

Crayfish Population Density and Size Distribution of *Orconectes obscurus* Among Pool, Riffle and Run Habitats

Mandy Morrison and Dr. Wayne Rossiter

Waynesburg University

Dept. of Biology



Abstract

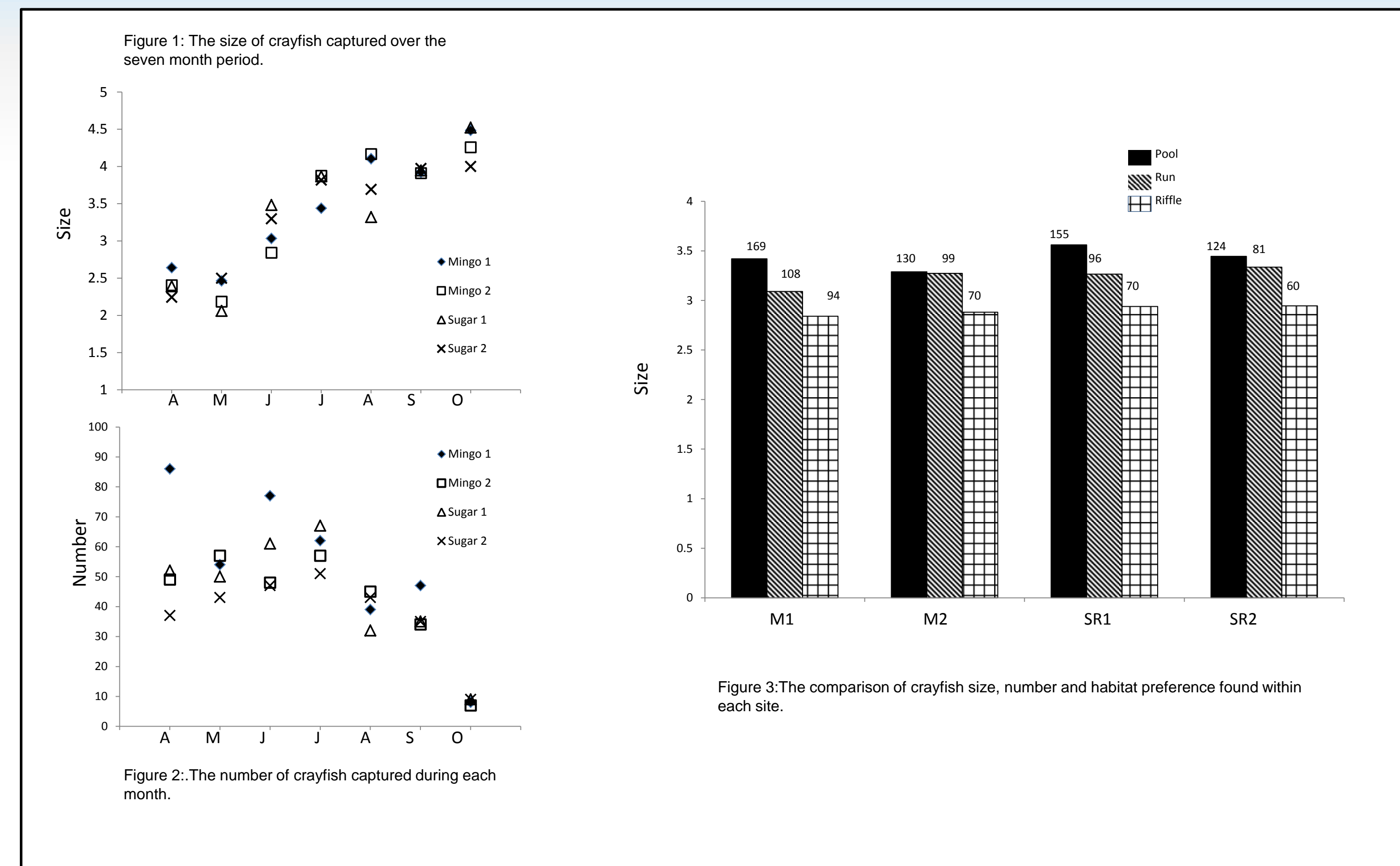
The role of crayfish in freshwater habitats is important to sustain a well-balanced ecosystem. *Orconectes obscurus*, the Allegheny crayfish, is essential in both aquatic and terrestrial food webs. It is unclear whether crayfish size and abundance is correlated with habitat type in freshwater streams. The aim of this research is to compare the population density and size distribution of crayfish across habitat types including pools, riffles and runs. Two streams were monitored for a seven month period to assess the correlation between crayfish size and number to month, habitat and location of the species. The results reveal any habit-based patterns and estimate population sizes.

Introduction

Orconectes obscurus, the Allegheny crayfish, is commonly found throughout streams in Western PA. Typically, the eggs will hatch in the spring and adults can reach 40 mm in size. Crayfish populations can vary and depend upon the environment. Factors that may affect the population density could be due to predation, competition or food availability. It is uncertain whether larger crayfish are positively correlated with deeper water. It was hypothesized that crayfish would be more abundant and larger in size in pools.

Objectives

- Assess the correlation between crayfish size and abundance compared to month and habitat.
- Determine if habitat type correlates with crayfish size.



Methods

Sampling was conducted once a month April through October. Two streams were monitored in Southwestern PA, Mingo Creek and Sugar Run Creek. The plot and transect method was used and arranged in three habitats; pools, riffles, and runs. A mark-recapture method was used to assess population size. Crayfish were captured using the kick net sampling method. Each crayfish was measured from rostrum to telson, and a notch was clipped in the telson. The triangular clipping on the telson represented a marker to identify individuals who were recaptured in order to estimate population size.

Results

- Crayfish size significantly increased for all four sites and crayfish number decreased after the warmer months.
- Crayfish were larger and more numerous in pool habitats.

Conclusion

The *O. obscurus* population significantly decreased April through October. Crayfish size however, had overall increased within all four sites. Most individuals were captured in pools as opposed to riffles and runs. The sample size in riffles was found to be low and may be due to a predator's easy access to a food source. Population density and size were consistent throughout each site. This research has shown that crayfish size and abundance was correlated with habitat type. Further study could indicate whether it is related to predation or competition.

Acknowledgements

Waynesburg University Biology Department
Center for Research and Economic Development