Cattails and Ostracodes: An Investigation of Prehistoric Water Management in the Chupadera Arroyo Basin, Central New Mexico

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PURPOSE OF STUDY

Pueblo Oso Negro (LA 1073) dates to the Pueblo IV period, (ca. A.D. 1300-1540). This era in prehistory is characterized by a period of sustained drought and population aggregation that occurred across the Greater Southwest. LA 1073 is located in south central New Mexico, within the Chupadera Arroyo Basin. Adjacent to this archaeological site is a depression that was previously interpreted as a probable water storage feature. As the closest permanent water supply lies 2 miles away from the Chupadera Arroyo, this depression likely provided a domestic water supply to this prehistoric community. The researchers will determine if this depression was used as a water storage device, the seasonality of the water storage, and how this probable catchment basin was supplied with water.

STUDY UNDERWAY

- Geoarchaeological analyses will be used to determine the depositional context of the sediments through particle size analysis, particle morphology and surface texture, and weight loss-on-ignition to determine organic and carbonate content.
- To determine the seasonality of water storage, the researchers will test the area for the presence of ostracodes and cattail pollen. Cattails only grow in areas with permanently damp soil, and evidence of cattail pollen would indicate a perennial water supply.
- The researchers will conduct a watershed delineation analysis using the hydrological modeling extension for ArcGIS software.

BENEFITS

- Understanding low level technological solutions to water problems may provide ways to address water problems without requiring large investments of technology and non-renewable energy.

Below: Monica maps the depression using a Trimble GPS unit.

Below: Monica Enke, a master's degree candidate, collects sediment samples from the depression.

Above: Overview of the depression being mapped with a GPS unit.