



Society for Integrative and  
Comparative Biology

**2020 Annual Meeting**

## Meeting Abstract

**37-5** Sunday, Jan. 5 09:00 - 09:15 **Changes in central Texas fossil herpetofauna** LEDESMA, D\*; KEMP, M; *University of Texas, Austin; University of Texas, Austin* [ledesma-david@utexas.edu](mailto:ledesma-david@utexas.edu)

In the face of modern climate change and worldwide biodiversity loss, it is imperative that we work to better understand the impacts that environmental changes can have on extant populations over long timespans. The study of Quaternary fossils represents an important bridge to the past that grants us insight into how past biota responded to environmental fluctuations and how extant species may respond to future change. I use fossils from Hall's Cave, located on the Edward's Plateau in Kerr County, Texas, to reveal demographic and taxonomic variation in the herpetofauna during the late Quaternary. A reexamination of fossil herpetofauna from Hall's Cave using apomorphic and diagnostic morphology resulted in a different list of herpetofauna taxa than had been previously reported. This result speaks to the merit of using these identification methodologies to provide strong support for fossil classifications and subsequent paleoecological interpretations. I determined the minimum and maximum number of individuals within 5-centimeter intervals for different reptile and amphibian taxa. The two abundance metrics exhibit similar trends through time with changes in abundances of frogs, snakes, and lizards occurring concurrently. Around 1,500-2,000 years ago, there are peaks in abundances of these taxa which coincide with wetter and cooler conditions as reconstructed from previous north-central Texas paleoclimate proxies. Herpetofauna abundances decrease after 1,500 and between 2,500-3,500 years ago, which correspond to warmer and drier time intervals according to published speleothem records. These preliminary results suggest that changes in herpetofaunal abundances from Hall's Cave may be a consequence of past climatic change and provide a glimpse into changes in central Texas' herpetofaunas during the late Quaternary.