Presentation Information

Presenter	Timothy Kohler
Title	How Climatic Variability, Big Game Depression, and Exchange Interact in the Formation and Dissolution of Pueblo Villages and Communities
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Abstract:

I report results from an agent-based model of subsistence and settlement calibrated to the landscapes and climate of southwestern Colorado between A.D. 600 and 1300 developed by the “Village Ecodynamics Project”. The landscape model makes available to households four categories of resources (potable water, fuelwood, potential maize production, and three species of game for hunting). In the rulesets we are currently exploring, households locate themselves so as to minimize their energetic costs for obtaining adequate amounts of each of these categories of resources, whose densities depend on their current and past use by households, and their climatically-driven growth. In this model we can vary, among many other things, the existence and types of inter-household exchanges, whether hunting is undertaken and if so how much protein is required, and from what radius around the households. One finding from early analysis of simulation results is that inter-household exchange tends to promote village formation (most strongly in periods of high mean resource availability but high variance from year-to-year) and that hunting leads to big-game depression near incipient clusters of households, causing further aggregation of households separated by zones of game depression whose size distribution resembles that of communities in the archaeological record. We thus suggest that two categories traditionally deemed “social” by archaeologists -- villages and communities -- emerge at least partly out of the interaction of household resource use and environmental dynamics.