

Preventing the Spread of New Zealand Mudsnail in Wisconsin's Driftless Area AIRR-140-14 Final Report

In the fall of 2013, the New Zealand mudsnail was discovered in benthic macroinvertebrate samples collected from Black Earth Creek in 2011 and 2012. The only other populations in the region are in Lake Superior's Duluth-Superior Harbor and Lake Michigan's Waukegan Harbor. These populations have not been observed to be spreading out of the Great Lakes. The extent of New Zealand mudsnail invasion in southwest Wisconsin is currently unknown.

It is unknown how the mudsnail will affect the Black Earth Creek fishery as this is the first inland invasion not only in Wisconsin, but in the Midwest. Research from other invasion sites, however, suggests that Wisconsin streams could realize negative impacts. The New Zealand mudsnails will likely compete directly with many native grazers and could reduce the abundance of this important food source. Research from the western U.S. also suggests that some fish (brown trout and sculpin) avoid mudsnails while some fish (mountain whitefish) will readily eat them. However, energetic studies show that New Zealand mudsnails can pass through fish stomachs undigested and therefore may offer little to no energy when compared to other common food items. New Zealand mudsnails do have predators in their native range, but there is no evidence that predators do or could control populations.

Due to its small size, the New Zealand mudsnail can easily hitchhike on a variety of recreational and commercial equipment that comes in contact with the water and riparian zone. Its operculum allows it to survive in undesirable environments for extended periods of time. Vectors include but are not limited to waders and other fishing gear, watercraft, commercial construction equipment, and fish stocking equipment.

A New Zealand response team was coordinated by the Wisconsin Department of Natural Resources, which the River Alliance of Wisconsin has been an active member since the finding in October. The team has deemed the eradication of New Zealand mudsnail from Wisconsin infeasible. Therefore, it is pertinent that we contain this pioneer infestation, especially until we have a better understanding on the impacts it will have on Wisconsin's fisheries. The team has identified three groups of priority vectors: anglers, researchers and construction and utility equipment operators. Decontamination protocols for anglers and researchers have been developed. The Wisconsin DNR is currently developing protocols for construction and utility equipment operators.

Since February, the River Alliance of Wisconsin has worked to reach out to stakeholders, especially wading anglers, to engage them in helping to contain the snail. Through our longstanding relationships with anglers, local groups, fisheries managers etc. we accomplished the following objectives and met the deliverables of this grant.

Objectives:

- Increase the participation of key stakeholder groups region wide in the prevention of NZM spread.
- Educate vectors directly through the promotion of the prevention steps identified by the NZM Response Team
- Prevent the spread of invasive species by providing clean angling tools to anglers at popular fishing/hiking locations

Actions and Deliverables

River Alliance staff maintained regular communication with angling organizations, local watershed groups, county staff, local fisheries biologists/land managers, and other local stakeholders, such as local businesses, throughout the year to ensure that they had the most up to date news regarding the New Zealand mudsnail response and the recommended clean angling protocols.

- Representatives from Southern Wisconsin Trout Unlimited and Badger Fly Fishers participated in the Black Earth Creek New Zealand Mudsnaill event.
- Representatives from the Black Earth Creek Watershed Association participated in the Black Earth Creek New Zealand Mudsnaill event on April 26, 2014
- River Alliance staff provided the Upper Sugar River Watershed Association with two wader/boot brush stations that were installed at highly used fishing areas in the headwaters of the Upper Sugar River. This subwatershed is adjacent to the Black Earth Creek watershed.
- Local river and watershed organizations received periodic updates from the River Alliance staff in the form of TRIB articles (e-news for local groups), news releases, social media posts, and WOTS articles (e-news for all River Alliance members).
- Provided 21 pairs of hip boots and 10 D-frame aquatic nets to Dane County UW-Extension that will be ONLY be used on Black Earth Creek. All student groups, volunteers, etc who will be conducting monitoring activities on Black Earth Creek will use this equipment to better contain the New Zealand mudsnail.
- Presented to the Wisconsin Trout Unlimited State Council twice
- Presented to the Wisconsin Conservation Congress Trout Committee
- Over 30 businesses (below) within the Black Earth Creek watershed along the Hwy 14 corridor were notified of the new infestation and provided outreach materials to be shared with the public.

Cross Plains	All bars on Hwy 14 in town	Piggly Wiggly
	Kwik Trip	True Value
	American Liquor	World of Variety
	Crossroads Coffeehouse	Case Implements Dealer
	Library	Firehouse

Mazomanie	Mobile	Hardware Hank
	Liquor store	Wildwood Woodworks
	Gordons	Shell
	Subway	

Black Earth	The Shoe Box	L&N Black Earth Lanes
	Luckenbooth Café	Cenex
	Black Earth Meats	The Shoe Box Repair Shop
	Black Earth Post office	Vintage Liquors
	The Snack Bar and Grill	BP

277 Stream AIS Signs were posted throughout Dane, Iowa, Grant, Crawford, Richland, Vernon and Sauk counties. Attached to each sign is a durable, synthetic fiber long handled gong brush to enable anglers to scrub off their waders and boots before and after entering a stream. The latitude and longitude of every sign has been shared with the NZMS Rapid Response Team via Google Docs file sharing.



Figure 1 Volunteers post NZMS signage and a long handled gong brush on Black Earth Creek

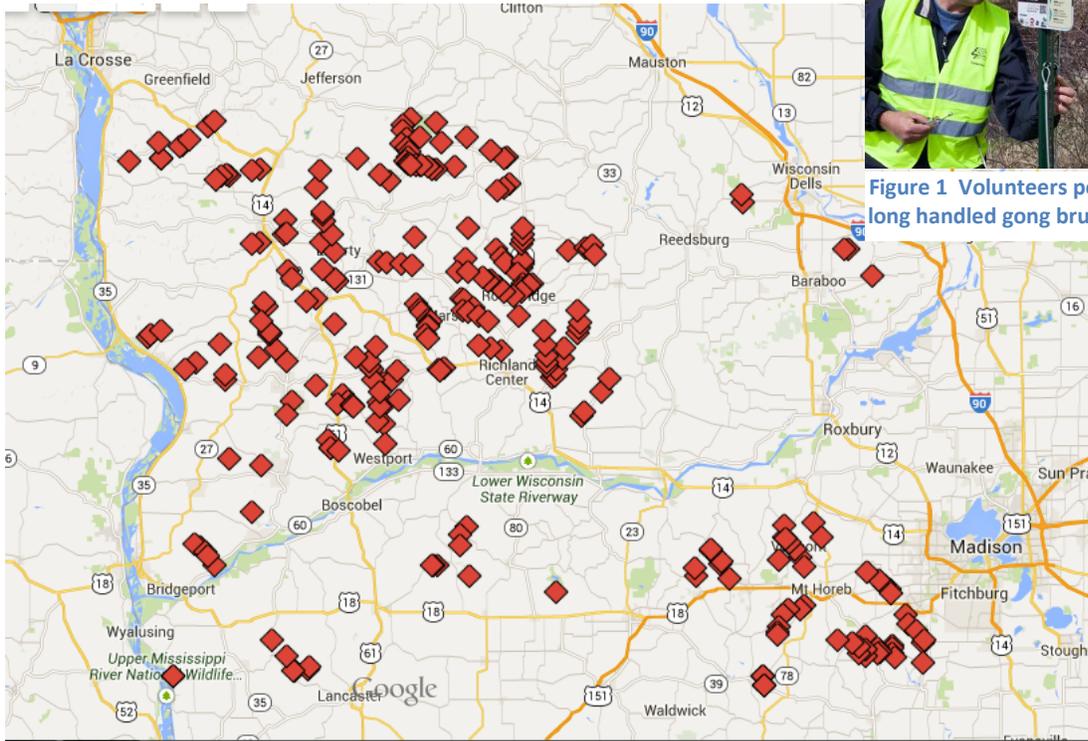


Figure 2 Interactive map available online: <https://www.google.com/maps/d/edit?mid=zDO5MbXBJ94E.kCyLrCrWtlcQ>

During the Black Earth Creek event on April 26, seven New Zealand mudsnail signs were installed by volunteers throughout the watershed. Volunteers attached to each sign a durable, synthetic fiber long handled gong brush to enable anglers to scrub off their waders and boots before and after entering a stream.

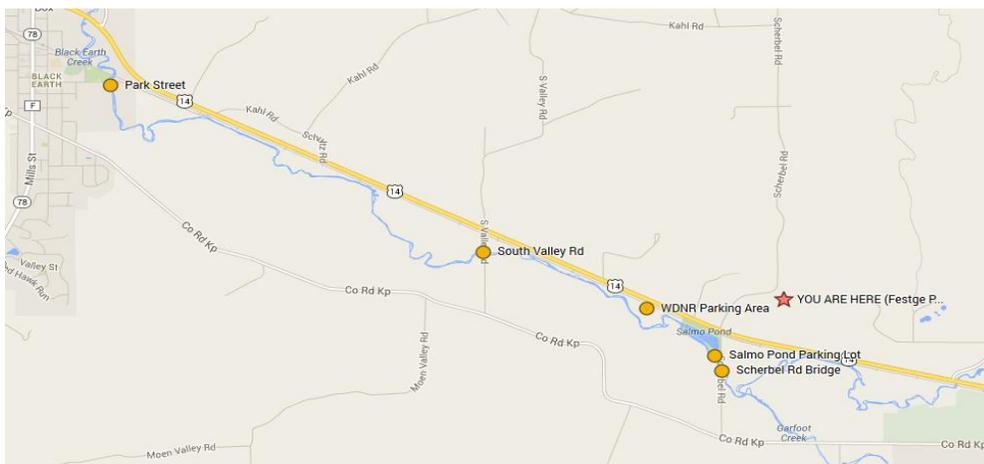


Figure 3 Locations between Cross Plains to Black Earth Creek where New Zealand mudsnail signs and gong brushes were installed

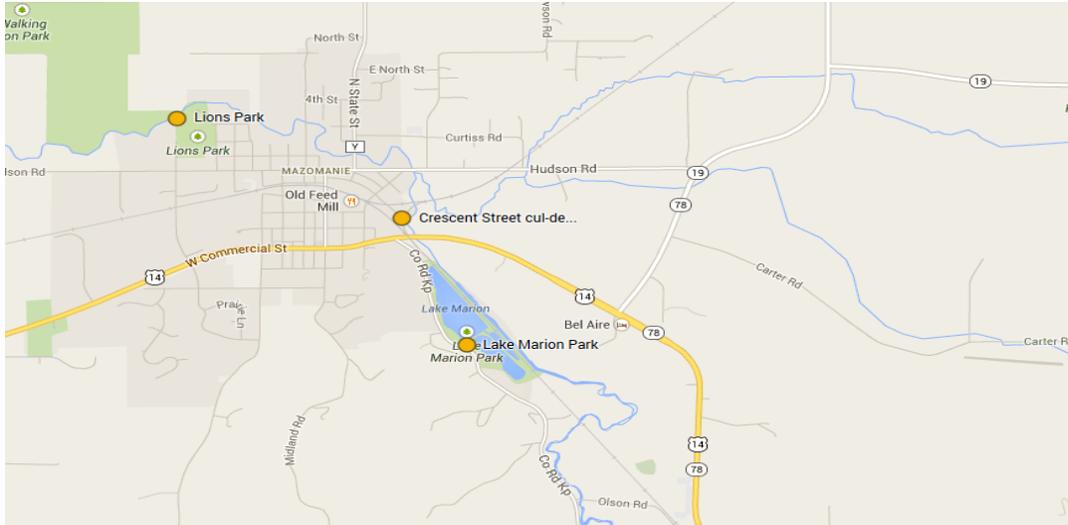


Figure 4 Locations within Mazomanie where New Zealand mudsnail signs and gong brushes were installed

During the April event, volunteers also constructed 12 wader/boot brush stations that were later installed within the Black Earth Creek watershed and beyond by the River Alliance's contractor. Six additional stations were constructed and installed, as well. These boot/wader brush stations provide both information and tools to anglers to encourage them to practice clean angling techniques promoted by the New Zealand mudsnail rapid response team. See the specifications and artwork attached to this report for more information.



Figure 5 Volunteers build wader/boot brush stations during the Black Earth Creek Earth Day/New Zealand Mudsnail event in Cross Plains. More photos of the event available at <https://drive.google.com/folderview?id=0BxdIMgNfyJrxcVhIZC1FRXA5bmM&usp=sharing>

Future Actions

The River Alliance is currently seeking funding through the Wisconsin DNR to continue our work. If funded, we have proposed to do the following which is pertinent to the containment effort.

- Monitor/maintain dozen boot brush stations and 100s of signs and boot brushes installed in Driftless Area in 2014 in response to the NZMS find with EDRR funding
- Install at least 50 new AIS stream signs at high use access points
- Assess effectiveness of installed cleaning tools
- Continue Targeted Outreach Advocating Clean Angling (Preventing the spread of NZMS and other stream AIS)
- Two statewide press releases (early season trout opener and general opener)
- Video of angler using boot brush stations (both free-standing 3-sided brush stations and gong brush on posts)
- Articles in angling organizations newsletters (ex. Wisconsin TU)
- Present/Table to angling audiences distributing clean angling education information (ex. Wisconsin TU Statewide Banquet, Wisconsin TU State Council, Madison Fishing Expo, Etc.)

We look forward to continuing to work with the Wisconsin DNR to further contain this invader and ward off new ones. Thank you for your support.

Appendices:

- I. New Zealand Mudsail Sign Artwork
- II. Wader/Boot Brush Stations Specifications
- III. Wader/Boot Brush Station Artwork
- IV. Practice Clean Angling vs. 2
- V. Location Data of Clean Angling Tools Installations