Engaging River Enthusiasts in the Fight Against Invasives

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River Alliance of Wisconsin
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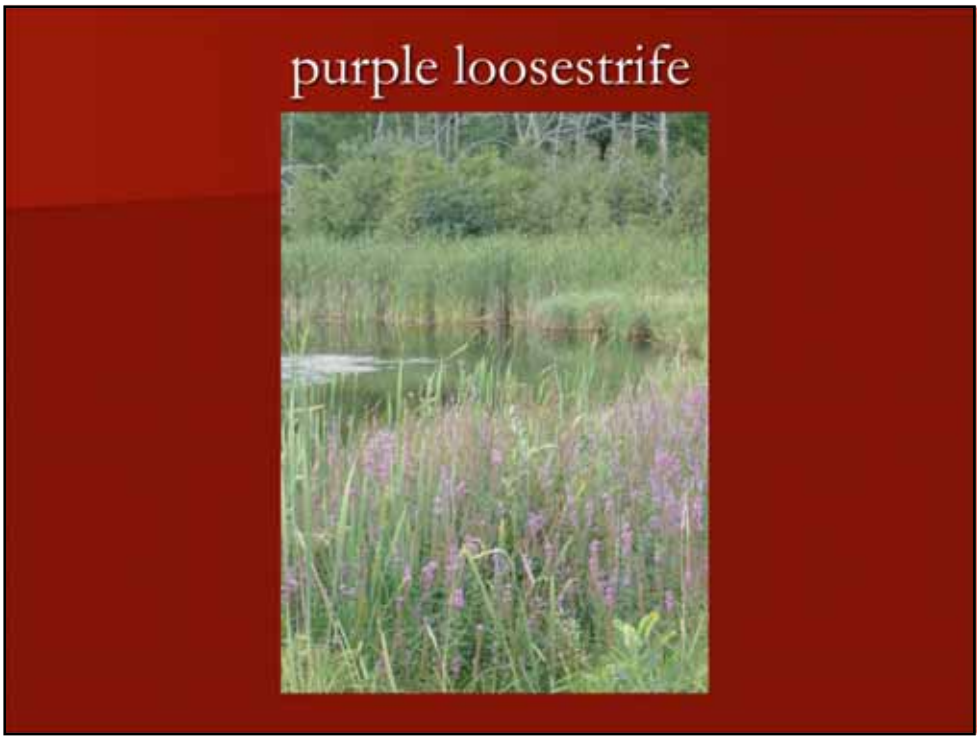
Why Rivers?

- Current gap in the fight statewide
- Rivers are a corridor for dispersal of invasives from macrophytes to mussels
- River users are part of the problem\solution
- Rivers are impacted too

Species Selection Criteria

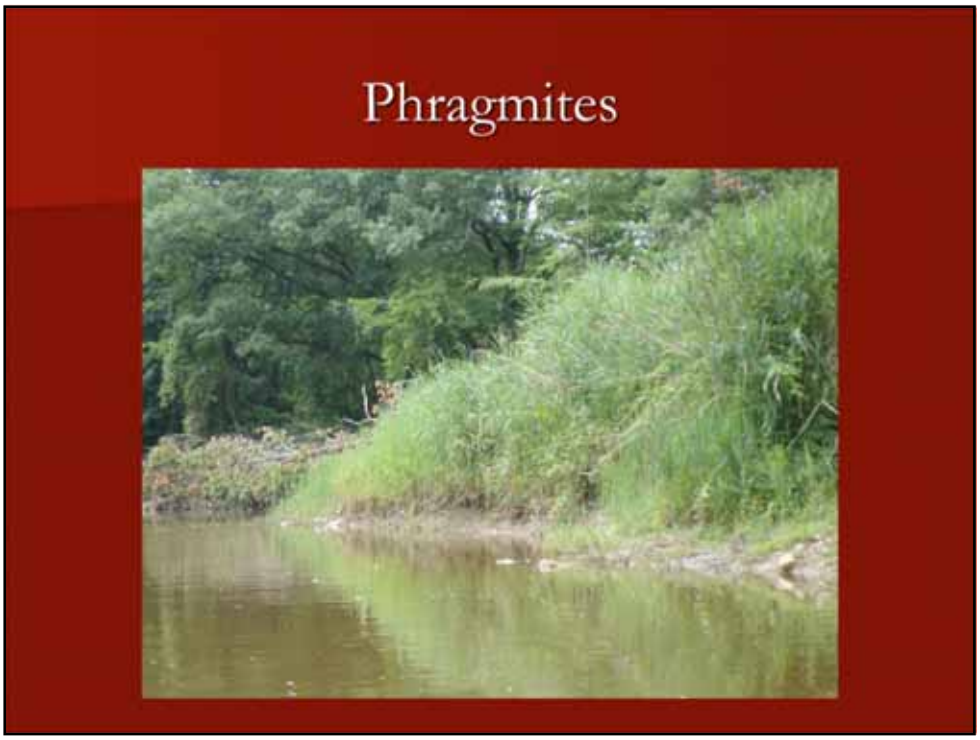
- Damaging to River's Ecosystem Functions
- Early Detection Species
- Volunteers' Capacity to Participate



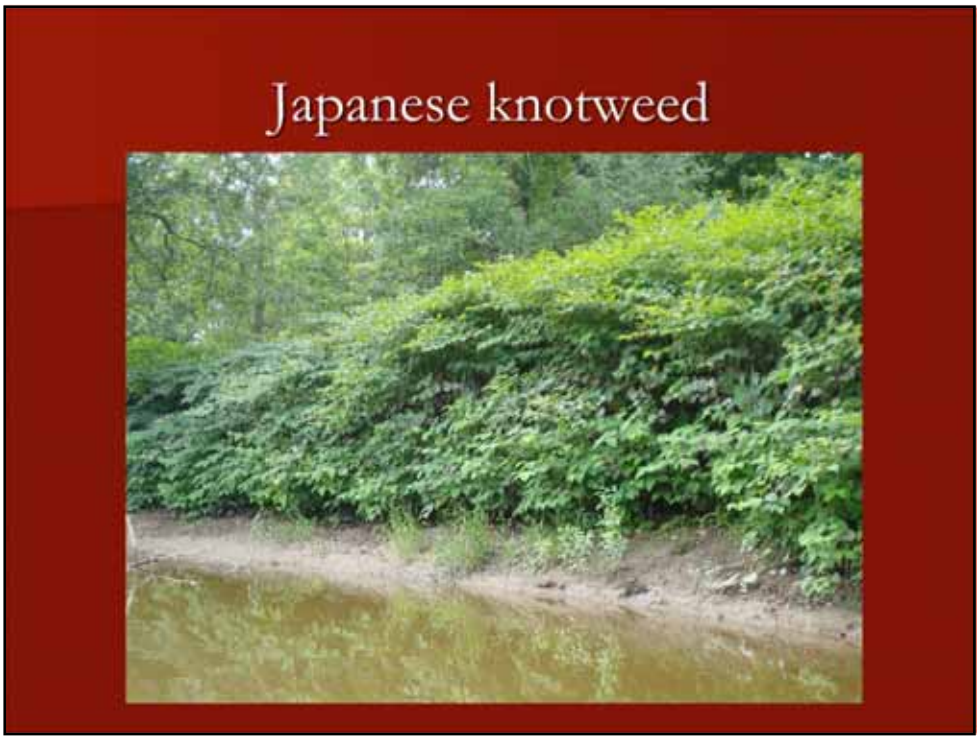
Purple loosestrife spreads by seed. Each plant can produce up to 2 million seeds annually.

Once purple loosestrife is well established, plant diversity declines dramatically (including rare and endangered species).

Most wetland animals that depend on native plants for food and shelter decline.

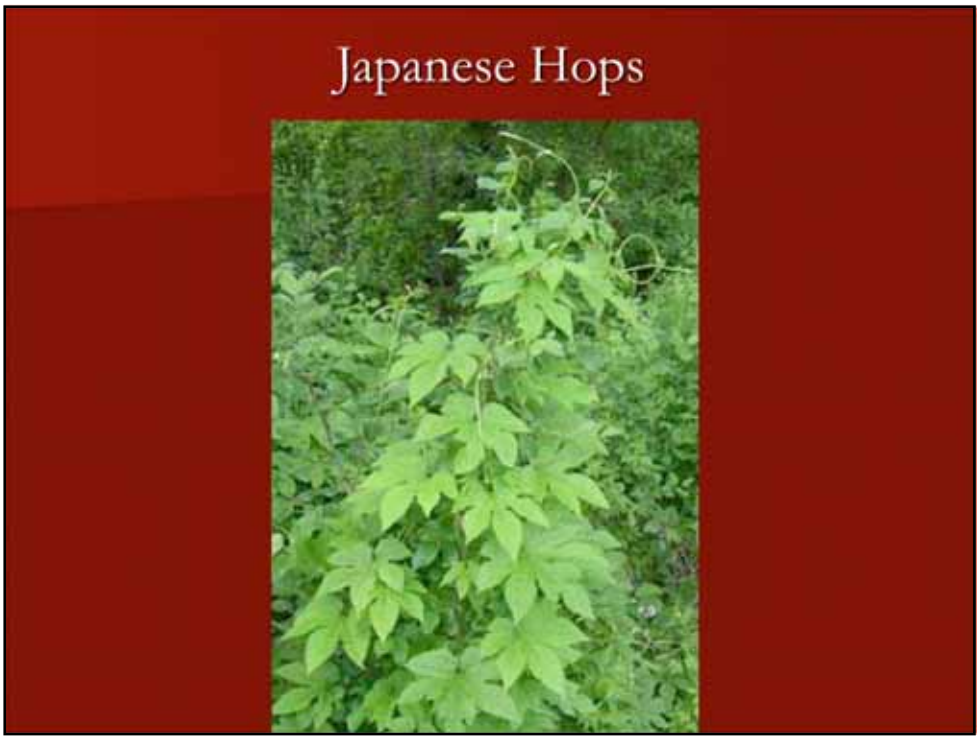


Tall grass (3 to 20 feet) with green linear leaves (10 to 20 inches long). Dull, rough, tan, ribbed liked cane-like (not can-like) stems.

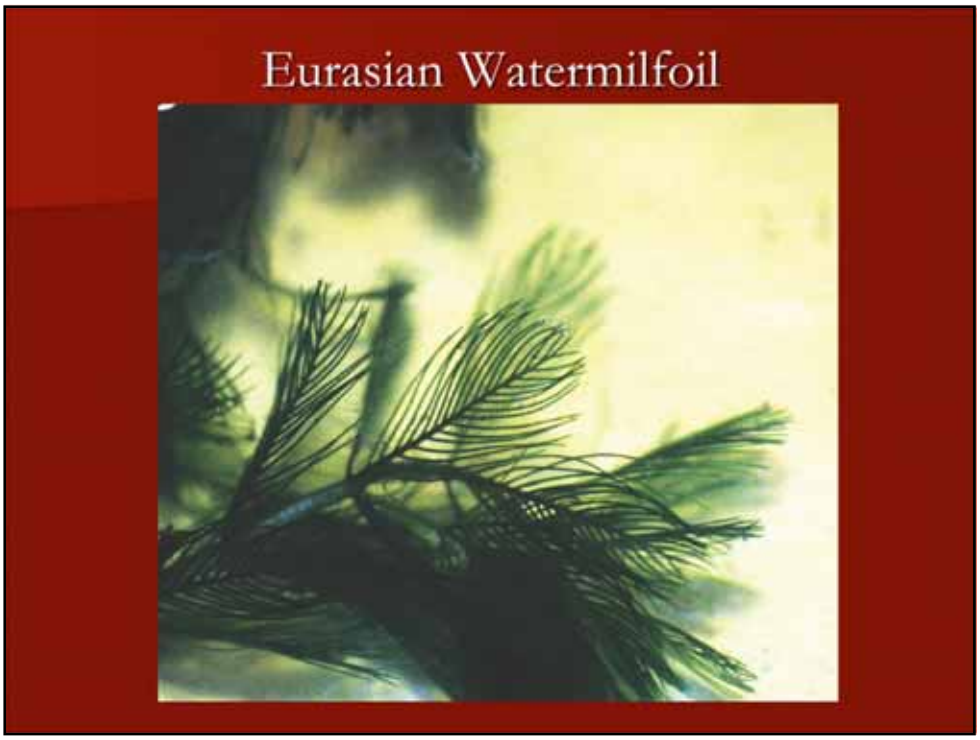


Japanese knotweed is a perrenial that grows from 5 to 10 feet tall in large clones. The arching stems are hollow and bamboo-like, a reddish to tan color. Mature leaves are 3 to 5 inches wide and 4 to 9 inches long. they are egg to spade shaped.

It reproduces primarily by rhizomes that can reach 6 feet deep and 60 feet long.



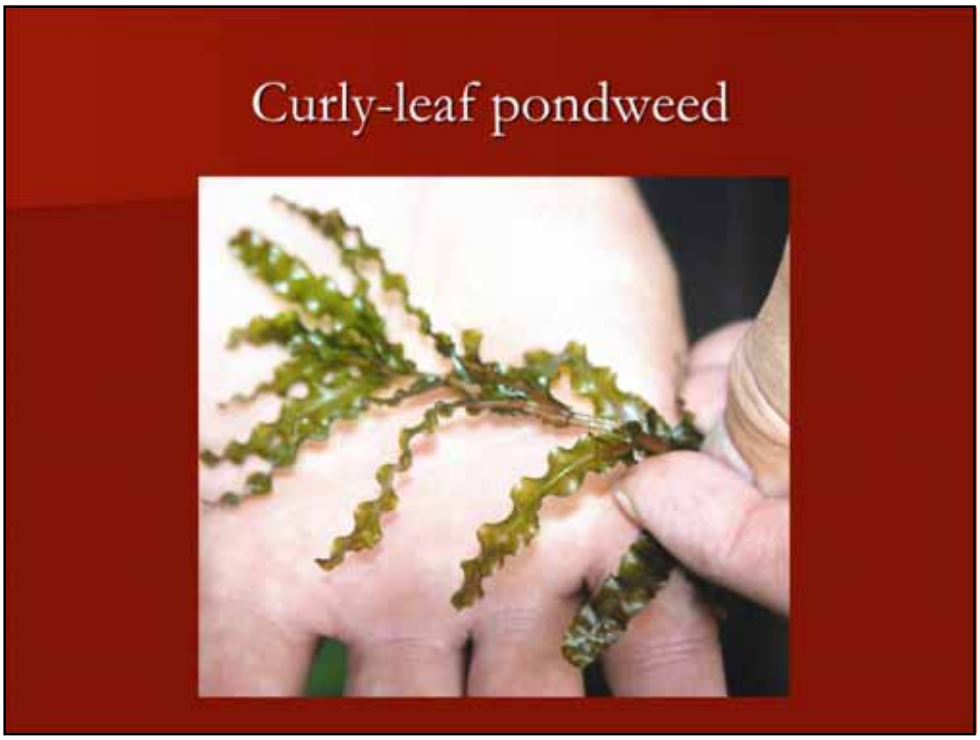
Japanese hops is a herbaceous vine that grows up to 8 feet long in dense stands in floodplains and along streambanks. It climbs clockwise, clinging onto other vegetation with its sticky hairs. It does not have tendrils.



Eurasian watermilfoil (Myriophyllum spicatum)

Eurasian water-milfoil typically has over 12 pairs of leaflets. The leaflets are roughly all the same length.

There are seven species of milfoil in this region. Eurasian milfoil is easily confused with northern water milfoil (Myriophyllum sibiricum).

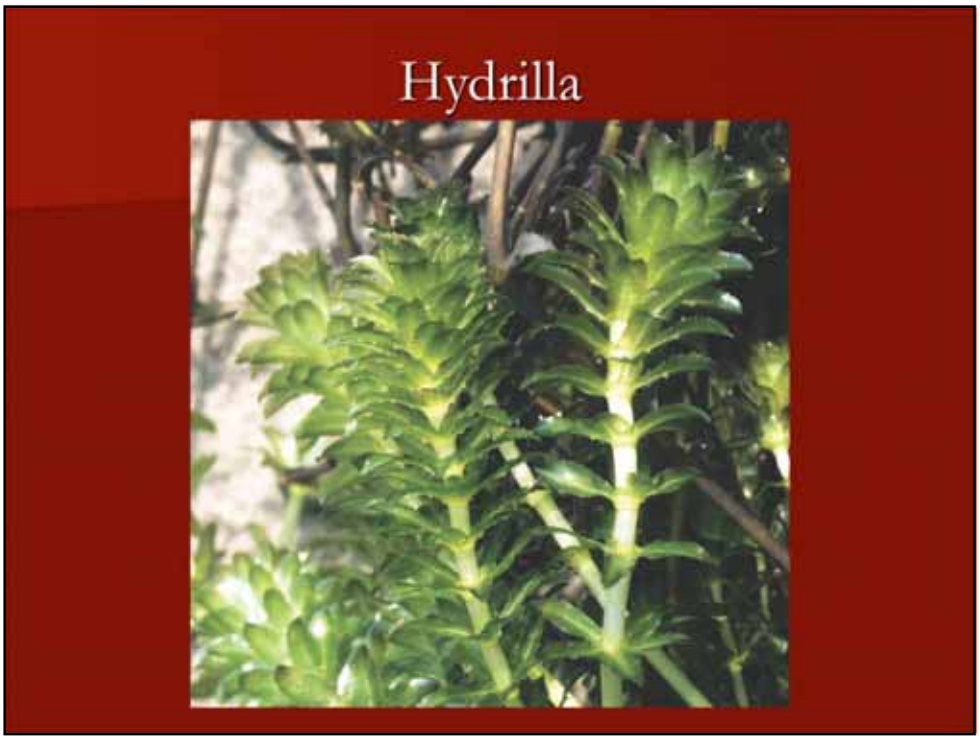


Curly-leaf pondweed (Potamogeton crispus)

There are 17 species of potamogeton in Wisconsin. 16 of them are native. It is commonly only confused with one native, the clasping leaf pondweed. Curly-leaf has wavy leafs that resemble lasagna noodles. They have a serrated edge. The clasping leaf pondweed's leaves do not have the serrated edge and are typically broader. Curly-leaf has turions, a special overwintering structure. It ahs a flower spike that pokes about the waters surface. There are no floating leaves. Curly-leaf is a coldwater specialist allowing it to thrive in spring creeks.

In midsummer it dies off creating critical loss of dissolved oxygen. The decaying plants can increase nutrients which contribute to algal blooms.

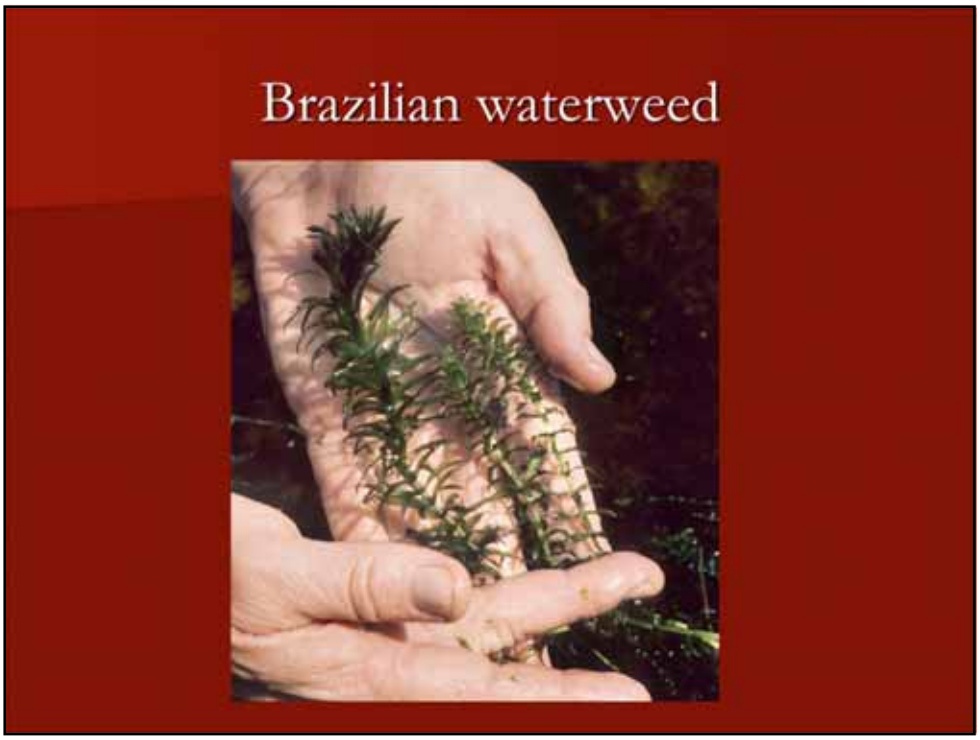
It mats on the surface of the water interfereing with recreation.



Hydrilla (Hydrilla verticillata)

Has not been found in Wisconsin yet.

Long stems (up to 30 feet long) that branch at waters surface to create dense mats. with spines on midrib. 3 to 10 leaves whorled around the stem. Tiny white flowers with 6 petals on long, threadlike stalks. It is a threat to rivers and streams because it is very highly adaptable and very aggressive, in areas it has become established (Indiana for example) it is outcompeteting everything, including eurasian water milfoil).

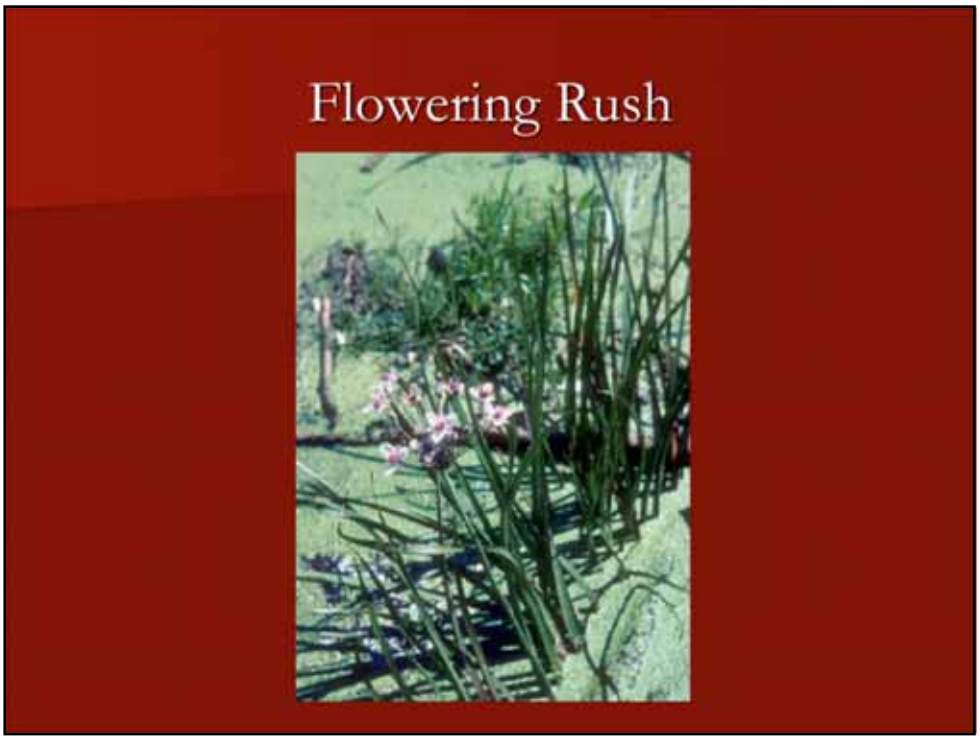


Brazilian waterweed (Egeria densa) – NOT IN WISCONSIN YET

Easily confused with hydrilla. Whorls of 4 to 8 leaves around stem. No spins on the midrib. White flowers with 3 petals.

Diminishes fish and wildlife, interferes with recreational activities and supports large populations of mosquitoes

It forms mats that are actually dense enoug to restrict water movement, traping sediment, in low flow environments. It can also outcompete eurasian watermilfoil.

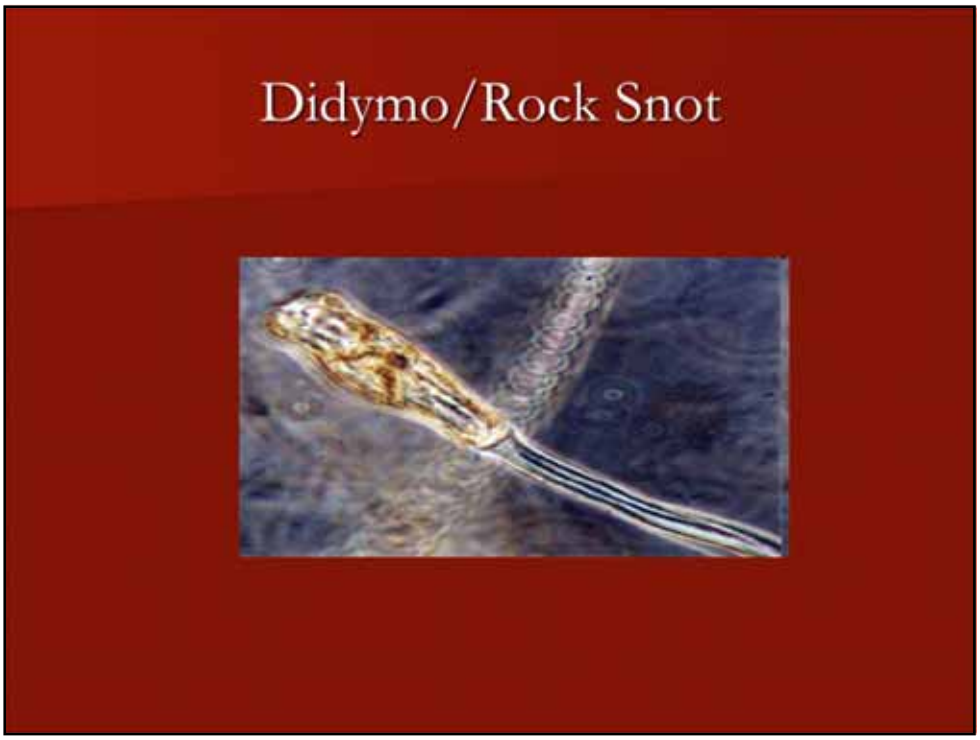


Flowering rush (Butomus umbellatus)

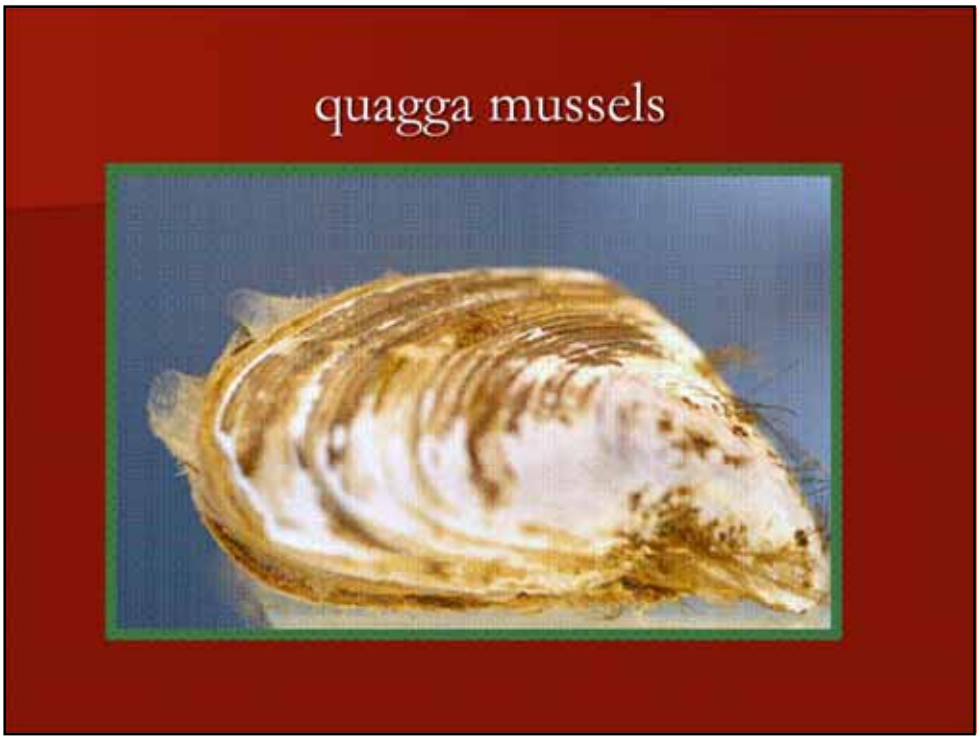
Long slender stems up to 1 meter tall (emergent, completely submerged) stem is triangular in cross-section

Pink or white flowers with 3 petals and 3 sepals

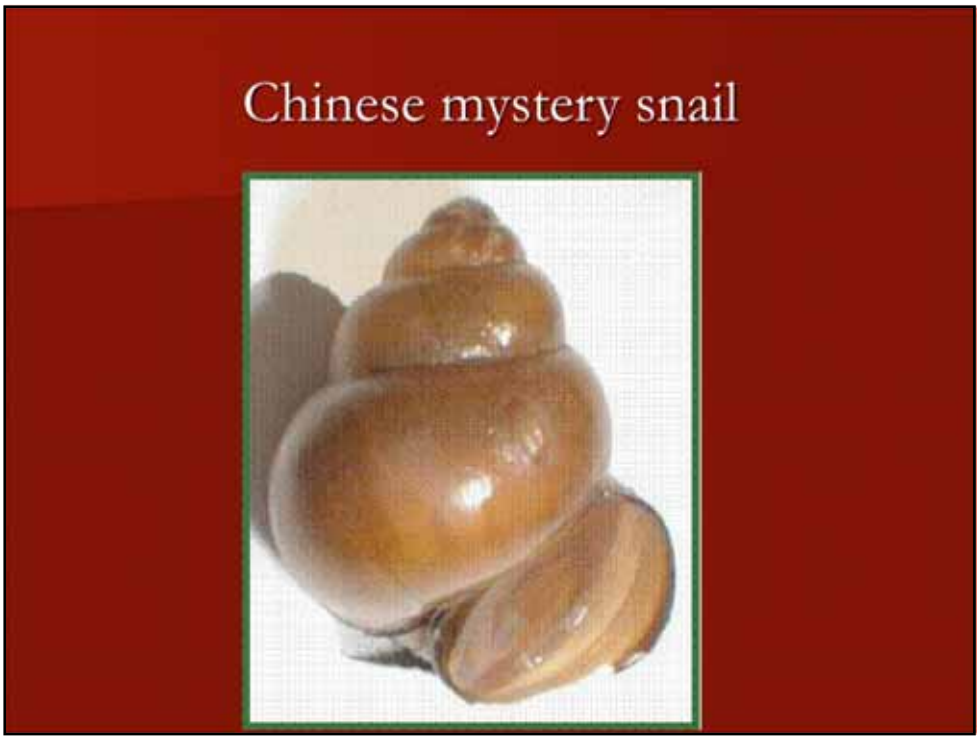
Been found in approximately 6 counties in Wisconsin. Crowds out native species with higher wildlife value.



Didymo (short for Didymosphenia geminata) or rock snot is an invasive freshwater diatom, an algae, that can form massive blooms.



Quagga mussels are closely related to the zebra mussel. They are a greater threat because they are able to thrive in more diverse conditions than the zebra mussels. in waters ranging from warm and shallow to deep and cold.



Cipangopaludina chinensis malleata

Can reach 65 mm/

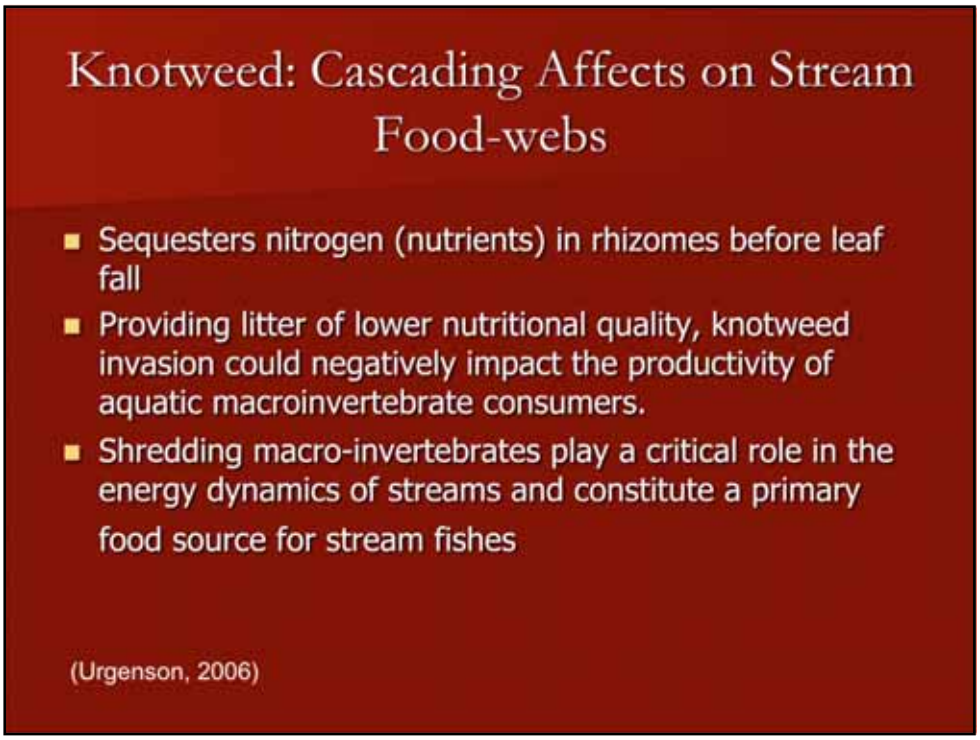
banded mystery snail

The New Zealand mudsnail is very small. It typically ranges from 3 to 6 mm. they have brown or black cone-shaped shells with five to six whorls.

In the west they have been found to reach a density of a half million per square meter.

DIDYMO IMPACTS

- "Desirable" invertebrate species are lower in *D.geminata* affected sites
- Resulting impact on predatory fish and several endangered and threatened bird species
- Reduces young salmonid through abrasion of gills (anecdotal)
- Eliminates macrophytes and moss
- Reduces number of suitable habitats for fish, plant, invertebrate species
- Potentially causes significant diurnal DO fluctuations
- Dense cover displaces macrophytes



Japanese knotweed is problematic for fly-fishermen and other people who recreate on rivers due to its ability to create a 10 impenetrable wall. However, ecological impacts are much more far reaching. It impacts stream food-webs by:

Sequesters nitrogen (nutrients) in rhizomes before leaf fall

litter of lower nutritional quality, knotweed invasion could negatively impact the productivity of aquatic macroinvertebrate consumers.

Shredding macro-invertebrates play a critical role in the energy dynamics of streams and constitute a primary food source for stream fishes

Consequently, reductions in litter nutrient quality associated with knotweed invasion could potentially have cascading affects through stream food-webs.

Project RED

Riverine Early Detectors:
Finding Invasive Species First!

Find It! Report It! Fight It!

RIVER ALLIANCE of Wisconsin

Project RED = 4 STEPS

I. COLLECTING DATA AND SAMPLES
II. VERIFICATION
III. SHARING DATA
IV. TAKING ACTION

COLLECTING DATA & SAMPLES

Required Equipment

- Paddling or Wading Equipment
- Clipboard or substitute
- Project RED field data collection sheets
- Ziploc bags
- Plastic jars
- Waterproof permanent markers
- GPS unit
- Heavy trash bags

COLLECTING DATA & SAMPLES

Optional Equipment

- Camera (recommended)
- Rubbing alcohol
- Rake
- Kicknet
- Polarized sunglasses
- Aqua-View scope

COLLECTING DATA & SAMPLES

Project RED Monitoring Timeline

MAY	JUNE	JULY	AUGUST	SEPTEMBER
Curly-leaf pondweed Snails and Mussels Didymo	Flowering Rush Curly-leaf pondweed Eurasian watermilfoil Snails and Mussels Didymo	Purple Loosestrife Common Reed Japanese Hops Flowering Rush Eurasian watermilfoil Hydrilla Brazilianwaterweed Snails and Mussels Didymo	Japanese knotweed Purple Loosestrife Common Reed Japanese Hops Flowering Rush Eurasian watermilfoil Hydrilla Brazilian waterweed Snails and Mussels Didymo	Japanese knotweed Purple Loosestrife Common Reed Japanese Hops Hydrilla Brazilian waterweed Snails and Mussels Didymo

Project RED Field Data Collection Sheet

RIVER ALLIANCE of Wisconsin

Project (ex. Bad Rock Watershed Association) _____ Waterbody _____ County _____

Date Collected / Observed _____ Observer's/Collector's Name _____

Observer's/Collector's Street Address _____ City _____ State _____ Zip _____

Phone _____ Email _____

STEP 1 DATA COLLECTION

Datum: WGS84, NAD27, or NAD83 (circle one)

Record at least five decimal places for latitude and longitude. If a sample is collected, circle sample and be sure to label the sample with the corresponding native species number listed.

AIS ID # ____	**Species** _____	**Latitude** ____	° N	**Longitude** ____	° W	**Accuracy** ____	ft	**Area** ____	ft²	**(Photo) (Sample)**
AIS ID # ____	**Species** _____	**Latitude** ____	° N	**Longitude** ____	° W	**Accuracy** ____	ft	**Area** ____	ft²	**(Photo) (Sample)**
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STEP 2 VERIFY SAMPLE(S) *(refer to Project RED manual for instructions)*

Samples delivered/mailed to _____ on _____ Verified on _____

name(s) of professional verifier(s) *date* *date*

STEP 3 REPORT DATA ON CTSC.LORG *(refer to CTSC.org folder for instructions)*

Verified samples were reported to CTSC.org on _____ by _____

date *signature of reporter*

Version 1 February 2019


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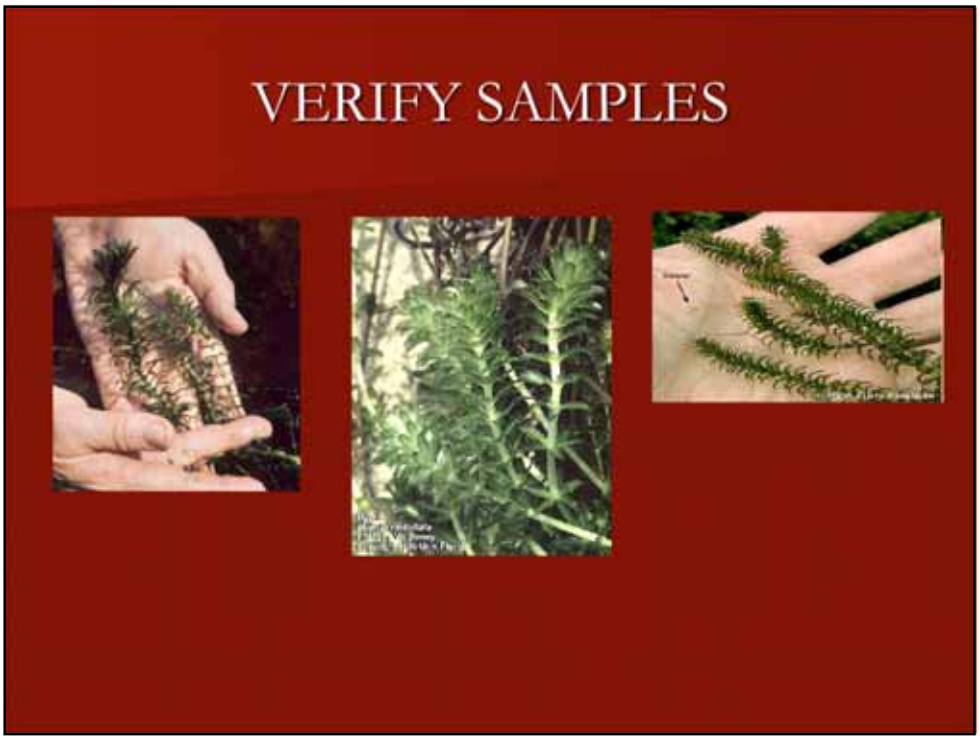
LEGEND
8th Ave to 54th St
GARMIN



Aquatic invasive species are some times difficult to differentiate from native species. Having your sample verified by a professional is important, especially if this is a new invader such as the New Zealand mudsnail. Verification may be required prior to applying for financial or technical support for eradication.

DNR Regional AIS Verification Contacts:

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Online Reporting on www.CitSci.org

Taking Action

Early Detection & Rapid Response!

River Alliance of Wisconsin will help Project RED participants identify technical and financial resources to contain found invasives.

Why Should You Join **Project RED** ?

- Easy, Fun Protocols to Identify 15 Species of Concern
- Great Opportunity to Engage New Members/ Volunteers
- Educate Local Landowners About Invasive Species
- GPS Units Available for Your Use at Technology Libraries Statewide
- Online Data Management Tools
- Species Verification by Professionals
- Eradication and Containment Technical Support
- Its Free!

TU asks gear manufacturers to stop using felt-soled waders by 2011

Two Steps Back—
One Step Forward

TU Trout Magazine New Initiative of Trout Unlimited encouraging manufacturers to stop using felt-soled waders by 2011.

Questions?