Golden Sands
Resource Conservation
& Development Council, Inc.

Aquatic Invasive Species Quick Guide

New Zealand Mudsnail (*Potamopyrgus antipodarum* Gray)

Description: Mature New Zealand mudsnails have a cone-shaped, 4-6mm long, gray-brown shell with 7-8 whorls, separated by deep grooves. The opening (aperture) of the shell is on the right side, and can be sealed with a firm plate called an operculum. These snails can live out of water for up to 26 days; this adaptation combined with their small size make them very easily transferrable. Nearly all New Zealand mudsnails in North America appear to be female clones. Despite its name, these snails inhabit a variety of substrates, including silt, sand, cobble, and vegetation.

The tiny New Zealand mudsnail is only a few millimeters long.

North American Distribution: Widely scattered in the western U.S.; Lakes Ontario, Superior, and Michigan; St. Louis River; south-central WI; PA.

New Zealand mudsnail shells are brown, black, or gray, and may have tiny bumps.

Dispersal Vectors: New Zealand mudsnails are native to New Zealand and its nearby islands, and have been introduced to North America, Europe and Australia. In 1987, they were first discovered in the U.S. in Idaho's Snake River. These snails can reproduce asexually, so only one snail is needed to start a new population. Newly born, asexual females already contain developing embryos. Once established, they can be spread quickly by boots, waders, and other equipment. They may also be spread by fish that consume them—New Zealand mudsnails can pass through a fish's digestive system unharmed.

Ecological Impacts: New Zealand mudsnails have been observed at incredible densities of up to 800,000 per square meter. They consume large amounts of phytoplankton, which comprise the base of the aquatic food web. They also displace native snails and invertebrates that are more beneficial as food for wildlife—many birds and fish cannot digest New Zealand mudsnails. Industries drawing water from infested lakes or rivers often have problems with snails blocking their screens and clogging pipes.

Control Options: The most effective method of controlling New Zealand mudsnails is through prevention of their spread to new water bodies. Thorough cleaning/scrubbing or freezing of gear for 8 hours before moving to a new water body is crucial.

Long-term water level fluctuation can kill New Zealand mudsnails through dessication (drying out) or freezing, but these snails can live out of water in a damp environment for at least 26 days.

Several chemicals have shown to be lethal to New Zealand mudsnails in laboratory studies, but their safety and effectiveness in natural systems may differ. Bayluscide (active ingredient: niclosamide) was successfully used in a small stream in Montana at a concentration of 1ppm for 1 hour and achieved 100% mortality of New Zealand mudsnails. However, this chemical is also harmful to native snails and aquatic life, and is heavily regulated.

Some positive research exists regarding biological control using a trematode parasite from its native range, especially *Microphallus* sp., but this research is in early stages and has not been approved for use in North America.

Additional Information:

Benson, A.J., R.M. Kipp, J. Larson, and A. Fusaro. 2013. *Potamopyrgus antipodarum*. USGS Nonindigenous Aquatic Species Database, Gainesville, FL. http://nas.er.usgs.gov/queries/factsheet.aspx?SpeciesID=1008 Revision Date: 6/11/2012

Global Invasive Species Database. *Potamopyrgus antipodarum*. http://www.issg.org/database/species/management_info.asp si=449&fr=1&sts=sss&lang=EN

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