

A Natural and Unnatural History of Faunal Change in Southwestern New Mexico since AD 500



Project goals

- Compile faunal datasets (published and unpublished) and analyze key existing collections from as many archaeological sites as possible (currently, 96 assemblages from 45 sites)
- Focus on Mimbres and Upper Gila – San Francisco drainage areas in southwest New Mexico
- Examine changes in species abundance and distribution over time using archaeological and historic records
- Enhance interdisciplinary communication for archaeology and biology
- Publish results in a variety of venues

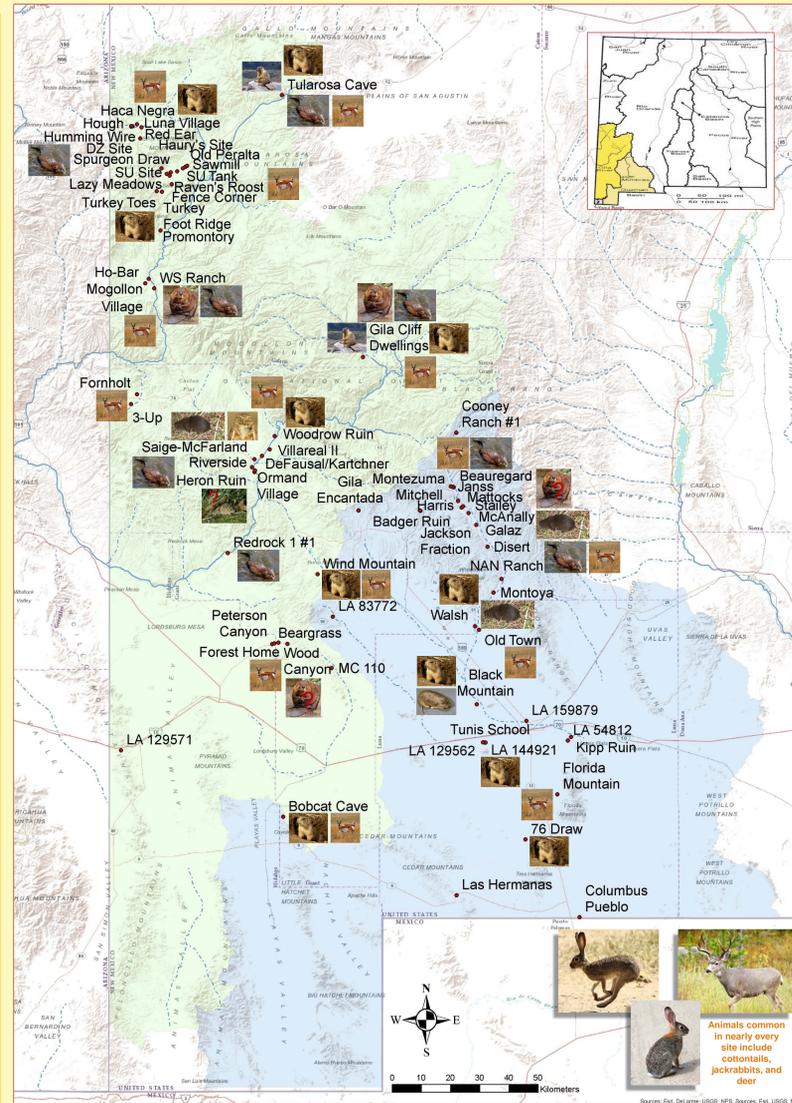
Aquatic species

Fish are uncommon in most archaeological assemblages, even in fine-screened contexts. However, a few sites (Fornholt, 3-Up, and WS Ranch in the San Francisco drainage, Saige-McFarland and Woodrow Ruin in the Cliff Valley, Janss and Montoya in the Mimbres Valley) have larger numbers, sometimes from just a few contexts.

Archaeological fish remains are nearly always identified to the family level at best. Where possible, more specific identifications are highly desirable for understanding the distribution of native fishes. More than half of the region's native fish species are threatened or endangered today.

Catfish (*Ictaluridae*): listed in some archaeological reports, but the only native Southwestern species known historically (*Ictalurus pricei*) occurs only in the Rio Yaqui and Rio Casas Grandes drainages. Unclear identification criteria in published archaeological reports make assessing potential changes in distribution difficult.

California floater (*Anodonta californiensis*): numerous archaeological worked fragments and ornaments from the Cliff Valley area; this shell is unworkable after 48 hours, so transport is unlikely. Largely extirpated in the Southwest today, historic range poorly known.



Riparian species

- Beaver (*Castor canadensis*): archaeological specimens in the Gila – San Francisco, uncertain in the Mimbres (two incisors in need of verification)
- Muskrat (*Ondatra zibethicus*): multiple archaeological specimens in both drainages, rare today
- Meadow vole (*Microtus sp.*): archaeological specimens in the upper Mimbres and Cliff Valley

Grassland species

- Black-tailed prairie dog (*Cynomys ludovicianus*): multiple archaeological specimens in both drainages, extirpated today
- Burrowing owl (*Athene cunicularia*): few archaeological specimens in the Cliff Valley, rare to absent today due to the destruction of their grassland habitat and the loss of the prairie dog colonies they associate with
- Pronghorn (*Antilocapra americana*): multiple archaeological specimens in the grasslands of the region. Populations seriously depleted by the 1900s with local extinctions in the areas north of the Big Burro Mountains

Changes in species distributions

- Meadow jumping mouse (*Zapus hudsonius*): possible archaeological specimen (yet to be verified) in Cliff Valley. Closest extant populations of this riparian-dependent species are in the White Mountains of Arizona and the middle Rio Grande
- Yellow-faced pocket gopher (*Cratogeomys castanops*): three specimens from Black Mountain site, current range is east of the Rio Grande

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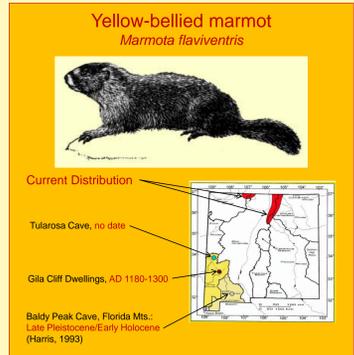
Initial results

Climate change

Holocene epoch warming and increasing aridification from south to north led to contraction of marmot range and apparently of meadow voles (*Microtus pennsylvanicus*) as well. In contrast the ranges of peccary and coati, for example, have recently expanded northward into the region.

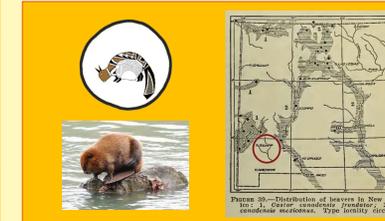
Anthropogenic change

Several obligate aquatic, riparian, and grassland species found in archaeological assemblages are rare or absent today (e.g., mud turtle, muskrat, prairie dog), as the increased scale of human impacts has disproportionately affected these habitats.



Beaver range: a Mimbres conundrum

Two incisors reported as beaver have been recorded from the closed basin of the Mimbres River (Mattocks site), the only record of this species outside the watersheds of the Gila/San Francisco and Rio Grande. Were beavers once present in the Mimbres (there are no historical records-see figure from Bailey, 1931, at left), or were the incisors brought there from the Gila? Compounding the issue, recently beavers have been found active in stretches of the Mimbres. Were these unauthorized translocations?



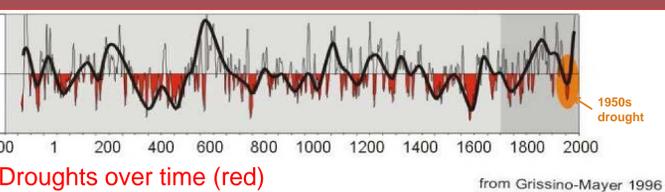
Improving reporting in zooarchaeology

Zooarchaeologists should be more aware of when taxa occur out of their historic and modern ranges, and discuss this in reports. The use of fine screens to capture rodent teeth and other small but highly informative remains should become a more standard practice (Scarborough and Harris, 1985).

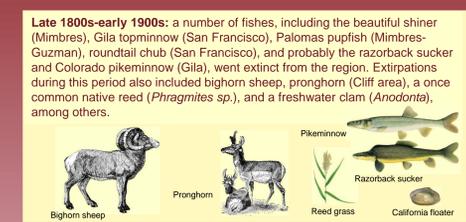
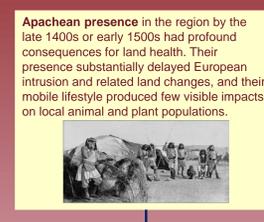
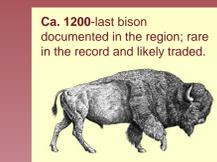
When unusual or out-of-range taxa are found, we must discuss how they were identified and distinguished from similar taxa, with reference to anatomical markers or published discussions.

Acknowledgments

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940-1040: long-term droughts
 1210-1305: severe droughts
 1917-1922: severe droughts
 1949-1956: severe droughts



1000 BC-7000 BC Paleoindian Period: mobile hunter-gatherers. Clovis and Folsom points; sites with megafauna in SW generally, but the few sites known in this area consist of lithic scatters.
 7000-1500 BC Early, Middle, and Late Archaic Periods: mobile hunter-gatherers, low population density, small sites with short-term occupations.
 1500 BC-AD 200 Late Archaic/Early Agricultural Period: agriculture begins supplementing wild resources; semi-sedentary villages in some places.

200-550 Early Pithouse Period: small clusters of houses, mix of farmed and wild resources, sedentary but likely short-term villages.
 550-1000 Late Pithouse Period: villages become larger and more permanent as emphasis on farming increases; declines in large game relative to lagomorphs (hares, rabbits) visible by ca. 800.

1000-1130 Classic Mimbres Period: peak regional population, low mobility, emphasis on farming; large game relatively less common than lagomorphs; anthropogenic impacts on floodplain trees and preferred wild plant foods; "famine food" plants more common.

1130-1300 Early Postclassic Period: many people leave the region around 1130; villages linked to the Tularosa, Black Mountain, and Animas phases; perhaps a rebound in large game and floodplain forest and other riparian plants and animals.

1300-1450+ Late Postclassic Period: large Cliff phase Salado and Animas phase villages; sycamores and muskrats still present in the Mimbres Valley, but absent during the American Period.

