



SAN DIEGO ZOOARCHAEOLOGY LABORATORY  
P.O. Box 121390, San Diego, CA 92112-1390  
Phone: (619)255-0235  
<http://new.sdnhm.org/research/san-diego-zooarchaeology-lab>



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## Faunal Analysis of the San Diego Presidio Bird Bones

### Research Proposal

**Susan Arter and Aharon Sasson**

#### Introduction

The San Diego Zooarchaeology Lab, located at The San Diego Natural History Museum, has offered its services to analyze a partial sample of bird bones recovered from excavations at the San Diego Presidio.

The analysis will be carried out by Susan Arter (M.A.) and Aharon Sasson (Ph.D.). The current bone sample includes 78 bags. Two-thirds of the sample (n=47) originated from two archaeological proveniences- the North Wing and Gateway Mesa deposits. Additional proveniences include the North-East Corner and the South Gate among others. The 78 bone bags do not represent all bird remains excavated from the Presidio to date. With that said, and providing the archaeological deposits from which they came are contextually secure, the bird remains should provide useful information about the lifeways of the inhabitants. This proposal outlines the study of the bird bones from the San Diego Presidio.



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## **Project Significance**

The San Diego Presidio represents the first European settlement on the coast of what is now the western United States. Efforts to establish the first Spanish military settlement in Alta California included importation of various domestic livestock. Included among the San Diego Presidion seed-stock were cattle, sheep, goats, and hogs (Cheever 1983). To the best of our knowledge, the only zooarchaeological studies carried out on Presidio deposits are Cheever's analysis of sheep and cattle bones (Cheever 1983), and a preliminary study of fish remains (Chase and Roeder in preparation).

The current study provides an opportunity to document several data sets. Among these are the variety and relative proportions of domestic and wild avian meat resources represented at the Presidio, chicken husbandry practices, food preparation and patterns of consumption, and whether these data reflect the ethnicity and social status of the Presidio inhabitants.

With these data sets in mind, two interpretive objectives are proposed here. The first is a comparison between the two main proveniences represented by the bird bone samples, the Gateway Mesa and North Wing deposits. The second objective focuses on bird remains from specific North Wing living quarters. These contexts were securely encapsulated beneath fallen roof tiles (Jack Williams: pers.comm.) and provide a unique opportunity to examine ethnic markers associated with the relative proportions of domesticated fowl versus wild species consumed, household chicken husbandry practices, and most notably variations in butchering techniques.

Considering the sample for the analysis remains at its current size (i.e., 78 bags), this study should be considered as a pilot study for a more comprehensive zooarchaeological analysis of all faunal remains recovered from the Presidio.



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Results of the current study will be provided in a written report to the City of San Diego and The Heller Fund, the latter providing the majority of funding for this project. Moreover, the data will be shared in professional meetings, and submitted for publication in a professional journal if data allow.

## Research Methods

### Quantification

Two basic quantification methods will be used in this study. The NISP (Number of Identified Specimens) is the most common quantification method used in zooarchaeological studies (Grayson: 17-34; Reitz and Wing: 191-202). It represents the total number of skeletal elements identified to species (e.g., California quail, domestic chicken, sheep). The MNI (Minimum Number of Individuals) is the minimum quantity of individuals represented for each species. It is based upon the quantification of most prevalent side (right or left) of the most common body element recovered for each species identified.

### Data Collection

1. Specimens will be identified to species, skeletal element, and side (left or right). Fragments of limb bones unidentifiable to species will be recorded as large, medium, or small bird, and assigned to an articular end (distal or proximal) or shaft
2. Skeletal elements will be aged and sexed when applicable.
3. Evidence for modifications of bones such as burn, cut (or chopping) and gnawing marks will be inspected using a magnifying lens (X5)
4. Skeletal elements will be measured (when applicable)



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5. A preservation percentage will be recorded for each specimen identified to species. For instance, half of a distal bird humerus will receive a value of one NISP and a preservation value of 50 percent
6. Partly identified specimens, those unidentified to species or body element, will be assigned to size-categories. Small birds represent song birds, medium birds represent quail or pigeon size, and large birds represent duck to pelican size
7. The zooarchaeological study will be conducted at the San Diego Zooarchaeology Lab, using a reference collection located in the Department of Birds and Mammals. Anatomical atlases of various species may also be consulted (Schmid 1972; Cohen and Serjeantson 1996; Olsen 1979; Wolniewicz 2001; Gilbert et al 1985; Howard 929; Serjeantson 2009). Atlases and reference books on modern birds will be used to identify bird ranges and habitats (Unitt 2004)
8. Specimens of interest will be photographed by the authors.
9. No destructive study will be conducted.

## **Description of the Study**

As noted above two research objectives are recommended: an intra-site comparison between the Gateway Mesa and North Wing, and focus upon the North Wing living quarters. Zooarchaeological finds are commonly employed for defining social stratification (Ervynck et al. 2003). The Presidio housed military and civilian occupants, representing diverse social and cultural backgrounds, who shared resources and housing within this walled compound (Cheever 1983: 56). The study of the Presidio bird remains may provide an excellent case study for identifying social groups through zooarchaeological parameters. The primary zooarchaeological criteria to be employed are the relative proportion of domestic versus wild birds, their body-part representation, age and sex profiles, and butchery analysis. These data should reflect husbandry practices



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and exploitation of avian meat. Spatial analysis may further highlight differences in avian exploitation within the North Wing or between the North Wing and Gateway Mesa. In addition, metric analysis of the Presidio chicken remains will serve as baseline documentation of early breeds of chicken in Alta California.

Upon completion of the analysis, a written report, digital documentation of all recorded data, and a catalogue of the bird bone specimens will be provided to The City of San Diego's Presidio Park Council, the Heller Fund, and any additional organizations or donors providing financial support for this study.

### **Prospective Study of the Presidio Bird Remains**

Given the study goals presented above, and depending on the funding for the zooarchaeological study (see finance section below), we recommend that additional bird remains be retrieved from the Gateway Mesa and North Wing recovered deposits. A larger bone sample will allow more accurate cultural interpretation. We also recommend that a comprehensive study of all Presidio faunal remains be conducted and incorporated with past and present studies. Only an inclusive study of all faunal remains recovered from contextually secure Presidio deposits will provide thorough insights regarding the diet, lifeways, ethnicity, and socio-economy of the Presidio inhabitants.

### **Timeline**

San Diego Zooarchaeology Lab is able to initiate study of the Presidio bird bone collection by late March 2011. The final report, digital catalogue of the specimens, and analytical data will be provided to The City of San Diego within four months, and after a



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signed agreement has been established between the City of San Diego and the San Diego Zooarchaeology Lab.

### **Estimates Costs**

Based on our scan of the 78 bags containing faunal remains, we estimate the present study will require \$9,000. This estimate includes data collection and analyses (see research methods), data syntheses, catalogue of all specimens studied, photographs of specimens of interest, and report preparation.

### **Documenting Appropriate Chain of Custody and Protections**

The integrity, security, and custody of the Presidio bird bone assemblage is of paramount concern. As such, prior to the collection's temporary transfer from the City Archaeology Laboratory to The San Diego Natural History Museum, the bone assemblage will be weighed before leaving the building and will be weighed upon its return. Further, Park and Recreation personnel may compare the sample bags against the inventory list generated by Arter and Sasson on December 30<sup>th</sup>, 2010 both prior to the transfer and upon their return. Upon arrival to the SDNHM, a temporary Accessions Invoice Form documenting date of receipt and contents of the assemblage will be filed by the SDNHM Registrar Margie Dykens to record the temporary transfer of the assemblage (see attached form) from the City to the Museum. Moreover, no destructive studies will be undertaken on any specimens.

### **Methods of Temporary Storage in a Secure Location**

The Presidio bird bone assemblage will remain within The San Diego Zooarchaeology Laboratory housed in the Department of Birds and Mammals for the duration of the study



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until its return to the City, not to exceed four months. To gain access to the Zooarchaeology Lab, an electronic key card is required for two locked doors, one into the Department of Birds and Mammals, and another into the Zooarchaeology laboratory where the comparative collections are housed. Only museum staff and Research Associates are permitted access to the collections without supervision. The assemblage will remain under the direct care of Susan Arter and Aharon Sasson during the period of analysis.

## **Inspection and Investigation by City Parks and Recreation Personnel**

City Park and Recreation Department staff is welcome to visit the Zooarchaeology Laboratory at any time during business hours, to inspect the laboratory and storage space where the Presidio collection will be temporarily housed. Telephone numbers for the Department of Birds and Mammals, Arter, and Sasson are listed below should City staff wish to contact us for on-site inspection.

Department of Birds and Mammals, SDNHM (619) 255-0235

Curator: Phil Unitt

Susan Arter (858) 245-4258

Aharon Sasson (858) 530-0062



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