

## **OVIS-CAPRA IDENTIFICATION AT RANCHOS DE TAOS AND THE SAN DIEGO PRESIDIO: AN ASSESSMENT OF ZEDER AND LAPHAM (2010)**

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*Distinguishing sheep (Ovis aries) from goats (Capra hircus) may help inform our understanding of the adaptation of Old World domesticates and Iberian subsistence patterns in the New World. Zeder and Lapham (2010) argued that sheep and goats can be reliably differentiated based on post-cranial elements alone. This study examines the morphology of sheep-goat skeletal elements at Ranchos de Taos, New Mexico, and compares those data with the assemblage from the San Diego Presidio, California, using Zeder and Lapham's criteria. While differential collection practices made site comparison difficult, we were able to positively identify elements with at least one diagnostic criterion to the species level.*

In most archaeological assemblages, it is difficult to distinguish sheep from goat, and in the majority of cases this differentiation simply is not done. Identifying the remains of closely related species in the archaeological record can be difficult. However, correct taxonomic designations anchor all accurate site interpretations. Knowing the species composition at a site informs our understanding of relationships between humans and their environment.

This study examines the morphology of sheep-goat skeletal elements to determine if it is possible to differentiate sheep (*Ovis aries*) from goats (*Capra hircus*) in Ranchos de Taos, New Mexico, and the San Diego Presidio, California, archaeofaunal collections using the diagnostic criteria in Zeder and Lapham (2010). Distinguishing between species may help inform our understanding of the adaptation of Old World domesticates and Iberian subsistence patterns in the New World. Our results are linked to how bovinds influenced economically related choices among the Spanish and Native peoples.

### **MATERIALS AND METHODS**

Excavations at the Ranchos de Taos Plaza and a house site were conducted between 2007 and 2008. The project was conducted by Sunday Eiselt of Southern Methodist University as part of the Taos Collaborative Archaeology Project. Faunal remains from Ranchos de Taos were bagged by the archaeologists at the site and sent to California State University, Chico, for further analysis. Students of the zooarchaeology course evaluated the material.

Excavations at the San Diego Presidio began in the 1960s by the Department of Anthropology at San Diego State University under the sponsorship of the San Diego Historical Society (now the San Diego History Center). The faunal remains are curated by the San Diego State University Collections Management Program.

Only appendicular elements previously identified as sheep/goat or sheep or goat were used for this study. Morphological criteria guides by Zeder and Lapham (2010) were then used to try to identify specimens to species. The comparative collection from the CSU Chico Zooarchaeology Lab was used in addition to Zeder and Lapham's (2010) criteria. For each bone or fragment examined, diagnostic morphological features were used to identify the taxon, and each specimen was recorded as a positive identification (sheep or goat) or no identification (indeterminate or sheep/goat) (Figure 1).

### **RESULTS**

The results of the taxonomic assessment are presented in Tables 1 and 2. For Ranchos de Taos, out of the 12 postcranial specimens evaluated, six positive species identifications were possible, and six



Figure 1. Right humeri identified as *Capra* using diagnostic criteria of the olecranon fossa from Ranchos de Taos, New Mexico (left), and San Diego Presidio, California (right). Photos by Alexandra Perrone (left) and Amy MacKinnon (right).

Table 1. Rancho de Taos and San Diego Presidio results.

Taxa	Ranchos de Taos		San Diego Presidio	
	Frequency (NISP)	Relative Frequency	Frequency (NISP)	Relative Frequency
<i>Ovis</i>	2	17 %	5	2 %
<i>Capra</i>	4	33 %	3	1 %
<i>Ovis/Capra</i>	6	50 %	195	97 %
Total	12		203	

were not possible. The ratio of sheep to goats is 2:4. For the San Diego Presidio, out of the 203 specimens evaluated, eight species identifications were possible, and 195 were not possible. The 195 specimens that were not identified were highly fragmented. The ratio of sheep to goat is 5:3.

## DISCUSSION

For both sites, elements with at least one diagnostic criterion present could be identified to species level. Differential collection practices between the sites existed, making the sites hard to compare. For the Presidio, no documentation was recorded with the specimens to indicate how the identifications were made. We could not confirm the identifications of a large number of fragmentary elements that were identified at a species level because they lacked diagnostic features.

In contrast, the material from Ranchos de Taos that was identified had diagnostic features. The fragmentary nature of both assemblages limited the number of possible assessments made. However, the results show that with correct application of diagnostic criteria it is possible to differentiate between sheep and goat for at least a portion of the archaeological record.

Because of evidence suggesting that Spanish colonial sites might be expected to have a higher sheep-to-goat ratio (Eiselt 2007; Tarcán 2005), it was expected that there would be more sheep than goats in the faunal record. This expectation was not met at Ranchos de Taos but was met at the San Diego Presidio, despite the fragmentary nature of the assemblage.

## CONCLUSION

As Zeder and Lapham (2010) noted, it is recommended that analysts seeking to use and apply the reference criteria should not work from the reference descriptions and diagrams alone, but should begin by applying the comparative criteria to a reference collection with known sheep and goat skeletal remains. The use of these criteria was successful.

Identification of archaeofaunal material of closely related species can be problematic due to morphological similarities. Many analysts face difficulty discriminating between sheep and goat skeletal material in archaeological assemblages where both taxa are present, and especially so when assemblages are fragmentary. However, differentiating the two can result in a better understanding of the environment, use patterns, and culture contact.

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