

# Monitoring & Managing New Zealand Mudsnails



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## **Background on the Upper Sugar River Watershed and the Association**

The Upper Sugar River Watershed Association (USRWA) was established in 2000 as a grassroots, non-profit organization created by a diverse community of people who live, work and play in the watershed. USRWA has always maintained a broad base of partnerships to improve land and water quality, including businesses, schools, families, volunteer groups, government agencies, and public/private organizations. The USRWA offices are stationed in Mt. Horeb, WI, about 20 miles west of Madison.

The Upper Sugar River Watershed (USRW) drains 170 square miles in Dane County, WI and includes 115 miles of stream (25 of which are designated as trout waters). The entire length of the main stem in this drainage is classified as Exceptional Resource Waters (ERW). The watershed is home to several parcels of high quality wetland areas which enhance infiltration and serve as a buffer against excess nutrients and other pollution, specifically adjacent to Lake Belle View and also near Highway 18/151.

### **Purpose**

In September 2016, New Zealand mudsnails (*potamopyrgus antipodarum*) were discovered in Badger Mill Creek during a routine stream monitoring session by Madison Metropolitan Sewerage District. New Zealand mudsnails (NZM) were later confirmed at three locations on Badger Mill Creek by DNR officials, making it the second confirmed finding in Wisconsin (Black Earth Creek, 2013). Originally NZM has been found in ten western states, but now has spread to the Midwest in places like Wisconsin, Michigan, and Pennsylvania.

This project was proposed because it's unknown what the impact NZM will have on the overall ecosystem in Wisconsin. Unfortunately, their small size, ability to reproduce asexually, and operculate shell makes them a prime candidate to spread via animals or recreationalists. Research indicates NZM has no native predators in Wisconsin, and offer no nutritional value to fish or other species. The immediate fear is NZM will outcompete native snails, daphnia, and other lower food chain species and create major problems in the future.

### **Initial Goals**

- Conduct youth AIS education programs in the Verona and Mount Horeb school districts for approximately 100 students.
- Conduct public education to reduce the spread of New Zealand mudsnails (NZM) discovered in the watershed in Badger Mill Creek in September 2016
- Utilize volunteers to determine the extent of the infestation in the Upper Sugar River watershed. Monitoring will be conducted six times each at 10-15 prioritized sites after volunteers are trained in a stream monitoring protocol (provided by WDNR and WAV) specific to NZM detection and in proper gear disinfection.
- Collect qualitative data at each monitoring site to extend the understanding of habitat preferences in the Driftless Area.
- Field test handheld steamers for disinfection use by volunteers.
- Building 20 wader wash stations and install them with at high traffic access sites.
- Inventory AIS signage presence, loss and condition in the watershed to update the River Alliance's existing database and install new signs as needed.

## Results

### Public outreach

USRWA worked with New Century School in Verona to bring fourth and fifth grade students to Badger Mill Creek to learn about macroinvertebrates and invasive species like the New Zealand mudsnails. Over two days on the creek, nearly 80 students participated in sampling water, collecting and identifying macroinvertebrates, and learning about how invasive species effect the natural environment (Figure 1 & 2). One student found a New Zealand mudsnail while doing an inventory, which was a first at the Lincoln Street bridge location on Badger Mill Creek.

As a way to increase adult outreach on New Zealand mudsnails, USRWA offered a discussion forum at Wisconsin Brewing Company in Verona called *Conversations About Conservation* on October 4, 2017. The lead speaker was Gaby Hamerlinck, who is a professor at Madison College and an expert on snails. She led a discussion on native snails, invasive snails like the New Zealand mudsnail, and took questions from the crowd.

### Monitoring

USRWA has a long history working with Water Action Volunteers (WAV) to monitor streams in the watershed, so a key aspect of this project was to train those in the WAV program to look for invasive species. USRWA held two classes in 2017 and 2018 for new and existing volunteers in the WAV program to look for invasive species when going through the normal water monitoring protocol. In 2017, USRWA trained 11 new volunteers in addition to five existing volunteers. In 2018, USRWA trained eight new volunteers, to go with seven returning volunteers from 2017. In all, USRWA volunteers monitored 22 sites in 2017, and are currently monitoring 23 sites in 2018.

The new WAV protocol for identifying invasives was not ready for the 2017 season, so volunteers were trained on identifying key invasives like New Zealand mudsnails, rusty crayfish, Asian clams, and faucet snails. Towards the end of the 2017 season, a group of USRWA monitors assisted WAV in trying out the drafted version of the new protocol, which resulted in the positive finding of New Zealand mudsnail in Mt. Vernon Creek near County Road G (Figure 3). Mt. Vernon Creek is now the third stream in Dane County known to have New Zealand mudsnails.

Data collected by USRWA was entered into the Surface Water Integrated Monitoring System (SWIMS) database. Qualitative analysis has started to be performed by volunteer Bobbi Peckarsky regarding the similarities between Badger Mill Creek and Black Earth Creek. After working with the DNR on how to build qualitative analysis, it was agreed upon that doing a full scale analysis would require a graduate or doctoral candidate. Anecdotally, to this point there doesn't seem to be a group of factors linking the two sites, moreover it appears that New Zealand mudsnails are able to inhabit a wide variety of habitats. Mudsnails have been found in both ideal and degraded habitats in both streams, regardless of stream flow or temperature.

When this project was conceived, portable steam cleaners were seen as a possible solution for anglers in the field. After the grant was approved, it was made clear by the folks at Trout Unlimited that steam cleaners would be very difficult to implement. At this same time, Kevin Olson at WDNR was transitioning into the AIS lead, and soon after left for a different department with WDNR. It was decided that trying to work with steam cleaners would not be wise at that time.

### Brush stations and signage

Since there currently isn't a way to eliminate mudsnails from rivers and creeks, the main part of this project was to increase awareness of the issue at high traffic locations across western Dane County. Wader brush stations, which have a three sided boot brush and a long handled brush, are a great way to increase awareness because of their large physical presence and they offer an easy way to clean off gear. Initially USRWA anticipated building 20 stations, but material costs were low enough to instead build 30 stations. 15 volunteers helped to build the stations, with major help from volunteer Bill Keen who prepared the building materials and led the group (Figure 4).

USRWA intern Shane Herkert inventoried the Upper Sugar River Watershed for locations the brush stations would be suitable, in addition to noting signage and opportunities for additional signs. USRWA director Wade Moder worked with Dane County, WDNR, and Trout Unlimited to identify locations outside the watershed where brush stations and signage would be useful. From May-September 2017, all 30 stations were installed (Figure 5).

New AIS signs were also part of the awareness plan. Many of the AIS signs around Dane County were installed by River Alliance in 2013. Those signs were made of plastic, and many had weathered away. For this project, USRWA used an existing AIS sign design from the WDNR and printed them on aluminum in a much larger 18"x24" size. Using the \$3000 budget for materials, 140 signs were printed to go along with the hardware and sign posts needed. In May 2018, USRWA volunteers installed 49 signs in western Dane County and eastern Iowa County at popular fishing access points. USRWA also reached out to all watershed organizations and friends groups in Dane County, with the anticipation of more signs being installed. All extra signs will be stored by USRWA with a standing offer to other local groups to install them in their areas.

## **Appendix**

**A. Photos**

**B. Signs**

**Appendix A: Photos**



*Figure 1: New Century School Students identifying macroinvertebrates on Badger Mill Creek in Verona, WI*



Figure 2: New Century School Students identifying macroinvertebrates on Badger Mill Creek in Verona, WI





*Figure 3: USRWA volunteers test out the draft AIS protocol from the Water Action Volunteers program*



*Figure 4: USRWA building wader brush stations on April 29, 2017*



Figure 5: Wader brush station installed on Vermont Creek, Dane County, WI

## Appendix B: Signs



# STOP AQUATIC HITCHHIKERS!

Prevent the spread of invasive species. It's the Law!

**WATER USERS: Do your part to protect WI waters!**

Before *entering* and *leaving* here **YOU MUST**

- ✓ **INSPECT** all equipment, including boots & waders
- ✓ **REMOVE** all plants, animals & mud
- ✓ **DRAIN** all water from footwear, equipment and gear
- ✓ **NEVER MOVE** live fish, bugs & snails

**When possible, use rubber-soled footwear  
and scrub ALL gear clean with a brush.**

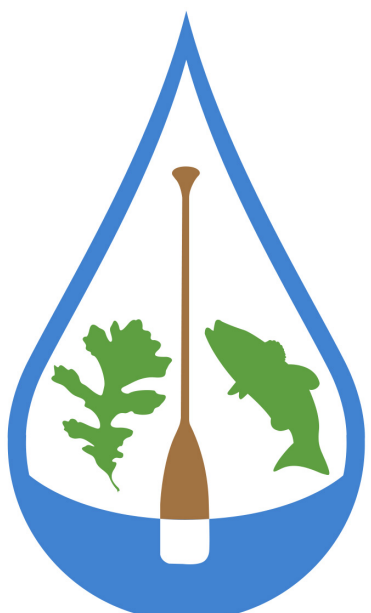


# Boot and Wader Cleaning Station

Provided by

Upper Sugar River Watershed Association

[www.usrwa.org](http://www.usrwa.org)



Take **60 seconds before and after** visiting the river to protect your fisheries from damaging invasive species that could be hitchhiking on your gear.

## Instructions:

1. Drain all water from your waders, boots and gear.
2. Use the three-sided boot brush below to remove mud and debris from your boots.
3. Use the long handled brush to scrub off any remaining mud and debris from your waders and boots.
4. If you have fished out-of-state or invasive-species-infested waters within the past five days, further decontamination of gear may be necessary.

Dirty waders and boots spread these and other invasives:



New Zealand mudsnails



Japanese hops



Curly-leaf pondweed



For more information, contact the Upper Sugar River Watershed Association at (608) 437-7707 or visit [www.usrwa.org](http://www.usrwa.org)