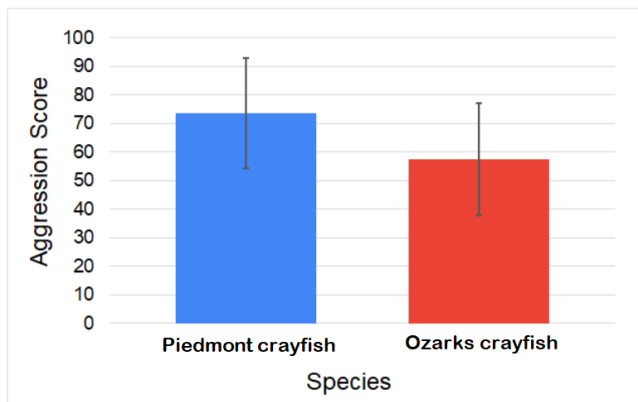


Welcome to the Thunderdome: Crayfish Cage Matches at Longwood University

The year is 2010, the location is the upper basin of the James River, and something unexpected has just occurred. On a routine survey of crayfish for the Virginia Department of Game and Inland Fisheries, scientists have just catalogued a new species of crayfish in the James River watershed¹. Finding new species of crayfish isn't all that uncommon. The United States is the global hotspot for crayfish diversity, boasting nearly 400 different species². What's unusual about this discovery is that this crayfish species isn't new at all; it simply isn't supposed to be here. Scientists have just discovered Virginia's newest invasive crayfish species, *Faxonius ozarkae*, the Ozarks crayfish. As the name implies, this species of crayfish is native to the Ozarks region in Arkansas and Missouri. So how did it get to Virginia? Dr. Paul Cabe, of Washington and Lee University, suggests it may have arrived as a hitchhiker on a commercial fishing truck¹. Now that the Ozarks crayfish is here in Virginia, what kind of harm might it cause to Virginia's native crayfish?

To begin answering this question, student researchers at Longwood University conducted a series of experiments testing the aggression levels of the Ozarks crayfish when introduced to the native Piedmont crayfish. One crayfish of each species was placed in a glass arena affectionately nicknamed "The Thunderdome" and allowed to interact for 5 minutes. During each interaction, the behavior of each crayfish was scored using a system that ranked the behavior in terms of submissiveness, such as fleeing or backing away, and dominance, such as attacking or locking claws. The students ran a set of three trials to test the level of aggression of the Ozarks crayfish when paired with a similar sized Piedmont crayfish, a larger Piedmont crayfish, and a smaller Piedmont crayfish.

The results of these crayfish fights offer both cause for concern and hope. It was determined that the Ozarks crayfish tends to be more aggressive toward smaller Piedmont crayfish, and less aggressive toward larger Piedmont crayfish. When the two crayfish were similarly sized, they had similar levels of aggression. This means that smaller native species of crayfish might be threatened by the presence of Ozarks crayfish in Virginia's rivers and streams. Indeed, in some locations in the James and Roanoke rivers, the Ozarks crayfish appears to have already begun to edge out the native species. Fortunately, larger native species may be able to defend against this invasion and resist being outcompeted.



When the Ozarks crayfish is the same size as the Piedmont crayfish, it shows similar levels of aggression.

Invasive species are a major threat to the biodiversity of Earth's ecosystems³, and the potential negative impacts of invasive crayfish have been well documented around the world. While laboratory experiments with the Ozarks crayfish do not indicate an enormous and immediate threat, steps should be taken to mitigate their spread. Only time and further research will determine the ultimate impact of the Ozarks crayfish on Virginia's ecosystem and native species.

Works Cited

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