NEW MEXICO WATER RESOURCES RESEARCH INSTITUTE

Development of a bio-indicator to assess water quality in ephemeral ponds

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Purpose of Study

Comparing the water chemistry values between ponds in southwestern New Mexico to those on Otero Mesa could provide an opportunity to compare the effects of land-use practices (i.e., ranching & urban areas) on water quality of ephemeral ponds located in desert scrub and desert grassland habitats. If differences exist in water content, the presence of certain *Triops* species can then be used as a bioindicator for water quality in temporary ponds. By determining which species of *Triops* occurs within a pond, this could be a quick and inexpensive method to assess the water quality.

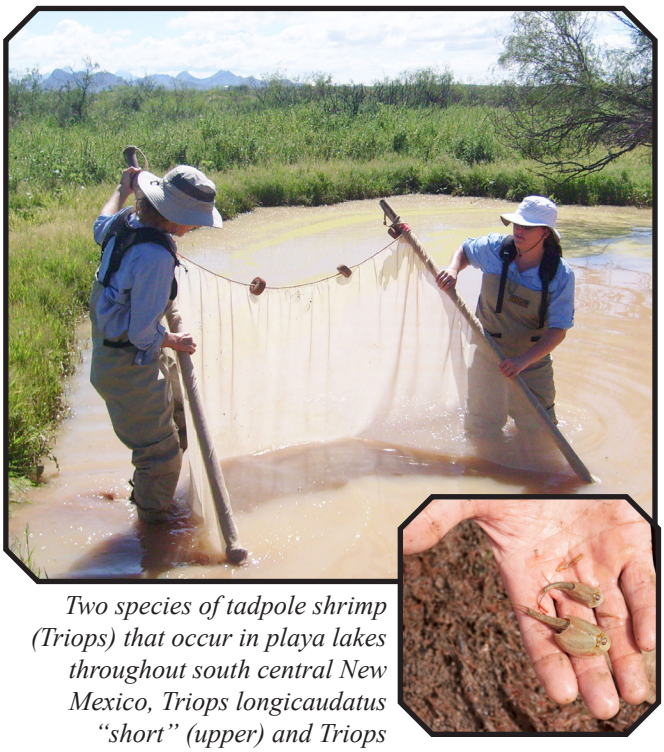
Study Underway

This work is significant because ephemeral ponds are one of the most important water resources in the rangelands of New Mexico and little has been done previously to assess water quality within these ponds. By comparing ponds located in the southwestern portion of New Mexico to those on the Otero Mesa, we can gain a better understanding of how land-use practices and habitat type can influence water chemistry in an ephemeral pond. Underneath the Otero Mesa is one of the last, untapped aquifers in the state and a clearer understanding of the surface waters that re-charge the aquifer could help guide future development of this resource.

Benefits

Research beneficiaries include the Bureau of Land Management, Elephant Butte Irrigation District, and other academics interested in the species distribution of tadpole shrimp. In addition, state agencies such as the New Mexico Environment Department Surface Water Quality Bureau and the New Mexico Department of Game have interest in isolated wetlands such as playas.

Rebekah Horn and Dr. Rossana Sallenave, from New Mexico State University, use a seine net to capture tadpole shrimp in a playa lake.



Two species of tadpole shrimp (Triops) that occur in playa lakes throughout south central New Mexico, Triops longicaudatus "short" (upper) and Triops newberryi (lower).

New Mexico State University PhD candidate Rebekah Horn collects soil from the bed of a dried playa lake.