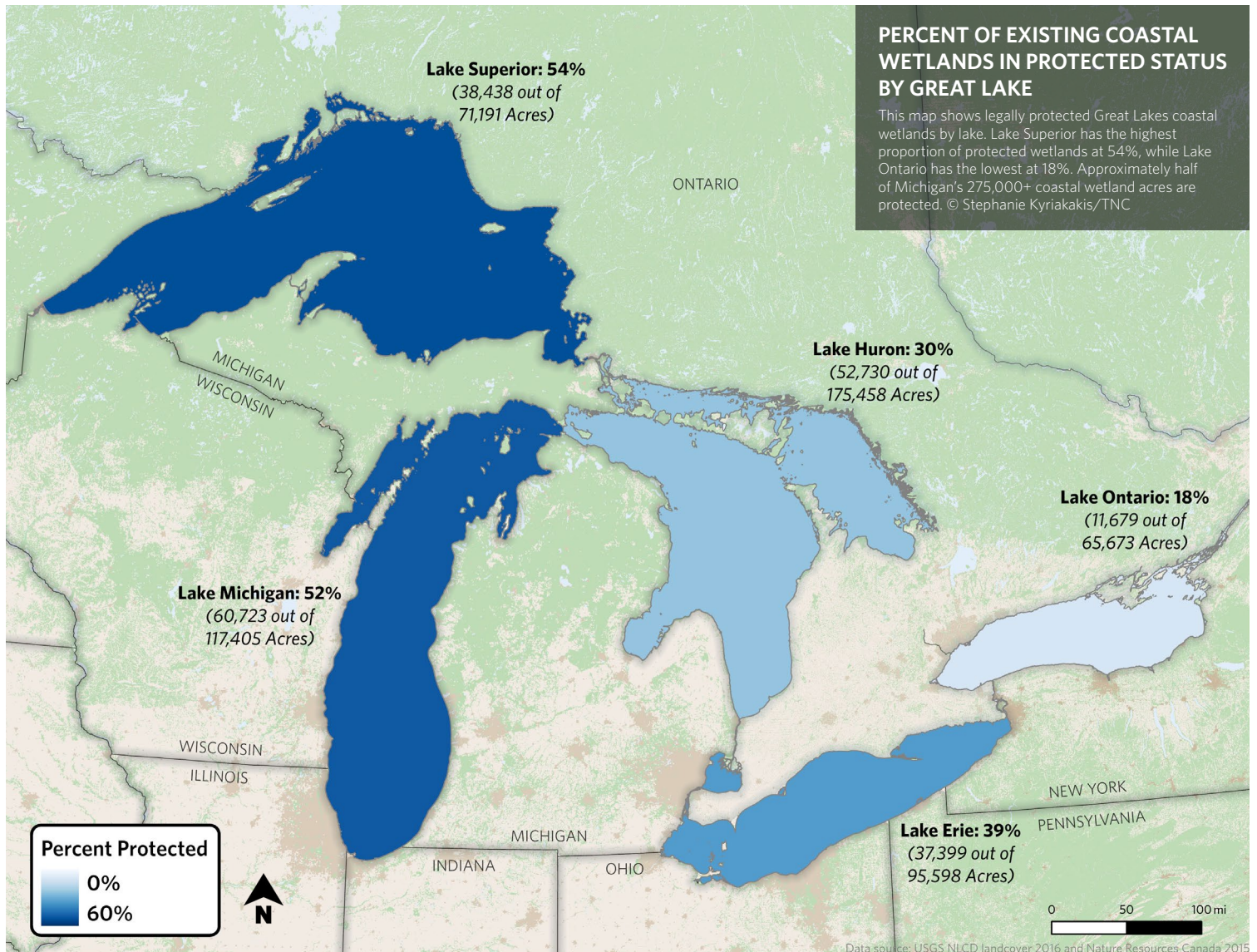


## WHAT'S NEXT?

### ALIGNING GREAT LAKES HABITAT RESTORATION

Building on the success of our 2015 Grand Traverse Bay reef restoration, TNC is **convening fisheries partners across Great Lakes** jurisdictions and interests to align our restoration efforts. This includes several TNC chapters; academic institutions; and state, provincial, tribal and federal agencies coming together at a vast, coordinated scale. Together, we are inventorying and mapping the current status of reef habitat across major portions of the Great Lakes, and establishing shared methodologies for field assessments.

Back to the drawing board: Unfortunately, field tests of a barrier-and-trap control method for rusty crayfish on another Grand Traverse Bay reef did not perform to the degree we hoped. Approximately 1,400 specimens were caught this field season, about half of what we aimed to trap. We are taking a step back to find a more efficient method for controlling this invasive predator. © Fauna Creative



## Mapping on the Edge

TNC has completed the **most robust and comprehensive coastal wetlands database for the Great Lakes region to date**. This includes information never before compiled on these critical Great Lakes ecosystems, including how much of the existing coastal wetland area is in a protected status. TNC staff also used data from historical navigation charts to identify the reach of Great Lakes coastal wetlands at the height of the 19th century—before half of the region’s coastal wetlands were lost.

This analysis can help researchers and decision-makers answer important questions such as: Are investments in coastal wetlands reaching a large enough area? Can funding be allocated differently for greater impact on the extent, diversity and resilience of coastal wetlands? This will **inform science-based solutions** that help people take better care of the Great Lakes we depend on.

**ONLINE** | Explore more of TNC’s work on coastal wetlands at [bit.ly/RestoringErieMarsh](https://bit.ly/RestoringErieMarsh).

RIGHT: Coastal wetlands in the Great Lakes provide services worth billions of dollars, from filtering drinking water to supporting fish and wildlife. They also help protect coastal communities from floods and storms, an important “natural infrastructure” solution in a changing climate. © Jason Whalen/Big Foot Media





## Hidden Benefits of Restoration

Since 2010, the Great Lakes Restoration Initiative (GLRI) has been an important source of funding for conservation in the Great Lakes. Projects funded by GLRI target some of the biggest threats to nature in the lakes, such as toxic algal blooms, aquatic invasive species and habitat loss. But what if these projects could lead to better outcomes for the communities of people that depend on these natural systems, as well?

It turns out, many already are. Matthew Jurjonas, TNC’s 2020-2021 Bailey Conservation Fellow, recently completed a synthesis of GLRI projects to expand our understanding of how restoration projects benefit people and nature in the Great Lakes. His survey of project managers found that approximately **40% of GLRI projects include human well-being criteria**—even though this is not required or reported on.

These findings will help Great Lakes researchers better understand restoration progress to date and the impact on people and communities, as well as identify which priorities need greater attention—leading to **more equitable projects with expanded benefits for both people and nature**, and driving further support for conservation in the Great Lakes.

LEFT: A woman experiences the benefits of nature in daily life.  
© Jennifer Emerling

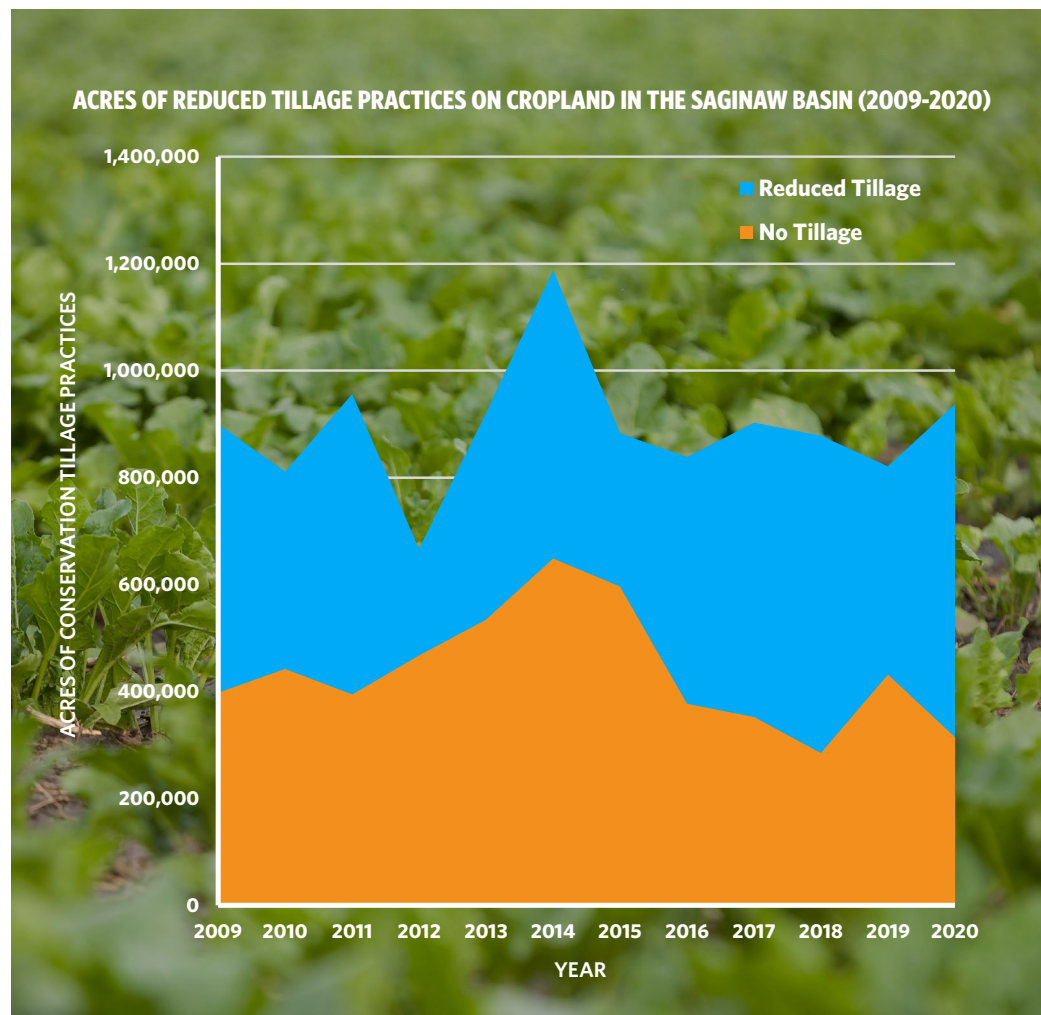
## OpTIS: Mapping Success in the Saginaw Bay Watershed

This year, TNC secured **Operational Tillage Information System (OpTIS)** data for Michigan that allows us to see beyond the acres of on-farm conservation practices that TNC has had a direct role in delivering, to how practices are changing across the entire Saginaw Bay watershed.

OpTIS, a tool developed by TNC and partners, uses satellite data to map crop development and the practices used on farmlands. With that data now available for Michigan, we can better track how close we are to our goal of **half of all row crop acres in the Saginaw Bay watershed** being treated with a suite of conservation practices, such as no-till and cover crops. For example, the OpTIS data shows the trends in no-till and reduced tillage in the watershed (see graph, right). This OpTIS data will help us adaptively manage our tactics in real time and inform research on why practice adoption rates may differ in certain areas.

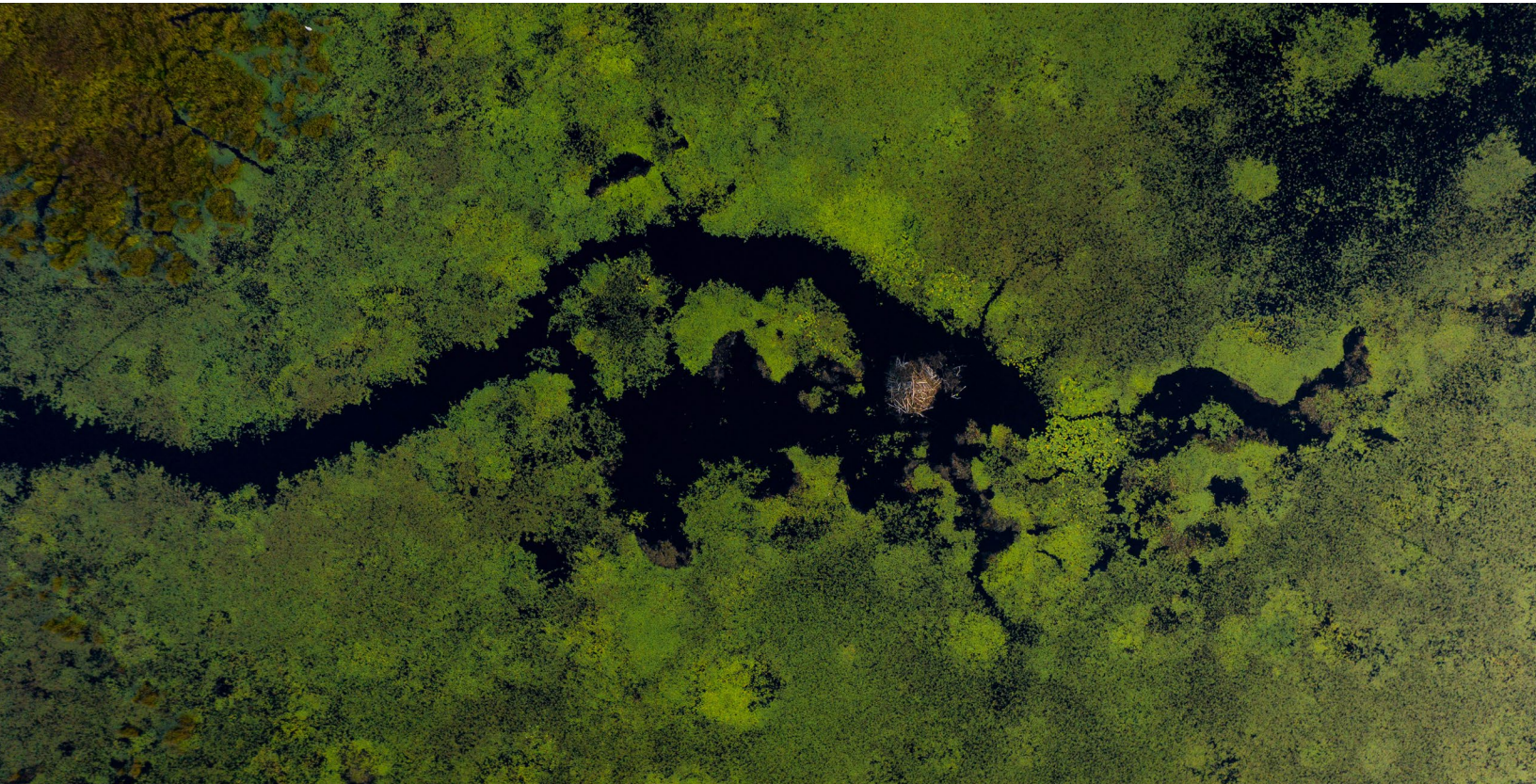
➔ **ONLINE** | Learn more about the free OpTIS tool at [nature.org/OpTIS](https://nature.org/OpTIS).

RIGHT (graph): This graph shows trends in various reduced tillage practices in the watershed over time, which limit disturbance to the soil to reduce soil loss and negative water quality impacts. RIGHT (photo): Reduced-till sugar beets. © Michael D-L Jordan/dlp



# RESILIENCE, REBUILT

THE NATURE CONSERVANCY centers the conservation of resilient lands and waters in our work to ensure the living legacy of Michigan's unique and irreplaceable biodiversity. From northern forests to southern fens, this also provides numerous benefits to the well-being of people, including climate mitigation and clean water.



## A Connected Network: Partnerships & Lands

TNC's landmark **Resilient Connected Network (RCN)** project mapped out areas across the country that will be important for biodiversity and species persistence in a changing climate. This year, TNC continued to add layers of data to the mapping tool, including forest and soil carbon estimates.

Here in Michigan, TNC is sharing the methodology and data behind the RCN tool with partners **to align our work, increase our collective impact and elevate the importance of climate resilience**. For example, this year TNC worked with Huron Pines, a conservation partner that works across 13 northeastern Lower Peninsula counties, to incorporate RCN data into a digital map.

“Access to TNC’s RCN data and help from their staff was vital to our efforts in producing a conservation priorities map for Northeast Michigan,” says Brad Jensen, executive director at Huron Pines. “We were able to take statewide data and distill it down to a scale that helps us focus our efforts. That work will help **drive many of our land and water conservation efforts** for years to come.”

TNC holds workshops to introduce the RCN to land conservancy partners across the state and supports them in implementation of the data. Those partners include Legacy Land Conservancy, Southwest Michigan Land Conservancy, Land Conservancy of West Michigan, Upper Peninsula Land Conservancy, Heart of the Lakes and more.

➔ **ONLINE** | View and interact with the resilient and connected lands tool at [maps.tnc.org/resilientland](https://maps.tnc.org/resilientland).



### VISION FOR MICHIGAN LANDS

This year, the Michigan Department of Natural Resources (MDNR) released its updated Public Land Strategy (2021-2027), available at [michigan.gov/publiclands](https://michigan.gov/publiclands).

TNC contributed to the collaborative input process, helping to incorporate best practices for climate resilience, forestry and invasive species control into the management of the four million acres of public lands that MDNR oversees.

ABOVE: A beaver lodge sits in the middle of McMahon Lake surrounded by a network of aquatic plants. © Jason Whalen/Fauna Creative

ABOVE: A juvenile osprey practices landing in its nest. © Marcia Lanois/TNC Photo Contest 2021





## Cycles of Restoration

Forest restoration is a long-term process, but it can be accelerated with the right practices. TNC uses sustainable forest management methods to encourage the return of a more diverse, climate-resilient and pest-resistant forest. These include:

**Selective Harvesting:** Removing trees to support a diversity of tree species and ages, and to create canopy gaps that encourage the regeneration of native hardwood species.

- **Two Hearted River Forest Reserve:** We completed **177 acres of restoration** through harvest and canopy gap creation within this 23,000-acre reserve. Acquired in 2005, the Two Hearted Reserve is TNC's longest-established reserve in Michigan and an important site for demonstrating the effectiveness of sustainable harvesting practices to the broader community.

**Underplanting:** Planting underrepresented tree species to increase forest diversity and resilience.

- **Two Hearted River Forest Reserve:** TNC planted **32,000 seedlings this year**, including red oak, white spruce, white pine and eastern hemlock, across 80 acres of the reserve. We also provided 2,000 northern red oak saplings to the Keweenaw Bay Indian Community.

**Riparian Planting:** Planting trees along rivers and streams to restore forest habitat, reduce erosion and protect cool stream temperatures and clean water.

- **Ottawa National Forest:** Through an agreement with the U.S. Forest Service, TNC planted **19,450 trees** across 69 acres. This included white pine, white spruce, tamarack and hemlock trees, in areas where spruce bud worm has killed off balsam fir and other trees.

ABOVE: Red oak, pictured here, is one of the species TNC plants to incorporate longer-lived trees into the forest composition. Red oak acorns are an important source of food for foraging wildlife such as the black bear and wild turkey, especially given the loss of beech trees across the eastern Upper Peninsula to widespread beech bark disease. © Shutterstock



### A RETURN AT ROSS PRESERVE

This year, TNC removed 43 acres of preexisting red pine plantation at our Ross Coastal Plain Marsh Preserve through selective harvesting. While red pine is a native species in Michigan, the monoculture stands at Ross, which were planted long before TNC ownership, blocked out understory growth and significantly reduced habitat quality for local wildlife. Their removal makes way for the return of a more diverse and resilient native forest habitat.

ABOVE (top): Harvest in progress at Ross Preserve removing monoculture stands of red pine. © Jeremy Wittrock/TNC; ABOVE (bottom): Example of a restored forest that TNC will work to establish in place of the red pine plantations. © Shaun Howard/TNC

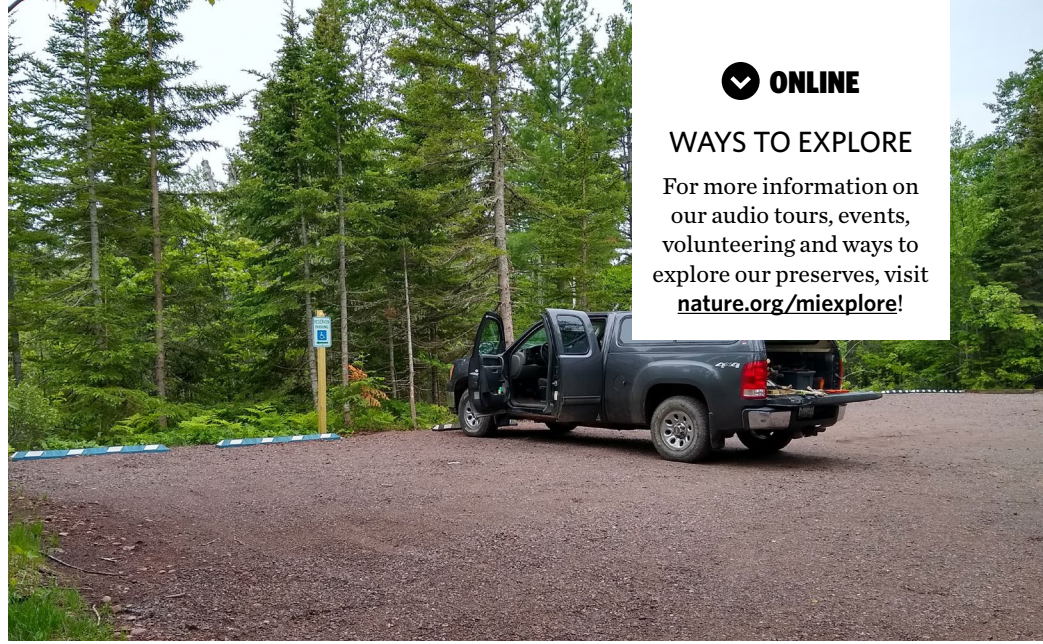
# Investing in Our Preserves

TNC's preserves across the state represent many facets of Michigan's natural communities and offer unique opportunities for people to explore and connect with nature. When these places are accessible, well marked and thoughtfully managed, visitors can have richer and more immersive experiences.

That's why, in 2021, we did a comprehensive review of the Ross Coastal Plain Marsh Preserve's trail system, looking for ways we could reopen closed trail sections and **offer visitors a more varied experience** of the preserve's many natural features, without negative ecological impacts. We also completed a new parking lot at the Carl A. Gerstacker Preserve and are **enhancing and expanding trails**.

We're also taking the preserve experience online, so that everyone can learn about these special places even when unable to visit in person. Digital enhancements include **virtual tour events and three new audio tours** for McMahon Lake Preserve, Helmut & Candis Stern Preserve at Mt. Baldy, and Mary Macdonald Preserve at Horseshoe Harbor. This is all part of a multi-year effort that TNC has launched to **enhance the trail systems, infrastructure and programming** at 20 of our most popular preserves and reserves in Michigan.

RIGHT (clockwise from top): New parking lot at Carl A. Gerstacker Preserve. © Chris Cantway/TNC; ADA accessible boardwalk at McMahon Lake Preserve. © Chris Cantway/TNC; TravelStorys GPS-based audio tours can be used on the trail or at home. © Cameron Karsten Photography



 ONLINE

## WAYS TO EXPLORE


For more information on our audio tours, events, volunteering and ways to explore our preserves, visit [nature.org/miexplore!](https://nature.org/miexplore)



## PLANTING WHERE THE SUN SHINES

As demand for clean energy continues to rise, many states are looking at how to make solar projects more cost effective and efficient. In Michigan, using farmland for solar projects can sometimes benefit the landowners more than keeping that land in active cultivation. It can have ecological benefits, as well! Using native prairie plants for groundcover around solar projects, rather than the typical gravel or turf grass, **provides habitat to pollinators** like butterflies and bees while **reducing long-term costs**.

TNC's restoration project manager, Kim Steinberger, has written a guide for Michigan solar companies and property owners on planting native prairie at solar sites.

 ONLINE | Check the "Native Plant Management at Solar Sites" guide at [nature.org/michiganplants](https://nature.org/michiganplants).

LEFT: TNC restoration crew members recently worked with a local landowner to install a native planting around a solar site on their property. © Kim Steinberger/TNC

## 2021 BY THE NUMBERS

# 15,416

**ACRES**  
OF LAND  
PROTECTED

TOTALING OVER **405,000 ACRES** OF TNC-PROTECTED LANDS ACROSS MICHIGAN



**20** ACRES OF NATIVE PRAIRIE PLANTED

**205** POUNDS OF NATIVE SEEDS COLLECTED

**90+** SPECIES OF NATIVE SEEDS COLLECTED



**51,450**

TREES PLANTED ON TNC & PARTNER LANDS



**41** VOLUNTEERS AND INTERNS

**2,244** VOLUNTEER HOURS



**26.2**

MILES OF TRAILS MAINTAINED AT TNC PRESERVES



**4,770**

PARTICIPANTS IN VIRTUAL EVENTS



**715**

ACRES SURVEYED AND TREATED FOR INVASIVE SPECIES

# RISING TO OPPORTUNITY

THE NATURE CONSERVANCY acts with nature, for nature, when the moment calls for us to do so. This includes responding to urgent conservation opportunities, driving collaborative dialogue and more—at a pace and a scale that matter.



## Slate River: A Treasure of Conservation

Comprising **10,550 acres of forestland** in Baraga County, the Slate River Forest Reserve had been managed as healthy, mature working forest for decades by the same family. When they decided to sell it, we knew this incredible protection opportunity was too important for TNC to pass up: Michigan forests like this are rare.

The seller accepted our bid, and we closed on the property in November. TNC is establishing it as our newest working forest reserve, which allows us to continue to demonstrate good stewardship practices that **sequester carbon and sustain the vitality and diversity of the forest**. It also ensures that this forest will never be subject to unsustainable timber harvesting and forest conversion.

These 10,000+ acres provide a compelling story of what a thriving future could look like for Upper Peninsula forests, with the right management practices protecting the forest and sustainable harvest supporting livelihoods in the forest-products economy. It's a place where hemlock, red pine, aspen and a diversity of hardwoods grow in abundance, and large trees grow larger. It adds to a **conservation corridor of protected habitat** for wide-ranging species such as moose and deer, and includes four miles of the Slate River, which flows into Lake Superior. It's a true treasure of conservation.

ABOVE: Our plans for the Slate River Forest Reserve include pursuing Forest Stewardship Council certification to help guide our sustainable forestry program, and enrolling some of the land in Michigan's Commercial Forest program, which allows for public access. © Jeff Parrish/TNC

## CONNECTING RESILIENT LANDS AT WILDERNESS LAKES RESERVE

Last year, TNC **nearly doubled the size of our Wilderness Lakes Reserve**, in the Upper Peninsula's spectacular Michigamme Highlands area, to 11,025 acres. The expanded reserve is a critical part of a conservation corridor TNC is working with partners and supporters to create across the Michigamme Highlands, and we are hard at work on our management plan, improving road-stream crossings, completing forest and carbon inventories, and more.

ABOVE: The addition to Wilderness Lakes Reserve contains some of Michigan's most stunning forest and water landscapes. © Bob Anthony

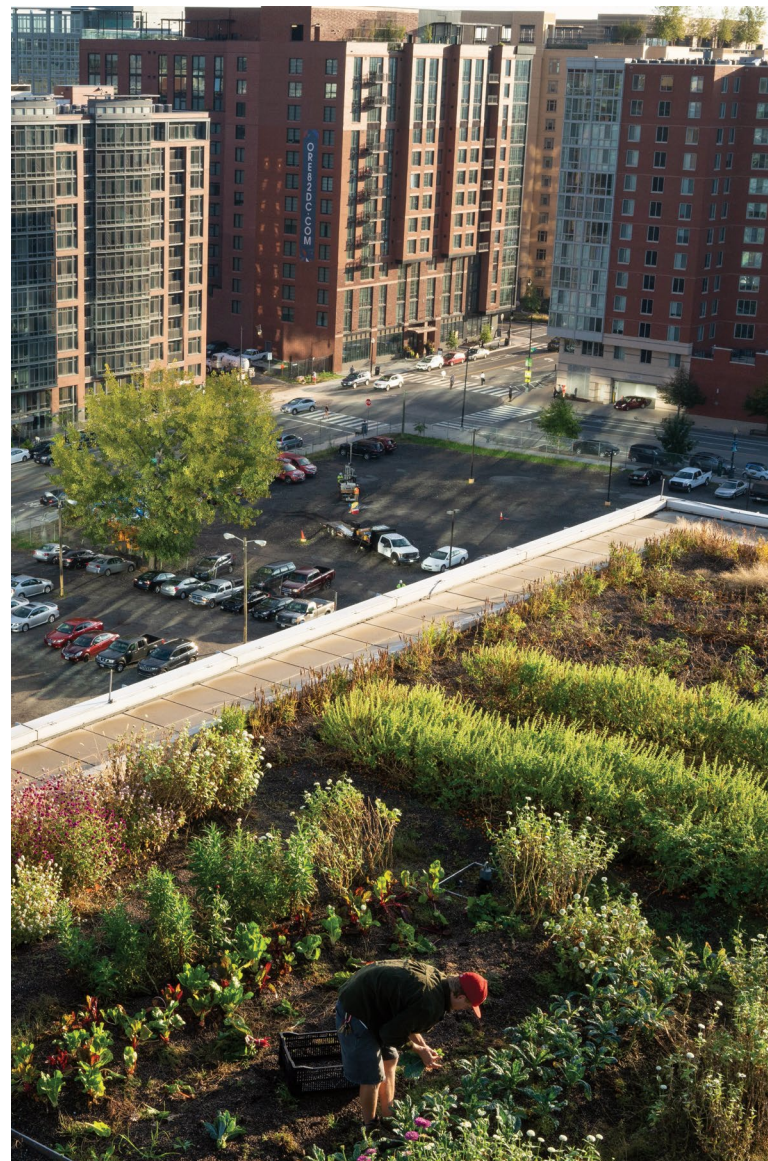
# A Voice for Climate Action

TNC is hard at work to elevate climate solutions with Michigan leaders and businesses, at a time when bold and decisive action is more important than ever. When it comes to climate, it's going to take everybody—and a myriad of solutions.

TNC's contributions in 2021 include:

- Supporting the Michigan Climate Solutions Council through two technical workgroups—"Natural and Working Lands" and "Energy Intensive Industries" workgroups.
- Informing the climate policy recommendations of the Michigan Chamber of Commerce's Energy and Environment Committee through our expertise on **nature-based solutions**. The inclusion of nature-based solutions in these discussions will help drive solutions that are both sustainable for nature and economically viable.
- Participating in a roundtable discussion on **climate-smart agriculture and forestry**, at the invitation of U.S. Senator Debbie Stabenow (who is also chair of the Senate Committee on Agriculture, Nutrition and Forestry). U.S. Secretary of Agriculture Tom Vilsack also attended. TNC's inclusion in this invitation-only event signifies recognition of our work and expertise at a high level.
- Working with the Michigan Manufacturers Association—which represents almost 1,700 member companies—to launch a new series of **four practical seminars for Michigan businesses** on sustainability practices and lowering carbon emissions, beginning with "An Overview on Sustainable Manufacturing" in December. Watch recordings of the webinars at [bit.ly/MMAWebinars](https://bit.ly/MMAWebinars).
- Advancing the national Food and Agriculture Climate Alliance (FACA) and its principles locally, including partnering with the **Michigan Farm Bureau** and **Michigan Agri-Business Association** to engage their stakeholders. There is significant and growing interest in climate-smart agriculture for addressing greenhouse gas emissions in Michigan and beyond.

RIGHT: An example of a climate-smart sustainable building in Washington, D.C., that includes a rooftop garden covering nearly one-third of an acre. © Greg Kahn; BELOW: Wetlands at the Detroit RiverWalk. © Michael D-L Jordan/dlp



## WHAT'S NEXT? LEVERAGING FEDERAL DOLLARS FOR INFRASTRUCTURE

The **bipartisan infrastructure package** passed by Congress in November includes significant investments in clean energy, conservation and natural infrastructure—and puts the concept of nature-based solutions in statute, a huge win for TNC. TNC is already working to elevate recommendations to Michigan lawmakers on how those funds could be invested in Michigan's water infrastructure in ways that support **climate resilience and improved well-being** for both people and nature.

# PARTNERSHIPS FOR IMPACT

THE NATURE CONSERVANCY knows that tackling big global issues like climate change and biodiversity loss will require collaboration like never before. We cultivate partnerships across sectors and geographies for outcomes that meet bold, shared goals for people and nature.



## Growing Green

In 2019, TNC completed a signature project with Sacred Heart Church (SHC) to unite form and function in this historic Detroit church's parking lot, with a green stormwater infrastructure (GSI) installation. This installation uses native plants and nature-based engineering to **manage nearly all the stormwater runoff from a two-acre area** (an estimated 3.5 million gallons per year) and helps the church **cut its drainage charge in half**. In addition to slowing and filtering stormwater runoff, it also provides wonderful habitat for pollinators.

Now heading into the third growing season, the native plant gardens are thriving. They will continue to thrive thanks to contributions by dedicated SHC volunteers, who are completing a GSI Maintenance Training Program that TNC launched in 2021. After the 2022 growing season, SHC will take over the project, leading the city with the first large-scale GSI project at a faith-based institution.

ABOVE: During a June storm that brought more than 7 inches of rain to some parts of Detroit, Sacred Heart Church's GSI installation managed all the runoff and had no standing water just a few hours after the rain ended! © Jason Whalen/Fauna Creative

## COMMUNITY FIRST

Planned development in the Greater Eastern Market (GEM) area of Detroit represents an opportunity to incorporate greenways that demonstrate GSI's potential at a neighborhood scale. It is also a chance to demonstrate the many ways GSI can support the well-being of people—but only if the top concerns of residents are already being addressed.

TNC and the Eastern Market Partnership recently **helped Grassroots Detroit launch their home repair program** for long-time residents in need. TNC supports this effort to ensure that the growing investment in the area is realized as benefits to those who live and work in the community. The program also helps increase climate resilience in the neighborhood through repairs that lower carbon emissions and mitigate climate risks.

ABOVE: Through a partnership with the Eastern Market Partnership and the City of Detroit, TNC will work with incoming businesses in the GEM to create individual GSI projects that manage each development's stormwater in accordance with municipal requirements, and connect to 12.5 acres of greenways across multiple properties. © Michael D-L Jordan/dlp



## SUPPORTING THE MITCHELL'S SATYR

TNC's Grand River Fen Preserve has the largest remaining population of the **endangered Mitchell's satyr butterfly**—and our partners are helping it grow. In 2021, U.S. Geological Survey worked with TNC to install monitoring equipment on the preserve that provides new data on fen hydrology and local conditions, which will help inform restoration efforts and support a thriving Mitchell's satyr population. This year, the U.S. Fish and Wildlife Service also successfully relocated Mitchell's satyr butterflies from Grand River Fen to a park in Washtenaw County, to help it expand the species' range.

LEFT: Mitchell's satyr butterfly. © TNC

## TNC & Partners Honored with Conservation Achievement Award

In September, Michigan United Conservation Clubs recognized TNC and partners—including the Michigan Environmental Council, Sustainable Michigan Fund, mParks, Heart of the Lakes and Michigan Trails & Greenway Alliance—with a special Conservation Achievement Award for spearheading the **successful passage of Proposal 1** in 2020.

This was a landmark victory for Michigan's public lands that dedicated all future state mineral royalties to Michigan's lands, waters and parks through the Michigan Natural Resources Trust Fund. And recognition of the importance of investing in our lands and waters continues to grow. Building on the success of Proposal 1, three bills have been introduced in Michigan's legislature that would direct nearly \$1 billion of federal stimulus funds to state and local parks.

BELOW: A group of hikers at TNC's Nan Weston Preserve at Sharon Hollow. © Michael D-L Jordan/dlp



### WHAT'S NEXT?

#### MAKING DOLLARS AND SENSE OF GREEN STORMWATER INFRASTRUCTURE (GSI)

The theoretical basis for GSI is clear—but what does that really mean on the ground, in the specific context of Detroit? To answer this question in a way that will be meaningful for local project developers and the designers they rely on, TNC is evaluating the business case for specific GSI practices in Detroit. With the help of department leaders from the new **Leadership Council of the City of Detroit**, we are analyzing a broad suite of GSI projects to identify and describe **cost-effective, best-in-class practices** that offer multiple benefits to Detroiters.

# Opening Doors to Forest Health

This year, TNC in Michigan has been working with TNC's Wisconsin and Minnesota chapters to **expand the Family Forest Carbon Program (FFCP)** into the Great Lakes Northwoods, in partnership with the American Forest Foundation. Due to launch this summer, the project is designed to increase carbon sequestration and improve forest health by helping landowners adopt practices such as encouraging the growth of mature northern hardwood forests and using extended periods between pine harvests.

Most carbon programs are **inaccessible to smaller family-owned forests**, which tend to be fewer than 1,000 acres but collectively represent more than a third of U.S. forestlands. FFCP, however, is open to **forest owners with anywhere from 30 to 2,600 acres**. By helping landowners develop a management plan and tap into carbon-market incentives, TNC is lowering barriers to participation in natural climate solutions.

RIGHT: A yellow birch at TNC's Two Hearted River Forest Reserve. © Drew Kelly



## FORESTS AT WORK FOR CLIMATE

The Northwoods Family Forest Carbon Program is scheduled to **launch in Summer 2022**. And interest is high! At a webinar hosted by the Michigan Society of American Foresters, more than 270 people joined live to hear TNC present on the program. TNC will be holding landowner outreach webinars this coming spring and summer for those interested in learning more about the program.

ABOVE: The marking crew who walk the forest, take inventory and mark trees for harvest in Michigan's Upper Peninsula. © Drew Kelly



# Partnering at the Source

Many Great Lakes rivers begin as springs, wetlands, creeks and streams within forests. For a decade, TNC has worked with the **U.S. Forest Service (USFS)** in the Hiawatha National Forest and Ottawa National Forest to **restore and steward public forestlands**, with a focus on areas that are especially important to healthy rivers and streams. TNC's contributions include:

- 1,106 acres planted with 280,200 trees over three years, along rivers and streams that flow into Lake Superior and Lake Michigan.
- More than 400 wetland and riparian area surveys completed.
- Seven natural areas recommended by the USFS as representative sample areas due to their high and/or unique ecological values.
- 600 road-stream crossings surveyed and evaluated for repair needs, which helps improve stream connectivity for fish.
- Funding and technical support to Michigan Tech University to complete research that informs protection and management of coastal wetlands in the Hiawatha National Forest.

Building on this long collaboration, we are now **expanding this restoration program** to new areas of the Northwoods, including the Chequamegon-Nicolet National Forest in Wisconsin, in true cross-boundary cooperation.

RIGHT (all): TNC staff underplanting a variety of young trees in the Ottawa National Forest. © Kimberly Steinberger/TNC; BELOW: Ottawa National Forest. © Robert Emperley/Flickr



## WHAT'S NEXT? A NATURAL DEFENSE

In 2022, TNC aims to plant trees on an additional **250 acres of the Ottawa National Forest**, in ash stands and streamside areas that are threatened by the spread of the emerald ash borer. A warming climate is allowing this destructive pest to move farther north. Planting a diversity of native trees makes it more difficult for the emerald ash borer to spread through and kill entire ash stands. Many of the trees we have planted here to date have been in ash-dominated areas for this reason.

# EXPANDING HORIZONS FOR SOIL AND WATER

THE NATURE CONSERVANCY works to transform how people use, manage and think about nature for far-reaching, system-level change—from water infrastructure to urban gardens to farms.



## Water for People and Nature

Clean water in Michigan and the Great Lakes depends on well functioning water infrastructure. But making the necessary updates to Michigan's drinking water and wastewater systems is a multi-step process. What improvements do we need? How are we going to pay for them? How will we make sure they are equitable? And what policy needs to be in place to make them feasible?

To answer these questions, TNC is leading the way on a suite of complementary projects.

- In partnership with Public Sector Consultants, TNC completed a **survey** of Michigan's regional and county health departments, in the first comprehensive, statewide needs assessment of local septic management programs. The survey collected feedback from 80 of Michigan's 83 counties. The results are informing several pilot programs that will assist residents with septic repair.
- Failing septic systems pose a significant risk to water quality, but there is currently no statewide requirement for septic inspection and upkeep. TNC worked with the Citizens Research

Council (CRC) to do a **financial analysis** of one common recommendation—that all counties require the inspection of septic systems (and repair if necessary) whenever a home is sold or transferred—and found that it would cost about \$100 million a year to implement statewide.

- While statewide programs exist to help low-income households pay for heat, lights, food, rent and telecommunications, no statewide program exists to help them pay their water bills. In a **baseline public opinion poll** TNC conducted in 2021, over 75% of those polled believed that Michigan should create a statewide assistance program to help low-income households pay their water bills, and to maintain access to safe, clean drinking water for everyone.

ABOVE: The Citizens Research Council's analysis also noted the need for a septic replacement funding program and household assistance program, to ensure lower-income households are not inequitably burdened if a requirement for septic repair at time-of-sale is put in place. © Fauna Creative

# Making Waves for Water Infrastructure

TNC is participating in the Coalition for a Strong and Prosperous Michigan, organized by the Michigan Municipal League and Michigan Association of Counties, to make recommendations for the use of state American Rescue Plan Act (ARPA) funds—nearly \$6 billion—and general fund dollars, for targeted investments in water infrastructure, assistance programs and other needs.

Going forward, we are tracking the status of state water infrastructure legislation closely and **providing legislative input and committee testimony** as appropriate, so that investment in Michigan’s water infrastructure remains a priority. For example, we provided our expertise to help inform Senate Bill 565, which proposes \$3.3 billion in funds for improving Michigan’s water infrastructure, including dam repairs, replacement of lead pipes, drinking-water and wastewater facility upgrades and community assistance programs.

RIGHT: TNC has been working on water policy and infrastructure issues for years, including through 2019 research on innovative U.S. water utilities, our 2020 report “Safe and Affordable Water for All,” our involvement in the 21st Century Infrastructure Commission and more. © Michael D-L Jordan/dlp



## THE RESULTS ARE IN

Currently, there are no statewide standards for when and how private septic systems should be maintained. We asked regional and county septic programs: what support do Michiganders need to repair and replace our septic systems?

- 95% of Environment Health Officers (EHOs) indicate there is not enough **financial assistance** available for residents to repair and replace systems.
- 69% of EHOs say the state should develop **model ordinance language** that could be modified and adopted locally.
- 57% of EHOs say the state should pass **performance-based standards**.

LEFT: Poorly maintained and inadequate systems can contaminate our environment, posing a threat to individual household health and Michigan’s water resources. © Getty Images/iStockphoto



ONLINE

### IT'S 'THE BAY WAY'

Working with Trust in Food, a division of U.S. Farm Journal, TNC has launched an online series of farmer stories that highlight innovative soil health operations around the Saginaw Bay watershed. Watch the published videos and subscribe to the **YouTube channel at [bit.ly/SaginawFarmers](https://bit.ly/SaginawFarmers)** for future episodes!



## A Sweet Deal for Sugar Beets

TNC has directly supported **conservation practices on 86,000+ acres** of the Saginaw Bay watershed to date, for keeping 6,800+ tons of sediment and 26,000+ pounds of phosphorus out of streams and rivers and, ultimately, the bay itself. Now, we are building on these successes with exciting new partnerships and opportunities for impact.

Thanks to a grant from the U.S. Department of Agriculture (USDA), this includes our ASSET (Accessing Subsidized Strip-Till Equipment Trial) program. Through ASSET, sugar beet farmers in the Saginaw Bay watershed will be able to try an innovative conservation practice known as strip tillage with lowered financial risk, to improve soil health and reduce erosion.

TNC is working with Michigan Sugar Company and other partners to deliver a competitive incentives package to sugar beet farmers that includes **financial and technical support** as well as assistance to acquire the needed specialized equipment. Matching funds were provided by the Cook Family, C.S. Mott, and Meijer foundations, among others.

ABOVE: Strip tillage includes cultivating only a thin strip of soil, impacting 10-30% of a field's surface. It's a practice with proven benefits for water quality and soil health, but it is often perceived as cost-prohibitive or risky. The ASSET program is intended to help at least 10 farms overcome those barriers, while demonstrating the potential of strip tillage for hundreds of others. © Jason Whalen/Fauna Creative



### SHARING SUCCESS

Since TNC helped launch the first farmer-led watershed group in Michigan's Thumb region in 2020, the popularity of these peer-to-peer learning and networking groups has continued to grow. We are working with Michigan State University, the Michigan Farm Bureau and other partners to create and expand additional groups for row crop farmers, with the hope of eventually supporting groups for dairy farmers as well.

ABOVE: Farmer-led watershed group meeting in Saginaw County in 2017. © Ben Wickerham/TNC

# Built-In Conservation for Wheat and Dairy

TNC has launched two new projects this year that build farmer incentives for implementing soil health practices, such as cover crops and reduced tillage, directly into the agricultural supply chain in the Saginaw Bay watershed. This approach is designed to help remove the need for a third party, such as TNC, to provide financial support and verify the impact of these practices.

## Wheat

TNC is working with Star of the West Milling Company, a Michigan-based wheat milling and agronomy supply company, to pilot a **new sustainably grown wheat program** that offers bonuses to farmers who adopt conservation practices. Together, we created a new framework for Star of the West growers to become verified as “sustainable wheat growers” for implementing conservation measures on their farms, qualifying them for a sustainability bonus at the point of sale.

## Dairy

In a national partnership, TNC is working with the Michigan Milk Producers Association, Dairy Management Inc., Syngenta and other partners to explore **innovative feed management strategies** that can reduce dairy cattle methane emissions. This “Feed in Focus” program will connect dairy farmers with peer-to-peer resources, financial incentives for feed-production and nutritional improvements, technical support and a system for monitoring and verifying success.

RIGHT (top): Michigan wheat field. © Michael D-L Jordan/dlp; RIGHT (bottom): Holstein cattle feed at a modern farm. © Mark Godfrey/TNC



## WHAT'S NEXT?

### RALLYING AROUND WATER QUALITY

TNC and partners continue to make progress for a robust, long-term water quality monitoring program in the Saginaw Bay watershed. Our partners include the U.S. Geological Survey; National Oceanic & Atmospheric Administration; Michigan Department of Environment, Great Lakes & Energy; Michigan Department of Agriculture & Rural Development; Saginaw Valley State University; Saginaw Chippewa Indian Tribe; Limnotech and more.

To date, available data on water quality has been piecemeal, making it difficult to evaluate trends and measure progress at scale. The Saginaw Bay Monitoring Consortium and the system and tools we put in place will help close this important data gap. The team has begun **creating a data dashboard** as part of a story map providing historical and current context for water quality concerns in the watershed. In the coming year, the team will install new water monitoring equipment in Saginaw Bay and is seeking funding to do this in tributary streams, as well.

LEFT: Road trip bingo! This year, you may have noticed our billboards in the Saginaw Bay watershed. Several billboards were placed at 13 different locations throughout the year, highlighting our work for soil health and clean water at [www.soilsavings.com](http://www.soilsavings.com). © Michael D-L Jordan/dlp

# FACES OF TNC

**2021 FELLOWS & INTERNS:** A big thank you to the emerging conservation leaders who lent their time and talent this year and the donors who funded their experiences, including Jeffrey and Cynthia Littmann and DTE Energy Foundation.



Evelyn Magner joined the team this year as an AmeriCorps VISTA Member through the Stewards Individual Placement Program. This Michigan Tech graduate student is an expert on forests and wetlands!



Alex Verdeja joined us in 2020 as a TNC Conservation Fellow, and has contributed much-appreciated support to our fisheries and forestry teams, among others.

► **ONLINE** | Evelyn created an interactive StoryMap, "A Great Future Ahead with Michigan's Forest Biomaterials," in partnership with the Michigan Forest Biomaterials Institute. Explore the web page at [bit.ly/BiomaterialsForest!](https://bit.ly/BiomaterialsForest!)



Nick Catanzaro joined us last spring as an undergraduate student in MSU's Geography department, helping us with GIS and mapping activities.



In the fall, Chris Semrinec, a third-year law student at MSU, helped us with legal research on the process for siting renewable energy projects (wind and solar) in Michigan.

*The Essel and Menakka Bailey Conservation Fellowship Program was created in 2018 to help the conservation leaders of tomorrow gain experience and launch their careers. In 2021, we had one fellow complete this 18-month program, and a new fellow begin!*



Matthew Jurjonas concluded his Bailey Conservation Fellowship this year after completing a research project that synthesized the funding efforts of the Great Lakes Restoration Initiative (GLRI) to better understand how these projects impact coastal communities. He has continued his professional journey with a U.S. Geological Survey fellowship.



Catherine Henry, TNC's current Bailey Conservation Fellow, recently completed her doctorate at Michigan State University. At TNC, Catherine will analyze patterns of tree regeneration to inform forest restoration strategies, and is collecting and integrating data on forest health and benefits provided by forests in the Great Lakes Northwoods.



## IN MEMORY - NAN WRISLEY

Long-time TNC volunteer **Nan Wisley** generously began sharing her time (and delicious baked goods) with us in 1995. She spent three years on staff, working on the protection team, and filled in as office manager multiple times. Nan later served the Michigan chapter as office volunteer extraordinaire for more than two decades, managing our volunteer database and keeping us organized. There wasn't a task too big for Nan, and when we needed her, she was always willing to help. Nan passed away in October and we deeply miss her kind and generous spirit. Thank you, Nan!



## VOLUNTEER SPOTLIGHT

**Sam Febba** retired this year from over 20 years of volunteering at TNC's Ives Road Fen Preserve. For many of these years, he led volunteer workday teams and generously gave his time, energy and numerous fun ideas—he even bought ice cream for other volunteers on his birthday.

Sam was also one of the fen's birding experts—if he can hear or see it, he can identify it. We thank him for his many years of conservation service!



Community members gathered to remove invasive honeysuckle at Ives Road Fen Preserve. © Bekah Wuchner/TNC

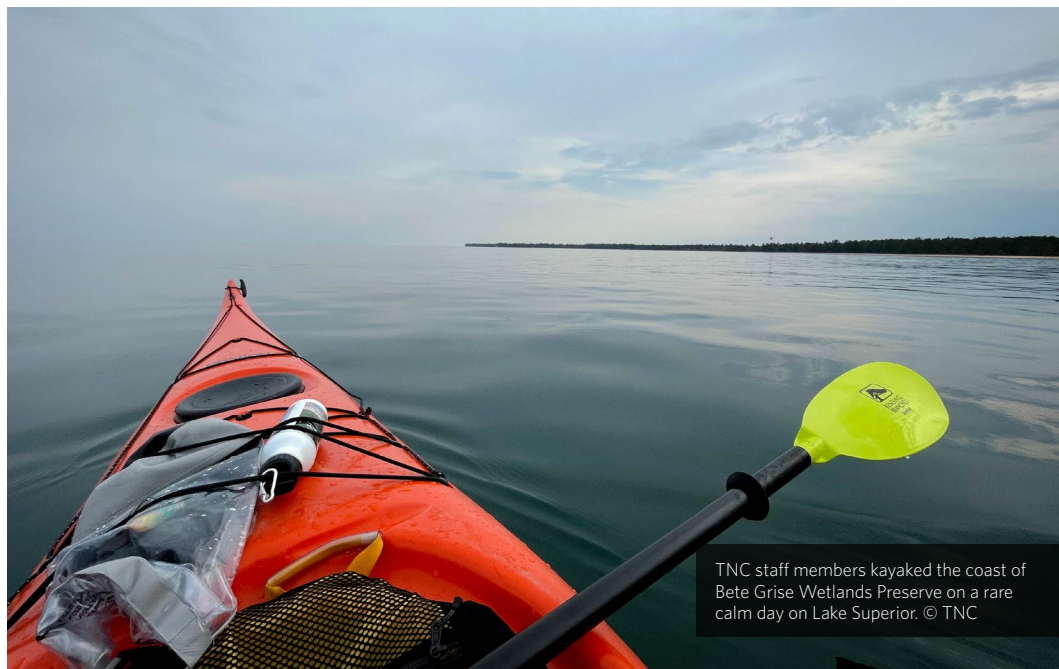


Staff members collected native prairie seeds at Grand River Fen Preserve for ongoing restoration efforts. © Kim Steinberger/TNC

## 2021: A YEAR IN THE FIELD



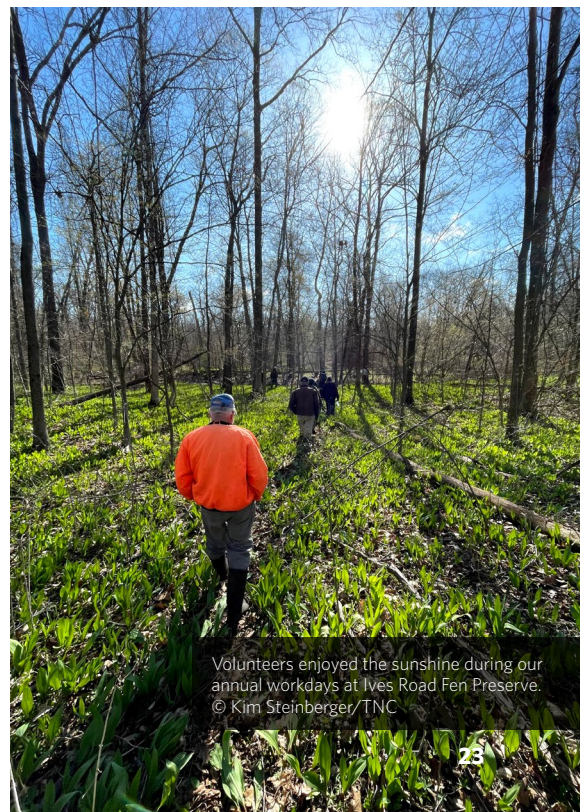
Midwest Division Director, Michael Reuter, and Global Director of Protecting Oceans, Lands and Water, Jeff Parrish, hug a mature hemlock tree during a visit to TNC's new Slate River Forest Reserve in the Upper Peninsula. © TNC



TNC staff members kayaked the coast of Bete Grise Wetlands Preserve on a rare calm day on Lake Superior. © TNC



We've missed you! In October, TNC held our first in-person field trip since the start of the pandemic. Thirty-seven people joined TNC staff for a hike through Nan Weston Nature Preserve to enjoy the fall colors. © Bekah Wuchner/TNC



Volunteers enjoyed the sunshine during our annual workdays at Ives Road Fen Preserve. © Kim Steinberger/TNC

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RIGHT: Male goldfinch. © John Walch



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