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Mollie Hanttula
University of New Mexico

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Mollie Hanttula

Water Resources Program, University of New Mexico, Albuquerque, New Mexico 87131, USA

Dr. Rebecca Bixby

Department of Biology and Museum of Southwestern Biology, University of New Mexico,

Albuquerque, New Mexico 87131, USA

Abstract

Aridland rivers in the southwestern United States often experience times of intermittent drying where portions of the main river channel are no longer flowing. This is true for the Middle Rio Grande in New Mexico, often through the summer months. This study is centered around the portion of the Middle Rio Grande that flows through Valencia County, New Mexico and the outfalls which flow from the agricultural ditches, that parallel the Rio Grande. Where an outfall is a channel of water that flows from the irrigation ditch, through the bosque, and into the Rio Grande. This research will compare aquatic invertebrate presence and water quality. It will help show the environmental importance of the dwindling water supply from the Rio Grande and how it will be used beneficially within the riparian area and local wildlife. Through collaborations with partners, including Audubon New Mexico and Middle Rio Grande Conservancy District, the Middle Rio Grande Farm and River Resilience Project was created. The purpose of the Middle Rio Grande Farm and River Resilience project is to continuously monitor the outfalls and the surrounding riparian area to establish base line knowledge of whether they provide a refugia for the Rio Grande Silvery Minnow (*Hybognathus amarus*) and Southwestern Willow Flycatcher (*Empidonax traillii extimus*) when these reaches of the river dry. From this research I will be comparing the biological structure of the outfalls and corresponding river reaches utilizing aquatic invertebrate, chlorophyll a, water quality, and nutrient parameters. This research will aid in the understanding of whether these outfalls are a sustainable refugia for the Rio Grande Silvery Minnow during times of intense drought and drying in New Mexico.

Keywords: Aridland, Rio Grande Silvery Minnow, Aquatic invertebrates, outfalls