

Using Actualistic Studies to Interpret the Paleoenvironmental, Paleoclimatic, Paleoecological, and Sequence Stratigraphic Significance of Continental Ichnofossils



Daniel I. Hembree, Department of Geological Sciences, Ohio University, Athens, Ohio 45701

Ichnofossils are biologically produced structures that include tracks, trails, and burrows resulting from organism interaction with sediment. As records of organism behavior in response to the environment, ichnofossils provide an invaluable proxy of paleoenvironment, paleoclimate, and paleoecology. Understanding the significance of ichnofossils requires the study of modern burrowing organisms and their biogenic structures.

This integrated study involves the laboratory study of the biogenic structures produced by terrestrial animals and the analysis of changes in burrow morphology due to soil composition, compactness, moisture, and temperature. The results of this project will aid in the interpretation of the sedimentary facies and sequence stratigraphic significance of continental deposits.



Burrowing behavior and soft sediment deformation structures produced by the ocellated sand skink (*C. ocellatus*).



Burrowing activity of terrestrial arthropods; Sonoran desert millipede (*O. ornatus*), hairy desert scorpion (*H. arizonensis*), giant vinegaroon (*M. giganteus*),



Typical burrow morphologies of a desert millipede (*O. ornatus*), desert scorpion (*H. arizonensis*), and a giant vinegaroon (*M. giganteus*).