



October 5, 2004

Objective: Determine if New Zealand Mudsnails are transported in lace-up wading boots.

Results: *Mudsnails found in 100% of lace-up wading boots used in an infested area of Putah Creek, Yolo County.*



Dislodged NZMS move in the water column and collect in the laces and tongue areas of lace-up angling boots. Photo © 2004 Ken W. Davis.

Background: The New Zealand Mudsnail (NZMS), *Potamopyrgus antipodarum*, is a highly-invasive aquatic mollusc that was discovered in Putah Creek in October 2003. Numerous investigators believe that lace-up (wading) angling boots are a primary method of translocation for the tiny mollusc. It is likely that NZMS were transported to Putah Creek via fishing boots. Because no formal scientific data regarding the translocation of NZMS in angling boots can be found, it is prudent to document the presence (or absence) of NZMS in lace-up wading boots after the boots were worn in NZMS infested areas of Putah Creek.

Study Design: During the months of September and October 2004, I examined the lace-up boots of 37 individuals. The individuals were fly fishers, researchers, and volunteers assisting with biomonitoring work in Putah Creek. All sets of boots were used in a NZMS infested area of Putah Creek for at least two hours, or had been used on a fly fishing route used by a popular Putah Creek fishing guide. The study area ranges in NZMS densities of 50 snails per square meter to more than 90,000 snails per square meter (based on September 2004 data).

After leaving the creek, the study participants removed their boots at the parking lot. The laces were removed from each boot, the tongue area and folds were washed twice with clean tap water. The wash water and contents were placed in a clean bucket. The insides of the boots were washed twice with tap water and the wash water and contents were placed in the same bucket (The wader socks were not examined for NZMS.) The composite sample was poured through a 500 micron brass sieve. The material was then stored in sealed plastic bottles and transported via the provisions of my DFG Scientific Collecting Permit. The results were examined with a stereo microscope for the presence for NZMS. All water and material was then frozen for at least 72 hours, dried, and bagged for disposal.

Results: Every set of boots (37 pairs) contained active NZMS ranging from .25 mm to 5mm in length. The numbers ranged from 1 NZMS (alive) to 32 NZMS (alive) per pair of boots.

The use of gravel guards appeared to help eliminating NZMS in two cases and exacerbate the collection of NZMS in others. A separate study designed to test the gravel guards should be considered.

Discussion: Rinsing lace-up boots with clean water after leaving Putah Creek appears to dramatically reduce the number of NZMS caught in the laces and folds. A follow-up study testing the efficiency of removing NZMS by rinsing boots with clean water should be considered. Rinsing boots with clean water might augment, but should not replace any formal decontamination protocol if suggested by CDFG.