Archaeological Site Prospecting in the Upper Gila River Valley, Arizona
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Overview
Do particular places in the Mimbres-Mogollon landscape confer greater resilience to environmental perturbations? My dissertation project will investigate this question by surveying and analyzing prehistoric settlement patterns in southeastern Arizona’s York-Duncan Valley. The project includes evaluating continuity of occupation, aggregation and dispersal, and ceramic diversity to be aligned with regional paleohydrologic patterns and minimal and maximal precipitation. Patterns will suggest whether populations in certain parts of the river valley were resilient to severe climatic fluctuations. The survey prediction model shows here is a useful first step in stratifying a large sample universe. Known prehistoric sites in the study area generally conform to the model, with a prediction rate of 94.4 percent of sites located in zones of medium to high probability.

Survey Design
The York-Duncan Valley is an understudied area that has been the recent focus of Robert Hard’s and John Roney’s field work on early agriculture and the mapping and excavation of hilltop, walled centro de trabajo sites on the upper Gila River. The project research design includes a survey of approximately 500 acres.

Research Area

Agriculturally Productive Zones
• Mapping agriculturally productive areas enhances our ability to understand the conditions that favored prehistoric settlement decisions. To digitally chart agriculturally productive areas, maps from the 1959 US Soil Conservation Service and DeWall’s (1978) soil data are used.
• Mapping the extent of the prehistoric floodplain was accomplished by outlining and digitizing the extent of the Fima alluvium. The lower floodplains are located near the Duncan and Round Mountain areas. The model predicts a higher incidence of sites located near Round Mountain and other zones with significant floodplain coverage.

River Geomorphology and Site Locations

Evaluating the Predictive Model
• To evaluate the model, a survey of approximately 500 acres in the York-Duncan Valley was conducted in 2014.
• To predict possible site locations, Mimbres-Mogollon settlement patterns in river valleys in New Mexico were considered and digitized in the model. Other variables include lower floodplain distance to water, and proximity to productive soils.
• Model outputs show 4 probability categories that correspond to zones of high, medium low and improbable site occurrence. Outputs are compared to the small sample sizes of known sites in the study area.

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