



AAG Annual Meeting

[Problems logging in?](#)[Get Help](#)[Register to Attend](#)[About the Meeting](#)[Schedule & Program](#)[Jobs Center](#)[Call for Papers](#)[Grants & Awards](#)[Get Involved](#)**Abstract Title:**

The Predictive Power of Chihuahuan Desert Modern Pollen Assemblages for Paleoeological Reconstructions

is part of the Paper Session:

Assessing climate variability and impacts in western North America II: The Desert Southwest.

scheduled on Sunday, 2/26/2012 at 10:00 AM.

Author(s):

Matthew J Valente* - University of Tennessee, Department of Geography
Sally P Horn - University of Tennessee, Department of Geography
Thomas A Minckley - University of Wyoming, Department of Botany

Abstract:

Pollen and other environmental proxies in sedimentary archives provide key evidence of late Quaternary ecological dynamics and climate history. Calibration datasets composed of modern pollen assemblages from contemporary plant communities provide researchers with a powerful tool for developing quantitative reconstructions of vegetation and climate since the last glacial maximum. Paleoecologists rely on open databases and published data on modern pollen rain in a broad geographic sampling of plant communities to quantitatively determine shifts in the paleovegetation at depositional sites. The establishment of robust regional modern calibration sets for sedimentary pollen assemblages has been largely driven by the geographic distribution of depositional environments preserving pollen. The Chihuahuan Desert of North America has few such sites, and therefore lags the lake-rich humid temperate regions of the continent in the development of pollen calibration datasets. At present, for example, the extensive Neotoma Paleoecology Database and the North American Modern Surface Sample Dataset contain no modern pollen data from the Chihuahuan Desert. Here we review modern pollen assemblage data from previous investigations in the Chihuahuan desert and present new surface pollen data from our collections along elevational transects from grassland to montane pine forest in the Guadalupe and Davis Mountains of Texas. We assess the power of the combined modern pollen dataset for quantitative paleoecological reconstruction using several statistical techniques including modern analog matching with squared chord distance dissimilarity metrics, receiver-operating characteristics analysis of dissimilarity matrices for delineating plant communities, and likelihood analysis of analog matching within vegetation types across the region.

Keywords:

Pollen, Arid Regions, Modern Analog, Paleoecology, Chihuahuan Desert, Climate Change

[New Query](#)