

# Comparison of Faunal Assemblages Through Time at the Sanders Site (45KT315)



Mackenzie Hughes

Central Washington University, Cultural and Environmental Resource Management Program



## Abstract

This project involves the analysis of faunal assemblages of three upper levels (n=523) and one lower level (n=32) from Unit 26 in Trench 1504 at the Sanders Site (45KT315). Excavation of the site took place in 1971 and 1972 and has since undergone extensive analyses. Despite the extensive analyses undertaken at the site, the faunal assemblage of Unit 26 is yet to be analyzed. NISP taxonomic classifications when possible, and size classes will be used to identify variability between the upper and lower components of Unit 26. The results of this analyses reveal an overwhelming presence of size class 5 long bone fragments in both upper and lower components. The lower component had greater variability in size classes represented, including the only specimens identifiable beyond size class (n=17), and consistent possible staining/burning present on 94% of specimens. The upper component was 100% size class 5 fragments with variable burning. This analysis identified disadvantages to comparing assemblage differences when the number of faunal specimens recovered between the two components is significantly different.

## Introduction

- Excavations in 1971 and 1972 were conducted by Bill Smith's summer field schools through Central Washington State College (CWSC) (McLean 2017) (Figure 1).
- Trench 1504, Unit 26, Levels 09-11 (90-110 cmbd) and Unit 26, Level 27 (270 cmbd) were chosen for analysis to capture the upper and lower components identified by Ainsley (2010).
- Radiocarbon dates of upper components (Levels 09-11) date to approximately 2900 BP and the lower components (Level 27) are dated to approximately 4000 BP (Endacott et al. 2013) (Figure 2).

## Background

- Sanders Site (45KT315) lies within the Yakima Training Center (YTC), an area that is currently owned by the U.S. Army (Figure 3 and 4).
- Shrub steppe environment characterized by big sagebrush (*Artemisia tridentata*), cool winters and hot summers (Ainsley 2010).
- Previous analyses at the Sanders Site have included geochronology (McLean 2017), lithics (Garrison 2015), freshwater mussel (VanTine 2009), and medium and small sized mammals (Endacott et al. 2013), including preliminary investigations of the Trench 1504 faunal assemblages.
- Endacott et al. (2011) provides information particular to the presence of Artiodactyla at the Sanders Site by analyzing 540 specimens from units adjacent to Unit 26 in Trench 1504.
- The location of Trench 1504 was chosen to avoid previously looted areas, reaching a maximum depth of 2.7 meters below surface (McLean 2017).



Figure 3. Location of the U.S. Army's Yakima Training Center in southeast Washington State (Durkee 2012; Figure 2).

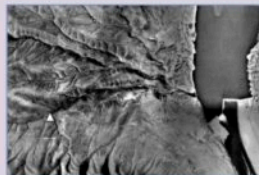


Figure 4. Location of the Sanders Site (45KT315) in proximity to the Columbia River and the Wanapum Dam (to the east) (Hackenberger and Vantine 2010; Figure 2).



Figure 1. Block excavations at the Sanders Site (45KT315) in 1972, showing Trench 1504 on the right (Garrison 2015; Figure 2)

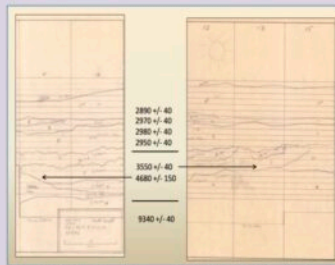


Figure 2. Radiocarbon dates associated with strata from the Sanders Site (Endacott et al. 2011; Figure 3).

## Methods

- Artifact bags were first photographed to maintain provenience throughout the analysis.
- Each specimen (n=555) was identified by taxon, order, class, or genus when possible using comparative collections provided by the Central Washington University Zooarchaeology Lab (Figures 5-7).
- For fragmentary specimen with no landmarks where family, order or species could not be identified, size class determinations were made using Thomas (1969).
- Additional characteristics noted for each specimen included: burning, weathering, root etching, breakage, age and cultural modification.
- Inter-component and intra-component comparisons were made to determine variability between the two components to identify patterns and variability.

## Results

- Level 27 had 56% distinctly burned bone and 28% distinctly unburned bone while 94% of specimen from levels 09-12 had possible burning/staining on all bones. (Figure 8).
- The lower component only had representation from size class 5 with no specimens identifiable to taxon, order, class or genus.
- The upper component had representation from size class 1-5, with no specimens from size class 6.
- Some specimens (n=135) in the upper component were found to be very fragmentary and were unable to be assigned to a size class (represented by 'X' in Figure 9).
- Identifiable specimens represent 3% (n=17) of the entire assemblage analyzed.
- The highest taxonomic determination was family, including Cervidae and Leporidae. Unidentified deer, sheep, goat, pronghorn and goat represented 47% (n=8) of all identifiable specimens (Table 1).
- 100% of the identifiable specimens were recovered from the upper component.

## Discussion

- Differential evidence of burning between the upper and lower components is possibly associated with the house pit feature identified in Stratum 5 by Ainsley (2010) and shifting depositional environment noted by McLean (2017).
- The difference in assemblage size may be indicative of differential site use between occupations ~2900 years BP and ~4500 years BP.
- A notable handicap of this comparison between faunal assemblages from upper and lower components of Unit 26 is the differential sample size. Future analysts are encouraged to chose assemblages from Trench 1504 with more comparable specimen counts between the two components.
- The presence of Aves (cf Sage Grouse - *Centrocercus urophasianus*) in the assemblage is interesting and may evoke future research questions.



Figure 5. (L to R) Cougar (*Puma concolor*), Mule Deer (*Odocoileus hemionus*), left humerus from level 09 determined to be either a deer, sheep, pronghorn or goat, and Black Bear (*Ursus americanus*). Noticeable differences are between the depth and shape of the olecranon fossa of the Cougar and Black Bear compared to the assemblage specimen (more similar to the Mule Deer in depth and shape).



Figure 6. (L to R) Furculum of a Sage Grouse (*Centrocercus urophasianus*) and a furculum from level 09 assemblage.



Figure 7. (L to R) Mountain Goat (*Oreamnos americanus*), Big Horn Sheep (*Ovis canadensis*), identified right distal tibia from Level 10 determined to belong to the Cervidae family, Pronghorn (*Antilocapra americana*) and Mule Deer (*Odocoileus hemionus*). Noticeable differences between the first three families and the assemblage specimen are the depth of gully on the posterior shaft surface (present and prominent in Cervidae family).



Figure 8. A sample from Level 27 representing the differential exterior appearance of unburned bone (left) and burned bone (right). Three specimen (far left) and two specimen (center) reflect together, post-excavation breakage indicated by the lighter surface color at the fracture.

Table 1. Summary table of identifiable specimen from the Sanders Site, Trench 1504, Unit 26, Levels 09-11 & 27

Order	Taxon	Common Name	NISP
Class Bivalva (bivalves)			
		Unidentified bivalve	2
Class Aves (birds)			
		Unidentified bird	1
Class Mammalia (mammals)			
		Unidentified rodent	4
Lagomorpha	Family Leporidae	Unidentified hare/cottontail	1
	Family Cervidae	Unidentified deer family	1
Artiodactyla		Unidentified deer, sheep, pronghorn, goat	8

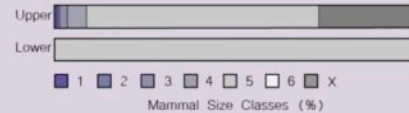


Figure 9. Mammal size classes by percentage in the upper and lower components of Unit 26 at the Sanders Site. 'X' represents specimen too fragmentary to determine size class.

## Acknowledgments

My sincerest gratitude is offered to those students and faculty who have participated in the excavation, collections management and previous analyses at the Sanders Site. Additional recognition is owed to Dr. Patrick Lubinski whose assistance in specimen identification and overall expertise were invaluable to my success in this project.

Agency: Margaret (2013). Geochronology of the Early Holocene Willapa Valley: The Sanders Site. Poster presented at the Northwest Anthropological Conference, Ellensburg, Washington.  
 Endacott, Wade, Walker, O. Dean, and Jerry Walker (2013). Human and Great Basin Mammals from the Sanders Site, Yakima County, Washington. Poster presented at the Northwest Anthropological Conference, Portland, Oregon.  
 Hackenberger, Todd A., Patrick Leach, and Steven Hackenberger (2010). Late Holocene Occupations in Shoshonean Traditions in the Columbia Basin: A Case Study from the Sanders Site, Southcentral WA. Poster presented at the 10<sup>th</sup> Annual Meeting of the Society for American Archaeology, Denver, Colorado.  
 Garrison, Patrick D. (2015). Geochronology of the Sanders Site (45KT315): Analysis of Human Tools from the Yakima Plateau, WA. Master's Thesis, Resource Management, Central Washington University, Ellensburg, Washington, Hackenberger and Vantine (2010).  
 McLean, James (2017). Subsistence and Site Formation at the Sanders Site (45KT315). M.S. Thesis, Individual Studies, Central Washington University, Ellensburg, Washington.  
 Thomas, David Patrick (1969). Cross Bone-Measuring Patterns: A Quantitative Method for Treating Faunal Remains. *American Anthropologist* 71(4): 493-497.  
 VanTine, Leah L. (2009). Analysis of Freshwater Mussels (Mollusca: Bivalvia) from the Johnson Creek (Sanders) Site (45KT315). M.S. Thesis, Individual Studies Report, Washington on the Department of Anthropology, Central Washington University, Ellensburg, Washington.