



TEMPORAL VARIATION OF THE PARASITE COMMUNITY IN *GAMBUSIA AFFINIS*

Heizel K. Acosta-Vilanova, Megan E. McGraw, Hannah N. Bauman, Kristin K. Herrmann,
Ph.D.

Department of Biological Sciences, Tarleton State University

Gambusia affinis (western mosquitofish) is a common species of fish at Timberlake Biological Field Station in the Colorado River in Central Texas. *Gambusia affinis* is the most effective predator of mosquito larvae and is frequently used by mosquito control agencies to help control mosquitoes. *Gambusia affinis* is a host for both larval and adult parasites because they are both a predator and prey species in aquatic systems. Parasite communities often vary in time due to factors such as changes in host density, temperature and rain fall. The objective of this research is to examine the diversity of the parasites in *G. affinis* and compare the variation in the parasite communities among three years, 2018, 2019 and 2021. Fish were collected from the Colorado River at Timberlake Biological Field Station. Fish were measured and necropsied, and all tissues were searched for parasites. Parasites were preserved and identified. Prevalence and abundance were calculated and compared among years. There were six species of parasites found over the three years. Two larval trematodes (*Posthodiplostomum* sp. and *Diplostomum* sp.), an adult cestode (*Schyzocotyle acheilognathi*), a nematode (*Rhabdochona cascadilla*), an ectoparasitic arthropod (*Lernaea cyprinacea*) and a gill monogenean (*Salsuginus fundulus*). Prevalence and abundance of the anchor worm, *L. cyprinacea*, varied among years. For all other species, neither prevalence nor abundance varied across years, likely due to fish being captured at the same time of year. The high prevalence and abundance of *Posthodiplostomum* could be due to host microhabitat of calm water. Fish become infected by larvae that swim through the water, which may be more efficient in water with low flow. Surprisingly, *Diplostomum* sp. was found in 2018 and 2021, but not in 2019. The higher prevalence and abundance of *L. cyprinacea* in 2019 may be due optimal environmental conditions for this ectoparasite.