

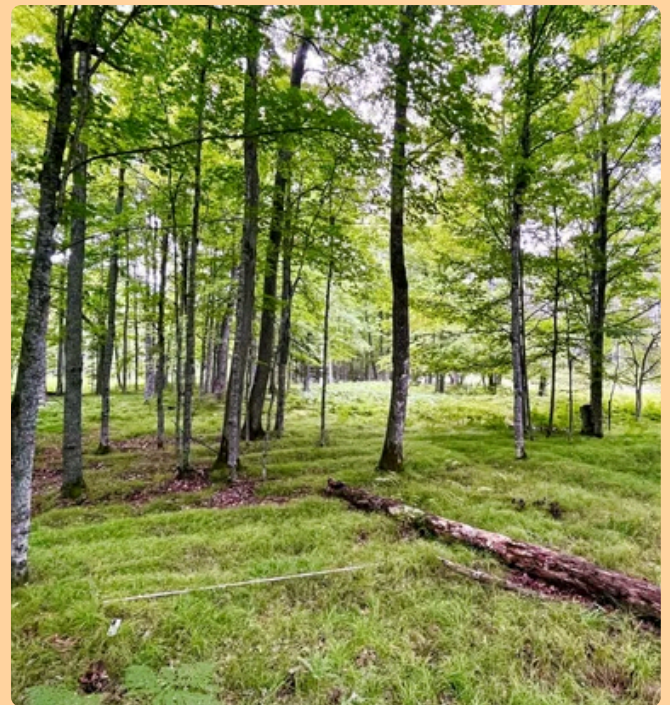
The Tackle Box

What Lies Beneath the Canopy: Using Lidar to Reveal Hidden History

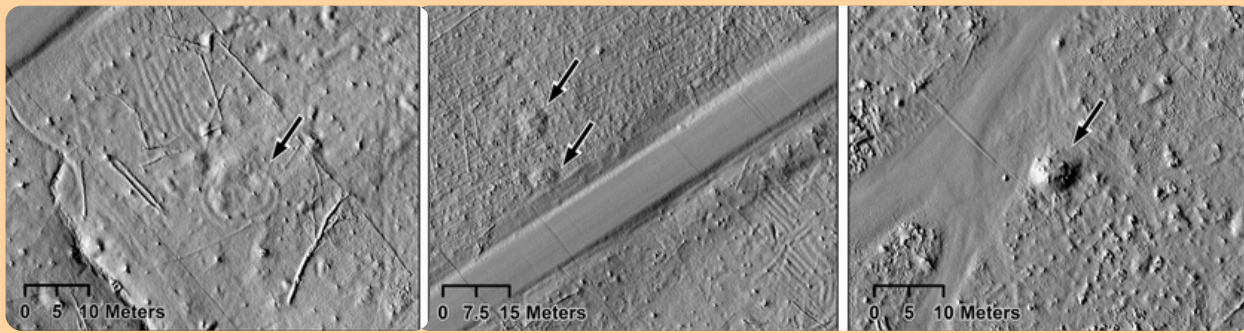
With the official arrival of spring, grass greens, flowers bloom, and the air fills with buzzing. Perhaps, if you're fortunate, the buzzing will not mark the year's first mosquito, but rather a light detection and ranging (lidar)-equipped drone. To collect accurate scans of surface topography, drones equipped with this emerging technology must be flown at low elevations before leaf-out. In recent years, lidar-equipped drones have been used by archaeologists working in Michigan to rewrite our understanding of pre-European Native American land use.

For example, lidar images of the Sixty Islands archaeological site, along the Menominee River in the Upper Peninsula, helped researchers from Dartmouth University realize that the site is 10 times larger than originally estimated. This site is part of the larger Anaem Omot, or "Dog's Belly" in Menominee, a cluster of significant ancestral Menominee archaeological sites. Already known for its burial mounds, dance ring, and remnants of a village, the lidar scans helped researchers realize that this area contains the largest complete ancient agricultural site in the eastern half of the United States.

The site dates from the 10th to 17th centuries and features a raised ridge field system. These raised mounds, typically 4 to 12 inches high, were used to grow corn, beans, squash, and other crops essential to the ancestors of the Menominee Indian Tribe of Wisconsin. Archaeological evidence demonstrates that ancestral Menominee farmers actively modified topography and soil complexity to cultivate corn near the northern extent of its range. Land modification and farming at this scale represent a massive undertaking, indicating that community organization and labor were occurring at a greater scale than previously expected for this region. Considering that this site is so well preserved because European settlers found large-scale farming in this region too difficult, it highlights the agricultural knowledge and skill of ancestral Menominee farmers.



Raised agricultural beds at the Sixty Islands archaeological site along the Menominee River in Michigan. (Photo by Madeleine McLeester)



Lidar data also showed, from left to right, a dance ring; remains of new unknown burial mounds; and a burial mound. (Lidar images by Carolin Ferwerda and Jesse Casana.)

The use of lidar in other Michigan studies has helped archaeologists realize that they may be underestimating the scope of Woodland-era (1000 BCE to European contact) Native American land use. Prior to studies incorporating lidar, it was thought that cache pits—meter-by-meter pits dug by Native Americans to store food, tools, and supplies—were mostly concentrated around inland lakes. Analysis of aerial scans not only showed that cache pits could be located far from inland lakes, but also revealed that they occurred in greater numbers than previously expected.

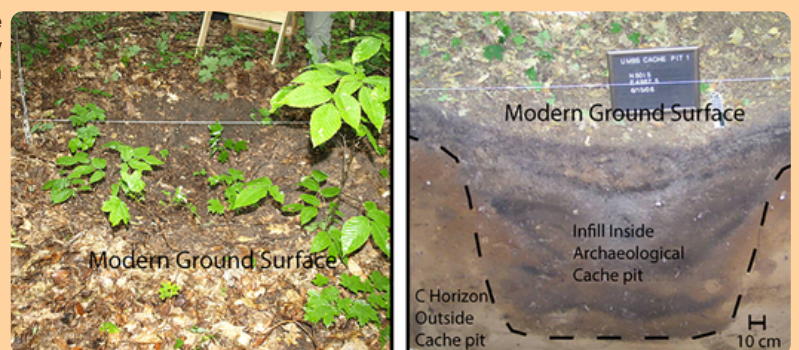
These and other archaeological studies in the Great Lakes region are changing the narrative around pre-European Native American landscape-level impacts. For instance, during the 600 years that Sixty Islands was an agricultural site, it would have been largely deforested. This stands in contrast to the low-impact hunter-gatherer or nomadic societies that are often assumed in popular narratives of Native American history. Unfortunately, much public education on Native American history and culture is not fully representative—reflecting, at best, institutionalized colonial perspectives, and at worst, active erasure and whitewashing.

These large-scale archaeological findings are critical for challenging these misconceptions and restoring historical understanding to Indigenous communities. They also help us better understand the landscape-level impacts of Native American agriculture and land management prior to European settlement. These practices not only modified the landscape but also influenced fish and wildlife populations. So, when we as fisheries professionals think about restoring fish populations, perhaps we should reconsider the idea of returning ecosystems to an “unmodified” natural state. Instead, we may need to adopt a more realistic perspective—one that recognizes landscapes long shaped and managed by Indigenous peoples. Knowledge of the pre-European landscape cannot only be drawn from archaeological evidence, but also from the living knowledge and cultural traditions of Native American communities. As emerging technologies like lidar reshape our understanding of the past, they also highlight the importance of integrating Indigenous knowledge into modern fisheries management. Recognizing both scientific innovation and long-standing cultural knowledge allows us to better reflect the true complexity of these ecosystems.

Resources:

- [Ancient Native American agricultural site's true extent revealed : NPR](#)
- [Archaeologists Find Intensive Indigenous Farming in Michigan | Dartmouth](#)
- [Remote sensing technology improves small scale archaeology | Great Lakes Echo](#)

Above ground view and diagram of cache pit. Image credit: Meghan Howey



FEATURED ART: Earth Day Art Cyanotypes

What you'll need:



Watercolor Paper



Sensitizer Set



Paintbrush

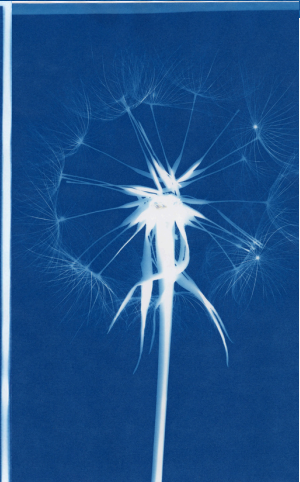
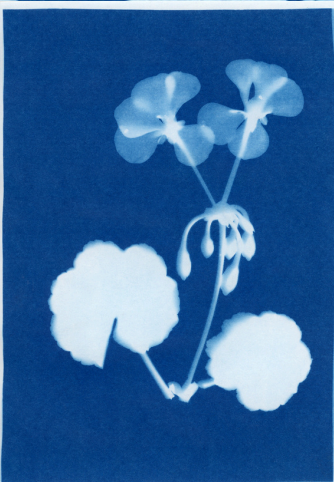
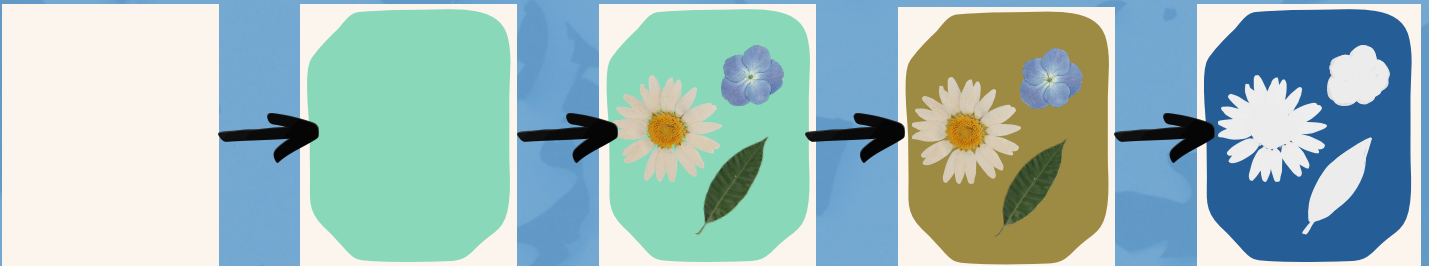


Measuring Cup



Flowers, Leaves, Sticks

1. Mix Part A and Part B of the Sensitizer Solution according to the instructions on the bottles.
2. Paint the solution on the watercolor paper, covering the entirety of the page and let dry in a dark room
3. Place flowers, leaves, sticks, or other objects onto the page to design your negative space. Remember, objects covering the page will appear white.
4. Cover with glass to ensure that objects do not move and place in direct light for 30 minutes.
5. Once the page has turned bronze, rinse under cold water and dry your page.



Ally Corner:

Standing Together When Tensions Rise

When in war, allyship becomes even more important!

When tensions are high, we're not normally at our best emotionally. If you had a stressful day at work, you may come home and lash out at the people you love. When money is tight, you may be more constantly stressed and thus, you may find yourself lashing out more often.

Economically, things do not seem to be easy right now. Americans are struggling to keep afloat living paycheck to paycheck. In 2025, the majority of Americans started carrying credit card debt. A lot of us are at least financially stressed, outside of the potential other things weighing on us in our daily lives.

Tensions were already high when we entered the war with Iran. Now, we have seen gas prices jump to nearly \$1/gallon since the war started a few weeks ago. Farmers are concerned they will be unable to get essential fertilizer needed to grow their crops. Tensions are only rising as survival only becomes harder for Americans.

During this time, it's really important to remember some examples of the bleak history of how America has treated groups of people during times of high tension.

- Japanese Americans were ripped from their homes during WWII and placed in internment camps, 2/3 of which were full U.S. citizens.
- Arab Americans were heavily discriminated against after the attacks on 9/11, many of them being called "terrorists" based on their race or cultural appearance.
- Asian Americans experienced hate crimes at a higher level in 2020 after Covid-19 was found in the United States.

Now, we are in another war in the Middle East and it's important to remember that there are numerous Middle Eastern Americans that are our neighbors and in our community as valued members that have nothing to do with the war with Iran. Michigan holds one of the largest Arab and Middle Eastern American populations, at 3.1% of the state, many of which have lived here their entire lives. They likely do not want the war or the ramifications of it as much as we don't and are likely struggling with the same economic tensions as every other American. While some may be angry at a country (or at our own government), there is no reason to take it out on people that likely had nothing to do with this decision. Remember to keep the focus on the systems that have created these problems, not your neighbors.



On a light blue background is a red and white stylized image of people standing together, raising a sign demanding fairness and an end to harmful profiling.

Awareness Months and Days

- Arab American Heritage Month
 - Michigan Arab American Community
 - What explains Michigan's large Arab American community?

- Autism Acceptance Month & Day (2nd)
 - Event can be found on:
 - Autism Alliance of Michigan
 - Eventbrite
 - Resources
 - Autism Grown Up
 - Autism Alliance of Michigan
 - Michigan Autism Services & Screenings | hopenetwork.org
 - Autism Support of Michigan | autism-mi.org

- Deaf History Month
 - Resources
 - Deaf and Hard of Hearing Services | deafhhs.org
 - Division on Deaf, DeafBlind and Hard of Hearing | michigan.gov
 - Deaf and Hard of Hearing - Michigan Alliance for Families

- Earth Month

- National Child Abuse Prevention Month
 - Resources
 - Michigan In-State Resources - MiPSAC

- Paralyzed Veterans Awareness Month
 - Resources
 - Resources for Veterans | michigan.gov
 - Michigan's Disabled American Veterans | mi-dav.org
 - Michigan Veterans Affairs Agency

- Sexual Assault Awareness Month
 - Resources
 - National Sexual Assault Hotline: 800-656-HOPE (4673)
 - Michigan Sexual Assault & Abuse - Confidential 24/7 Support :
 - Call: 1-855-864-2374
 - Text: 1-866-238-1454
 - Domestic Violence & Sexual Assault Resources & Information | house.gov

- Lesbian Visibility Week (22-26) & Day (26th)

- Tartan Day (Scottish Heritage Day) - 6th

- Earth Day - 22nd

Know you are part of a caring community and never alone. The FishCAST Committee is working to foster an inclusive environment, ensuring MI AFS is welcoming to all. Get involved by reaching out to share resources or connect. Your voice matters! Contact us at mifishcastafs@gmail.com or submit items anonymously.

Warm Wishes -

Dana Castle (she/her), Lydia Doerr (she/her), Kynzie House (she/her), Maggie Haite (they/them), Taylor Skiles (she/her), Kathleen Quebedeaux (she/her)