Multi-Level Assessment of Hydrographic Catchment Area and Archaeological Site Size Relationships in the 11th-15th Century Upper Gila Subregion, Southwestern New Mexico

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INTRODUCTION

11th-15th century Upper Gila sites in present-day New Mexico were located in areas where tributaries flowed into primary drainage systems and where floodplains widened. A clear relationship between the area of a basin, subbasin, or watershed and the size of an archaeological site contained in that hydrographic region would imply that flood risk and water availability influenced social organization and population, exposing the extent to which environmental stressors affected settlement patterns.

METHODS

1. I overlaid USGS Hydrography Datasets with a topographic basemap in ArcMap to identify basins, subbasins, and watersheds within the Upper Gila subregion in present-day New Mexico.

2. I added to this composite map the approximate locations of 28 11th-15th century archaeological sites of varying occupation phases and size (denoted by maximum number of rooms).

3. I computed the average number of rooms for archaeological sites within all distinct basins, subbasins, and watersheds.

RESULTS

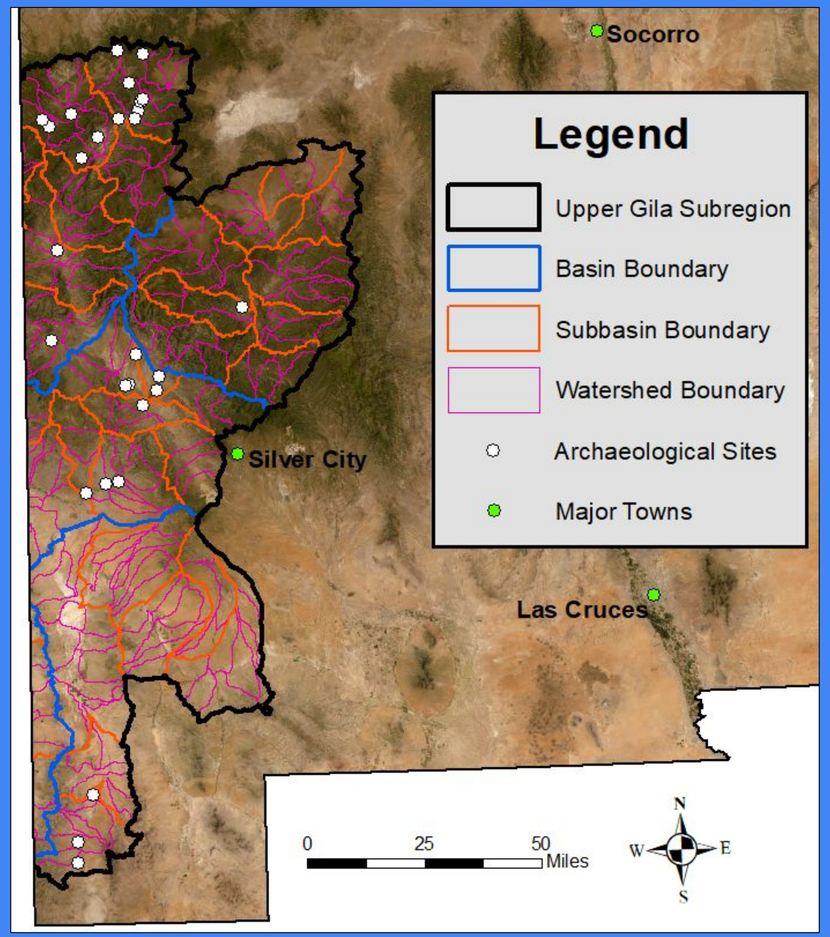
Hydrographic Level	Count of Hydrographic Level (Those With Sites)	Correlation Coefficient (Catchment Area vs. Average Archaeological Site Size Within Catchment)
Basin	4	0.64
Subbasin	11	0.43
Watershed	21	0.24

By relating the size of hydrographic catchment areas with the average size of archaeological sites in those areas, we can determine if larger catchments housed larger sites, and vice versa.

DISCUSSION

The lack of great correlation between basin, subbasin, and watershed area with archaeological site size suggests that Upper Gila inhabitants could either adapt to or were unaffected by relative flood risk and water availability in any given area.

The **low influence** of **flood risk** and **relative water availability** in dictating 11th-15th century settlement patterns in the Upper Gila region of southwestern New Mexico suggests **high levels of environmental adaptability within contemporaneous societies.**



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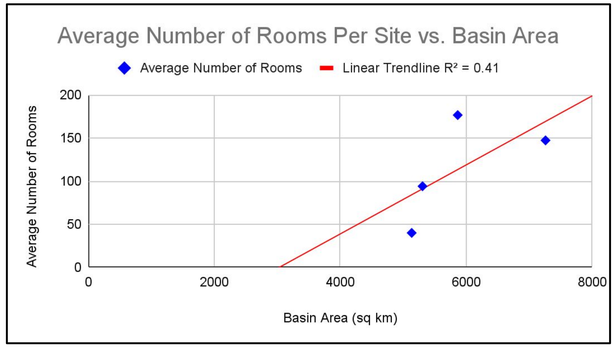
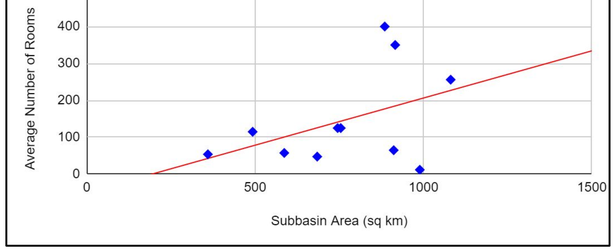
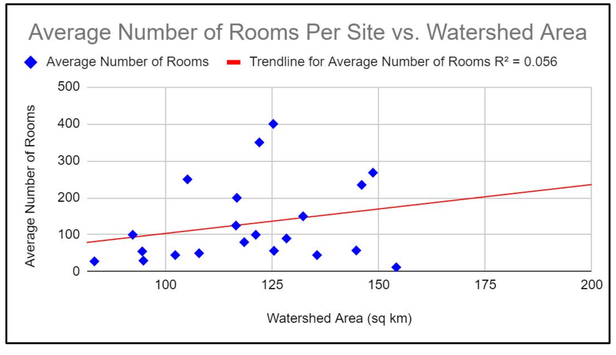
SUPPLEMENTARY DATA







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