

## What are they?

- New Zealand mudsnails (NZMS) are a small aquatic snail native to New Zealand.
- The tiny, cone-shaped shell averages 1/8 inch in length. Shells have five to six whorls, fairly uniform in size, and vary in color from light brown to black.
- The opening of the shell has a retractable cover called an operculum which allows the snail to seal itself inside when it feels threatened or is exposed to pollutants or chemicals.
- NZMS can be found in mud, on rocks and on aquatic plants in lakes, ponds and rivers.
- NZMS reproduce by cloning. A single female snail can produce 230 offspring annually. That initial snail, along with its offspring, can build a population into the billions of snails within a four-year timeframe.
- First detection in North America was in Idaho's Snake River in 1987.
- NZMS were detected in Montana in 1995. Now they are found in the Madison, Jefferson, Beaverhead, Ruby, Bighorn, Missouri and Yellowstone Rivers.
- NZMS can survive consumption by fish and can pass through the digestive system unharmed.
- NZMS can survive out of water for quite some time.



## Why are New Zealand mudsnails a problem?

- NZMS compete for food with native bottom-dwelling species and can crowd out native species.
- The high reproductive potential of NZMS enables it to reach extraordinary densities in some locations. Researchers at Montana State University have reported densities of up to 750,000 snails per square meter in Yellowstone National Park.
- Large colonies of NZMS can comprise up to 95% of the total macroinvertebrate biomass and consume up to half of the available food in a stream.
- NZMS can outcompete or displace native snails, mussels, and aquatic insects which native fish species depend on for food.
- NZMS are not an alternative food source to native fish since they have very low nutritional value and most often pass through a fish's digestive track unharmed.
- After moving into a lake or stream, they are nearly impossible to remove.



## How do they spread?

- The small size of NZMS make them very easy to overlook and accidentally transport to new locations.
- NZMS may be spread locally on the fur or feathers of terrestrial wildlife and pets or when consumed and dispersed in the excrement of local fish species.
- To minimize the potential spread of this tiny invaders, follow these simple steps.
  - **CLEAN** all boats, trailers, waders and fishing gear before leaving a site by removing mud and plant fragments where NZMS can hitch a ride.
  - **DRAIN**: all water from your boat (including the bilge, live well, motor), trailer, tackle and gear before leaving the area.
  - **DISINFECT** your gear (especially waders and boots) before traveling to a different water body. Freeze your gear for a minimum of 6 hours (< 26°F), or soak gear in a hot water bath for 5 minutes (≥ 120°F) (not recommended for Gortex).
  - **DRY** your gear completely (at least 48 hours) after each use.
  - **NEVER** transport live fish or any other aquatic plant or animal from one water body to another – it is illegal!



## Report sighting of New Zealand Mudsnails

- Search for NZMS on rocks and aquatic vegetation. If you find a suspected snail report it to Montana Fish, Wildlife & Parks:
  - Collect a specimen and place in a jar or vial if possible.
  - Take a photograph. This is difficult because NZMS are so small, but a good photo can be useful to quickly determine if you found a NZMS.
  - Go to [CleanDrainDry.mt.gov/reportAIS](https://CleanDrainDry.mt.gov/reportAIS)

## For more information

- Visit the Montana Field Guide at [CleanDrainDry.mt.gov/fieldguide](https://CleanDrainDry.mt.gov/fieldguide) or the US Geological Survey national AIS website at: [CleanDrainDry.mt.gov/usgsNZMS](https://CleanDrainDry.mt.gov/usgsNZMS)
- Call 406-444-2440.

Montana Aquatic Invasive Species Program



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