

Invasive Species



Acronym Soup

Outline

- Definition
- State of Michigan structure
- Species Information
- What you can do

Invasive Species

...a species that is **not native** and whose introduction causes, or is likely to cause, economic or environmental **harm** or harm to human health.

State of Michigan Invasive Species Core Teams



Michigan's AIS State Management Plan

Goal 1: **Prevent new introductions** of AIS into Michigan waters

Goal 2: **Limit the spread** of established

Goal 3: Develop an **early detection and rapid response** program to address new invasions

Goal 4: **Manage and control** AIS to lessen the harmful ecological, economic, social and public health impacts





Search

Michigan Invasive Species

- Overview
- Search and Report
- Take Action
- Laws
- Permits
- Control & Management
- Education & Outreach
- Grants
- Media Center
- Contacts
- Local Resources

What are Invasive Species?

An invasive species is one that is **not native** and whose introduction **causes harm**, or is likely to cause harm to Michigan's economy, environment, or human health.

Many non-native species in Michigan, including fruits, vegetables, field crops, livestock and domestic animals, are important to our economy and lifestyle. Most non-native species are not harmful and may provide economic benefits. Invasive species cause harm when they out-compete native species by reproducing and spreading rapidly in areas where they have no natural predators and change the balance of the ecosystems we rely on.



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Spotlight

- Michigan Invasive Species Grant Program funding opportunities for 2016
- REGISTER for the Michigan Invasive Species Grant Program webinar on May 12
- DNR advises caution to prevent spread of oak wilt disease
- Hemlock Woolly Adelgid Bulletin 
- Aquatic Invasive Species Landing Blitz



Michigan's Invasive Species Program is cooperatively implemented by the Michigan Departments of Agriculture & Rural Development, Environmental Quality and Natural Resources.



Parrot Feather

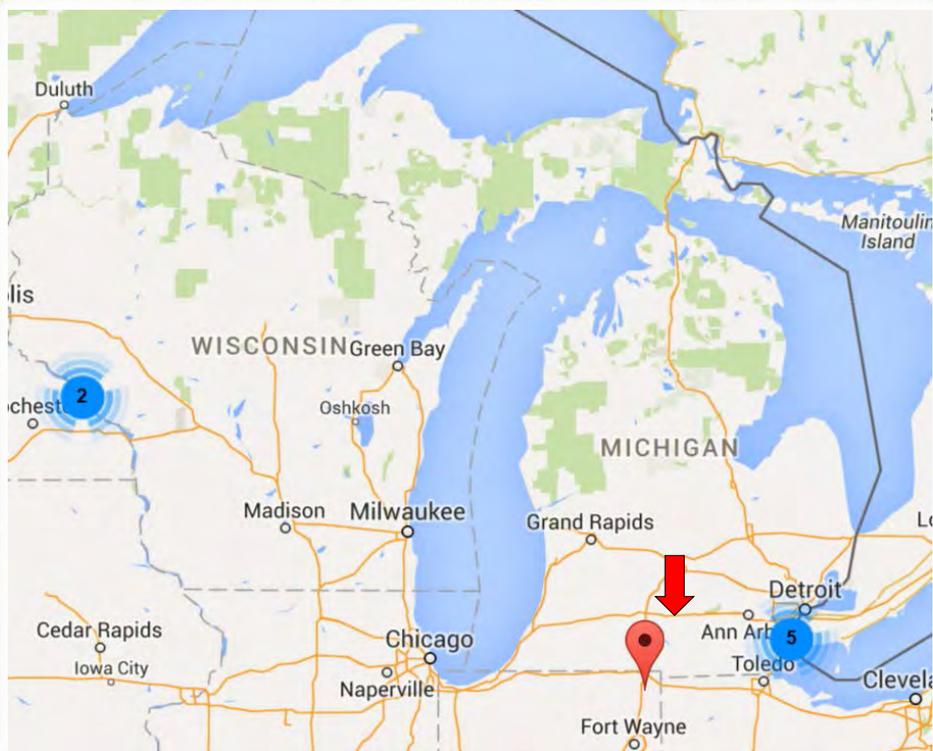


- Watermilfoil species
- Native to South America
- Prohibited in Michigan
- Habitat: slow moving waters. High light
- Impacts: Outcompetes native species, impede recreation.
- Source: captive release
- Spread via fragments



- Rooted
- Bright green
- Leaves above water
- Whorls of 4-6 leaflets
- Leaves are feathery
- Underwater portions may be reddish





Yellow Floating Heart



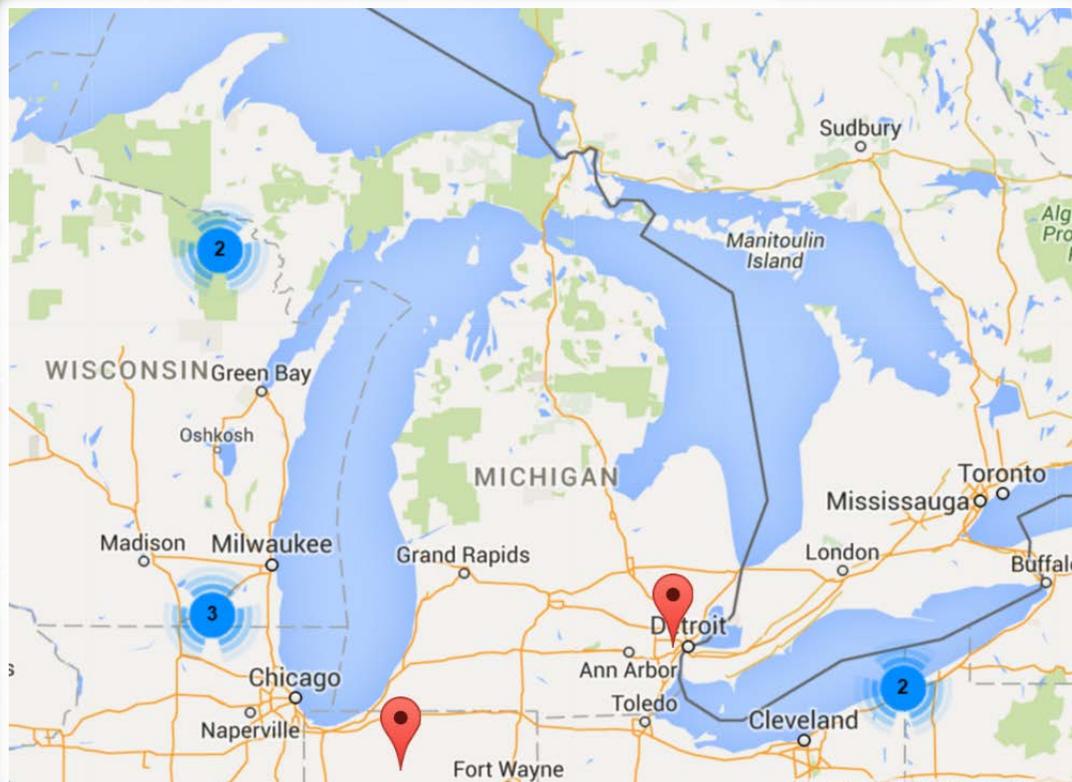


- Rooted with floating leaves
- Native to Europe and Asia
- Prohibited in Michigan
- Habitat: slow moving waters
- Sources: captive release
- Spread: fragments and seeds?

- 
- A close-up photograph of a bright yellow flower with five petals and fringed edges, surrounded by green lily pads in a pond. The flower is the central focus, with its petals showing a delicate, ruffled texture. The background consists of dark water and several large, round green lily pads with prominent veins. The lighting is soft, highlighting the vibrant yellow of the flower against the green foliage.
- Flowers:
 - Bright yellow
 - 5 petals
 - Fringed edges

- 
- The image shows three large, vibrant green lily pads floating on a dark, still body of water. The lily pads are heart-shaped with wavy, slightly irregular edges. They have prominent veins radiating from the center. The water is dark and reflects the surrounding environment, including some green stems and leaves of other plants. The overall scene is a close-up of the lily pads in their natural habitat.
- Leaves
 - Circular or heart-shaped
 - 1-4 inches across
 - Wavy edges

Yellow Floating Heart



European Frogbit

- Free floating or rooted leaf plant
- Native to Europe, Asia, and Africa
- Prohibited in Michigan
- Habitat: slow moving waters
- Sources: water fowl and/or
- Spread: fragments, turions, and seeds

07.17.2013 16:00



- Reproduction
- Turions
- $\frac{1}{2}$ inch structures



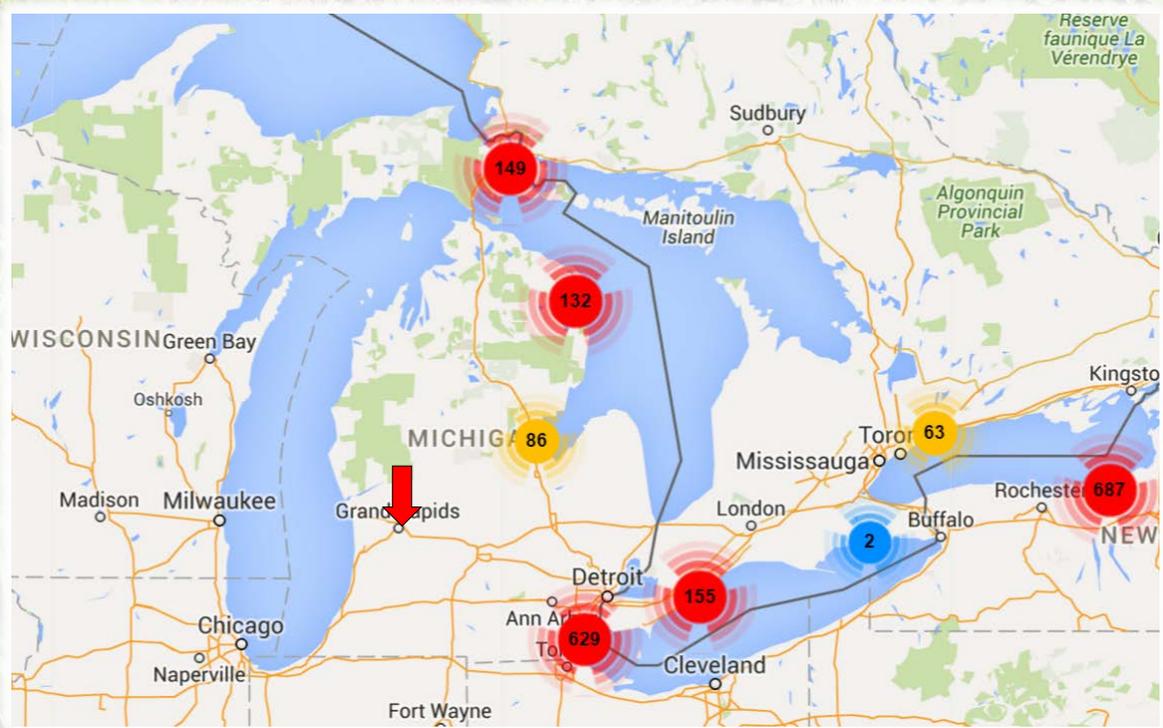
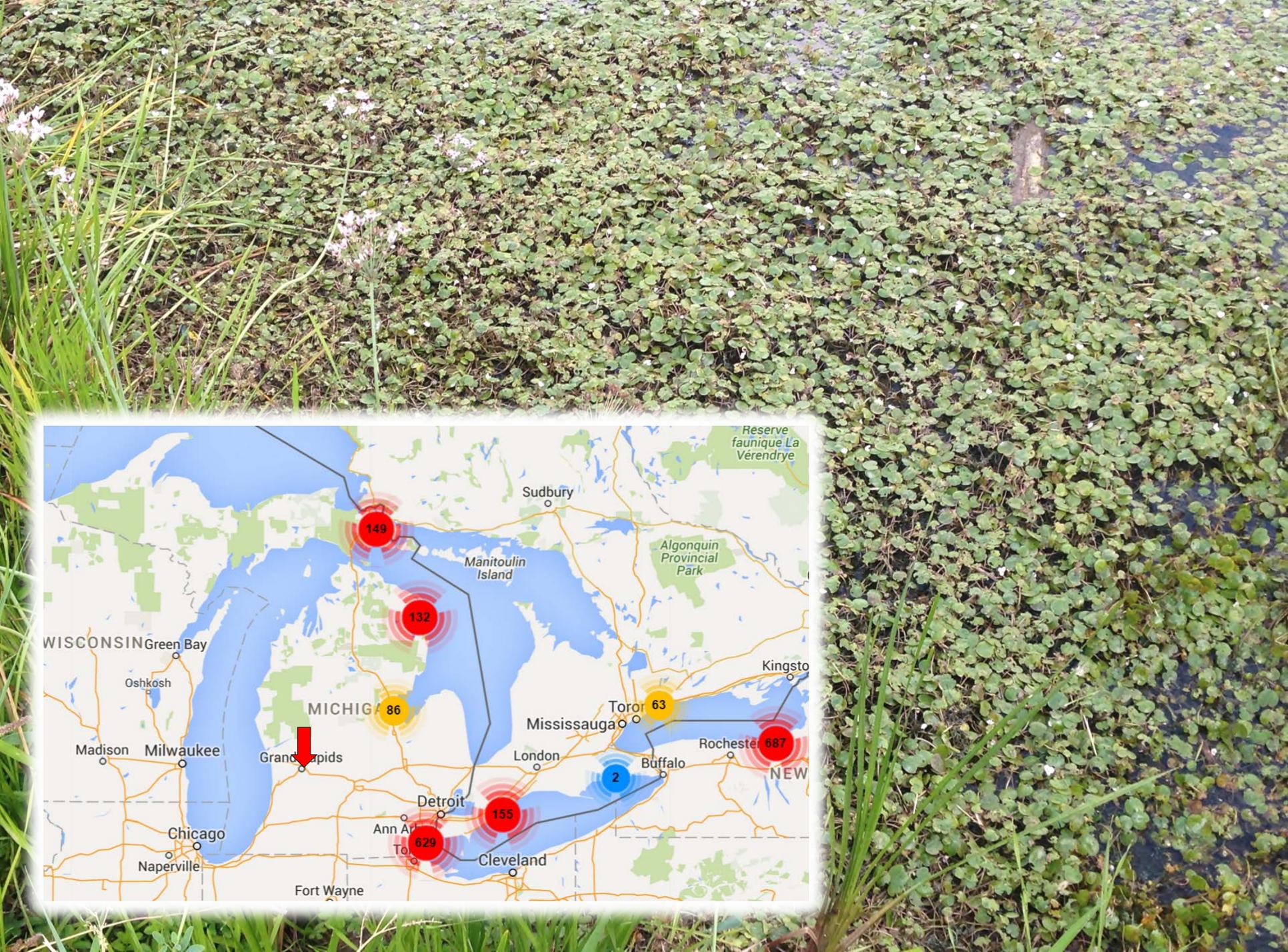
- Leaves:
 - Heart-shape
 - Quarter sized

A close-up photograph of a pond. The water is dark, and the surface is covered with numerous bright green, circular lily pads. Several long, thin, green blades of grass or reeds are scattered across the scene. In the center and lower right, there are several small, white flowers with three petals and a yellow center. The text 'Flowers:' is overlaid on the left side of the image.

• Flowers:

- White petals with yellow center

- Three petals



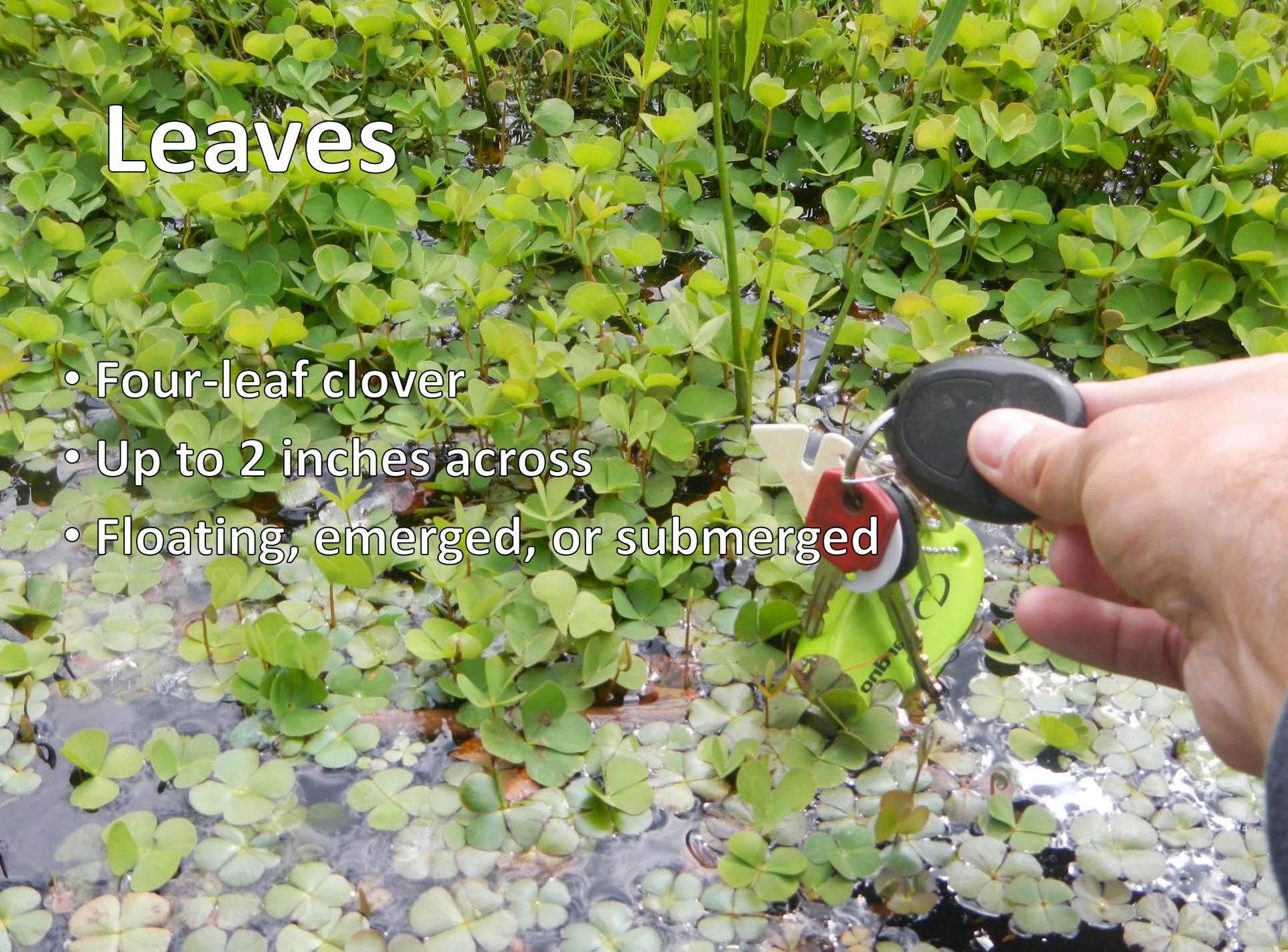
European Water Clover

- Rooted fern
- Native to Europe and Asia
- Michigan Watch List species
- Habitat: Shallow, slow moving waters.
- Impacts: Outcompetes native species
- Sources: Captive release
- Spread: Fragments and sporocarps

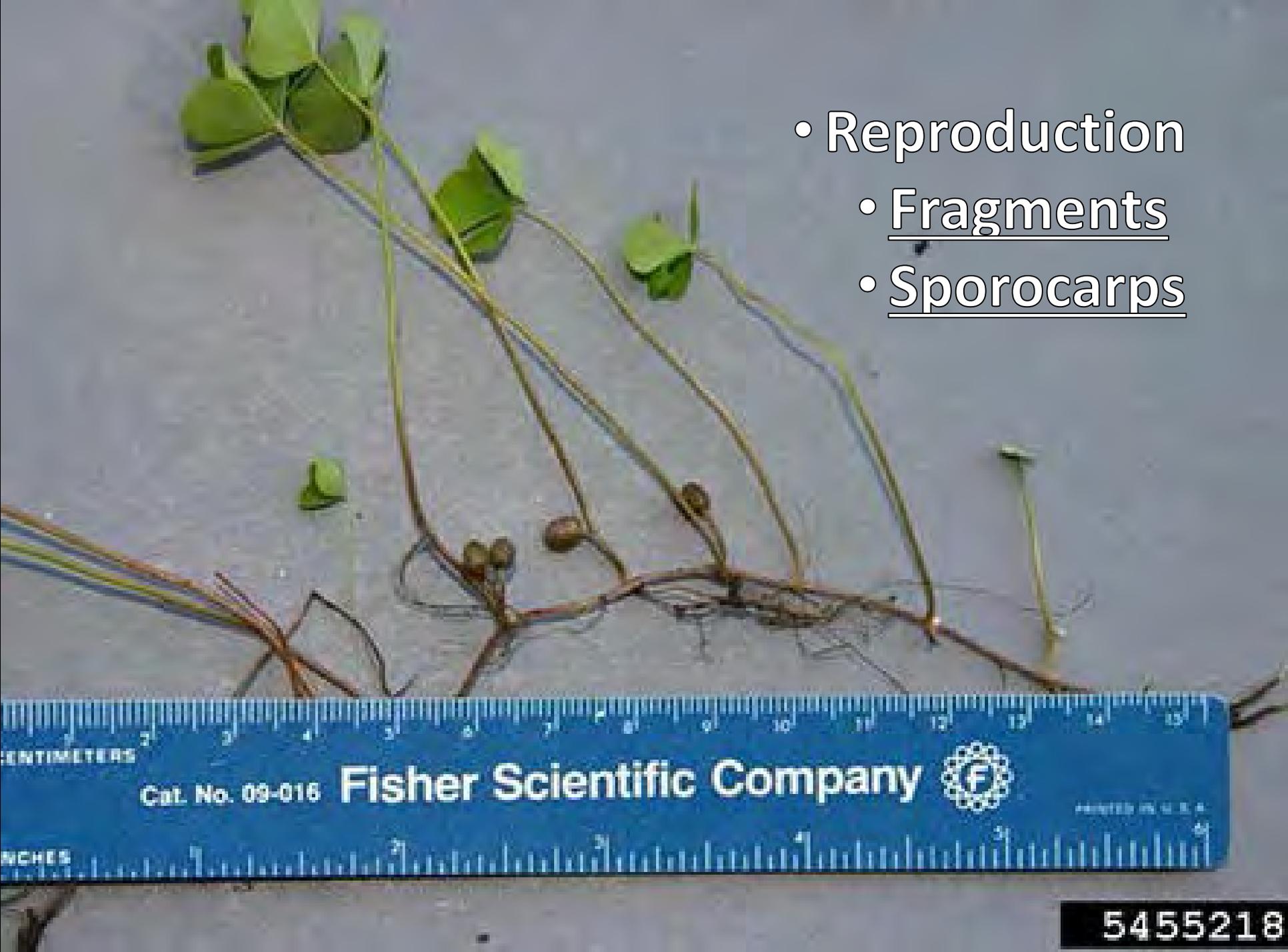


Leaves

- Four-leaf clover
- Up to 2 inches across
- Floating, emerged, or submerged



- Reproduction
 - Fragments
 - Sporocarps



5455218



Water Lettuce

- Free floating
- Native to tropics
- Michigan status: Watch List
- Habitat: Ponds, lakes, rivers, & streams
- Sources: Captive release
- Spread: hydrologic connections, seed?



- Leaves

- Bright green

- Ridges

- Fuzzy





Flower



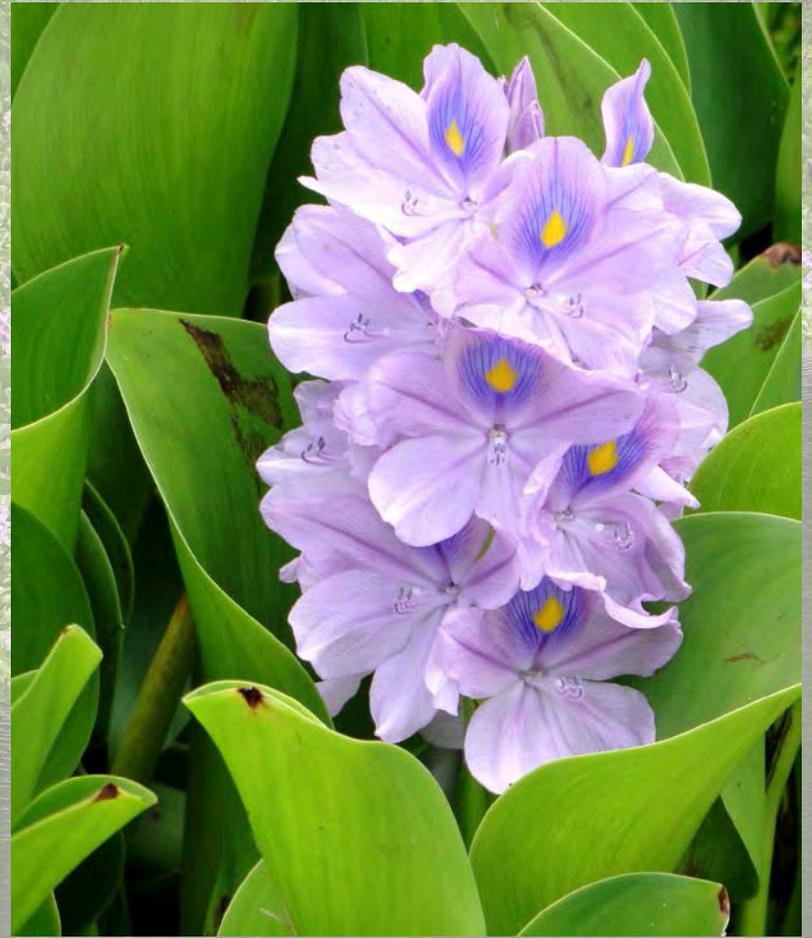
Water Hyacinth

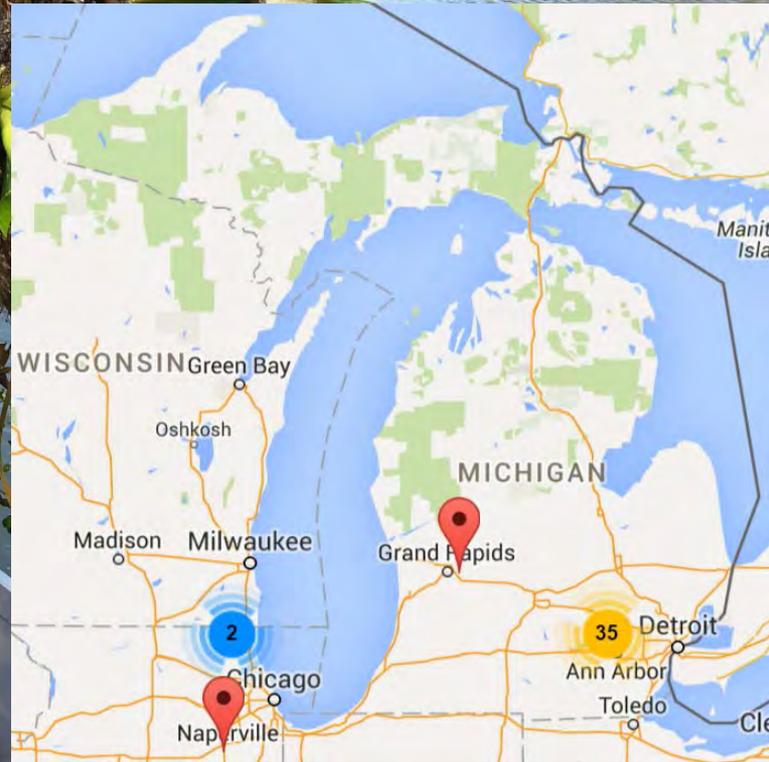
- Free floating
- Native to tropics
- Michigan Watch List species
- Habitat: Ponds, lakes, rivers, and streams
- Sources: Captive release
- Spread: hydrologic connections

Leaves



Flowers





New Zealand Mud Snail

- Aquatic snail
- Native to New Zealand
- Prohibited in Michigan





- Habitat: Rivers, lakes, estuaries
- Sources: recreation or fish movement
- Spread: Asexual reproduction

- **Habitat: Rivers, lakes, estuaries**
- **Compete with native invertebrates**
- **Alter food webs**



Native snail

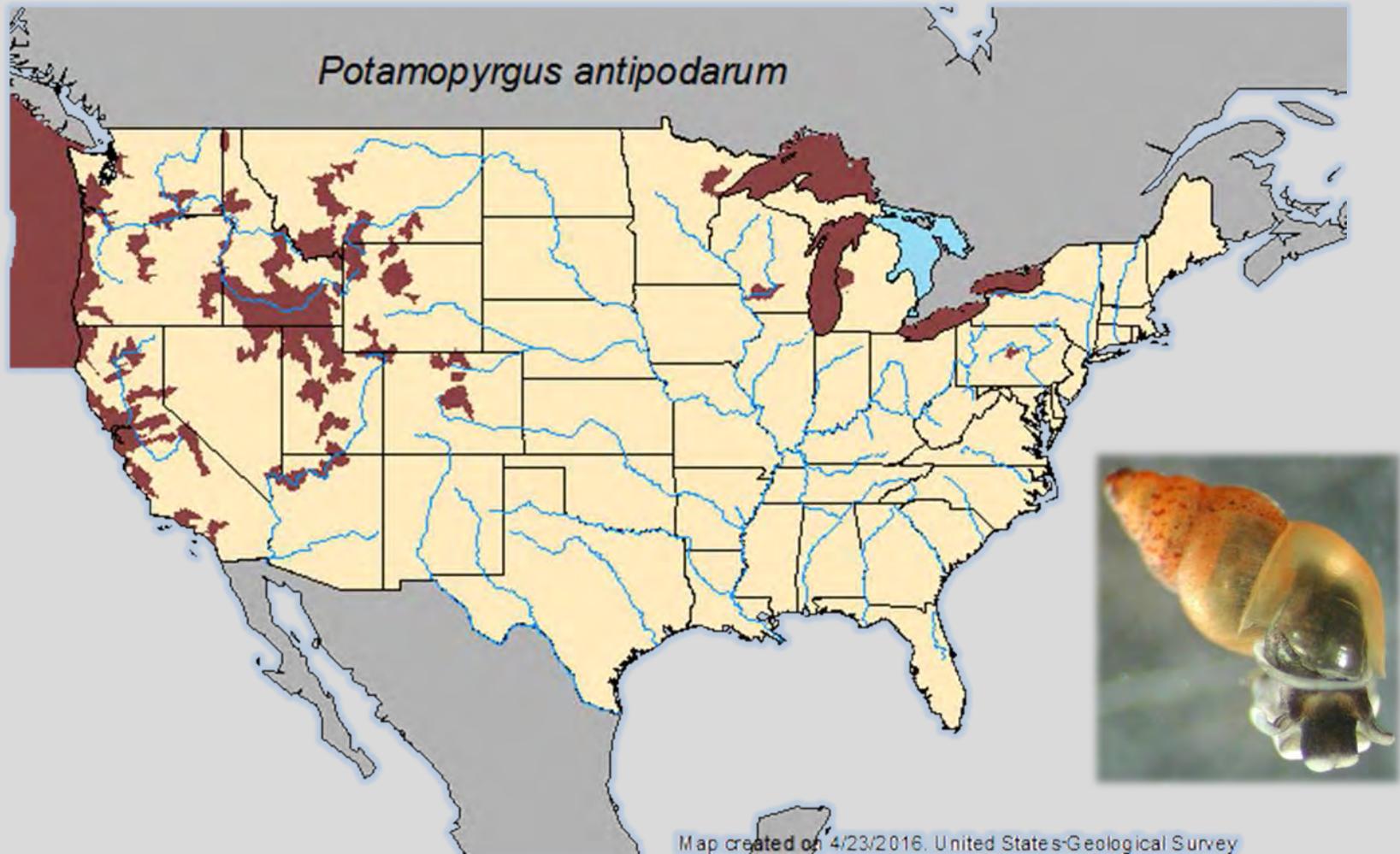
New Zealand Mud Snail



- Tiny... 1/8 inch
- Reproduce quickly
- Asexual reproduction



2015 Known Distribution



* At least 2 clones in US

New Zealand mudsnails discovered in Michigan

BY SARAH ROEBUCK | SUNDAY, NOVEMBER 29TH 2015



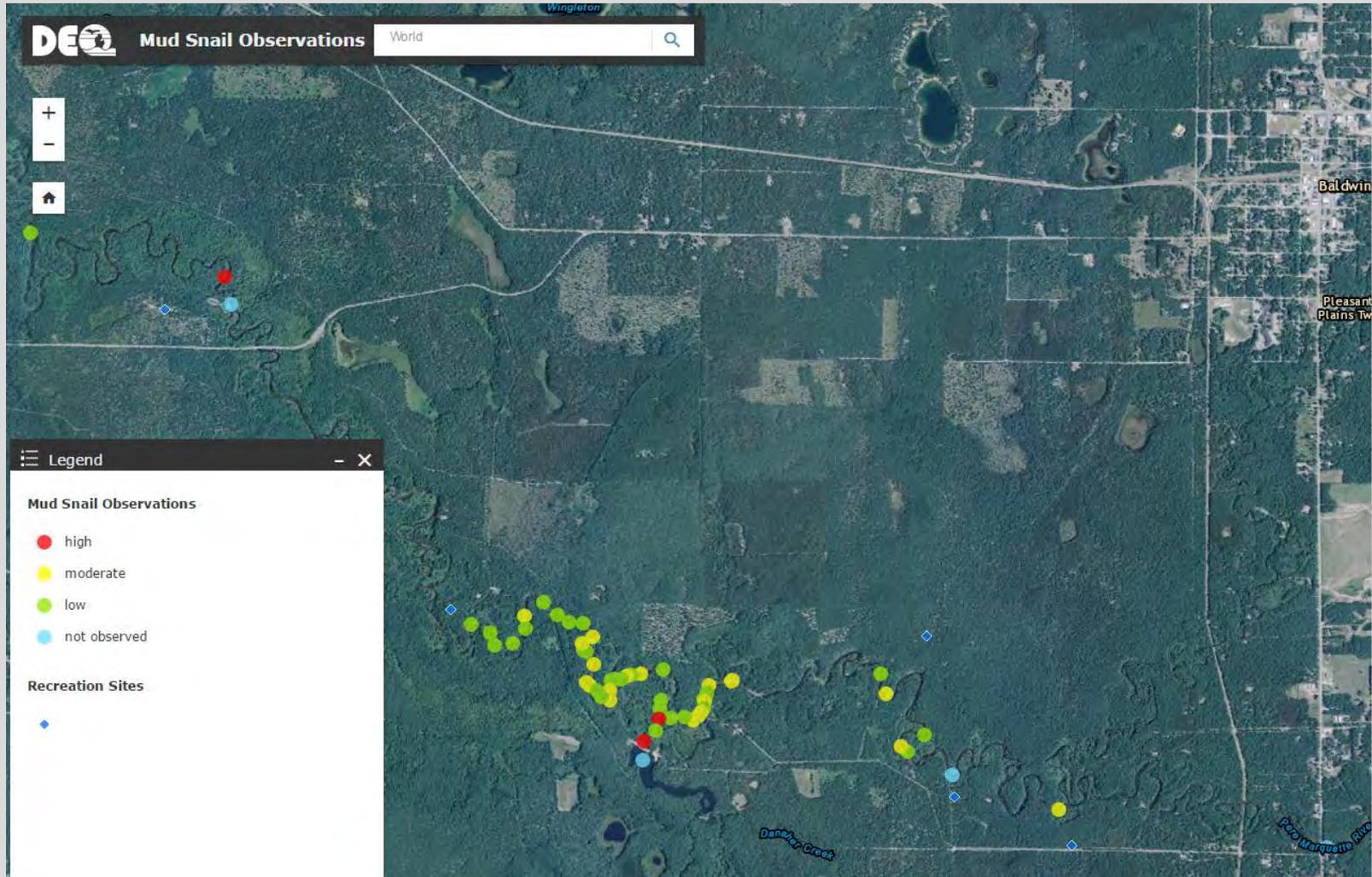
New Zealand mudsnails. Courtesy: National Park Service Yellowstone Park

Next Steps

- Nature and extent surveys
- Increase awareness
- Outreach



2015 Survey Results



More wide spread that originally thought

2016 Monitoring

- Identified high risk watersheds
 - High traffic foot access areas
- Identified 10 watersheds
- Sampled 47 locations
- Qualitative 20 minute searches



The Future

- Further Monitoring
- Outreach and education
- Working with partners



Angler NOTICE!
HELP STOP
Aquatic Hitchhikers



New Zealand Mudsnail
is a prohibited invasive species.

Already Detected in some Michigan waters;
including the Pere Marquette, AuSable rivers.

These snails easily attach themselves to fishing and boating
equipment and often go unrecognized.



CLEAN Your gear with **HOT** water and
remove any visible plants, mud and
aquatic life

DRAIN The water from all equipment
before transporting elsewhere

DRY All your gear for at least 5-days
before going to a new body of
water

This species causes negative impacts as it
reproduces in large numbers and
displaces native species.

mi.gov/invasives

Michigan Department of
AGRICULTURE
& Rural Development

DEQ





Learn, Identify, Report, Map



The image illustrates the MISIN mobile application. A hand holds a smartphone displaying a 'Species List' with the following entries:

Common Name	Scientific Name
African oxygen weed	<i>Lagarosiphon major</i>
Amur corktree	<i>Phellodendron amurense</i>
Amur honeysuckle	<i>Lonicera maackii</i>
Austrian pine	<i>Pinus nigra</i>
Autumn olive	<i>Elaeagnus umbellata</i>
Baby's breath	<i>Gypsophila paniculata</i>
Bells honeysuckle	<i>Calycotome alba</i>
Bigleaf lupine	

Other phones show the MISIN app logo and a map of the Midwest region with red and yellow markers indicating species locations. A yellow circle with the word 'Free' is positioned above the map phone.

MISIN Midwest Invasive Species Information Network

www.misin.msu.edu

Decontaminate



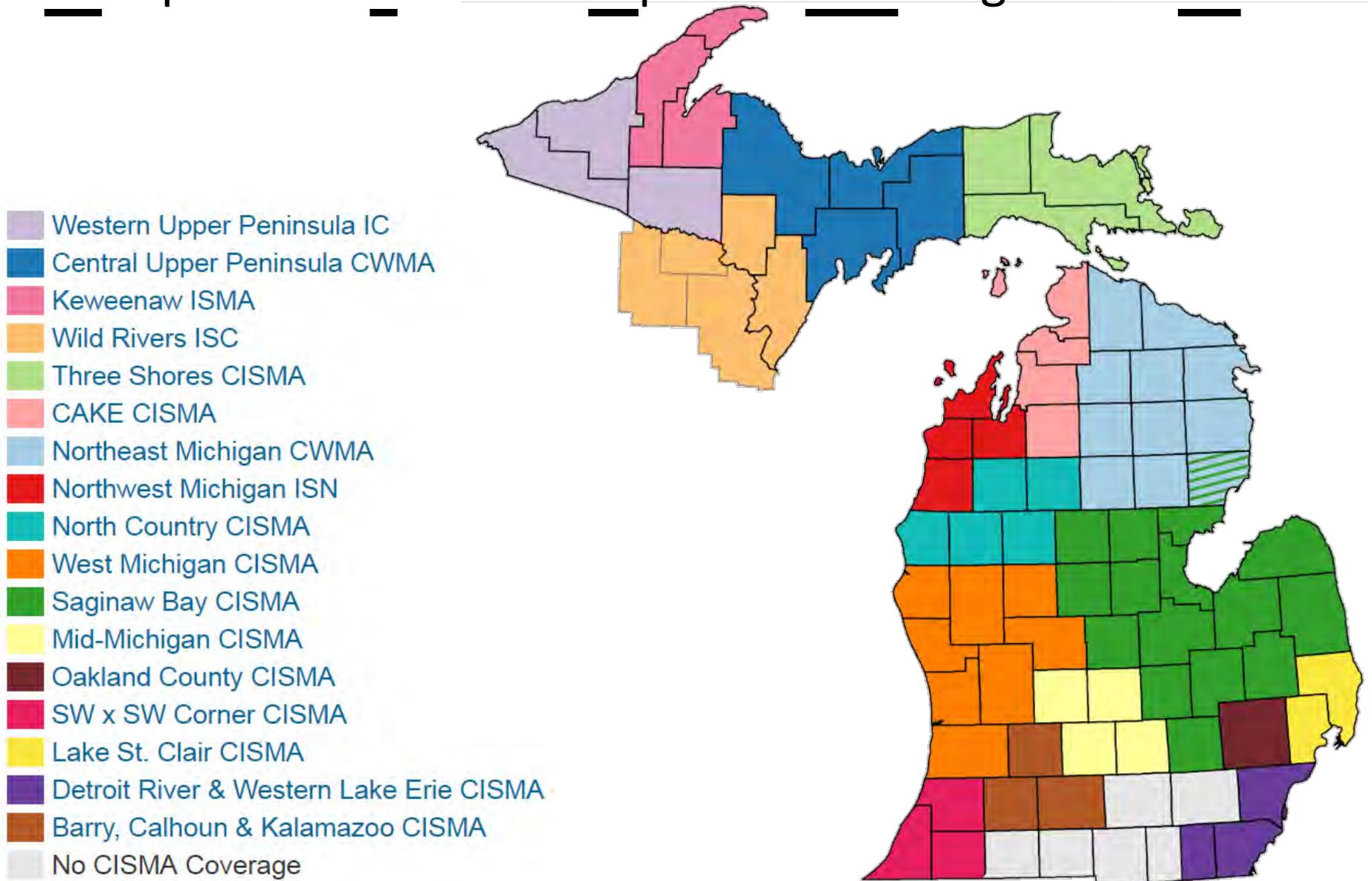
Don't Release...



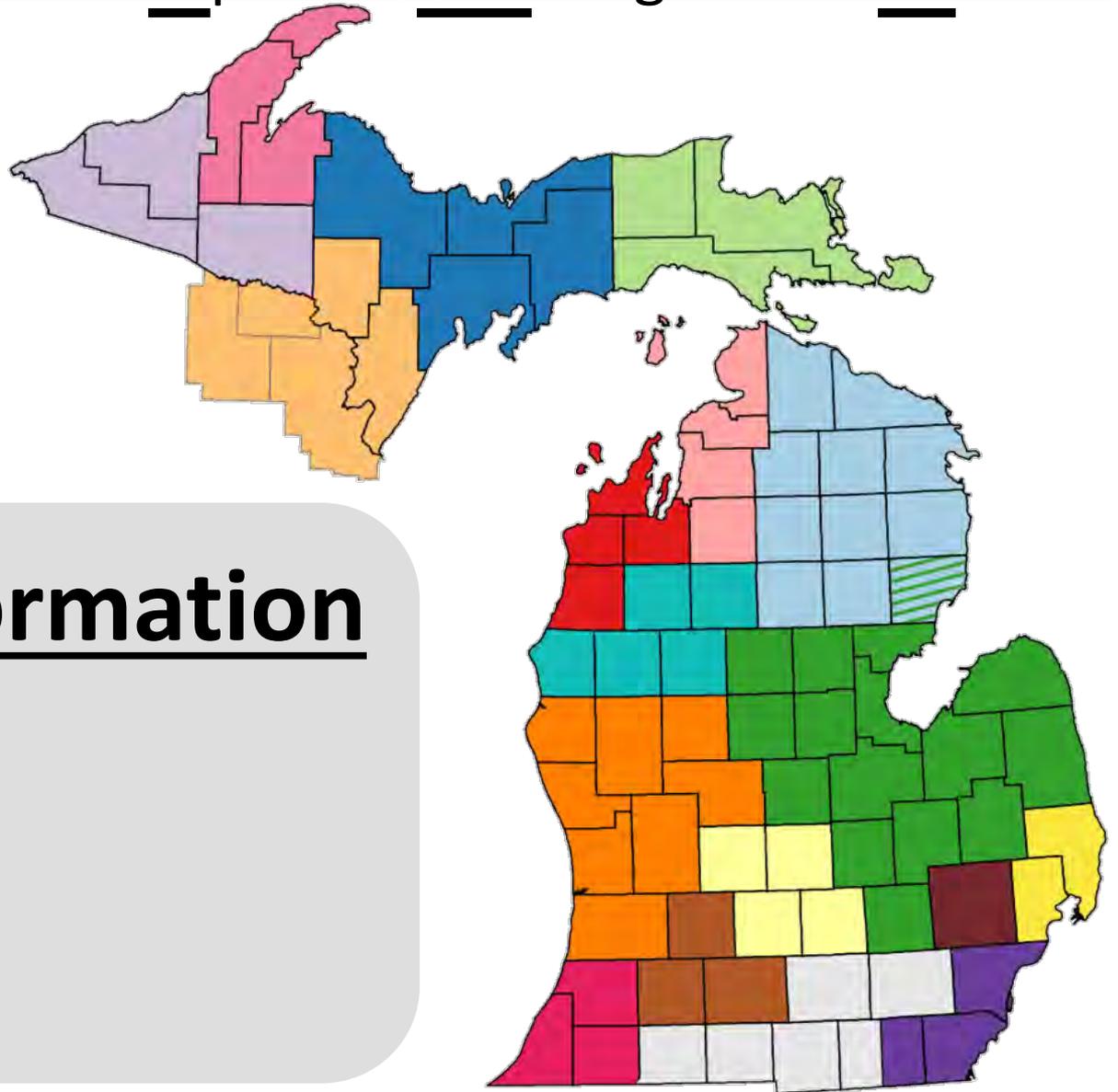
Use local firewood



Cooperative Invasive Species Management Areas



Cooperative Invasive Species Management Areas



Provide information

- Prevention
- Identification
- Reporting
- Management



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A vibrant sunset scene over a calm body of water. The sky is filled with streaks of orange, red, and yellow, transitioning into a deep blue at the top. The sun is low on the horizon, creating a bright glow that reflects on the water's surface. The silhouettes of trees and a distant shoreline are visible against the colorful sky.

Thank You!

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