

NEW ZEALAND MUDSNAILS

Help protect trout streams by preventing their spread

WHY ARE WE CONCERNED?

- The New Zealand mudsnail has been discovered in Black Earth Creek and Badger Mill Creek in southeast Wisconsin. These are the only two known occurrences of the New Zealand mudsnails in Wisconsin.
- They are very small and can reproduce asexually by cloning
- Their small size and ability to seal their shells allows them to be easily transported and to survive for up to nearly a month out of water



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GOAL: *The goal of this statewide survey is to detect if New Zealand mudsnails are present in other Wisconsin streams. This survey will not attempt to measure the scope of an infestation, if found.*

Background on New Zealand mudsnails

In October 2013, New Zealand mudsnails (*Potamopyrus antipodarum*) were identified in samples of bottom-dwelling macroinvertebrates collected in 2012 from Black Earth Creek near the Village of Cross Plains. This is one of the first known occurrence of this clone of these snails in the Mississippi River Watershed. (A different clone is found in the Great Lakes). In December 2016, the presence of New Zealand mudsnails was confirmed in nearby Badger Mill Creek in the Upper Sugar River Watershed.

New Zealand mudsnails are a non-native invasive species that can have negative impacts in Wisconsin waters. They are very small (no more than 4-6 mm) and can reproduce asexually by cloning. Each female adult is born with about 230 juveniles in brood pouches. They can become super-abundant (500,000 snails per square meter) in highly productive streams. They compete with native invertebrates for space and food and might displace the native benthic community and alter food chains. Fish such as trout can consume New Zealand mudsnails, but these snails' hard shells make them difficult to digest, allowing them to pass through fish alive and intact. Those snails that are digested provide little nutritional value to consumers.

Various studies report New Zealand mudsnails can reach very high densities, though several longer-term studies (10+ years) have reported "booms then busts" in mudsnail populations.

Watersheds with New Zealand mudsnails



Base map created January, 2017
US Geological Survey

Since there are few long-term studies of New Zealand mudsnail populations in the United States, long-term impacts are unknown. Their small size makes them easily transported. They have an operculum to seal their shells, and can live out of water in a cool, damp environment for up to 26 days.

Black Earth Creek and Badger Mill Creek are trout streams in southern Wisconsin, visited by anglers that fish a number of different streams. Researchers, resource managers, and restoration contractors also frequent the area. Because this area receives many visitors and New Zealand mudsnails are potentially very transferable, a strategic plan has been developed to determine their distribution within the affected waters.

One component of this plan is to seek volunteer assistance in watching for possible New Zealand mudsnails as spring and fall macroinvertebrate samples are collected for the Water Action Volunteers Stream Monitoring Program.

EQUIPMENT NEEDED:

- All equipment described in the Citizen Monitoring Biotic Index methods
- One small specimen vial or container with cap per monitoring site
- Above 70% concentration isopropyl alcohol or ethanol (preferably 80-85%)
- Aquatic Invasive Species Reporting Form
- Small piece of white paper (that will fit in vial or container)
- Stiff bristle brush
- Spray bottle with tap water



6 mm or less • 5-6 whorls • Right-side opening

MONITORING PROCEDURE:

1. Follow your usual biotic index macroinvertebrate monitoring procedure to collect a stream-bottom sample from multiple habitats. (See the Biotic Index Methods at: watermonitoring.uwex.edu/wav/monitoring/methods.html)
2. When sorting the sample streamside, keep a careful watch for any tiny snails (no larger than 4-6 mm) with a right-hand opening.
3. If you find any snails matching this description, collect up to 10 in the small vial or container and preserve with isopropyl alcohol or ethanol.
4. Once you have collected the snails, make a voucher label. Using pencil, write the stream name, site description (e.g., Rocky Creek at CTH H), county, date and your name on the slip of paper.
5. Insert the paper into the vial. Cap securely. If possible, freeze the sample.
6. Follow cleaning procedures outlined in the box to the right.
7. Complete an Aquatic Invasive Species Reporting Form (available at: watermonitoring.uwex.edu/wav/monitoring/sheets.html) to identify the location where you found the specimens and any photos you may have taken.
8. Contact your local DNR Aquatic Invasive Species Coordinator or Stream Biologist to hand-deliver the vial with specimens and the completed Aquatic Invasive Species Reporting Form. (It is illegal to mail even small quantities of isopropyl alcohol or ethanol without proper training and labeling.) Regional contacts are listed on the AIS Reporting Form, but you can also check for your county contact on the WAV website (at watermonitoring.uwex.edu/ctymap).
9. If you are using the WAV multi-parameter single-page form (available at: watermonitoring.uwex.edu/wav/monitoring/sheets.html), circle that you found a potential New Zealand mudsnail suspect(s) and enter this into the SWIMS database when you enter your other data.
10. Also, when you enter your data to the online database, please report if you looked for possible New Zealand mudsnails, even if you did not collect and submit any suspects.

CLEANING PROCEDURES

Anytime you monitor, even if just at one stream site:

BEFORE LEAVING THE STREAM

INSPECT equipment; and

REMOVE sediments, plants and animals;

SCRUB equipment with a stiff brush (including crevices);

RINSE equipment with tap water (spray bottle); and

DRAIN all water from equipment.

If you are moving to another stream site:

BEFORE ENTERING ANOTHER STREAM

SWITCH to a completely new set of gear; or

FREEZE equipment for 8 hours; or

STEAM CLEAN equipment; or

SOAK equipment in 120°F water for several minutes.