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Introduction

This project is a collaborative effort between ecologists and archaeologists at the School of Human Evolution and Social Change and the School of Life Sciences at Arizona State University. Researchers are focused on understanding the long-term legacies of prehistoric land use and agricultural practices in the Agua Fria National Monument, north of Phoenix, Arizona. The goal of the project is to build a theory about which types of human disturbances have legacies over different time scales, and gain insights into the ways that today’s actions can affect future ecological systems.

Legacies on the Landscape Research Questions

What are the economic, social, and political conditions that influence how prehistoric people articulate with their environment?

Which environmental interactions leave enduring legacies that are detectable on modern landscapes?

What are the ecological conditions that make ecosystems more or less prone to human induced legacies?

How can we integrate knowledge about human-induced legacies into modern land management and development of sustainable communities?

Study Area

The Agua Fria National Monument is located north of the Phoenix Basin. This desert area has experienced significant changes in land use over the past 2000 years, with both prehistoric and modern human occupations. Prehistoric land use in the 15th and 16th centuries was characterized by intensive agricultural activities. Archaeological data show that the area experienced two intense pulses of human use in the past 2000 years, with the most significant period of occupation occurring during the 14th century. The Agua Fria National Monument is located within this historically important region, and the project aims to understand the long-term legacies of prehistoric land use and agricultural practices.

Legacies of Prehistoric Agricultural Fields: Influences on Soil Characteristics and Herbaceous Plant Communities

• Prehistoric agricultural fields have been located and several were selected for additional herbaceous plant community studies.
• Prehistoric land use can also help determine how long a site was occupied.
• Prehistoric agricultural fields are identified by their spatial extent or terraces as shown in the photos and map on the right.
• Legacies of small scale prehistoric agricultural activities can be identified by the vegetation changes due to changes in soil composition or plant community composition. The goal of the project is to build theory about what types of human disturbances can be used to identify changes in fauna in prehistory.

Prehistoric Manipulation of Rock Distribution: Influences on Plant Communities

Prehistoric inhabitants altered the distribution of surface rocks while constructing pueblos and agricultural fields. The collection of data to determine whether the manipulation of rock distribution has left enduring legacies in plant communities is an ongoing aspect of the project.

Legacies and Herbaceous Plant Communities: Influences Around Residential Settlements

Sampling of herbaceous plants was conducted on survey transects near Pueblo La Plata and a “control” location several kilometers from an archaeological site. This sampling allowed us to determine whether differences in the plant communities existed as a result of more intense prehistoric land use near residences. There is no significant relationship between woody plants and rock cover on the “control” transect.

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References Cited