

Great Lakes Aquatic Invasives TCN:

DOCUMENTING THE OCCURRENCE THROUGH SPACE & TIME OF AQUATIC NON-INDIGENOUS
FISH, MOLLUSKS, ALGAE, & PLANTS THREATENING NORTH AMERICA'S GREAT LAKES

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2014-2017 [2018]

Digitization TCN: Great Lakes Invasives- Collaborator Map



1. Univ of WI-Madison (WIS)

2. Univ of WI-Steven's Point

3. Univ of WI-Milwaukee

4. Univ of WI-LaCrosse

5. University of Minnesota

6. Michigan State University

7. Field Museum (F / FMNH)

8. University of Illinois / ILNHS

9. Morton Arboretum ***

10. University of Notre Dame

11. Butler University

12. Univ of Michigan (MICH)

13. Central Michigan University

14. MI Small Herbaria Network ++

15. Miami University

16. Ohio State University

17. Ohio University

18. NY Botanical Garden (NY)

19. New York State Museum

20. Université de Montréal /Canadensys

(21. Arizona State Univ / Symbiota)

Taxonomic Targets:



GLANSIS maintains a Database of invasive and potentially invasive species

- *plants: 49 genera (2147 spp. of these genera in North America)*
 - *fish: 38 genera (290 spp.)*
 - *mollusks: 14 genera (113 spp.)*
- = 2,550 Species in 101 Genera**



GREAT LAKES INVASIVES NETWORK

Aquatic Invasives Homepage

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One of the greatest threats to the health of North America's Great Lakes is invasion by exotic species, several of which already have had catastrophic impacts on property values, the fisheries, shipping, and tourism industries, and continue to threaten the survival of native species and wetland ecosystems. This bi-national thematic collections network of >20 institutions from eight states and Canada will digitize 1.73 million historical specimens representing 2,550 species of exotic fish, clams, snails, mussels, algae, plants, and their look-alikes documented to occur in the Great Lakes Basin. Others have been placed on watchlists because of their potential to become aquatic invasives.

Several initiatives are already in place to alert citizens to the dangers of spreading aquatic invasives among our nation's waterways, but this project will develop complementary scientific and educational tools for scientists, wildlife officers, teachers, and the public who have had little access to images or data derived directly from preserved specimens collected over the past three centuries. This award is made as part of the National Resource for Digitization of Biological Collections through the Advancing Digitization of Biological Collections program and all data resulting from this award will be available through the national resource (iDigBio.org).

Join the network as a regular visitor and please send your feedback to Ken Cameron

Final Results:

PLANTS: USA

PLANTS: Canada

FISH

MOLLUSKS

Objectives

>637,000 sheets

>102,000 lots

> 44,000 lots

Results

762,725 records

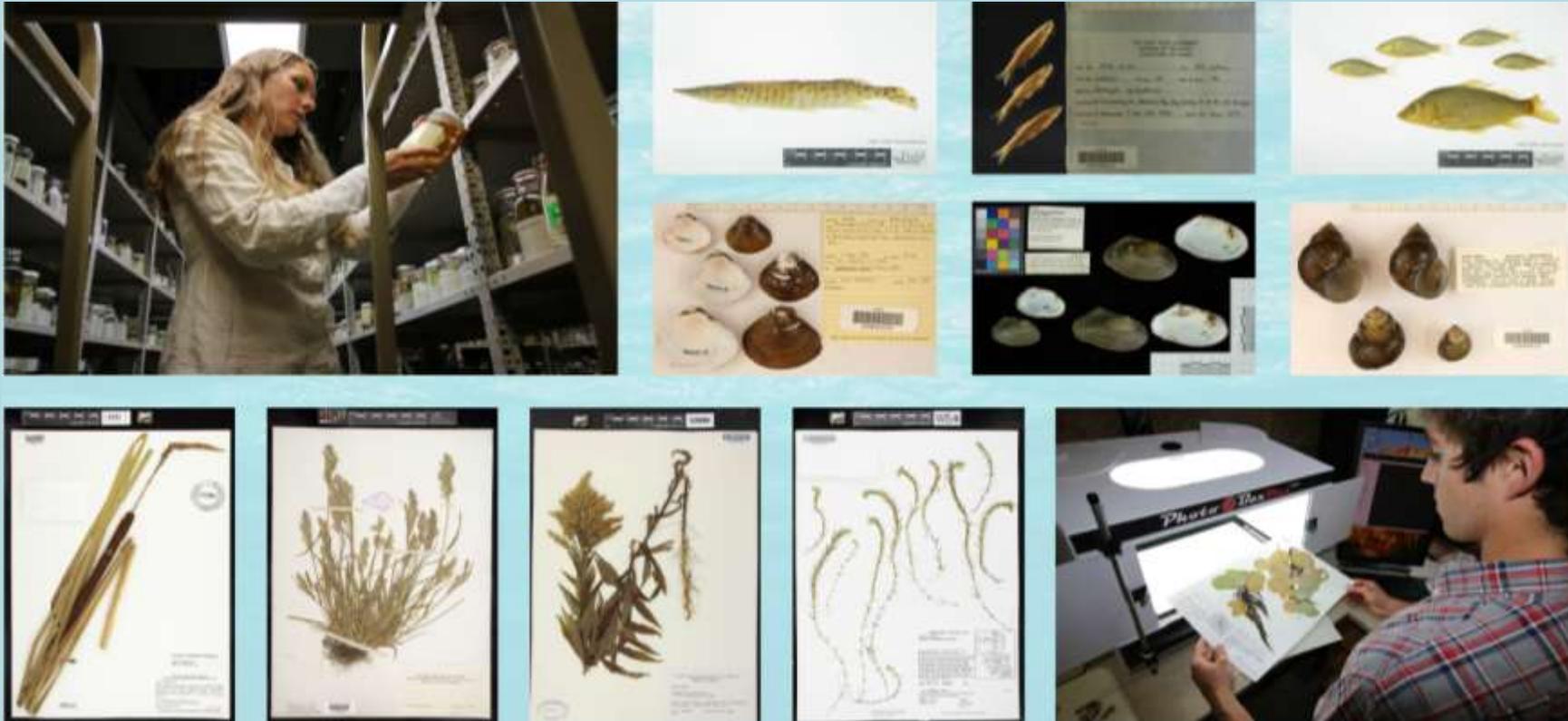
+122,143

107,712 records

45,991 records

>783,000 'specimens'

TOTAL RECORDS IN PORTAL: 1,038,571



A STORY that highlights our efforts/accomplishments in . . . broader impacts.

Aquatic Invasive Plant Guide Species List Games

Authors: Andrea Miller, Lindsey Worcester, Andrew Hipp, and Kenneth Cameron

Citation: <http://midwestherbaria.org/portal/misc/guide/AquaticInvasivePlantGuide.pdf>

[More Details](#)

Families: 12

Genera: 21

Species: 26 (species rank)

Total Taxa: 26 (including subsp. and var.)

Invasive
Eurasian Watermilfoil
Myriophyllum spicatum L.

Invasive
Parrotfeather
Myriophyllum aquaticum
(Vell.) Verdc.

Native
Northern Watermilfoil
Myriophyllum sibiricum Kom.



Example Populations/Habitat



General Form



Eurasian Watermilfoil
Myriophyllum spicatum L.

Parrotfeather
Myriophyllum aquaticum
(Vell.) Verdc.

Northern Watermilfoil
Myriophyllum sibiricum Kom.

Leaves



Eurasian Watermilfoil	Parrotfeather	Northern Watermilfoil
Branches numerous near surface of water	Branches numerous near surface of water	Branches few
Leaflets in 12 or more pairs per leaf	Leaflets in 10-15 pairs per leaf	Leaflets in 5-12 pairs per leaf



Drawing by Ann E. Ross, VTIGC
Eurasian watermilfoil habit and fragments



Parrotfeather habit and leaves

Eurasian Watermilfoil
Myriophyllum spicatum L.

Parrotfeather
Myriophyllum aquaticum
(Vell.) Verdc.

Northern Watermilfoil
Myriophyllum sibiricum Kom.

Easy ID





Eurasian watermilfoil leaves lose their shape when held out of the water.

While Eurasian and northern milfoil have emergent flowers, only parrotfeather has emergent stems and leaves.

Northern watermilfoil leaves remain rigid when held out of the water.





Myriophyllum spicatum (top left) has four leaves/whorl, *M. sibiricum* (top right) has four leaves/whorl, and *M. aquaticum* (bottom center) has five leaves/whorl.

Prevention and Removal

Watch for and remove fragments of milfoil or parrotfeather caught on boat propellers, accidentally pumped into live wells, and entwined in boating equipment.

Eurasian watermilfoil and parrotfeather stems easily fragment. These tiny bits can reproduce and propagate so mechanical pulling of large populations is not recommended. If the population is small, carefully pull each plant out by hand.

Report any sightings: www.eddmaps.org

A LESSON Learned:

The 'Network' is based on a the *people* involved.
Everyone needs to be engaged, willing, & able to represent the TCN.
There is no "I" in PI – we are a team of Co-PIs.

Aaron: Bi-monthly web meetings

Rich: iDigBio 2017

Mark: Volunteered for SPNHC 2018

Christine: Substituted for Mark at SPNHC 2018

Ken: iDigBio 2014, 2016, Botany, UMISC, etc.

Brenda: Conservation Bio

Andrew: Substituted for Ken at iDigBio 2015



