2019 Conservation MICHIGAN RESULTS REPORT

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OUR WORK IN MICHIGAN

TABLE OF CONTENTS

As a science-based organization, The Nature Conservancy (TNC) focuses on the conservation strategies that will make the most urgent and important contributions. Through the four priority areas below, we are working to build a healthier Michigan, for a healthier Great Lakes region and a healthier planet.

PAGE 5-8 Protect Lands & Waters

Since our founding six decades ago, TNC has worked to protect Michigan's fens, forests, coasts and everything in-between. By 2025, we aim to build on this legacy by directly protecting a significant amount of acreage while collaborating with partners to more impactfully steward, restore and support thriving Michigan lands and waters.

PAGE 9-12 Provide Food & Water Sustainably

While TNC works with Michigan farmers to promote soil health and water quality, we are also working with many partners to provide the science and strategies to help maintain and rehabilitate key Great Lakes fisheries.

PAGE 13-14 Build Healthy Cities

In Detroit, as in cities around the U.S., TNC is advancing "green" solutions for clean water and reduced flooding as a standard practice to address issues like combined sewer overflows, which carry contaminated stormwater into lakes, rivers and even streets after heavy rains.

PAGE 15-16 Tackle Climate Change

In Michigan, we are contributing to TNC efforts nationwide to help achieve the Paris Agreement's goal of reducing harmful greenhouse-gas-emissions. We support state climate policy action, while demonstrating the potential of nature-based strategies and climate mitigation practices.

THE YEAR IN REVIEW

AND ON TO A NEW DECADE OF CONSERVATION

By nature, I am an optimist. I am astounded by the beauty and power of nature, and hold promise in the ingenuity of society in solving our greatest environmental challenges.

However, I am also a realist. Conservation, from policy to practice, is not easy work. In a changing world, we, the conservation community, must remain a constant. We cannot wait. We cannot rest on our laurels. We cannot "go it alone".

It can seem like a daunting task—the solutions we need are as big as the system in which we live. And the solutions are bigger than any one individual or organization can accomplish alone. That's why TNC continually strives to bring all voices to the table. Tangible, lasting results depend on working together.

TNC is now in the final year of our campaign, which is helping us achieve the priorities outlined on page 1. In the past five years, we've raised over \$90 million toward a \$95-million-dollar goal. As we near the finish line, it's not the dollars we celebrate, it's all of you: our supporters, staff and partners who are making great things happen for conservation, so that Michigan and the Great Lakes thrive.

In Nature, Dr. Patrick Doran, Associate State Director

Patrul J. Deren



Conservation Across Michigan

Saginaw Bay Watershed Whalen | Fauna Creative



Turning a Brownfield Green Build Healthy Cities - Saginaw

TNC has played an instrumental role in bringing partners together to protect 300+ acres along the Saginaw River that was formerly an industrial site. Now owned by the Michigan DNR, this property will be transformed into a county park, for which TNC plans to help secure an endowment for ongoing stewardship.

Marquette





Soaking up Carbon with Working Lands

Tackle Climate Change - Baraga County

Last year, TNC purchased more than 6,100 acres in Baraga County to create the Wilderness Lakes Reserve, which we manage as a working forest using sustainable practices that increase forest health and tree diversity. This year, the reserve was enrolled on California's carbon market, which will support forest restoration while also preventing an estimated 700,000 metric tons of carbon dioxide from entering the atmosphere.





Expanding a Beloved State Park Protect Lands & Waters - Ludington

TNC has assisted the State of Michigan in acquiring 100 acres to be added to the popular Ludington State Park, by providing \$1 million toward the \$17 million cost. This land is made up of pristine sand dunes formerly owned by a sand mining company, and almost completely surrounded by Ludington State Park.



Grand Rapids

Traverse City





With a new legislature and governor in place, TNC continues to nurture relationships with state-level leadership including the members of the Michigan House and Senate committees charged with overseeing state policy on the environment, natural resources and agriculture. We are briefing new members of the Governor's cabinet and their administrators on TNC projects and priorities. This engagement is important to the overall success of our conservation work.



Alpena

Midland

Lansing

Saginaw

Flint

Ann Arbor

Detr



Protect Lands & Waters - West Michigan

This year, TNC worked with Michigan Dune Alliance partners to complete on-the-ground surveys determining the extent of the invasive hemlock woolly adelgid. This tiny insect poses a potentially devastating threat to Michigan's millions of hemlock trees, which play an important role. No infestations were found outside of the initial four counties where it was already known to be present, a promising sign for control efforts.





Charting a Course for Great Lakes Water

Protect Lands & Waters – Ann Arbor

TNC and the Great Lakes Commission continue to build the exposure needed for the long-term success of Blue Accounting (www.blueaccounting.org). For example, at the June 2019 Leadership Summit of the Great Lakes St. Lawrence Governors & Premiers in Milwaukee, WI, we highlighted the need for state and provincial leaders to take advantage of Blue Accounting tools and resources.



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Developing New Control Methods for Aquatic Invasive Species Provide Food & Water Sustainably – Elk Rapids

TNC recently tested new control techniques for rusty crayfish, an invasive predator of native fish eggs, on a rocky reef where fish spawn in Grand Traverse Bay. The vinyl barrier we deployed successfully prevented rusty crayfish from getting onto the reef, and initial field tests of electrical control technique for round goby also showed successes.



PROTECTING LANDS WATERS

Though acquiring land for conservation is embedded in The Nature Conservancy's DNA, the whole picture of our Protect Lands and Waters priority is far bigger than that.

CLEAN RIVERS START HERE

RESTORING THE FENS OF SOUTHERN **M**ICHIGAN

Fens, a unique type of spring-fed wetland, provide important habitat to rare wildlife like the Mitchell's satyr butterfly. They are also important to people, protecting water quality by filtering the headwaters of major rivers like the Grand. In 2019, TNC continued to work to make these natural systems healthier and more resilient. **Learn more about these efforts on page 17.**



FINDING A



Last spring, piping plovers returned to TNC's Zetterberg Preserve at Point Betsie for the first time in several decades. While we can't take credit for them finding their way to our preserve—they did that all on their own—it shows how protecting important landscapes like this preserve's unique dune habitat has lasting, long-term conservation impact.





Check out more photos and videos of the piping plovers here: **facebook.com/TNCMichigan**



THE POLICY THAT UNDERPINS **PROTECTION**

In February 2019, with strong bipartisan support, Congress approved the permanent reauthorization of the Land and Water Conservation Fund (LWCF), which has provided essential support for conservation of public lands and natural resources such as clean water over the past five decades.

Making the LWCF a permanent part of United States federal law has been a top policy priority of TNC for several years, and staff at the state and federal level have worked in lockstep to advocate for this. Now, TNC is hard at work to secure full funding (\$900 million per year) for this important fund.

To keep our national policymakers informed about the impact of our work, TNC meets regularly with Michigan's congressional offices to brief them on TNC national policy priorities like the LWCF, and associated activities in Michigan. Last June, on TNC's Advocacy Day, we sent trustee volunteers to visit with Michigan's Congressional delegation to discuss these priorities and show them the value of investing in nature.

Building a Resilient and CONNECTED NETWORK

TNC scientists have identified and mapped a network of priority lands for conservation that focuses on resiliency in the face of a changing climate.

A new online mapping tool allows users to explore this network of climate-resilient sites throughout most of the lower 48 U.S. states. We are sharing this information widely with partners, with the hope that it will help guide conservation across Michigan and beyond.



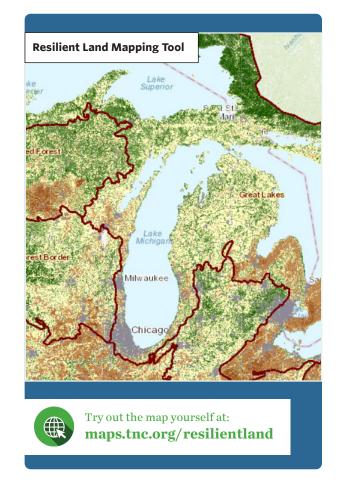
Senior Conservation Scientist **Doug Pearsall** worked on the national team of scientists that mapped resilient and connected lands in the Great Lakes.



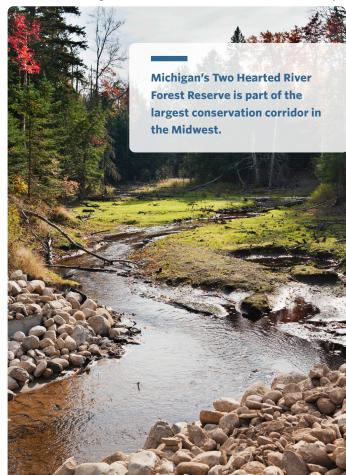
In a parallel effort, Senior Conservation Scientist **Mary Khoury** is leading a team from across the country to describe and map freshwater resilience. As a result, TNC can focus our conservation efforts on the streams, rivers and lakes that sustain North America's freshwater resources.

Why protect a network of connected land and water?

Because conserving a connected network of resilient sites provides plants and animals with access to a greater variety of microclimates. To adapt to a changing climate, species need to be able to move between or across resilient areas to find new habitats as conditions shift. Therefore, a resilient and connected network of lands will be vital to protecting natural diversity in the years to come. This also enables conservationists to more efficiently manage resources across a broader area.



Michigan's Two Hearted River Forest Reserve © Drew Kelly



A collaboration with the U.S. Forest Service in OTTAWA NATIONAL FOREST

Managing resilient and connected networks of lands is best done in partnership, sharing resources and expertise for greater impact toward mutual goals. In the Upper Peninsula, TNC continues to partner with the U.S. Forest Service to restore and manage healthy forests on public lands, including in Ottawa National Forest.



160 acres acquired with plans

to add it to the Ottawa National Forest.



84,750 additional trees planted along 338 acres of Slate River frontage.



7.5 miles of trails cleared in the McCormick Wilderness.



88 feet of boardwalk construction in the McCormick Wilderness (with the help of a mule team).

57 plots created to measure survival of trees planted

in 2018.



Conservation in COMMUNITY

Tangible, lasting conservation impact depends on engaging communities to find equitable solutions for people and for nature. Staff in every TNC chapter have been trained to help fulfill our commitment to diversity, equity and inclusion—in our work with partners and within our organization.

In Michigan, Mary Louks and Danielle Miller are helping to lead our chapter's efforts as we collectively aspire to the highest standard for recruiting, hiring and retention practices; an inclusive workplace; and equitable conservation and community engagement.



Farmland near Fish Point Wildlife Area along Saginaw Bay ©Adam Stoltman/Alamy Stock Photo





Michigan's FARMS and FISHERIES are an important part of our state's natural heritage. As we look toward our future, we need to consider how these vital systems will provide for people as well as for nature.

SUSTAINABLE FISHERIES

When it comes to fisheries, we are focused on helping maintain and restore populations of species like whitefish, cisco and kiyi, which play an important role within the Great Lakes food web that supports both commercial and recreational fishing.

FOLLOWING THE FISH

THE PATH TO RESTORATION

In late 2018, TNC and partners made a stunning discovery: lake whitefish are spawning in Michigan's Escanaba River! Historically, some whitefish populations spawned in tributaries flowing into Lake Michigan, but these tributary-spawning populations disappeared more than 100 years ago.

This recent discovery suggests that restoring tributary-spawning whitefish may be a potential solution to declining whitefish numbers in the Great Lakes.



TNC is helping to lay the groundwork for just such a restoration effort, working with the Sault Ste. Marie Tribe of Chippewa Indians, the Michigan DNR, Michigan State University, the Little Traverse Bay Bands of Odawa Indians, the Grand Traverse Band of Ottawa and Chippewa Indians and Encompass Socio-Ecological Consultants. We are searching for signs of spawning whitefish in other tributaries to Lake Michigan to help identify locations where spawning populations could be reestablished.

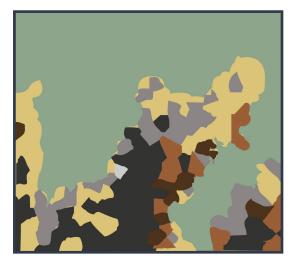
Mapping the Great Lakes

Lessons from the 1800s guiding 21st century conservation

TNC recently completed a digital map of the Great Lakes floor—identifying areas of rock, sand, mud or clay—based on centuries-old navigation maps. In the 19th century, ship crews manually collected lakebottom substrate information, along with information on lake depths, that provides an unmatched level of detail. In contrast, today's methods, while much less physically strenuous, represent a smaller number of samples. Spanning the entire Great Lakes, this map enables us to identify potential fish habitat, an essential piece of information to guide our restoration efforts in Lake Michigan and Lake Huron.

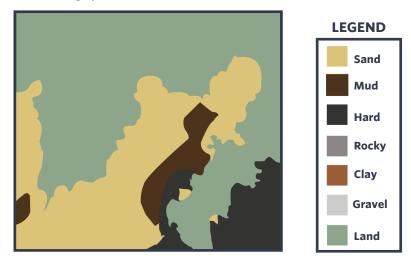
Lake Bottom (1800s)

Lake bottom imagery based on data collected by 19th century ship crews.



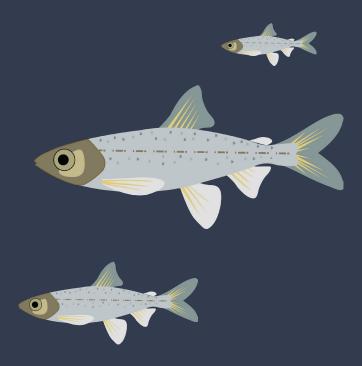
Lake Bottom (Present Day)

A view of the same lake bottom based on lessdetailed imagery.



MEANWHILE, IN LAKE SUPERIOR...

...TNC is working with a commercial fisher from the Little Traverse Bay Bands of Odawa Indians to study kiyi—a deep water fish once abundant throughout the Great Lakes, but now limited to Lake Superior. There is much that we don't know about kiyi, particularly information on when and where they spawn, because they inhabit deep waters and are believed to spawn during the winter, when Great Lakes research is extremely challenging. This year, we caught hundreds of kiyi—some of which were spawning—after setting nets deeper than in previous years. This provided critical information on when and where kiyi spawn and other valuable data that can help inform the possible reintroduction of this species back into Lake Michigan or other Great Lakes, where they once thrived.



SOIL HEALTH & NUTRIENTS

Michigan's 10 million acres of farmland and the \$13 billion agricultural economy they support are directly tied to the health of our waterways. Soil health practices like those TNC is partnering with the farming community to apply—from cover crops that nourish the soil, to no-till farming practices that help build soil structure and leave plant residues on the ground—help keep soil and nutrients on the land, protecting clean water while also making farms more resilient. **Learn more on page 17.**

CREATIVELY FUNDING SOIL HEALTH PRACTICES

TNC is working to help remove some of the financial barriers farmers face when making the switch to soil health practices. This year, TNC worked with drain commissioners in several mid-Michigan counties to show how farmers can qualify for an average of \$1,700 in drainage fee reductions by creating buffer strips (narrow planted areas that reduce erosion) on their farms, more than enough to offset the costs of installation. In the coming year, TNC will expand this pilot project to additional counties and look at streamlining the reduction assessment process.





INSPIRING LEADERS

An important part of TNC's work to advance support for conservation at the legislative level is by getting decision makers out in the field to see conservation at work. For example, this fall, TNC led staff from Senator Stabenow's office; the U.S. Senate Committee on Agriculture, Nutrition and Forestry; Saginaw Valley State University; the Department of Environment, Great Lakes and Energy; and the Michigan Agri-Business Association on a field day at a farm in Saginaw Valley. There, the group learned about TNC's work with farmers to improve conservation outcomes, and the role agriculture can play in addressing challenges to people and nature in Michigan.

FROM WATER QUALITY TO QUALITY OF LIFE

The first iteration of TNC's Essel and Menakka Bailey Conservation Fellowship program was a great success, thanks to the contributions of inaugural fellow Mauri Liberati. Her work to identify methods to quantify the impact of our agriculture, coastal wetlands and urban stormwater projects on people and their quality of life will help TNC measure the wider impact of our work.



Celebrating COMMUNITY LEADERSHIP

In December 2019, we celebrated seven "Soil Health Heroes" at our second biannual Saginaw Bay Agricultural Awards Dinner, which honors some of the farmers, crop advisors and other conservation partners we work with in the Saginaw Valley.



It is leaders like these who are vital to creating the system-wide shift necessary for lasting soil health and water quality benefits. For example, two of the Soil Health Heroes recognized at last year's event worked with us to launch a farmer-led watershed group in the Saginaw Bay Watershed—a peer-to-peer networking opportunity for farmers to share ideas and information about soil health practices—that has already doubled engagement. It is our hope that such opportunities will encourage other farmers to try soil health innovations on their own farms.

TNC is proud to work with these 2019 SOIL HEALTH HEROES:







AWARDEES: Justin Krick, Star of the West Milling Company - Agribusiness Award; Ryan and Melissa Shaw, SKS Farm - Innovation Award; Jeffery Krohn, Krohn Acres, LLC - Impact Award; Jason Haag - Veteran Award; Joel Leland, Saginaw Conservation District - Practitioner Recipient Award; Nick Weisenberger, Weisenberger Farms, LLC - Newcomer Award; and Saskia Van Gendt, Method Products, PBC - Contributor Award. Photo Credit: Agriculture in the Saginaw Bay © Jason Whalen | Fauna Creative, Headshots © Michael D-L Jordan/dlp



BUILDING HEALTHY CITIES

TNC began our urban conservation work in Detroit in 2014, establishing Detroit as one of 20+ focal U.S. cities for urban water solutions through TNC's North America Cities Network. At the heart of this iconic city, TNC is collaborating with partners in the Eastern Market district, a historic neighborhood that is building on deep roots in the community to chart a course for economic revitalization and, with TNC, a greener Detroit.

A CATALYST OF CHANGE

The Eastern Market district in Detroit is a historic and vibrant area well known for its unique food and agriculture businesses and longstanding Saturday Market tradition. Here, TNC is partnering with the City of Detroit and Eastern Market Corporation, among others, to incorporate green stormwater infrastructure, or GSI, into the expansion and revitalization of Greater Eastern Market.

These GSI solutions include nature-based, engineered features such as rain gardens or grassed drainage areas that capture, slow and filter rainwater, reducing its burden on the city's drainage system while incorporating attractive green spaces into the city landscape. Together with a community of GSI practitioners and advocates in Detroit, TNC is working to demonstrate how GSI can be advanced at a large scale to address increasing urban water challenges such as combined sewer overflows and surface flooding, while considering other environmental, social and economic benefits.



GREENING OUR CITY

In 2019, TNC worked with our partners to complete a plan for an interconnected, neighborhood-scale network of GSI in Greater Eastern Market in the form of publicly accessible greenways planted with trees that will help district businesses meet stormwater management requirements while reducing costs. As this community-inspired effort takes shape, it will help set a new standard for integrating important values for both people and nature into city planning and growth.

Another project this year included a partnership between TNC and Sacred Heart Church (SHC). Thanks to SHC's help, a section of the church's parking lot was replaced with GSI. This natural, green space will collect rooftop runoff, slow overflows, and filter rainwater. More importantly, it's a compelling demonstration of the real-world impact of GSI.

This project will manage an estimated 1.1 million gallons of stormwater a year and qualify the church for a substantial credit on their drainage charge, while providing a tangible example of the many benefits of GSI to businesses, residents and visitors. This project is a collaborative effort with the longstanding SHC community, which includes over 3,000 parishioners. Parishioners have created an Outreach & Engagement Steering Committee as well as a Garden Club interested in helping to maintain the project's native plants.



Eastern Market District © Jason Whalen | Fauna Creative



Adding green space to the Sacred Heart Church parking lot © TNC

MAPPING OUR IMPACT

Have you heard? The Detroit Stormwater Hub went live at **detroitstormwater.org**. This leading-edge resource, created in partnership between TNC, the City of Detroit, Erb Family Foundation and many others, provides an online portal to information on GSI projects across the city. It is a tool by Detroit, for Detroit, allowing

stakeholders to upload project data, share best practices and track progress on GSI across the city.

Hosted and managed by the Detroit Water and Sewerage Department, the Hub provides a comprehensive body of locally relevant GSI information, resources and tools as well a map of projects—167 at time of launch. The website enables viewers to see the cumulative impact of these projects, which manage 218 million gallons of stormwater across 421.5 acres of land annually.

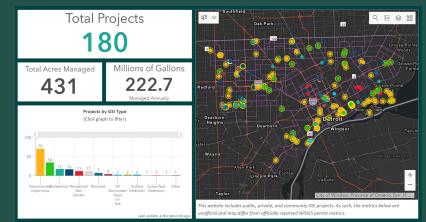


Image credit © detroitstormwater.org

TACKLING A CHANGING CLIMATE

INITED BY

#NatureUnitesUs

THE ART OF

Understanding how water flows

across the Great Lakes region is vital to also understanding our water-related

challenges, which are only expected to

We live in a time of change, when climate-related impacts to people and nature are only expected to increase. TNC seeks to mitigate these impacts by advancing climate-smart land management practices and future-minded policy, while also helping our world adapt to our changing circumstances.



Church bazaar © TNC

v Prairie Fen

increase as the climate changes. The Great Lakes watershed map in the pages of this report, created by request for the Erb Family Foundation by TNC's Gust Annis, illustrates the scale and complexity of this enormous system, and how the pieces all fit together, with each watershed distinguished by differences in shading. In his role as Conservation Scientist, Gust brought expertise in geospatial data analysis and mapping to this project, using publicly available data to create this unique document.





As part of our commitment to tackling climate change in the U.S., TNC's Madhu Anderson leads climate policy-related efforts, supporting TNC's climate and energy work across the Midwest in alignment with national priorities. Q: What message do you want to share with Michigan policymakers? Q: What is the Michigan Chapter's short-term focus of the Climate Action in the U.S. strategy?

A: Hope and courage. TNC's vision is to create a world where nature and people thrive. It's our obligation to address the challenges faced by our natural world, especially if we expect to sustain our way of life for future generations. Our research confirms that if we take steps now, and partner with nature, business and government, we can achieve our goal for a promising future.

A: Our focus is providing opportunities for constructive dialogue about how a changing climate affects the state's natural assets, economy and residents. We are fortunate to have strong and respectful relationships with our Congressional delegation. We hope this work will open the door for continued conversations about solutions that will lower greenhouse gas emissions.

Q: What's the most impactful thing individuals can do around climate policy?

A: The debate surrounding the impact of rising greenhouse gas emissions on people and nature is polarizing and complex. As individuals, the best thing we can do is to act responsibly. This includes talking with our congressional, state and local policymakers about how a changing climate has affected our lives and advocating for the adoption of nature-based solutions.

BRINGING FORESTS INTO THE FIGHT CARBON-POSITIVE PRACTICES IN THE UPPER PENINSULA

Healthy forests have complex structures, rich natural diversity, and are excellent carbon sinks, absorbing carbon dioxide and reducing its warming effect on the atmosphere.

Add that to the list of reasons why we manage our working reserves in the Upper Peninsula to increase the health of Michigan forestland, forming the basis for a thriving natural system and an important forest economy that generates over \$20 billion annually—and a growing focus for natural climate solutions.

Over the next 10 years, TNC will use carbon-positive practices in our Two Hearted River and Mulligan Highlands forest reserves to sequester an additional 800,000 metric tons of atmospheric carbon, the equivalent of keeping over 17,000 cars off the roads for a decade. These reserves are enrolled on the carbon market, allowing individuals or businesses to purchase credits to offset activities that release carbon anything from flying in an airplane to industrial production.

Not only will this provide continued funding for the conservation of Upper Peninsula forests, it will also help us demonstrate carbon-positive forestry practices, which we encourage private landowners to start through our Working Woodlands program.

SCIENCE IN **ACTION**

Across Michigan's southern fens and savannas, TNC has helped restore the health of vital natural systems. From building a strong foundation of science and partnership, to applying science-based practices that protect vulerable ecoystems and species, we conserve Michigan's natural world and the diverse life that flourishes here. Below are just a few ways we've achieved conservation in Michigan:





MANAGING INVASIVE SPECIES

To protect native habitat for wildlife, TNC staff sought out invasive **glossy buckthorn, purple loosestrife, cattails** and more across 262 acres, applying wetland-safe herbicides by hand.

PLANTING FOR NATURAL DIVERSITY

TNC staff handcollect the seeds of over 75 species native to southern Michigan, such as blazing star, butterfly milkweed and big bluestem. This year we **planted 35 acres** of retired farm fields with these native seeds to help restore lost prairies.



CONNECTING PROTECTED LANDS

TNC acquired a new 20-acre tract central to our **Grand River Fen Preserve in Jackson County**, strengthening preserve connectivity and helping to protect Grand River headwaters.



APPLYING PRESCRIBED FIRE

TNC staff completed 190 acres of **prescribed burns** on fire-adapted habitats this field season, thanks to added capacity from other TNC chapters, which allowed us to accomplish far more than in past years.

From 2015 to 2019, TNC's work in the Saginaw Bay watershed has achieved:

- 1. 140 cooperating farms
- 2. 21,600 pounds of phosphorus kept out of waterways
- 3. 67,400 acres of soil health practices
- **4. Over 5,000** verified tons of sediment reduction
- **5. 760** million liters of groundwater replenishment



CONNECT WITH NATURE

At TNC, we always love to hear from our partners and supporters. Reach us by phone or email, or find us on social media.

UPCOMING EVENTS

Join us at any one of the following programs offered throughout the year. Learn more about exciting events coming to Michigan at nature.org/mievents.







CONTACT US

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STAY CONNECTED



Photo Credits: (Cover) Saginaw Bay Watershed © Jason Whalen | Fauna Creative, Children canoe the Boardman River southeast of Traverse City in Michigan © TNC/Mark Godfrey, Nan Weston Nature Preserve at Sharon Hollow © Michael D-L Jordan/dlp, Michigan's Two Hearted River © Drew Kelly, Benthic Mat deployment at Barton Lake © Jason Whalen/Big Foot Media, Detroit, Michigan © Michael D-L Jordan/dlp, Girl looking at plants at Spring Treasure Hunt 2012 © Michael D-L Jordan/dlp, Great Swallowtail Butterfly © Janet Haas, (Letter) Old growth white pines © Jason Whalen/BigFoot Media, Sunset at Saginaw Bay Watershed ©Jason Whalen | Fauna Creative, Misery Bay at dawn © Ron Leonetti, River in Saginaw Bay ©Jason Whalen | Fauna Creative, (Above) Tower Preserve at Portage Point Dunes © TNC/Shaun Howard, Ives Road Fen © TNC/Leann Heywood, © TNC/Mary Louks 18

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Helen Taylor

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