

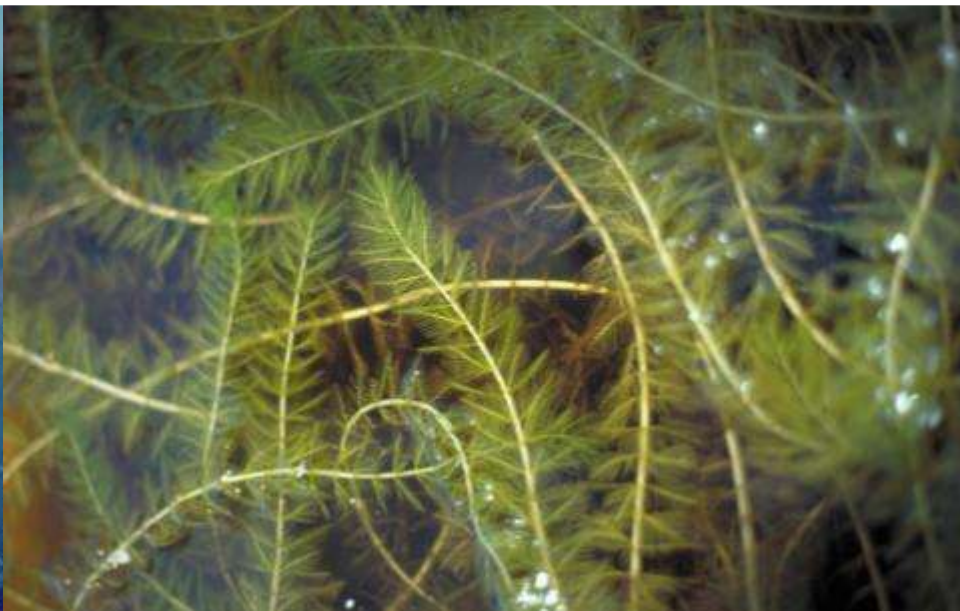


Aquatic Invasive Species in Wisconsin

Erin McFarlane

Wisconsin Lakes Convention, Green Bay

April 12, 2011



Wisconsin Lakes Partnership



Science



Citizens



Education

What are Invasive Species?

- Non-native species that can “take over”
- Not all non-native species are invasive
- Successful because:
 - No natural predators, parasites, etc.
 - Native species can't hide, compete, or fight back
 - Often aggressive, prolific, and mature early



How do they get here?

- Shipping - ballast water
- Intentional introduction - stocking
- Canals - migration from the ocean
- Nursery industry
- Anglers/Bait industry
- Aquaculture
- Aquarium trade



How do they spread?



- Boaters
- Anglers
- Other water users (sea planes, SCUBA, etc)
- Water garden & aquarium owners
- Natural dispersal



Why do we care?

- Economic impacts
 - Sport and commercial fishing
 - Tourism
 - Water users & property owners
- Ecological
 - Native fish, invertebrates, plants impacted
- Recreational impacts
 - Boating
 - Angling



Zebra Mussels

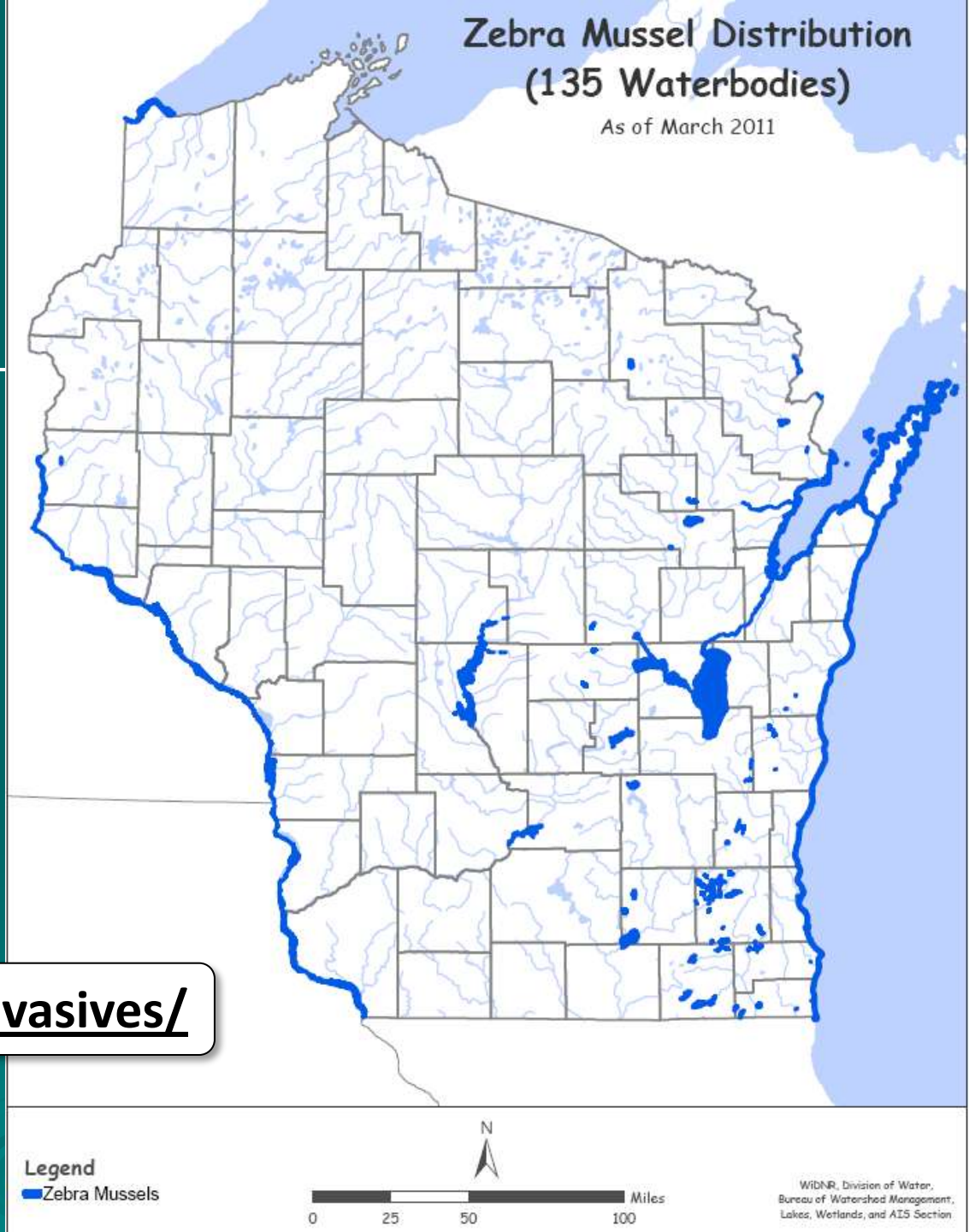


- Ballast water introduction to the Great Lakes in 1980's
- Present in 135 waterbodies & 45 counties (March 2011)
- Attach to any hard surface - may reach tens of thousands per square meter!
- Are microscopic in early life stages
- Female can produce 1 million eggs/season

Zebra Mussel Distribution

Brown County
Fox River
Green Bay

<http://dnr.wi.gov/lakes/invasives/>



Quagga Mussels



- Found in all Great Lakes but Superior
- Ballast water introduction
- Can survive wide range of temp. & oxygen levels
- Can live directly on mud and sand
- Commonly found at 100 feet and deeper

Quagga vs. Zebra Mussels

Zebra →



Quagga →



- More effective filter feeders
- Thrive at greater depth and cooler temps
- May out-compete ZM

• Quagga - rounder sides & convex underside →

• ZM - triangular shape & flat underside →



Eurasian Water-milfoil

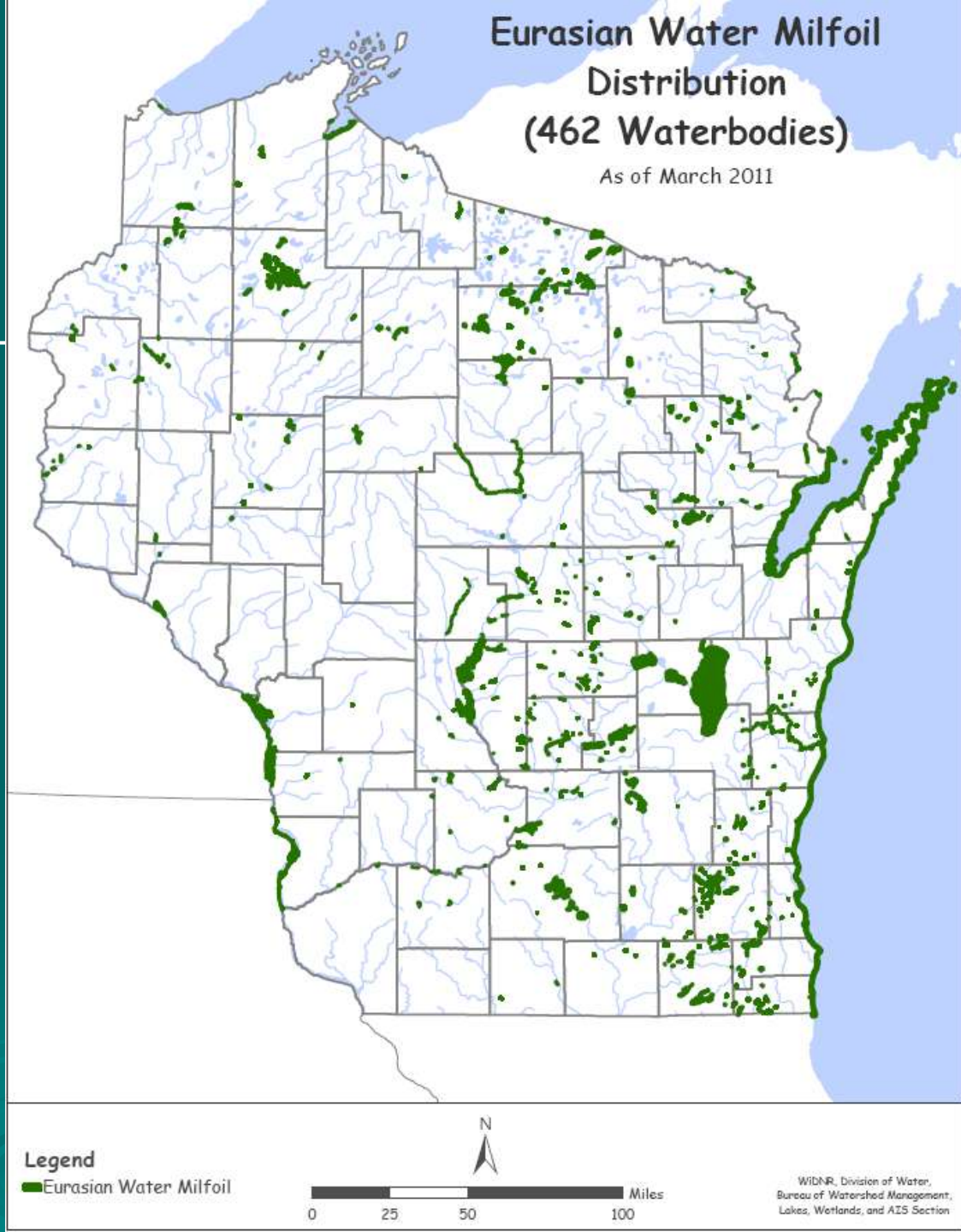


- First found in WI in 1960s
- Currently found in 539 waterbodies & 68 counties (March 2011)
- Forms dense mats - interferes with water recreation
- Can spread from small fragments



Eurasian Water-milfoil Distribution

Brown County
Green Bay



Purple Loosestrife

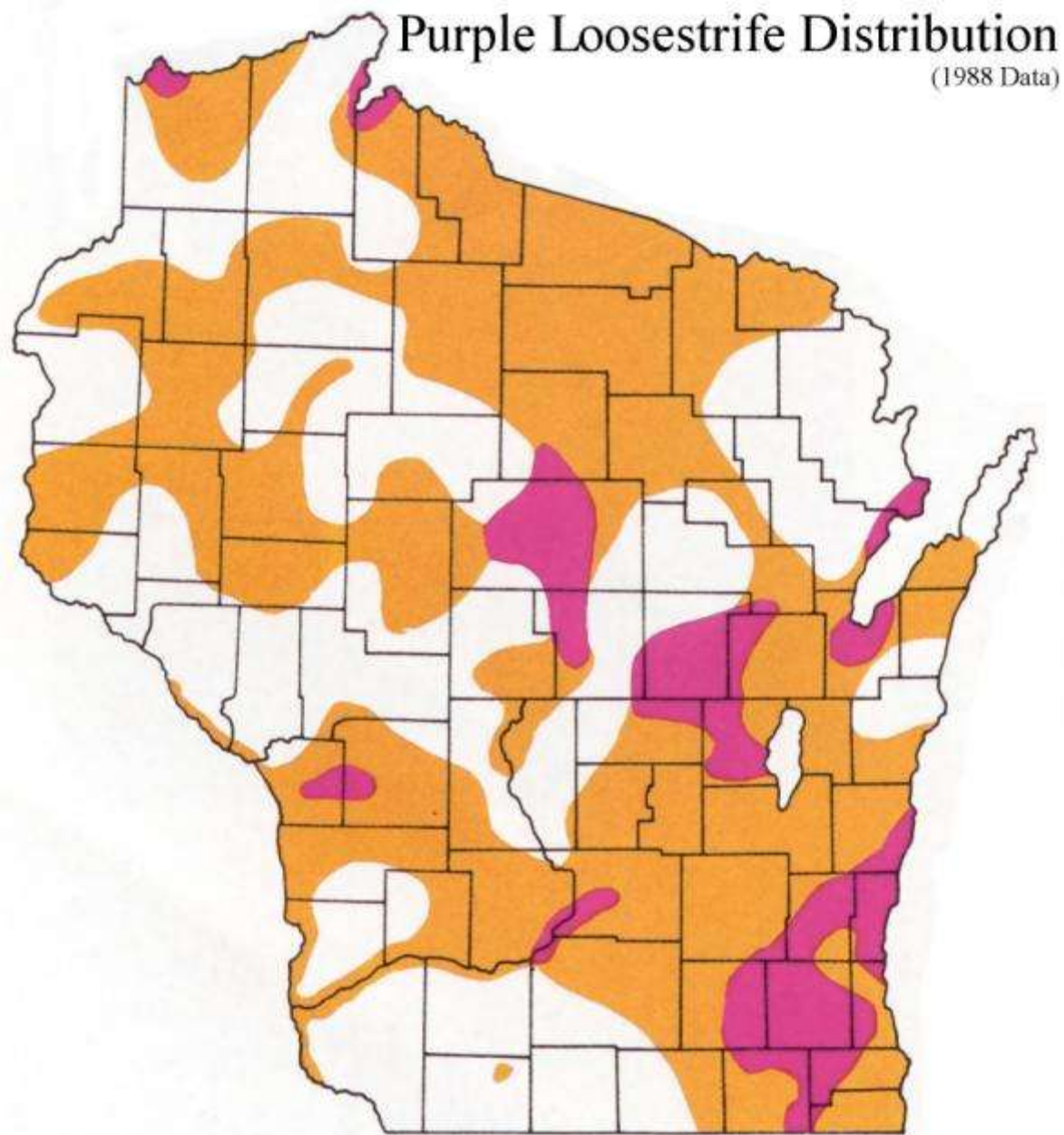


Linda Wilson, University of Idaho, Bugwood.org

- Imported from Europe for gardens (late 1800s), also seeds in ballast water
- Crowds out native wetland species
- Spreads rapidly: >1 million seeds annually, plus vegetative spread

Purple Loosestrife Distribution

Purple loosestrife is now found in every county in WI.



- — little or no infestation
- — lightly/moderately infested
- — heavily infested

Rusty Crayfish



ID tip: Dark, rusty spot on each side of carapace.

- Brought to WI as bait 1960's
- In 465 waterbodies & 66 counties (March 2011)
- Severely reduce aquatic vegetation, impacting spawning
- Aggressive; compete with native crayfish and fish for cover and food

Rusty Crayfish Distribution

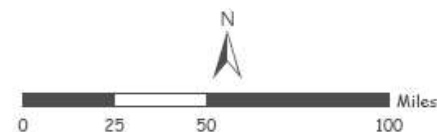
Rusty Crayfish Distribution (462 Waterbodies)

As of March 2011

Brown County
Fox River
and 12 other
rivers and streams



Legend
■ Rusty Crayfish



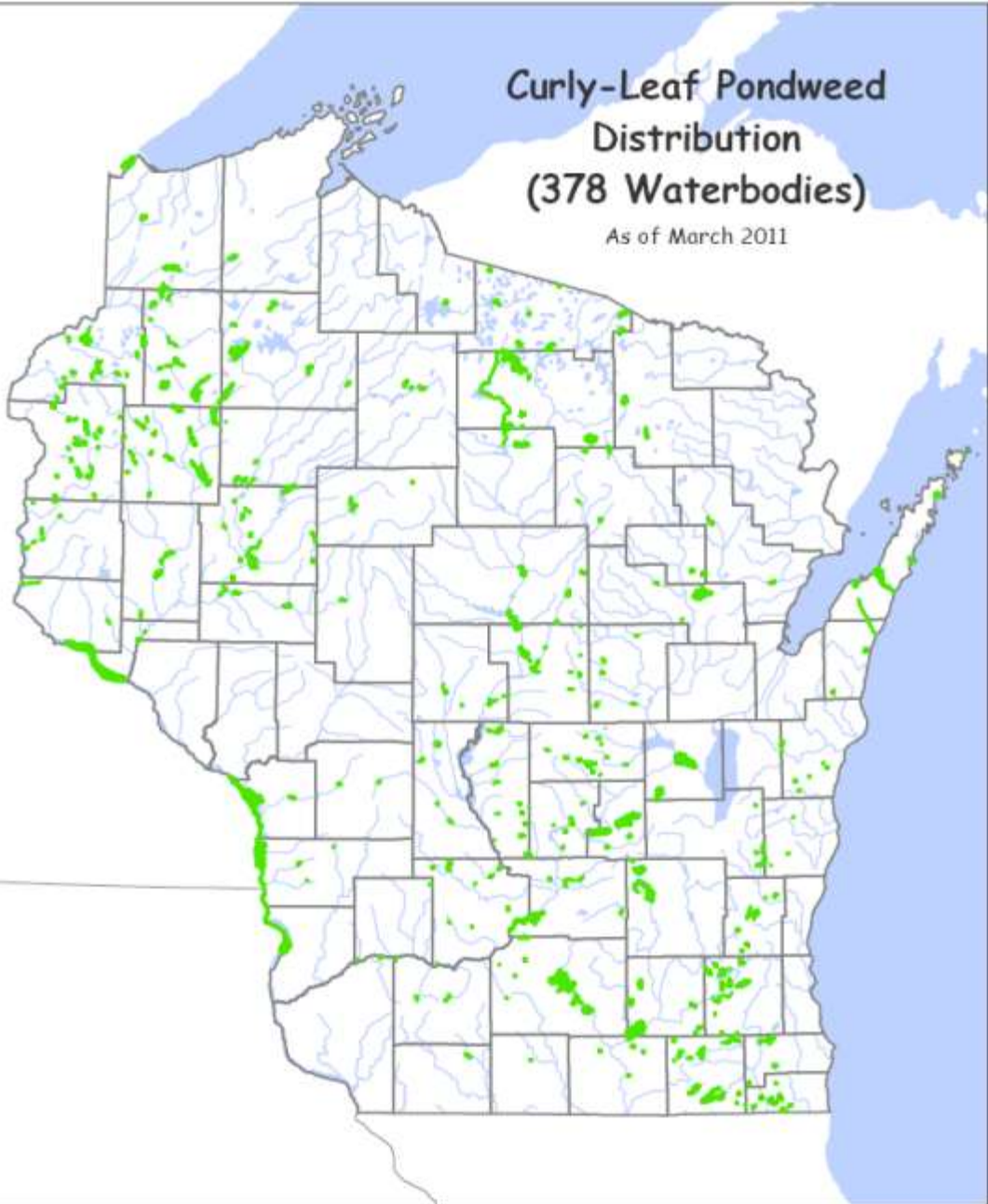
Wisconsin Department of Natural Resources, Division of Water,
Bureau of Watershed Management,
Lakes, Wetlands, and AIS Section

Curly-leaf Pondweed



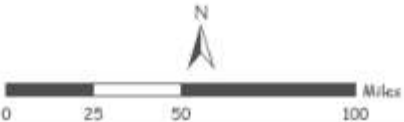
- Accidentally introduced as aquarium plant (1880s)
- Fairly widespread – in 382 waterbodies & 62 counties (March 2011)
- Active very early in growing season – even under ice
- Can form dense mats, interfering with recreation and native plants

Curly-leaf Pondweed Distribution

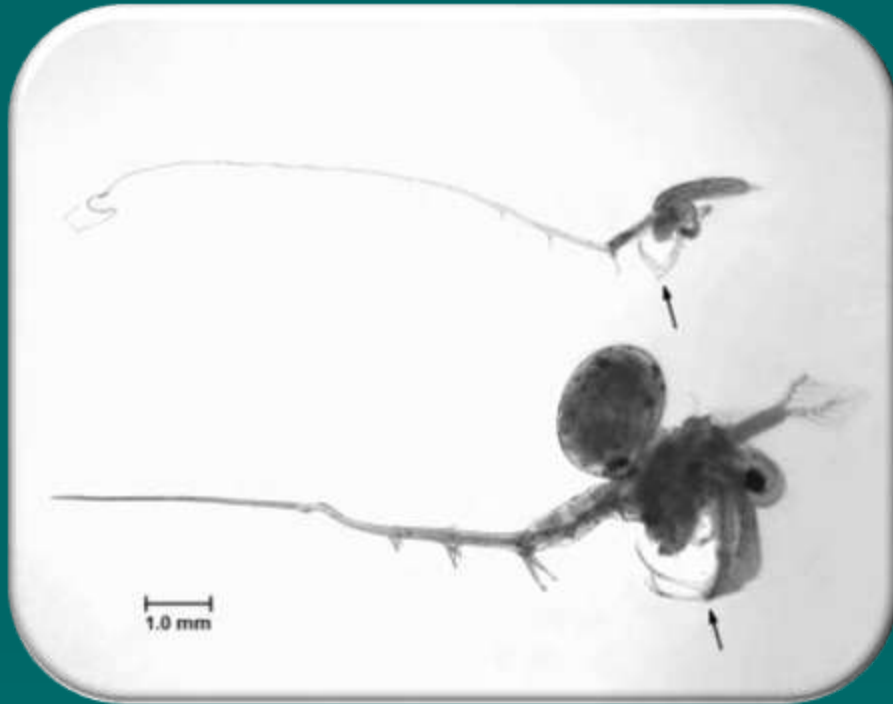


Curly-Leaf Pondweed
Distribution
(378 Waterbodies)
As of March 2011

Legend
■ Curly-Leaf Pondweed



Spiny & Fishhook Waterfleas

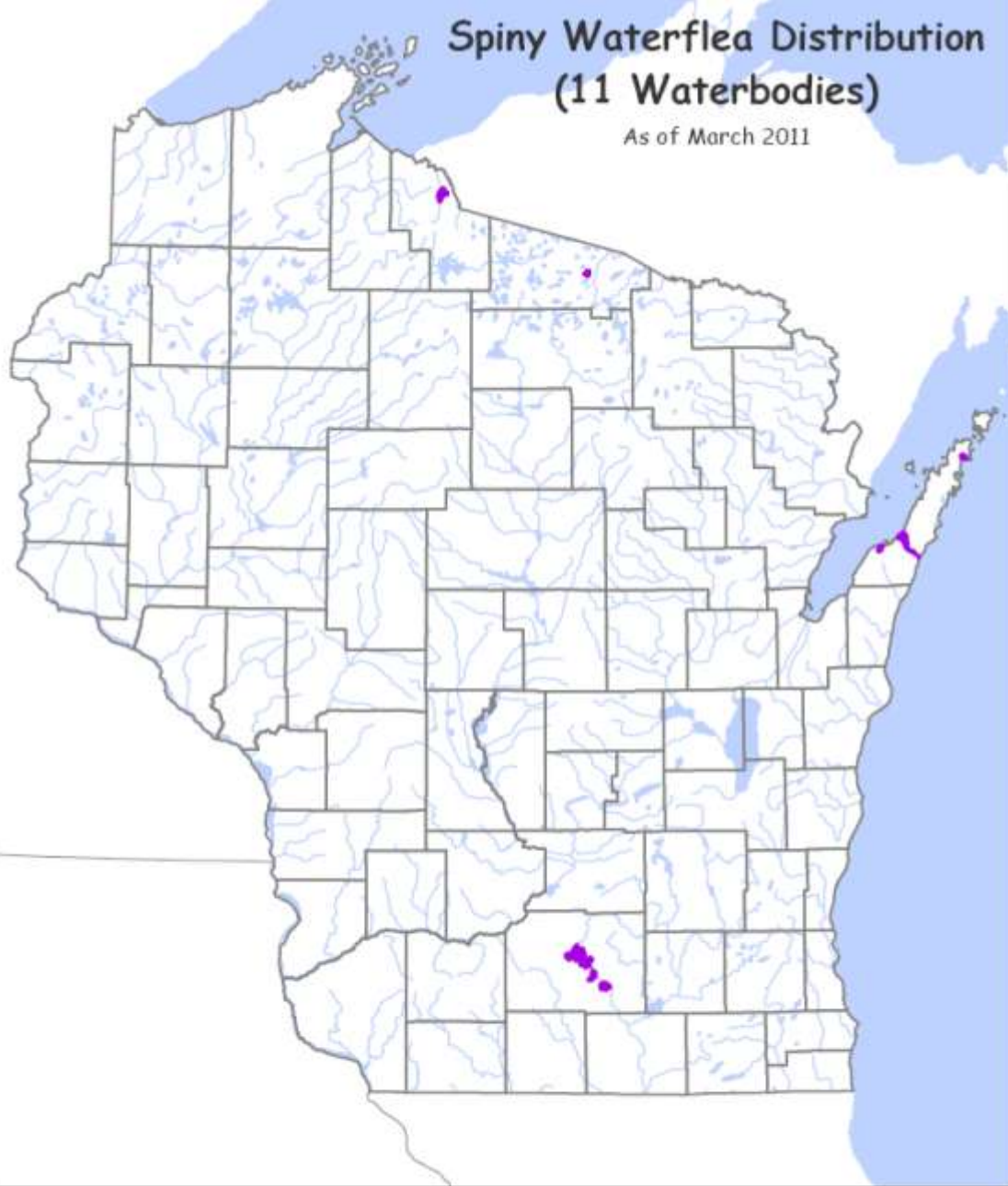


- Ballast water introduction to Great Lakes in 1980s
- Found in 11 lakes & rivers
- Disrupt food chain & harm native fish
- Foul fishing gear—form gummy clumps

Spiny Waterflea Distribution

Spiny Waterflea Distribution (11 Waterbodies)

As of March 2011



Legend
■ Spiny Waterflea



Viral Hemorrhagic Septicemia



- Documented in Lake Michigan, Lake Superior, & Winnebago System
- Can kill more than 25 fish species
- No danger to humans
- Introduced by ballast water or migrating fish - ?

Viral Hemorrhagic Septicemia

Transmission:

- Virus shed in urine & reproductive fluids

The Disease:

- Start shedding virus 2 days after infected
- Antibodies can be developed by fish
- Fish may or may not show clinical signs of virus
- Stress is important



Signs of virus:

- Pop-eye
- Anemia
- Swollen organs

Many More in Wisconsin...



**Mystery
Snails**



And Many More on the Way...

A few future threats:



Wisconsin's Aquatic Invasive Species Program

Education & Outreach

- Statewide coordination
- Publications & boat launch signs
- Displays & presentations
- Media

Contact: *Christal Campbell*
608-266-0061



Wisconsin's Aquatic Invasive Species Program

Watercraft Inspection

- DNR inspection program places staff at high-traffic boat landings
- 'Clean Boats, Clean Waters' trains inspectors to monitor landings and educate boaters



Contact: *Erin McFarlane*
715-346-4978



Wisconsin's Aquatic Invasive Species Program

Lake Monitoring

- Volunteers collect data on lake health including aquatic invasives
- Data used to map extent of spread for species

Contact: *Laura Herman*
715-365-8998



Wisconsin's Aquatic Invasive Species Program

Purple Loosestrife Biological Control

- Volunteers help raise & release beetles
- Beetles available for free—great school or family project

Contact: *Brock Woods*
608-221-6349



Wisconsin's Aquatic Invasive Species Program

AIS Grants

- \$4.3 million available each year
- State funds up to 75% of project
- Local governments no longer given priority
- Match includes cash, volunteer time, services, etc.
- Funds provided as reimbursement

Contact: *Brenda Nordin, 920-662-5435*

Aquatic Invasive Species Grants

Three grant categories

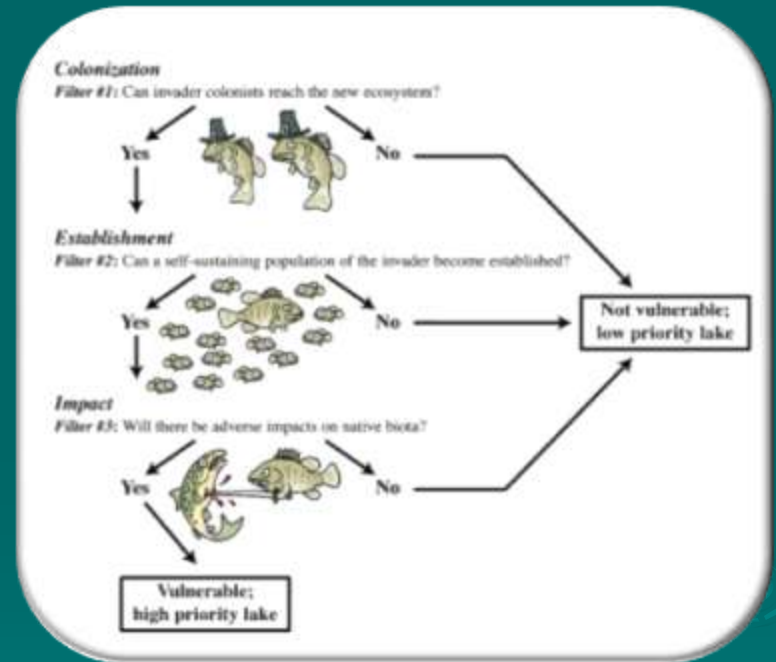
- Education, Prevention & Planning
- Early Detection & Rapid Response
- Control of Established Infestations



Wisconsin's Aquatic Invasive Species Program

Research

- UW Madison Center for Limnology developing “Smart Prevention” model
- Model helps DNR make strategic management decisions



Contact: Jake Vander Zanden
608-262-9464

Wisconsin's Aquatic Invasive Species Program

Rules to Prevent Spread

- Laws for boaters & anglers
 - **INSPECT** your boat, trailer, and equipment **AND**
 - **REMOVE** any attached aquatic plants or animals (before launching, after loading & before transporting on a public highway).
 - **DRAIN** all water from boats, motors and all equipment.

Wisconsin's Aquatic Invasive Species Program

- Laws for boaters & anglers (cont'd)
 - **NEVER MOVE** live fish away from a waterbody.
 - **BUY** minnows from a Wisconsin bait dealer. Use leftover minnows only under certain conditions.*

*Can take leftover minnows away from any state water & use them again on that same water. May use leftover minnows on other waters only if no water or other fish were added to their container.

Laws and Regulations

- Federal

- **National Invasive Species Act**
 - Coast Guard is responsible for regulating ballast water management NOBOB
- **Federal Noxious Weed Regulations**
 - Defines noxious weeds and restricts their movement

- State

- **VHS Regulations, 2008**
 - Restrictions on bait use & fish & water transport
- **NR 40, 2009**
 - Classification of invasives & preventive measures

- Local

- **Noxious Weed Ordinances**
- **County AIS Transport Ordinances '07-'08**

A scenic sunset over a large body of water, likely a lake or bay. The sky is filled with vibrant orange and red clouds, with the sun low on the horizon. In the foreground, the dark silhouettes of pine branches frame the top and sides of the image. The water is calm, reflecting the warm colors of the sky. Several dark, silhouetted islands or peninsulas are visible in the distance. The overall mood is peaceful and serene.

Any other questions?