The Kathy’s Rockshelter Faunal Assemblage: Insights into Butte County Prehistory

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Introduction
Much research in California has focused on the depression of high-ranked prey and intensified exploitation of high-cost resources that is accompanied by increases in human population densities, as predicted by the prey-choice model (e.g., Broughton 1994). Conversely, it is expected that there should be a reversal of this trend when human demographic collapse results in under-predation that allows high ranked prey populations to rebound. The faunal assemblage from Kathy’s Rockshelter (CA-BUT-301) may be used to track changes in animal exploitation from as early as 4000 years ago and into the Historic period. We expect to see evidence of resource depression of large game populations, principally artiodactyls, continuing throughout the prehistoric period and a rebound in these populations in the historic deposits. Further, we hypothesize that the historically marginalized Konkow Maidu used the rockshelter as a refuge; this should be reflected in the faunal record by a shift in body part representation away from patterns associated with selective transport. The roles of anthropogenic and nonhuman animal taphonomy are reviewed to control for non-cultural influences on these patterns.

Materials
Identifications were made using reference skeletal collections with the aid of key identification guides (Lawrence 1951; Gilbert 1990). Test Pits (TP) 12 and 13 were selected for analysis due to their excavation depth and the quality and quantity of faunal remains recovered. Taxonomic identifications were attempted only for mammalian skeletal remains. All materials from TP 12 were fully analyzed. Only artiodactyls and leporids from TP 13 were analyzed due to time constraints. Scan sites were recorded for artiodactyls (Lam et al. 1999; Lyman 1984) and leporids (Pavao and Stahl 1998) to determine whether density-mediated destruction played a major role in structuring the skeletal part representation. Human and non-human surface modifications were recorded. All assessments were made conservatively, and steps were taken to ensure consistency throughout the data collection process.

Taphonomy
There is a significant correlation between volume density and artiodactyl NNISP (Spearman’s ρ = .534; p = .0001), indicating that density-mediated destruction played a role in structuring skeletal part representation (Figure 1). Human subsistence practices were primarily responsible for deposition of the artiodactyl remains; the frequency of burning (23%), cutmarks (10%), and impact marks resulting from marrow extraction (7%) point to culinary processing at the site. The moderate rate of carnivore markers (8% of assemblage) suggests that scavenging activities of these animals subsequent to deposition by humans contributed to this pattern. In addition, several specimens exhibited combinations of human and non-human surface modifications simultaneously, supporting this conclusion.

Taxonomic Representation
Diachronic shifts in the relative abundance of artiodactyls to leporids were tested using chi-square analysis and Cochran’s test of linear trend. Specimens with evidence of digestive etching and juvenile leporids were removed from analysis as they are presumed to represent non-human deposition. The distribution of artiodactyls and leporids significantly differs among temporal periods ($\chi^2 = 16.95, df = 4, p = .002$). The test of linear trend was not significant ($\chi^2 = 3.2, p = .07, \chi^2 = 13.7, p = .13$). As seen in Figure 2, this is likely due to the strong shift in the relative abundance of artiodactyls between the Oroville and Historic periods. Specimens representing large artiodactyls (Cervus or Bos) appear, principally in the uppermost levels; one molar was identified as C. elaphus. This increase in the relative abundance of artiodactyls and the appearance of elk in the Historic era deposits suggests that there was a local rebound of artiodactyl populations at this time.

Skeletal Part Representation
Due to the relationship between skeletal part density and representation in the assemblage, body part exploitation was evaluated using anatomical units (Stiner 2002). There is a predominance of low utility parts, with a notable absence of the most high density parts among these, particularly phalanges (Figure 3). An insignificant relationship between Food Utility Index (FUI) and anatomical unit exploitation is indicated by comparisons of FUI values for total and historic assemblages. With the exception of a minor increase in lower hind and cranial elements in the historic assemblage, anatomical unit exploitation stays constant through time.

Summary and Conclusions
The expected resource intensification pattern is seen in Mesilla through Oroville complexes; this pattern is disrupted in the Historic complex, which exhibits a spike in A (Figure 2). Artiodactyl anatomical unit utilization remains constant through time, with a focus on cranial and low-utility elements. Kathy’s Rockshelter appears to have served as a secondary transport site, with high utility body parts moved to an associated residential base. The absence of low-utility, high density skeletal parts such as phalanges further suggests that some transport decisions were not based on food utility. We believe these missing elements were potentially schlepped to another location with hides for further processing.

Gross assessments of anthropogenic and nonhuman surface modifications suggest a mixed utilization by people and carnivores. At this stage, sample size precludes meaningful statistical analysis of nonhuman deposition relative to human deposition. However, frequencies of anthropogenic modification point to a high degree of processing at the site. In addition, the frequency of carnivore modifications, and the presence of these markers overlapping anthropogenic markers suggests attrition related to scavenging considerably influenced this sample of the assemblage.

Comprehensive analysis of the total faunal assemblage will allow for better elucidation of patterns in culinary processing, nonhuman deposition, and shifts in technology.

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Key References