

Accepted Manuscript

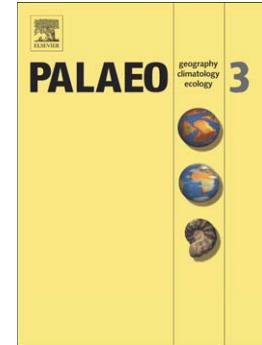
A GIS-Based Approach to Documenting Large Canid Damage to Bones

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PII: S0031-0182(14)00216-8
DOI: doi: [10.1016/j.palaeo.2014.04.019](https://doi.org/10.1016/j.palaeo.2014.04.019)
Reference: PALAEO 6841

To appear in: *Palaeogeography, Palaeoclimatology, Palaeoecology*

Received date: 8 October 2013
Revised date: 21 April 2014
Accepted date: 30 April 2014



Please cite this article as: Parkinson, Jennifer A., Plummer, Thomas W., Bose, Rebecca, A GIS-Based Approach to Documenting Large Canid Damage to Bones, *Palaeogeography, Palaeoclimatology, Palaeoecology* (2014), doi: [10.1016/j.palaeo.2014.04.019](https://doi.org/10.1016/j.palaeo.2014.04.019)

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A GIS-Based Approach to Documenting Large Canid Damage to Bones
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ABSTRACT

Experimental studies of modern carnivore tooth marking patterns are integral to understanding the nature of carnivore involvement in archaeological bone assemblages. However, modern bone damage data for most carnivore taxa are limited. This is particularly true for canids. This study presents bone damage data collected from feeding experiments conducted with Mexican Gray Wolves (*Canis lupus baileyi*) and Red Wolves (*Canis rufus*). This is the largest experimental assemblage reported for canids to date. The image-analysis GIS approach described by Marean et al. (2001) is expanded on here and used to document bone preservation and tooth mark distribution for the first time in a carnivore-modified bone assemblage. Further, we introduce the use of the ArcGIS Spatial Analyst to identify significant concentrations of bone modifications. Results show that the distribution of tooth pits varies considerably across elements as well as across different portions of the same element, and that significant clusters of tooth pits occur on all long bones. We suggest that with a large enough sample, the GIS Spatial Analyst can be a useful tool for analyzing the distribution of bone modifications with greater resolution than previous methods. This method facilitates comparisons between experimental and fossil assemblages which may aid in identifying the timing of access to carcasses by carnivores involved in modifying fossil assemblages. Finally, the

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