Zoometric Breed Analysis and Isotopic Paleodietary Reconstruction of the Maya Dog

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Abstract

Dogs are among the most common of animals in faunal assemblages at Maya sites (Wing, 1976; Clutton-Brock & Hammond, 1994; Schwartz, 1999). In order to better understand ancient Maya dog importance, dog remains from eleven Maya sites ranging in date from the Preceramic (2350 BP) through the Postclassic (977 BP) were analyzed. Three methods were used: bone morphology and matrix, stable isotope bone chemistry, and mortuary treatment. Morphometric analysis revealed that three breeds were present at the sites, the Mesoamerican Common Dog, the Short-nosed Dog, and the Plaited or Floor Dog using breed definitions from Valesquez (1998) and Clutton-Brock & Hammond (1994). Isotopic studies of archaeological dog bones from Maya sites in this study and others (White, 2004; Gerry, 1993) suggested that some individuals were fed maize dominated diets while others were not, indicating ritual feeding and butchering of dogs for sacrifice as described by Hernandez (Allen, 1920) and suggested by White (2004).

Methods

Canis lupus familiaris remains were selected from eleven Maya site faunal assemblages identified and curated in the FLMNH Environmental Archaeology collections. Remains ranged in date from the Preceramic through to the Postclassic. All measurements followed Von Driechs (1976). Long bone length was used to estimate dog stature using equations from Koudelka (1885), calibrated from Harcourt (1974). Dog weight was calculated using equations derived from adultity by Wing (1976). The estimations for size were obtained only from mature individuals as indicated by long bones with fused epiphyses and mandibles with non-decidual teeth. Fragmented long bone lengths were derived using alignment (Apak, 2004). Breed of the dog was then determined using the classification scheme derived by Valadez (1999). Those specimens for which breed was identifiable were then split into four context types and then further into time periods. Context types included two ritual contexts: 1. mortuary treatments including ritual and non-ritual dog burials and 2. dog remains recovered in human burials, cemeteries, or in feasting deposits. Two non-ritual context types were also included: 1. dog remains found in living floors or within trash middens of residential complexes. A total of 19 specimens were then selected to represent each time period, each site, and each provenience type for isotopic analysis. Extraction of bone collagen and apatite fractions followed techniques specified by Ambrose (2003). In order to insure collagen was unlabeled by diagenesis C/N ratios were analyzed prior to analysis of 13C/12C and 15N/14N. All stable isotope values are expressed in parts per mil (% PPM) as:

\[ \delta = \frac{(R_{sample} - R_{standard})}{R_{standard}} \times 1000 \]

where R is the heavier to the lighter isotope. Ratios were analyzed using the isotopic baseline for the Maya area established by White et al. (2001).

Results

The findings of this study confirm the importance of Canis lupus familiaris in ancient Maya culture. The presence of both the Mesoamerican Common dog and Short-nosed dog also confirms Valadez’s (2007) findings. However the anomalous presence of the Plaited dog at Cueva de Rio Montalpiano at the Dos-Paseis site is contradictory to his findings. This may in fact be a non-local trade item. The role of dogs as guardians and hunting companions (Gerry, 1993) perhaps explain the value of more ritual dogs having consumed more terrestrial protein. Dog remains recovered from ritual contexts were found to have a more maize-rich diet than dogs found in non-ritual deposits (with the exception of Late Classic sites). This confirms dietary differences between ritually used dogs and those used in non-ritual ways (such as food or hunting companions). Overall this study found that there was an increase in the types of breeds at sites as well as an increase in the number of dogs found in ritual contexts over time. This increase in ritual use may be driven by an increased need for domesticated meat during the Classic (White, 2004) as well as a increase in social stratification and elite use of ceremonial centers for competitive feasting (Emery, 2009). Future studies should be done to confirm this elite dominance of dog remains by looking at faunal assemblages from ritual and non-ritual contexts at lower class residences.

Conclusions

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Work cited


