

## ***Anthropology Colloquium: How Old are the White Sands Footprints? Why Ruppia Balls are a Problem***

By Dave M. Rachal, Robert Dello-Russo, Jim Mead, and Matt Cuba

**Friday, January 27, 2023 – 2:00 pm**  
**Location: Hibben 105**

*Ruppia cirrhosa* (*Ruppia*) seed layers have been used to constrain the age of footprints along the eastern shoreline of Paleo-lake Otero in southern New Mexico to around 21,000–23,000 calibrated years before the present. Many of these *Ruppia* seed layers contain tightly interwoven ball-like aggregations made of *Ruppia* stems and seeds. We provide new evidence that these balls and seed layers were introduced to the discovery site by high wind seiche events during Late Pleistocene thunderstorms. In our proposed site formation model, the *Ruppia* plants and seeds originated in deeper brackish water settings outside the site, thus it is very likely that the hard-water effect has impacted the accuracy of the radiocarbon dates. As such, the radiocarbon assays of *Ruppia* seeds previously used to date the prehistoric footprints along Paleolake Otero could be thousands of years too old.

Dave Rachal is a professional geomorphology/geoarchaeology consultant. He has over 12 years of professional experience consulting in southern New Mexico and west Texas. He has been involved in all phases of archaeological investigations including survey, testing and evaluation, and data recovery projects throughout the southwest. He holds a Ph.D. and M.S. in Soil Science and Physical Geography from New Mexico State University. His research interests include soil geomorphology, modern and paleo-eolian systems, geoarchaeology, Quaternary environments, and arid pedology.



Ruppia balls located at the southwest shore of Sandoff Lake in Saskatchewan.