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Thermal influences on courtship behavior in male Gambusia affinis

Ectotherm metabolic rates and body temperatures are largely influenced by ambient temperature. Because of this, physiological processes including performance and fitness characteristics are also inherently reliant on temperature (Huey and Kingsolver 1989; Angilletta 2009). Consequently, environmental temperature can place performance constraints on ectotherms by lowering the pace at which their bodies operate (Zuo et al. 2012). Here we show how temperature affects male courtship behavior in the Western mosquitofish, Gambusia affinis, in two populations whose average ambient temperatures fall at opposite ends of the thermal range in which this species is found. Additionally, we compared courtship rates between these populations at each test temperature to determine whether populations differ in courtship patterns. We found that male courtship behavior is lowest at extreme temperatures, but does not differ within the range of temperatures that fish are found in the wild. This suggests that exposure to extreme temperatures severely limits courtship behavior in male G. affinis. Temperature effects on courtship did not differ between populations which is likely the result of a thermal generalist life history strategy in mosquitofish throughout most of their evolutionary history.