

New Zealand Mudsnails Found in Capitol Lake, Olympia, WA.
by Bert Bartleson



E. J. Johannes photos

October 22, 2009 started out similar to many other days in my life with chores to do. I had some errands to run but I chose to stop after I was done at the shores of Capitol Lake to watch birds for a few minutes and have a short walk. The day was partly sunny and pleasant. The birding was mediocre. I often walk along the shore of the lake at Marathon Park and look for shells or birds. Sometimes I find *Corbicula fluminea* (Müller, 1774), the Asian clam, as recent discards of the diving ducks' dinners. This is a recent invasive species that first showed up in the lake in 2006. I also sometimes find *Anodonta cf. kennerleyi* Lea, 1860, the Western floater, which is a native species in the lake.

As I was walking along I saw a woman dipping a net into the lake and I decided to say hello and find out what she was collecting. She turned out to be friendly and said that she was a local middle school science teacher and was collecting algae for her students to look at under the microscope. As we were talking I saw a single shell of *Anodonta* in shallow water. I asked her to use her net

and she scooped it up for me. That's when something unusual happened. There were dozens of tiny black snails present inside the shell. I had never seen any snails like these before. I thought it strange. So I put the shell with the little snails into a plastic bag and headed for home along with a live *Anodonta* the teacher also had given me.

As so often happens in science there was no "Eureka Moment" but rather an observation of "Hum, that's different and unusual. I wonder what they are and how they got here?" I preserved the snails in alcohol and decided I needed more expert advice to identify them. I took the snails to the PNWSC meeting in Seattle on November 15th and showed them to Ed Johannes. He was quite sure that they were *Potamopyrgus antipodarum* (Gray, 1843) [aka the New Zealand mudsnail (NZMS)]. I gave him several in a small vial and that evening he sent me an e-mail verifying that his original identification was accurate.

The next day Ed and I notified various government officials in Olympia and elsewhere of the presence of the NZMS in Capitol Lake. Several biologists visited the lake and collected more snails, which were identified by two additional experts who agreed with the original identification. Many nearby locations (Tumwater Falls Salmon Hatchery, Percival Creek, and Black Lake Ditch) in the same watershed were surveyed and all appeared to be currently free of NZMS's.

The Washington Invasive Species Council, an intergovernmental group, have now met several times and on November 24th they drafted a news release announcing the discovery of the NZMS's in Capitol Lake and discussing what to do about them and their biology. This news was covered by Seattle TV stations Channels 4 and 5 on November 25th and *The Olympian* newspaper on November 26th. Capitol Lake was closed to boat and water contact on November 24th by the Washington State Department of General Administration (the agency responsible for the lake). Fifteen warning signs have been posted.

As the weather improves this spring additional surveys will be done throughout the area. Discussions about possible methods of controlling the snails are under way. If the weather is forecast to be very cold for several days this winter, an attempt to freeze the snails by drawing down the lake level may be tried. The recent cold weather arrived too quickly to be successful in trying this method. I'm sure that much more information about this infestation will appear during the next year.

NZMS's are a serious threat to aquatic ecosystems because they have no natural predators or controls here, as opposed to New Zealand where parasitic flatworms keep their numbers in check. They reproduce asexually (they are all female and one single identical clone) and one snail can become 1000's in a year's time. In numbers as high as 600,000 snails per square meter they will literally outcompete all other life forms. Once the fish food disappears the fish starve to death and the aquatic insects also disappear. Much information is available on the internet by doing a search for "New Zealand mudsnails".

I will keep you informed about this infestation as I learn more.