

Watch List for Wetlands

Michigan Wetlands Association Conference

September 15, 2023

Sarah LeSage, Billy Keiper, Tom Alwin

EGLE Water Resources Division

Outline

- Watch list background
- Species not in Michigan
- Species with limited distribution
- Species removed from the watch list
- New additions to watch list
- Resources



Michigan's Invasive Species Program is cooperatively implemented by the Department of Environment, Great Lakes, and Energy, the Department of Natural Resources, and the Department of Agriculture & Rural Development.

What is the Watch list?

- Definition
 - Pose an immediate or potential threat to Michigan's economy, environment or human health
 - Either have never been confirmed in the wild in Michigan or have a limited known distribution.
- Purpose
 - Encourage early detection and timely reporting
 - Increasing the likelihood preventing establishment and limiting negative impacts
 - DNR, EGLE, MDARD will consider response actions in accordance with “Response Plan for Aquatic Invasive Species in Michigan” (QOL-1-2014)
 - State-wide perspective

What is the Watch list?

- Non-regulatory
 - Prohibited and restricted species regulated under Part 413 of the NREPA
 - Some watch list species are regulated
 - Some are not regulated and are allowable for possession and trade
- Criteria and annual review
 - Risk, potential harm, likelihood for survival and reproduction
 - Distribution, pathways for arrival
 - Response options
- michigan.gov/invasives

What is the Watch list?



7 insects/nematode tree diseases



10 aquatic plants



2 crayfish and 1 snail



7 terrestrial plants



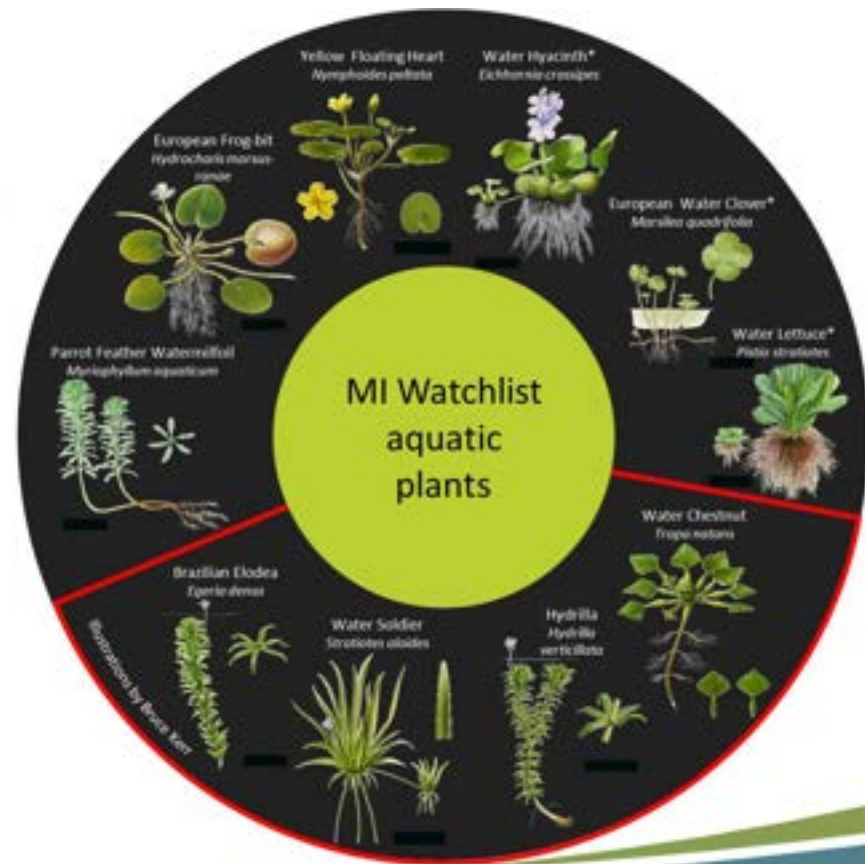
5 fish



1 mammal

Watch list aquatic plants

- 6 of the 10 detected in MI
- 7 prohibited or restricted species
- 3 allowed in trade



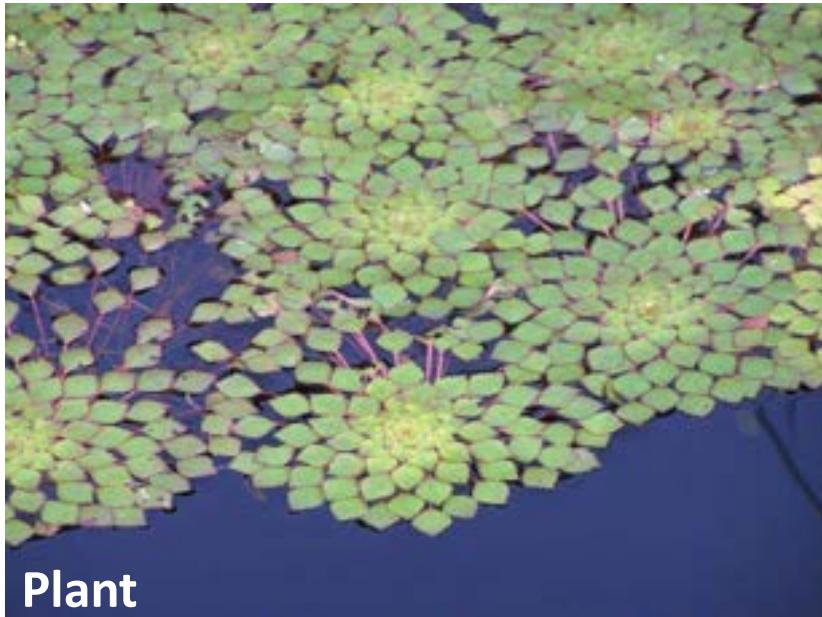
Water Chestnut

Trapa natans

PROHIBITED SPECIES

NATIVE Look-a-likes

No native look-a-likes



Plant

- Floating leaf
- Rosette



Leaves

- Serrated edges
- Triangular
- Inflated petiole



Seeds

- Woody nut
- Sharp spines

Habitat:

Lentic or slow lotic



Flower

- 4 petals
- White

Water Chestnut

Trapa natans

PROHIBITED SPECIES



No known MI distribution but close by

Water Soldier

Stratiotes aloides

PROHIBITED SPECIES



Plant

- Submerged or floating
- Large rosette



Leaves

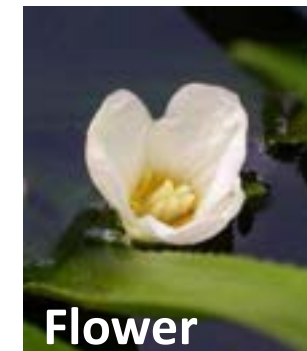
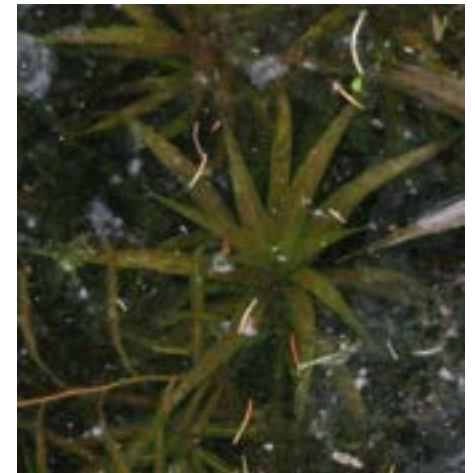
- $\leq 15''$ long
- Sharply serrated edges

Habitat:

Lentic or slow lotic

NATIVE Look-a-likes

Numerous – none have serrated leaf edges



Flower

- White
- Three petals

EGL

Water Soldier

Stratiotes aloides

PROHIBITED SPECIES

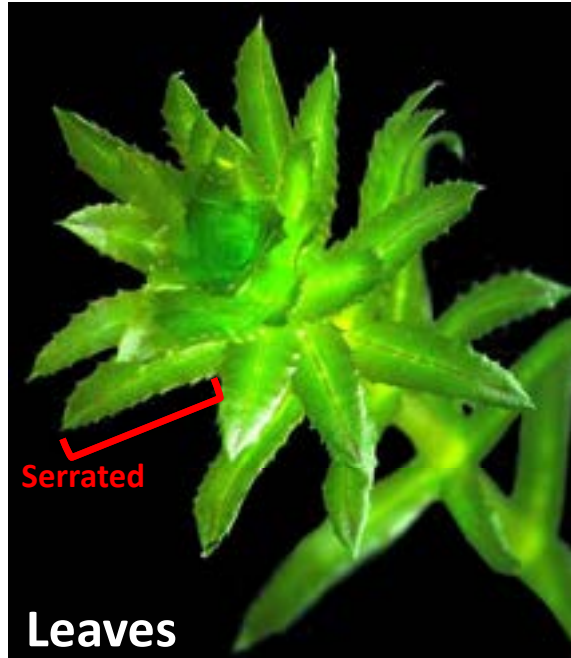


No known MI distribution but close by

Hydrilla

Hydrilla verticillata

PROHIBITED SPECIES

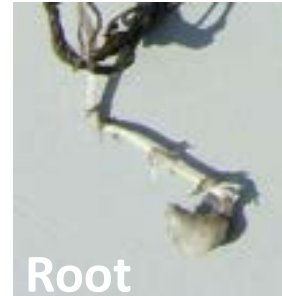


Leaves

- Serrated edges
- Arranged in whorls
- 4-8 leaves/whorl
- Mid-vein has spines

Habitat:

Lentic or slow lotic



- Tuber



NATIVE Look-a-like

Elodea Canadensis

- 3 leaves per whorl (rarely 4)

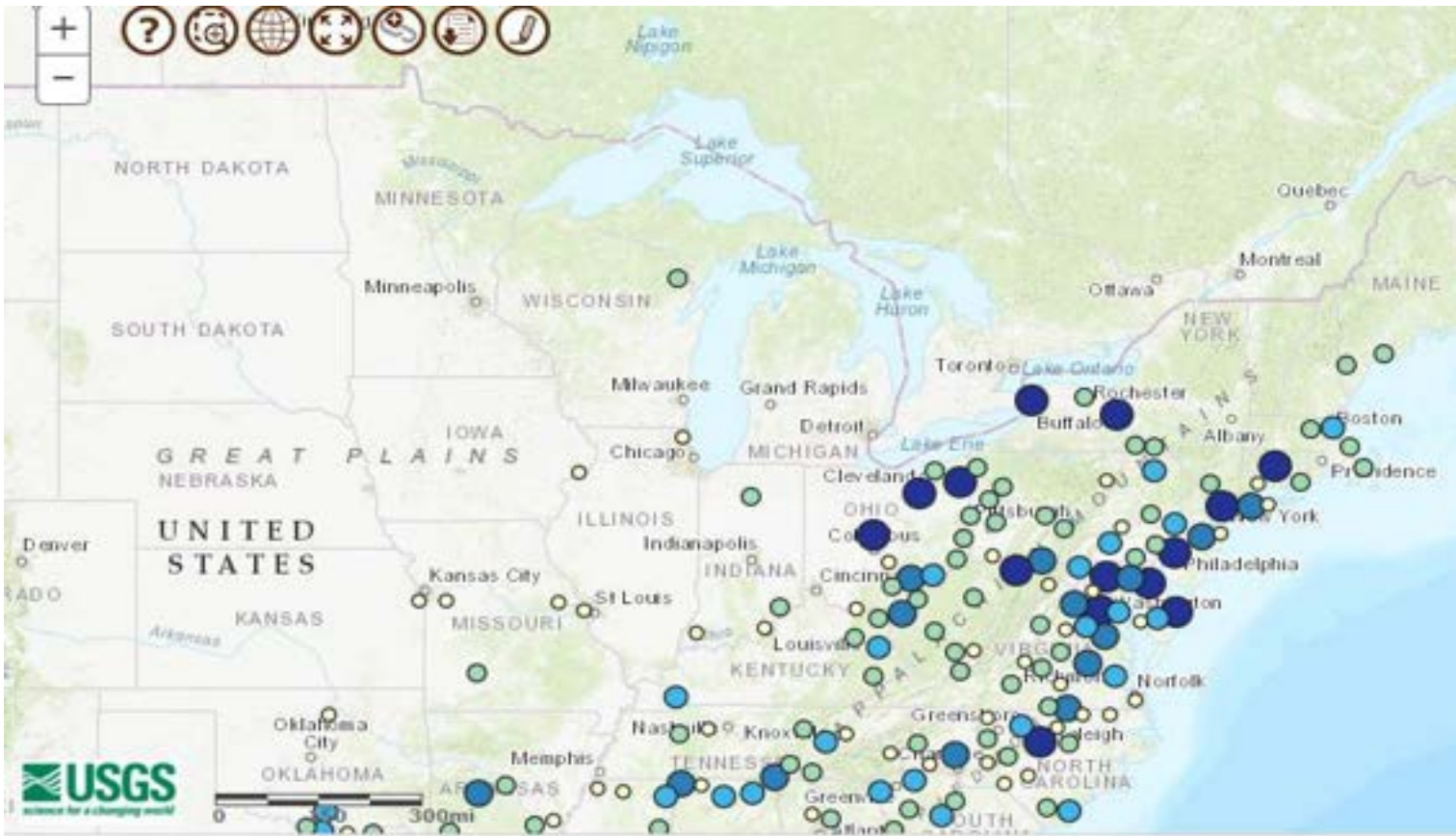


Hydrilla

Hydrilla verticillata

PROHIBITED SPECIES

No known MI distribution but close by



Yellow Floating Heart

Nymphoides peltata

PROHIBITED SPECIES



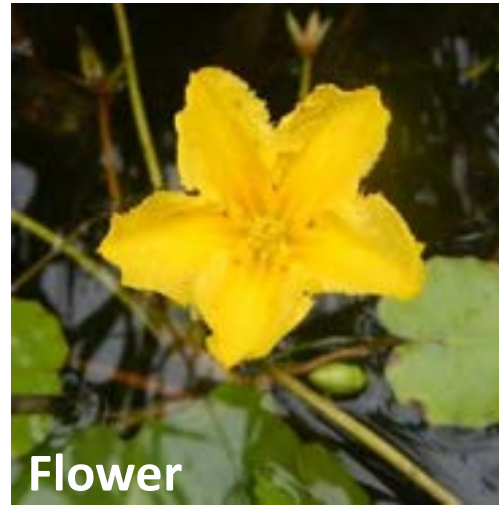
Plant

- Floating leaves
- Thick tangle of stems



Leaves

- Round or heart-shaped
- Scalloped edges
- 2 – 6" long and wide



Flower

- Yellow (occasionally white)
- Five petals
- Often with fringed petals

Habitat:

Lentic or slow lotic

NATIVE Look-a-likes

Spatterdock

- Heart-shaped leaf with round lobes
- Large leaves up to 16"
- Yellow flower



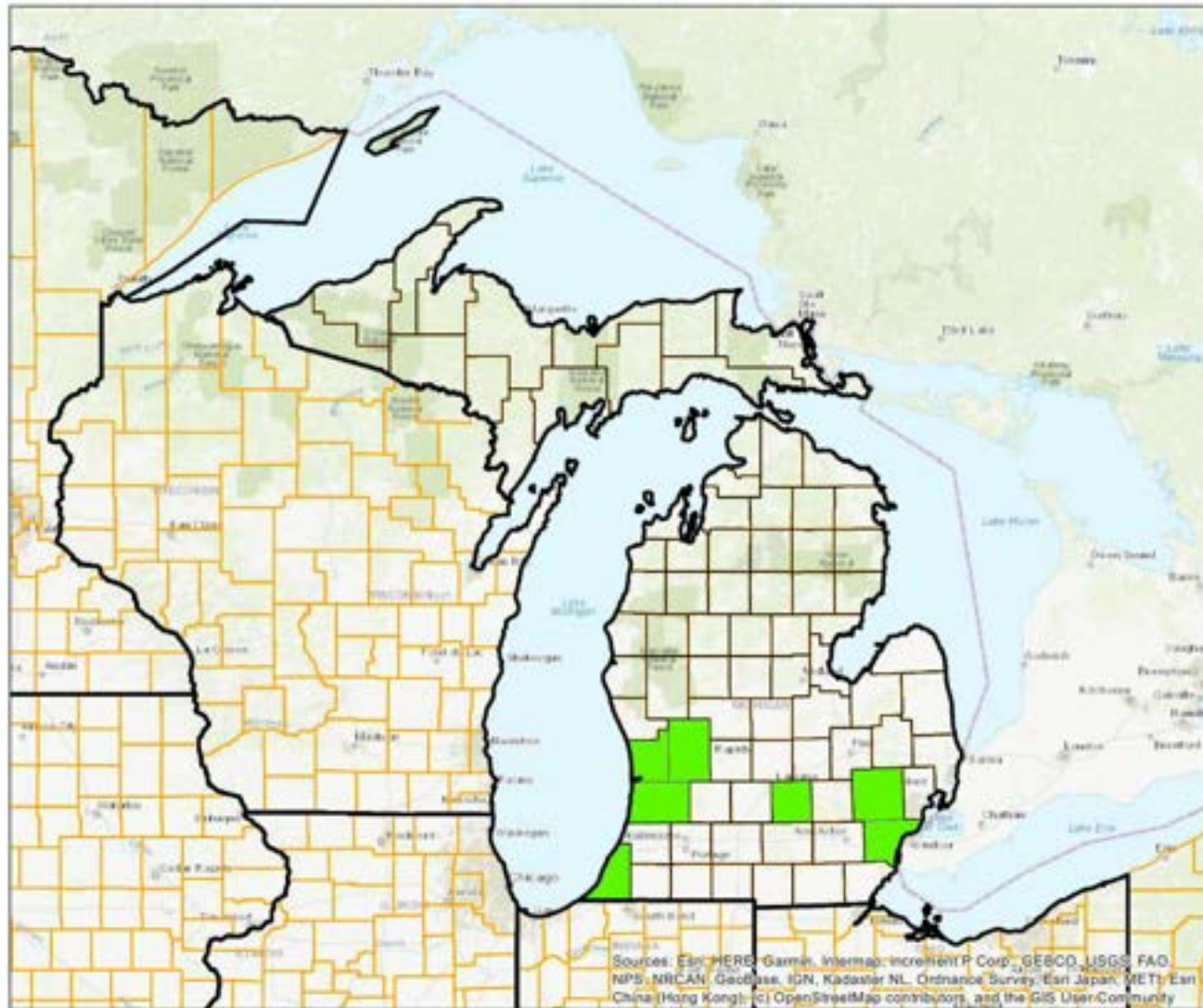
White water lily

- Pointed leaf lobes
- Many-petaled white flower



Michigan: Yellow floating heart (*Nymphaoides peltata*)

2023



Total Species Occurrences

Legend

Observations per County

- 2500+
- 2001 - 2500
- 1501 - 2000
- 1001 - 1500
- 501 - 1000
- 101 - 500
- 51 - 100
- 1 - 50
- No Data



MISIN

Midwest Invasive Species Information Network

This map depicts the total number of observations reported for a certain species in a county. Changes in the number of observations is displayed as a color progression. Large amounts are shown in darker colors.

Please note that these colors and numbers are not meant to represent infestation levels or show uninfested areas. Some areas tend to be more active than others. This is a distribution of point data, which may be clustered.

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeBCO, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), Swisstopo, Mapbox, and the GIS User Community



0 40 80 160 Miles

Production Date: 6/26/2023

Parrot Feather Milfoil

Myriophyllum aquaticum

PROHIBITED SPECIES



Leaves

- Bright green
- Feather-shaped
- Whorls of 4-6 leaves

Habitat:

Lentic or slow lotic



Plant

- Emerges above water
- Sparse submerged leaves

NATIVE Look-a-likes

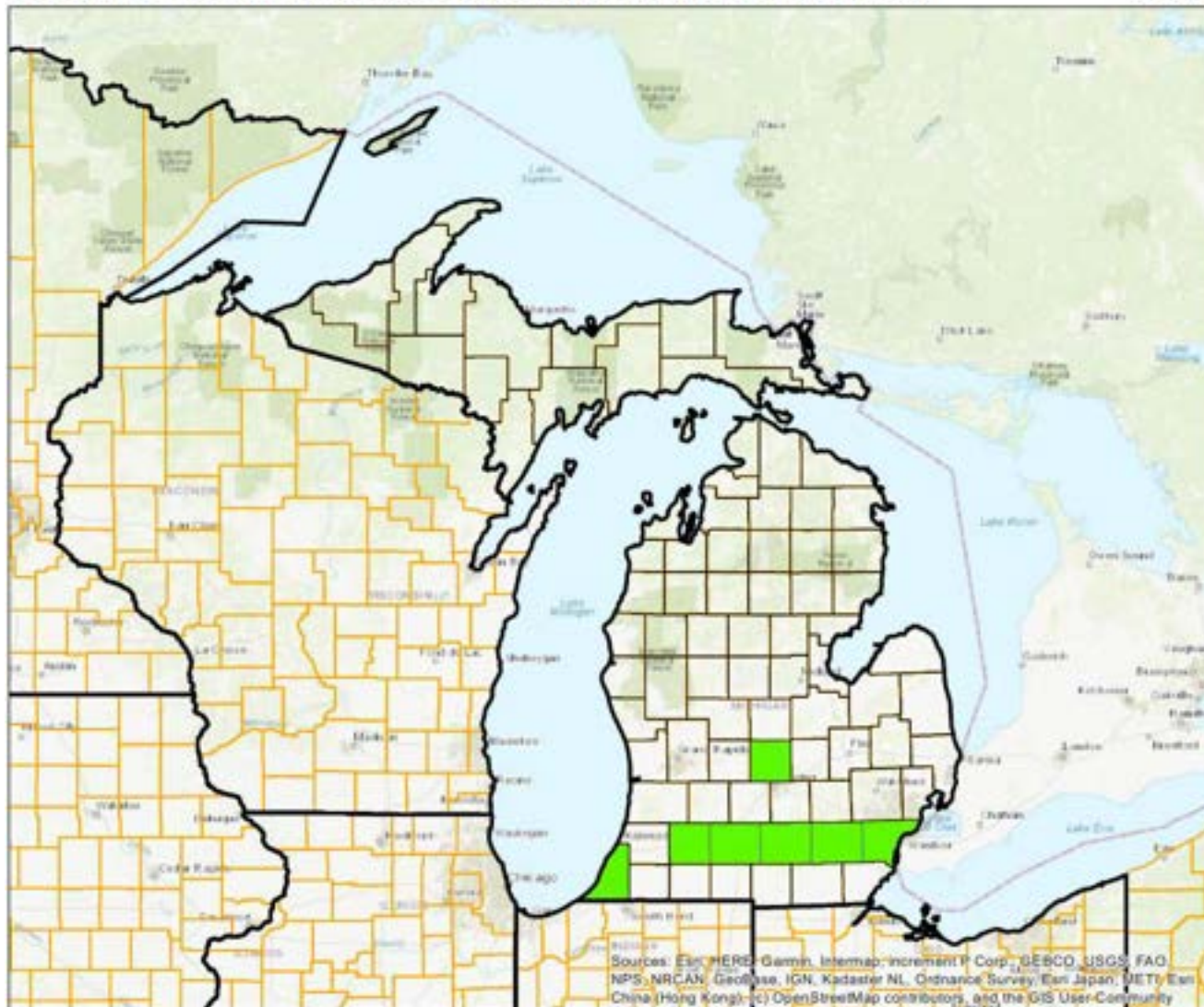
Variable leaf watermilfoil

- Dense whorls of submerged leaves
- Whorls < 1cm apart
- Emergent leaves not feathery



Michigan: Parrot feather watermilfoil (*Myriophyllum aquaticum*)

2023



Total Species Occurrences

Legend

Observations per County

- 2500+
- 2001 - 2500
- 1501 - 2000
- 1001 - 1500
- 501 - 1000
- 101 - 500
- 51 - 100
- 1 - 50
- No Data



MISIN
Midwest Invasive Species
Information Network

This map depicts the total number of observations reported for a certain species in a county. Changes in the number of observations is displayed as a color progression. Large amounts are shown in darker colors.

Please note that these colors and numbers are not meant to represent infestation levels or show an infested area. Some areas tend to be more active than others. This is a distribution of point data, which may be clustered.

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, Geoscience, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), Swisstopo, Mapbox, and the GIS User-Community



0 40 80 160 Miles

Production Date: 6/26/2023

Water Hyacinth

Eichhornia crassipes

WATCH LIST SPECIES



Plant

- Floating
- Up to 3 feet tall

Habitat:

Lakes, ponds, rivers, and streams



Flowers

- Terminal spike
- Blue to violet petals with yellow spot



Roots

- Dense feathery



Leaves

- 2 – 6" across
- Short bulbous leaf petioles
- Leathery

NATIVE Look-a-likes

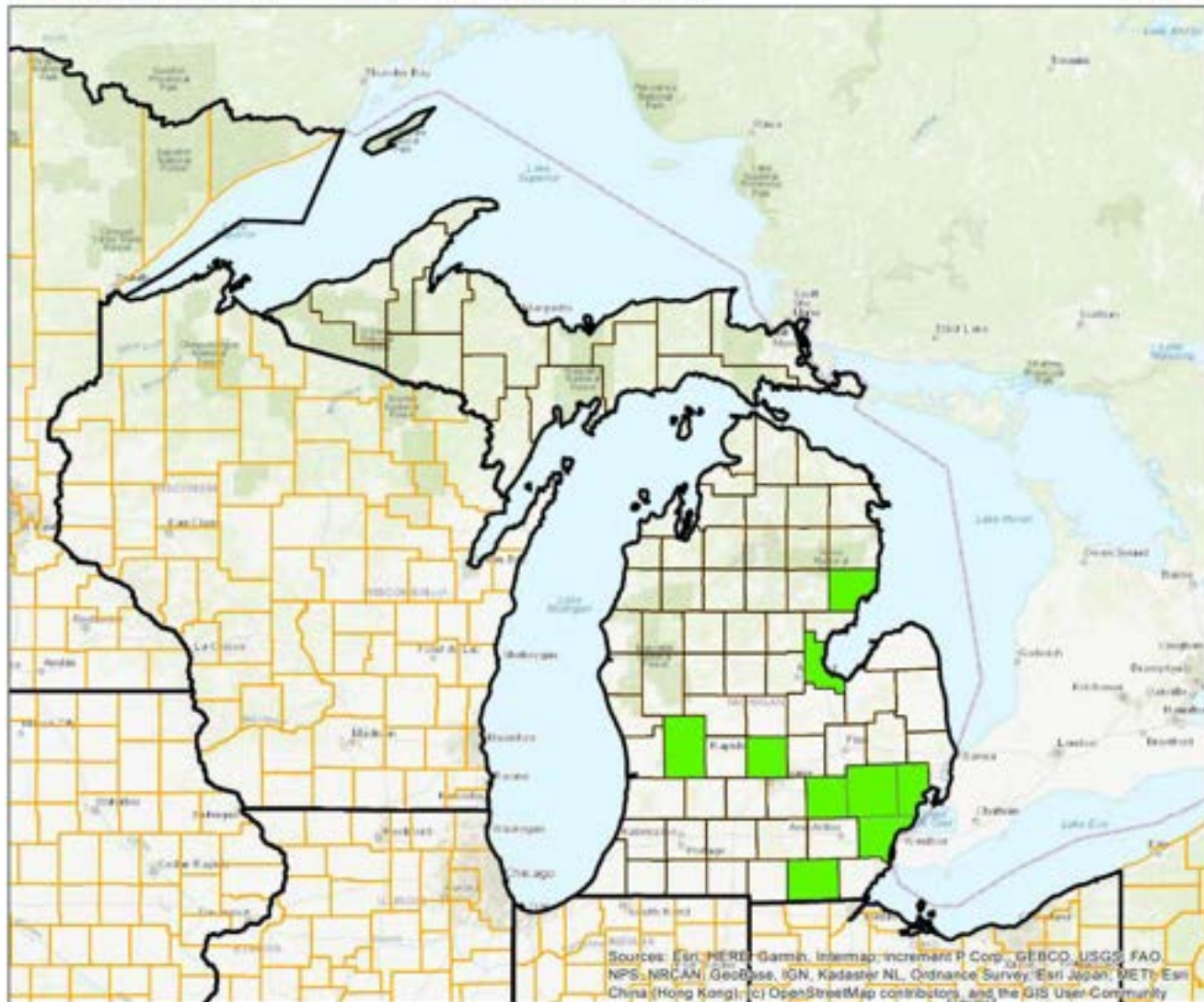
Pickerel Weed

- Rooted emergent plant
- Pointed leaves



Michigan: Water hyacinth (*Eichhornia crassipes*)

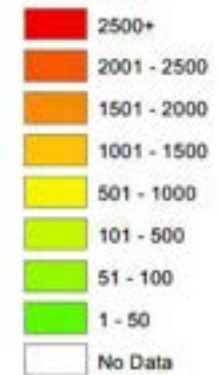
2023



Total Species Occurrences

Legend

Observations per County



MISIN
Midwest Invasive Species
Information Network

This map depicts the total number of observations reported for a certain species in a county. Changes in the number of observations is depicted as a color progression, large amounts are shown in darker colors.

Please note that these colors and numbers are not meant to represent infestation levels or show an infested areas. Some areas tend to be more active than others. This is a distribution of point data, which may be clustered.

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeBCO, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), Swisstopo, Mapbox, OpenStreetMap contributors, and the GIS User Community



0 40 80 160 Miles

Production Date: 6/26/2023

Water Lettuce

Pistia stratiotes

WATCH LIST SPECIES



Plant

- Floating
- Up to 12 inches across



Leaves

- Pale yellow-green
- Fan-shaped with 6-15 ribs
- Covered by soft white hairs

NATIVE Look-a-likes

No native look-a-likes



Roots

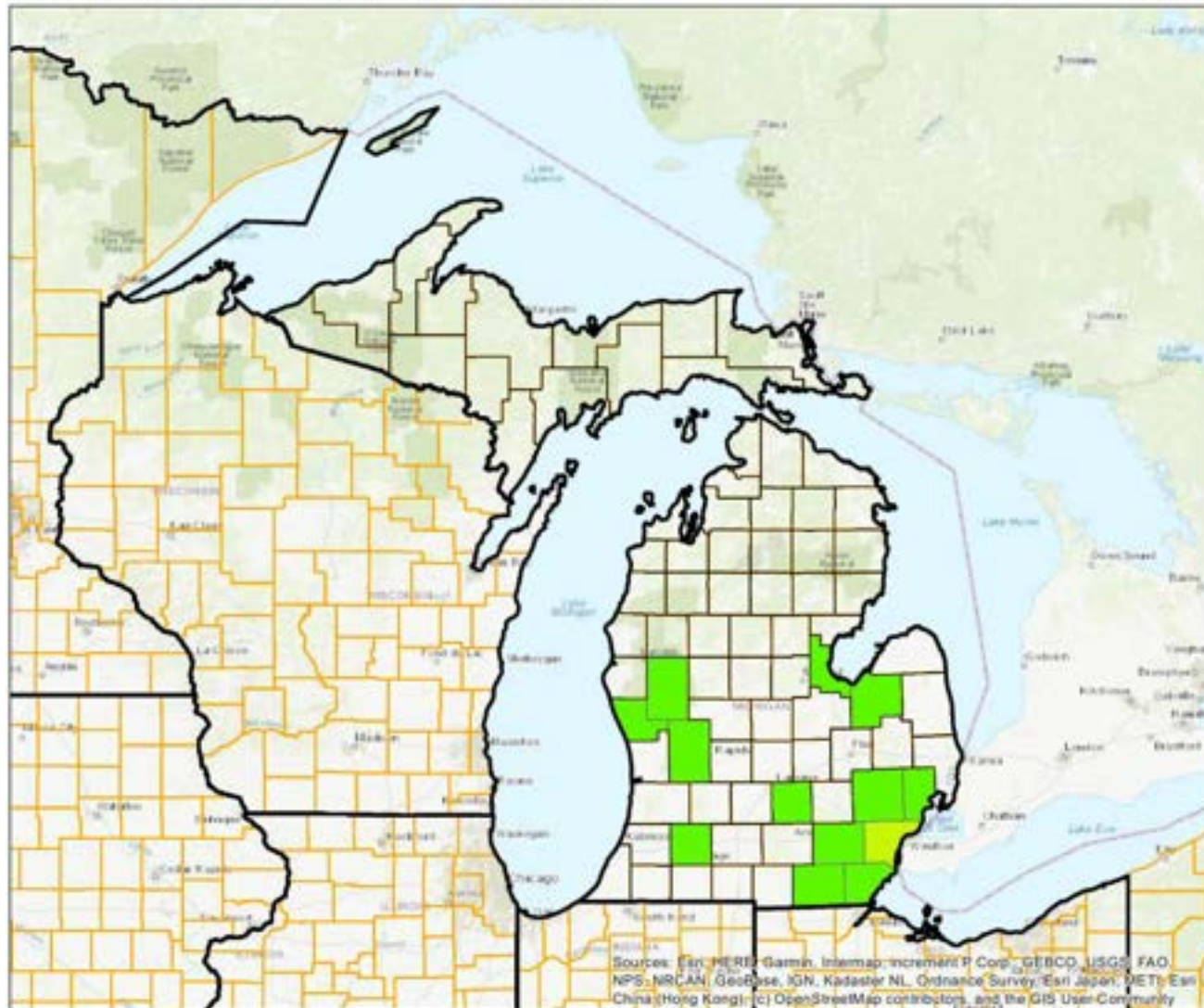
- Dense feathery

Habitat:

Lentic or slow lotic

Michigan: Water lettuce (*Pistia stratiotes*)

2023



Total Species Occurrences

Legend

Observations per County

- 2500+
- 2001 - 2500
- 1501 - 2000
- 1001 - 1500
- 501 - 1000
- 101 - 500
- 51 - 100
- 1 - 50
- No Data



MISIN
Midwest Invasive Species
Information Network

This map depicts the total number of observations reported for a certain species in a county. Changes in the number of observations is depicted as a color progression; large amounts are shown in darker colors.

Please note that these colors and numbers are not meant to represent infestation levels or show an infested area. Some areas tend to be more active than others. This is a distribution of point data, which may be clustered.

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, Geobase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, DEIT, Esri China (Hong Kong), Swisstopo, Mapbox, and the GIS User-Community



0 40 80 160 Miles

Production Date: 6/26/2023

Red Swamp Crayfish

Procambarus clarkii

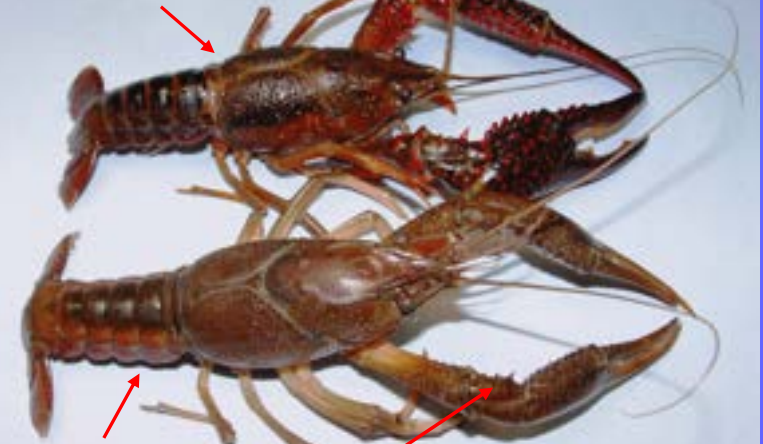
PROHIBITED SPECIES



- Dark red with bright red raised spots
- 2-5" long
- Black wedge-shaped stripe on top of tail
- Black to blue line under the tail

NATIVE Look-a-likes

Red Swamp Crayfish



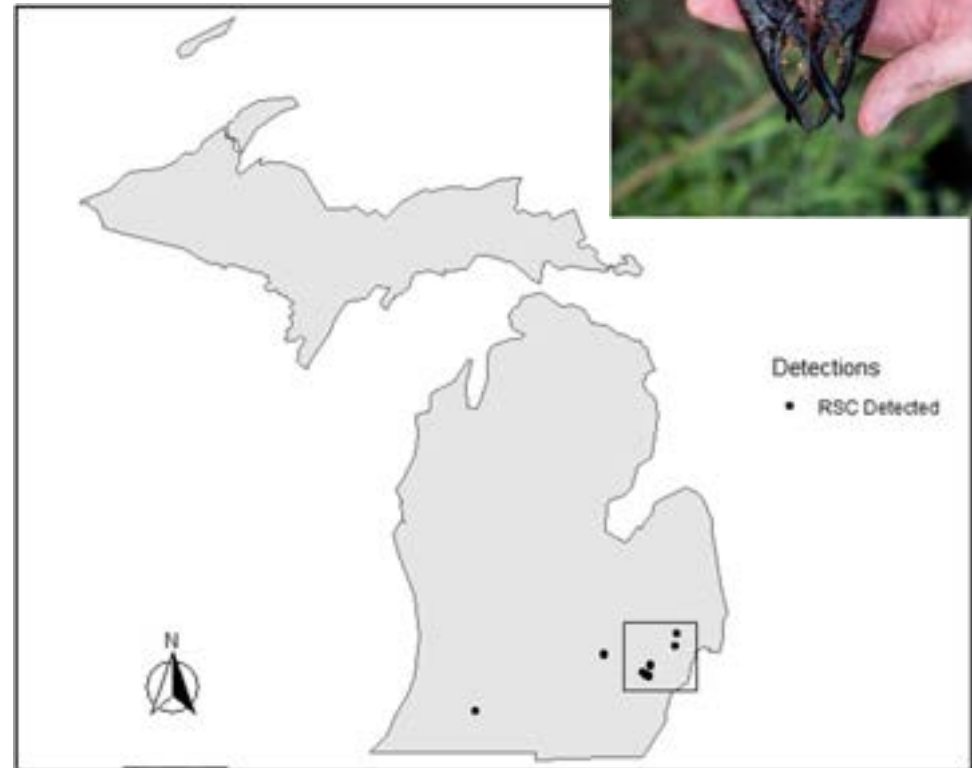
White River Crayfish

- Lacks red bumps on claws



Red Swamp Crayfish (RSC)

- First detection in MI in 2017
- Potential impacts to native species and shorelines
- Collaborative response efforts
 - MDNR, MSU, USGS, AU, GLT, CISMAs
 - Addressing uncertainties through research and adaptive management
- Intensive trapping efforts since 2017
 - Removal of ~170,000 crayfish
 - Documented at 30 waterbodies
 - 8 interconnected “complexes”
 - Effective at suppressing RSC
 - Increasing native crayfish species
 - Not likely to eradicate RSC
- Pyrethrin treatments most effective strategy
 - Toxic to aquatic life, but relatively non-toxic to mammals and birds



European frog-bit (*Hydrocharis morsus-ranae*)

- Native to Europe, Asia, and Africa
- Prohibited in Michigan
- Free floating heart shaped lily-like plant



European frog-bit



European frog-bit in Pentwater Game Area, Oceana County in 2020

EFB Collaborative Background

- Established in 2018 (with a Michigan focus)
- Identify research needs and inform management efforts
- Guided by an Adaptive Management Framework



Water-Primrose

Ludwigia grandiflora, *L. hexapetala*, *L. peploides*

WATCH LIST SPECIES
as of Aug 2023



Leaves

- Dark green
- Lanceolate or oblanceolate
- 2-3 inches long

Plant

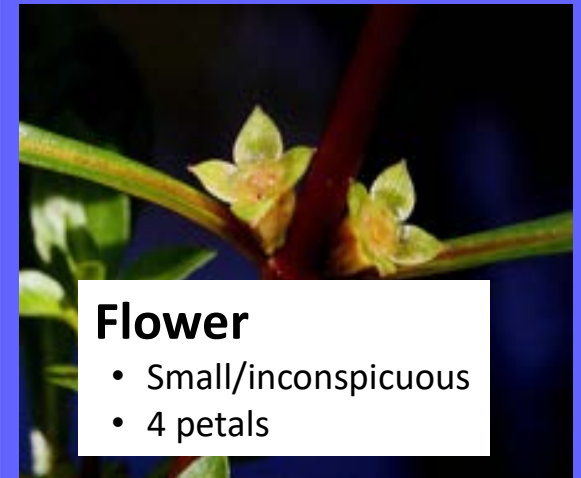
- Floating and semi-rooted
- Emergent up to 1 ft
- Up to 6 ft long
- Red or pink stem
- Showy yellow flower w/ 5 petals

Habitat:

Lentic or slow lotic

NATIVE Look-a-likes

Native ludwigia



Flower

- Small/inconspicuous
- 4 petals

Ludwigia spp.

Native

- *L. alternifolia*
- *L. palustris*
- *L. polycarpa*
- *L. sphaerocarpa*

Invasive

- *L. grandifolia*
- *L. hexapetala*
- *L. peploides*

Natives

- Leaves
 - Mostly elongate
 - Willow like



- Flowers
 - 4 petals
 - Mostly nondescript



Non-natives

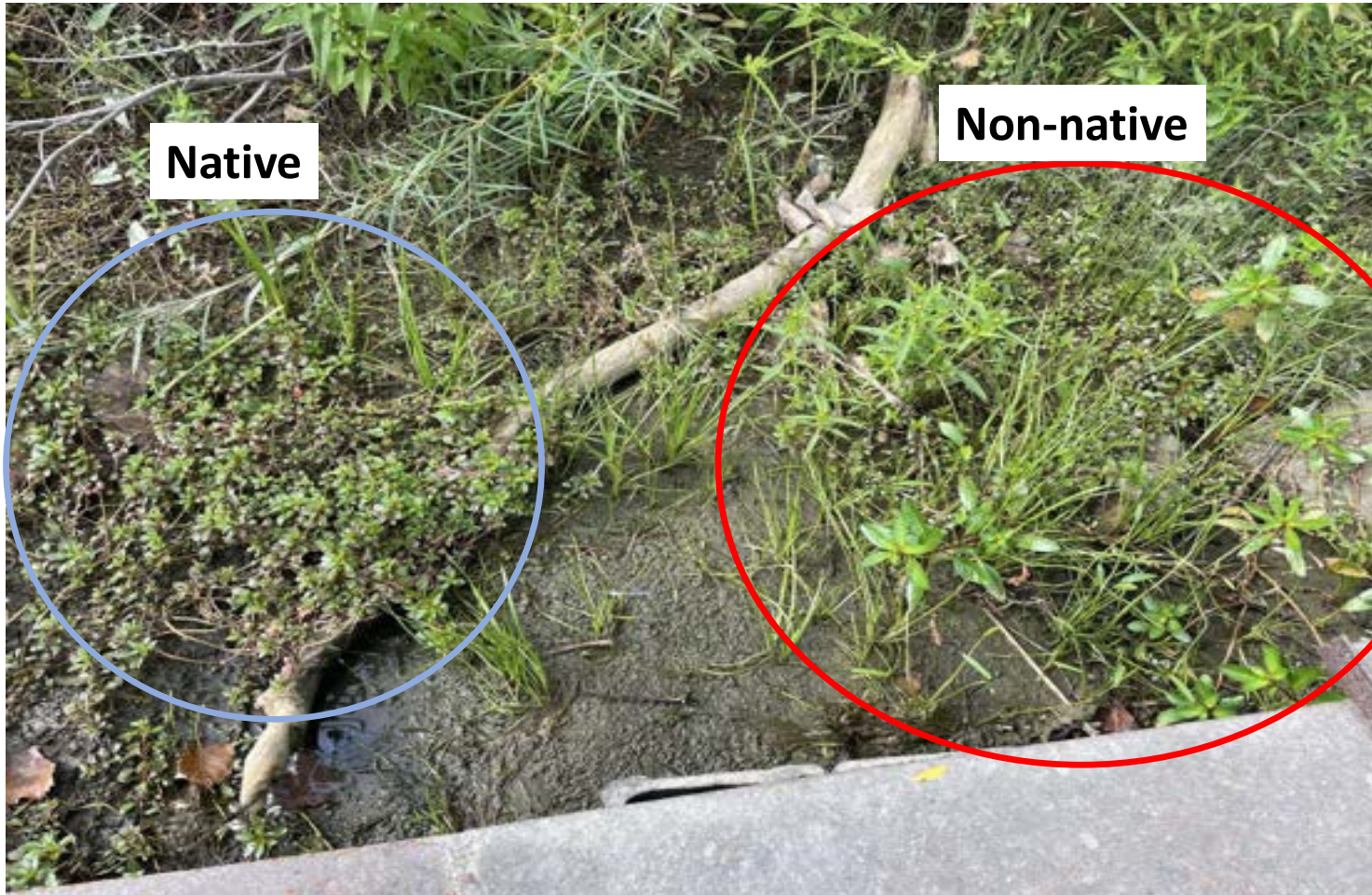
- Leaves
 - Lanceolate or oblanceolate



- Flowers
 - Showy yellow flowers
 - 5+ petals



Native vs Non-native *ludwigia*



Native

Non-native

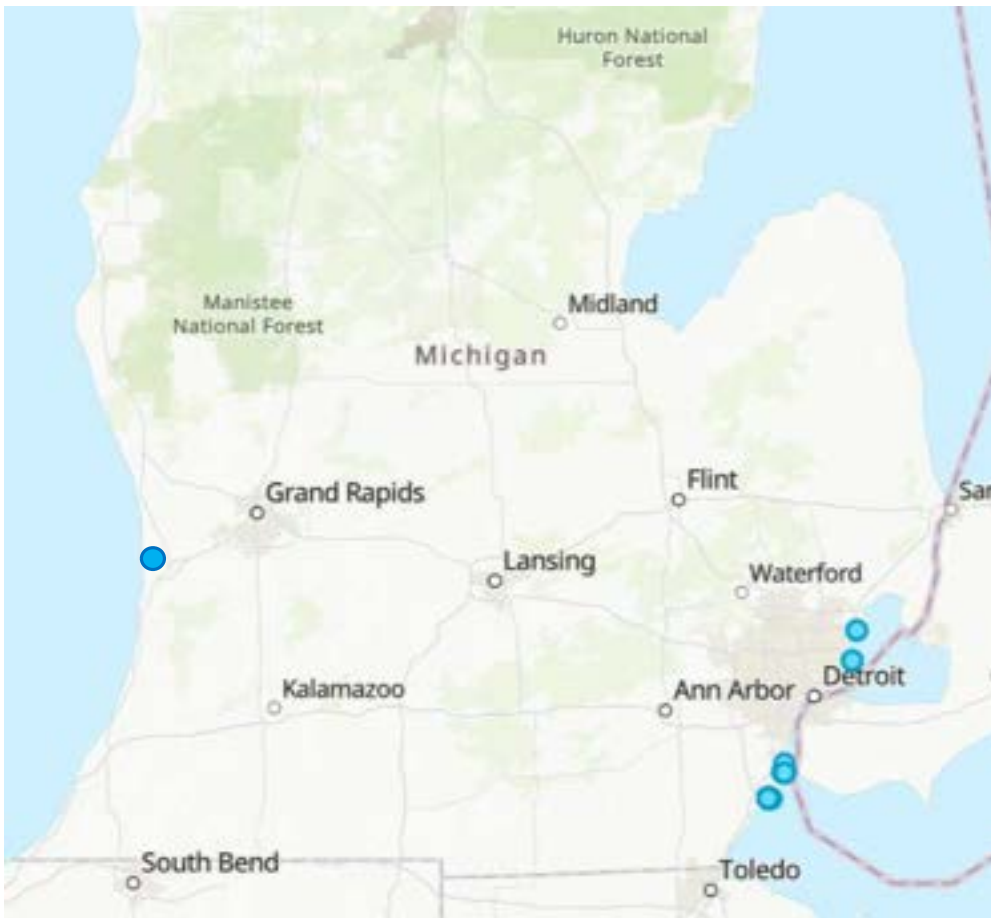


Leaves

- Similar shape
- Small on native
- Large on non-native

Water-Primrose

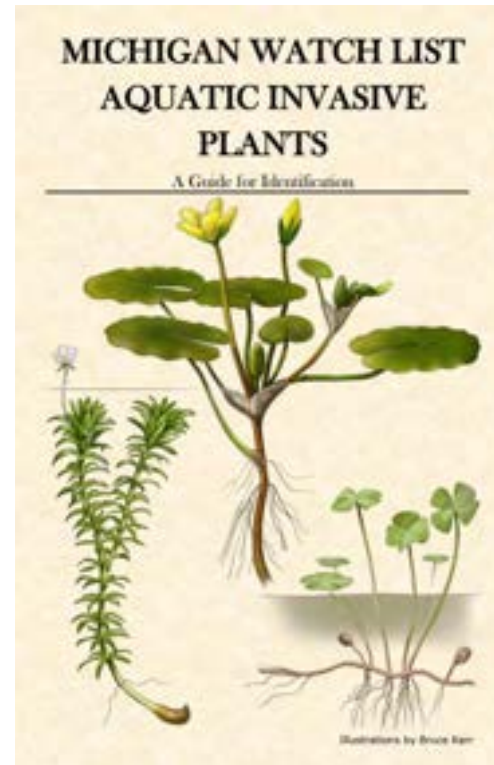
- 3 Known populations
 - Lower Macatawa River
 - Lake St. Clair shoreline
 - Lower Detroit River/Lake Erie coastline



You can help

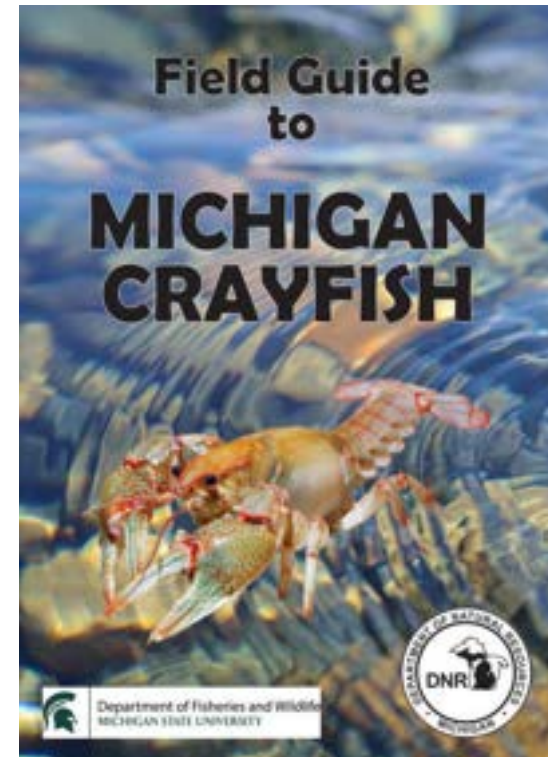
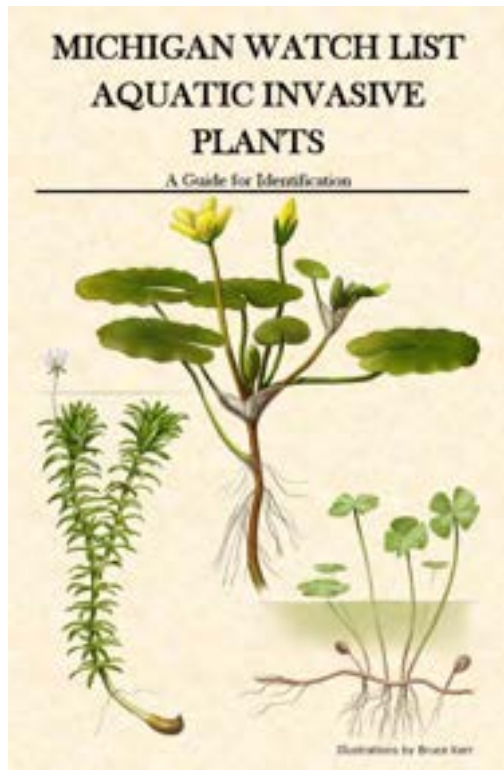
Be familiar with watchlist species and report

If you see a watch list aquatic plant growing outside of cultivation, please report it to:
egle-wrd-aip@mi.gov



Resources

- EDRI Story map



Midwest Invasive Species Information network: www.misin.msu.edu

EGLE

Thank you and Questions?

Sarah LeSage

lesages@michigan.gov

Billy Keiper

keiperw@michigan.gov

michigan.gov/invasives



Michigan's Invasive Species Program is cooperatively implemented by the Department of Environment, Great Lakes, and Energy, the Department of Natural Resources, and the Department of Agriculture & Rural Development.