

Distribution of *Lasmigona costata* in Two Northeast Ohio Rivers



Choose **Ohio** First

Zoe A. Trumphour
Advised by Dr. Robert Krebs

INTRODUCTION

Freshwater mussels are abundant in and play an important ecological role in aquatic ecosystems. *Lasmigona costata*, also known as the Fluted Shell, is a species of freshwater mussel that is known for being relatively widespread (Haag 2012). This species is identifiable by the distinct ridged, or fluted, texture to the dorsal posterior of its shell. The current distribution of *L. costata* has not been widely studied.



Figure 2. Example of a *Lasmigona costata* shell. Note the distinct ridges on the posterior slope.

CONCLUSIONS

We found a total of 1,018 mussels, with 768 being from the Tinkers Creek sites and 248 being from the Cuyahoga River sites. Out of the 1,018 mussels, 350 were *Lasmigona costata*, both live and shells. About 95% of the *L. costata* mussels were found in Tinkers Creek, and about 5% were found in the Cuyahoga River. We can observe a distinct pattern of *L. costata* having a prominent distribution in Tinkers Creek, but not in the Cuyahoga River.

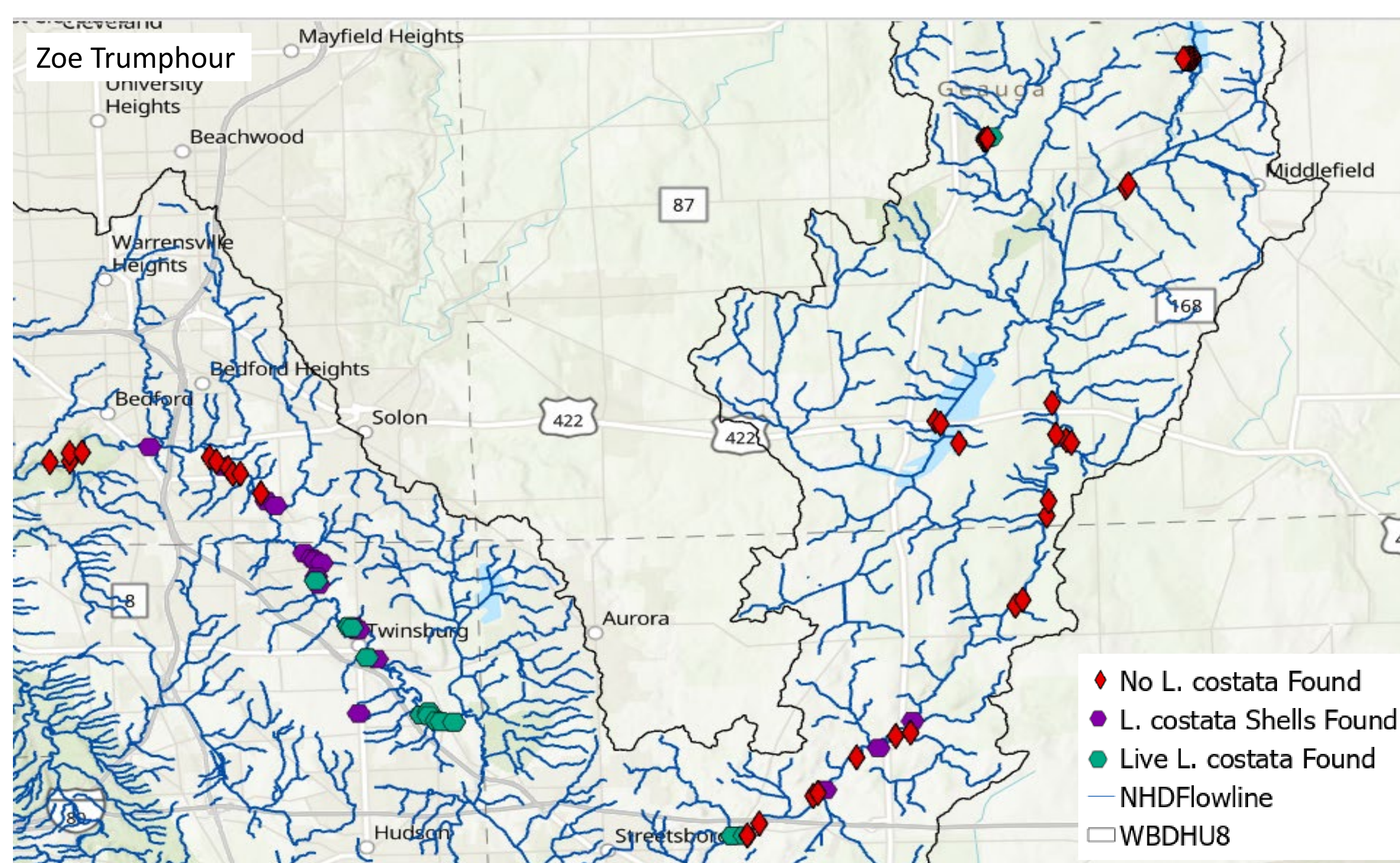


Figure 1. The Upper Cuyahoga River and Tinkers Creek watersheds showing sites where live *L. costata* and shells were found in contrast to all the sites surveyed.

RESULTS

- We found 65 live and 269 dead *L. costata* at the 35 sites in Tinkers Creek.
- We found 7 live and 9 dead *L. costata* at the 28 sites in the Upper Cuyahoga River.
- The *L. costata* mussels show a notable pattern of distribution in Tinkers Creek and an absence in the Upper Cuyahoga River.



Figure 4. Two live *Lasmigona costata* mussels that I found during my research. The lines visible on the shells indicate annual growth.

OBJECTIVES

To obtain a better understanding of the current distribution of *Lasmigona costata*. To observe and infer the biogeography of *L. costata* in NE Ohio.

METHODS

- We picked out a set number of sites in Tinkers Creek and the Upper Cuyahoga River.
- At each site, we spent the same amount of person hours using our hands and rakes searching for mussels.
- For live mussels, we recorded the species, age, and length then returned them back to the river.
- For mussel shells, we took them back to the laboratory where we cleaned them and recorded the species, age, and length.
- I created a composite list of all the mussels found at the end of the experiment, and specifically noted all the *L. costata* mussels that we found.

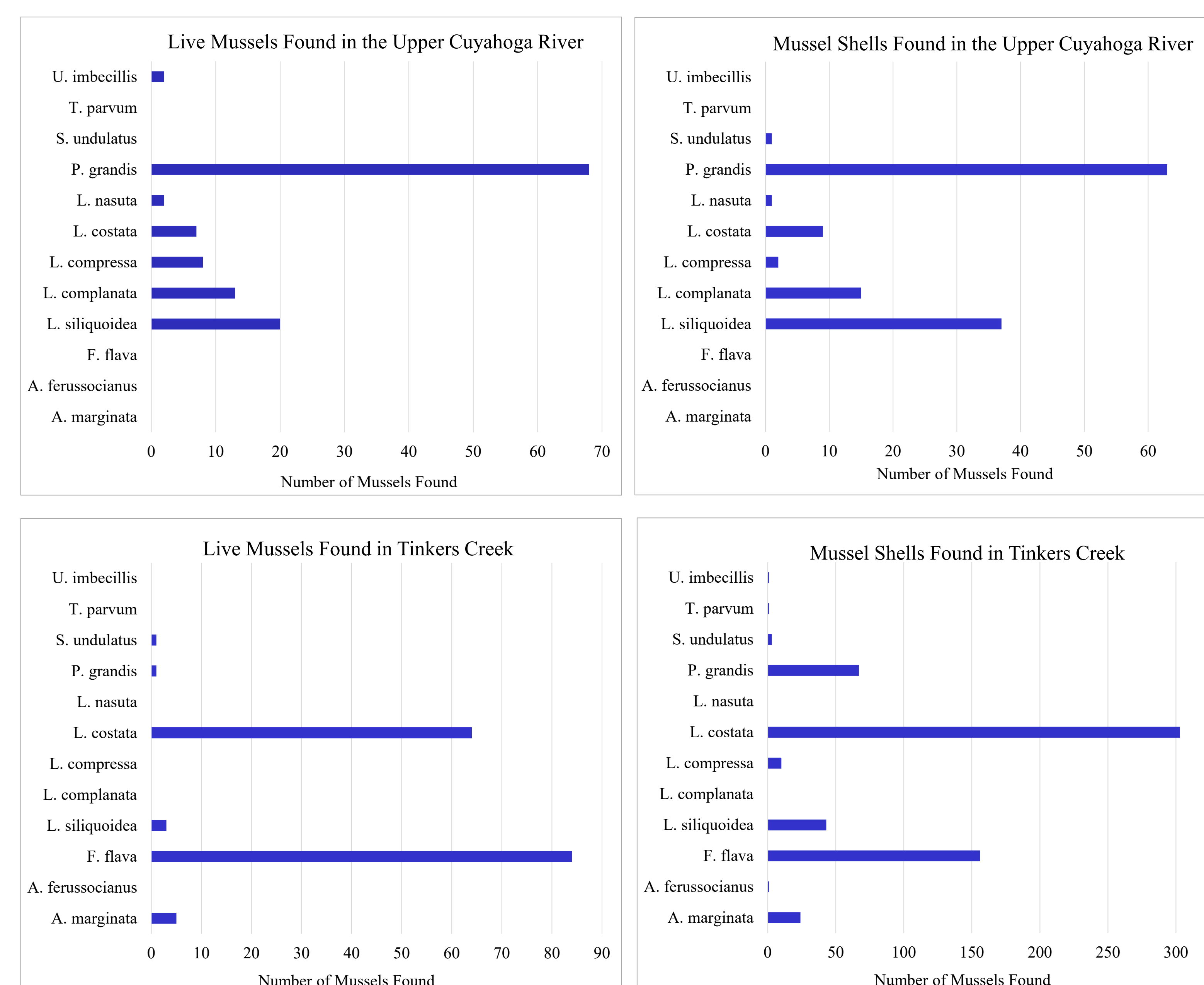


Figure 3. Bar graphs depicting all the species of freshwater mussel that were found, both live and dead, in Tinkers Creek and the Cuyahoga River.

FUTURE WORK

The microgeographical distribution of *L. costata* is still under research today. For example, can these mussels be found at greater depths, such as in lakes or in the deeper parts of rivers that cannot be reached by hand. Using remote sensing and mapping tools, I will investigate differences between sites where *L. costata* was found and those harboring mussels of different species. It would also be interesting to compare the distribution patterns between these rivers and neighboring watersheds.

References

Haag, W. R. (2012). North American Freshwater Mussels: Natural History, Ecology, and Conservation, 1st ed. *Cambridge University Press*, pp. 1-43.

Acknowledgments

Special thanks to Dr. Krebs for his guidance and support, and for providing the materials needed to complete this research project.