

## Zimmerman Summary of Research, Teaching and Service

### *Research*

My research focuses on evaluating patterns of evolution and paleoecology of extinct taxa, specifically with Late Cretaceous rudist bivalves and Middle Pennsylvanian conodonts. I use both qualitative and quantitative methods to assess how the morphology of a given taxa varying through time and space. I also utilize larger datasets to interpret how climate and environmental changes influence morphologic change in the fossil record. I am in the third year of a PhD program, which I began in August 2014. My papers, conference abstracts, and grants submitted are as follows:

#### Peer-Reviewed Publications

Jenne, M., Dalkilic, M., Kurban, H., Johnson, C. C. and Zimmerman, A. N. (2017).

Employing Software Engineering Principles to Enhance Analysis of Coral Reef Databases: A Scalable Data Interaction Pattern. 2017 International Workshop on Software Engineering for Science. Submitted.

Brown, L. M., Rexroad, C. B., and Zimmerman, A. N. (2016). Conodont Biostratigraphy of the Alum Cave Limestone Member of the Dugger Formation (Pennsylvanian, Desmoinesian), Southwestern Indiana. Indiana Geological Survey Special Report 72, 25 p.

Brown, L. M., Rexroad, C. B., and Zimmerman, A. N. (2013). Conodont Biostratigraphy of a Shale Lens Overlying the Bucktown Coal Member of the Dugger Formation (Pennsylvanian, Desmoinesian), Pike County, Indiana. Indiana Academy of Science Proceedings, vol. 122(1), p. 27-34.

Brown, L. M., Rexroad, C. B., and Zimmerman, A. N. (2013). Conodont Biostratigraphy of the Porvenir Formation (Pennsylvanian, Desmoinesian) in the Southeastern Sangre de Cristo Mountains, New Mexico. *The Mountain Geologist*, vol. 50(3), p. 99-119.

#### Conference Abstracts

Zimmerman, A. N., Johnson, C. C., and Polly, P. D. (2017). Analyzing morphologic change in Pennsylvanian conodonts in the Illinois Basin. Crossroads Geology Conference 2017, *Unpublished*.

Zimmerman, A. N., Johnson, C. C., and Polly, P. D. (2016). Using Geometric Morphometrics to Test Species Identifications and Interpretations of Conodont Evolution in the Illinois Basin, Middle Pennsylvanian. Geological Society of America Annual Conference 2016, Program with Abstracts, Denver, CO.

Brown, L. M., Rexroad, C. B., and Zimmerman, A. N. (2015). A Neognathodus-based

biozonation for the Desmoinesian Series (Pennsylvanian) of the Illinois Basin. Geological Society of America Annual Conference 2015, Program with Abstracts, Baltimore, MD.

Brown, L. M., Rexroad, C. B., and Zimmerman, A. N. (2014). Conodont Biostratigraphy of the Alum Cave Limestone Member of the Dugger Formation (Pennsylvanian, Desmoinesian), Southwestern Indiana. Michigan Academy of Sciences Meeting 2014, Program with Abstracts, Rochester, MI.

Brown, L. M., Kelso, P. R., Zimmerman, A. N., and Pollard, A. K. (2013). Introduction to Sequence Stratigraphy: A Project-Based Undergraduate Upper Division Course. Geoglossal Society of America-North Central Section Meeting 2013, Program with Abstracts, Kalamazoo, MI.

Brown, L. M., Rexroad, C. B., and Zimmerman, A. N. (2012). Development of a Neognathodus (Conodont) Index for Desmoinesian (Pennsylvanian) Zonations. Michigan Academy of Sciences Meeting 2012, Program with Abstracts, Alma, MI.

Brown, L. M., Rexroad, C. B., and Zimmerman, A. N. (2011). Conodont Biostratigraphy of a Shale Lens Overlying the Bucktown Coal Member of the Dugger Formation (Pennsylvanian, Desmoinesian), Pike County, Indiana. Indiana Academy of Sciences 2011, Program with Abstracts, Indianapolis, IN.

#### Grants Submitted

“Using Geometric Morphometrics to Test Taxonomic Designations and Interpretations of Evolution for Late Cretaceous Rudist Bivalves, US Gulf Coast and Caribbean Provinces”  
*February 2017*

Geological Society of America

Awarded \$1,420 grant to conduct, with the help of an undergraduate, geometric morphometric work on Late Cretaceous rudist bivalves from the Gulf Coast and Puerto Rico.

“Using Geometric Morphometrics to Test Taxonomic Designations and Interpretations of Evolution for Late Cretaceous Rudist Bivalves, US Gulf Coast and Caribbean Provinces”  
*February 2017*

Paleontological Society

*Application pending.*

Indiana University Department of Geological Sciences Summer Support Grant  
*May 2015 and 2016*

Awarded \$1,200 grant each year to assist with field work and lab analysis costs related to summer research.

“Using Quantitative Methods to Test Species Identifications and Interpretations of Conodont Evolution in the Illinois Basin during the Middle Pennsylvanian Period”

*March 2016*

Sigma Xi

*Unsuccessful*

“Evolution and Paleoeology of Late Cretaceous Rudist Bivalves, US Gulf Coast and Caribbean Provinces”

*March 2015*

Sigma Xi

*Unsuccessful*

### *Teaching*

I highly enjoy teaching, and I always strive to teach science with excitement and clarity. I have experience teaching science concepts to students from first grade to undergraduate seniors. I have organized and run K-12 science camps, tutored college geology and chemistry classes, helped teach a senior-level geology field camp (G480 Advanced Field Geology) at Lake Superior State University, and taught labs sections for the Indiana University class G114, *Dinosaurs and Their Relatives*, three times. Each time I teach I listen to my students and do my best to improve and continually develop my teaching methods. I have learned that, no matter the age, students highly appreciate enthusiasm and simplicity. I always endeavor to break down complex concepts into simple lessons that students can connect with previous knowledge. My ultimate goal is to secure a career teaching at the university level.

### *Service*

I also pursue opportunities to serve the department and local Bloomington community. I am currently the Treasurer of Sigma Gamma Epsilon-Rho Chapter (SGE), which is the IUB chapter of a service oriented, national honors society for geoscience students. I joined SGE in September of 2014 and became the Treasurer in April 2016. The largest SGE event I assist with each year is the annual Crossroads Geology Conference, which is a completely student run research conference highlighting the work of over 35 geoscience students from IU and other universities. In addition to on-campus service, I have also conducted multiple paleontology and geology outreach events at local elementary schools.