



Constructing a Regional Historical Context for Terminal Pleistocene/ Early Holocene Archaeology of the North-Central Mojave Desert

Project # 07-349

Background:

The well-known early archaeology in the Mojave Desert of east-central California currently lacks strong historical context, making stewardship, determinations of eligibility for the National Register of Historic Places (NRHP), and management of these cultural resources, as required by the National Historic Preservation Act, a difficult task for federal agencies. This is in part because the earliest sites are widely dispersed and difficult to accurately date within a Terminal Pleistocene/ Early Holocene (15,000-8,000 years ago) time frame.



Alluvial Deposits Documenting the Pleistocene-Holocene Paleoenvironmental Transition

Objective:

This study takes a regional, multi-agency approach to build a strong and comprehensive context. This was done by partnering Naval Air Weapons Station (NAWS) China Lake, CA with contiguous and nearby federal land-managing agencies, including the Fort Irwin National Training Center, the National Park Service (Death Valley National Park and Mojave National Preserve), and the Bureau of Land Management. The results are designed to substantially aid NRHP determinations of eligibility by identifying current data gaps and systemizing data collection. The project is multi-disciplinary, and stresses the paleoenvironmental context. This is necessary because the end of the last Ice Age entailed unprecedented climatic changes that altered rainfall patterns, the landscape, and its flora and fauna.

Summary of Approach:

The project consists of two main components: 1) a

paleoenvironmental reconstruction of the ancient landscape of the Terminal Pleistocene/Early Holocene; and, 2) construction of a GIS-derived diachronic model of early settlement in paleoenvironmental context (based in large part on re-analysis of existing archaeological material using new dating methods). Owing to the scale of the project, only Step 1 was funded.

Benefit:

This project assists NAWS China Lake and nearby federal agencies in sustaining their mission by better defining the early archaeological record and developing methods to assess their significance uniformly across agency boundaries. This will strengthen stewardship and management of these prehistoric archaeological sites by providing a strong historical context that fills some existing data gaps, provides clarity on remaining information needs, and summarizes current knowledge concerning early sites. As a result, the project aids NRHP eligibility determinations, and assists land managers throughout the arid west, western states' State Historic Preservation Offices, and Mojave Desert area Tribal Historic Preservation Offices in addressing future National Historic Preservation Act Sections 106 and 110 needs.

Accomplishments:

The study gathered new, independent data directly from the China Lake Basin environs to reconstruct the Terminal Pleistocene and Early Holocene paleoenvironment. This included previously undocumented stratigraphic records of the Pleistocene-Holocene transition in local washes emanating from the adjacent Sierra Nevada, inflow records along the Owens River channel leading to China Lake, within the China Lake Basin itself, and at the China Lake overflow channel. The results provide a strong and compelling three-stage geomorphic and hydrological transition that documents the demise of pluvial lake conditions and the deterioration in effective moisture. At China Lake, the Pleistocene pluvial lake has disappeared by 13,000 years ago, followed by a period of rich wetland habitats that lasted until about 10,500 years ago. Subsequently, the region transitioned to more arid, desert conditions.

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