

Oakland University receives grant to help monitor invasive species in state's rivers, streams

An Oakland University biology professor plans to use a \$191,888 grant from the state of Michigan to establish a monitoring network of “citizen scientists” who will help to provide early detection of the **New Zealand mud snail**, an invasive species found in a handful of rivers across the state.

“Our project will enlist the help of hundreds of fly fishermen from across the state to help identify the rivers in which mud snails have become established,” said **Scott Tiegs**, Ph.D., an associate professor of biological sciences at Oakland University. “Fly fishers make ideal citizen scientists because they are conservation-minded, they know the rivers where they fish, and have a good working knowledge of the invertebrates that inhabit their home waters.”

The project was one of only 17 selected by the Michigan departments of Environmental Quality, Natural Resources, and Agriculture and Rural Development to receive funding through the **Michigan Invasive Species Grant Program** – an initiative launched in 2014 to help prevent and control invasive species within the state.

“Funding provided through the Michigan Invasive Species Grant Program empowers our partners to make real strides in the fight against invasive species,” said Keith Creagh, director of the Michigan Department of Natural Resources.

“Collaboration like this is critical to safeguarding Michigan’s world-class woods and waters, and ensuring these valuable natural resources remain healthy and accessible to current and future generations.”

According to Tiegs, the three-year project will involve one year of preliminary research and planning, and two years of field sampling using a statewide network of approximately 15 coldwater streams and rivers.

“We’ve teamed up with fly fishing organizations, including Trout Unlimited, Anglers of the Au Sable, and the International Federation of Fly Fishers,” Tiegs said. “Together, these organizations have thousands of members and are going to be a tremendous asset in identifying rivers where mud snails have become established.”

While New Zealand mud snails have been established in the Great Lakes for more than two decades, only very recently have they been detected in Michigan streams and rivers, including the Pere Marquette River, the Boardman River, and the Au Sable River, where they were found most recently.

Their populations consist entirely of females who can reproduce asexually. In a matter of one year, a single female could produce a colony of approximately 40 million snails, which, if left unchecked, can dramatically impair freshwater ecosystems, as well as the goods and services they provide.

“In rivers in the American West, New Zealand mud snails achieve densities of more than 600,000 individuals per square meter, and have undesirable environmental impacts,” Tiegs said. “How mud snails will influence river: the Great Lakes region remains a big question mark, and we are going to help fill this knowledge gap.”

Collaborating with Tiegs on the project are Jeremy Geist, a Ph.D. student with the Department of Biological Sciences at Oakland University; Bryan Burroughs, Ph.D., executive director of Michigan Trout Unlimited; Kristin Thomas, an aquatic ecologist with Michigan Trout Unlimited; Mark Luttenton, Ph.D., a professor of biology and associate dean of the graduate school at Grand Valley State University; Jennifer Mulady, an ecologist with Huron Pines; David Szlag, Ph.D., an assistant professor with the Department of Chemistry at Oakland University; Doug Wei, Ph.D., an associate professor with the Department of Biological Sciences at Oakland University; and Terry Lyons, founding director of Anglers of the Au Sable.

“This funding also will allow us to support several OLU undergraduates as summer field and lab technicians, and give them some practical



Scott Tiegs, Ph.D., an associate professor of biological sciences at Oakland University, has been awarded a \$191,888 grant from the state of Michigan, which plans to use to establish a monitoring network of “citizen scientists” who will help provide early detection of the New Zealand mud snail, an invasive species found in a handful of rivers across the state.



The New Zealand mud snail is about 1/8 inch long. (Photo courtesy Gary Miller)

According to Tiegs' proposal, the project will include the establishment of a statewide network that will engage fly fishermen as "citizen scientists" in order to provide early detection of New Zealand mud snails, and through decontamination of fishing gear, manage range expansion in the streams and river where the snails are most likely to spread.

"We anticipate that the impacts of the project will be felt beyond the duration of the project, especially the aspect of the project that address decontamination of fishing gear, and the increased awareness of New Zealand mud snails in Michigan waters," Tiegs said.

"My colleagues and I are very excited to be able to pitch in and help minimize the spread of this invasive species."