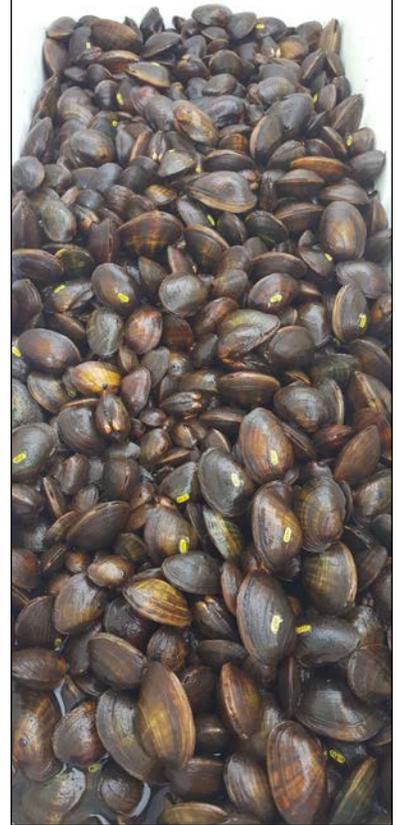


# The Clam Chronicle



Spring 2019



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## Introducing the *Clam Chronicle*!

The *Clam Chronicle* is our new, semi-annual newsletter of the Wisconsin Mussel Monitoring Program (WMMP), part of the Wisconsin DNR’s Natural Heritage Conservation Program. Our goal is to share updates every spring and fall, relevant to the 50 species of native mussels found in Wisconsin.

Each story of the *Clam Chronicle* will showcase native mussel conservation efforts from state and federal agencies, universities, conservation groups other non-profit organizations, and hundreds of volunteers. We encourage ideas for articles and other contributions. Please contact [jesse.weinzinger@wisconsin.gov](mailto:jesse.weinzinger@wisconsin.gov) or [lisie.kitchel@wisconsin.gov](mailto:lisie.kitchel@wisconsin.gov) to share your thoughts.

Thank you!

[Jesse Weinzinger](#)

[Lisie Kitchel](#)

WMMP Coordinators

**Top:** Jesse Weinzinger, conservation biologist for DNR’s Natural Heritage Conservation Program, collects mussels.

**Bottom:** Lisie Kitchel, fellow NHC conservation biologist, displays endangered Higgins eye mussels.

**Cover:** Clockwise, Fatmucket (*Lampsilis siliquoidea*), Photo: DNR; cooler full of young Higgins eye (*Lampsilis higginsii*), photo: Tam Smith, USFWS; volunteers at a one-day mussel blitz, photo: Stephanie Boismenue.



## Volunteers provide the muscle for Wisconsin Mussel Monitoring Program

Wisconsin has 50 species of native mussels, and since 2009, volunteers have been helping the Wisconsin Mussel Monitoring Program understand where individual species live and their abundance. This volunteer monitoring program, administered by the DNR's Natural Heritage Conservation Bureau, has provided hundreds of volunteers a hands-on opportunity to become involved in stewardship of some of Wisconsin's most imperiled animals — native mussels.

Through the Wisconsin Mussel Monitoring Program, or WMMP for short, volunteers are trained as citizen scientists to conduct biological monitoring of the state's waters. Volunteers collect data that can be used to gauge long-term health trends for mussels and streams. The program's goal is to gain a statewide perspective on native mussel populations and the habitats they occupy.



**Top:** Volunteers greatly expand DNR's ability to monitor mussel populations. Photo: Sue Cohen

**Bottom:** DNR's Jesse Weinzinger and volunteers at a mussel planting on the Sugar River. Photo: DNR.

### Join us or host an event!

We partner with groups across Wisconsin to host mussel-related events tailored to local needs. If you want to participate in a 2019 WMMP event, visit our website at <http://wiatri.net/inventory/mussels/>, choose a local event of interest, and register online. If you would like to host a mussel-related event, contact [Jesse](#) or [Lisie](#).



## Status of Native Mussels of Wisconsin

Although freshwater mussels are found in most aquatic habitats throughout Wisconsin, their populations can change fairly rapidly due to factors including increased sedimentation, pollution, habitat loss, and invasive species. This has resulted in nearly half the 50 species in Wisconsin being listed as threatened, endangered, or special concern, which means their populations are low or declining.

On a larger scale, 30 North American native mussel species have become extinct in the last 100 years and 70% of remaining species are considered endangered, threatened, or vulnerable. Therefore, having knowledge of native mussel distributions is very useful information for conservation managers.

With the help of citizen scientists in Wisconsin, these efforts provide much needed up-to-date information on native mussel distribution and status on a statewide level. In addition, any volunteer collected data helps yield insight into water quality, while also shaping conservation efforts across the Midwest.

### Mighty Mussels

Native mussels, aka clams, are important for healthy lakes, rivers, and streams.

Each native mussel can filter gallons of water a day, removing pollutants, like sediment and mercury. They are food for raccoons, muskrats, otters, herons, and other wildlife. They are even food for fish when the mussels are young.



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*“30 North American native mussel species have become extinct in the last 100 years”*

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## Three easy ways to report the “Hidden Treasures” you find

Wisconsin is home to over 15,000 lakes and 12,600 rivers and streams, nearly all of which contain native mussels. DNR’s two mussel biologists can survey only a relatively small number of waters, so volunteers for the Wisconsin Mussel Monitoring Program are critical to better understanding and protecting the state’s mussels. They continuously provide new information on mussel occurrences in Wisconsin.

There are three ways to contribute mussel observations:

- **Collect Shells** — Collect mussel shells from stream bottoms, stream banks, or middens (piles of discarded shells). Contact [Jesse](#) or [Lisie](#) to have the shells identified.
- **Take Photos** — Photograph shells or live mussels and e-mail to the WMMP coordinators for identification.
- **Share on iNaturalist** — Use this web-based citizen science reporting platform to share observations with followers of WMMP.



## Getting to Know iNaturalist

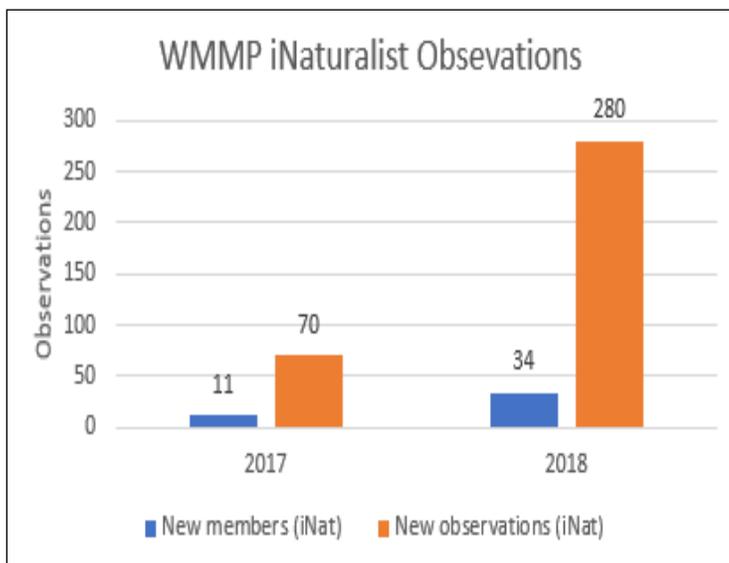
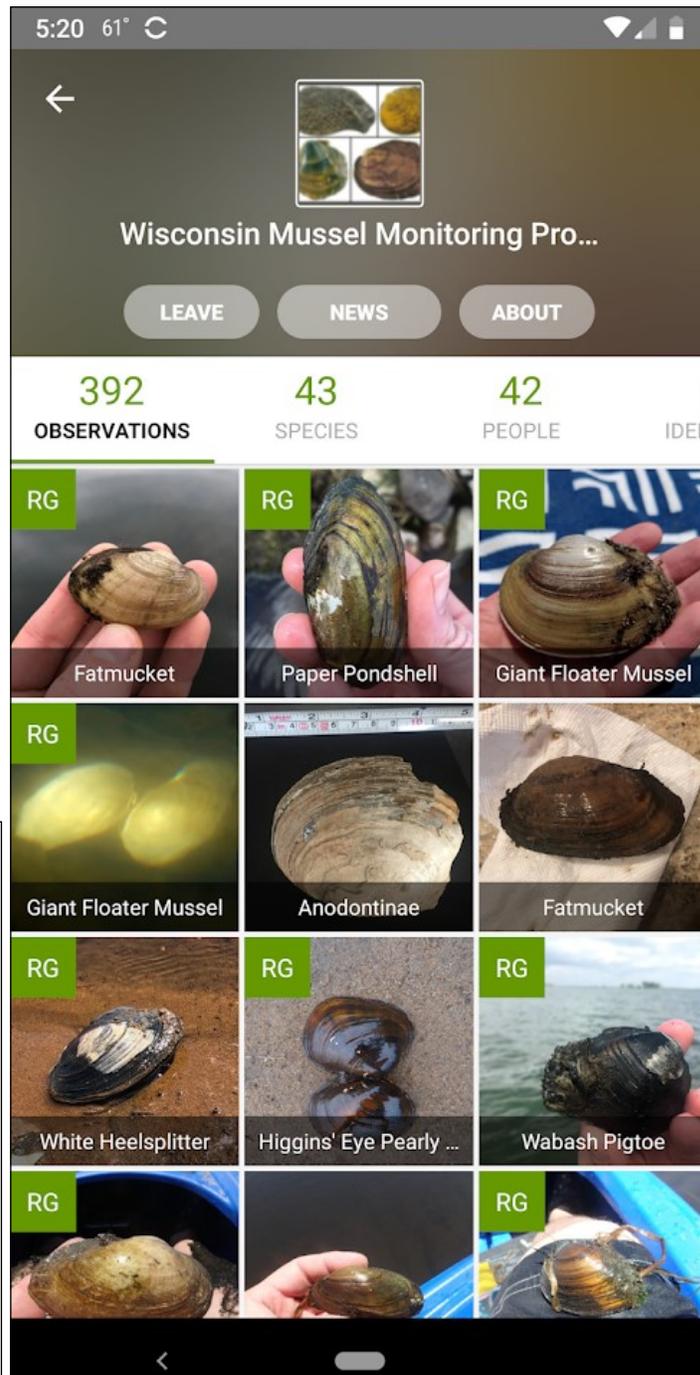
iNaturalist is a global community of people who record observations of various organisms and share them with each other through a web-based reporting platform so all of us can learn more about the natural world.

The Wisconsin Mussel Monitoring Program uses this platform to share information and photos with other people who are interested in Wisconsin's native mussels.

iNaturalist also offers an opportunity for volunteers to share and connect with other naturalists and species experts, while at the same time allowing the Wisconsin DNR to gather vital information on species occurrences throughout the state.

Since 2017, the Wisconsin Mussel Monitoring project page has seen a significant increase in participation. Thank you to all who have contributed so far!

Install the free iNaturalist mobile app and start “flexing your mussels” even without cell reception or wifi!



**Top:** Number of new members and mussel observations submitted to the WMMP project of iNaturalist.

**Right:** WMMP project homepage on the free iNaturalist app for iPhone or Android.

**iNaturalist.org**

## A New Mussel Species for Wisconsin

The Eastern pondmussel (*Ligumia nasuta*) is a new mussel species for Wisconsin. It was first reported in 2014 from Medicine Lake in Oneida County by a citizen mussel volunteer. Medicine Lake is part of the Three Lakes Chain, which are far more than three lakes.

To see where else it might occur, we conducted a Mussel Blitz in August 2018 in the Three Lakes Chain, and checked out a few lakes in the downstream Eagle Chain. Volunteers waded and snorkeled along the shallow edges of lakes and picked up dead shells and live mussels. We identified the Eastern pondmussel in nine more lakes, as well as below the Burnt Rollways Dam, which leads to the Eagle Chain of Lakes. See the map of occurrences on page 7.

We also identified 10 other species of mussels, but the Eastern pondmussel was by far the most abundant. It is not invasive or endangered, just does well in shallow sandy lakes. How this Atlantic slope species got to Oneida County is unknown, but in 2019 we will be conducting another Mussel Blitz focused on the Eagle Chain of Lakes to see how far it has spread.

**Help us find Eastern pondshell mussels this summer!**  
***We will conduct a Mussel Blitz in the Eagle Chain of Lakes on August 18 (10-4pm). Meet at Cy Williams Park in Three Lakes for an introductory training followed by the Blitz.*** We hope you can participate, and if not, please pick up mussels in your lakes and send us photos of live mussels and dead shells. You never know when you might find a new species!



### 2019 Mussel Blitz

**When:** Aug. 18 (10-4 p.m.)

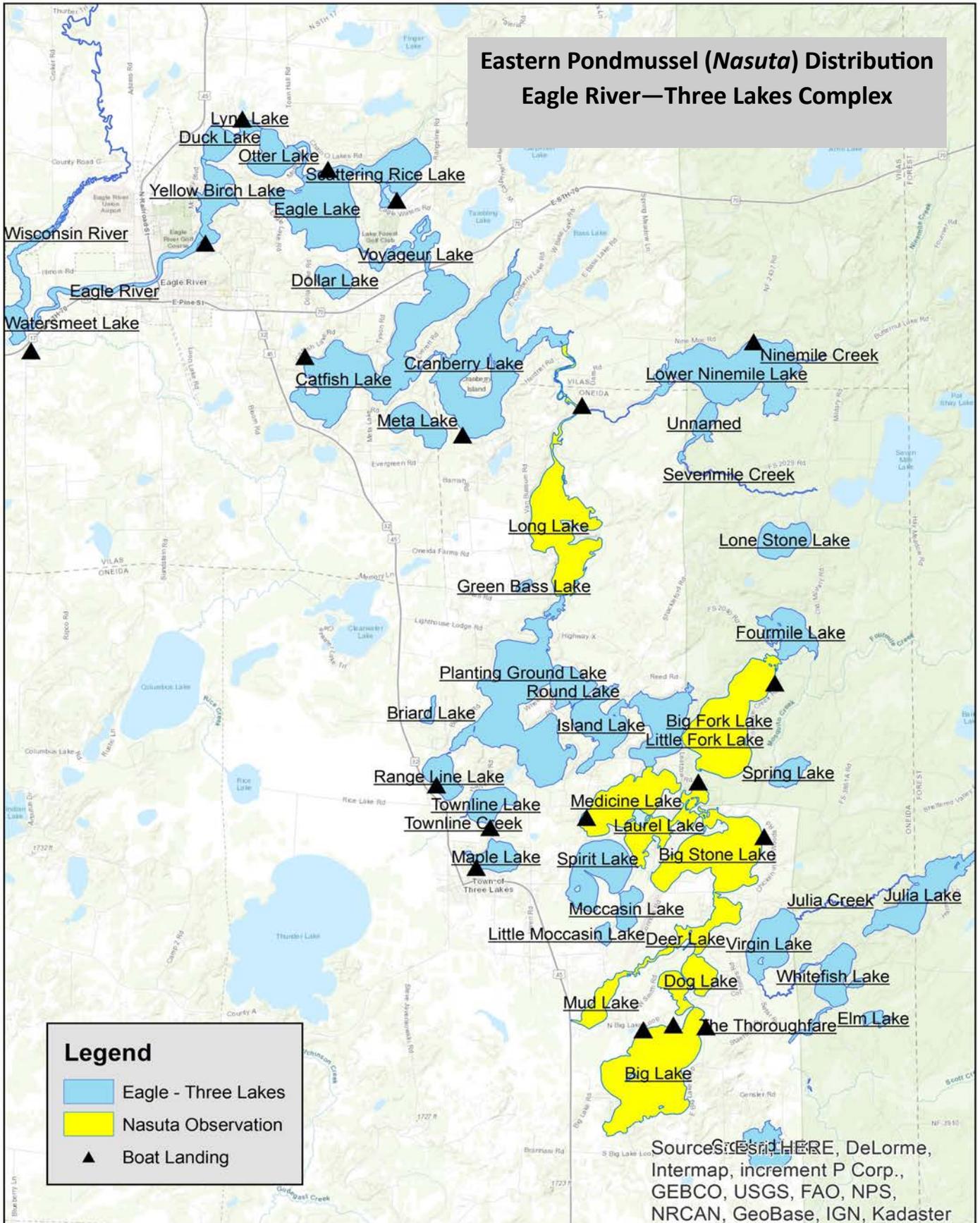
**Where:** Picnic Shelter @  
Cy Williams Park, Three  
Lakes, WI

#### What to Bring

- Clothes and shoes that you do not mind getting wet
- Sunglasses
- Sunscreen and bug spray
- Water bottle and lunch
- Optional: Camera or smartphone, canoe, kayak, boat

The DNR will provide water and snacks, extra masks and snorkels, water scopes, mussel field guides, data sheets, and maps.

## Eastern Pondmussel (*Nasuta*) Distribution Eagle River—Three Lakes Complex



## Statewide Mussel Survey—A Long Term Strategy

The Wisconsin DNR recently completed a statewide assessment of native mussel populations. The project represented the first statewide survey in over 40 years, and it provides the foundation for establishing a long-term strategy for monitoring diverse or unique mussel beds throughout the state.

As part of the project, DNR biologists reviewed all information in the Wisconsin Mussel Atlas, a database of mussel records dating to the 1920s. More than 615,000 specimens were reviewed from historical mussel surveys, and their location fed into digital maps. Surveyors used this information to visit 99 sites from all 21 major watersheds across the state to learn if those mussel populations still existed and how they were faring.

Biologists recorded 21,069 living individuals, representing 39 species. Species richness ranged from zero (at 10 sites) to 24 species on the Saint Croix River. See page 9 for a map reflecting survey results.

The most frequently observed mussels during surveys were fatmucket (*L. siliquoidea*), spike (*E. dilatata*), plain pocketbook (*L. cardium*) and giant floater (*P. grandis*). After surveys were completed, DNR identified Priority Conservation Opportunity Areas (COA) at 16 sites. These areas are targeted locations for long-term monitoring and future conservation efforts.

This study provides a fresh examination of native mussels throughout the state. Each proposed COA will provide a unique conservation opportunity to improve habitat for native mussels and their associated aquatic community.

Through routine monitoring, biologists can increase their understanding of mussel habitat needs and anticipate how their habitat may be affected from external stressors. Such information, for example, allows staff to work with state transportation officials to help avoid or move mussel populations when road and bridge projects could potentially impact them.



**Top:** Mucket (*Actinonaias ligamentina*).

**Middle:** Conservation Biologists prepare to start surveys.

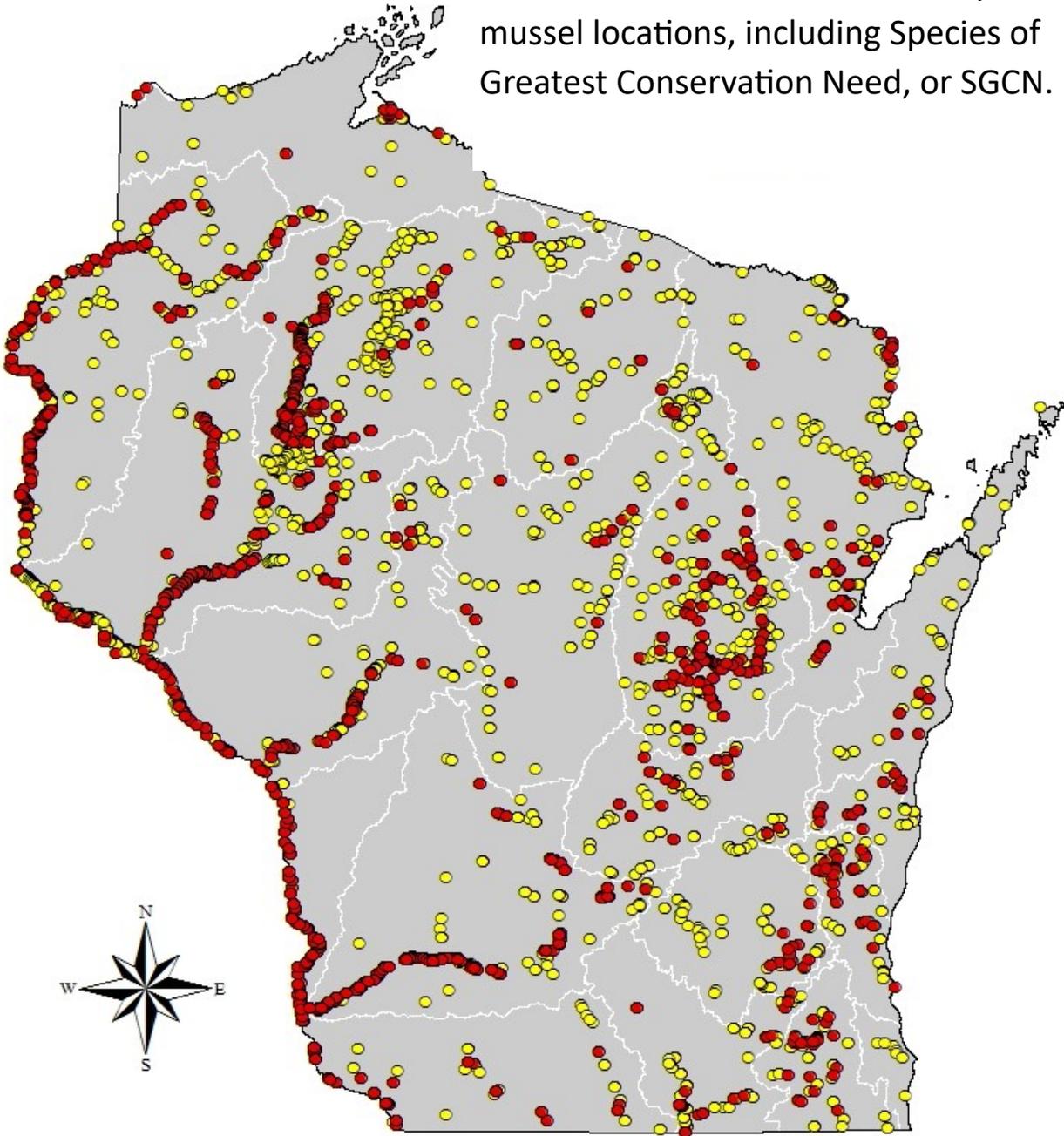
**Bottom:** Elktoe (*Alasmodonta marginata*).

Photos: DNR

*“The most frequently observed mussel during surveys was fatmucket (*L. siliquoidea*), spike (*E. dilatata*), plain pocketbook (*L. cardium*) and giant floater (*P. grandis*).”*

# Statewide mussel records

Historic and current records of reported mussel locations, including Species of Greatest Conservation Need, or SGCN.



- SGCN Record
- Mussel Record

0 12.5 25 50 75 100 Miles

## Making sure the snuffbox mussel doesn't get snuffed out

The snuffbox (*Epioblasma triquetra*) is a native mussel listed as a federal endangered species in 2012. Soon after the federal listing, results from DNR surveys indicated that snuffbox had experienced an estimated recent decline of about 46% and historic decline of about 83% of their former range in the Wolf River system. Recently, the DNR performed additional surveys within the current range of snuffbox in the Wolf River basin to establish long-term monitoring locations.

During 2016 - 2018 surveys, 18 sites were selected for sampling. Biologists identified and recorded 10,557 living individuals, representing 25 species. Quantitative sampling contributed 29 live snuffbox individuals at 7 sites. One site was previously sampled in 2004 and results were compared to 2016 sampling. Results showed a 90% decline in total abundance. Among all sites, high mortality and limited recruitment of young individuals were observed throughout the current range of snuffbox in the Wolf River Watershed.

The study provides a wide range of data useful to the management and protection of snuffbox mussel in the watershed to prevent their extirpation. Twelve potential



A male snuffbox mussel from the Little Wolf River.  
Photo: DNR

*“Among all sites, high mortality and limited recruitment of young individuals were observed throughout the current range of snuffbox in the Wolf River Watershed.”*



**Left:** Regional biologists take inventory from recent sampling efforts on the Wolf River. Photo: DNR

**Right:** Two female snuffbox mussels from the Embarrass River. Photo: DNR



## High mussel mortality in Embarrass River triggers search for cause

In late September 2018, the Wisconsin Department of Natural Resources found unusually high mussel mortality during annual monitoring of snuffbox (*Epioblasma triquetra*) in the Embarrass River in north-central Wisconsin. Given this is only one of a few snuffbox populations in the state, biologists were very concerned about the possibility of some type of contamination within the river. In collaboration with USGS, UW-Madison, and USFWS, nonlethal tissue and hemolymph samples were collected for lab testing at the National Wildlife Health Center. This effort is to identify causes associated with this ongoing mortality event. As of spring 2019, lab results are being finalized.



Several mussel species displaying signs of distress. Photo: DNR

### ***Volunteers encouraged to report large die-offs of mussels***

Wisconsin Mussel Monitoring Program coordinators see this event as an opportunity for volunteers to notify mussel biologists of any significant mussel die-offs in local waters. Signs of a possible mussel mortality include: open mussel valves with soft tissues exposed, weak or slow valve closure in response to handling, or scattered dead shell material throughout a localized area and not a pile of shells at one spot. If you suspect a mussel mortality event is occurring in a local waterbody, take photos and contact Jesse and Lisie; they will follow-up and can visit the site for sampling of stressed mussels.



A shoreline littered with dead mussel shells. If you see many dead mussels in a stream, please notify Jesse and Lisie. Photo: DNR



A U.S. Fish & Wildlife biologist takes a sample from a recently stressed mussel from the Embarrass River. Photo: DNR

## Reintroducing Mussels – Expanding Their Range

The Wisconsin Mussel Monitoring Program is assisting the Genoa National Fish Hatchery in expanding the range of endangered mussels in the Chippewa River. Subadult winged mapleleaf (*Quadrula fragosa*) mussels were tagged with bee tags and pit tags and placed in the lower Chippewa River. The bee tags allow us to monitor the growth and reproductive status of individuals and the pit tags aid in recovering the mussels by using an antenna to locate the transponder in the tag. We will continue to monitor the survival, growth and location of these mussels over time. So far the vast majority of them survived, although a muskrat got a few.



Tagged Higgins eye mussels.

Juvenile Higgins eye (*Lampsilis higginsii*) mussels produced at the Fish Hatchery were placed at two locations in the Chippewa River over the last two years, and this summer two more batches will be placed at two other locations. In addition to these two species, juvenile salamander mussels (*Simpsonaias ambigua*) were placed at multiple locations within the Chippewa. This species is unique in that its host is the mudpuppy and it is only found under large flat rocks and boulders, where mudpuppies hang out as well. We will be placing more salamander mussels in the lower Chippewa as well as at sites in upper Chippewa this summer.

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*“Juvenile Higgins eye (*Lampsilis higginsii*) mussels produced at the Fish Hatchery were placed at two locations in the Chippewa River over the last two years and this summer two more batches will be placed at two other locations.”*

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## Searching for Spectaclecase in the St. Croix

This summer the Wisconsin Mussel Monitoring Program will be working with the Minnesota Mussel team to look for the federally endangered spectaclecase mussel (*Cumberlandia monodonta*). As its name implies, its long thin shell looks like the case you would put your glasses in. Minnesota will focus primarily on the Mississippi River and Wisconsin will focus on the St. Croix River. Spectaclecase are found individually among rock piles or as individuals or in clusters under the edges of large rocks and boulders at the bottom of the river, making them hard to locate. We will be looking for this species in wingdams, riprap, rocks around pilings and other structures in the river.



Spectaclecase (*Cumberlandia monodonta*)

To scout for habitat for this species we will be using side scan sonar and hydroacoustic technology in conjunction with the USGS. Since this is a very rare and hard to locate species, and to make our search time more efficient, we also will be taking environmental DNA (eDNA) water samples to help to determine which rock structures contain spectaclecase individuals. We hope to better characterize habitat occupied by spectaclecase and evaluate its population status. Another benefit of looking in this type of habitat is that we may find state endangered salamander mussels as well.

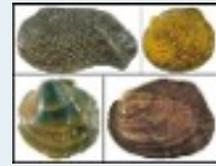
## We Want to Hear From You!

The Wisconsin Mussel Monitoring Program wants to maximize communication and transparency with its volunteers. One way to accomplish this goal is to demonstrate appreciation to its contributors through recognition.

Starting with the Fall 2019 issue, each newsletter of the Clam Chronicle will showcase a volunteer of the WMMP. The program coordinator will contact the featured volunteer and ask him or her about their volunteer experience. With permission, coordinators will feature the volunteer in the upcoming newsletter. Each newsletter will also share volunteer photos from the field. If you have photos you'd like to share with others, please send them to WMMP coordinators. All volunteer photos will print a watermark with the volunteer name.

If you have any ideas to improving the Wisconsin Mussel Monitoring Program or the Clam Chronicle, please feel free to contact the program coordinator with suggestions!

## Wisconsin Mussel Monitoring Program Contact Information



### Website:

[www.wiatri.net/inventory/mussels](http://www.wiatri.net/inventory/mussels)

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WMMP Coordinators

**Thank you to all who have helped coordinate activities with the Wisconsin Mussel Monitoring Program!**



Wisconsin to Oneida County Land & Water Conservation  
Aquatic Invasive Species (AIS) Program



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