FAUNAL ANALYSIS OF A NINETEENTH CENTURY ASSEMBLAGE
NITTA YUMA PLANTATION (22SH655)
SHARKEY COUNTY, MISSISSIPPI

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Faunal Analysis of a Nineteenth Century Assemblage
Nitta Yuma Plantation (22SH655)
Sharkey County, Mississippi

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Introduction

This report presents the results of the faunal analysis performed on an assemblage recovered from a historic antebellum pit excavated at the Delta Plantation site at Nitta Yuma (22SH655), Sharkey County, Mississippi. All analyzed specimens came from a single pit designated as Feature 18. This analysis included an examination of all faunal remains to gain an understanding of the diversity of animals consumed, butchery techniques, and taphonomic factors that possibly skewed the assemblage's composition.

Methods

The analyst identified faunal remains to the lowest taxonomic order possible by using standard osteological references and a type collection in the zooarchaeology laboratory at the office of Richard Grubb & Associates, Cranbury, New Jersey. References for mammal identification included Gilbert (1990), Schmid (1972), Hillson (1992), and Olsen (1996). References for identifying avifauna included Gilbert et al. (1996) and Olsen (1979). The assemblage contained several fish scales that were analyzed under high power magnification. Several freshwater and saltwater fishes have scales with a distinctive pattern that enables identification at least to the level of genus (Daniels 1996). Analysts often overlook the research potential of fish scale identification due to the limited amount of published information and type collections. The author used Daniels (1996) and his personal type collection to identify fish scales.

This analysis included an examination of all bone for the presence of rodent or carnivore gnawing, burning or calcination, root etching, extent of weathering, and butchery marks. The 19 calcined and three burnt specimens were not included when calculating the weathering rates, as exposure to fire causes the bone to take on a white color and chalky texture, making it difficult to identify surface modifications. The results of experimental bone burning demonstrate that bone color varies as it passes through temperature thresholds (Lore 2002; Shipman et al. 1984). The white color and chalky texture of the 29 calcined specimens is indicative of bone exposed to temperatures in excess of 500° Celsius.

The analyst classified all vertebrae bone as non-weathered, moderately weathered, and non-weathered. Bone classified as non-weathered did not exhibit extensive pitting or exfoliation, moderately weathered specimens exhibited limited pitting, and weathered specimens showed signs of exfoliation.

The final component of this analysis included identifying all bone for the presence of butchery marks. Identified butchery marks consisted of cut, chop, and saw. Researchers frequently record these marks on bone from historic period assemblages, as they provide pertinent information on butchery techniques and consumption practices (Gall et al. 2006; Landon 1996; Reitz and Scarry 1985). Butchery marks include:

1) Cut, a straight narrow incised line
2) Chop, where a small wedge of bone has been chopped through
3) Saw, a series of parallel striations left by a toothed cutting tool.

Due to butchery and cooking methods, as well as several other taphonomic factors, the assemblage contains a high rate of fragmented bone only identifiable to the level of class (i.e. mammal, fish, and bird). As a result, the analyst used a size gradient from small to large to categorize these specimens (Table 1). While the subjective nature of a size gradient places some interpretive limitations, it does enable an analyst to categorize these elements, and provide a basis for comparative analysis.

Table 1: Size Gradient for Unidentified Animals.

Classification	Possible Taxa
Large Mammal	Deer, adult pig
Medium Mammal	Pig, sheep, goat
Small Mammal	Groundhog, rabbit, raccoon
Small Bird	Robin, pigeon
Small Fish	Sunfish, perch

After identification, all faunal remains were calculated by using the number of identifiable specimens (NISP) attributed to a particular animal, and the minimum number of individuals (MNI) represented by the bone. Faunal analysts use the NISP to quantify the total number of identifiable bone fragments and provide the frequency of different elements attributed to a particular species. The MNI represents the minimum number of animals required to account for the NISP. The MNI is typically determined by using paired elements with the highest frequency (White 1953). For instance, the presence of three right, and two left femora from a pig, would indicate a MNI of three individuals. The NISP attributed to this element is equal to five. The identification of only one or two bones to a single animal precluded using this approach. Although both of these calculations have their analytical shortcomings, they are some of the most common measurements used by faunal analysts, and enable at least a qualitative comparison with other sites (see Grayson 1984 for a critique of these approaches). The final measurement used in this analysis is a rough estimate of useable meat weight based on live weights of modern samples for wild taxa, and colonial estimates for domestic species (Miller 1984).

Results

The combined faunal assemblage from Feature 18 contained 221 bone and bone fragments. In addition, the assemblage also contained 18 eggshell fragments, 21 freshwater mussel shells, and 30 fish scales. The combined assemblage includes 145 specimens each from the ¼-inch screen and the flotation samples. Combined as a single analytical unit due to its small size, the only significant difference was an increase in the relative frequency of fish remains in the flotation samples, and the recovery of eggshell fragments. The screened assemblage contained 21 fish specimens, which accounted for 14.5% of all recovered remains, while the flotation sample contained 55 specimens accounting for 38%. The increase in fish remains is not particularly surprising, as researchers demonstrate that taphonomic bias against these elements can be as high as 100% depending on recovery methods (Casteel 1972). The assemblage also contained two pieces of carved bone that were not quantified, as they do not represent a dietary component.

The faunal remains from Feature 18 show a considerable amount of species diversity despite its small size (see Table 2). Mammal elements account for 44.5% (n=98) of the vertebrate remains, followed by fish (21%; n=46), and bird (8.5%; n=19). The remaining 26% consisted of small and fragmented specimens identified as vertebrate. The assemblage contains species identified as wild taxa including white-tailed deer, opossum, catfish, and sunfish. Element diversity is low, with a single radius attributed to white-tailed-deer (see Figure 1), and a single vertebra identified as opossum. Catfish remains consist of a cranial bone and the diagnostic pectoral spine (see Figure 2). Fish scales examined under magnification were the only specimens attributed to sunfish (see Figure 3). Bone fragmentation prevented bird identification beyond the level of class; however, two specimens compared favorably to chicken and mourning dove. Chicken remains are ubiquitous in most historic period faunal assemblages, and it is likely that several of the unidentified bird elements belong to this group. Moreover, the recovery of numerous eggshell fragments provides additional evidence that these birds were raised on site. Chickens are relatively easy to raise, require limited care, and provide a reliable source of fresh meat and eggs. The assemblage also contained at least two freshwater mussels identified to the broad class of unionidae. Pig was the only domestic animal identified based on the recovery of two metatarsal bones (see Figures 4 and 5).

Taphonomic modifications recorded on the bone consisted of 29 calcined specimens, four burnt, and one with gnaw marks. The calcined specimens have the whiteness and chalky texture of bone exposed to temperatures in excess of 300 degrees Celsius (Lore 2002; Shipman et al. 1984). The advanced stage of calcination on these specimens indicates disposal directly into a hearth, as this extent of modification does not occur during meal preparation when the meat insulates the majority of the bone (Roberts et al. 2002). These elements are probably fragments of meal refuse that were

disposed of directly into a hearth. Typically, at least portions of the bone will survive incineration, which enables their introduction into a secondary disposal area when the inhabitants clean out their hearth. The single mark identified as carnivore gnawing probably resulted from a dog obtaining meal scraps.

Table 2: MNI and NISP Values for Nitta Yuma Plantation (22SH655)

Common Name	Scientific Name	MNI	NISP
Pig	*Sus scrofa*	1 individual	2
White-tailed deer	*Odocoileus virginianus*	1 individual	1
Virginia opossum	*Didelphis virginiana*	1 individual	1
Mammal (M-L)	Mammalia	N/A*	3
Mammal (M)	Mammalia	N/A	11
Mammal (S-M)	Mammalia	N/A	7
Mammal (S)	Mammalia	N/A	6
Mammal (Unid.)	Mammalia	N/A	65
Rodent	Rodentia	1 individual	1
Catfish	*Ictalurus sp.*	1 individual	3
Sunfish	*Lepomis sp.*	1 individual	6
Fish (S)	Osteichthyes	N/A	9
Fish	Osteichthyes	N/A	58
Bird (M)	Aves	1 individual	2
Bird (S)	Aves	1 individual	7
Bird	Aves	N/A	10
Freshwater Mussel	Unionidae	2 individuals	9
Eggshell	NA	N/A	30
Vertebrate	Chordata	N/A	59
Total			**290**

*N/A= Not Applicable

The presence of carnivore gnawing on a single bone, and the absence of rodent gnawing, indicates limited surface exposure for the assemblage, providing evidence that this area served as a refuse pit that was periodically covered with fill. The longer bone remains exposed on the surface the likelihood of animal gnawing increases, and often results in bone with advanced signs of weathering, such as exfoliation. The extent of weathering recorded on the non-calcined vertebrate specimens (n=257) consisted of those identified as not weathered (n=153; 59.5%), moderately weathered (n=98; 38%), and weathered (n=6; 2.5%). None of the elements contained evidence of extensive root etching or exfoliation. The prevalence of non-weathered bone provides additional evidence that the site's inhabitants probably disposed of these elements soon after butchering the animal, or after consumption.

Butchery marks identified on the bone consisted of saw (n=2), cut (n=1), and chop (n=1) (see Figures 1, 6, 7, and 8). A chop mark on the proximal end of a deer radius was the only element with butchery marks identified to a specific animal (see Figure 1). The remaining butchery marks consist of a saw mark on an unidentified longbone fragment, a rib fragment with a single cut mark, and a sawn innonimate (see Figures 6-8).

Discussion

The faunal assemblage analyzed from Feature 18 at Site 22SH655 provides important data for interpreting antebellum subsistence. Due to the proximity of the feature to the Plantation's quarters, this assemblage presumably represents meal refuse associated with either the caretakers or slaves. Although the assemblage is too small to determine the extent of time represented, and lacks seasonal indicators (e.g. shed antlers), it appears to represent a disposal pit, and provides insight into dietary diversity. The prevalence of mammalian remains is a typical pattern on most historic period sites, regardless of status or ethnicity. The site's inhabitants clearly exploited both domestic and wild taxa. The presence of two elements attributed to pig confirms that the inhabitants had access to these animals, or at least portions of them. A single opossum vertebra provides evidence that the site's inhabitants hunted at night, perhaps the only occasion when they had free time for such pursuits. Whether the assemblage is the byproduct of slaves or caretakers, both groups had to contend with the realities of plantation life, which obviously put limits on when people had the time to acquire additional resources. Opossum's nocturnal behavior would make them a particularly accessible resource during nighttime hunting forays.

Barber (1981:161) reported that deposits associated with the slave's quarters at the Shirley Plantation in Virginia contained opossum remains, and they represented the most frequently harvested wild animal. Domestic mammals predominated; however, the presence of other wild taxa including beaver, woodchuck, muskrat, cottontail rabbit, and gray squirrel, attest to the importance of these animals. At the Kingsmill Plantation in Virginia, McKee (1987:32) reported that faunal remains associated with the slave's quarters contained several wild specimens including deer, opossum, Canada goose, turkey, raccoon, small birds, three to four species of fish, small crabs, and at least two turtles. Comparable to the Shirley Plantation, domestic mammals also account for the majority of elements. While the assemblage from 22SH655 lacks the diversity identified at these sites, the presence of whitetail deer, opossum, catfish, and sunfish leave little doubt that wild taxa provided at least occasional sustenance. Whitetail deer are edge-adapted mammals that frequently inhabit transition zones between agricultural fields and woodlots, areas that were accessible to the site's inhabitants. Comparable to opossum, the opportunistic procurement of deer probably complimented the diet, rather than providing a reliable staple.

In addition to mammals, the site's inhabitants could easily set lines for fish while they performed other tasks. The presence of both catfish and sunfish confirm at least occasional procurement of these fishes. Commonly present in most lakes, ponds, streams, and rivers in Mississippi, these fishes would have provided a reliable and relatively predictable supplement to the diet.

The presence of domestic and wild taxa in the assemblage raises important questions about resource procurement. In general, faunal analysts note that assemblages from the southern United States have more diversity and abundance of wild taxa when compared to their northern counterparts. In most cases, this distinction exists regardless of ethnicity or socioeconomic status. Reitz (1986) compared urban and rural faunal assemblages from the southern Atlantic Coastal Plain, and reported that rural areas have greater wild taxa diversity and abundance than their urban counterparts. Furthermore, rural assemblages also contained large amounts of fish when compared to urban assemblages. Several factors might account for this variability including the rural inhabitant's access to wild taxa, a better capacity to maintain and monitor traps and fishing lines, and the need to supplement the diet. Reitz (1986:56) notes that these factors probably encouraged a greater degree of self-sufficiency, as the isolation of plantations probably resulted in livestock shortages, and difficulty acquiring fresh meat stores. McKee (1987) made a qualitative comparison that slaves at the Kingsmill Plantation in Virginia had a somewhat higher reliance on domestic taxa than did slaves further to the south. At Nitta Yuma, whether the faunal remains represent the meals of slaves or caretakers, both groups would have adapted strategies to address these seasonal shortages.

The limited diversity and abundance of both wild and domestic animals precludes determining what animals made the most significant dietary contributions. In addition, the absence of cattle elements is particularly surprising, as these animals are prevalent in historic period assemblages. The possibility exists that these large animals were butchered and disposed of at a separate location not in proximity to the quarters. Nevertheless, there are some general qualitative statements about the potential amount of meat available to the site's inhabitants.

When looking at the meat weight available for white-tailed deer there is considerable data collected from hunters that show their weight range. Biological data collected by the Mississippi Department of Wildlife during the 2008 season indicates that the average dressed weight for does in Sharkey County ranged from 109 to 112 pounds (Mississippi Department of Wildlife 2008). In a study of meat weight returns from white-tailed deer, Madrigal and Holt (2002) recorded the dressed weight and the available meat return after deboning. An animal weighing 54.3kg (119.5 lbs) returned 19.9kg (43.8 lbs) of meat, an 18.6kg (41 lbs) animal returned 4.43kg (9.7 lbs), and a 37.2kg (82 lbs) animal returned 10.04kg (22.1lbs) of meat. The average return rate relative to each dressed carcass is 36.6%, 23.8%, and 26.9%, respectively. Based on fusion rates of longbones, the distal radius

recovered from 22SH655 came from an animal with a minimum age of 34 months (Lewall and Cowan 1963). The modern samples harvested from Sharkey County came from animals between the ages of 18 to 30 months (Mississippi Department of Wildlife 2008; see Table 4). The archaeological sample comes from an animal that weighed at least 110 pounds, based on comparisons with modern samples. This animal could have provided the inhabitants with approximately 40 pounds of usable meat, assuming proper butchering techniques. Figure 9 depicts the portion of the single element attributed to white-tailed deer. As this figure illustrates, this element comes from a low meat yielding portion of the carcass, which the inhabitants might have disposed of early in the butchering process.

Elements attributed to pig consist exclusively of low meat yielding portions often identified as butchery byproducts (Figure 10). Pigs were a particularly reliable food source, as they are easy to raise, suitable for curing and smoking, and provide 65-80% of their dressed weight after slaughter (Reitz et al. 1985). The elements attributed to these animals are insufficient to determine the meat weights, but they do appear to be from an animal less than 10 months of age, based on a comparison with a modern sample. The single vertebra from an opossum is insufficient to make statements about available meat, but the live weight of these animals ranges from 9 to 13 pounds (Burt and Grossenheider 1976). The relative paucity of sunfish and catfish bones also makes it impractical to quantify dietary percentages. The presence of these animals provides a qualitative basis for dietary diversity.

Despite the limited diversity, the elements attributed to pig and deer, and the presence of butchery marks, provides information about the functional role of Feature 18. The low meat yielding elements attributed to these animals provides evidence that this feature functioned primarily as a butchery and meal refuse disposal area. A proximal chop on the white-tailed deer radius probably occurred during the initial severing of the lower limbs, an area of the carcass that contains limited meat. The pig elements provide less convincing evidence that they represent butchery byproducts, as cookbooks from the eighteenth and nineteenth centuries attest to the popularity of most portions of these animals (Carson 1968; Child 1883; Simmons 1958). Consequently, the site's inhabitants probably cooked these portions of the animal and disposed of the bone soon afterwards. The fish scales recovered from Feature 18 provides the best evidence that the inhabitants used this area as a disposal pit when cleaning fish and other animals. Fish scale removal is usually one of the first processes for cleaning fish, and it likely that the inhabitants would have disposed of these parts soon after cleaning their catch. The site's inhabitants possibly disposed of this refuse as they were cleaning the fish. The pectoral spine from a catfish is another element that the inhabitants would likely have disposed of early on in the cleaning process.

Butchery marks are relatively scarce in the assemblage to provide information on processing methods or utilization of low meat yielding elements. Nevertheless, the assemblage contains a limited number of marks made during butchering and meal consumption. Several researchers note the importance of examining marks to determine the techniques used for the initial butchering, and the subsequent processes used to prepare smaller, or individual meat cuts (Gust 1983; Crader 1990; Lyman 1979; Landon 1996). Bones that primarily have cut and chop marks are typical for sites from the eighteenth to the early nineteenth century, as saws used for butchering did not gain in popularity until circa 1800 (Bowen and Manning 1993; Gust 1983; Hanson and Hsu 1975). In general, eighteenth-century butchering involved the primary sectioning of the animal into large pieces, followed by a secondary reduction into smaller pieces for consumption and curing. Ultimately, these methods culminated in the standardized and individual cuts of the nineteenth century. Deetz (1977: 124-125) identified this pattern in early Colonial America and interpreted it as the increasing importance of individual identity within the community. The Nitta Yuma assemblage only contained four bones with butchery marks, an insufficient number to determine if the inhabitants used a particular technique when butchering their animals.

In a recent approach to interpreting antebellum faunal assemblages, Tuma (2006) conducted ethnoarchaeological observations of the subsistence practices of an African American community in rural southern Mississippi. The results of these observations served as the basis for interpreting faunal assemblages recovered from slave quarters at Saragossa Plantation, Natchez, Mississippi. This case study provided important information about intrasite patterning related to butchery practices, taxa diversity, and cooking methods. An important aspect of this study was that the modern community lives in a rural area with a degree of isolation, where animal procurement from hunting and fishing accounts for part of their sustenance. In addition, several of the community's residents are descendants of slaves who worked the plantation prior to the Civil War. As a result, continuity might exist in how the individuals processed these animals. For example, Tuma (2006:5) reported that the modern inhabitants discarded the head, tail, and feet of deer immediately after butchering the animal, while all other elements were kept for consumption. The archaeological samples from the Saragossa Plantation indicates that the inhabitants used similar processing methods, as deer bones consisted exclusively of axial elements and forelimbs, providing evidence that these animals were butchered in a separate location (Tuma 2006:16).

The possibility exists that the inhabitants of Nitta Yuma utilized space in a similar manner. Although Feature 18 only contained one deer element, the fact that the proximal end has chop marks would suggest a pattern of initial butchering to sever the lower limbs, the low meat yielding portions of the carcass. As noted, the recovery of two pig metacarpals offers less convincing evidence that the pit functioned solely for disposal, as these elements are commonly used during

meal preparation. Tuma (2006:16) notes that the inhabitants of the Saragossa Plantation utilized several low meat yielding portions, including head and feet elements from pigs.

The frequency of fish scales recovered from Feature 18 provides evidence that it was at least occasionally used to dispose of butchery waste, or inedible portions of fish. The two pectoral spines from catfish were probably introduced into the pit soon after these fish were cleaned. Tuma (2006:8) observed that the pectoral spines of catfish are removed and disposed of during the initial cleaning of the fish. In general, both human and other taphonomic agents select against fish preservation, and their presence in Feature 18 indicates rapid disposal and burial soon after cleaning. For example, the author of this analysis notes a potential bias with fish preservation from discussions with African Americans that frequently procure small fish such as sunfish and perch. One woman reported that small fish were often scaled, gutted, and the head removed, prior to grinding the fish to make fish cakes that could be fried. In this case, the processing and cooking techniques rendered the non-cranial bones of these fish into small pieces suitable for consumption. Interestingly, Tuma (2006:11) reported that no bones were recovered after a modern day fish fry, as they were likely scavenged by feral cats. Although it cannot be determined if similar agents selected against bone preservation at Nitta Yuma, the prevalence of fish scales from Feature 18 offers convincing evidence that the inhabitants routinely procured sunfish, catfish, and presumably a variety of other fish not identified in the assemblage.

Conclusions

The faunal assemblage analyzed from the Delta Plantation site at Nitta Yuma (22SH655) presents a view of antebellum foodways associated with the plantations caretakers, or slaves. In general, the relative diversity of wild taxa compares favorably with faunal assemblages attributed to slaves, although limited local information exists for quantitative or qualitative comparisons with caretaker assemblages. Additional research and future analysis of similar assemblages would help to clarify if distinct differences or similarities exist between faunal remains attributed to slaves and caretakers. The results of the current analysis indicate that the site's inhabitants butchered and processed animals in proximity to their quarters. Feature 18 probably served as a garbage pit for butchering and meal refuse due to the recovery of low meat yielding elements and numerous fish scales. This small assemblage makes an important contribution to understanding antebellum subsistence.

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APPENDIX A: FIGURES

Figure 1:

Distal end of a deer radius.

Figure 2:

Modern pectoral spine from a catfish (top) compared to archaeological sample (bottom).

Figure 3:

Fish scale viewed under magnification.

Figure 4:

Pig metatarsus bone recovered from 22SH655 (left) compared with modern pig bone (right).

Figure 5:

Modern pig metatarsus (left) compared with bone recovered from 22SH655.

Figure 6:

Longbone fragment with saw marks.

Figure 7:

Rib fragment with a cut mark.

Figure 8:

Innonimate (pelvis) with saw and gnaw marks.

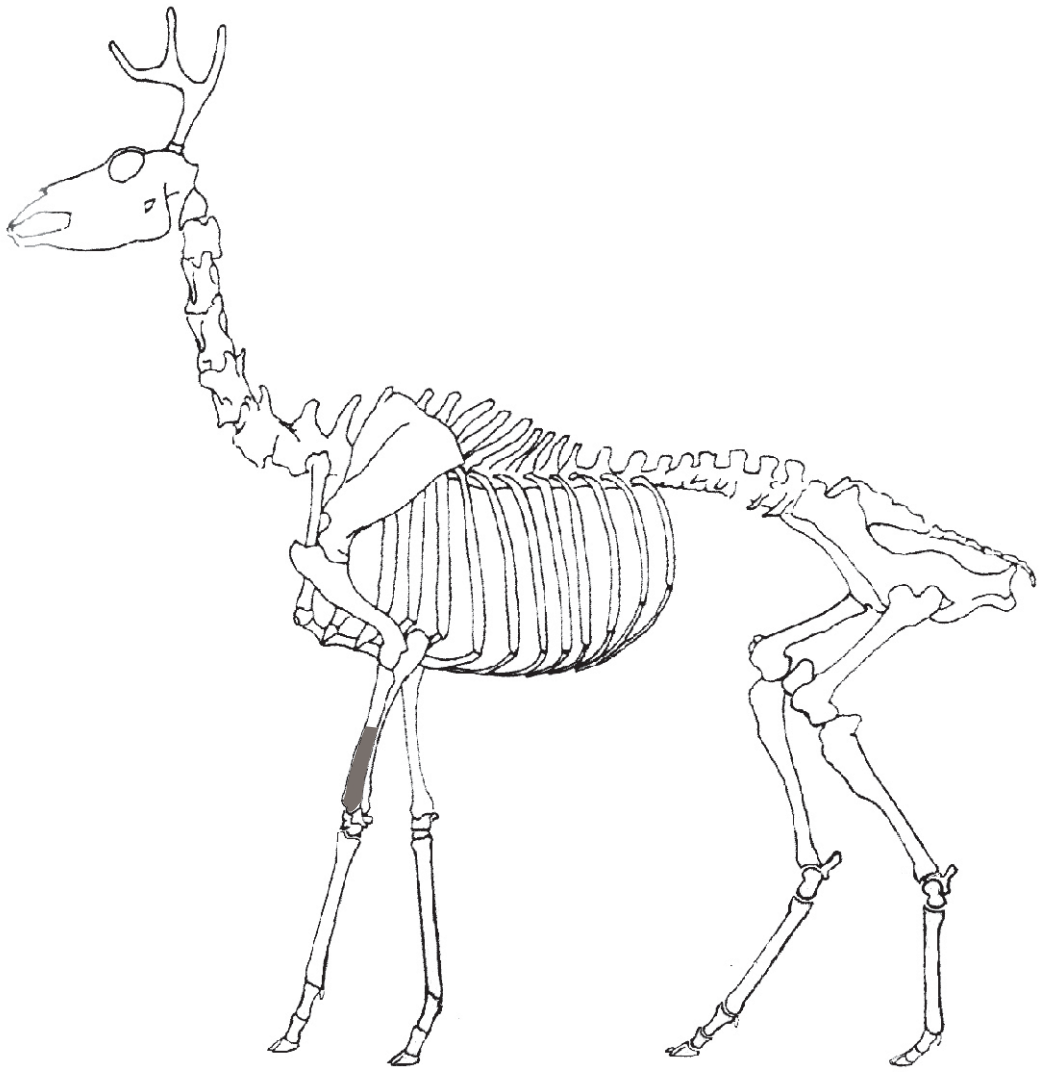

Figure 9:

Portion of deer element identified at 22SH655 depicted by shaded area.

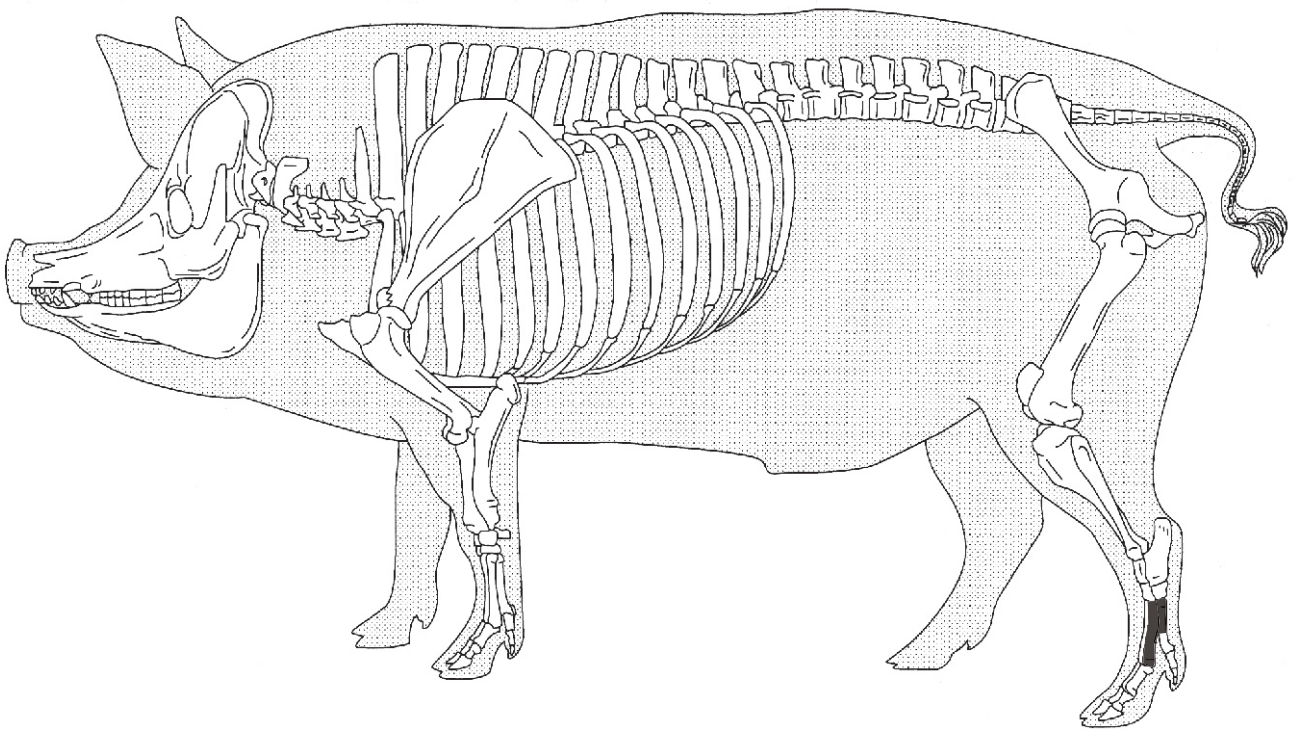

Figure 10:

Portions of pig elements identified at 22SH655 depicted by shaded area.

APPENDIX B: FAUNAL CATALOG

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CAT. #	NORTHING	LEVEL	STRATUM	TAXA	ELEMENT	PORTION	COUNT	SYMMETRY	AGE	BUTCHERY MARKS	TAPHONOMY	WEATHERING	WT. GMS.	COMMENTS
128	Feature 18	1	East 1/2	Vertebrate	Unid.	Fragment	1					NW	0.17	
128	Feature 18	1	East 1/2	Mammal	Rib	Midshaft	1					NW	0.57	
128	Feature 18	1	East 1/2	Mammal	Unid.	Fragment	3					NW	0.82	
128	Feature 18	1	East 1/2	Bird	Longbone	Fragment	1				Calcined		0.11	
128	Feature 18	1	East 1/2	Mammal	Vertebrae	Fragment	1				Calcined		0.47	Partially calcined
128	Feature 18	1	East 1/2	Mammal	Unid.	Fragment	1				Calcined		0.15	
128	Feature 18	1	East 1/2	Vertebrate	Unid.	Fragment	1					NW	0.16	
128	Feature 18	1	East 1/2	Vertebrate	Unid.	Fragment	1				Calcined		0.04	
128	Feature 18	1	East 1/2	Opossum	Vertebrae	Complete	1					NW	1.75	Cervical
128	Feature 18	1	East 1/2	Mammal	Vertebrae	Fragment	1				Calcined		1.21	
128	Feature 18	1	East 1/2	Mammal (S)	Vertebrae	Complete	1					NW	0.47	Cervical; cf. Opossum
128	Feature 18	1	East 1/2	Mammal (S-M)	Longbone	Fragment	1					NW	1.55	
128	Feature 18	1	East 1/2	Mammal	Unid.	Fragment	1					NW	0.4	
128	Feature 18	1	East 1/2	Bird (S)	Radius	Diaphysis	1					NW	0.23	
128	Feature 18	1	East 1/2	Mammal	Unid.	Fragment	1					NW	0.3	
129	Feature 18	2	East 1/2	Bird (S)	Femur	Diaphysis	1					NW	1.42	
129	Feature 18	2	East 1/2	Mammal (M)	Vertebrae	Fragment	1					NW	4.19	Thoracic
129	Feature 18	2	East 1/2	Mammal	Longbone	Fragment	1				Calcined		1.23	
129	Feature 18	2	East 1/2	Mammal	Longbone	Fragment	1				Calcined		1.46	Partially calcined
129	Feature 18	2	East 1/2	Mammal	Longbone	Fragment	1					NW	1.78	
129	Feature 18	2	East 1/2	Mammal	Unid.	Fragment	1					NW	1.72	
129	Feature 18	2	East 1/2	Mammal	Unid.	Fragment	2				Calcined		1.91	
129	Feature 18	2	East 1/2	Mammal	Unid.	Fragment	1				Burnt		0.71	
129	Feature 18	2	East 1/2	Mammal	Vertebrae	Fragment	1					NW	1.15	
129	Feature 18	2	East 1/2	Bird	Phalange	Complete	1					NW	0.18	cf. Chicken
129	Feature 18	2	East 1/2	Bird	Rib	Midshaft	1					NW	0.13	
129	Feature 18	2	East 1/2	Mammal (S)	Innominate	Fragment	1	L				NW	0.38	Acetabulum; Muskrat size
129	Feature 18	2	East 1/2	Mammal (S)	Cranial	Fragment	1					NW	0.37	Zygomatic process; Opossum size
129	Feature 18	2	East 1/2	Mammal	Unid.	Fragment	1					NW	1.45	
130	Feature 18	3	East 1/2	Pig	Metatarsus	Proximal	1	L				NW	7.02	Metatarsus IV
130	Feature 18	3	East 1/2	Mammal	Unid.	Fragment	3					MW	0.93	
130	Feature 18	3	East 1/2	Mammal	Unid.	Fragment	1				Calcined		1.22	
131	Feature 18	4	East 1/2	Mammal (S)	Unid.	Fragment	1					NW	0.32	
151	Feature 18	1	West 1/2	Mammal (M)	Cranial	Fragment	1					MW	12.45	
151	Feature 18	1	West 1/2	Mammal (M)	Cranial	Fragment	1					MW	22.68	
151	Feature 18	1	West 1/2	Mammal	Longbone	Fragment	6					MW	2.37	Small fragments
151	Feature 18	1	West 1/2	Mammal	Unid.	Fragment	2				Calcined		0.63	
151	Feature 18	1	West 1/2	Bird	Longbone	Diaphysis	1					NW	0.48	
151	Feature 18	1	West 1/2	Vertebrate	Unid.	Fragment	4					NW	0.82	
151	Feature 18	1	West 1/2	Mussel	Shell	Fragment	1					W	0.68	
151	Feature 18	1	West 1/2	Mussel	Shell	Fragment	1					W	0.78	
151	Feature 18	1	West 1/2	Catfish	Pectoral	Complete	1	L				MW	0.57	
151	Feature 18	1	West 1/2	Fish	Rib	Midshaft	1					NW	0.07	
151	Feature 18	1	West 1/2	Vertebrate	Unid.	Fragment	1					NW	0.25	
151	Feature 18	1	West 1/2	Fish	Scale	Fragment	1					NW	0.06	
151	Feature 18	1	West 1/2	Fish (S)	Cranial	Fragment	2					NW	0.15	
151	Feature 18	1	West 1/2	Fish (S)	Opercle	Complete	1					NW	0.09	cf. Sunfish
151	Feature 18	1	West 1/2	Fish	Unid.	Fragment	1					NW	0.2	
151	Feature 18	1	West 1/2	Fish	Unid.	Fragment	1					NW	0.31	
152	Feature 18	2	West 1/2	Bovidae	Carpal	Complete	1					NW	2.92	

CAT. #	NORTHING	LEVEL	STRATUM	TAXA	ELEMENT	PORTION	COUNT	SYMMETRY	AGE	BUTCHERY MARKS	TAPHONOMY	WEATHERING	WT. GMS.	COMMENTS
152	Feature 18	2	West 1/2	Mammal (S-M)	Longbone	Fragment	2					NW	5.08	
152	Feature 18	2	West 1/2	Mammal	Unid.	Fragment	1					NW	0.54	
152	Feature 18	2	West 1/2	Mussel	Shell	Fragment	1					W	0.19	
152	Feature 18	2	West 1/2	Vertebrate	Unid.	Fragment	1					NW	0.06	
152	Feature 18	2	West 1/2	Fish	Scale	Complete	1					NW	0.08	
152	Feature 18	2	West 1/2	Fish	Ray	Complete	1					NW	0.19	
152	Feature 18	2	West 1/2	Fish	Cranial	Fragment	1					NW	0.25	
152	Feature 18	2	West 1/2	Fish	Unid.	Fragment	1					NW	0.33	
153	Feature 18	3	West 1/2	Mammal (M)	Rib	Diaphysis	1					MW	16.23	
153	Feature 18	3	West 1/2	Mammal (M)	Rib	Diaphysis	1					MW	9.53	
153	Feature 18	3	West 1/2	Bird	Ulna	Diaphysis	1					MW	0.67	
153	Feature 18	3	West 1/2	Mammal	Innominate	Fragment	1			Saw	Gnaw©	MW	12.77	
153	Feature 18	3	West 1/2	Mammal (M)	Innominate	Fragment	1					MW	7.86	
153	Feature 18	3	West 1/2	Mammal (M)	Cranial	Fragment	1					MW	7.99	
153	Feature 18	3	West 1/2	Mammal (M)	Vertebrae	Fragment	1					MW	2.65	Cervical
153	Feature 18	3	West 1/2	Mammal (M)	Vertebrae	Fragment	1					MW	1.6	
153	Feature 18	3	West 1/2	Mammal (M)	Vertebrae	Fragment	1					MW	3.85	Thoracic; Neural spine
153	Feature 18	3	West 1/2	Mammal	Longbone	Fragment	1			Saw		NW	4.54	
153	Feature 18	3	West 1/2	Mammal	Rib	Fragment	1					MW	0.76	
153	Feature 18	3	West 1/2	Mammal	Longbone	Fragment	2					MW	5.71	
153	Feature 18	3	West 1/2	Mammal	Rib	Fragment	2					NW	1.28	
153	Feature 18	3	West 1/2	Mammal	Rib	Fragment	1				Burnt			Three mend as one
153	Feature 18	3	West 1/2	Mammal (M-L)	Cranial	Fragment	1					MW	6.07	
153	Feature 18	3	West 1/2	Mammal	Unid.	Fragment	3					MW	1.45	
153	Feature 18	3	West 1/2	Mammal	Unid.	Fragment	1				Calcined		0.19	
153	Feature 18	3	West 1/2	Vertebrate	Unid.	Fragment	6					MW	0.67	
153	Feature 18	3	West 1/2	Mammal	Unid.	Fragment	1					NW	0.3	
153	Feature 18	3	West 1/2	Fish	Vertebrae	Complete	1					NW	0.18	
153	Feature 18	3	West 1/2	Mammal (S)	Vertebrae	Complete	1					NW	0.45	
153	Feature 18	3	West 1/2	Mussel	Shell	Complete	1					MW	16.82	
153	Feature 18	3	West 1/2	Mussel	Shell	Fragment	1					MW	3.99	
154	Feature 18	4	West 1/2	Whitetail deer	Radius	Distal	1		A	Chop		NW	55.62	Chopped proximally
154	Feature 18	4	West 1/2	Mammal (M-L)	Rib	Diaphysis	1			Cut		NW	6.2	Cut proximally
154	Feature 18	4	West 1/2	Mammal (S-M)	Rib	Diaphysis	1					NW	3	
154	Feature 18	4	West 1/2	Vertebrate	Unid.	Fragment	1				Calcined		0.03	
154	Feature 18	4	West 1/2	Mammal (M)	Tibia	Fragment	1					MW	1.36	
154	Feature 18	4	West 1/2	Mammal	Longbone	Fragment	1				Burnt		0.94	
154	Feature 18	4	West 1/2	Mammal (M-L)	Longbone	Fragment	1					MW	2.77	
154	Feature 18	4	West 1/2	Mammal	Unid.	Fragment	1					MW	0.41	
154	Feature 18	4	West 1/2	Mammal	Unid.	Fragment	5					MW	3.45	
154	Feature 18	4	West 1/2	Vertebrate	Unid.	Fragment	1					MW	0.33	
154	Feature 18	4	West 1/2	Pig	Metatarsus	Complete	1	R	A			MW	3.39	Metatarsus II
154	Feature 18	4	West 1/2	Mussel	Shell	Complete	1					MW	11	
154	Feature 18	4	West 1/2	Mussel	Shell	Fragment	1					MW	1.54	
154	Feature 18	4	West 1/2	Bird (S)	Humerus	Distal	1					MW	0.44	cf. Mourning Dove
154	Feature 18	4	West 1/2	Bird	Phalanx	Complete	1	R				MW	0.34	First Phalanx
154	Feature 18	4	West 1/2	Bird	Radius	Distal	1					MW	0.19	
154	Feature 18	4	West 1/2	Bird	Unid.	Fragment	1				Calcined		0.13	
154	Feature 18	4	West 1/2	Mammal (S)	Vertebrae	Complete	1					NW	0.69	Caudal
154	Feature 18	4	West 1/2	Fish (S)	Ray	Fragment	1					NW	0.22	
154	Feature 18	4	West 1/2	Vertebrate	Unid.	Fragment	1				Calcined		0.52	
154	Feature 18	4	West 1/2	Vertebrate	Unid.	Fragment	1					NW	0.25	
154	Feature 18	4	West 1/2	Fish	Opercle	Complete	1					NW	1.32	

CAT. #	NORTHING	LEVEL	STRATUM	TAXA	ELEMENT	PORTION	COUNT	SYMMETRY	AGE	BUTCHERY MARKS	TAPHONOMY	WEATHERING	WT. GMS.	COMMENTS
154	Feature 18	4	West 1/2	Fish	Cranial	Fragment	1					NW	0.27	
154	Feature 18	4	West 1/2	Bird	Sternum	Fragment	1				Calcined		0.1	
154	Feature 18	4	West 1/2	Catfish	Cleithrum	Fragment	1					NW	0.21	
154	Feature 18	4	West 1/2	Fish	Cranial	Fragment	2					NW	1.49	
154	Feature 18	4	West 1/2	Fish	Cranial	Fragment	1				Calcined		0.7	
154	Feature 18	4	West 1/2	Mammal	Unid.	Complete	1					NW	0.71	
155	Feature 18	5	West 1/2	Fish	Unid.	Fragment	1					NW	0.86	
155	Feature 18	5	West 1/2	Mammal	Unid.	Fragment	1				Calcined		0.36	
155	Feature 18	5	West 1/2	Mammal (S-M)	Vertebrae	Fragment	1					MW	1.01	Centrum
155	Feature 18	5	West 1/2	Mammal	Unid.	Fragment	1					W	0.85	
155	Feature 18	5	West 1/2	Mammal	Unid.	Fragment	1					NW	0.58	
155	Feature 18	5	West 1/2	Bird (S)	Humerus	Diaphysis	1	R				NW	0.16	
	Flotation													
124	Feature 18	1	East 1/2	Bird	Eggshell	Fragment	13					NW	0.05	
124	Feature 18	1	East 1/2	Fish (S)	Vertebrae	Complete	1					NW	<0.01	
124	Feature 18	1	East 1/2	Vertebrate	Unid.	Fragment	4					NW	0.11	
124	Feature 18	1	East 1/2	Vertebrate	Unid.	Fragment	1				Calcined		<0.01	
124	Feature 18	1	East 1/2	Fish	Ray/Spine	Fragment	1					NW	0.03	
124	Feature 18	1	East 1/2	Fish	Cranial	Fragment	1					NW	0.01	
124	Feature 18	1	East 1/2	Fish	Scales	Fragment	11					NW	0.02	
124	Feature 18	1	East 1/2	Sunfish	Scales	Complete	1					NW	<0.01	
124	Feature 18	1	East 1/2	Sunfish	Scales	Complete	1					NW	<0.01	
124	Feature 18	1	East 1/2	Fish	Scales	Fragment	3					NW	<0.01	
124	Feature 18	1	East 1/2	Sunfish	Scales	Fragment	3					NW	<0.01	
124	Feature 18	1	East 1/2	Fish	Unid.	Fragment	1					NW	<0.01	
125	Feature 18	2	East 1/2	Bird	Eggshell	Fragment	1					NW	<0.01	
125	Feature 18	2	East 1/2	Vertebrate	Unid.	Fragment	3					NW	<0.01	
125	Feature 18	2	East 1/2	Fish	Scales	Fragment	2					NW	<0.01	cf. Sunfish
126	Feature 18	5	East 1/2	Vertebrate	Unid.	Fragment	1				Calcined		<0.01	
126	Feature 18	5	East 1/2	Vertebrate	Unid.	Fragment	1					MW	0.01	
127	Feature 18	6	East 1/2	Vertebrate	Unid.	Fragment	1				Calcined		0.13	
127	Feature 18	6	East 1/2	Bird	Eggshell	Fragment	3					NW	0.04	
127	Feature 18	6	East 1/2	Mammal (S-M)	Rib	Fragment	1				Calcined		0.33	
127	Feature 18	6	East 1/2	Vertebrate	Unid.	Fragment	1				Calcined		0.3	
156	Feature 18	3	West 1/2	Mussel	Shell	Fragment	2					NW	<0.01	Unknown
156	Feature 18	3	West 1/2	Fish	Ray/Spine	Fragment	3					NW	0.05	
156	Feature 18	3	West 1/2	Rodent	Vertebrae	Fragment	1					NW	<0.01	
156	Feature 18	3	West 1/2	Vertebrate	Unid.	Fragment	1				Calcined		<0.01	
156	Feature 18	3	West 1/2	Vertebrate	Unid.	Fragment	4					NW	0.44	
156	Feature 18	3	West 1/2	Fish	Scales	Fragment	4					NW	<0.01	cf. Sunfish
156	Feature 18	3	West 1/2	Bird (M)	Phalange	Complete	1					NW	0.15	Terminal
156	Feature 18	3	West 1/2	Bird (M)	Phalange	Complete	1					NW	0.19	Second
156	Feature 18	3	West 1/2	Bird (S)	Phalange	Complete	1					NW	0.01	Terminal
156	Feature 18	3	West 1/2	Fish	Unid.	Fragment	1					NW	0.06	
156	Feature 18	3	West 1/2	Fish	Cranial	Fragment	1					NW	0.04	
156	Feature 18	3	West 1/2	Mammal	Unid.	Fragment	2					MW	0.65	
156	Feature 18	3	West 1/2	Fish	Unid.	Fragment	1					MW	0.06	
157	Feature 18	4	West 1/2	Bird (S)	Radius	Distal	1					MW	0.19	
157	Feature 18	4	West 1/2	Mussel	Shell	Fragment	10					MW	0.07	
157	Feature 18	4	West 1/2	Vertebrate	Unid.	Fragment	14					MW	0.49	
157	Feature 18	4	West 1/2	Vertebrate	Unid.	Fragment	1				Calcined		<0.01	

CAT. #	NORTHING	LEVEL	STRATUM	TAXA	ELEMENT	PORTION	COUNT	SYMMETRY	AGE	BUTCHERY MARKS	TAPHONOMY	WEATHERING	WT. GMS.	COMMENTS
157	Feature 18	4	West 1/2	Bird (S)	Phalange	Complete	1					MW	0.09	
157	Feature 18	4	West 1/2	Fish	Vertebrae	Fragment	1					MW	<0.01	
157	Feature 18	4	West 1/2	Fish	Unid.	Fragment	4					MW	0.29	
157	Feature 18	4	West 1/2	Mammal	Teeth	Fragment	1					NW	0.03	
157	Feature 18	4	West 1/2	Fish	Scales	Fragment	1					MW	<0.01	
157	Feature 18	4	West 1/2	Vertebrate	Unid.	Fragment	1				Calcined		0.09	
157	Feature 18	4	West 1/2	Fish	Rib	Proximal	1					NW	0.06	
157	Feature 18	4	West 1/2	Fish (S)	Premaxilla	Fragment	1					MW	0.07	
157	Feature 18	4	West 1/2	Mammal (S-M)	Vertebrae	Fragment	1					MW	1.01	
157	Feature 18	4	West 1/2	Fish (S)	Maxilla	Complete	1					NW	0.03	
158	Feature 18	5	West 1/2	Catfish	Pectoral	Proximal	1					NW	0.56	
158	Feature 18	5	West 1/2	Fish (S)	Cranial	Fragment	2					MW	0.17	
158	Feature 18	5	West 1/2	Bird	Longbone	Fragment	1					NW	0.28	
158	Feature 18	5	West 1/2	Mammal	Unid.	Fragment	4					MW	3.43	
158	Feature 18	5	West 1/2	Vertebrate	Unid.	Fragment	2				Calcined		0.28	
158	Feature 18	5	West 1/2	Mammal	Teeth	Fragment	1					NW	0.09	
158	Feature 18	5	West 1/2	Fish	Unid.	Fragment	2					NW	0.1	
158	Feature 18	5	West 1/2	Vertebrate	Unid.	Fragment	3					NW	0.07	
158	Feature 18	5	West 1/2	Mussel	Shell	Fragment	2					W	0.06	
158	Feature 18	5	West 1/2	Bird	Eggshell	Fragment	1					MW	<0.01	
158	Feature 18	5	West 1/2	Fish	Unid.	Fragment	4					NW	0.03	
158	Feature 18	5	West 1/2	Vertebrate	Unid.	Fragment	1					MW	0.09	
158	Feature 18	5	West 1/2	Sunfish	Scales	Complete	1					NW	0.01	
158	Feature 18	5	West 1/2	Fish	Scales	Fragment	1					NW	0.03	
158	Feature 18	5	West 1/2	Mammal	Longbone	Fragment	1				Burnt		4.72	
158	Feature 18	5	West 1/2	Mammal (S)	Vertebrae	Complete	1					NW	0.72	Thoracic

KEY:
NW = Not Weathered
MW = Moderately Weathered
W = Weathered