

EMMY M. DELEKTA, ZACHARY J. LOUGHMAN, MATTHEW J. ZDILLA, Dept. of Natural Science and Mathematics, West Liberty University, WV 26074. Re-defining burrowing crayfish in a new way using morphometrics.

All crayfish worldwide can be defined as one of the three types of burrower. However, burrowing types were created using behavior and habitat. Geometric morphometrics via landmarks can be used to determine similarities and differences between burrowing types. It is hypothesized that multiple genera that fall under one type of burrower will have a closer correlation to each other in terms of body shape. The findings could possibly be used as another parameter in the determination of a burrowing type but may also give some insight into the evolution of crayfishes.

In this study, eight species were chosen from the West Liberty University Crayfish Conservation Lab collection. There were two tertiary burrowing species, and three secondary burrowing species, and one unknown burrowing species chosen. Of the tertiary, secondary, and unknown burrowing species, 30 specimens were chosen of each. Ten form-I males, ten form-II males, and ten females served as representatives of each species. Two primary burrowing species were also chosen. Representing these species were five form-I males, five form-II males, and five females. Every individual crayfish had a photograph taken of the cephalothorax and was catalogued. Images were then used to create a .tps file to be landmarked in the program TPSDig 232. Fifteen landmarks were chosen across the cephalothorax. The data was then analyzed using a principal component analysis and a canonical variate analysis.