

Oregon Zoo Grant; TRWC letter of support for Portland area freshwater crustacean research

Bill Gerth, from OSU gave TRWC a presentation on *Ramellogammarus similimanus* populations in December 2014. He recently emailed me and asked if you or someone you work with at the watershed council would be willing to write a letter of support for a grant application we are submitting to do more research on this endemic amphipod species that is only found in the Portland metro area. Grant deadline is June 30. Since this species has a limited distribution in an urban area, and urban development is typically associated with degraded aquatic habitat and reduced water quality, these amphipods could easily disappear if we don't pay attention and work to prevent that.

The first step in planning for the conservation of this species is to determine where they currently occur. We are proposing to develop and test methods for detecting *Ramellogammarus similimanus* populations using environmental DNA (eDNA). With this method, populations could be found and monitored for persistence without the need for collecting and killing specimens. I will be working on this with my previous collaborator in *Ramellogammarus* research, Dr. Alan Herlihy. We will also be joined by another colleague in the OSU Fisheries & Wildlife Department, Dr. Taal Levi, who has experience carrying out research projects using eDNA. The grant we are applying for is through the Oregon Zoo Future for Wildlife Pacific Northwest Fund.

The title of the proposal will be "Developing environmental DNA methods to promote the conservation of an endemic freshwater sideswimmer" so you can reference that in the letter if you like.

I'm still working out the details of the sampling, but my thought is that this would be a proof of concept project. We would use DNA sequence data from our previous research to identify unique pieces of DNA sloughed into the environment (eDNA) that would indicate *Ramellogammarus similimanus* was present. After developing DNA primers to allow us to pick up and amplify these species-specific eDNA pieces, we would collect water samples in places where we know this species occurs and places where we know they aren't present and analyze them. In this way, we will be able to test the ability of this method to detect populations of this species without false positives or false negatives. We will also sample at a number of test sites that have never been sampled to increase our knowledge about where this species does and does not occur.

So for this go-around, we are not aiming to know everything about where this species occurs, but it is my hope that if all goes according to plan with this study, we can set up a stratified random sampling as a next step so that we can map the occurrence of this species with great detail. For this larger effort, it would be great to enlist the help of members or watershed councils and/or staff from the various management agencies in the Portland Metro area so we can cover more ground.

For now, as we are working out details during this project, I don't think I would ask for help from volunteers to do the field sampling, but it would be great if you would publicize that we are looking for this species. I think that the more people that know about this species, the more who are likely to care about its conservation.