

# Meet the New Zealand Mud Snail

*Tiny Creature Threatens Stream Systems in the Eastern Sierra ... so far not in the Mono Basin*

by Kimberly Rollins

The inconspicuous New Zealand Mud Snail is causing a lot of concern in California. Although the snail, *Potamopygrus antipodarum*, is less than six millimeters in length, this tiny mollusk is already wreaking havoc in some parts of California and has the potential to be catastrophic to fisheries throughout the west.

The New Zealand Mud Snail is classified as a grazer and prefers diatoms and plant and animal detritus, which is a similar diet to native macroinvertebrate larvae, such as caddisflies and mayflies. Since caddisflies and mayflies are the main food source for trout, and the mud snail has no known predators in the United States, the snail can sometimes out compete other macroinvertebrates, leaving the fish with a reduced food supply.

## Successful Snails

In New Zealand, where the mud snail is native, there are 14 trematode parasites and at least three native fish species that frequently feed on the snails, which keeps their population under control. Although some fish attempt to eat them in the United States, the hardy snail simply shuts its operculum and passes through the fish unharmed.

Another characteristic that makes the mud snail a very successful invasive species is that they are parthenogenetic, meaning most of the snails are females that can reproduce without fertilization. This means that just one snail getting into a stream can start an entire population in a previously uninhabited stream, and so far they have been successful in spreading.

Although these snails themselves are relatively fast movers (capable of about one meter per hour) they rely on hitchhiking to get around, and their main vehicle is humans. They attach to



*New Zealand Mud Snails, seen here with a dime, are quite small, and can easily hitchhike to new waters on waders or shoes without being noticed.*

anything: shoes, waders, boats, and any other solid object that's been in a snail-inhabited stream. The only way to stop them is by fastidious vigilance over all possessions that have been in the water.

## How to Stop the Spread of the Snails

Although there are many recommended methods, the only definite ways to eradicate the snails are by freezing any gear at least six to eight hours (overnight is suggested), or research has shown that bleach treatments are also effective in killing the snails.

The New Zealand Mud Snail is very adaptable and can tolerate a wide range of habitats including reservoirs, lakes, rivers and estuaries.

According to Dave Herbst, UC Research Scientist of the Sierra Nevada Aquatic Research Laboratory, the snails do best in disturbed areas with poor water quality.

"I believe that they may be limited under more stable, less disturbed habitat conditions because here the native invertebrates are diverse and specialized in their resources use (both food and space) and may hold their own against the snail invasion," said Herbst. "This suggests that habitat quality improve-

ments, restoration, may be the best approach for long-term control of the mud snail."

Although the mud snail has not yet been detected in the Mono Basin, the Mono Lake Committee is very concerned with the potential impact it would have if it did get into Mono Basin streams. The snail was discovered in 1999 in the Upper Owens River, which is just one watershed to the south. We strongly encourage everyone to take all preventative measures and inform others on how to prevent the New Zealand Mud Snail from spreading.

For more information on the New Zealand Mud Snail online visit:

California Department of Fish and Game: [http://www.dfg.ca.gov/fishing/html/Administration/MudSnail/Mudsnail\\_0.htm](http://www.dfg.ca.gov/fishing/html/Administration/MudSnail/Mudsnail_0.htm).

And New Zealand Mud Snail Research and Management: <http://www2.montana.edu/nzms/>. ❖

## Known Locations of the New Zealand Mudsnail in California

- Bartlett Springs, on Owens Dry Lake, Inyo County
- Hot Creek, Mono County
- Upper Owens River, Mono County
- Lower Owens River, Inyo County
- Layton Springs (NE inflow to Crowley Reservoir), Mono County
- Putah Creek, Yolo County
- Lower Calaveras River and Mormon Slough, San Joaquin County
- Lower Mokelumne River, Sacramento and San Joaquin Counties
- Lower Napa River, Napa County