A GEOSPATIAL ANALYSIS AND GEOHERITAGE INVESTIGATION OF LAND USE PRACTICES IN THE UPPER PECOS RIVER VALLEY, NEW MEXICO, USA

A. D. Aragón [a, *], J. P. Zebrowski[a], M. S. Petronis [a]

[a] Geospatial Applications in Natural Science Laboratory, Las Vegas, New Mexico 87701, USA - aaragon1@live.nmhu.edu

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ABSTRACT:

The overall purpose of this multidisciplinary study is to provide scientifically justifiable evaluations of temporal trends in land use practices pertaining to cultural development since early 1970s in the Upper Pecos River Valley in Northern New Mexico, USA. The investigations will consider historic patterns in the progression of land management practices, political events, and agricultural development using Geographic Information System (GIS) and Remote Sensing techniques. A comparative investigation from a series of satellite imagery will be used to examine changes in the land use and conditions of the study sites over time. Landsat satellite images from the 1970s to present will provide multispectral measurements of vegetation coverage and vegetation health in both growing and non-growing sessions. Normalization of vegetation indices (NDVI) and multiple Landsat platforms will be the methodology used to accurately assess this study. Changes to the local environmental conditions in the area will also be evaluated using records of climate, precipitation, stream gage data, oral history, and historical records. The need to develop a further understanding of the Pecos River Valley in North Central New Mexico and its land use practices will aid in conservation efforts and development of this physical and cultural landscape. Study results will also be used to demonstrate the local community the value of modern science investigations in addressing local concerns. In addition, the results from this study will be integrated in to the Ribera Community Cultural Center and Pecos Historic Park.

* Corresponding author.