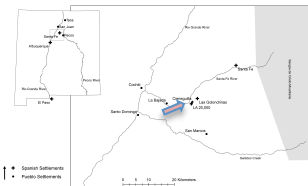


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## Introduction

Historic introductions of Eurasian plants and animals have had a dramatic impact on the current environment of the Southwest. During the 17th-century, Spanish colonists introduced new crops, livestock and land use practices to New Mexico. Elsewhere, such introductions, especially grazing livestock, have been implicated in environmental degradation (Melville 1990). However, we know little about the early impacts in the Southwest. Archaeo-biological data from LA 20,000, a 17th-century Spanish ranch and pollen data are used to explore land altering activities and the impacts they had on the environment.

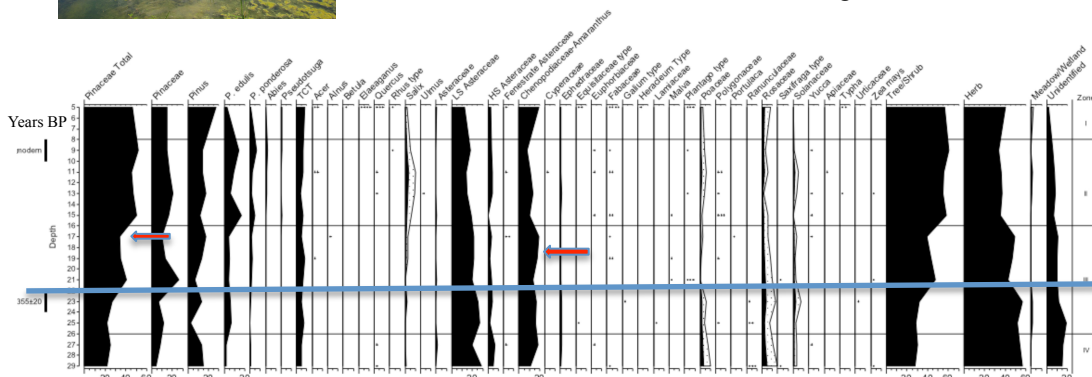


LA 20,000 landscape

## What was the impact?



- To explore impacts, we used pollen from sediments to assess regional landscape change.
- A pollen core was taken in a wetland at Las Golondrinas, less than 1 mile from LA 20,000.
- We extracted a 57-cm core that was sampled in 2 cm increments. Pollen was counted to 500 grains.



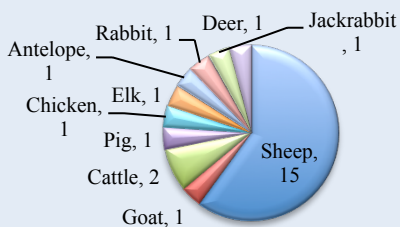
Pollen diagram from the La Cienega core showing vegetation response from ca. 1400 to present

## What did the colonizers produce and consume? macrobotanicals and fauna from LA 20,000<sup>a</sup>

### Crops

- wheat
- corn
- peas
- apricots
- peaches

### Fauna, mni



## What were the land shaping activities in the area?

- vegetation/field clearance
- plow agriculture
- construction of irrigation canals
- cereal crop fields, orchards, and kitchen gardens
- animal grazing including sheep and cattle

## Results

- Data suggest limited changes to regional vegetation until the more intensive occupation in the 18th and 19th centuries. This is suggested by the modest rise of *Cheno-Ams* in the mid-18th century (arrow). This taxon is associated with disturbed soils influenced by human activities.
- Dramatic increases in arboreal pollen during this period may indicate land clearance which opened forests and allowed for long distance transport of pine pollen from nearby mountains.
- Maize pollen was identified in both prehistoric and colonial-era samples; no Eurasian cereals were identified despite their presence in the macrobotanical assemblage.
- Invasive plants (*Ulmus* and *Elaeagnus*) are primarily evident the the most recent samples.

## Conclusions

Despite the implementation of new land-use regimes and introduction of grazing livestock, Spanish colonization did not have an immediate impact on regional vegetation patterns. This is likely due to the area's long history of indigenous Pueblo agriculture which modified the landscape and the small population of European colonizers. These findings have implications not only for understanding historic landscape changes, but also the impact that early colonizers may have had on the indigenous Pueblo peoples.