Inspirations from Traditional Ecological Knowledge for Building a Resilient Shoreline of Functional Native Plants

By Dr. Scott Herron

Ferris State University, Big Rapids-Professor of Biology
Wild Rice & Ethnobiology Lab Director
Native Wild Rice Coalition, Co-Chair
Herron Environmental Services, LLC –Owner and Operator
Society of Ethnobiology, Past-President and Indigenous Ambassador

Native Wild Rice Coalition

HERRON ENVIRONMENTAL SERVICES LLC

Acknowledgements

- National Institute of Food and Agriculture, U.S. Department of Agriculture, Agreement No. 2008-03528
  - Support for Native Wild Rice Coalition
  - Funding for wild rice camps 2007-2010 & conference
- Ferris State University
  - Fall 2025 Sabbatical on Wild Rice in Michigan in 2025
  - Student Research Grants, College of Arts & Science Dean
- Muskegon River Watershed Assembly
  - Permission to use images & support of research and travel
- Lac Vieux Desert Band of Lake Superior Chippewa
  - Roger LaBine, Giiwe Martin, LVD Tribal Council
    - wild rice camps & wild rice used in research
- National Science Foundation-Award Abstract # 2037303
  - Build and Broaden Indigenous Food Sovereignty Symposium and Festival 2022

Presentation Outline

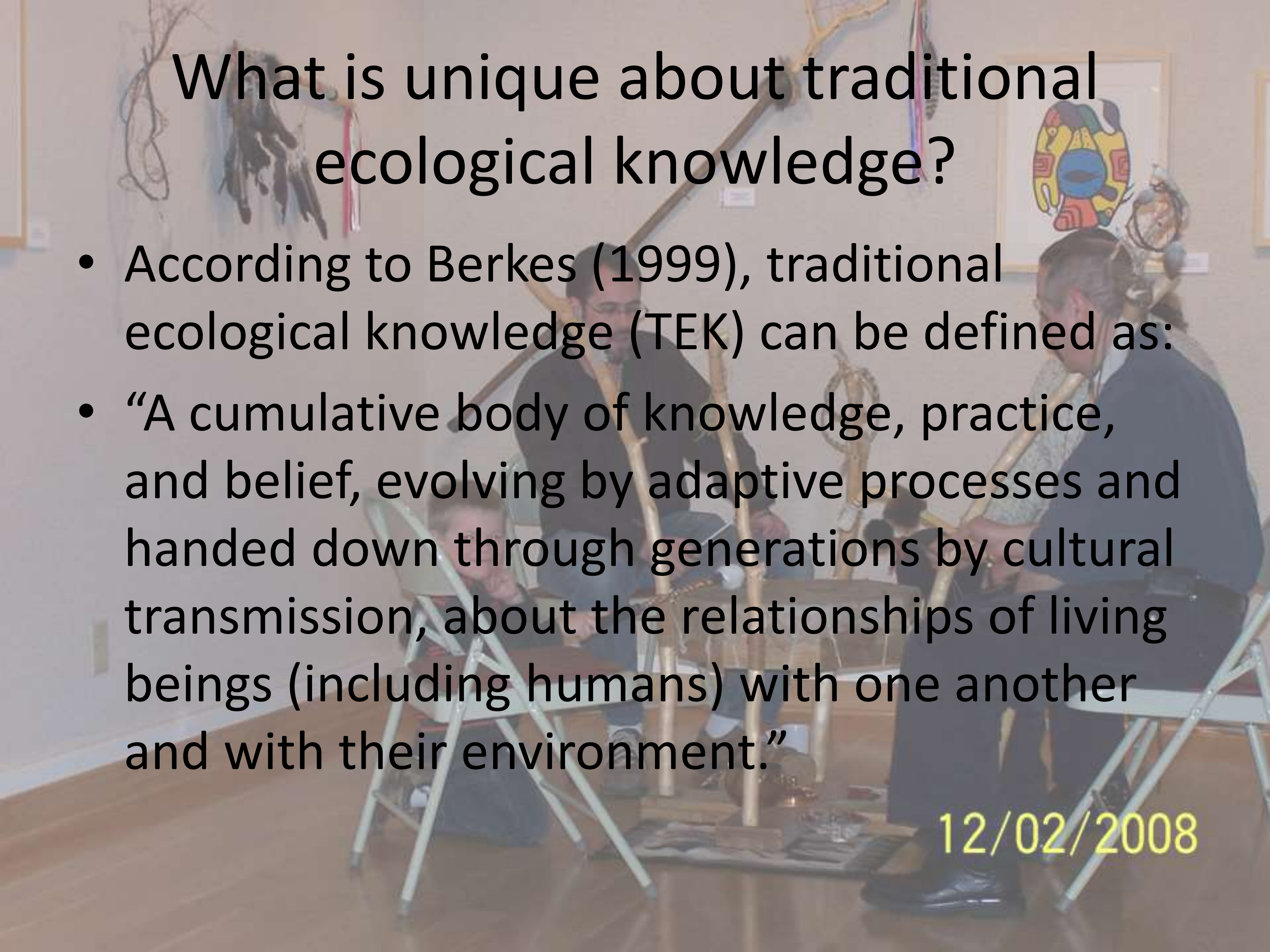
- What is local knowledge?
- What is traditional ecological knowledge?
- What are functional native plants?
- What can these approaches contribute to resilient shorelines of Michigan lakes?
- What can you benefit from including both TEK and SEK in your natural resource theory and analysis of lakes, streams and shorelines?
- How can you access sources of these functional native plants for your projects?

What is local knowledge?

- Any person or community closely connected to a local place where resources are procured from or utilized can provide legitimate ***local knowledge.***
  - ***Lakefront and Riverfront property owners, renters, and even seasonal residents can assist in providing valuable observations that researchers often miss with our targeted, ecological field methods, and narrow collection windows***
  - ***Often local claims of sightings, catches, and experiences are doubted, explained away, and denied by agencies, researchers, and many scientists***
  - ***Generates bad will and widens the rift between local citizens and scientists along with agency staff***

What is unique about traditional ecological knowledge?

- According to Berkes (1999), traditional ecological knowledge (TEK) can be defined as:
- “A cumulative body of knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationships of living beings (including humans) with one another and with their environment.”



Welcome

Section definition of Traditional Ecological Knowledge (TEK): Adaptive ecological knowledge developed through an intimate reciprocal relationship between a group of people and a particular place over time.

The mission of the ESA TEK section:

to promote the understanding, dissemination and respectful use of traditional ecological knowledge in ecological research, application and education;
to encourage education in traditional ecological knowledge;
to stimulate research which incorporates the traditional knowledge and participation of indigenous people;
to increase participation by indigenous people in the Ecological Society of America;
to foster understanding of indigenous and local knowledge in relationship to place; and
to facilitate communication among people with diverse ways of knowing, both within ESA and between ESA and other communities.

What is unique about traditional ecological knowledge?

- The innate and learned observations of the interconnectedness of aquatic and terrestrial ecosystems are developed through living a subsistence lifestyle for many generations in the landscape of their ancestors

Myths of TEK

- Only native/indigenous people have TEK
- TEK is being lost and needs to be saved
- TEK can be stored or saved in books, databases and maps
- TEK is static and doesn’t change
- TEK doesn’t use or need science
- TEK is anecdotal
- TEK is not objective
- TEK is more spiritual and mystical than factual
- TEK is somehow the same all over the US & World

How do you find TEK?

What are functional native plants?

- These are plants native to an ecosystem or region that have clear, key cultural functions in the traditional and modern systems/era
- White cedar, basswood, red-osier dogwood, wild rice, cattails, rushes and sedges, black ash, birch.

ThePhoto by PhotoAuthor is

Functional native plants

- Thuja/cedar/giishik
- Betula/birch/wigwas
- Cornus/dogwood/mesk waabik
- Fraxinus/ash/agiimak
- Carya/hickory/matigwa abak
- **Can also be called "cultural keystone species"**

Sweetgrass-Hierochloe/wiingashk

What can these knowledge systems contribute to your research?

- Different perspective from literature that can impact the hypotheses you establish and the f... ur research

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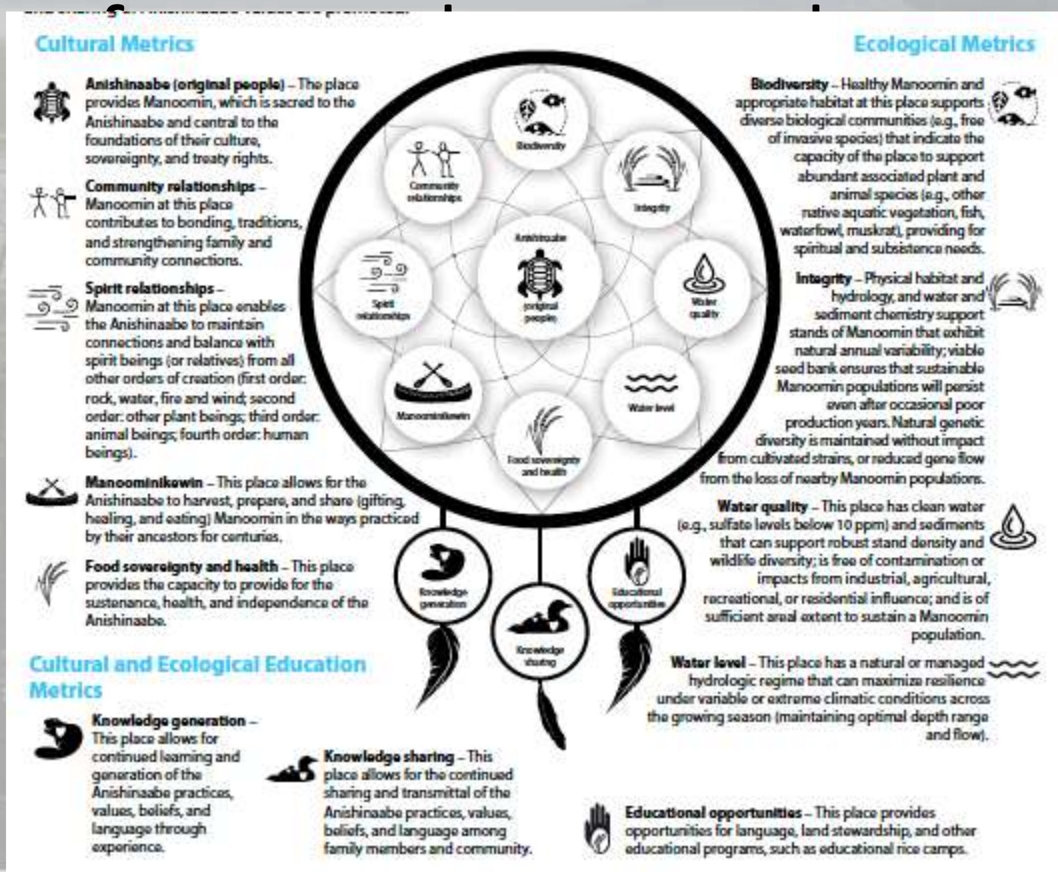
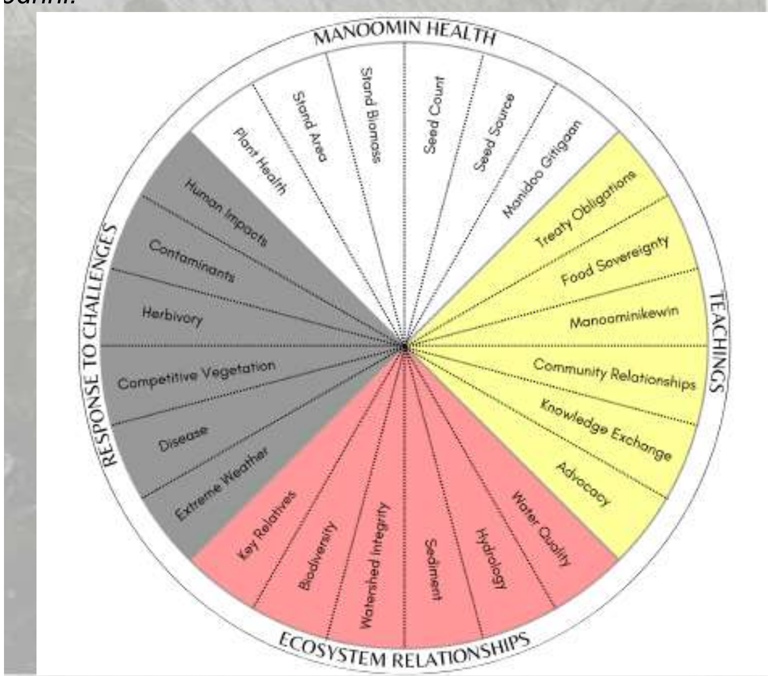
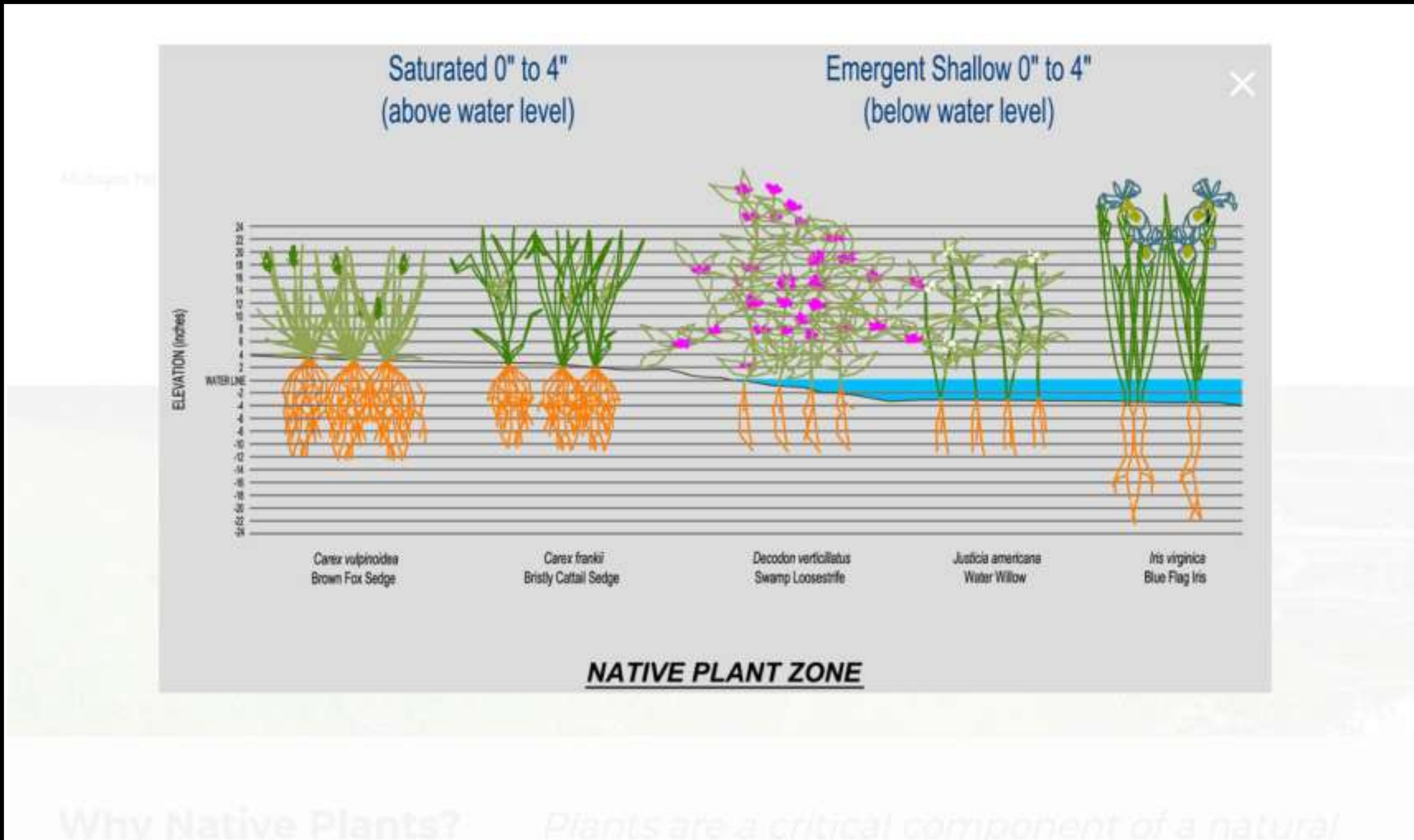


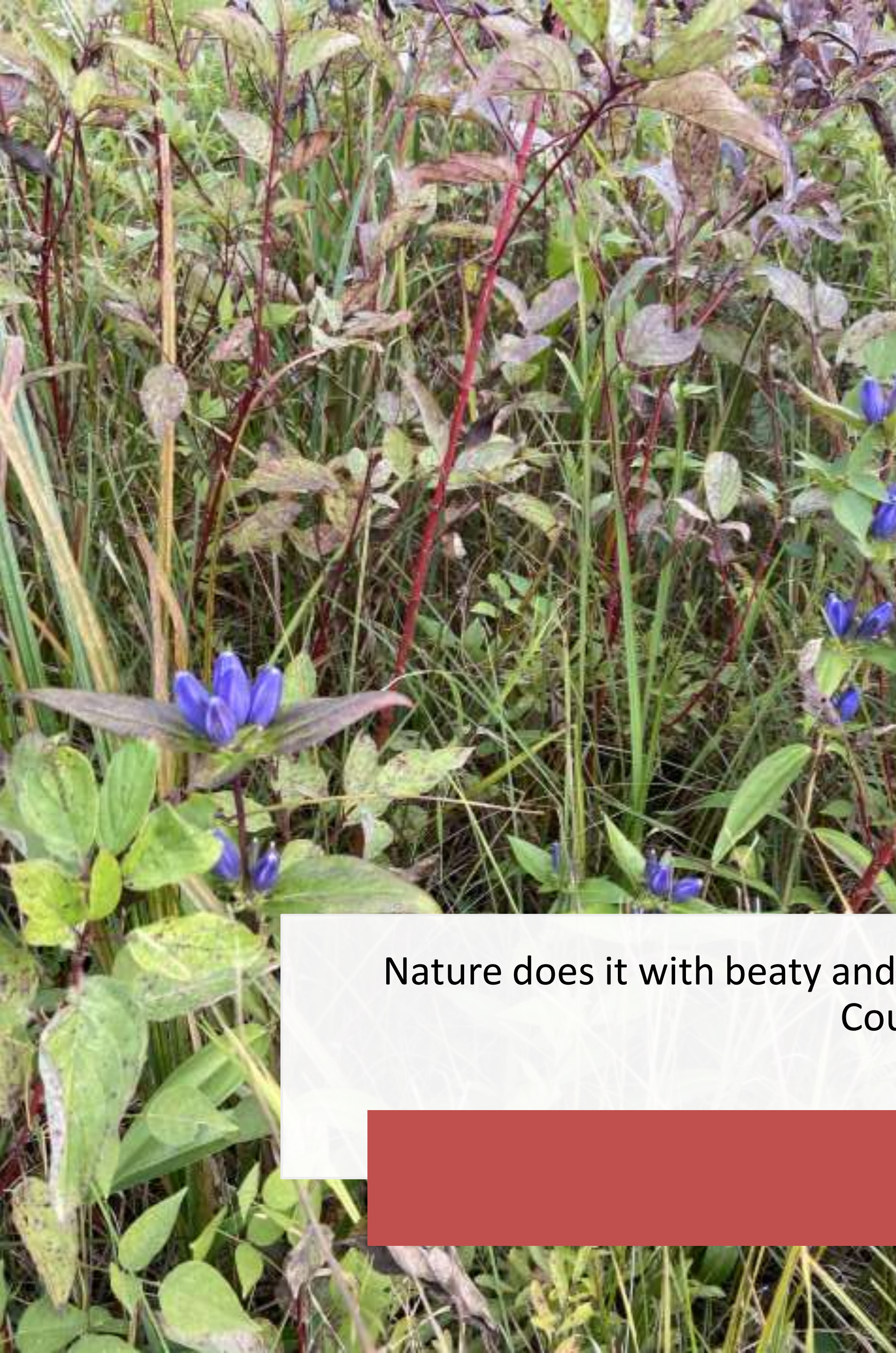
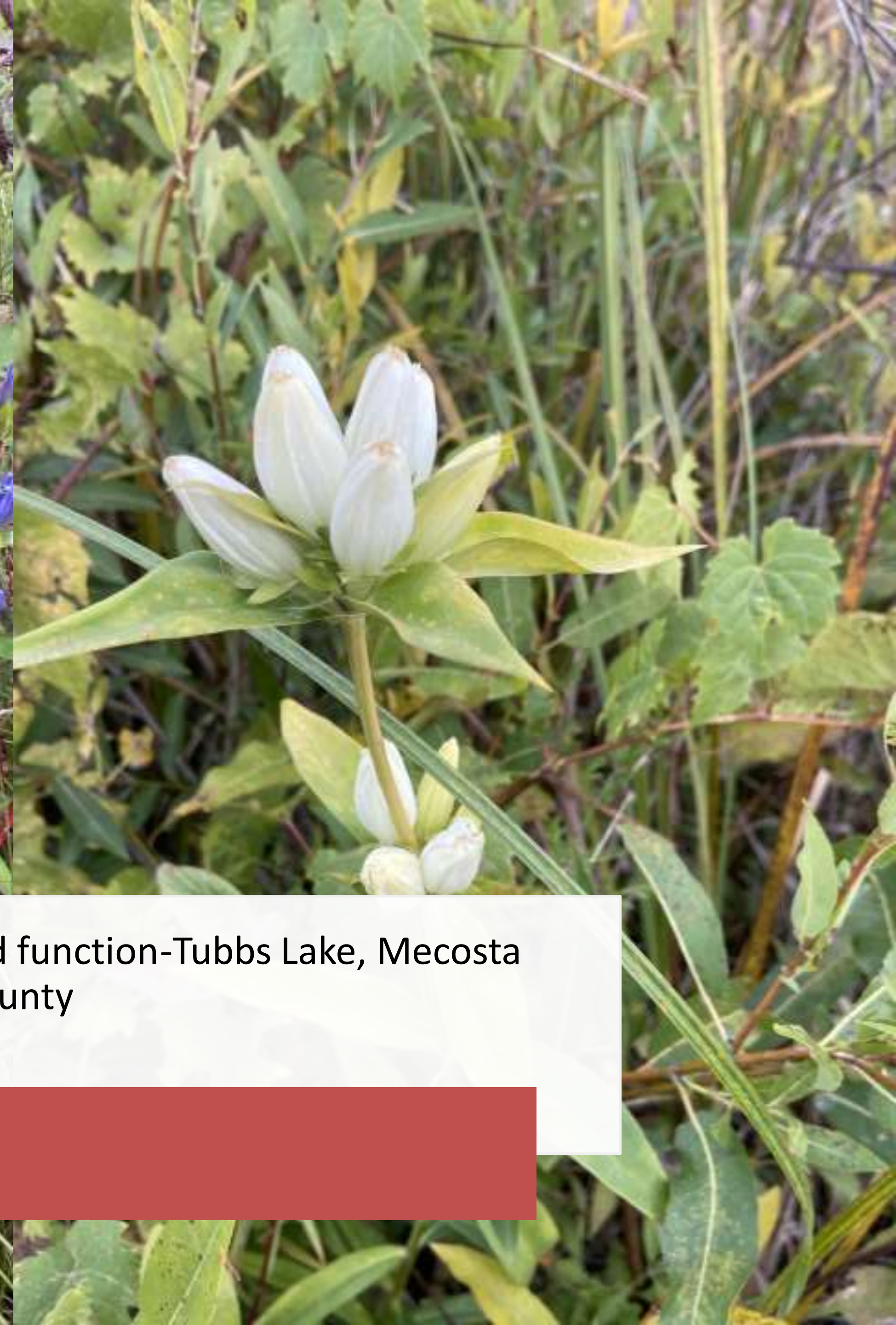


Functional Plants on actual shorelines in Michigan

Jewel weed, oak/birch, swamp milkweed, mint, dogwood or small willow



Rooting systems of certain native plants stabilize shorelines

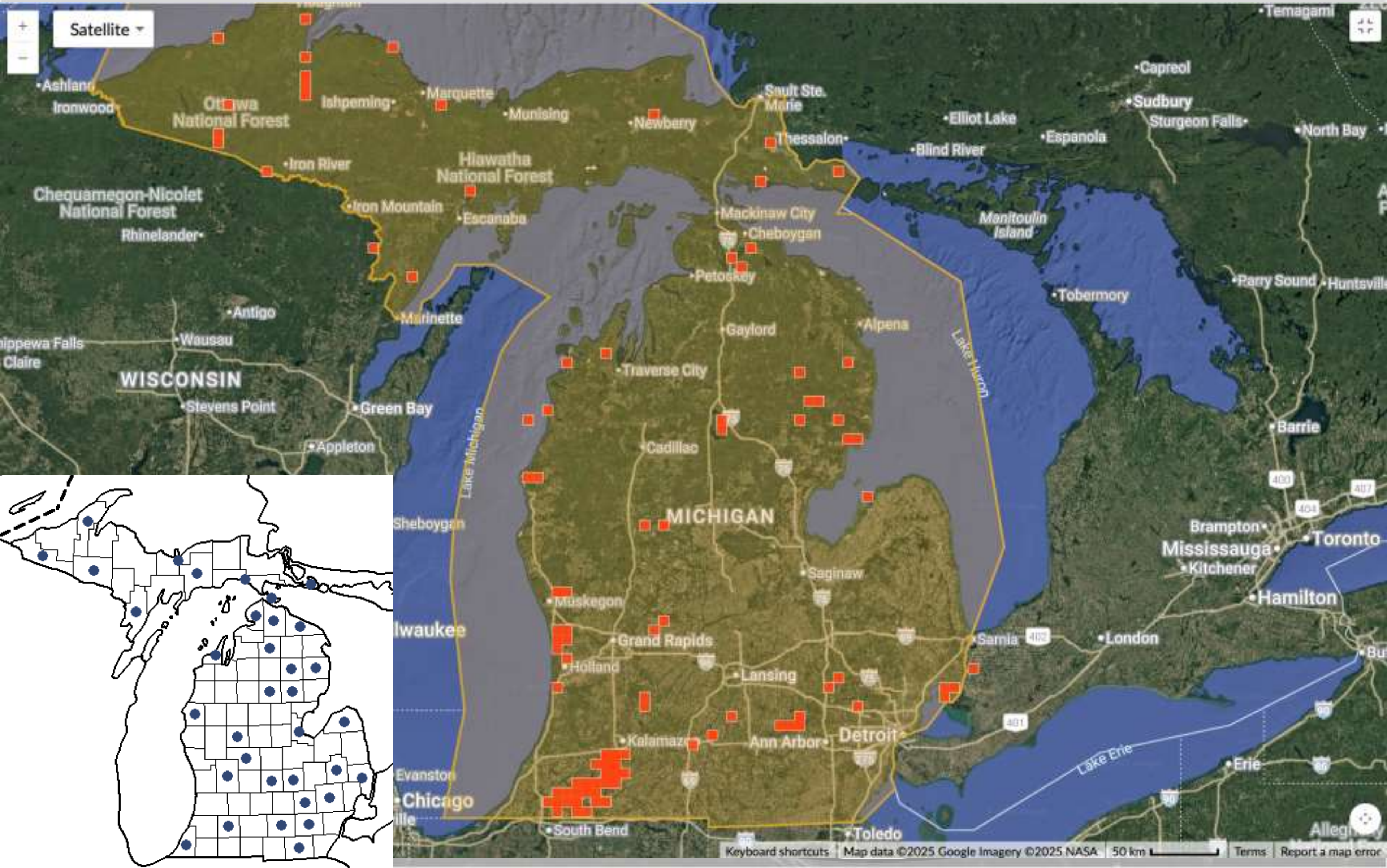



Nature does it with beaty and function-Tubbs Lake, Mecosta County

How to restore "functional native soft shorelines"

- Soft shorelines with wild rice as emergent plant declined throughout much of the plant’s historic range, due in large part to human impacts. It is an easy one to restore with seeding.
- Rice can transition to shorter native rushes and sedges instead of cattails, and then irises, swamp milkweed, silverweed, or other "wet feet" plants

Wild Rice in Michigan



Functional Native Plants for shorelines

TREES

- Thuja/White Cedar
- Tilia/Basswood
- Betula/Birch
- Amelanchier/Serviceberry
- Acer/Maples
- Quercus/Oaks
- Fraxinus/Ash

SHRUBS

- Cornus/Dogwoods
- Corylus/Hazelnuts
- Myrica/Bayberry
- Salix/Shrub willows
- Ribes/Current/Goosebe
- Rosa/Swamp rose
- Sambucus/Elderberry
- Vaccinium/Blueberry
- Viburnum/Nannyberry

Functional Native Plants for shorelines

Emergent Aquatics

- Zizania/Wild rice
- Nelumbo/Lotus
- Scirpus/Bullrush
- Juncus/Rush
- Bidens/Tickseeds

Wetland/Shore Perennials

- Hierochloe/Sweetgrass
- Carex/Sedges
- Juncus/Rush
- Impatiens/Jewelweed
- Gentiana/Gentians
- Mentha/Mints
- Asclepias/Milkweeds
- Liatris/Blazing-star

Tool Manufacture Skills from Rice Camps functional plants

Master Rice Teacher Earl Hoagland: 2007 Sahkahtay-White Earth Rice Camp

Sources of Native Functional Plants

- Wild Type Nursery- Mason, MI
- UP Native Plants- Marquette, MI
- County and Regional Conservation District plant sales
- Lakeside Perennial and Native Plant Nursery
- Black Cap Farm- Onekema, MI
- East Michigan Native Plants
- Other Native Plants nurseries out there?

Muskrat wigwam den of wild rice-functional plant-cultural keystone

Questions?