

Polk County Wisconsin Department of Natural Resources Aquatic
Invasive Species Countywide Education, Prevention, and Planning Grant
(AEPP-476-16) Final Report, 2016-2017



Yellow iris, St. Croix River, July 2016

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In 2016, the Polk County Land and Water Resources Department received a two-year Aquatic Invasive Species Education, Prevention, and Planning Grant from the Wisconsin Department of Natural Resources to implement a countywide aquatic invasive species program. The following report details the tasks completed from February 2016 through December 2017.



Bass Lake, July 2017

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Eurasian Water Milfoil

Eurasian water milfoil is a submerged aquatic invasive plant with delicate, feather-like leaves arranged in a whorl around the stem of the plant. Eurasian water milfoil can be distinguished from native milfoils by the numerous (usually 12-21) leaflets that make up each leaf.

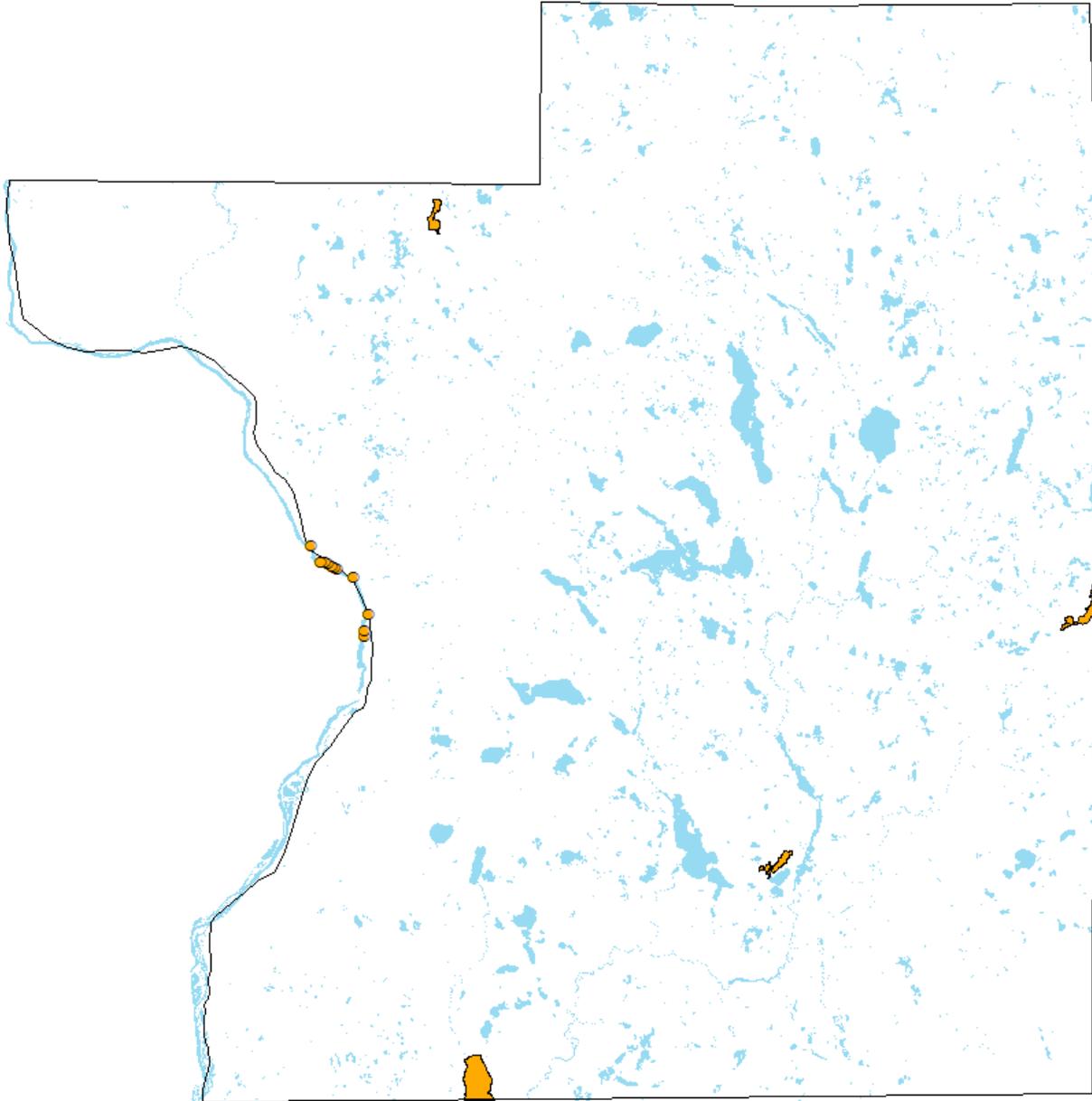
Additionally, whereas the leaves of most native milfoils remain erect when out of water, the leaves of Eurasian water milfoil are usually limp when out of water. Eurasian water milfoil is highly invasive and is capable of forming large, thick mats which interfere with swimming, boating, fishing, and waterfowl hunting. Additionally, Eurasian water milfoil can have devastating effects on native ecosystems, displacing native aquatic plants and impacting fish and wildlife populations.

Eurasian water milfoil was first discovered in North America in the 1940's. Since this time, Eurasian water milfoil has invaded nearly every state in the United States. Eurasian water milfoil can spread when small fragments of the plant break off and float on water currents or are transported by boater traffic. Eurasian water milfoil is able to reproduce from small fragments, which sprout roots and are able to colonize new areas.

Establishment of Eurasian water milfoil populations in Polk County has occurred relatively recently. Eurasian water milfoil was first found in Polk County in Long Trade Lake in 1995. Long Trade Lake is part of the Trade River System, which includes Little Trade Lake, Big Trade Lake, and Round Lake in Burnett County. Eurasian water milfoil was discovered in Round Lake in 2003 and in Little Trade Lake in 2009. In addition to the Trade River System, Eurasian water milfoil was found in Horseshoe Lake in 2006, in Pike Lake in 2010, in the St. Croix River between Spanglers Landing and Lions Park Landing in 2013, and in Cedar Lake in 2015.



Eurasian water milfoil, Horseshoe Lake, 2017



Eurasian water milfoil has been documented on 5 Polk County waterbodies as of December, 2017: Cedar Lake, Horseshoe Lake, Long Trade Lake, Pike Lake, and the St. Croix River

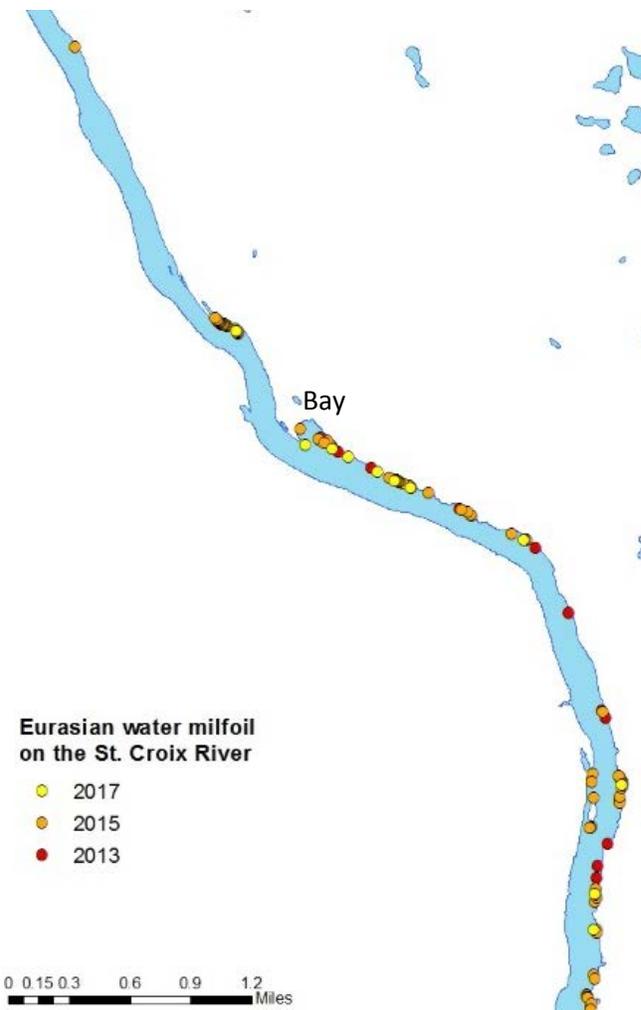
St. Croix River Eurasian Water Milfoil Monitoring

In 2013, the Land and Water Resources Department discovered Eurasian water milfoil in the St. Croix River between Spanglers Landing and the hydroelectric dam in St. Croix Falls.

In both 2014 and 2015, water levels on the St. Croix River were lowered for dam maintenance. As a result, most sites with Eurasian water milfoil were above water with the exception of a few large bays with tributaries flowing to the St. Croix River. In 2014, volunteer opportunities to hand pull Eurasian water milfoil were organized to take advantage of the fact that most plants were above the water line and more easily accessible. Additional drawdowns occurred in October 2016, March 2017, and November 2017.



High water levels at a St. Croix River campsite, 2016



In 2016, water levels were extremely high on the St. Croix River, making surveying for Eurasian water milfoil nearly impossible. The area from Nevers Dam to Spanglers Landing was surveyed for Eurasian water milfoil in August 2017.

Likely as a result of low water levels, the 2015 and 2017 populations of Eurasian water milfoil were substantially reduced. In the map (left), the 2013 sites represent beds of plants; whereas, the 2015 and 2017 sites represent individual plants, with the exception of the bay. A GPS point was taken at either end of the bay and individual plants were not marked in this area (non-navigable).

The Land and Water Resources Department and St. Croix River Association assessed milfoil growth in November 2017 during the drawdown and were only able to find milfoil in one area of the bay.

Curly Leaf Pondweed

Curly leaf pondweed is a submerged aquatic invasive plant. The leaves of curly leaf pondweed are easily distinguished by their rounded tip, prominent mid-vein, and finely toothed edges. In most growing conditions, the leaves appear wavy or crimped.

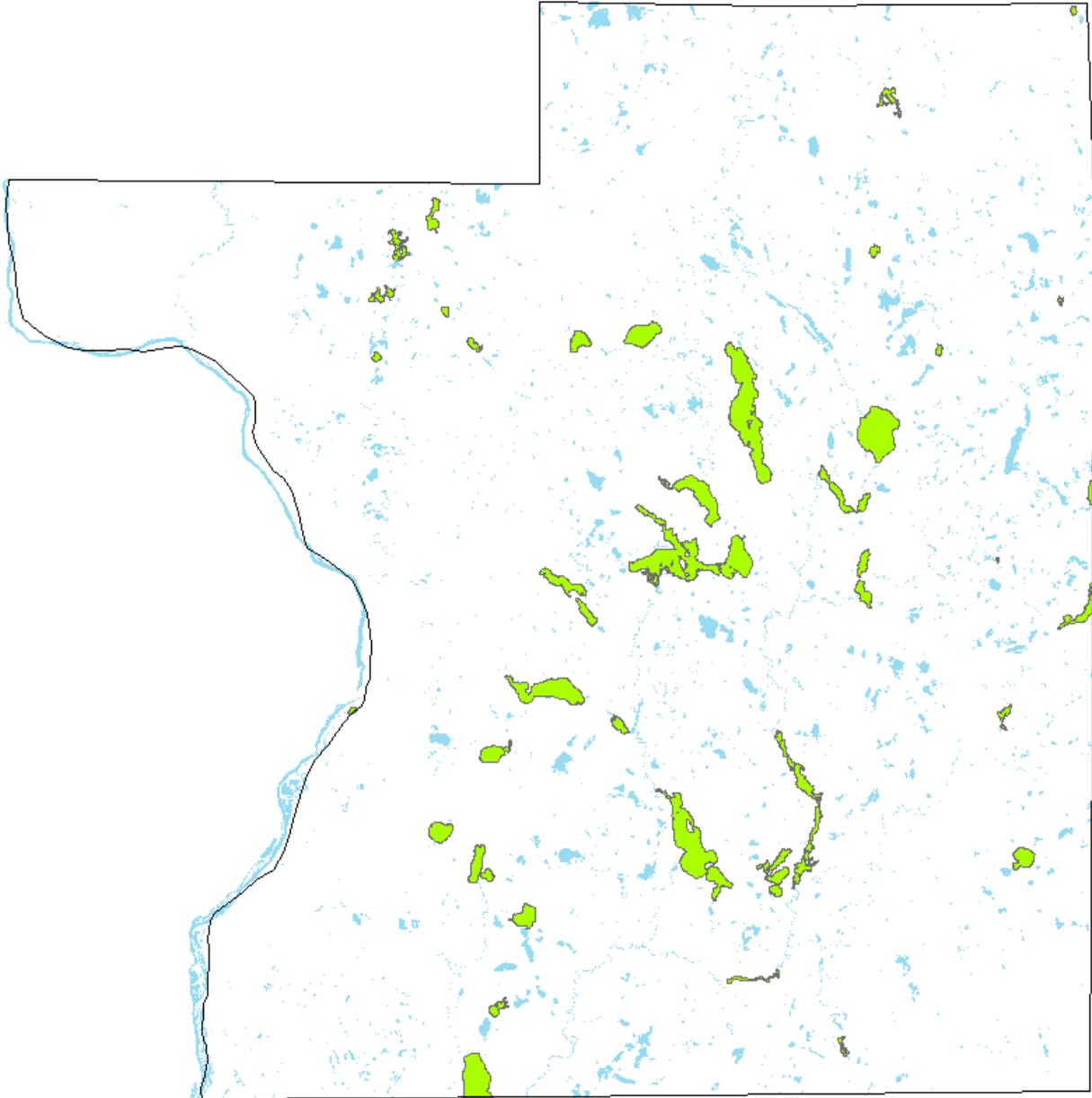
Curly leaf pondweed is found in a wide variety of habitats, although it prefers alkaline and high nutrient waterbodies and typically grows in less than 3 meters of water.

This invasive species is able to outcompete native aquatic plants because it exhibits rapid growth in the early spring, sometimes growing beneath ice cover. Curly leaf pondweed forms large, dense mats on the surface of waterbodies inhibiting the light necessary for native plant growth and interfering with navigation and recreational activities such as fishing, boating, and swimming.

Curly leaf pondweed was first discovered in Polk County in the Apple River Flowage in 1977. As of December 2015, curly leaf pondweed was documented in forty-two waterbodies in Polk County. The Polk County Land and Water Resources Department documented the species in five additional waterbodies in 2016-2017: Andrus Lake, Joel Flowage, Lotus Lake, Round Lake (Laketown), and Tarbert Lake.



Curly leaf pondweed leaf close up, Round Lake (Laketown), 2017



Curly leaf pondweed has been documented on 47 Polk County waterbodies as of December, 2017 including: Alabama Lake, Andrus Lake, Apple River, Apple River Flowage, Balsam Lake, Bear Trap Lake, Big Blake Lake, Big Butternut Lake, Big Lake, Big Round Lake, Black Brook Flowage, Bone Lake (Black Brook), Bone Lake (Georgetown), Bridget Lake, Cedar Lake, Clam Falls Flowage, Deer Lake (Balsam Lake), Deer Lake (McKinley), Dwight Lake, Half Moon Lake, Herby Lake, Horse Lake, Horseshoe Lake, Joel Flowage, Lake O' the Dalles, Little Blake Lake, Little Butternut Lake, Little Mirror Lake, Long Lake (Balsam Lake), Long Trade Lake, Lotus Lake, Loveless Lake, Magnor Lake, McKenzie Lake, North Twin Lake, North White Ash Lake, Pike Lake, Pine Lake (Alden), Round Lake (Laketown), Sand Lake, Sandhill Lake, South Twin Lake, Staples Lake, Tarbert Lake, Unnamed (Beaver), Wapogasset Lake, and White Ash Lake

Purple Loosestrife

Purple loosestrife is an aquatic invasive perennial plant that grows 3-7 feet tall and develops a spike of small purple flowers in late summer. The leaves of the plant are oblong and arranged oppositely along a square shaped stem. Purple loosestrife spreads rapidly and colonizes wetlands, shorelines, and roadside ditches. Thick stands of purple loosestrife crowd out native vegetation and reduce food, shelter, and nesting sites for a variety of wildlife including birds, turtles, and frogs.

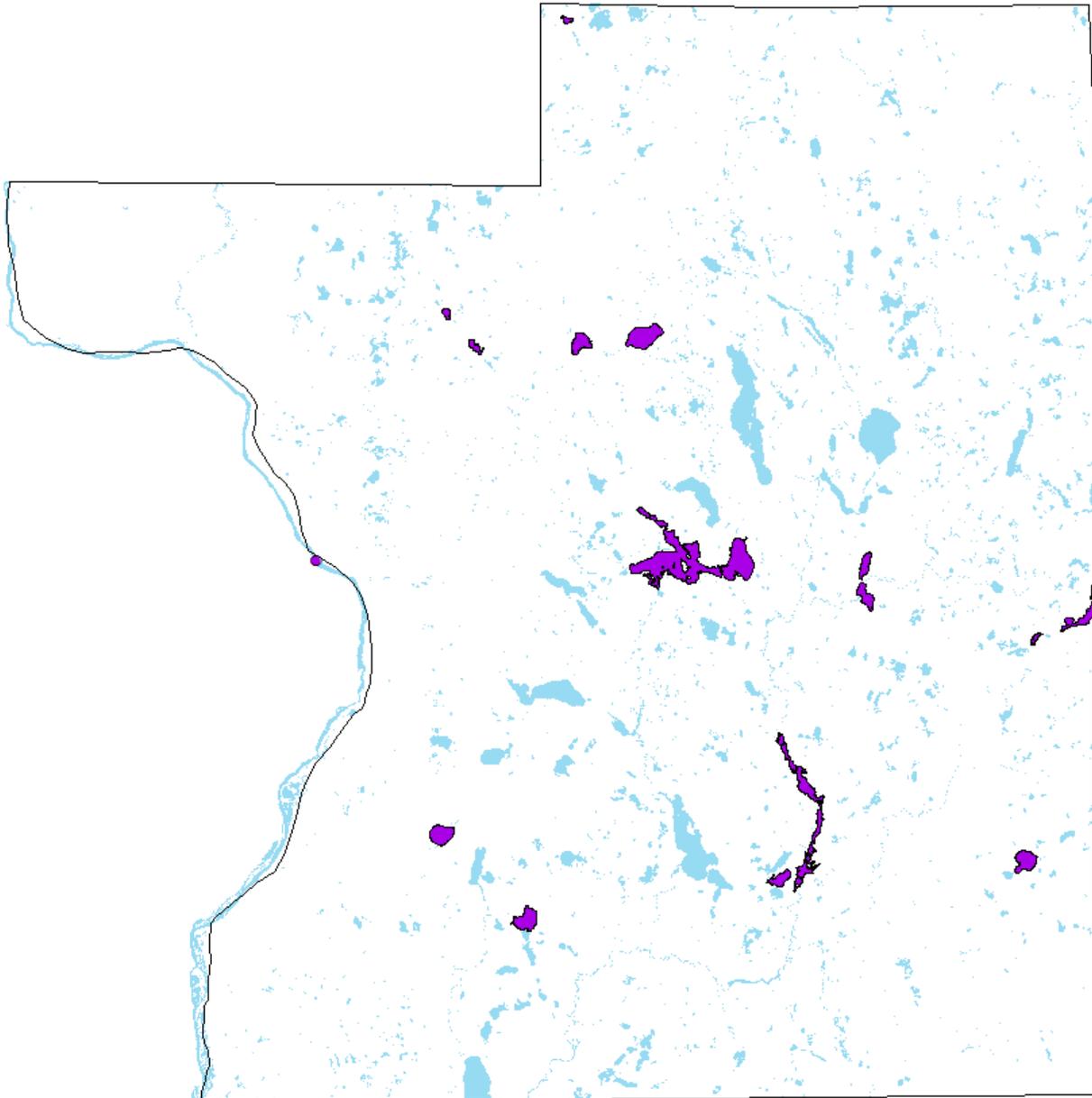
This plant, native to Europe and Asia, was introduced in North America in the 1800's for beekeeping and as a garden ornamental. Purple loosestrife has been present in Polk County for many years. An elaborate inventory was conducted in 2000 by the Land and Water Resources Department to identify the extent of purple loosestrife in the county and to reduce its spread.

In 2016, the Polk County Land and Water Resources Department held a training with volunteers of the Lotus Lake Association regarding purple loosestrife management. In 2017 the Polk County Land and Water Resource Department assisted a volunteer in raising and releasing *Galerucella* beetles. Beetles were released on the Trade River and in the Luck wetland.

As of December, 2015 purple loosestrife was documented on nine Polk County waterbodies. The Polk County Land and Water Resources Department documented the species in seven additional waterbodies in 2016-2017: Big Butternut Lake, Horseshoe Lake, Little Butternut Lake, Little Mirror Lake, Magnor Lake, Sandhill Lake, and the St. Croix River.



Purple loosestrife, Horseshoe Lake, 2017

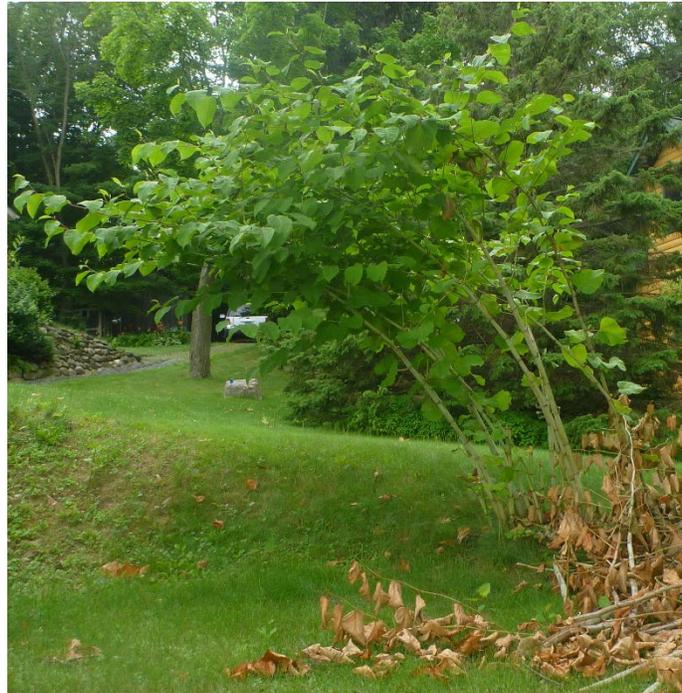


Purple loosestrife has been documented on 16 Polk County waterbodies as of December, 2017 including: the Apple River Flowage, Balsam Lake, Big Butternut Lake, Big Lake, Grimhs Lake, Horseshoe Lake, Little Butternut Lake, Little Mirror Lake, Lotus Lake, Magnor Lake, North Twin Lake, North White Ash Lake, Sandhill Lake, Silver Lake, the St. Croix River, and White Ash Lake

Japanese and Giant Knotweed

Japanese and giant knotweed are native to Asia and were imported to the United States in the mid 1900's as ornamental plants, although they are becoming more prevalent in the wild. The plant can reach up to fifteen feet and is easily distinguished by hollow bamboo-like stalks.

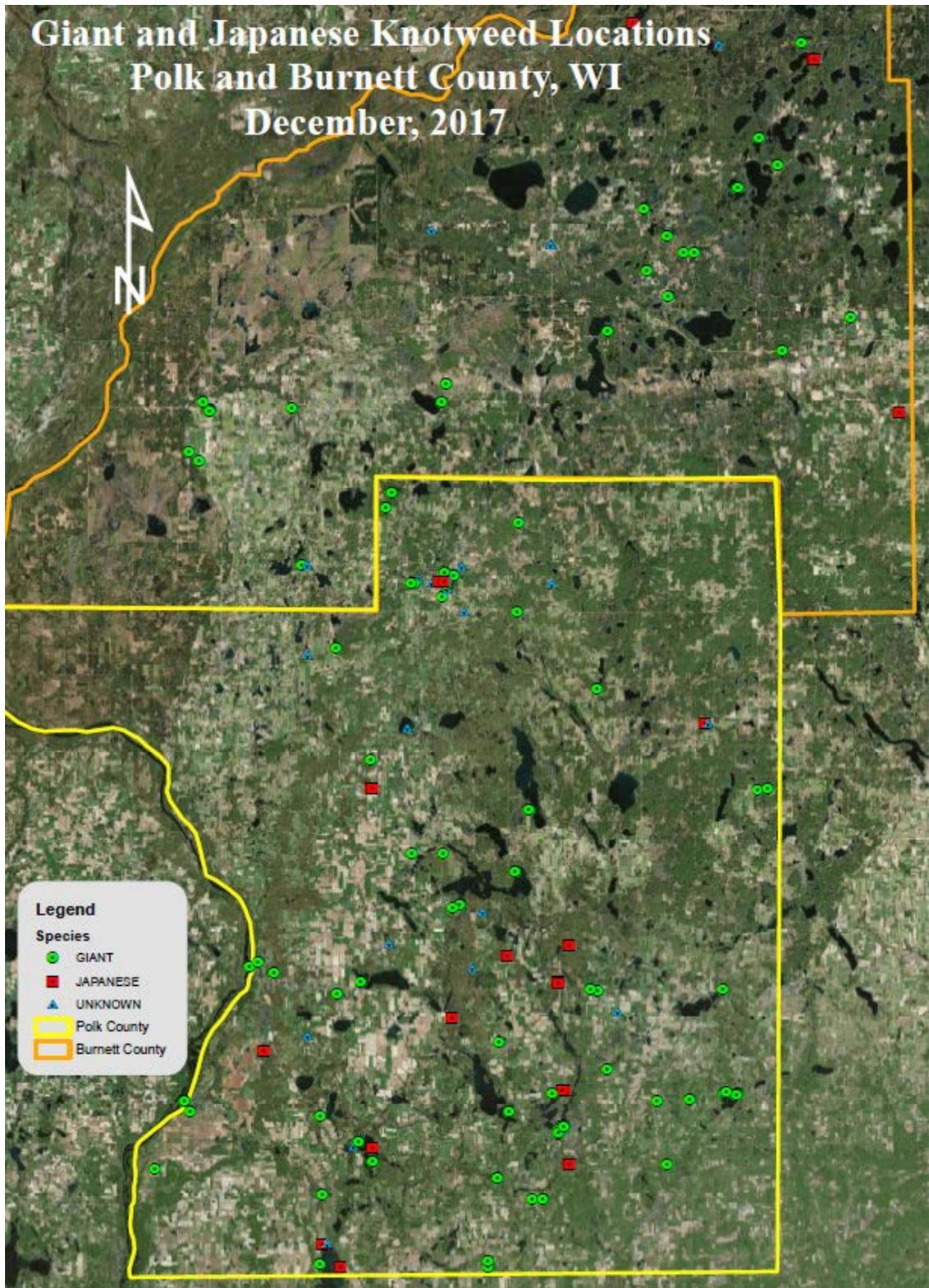
Knotweed is a perennial, meaning that each spring it re-grows from an extensive root system. Japanese and giant knotweed grow extremely fast and form a dense canopy of foliage which blocks sunlight from reaching the ground. As a result, native vegetation is unable to grow beneath a knotweed stand. When knotweed establishes on stream banks, the lack of understory can promote intense erosion, causing soil and knotweed roots to move downstream.



Knotweed, Deer Lake, 2017

The existence of knotweed was confirmed for the first time in Polk County in 2009. Since 2012, knotweed control measures and trainings have been conducted by the Polk County Land and Water Resources Department under early detection and response grants and aquatic invasive species education, prevention, and planning grants. As of December 2017, knotweed has been documented at one hundred nine sites in Polk County and a total of ten waterbodies have knotweed present. Two new sites were found in 2016-2017.

In 2016 and 2017 the Polk County Land and Water Resources Department continued to provide knotweed control guidance to numerous landowners in Polk County. Two new sites were identified and four sites were treated during the 2017 season for follow up control.



Knotweed has been documented on 10 Polk County waterbodies as of December, 2017 including: the Apple River Flowage, Balsam Lake, Big Lake, Cedar Lake, Deer Lake, Hatchet Lake, Little Butternut Lake, the St. Croix River, unnamed pond, and Wapogasset Lake

Chinese Mystery Snails

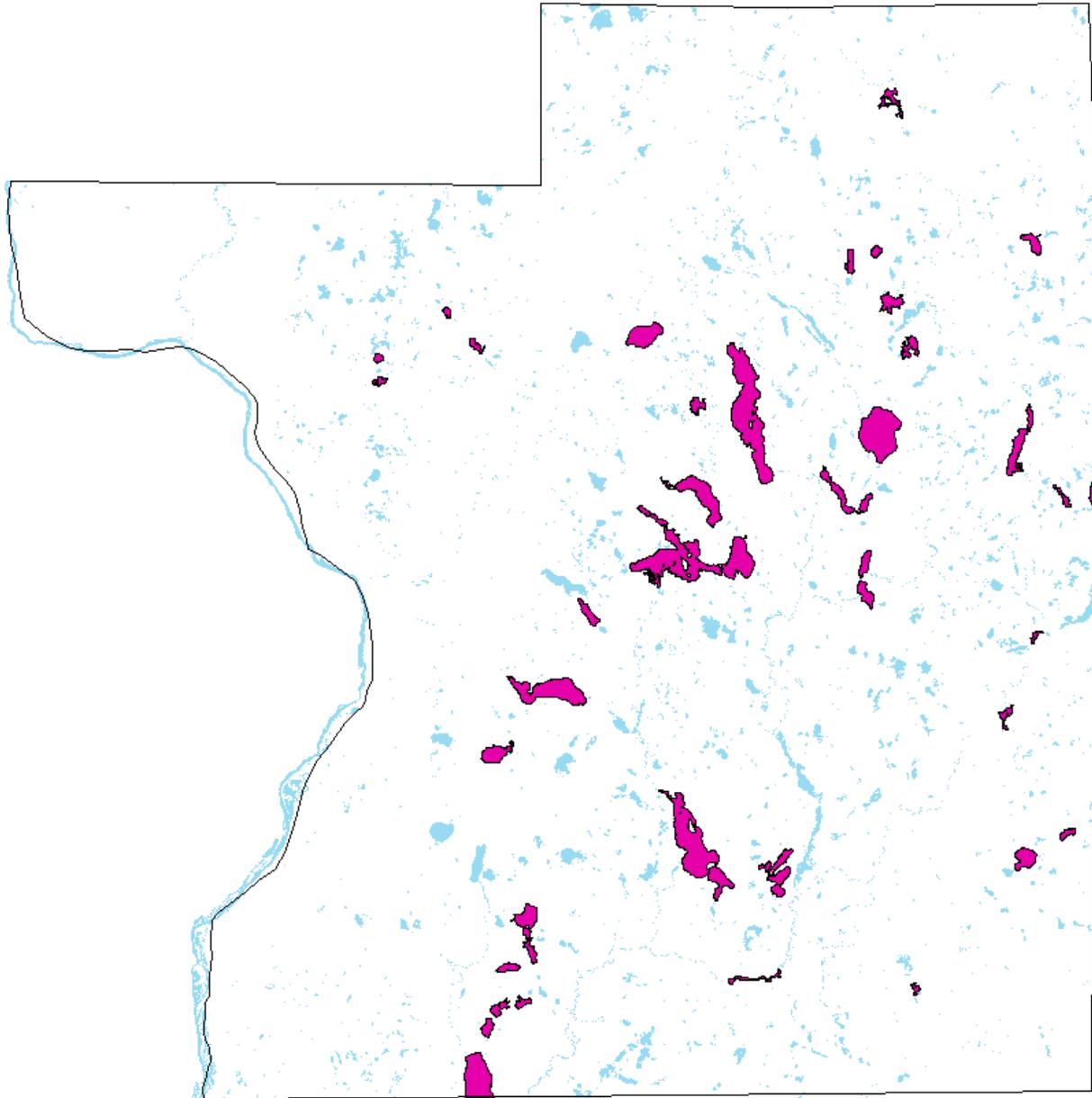
Chinese mystery snails were imported to the west coast in the late 1800's as a food source for the Asian market and have spread via aquarium release and other accidental and intentional introductions. When introduced to a new water body, Chinese mystery snails alter the ecosystem composition, structure, and function by competing with native snails for food and space.

Populations of Chinese mystery snails are now established in many Northern Wisconsin lakes. As of December 2015, Chinese mystery snails were documented on thirty-eight Polk County waterbodies.

The Polk County Land and Water Resources Department documented the species in nine additional waterbodies in 2016-2017: Bass Lake, Big Butternut Lake, Joel Flowage, Little Mirror Lake, Long Lake (Johnstown), Loveless Lake, Rice Lake (Alden), Round Lake (Laketown), and Wind (Round) Lake.



Chinese mystery snail, Bone Lake, 2016



Chinese mystery snails have been documented on 47 Polk County waterbodies as of December, 2017 including: Antler Lake, Apple River, Balsam Lake, Bass Lake, Bear Trap Lake, Big Blake Lake, Big Butternut Lake, Big Lake, Big Round Lake, Black Brook Flowage, Bone Lake, Camelia Lake, Cedar Lake, Church Pine Lake, Clam Falls Flowage, Clear Lake, Deer Lake, Half Moon Lake, Horseshoe Lake, Joel Flowage, Largon Lake, Little Blake Lake, Little Mirror Lake, Long Lake (Johnstown), Loveless Lake, Lower Pine Lake, Magnor Lake, McKenzie Lake, Middle Pine Lake, North Pipe Lake, North Twin Lake, North White Ash Lake, Pike Lake, Pine Lake, Pipe Lake, Rice Lake (Alden), Round Lake (Laketown), Sand Lake, Sandhill Lake, Silver Lake, South Twin Lake, Staples Lake, Swede Lake, Wapogasset Lake, Ward Lake, White Ash Lake, and Wind (Round) Lake

Banded Mystery Snails

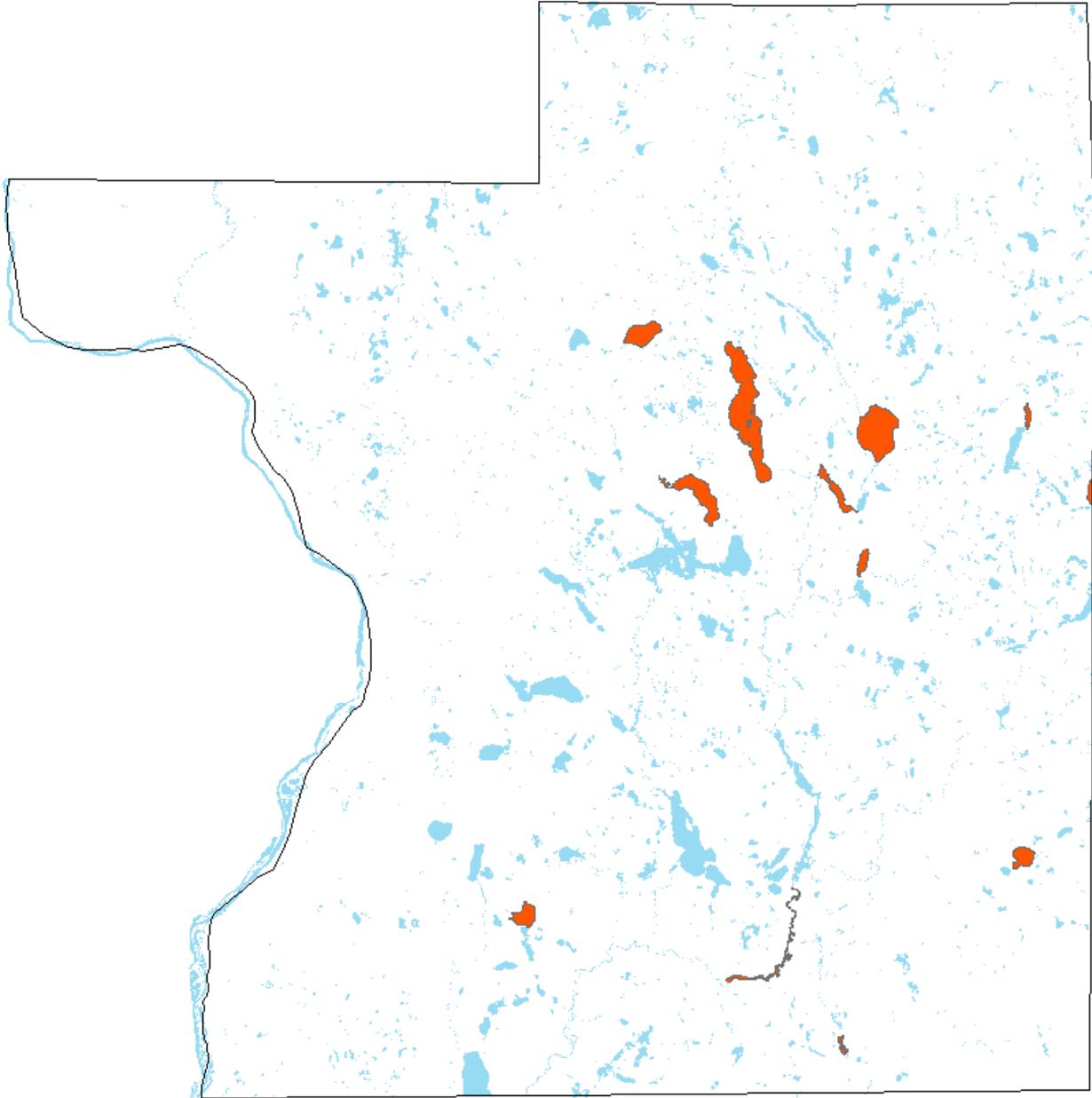
Banded mystery snails are native to the southeastern United States, being found primarily in the Mississippi River System up to Illinois. This invasive snail species is popular in the aquarium trade which likely explains its presence outside its native range. Besides causing aesthetic problems, banded mystery snails can cause mortality of largemouth bass embryos if nests are invaded.



Banded mystery snail, Big Butternut Lake, 2017

The banded mystery snail is easily distinguished by the presence of reddish bands which are arranged parallel to the whorl of the shell.

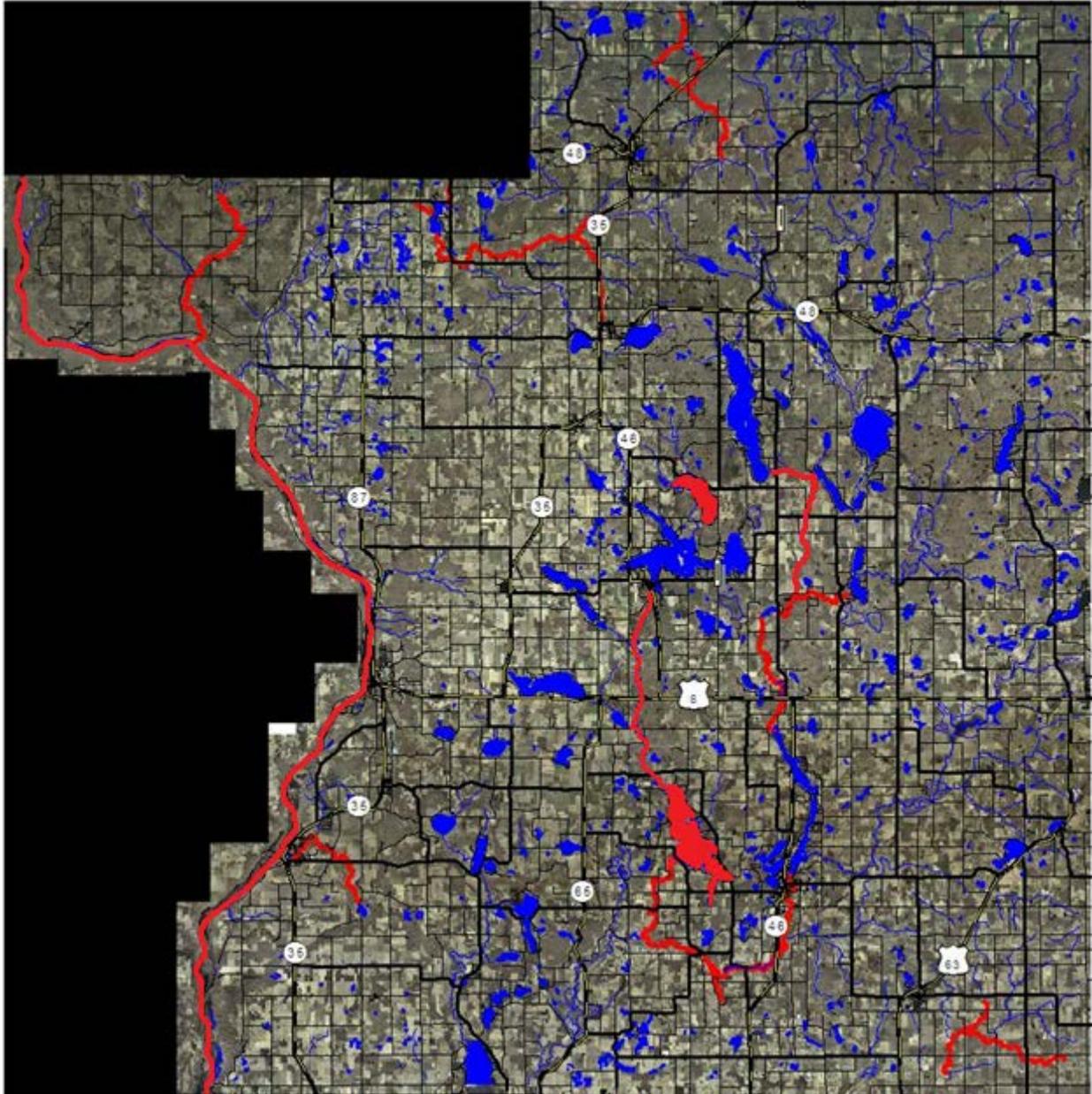
Banded mystery snails were first documented in Polk County in 2003 in Half Moon Lake. Although their spread had continued, they are still much less common in Polk County as compared with the Chinese mystery snail and had been documented in only eleven Polk County waterbodies as of December, 2015. The Polk County Land and Water Resources Department documented the species in one additional waterbody in 2016-2017: Big Butternut Lake.



Banded mystery snails have been documented on 12 Polk County waterbodies as of December, 2017 including: Big Blake Lake, Big Butternut Lake, Big Lake, Big Round Lake, Black Brook Flowage, Bone Lake (Black Brook), Bone Lake (Georgetown), Half Moon Lake, Magnor Lake, North Pipe Lake, North White Ash Lake, and Staples Lake

Rusty Crayfish

Rusty crayfish are invasive crustaceans that can have profound impacts on lakes, rivers, and streams. They are more aggressive than native crayfish and are better able to avoid predation than native crayfish. Rusty crayfish can also harm native fish populations by eating their eggs and young.



Rusty crayfish have been documented on 10 Polk County waterbodies as of December, 2017 including: Apple River, Balsam Branch, Fox Creek, Half Moon Lake, Osceola Creek, St. Croix River, Trade River, Wapogasset Lake, Willow River, and Wood River

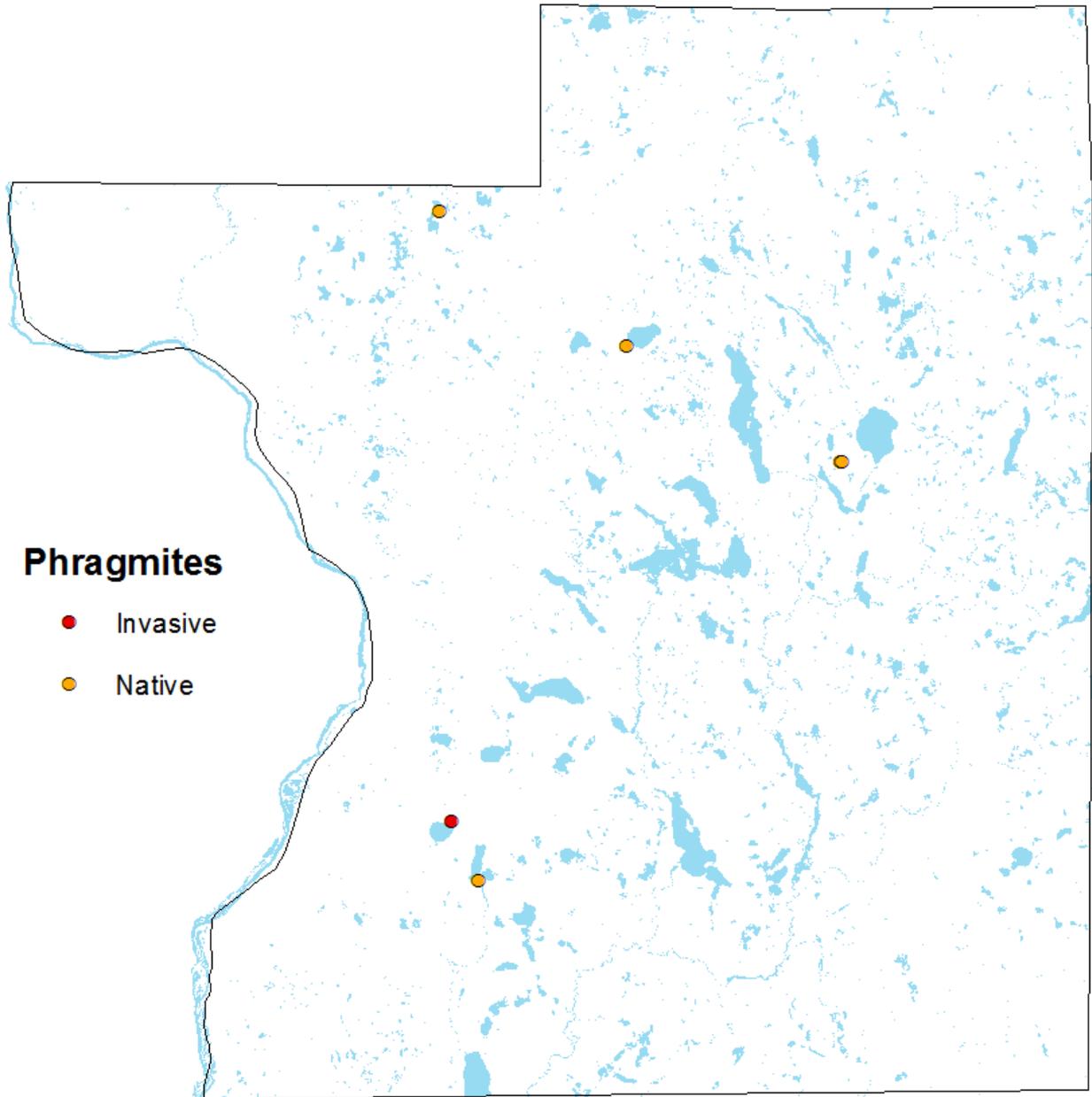
Phragmites

Phragmites is a wetland grass that invades moist habitats, although it can tolerate dry conditions. It can grow from 3-20 feet in height and has dull, rigid, hollow stems.

In 2017 a contractor reported a suspect stand of invasive phragmites in the road right of way near the outlet of Lotus Lake. The Land and Water Resources Department visited the site and confirmed the stand as invasive. Samples were sent to the University of Wisconsin-Whitewater Tippery Lab for genetic analysis.



Phragmites stand in the road right of way near the outlet of Lotus Lake, 2017



Invasive phragmites has been documented near 1 Polk County waterbody as of December, 2017: Lotus Lake

Native phragmites has been documented at 4 sites in Polk County

Yellow Iris

Yellow iris is a showy perennial plant that can grow under a variety of conditions from drier upland sites to floating aquatic mats. The leaves and flowers of yellow iris resemble ornamental or native iris species. The leaves of yellow iris have a slight blue-grey tint and a thicker more pronounced midrib. Flowers are yellow and between 3-4 inches wide and bloom from April to June. The flowers are produced in a stem that can grow 3-4 feet tall among leaves that are usually as tall or taller. Yellow iris is native to Eurasia.

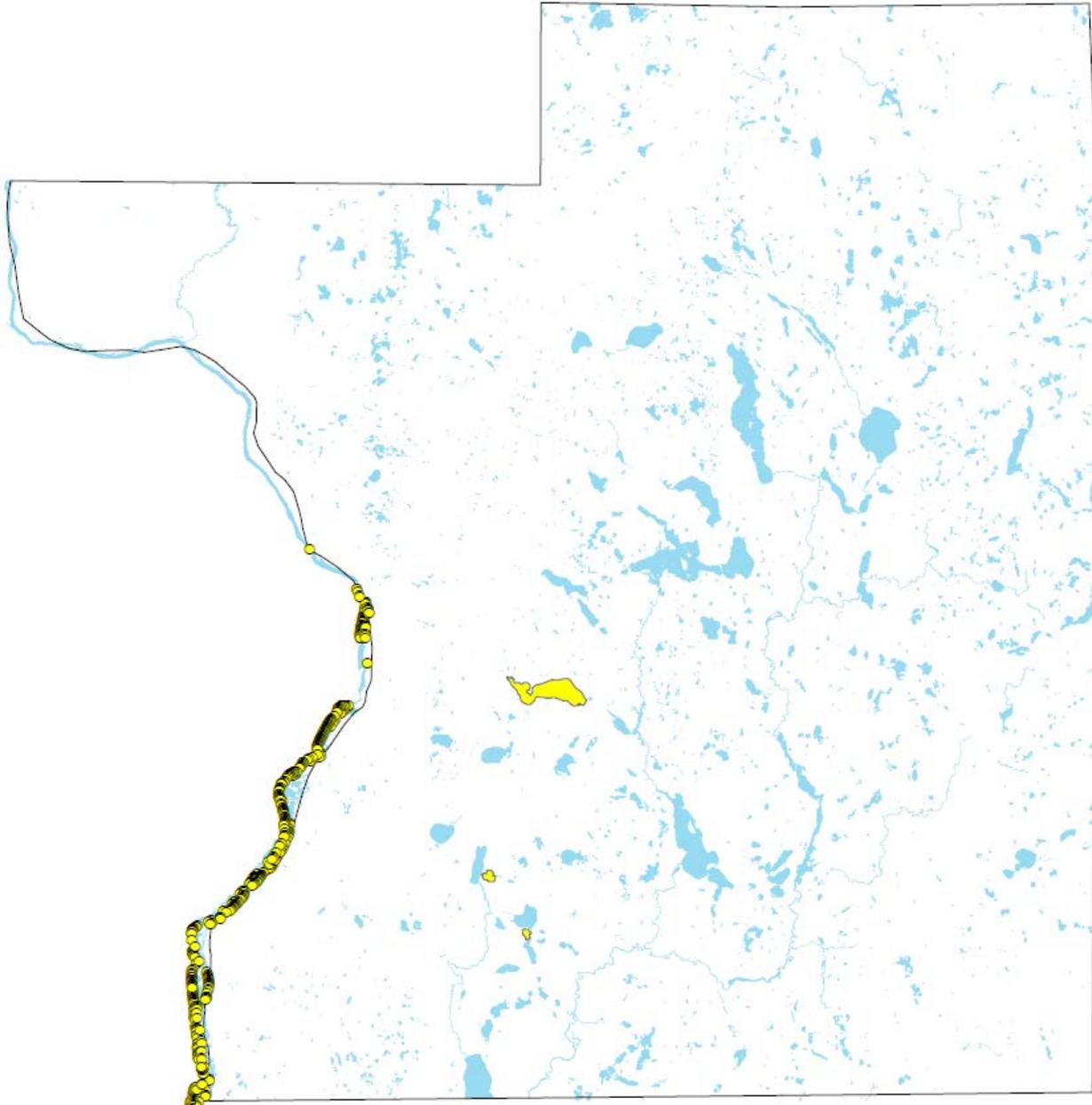


Yellow iris leaf cross-section to show pronounced midrib, Wind Lake, 2017

The Polk County Land and Water Resources Department documented yellow iris in four waterbodies in 2016-2017. The St. Croix River Association completed a comprehensive survey of yellow iris on the St. Croix River in 2017, monitoring from Riverside Landing to the Boomsite Landing. The Land and Water Resources Department assisted with this effort from the Wisconsin Interstate Park Landing to the Osceola Landing.



Yellow iris, St. Croix River, 2016



Yellow iris has been documented on 4 Polk County waterbodies as of December, 2017 including: Deer Lake, Dwight Lake, the St. Croix River, and Wind Lake.

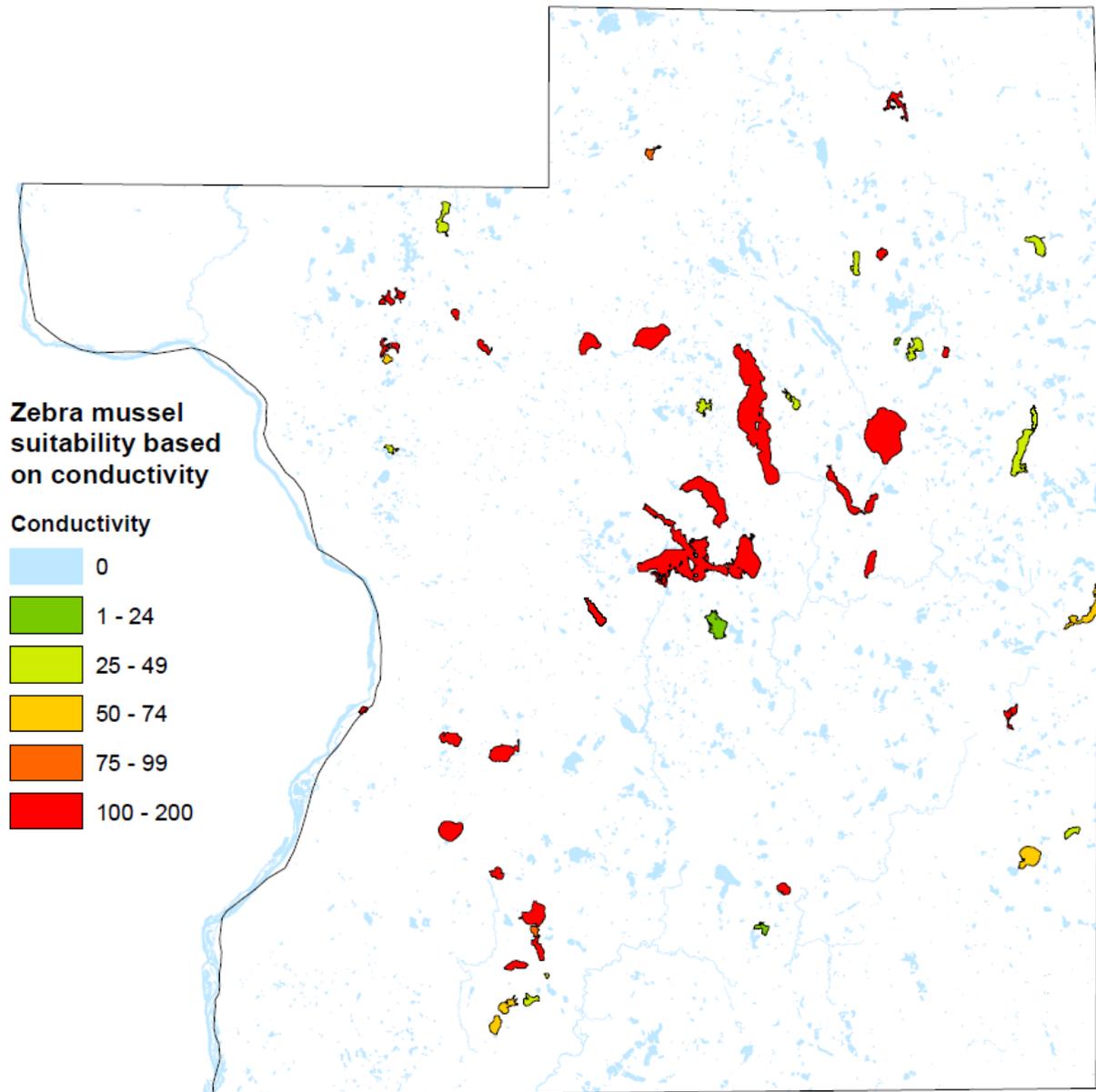
Zebra Mussels

Zebra mussels are aquatic invasive mussels with a D-shaped shell exhibiting alternating black and white stripes. Since they are able to attach to hard surfaces, zebra mussels can clog water intakes and damage equipment such as boat motors. When waterbodies are infested with zebra mussels, their shorelines can become littered with sharp shells that impede human recreational opportunities. Additionally, zebra mussels damage ecosystems by harming fisheries and smothering native mussels, snails, and crayfish.

Zebra mussels arrived in the Great Lakes in the late 1980's from contaminated ballast water. Since that time they have expanded in range via the Mississippi River. In September 2016, a single adult zebra mussel was found on the northeast side of Deer Lake by a citizen.



Conductivity can be used to predict a lakes suitability for supporting populations of zebra mussels. Although calcium is a better indicator for suitability, very little data for this parameter exists for Polk County. However, conductivity data exists for many lakes in the county. Lakes with conductivity levels below 99 $\mu\text{S}/\text{cm}$ are not suitable for zebra mussels. The majority of the larger lakes in Polk County have conductivity levels that would indicate they can support zebra mussels.



Zebra Mussel Discovery and Task Force

On September 2nd, 2016, a single adult zebra mussel was found on the northeast side of Deer Lake by a citizen. The specimen was identified by the Land and Water Resource Department and brought to the Wisconsin Department of Natural Resources for verification.

Later that same week representatives from the Land and Water Resource Department, the Deer Lake Improvement Association, and U.S. Fish and Wildlife Service searched the



Zebra mussel attached to rock, Deer Lake, 2016

shallow water in the vicinity where the zebra mussel was found and at the public access. No additional zebra mussels were found at this time.

In September, the Deer Lake Improvement Association sent out email and mail notices to lake residents with information regarding the zebra mussel that was found. The notices provided a description of zebra mussels and encouraged residents to check docks and boats as they were pulled from the water for the season. The Association also informed dock service providers about the zebra mussel discovery and requested that they check docks and equipment pulled out of Deer Lake. In late October, volunteers checked docks and lifts pulled out of Deer Lake.

In response to this discovery, the Land and Water Resource Department and Harmony Environmental organized a Zebra Mussel Task Force to coordinate a zebra mussel monitoring effort for Deer Lake and additional Polk County lakes and rivers. Partners from the Deer Lake Improvement Association, Harmony Environmental, Bone Lake Management District, Polk County Land and Water Resources Department, St. Croix River Association, Wisconsin Department of Natural Resources, National Park Service, and U.S. Fish and Wildlife Service attended two meetings of the Polk County Zebra Mussel Task Force. These meetings occurred on January 20th and February 9th, 2016 and were facilitated by Harmony Environmental.

At the first meeting, the current status of zebra mussels in Deer Lake, Big McKenzie Lake (Burnett/Washburn County), the St. Croix River, Bass Lake (St. Croix County), and Minnesota was discussed. A matrix of monitoring methods and a 2017 monitoring plan for Deer Lake was created at the meeting. Additionally, a basic monitoring plan for lakes without zebra mussels

and priority/destination lakes was created. Lastly, a list of methods and messages for a countywide zebra mussel monitoring and prevention outreach strategy was compiled.

During the second meeting, an example zebra mussel monitoring worksheet was presented by the National Park Service. Rapid response grants were discussed and the group decided it was un-necessary to apply for a grant for the 2017 season. Additionally, tasks were assigned for the countywide zebra mussel monitoring and prevention outreach strategy.

The following monitoring efforts were undertaken on Deer Lake and additional Polk County waterbodies in 2017.

- ✓ Cinder block and plate sampler monitoring by the Deer Lake Improvement Association with suspect specimens reviewed by the Land and Water Resources Department
- ✓ Plate sampler and substrate examination at the Deer Lake boat landing and additional Polk County waterbodies by U.S. Fish and Wildlife Service
- ✓ Plate sampler and substrate examination at the site where the zebra mussel was found by the Land and Water Resources Department
- ✓ Shoreline searches and substrate examination at the site where the zebra mussel was found by the Deer Lake Improvement Association
- ✓ Smart prevention protocol on Deer Lake (including veliger tows) by the Land and Water Resources Department and the St. Croix River Association
- ✓ Veliger tows on Deer Lake, Bone Lake, Balsam Lake, and two sites on the St. Croix River by the National Park Service, St. Croix River Association, Land and Water Resources Department, Deer Lake Improvement Association, and Bone Lake Management District

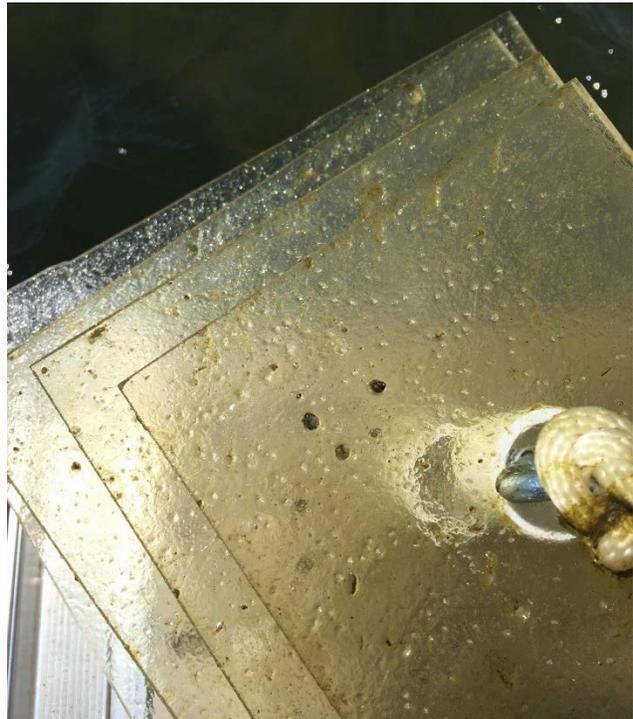


Plate sampler from Deer Lake, 2017

The Land and Water Resources Department also made zebra mussel plate sampler supplies obtained from the Wisconsin Department of Natural Resources available to Polk County waterbodies. As a result, a total of fifty-five plate samplers were placed on the following lakes and monitored by volunteers: the Apple River Flowage, Balsam Lake, Bear Trap Lake, Big Blake

Lake, Big Round Lake, Big Lake, Bone Lake, Cedar Lake, Church Pine Lake, Deer Lake, and Wapogasset Lake.

The following zebra mussel monitoring and prevention outreach methods and messages were developed by the Land and Water Resource Department and made available to the public in 2017.

- ✓ Press release
- ✓ Template PowerPoint presentation
- ✓ Template article for websites, newsletters, Facebook, etc.
- ✓ Zebra mussel materials, publications, and resources

The Land and Water Resource Department, in partnership with the St. Croix River Association, offered a Joint Minnesota and Wisconsin Zebra Mussel Workshop in St. Croix Falls, Wisconsin on April 24th. The day-long workshop featured presentations on monitoring by the Land and Water Resources Department, National Park Service, and the Comfort Lake-Forest Lake Watershed District; control by Minnesota Department of Natural Resources and the University of Minnesota; and decontamination (with three different decontamination units) by Chisago County, U.S. Fish and Wildlife Service, and the Wisconsin Department of Natural Resources Water Guard. The workshop was attended by seventy people from three states. Example monitoring equipment and educational resources were also on display.



Joint MN and WI Zebra Mussel Workshop presentation and example monitoring equipment, 2017 (Photo credits: SCRA)

Aquatic Invasive Species Early Detection Smart Prevention Protocol

The Polk County Land and Water Resources Department partnered with the Wisconsin Department of Natural Resources to implement the statewide aquatic invasive species early detection smart prevention protocol on Polk County Lakes. This study began in 2011 and concluded in 2015. The Land and Water Resources Department continued using this protocol to monitor Polk County waterbodies in 2016 and 2017.

The protocol includes the collection of basic water quality data (secchi depth and conductivity) along with numerous detection methods for aquatic invasive species:

- ✓ Thirty minute searches at all boat landings
- ✓ Ten minute searches at five sites
- ✓ Spiny water flea dredge at the deep hole
- ✓ Zebra mussel veliger tows at three sites
- ✓ Rake throws and D-nets while completing a shoreline meander

Lakes monitored in 2016 include:

- ✓ Bone Lake
- ✓ Horseshoe Lake
- ✓ Little Butternut Lake
- ✓ Little Mirror Lake
- ✓ Long Lake (Johnstown)
- ✓ North Pipe Lake
- ✓ Pipe Lake
- ✓ Dwight (Round) Lake (Osceola)
- ✓ Sandhill Lake

Lakes monitored in 2017 include:

- ✓ Andrus Lake
- ✓ Bass Lake
- ✓ Big Butternut Lake
- ✓ Deer Lake
- ✓ Joel Flowage
- ✓ Lee Lake
- ✓ Loveless Lake
- ✓ Magnor Lake
- ✓ Pike Lake
- ✓ Rice Lake (Alden)
- ✓ Round Lake (Laketown)
- ✓ Dwight (Round) Lake (Osceola)
- ✓ Tarbert Lake
- ✓ Twin Lakes
- ✓ Wild Goose Lake
- ✓ Wind (Round) Lake (Alden)



Curly leaf pondweed sprouting from turion, Tarbert Lake, 2017

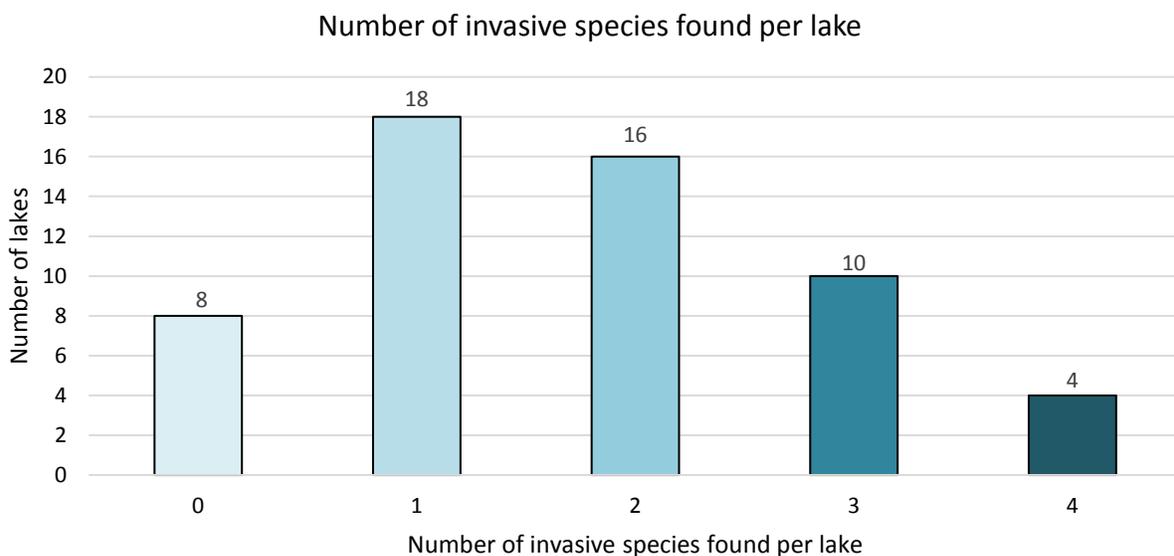
Data for secchi depth, conductivity, and GIS location of aquatic invasive species populations were entered into the Surface Water Integrated Monitoring System (SWIMS). Aquatic plant specimens were sent to the UW-Stevens Point Herbarium and waterflea and veliger samples were sent to the Wisconsin Department of Natural Resources.



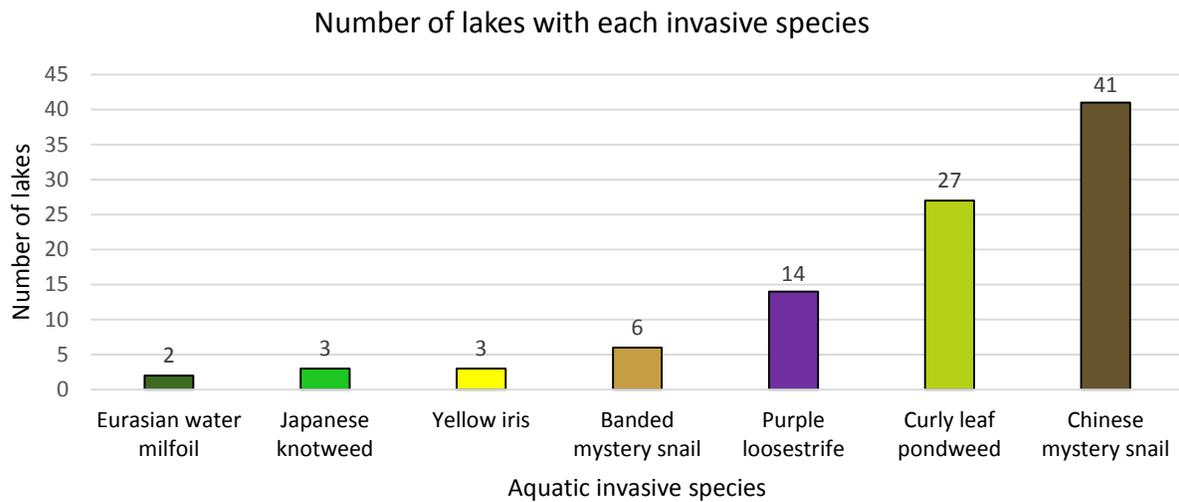
Eurasian water milfoil, Horseshoe Lake, 2016

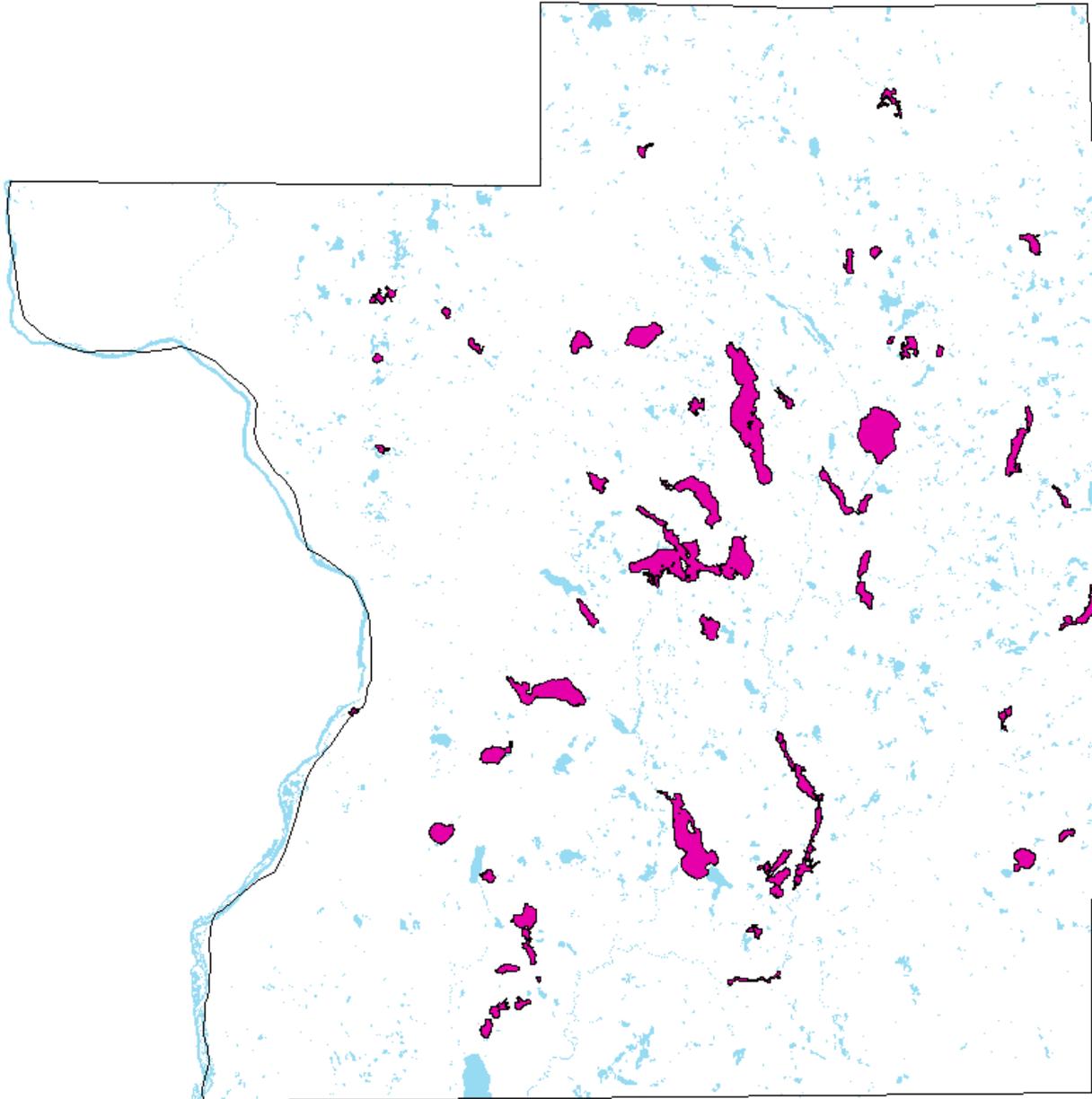
Under previous aquatic invasive species grants, the Land and Water Resources Department implemented the protocol on nine lakes in 2011, seven lakes in 2012, three lakes in 2013, nine lakes in 2014, and seven lakes in 2015.

In total since 2011, fifty-six Polk County lakes have been monitored for aquatic invasive species with the early detection smart prevention protocol. Additionally, some lakes were chosen as revisit lakes and monitored twice. The number of invasive species per lake ranged from zero to four. Fourteen percent of lakes sampled (n=8) had zero invasive species present, 32% of lakes (n=18) had one invasive species present, 29% of lakes (n=16) had two invasive species present, 18% of lakes (n=10) had three invasive species present, and 7% of lakes (n=4) had four invasive species present.



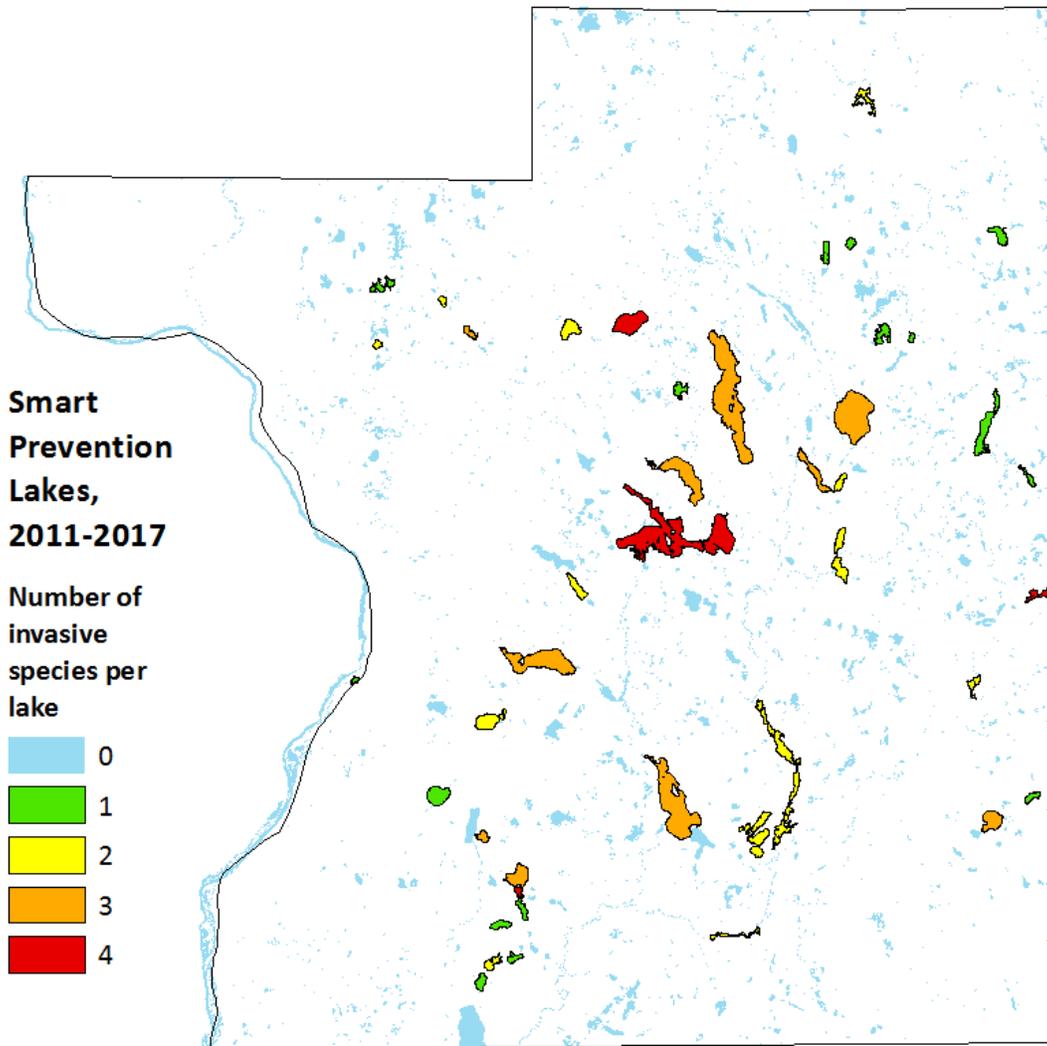
Species detected through the protocol included: Eurasian water milfoil, Japanese knotweed, yellow iris, banded mystery snail, purple loosestrife, curly leaf pondweed, and Chinese mystery snail. Eurasian water milfoil was detected in only 4% of the lakes sampled (n=2), Japanese knotweed was detected in only 5% of lakes sampled (n=3), yellow iris was detected in only 5% of the lakes sampled (n=3), and banded mystery snail was detected in only 11% of lakes sampled (n=6). Purple loosestrife was detected in a quarter of lakes sampled (25%, n=14), curly leaf pondweed was found in nearly half of the lakes sampled (48%, n=27) and Chinese mystery snails were found in nearly three-quarters of lakes sampled (73%, n=41).





Aquatic invasive species early detection smart prevention protocol lakes, 2011-2017

Andrus Lake, Antler Lake, Apple River Flowage, Balsam Lake, Bass Lake, Big Blake Lake, Big Butternut Lake, Big Lake, Big Round Lake, Black Brook Flowage, Bone Lake, Camelia Lake, Church Pine Lake, Clam Falls Flowage, Coon Lake, Deer Lake, Dwight (Round) Lake, Half Moon Lake, Herby Lake, Horseshoe Lake, Joel Flowage, King Lake, Lake O' the Dalles, Largon Lake, Lee Lake, Little Blake Lake, Little Butternut Lake, Little Mirror Lake, Long Lake (Johnstown), Lotus Lake, Loveless Lake, Lower Pine Lake, Magnor Lake, McKenzie Lake, North Pipe Lake, North Twin Lake, North White Ash Lake, Pickerel Lake, Pike Lake, Pine Lake, Pipe Lake, Rice Lake (Alden), Rice Lake (Milltown), Round Lake (Laketown), Sand Lake, Sandhill Lake, South Twin Lake, Swede Lake, Tarbert Lake, Twin Lakes, Vincent Lake, Wapogasset Lake, Ward Lake, White Ash Lake, Wild Goose Lake, and Wind (Round) Lake.



Number of aquatic invasive species found per lake

Aquatic invasive species early detection smart prevention protocol lakes, 2011-2017

Lakes without aquatic invasive species: Coon Lake, King Lake, Lee Lake, Pickerel Lake, Rice Lake (Milltown), Twin Lake, Vincent Lake, Wild Goose Lake

Lakes with 1 aquatic invasive species: Andrus Lake, Antler Lake, Bass Lake, Camelia Lake, Church Pine Lake, Herby Lake, Lake O' the Dalles, Largon Lake, Long Lake (Johnstown), Lotus Lake, Lower Pine Lake, McKenzie Lake, North Pipe Lake, Pipe Lake, Rice Lake (Alden), Swede Lake, Tarbert Lake, Ward Lake

Lakes with 2 aquatic invasive species: Apple River Flowage, Black Brook Flowage, Clam Falls Flowage, Joel Flowage, Little Blake Lake, Little Butternut Lake, Little Mirror Lake, Loveless Lake, North Twin Lake, North White Ash Lake, Pike Lake, Pine Lake, Round Lake (Laketown), Sand Lake, South Twin Lake, White Ash Lake

Lakes with 3 aquatic invasive species: Big Blake Lake, Big Lake, Big Round Lake, Bone Lake, Deer Lake, Dwight (Round) Lake, Half Moon Lake, Magnor Lake, Sandhill Lake, Wapogasset Lake

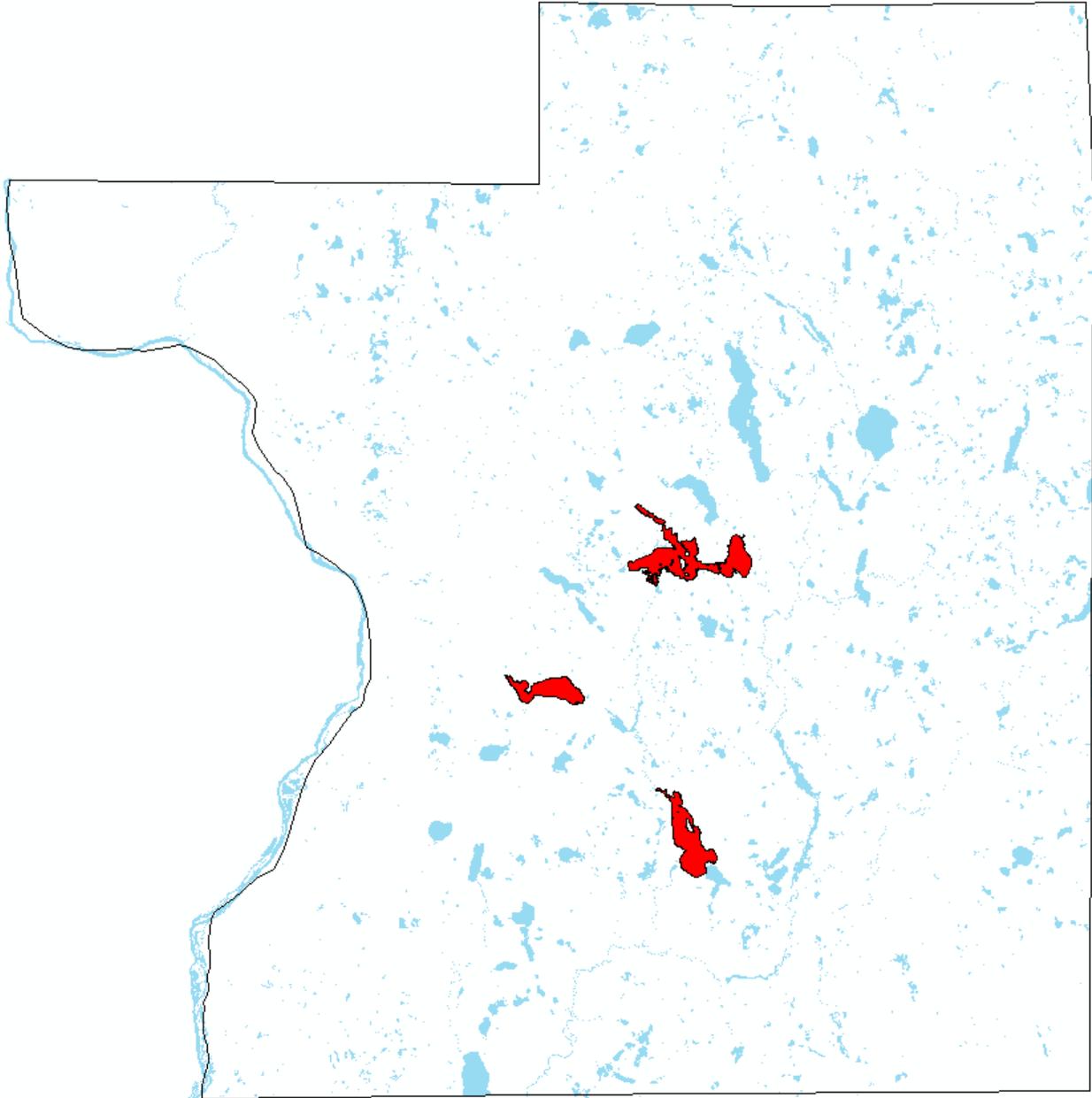
Lakes with 4 aquatic invasive species: Balsam Lake, Big Butternut Lake, Horseshoe Lake, Wind (Round) Lake



Eurasian water milfoil

Aquatic invasive species early detection smart prevention protocol lakes, 2011-2017

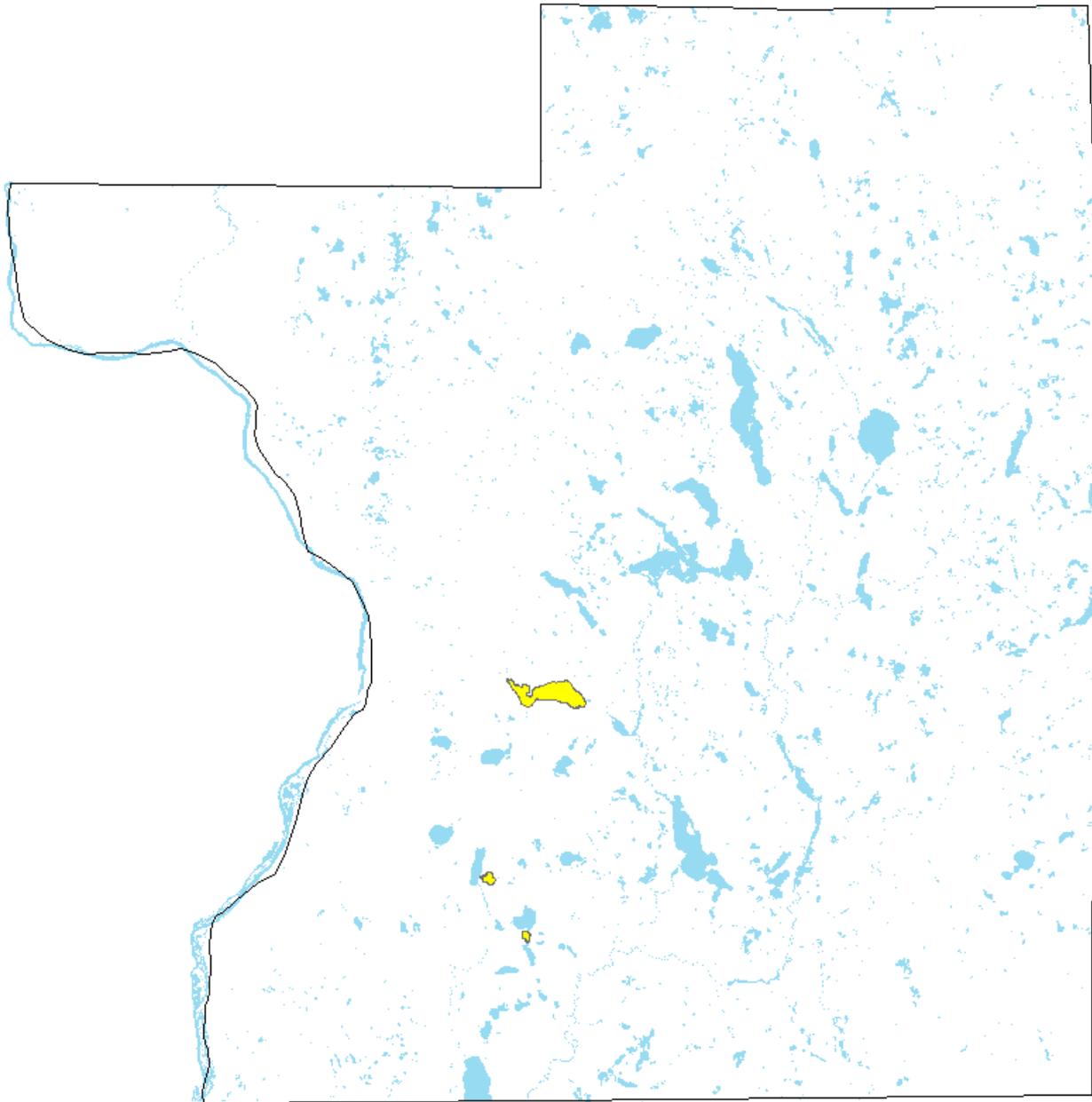
2 Lakes: Horseshoe Lake, Pike Lake



Japanese knotweed

Aquatic invasive species early detection smart prevention protocol lakes, 2011-2017

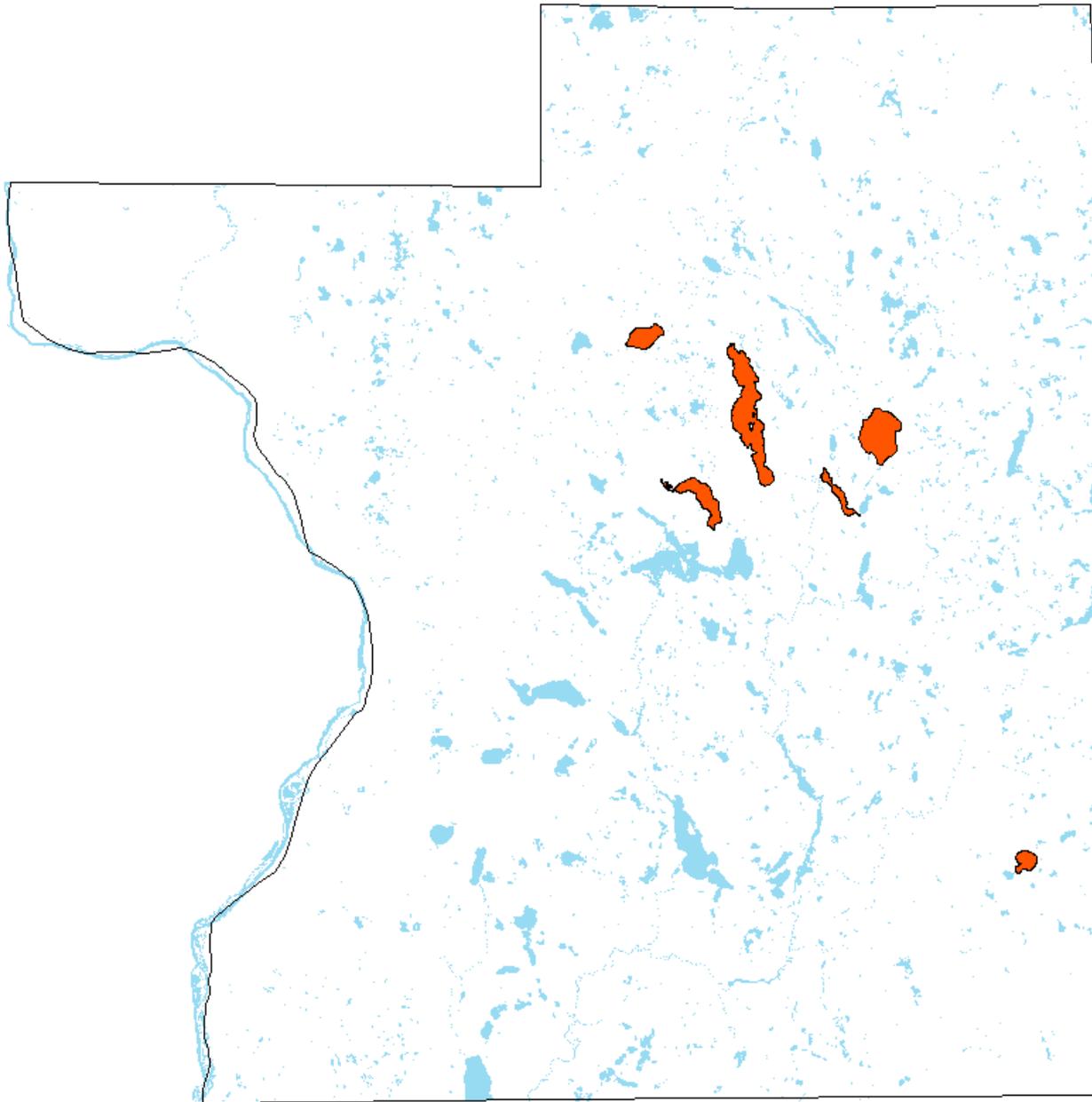
3 Lakes: Balsam Lake, Deer Lake, Wapogasset Lake



Yellow iris

Aquatic invasive species early detection smart prevention protocol lakes, 2011-2017

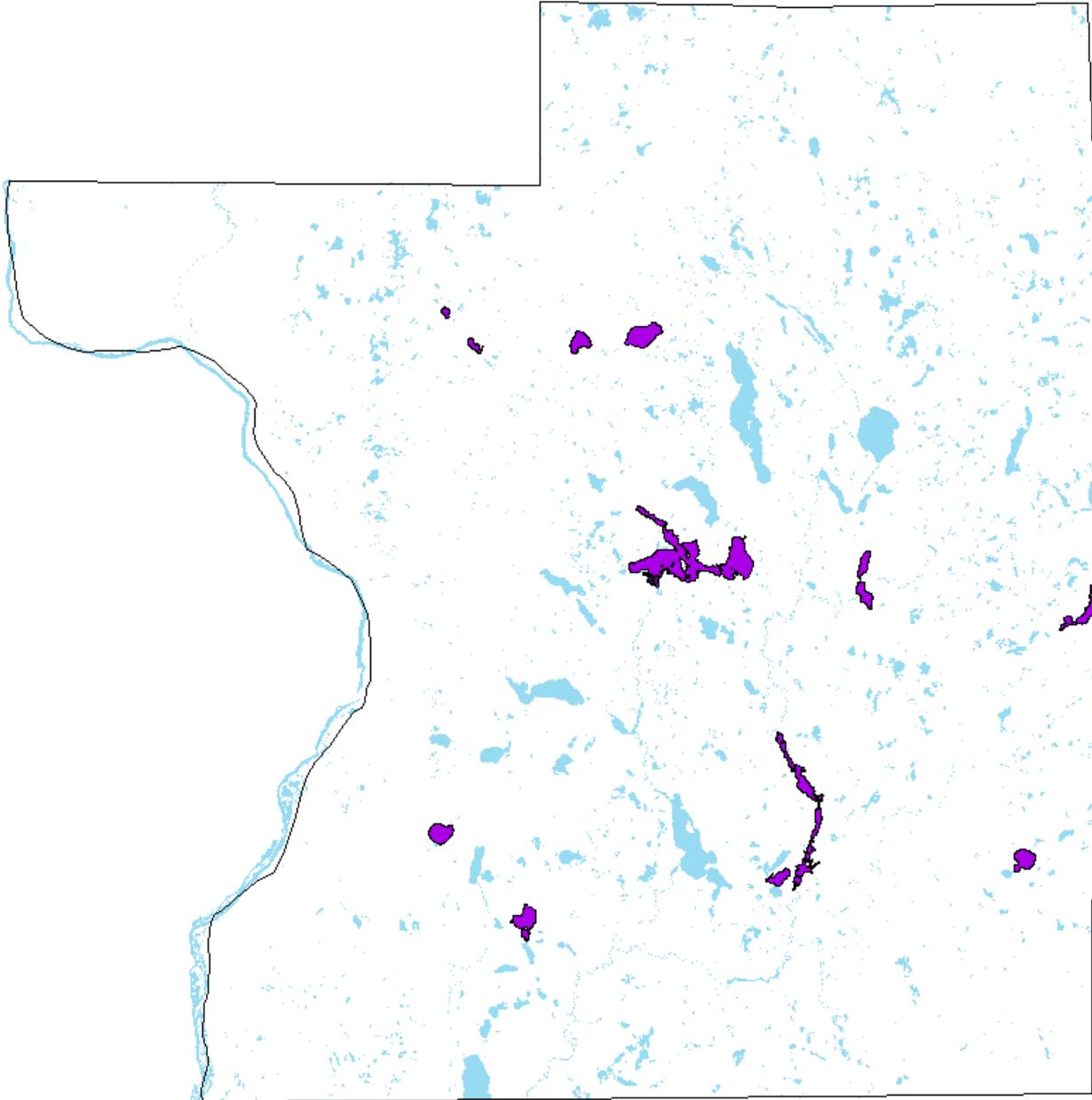
3 Lakes: Deer Lake, Dwight (Round) Lake, Wind (Round) Lake



Banded mystery snail

Aquatic invasive species early detection smart prevention protocol lakes, 2011-2017

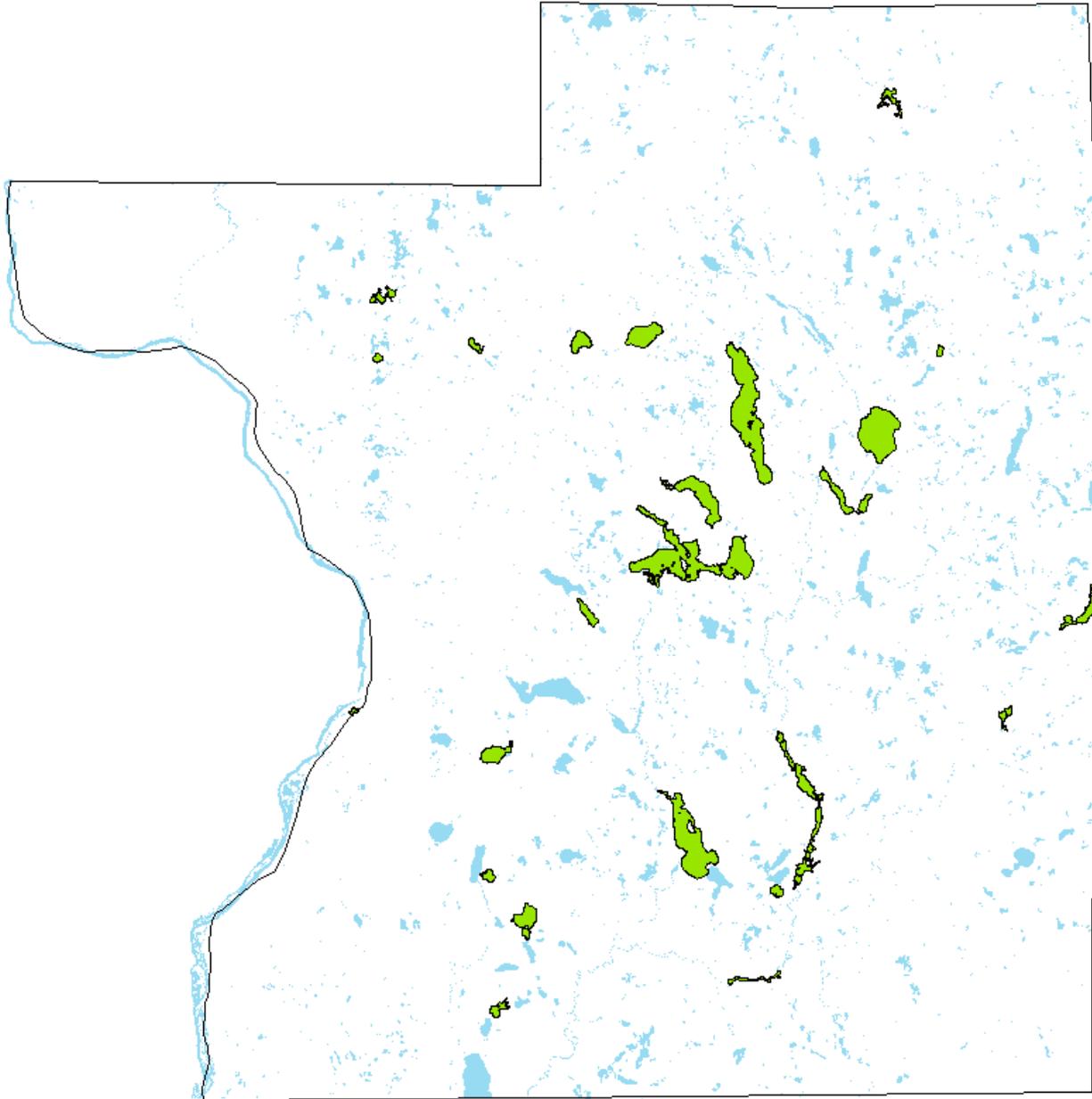
6 Lakes: Big Blake Lake, Big Butternut Lake, Big Round Lake, Bone Lake, Half Moon Lake, Magnor Lake



Purple loosestrife

Aquatic invasive species early detection smart prevention protocol lakes, 2011-2017

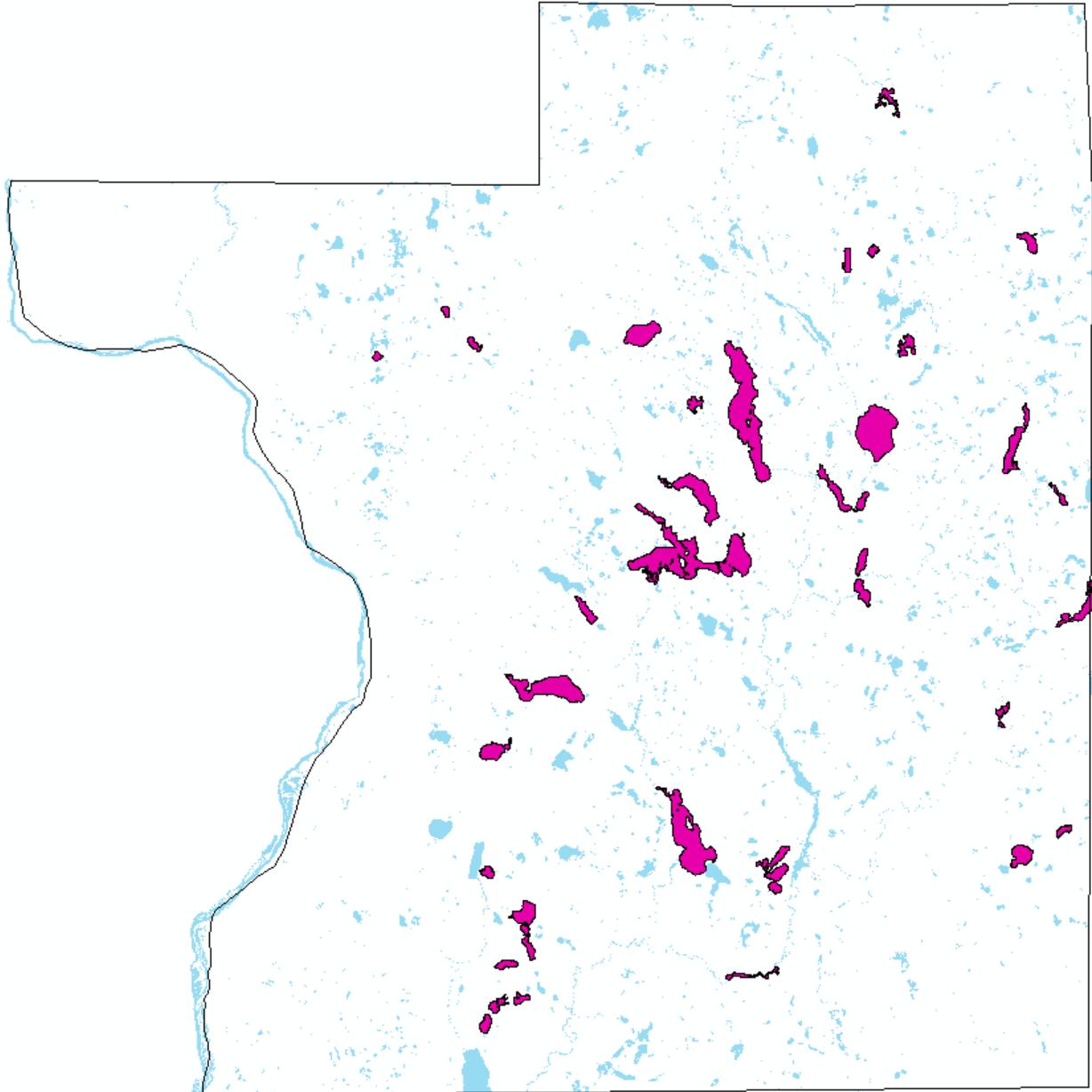
14 Lakes: Apple River Flowage, Balsam Lake, Big Lake, Big Butternut Lake, Horseshoe Lake, Little Butternut Lake, Little Mirror Lake, Lotus Lake, Magnor Lake, North Twin Lake, North White Ash Lake, Sandhill Lake, White Ash Lake, Wind (Round) Lake



Curly leaf pondweed

Aquatic invasive species early detection smart prevention protocol lakes, 2011-2017

27 Lakes: Andrus Lake, Apple River Flowage, Balsam Lake, Big Blake Lake, Big Butternut Lake, Big Lake, Big Round Lake, Black Brook Flowage, Bone Lake, Clam Falls Flowage, Dwight (Round) Lake, Half Moon Lake, Herby Lake, Horseshoe Lake, Joel Flowage, Lake O' the Dalles, Little Blake Lake, Little Butternut Lake, Loveless Lake, Pine Lake, Round Lake (Laketown), Sand Lake, Sandhill Lake, South Twin Lake, Tarbert Lake, Wapogasset Lake, Wind (Round) Lake



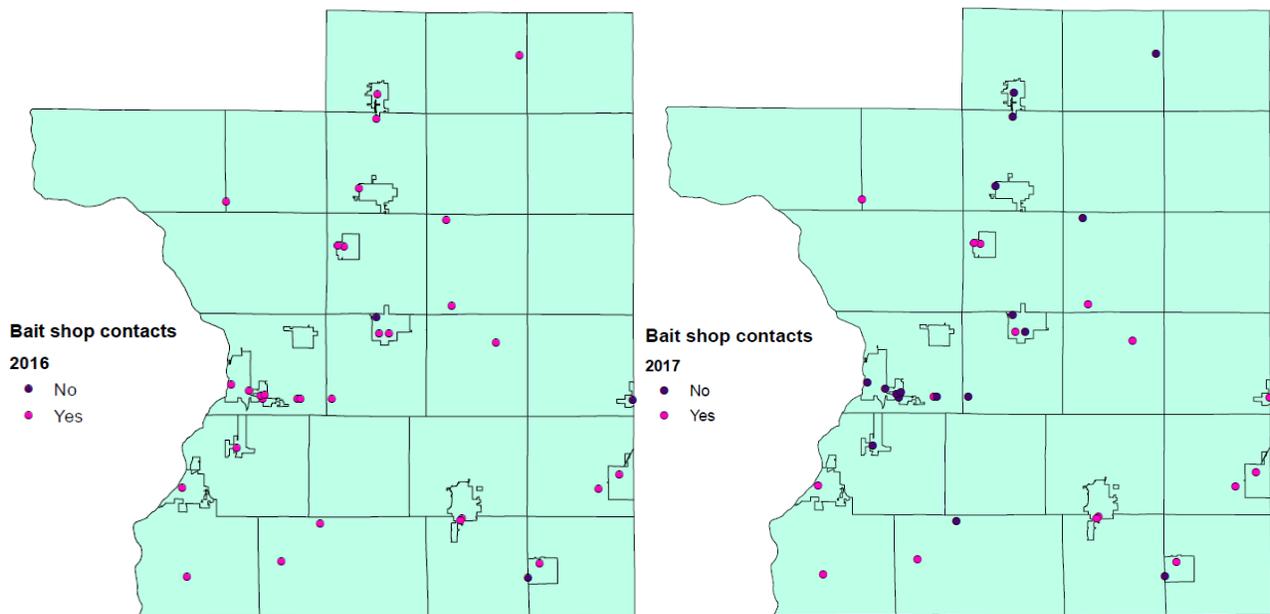
Chinese mystery snail

Aquatic invasive species early detection smart prevention protocol lakes, 2011-2017

41 Lakes: Antler Lake, Balsam Lake, Bass Lake, Big Blake Lake, Big Butternut Lake, Big Lake, Big Round Lake, Black Brook Flowage, Bone Lake, Camelia Lake, Church Pine Lake, Clam Falls Flowage, Deer Lake, Dwight (Round) Lake, Half Moon Lake, Horseshoe Lake, Joel Flowage, Largon Lake, Little Blake Lake, Little Mirror Lake, Long Lake (Johnstown), Loveless Lake, Lower Pine Lake, Magnor Lake, McKenzie Lake, North Pipe Lake, North Twin Lake, North White Ash Lake, Pike Lake, Pine Lake, Pipe Lake, Rice Lake (Alden), Round Lake (Laketown), Sand Lake, Sandhill Lake, South Twin Lake, Swede Lake, Wapogasset Lake, Ward Lake, White Ash Lake, Wind (Round) Lake

Bait Dealer Initiative

The Polk County Land and Water Resources Department visited thirty-three locations that sell fishing licenses in Polk County in 2016 and twenty-four locations in 2017 as part of the statewide Bait Dealer Initiative. At each location, AIS messaging was shared and educational brochures and key chains were made available.



Landing Blitz

In 2016 and 2017, the Polk County Land and Water Resources Department assisted in organizing the Landing Blitz by providing information to all lake organizations in Polk County. Both years, the Land and Water Resources Department wrote a press release promoting the event. Seventeen waterbodies participated in the Landing Blitz in 2016 and ten participated in 2017.

Drain Campaign

In 2016 and 2017, the Polk County Land and Water Resources Department promoted the Drain Campaign to local lake organizations and signed lakes up for this statewide initiative. The Land and Water Resources Department also authored a press release to promote the event, served as a pick up site for ice packs, and ordered the free flyers and educational brochures for each participating lake. In total, seventeen waterbodies participated in the Drain Campaign in 2016 and nineteen waterbodies participated in 2017.

Clean Boats, Clean Waters

The Polk County Land and Water Resources Department provided countywide Clean Boats, Clean Waters trainings in both 2016 and 2017. The 2016 training was held on April 27th, 2016 and attended by twenty-five individuals. An individualized training was also held for a volunteer with Balsam Lake on April 29th, 2016. The 2017 training was held on April 26th, 2017 and attended by ten individuals. Template presentations were edited to include local aquatic invasive species locations and concerns.

In 2016, the Polk County Land and Water Resources Department assisted the Pipe and North Pipe Lakes District with gathering information regarding the amount Clean Boats, Clean Waters volunteers are paid. Results were compiled from 15 lakes (all in Polk County with the exception of one). Ten lakes pay their monitors \$10 per hour, three pay less than \$10 per hour, and two pay greater than \$10 per hour. Several lakes pay \$12 per hour to administer their program.

Fall Snapshot Day

In 2016 and 2017, the Polk County Land and Water Resources Department partnered with the St. Croix River Association to offer the Fall Snapshot Day in Polk County. A partnership with the Grantsburg High School and the Round Trade Lakes Improvement Association made it possible to monitor nine tributaries in the Long Trade Lake Watershed on September 10th, 2016. Nineteen volunteers attended the training and found Chinese mystery snails at one site and curly leaf pondweed at another site. The 2017 training was held on August 5th and attended by seven participants. Eight sites along the St. Croix River were monitored in both Wisconsin and Minnesota. Yellow iris was found at four sites, curly leaf pondweed was found at one site, rusty crayfish was found at one site, and Asian clams were found at one site.



Fall Snapshot Day, 2016

Aquatic Invasive Species Citizen Lake Monitoring Network

An aquatic invasive species Citizen Lake Monitoring Network training was offered by the Polk County Land and Water Resources Department in 2016 and 2017. The 2016 training was held on June 7th and attended by nineteen volunteers. In 2017 the training was held on July 18th and attended by fourteen volunteers. Both trainings included a hands-on session to view specimens of aquatic invasive species, with a focus on native and invasive plants. Template presentations were edited to include local aquatic invasive species locations and concerns. The St. Croix River Association assisted with both trainings. In response to the 2017 training, ten volunteers took home kits to monitor for aquatic invasive species on their waterbody. The Polk County Land and Water Resources Department assisted lakes with identification of specimens following the training, follow up regarding entering data into SWIMS, and data entry into SWIMS.



Aquatic invasive species citizen lake monitoring network training, 2017 (Photo credit: SCRA)

Project RED

The Polk County Land and Water Resources Department partnered with the St. Croix River Association, the National Park Service, and the River Alliance to offer Project RED trainings in 2016 and 2017. Seventeen volunteers attended the training in 2016 and twenty volunteers attended the training in 2017. One volunteer returned two datasheets in 2016 and one volunteer returned two data sheets in 2017. Data was entered into SWIMS. Template presentations were edited to include local aquatic invasive species locations and concerns.



Project RED training, 2016

Education and Outreach

The Polk County Land and Water Resources Department delivered or provided aquatic invasive species education and outreach at numerous events and meetings for a variety of audiences.

- ✓ Big Blake Lake Annual Meeting, 2016
- ✓ Big Round Lake Annual Meeting, 2016 and 2017
- ✓ Bone Lake Annual Meeting, 2017
- ✓ Deer Lake Annual Meeting, 2017
- ✓ Pipe Lakes Annual Picnic, 2016
- ✓ Wapogasset/Bear Trap Lakes Annual Meeting, 2017
- ✓ Wild Goose Lake Annual Meeting, 2016 and 2017
- ✓ Polk County Fair, 2016 and 2017
- ✓ Amery School 4th and 5th grade, 2017
- ✓ Clayton School 3rd grade, 2016
- ✓ Luck School 3rd grade, 2016 and 2017
- ✓ Osceola School 4th grade, 2016 and 2017
- ✓ St. Croix Falls School 5th grade, 2016 and 2017
- ✓ Bi-weekly radio program, 2016 and 2017
- ✓ Amery Lakes District newsletter, 2016 and 2017
- ✓ DNR press releases to local papers, 2016 and 2017
- ✓ Balsam Lake Library, 2016 and 2017



Luck School 3rd grade, 2017 (Photo credit: SCRA)

Lake Maps

In 2017, the Polk County Land and Water Resources Department assisted the Polk County Association of Lakes and Rivers with a reprint of customized waterproof aquatic invasive species lake maps. Five lake organizations reprinted maps and one organization paid for a map to be designed for their lake.

Augmented Enforcement

In 2016, the Polk County Land and Water Resources Department worked with the Polk County Sheriff's Department to develop education information for officers to use to enforce the Aquatic Invasive Species Transport Ordinance. The Land and Water Resources Department also began a discussion with the Sheriff's Department regarding future training needs related to aquatic invasive species.

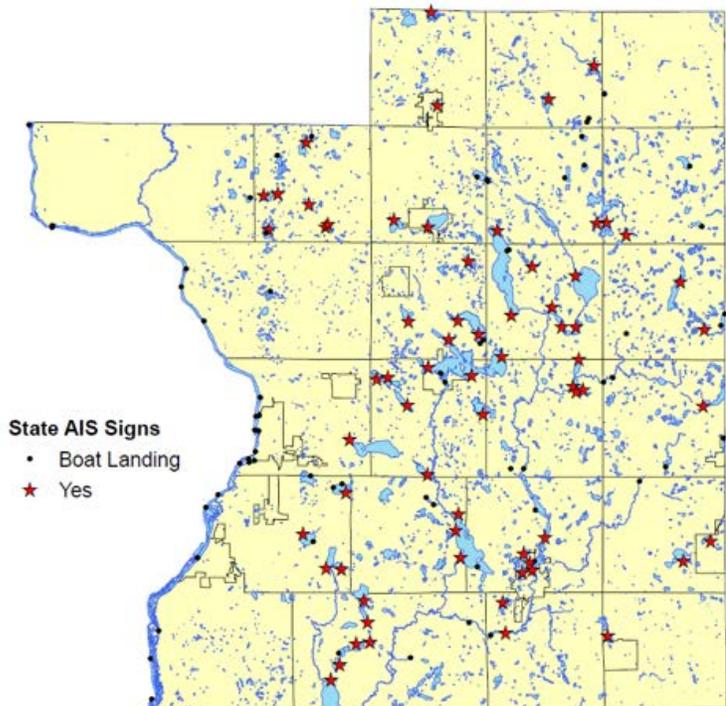
On Saturday, August 6th, 2016, the Polk County Land and Water Resources Department worked with the Wisconsin Department of Natural Resources Water Guard to provide augmented enforcement at Cedar Lake. The effort was paired with their Clean Boats, Clean Waters program.

Aquatic Invasive Species Signs

Lakes that were visited in 2016 and 2017 were checked for Wisconsin Department of Natural Resources and Polk County Ordinance aquatic invasive species signs at the boat landings. Signs were installed at Andrus Lake, Antler Lake, Bass Lake, Half Moon Lake, Largon Lake, McKeith Lake, Pickerel Lake, Round Lake (Laketown), and Tarbert Lake.



Aquatic invasive species sign installation at Andrus Lake, 2017



Fishing Tournaments

The Polk County Land and Water Resources Department assisted in making contacts between lakes involved in a June 2016 musky tournament which included Bear Trap Lake, Big Blake Lake, Big Round Lake, Bone Lake, Cedar Lake, Deer Lake, and Wapogasset Lake. The Bone Lake Management District spoke with the tournament director regarding the Eurasian water milfoil that had recently been found in Cedar Lake. Tournament anglers were alerted that there was Eurasian water milfoil in Cedar Lake. Additional lakes in the tournament were notified and it was suggested that their Clean Boats, Clean Waters volunteers be especially vigilant the weekend of the tournament.

Aquatic Invasive Species Trainings

The Polk County Land and Water Resources Department attended all Wisconsin Department of Natural Resources aquatic invasive species trainings in 2016 and 2017, including spring and fall aquatic invasive species coordinator meetings and aquatic invasive species partnership calls. Staff also attended train-the-trainer workshops for programs such as Project RED, Bridge Snapshot Day, Aquatic Invasive Species Citizen Lake Monitoring Network, and Clean Boats, Clean Waters.

Polk County Aquatic Invasive Species Strategic Plan

The Polk County Aquatic Invasive Species Strategic Plan was approved in October 2015 and largely implemented with this grant. While creating the plan, citizens determined that progress should be reviewed and updated on an annual basis. This review took place at the October 2016 and October 2017 Polk County Association of Lakes and Rivers meetings. The status of implementation was presented and ideas for future action items were discussed.

Priority ideas for future focus included: infestation indication signs at landings, a Polk County aquatic invasive species database, the formation of a communication network, the inclusion of aquatic invasive species information in the Polk County Tourism Guide, and providing education for fishing tournaments.

Polk County Response to Early Detection Aquatic Invasive Species

The Polk County Land and Water Resources Department prepared a Polk County Response to Early Detection Aquatic Invasive Species document in 2017. This document outlines the Land and Water Resources Department's response to the early detection of aquatic invasive species discovered in Polk County and includes steps to form a task force in response to new infestation and example lake-specific rapid response plans. Activities to increase the likelihood of early detection of aquatic invasive species by lake and river organizations and citizen steps to report a new aquatic invasive species are also included in the document. The draft Polk County Response to Early Detection Aquatic Invasive Species was presented at the October 2017 PCALR meeting.

Regional Aquatic Invasive Species Strategic Plan

The Polk County Land and Water Resources Department also participated in the Aquatic Invasive Species Work Group lead by the St. Croix River Association to develop a St. Croix Basin Aquatic Invasive Species Strategic Plan.



Appendix A

Zebra Mussel Discovery and Task Force

Polk County Zebra Mussel Task Force
1/20/17
St. Croix River Association Mtg. Room

ATTENDEES

Katelin Anderson, Polk County LWRD
Jeremy Williamson, Polk County LWRD
Joan Leedy, Deer Lake Improvement Association
Pat Cororan, Deer Lake Improvement Association
Tom McBride, Deer Lake Improvement Association
Dave Wedan, US Fish and Wildlife Service
Bob Boyd, Bone Lake Management District
Angelique Dahlberg, St. Croix River Association
Alex Smith, Wisconsin Department of Natural Resources
Mark Sundeen, Wisconsin Department of Natural Resources
Byron Karns, US National Park Service
Cheryl Clemens, Harmony Environmental, facilitator

MEETING NOTES

Current Status

Deer Lake

A single zebra mussel adult was found by a lake homeowner's guest on the NE shore of Deer Lake on 9/02/16. The substrate was rocky. Later that same week Katelin Anderson and Jeremy Williamson (Polk County), Jim Miller (Deer Lake resident), and Dave Wedan (USFWS) searched shallow water in the vicinity and the public access on the NE side of the Deer Lake.

The Deer Lake Improvement Association (DLIA) sent out email notices to about 75% of lake residents and mailed a notice to all lake residents by October 1. The notice let residents know a zebra mussel was found, provided a description, and encouraged them to check docks and boats as they were pulled out of the water for the season.

The DLIA also informed dock service providers about the zebra mussel discovery and requested that they check any docks or equipment pulled out of Deer Lake. John Wright coordinated this effort. On October 20, 2016 Jim Miller and Cheryl Clemens checked docks and lifts pulled out of the water.

Jeremy Williamson reviewed suspect mussels brought in for identification. No additional zebra mussels were found in the lake.

A veliger tow taken by Byron Karns (USNPS) in July 2016 was negative.

Plate samplers installed at the boat landing by Dave Wedan (USFWS) were negative.

Big McKenzie

Zebra mussels (4-5) were found on a dock removed from Big McKenzie Lake in Burnett County in late October 2016. About the same amount were found about ½ mile away in a follow up shoreline survey. Tows were conducted, but it was likely too late in the season to detect veligers. Pamela Toshner (WDNR) is coordinating follow-up monitoring.

St. Croix River

Zebra mussels are found at the northern city limits of Stillwater to the confluence with the Mississippi (lower 21 miles).

Bass Lake (St. Croix County)

Discovered in the lake in 2010.

Minnesota

Zebra mussels are found in many lakes in the Twin Cities metro area. Angelique is working with a zebra mussel task force for several MN counties.

Monitoring Methods (Matrix created from input from project participants)

| Method | Description | Cost | Comments | Evaluation |
|-----------------------|--|--|--|--|
| Cinder blocks/bricks | Encase with wire mesh, attach to dock or float | | Wire mesh to keep carp, blue gills from eating ZMs | Works great. Place under dock for shade. |
| PVC Plate Sampler | Vertical series of PVC plates, mark with float | \$40-\$50/each Plans also available (Dave W.) | | Worth doing but may not attract as many ZMs as the blocks. |
| SCUBA Divers | Examine and collect substrate | Expensive to hire divers | | Not as effective as blocks. |
| Net Tows for Veligers | Collect water samples at various spots on the lake (combine samples) | Net: \$600 Sample analysis \$75-\$95/each | Best time is early July | Negative result does not mean adults not present |
| Shoreline Search | Turn rocks over and examine substrate and plants for ZMs | | Can complete with volunteers or staff | |
| Smart Prevention | Combination of meander survey – rake collection of aquatic plants, veliger tows, boat landing survey | | Polk County LWRD completes for priority sites | |

Considerations for all Monitoring

- ZMs prefer shade, rocky substrate
- Will also attach to aquatic plants
- Target boat launch sites

Genetic analysis of adult zebra mussels is used to detect the source of the infestation (University of MN). It is not a monitoring method.

Deer Lake Monitoring Plan for 2017 (Tentative)

| Method | Responsible Party | Cost | Comments | Needs |
|---|---|--|--|--|
| Cinder blocks/bricks | DLIA | | Encourage lake residents to place blocks beneath docks and monitor regularly | Cinder block kits (distribute at annual meeting) Cinder block guidance: Pictures and description, ID contacts, monitoring log |
| PVC Plate Sampler | USFWS To be installed at boat landing Checks 2X/month | \$40-\$50/each Plans also available (Dave W.) | Install at additional locations (DLIA)? Plate from Dave W. left with LWRD for site where ZM found in 2016 | |
| SCUBA Divers | Examine substrate looking for adult ZM | If volunteers are available, target rocky shorelines | | ZM ID |
| Net Tows for Veligers | DLIA USNPS (1X) | Net: \$600 Sample analysis \$75-\$95/each | Best time is early July. Collect samples 2X/week from mid-June to mid-July | |
| Shoreline Search | DLIA | Printed guidance Email announcements | Encourage lake residents to perform shoreline search | Provide guidance: Pictures and description, ID contacts, monitoring log, target rocky shorelines |
| Smart Prevention (Meander, veliger tow, boat landing check) | Polk LWRD | | Polk County LWRD will complete for Deer Lake | |

Other Polk County Lakes and Rivers

USNPS monitoring (since mid-90s) focuses on water bodies with likely threat to the St. Croix River in Polk County. Veliger tows conducted at Bone Lake, Balsam Lake, and Deer Lake.

USFWS plate sample monitoring considers destination lakes and MN sources. Current list of monitored lakes in Polk County: Cedar, Big, Wapogasset, Deer, Long, Loveless, Balsam, Half Moon, Bone, Big Round, Big Butternut.

| BASIC Zebra Mussel Monitoring plan for lakes (no detected ZMs) | | | | |
|---|---|--|--|---|
| Method | Responsible Party | Cost | Comments | Needs |
| Cinder blocks/bricks | Lake Organizations PCALR (Coordinate outreach?) | | Encourage lake residents to place blocks beneath docks and monitor regularly | Cinder block kits (distribute at annual meetings) Cinder block guidance: Pictures and description, ID contacts, monitoring log |
| Additional Monitoring Recommended for Priority/Destination Lakes | | | | |
| PVC Plate Sampler | USFWS To be installed at boat landings Checked 2X/month | \$40-\$50/each Plans also available (Dave W.) | | |
| Net Tows for Veligers | USNPS (?) | Net: \$600 Sample analysis \$75-\$95/each | Single sample early July | |
| Smart Prevention (Meander, veliger tow, boat landing check) | Polk LWRD | | Lakes selected by Polk LWRD | |

Develop criteria/process for identifying and explaining destination or priority lakes. Offer additional services here (?).

COUNTYWIDE ZM MONITORING AND PREVENTION OUTREACH

| Method and Messages | Target Audience | Lead Organization | Funding/ Cost |
|--|---|--|--------------------------|
| <u>Presenters and Canned Presentation:</u> All topics below | Lake Organizations at annual meetings | Polk County LWRD (?) PCALR (?) | Rapid Response Grant (?) |
| <u>Handout:</u> ZM ID, methods for monitoring, emphasize cinder blocks – build your own, shoreline surveys | Lake Organizations to Lake Residents | Polk County LWRD (?) PCALR (?) | Rapid Response Grant (?) |
| <u>Example Newsletter Articles:</u> All topics (could follow presentation, or break up into several articles) | Lake Organizations to Lake Residents | | |
| <u>Press Release, handout:</u> List ZM waters, explain decontamination procedures, don't have carpeting on boats, waiting times/temps. after removing boats and equipment from these lakes. (MN protocol for guidance) | General Public Dock Service Providers | | Rapid Response Grant (?) |
| <u>Clean Boats, Clean Waters Contacts:</u> Provide information about ZM lakes (map/list), emphasize draining and checking if boaters came from these lakes | Boaters at CBCW Landings CBCW staff receiving training | Polk County LWRD to Lake Organizations w/ CBCW | Rapid Response Grant (?) |
| <u>Coordination with tournament organizers ??:</u> Drain live wells, drop motors; don't bring your boat here if you've been these (ZM waters) without decontamination; decontamination procedures | June Jam: Muskies, Inc.; Indianhead Musky Tournament; anglers participating in fishing tournaments (If <20 participants no permits, otherwise on WNDR web site) | | Rapid Response Grant (?) |
| <u>Public Meeting with Press Release:</u> Recent ZM discoveries, monitoring, all prevention topics | | | Rapid Response Grant (?) |
| <u>Presentations and Curriculum</u> | Schools | LWRD, other agencies, lake organizations | |
| | | | |

ADDITIONAL NOTES

Clean Boats, Clean Waters data provides where boat came from most recently, number of launches

Landing cameras provide number of launches

Rapid response grant should be applied for before March of after July

INFO TO GATHER

Pine County Risk Assessment (Angelique)

Example Monitoring Plan (Byron)

Develop baseline of lakes (use CLMN data, add calcium samples (?)) – Byron says no)

NEXT MEETING

Thursday, February 9

1-3 p.m.

St. Croix River Association, 230 S. Washington Street, St. Croix Falls, WI

Meeting Topics

ZM Control Options (Who can present this information?)

Polk County Monitoring and Prevention Strategy (who takes lead?)

- Coordinate with Polk County AIS Strategic Plan / PCALR Review and Update in 2017
- Coordinate St. Croix River Watershed AIS Strategic Plan

Example Zebra Mussel Monitoring Strategy (Byron)

Identifying Priority Lakes for Monitoring and Outreach

Minnesota ZM Strategy Report (Angelique)

POLK COUNTY ZEBRA MUSSEL TASK FORCE

Thursday, February 9

1-3 p.m.

St. Croix River Association, 230 S. Washington Street, St. Croix Falls, WI

ATTENDEES

Katelin Anderson, Polk County LWRD

Jeremy Williamson, Polk County LWRD

Pat Cororan, Deer Lake Improvement Association

Tom McBride, Deer Lake Improvement Association

Dave Wedan, US Fish and Wildlife Service

Bob Boyd, Bone Lake Management District

Angelique Dahlberg, St. Croix River Association

Byron Karns, US National Park Service

Cheryl Clemens, Harmony Environmental

Updates

- ZM Workshop scheduled for April 24 (will include monitoring, control, decontamination)
- Polk County AIS Strategic Plan <http://www.co.polk.wi.us/landwaterreports>
PCALR Review and Update in 2017 (most likely June meeting)
- St. Croix River Watershed AIS Strategic Plan <https://www.stcroixriverassociation.org/invasive-species/ais-strategic-plan>
- Minnesota ZM Strategy Report (Angelique)

Example Zebra Mussel Monitoring Worksheet (Byron provided)

- Handout available
- 3-tiered approach suggested
- Different than matrix from meeting 1
- Either/both can be used as a starting point for further discussion of overall strategy

Rapid Response Grant Application(s)

- Money available after July
- Expenses retroactive for up to 6 months
- No application at this time, DLIA might pursue

Outreach Matrix

- Reviewed , updated, and assigned tasks
- Will develop list of available resources (Katelin is point person), send links and examples to Katelin, then re-evaluate need to create unique handouts
- We will share whatever we develop with each other

COUNTYWIDE ZM MONITORING AND PREVENTION OUTREACH¹

| Method and Messages | Target Audience | Lead Organization |
|--|---|--|
| <u>Presenters and Canned Presentation:</u> All topics below | Lake Organizations at annual meetings | Polk County LWRD |
| <u>Handout:</u> ZM ID, methods for monitoring, emphasize cinder blocks – build your own, shoreline surveys | Lake Organizations to Lake Residents | Polk County LWRD (?) PCALR (?) DLIA |
| <u>Cinder Block guidance:</u> Pictures and description, ID contacts, monitoring log | Lake Residents | DLIA |
| <u>Example Newsletter Articles:</u> All topics (could follow presentation, or break up into several articles) | Lake Organizations to Lake Residents | Polk County LWRD |
| <u>Press Release, handout:</u> List ZM waters, explain decontamination procedures, don't have carpeting on boats, waiting times/temps. after removing boats and equipment from these lakes. (MN protocol for guidance) | General Public Dock Service Providers | Polk County LWRD |
| <u>Clean Boats, Clean Waters Contacts:</u> Provide information about ZM lakes (map/list), emphasize draining and checking if boaters came from or leaving these lakes | Boaters at CBCW Landings CBCW staff receiving training | Polk County LWRD to Lake Organizations w/ CBCW |
| <u>Coordination with tournament organizers:</u> Drain live wells, drop motors; don't bring your boat here if you've been these (ZM waters) without decontamination; decontamination procedures | June Jam: Muskies, Inc.; Indianhead Musky Tournament; anglers participating in fishing tournaments (If <20 participants no permits, otherwise on WNDR web site) | DLIA Bone Lake MD (Friday night Indianhead mtg.) |
| <u>Public Meeting with Press Release:</u> Recent ZM discoveries, monitoring, all prevention topics | | |
| <u>Presentations and Curriculum</u> | Schools SCF 5 th grad camp (DLIA) | LWRD, other agencies, lake organizations |
| <u>Signs</u> | Post where ZM have been discovered – e.g. Deer Lake | DLIA |

¹ Existing AIS grants or new Rapid Response grants might fund these activities



Joint Minnesota and Wisconsin Zebra Mussel Workshop

Where: Alliance Church of the Valley
1259 WI-35, St. Croix Falls, WI

When: April 24, 2017 | 10 am - 3 pm



Zebra mussels are small, fingernail-sized invasive mussels that devastate native mussel populations. Native to Eastern Europe and Western Russia, they arrived in the Great Lakes in the ballast water of ships in 1988. Today, zebra mussels are found in the St. Croix River from Stillwater south to its confluence with the Mississippi River, in Forest Lake (Washington Co.), Bass Lake (St. Croix Co.), Deer Lake (Polk Co.), and Big McKenzie Lake (Burnett/Washburn Co.).



The bottom of a zebra mussel infested lake in MN.

The workshop will focus on zebra mussel monitoring, control, and watercraft decontamination. Speakers include the MN and WI Department of Natural Resources, University of Minnesota, St. Croix National Scenic Riverway, and U.S. Fish and Wildlife Service.

Registration required—to register or for more information, visit:
stcroixriverassociation.org/events

Joint Minnesota and Wisconsin Zebra Mussel Workshop

Alliance Church of the Valley
1259 WI-35, St. Croix Falls, WI
April 24, 2017 | 10 am - 3 pm

Agenda:

10:00 am Introductions and welcome

MONITORING

10:15 am Speaker series on monitoring
15 minutes for three speakers

Speakers will bring props to show off, audience can look at during lunch

Katelin Anderson (Polk Co LWRD)

Byron Karns (NPS)

Mike Sorensen (CLFLWD)

11:00 am Question and answer with speakers and audience

CONTROL

11:30 am Speaker on control
Keegan Lund or Kylie (MN DNR)

12:15 pm *Lunch*

1:15 pm Speaker on genetics and research
Sophie Mallez (U of M)

DECONTAMINATION

2:00 pm Speaker series on decontamination units
• Pros, cons, cost, details, purchasing, successes, failures

15 minutes for three speakers

Jerry Spetzman (Chisago Co)

Dave Wedan (USFWS)

Kyle (WDNR Water guard)

3:00 pm *Conclude*

FOR IMMEDIATE RELEASE

Zebra Mussel Discovered in Polk County

Balsam Lake, Wisconsin – April 11, 2017

In September 2016, a single adult zebra mussel was found on the northeast side of Deer Lake by a citizen. Partners from the Deer Lake Improvement Association, Harmony Environmental, Bone Lake Management District, Polk County Land and Water Resources Department, St. Croix River Association, Wisconsin Department of Natural Resources, National Park Service, and US Fish and Wildlife Service met this winter to coordinate a zebra mussel monitoring effort for Deer Lake and additional Polk County lakes and rivers. The monitoring effort will include shoreline searches, tow nets (which sample for immature zebra mussels), and plate/cinder block samplers that are left underwater for adult zebra mussels to attach to.

Zebra mussels are small, fingernail-sized invasive mussels that damage ecosystems by harming fisheries, smothering native mussels and crayfish, and littering beaches with their sharp shells. They attach to hard surfaces, including boats and docks, and clog water intake pipes. Native to Eastern Europe and Western Russia, zebra mussels were brought over in the ballast water of ships and first found in the Great Lakes in 1988. Today, zebra mussels are found in the St. Croix River from Stillwater south to its confluence with the Mississippi River and in nearby lakes such as Forest Lake and White Bear Lake in Washington County, Bass Lake in St. Croix County, and Big McKenzie Lake in Burnett and Washburn Counties.

Attend a free day-long workshop on Monday, April 24th at the Alliance Church of the Valley in St. Croix Falls to learn more about zebra mussel monitoring, control, and watercraft decontamination. Speakers will include representatives from the Minnesota and Wisconsin Departments of Natural Resources, University of Minnesota, U. S. Fish and Wildlife Service, St. Croix National Scenic Riverway, and more. For more information and to register visit: stcroixriverassociation.org/events.

The discovery of a zebra mussel on Deer Lake highlights the important role of citizens in preventing the spread of aquatic invasive species. If you're interested in learning to identify zebra mussels and other invasive species, contact Katelin Anderson at katelin.anderson@co.polk.wi.us or 715-485-8637.

The Polk County Land and Water Resources Department mission statement is to preserve, protect, and enhance our natural resources.

Katelin Anderson
Polk County Land and Water Resources Department
715-485-8637
katelin.anderson@co.polk.wi.us
100 Polk County Plaza—Ste 120
Balsam Lake, WI 54810

###

(371 words)



Dreissena polymorpha
Zebra mussel
© Paul Skawinski 2011

Photo Credit: Paul Skawinski, UW-Extension Lakes



Photo Credit: Minnesota Department of Natural Resources

Photo Credit: Paul Skawinski, UW-Extension Lakes

Polk County 2017 Zebra Mussel Update

Prepared by Katelin Anderson
Polk County Land and Water Resources Department

Dreissena polymorpha
Zebra mussel
© Paul Skawinski 2012

Zebra mussel distribution

Introduced to Great Lakes in 1980's

Current locations

- 📍 St. Croix River, south of Stillwater
- 📍 Forest Lake and White Bear Lake, MN
- 📍 Bass Lake, St. Croix County
- 📍 Big McKenzie Lake, Burnett/Washburn County



Zebra mussels in Polk County

In September 2016 an adult zebra mussel was found in Deer Lake by a citizen



Jeremy Williamson, Polk County Land and Water Resources Department

Deer Lake response

- 📍 Identification confirmed
- 📍 Search for more zebra mussels
None found
- 📍 Lake residents notified
- 📍 Lake service providers notified
- 📍 Zebra mussel task force
Identified a 2017 monitoring plan
 - Sampling with nets
 - Shoreline searches
 - Samplers



Zebra mussel biology

Attach to hard surfaces (plants, rocks, native mussels, docks, boats)

- 📍 Only invasive mussels have this ability
- 📍 Important to clean boats

Are microscopic in early life stages

- 📍 Important to drain water from boats

Females produce 1 million eggs per season



Zebra mussel identification

Alternating dark and light colored stripes

D-shaped shell that stands on a flat surface

¼ to 1 ½ inches long

Attach to hard surfaces



Zebra Mussel (*Dreissena polymorpha*)
Flat bottom—will stand on a flat surface



Triangular in shape
Alternating dark and light color stripes
University of Wisconsin Sea Grant Institute

Find something suspicious?

If you find what you think is a zebra mussel in Polk County

-  Collect 5-10 shells (mussels)
-  Place shells in water and keep refrigerated
-  Take a picture
-  Note the location where the shells were found
-  Contact INSERT YOUR LAKE INFO HERE
-  Contact Polk County Land & Water: 715-485-8699

Zebra Mussel Discovered in Polk County

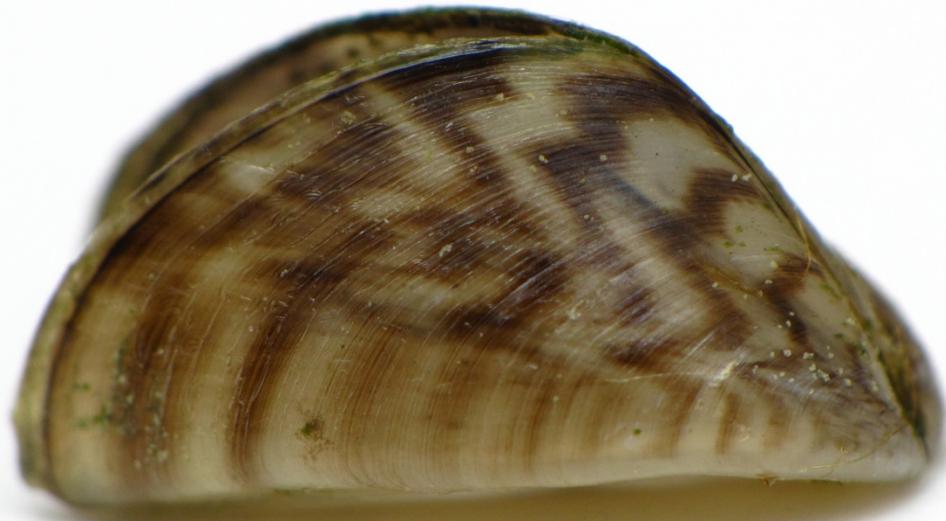
In September 2016, a single zebra mussel was found by a citizen on the northeast side of Deer Lake. This is the first time a zebra mussel has been found in Polk County.

Zebra mussels are small fingernail-sized invasive mussels that attach to all hard surfaces, including boats and docks, and clog water intake pipes. They are filter feeders, taking plankton out of the water that young fish rely on for food. They produce tens of thousands of young mussels each summer and can cover lake and river bottoms.

Over the winter, partners from a variety of organizations met to coordinate a zebra mussel monitoring effort for Deer Lake and surrounding Polk County lakes and rivers. The monitoring effort will include shoreline searches, tow nets (which sample for immature zebra mussels), and plate/cinder block samplers that are left underwater for adult zebra mussels to attach to.

With zebra mussels likely present in Polk County it is more important than ever that lake residents know how to identify zebra mussels and participate in prevention activities such as Clean Boats, Clean Waters and the Citizen Lake Monitoring Network for Aquatic Invasive Species. If you are interested in learning how to identify and monitor for zebra mussels and other invasive species, contact Katelin Anderson at katelin.anderson@co.polk.wi.us or 715-485-8637.

Attend a day-long workshop on Monday, April 24th at the Alliance Church of the Valley in St. Croix Falls to learn more about zebra mussel monitoring, control, and watercraft decontamination. For more information and to register visit: stcroixriverassociation.org/events.



Dreissena polymorpha
Zebra mussel
© Paul Skawinski 2011

Photo Credit: Paul Skawinski, UW-Extension Lakes



Photo Credit: Minnesota Department of Natural Resources



Appendix B

Clean Boats, Clean Waters

Clean Boats, Clean Waters Training

Wednesday, April 27th, 2016

1-3 PM

Polk County Government Center, County Board Room



- 1:00 Welcome and Introductions
- 1:10 Clean Boats, Clean Waters Watercraft Inspection Presentation
 - Aquatic invasive species 101: species profiles, distribution maps, and laws
 - * *Specimens will be available*
 - Recruiting and retaining volunteers
 - Inspector duties: data collection form and prompt handout
 - Clean Boats, Clean Waters data
- 2:30 Questions and Discussion
- 3:00 Wrap Up

Presenters

Polk County Land and Water Resources Department

Katelin Holm

katelin.holm@co.polk.wi.us

(715) 485-8637

Jeremy Williamson

jeremyw@co.polk.wi.us

(715) 485-8639

Clean Boats, Clean Waters



Watercraft Inspection Program



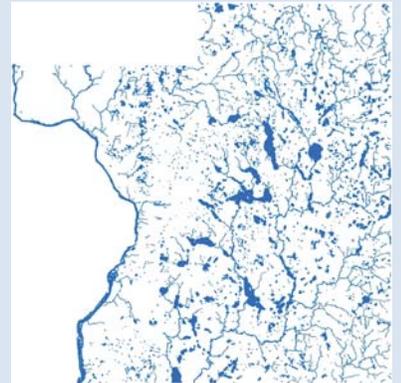
Polk County: A Gathering of Waters

42 square miles of water

437 lakes

365 miles of rivers and streams

21,000 acres of wetlands



Wisconsin: A Gathering of Waters

11,190 square miles of water

15,081 lakes

43,000 miles of rivers and streams

5.3 million acres of wetlands

6.4 million acres of Great Lakes

Estimated 1 million boats on waters each year!



Welcome to the Challenge!

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.
- Often aggressive, prolific, and mature early



How do they get here?

Shipping - ballast water

Intentional introduction – stocking

Canals - migration from the ocean

Nursery industry

Angler/Bait industry

Aquaculture

Aquarium trade



How do they spread?

Boaters

Anglers

Other water users
(sea planes, SCUBA)

Water gardens & aquariums

Natural dispersal



Why do we care?

Economic impacts

- Sport and commercial fishing
- Tourism
- Water users & property owners

Ecological impacts

- Fish, invertebrates, plants

Recreational impacts

- Boating
- Angling



Eurasian Water-milfoil



First found in WI in 1960s

Forms dense mats which interfere with navigation

Can spread from small fragments



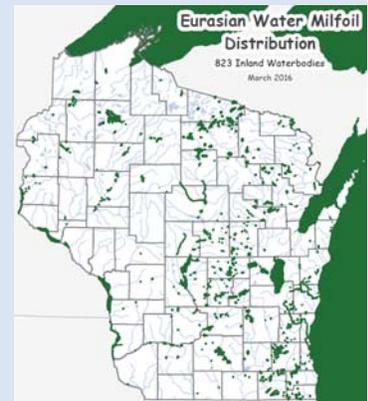
Northern or Eurasian Water-milfoil?



Eurasian Water-milfoil Distribution



5 Polk County Waterbodies



674 in April 2014

713 in February 2015

Eurasian Water-milfoil Distribution

275 waterbodies in Minnesota



Curly-leaf Pondweed



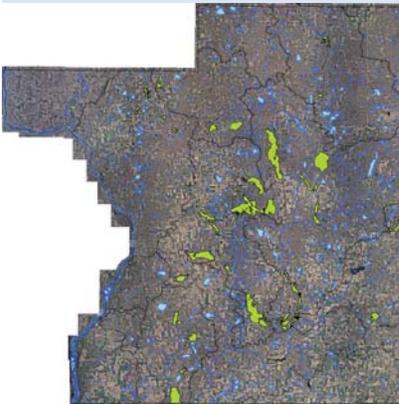
Paul Skawinski, UW-Extension Lakes

Accidentally introduced as aquarium plant (1880s)

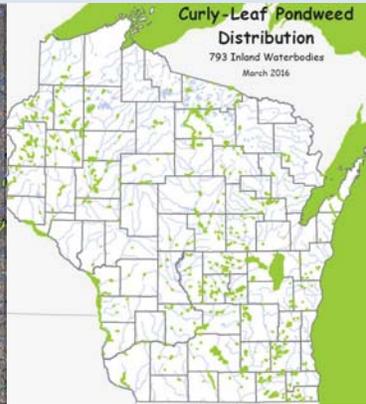
Active very early in growing season – even under ice

Can form dense mats, interfering with recreation and native plants

Curly-leaf Pondweed Distribution



42 Polk County waterbodies



Up from 538 in February 2015

Purple Loosestrife



Paul Skawinski, UW-Extension Lakes

Imported from Europe for gardens

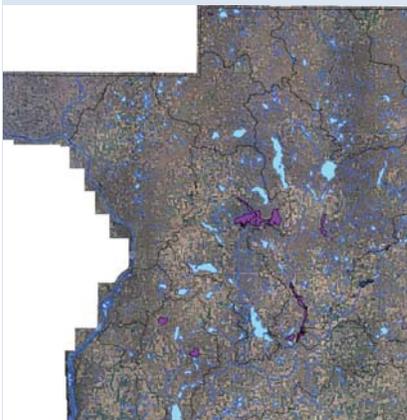
Spreads rapidly: >1 million seeds annually, plus vegetative spread

Flowers July – Sept

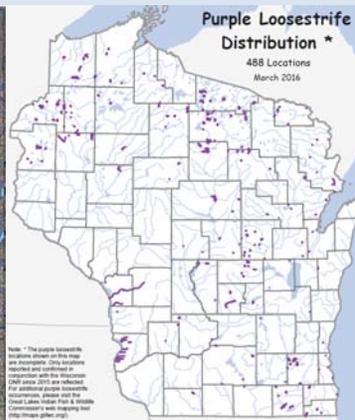
Semi-woody stems with edges



Purple Loosestrife Distribution



9 Polk County Waterbodies



208 in February 2015

Purple Loosestrife



Phragmites

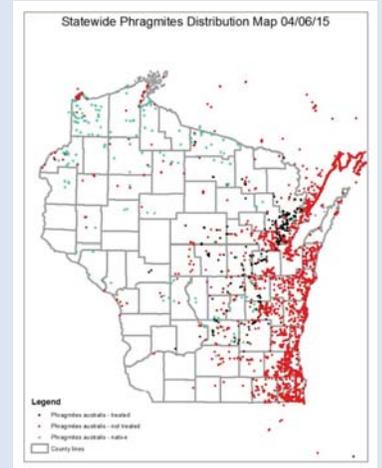


National Park Service

| Characteristic | Native | Invasive |
|---------------------|--|---|
| Stem color | Stem nodes are shiny and reddish-purple | Stem nodes are tan-green, dull and rigid |
| Leaf color | Lighter, yellow-green | Dark blue-green |
| Rhizome | Yellow | White to light yellow |
| Growth habit | Co-occurs with other plants | Tend towards mature, dense, monotypic stands |
| Other | Leaf sheaths fall off during the winter, leaving bare stems standing in the spring | Leaf sheaths do not fall off, litter from the previous year has remnant leaves. |

Great Lakes Phragmites Collaborative

Phragmites Distribution



Japanese Knotweed



Perennial, 5-10 feet tall

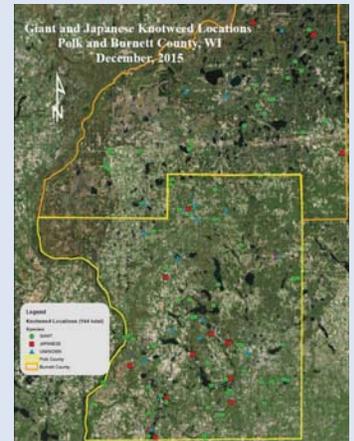
Flowers Aug – Sept

Zigzag stem

Hollow, bamboo like stem

Japanese Knotweed

9 Polk County Waterbodies: the Apple River Flowage, Balsam Lake, Big Lake, Cedar Lake, Hatchet Lake, Little Butternut Lake, the St. Croix River, Unnamed pond, and Wapogasset Lake



Rusty Crayfish



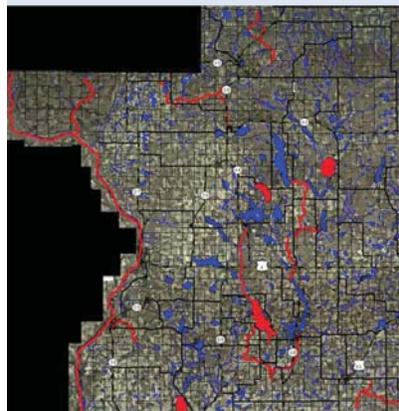
Paul Skawinski, UW-Extension Lakes

Brought to WI as bait 1960's

Severely reduce aquatic vegetation, impacting spawning

Aggressive; compete with native crayfish and fish for cover and food

Rusty Crayfish Distribution



12 Polk County waterbodies



527 in April 2014
524 in February 2015

Zebra Mussels



Ballast water introduction to the Great Lakes in 1980's

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



Paul Skawinski, UW-Extension Lakes

Zebra Mussel Distribution



141 waterbodies in Minnesota



163 in April 2014

182 in February 2015

Zebra & Quagga Mussels



Zebra Mussels

Quagga Mussels

Spiny Waterflea



Ballast water introduction to Great Lakes in 1980s

Disrupt food chain & harm native fish

Foul fishing gear—form gummy clumps



Spiny Waterflea Distribution

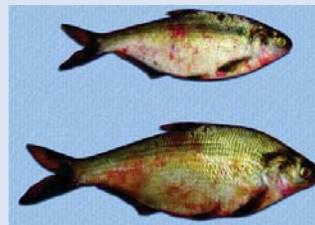


39 waterbodies in Minnesota



16 in February 2015

Viral Hemorrhagic Septicemia



Documented in Lake Michigan, Lake Superior, & Winnebago System

Can kill more than 25 fish species

No danger to humans



Pop eye, anemia, swollen organs

Flowering Rush



Paul Skawinski, UW-Extension Lakes

Grow emergent in several feet of water (up to 10 feet)

Spread by rhizomes and bulbils



Paul Skawinski, UW-Extension Lakes

Flowering Rush



Ben Legler

Paul Skawinski, UW-Extension Lakes



Starry Stonewort



Paul Skawinski, UW-Extension Lakes

Spreads only by fragments and bulbils

Dispersed by equipment moving between lakes, especially anchors



Paul Skawinski, UW-Extension Lakes

European Frog Bit

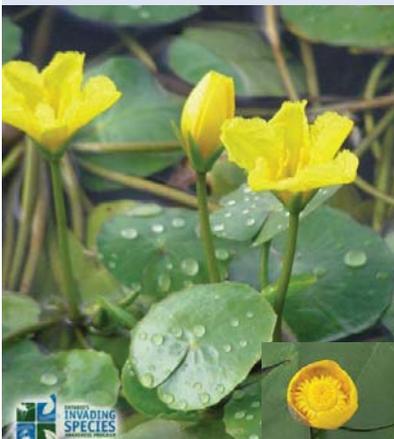


INVASING SPECIES



INVASING SPECIES

Yellow Floating Heart



INVASING SPECIES



5400709

Water Chestnut



INVASING SPECIES



INVASING SPECIES

Water Hyacinth



Water Lettuce



Yellow Iris



Asian Clam



Faucet & New Zealand Mudsnails



AIS Prevention Message

INSPECT boats, trailers, and equipment.

REMOVE all attached aquatic plants and animals.

DRAIN all water from boats, vehicles, and equipment.

NEVER MOVE plants or live fish away from a waterbody.

BUY minnows from a WI bait dealer. Use leftover minnows only under certain conditions.



VHS Regulations

All water must be drained from boats and equipment.

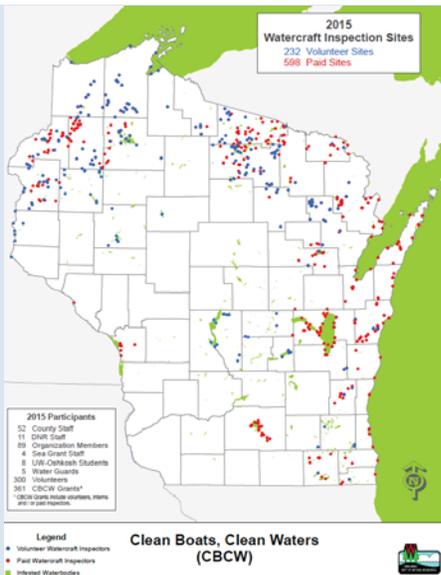
- Up to 2 gal may be used for minnows.

You may take leftover minnows away from any state water and use them again on that same water, or on other waters, but only if no lake or river water, or other fish were added to their container.

You may not transport any live fish or fish eggs away from any state waters.

Polk County Laws

Polk County Ordinance 29-11: prohibits launching or operating on a public roadway any boat, boat trailer, or hunting, trapping, fishing, or boating equipment, including canoes, lines, anchors, nets, decoys, and waders if aquatic plants or invasive animals are attached.



Recruiting Volunteers

Commit volunteers

- Newsletters, phone calls, personal visits

Develop a recruiting/training packet

Appoint a coordinator to schedule and organize volunteer hours

Select optimum days and high use landing sites



Retaining Volunteers

Offer supplies

- T-shirt and hat
- Forms
- Educational materials



Generous thank-you!

Publish volunteer names

Advertise accomplishments

Awards and certificates

Materials

- CBCW t-shirt or sticker
- Clipboard and pencil
- Watercraft inspection form
- Prompt handout
- Publications
- List of lakes with identified AIS
- Plastic bags and markers
- Cell phone and local contacts



Getting Started: Inspector Duties

Inform and educate boaters

Perform watercraft inspections

Collect and report watercraft data



Boat Landing Message

Discuss the AIS preventive actions (which are now law)

- Inspect
- Remove
- Drain
- Never move



Perform a watercraft check – Involve boater!



Offer a sticker or brochure

State of Wisconsin Department of Natural Resources Wisconsin Lakes Partnership

Watercraft Inspection Report
Form 3000-120 (R 4/14)

Notice: Information is collected under s. 33.02, Wis. Stats. Personally identifiable information, including names of volunteers, will be broadly distributed in conjunction with lakes data.

Inspector Name(s) _____ Date _____ Start Time am pm End Time am pm Total Hours Spent _____
 Waterbody Name _____ County _____ Landing Location _____

| Boat Was Inspected | Questions to Ask Boater | | Was boat used during the past 5 days on a different waterbody? | | If YES, who? | Waterbody Name County / State | Boat Name | Discuss Following Prevention Steps with Boater | | | | I feel confident that boater understands the steps necessary to prevent the spread of AIS. (Check one) | | | | | | | |
|--------------------|--|--|--|---|--------------|----------------------------------|-----------|--|---|---|---|--|---|-------------------|----------|-------|----------------|--|--|
| | Have you been contacted by a watercraft inspector this season? | Are you willing to answer a few questions? | Y | N | | | | Y | N | Y | N | Y | N | Strongly Disagree | Disagree | Agree | Strongly Agree | | |
| | | | | | | | | | | | | | | | | | | | |

Steps 1 & 2: Inspect boat, trailers and equipment and remove any attached plants/animals.
 > Have you heard of this before? (see prompt)
Step 3: Drain all water from boats, vehicles and equipment.
 > Do you have any questions? (see prompt)
If angler, state following steps:
Step 4: Drain water from livewells and containers holding your catch.
 > This is a relatively new law. Were you aware that this is required? (see prompt)
 Do you use live bait? (if YES, share message below)
Bait Message: if live bait comes in contact with lake/river water, it can only be used on that same waterbody or discarded in trash. (bait= minnows/leeches/worms)
 > Do you have any questions on this law as it can be a little confusing? (if yes, see Prompt and offer bait sticker/brochure)

TOTAL # _____ Enter the totals & waterbody information into SIS/IMS at <http://dnr.wi.gov/lakes/cbcm-data>

Comments: _____

Sheet _____ of _____

New Prompts Handout

Resource for inspector

- Reminder of why steps important
- Leads to discussion rather than just information
- Local concerns addressed

Diagram layout simple & easy to read

Quick visual reminder for live bait

AIS Prevention Step Prompts to Assist Inspector

If boaters are not familiar with the prevention steps or have questions, help them understand the reasons for taking these actions. You can use the prompts below to assist you in your explanation and discussions at the boat landing. **Remember the goal is to make this as relevant as possible to the boater by localizing the issue through the conversation.**

Steps 1 & 2 – INSPECT AND REMOVE

Why this is important:
Plants and animals can easily attach to boat/equipment or become entangled in boat motors and fishing lines and then be moved to another lake. This is a concern in this area because-**(ADD LOCAL CONCERNS HERE)**

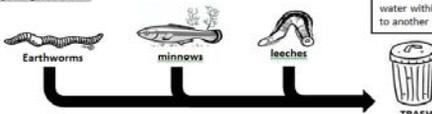
Step 3 – DRAIN BOAT AND EQUIPMENT

Why this is important:
Many organisms such as spiny water flea, juvenile zebra mussels, or plant fragments (use organisms that are of concern in your area) are microscopic and invisible to the naked eye and easily transported in water from one waterbody to the next. We know that many of the boaters that frequent our lake also spend time at- **(ADD LOCAL CONCERNS HERE)**

Step 4 – DRAIN LIVEWELLS & CONTAINERS HOLDING CATCH

LIVE BAIT MESSAGE

Types of Live Bait:



For Live Bait specific questions -
if bait comes in contact with water that contains AIS, the bait or water within the container can carry AIS and might be transported to another waterbody.



Collecting Data



- Determine traveling patterns of recreational users
- Determine if boaters understand prevention steps

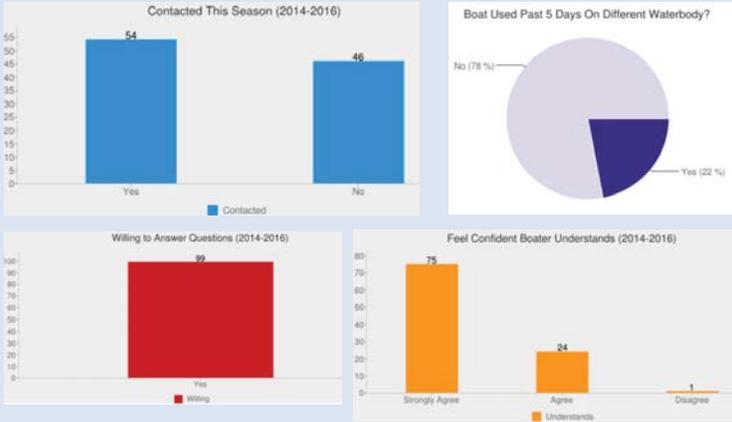
Statewide efforts for 2014:

133,305 boat inspections
280,657 people contacted
80,827 hours spent

Polk County efforts for 2014:

7,653 boat inspections
17,258 people contacted
5,698 hours spent

Polk County 2014-2016 Data



How to Change Boater Behavior

- Educational materials
- Prompts (decals, stickers)
- Personal contacts
- Modeling behavior



Steps for Effective Programs

- Maintain effective inspection hours
- Wear Clean Boats, Clean Waters t-shirts or stickers
- Develop an accurate and concise message
- Collect and report data
- Report suspect specimens



Upcoming Events: Citizen Lake Monitoring AIS Training

Citizen Lake Monitoring AIS Training

Tuesday, June 7th

1-3 pm

Balsam Lake



Upcoming Events: Project RED

Project RED

Thursday, June 23rd

OR

Thursday, September 15th

10 am-3:30 pm

St. Croix River Association



Upcoming Events: Bridge Snapshot Day

Bridge Snapshot Day

Saturday, September 10th



Clean Boats, Clean Waters Training

Wednesday, April 26th, 2017

1-3 PM

Polk County Government Center, AB Conference Room



Welcome and Introductions

Clean Boats, Clean Waters Watercraft Inspection Presentation

- Aquatic invasive species 101: species profiles, distribution maps, and laws

- Deer Lake zebra mussel update

- Recruiting and retaining volunteers

- Inspector duties: data collection form and prompt handout

- Clean Boats, Clean Waters data

SWIMS Demonstration

Clean Boats, Clean Waters Website and Videos

Future Clean Boats, Clean Waters Mobile App

Wrap Up

Katelin Anderson

Polk County Land and Water Resources Department

katelin.anderson@co.polk.wi.us

(715) 485-8637

Clean Boats, Clean Waters



Watercraft Inspection Program



Polk County: A Gathering of Waters

42 square miles of water

437 lakes

365 miles of rivers and streams

21,000 acres of wetlands



Wisconsin: A Gathering of Waters

11,190 square miles of water

15,081 lakes

43,000 miles of rivers and streams

5.3 million acres of wetlands

6.4 million acres of Great Lakes

Estimated 1 million boats on waters each year!



Welcome to the Challenge!

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.
- Often aggressive, prolific, and mature early



How do they get here?

Shipping - ballast water

Intentional introduction – stocking

Canals - migration from the ocean

Nursery industry

Angler/Bait industry

Aquaculture

Aquarium trade



How do they spread?

Boaters

Anglers

Other water users
(sea planes, SCUBA)

Water gardens & aquariums

Natural dispersal



Why do we care?

Economic impacts

- Sport and commercial fishing
- Tourism
- Water users & property owners

Ecological impacts

- Fish, invertebrates, plants

Recreational impacts

- Boating
- Angling



Eurasian Water-milfoil



First found in WI in 1960s

Forms dense mats which interfere with navigation

Can spread from small fragments



Native milfoil typically has 7 to 10 pairs

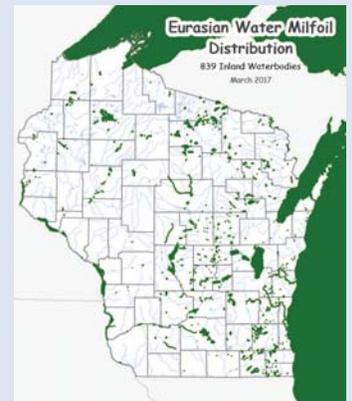
Northern or Eurasian Water-milfoil?



Eurasian Water-milfoil Distribution



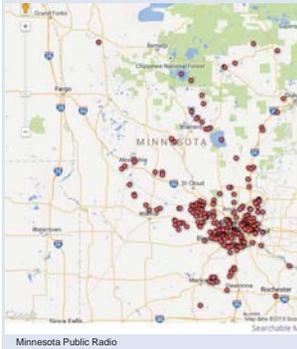
5 Polk County Waterbodies



674 in 2014, 713 in 2015, and 823 in 2016

Eurasian Water-milfoil Distribution

275 waterbodies in Minnesota



Curly-leaf Pondweed



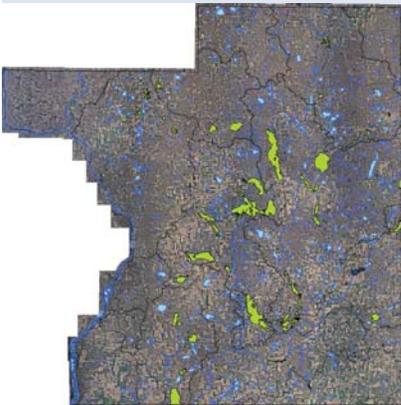
Paul Skawinski, UW-Extension Lakes

Accidentally introduced as aquarium plant (1880s)

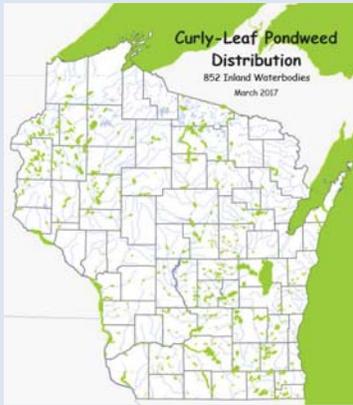
Active very early in growing season – even under ice

Can form dense mats, interfering with recreation and native plants

Curly-leaf Pondweed Distribution



42 Polk County waterbodies



538 in 2015 and 793 in 2016

Purple Loosestrife



Paul Skawinski, UW-Extension Lakes

Imported from Europe for gardens

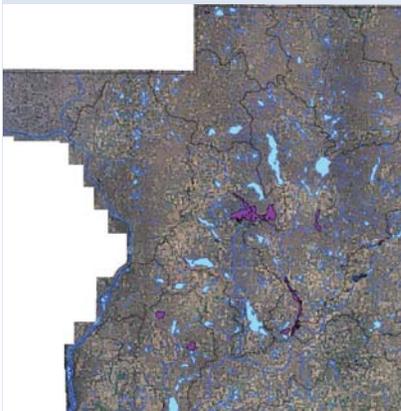
Spreads rapidly: >1 million seeds annually, plus vegetative spread

Flowers July – Sept

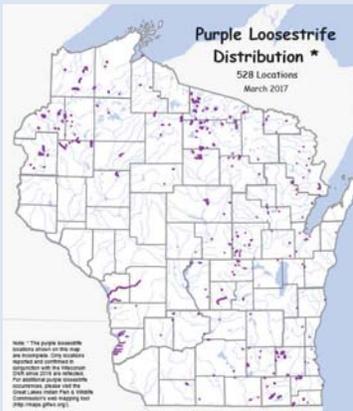
Semi-woody stems with edges



Purple Loosestrife Distribution



9 Polk County Waterbodies



208 in 2015 and 488 in 2016

Purple Loosestrife



Rusty Crayfish



Paul Skawinski, UW-Extension Lakes

Brought to WI as bait 1960's

Severely reduce aquatic vegetation, impacting spawning

Aggressive; compete with native crayfish and fish for cover and food

Rusty Crayfish Distribution



12 Polk County waterbodies



527 in 2014, 524 in 2015, and 678 in 2016

Zebra Mussels



Photo credit: Paul Skawinski, UW-Extension Lakes

Ballast water introduction to the Great Lakes in 1980's

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



Paul Skawinski, UW-Extension Lakes

Zebra Mussel Distribution



141 waterbodies in Minnesota



163 in 2014, 182 in 2015, and 249 in 2016

Zebra & Quagga Mussels



Zebra Mussels

Quagga Mussels

Spiny Waterflea



Ballast water introduction to Great Lakes in 1980s

Disrupt food chain & harm native fish

Foul fishing gear—form gummy clumps



Spiny Waterflea Distribution

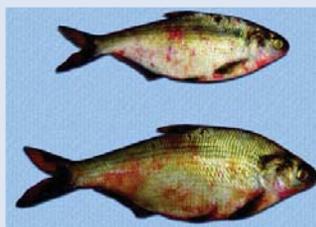


Minnesota Public Radio
39 waterbodies in Minnesota



16 in 2015 and 22 in 2016

Viral Hemorrhagic Septicemia



Documented in Lake Michigan, Lake Superior, & Winnebago System

Can kill more than 25 fish species

No danger to humans

Pop eye, anemia, swollen organs

Starry Stonewort



Paul Skawinski, UW-Extension Lakes

Spreads only by fragments and bulbils

Dispersed by equipment moving between lakes, especially anchors



Paul Skawinski, UW-Extension Lakes

Starry Stonewort Distribution



Faucet & New Zealand Mudsnails

3 inland water bodies in Dane County



AIS Prevention Message

INSPECT boats, trailers, and equipment.

REMOVE all attached aquatic plants and animals.

DRAIN all water from boats, vehicles, and equipment.

NEVER MOVE plants or live fish away from a waterbody.

BUY minnows from a WI bait dealer. Use leftover minnows only under certain conditions.

**PREVENT THE SPREAD OF
INVASIVE SPECIES
IT'S THE LAW**

PENALTIES MAY EXCEED \$3000

Before launching and before leaving **YOU MUST:**

- ✓ **INSPECT** boats, trailers, and equipment.
- ✓ **REMOVE** all attached aquatic plants and animals.
- ✓ **DRAIN** all water from boats, vehicles, and equipment.
- ✓ **NEVER MOVE** plants or live fish away from a waterbody.*

STOP AQUATIC HITCHHIKERS!
Prevent the spread of invasive species. It's the law.

*Limited exceptions apply. Visit WWW.DNR.WI.GOV and search for "BAIT LAWS".

VHS Regulations

All water must be drained from boats and equipment.

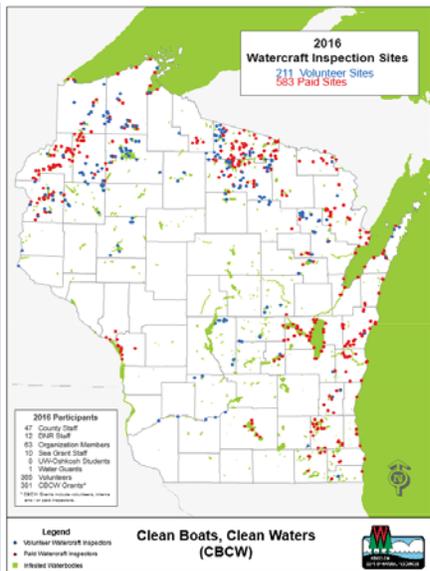
- Up to 2 gal may be used for minnows.

You may take leftover minnows away from any state water and use them again on that same water, or on other waters, but only if no lake or river water, or other fish were added to their container.

You may not transport any live fish or fish eggs away from any state waters.

Polk County Laws

Polk County Ordinance 29-11: prohibits launching or operating on a public roadway any boat, boat trailer, or hunting, trapping, fishing, or boating equipment, including canoes, lines, anchors, nets, decoys, and waders if aquatic plants or invasive animals are attached.



Recruiting Volunteers

Commit volunteers

- Newsletters, phone calls, personal visits

Develop a recruiting/training packet

Appoint a coordinator to schedule and organize volunteer hours

Select optimum days and high use landing sites



Retaining Volunteers

Offer supplies

- T-shirt and hat
- Forms
- Educational materials



Generous thank-you!

Publish volunteer names

Advertise accomplishments

Awards and certificates

Materials

- CBCW t-shirt or sticker
- Clipboard and pencil
- Watercraft inspection form
- Prompt handout
- Publications
- List of lakes with identified AIS
- Plastic bags and markers
- Cell phone and local contacts



Getting Started: Inspector Duties

Inform and educate boaters

Perform watercraft inspections

Collect and report watercraft data



Boat Landing Message

Discuss the AIS preventive actions (which are now law)

- Inspect
- Remove
- Drain
- Never move



Perform a watercraft check – Involve boater!



Offer a sticker or brochure

State of Wisconsin Department of Natural Resources Wisconsin Lakes Partnership

Watercraft Inspection Report
Form 3000-120 (R 4/14)

Notice: Information is collected under s. 33.02, Wis. Stats. Personally identifiable information, including names of volunteers, will be broadly distributed in conjunction with lakes data.

Inspector Name(s) _____ Date _____ Start Time am pm End Time am pm Total Hours Spent _____ Volunteer _____

Waterbody Name _____ County _____ Landing Location _____

| Referring Agency | Questions to Ask Boater | | Was boat used during the past 5 days on a different waterbody? | | Waterbody Name County / State | Don't Know | Discuss Following Prevention Steps with Boater | | I feel confident that boater understands the steps necessary to prevent the spread of AIS. (Check one) | | | | |
|------------------|--|--|--|---|----------------------------------|------------|---|---|--|---|-------|----------|------------|
| | Have you been contacted by a watercraft inspector this season? | Are you willing to answer a few questions? | Y | N | | | Y | N | Y | N | Agree | Disagree | Don't Know |
| | | | | | | | Steps 1 & 2: Inspect boat, trailers and equipment and remove any attached plants/animals. ▶ Have you heard of this before? (see prompt) Step 3: Drain all water from boats, vehicles and equipment. ▶ Do you have any questions? (see prompt) If angler, state following steps: Step 4: Drain water from livewells and containers holding your catch. ▶ This is a relatively new law. Were you aware that this is required? (see prompt) Do you use live bait? (If YES, share message below) Bait Message: If live bait comes in contact with lake/river water, it can only be used on that same waterbody or discarded in trash. (bait=minnows/leeches/worms) ▶ Do you have any questions on this law as it can be a little confusing? (If yes, see Prompt and offer bait sticker/brochure) | | | | | | |

TOTAL \$: Enter the totals & waterbody information into SHIMS at <http://dnr.wi.gov/lakes/ship-data>

Comments: _____

Sheet _____ of _____

New Prompts Handout

Resource for inspector

- Reminder of why steps important
- Leads to discussion rather than just information
- Local concerns addressed

Diagram layout simple & easy to read

Quick visual reminder for live bait

AIS Prevention Step Prompts to Assist Inspector

If boaters are not familiar with the prevention steps or have questions, help them understand the reasons for taking these actions. You can use the prompts below to assist you in your explanation and discussions at the boat landing. Remember the goal is to make this as relevant as possible to the boater by localizing the issue through the conversation.

Steps 1 & 2 – INSPECT AND REMOVE

Why this is important:
Plants and animals can easily attach to boat/equipment or become entangled in boat motors and fishing lines and then be moved to another lake. This is a concern in this area because- (ADD LOCAL CONCERNS HERE)

Step 3 – DRAIN BOAT AND EQUIPMENT

Why this is important:
Many organisms such as spiny water flea, juvenile zebra mussels, or plant fragments (use organisms that are of concern in your area) are microscopic and invisible to the naked eye and easily transported in water from one waterbody to the next. We know that many of the boaters that frequent our lake also spend time at- (ADD LOCAL CONCERNS HERE)

Step 4 – DRAIN LIVEWELLS & CONTAINERS HOLDING CATCH

LIVE BAIT MESSAGE

Types of Live Bait:



TRASH



CBCW 2014

Collecting Data



- Determine traveling patterns of recreational users
- Determine if boaters understand prevention steps

Statewide efforts for 2016:

143,757 boat inspections
297,869 people contacted
82,895 hours spent

Polk County efforts for 2016:

12,322 boat inspections
23,798 people contacted
8,277 hours spent

Polk County 2014-2017 Data



How to Change Boater Behavior

- Educational materials
- Prompts (decals, stickers)
- Personal contacts
- Modeling behavior



Steps for Effective Programs

- Maintain effective inspection hours
- Wear Clean Boats, Clean Waters t-shirts or stickers
- Develop an accurate and concise message
- Collect and report data
- Report suspect specimens



Upcoming Events: Citizen Lake Monitoring AIS Training

Citizen Lake Monitoring AIS Training

Tuesday, June 14th

11 am-2 pm

Balsam Lake



Upcoming Events: Project RED

Project RED

Thursday, June 8th

10 am-3:30 pm

National Park Service



Upcoming Events: Bridge Snapshot Day

Bridge Snapshot Day

Saturday, August 5th

Time and location TBD





Appendix C

Fall Snapshot Day



AIS Bridge Snapshot Day **2016**

AIS Bridge Snapshot Day **2016** : The Plan

- 9:00 am – 9:15 am Registration
- 9:15 am – 10:15 am Training/Group Picture
- 10:15 am – 12:00 pm Field Work
- 12:00 pm – 1:00 pm Submit Data & Vouchers
& Lunch!



AIS Bridge Snapshot Day

- Why are we here?
- What are we searching for?
- How do we search?
- What do we do if we find it?
- Where do we search?



A river in Texas choked by invasive species

Why are we here today?

- **Detect infestations early**
- **Raise awareness** about invasive species in rivers & other connected water bodies
 - Species of Concern
 - Sources or Vectors (i.e., Water Garden/Aquarium Dumps)



What we are searching for...

| Animals | Wetland Plants | Aquatic Plants |
|--------------------------|-----------------------|---------------------------|
| 1. Zebra mussels | 1. Flowering rush | 1. European frog-bit |
| 2. Quagga mussels | 2. Phragmites | 2. Yellow floating heart |
| 3. Asian clam | 3. Japanese knotweed | 3. Water chestnut |
| 4. Faucet snails | 4. Purple loosestrife | 4. Brazilian waterweed |
| 5. New Zealand mudsnails | 5. Japanese hops | 5. Hydrilla |
| | | 6. Curly-leaf Pondweed |
| | | 7. Parrot feather |
| | | 8. Eurasian Water Milfoil |
| | | 9. Didymo |
| | | 10. Water hyacinth |
| | | 11. Water lettuce |



Zebra mussels

Dreissena polymorpha (ventral view): Obvious ridge, Bilaterally symmetrical. Joints together in a midventral line, Spondyl groove.

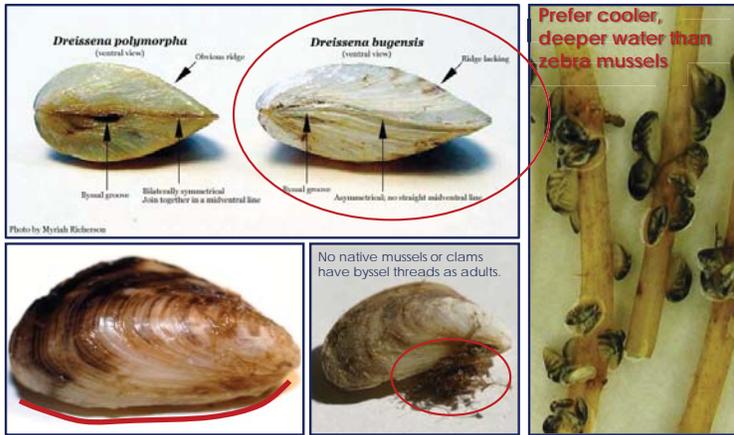
Dreissena bugensis (ventral view): Ridge lacking, Asymmetrical, no straight midventral line, Spondyl groove.

Photo by: Meriah Kitchener

Stripes

No native mussels or clams have byssel threads as adults.

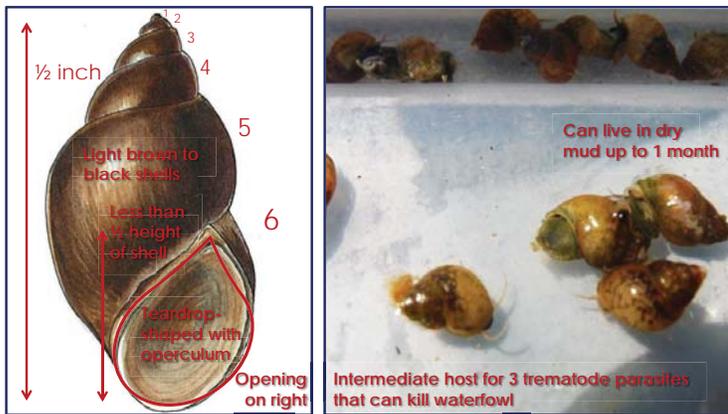
Quagga mussels



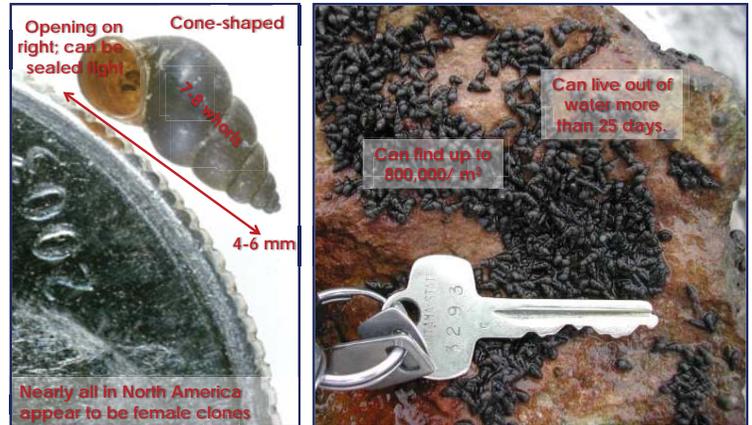
Asian clam



Faucet snails



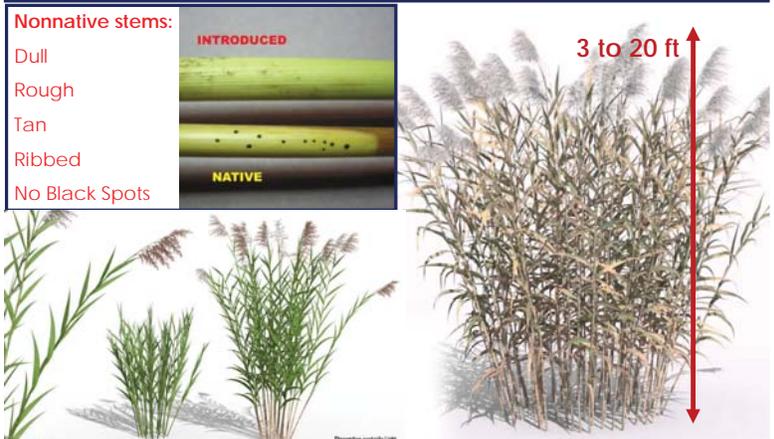
New Zealand mud snails



Flowering rush



Phragmites



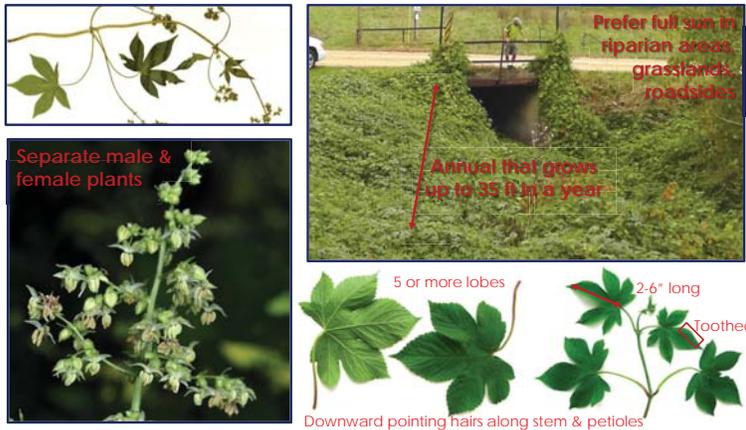
Japanese knotweed



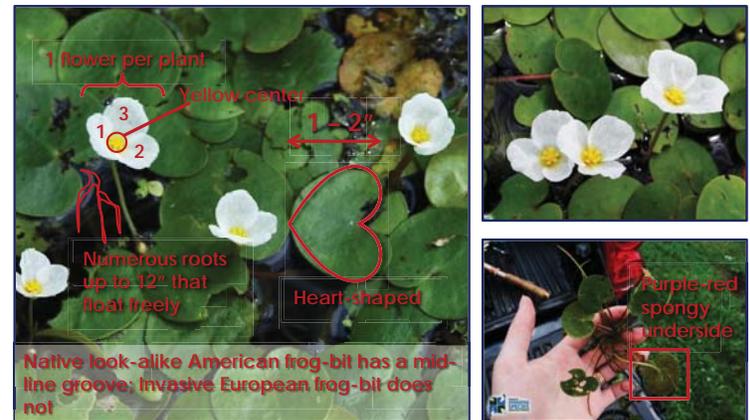
Purple loosestrife



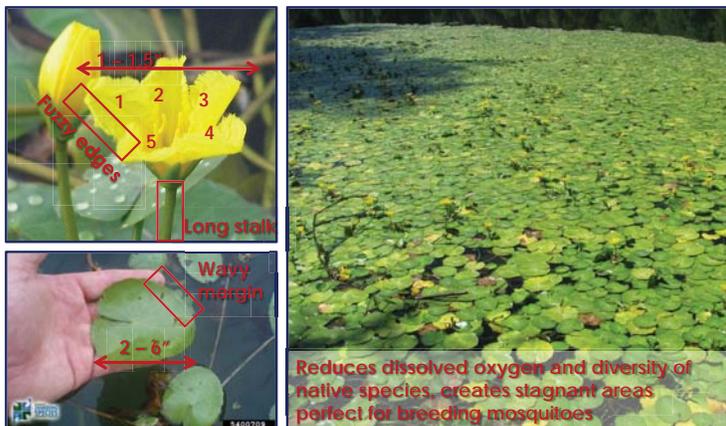
Japanese hops



European frog-bit



Yellow floating heart



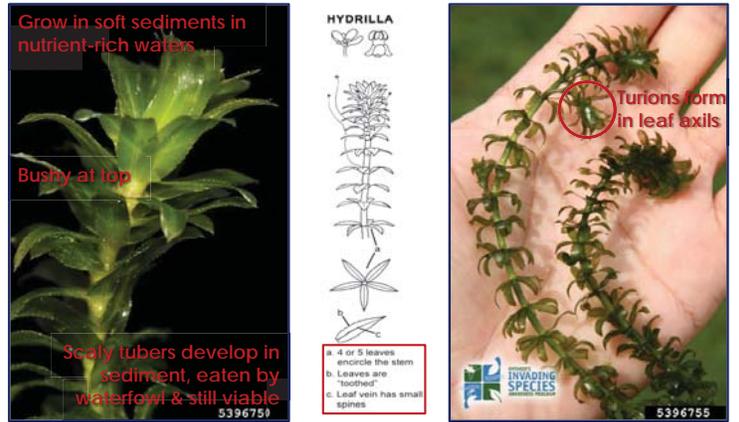
Water chestnut



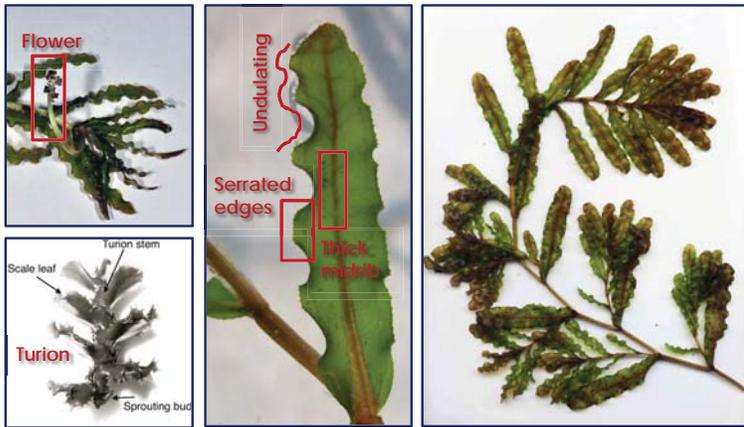
Brazilian waterweed



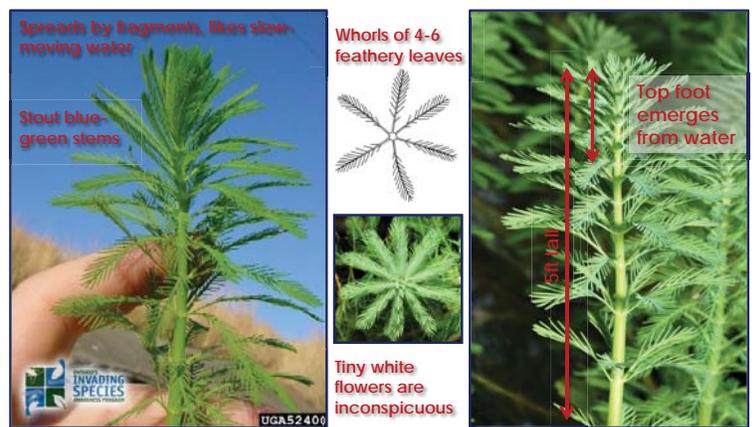
Hydrilla



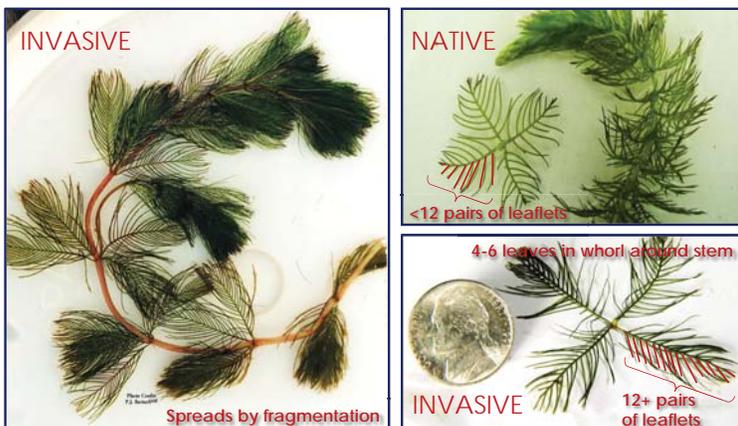
Curly-leaf pondweed



Parrot feather



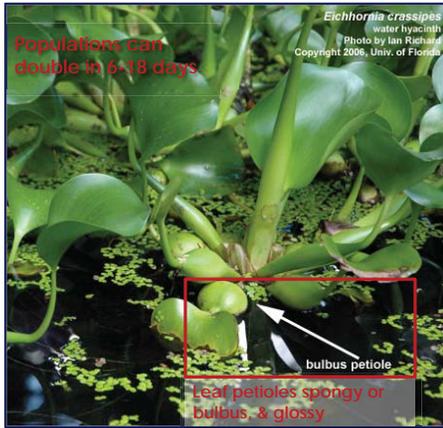
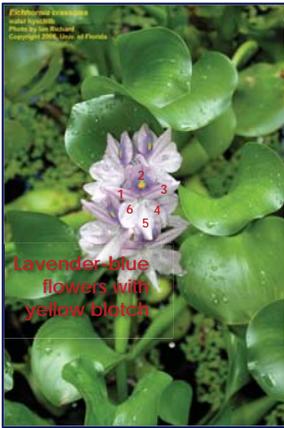
Eurasian water milfoil



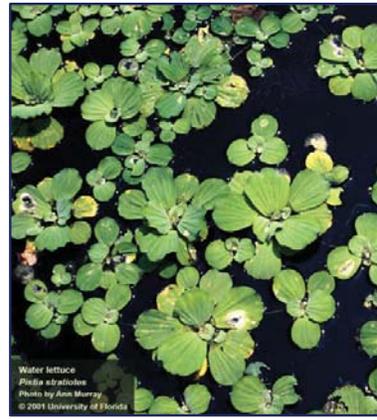
Didymo



Water hyacinth



Water lettuce



Overwhelmed?

You don't have to be the expert...
Bring back species that might be suspicious!



Select a Protocol & Know Your Limits

1. **Once you arrive at your site assess the situation.**
 - Is it safe to wade?
 - Are you comfortable wading?

If you for any reason do not feel comfortable wading, use a dry protocol.
2. **Sites will vary dramatically.** Please use common sense when following the protocols. It may not be possible to do all of the following at every site - simply note what was not possible on your datasheet. Stay safe!
3. **Rivers and streams can be dangerous.** Use extreme caution when entering the stream and wading.

If you for any reason do not feel comfortable wading, use a dry protocol.
4. **Avoid getting too near any dam or water control structure.**

Do not trespass

You have the legal right to:

1. **Access any navigable waterway** at a public road crossing if you stay within the right-of-way.
 - a. Most road right-of-ways are 66 feet wide (33 feet from the center of the road in each direction).
2. **Be in or on any navigable waterway;** however, you must keep your feet wet.
3. **Step foot on dry land if you MUST get out of the water temporarily to circumnavigate an obstruction.**
 - a. This includes exposed stream banks.
 - b. Obstructions could include trees or rocks or deep water. In this case you must use the shortest route possible to return to the stream.

Do not trespass to collect a specimen or take a photograph!

How to Search

LOOK
RAKE
SCOOP
COLLECT

Methods

DRY

WET

Site Types

BRIDGES

SHORELINES



How to Search Wet Sites



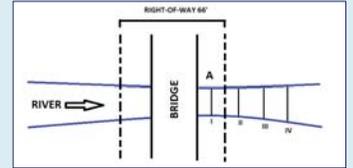
4 Transects

20 paces apart

Look, Rake
Scoop across
each line (1-4)

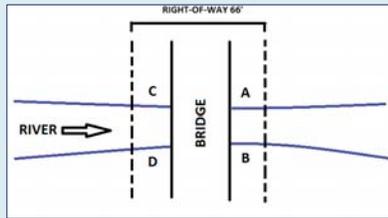
Wet (In stream) Bridge Protocol in Action

Wet Protocol (Bridge or Culvert Sites)



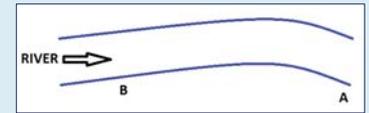
1. Approach the stream at point A.
2. Monitor transects I, II, III, and IV in that order. Leave 20 paces between each transect.
3. At each transect, search the banks, adjacent wetlands, and the water's surface for species of concern for at least 2 minutes.
4. Drag a long-handled rake collecting submerged vegetation and coarse woody debris for at least 2 minutes. After each drag inspect the vegetation and any attached organisms. Clean rake thoroughly before leaving site.
5. Use a scoop or your hands to scoop substrate at least 3 times. Scoop different places each time. Sift through the sample for invertebrates.
5. Wade back upstream to the start point (A), being observant as you go.
6. Collect all suspicious samples as you find them. Refer to collection protocols.
7. Return to your vehicle and scrub boots/shoes and equipment to remove all plant material and debris.

Dry Protocol (Bridge or Culvert Sites)



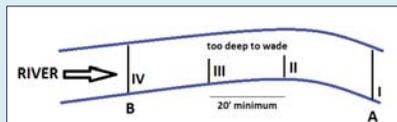
1. Approach the stream at point A.
2. Search the banks, adjacent wetlands and the water's surface for species of concern for at least 2 minutes.
3. Drag a long-handled rake collecting submerged vegetation and coarse woody debris for at least 2 minutes. After each drag inspect the vegetation and any attached organisms. Clean rake thoroughly before leaving site.
4. Use a scoop or your hands to scoop substrate at least 3 times. Scoop different places each time. Sift through the sample for invertebrates.
5. Repeat steps 1 - 4 at points B, C, and D.
6. Collect all suspicious samples as you find them. Refer to collection protocols.
7. Return to your vehicle and scrub boots/shoes and equipment to remove all plant material and debris.

Dry Protocol (Shoreline Sites)



1. Approach the stream at point A.
2. Search the banks, adjacent wetlands and the water's surface for species of concern for at least 2 minutes.
3. Drag a long-handled rake collecting submerged vegetation and coarse woody debris for at least 2 minutes. After each drag inspect the vegetation and any attached organisms. Clean rake thoroughly before leaving site.
4. Use a scoop or your hands to scoop substrate at least 3 times. Scoop different places each time. Sift through the sample for invertebrates.
5. Walk to the top of the reach being observant as you go. At the upper end of the reach (B), repeat steps 1 - 4.
6. Collect all suspicious samples as you find them. Refer to collection protocols.
7. Return to your vehicle and scrub boots/shoes and equipment to remove all plant material and debris.

Wet Protocol (Shoreline Sites)



1. Approach the stream at point A.
2. Monitor transects I, II, III, and IV in that order. Leave 20 paces between each transect.
3. At each transect, search the banks, adjacent wetlands and the water's surface for species of concern for at least 2 minutes.
4. Drag a long-handled rake collecting submerged vegetation and coarse woody debris for at least 2 minutes. After each drag inspect the vegetation and any attached organisms. Clean rake thoroughly before leaving site.
5. Use a scoop or your hands to scoop substrate at least 3 times. Scoop different places each time. Sift through the sample for invertebrates.
5. Wade back upstream to the start point (A), being observant as you go.
6. Collect all suspicious samples as you find them. Refer to collection protocols.
7. Return to your vehicle and scrub boots/shoes and equipment to remove all plant material and debris.

AIS Bridge Snapshot Dry Datasheet

AUGUST 29, 2015

Site: **PRE-FILLED** Names of Volunteers:

Coordinates:

Protocols (check one):

Dry Bridge/Culvert Dry Shoreline Did you use a handscoop? Yes No

Wet Bridge/Culvert Wet Shoreline Did you use a rake? Yes No

Start Time: End Time: Local Site Coordinator/Initial Verifier:

List each aquatic invasive species observed, estimate the area and density of population, or indicate in the check box if none were observed. Indicate whether you collected a sample and/or took a picture.

| Species | Estimated area (m ²) | Density | Sample Collected? | Picture taken? | Comments | LOCAL COORDINATORS ** | |
|---------|----------------------------------|---------|-------------------|----------------|----------|--------------------------------|-------------------------|
| | | | | | | Initial Verification Verified? | Submitting For Voucher? |
| | | | Y N | Y N | | | |
| | | | Y N | Y N | | | |
| | | | Y N | Y N | | | |
| | | | Y N | Y N | | | |
| | | | Y N | Y N | | | |
| | | | Y N | Y N | | | |
| | | | Y N | Y N | | | |
| | | | Y N | Y N | | | |

*Density Ratings: 1: A few individuals (1-25) 2: Many small, scattered populations (25 - 500) 3: Dense population (> 500)

No target species were observed

Other Observations/Notes:

**Local Coordinators indicate if you can verify the sample and fill out the verify/voucher sheet if submitting to Regional DNR Staff

Example Data Sheet

AIS Bridge Snapshot Day DataSheet AUGUST 29, 2015

Site: **Pre-filled: Sugar at Hwy M** Coordinates: **Lat/long** Names of Volunteers: **Roger Danger, Max Power, Jeremy Jones**

Photos (jpicc one): Dry Shrike Did you see a hawk? No Yes No

Time: **12:00** End Time: **1:00** Local Site Coordinator/Volunteer: **Jeremy Jones**

List each aquatic invasive species observed, estimate the area and density of population, or indicate in the check box if none were observed. Indicate whether you collected a sample and/or took a picture.

| Species | Estimated area (m ²) | Density | Sample Collected? | Picture taken? | Comments | Collected? | Submitted? |
|-----------------------|----------------------------------|----------|-------------------|----------------|--|------------|------------|
| P. Leontideus? | 1 | 1 | 0 | Y | Fireweed | N | N/A |
| J. Knotweed | 5 | 3 | 0 | Y | Dry stand, near bridge | Y | Y |
| Unknown Plant | 10 | 3 | 0 | Y | | N | N |
| African clam | 1 | 1 | 0 | Y | empty shell native finger shell | N | N/A |

*Density Ratings: 1: A few individuals (1-25) 2: Many small, clustered populations (25 - 500) 3: Dense population (>500)

No target species were observed

Other Observations/Notes:

**Local Coordinators indicate if you can verify the sample and fill out the verify/voucher sheet if submitting to Regional DWS Staff

If you find something suspicious...

Collect up to 5-10 intact specimens

- For plants, collect: the root system, all leaves, seed heads, and flowers if present.

Place all specimens in a 2-gallon ziplock bag

- Transport in cooler (if available).

If it is not feasible to collect specimens due to safety or trespassing concerns, take photographs.

Photographs

- Email photographs labeled with site name or coordinates for verification to aperdzock@wisconsinrivers.org
- Post them twitter **#BridgeSnapshot2016** labeled with site name or coordinates for verification
- Upload your photographs after the event into AIS Bridge Snapshot Day Flickr Group <https://www.flickr.com/groups/bridgesnapshot/>

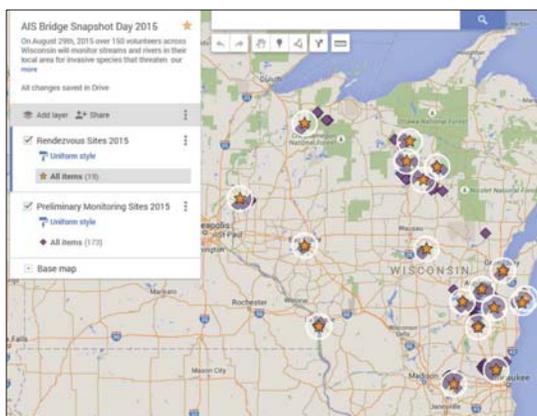


Prevent the Spread

Clean your boots when you return to your car!

Try to remove all mud, debris, seeds, etc.

Site Assignments

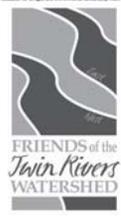


Group Picture





THANK YOU!!!





Appendix D

Aquatic Invasive Species Citizen Lake Monitoring Network

CITIZEN LAKE MONITORING: AQUATIC INVASIVE SPECIES

Polk County Land and Water Resources Department
 June 7, 2016
 Polk County Government Center East Conference Room



AQUATIC INVASIVE SPECIES OVERVIEW

AIS 101

- What are they?*
- How do they spread?*
- Why do we care?*

- Species profiles
- Wisconsin laws
- Where and when to look
- Opportunities to get involved
- Hands on: species identification



WHAT ARE INVASIVE SPECIES

Non-native species that can take over

Not all non-native species become invasive

SUCCESSFUL BECAUSE:

- Few or no natural predators, parasites, etc*
- Often aggressive, prolific, and mature early*
- Able to outcompete native species*



Paul Skawinski, UWEX Lakes

HOW DO INVASIVE SPECIES GET HERE

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



U.S. Coast Guard

HOW DO INVASIVE SPECIES SPREAD

- Boaters
- Anglers
- Other water users
 - Sea planes, SCUBA*
- Water gardens
- Aquarium owners
- Natural dispersal



Paul Skawinski, UWEX Lakes



Pebble Path Gardens

WHY DO WE CARE?

ECONOMIC IMPACTS

- Sport/commercial fishing
- Tourism
- Property values

ECOLOGICAL IMPACTS

- Native wildlife/plants

RECREATIONAL IMPACTS

- Boating
- Angling



Paul Skawinski, UWEX Lakes

EURASIAN WATER-MILFOIL

First found in WI in the 1960's
 Forms dense mats—interferes with recreation
 Spreads from small fragments



Native milfoil typically has 7 to 10 pairs of leaflets; whereas, Eurasian water-milfoil has 12 to 21 pairs

EURASIAN WATER-MILFOIL



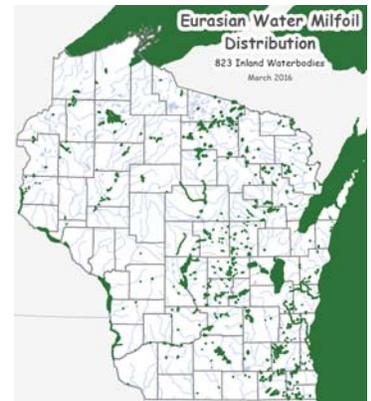
NATIVE WATER-MILFOIL



EURASIAN WATER-MILFOIL DISTRIBUTION



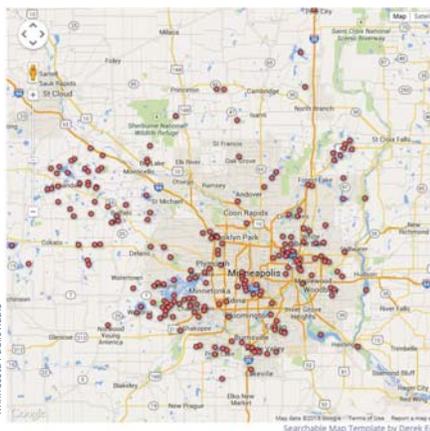
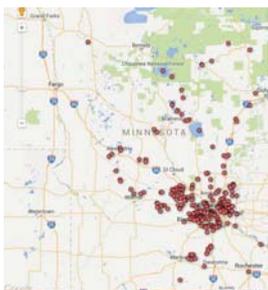
5 Polk County Waterbodies



674 in April 2014
 713 in February 2015

EURASIAN WATER-MILFOIL DISTRIBUTION

275 waterbodies in Minnesota



CURLY-LEAF PONDWEED

Introduced through ballast water, aquarium dumping, and/or during common carp stocking programs

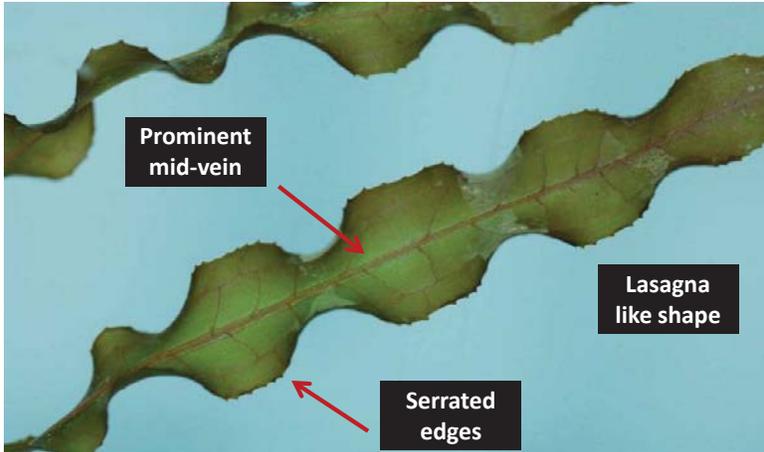
Grows from October through June

Releases nutrients into the water column when it dies, contributing to algae blooms

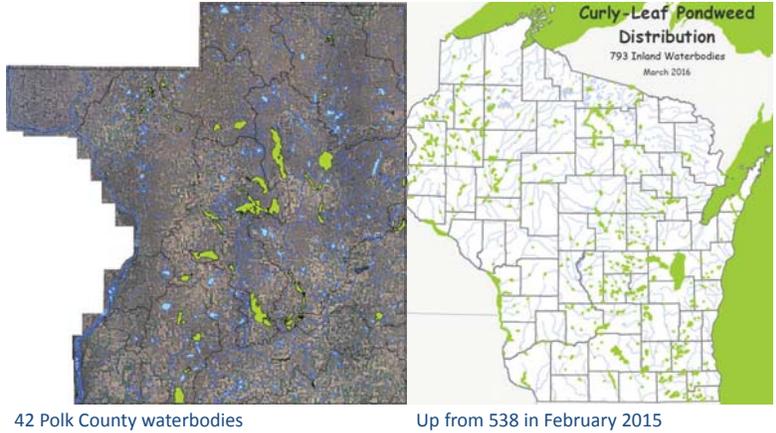
Spreads by rhizomes and turions



CURLY-LEAF PONDWEED IDENTIFICATION



CURLY-LEAF PONDWEED DISTRIBUTION



PURPLE LOOSESTRIFE

Imported from Europe for gardens (late 1800's), also seeds in ballast water/soil

Crowds out native wetland species

Spreads rapidly; producing over 1 million seeds annually



Paul Skawinski, UWEX Lakes

PURPLE LOOSESTRIFE IDENTIFICATION

Square or 6-sided stem

Opposite or whorled leaves

Leaf margins are smooth or with very small teeth

Pink/purple flowers in spike arrangement, each with 6 petals, appearing in July-September

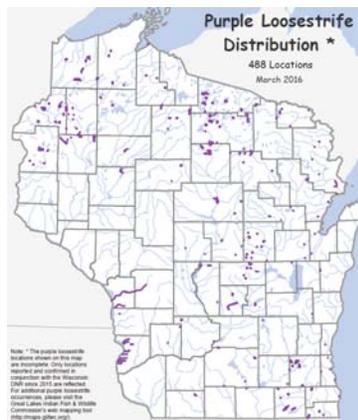


Paul Skawinski, UWEX Lakes

PURPLE LOOSESTRIFE DISTRIBUTION



Paul Skawinski, UWEX Lakes

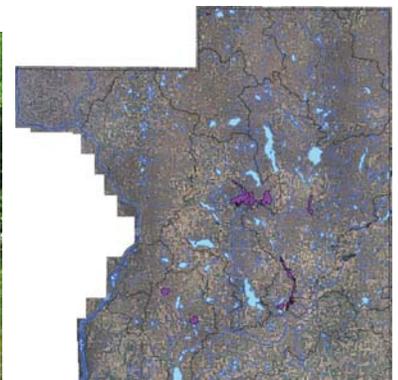


208 in February 2015

PURPLE LOOSESTRIFE DISTRIBUTION



Paul Skawinski, UWEX Lakes



9 Polk County waterbodies

PURPLE LOOSESTRIFE BIOCONTROL



PHRAGMITES

Perennial growing 3-20 feet tall

Dull, tough, tan, cane-like stems

Large feather like plumes



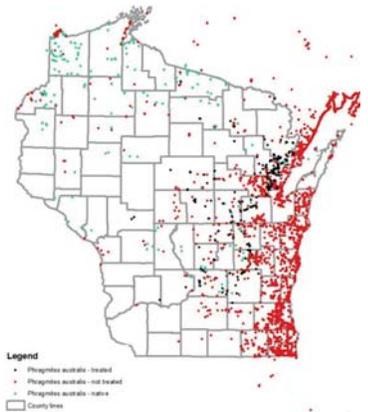
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Statewide Phragmites Distribution Map 04/06/15



YELLOW IRIS

Typically 3-4 feet tall

Spreads by seeds, which float

Seeds are 6-angled, 120 seeds per capsule

Flowers in May/June



YELLOW IRIS



BLUE FLAG IRIS



JAPANESE AND GIANT KNOTWEED

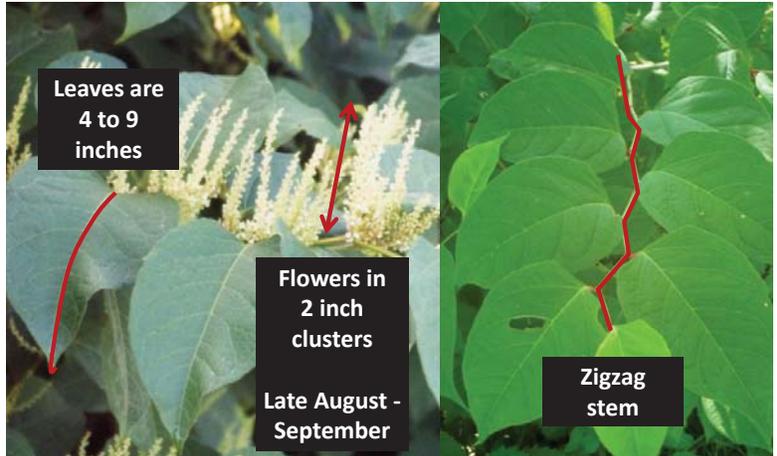
Perennial growing 5-10 feet tall

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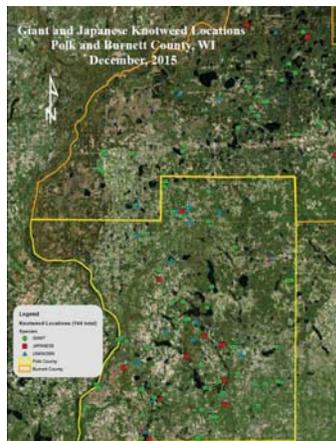
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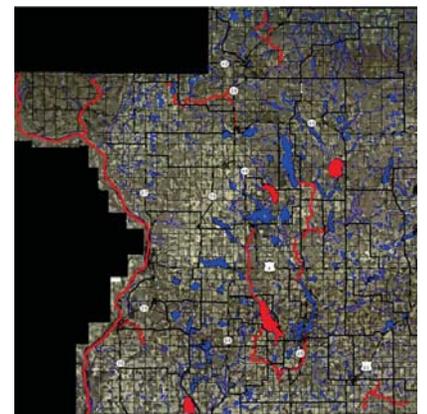


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RUSTY CRAYFISH DISTRIBUTION



Paul Stawinski, DWEX Lakes



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Ballast water introduction to the Great Lakes in the 1980's

Attach to firm surfaces; reaching tens of thousands per square meter

Microscopic in early life stages

Females can produce 1 million eggs/season



S. Van Meehelen

ZEBRA MUSSEL DISTRIBUTION



Paul Skawinski, UWEX Lakes



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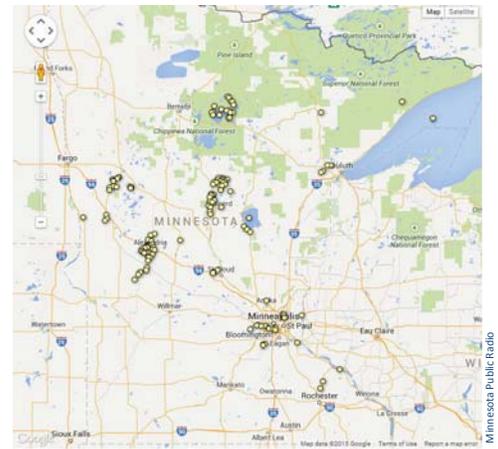


Paul Skawinski, UWEX Lakes



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141 waterbodies in Minnesota



Minnesota Public Radio

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Closely related to zebra mussels

Can survive a wide range of conditions

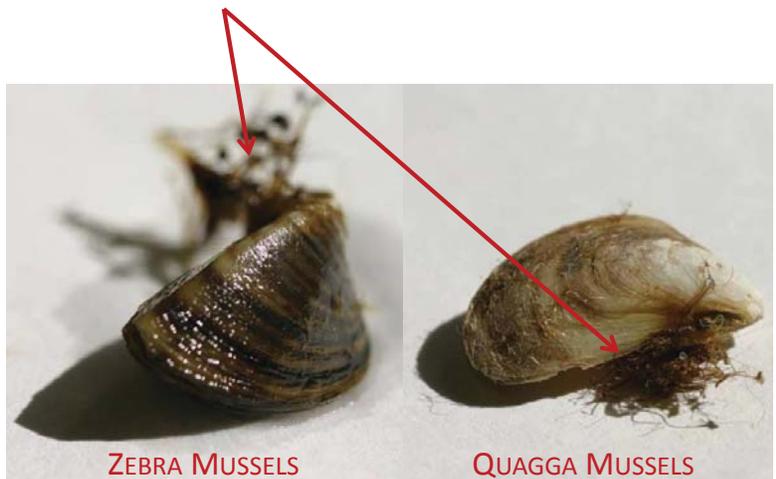
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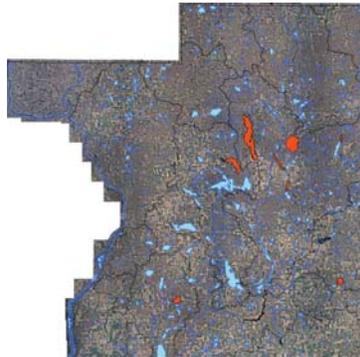
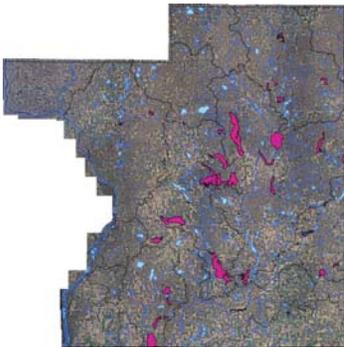


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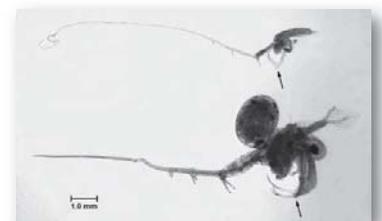


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16 in February 2015

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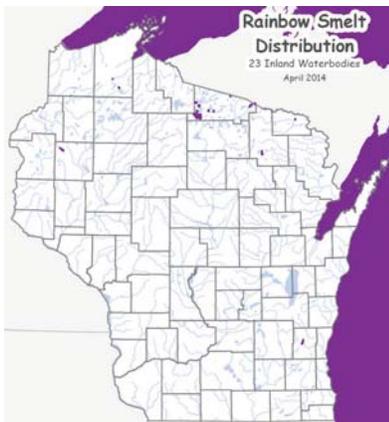
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- Bridges
- Backyards
- Parks
- Boat launches
- Other access points



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Saturday, September 10th



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Paul Skawinski, UW-Extension Lakes

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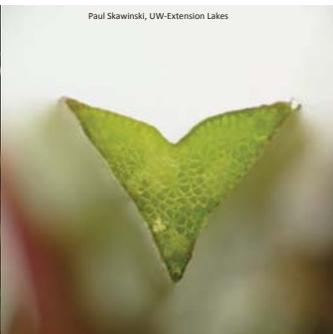


Paul Skawinski, UW-Extension Lakes

FLOWERING RUSH



Ben Legler



Paul Skawinski, UW-Extension Lakes

STARRY STONEWORT



Paul Skawinski, UW-Extension Lakes

Spreads only by fragments and bulbils

Dispersed by equipment moving between lakes, especially anchors



Paul Skawinski, UW-Extension Lakes

EUROPEAN FROG BIT



YELLOW FLOATING HEART



WATER CHESTNUT



WATER HYACINTH



WATER LETTUCE



FAUCET AND NEW ZEALAND MUDSNAILS





Aquatic Invasive Species Citizen Lake Monitoring Volunteer Training Agenda

Tuesday, July 18th

1 PM – 3 PM

Polk County Government Center
East Conference Room – 2nd floor
Balsam Lake

- 1:00 Introductions
- 1:05 Wisconsin's AIS problem
- 1:15 Individual AIS discussion
- 1:45 Hands on AIS identification
- 2:15 Hands on AIS monitoring activity at Balsam Lake Beach
 Distribution of AIS monitoring kits
- 3:00 Adjourn

Katelin Anderson
Polk County Land and Water Resources Department
AIS Coordinator/Water Quality Specialist
715-485-8637
katelin.anderson@co.polk.wi.us

CITIZEN LAKE MONITORING: AQUATIC INVASIVE SPECIES

Polk County Land and Water Resources Department
 July 18, 2017
 Polk County Government Center East Conference Room



AQUATIC INVASIVE SPECIES OVERVIEW

AIS 101

- What are they?*
- How do they spread?*
- Why do we care?*

- Species profiles
- Wisconsin laws
- Where and when to look
- Opportunities to get involved
- Hands on: species identification



WHAT ARE INVASIVE SPECIES

Non-native species that can take over

Not all non-native species become invasive

SUCCESSFUL BECAUSE:

- Few or no natural predators, parasites, etc*
- Often aggressive, prolific, and mature early*
- Able to outcompete native species*



Paul Skawinski, UWEX Lakes

HOW DO INVASIVE SPECIES GET HERE

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



U.S. Coast Guard

HOW DO INVASIVE SPECIES SPREAD

- Boaters
- Anglers
- Other water users
 - Sea planes, SCUBA*
- Water gardens
- Aquarium owners
- Natural dispersal



Paul Skawinski, UWEX Lakes



Pebble Path Gardens

WHY DO WE CARE?

ECONOMIC IMPACTS

- Sport/commercial fishing
- Tourism
- Property values

ECOLOGICAL IMPACTS

- Native wildlife/plants

RECREATIONAL IMPACTS

- Boating
- Angling



Paul Skawinski, UWEX Lakes

EURASIAN WATER-MILFOIL

First found in WI in the 1960's
 Forms dense mats—interferes with recreation
 Spreads from small fragments



Native milfoil typically has 7 to 10 pairs of leaflets; whereas, Eurasian water-milfoil has 12 to 21 pairs

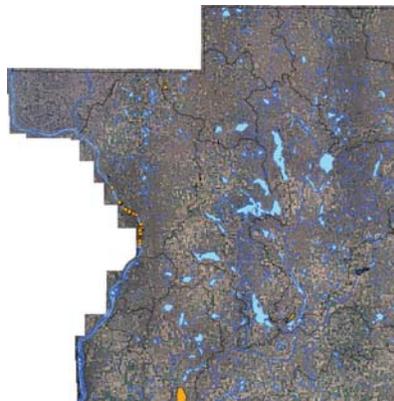
EURASIAN WATER-MILFOIL



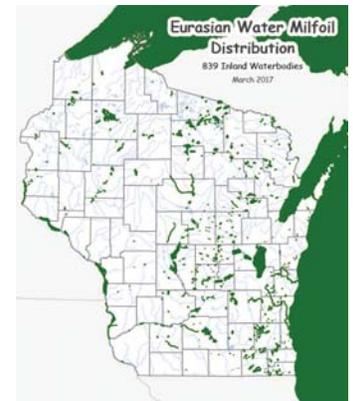
NATIVE WATER-MILFOIL



EURASIAN WATER-MILFOIL DISTRIBUTION



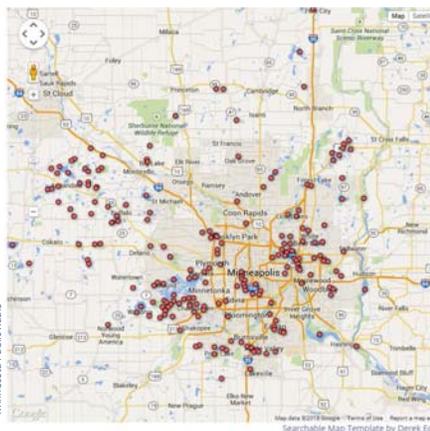
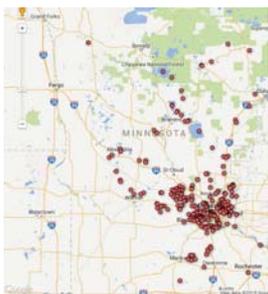
5 Polk County Waterbodies



674 in April 2014—713 in February 2015
 823 in March 2016

EURASIAN WATER-MILFOIL DISTRIBUTION

275 waterbodies in Minnesota



CURLY-LEAF PONDWEED

Introduced through ballast water, aquarium dumping, and/or during common carp stocking programs

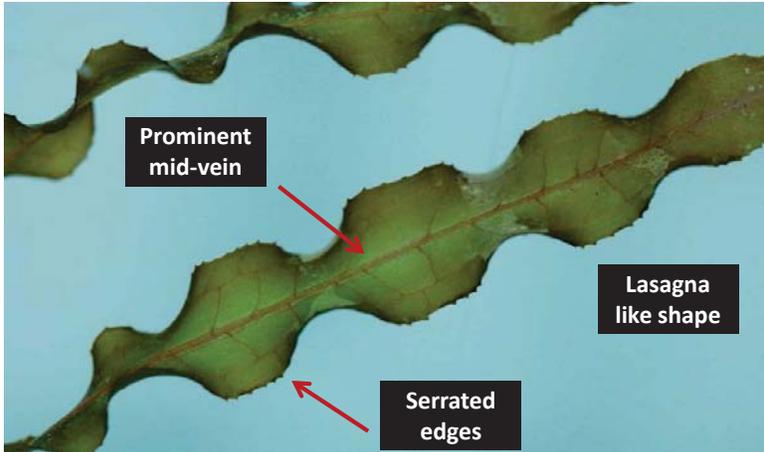
Grows from October through June

Releases nutrients into the water column when it dies, contributing to algae blooms

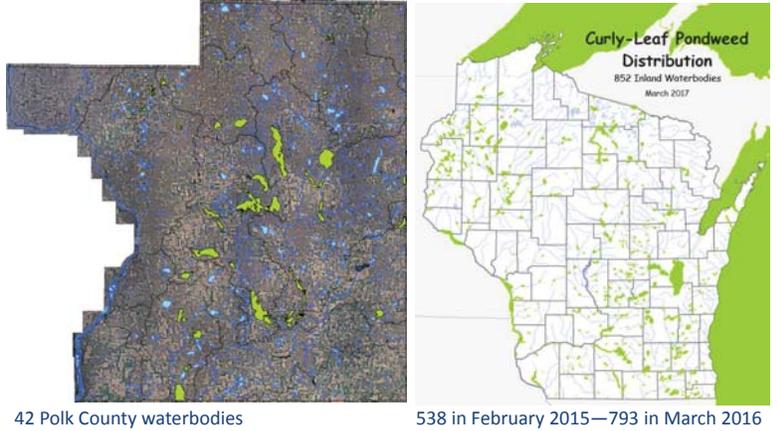
Spreads by rhizomes and turions



CURLY-LEAF PONDWEED IDENTIFICATION



CURLY-LEAF PONDWEED DISTRIBUTION



PURPLE LOOSESTRIFE

Imported from Europe for gardens (late 1800's), also seeds in ballast water/soil

Crowds out native wetland species

Spreads rapidly; producing over 1 million seeds annually



Paul Skawinski, UWEX Lakes

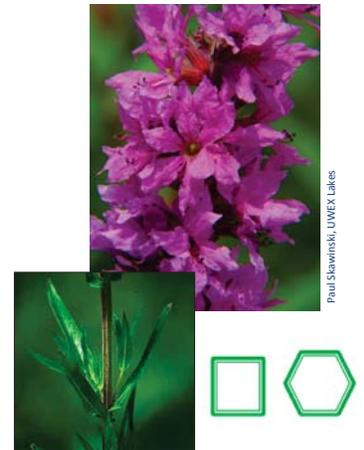
PURPLE LOOSESTRIFE IDENTIFICATION

Square or 6-sided stem

Opposite or whorled leaves

Leaf margins are smooth or with very small teeth

Pink/purple flowers in spike arrangement, each with 6 petals, appearing in July-September



Paul Skawinski, UWEX Lakes

PURPLE LOOSESTRIFE DISTRIBUTION



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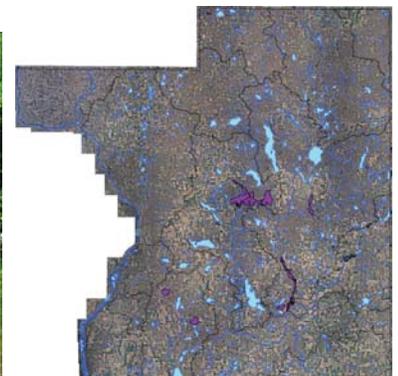


208 in February 2015—488 in March 2016

PURPLE LOOSESTRIFE DISTRIBUTION



Paul Skawinski, UWEX Lakes



9 Polk County waterbodies

PURPLE LOOSESTRIFE BIOCONTROL



PHRAGMITES

Perennial growing 3-20 feet tall

Dull, tough, tan, cane-like stems

Large feather like plumes



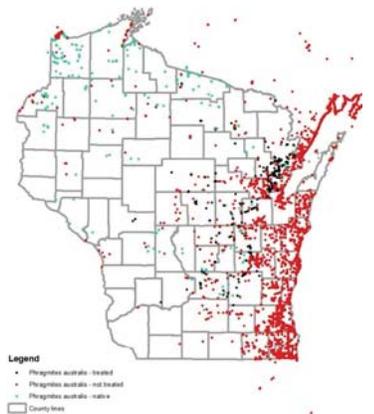
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Statewide Phragmites Distribution Map 04/06/15



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Seeds are 6-angled, 120 seeds per capsule

Flowers in May/June



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BLUE FLAG IRIS



JAPANESE AND GIANT KNOTWEED

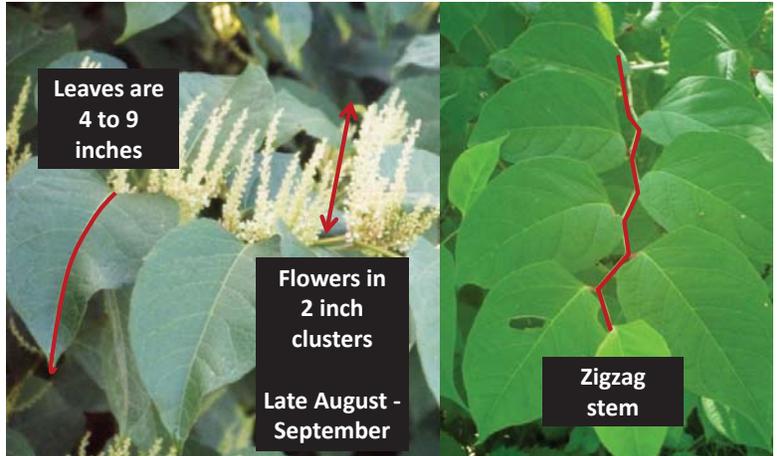
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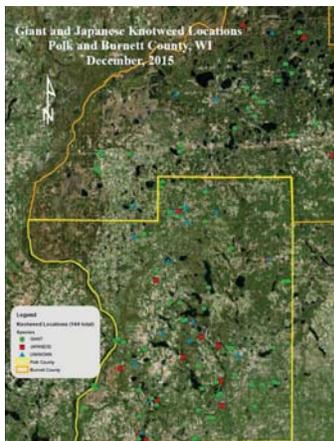
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Severely reduce aquatic vegetation, impacting spawning

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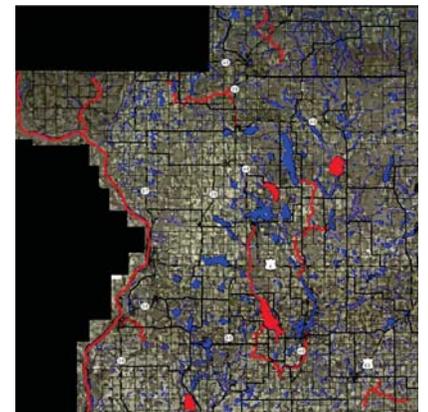


527 in April 2014—524 in February 2015
678 in 2016

RUSTY CRAYFISH DISTRIBUTION



Paul Stawinski, DWEX Lakes



12 Polk County waterbodies

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Attach to firm surfaces; reaching tens of thousands per square meter

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Females can produce 1 million eggs/season



ZEBRA MUSSEL DISTRIBUTION

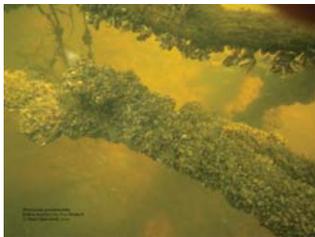


163 in April 2014
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ZEBRA MUSSEL DISTRIBUTION

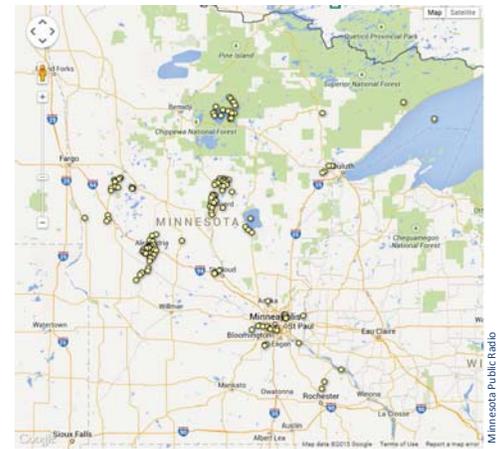
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ZEBRA MUSSEL DISTRIBUTION

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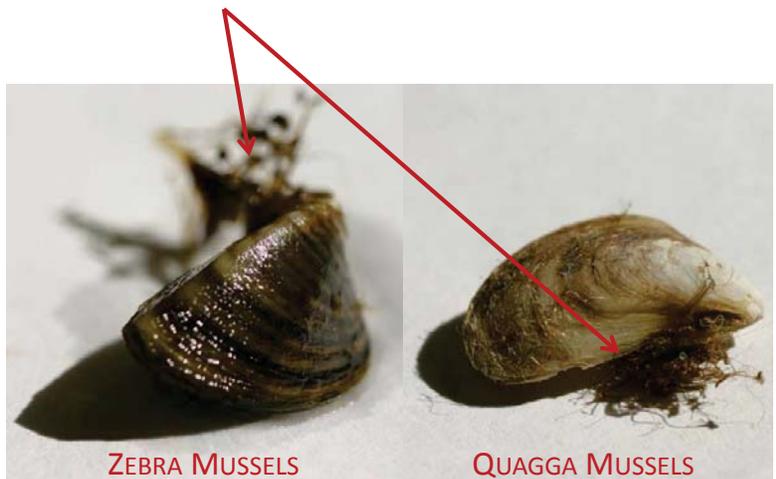
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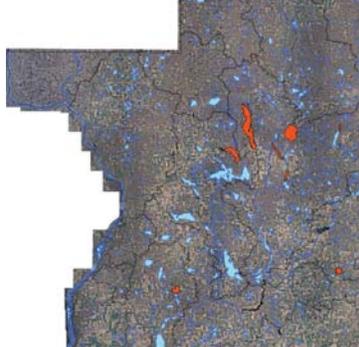
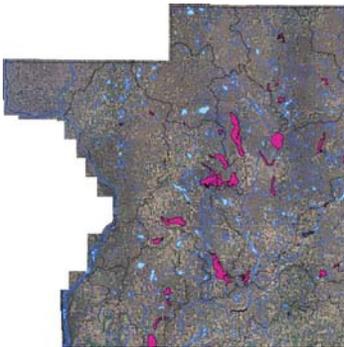


Paul Skawinski, UWEX/Lakes

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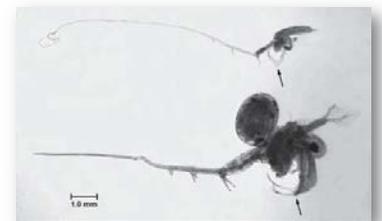


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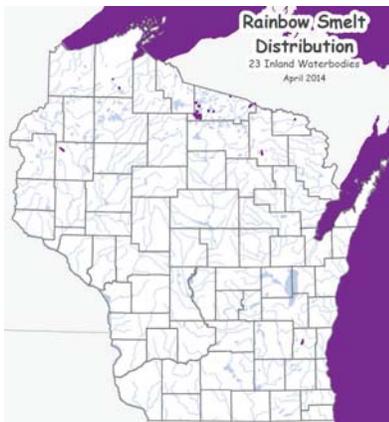
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Bridge Snapshot Day

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Paul Skawinski, UW-Extension Lakes

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Spread by rhizomes and bulbils

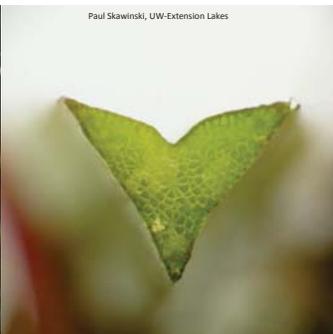


Paul Skawinski, UW-Extension Lakes

FLOWERING RUSH



Ben Legler



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EUROPEAN FROG BIT



YELLOW FLOATING HEART



WATER CHESTNUT



WATER HYACINTH



WATER LETTUCE



FAUCET AND NEW ZEALAND MUDSNAILS





Appendix E

Project RED

Riverine Early Detectors protecting Wisconsin's flowing waters

Project RED



Agenda

- Introduction to Invasive Species
- Species of Concern
- Break
- Monitoring Protocols
- Reporting Data Online
- Sending Samples/Photographs for Verification
- Taking Action

Project RED Steps



1. Paddle/Wade & Look for Invasives
2. ID & Collect/Photo Specimens
3. Verify your Findings
4. Share your Findings

Intro to Invasives: Definitions

NON-NATIVE

An organism that is not indigenous to a given area and has been accidentally or deliberately transported to a new location by human activity

INVASIVE

A subset of non-native species and are likely to cause harm to the economy, environment, or human health

How do they impact rivers?



What's at stake?



Species of Concern

PLANTS AND ALGAE

- Oriental bitterweet
- Japanese knotweed
- Japanese hops
- Flowering rush
- Purple loosestrife
- Phragmites
- Yellow iris
- Eurasian watermilfoil
- Yellow floating heart
- Curly-leaf pondweed
- Hydrilla
- Brazilian waterweed
- Water Lettuce
- Water Hyacinth
- Reed manna grass
- Didymo

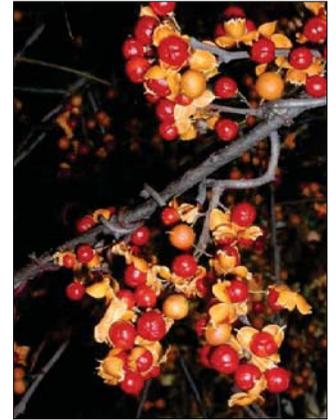
ANIMALS

- Faucet snail
- New Zealand mudsnail
- Mystery snails
- Zebra mussel
- Quagga mussel
- Red swamp crayfish
- Asian clam
- Invasive carp

Oriental bitterweet

Fruits

- Round
- Change in color from green to bright red
- Yellow capsule as they mature.
- Can produce up to 370 fruits which ripen in the fall



Oriental bitterweet

Leaves

- Alternate
- Oblong to Round
- 2 – 5 inches long
- Margins have rounded teeth



Oriental bitterweet



Oriental bitterweet



Oriental bitterweet

ORIENTAL BITTERSWEET

- Fruit clusters in the leaf axils



AMERICAN BITTERSWEET

- clusters at its branch tips



Oriental bittersweet

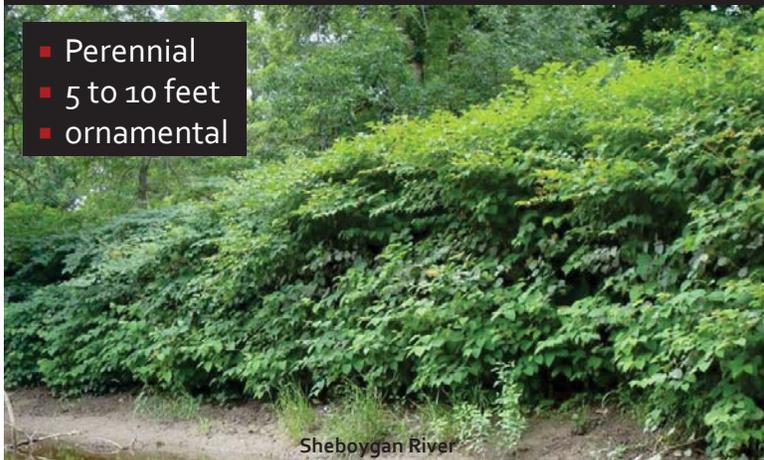


Oriental bittersweet

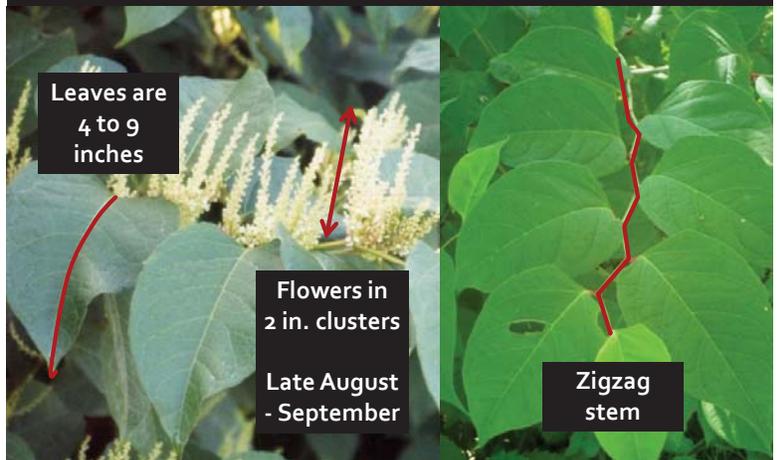


Japanese knotweed

- Perennial
- 5 to 10 feet
- ornamental



Japanese knotweed



Japanese knotweed



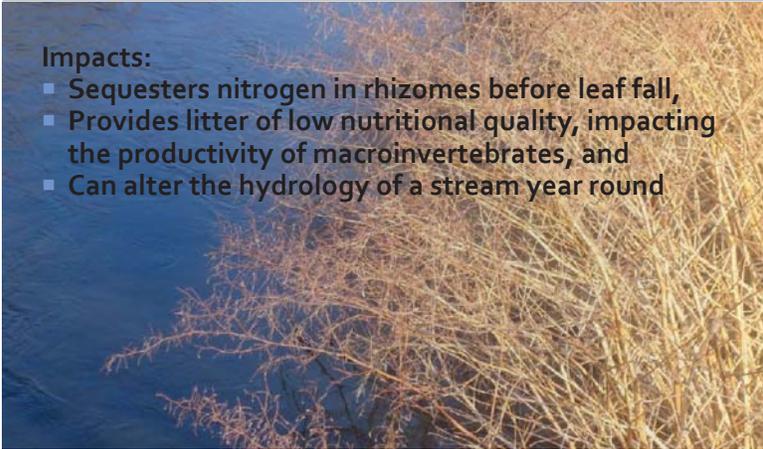
Japanese knotweed



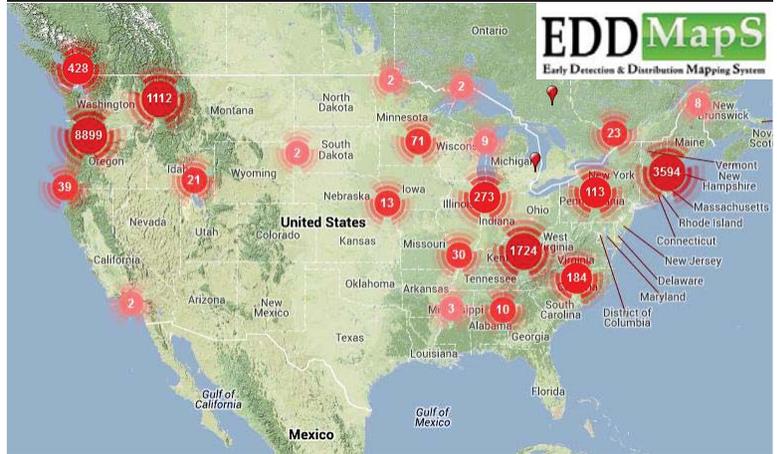
Japanese knotweed

Impacts:

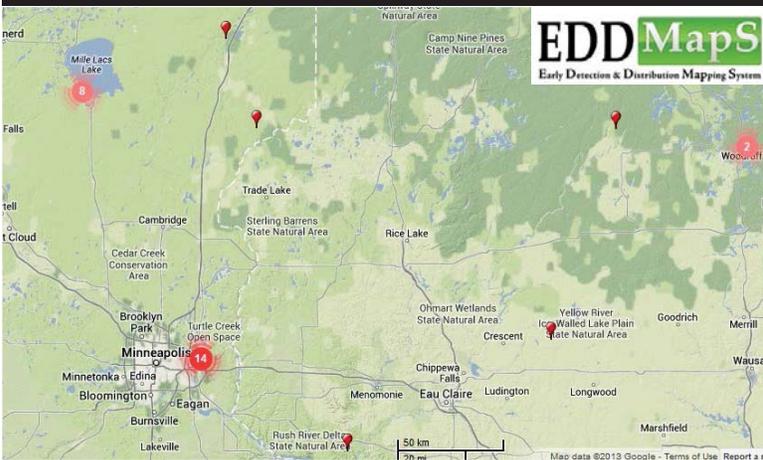
- Sequesters nitrogen in rhizomes before leaf fall,
- Provides litter of low nutritional quality, impacting the productivity of macroinvertebrates, and
- Can alter the hydrology of a stream year round



Japanese knotweed



Japanese knotweed



Purple loosestrife



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

Purple loosestrife

Purple loosestrife



Steeplebush Blue Vervain Gayfeather Fireweed Smartweed



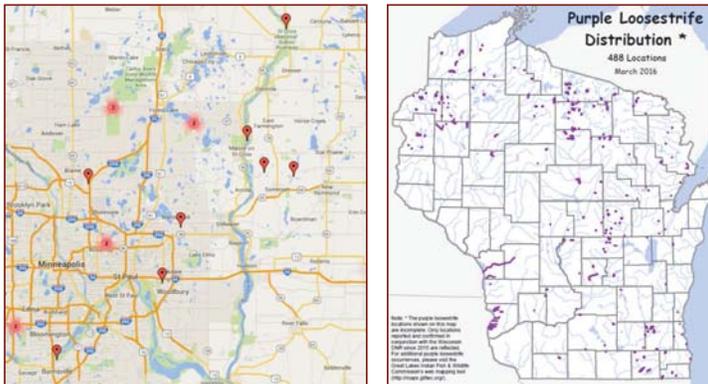
Purple loosestrife



Purple loosestrife



Purple loosestrife



Phragmites



Phragmites



- Tall Grass
- 10 -20 inch leaves



Phragmites



- Nonnative stems:
- Dull
 - Rough
 - Tan
 - Ribbed
 - No Black Spots

Yellow iris



- Typically 3 – 4 feet tall
- All parts of the plant are poisonous
- Leaves are 1 ½ to 3 ½ feet long
- Central ridge on both sides of the leaf blades
- Flowers May/June
- Sold as an ornamental plant

Yellow iris



Yellow iris

- 6-angled, egg shaped fruit capsule
- About 120 seeds per capsule
- Spreads by seeds as well as vegetatively
- Seeds float
- Seeds start out white then turn pale brown



Yellow iris

Yellow Iris (INVASIVE!)



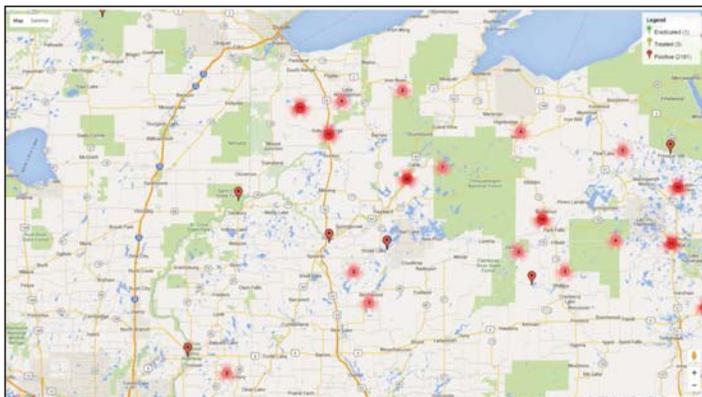
- Yellow Flower
- 6 sided seed pod
- Seed capsule opens at maturity

Blue Flag Iris (NATIVE)



- Blue Flower
- 3 sided seed capsule
- Seed capsule does not open

Yellow iris

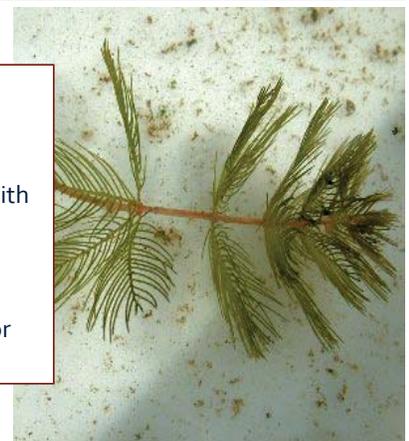


Eurasian water-milfoil

7 native milfoils in WI
11 native milfoils in US

EWM only easily confused with northern water milfoil

Most likely found in slow flowing water 10 feet deep or less



Eurasian water-milfoil



Native milfoil has ~7 -10 pairs
EWM has 10 or more

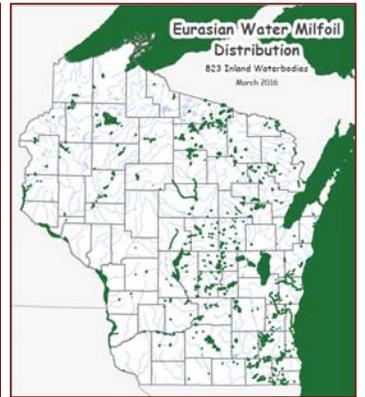
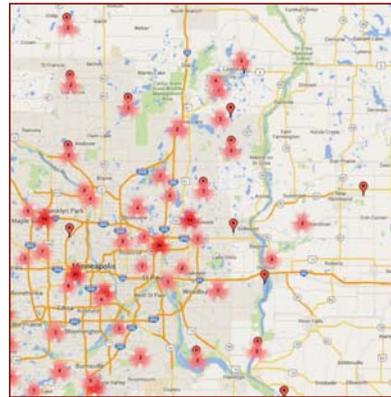
Native Northern Watermilfoil or Eurasian?



Native Northern Watermilfoil or Eurasian?



Eurasian water-milfoil



Curly-leaf pondweed



17 pondweeds in WI
16 native, 1 invasive

Cold-water specialist that thrives in spring creeks

Decaying plants can increase nutrients, contributing to algal blooms

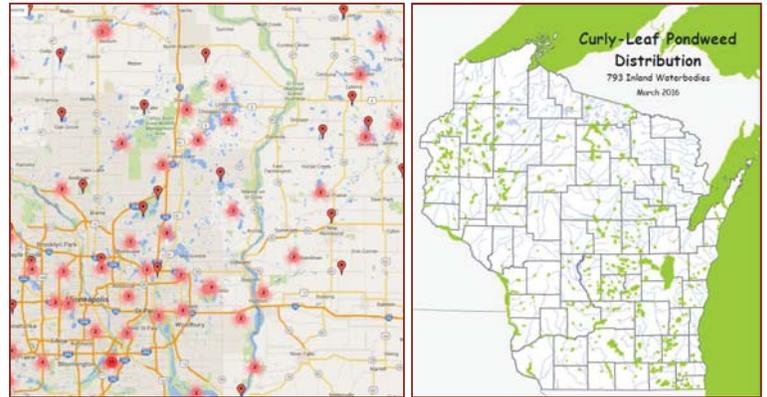
Curly-leaf pondweed



Curly-leaf pondweed



Curly-leaf pondweed



Water lettuce

★ Water garden plant!



- Perennial
- Free-floating
- Forms dense mats

- Leaves
- Light green
 - Hairy
 - Ridged

- Flowers
- Inconspicuous

- Roots
- Feathery
 - Hanging
 - Submerged

Water Hyacinth

★ Water garden plant!

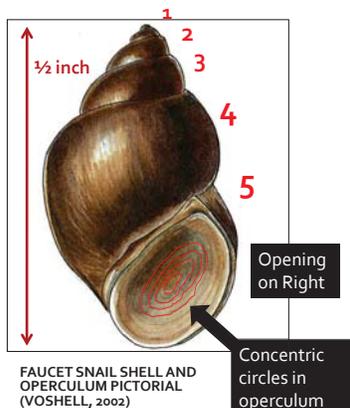


- Perennial
- Floating and forms dense rafts
- A healthy acre of water hyacinths can weigh up to 200 tons!
- Hyacinth populations can double in 6 days

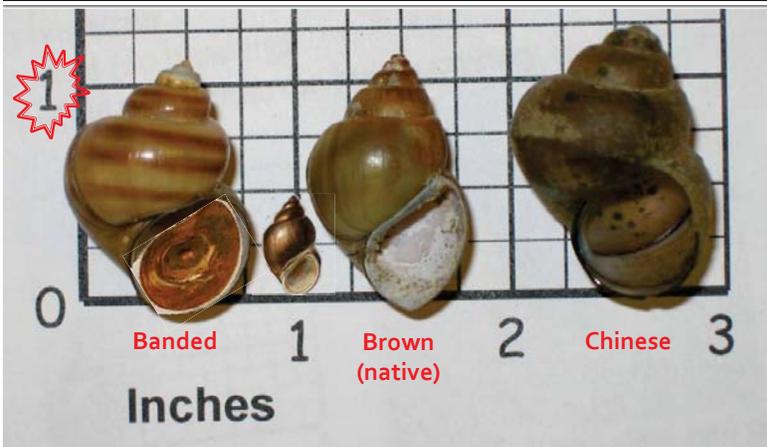
Faucet Snail



FAUCET SNAILS, SPECIMENS FROM LAKE WINNIBIGOSHISH, MINNESOTA



Mystery snails

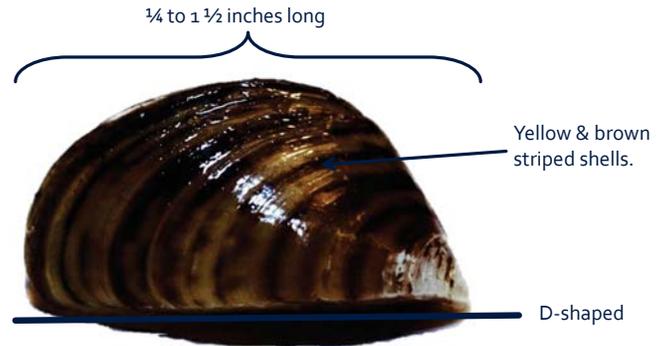


New Zealand mudsnail



- 1/10 to 1/4 inch long
- Operculum present
- Light to dark brown
- Cone shaped shell with 5-6 whorls
- Raised carina (keel) on whorls

Zebra mussel



Zebra mussel



- Introduced via ballast water to the Great Lakes in 1980's
- Attach to any hard surface - may reach tens of thousands per square meter!
- Microscopic in early life stages
- Females can produce 1 million eggs/season

Zebra mussel



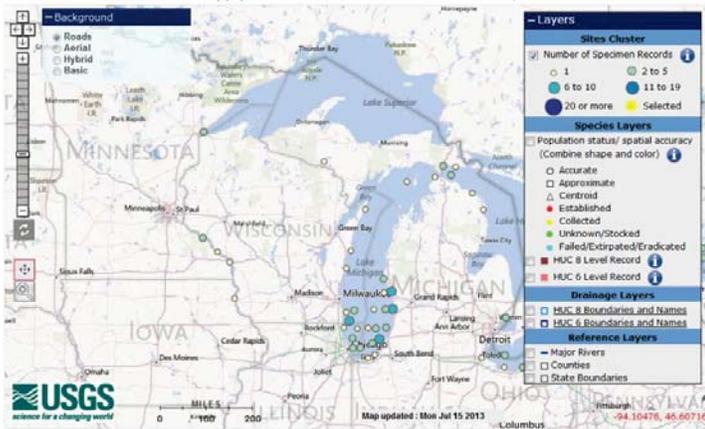
Quagga mussels



Bissell threads are bad news.



Quagga mussels



Quagga mussels



Asian clam



- Adults range from 1 to 2 inches in length
- Yellow-green to brown shells
- Thick concentric rings on the shell
- Top and bottom shells almost identical
- Shells are normally thick and hard to crush
- Inside of the shell ranges from white to purple/blue



Native fingernail clam

- Native fingernail clam Identification.
- Adults normally less than 1 inch in length
- Yellow-green to brown shells
- Thin or no concentric rings on the shell
- Shells are normally thin and easy to crush
- Inside of the shell is white.

Other Species



10 Minute Break



How to look for invasives:

- Canoeing/Kayaking
- Wading
- Driving Bridge Surveys



When to look for invasives:

| MAY | JUNE | JULY | AUGUST | SEPTEMBER |
|---------------------|-----------------------|----------------------------|--------|----------------------|
| Curly-leaf pondweed | | | | |
| Yellow Iris | | | | |
| | | Snails, mussels, and clams | | |
| | | Invasive carp | | |
| | Flowering rush | | | |
| | Eurasian watermilfoil | | | |
| | Water lettuce | | | |
| | Water hyacinth | | | |
| | | Purple loosestrife | | |
| | | Phragmites | | |
| | | Japanese knotweed | | |
| | | | | Oriental bittersweet |

Where to look for invasives:

Boat Launches and Other Access Points



Reporting your Findings



1. Record a data point for each occurrence
2. Take a sample or photo
3. Fill out the datasheet
4. Submit for verification & entry

Recording Data in the Field

- GPS Locations are important
- GPS units are stored at technology libraries around the state.
- Smartphones can be used but coverage may vary

| Technology Libraries - Borrow A GPS Unit | | |
|---|--|---|
| Beaver Creek Reserve 12121 State Ave. S Beaver, WI 53005 920.877.0212 2. GPS units available | Calumet County Courthouse 300 Court Street Janesville, WI 53190 920.877.0212 2. GPS units available | Door County S&WD 477 Wisconsin Street Sturgeon Bay, WI 54783 920.740.2211 2. GPS units available |
| Dr. Sack ODMA 10% TX Services 1400 Wisconsin Ave. Beaver, WI 53005 920.877.0212 2. GPS units available | Koshong Valley Reserve 1400 Wisconsin Ave. Beaver, WI 53005 920.877.0212 2. GPS units available | Lakeview Nature Preserve 1217 Wisconsin Avenue Beaver, WI 53005 920.877.0212 2. GPS units available |

Invasive Plant Association of Wisconsin
<http://ipaw.org/TheSolution/Monitoring/GPSUnits.aspx>

Using a GPS

Setup Menu

Correct Settings

- Datum
 - WGS84
- Units
 - Decimal degrees
- Example: 58.889722, -77.008889

System

06:47:16
30-MAR-01

Project RED Field Data Collection Sheet



| | | | |
|--|-----------|----------------|-----------------|
| Name | Phone | Email | |
| Street Address | City | State | Zip |
| Organization | Waterbody | Date | |
| Start Time | End Time | Start Latitude | Start Longitude |
| Description of Start Location (ex. CTH K Bridge) | | | |
| End Latitude | | End Longitude | |
| Description of End Location | | | |

Check all of the species you looked for: Japanese knotweed purple loosestrife phragmites Japanese hops flowering rush hydrilla Brazilian waterweed Eurasian watermilfoil curlyleaf pondweed yellow floating heart yellow iris didymo zebra mussel quagga mussel New Zealand mudsnail faucet snail red swamp crayfish Asian clam water lettuce water hyacinth, other _____

STEP 1: Record locations of invasive species using a GPS unit (datum WGS84). Check photo or sample if one was taken.

| ID# | Species | Latitude | N Longitude | W Area | M ² | Photo | Sample |
|-----|---------|----------|-------------|--------|----------------|-------|--------|
| | | | | | | | |
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Step 2: Send your photograph or sample to an expert for verification.

| Name of Verifier | Date Received | ID# of Samples/Photos | ID# of Positives | ID# of Negatives |
|------------------|---------------|-----------------------|------------------|------------------|
| | | | | |

Step 3: Data was entered into SWIMS on _____ by _____
Date Name

Return a copy of the completed form to the Laura MacFarland 107 Suttiff Ave., Rhinelander, WI 54501. For further assistance contact the River Alliance of Wisconsin at (608) 257-2424. All trip data is valuable to us even if you did not find any invasive species. Version 3.0 (5/14)

Project RED Field Data Collection Sheet



| | | | |
|--|-----------|----------------|-----------------|
| Name | Phone | Email | |
| Street Address | City | State | Zip |
| Organization | Waterbody | Date | |
| Start Time | End Time | Start Latitude | Start Longitude |
| Description of Start Location (ex. CTH K Bridge) | | | |
| End Latitude | | End Longitude | |
| Description of End Location | | | |

Check all of the species you looked for: Japanese knotweed purple loosestrife phragmites Japanese hops flowering rush hydrilla Brazilian waterweed Eurasian watermilfoil curlyleaf pondweed yellow floating heart yellow iris didymo zebra mussel quagga mussel New Zealand mudsnail faucet snail red swamp crayfish Asian clam water lettuce water hyacinth, other _____

STEP 1: Record locations of invasive species using a GPS unit (datum WGS84). Check photo or sample if one was taken.

| ID# | Species | Latitude | N Longitude | W Area | M ² | Photo | Sample |
|-----|--------------------|----------|-------------|--------|----------------|-------|--------|
| 1 | purple loosestrife | 48.88888 | -89.14823 | 5 | | | |
| 2 | Japanese knotweed | 48.93347 | -89.17998 | 20 | | | |
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Step 2: Send your photograph or sample to an expert for verification.

| Name of Verifier | Date Received | ID# of Samples/Photos | ID# of Positives | ID# of Negatives |
|------------------|---------------|-----------------------|------------------|------------------|
| Sue Q. Expert | 6/17/14 | 1 and 2 | 1 | 2 |

Step 3: Data was entered into SWIMS on June 18, 2014 by Laura MacFarland
Date Name

Return a copy of the completed form to the Laura MacFarland 107 Suttiff Ave., Rhinelander, WI 54501. For further assistance contact the River Alliance of Wisconsin at (608) 257-2424. All trip data is valuable to us even if you did not find any invasive species. Version 3.0 (5/14)

Collecting a Sample

Verification (WDNR)

PHOTOGRAPH



SPECIMEN



- Object for scale
- All parts
- Multiple pictures

- All parts
- 5 – 10 specimens
- Keep cool and damp

Milwaukee Area (Kenosha, Milwaukee, Ozaukee, Racine, Sheboygan, Walworth, Washington, Waukesha)
Heidi Bunk, 262-574-2130, heidi.bunk@wi.gov
Green Bay Area (Marinette, Menominee, Oconto, Shawano)
Brenda Nordin, 920-662-5141, brenda.nordin@wi.gov
Green Bay Area (Brown, Calumet, Door, Fond Du Lac, Kewaunee, Manitowoc, Outagamie)
Mary Gansberg, 920-662-5489 mary.gansberg@wi.gov
Oshkosh Area (Green Lake, Marquette, Waupaca, Waushara, Winnebago)
Ted Johnson, 920-424-2104 tedm.johnson@wi.gov
Madison Area (Columbia, Dane, Dodge, Grant, Green, Iowa, Jefferson, Lafayette, Richland, Rock, Sauk)
Susan Graham, 608-275-3329, susan.graham@wi.gov
Woodruff Area (Iron, Vilas, Oneida)
Kevin Gauthier, 715-356-5211, kevin.gauthiersr@wi.gov
Rhineland Area (Florence, Forest, Langlade, Lincoln, Price, Taylor)
Jim Kreitlow, 715-365-8947, james.kreitlow@wi.gov

Verification (WDNR)

Spoooner Area (Ashland, Bayfield, Burnett, Douglas, Washburn)
Pamela Toshner, 715-635-4073, pamela.toshner@wi.gov
Spoooner Area (Barron, Polk, Rusk, Sawyer)
Alex Smith, 715-635-4142, alex.smith@wi.gov
Eau Claire Area (Adams, Buffalo, Chippewa, Clark, Crawford, Dunn, Eau Claire, La Crosse, Marathon, Monroe, Pepin, Pierce, Portage, St. Croix, Trempealeau, Vernon, Wood)
Jodi Lepsch, 715-838-8385, jodi.lepsch@wi.gov

| | | | |
|--|-----------|----------------|-----------------|
| Name | Phone | Email | |
| Street Address | City | State | Zip |
| Organization | Waterbody | Date | |
| Start Time | End Time | Start Latitude | Start Longitude |
| Description of Start Location (ex. CTH K Bridge) | | | |
| End Latitude | | End Longitude | |
| Description of End Location | | | |

Check all of the species you looked for: Japanese knotweed purple loosestrife phragmites Japanese hops flowering rush hydrilla Brazilian waterweed Eurasian watermilfoil curlyleaf pondweed yellow floating heart yellow iris didymo zebra mussel quagga mussel New Zealand mudsnail faucet snail red swamp crayfish Asian clam water lettuce water hyacinth, other _____

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Step 2: Send your photograph or sample to an expert for verification.

| Name of Verifier | Date Received | ID# of Samples/Photos | ID# of Positives | ID# of Negatives |
|------------------|---------------|-----------------------|------------------|------------------|
| Sue Q. Expert | 6/17/14 | 1 and 2 | 1 | 2 |

Step 3: Data was entered into SWIMS on June 18, 2014 by Laura MacFarland
Date Name

Return a copy of the completed form to the Laura MacFarland 107 Suttiff Ave., Rhinelander, WI 54501. For further assistance contact the River Alliance of Wisconsin at (608) 257-2424. All trip data is valuable to us even if you did not find any invasive species. Version 3.0 (5/14)

We want to know where you monitored!

- Please complete a field data sheet and enter your data into SWIMS even if you did not find an invasive species
- Two Options for Datasheets:
 - Send to your Project RED Trainer or Statewide Coordinator
 - Enter into DNR SWIMS program yourself

Entering Data into SWIMS

Surface Water Integrated Monitoring System

Wisconsin Department of Natural Resources
Surface Water Integrated Monitoring System (SWIMS)

Enter your User ID and Password to sign in

User ID:

Password:

DNR Staff:
Log in with your Oracle ID and Password

Volunteers and Others:
Our login screen has changed. Log in with your Wisconsin User ID and Password above.
Forgot your password?
Get a Wisconsin User ID and Password

Before you can enter data...

Get your WAMS ID and Password at <https://on.wisconsin.gov/WAMS/home>

- Self Registration
- Activate your account after you receive and email from www.wisconsin.gov
- EMAIL aperdzock@wisconsinrivers.org
 - Let her know that you will be contributing Project RED data
 - Provide her with your USER ID



SWIMS HELP

Quick tasks

Reserve a campsite | Where to fish | Order tree seedlings
Online license center | Burn permits | Register boatATVknow

Popular links

Parks and recreation | Spring hearings | Ask the experts
Natural Resources Board | Green Tier | Today's air quality
Conservation Congress | Deer trustee report | Public input

Top news

Wisconsin regular inland game fish season opens Saturday, May 4
Comments sought on Lake Michigan fisheries management plan update

[Features](#) | [Weekly News](#) | [News releases](#) | [Outdoor Report](#) | [All news](#)



Your fishy friends miss you! Hook up again



Surface Water Integrated Monitoring System (SWIMS)

Welcome to the Surface Water Integrated Monitoring System (SWIMS), a Wisconsin DNR information system that holds chemistry (water, sediment), physical, and biological (macroinvertebrate, aquatic invasives) data.

SWIMS is the state's repository for water and sediment monitoring data collected for Clean Water Act work and is the source of data sharing through the federal [Water Quality Exchange Network](#). DNR Fisheries and Water Quality Biologists use the system to locate monitoring stations, providing a gateway to final, reviewed fisheries management datasets housed at the U.S. Geological Survey. SWIMS is also the data system that citizen volunteers use to document water monitoring results for our state's lakes, streams and wetlands.



Little St-Germain Lake, L. Helmuth



Access the system

General SWIMS Users log in [here with your WAMS ID and Password](#). Questions? Email Moll MacDonald

Citizen Based Stream and Lakes Volunteer Monitors used SWIMS to record their data since 2007!! For more information about these outstanding monitoring programs see the links below. A special note: When entering your Citizen Lake Monitoring data online, please use our new address: <http://dnr.wi.gov/lakes/clm-data>.

Firefox - Welcome to SWIMS

prodosajva.dnr.wi.gov/swims/myProjects.html?viewType=details&planId=40050792&task=25¤tLevel=0&isGrant=N&externalUserPower=Y

Wisconsin Department of Natural Resources

Surface Water Integrated Monitoring System (SWIMS)

My Projects Find Data Submit Data Stations Forms Reports, Maps, and Documents Manage Data

My Projects

- Clean Boats, Clean Waters - River Alliance (Lower Wisconsin River)
- Project RED Trainings
- River and Stream Access Invasive Species Signage
- Project Riverine Early Detectors (Project RED) - Statewide
- Project Riverine Early Detectors (Project RED)**

Tasks

- Enter Data
- View/Edit Data

Project Details

- Project Details
- Project RED Website
- Field Data Collection Sheet
- Instructions for Using a GPS
- Instructions for Entering Data
- Project RED E-Newsletter

Project Riverine Early Detectors (Project RED)

Project Details

Project ID: Project RED

Start Date: 01/01/2009

Description: Wisconsin's rivers are vulnerable to invasion by a number of invasive species from Eurasian. Your river is detecting invasives early when it is still possible to isolate or eradicate the effect money and time it will take. Volunteers are invaluable for early detection. During a free train foot for 15 species of concern. Project RED (Riverine Early Detectors) is a collaboration between National Institute for Invasive Species Science and the River Alliance of Wisconsin.

Currently, you are logged in. For security purposes, you will be logged off automatically after 15 minutes of inactivity, or you can log out now.

Firefox - Welcome to SWIMS

prodosajva.dnr.wi.gov/swims/createDynamicForm.html?usePlanOptions=40660792

Wisconsin Department of Natural Resources

Surface Water Integrated Monitoring System (SWIMS)

My Projects Find Data Submit Data Stations Forms Reports, Maps, and Documents Manage Data

Create Monitoring Data
Fields denoted with an asterisk (*) are REQUIRED.

Project * Project Riverine Early Detectors (Project RED) Selected Project: Project Riverine Early Detectors (Project RED)

Data Collectors * Laura MacFarland Selected Collectors: Laura MacFarland

Station * 10034547, Tomahawk River - Dam on Willow Flowage to Swamp Lake Rd Bridge Selected Station: Tomahawk River - Dam on Willow Flowage

Start Date * Select Date

Time * Select

Form * Project Riverine Early Detection

Optional Fields

I want to enter latitude and longitude on the next page (optional)

End Date * Select

Time * Select

Comments

Fill in the weather here, lake or streamside observations, wildlife spotted, names of additional helpers etc..

Save and Return Save Next

Currently, you are logged in. For security purposes, you will be logged off automatically after 15 minutes of inactivity, or you can log out now.

Firefox - Welcome to SWIMS

prodosajva.dnr.wi.gov/swims/createDynamicForm.html?usePlanOptions=40660792

Wisconsin Department of Natural Resources

Surface Water Integrated Monitoring System (SWIMS)

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Project * Project Riverine Early Detectors (Project RED) Selected Project: Project Riverine Early Detectors (Project RED)

Data Collectors * Laura MacFarland Selected Collectors: Laura MacFarland

Station * 10034547, Tomahawk River - Dam on Willow Flowage to Swamp Lake Rd Bridge Selected Station: Tomahawk River - Dam on Willow Flowage

Start Date * 10034543, Ahnapee River - Washington Rd Bridge north approx 0.5 miles

Time * 10037400, Crayfish River - Hubbleton to River Bend Resort

Form * 10037400, Fennimore Fork - Neff Rd to City Rd M

Optional Fields

I want to enter latitude and longitude on the next page (optional)

End Date * 10037400, Fennimore Fork - Neff Rd to City Rd M

Time * 10036006, Flambeau River (North Fork) - Nine Mile Landing to Deadman Slough Landing

Comments * 10037754, Flambeau River - Turtle Flambeau Flowage to Hoft's Landing

Fill in the weather here, lake or streamside observations, wildlife spotted, names of additional helpers etc..

Save and Return Save Next

Currently, you are logged in. For security purposes, you will be logged off automatically after 15 minutes of inactivity, or you can log out now.

Firefox - Welcome to SWIMS

prodosajva.dnr.wi.gov/swims/createDynamicForm.html?usePlanOptions=40660792

Wisconsin Department of Natural Resources

Surface Water Integrated Monitoring System (SWIMS)

My Projects Find Data Submit Data Stations Forms Reports, Maps, and Documents Manage Data

Create Monitoring Data
Fields denoted with an asterisk (*) are REQUIRED.

Project * Project Riverine Early Detectors (Project RED) Selected Project: Project Riverine Early Detectors (Project RED)

Data Collectors * Laura MacFarland Selected Collectors: Laura MacFarland

Station * 10034543, Ahnapee River - Washington Rd Bridge north approx 0.5 miles Selected Station: Ahnapee River - Washington Rd Bridge

Start Date * 10037021, Crayfish River - Hubbleton to River Bend Resort

Time * 10037400, Fennimore Fork - Neff Rd to City Rd M

Form * 10037754, Flambeau River - Turtle Flambeau Flowage to Hoft's Landing

Optional Fields

I want to enter latitude and longitude on the next page (optional)

End Date * 10034536, Location Specified On Next Page

Time * 10027853, Mandowish River - CTH N to Island Lake

Comments * 10030276, Mandowish River Hwy 51 - Hwy 47

Fill in the weather here, lake or streamside observations, wildlife spotted, names of additional helpers etc..

Save and Return Save Next

Currently, you are logged in. For security purposes, you will be logged off automatically after 15 minutes of inactivity, or you can log out now.

Firefox - Welcome to SWIMS

prodosajva.dnr.wi.gov/swims/createDynamicForm.html?usePlanOptions=40660792

Wisconsin Department of Natural Resources

Surface Water Integrated Monitoring System (SWIMS)

My Projects Find Data Submit Data Stations Forms Reports, Maps, and Documents Manage Data

Create Monitoring Data
Fields denoted with an asterisk (*) are REQUIRED.

Project * Project Riverine Early Detectors (Project RED) Selected Project: Project Riverine Early Detectors (Project RED)

Data Collectors * Laura MacFarland Selected Collectors: Laura MacFarland

Station * 1003430, Location Specified On Next Page Selected Station: Location Specified On Next Page

Start Date * 04/10/2013

Time * 6 - 00 - PM

Form * Project Riverine Early Detection

Optional Fields

I want to enter latitude and longitude on the next page (optional)

End Date * 4/10/2013

Time * 6 - 00 - PM

Comments * I searched down the river in search of Japanese Knotweed stalks that were left still standing through the winter. Just kidding - I did not monitor on this date. I using this FAKE entry for the screen shots for the TTT webinar!

Fill in the weather here, lake or streamside observations, wildlife spotted, names of additional helpers etc..

Save and Return Save Next

Currently, you are logged in. For security purposes, you will be logged off automatically after 15 minutes of inactivity, or you can log out now.

Firefox - Fieldwork Event and Result Form

prodosajva.dnr.wi.gov/swims/generateDynamicForm.html?fieldworkId=79502729&sampleHeadId=79502731&formCode=PROJECT_RED&hasErrors=N

Home -> Fieldwork Event and Result Form

Fields denoted with an asterisk (*) are REQUIRED.

Fieldwork event data can be corrected later after submitting parameter results below.

You Are Entering Data For: Project: Project Riverine Early Detectors (Project RED)
Start Date/Time: 04/10/2013 02:00 PM
Station: 10033430 - Location Specified On Next Page

| Project Riverine Early Detection | Parameter | Result | Units | Method |
|----------------------------------|----------------------------------|-------------------------|-------|--------|
| Location Monitored | Waterbody Name (*) | North Fork Frozen River | | |
| | Start Latitude (ex. 43.074747) | 43.074747 | | |
| | Start Longitude (ex. -89.384625) | -89.384625 | | |
| | Start Location Description (*) | Winter Drive | | |
| | End Latitude (ex. 43.074747) | 43.074747 | | |
| Species Looked For | Japanese Knotweed | YES | | |
| | Purple Loosestrife | NO | | |
| | Phragmites | YES | | |
| | Japanese Hops | NO | | |
| | Flowering Spurge | NO | | |
| Other Species | Hyacinth | NO | | |
| | Elodea | NO | | |
| | Water Hyacinth | NO | | |
| | Water Hyacinth | NO | | |
| | Water Hyacinth | NO | | |
| | Water Hyacinth | NO | | |
| | Water Hyacinth | NO | | |
| | Water Hyacinth | NO | | |
| | Water Hyacinth | NO | | |
| | Water Hyacinth | NO | | |
| | Water Hyacinth | NO | | |
| | Water Hyacinth | NO | | |
| | Water Hyacinth | NO | | |
| | Water Hyacinth | NO | | |
| | Water Hyacinth | NO | | |

Next Date Next Station Save and Return to List Enter First ID

I Didn't Find Anything

I Found Something to Report!

Firefox | Fieldwork Event and Result Form

prodosajava.dnr.wi.gov/swims/generateDynamicFormItems.html?fieldworkId=79502729&sampleHeaderId=79502737&formCodes=PROJECT_RED_DNC

Wisconsin Department of Natural Resources

Surface Water Integrated Monitoring System (SWIMS)

My Projects | Find Data | Submit Data | Stations | Forms | Reports, Maps, and Documents | Manage Data

Home -> Fieldwork Event and Result Form
Fields denoted with an asterisk (*) are REQUIRED.
Fieldwork event data can be corrected later after submitting parameter data.

You Are Entering Data For: **Rivers/Streams Early Detection (Site 1)**

| Parameter | Result | Units | Method |
|----------------------------|-------------------|-----------------|--------|
| ID# | 410201301 | | |
| Species Name | Japanese Knotweed | | |
| Latitude (ex. 43.0747) | 43.0747 | DECIMAL DEGREES | |
| Longitude (ex. -89.304625) | -89.304625 | DECIMAL DEGREES | |
| Area | | METERS SQUARE | |

Additional Comments

Next Date | Next Station | Save and Return to List | Enter Next ID#

Currently, you are logged in.
For security purposes, you will be logged off automatically after 15 minutes of inactivity, or you can log out now.

The Official Internet site for the Wisconsin Department of Natural Resources
101 S. Webster Street | PO Box 7921 | Madison, Wisconsin 53707-7921 | 608.266.2821
dnr.wi.gov

Success Story: Taking Action



Friends of Badfish found this stand of Japanese Knotweed at Riley Rd.



Educated landowner, DNR, and community



Cut and burned dead material



Cut twice; sprayed once or injected



Native Planting

1200 Native Grass Plugs



Prevent the Spread

INSPECT, CLEAN & DRY
BAG ANY SPECIMENS IMMEDIATELY
WORK DOWNSTREAM
LOSE THE FELT SOLED BOOTS



Pledge

- Pledge to monitor a river or stream this year
- Complete this form and turn it in prior to leaving
- You will receive it in the mail reminding you to get out on the water!

Riverine Early Detector's Pledge

Invasive species threaten the health of Wisconsin's rivers and the plants and animals that rely upon them for habitat and nourishment. I pledge to monitor:

(check boxes)

All boat hulls in use by watercraft on an area of potential introduction, bridge abutments, boat launches, and areas of disturbance.

I will monitor from: _____ (description of river location)

at: _____ (description of river location)

I pledge to have any suspect plants or animals first verified by a professional.

I pledge to report any invasive species found within the river corridor by submitting my data online or by mail or sending my completed data sheet to the River Alliance, as soon as possible.

Signature _____ Date _____

Name _____

Organization/Agency _____

Mailing Address _____

Telephone _____

Email _____

Training Survey

- Your feedback is of great value!
- Please take a few minutes to fill out the form provided, so that we can improve this free service.

THANK YOU!

Amanda Perdsock
(608) 257-2424 x111
aperdsock@wisconsinrivers.org
www.wisconsinrivers.org





Appendix F

Education and Outreach

Fall is best time to look for zebra mussels as boats, piers removed for winter

It isn't every day that someone has the ability to look underneath their dock and see what is happening on their structure. That rare opportunity will present itself as summer gives way to autumn and lake residents and lake service providers start to remove boats, docks, and piers from the water. Why would anyone want to take a look at the bottom of the piers?

"Docks and piers provide an excellent home for aquatic invasive species (AIS) like zebra mussels to colonize," explains Katelin Anderson, Polk County Land and Water Resources Department. "It's often difficult to thoroughly inspect a structure while it's in the water; however during removal anyone involved with the process can easily monitor for invasive species."

AIS are non-native plants and animals that threaten Wisconsin's waters by causing environmental and economic harm. One example, zebra mussels, can clog water intakes and pipes, encrust piers, boats and motors, and their sharp shells can cut the feet of swimmers.

Zebra mussels have been found in approximately 250 Wisconsin lakes and rivers. Zebra mussels have not been documented in Polk County, but have been documented in Bass Lake in St. Croix County and numerous lakes in the Twin Cities Metro Area.

To protect Polk County's lakes and rivers, carefully examine piers, boats, boatlifts, rafts and any other equipment that has been in the water for a prolonged period of time for signs of zebra mussels during removal.

In addition to a visual inspection, citizens/contractors are encouraged to feel smooth surfaces of equipment to check for juvenile zebra mussels as they may have a "sand-paper like" feel and are often invisible to the human eye. If zebra mussels or other new invasive species are found:

- Note the exact location where the animal was found.
- Take a digital photo of the animal in the setting where it was found (if possible).
- Collect up to five specimens of varying sizes, place them in a jar with water, and transport to a refrigerator.
- Contact Polk County Land and Water Resources Department, at 715-485-8699 and deliver specimens.

"Responding quickly to new AIS detections is critical to help slow the spread into other waterbodies," says Tim Campbell, AIS communications specialist for UW-Extension and the Wisconsin DNR. "It can also help control AIS within a body of water. Efforts of citizens statewide can help us achieve that."

There are also specific laws lake property owners and contractors must follow to prevent the spread of AIS. Prior to transporting any equipment Wisconsin law requires you to:

INSPECT boats, trailers, boat lifts, piers, rafts and equipment.

REMOVE all attached aquatic plants and animals.

DRAIN all water from boats, vehicles, and equipment.

To learn more about zebra mussels or Wisconsin aquatic invasive species regulations visit:
dnr.wi.gov keyword "invasive species".

FOR IMMEDIATE RELEASE

Zebra Mussel Discovered in Polk County

Balsam Lake, Wisconsin – April 3, 2017

In September 2016, a single adult zebra mussel was found on the northeast side of Deer Lake by a citizen. Partners from the Deer Lake Improvement Association, Harmony Environmental, Bone Lake Management District, Polk County Land and Water Resources Department, St. Croix River Association, Wisconsin Department of Natural Resources, National Park Service, and US Fish and Wildlife Service met this winter to coordinate a zebra mussel monitoring effort for Deer Lake and additional Polk County lakes and rivers. The monitoring effort will include shoreline searches, tow nets (which sample for immature zebra mussels), and plate/cinder block samplers that are left underwater for adult zebra mussels to attach to.

Zebra mussels are small, fingernail-sized invasive mussels that damage ecosystems by harming fisheries, smothering native mussels and crayfish, and littering beaches with their sharp shells. They attach to hard surfaces, including boats and docks, and clog water intake pipes. Native to Eastern Europe and Western Russia, zebra mussels were brought over in the ballast water of ships and first found in the Great Lakes in 1988. Today, zebra mussels are found in the St. Croix River from Stillwater south to its confluence with the Mississippi River and in nearby lakes such as Forest Lake and White Bear Lake in Washington County, Bass Lake in St. Croix County, and Big McKenzie Lake in Burnett and Washburn Counties.

Attend a day-long workshop on Monday, April 24th at the Alliance Church of the Valley in St. Croix Falls to learn more about zebra mussel monitoring, control, and watercraft decontamination. For more information and to register visit: stcroixriverassociation.org/events.

The discovery of a zebra mussel on Deer Lake highlights the important role of citizens in preventing the spread of aquatic invasive species. If you're interested in learning to identify zebra mussels and other invasive species, contact Katelin Anderson at katelin.anderson@co.polk.wi.us or 715-485-8637.

The Polk County Land and Water Resources Department mission statement is to preserve, protect, and enhance our natural resources.

Katelin Anderson
Polk County Land and Water Resources Department
715-485-8637
katelin.anderson@co.polk.wi.us
100 Polk County Plaza—Ste 120
Balsam Lake, WI 54810

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(371 words)



Dreissena polymorpha
Zebra mussel
© Paul Skawinski 2011

Photo Credit: Paul Skawinski, UW-Extension Lakes



Photo Credit: Minnesota Department of Natural Resources

Fall is best time to look for zebra mussels as boats, piers removed for winter

It isn't every day that someone has the ability to look underneath their dock and see what is happening on their structure. That rare opportunity will present itself as summer gives way to autumn and lake residents and lake service providers start to remove boats, docks and piers from the water. Why would anyone want to take a look at the bottom of the piers?

"The clean equipment that gets installed every year provides an excellent home for aquatic invasive species (AIS) like zebra mussels to colonize," explains Katelin Anderson, Polk County Aquatic Invasive Species Coordinator. "It's often difficult to thoroughly inspect a structure while it's in the water; however during removal anyone involved with the process can easily monitor for invasive species."

AIS are non-native plants and animals that threaten Wisconsin's waters by causing environmental and economic harm. One example, zebra mussels, can clog water intakes and pipes, encrust piers, boats and motors, and their sharp shells can cut the feet of swimmers.

Zebra mussels have been found in less than 5% of Wisconsin lakes predicted to be suitable for zebra mussels. In September 2016, a single adult zebra mussel was found on the northeast side of Deer Lake by a citizen. Partners from the Deer Lake Improvement Association, Harmony Environmental, Polk County Land and Water Resources Department, St. Croix River Association, Wisconsin Department of Natural Resources, National Park Service, and US Fish and Wildlife Service undertook an extensive monitoring effort for zebra mussels during the 2017 season. A combination of shoreline searches, tow nets (which sample for immature zebra mussels), and plate/cinder block samplers that are left underwater for adult zebra mussels to attach to were used. Fortunately, no additional zebra mussels have been found at this time.

To protect Polk County's lakes and rivers, carefully examine piers, boats, boatlifts, rafts and any other equipment that has been in the water for a prolonged period of time for signs of zebra mussels during removal.

In addition to a visual inspection, citizens/contractors are encouraged to feel smooth surfaces of equipment to check for juvenile zebra mussels as they may have a "sand-paper like" feel and are often invisible to the human eye. If zebra mussels or other new invasive species are found:

- Check that the invasive species has not been previously found on the waterbody by visiting <http://dnr.wi.gov/lakes/invasives/AISLists.aspx?species=ZM>
- Note the exact location where the animal was found.
- Take a digital photo of the animal in the setting where it was found (if possible). Then collect up to five specimens of varying sizes. Place in a jar with water; put on ice and transport to refrigerator.
- Contact Katelin Anderson, Polk County Aquatic Invasive Species Coordinator at 715-485-8637 and deliver specimens.

"Responding quickly to new AIS detections is critical to help slow the spread into other waterbodies," says Tim Campbell, AIS communications specialist for UW-Extension and the Wisconsin DNR. "It can also help control AIS within a body of water. Efforts of citizens statewide can help us achieve that."

There are also specific laws lake property owners and contractors must follow to prevent the spread of AIS. Prior to transporting any equipment Wisconsin law requires you to:

- **INSPECT boats, trailers, boat lifts, piers, rafts and equipment.**
- **REMOVE all attached aquatic plants and animals.**
- **DRAIN all water from boats, vehicles, and equipment.**

To learn more about zebra mussels or Wisconsin aquatic invasive species regulations visit: dnr.wi.gov keyword "invasive species".

NEWS RELEASE

DATE: *June 9, 2016*

CONTACT: Katelin Anderson, 715-485-8637, katelin.anderson@co.polk.wi.us

SUBJECT: Seventeen Polk County waterbodies participate in eighth annual landing blitz to tackle aquatic invasive species

(Polk County) – Citizen volunteers and aquatic invasive species experts will be teaming up to educate boaters and conduct free boat checks during the weekend of July 4th at boat landings throughout Wisconsin so the boaters do not accidentally spread Eurasian water-milfoil, zebra mussels, and other aquatic invasive species (AIS).

Throughout the eighth annual Landing Blitz inspectors stationed at many high use boat landings from June 30th-July 3rd will help boaters understand Wisconsin's invasive species laws and what steps to follow to avoid spreading invasive species. In Polk County, seventeen lakes are participating in the Landing Blitz: Long Lake, Loveless Lake, Cedar Lake, Big Round Lake, Pipe and North Pipe Lakes, Half Moon Lake, Big Blake Lake, Long Trade Lake, Wapogasset/Bear Trap Lake, Horseshoe Lake, Apple River Flowage, the St. Croix River, and Big, Round and Church Pine Lakes.

During last year's holiday, inspectors contacted 23,000 people and inspected over 10,000 boats across the entire state. Inspectors included citizen volunteers, state and local AIS staff, wardens and water guards, and numerous lake associations, organized by the Department of Natural Resources and the University of Wisconsin-Extension's Clean Boats, Clean Waters program.

Other states have seen the success of Wisconsin's Landing Blitz and adopted their own. In 2014, Michigan launched their inaugural Landing Blitz. "We are happy to see the dedicated work of our boat inspectors inspire Michigan to start their own Landing Blitz. Michigan's program complements our efforts and will strengthen regional efforts to control the spread of invasive species," said Bob Wakeman, DNR's Aquatic Invasive Species Coordinator.

Invasive species can crowd out native species, disrupt lake ecosystems, interfere with boating, fishing and other recreation, and cause economic harm. The main way that invasive species and fish diseases such as viral hemorrhagic septicemia (VHS) spread to new waters is aboard boating and fishing equipment and with live fish or water moved from one waterbody to another.

Inspectors will demonstrate the required prevention steps boaters must take, provide educational prompts to remind boaters of these steps, and talk about Wisconsin invasive species and VHS laws. Boaters found already practicing the prevention steps can again be rewarded with a free microfiber boating towel.

Boaters, anglers, and others enjoying Wisconsin waters are required to:

INSPECT boats, trailers, and equipment.

REMOVE all attached aquatic plants and animals.

DRAIN all water from boats, vehicles, and equipment.

NEVER MOVE plants or live fish away from a waterbody. *

*Limited exceptions apply. Visit www.dnr.wi.gov and search for "bait laws."

Interested in looking for Aquatic Invasive Species?

The Polk County Land and Water Resources Department and UW-Extension Lakes will host a free Aquatic Invasive Species (AIS) monitoring workshop on **July 18th at the Polk County Government Center from 11:00am-2:00pm.**

The training and resource materials provided in the workshop will help volunteers identify invasives such as Eurasian water milfoil, curly leaf pondweed, zebra mussels and among others, rusty crayfish. The training will also provide instructions on how to monitor, where and when to look for invasives, and what to do if you suspect that you have found an invasive plant or animal. Invasive species identification will take place, along with some native plant identification.

A new monitoring protocol developed by the UW-Extension Lakes Program, will be discussed. There will be 1 free monitoring kit available per lake. Volunteers must complete an *AIS CLMN Release of Claims* before receiving the equipment. Data entry and communication will be required of the results to assure the equipment is being used.

AIS monitoring is designed to be easy and fun for all to participate in. It is tailored so you can select which species you are interested in and can fit into your schedule.

To register, please call Katelin Anderson at 715-485-8637 or email katelin.anderson@co.polk.wi.us.

FOR IMMEDIATE RELEASE
August 1, 2016

For more information, contact:
Amanda Perdzock, Aquatic Invasive Species Program Director
River Alliance of Wisconsin
aperdzock@wisconsinrivers.org
608-257-2424 ext.111

**Aquatic Invasive Species Bridge Snapshot Day:
Volunteers Needed for Unique Citizen Monitoring Event**

On September 10, 2016, River Alliance of Wisconsin will team up with more than 20 partners for the third annual statewide aquatic invasive species monitoring event. Nearly 200 volunteers will help search for invasive species, including escaped or intentionally released water garden and aquarium species that could choke out our rivers and streams.

“Volunteers play a key role in early detection on their local waters and with their help we have more eyes on the water to prevent the spread of invasive species around the state,” explained Amanda Perdzock, River Alliance of Wisconsin’s Invasive Species Program Director. “At the 2014 Snapshot Day, volunteers found invasive species in previously undocumented locations including invasive faucet snails in the Lake Michigan basin. In 2015, Snapshot Day volunteers continued finding invasive species like water hyacinth in local waterbodies after attending this event. This information discovered by citizens helps researchers respond to the threats on our waters.”

Following a brief identification training, teams of volunteers will disperse to rivers and streams to help look for species of concern. Local partners statewide have selected critical monitoring sites that vary from bridges spanning big rivers to culverts on country roads crossing small trout streams where invasives are likely to be introduced, intentionally or unintentionally. According to Dr. Michael Alfieri, Associate Professor and Biology Chair at Viterbo University and volunteer at the 2014 AIS Bridge Snapshot Day in La Crosse, “Snapshot Day was a great way for me to spend time with my students outside of the classroom learning about aquatic invasive species while also meeting local residents who share a passion for protecting and preserving Wisconsin’s waters.” After their work exploring and evaluating, volunteers will reconvene at the rendezvous site to report on what they found.

There will be 26 rendezvous sites around the state, including Bayfield County, several in the Fox Valley and Lake Winnebago region, Waukesha County and Lafayette County. Volunteers will monitor over 150 locations on rivers such as the Fox River, Mississippi River, and more. Advanced registration is requested and will be open from August 1st to September 3rd. For a complete listing of rendezvous sites and to register, visit: <https://www.wisconsinrivers.org/events/display/item/snapshot-day-5>

Coordination of this event is made possible with generous support from the Wisconsin Department of Natural Resources through an Aquatic Invasive Species Education, Planning and Prevention grant, and the Citizen-based Monitoring Partnership Program.

About the River Alliance of Wisconsin:

Formed in 1993, River Alliance of Wisconsin is a statewide non-profit, non-partisan citizen advocacy organization that works to protect and restore Wisconsin’s rivers and watersheds. The organization’s membership includes more than 2,500 individuals and businesses and more than 80 local watershed

groups - one of the largest memberships of statewide river groups in the country. For more information, visit www.wisconsinrivers.org.

Our Partners: Wisconsin Department of Natural Resources, Bayfield County, Calumet County, Fond du Lac County, Southwest Badger Resource Conservation & Development Council, Vilas County, Oneida County, Jefferson County, Polk County, Fox-Wolf Watershed Alliance, St. Croix River Association, Lakeshore Invasive Species Management Area, Fox River Environmental Education Alliance, Golden Sands Resource Conservation & Development, Woodland Dunes Nature Center and Preserve, Upper Sugar River Watershed Association, UW Oshkosh, Lake Winnebago Water Quality Improvement Association, Calumet Groundwater Guardians, Winnebago Lakes Council, Friends of the Twin Rivers Watershed, Waukesha County and many more.

Boat Decontamination Unit Visits Cedar Lake to Aid in Preventing Aquatic Invasive Species

As a result of a partnership between the Cedar Lake Protection and Rehabilitation District, the Polk County Land and Water Resources Department, and the Wisconsin Department of Natural Resources, a boat decontamination unit will be visiting Cedar Lake on August 6. The decontamination unit will clean boats and aid in preventing the spread of aquatic invasive species.

The Wisconsin Department of Natural Resources Water Guard will staff the unit and will clean boats at risk for spreading aggressive aquatic invasive species like Eurasian water milfoil, curly leaf pondweed, and zebra mussels. Eurasian water milfoil and curly leaf pondweed are found in Cedar Lake and additional Polk County lakes and rivers and zebra mussels are found in neighboring counties. Invasive species such as these are harmful to native species and ecosystems.

The decontamination unit will be at the Cedar Lake boat landing on the north end of the lake on Saturday, August 6. Local Clean Boats, Clean Waters volunteers from the Cedar Lake Protection and Rehabilitation District will join the Water Guard to remind boaters to clean, drain, and dry their boats.

For more information, contact the Polk County Land and Water Resources Department at 715-485-8699.



Appendix G

Augmented Enforcement

Officer's Name:

Officer's Signature:

| Boat | Date | Length of Contact (Min.) | Warning Issued (Y/N) | Citation Issued (Y/N) | Photo Taken (Y/N) | Sample Collected (Y/N) | Species Identified (Optional) | Lake (Optional) |
|------|------|--------------------------|----------------------|-----------------------|-------------------|------------------------|-------------------------------|-----------------|
| 1 | | | | | | | | |
| 2 | | | | | | | | |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |
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| 10 | | | | | | | | |
| 11 | | | | | | | | |
| 12 | | | | | | | | |
| 13 | | | | | | | | |
| 14 | | | | | | | | |
| 15 | | | | | | | | |

Polk County cares about our water resources!

LOCAL ORDINANCE

Boaters must remove all aquatic plants and invasive animals before launching and entering a roadway.

Fines - \$200-\$500.



Polk County Ordinance 10-08
www.co.polk.wi.us/landwater/

- If you find any plants or animals on the boats or trailers, feel free to take a picture or bag the specimen and send it to the Land and Water Resources Department.
- Forms can be returned as they are completed or in the early fall.

If you have any questions, don't hesitate to contact
 Katelin Anderson:
 Phone Number: 715-485-8637
 E-mail: katelin.anderson@co.polk.wi.us
 Thank You!



Appendix H

Polk County Aquatic Invasive Species Strategic Plan

POLK COUNTY AQUATIC INVASIVE SPECIES IMPLEMENTATION PLAN

Partner Group Acronyms

LWRD: Polk County Land and Water Resources Department

SCRA: St. Croix River Association

RA: River Alliance

NPS: National Park Service

MPCA: Minnesota Pollution Control Agency

WDNR: Wisconsin Department of Natural Resources

MDNR: Minnesota Department of Natural Resources

UWM: University of Wisconsin-Madison

PCALR: Polk County Association of Lakes and Rivers

LRO: Polk County Lake and River Organizations

SD: Polk County Sheriff's Department

Goals

Goal 1. Prevent the introduction, establishment, and spread of AIS in Polk County waterbodies

Goal 2. Control populations of aquatic invasive species

Goal 3. Monitor Polk County waterbodies for AIS and document results

Goal 4. Provide AIS information and education in Polk County and surrounding areas

Goal 5. Sustain the implementation of the plan

| Goal 1. Prevent the introduction, establishment, and spread of AIS in Polk County waterbodies | | | |
|--|---|------------------|----------------------------|
| Objective | Action | Partners | Timeline |
| Objective 1. Increase compliance with local and state prevention laws and ordinances | Action 1. Organize and conduct Clean Boats, Clean Waters trainings | LWRD, WDNR, SCRA | Yearly, ongoing |
| | Action 2: Assist set up and maintenance of statewide prevention programs: Clean Boats, Clean Waters, Landing Blitz, Bait Dealer Initiative, and Drain Campaign | LWRD, WDNR, SCRA | Yearly, ongoing |
| | Action 3. Support local efforts to install electronic monitoring and information devices, such as ILIDS cameras and motion-activated recorded messages at public boat landings to monitor and educate about AIS. | LWRD, LRO | *As interest arises |
| | Action 4. Partner with local law enforcement to provide augmented enforcement of AIS laws and ordinances | LWRD, SD | Yearly, ongoing |
| | Action 5. Increase presence of WDNR Water Guard | LWRD, WDNR, SCRA | Yearly, ongoing |
| | Action 6. Determine the feasibility of watercraft washing sites, especially along the county border | LWRD, LRO, SCRA | *As interest arises |
| | Action 7. Create an inventory of public boat landing AIS signs and install signs when necessary | LWRD, LRO | Yearly, ongoing |
| | Action 8. Consider developing infestation indication signs to alert users that AIS are present in specific waterbodies | LWRD, LRO, PCALR | *As interest arises |

Completed

Upcoming

| Goal 2. Control populations of aquatic invasive species | | | |
|--|---|------------------|-----------------|
| Objective | Action | Partners | Timeline |
| Objective 1. Respond to existing AIS populations | Action 1. Support individual waterbody group actions to accomplish control efforts | LWRD, PCALR, LRO | Yearly, ongoing |
| | Action 2. Prioritize control efforts on tributaries and chains of lakes with existing populations of AIS and waters with a high risk of spread | LWRD, WDNR | Yearly, ongoing |
| Objective 2. Respond to new and pioneer AIS populations | Action 1. Respond to new AIS populations using best practices, including the WDNR Rapid Response Framework | LWRD, WDNR, LRO | As need arises |
| | Action 2. Conduct initial monitoring in response to new infestations, including bed mapping and aquatic plant point intercept surveys | LWRD | *As need arises |
| | Action 3. Eradicate new and pioneer AIS populations, if possible | LWRD, LRO, WDNR | *As need arises |
| Objective 3. Support citizen efforts to control and eradicate AIS | Action 1. Implement the statewide purple loosestrife biocontrol project, involving citizens whenever possible | LWRD, LRO | Yearly, ongoing |
| | Action 2: Provide training and equipment to citizens for giant and Japanese knotweed control | LWRD, LRO | Yearly, ongoing |
| | Action 3. Determine seed viability of knotweed stands | LWRD, UWM | *As need arises |

Completed

Upcoming

| Goal 3. Monitor Polk County waterbodies for AIS and document results | | | |
|--|--|------------------------------|------------------------|
| Objective | Action | Partners | Timeline |
| Objective 1. Encourage and support efforts to monitor for aquatic invasive species | Action 1. Organize and conduct Citizen Lake Monitoring Network AIS Workshops | LWRD, SCRA, WDNR | Yearly, ongoing |
| | Action 2. Organize and conduct Project RED Workshops | LWRD, NPS, SCRA, RA | Yearly, ongoing |
| | Action 3. Organize and conduct the AIS Bridge Snapshot Day Training | LWRD, SCRA, RA | Yearly, ongoing |
| | Action 4. Promote opportunities for engagement on websites (Polk County, PCALR, WDNR, Wisconsin Lakes, SCRA) | LWRD, PCALR, WDNR, LRO, SCRA | Yearly, ongoing |
| Objective 2. Complete statewide monitoring priorities | Action 1. Implement statewide monitoring protocols on Polk County lakes, rivers, and streams | LWRD, WDNR | As need arises |
| | Action 2. Adapt the Early Detection Smart Prevention Protocol to monitor the St. Croix River, an AIS Source Water | LWRD, NPS, WDNR, MPCA | Biyearly, ongoing |
| Objective 3. Respond to local monitoring needs | Action 1. Monitor for Eurasian water milfoil near where this species occurs: the Upper Apple River, Beaver Brook, Trade River, and Wolf Creek Watersheds | LWRD, LRO | Biyearly, ongoing |
| | Action 2. Monitor for zebra mussels near where this species already occurs: the Horse Creek Watershed | LWRD, LRO | Biyearly, ongoing |
| | Action 3. Respond to any new AIS reaching Polk County by monitoring nearby waterbodies | LWRD, LRO | *As need arises |
| Objective 4. Document monitoring results | Action 1. Ensure citizens are knowledgeable in using the WDNR statewide database, SWIMS | LWRD, LRO, PCALR | Yearly, ongoing |
| | Action 2. Voucher undocumented specimens according to WDNR procedures | LWRD | As need arises |
| | Action 3. Alert stakeholders if a new AIS is found by the best means available (WDNR, local lake organization, etc.), including following the WDNR Rapid Response Framework | LWRD, WDNR, LRO, PCALR, SCRA | As need arises |
| | Action 4. Explore the need for a Polk County AIS database | LWRD, PCALR | *Ongoing |

Completed

Upcoming

Goal 4. Provide AIS information and education in Polk County and surrounding areas

| Objective | Action | Partners | Timeline |
|--|---|------------------------------|---------------------|
| Objective 1. Conduct a mass media campaign to inform residents and visitors about AIS | Action 1. Distribute press releases, information, and articles to local papers/radios, PCALR, and county lake organizations | LWRD, PCALR | Yearly, ongoing |
| | Action 2. Distribute AIS brochures at local businesses, bait stores, and public spaces | LWRD, PCALR, LRO | Yearly, ongoing |
| | Action 3. Work with partner groups to develop a high quality, eye catching, portable AIS traveling display that can be checked out by local groups | LWRD, PCALR, SCRA | *As need arises |
| | Action 4. Install a billboard with AIS messaging on major travel routes into Polk County | LWRD, LRO, PCALR | *As interest arises |
| | Action 5. Consider the inclusion of AIS information in the Polk County Tourism Guide and other county publications and mailings | LWRD, PCALR | *Yearly, ongoing |
| | Action 6. Provide up-to-date AIS information on the Polk County website | LWRD | Yearly, ongoing |
| | Action 7. Use social media such as Facebook, PCALR email and news list serves, and websites to expand messaging | LWRD, PCALR | Yearly, ongoing |
| | Action 8. Explore additional ways to expand messaging and highlight efforts such as geo-fencing (ads that pop up based on proximity to an infested waterbody, Washington County, MN) | LWRD, PCALR | *Yearly, ongoing |
| | Action 9. Provide AIS information as a featured guest on local radio programs | LWRD | Yearly, ongoing |
| Objective 2. Undertake a targeted AIS educational effort to reach specific audiences | Action 1. Present an AIS display at county events (County Fair, local festivals, fishing tournaments, local radio stations, etc.) | LWRD, LRO, PCALR, SCRA | Yearly, ongoing |
| | Action 2. Provide education to Polk County schools, libraries, civic groups, camps, bait stores, etc. | LWRD, PCALR, LRO, SCRA | Yearly, ongoing |
| | Action 3. Provide lake organizations with an AIS display for meetings and/or attend lake organization annual meetings as a presenter | LWRD | Yearly, ongoing |
| | Action 4. Provide trainings to assist volunteers in identifying aquatic invasive species and their native look-alikes | LWRD, SCRA, NPS, WDNR, PCALR | Yearly, ongoing |
| | Action 5. Explore opportunities for providing education for fishing tournaments, focusing on when tournaments are registered | LWRD, LRO, WDNR, SCRA | *Yearly, ongoing |

Completed

Upcoming

| | | | |
|--|---|-----------------------|---------------------|
| Objective 3. Provide AIS education at Polk County boat landings | Action 1. Install AIS signs at public boat landings | LWRD, LRO | Yearly, ongoing |
| | Action 2. Support local efforts to install or update kiosks with AIS information | LWRD, LRO | *As interest arises |
| | Action 3. Assist local efforts to create, print, and distribute individualized waterproof lake maps with AIS information | LWRD, PCALR, LRO | *As interest arises |
| | Action 4. Support statewide programs with educational components: Clean Boats, Clean Waters, the Landing Blitz, and the Drain Campaign | LWRD, LRO, WDNR, SCRA | Yearly, ongoing |

Completed

Upcoming

| Goal 5. Sustain the implementation of the plan | | | |
|--|--|------------------------------------|-------------------|
| Objective | Action | Partners | Timeline |
| Objective 1. Continue to seek funding for a Polk County AIS program | Action 1. Apply for WDNR AIS Education, Prevention, and Planning Grants to continue a county program | LWRD | Biyearly, ongoing |
| | Action 2. Apply for WDNR AIS Early Detection and Response and Maintenance and Containment Grants | LWRD, LRO | *As need arises |
| | Action 3. Leverage current partner efforts to strengthen grant applications | LWRD, SCRA, NPS, PCALR, LRO | Yearly, ongoing |
| | Action 4. Identify additional funding sources and partners to expand opportunities for action | LWRD, SCRA, NPS, PCALR, LRO | Yearly, ongoing |
| Objective 2. Support funding for local AIS programs | Action 1. Provide grant reminders and information to local organizations | LWRD, PCALR | Yearly, ongoing |
| | Action 2. Support local AIS Control Grant applications | LWRD, PCALR | *As need arises |
| | Action 3. Provide template Rapid Response Plans on the PCALR website to assist Control Grant applications | LWRD, PCALR | Yearly, ongoing |
| Objective 3. Increase communication and collaboration with partners | Action 1. Consider the formation of an AIS Steering Committee, either at the county, watershed, or regional level, including Minnesota | LWRD, WDNR, MDNR, PCALR, NPS, SCRA | Yearly, ongoing |
| | Action 2. Create an annual report to document AIS initiatives, including maps showing the presence and absence of aquatic invasive species | LWRD | Yearly, ongoing |
| | Action 3. Support lake and river organizations in exploring all ways they could help prevent and control the spread of AIS, including forming a Lake District | LWRD, WDNR | Yearly, ongoing |
| | Action 4. Form a communication network to convey pertinent AIS information (success stories, new AIS locations, etc.) across county and state lines | LWRD, PCALR, | *Yearly, ongoing |
| Objective 4. Support objectives of related AIS plans | Action 1. Support the goals of related AIS Strategic Plans including the St. Croix River Watershed and WDNR plans | LWRD | Yearly, ongoing |
| | Action 2. Support the goals of Polk County Aquatic Plant Management Plans | LWRD | Yearly, ongoing |

Completed

Upcoming

Goal 1. Prevent the introduction, establishment, and spread of AIS in Polk County waterbodies

Support local efforts to install electronic monitoring and information devices, such as ILIDS cameras and motion-activated recorded messages at public boat landings to monitor and educate about AIS.

Determine the feasibility of watercraft washing sites, especially along the county border

Consider developing infestation indication signs to alert users that AIS are present in specific waterbodies

Goal 2. Control populations of aquatic invasive species

Eradicate new and pioneer AIS populations, if possible

Determine seed viability of knotweed stands

Goal 3. Monitor Polk County waterbodies for AIS and document results

Explore the need for a Polk County AIS database

Goal 4. Provide AIS information and education in Polk County and surrounding areas

Work with partner groups to develop a high quality, eye catching, portable AIS traveling display that can be checked out by local groups

Install a billboard with AIS messaging on major travel routes into Polk County

Consider the inclusion of AIS information in the Polk County Tourism Guide and other county publications and mailings

Explore additional ways to expand messaging and highlight efforts such as geo-fencing

Explore opportunities for providing education for fishing tournaments, focusing on when tournaments are registered

Support local efforts to install or update kiosks with AIS information

Goal 5. Sustain the implementation of the plan

Apply for WDNR AIS Early Detection and Response and Maintenance and Containment Grants

Support local AIS Control Grant applications

Form a communication network to convey pertinent AIS information (success stories, new AIS locations, etc.) across county and state lines

Are there items on this page and/or additional items to add to the document that should be a focus in the future?



Meeting Minutes

Meeting date: Wednesday, October 19, 2016

The fourth and last 2016 meeting of the Polk County Association of Lakes and Rivers (PCALR) was held Wednesday, October 19, 2016 at 6pm at the Polk County Justice Center in Balsam Lake. The meeting time was changed from 7pm due to the presidential debate.

Attending

Mark Lampkin, King Lake; Gordon Kill, Big Round Lake; Jason Kjeseth, Polk County Zoning; Mark Jacobson, Wapogasset/Bear Trap Lakes; Marty Noonan, Wapogasset/Bear Trap Lakes; Ken Peterson, Big Butternut Lake; Gary Ovick, Church Pine, Round, and Big Lakes; Ann Layton, Church Pine, Round, and Big Lakes; Jim Maxwell, Big Blake Lake; William Johnson, Pipe, North Pipe, Largon, and Coon Lakes; Blaine Erickson, Loveless Lake; Larry Bresina, Pipe and North Pipe Lakes; Peggy Lauritsen, Big Blake Lake; Karen Engelbretson, Bone Lake; Katelin Anderson, Polk County Land and Water Resources Department

Welcome and Introductions

Treasurers Report

The current balance is \$2391 in checking.

Membership

The 2016 membership year began on May 1st. Twenty-five members are needed to maintain the status of a Qualified Lake Association and the ability to apply for Wisconsin DNR grants. Currently the organization has 27 members (12 individual members and 15 lake organization members). Last year the organization had a total of 30 members (11 individual members and 19 lake organization members). Thank you to everyone who is a member!

To renew online, click [here](#) or to download a membership form click [here](#).

Approve August Minutes

Set Meetings Dates for 2017

Meetings dates will be April 19, June 21 (elections), August 16, and October 18.

Who's Who Brochures

Who's Who Brochures (2016 printing) were available at the meeting. Each member organization will receive 50 brochures. For those missing the meeting, brochures can be picked up at the Polk County Land and Water Resources Department in Balsam Lake. Additional brochures can be purchased for a cost of \$10 for 50 brochures.

WI Lakes Convention Scholarship

PCALR will again be offering 1 or 2 scholarships worth \$100 each to offset the registration fee to attend the [Wisconsin Lakes Convention](#). The Convention is being held on April 5-7, 2017 in Stevens Point. If you are interested in the scholarship please email [Karen](#).

Website Update

Larry Bresina presented information stats for [PCALR's website](#) for 2012-2016. Over this timeframe the site has averaged 10.6 page visits per day. The 2016 average to date is 8 page visits per day. The email notice list has 128 subscribers and the news feed email list has 33 subscribers. Larry also provided the stats for which pages receive the most visits. A refresh of the site is planned for this winter. The handout Larry provided at the meeting details the website stats can be found following the minutes.

Larry also presented information on [Lakekit.net](#) which provides a low cost option for lake organizations to build and maintain their websites without needing to code and minimizing administration duties. The network has 14 members and the cost to participate will be \$50 per site in 2017. Larry provided a handout, which will follow the minutes, detailing what is included with a membership and a description of the network. Basically a group of lakes each have their own site with one core word press system. This reduces admin chores and costs. Peggy worked with Larry to develop [Big Blake Lake's website](#) through lakekit.net and had a very positive experience. Larry has presented a 2014 Polk County workshop and workshops at the 2014, 2015, and 2016 Lakes Convention providing instructions for building websites.

If anyone is interested in taking an active role in PCALR's website and learning how to update the website, please contact [Larry](#).

Polk County AIS Strategic Plan Updates

Katelin Anderson shared accomplishments of the [Polk County AIS Strategic Plan](#), including what was accomplished and what is planned for upcoming activities. At the request of the membership, a more in depth review of the plan will be scheduled for the April or June 2017 meeting. Katelin will research the possibility of bringing a SWIMS training to Polk County. For

more information on SWIMS click [here](#). AIS related content that lake organizations can republish in newsletters would be useful to lake organizations.

Zebra Mussel Found in Deer Lake

An adult zebra mussel was found on the northeast side of Deer Lake by a resident on September 2nd, 2016. Land and Water Resources Department confirmed the identification and alerted WDNR, NPS, FWS, Deer Lake representatives, and other key partners. Jeremy Williamson, Katelin Anderson, Dave Wedan (FWS), and Jim Miller (Deer Lake) searched the area where the mussel was found and didn't find any additional specimens. Additionally, searches at the boat landing were conducted. Dave will be checking the trap at the boat landing the week of October 24th. National Park Service conducted veliger tows on Deer Lake in late July which came back negative for zebra mussels. However, the tows were also negative for Bass Lake (St. Croix County) which has an established population of zebra mussels. A photo of the specimen was passed around.

AIS Updates

Angelique Dahlberg with the St. Croix River Association attended the Minnesota Aquatic Invaders Summit in St. Cloud on October 5-6. She shared two AIS educational items with Katelin, who brought both items to the meeting. The first item was a roll of toilet paper with AIS messaging produced by the Crow River Lakes and Streams and the second item was a booklet entitled "[Aquatic Invasive Species Early Detectors: A How-To Guide](#)" produced by the Minnehaha Creek Watershed District

Polk County Manure and Water Quality Management Ordinance

A rewrite of the Polk County Manure and Water Quality Management Ordinance is currently in progress. The ordinance will be reviewed by Corporation Counsel and WDNR. Publication of the ordinance and a public hearing will take place in November or December. The ordinance will be brought to the Polk County Board for review and adoption in January or March (no meeting in February). Generally, the ordinance is a little less restrictive than the past ordinance. The ordinance regulates manure piles and manure storage.

Additional Ordinance Amendments

In addition to the rewrite of the Manure and Water Quality Management Ordinance, the Floodplain Zoning Ordinance and Private Onsite Wastewater Treatment System Ordinance are being amended. Likely the public hearings for these amendments will coincide with the hearings for the Manure Ordinance. Information on these ordinances can be found [here](#).

Grant Application Deadlines

WDNR Planning Grants are due on December 10th, 2016 and Management Grants are due

February 1st, 2017. A full list of grant deadlines was passed around. The deadlines can be accessed [here](#).

Guest Speaker: Jason Kjeseth, Polk County Zoning Administrator, Land Information Department

Jason's presentation can be found following the minutes. Additionally, Jason provided two handouts: copies of [Chapter NR 115 Wisconsin's Shoreland Protection Program](#) and copies of the [Polk County Shoreland Protection Zoning Ordinance](#).

Jason Kjeseth and Landen Strilzuk both work for the Polk County Zoning Department. The county is divided in half with Jason handling the west half of the county, and Landen handling the east half.

The state mandates that counties have shoreland zoning for areas within 1000 feet of a lake or pond and 300 feet from a river or stream. Polk County zoning regulates land use above the ordinary high water mark (viewing corridors, new sewers, landscaping, new structures), whereas; WDNR has jurisdiction below the ordinary high water mark (riprap, docks, slow-no-wake). Zoning standards apply to navigable waters (can float a canoe and have a bed and bank mark) but not to man-made ponds.

Statutes are created at the state level, with Administrative Rule NR 115 detailing shoreland zoning standards. NR 115 was created as a statewide minimum standard that counties must follow. Following the passage of 2015 Act 55, NR 115 and County standards became equal. Effective July 14th, 2015, NR 115 became a maximum standard and county standards cannot be more restrictive than those outlined in NR 115. Act 55 created a uniform way to apply regulations in a consistent manner between counties. Each county ordinance needs to be approved by the state and currently county ordinances vary from approximately 40-240 pages in length. The county is still able to create other regulations if NR 115 doesn't address them. By October 1, 2016 every county had to be in compliance with NR 115 or adopt the state ordinance.

NR 115 regulates:

- 1. Minimum lot sizes** Requires lot size of 20,000 square feet and lot width of 100 feet (10,000 feet and 65 feet if public sewer)
- 2. Building setbacks** The shoreline building setback is 75 feet regardless of lake class. Previously, setbacks differed based on lakes classification which was completed in 1999. Lakes classification categorizes lakes based on size, state of development, and other factors. Class one lakes are large and highly developed; whereas, class three lakes are usually small and have little or no development. Where an existing development pattern exists, the shoreland setback for a principal structure may be reduced to the

average setback of the principal structure on each adjacent lot, but the shoreland setback may not be reduced to less than 35 feet from the ordinary high water mark. Subdivision standards do still vary based on lakes classification. Structures exempt from the 75 foot setback include boathouses, open sided screened structures, fishing rafts, broadcast signal receivers, utility transmission and distribution lines, well pump house covers, and POWTS. Walkways necessary to provide access to the shoreline can be a maximum of 5 feet wide (was 4 feet).

- 3. Vegetation** The county regulates the first 35 feet of shoreland known as the shoreland protection area. A permit is required to remove vegetation in this area. The old ordinance allowed a viewing corridor of 30% of the lot width up to 30 feet. The new ordinance allows a viewing corridor of 35 feet per 100 feet of frontage. Viewing corridors can be split or run contiguously. Tree trimming is allowed without a permit. Beyond 35 feet from the water, a permit is not required to remove vegetation.
- 4. Filling, grading, lagooning, dredging, ditching, and excavating** Under Act 55 a non-conforming structure could be torn down and rebuilt up to 35 feet in height without a permit. However, as of August 2015 a sanitary permit is needed if this occurs to ensure the septic is the correct size and is functioning. Also, when rebuilding a landscaping permit is required as a result of filling and grading which can verify that the footprint of the building remains the same. To expand the footprint would require a land use permit.
- 5. Impervious surfaces** In the past the Land Use Runoff Rating (LURR) was used to determine if mitigation was required to increase impervious surfaces on a lot. LURR used an equation based on soil type and land use on a lot. The new changes allow 15% impervious within 300 feet from the ordinary high water mark, regardless of soil type and lot size. If impervious surfaces are less than 15% no mitigation is required. If impervious surfaces are between 15-30%, then the difference must be mitigated down to 15% (capture the amount of water that the increase over 15% generates).
- 6. Height** Within the setback area, dwellings are allowed to be a maximum of 35 feet in height. Accessory buildings may be 25 feet in height and boathouses are allowed a maximum sidewall height of 14 feet.
- 7. Nonconforming structures and use** Nonconforming structures are lawfully placed structures that do not comply with required setbacks. Maintenance, repair, replacement, restoration, rebuilding, or remodeling a nonconforming structure does not require a permit if the footprint is not expanded. Vertical expansion cannot exceed 35 feet in height. Lateral expansion up to 200 square feet is allowed within the setback area if the existing structure is at least 35 feet from the water and the expansion will not be closer than the existing structure. Expansion beyond the 75 foot setback is allowed as long as other setbacks and impervious surface requirements are met.

As a result of the changes the county cannot:

1. Require a vegetative buffer on previously developed land
2. Regulate outdoor lighting
3. Require an inspection or upgrade of the structure before sale or transfer of structure (banks do sometimes require this for a sale)
4. Establish standards for impervious surfaces
5. Regulate construction on a substandard lot that is more restrictive than NR 115

Additionally, with the changes, the DNR may not issue an opinion on whether a variance should be granted without a request from the Board of Adjustments (BOA). Polk County's BOA will request DNR opinion on a case by case basis and the DNR cannot appeal a BOA decision.

The county went through a lengthy process when rewriting the Shoreland Ordinance which included a Technical Advisory Committee, Citizen Advisory Committee, and public hearings. Many of the provisions that came out of these efforts were not included in the final ordinance as a result of Act 55. The Polk County Board of Supervisors appealed the bill both before and after Act 55 was passed.

Sewer inspections were supported by the citizen advisory committee, but were not able to be included in the final ordinance. The county sanitary maintenance program requires inspection and pumping of septic systems every 3 years for year round residents and every 5 years for seasonal residents.

Enforcement of the ordinance is complaint driven and the Zoning Department works to get properties up to compliance. The Department does have citation authority and a \$500 after-the-fact permit fee applies whenever work is started without a permit.

In the future, copies of BOA notices will be shared with Districts, and a District could oppose a project. Notices are currently sent to towns.

Currently, Polk County is recruiting alternate BOA members. Five board members are required, so if someone can't make a session, alternates are needed. The commitment requires a full day and includes a per diem. Properties are visited and then members return for the public hearing. To qualify you must be a resident of Polk County.

Adjourn

Minutes respectively submitted by
Katelin Anderson, Secretary
Polk County Association of Lakes and Rivers
October 2016



Meeting Minutes

Meeting date: Wednesday, October 18, 2017

The fourth 2017 meeting of the Polk County Association of Lakes and Rivers (PCALR) was held Wednesday, October 18, 2017 at 7pm at the Polk County Justice Center in Balsam Lake.

Attending

Peggy Lauritsen, Big Blake Lake; Jim Maxwell, Big Blake Lake; Tom Bordon, Big Blake Lake; Gordon Kill, Big Round Lake; Gary McDowell, Big Round Lake; Mike Reiter, Big, Round, and Church Pine Lake; William Johnson, Pipe and North Pipe Lakes, Largon Lake, Coon Lake; Paul Duxbury, Balsam Lake; Larry Bresina, Pipe and North Pipe Lakes; Wayne Wolsey, Bone Lake; Angelique Dahlberg, St. Croix River Association; Jim Peterson, Loveless Lake; Anna Turk, Long Lake; Katelin Anderson, Polk County Land and Water Resources Department

Welcome and Introductions

Treasurer's Report

The current balance as of August 1 was \$2,215.91. There have been two \$25 membership deposits since the August meeting.

Membership Report

The 2017 membership year began on May 1st. Twenty-five members are needed to maintain the status of a Qualified Lake Association and the ability to apply for Wisconsin DNR grants. As of today, the organization has 11 lake members, 6 personal members, and has received one donation. Thank you to everyone who is a member! To renew online, click [here](#) or to download a membership form click [here](#).

Membership is down from 2016. Past membership lists will be compared to current members and follow up calls or emails made. For 2018, the organization will consider a due date for membership and also mailing out a reminder email prior to the first meeting. The reminder should be mailed out prior to the first business meetings of Districts and Associations.

Roundtable: What's happening at your lake?

Balsam Lake

The District is still working to get a permit for dredging. A resolution has been passed to purchase a dredger contingent on getting a permit to dredge. A good amount of harvesting was done this spring.

Loveless Lake

The Association is putting together a Healthy Lakes grant application and working to generate interest from homeowners.

Big Round Lake

The Lake District approved an AIS Management Plan, which is a new venture. Two weeks ago, the DNR stocked 10,000 nine inch walleye in the lake. Stocking takes place every 2 years and fish shocking occurs twice per year. Next year a large fish study will be completed on the lake. Three tickets went out this year as a result of the camera system at the landing. The initial cost of the camera was \$10,000 with annual fees of \$2,600.

St. Croix River Association (SCRA)

Next year a celebration of the 50th Anniversary of the Wild and Scenic Rivers Act protecting the St. Croix and Namekagon Rivers is taking place. Many events are taking place as part of this celebration, including a photography book by Craig Blacklock. Julie Galonska was recently hired as the Superintendent for the St. Croix Riverway. SCRA had four summer interns, paid in part through funding through the Fish and Wildlife Service. The interns monitored 106 miles of river for yellow iris and completed boat inspections at numerous river landings, including Lions Park in St. Croix Falls. Additional AIS projects this summer included: zebra mussel veliger tows (Indianhead Flowage, Dalles/Interstate Park, Deer, Balsam, Bone, and additional lakes in Pine, Chisago, and Burnett counties), monitoring zebra mussel plate samplers and cinder blocks, Project RED training with monitoring from Interstate to Osceola, a six unit decontamination blitz along the river, and participation in the AIS Bridge Snapshot Day. Upcoming projects include: dry dock boat checks at marinas and an Oriental Bittersweet training and monitoring event.

Big, Round, and Church Pine

The District recently finishing up a second curly leaf pondweed grant and will be asking DNR for advice on whether to keep treating after 2017 treatments results are available. The District may step back and watch to see what will happen rather than continuing to treat. Eight healthy lakes projects have been installed on the lakes and an additional seventeen projects are going forward. Jeremy Williamson with the Polk County Land and Water Resources Department will come out and do site visits. The District does stock walleye but natural reproduction is not

occurring. In partnership with the Big Lake Store (fishing tournament), the District purchases \$4,000 worth of fish each year.

Polk County Naturalist Articles

Mike Reiter has authored a number of interesting articles on topics ranging from opossums to turtles. You can find the articles on the PCALR website or sign up for [PCALR news](#) to automatically receive the articles.

Pipe and North Pipe Lakes

The Lake District is in the process of finishing up a 2 year grant to collect data and develop a lake management plan for Pipe and North Pipe Lakes. The planning committee has met three times and the technical team has met once.

Largon Lake

Largon Lake is putting barricades around their aerator. A property in the Town of McKinley is delinquent and the town will take ownership of the road, which should result in improvements.

Coon Lake

The Village Parks Board is involved with mitigating erosion along the hiking trail.

Long Lake

The District approved an alum treatment for next year, contingent on getting a grant. The grant would also include monitoring following the alum treatment. The treatment would cost approximately \$260,000. The District just rewrote their aquatic plant management plan which included a communication plan.

Bone Lake

Currently there are two public landings on Bone Lake. The Balsam Lake Rod and Gun Club wants to develop a new access on the lake on the west side. A vote took place at the annual meeting and most people were against the landing development. The August meeting minutes have more information on this topic. For landing improvement there is money available where half of the funding comes from Polk County and half from the DNR.

Big Blake Lake

Reducing phosphorus and AIS are the current focus issues of the District. Last year the District applied for and received a Healthy Lakes grant for nineteen practices on thirteen properties. A second grant for this year will cover an additional six projects. The project has been a lot of fun because it gets multi-generational involvement of members involved in conservation and doing the right thing for the lake. Sharing template information from Big, Round, and Church Pine Lakes also helped a lot with the healthy lakes project. In 2018, the District will start hiring for Clean Boats, Clean Waters because of declines in volunteers. An addition focus is on

communications and how to stay connected to members. This year 246 loads of curly leaf pondweed were removed from the lake and after June 8th plant growth declined. The harvester has been in operation for thirteen years. This year also had fewer algae blooms. Volunteers started an AIS monitoring program which will be expanded next year with additional zebra mussel plate samplers and monitoring locations.

AIS Strategic Plan and Rapid Response Plan Update: Katelin Anderson

Katelin Anderson presented the Polk County Aquatic Invasive Species Strategic Plan which was completed in 2015 and a Polk County Response to Early Detection Aquatic Invasive Species document drafted in 2017. The status of implementation was presented and ideas for future action items were discussed. The plan included a number of action items that were based on interest and feedback was provided on which actions to focus on in the future.

Priority ideas for future focus included: infestation indication signs at landings, a Polk County AIS database, the formation of a communication network, the inclusion of AIS information in the Polk County Tourism Guide, and providing education for fishing tournaments.

Old Business

Who's Who Brochures

Who's Who Brochures (2016 printing) were available at the meeting. Each member organization received 50 brochures. Additional brochures can be purchased for a cost of \$10 for 50 brochures.

Website

If you're interested in learning how to maintain the PCALR website please contact [Larry](#).

New Business

Set 2018 Meeting Dates and Strategies

The April meeting will occur in May due to a conflict with the 2018 Lakes Convention. The following meetings will occur in June, August, and October

Adjourn

Minutes respectively submitted by
Katelin Anderson, Secretary
Polk County Association of Lakes and Rivers
October 2017



Appendix I

Polk County Response to Early Detection Aquatic Invasive Species

Polk County Response to Early Detection Aquatic Invasive Species

The primary purpose of this document is to outline the Polk County Land and Water Resources Department (LWRD) response to the early detection of aquatic invasive species discovered in Polk County. Although this document is useful for new detections of all aquatic invasive species, the LWRD response will differ based on the species discovered. Aquatic invasive species which do not already exist in Polk County will elicit a more detailed response. If species new to Wisconsin are found in Polk County, LWRD will primary rely on direction from the Wisconsin Department of Natural Resources.

Polk County Response to Early Detection Aquatic Invasive Species

Early detection, reporting, and verification

1. If the species was found by a volunteer, gather relevant information to complete the WDNR Aquatic Invasive Incident Report ¹ (Appendix A)
2. Complete the WDNR Aquatic Invasive Incident Report
3. Photograph the specimen
4. Preserve and transport the specimen to the Regional AIS Coordinator
5. Conduct a site visit to verify the location and population size

Communication

1. Alert partners if new ² AIS is confirmed
 - a. Volunteer reporting the AIS
 - b. Lake or river organization board
 - c. Lake service providers
 - d. Polk County Association of Lakes and Rivers: Karen Engelbretson and Larry Bresina
 - e. St. Croix River Association: Angelique Dahlberg
 - f. National Park Service: Byron Karns
 - g. St. Croix Chippewa Indians of Wisconsin Environmental Services: Jeremy Bloomquist
 - h. U.S. Fish and Wildlife Service: Dave Wedan
 - i. Wisconsin Department of Natural Resources: Alex Smith, Jeremy Bates, Maureen Ferry
 - j. Minnesota partners including Minnesota Department of Natural Resources, St. Croix Basin counties and watershed districts ³
2. Consider developing information to provide to residents, with assistance from lake/river group
3. Consider developing a press release for local papers, with assistance from lake/river group
4. Consider the need for a public informational meeting
5. Assess the need to develop a task force

¹ [3200-125 Aquatic Invasive Plant Incident Report](#) or [3200-126 Aquatic Invasive Animal Incident Report](#)

² New populations of AIS common in Polk County (curly leaf pondweed, purple loosestrife, Chinese and banded mystery snails, rusty crayfish) will only be reported to the volunteer reporting the AIS, the relevant lake organization board, and the Wisconsin Department of Natural Resources

³ Minnesota partners will be notified of species found for the first time in the St. Croix Basin

Task Force Formation as a Response to Early Detection Aquatic Invasive Species

If a task force is deemed necessary, LWRD will provide a facilitation and/or leadership role ⁴

The primary goals of a task force will include:

Coordination

1. Identify task force members and partners
2. Identify task force coordinator
3. Identify lead coordinators for monitoring, outreach, control, and implementation

Monitoring

1. Identify an ideal monitoring plan for the waterbody and for surrounding waterbodies
 - a. Designate partners willing to complete the monitoring plan
 - b. Determine gaps in monitoring that can't be completed by partners and determine how to address gaps
 - c. Develop a plan for sharing monitoring results, including data entry into SWIMS

Outreach

1. Identify outreach methods and messages
 - a. Determine the targeted audience for each method and message
 - b. Determine the lead organization to accomplish each method and message
 - c. Identify outreach materials that need to be developed
 - d. Implement an outreach plan

Control

1. Identify available control methods
2. Identify an ideal control plan
3. Research and implement a control plan

Implementation

1. Determine if grant funding is required to accomplish gaps in monitoring, outreach, and control
 - a. Identify grant applicant and partners
 - b. Identify grant deliverables
 - c. Work collaboratively to apply for funding
2. Determine the need for continued task force meetings
3. Annually review and document implementation progress
 - a. Document actions completed, in progress, or not completed within the timeline
 - b. Determine remedial steps to move towards completing goals as forecasted
 - c. Identify current and future barriers to implementation

⁴ Example task force notes for Deer Lake (zebra mussels) can be found in Appendix B

Waterbody Specific Activities to Increase the Likelihood of Early Detection of AIS

1. Form a committee to undertake AIS education, prevention, and planning activities
2. Develop an active base of educated Clean Boats, Clean Water volunteers
 - a. Participate in statewide Landing Blitz
 - b. Participate in statewide Drain Campaign
3. Develop a volunteer monitoring program: AIS Citizen Lake Monitoring Network, zebra mussel plate samplers, Project RED, and/or AIS Bridge Snapshot Day
4. Conduct professional level AIS monitoring at public boat landings and other likely areas of AIS introduction either through a volunteer program or a consultant
5. Hire a consultant to conduct a professional level whole lake point intercept plant surveys
6. Provide lake residents and visitors with tools ⁵ to identify AIS and steps for reporting AIS
7. Maintain a contingency fund for rapid response
8. Develop a list of partner contact information (template on page 1, communication)
9. Develop a species specific rapid response plan for AIS of particular concern ⁶

Citizen Steps to Report a New Aquatic Invasive Species

1. Ensure that the species hasn't already been previously found on the waterbody ⁷
2. Take a close up digital photo of the plant or animal, including in the setting where it was found
 - a. Use a coin, key, hand, or ruler for scale
 - b. Use a contrasting background
 - c. To avoid shadows, ensure the light source is behind you rather than the specimen
3. Collect 5-10 specimens
 - a. For plants: Place the entire plant (root system, leaves, seed heads, and flowers) in a plastic bag with no water, place on ice and transport to the refrigerator
 - b. For animals other than fish ⁸ : Place animals in a jar with water, place on ice, and transport to the refrigerator
4. Complete WDNR Aquatic Invasive Incident report ⁹ (Appendix A)
5. Contact your local AIS Coordinator and arrange to deliver the specimens and photos
 - a. Lake/river district or association president or designated waterbody AIS contact
 - b. Polk County Land and Water Resources Department
 - i. Katelin Anderson, Balsam Lake, 715-485-8637, katelin.anderson@co.polk.wi.us
 - ii. Jeremy Williamson, Balsam Lake, 715-485-8639, jeremyw@co.polk.wi.us
 - c. Wisconsin Department of Natural Resources
 - i. Alex Smith, Spooner, 715-635-4124, alex.smith@wisconsin.gov
 - ii. Jeremy Bates, Superior, 715-392-0807, jeremy.bates@wisconsin.gov

⁵ Tools might include signs at public boat landings, webpages, social media, handouts, lake maps with AIS information, billboards, attendance at community events, etc.

⁶ Examples for Pipe Lakes (Eurasian water milfoil and curly leaf pondweed), Bone Lake (Eurasian water milfoil), and Church Pine, Round, and Big Lakes (Eurasian water milfoil and other invasive species) can be found in Appendix C

⁷ <http://dnr.wi.gov/lakes/invasives/AISByWaterbody.aspx>

⁸ Contact local fish biologist: Aaron Cole, Barron, 715-637-6864, aaron.cole@wisconsin.gov

⁹ [3200-125 Aquatic Invasive Plant Incident Report](#) or [3200-126 Aquatic Invasive Animal Incident Report](#)

Appendix A

Aquatic Invasive Plant Incident Report

Aquatic Invasive Animal Incident Report

The purpose of this form is to notify DNR of a new species of AIS in a waterbody. Only use if you found an aquatic invasive plant on a lake where it hasn't been found previously.

To find where aquatic invasives have already been found, visit: <http://dnr.wi.gov/lakes/ais>.

Notice: Information on this voluntary form is collected under ss. 33.02 and 281.11, Wis. Stats. Personally identifiable information collected on this form will be incorporated into the DNR Surface Water Integrated Monitoring System (SWIMS) Database. It is not intended to be used for any other purposes, but may be made available to requesters under Wisconsin's Open Records laws, ss. 19.32 - 19.39, Wis. Stats.

Primary Data Collector

| | | |
|------|--------------|-------|
| Name | Phone Number | Email |
|------|--------------|-------|

Monitoring Location

| | | |
|----------------|---------------|--------|
| Waterbody Name | Township Name | County |
|----------------|---------------|--------|

Boat Landing (if you only monitor at a boat landing)

Date and Time of Monitoring or Discovery

| | | |
|-----------------|------------|----------|
| Monitoring Date | Start Time | End Time |
|-----------------|------------|----------|

Information on the Aquatic Invasive Plant Found (Fill out one form for each species found.)

Which aquatic invasive plant did you find?:

| | | |
|--|---|--|
| <input type="checkbox"/> Curly-leaf Pondweed | <input type="checkbox"/> Eurasian Water-milfoil | <input type="checkbox"/> Purple Loosestrife |
| <input type="checkbox"/> Brittle Naiad | <input type="checkbox"/> Hydrilla | <input type="checkbox"/> Brazilian Waterweed |
| <input type="checkbox"/> Yellow Floating Heart | | |

Where did you find the invasive plant?

| | |
|-----------|------------|
| Latitude: | Longitude: |
|-----------|------------|

Approximately how large an area do the plants occupy?

| | | | |
|--|--|------------------------------------|---|
| <input type="checkbox"/> A Few Plants | <input type="checkbox"/> One or a few beds | <input type="checkbox"/> Many beds | <input type="checkbox"/> A Whole Bay or Portion of Lake |
| <input type="checkbox"/> Widespread, covering most shallow areas of lake | <input type="checkbox"/> Don't know (e.g. didn't check the whole lake) | | |

Was the plant floating or rooted?

| | |
|-----------------------------------|---------------------------------|
| <input type="checkbox"/> Floating | <input type="checkbox"/> Rooted |
|-----------------------------------|---------------------------------|

Estimated percent cover in the area where the invasive was found (optional)

| | | | | |
|---------------------|-------------------|-----------------------|-------------------|-------------------------------|
| Substrate cobble, % | Substrate muck, % | Substrate boulders, % | Substrate sand, % | Bottom covered with plants, % |
|---------------------|-------------------|-----------------------|-------------------|-------------------------------|

Voucher Sample

Did you collect a sample of the plant (a voucher specimen) and bring it to your local DNR office? If so, which office?

| | | | | |
|--------------------------------------|-----------------------------------|-------------------------------------|-----------------------------------|--|
| <input type="checkbox"/> Rhinelander | <input type="checkbox"/> Spooner | <input type="checkbox"/> Green Bay | <input type="checkbox"/> Oshkosh | <input type="checkbox"/> Did not take plant sample to a DNR office |
| <input type="checkbox"/> Fitchburg | <input type="checkbox"/> Waukesha | <input type="checkbox"/> Eau Claire | <input type="checkbox"/> Superior | <input type="checkbox"/> Other Office _____ |

Please collect up to 5-10 intact specimens. Try to get the root system, all leaves as well as seed heads and flowers when present. Place in ziplock bag with no water. Place on ice and transport to refrigerator. Bring samples, a copy of this form, along with a map showing where you found the suspect plants to your regional AIS or Citizen Lake Monitoring Coordinator at the DNR.

For DNR AIS Coordinator to fill out

AIS Coordinator(s) or qualified field staff who verified the occurrence: _____

Statewide taxonomic expert who verified the occurrence: _____
 (for list see <http://dnr.wi.gov/invasives/aquatic/whattodo/staff/AisVerificationExperts.pdf>)

Was the specimen confirmed as the species indicated above? Yes No If no, what was it? _____

Herbarium where specimen is housed: _____ Herbarium Specimen ID: _____

Have you entered the results of the voucher in SWIMS? Yes No

AIS Coordinator: Please enter the incident report in SWIMS under the Incident Report project for the county the AIS was found in. Then, keep the paper copy for your records.

The purpose of this form is to notify DNR of a new species of AIS in a waterbody. Only use if you found an aquatic invasive species on a lake where it hasn't been found previously.

To find where aquatic invasives have already been found, visit: <http://dnr.wi.gov/lakes/ais>.

Notice: Information on this voluntary form is collected under ss. 33.02 and 281.11, Wis. Stats. Personally identifiable information collected on this form will be incorporated into the DNR Surface Water Integrated Monitoring System (SWIMS) Database. It is not intended to be used for any other purposes, but may be made available to requesters under Wisconsin's Open Records laws, ss. 19.32 - 19.39, Wis. Stats.

| Primary Data Collector | | | | |
|--|-------------------|---|---|--|
| Name | | Phone Number | | Email |
| Monitoring Location | | | | |
| Waterbody Name | | Township Name | County | Boat Landing (if you only monitor at a boat landing) |
| Date and Time of Monitoring or Discovery | | | | |
| Monitoring Date | Start Time | End Time | | |
| Information on the Aquatic Invasive Animal Found (Fill out one form for each species found.) | | | | |
| Which aquatic invasive did you find? <input type="checkbox"/> Zebra Mussel <input type="checkbox"/> Quagga Mussel <input type="checkbox"/> Spiny Waterflea <input type="checkbox"/> Freshwater Jellyfish <input type="checkbox"/> New Zealand Mud Snail <input type="checkbox"/> Banded Mystery Snail <input type="checkbox"/> Chinese Mystery Snail <input type="checkbox"/> Rusty Crayfish <input type="checkbox"/> Red Swamp Crayfish | | | | |
| Where did you find the invasive animal? | | | | |
| Latitude: | | | Longitude: | |
| Measurements from where the invasive was found (optional) | | | | |
| Water Temperature Degrees F / Degrees C (circle one) | | | Dissolved Oxygen (mg/l) | |
| Estimated percent cover in the area where the invasive was found (optional) | | | | |
| Substrate cobble, % | Substrate muck, % | Substrate boulders, % | Substrate sand, % | Bottom covered with plants, % |
| If you found Zebra Mussel(s) | | | | |
| Water depth where Zebra Mussels were found _____ Feet / Meters (circle one) | | | Total Number of Zebra Mussels Found _____ | |
| What were the Zebra Mussels attached to? <input type="checkbox"/> Dock/pier <input type="checkbox"/> Dam <input type="checkbox"/> Rocks <input type="checkbox"/> Plants <input type="checkbox"/> Boats or Gear <input type="checkbox"/> Plate Sampler(s) <input type="checkbox"/> Logs, acorns, pine cones or other woody structure <input type="checkbox"/> Other: _____ | | | | |
| Size of Largest Zebra Mussel Found | | Size of Smallest Zebra Mussel Found (individual measurements on back of page) | | |
| Voucher Sample | | | | |
| Did you collect a sample (voucher specimen) and bring it to your local DNR office? If so, which office? <input type="checkbox"/> Rhinelander <input type="checkbox"/> Spooner <input type="checkbox"/> Green Bay <input type="checkbox"/> Oshkosh <input type="checkbox"/> Did not take sample to a DNR office <input type="checkbox"/> Fitchburg <input type="checkbox"/> Waukesha <input type="checkbox"/> Eau Claire <input type="checkbox"/> Superior <input type="checkbox"/> Other Office: _____ | | | | |

Please collect up to five specimens and bring a copy of this form, along with the sample and a map showing where you found the suspect invasive species to your regional AIS or Citizen Lake Monitoring Coordinator at the DNR.

While field collecting, specimens can easily be kept alive in a bucket or other container with just about 1/2 inch of water in the bottom. Freeze specimens at the end of the day in a ziploc bag without water. If freezing is not possible for a long period of time preservation in rubbing alcohol (except for Jellyfish - leave fully in water) is sufficient.

| For DNR AIS Coordinator to fill out | | |
|--|--|---------------------|
| AIS Coordinator or qualified field staff who verified the occurrence: _____ | | |
| Statewide taxonomic expert who verified the occurrence: _____ (for list see http://dnr.wi.gov/invasives/aquatic/whattodo/staff/AisVerificationExperts.pdf) | | |
| Was the specimen confirmed as the species indicated above? <input type="checkbox"/> Yes <input type="checkbox"/> No | | If no, what was it? |
| Museum where specimen is housed: _____ | | Museum Specimen ID: |
| Have you entered the results of the voucher in SWIMS? <input type="checkbox"/> Yes <input type="checkbox"/> No | | |
| AIS Coordinator: Please enter the incident report in SWIMS under the Incident Report project for the county the AIS was found in. Then, keep the paper copy for your records. | | |

Aquatic Invasive Animal Incident Report

Form 3200-126 (R 02/10)

Page 2 of 2

Length of Zebra or Quagga Mussels from Sample (if applicable)

If more than 20 zebra or quagga mussels are found, measure 20 mussels chosen randomly from the sample. If less than 20 mussels are found, measure all mussels.

| Number | Length (mm) |
|--------|-------------|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| 9 | |
| 10 | |
| 11 | |
| 12 | |
| 13 | |
| 14 | |
| 15 | |
| 16 | |
| 17 | |
| 18 | |
| 19 | |
| 20 | |

Note: All initial discoveries should be placed in rubbing alcohol until verification by an expert is obtained.

Appendix B

Example task force notes for Deer Lake (zebra mussels)

Polk County Zebra Mussel Task Force
1/20/17
St. Croix River Association Mtg. Room

ATTENDEES

Katelin Anderson, Polk County LWRD
Jeremy Williamson, Polk County LWRD
Joan Leedy, Deer Lake Improvement Association
Pat Cororan, Deer Lake Improvement Association
Tom McBride, Deer Lake Improvement Association
Dave Wedan, US Fish and Wildlife Service
Bob Boyd, Bone Lake Management District
Angelique Dahlberg, St. Croix River Association
Alex Smith, Wisconsin Department of Natural Resources
Mark Sundeen, Wisconsin Department of Natural Resources
Byron Karns, US National Park Service
Cheryl Clemens, Harmony Environmental, facilitator

MEETING NOTES

Current Status

Deer Lake

A single zebra mussel adult was found by a lake homeowner's guest on the NE shore of Deer Lake on 9/02/16. The substrate was rocky. Later that same week Katelin Anderson and Jeremy Williamson (Polk County), Jim Miller (Deer Lake resident), and Dave Wedan (USFWS) searched shallow water in the vicinity and the public access on the NE side of the Deer Lake.

The Deer Lake Improvement Association (DLIA) sent out email notices to about 75% of lake residents and mailed a notice to all lake residents by October 1. The notice let residents know a zebra mussel was found, provided a description, and encouraged them to check docks and boats as they were pulled out of the water for the season.

The DLIA also informed dock service providers about the zebra mussel discovery and requested that they check any docks or equipment pulled out of Deer Lake. John Wright coordinated this effort. On October 20, 2016 Jim Miller and Cheryl Clemens checked docks and lifts pulled out of the water.

Jeremy Williamson reviewed suspect mussels brought in for identification. No additional zebra mussels were found in the lake.

A veliger tow taken by Byron Karns (USNPS) in July 2016 was negative.

Plate samplers installed at the boat landing by Dave Wedan (USFWS) were negative.

Big McKenzie

Zebra mussels (4-5) were found on a dock removed from Big McKenzie Lake in Burnett County in late October 2016. About the same amount were found about ½ mile away in a follow up shoreline survey. Tows were conducted, but it was likely too late in the season to detect veligers. Pamela Toshner (WDNR) is coordinating follow-up monitoring.

St. Croix River

Zebra mussels are found at the northern city limits of Stillwater to the confluence with the Mississippi (lower 21 miles).

Bass Lake (St. Croix County)

Discovered in the lake in 2010.

Minnesota

Zebra mussels are found in many lakes in the Twin Cities metro area. Angelique is working with a zebra mussel task force for several MN counties.

Monitoring Methods (Matrix created from input from project participants)

| Method | Description | Cost | Comments | Evaluation |
|-----------------------|--|--|--|--|
| Cinder blocks/bricks | Encase with wire mesh, attach to dock or float | | Wire mesh to keep carp, blue gills from eating ZMs | Works great. Place under dock for shade. |
| PVC Plate Sampler | Vertical series of PVC plates, mark with float | \$40-\$50/each Plans also available (Dave W.) | | Worth doing but may not attract as many ZMs as the blocks. |
| SCUBA Divers | Examine and collect substrate | Expensive to hire divers | | Not as effective as blocks. |
| Net Tows for Veligers | Collect water samples at various spots on the lake (combine samples) | Net: \$600 Sample analysis \$75-\$95/each | Best time is early July | Negative result does not mean adults not present |
| Shoreline Search | Turn rocks over and examine substrate and plants for ZMs | | Can complete with volunteers or staff | |
| Smart Prevention | Combination of meander survey – rake collection of aquatic plants, veliger tows, boat landing survey | | Polk County LWRD completes for priority sites | |

Considerations for all Monitoring

- ZMs prefer shade, rocky substrate
- Will also attach to aquatic plants
- Target boat launch sites

Genetic analysis of adult zebra mussels is used to detect the source of the infestation (University of MN). It is not a monitoring method.

Deer Lake Monitoring Plan for 2017 (Tentative)

| Method | Responsible Party | Cost | Comments | Needs |
|---|---|--|--|--|
| Cinder blocks/bricks | DLIA | | Encourage lake residents to place blocks beneath docks and monitor regularly | Cinder block kits (distribute at annual meeting) Cinder block guidance: Pictures and description, ID contacts, monitoring log |
| PVC Plate Sampler | USFWS To be installed at boat landing Checks 2X/month | \$40-\$50/each Plans also available (Dave W.) | Install at additional locations (DLIA)? Plate from Dave W. left with LWRD for site where ZM found in 2016 | |
| SCUBA Divers | Examine substrate looking for adult ZM | If volunteers are available, target rocky shorelines | | ZM ID |
| Net Tows for Veligers | DLIA USNPS (1X) | Net: \$600 Sample analysis \$75-\$95/each | Best time is early July. Collect samples 2X/week from mid-June to mid-July | |
| Shoreline Search | DLIA | Printed guidance Email announcements | Encourage lake residents to perform shoreline search | Provide guidance: Pictures and description, ID contacts, monitoring log, target rocky shorelines |
| Smart Prevention (Meander, veliger tow, boat landing check) | Polk LWRD | | Polk County LWRD will complete for Deer Lake | |

Other Polk County Lakes and Rivers

USNPS monitoring (since mid-90s) focuses on water bodies with likely threat to the St. Croix River in Polk County. Veliger tows conducted at Bone Lake, Balsam Lake, and Deer Lake.

USFWS plate sample monitoring considers destination lakes and MN sources. Current list of monitored lakes in Polk County: Cedar, Big, Wapogasset, Deer, Long, Loveless, Balsam, Half Moon, Bone, Big Round, Big Butternut.

| BASIC Zebra Mussel Monitoring plan for lakes (no detected ZMs) | | | | |
|---|---|--|--|---|
| Method | Responsible Party | Cost | Comments | Needs |
| Cinder blocks/bricks | Lake Organizations PCALR (Coordinate outreach?) | | Encourage lake residents to place blocks beneath docks and monitor regularly | Cinder block kits (distribute at annual meetings) Cinder block guidance: Pictures and description, ID contacts, monitoring log |
| Additional Monitoring Recommended for Priority/Destination Lakes | | | | |
| PVC Plate Sampler | USFWS To be installed at boat landings Checked 2X/month | \$40-\$50/each Plans also available (Dave W.) | | |
| Net Tows for Veligers | USNPS (?) | Net: \$600 Sample analysis \$75-\$95/each | Single sample early July | |
| Smart Prevention (Meander, veliger tow, boat landing check) | Polk LWRD | | Lakes selected by Polk LWRD | |

Develop criteria/process for identifying and explaining destination or priority lakes. Offer additional services here (?).

COUNTYWIDE ZM MONITORING AND PREVENTION OUTREACH

| Method and Messages | Target Audience | Lead Organization | Funding/ Cost |
|--|---|--|--------------------------|
| <u>Presenters and Canned Presentation:</u> All topics below | Lake Organizations at annual meetings | Polk County LWRD (?) PCALR (?) | Rapid Response Grant (?) |
| <u>Handout:</u> ZM ID, methods for monitoring, emphasize cinder blocks – build your own, shoreline surveys | Lake Organizations to Lake Residents | Polk County LWRD (?) PCALR (?) | Rapid Response Grant (?) |
| <u>Example Newsletter Articles:</u> All topics (could follow presentation, or break up into several articles) | Lake Organizations to Lake Residents | | |
| <u>Press Release, handout:</u> List ZM waters, explain decontamination procedures, don't have carpeting on boats, waiting times/temps. after removing boats and equipment from these lakes. (MN protocol for guidance) | General Public Dock Service Providers | | Rapid Response Grant (?) |
| <u>Clean Boats, Clean Waters Contacts:</u> Provide information about ZM lakes (map/list), emphasize draining and checking if boaters came from these lakes | Boaters at CBCW Landings CBCW staff receiving training | Polk County LWRD to Lake Organizations w/ CBCW | Rapid Response Grant (?) |
| <u>Coordination with tournament organizers ??:</u> Drain live wells, drop motors; don't bring your boat here if you've been these (ZM waters) without decontamination; decontamination procedures | June Jam: Muskies, Inc.; Indianhead Musky Tournament; anglers participating in fishing tournaments (If <20 participants no permits, otherwise on WNDR web site) | | Rapid Response Grant (?) |
| <u>Public Meeting with Press Release:</u> Recent ZM discoveries, monitoring, all prevention topics | | | Rapid Response Grant (?) |
| <u>Presentations and Curriculum</u> | Schools | LWRD, other agencies, lake organizations | |
| | | | |

ADDITIONAL NOTES

Clean Boats, Clean Waters data provides where boat came from most recently, number of launches

Landing cameras provide number of launches

Rapid response grant should be applied for before March or after July

INFO TO GATHER

Pine County Risk Assessment (Angelique)

Example Monitoring Plan (Byron)

Develop baseline of lakes (use CLMN data, add calcium samples (?)) – Byron says no)

NEXT MEETING

Thursday, February 9

1-3 p.m.

St. Croix River Association, 230 S. Washington Street, St. Croix Falls, WI

Meeting Topics

ZM Control Options (Who can present this information?)

Polk County Monitoring and Prevention Strategy (who takes lead?)

- Coordinate with Polk County AIS Strategic Plan / PCALR Review and Update in 2017
- Coordinate St. Croix River Watershed AIS Strategic Plan

Example Zebra Mussel Monitoring Strategy (Byron)

Identifying Priority Lakes for Monitoring and Outreach

Minnesota ZM Strategy Report (Angelique)

POLK COUNTY ZEBRA MUSSEL TASK FORCE

Thursday, February 9

1-3 p.m.

St. Croix River Association, 230 S. Washington Street, St. Croix Falls, WI

ATTENDEES

Katelin Anderson, Polk County LWRD

Jeremy Williamson, Polk County LWRD

Pat Cororan, Deer Lake Improvement Association

Tom McBride, Deer Lake Improvement Association

Dave Wedan, US Fish and Wildlife Service

Bob Boyd, Bone Lake Management District

Angelique Dahlberg, St. Croix River Association

Byron Karns, US National Park Service

Cheryl Clemens, Harmony Environmental

Updates

- ZM Workshop scheduled for April 24 (will include monitoring, control, decontamination)
- Polk County AIS Strategic Plan <http://www.co.polk.wi.us/landwaterreports>
PCALR Review and Update in 2017 (most likely June meeting)
- St. Croix River Watershed AIS Strategic Plan <https://www.stcroixriverassociation.org/invasive-species/ais-strategic-plan>
- Minnesota ZM Strategy Report (Angelique)

Example Zebra Mussel Monitoring Worksheet (Byron provided)

- Handout available
- 3-tiered approach suggested
- Different than matrix from meeting 1
- Either/both can be used as a starting point for further discussion of overall strategy

Rapid Response Grant Application(s)

- Money available after July
- Expenses retroactive for up to 6 months
- No application at this time, DLIA might pursue

Outreach Matrix

- Reviewed , updated, and assigned tasks
- Will develop list of available resources (Katelin is point person), send links and examples to Katelin, then re-evaluate need to create unique handouts
- We will share whatever we develop with each other

COUNTYWIDE ZM MONITORING AND PREVENTION OUTREACH¹

| Method and Messages | Target Audience | Lead Organization |
|--|---|--|
| <u>Presenters and Canned Presentation:</u> All topics below | Lake Organizations at annual meetings | Polk County LWRD |
| <u>Handout:</u> ZM ID, methods for monitoring, emphasize cinder blocks – build your own, shoreline surveys | Lake Organizations to Lake Residents | Polk County LWRD (?) PCALR (?) DLIA |
| <u>Cinder Block guidance:</u> Pictures and description, ID contacts, monitoring log | Lake Residents | DLIA |
| <u>Example Newsletter Articles:</u> All topics (could follow presentation, or break up into several articles) | Lake Organizations to Lake Residents | Polk County LWRD |
| <u>Press Release, handout:</u> List ZM waters, explain decontamination procedures, don't have carpeting on boats, waiting times/temps. after removing boats and equipment from these lakes. (MN protocol for guidance) | General Public Dock Service Providers | Polk County LWRD |
| <u>Clean Boats, Clean Waters Contacts:</u> Provide information about ZM lakes (map/list), emphasize draining and checking if boaters came from or leaving these lakes | Boaters at CBCW Landings CBCW staff receiving training | Polk County LWRD to Lake Organizations w/ CBCW |
| <u>Coordination with tournament organizers:</u> Drain live wells, drop motors; don't bring your boat here if you've been these (ZM waters) without decontamination; decontamination procedures | June Jam: Muskies, Inc.; Indianhead Musky Tournament; anglers participating in fishing tournaments (If <20 participants no permits, otherwise on WNDR web site) | DLIA Bone Lake MD (Friday night Indianhead mtg.) |
| <u>Public Meeting with Press Release:</u> Recent ZM discoveries, monitoring, all prevention topics | | |
| <u>Presentations and Curriculum</u> | Schools SCF 5 th grad camp (DLIA) | LWRD, other agencies, lake organizations |
| <u>Signs</u> | Post where ZM have been discovered – e.g. Deer Lake | DLIA |

¹ Existing AIS grants or new Rapid Response grants might fund these activities

Appendix C

Pipe Lakes (Eurasian water milfoil and curly leaf pondweed)

Bone Lake (Eurasian water milfoil)

Church Pine, Round, and Big Lakes (Eurasian water milfoil and other invasive species)

Eurasian Water Milfoil (EWM) and
Curly Leaf Pondweed (CLP)
Rapid Response Plan

Pipe Lakes Protection and
Rehabilitation District
“The District”
2013

WDNR Early Detection and Response Project – Rapid Response Plan Introduction

From:

Aquatic Invasive Species Control Grant Program – Guidelines and Application

Wisconsin Department of Natural Resources

PUB-CF-020 2012 Rev. 5-12

Early Projects:

“Identification and removal by approved methods, of small pioneer populations of aquatic invasive species in the early stages of colonization, or re-colonization. For rooted aquatic plants like Eurasian Watermilfoil, a pioneer infestation is defined as a localized bed that has been present less than 5 years, and is less than 5 acres in size or less than 5% of lake area which ever is greater. Control of a recolonization following the completion of an established population control project is also eligible.

Application Deadlines:

Offered continuously on a first-come first served basis and funded in order of approval.

Funding Possibilities:

Maximum amount of the State share is 75% of the project cost of up to \$20,000.”

Suspected EWM and/or CLP Identified

Notify Dick Hollar, Rapid Response Coordinator at 715-822-5317
And if not available contact: Tom O'Hern at 651-428-5532
Whoever is available will coordinate rapid response efforts
-Accurately identify location(s)

Process Sample

- collect entire specimen including roots & stem
- Place in sealable bag
- Ice or refrigerate
- label with date, collector's name, lake name, town and county
- attach lake map with location marked & GPS coordinates recorded
- Submit sample to WDNR Spooner Lakes Team within 3 days

Notify WDR Spooner Lakes Team
WDNR decides need for lake visit

Notify The District Commissioners of suspected sample

Notify District if appropriate

WDNR Spooner Lakes Team
Pam Toshner or Alex Smith
715-635-4073 715-635-4121
PLPRD Rapid Response Coordinator
Dick Hollar
715-822-5317
The District Commissions Chair
Greg Warner
(507) 202-5233

WDNR Analyzes Sample

Confirmed as EWM or CPL

-notify The District Commissioners

-if EWM/CPL does NOT hinder riparian access or boat traffic then place buoys on the infestation's perimeter. If it does hinder access, obtain riparian's permission and signature on Form 8700-058 then place buoys.

http://dnr.wi.gov/topic/waterways/permit_apps/waterway_marker_application_permit_form_8700-058.pdf

-notify warden of infestation and buoy placement. Place notice & map in Public Landing Display Board

-submit marker application & permit (form 8700-058), lake map with location marked and buoy photo to Township representative

-if location blocks lake access obtain direction from WDNR Spooner Lakes Team before buoy placement

-complete rapid response grant application (form 8700-307) , submit to WDNR Spooner Lakes Team
<http://dnr.wi.gov/files/pdf/forms/8700/8700-307.pdf>

Sample is **NOT** EWM or CPL

-return to monthly monitoring

-notify The District Commissioners

Positive Sample

WDNR Determines Management Strategy

Infestation is a localized Pioneer Colony

(less than 5 acres or 5% of surface area)

- Conduct sampling to define perimeter and density of colony
- Identify “at risk” areas (boat launch, creek culvert, etc.)
- WDNR approves grant and assigns start date. A rapid response grant project may begin before receiving grant paperwork
- Notify property owners
- Place notice in Public Landing Display Board
- Contact appropriate treatment operator. PLPRD Commission agrees to contract and cost
- Initiate EWM and/or CPL treatment

Infestation is an Established Population

(greater than 5 acres or 5% of surface area)

- Place notice in Public Landing Display Board and notify property owners of infestations
- Hire consultant to prepare and conduct a point-intercept aquatic plant management plan (APMP) to establish a baseline
- Submit APMR to WDNR 60 days prior to applying for a control grant
- WDNR approves APMP and recommends a treatment plan for the following spring
- Apply for control grant
- Contact appropriate treatment operator, agree to contract and cost terms
- Initiate plant baseline survey

Post Treatment Follow-Up

Localized Pioneer Colony

(less than 5 acres or 5% of surface area)

- Perform rake sampling of treated area monthly for at least one season year after EWM/CPL is no longer detected
- Keep buoys and landing signage in place until treated area is free of EWM/CPL for two seasons
- Continue monthly lake monitoring, education and inspection programs
- Develop an aquatic plant management plan

Infestation is an Established Population

(greater than 5 acres or 5% of surface area)

- Consultant conducts a post treatment plant survey in mid-July to mid-August
- Compare results with pre-treatment survey
- WDNR assesses effectiveness of treatment and recommends next steps
- Continue monthly lake monitoring, education and inspection programs

Aquatic Plant Control Services

Lake Management, Inc
10400 18th St North
Marine on the St. Croix

Phone: 651-443-3283
Fax; 651-433-5316
Email: info@lakemanagementinc.com

Aquatic Engineering, Inc
P.O. Box 3634
LaCrosse, WI 54602

Phone: 866-781-8770
Fax: 608-781-8771
Email: info@aquaticengineering.org

Lake Restoration, Inc.
12425 Ironwood Circle
Rogers, MN 55374

Phone: 763-428-9777
Fax: 763-428-1543
Email: lrmal@lakeresoration.com

Midwest Aqua Care
10001 Great Plains Blvd
Chaska, MN 55318

Phone: 877-430-0143
Email: support@midwestaquacare.com

Northern Aquatic Services, Inc
1061 240th St
Dresser, WI 54009

Phone: 715-755-3507

Aquatic Plant Management Plan Consultants*

Northern Environmental
330 South 4th Avenue
Park Falls, WI 54552

Phone: 800-498-3913
Website: www.northernenvironmental.com
Email: rwatkins@northernenvironmental.com

Onterra, LLC
135 S Broadway, Suite C
DePere, WI 54115

Phone: 920-338-8860
Website: www.onterra-eco.com
Email: thoyman@onterra-eco.com

Aquatic Engineering
LaCrosse, WI 54602

Phone: 866-781-8770
Website: www.aquaticengineering.org
Email: info@aquaticengineering.org

Harmony Environmental
516 Keller Ave. S
Amery, WI 54001

Phone: 715-268-9992
Website:
Email: harmonyenv@amerytel.net

***The APMP consultant should not be the same company that is providing the control (treatment) service**

Contacts

WDNR Spooner Lakes Team

Alex Smith, Lake Management Coordinator

Phone: 715-635-4124

Pamela Toshner, Lake Coordinator

Phone: 715-635-4073

Rapid Response Coordinator: Dick Hollar 715-822-5317

The District Commissioners:

- Chair: Gerg Warner gregpnpl@gmail.com 507-202-5233
- Treasurer: Tom O'Hern tohern@gmail.com 651-428-5532
- Secretary: Jan Breyer jbreyer@cp-limited.com 612-669-5212
- Communications: Stephanie Boysen stephanie.boysen@cummins.com 763-614-9865
- Special Events: Tim Schmuck tdschmuck@gmail.com 612-247-4206
- County Rep: William Johnson william.johnson@co.polk.wi.us 715-485-9237
- Township Rep: Joe Zaspel joerz@centurytel.net 715-822-2356

Appendix D

Rapid Response for Early Detection of Eurasian Water Milfoil¹

1. The Bone Lake Management District Board (BLMD) has ultimate responsibility for implementing this protocol. The Aquatic Invasive Species Network of the BLMD has responsibility for day-to-day implementation.
2. Bone Lake residents and other users of Bone Lake will be informed of who to contact if they see a plant in the lake they suspect might be Eurasian water milfoil (EWM). Signs at public and resort landings will direct anyone who identifies suspected EWM to contact the Monitoring Coordinator. The following are the steps that will be taken if EWM is suspected in Bone Lake.
3. If the suspected plant appears to be EWM, the Monitoring Coordinator will inform the Chair of the BLMD, the Polk County Land & Water Resources Department (PC LWRD), the APM Consultants, and the Wisconsin Department of Natural Resources (WDNR) of suspected EWM in Bone Lake.
4. Mark the location of suspected EWM and confirm whether it is EWM.

Within 48 hours of a credible report of EWM in Bone Lake, the location of the suspected EWM will be marked with a uniquely identified small float, and a GPS waypoint will be entered for the float.

Within 72 hours of a credible report of EWM in Bone Lake, the PC LWRD or the WDNR will examine the plant(s) suspected of being EWM to confirm identification. If there is any question about whether the plant(s) are EWM, appropriate resources at and WDNR or UW Herbarium will be consulted.

Two entire intact rooted adult specimens of the suspect plants will be collected and bagged and delivered to the WDNR. One of these specimens will be mounted and forwarded to the herbarium at the University of Wisconsin – Stevens Point or the University of Wisconsin – Madison.

If the suspect plants are determined to be EWM, the location of EWM will be marked with a large EWM buoy.

¹ The attached Exhibit A is a contact list for various persons involved in implementing this protocol. This list will be kept current.

5. Communicate results of the examination of the suspect plants.

Positive identification will be shared with the BLMD, PC LWRD, WDNR, APM consultants, and herbicide application.

The person(s) reporting the suspected EWM will be contacted and informed whether the presence of EWM in Bone Lake has or has not been confirmed.

If the presence of EWM in Bone Lake is confirmed, a letter will be sent within 48 hours of confirmation to all Bone Lake residents informing them of the presence of EWM in Bone Lake. In addition, notice of the EWM will be immediately posted on the BLMD web site, notices will be posted at all public and resort landings, and notice will be published in the next BLMD newsletter. The letter and the notices will inform all lake users of the approximate location of the EWM and direct them to stay away from the area marked by the EWM buoy.

The AIS Network Coordinator will coordinate these activities.

6. Determine the extent of the EWM.

As soon as possible, the extent of the EWM will be determined. For this purpose, the BLMD will engage a diver who will, to the extent feasible, remove the EWM at the same time the diver is confirming the extent of the EWM.

The Lake Monitoring Coordinator or, if not available, the AIS Network Coordinator will coordinate these activities and draw on the resources of the BLMD, PC LWRD, and WDNR

7. Select a control plan for the EWM.

The BLMD, in consultation with the APM Consultant, WDNR, and PC LWCD, will determine the most effective way to control the EWM.

The goal of the control plan will be eradication of the EWM to the maximum extent possible.

Control methods may include hand pulling, use of divers to manually or mechanically remove the EWM from the lake bottom, application of herbicides, and/or other efficacious and approved control methods.

The selection of the control method will be guided by what is the best way to assure immediate maximum control of the EWM and will not be guided by a desire to incrementally manage the EWM.

If the control plan involves the use of herbicides or other chemicals, application of the herbicides or other chemicals shall not take place until permits have been granted by the WDNR.

8. Implement the selected control plan.

Regardless of the control plan selected, it will be implemented by persons who are qualified and experienced in the technique(s) selected.

BLMD AIS contingency reserve funds may be used to pay for any reasonable expense incurred in implementing the selected control plan, and implementation will not be delayed by waiting for WDNR to approve or fund a grant application.

The BLMD Treasurer will work with the WDNR to confirm, as soon as possible, a start date for an Early Detection and Rapid Response AIS Control Grant. Thereafter, the BLMD shall formally apply for such a grant.

BLMD shall have the authority to accept donations or borrow money for the purpose of paying for control of EWM.

9. Follow up.

Frequently inspect the area of the EWM to determine the efficacy of the control measures and whether additional control is necessary.

Visually survey the entirety of Bone Lake to determine whether EWM has spread to any other parts of the lake. This survey may be carried out by Monitoring volunteers.

The BLMD, acting through the AIS Network, will commission or conduct a study to determine the cause of the EWM, evaluate the response of the BLMD to the EWM, and recommend modifications to this protocol that will improve the BLMD's ability to detect, confirm, and control EWM in Bone Lake.

EXHIBIT A

BONE LAKE MANAGEMENT DISTRICT

| | |
|-------------------------|--|
| Chair | Bob Murphy, 715-857-5194, 612-822-5187 |
| AIS Network Coordinator | Bob Boyd, 715-857-5495 |
| Monitoring Coordinator | Bob Boyd |

POLK COUNTY LAND and WATER RESOURCES

Jeremy Williamson, 715-485-8639

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

| | |
|------------------------|----------------------------|
| Grants | Alex Smith, 715-635-4124 |
| Permits and EWM Notice | Mark Sundeen, 715-635-4074 |

CHEMICAL APPLICATION RETAINED BY BONE LAKE MANAGEMENT DISTRICT

Lake Restoration 763-428-1543

LAKE MANAGEMENT CONSULTANT

| | |
|------------------------------|-------------------------------|
| Harmony Environmental | Cheryl Clemens, 715-268-9992 |
| Ecological Integrity Service | Steve Schieffer, 715-554-1168 |

DIVERS

| | | |
|------------------------------|---------------------------------|--------------|
| Ecological Integrity Service | Steve Schieffer, | 715-554-1168 |
| Polk County Land and | | |
| Water Resources | Jeremy Williamson, 715-485-8639 | |
| Blue Water Science | Steve McComas, 651-690-9602 | |

Appendix D. Rapid Response for Early Detection of Aquatic Invasive Species

Definition: Aquatic Invasive Species (AIS) are non-native plant species that can out-compete and overtake native plant species damaging native lake habitat and sometimes creating nuisance conditions. AIS currently in the Church Pine, Round, and Big Lake system include curly leaf pondweed (CLP), purple loosestrife (PL), narrow leaf cattail, and giant and Japanese knotweed. Additional AIS threaten the lakes and will be monitored by professional monitors or volunteers when species are added to the training program.

1. Maintain a contingency fund for rapid response to EWM or other invasive species (Lake District Board).
2. Conduct volunteer (Clean Boats, Clean Waters Crew) and professional monitoring (APM Monitor) at designated public boat landings and other likely areas of AIS introduction. If a suspected plant is found, contact the AIS ID Volunteers.
3. Direct lake residents and visitors to contact the AIS ID Volunteers if they see a plant in the lakes they suspect might be an aquatic invasive species such as Eurasian water milfoil (EWM). Signs at the public boat landings, web pages, and handouts at annual meeting will provide plant photos and descriptions, contact information, and instructions.

If plant is likely AIS, AIS ID Volunteers will confirm identification with Polk County LWCD and the WDNR and inform the rest of the Lake District Board.

- a. Take a digital photo of the plant in the setting where it was found (if possible). Then collect 5 to 10 intact specimens. Try to get the root system, and all leaves as well as seed heads and flowers when present. Place in a zip lock bag with no water. Place on ice and transport to refrigerator.
 - b. Fill out plant incident form <http://dnr.wi.gov/lakes/forms/3200-125-plantincident.pdf>
 - c. Contact WDNR staff, then deliver collected plants to the WDNR (810 West Maple Street, Spooner, WI 54801) as soon as possible to the location they specify. WDNR may confirm identification with the herbarium at the University of Wisconsin – Stevens Point or the University of Wisconsin – Madison.
4. Mark the location of suspected AIS (AIS ID Volunteers). Use GPS points (in decimal degrees and WGS 84 datum), if available, or mark the location with a small float.
 5. If identification is positive:¹

¹ **If it is an animal other than a fish**

- Be sure the suspected [invasive species](#) has not been [previously found on the waterbody](#)
- Take a digital photo of the animal in the setting where it was found (if possible). Then collect up to five specimens. Place in a jar with water; put on ice and transport to refrigerator. Transfer specimen to a jar filled with rubbing alcohol (except for Jellyfish – leave in water).
- Fill out form [3200-126 – Aquatic Invasive Animal Incident Report](#)

- a. Inform the person who reported the AIS and the board (AIS ID Volunteers), who will then inform Polk County LWRD, herbicide contractor, and lake management consultant.
 - b. Mark the location of AIS with a more permanent marker. Special EWM buoys are available. (AIS ID Volunteers).
 - c. Post a notice at the public landing (DNR has these signs available) and include a notice on the website. Notices will inform residents and visitors of the approximate location of AIS and provide appropriate means to avoid its spread (Lake District Board).
6. Hire a consultant to determine the extent of the AIS introduction (Lake District Board). A diver may be used. If small amounts of AIS are found during this assessment, the consultant will be directed to identify locations with GPS points and hand pull plants found. All plant fragments will be removed from the lake when hand pulling.
 7. Select a control plan in cooperation with the WDNR (Lake District Board). The goal of the rapid response control plan will be eradication of the AIS. Additional guidance regarding EWM treatment is found in DNR's *Response for Early Detection of Eurasian Water Milfoil Field Protocol*.

Control methods may include hand pulling, use of divers to manually or mechanically remove the EWM from the lake bottom, application of herbicides, and/or other effective and approved control methods.

8. Implement the selected control plan including applying for the necessary permits. Regardless of the control plan selected, it will be implemented by persons who are qualified and experienced in the technique(s) selected.
9. Lake District funds may be used to pay for any reasonable expense incurred during the implementation of the selected control plan, and implementation will not be delayed by waiting for WDNR to approve or fund a grant application.
10. The Lake District Board will work with the WDNR to confirm, as soon as possible, a start date for an Early Detection and Rapid Response AIS Control Grant. Thereafter, the Lake District shall formally apply for the grant.
11. Frequently inspect the area of the AIS to determine the effectiveness of the treatment and whether additional treatment is necessary (Lake District Board, APM Monitor).
12. Review the procedures and responsibilities of this rapid response plan on an annual basis. Changes may be made with approval of the Lake District Board.

-
- Contact DNR staff

EXHIBIT A²

CHURCH PINE, ROUND, AND BIG LAKE PROTECTION AND REHABILITATION DISTRICT

| | | |
|---|---|-----------------------|
| EWM ID Volunteers and Board Contacts | Gary Ovick: 715-294-3988 (home) Mike Reiter: 715-294-3950 (home) | 715-417-1770 (mobile) |
|---|---|-----------------------|

POLK COUNTY LAND AND WATER RESOURCES DEPARTMENT

| | |
|-----------------------------|---|
| AIS Coordinator Director | Jeremy Williamson: 715-485-8639 Tim Ritten: 715-485-8631 |
|-----------------------------|---|

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

| | |
|---|--|
| Grants and EWM Notice Permits EWM Identification and Notice | Alex Smith: 715-635-4124 Mark Sundeen: 715-635-4074 Spooner Lakes Team: 715-635-4124 |
|---|--|

HERBICIDE APPLICATOR

Bid each December

APM MONITOR

| | |
|-------------------------------|-------------------------------|
| Ecological Integrity Services | Steve Schieffer: 715-554-1168 |
|-------------------------------|-------------------------------|

DIVERS

| | |
|-------------------------------|-------------------------------|
| Ecological Integrity Services | Steve Schieffer: 715-554-1168 |
|-------------------------------|-------------------------------|

² This list will be reviewed and updated each year.