Faunal Analysis of James Fort: Structure 166, Pit 5, Pit 8, Pit 9, Pit 10, and Pit 11

James City County, Virginia

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INTRODUCTION

During 2007 and 2008, Jamestown Rediscovery submitted for analysis faunal remains recovered from six features excavated on Jamestown Island. All of the features date from ca. 1607-1610 and are associated with the first fort established on the property. Specifically, the features include four pits associated with soldier's cabins found along the interior of the James Fort's west palisade wall. The other two features include a circular pit outside of the fort's palisade wall near Structure 165 and a cellar uncovered in Structure 166, an earthfast mud-and-stud building located parallel to the east wall of the James Fort. The cellar from Structure 166 is thought to have been part of an early soldier's cabin (Straube 2008).

An initial inspection of the bones revealed they were well preserved and largely intact. Based on the overall preservation, the lack of major recovery bias, and the large percentage of identifiable bones, both parties agreed all of the bones would be analyzed. In total, after the bones were mended within their own contexts, 19,053 bones were sorted, identified, and analyzed to provide some insights into the foodway patterns of the first occupants of Jamestown Fort (see Table 1).

The first section of this report will discuss the specific laboratory and analytical techniques that were used to examine the individual faunal remains from Jamestown. The second section of the report will then examine the results of the faunal analysis including identified taxa, fishing and hunting techniques, taphonomic influences on the bones, relative dietary importance of species, element distribution patterns of domestic mammals, and butchery evidence. Finally, concluding remarks will summarize the importance of these faunal remains to the study of early foodway patterns. Specifically, what can these remains tell us about the rations that were given to the first soldiers at James Fort? Were the soldiers eating the better cuts of meat? How much were they utilizing their surrounding environment to supplement their rations? Is there evidence of the "Starving Period of 1609-1610" in the faunal remains? Whenever possible and appropriate, the faunal data from Structure 166, Pit 5, Pit 8, Pit 9, Pit 10, and Pit 11 will be compared to the faunal data previously analyzed from Jamestown.

Table 1

Assemblages Analyzed

Assemblage	Identifiable Bone	Indeterminate Bone	Total Bone
Cellar from Structure 166	1,072	532	1,604
Pit 5, Near Structure 165	2,192	3,306	5,498
Pit 8, Soldier's Cabin	2,491	4,568	7,059
Pit 9, Soldier's Cabin	1,625	1,600	3,225
Pit 10, Soldier's Cabin	136	148	284
Pit 11, Soldier's Cabin	565	818	1,383
TOTAL	8,081	10,972	19,053

RECOVERY METHODS

Quarter-inch screening is a standard technique used on prehistoric and historic period sites. As early as 1969, David Thomas demonstrated in his article on quantitative methods for faunal analysis that screening has an enormous positive influence on the recovery of bone, particularly the recovery of smaller or more fragile elements. The smaller the screen size, the better the recovery rate, but the amount of time required sifting through 1/8-inch screen must be considered. Flotation sampling and one-quarter-inch screening are a responsible compromise that allows comparison with a large number of sites that have been excavated similarly.

The bones from the Jamestown features are primarily from soil that had been screened through 1/4-inch steel wire mesh. While most of the faunal material was indeterminate, the presence of fish, snake, turtle, birds, small mammals, medium mammals, and large mammal suggests that a fair sample of the original assemblage were recovered during

excavation. Although the more durable elements, such as teeth and long bone shafts make up the greatest percentage of the assemblages, there were few element types that were completely absent.

LABORATORY TECHNIQUES

In the zooarchaeology lab, analysis of the bones from Jamestown, began with sorting the faunal fragments into "identifiable" and "indeterminate" categories. The indeterminate bone—that which could not be taken at least to the taxonomic level of Order—was further sorted into broad taxon groupings such as fish, turtle, small mammal, medium mammal, and large mammal. Finally, within their taxon groupings, the bones were sorted into broad element categories such as long bones, teeth, ribs, and skull fragments. All of the indeterminate bones were then counted, weighed, and examined for evidence of burning, butchering, or other types of modification. This data was then entered into a custom-designed microcomputer program developed by Greg Brown and Dr. Joanne Bowen for Colonial Williamsburg's Department of Archaeological Research.

Each of the identifiable bones was assigned a "unique bone number." By working with comparative collections, created and maintained by Dr. Joanne Bowen and Susan Andrews, the "identifiable" bone fragments were identified to the lowest taxonomic level possible. The taxon, bone element, symmetry (side), location, weight, fusion state, tooth type and wear, relative age, butchering marks, and evidence of burning, weathering, and gnawing were recorded and entered into the computer program. Once entered, the data were manipulated to provide the summary information described in this report.

Once these steps were completed, all bones identified to either genus or species were laid out to determine the minimum number of individuals. MNIs were calculated for each assemblage separately by pairing comparable rights and lefts, taking into account size, state of fusion, tooth eruption, and general morphology. Before the bones were returned to their original bags, evidence of butchery and gnawing marks was recorded.

ANALYTIC TECHNIQUES

Relative Dietary Estimates. Zooarchaeologists have devised several methods of quantification to estimate relative dietary importance. These quantification methods include determining the Number of Identified Specimens (NISP), Minimum Number of Individuals (MNI), Useable Meat Weight totals, and Biomass estimates. The most common goal of these analyses is to identify the relative dietary importance, but zooarchaeologists have long debated their relative strengths and weaknesses (Wing and Brown 1979; Reitz and Cordier 1983; Grayson 1984). In our view, each measure provides a different measure of relative importance, and therefore we regularly compute

all four estimates, a step that allows us to take advantage of the strengths of each, as well as to make the broadest possible comparisons of our data with the work of others.

NISP. At the simplest level, the Number of Identified Specimens (NISP) is used to calculate the relative abundance of any species within a faunal assemblage. After identification, all the bones within each species are added together to determine the frequency of fragments for each animal. Though still perhaps the most frequently used measure of abundance, this method has several shortcomings, most notably its assumption that the bones being counted are representative of the sampled population, and that each item is independent of every other item. There is no method, however, to demonstrate which bone fragments came from different individuals across an entire faunal sample. Other problems with this method include the unequal numbers of bones in different classes, differential preservation rates, uneven fragmentation rates that occur with different classes and sizes of animals, and misrepresentation of complete skeletons that are often intermixed with fragmented pieces from an indeterminate number of individuals (Grayson 1984).

From an interpretive standpoint, NISP represents only the number of fragments identified to taxon. It does not directly consider the differences in size and meat weight between various classes of animals. For this reason, as well as the potential biases described above, many zooarchaeologists have come to the conclusion that this technique alone cannot provide an accurate assessment of the relative dietary importance of various species.

MNI. One popular method for estimating species abundance is the method called Minimum Number of Individuals (MNI). While NISP attempts to calculate the maximum number of individuals on a site, MNI most often establishes the minimum number of animals by examining the most common element for each taxon. Taking into consideration differences in age, sex, and size for each taxon, the rights and lefts of each of the main elements are carefully matched. Once comparisons are completed, the individual MNI for each element is considered, and by taking into consideration gross size and age differences, a figure representing the entire animal is derived.

The MNI effectively corrects for the differential number of bones found in bird, mammal, and fish skeletons, as it also corrects for the presence of complete skeletons. But the thoroughness of the analyst, the units of aggregation, and the sample size all affect the interpretation of an MNI figure. Accurate estimations of dietary importance based on MNI require a large number of bones, since in small assemblages infrequently occurring animals are over-represented. As Grayson (1984) pointed out, MNI values are intimately tied to units of aggregation, and therefore, in small samples the least common species on a site will be overemphasized. While this problem is greatly diminished in larger samples, the MNIs, no matter how well executed, do not provide a true dietary estimate. For example, one deer and one fish are presented as equally important in dietary terms, despite the differences in pounds of meat (Grayson 1984). Since large and small taxa are given equal weight, this method produces a skewed picture of the relative dietary importance.

Usable Meat Weight. In the 1950s Theodore White introduced to the field a method that would translate MNIs into dietary estimates (White 1953). To obtain a rough estimate of the relative importance of different taxa, the MNI for a given taxon is multiplied by the average amount of usable meat derived from an estimate of meat yield. Average values used in this study are based on the average weight of modern wild birds, mammals, and turtles. Rough estimates are given for fish since their weight typically increases as they age. Since this method relies on MNI directly, usable meat weight estimates suffer from the same problems inherent in the MNI method. In small assemblages, particularly those where even the more frequently occurring taxa are represented by only one or two MNI, the least frequently occurring taxa are grossly inflated.

Biomass. The fourth technique that is quickly becoming a standard procedure in zooarchaeological analysis is known as the "biomass" or "skeletal mass allometry" method. Developed for zooarchaeology by Elizabeth Reitz and other scholars, this method is based on the biological premise that the weight of bone is related to the amount of flesh it supports. Since two dimensions of an animal grow in a relatively predictable exponential curve, an equation relating the two has been derived. Body size and body weight can then be determined from the size of a bone element, since a specific quantity of bone represents a predictable amount of tissue, which is roughly translated into a ranked dietary importance (Reitz and Cordier 1983; Reitz and Scarry 1985). This estimate, therefore, provides a balance to the NISP and MNI methods. It helps to counter the problem of interdependence, since it accounts for the presence/absence of partial and complete skeletons. An additional advantage is that it does not rely on thoroughness or assemblage composition, and fragmentation is not a problem. It does, however, require that each bone (or set of bones) be weighed individually.

In a later section biomass estimates are used, despite the fact that all of the early analyses by many zooarchaeologists are based on usable meat weight. Recent research by Bowen and others have shown biomass estimates to be far more consistent than meat weight estimates, particularly when large numbers of fish are present in assemblages (Bowen in Walsh et al. 1997). In general, it allows the weight of the fragments identified only to class to become part of the dietary estimates, it avoids the idiosyncrasies of the MNI method, and it circumvents the "averaging" problem that plagues any assemblage containing a large proportion of fish.

Taphonomy. There are many physical, chemical, and biological processes that modify the appearance of bones and affect the interpretations of faunal assemblages from archaeological sites. The study of these mechanisms is known as "taphonomy," or the study of environmental phenomena and processes that affect organic remains after death (Efremov 1940).

The determination of which cuts of meat are represented in a faunal assemblage begins with the careful analysis of taphonomic modifications. Identifying alterations resulting from natural processes such as temperature variation that can dry out, split, or otherwise

degrade bone, carnivores and rodents that gnaw bone, and human feet that can further fragment bone, is the important first step. Equally important is identifying modifications resulting from cultural activities such as butchering and the burning of bones (Gifford 1981; Lyman 1987b; Bonnichsen and Sorg 1989; Johnson 1985).

During the identification phase of this project, burn marks, evidence of gnawing by carnivores and rodents, weathered appearance, and butchering evidence were recorded. For the faunal assemblage from the Jamestown features, bones were recorded as "burned" only if they exhibited distinctive charring or scorched marks. Experiments on cooking bones, by either roasting or boiling, has shown that it often takes extreme temperatures to produce burn marks on a bone. The size and density of the bone combined with the temperature and type of cooking, influences the appearance of burn marks on bones (Pearce and Luff 1994).

Evidence of the bones being gnawed was apparent from puncture holes made by canine teeth or by specific gnawing patterns left on the surface of the bone. Carnivores such as dogs will typically gnaw on the soft ends of long bones to create channels that allow them to get at the marrow. Smaller bones belonging to fish, birds, and small mammals are easily broken and digested by carnivores, so there is rarely any evidence of carnivore gnawing on these bones. Gnaw marks left by rodents are distinguished by a characteristic pattern made by incisor teeth and therefore were recorded separately from carnivore marks.

Bones were recorded as having a weathered appearance if the surface of the bone was cracked or flaking. A weathered appearance on the surface of a bone can occur if bones are left in the open, where they can be exposed to extreme temperatures and the changing elements. Usually if bones are left exposed for a period of time, they are also susceptible to gnawing by animals and fragmentation due to the trampling of feet. Weathering can also occur when the chemistry of the soil has a direct influence on bone preservation. Generally speaking, the ideal ph for bone preservation is between 7.8 and 7.9 (Reitz and Wing 1999).

Finally, butchering leaves obvious taphonomic signs on the bone. Although most of the faunal material from the Jamestown features had probably been butchered, the majority of the faunal remains were highly fragmented resulting in bones too small to identify to species or to element.

Table 2
Taxa Identified

Taxonomic Name/Common Name	Structure 166	Pit 5	Pit 8	Pit 9	Pit 10	Pit 11
SHELL						
Callinectes sapidus/Blue Crab		X	X	X		
FISH						
Class Osteichthyes/Bony Fish (Indeterminate)	X	X	X	X	X	X
Order Lamniformes/Typical Sharks		X	X			
Order Carcharhiniformes/Requiem Sharks			X			
Order Rajiformes/Skates or Rays			X			
Family Acipenseridae/Sturgeon	X	X	X	X	X	X
Lepisosteus spp./Gar	X	X	X	X	X	X
Family Anguillidae/Freshwater Eel		X	X			
Clupea harengus/Atlantic Herring			X			
Family Catostomidae/Sucker		X	X	X		X
Family Ictaluridae/Freshwater Catfish	X	X	X	X	X	X
Order Gadiformes/Codfish or Hake		X	X			
Family Gadidae/Codfish						X
Morone Americana/White Perch	X	X	X	X		
Morone spp./Temperate Bass		X	X	X		X
Family Serranidae/Sea Bass			X			
Family Centrarchidae/Freshwater Bass or Sunfish	X	X				
Lepomis spp./Sunfish		X				
Perca flavescens/Yellow Perch			X			
Family Lutjanidae/Snapper		X				
Archosargus probatocephalus/Sheepshead			X			
Family Sciaenidae/Croaker or Drum			X	X		
Micropogan undulates/Atlantic Croaker						X
Family Ostraciidae/Boxfishes						X
REPTILES/ AMPHIBIANS						
Rana catesbeiana (Bullfrog)						X
Class Reptilia/Reptile			X			
Class Testudines/Turtle (Indeterminate)	X	X	X	X	X	X

Table 2
Taxa Identified

Taxonomic Name/Common Name	Structure 166	Pit 5	Pit 8	Pit 9	Pit 10	Pit 11
Chelydra serpentine/Snapping Turtle			X	X		X
Family Kinosternidae/Musk or Mud Turtle		X			X	X
Chrysemys spp./Slider or Cooter		X	X			X
Malaclemys terrapin/Diamondback Terrapin		X	X			
Terrapene Carolina/Box Turtle		X	X	X	X	X
Family Cheloniidae/Marine Turtles	X					
Family Colubridae/Snake			X			
BIRDS						
Class Aves/Bird (Indeterminate)	X	X	X	X		X
Class Aves/Mammalia III/ Bird/Small Mammal (Indeterminate)	X	X	X	X	X	X
Family Ardeidae/Heron or Egret		X				
Phalacrocorax auritus/Double-Crested Cormorant			X			X
Pterodroma cahow/Bermuda Petrel	X	X	X			
Cygnus spp./Swan		X	X			
Branta canadensis/Canada Goose	X	X	X	X	X	X
Goose spp./Goose	X	X	X	X	X	
Aythya spp./Pochard		X		X		
Anas spp./Dabbling Duck		X	X			X
Duck spp./Duck		X	X	X		X
Aythya americana/Redhead			X			
Bucephala albeola/Bufflehead			X			
Grus americana/Whooping Crane			X			
Family Laridae/Gull			X			
Larus delawarensis/Ring-Billed Gull		X	X			
Order Falconiformes/Vulture, Hawk, or Falcon			X			
Family Accipitridae/Hawk or Eagle		X	X			
Pandion haliaetus/Osprey				X		
Buteo jamaicensis/Red-Tailed Hawk						X
Cathartes aura/Turkey Vulture			X			

Table 2
Taxa Identified

Taxonomic Name/Common Name	Structure 166	Pit 5	Pit 8	Pit 9	Pit 10	Pit 11
Meleagris gallopavo/Turkey		X	X	X		X
Gallus gallus/Chicken		X	X	X		X
Order Strigiformes/Owl		X				
Order Passeriformes/Perching Bird		X	X			
Corvus brachyrhynchos/Common Crow		X	X			
Corvus ossifragus/Fish Crow				X		
MAMMALS						
Class Mammalia/Mammal (Indeterminate)	X	X	X	X	X	X
Class Mammalia I/Large Mammal (Indeterminate)	X	X	X	X		X
Class Mammalia II/Medium Mammal (Indeterminate)	X	X	X	X	X	X
Class Mammalia III/Small Mammal (Indeterminate)	X	X	X	X	X	X
*Didelphis virginiana/*Opossum	X	X	X	X		X
Family Talpidae/Mole		X	X			
Sylvilagus floridanus/Eastern Cottontail		X	X	X		
Order Rodentia/Rodent			X			
Sciurus spp./Squirrel	X	X	X	X		
Sciurus carolinensis/Eastern Gray Squirrel	X	X	X	X	X	X
Sciurus niger/Fox Squirrel	X	X	X	X	X	
Castor canadensis/Beaver	X		X	X		
Family Cricetidae/Mouse, Rat, Lemming, or Vole	X	X	X		X	
Ondatra zibethica/Muskrat		X	X	X		X
Rat spp./Rat		X	X			X
Rattus spp./Old World Rat			X			
Rattus rattus/Roof Rat			X			
Family Delphinidae/Ocean Dolphins		X	X			
Tursiops truncatus/Bottle-Nosed Dolphin			X			
Family Canidae/Dog, Wolf, or Fox	X					
Canis spp./Dog or Wolf	X	X	X	X	X	
Urocyon cineroargenteus/Grey Fox		X				
Ursus americanus/Black Bear		X			X	

Table 2
Taxa Identified

Taxonomic Name/Common Name	Structure 166	Pit 5	Pit 8	Pit 9	Pit 10	Pit 11
Procyon lotor/Raccoon	X	X	X	X	X	X
Mephitis mephitis/Striped Skunk				X		
Family Felidae/Cat			X			
Felis rufus/Bobcat		X				
Equus spp./Horse-Ass		X	X			
Order Artiodactyla I/Sheep, Goat, Deer, or Pig	X	X	X			
Order Artiodactyla II/Sheep, Goat, or Deer	X		X	X		
Sus scrofa/Domestic Pig	X	X	X	X		
Odocoileus virginianus/White-Tailed Deer	X	X	X	X		X
Ovis aries/Capra hircus/Domestic Sheep/Goat			X			
Bos taurus/Domestic Cattle	X	X	X	X	X	X
Bos taurus/Equus spp./Domestic Cow, Horse, or Ass		X		X		X

RESULTS OF THE FAUNAL ANALYSIS

TAXA IDENTIFIED

The following section provides a detailed description of each of the taxa found in one or more of the six Jamestown assemblages. There were a total of 19,053 bones recovered from the features with at least 8,081 bones identifiable to at least 69 different species. The species include one crustacean, nineteen fish species, eight reptile/amphibian species, nineteen bird species, and twenty-two mammal species. A list of each species by taxonomic and common name can be found in Table 2.

Before progressing to a detailed discussion of relative dietary importance, meat cuts, taphonomic processes, and husbandry patterns, it is necessary to briefly describe the habitat, availability, and economic importance of each animal. More in-depth information is available in the field guides, traveler's accounts, and wild game and livestock management texts listed in the bibliography.

CRUSTACEAN

Blue Crab. A total of 14 calcined pincers from blue crabs (*Callinectes sapidus*) were identified in the assemblages from Pit 5, Pit 8, and Pit 9. The blue crab is distributed along the Atlantic coast, and is most prevalent in the Chesapeake area (Lippson and Lippson 1984). Their remains, mostly calcined claws, have been recovered from most colonial-period sites throughout the Chesapeake Bay region. Due to the fragile quality of the claws, crab remains typically survive only if they have been burned. Crabs were harvested from the water primarily during the summer months, but also on a limited basis during spring and fall; during the winter months they become dormant, burrowing into the sandy bottom. John Smith remarked in his *General History* that the inhabitants of Jamestown lived on crabs and sturgeon from May to September 1607 while they waited for their first shipment of supplies (Smith in Barbour 1986). Again, since crab claws usually survive only when they have been burned, the presence of only a few calcined pincers should not be considered an indicator of abundance

FISH

Bermuda Fish

Present in Pit 5 and Pit 8 are elements from species belonging to the Serranid and Lutjanid families. Although a few species from these families are found in the Chesapeake region, the large size of the remains indicates they came from a more southern region, probably Bermuda where they are very common. Strachey wrote in his description of Bermuda that, "they daily hooked many kinds of fish, including angelfish, salmon, peal (small salmon), bonitos, stingray, cavally (horse mackerel), snappers, hogfish, sharks, dogfish, pilchards, mullets, and rockfish, of which be divers kinds" (Strachey in Haille 1998:397). Dried, salted, and barreled in brine, fish taken in Bermuda could be easily made ready for export.

Serranidae. One element belonging to the sea bass family (Family Serranidae) came from Pit 8. Members of the sea basses and groupers are typically large-mouthed, robust

bottom dwellers that can range in length from several inches to several feet. The species in this family feed on crustaceans and fish and can inhabit a variety of habitats from the shoreline to depths of 660 feet or more. The family, which primarily lives in tropical and temperate seas, includes approximately four hundred fifty species, of which three are known to seasonally inhabit the Chesapeake Bay. While the jewfish (*Epinephelus itajara*) and the gag (*Mycteroperca microlepis*) have occasionally been caught in the waters of the Chesapeake, the black sea bass (*Centropristis striata*) is common in the mid-lower Chesapeake Bay from spring to late autumn, inhabiting rocky bottoms near pilings, wrecks, and jetties (Murdy et al. 1997). However, the remains found in the Jamestown assemblage were of much larger fish, similar to the species which frequent Bermuda. At least fifteen species are currently found in Bermuda waters, including the harlequin bass (*Serranus tigrinus*), the coney (*Cephalopholis fulva*), the black grouper (*Mycteroperca bonaci*), the yellowmouth grouper (*M. interstitialis*), the tiger grouper (*M. tigris*), the yellowfin grouper (*M. venenosa*), the gag grouper (*M. microlapis*), the red grouper (*Epinephelus morio*), the Nassau grouper (*E. striatus*), the red hind (*E. guttatus*), and the rock hind (*E. adscensionus*) (Sterrer 1986).

Lutjanidae. One element from Pit 5 was identified as a member of the snapper family (Family Lutjanidae). As with the sea basses, snappers are mainly confined to tropical and subtropical marine waters where they are found near reefs and other underwater structures. Although two species of snapper have been documented in the Chesapeake Bay, the gray snapper (*Lutjanus griseus*) and the cubera snapper (*Lutjanus cyanopterus*) are such a rare sight in the Bay that the element probably represents a fish that was imported. Several species of snapper can be found around the waters of Bermuda, including the gray snapper (*Lutjanus griseus*), the lane snapper (*Lutjanus synagris*), the silk snapper (*Lutjanus vivanus*), and the yellowtail snapper (*Ocyurus chrysurus*) (Sterrer 1986).

Jamestown Fish

The number of fish in the assemblages is not surprising due to Jamestown's proximity to the James River and the Chesapeake Bay. Fishing has long been important in the Tidewater region and in his description of Virginia, Captain John Smith wrote that:

> *Of fish we were best acquainted with Sturgeon, Grampus, Porpus, Seales, Sting-graies, whose tailes are very dangerous. Bretts, Mullets, White Salmonds, Trowts, Soles, Plaice, Herrings, Conyfish, Rockfish, Eeles, Lampreys, Catfish, Shades, Pearch of three sorts, Crabs, Shrimps, Crevises, Oysters, Cocles, and Muscles* (Smith in Barbour 1986, 2:111).

The seasonal presence of fish in the Chesapeake is influenced by several factors, including habitat, water salinity, water temperature, the amount of oxygen, and sources of food. Keeping all of these factors in mind, there are six main categories of fish that inhabit the Chesapeake—freshwater, estuarine, marine, anadromous, semianadromous, and catadromous. Generally freshwater fish can be found in waters with a salinity as high as 10%, while estuarine fish typically live in tidal waters with salinities that range from 0% to 30% and marine fish live in oceanic waters that have a salinity that is greater than 30%. Anadromous fish include those species that migrate from ocean waters to

freshwater to spawn and semianadromous fish move from waters of higher salinity to waters of lower salinity to spawn. Finally, catadromous species are rare in the Chesapeake and include fish that migrate from freshwater habitats to the ocean for spawning (Murdy et al. 1997).

The majority of the fish identified in the Jamestown assemblage prefer to live in low-salinity habitats that are consistent to the upper regions of the James River. During various time of the year, some species are more prevalent in the James due to the temperature of the water and spawning habits. These species which were identified in the assemblages and are more common in the spring through autumn months include sturgeon, white perch, and striped bass (Murdy et al. 1997). As described by Alexander Whitaker, the colonists were also aware of the seasonal abundance of some fish and depended on their presence at various times of the year to supplement their diet:

> *The sea fish come into our rivers in March and continue until the end of September; great schools of herrings come in first; shad of a great bigness and rockfish follow them; trouts, bass, flounder, and other dainty fish come in before the other be gone; then come multitudes of great sturgeon*...(Whitaker in Haile 1998:743).

Typical Sharks. A total of seven vertebrae from Pit 5 and Pit 8 were identified as belonging to the Order Lamniformes (typical sharks). This Order contains two families of sharks that can occur in the water of the Chesapeake including basking sharks (Family Cetorhinidae) and sand tigers (Family Odontaspididae). Basking sharks prefer the cold waters of the ocean and can occasionally be found entering large bays in the early spring. Sand tigers, on the other hand, are typically found in the Chesapeake area during the summer and fall. They inhabit shallow estuaries and coastal waters feeding on small fish, crustaceans and squid (Murdy et al. 1997).

Requiem Sharks. At least five vertebrae from Pit 8 were identified as the remains of a requiem shark (Family Carcharhinidae). These sharks are typically strong swimmers that are more active at night, dawn, or dusk. They are aggressive predators feeding on other sharks, rays, bony fish, turtles, and seabirds. The more common species of requiem shark found in the Chesapeake include the Atlantic sharpnose shark (*Rhizoprionodon terraenovae*), the sandbar shark (*Carcharhinus plumbeus*), the dusky shark (*Carcharhinus obscurus*), and the bull shark (*Carcharhinus leucas*). Although most of these species prefer the deeper, high salinity waters of the coast, other species like the bull shark have been known to frequent brackish waters as well as low-salinity rivers and lakes. Bull sharks feed on bony fish, crustaceans, turtles, and mammals and have been recorded as far north as the Paxtuxent River (Murdy et al. 1997).

Skates or Rays. A total of 101 dentary elements from Pit 8 were identified as belonging to the Order Rajiformes. Rays and skates feed chiefly on crustaceans, shrimp, mollusks, squid, and small fish and can be found along the Atlantic coast from Florida to New England (Hildebrand and Schroeder 1972). While skates and rays are typically found in deep ocean waters, there are some species of rays that prefer shallow water and even can be found in freshwater areas. In the waters of the Chesapeake they are

commonly caught in nets or by rod and reel, although they are not usually utilized for human consumption (Murdy et al. 1997).

One anecdote in *The General History* describes Captain John Smith's encounter with a stingray while fishing for fish with his sword:

> *But it chanced our captain taking a fish from his sword, not knowing her condition, being much of the fashion of a thornback, but with a long tail like a riding rod, whereon the middest is a most poisoned sting or two or three inches long, bearded like a saw on each side, which she struck into the wrist of his arm near an inch and a half. No blood nor wound was seen, but a little blue spot. But the torment was instantly so extreme that in four hours had so swollen his hand, arm, and shoulder and part of his body as we all with much sorrow concluded his funeral and prepared his grave in an island, as himself directed. Yet, it pleased God by a precious oil Doctor Russell at the first applied to it when he sounded with probe [that] ere night his tormenting pain was so well assuaged that he ate of the fish to his supper, which gave no less joy and content to us than ease to himself, for which we called the island 'Stingray Isle' after the name of the fish* (Smith in Haile 1998:262).

Sturgeon. Of all the fish elements identified in all of the features, scutes from sturgeon were the most numerous, accounting for the majority of the identified fish bones. Sturgeon are among the most easily identified of fish species due to their hard bony "scutes" which lie in five rows along their bodies. The sturgeon is a bottom-dwelling anadromous fish that lives in diverse habitats. The large species, the Atlantic sturgeon (*Acipenser oxyrhynchus)*, is found in shallow waters along the continental shelf, sometimes entering larger rivers to spawn. The other main species, the shortnose sturgeon (*Acipenser brevirostrum*), is more commonly found in river mouths, tidal rivers, estuaries, and bays. Living up to fifty years, they can become enormously large, averaging six to eight feet in length. They were and are today important commercially; their roe is made into high-quality caviar, their flesh is eaten smoked or fresh, and isinglass is made from their swim bladders (Robbins et al. 1986).

While both species of sturgeon are native to the Chesapeake, intense fishing from more than a century ago caused the rapid decline of the sturgeon in Chesapeake waters. Today only the Atlantic sturgeon has been reported to exist in the waters of the James River, while shortnose sturgeon has recently been recorded as making a comeback in the Potomoc River, Susquehanna River, and the Delaware Bay (Blakenship 2006). Although it is more likely that the Atlantic sturgeon was the species caught by the early colonists, the presence of shortnose sturgeon in the Potomac and Susquehanna rivers suggests that they may have also occurred in other major Chesapeake Bay tributaries.

The 1609-1610 Council of Virginia, realizing the importance of sturgeon, instructed the early colonists that "Once the ships are unloaded at Jamestown, the sailors shall be put to

work fishing for sturgeon, etc." (Haile 1998:25). Sturgeon were so plentiful in the James River that John Smith remarked that while they were waiting for provisions, "We had more sturgeon than could be devoured by dog and man, of which the industrious by drying and pounding, mingled with caviar, sorrel, and other wholesome herbs, would make bread and good meat" (Smith in Haile 1998:320).

The early attempts to export sturgeon to England failed since the products did not keep well on the long voyage back. In 1610, instructions were sent concerning the proper methods of pickling sturgeon flesh and utilizing the other parts of the fish:

> *Sturgeon which was last sent, came ill conditioned, not beinge well boyled; if it were cut in small peeces, and powdered, put up in caske, the heads pickled by themselves, and sente hither, it would doe farre better… Rowes of the said Sturgion make Cavearie according to instructions formerlye given… Soundes (air-bladder) of the said Sturgion will make Isinglasse according to the same instructions* (Brown 1891, 1:386).

After the sturgeon fishing expeditions of 1610, there appear to be no records indicating further shipments of sturgeon were exported from Virginia until 1620. Although there are no records of sturgeon being exported during this time, Governor Thomas Dale established regulations in 1612 to control overfishing:

> *All fishermen, dressers of sturgeon, or such like appointed to fish or to cure the said sturgeon for the use of the Colony, shall give a just and true account of all such fish as they shall take by day or night, of whatsoever kind, the same to bring unto the Governor. As also all such kegs of sturgeon or caviar as they shall prepare and cure upon peril for the first time offending herein of losing his ears, and for the second time to be condemmed a year to the galleys, and for the third time offending to be condemmned to the galleys for three years* (Wharton 1957:17).

English interests in establishing a sturgeon fishery in Virginia continued into the 1620s. By 1626, however, records of the General Court of Virginia noted that the "Sturgeon fishery here costs adventurers 1700 £ but no accounts of their profit begun…" (Pearson 1943:4). This apparent lack of success in the sturgeon industry was best defined by the Dutch traveler David De Vries, who wrote:

> *When the English first began to plant their colony here, there came an English ship from England for the purpose of fishing for sturgeon; but they found that this fishery would not answer, because it is so hot in summer, which is the best time for fishing, that the salt or pickle would not keep them as in Muscovy whence the English obtain many sturgeon and where the climate is colder than in the Virginias* (De Vries in Pearson 1943:4).

As mentioned earlier, today the sturgeon population has again been reduced due to over-fishing, pollution, and dam construction. In the Chesapeake Bay, fishing for the Atlantic sturgeon peaked in 1890, after which the fishery rapidly declined with each passing year. In 1938, a law was passed in Virginia that prohibited the removal of sturgeon less than

four feet long. By 1974, it became "unlawful to take or catch and retain possession of any sturgeon fish" in Virginia, so presently there is no sport fishery for Atlantic sturgeon. This law and other conservation regulations may be the reason that limited spawning of sturgeon has once again been occurring in the James and the York rivers. For now however, controlled sturgeon fisheries in New York and Canada provide high-quality caviar and other commercial products for export purposes (Murdy et al. 1977).

Gar. Another fish species crucial to the early Jamestown diet and identified in all of the features is gar (*Lepisosteus* spp.). The gar belongs to an ancient group of predatory fish that are distinguished by their elongated, cylindrical body covered with diamond-shaped scales. Gars are also noted for having long beaklike jaws that contain sharp teeth of various sizes (McClane 1965). Only one species, the longnose gar (*Lepisosteus osseus*), is reported to still exist in the waters of the Chesapeake Bay. This gar can reach a length of six feet and may have once been a common sight in the waters of the James River (Hildebrand and Schroeder 1972). Today, it is not considered a good eating fish, although its remains are frequently found in prehistoric and colonial faunal assemblages.

Eel. At least seven bones from Pit 5 and Pit 8 were identified as belonging to the eel family (Family Anguillidae). The eel specie principally found along the Atlantic and gulf coasts of North America is the American eel (*Anguilla rostrata*). This eel is considered a catadromous fish, living in freshwater but spawning in the deep Atlantic near Bermuda. Eels are very productive with females often producing over 10,000,000 eggs. After hatching, the tiny larvae, called leptocephala, make their way to the mouths of the rivers where they grow into tiny eels four to six inches long. The males remain in the lower part of the river and never become very large. The females make their way upstream to the headwater pools and quiet stretches. They remain in freshwater until they are sexually mature, reaching a length of 3 to 4 feet in five to seven years. They then migrate downstream and into the ocean where they spawn. The adults apparently die after spawning as they are seen no more (Eddy and Underhill 1957).

Eels are reported to be the most voracious of all carnivorous fishes. They are principally nocturnal feeders and have the ability to wriggle about on land for several hours. The white flesh of the eel is esteemed, no matter if it is fresh or smoked (Murdy et al. 1997).

Atlantic Herring. One bone from Pit 8 was identified as belonging to the herring family (Family Clupeidae). The biology and the ecology of clupeids are varied: some species live predominately in freshwater, and some only enter fresh water to feed or spawn. There are ten species in this family that are known to inhabit the Chesapeake Bay region, with the alewife (*Alosa pseudoharengus*), the American shad (*Alosa sapidissima*), the Atlantic menhaden (*Brevoortia tyrannus*), and the Atlantic herring (*Clupea harengus*) being the most common. The alewife and Atlantic herring spawn from late March through April in locations of large rivers and small streams, returning to the ocean by summer. The springtime presence of herring in the tributaries of the Chesapeake was described by Robert Beverly in 1705:

> *In the Spring of the Year, Herrings come up in such abundance into their Brooks and Foards, to spawn, that is almost impossible to ride through, without treading on them. Thus do those poor Creatures expose their own Lives to some Hazard, out of their Care to find a more convenient Reception for their Young, which are not yet alive* (Beverly in Pearson 1942a:218).

Suckers. A total of 165 bones from Pit 5, Pit 8, Pit 9 and Pit 11 were identified as belonging to the sucker family (Family Catostomidae). The suckers are a numerous and varied group of fish represented by approximately seventy-five different species. Although they are typically found in freshwater, the three species found in the Chesapeake region can also be found in brackish waters with salinities of less than 5%. These species include the quillback (*Carpiodes cyprinus*), the white sucker (*Catostomus commersoni*), and the shorthead redhorse (*Moxostoma macrolepidotum*). All of these species typically ascend small creeks in the spring where they prefer to spawn in swiftly moving waters. Although suckers are quite bony fish, they are considered to be a fairly good food fish (Hildebrand and Schroeder 1972).

Freshwater Catfish. Another type of fish identified in all of assemblages, accounting for 451 bones, is the freshwater catfish (Family Ictaluridae). Freshwater catfish are abundant in all Chesapeake Bay tributaries and can be found in lakes, rivers, ponds, streams, and estuarine waters where they feed on a variety of insects, fishes, and crustaceans. The most common species of freshwater catfish found in the Chesapeake include the white catfish (*Ictalurus catus*) and the channel catfish (*Ictalurus punctatus*). During spring and early summer, both species move upstream to spawn where they lay eggs in large, saucer-shaped nests. They are both praised as fine fish for eating due to their lack of small bones (Murdy et al. 1997).

Codfish. Two elements from Pit 5, one element from Pit 8, and one element from Pit 11 were identified as belonging to the cod family (Family Gadidae). Although pollock (*Pollachius virens*) and the Atlantic cod (*Gadus morhua*) have been caught in the Chesapeake Bay region on rare occasions (Hildebrand and Schroeder 1972), they are more typically found in large numbers off the waters of New England and their remains have appeared in most if not all New England historic faunal assemblages. The habitat of the Atlantic cod can be found within a fathom of the sea bottom, generally in temperatures ranging between 32 and 55 degrees. In the summer and early fall adult cod congregate in the polar waters around Labrador, withdrawing in later fall and winter to the south or into deeper water. Thus, in the modern period on the New England coast, cod are taken commercially only in fall, winter, and early spring. They usually appear in southern Massachusetts in mid-October, and migrate northward in early May. Younger cod, and others less sensitive to water temperature, remain in shoals and river mouths, usually on rocky bottoms, year-round (Bigelow and Schroeder 1953).

The presence of cod in the Jamestown assemblages raises the question of whether these bones are the remains of imported cod or were they procured from nearby waters. As

mentioned, cod are not typically found in the Chesapeake region, but some early historic references suggest that cod may have been locally available to the Jamestown inhabitants. For example, Captain Christopher Newport wrote in 1607:

> *And within sight of land into the sea we expect at time of year to have a good fishing for cod, as both at our entering we might perceive by palable conjectures, seeing the cod follow the ship… as also out of my own experience not far off to the northward the fishing I found in my first voyage to Virginia* (Newport in Wharton 1957:8).

A year later, during his first expedition up the Bay, Captain John Smith also made a reference to cod being in the Chesapeake Bay when he commented:

> *Neither better fish, more plenty, nor more variety for small fish had any us ever seen in any place so swimming in the water than the Bay of Chesapeack… Some small cod also we did see swim close by the shore by Smith's Isles, and some as high as Riccard's Clifts, and some we have found dead upon the shore* (Smith in Barbour 1986, 2:168).

While cod may have been available in limited quantities to the Jamestown colonists at certain times of the year, records indicate that the majority of their cod was imported. As early as 1610, efforts were made by the colony to supply themselves with cod that they fished for in the waters off the coast of New England. But due to the lack of sea-worthy fishing vessels and skilled fishermen, Jamestown became dependent on English interests for their supply of cod that was brought from New England and Canada. Salted codfish, as well as other cured fish, became a staple in the early colonists diet and by 1624-25, the Virginia Census recorded that 58,000 pounds of fish was being stored in fifteen settlements near the James River (Pearson 1943a:6).

Temperate Bass. The assemblages from Pit 5, Pit 8, Pit 9, and Pit 11 produced at least 55 fish bones that could only be identified as temperate bass (*Morone* spp.). Members of the temperate bass family include moderate to large-sized fish that occur in marine, brackish, and freshwater habitats. The two species found in the Chesapeake Bay include the white perch (*Morone americana*) and the striped bass (*Morone saxtilis*). The individual habitat of the white perch is discussed below.

White Perch. A total of 172 bones from Structure 166, Pit 5, Pit 8, and Pit 9 were able to be identified to the species of white perch (*Morone Americana*). Tolerating a wide range of salinities, the white perch is an abundant year-round resident found in all tributaries of the Chesapeake Bay. Preferring level bottoms of silt, sand, mud, or clay, white perch migrate to fresh or low-salinity waters of large rivers to spawn from April through June. After spawning, adults move back downstream toward the Bay to spend the summer feeding in richer waters, while the young gradually move down to join them. Due to their value as a food fish, white perch have long been one of the most important recreational and commercial fishes in the Chesapeake Bay (Murdy et al. 1997).

Freshwater Bass or Sunfish. The faunal assemblages from Structure 166 and Pit 5 produced at least five elements identified to the family of freshwater bass or sunfish (Family Centrarchidae). Members of this family are native to the freshwaters of North America but can also be found in the brackish waters of the Chesapeake Bay. Considered nest builders, they can often be seen in spring hollowing out depressions along the water's bottom. After they eggs are deposited, the males continue to guard the nests until the young are born. At least 10 species of this family can be found in the Chesapeake including the largemouth bass (*Micropterus salmoides*), the smallmouth bass (*Micropterus dolomieu*), the bluegill (*Lepomis macrochirus*), and the pumpkinseed (*Lepomis gibbosus*) (Murdy et al. 1997).

Yellow Perch. One element from Pit 8 was identified as belonging to yellow perch (*Perca flavescens*). The yellow perch is common in most tributaries of the Chesapeake Bay and can sometimes be found in brackish water at river mouths. They prefer to inhabit the upper portions of estuaries and migrate even further upstream to spawn in small shallow streams in late February (Lippson and Lippson 1984).

Sheepshead. At least four fish elements from Pit 8 were identified as sheepshead (*Archosargus probatocephalus*). As a summer visitor to the lower Chesapeake Bay, sheepshead can be found near jetties, wharves, pilings, shipwrecks, and other structures that become encrusted with barnacles, mussels, and oysters, their main prey. Sheepshead are regarded as excellent food fish and are often mentioned in early descriptions of fish in the Chesapeake (Murdy et al. 1997). One of these descriptions was by Thomas Glover when he wrote in 1676 that:

> *In the Rivers are great plenty and variety of delicate Fish; one kind whereof is by the English called a Sheepshead, from the resemblance the eye of it bears with the eye of a Sheep: This fish is generally about fifteen or sixteen inches long, and about half a foot broad; it is a whole-some and pleasant fish, and of easie digestion* (Glover in Pearson 1942a: 217).

Croaker or Drum. Four elements from Pit 8 and one element from Pit 9 could only be identified to Family Sciaenidae, which includes fourteen species of drums and croakers found in the waters of the Chesapeake. Their common name comes from the large swim bladder that produces a croaking or drumming sound, and they prefer to inhabit areas with sandy or muddy bottoms (Murdy et al. 1997).

Atlantic Croaker. One element from the Pit 11 assemblage was identified as an Atlantic croaker (*Micropogon undulates*). Their common name comes from the large swim bladder that produces a croaking or drumming sound. Adult croakers move into the Chesapeake Bay during the early spring and can be found in waters with salinity levels above 5%. By mid to late summer they move into tidal rivers to spawn, inhabiting areas with sandy or muddy bottoms. The young fish winter in these waters and then leave the bay with the adults the following fall (Murdy et al. 1997).

Boxfish. Pit 11 also produced one element from the boxfish family (Family Ostraciidae). Boxfishes are named for the bony plates that cover most of their head and body. Primarily bottomdwellers, boxfish are considered slow swimmers that move by the sculling action of the dorsal and anal fins. They feed on invertebrates and algae and are usually found in beds of sea grass. The two species found in the waters of the Chesapeake include the trunkfish (*Lactophrys trigonus*) and the scrawled cowfish (*Lactophrys quadricornis Lactophrys)* (Murdy et al. 1997).

REPTILES/AMPHIBIANS

Each of the identified frog, turtle, and snake species that are discussed below are commonly found in the eastern region of Virginia and therefore would have been accessible to the occupants of the Jamestown settlement. While sea turtles are more common in the Chesapeake waters from May through November, the other identified turtles are typically active from March through October. Snakes and frogs are also more active in the warmer months and tend to hibernate by November (Mitchell 1994).

Frogs

Bullfrog. Two bones from Pit 11 were identified as a bullfrog (*Rana catesbeiana*). Bullfrogs are aquatic and prefer larger areas of water than most other species of frogs. They inhabit lakes, ponds, marshes, and sluggish streams that provide sufficient vegetation for cover, while large enough to avoid overcrowding. When better habitats are not available, smaller streams are also occupied (Behler and King 1979; Conant 1975).

Turtles

Bermuda Turtles

Fragments from a carapace belonging to the Chelonidae family (marine turtles) were found in the assemblage from Structure 166. Although these remains may represent shipments of food from Bermuda, the range of marine turtles is very broad, and includes the waters of both Bermuda and the Chesapeake region. For this reason, it is impossible to say for sure where this particular turtle was captured.

Cheloniidae. At least 134 carapace fragments from Structure 166 have been identified as a marine turtle (Family Cheloniidae). The most frequently seen marine turtles in the Chesapeake region include the loggerhead turtle (*Caretta carretta*), Kemp's ridley turtle (*Lepidochelys kempii*), and the leatherback turtle (*Dermochelys coriacea*). All of these species have paddlelike limbs and can be found in the coastal bays, lagoons, estuaries and the open waters of the Chesapeake Bay. They typically use the Chesapeake as a summer feeding area, where they consume various prey including crabs, shellfish, fish, squid, shrimp, and seaweed. The only marine turtle known to nest in Virginia is the loggerhead, which mates in shallow waters off nesting beaches and comes ashore to lay a hundred or more eggs in deep holes dug with their hind feet (Mitchell 1994).

Although the loggerhead turtle frequents the Virginia shoreline, and the remains may very well be from local turtles, sea turtles also are a common sight in Bermuda, and at

least for a time they were captured for export. In his description of sea turtles on the island of Bermuda in 1610, Silvester Jourdain remarked that "I have seen a bushel of eggs in one of their bellies, which are sweeter than any hen egg; and the tortoise itself is all very good meat and yieldeth great store of oil, which is as sweet as any butter; and one of them will suffice fifty men a meal, at least…"(Jourdain in Wright 1964:11). William Strachey wrote of the turtles of Bermuda,

> *The tortoise is reasonable toothsome, some say wholesome meat. I am sure our company liked the meat of them very well. And one tortoise would go further amongst them than three hogs. One turtle, for so we called them, feasted well a dozen messes, appointing six to every mess. It is such a kind of meat as a many can neither absolutely call fish nor flesh, keeping most of what in the water, and feeding upon sea grass like a heifer in the bottom of the coves and bays, and laying their eggs (of which we should find five hundred at a time in the opening of a she-turtle) in the sand by the shore side, and so covering them close, leave them to the hatching of the sun, like the manatee at Saint Dominique which made the Spanish friars, at their first arrival, make some scruple to eat them on a Friday because in color and taste the flesh is like to morels of veal. Concerning the laying of their eggs and hatching of their young, Peter Marty writeth thus in his* Decades of the Ocean*: "At such time as the heat of nature moveth them to generation, they came forth of the sea, and making a deep pit in the sand, they lay three or four hundred eggs therein. When they have thus emptied their bag of conception, they put as much of the same again into the pit as may satisfy to cover the eggs, and so resort again unto the sea, nothing careful of their succession. At the day appointed of nature to the procreation of these creatures, there creepeth out a multitude of tortoises as it were pismires out of an anthill, and this only by the heat of the sun, without any help of their parents. Their eggs are as big as geese eggs; and themselves grown to perfection, bigger than great round targets"* (Strachey in Haille 1998:400-401).

Jamestown Turtles

In the various assemblages are found a variety of turtles, almost all of whom are found locally in and around the island.

Snapping Turtle. At least 46 bones from Pit 8, Pit 9, and Pit 11 were identified as snapping turtle (*Chelydra serpentina*). The snapping turtle inhabits areas of permanent freshwater, but may enter brackish waters at times. They often bury themselves in mud, exposing only their eyes and nostrils. More active at night during the warmer months, most enter hibernation by late October, burrowing into mud bottoms, beneath logs or vegetable debris, where they remain until spring. They feed on insects, crabs, shrimp, clams, earthworms, fish, frogs, toads, small turtles, snakes, as well as plant material (Ernst and Barbour 1972). Considered to be delicious, turtle meat is eaten throughout its range.

Musk/Mud Turtle. Ten carapace fragment from Pit 5, two carapace fragments from Pit 10, and thirteen carapace fragments from Pit 11 were identified as a musk or mud turtle (Family Kinosternidae). Preferring fresh or brackish waters, all musk or mud turtles have 2 pairs of musk glands beneath the border of the carapace. The secretions are very offensive, so they are also commonly called "stinkpots" (Behler and King 1979). For this reason, the turtle was probably just a visitor to the site, not the remains of a meal.

Slider/Cooter. At least 17 elements from Pit 5, Pit 8, and Pit 11 were identified as a slider/cooter (*Chrysemys* spp.). These turtles typically inhabit sluggish rivers, shallow streams, marsh areas, lakes, and ponds with aquatic vegetation. Some prefer soft bottom habitats while others use areas that support overhangs for sunning (Ernst and Barbour 1972).

Diamondback Terrapin. Ninety-one bones from Pit 5 and Pit 8 were identified as diamondback terrapin (*Malaclemys terrapin*). Distinguished by the deep growth rings on the carapace, diamondback terrapins can be found in salt-marsh estuaries, tidal flats, and lagoons where they feed on marine snails, clams, and worms (Behler and King 1979). The early colonists at Jamestown might have eaten the terrapin prepared in the Indian fashion, roasted whole in hot coals and opened at the table where the meat was extracted by fingers. Due to its delicious meat, the diamondback terrapin quickly gained fame and became an indispensable course on menus designed for royalty and the elite (Wharton 1957).

Box Turtle. Together Pits 5, 8, 9, 10, and 11 produced as total of 468 elements identified as the remains of box turtles (*Terrapene carolina*). The box turtle is a small terrestrial turtle that normally inhabits open woodlands, but can also be found in pastures and marshy meadows. They forage during the cooler times of the day and avoid the heat by hiding under rotting logs, in mud, or shallow pools. As the temperature begins to drop in the fall, box turtles begin hibernation by burrowing into loose soil, sand, vegetation, or animal burrows. Omnivores, they consume roots, stems, leaves, fruit, seeds, mosses, insects, fish, frogs, toads, and carrion. (Behler and King 1979). They not only provided a dietary source, Native Americans would use their upper shells, called carapaces, for a variety of functions such as containers or rattles (Swanton 1979).

Snake. There were 41 vertebrae from Pit 8 that could only be identified as snake (Family Colubridae). Colubrids, the largest family of living snakes, include approximately 1,500 species, inhabiting every possible ecological niche (Linzey and Clifford 1981: 37-117). The thirty species of nonpoisonous snakes that are found in Virginia can be found in a variety of habitats including trees, on the ground, beneath the ground, and in the water. As diverse as is the habitats is their food. Some species specialize in certain prey, while others are generalists, eating almost anything small enough to be swallowed. Possible species present on the island include water snakes (*Nerodia* spp.), semi-aquatic reptiles that can be found in water, basking in the sun, or in tree branches. Another possible group represented is *Elaphe* spp. (rat snakes), large powerful constrictors that kill their prey by wrapping their bodies around it. One, the

back rat snake (*Elaphe obsoleta*) crawls along the woodland floor, scaling trees in search of food.

BIRDS

Bermuda Birds

Several fragments of the cahow found in two of the early assemblages are proof that the Jamestown colonists were supplied animals from Bermuda.

Cahow. The discovery of Bermuda cahow (*Pterodroma cahow*) bones at Jamestown has opened up new avenues concerning the economic relationship between Jamestown and Bermuda. In addition to nine elements previously identified in faunal assemblages from Pit 1 and Pit 3 (Bowen and Andrews 1999), 21 elements from Pit 5 and Pit 8 have been identified and confirmed by staff at the Smithsonian Institution. The similar long bone elements and bones from the wing region suggest that cahows were imported as a food source. The bones have been broken in a similar fashion, suggesting that the meat-bearing elements may have been salted, preserved and sent as provisions. The history of the cahow as a food source in the early 1600s and their Bermuda habitat suggests that these specimens from Jamestown came directly from Bermuda.

The legendary Bermuda cahow is a diving petrel belonging to the order Procellarriformes, which also includes albatrosses, shearwaters, and storm petrels. As with other species in this order, the cahow has large nostrils enclosed in a prominent tube along the hook-tipped beak. They typically have a thirty-five-inch wingspan with grayish-black plumage above and white plumage below. They spend their youth and summers on the open ocean and only return to land to breed. Under the cover of night, the cahows return in October to nest in shallow burrows and rock crevices. Both the male and female may occupy the burrow night and day until late December when they leave to feed at sea. They are usually gone two weeks before returning to lay and incubate their single egg. For the next seven weeks the male and female take two week turns sitting on the egg, while the other is looking for food. Except for the first few days of its life, a newly hatched chick is left alone in the burrow except when being fed (Schreiber et al. 1987).

Although they are now making a comeback from near-extinction, the cahow has had a turbulent history not much different than the history of Jamestown. In 1603, a Spanish sea captain sought shelter from a storm on an unknown island in the western Atlantic. According to legend, the sailors were horrified when millions of shrieking, winged shapes swirled around the masts of the ship in the dark night. The sailors later sought their revenge on the birds by eating them in the thousands. They named the bird “cahow” after their loud call (Schreiber et al. 1987).

At one time the cahow had large breeding colonies on the Bermuda islands, but they were quickly destroyed by early British colonists and the pigs they brought with them. An

early text by William Strachey beautifully describes these island birds that knew no fear of predators:

> *A kind of web-footed fowl there is, of the bigness of an English green plover, or sea mew, which all the summer we saw not, and in the darkest nights of November and December (for in the night they only feed) they would come forth, but not fly far from home, and hovering in the air and over the sea, made a strange hollow and harsh howling. Their color is inclining to russet, with white bellies, as are likewise the long feathers of their wings russet and white. These gather themselves together and breed in those islands which are high, and so far alone into the sea that the wild hogs cannot swim over them; and there in the ground they have their burrows, like conies in a warren, and so brought in the loose mould, though not so deep; which birds with a light bough in a dark night, as in our lowbelling (rung to stupefy the birds who were then netted), we caught. I have been at the taking of three hundred in an hour, and we might have laden our boats. Our men found a pretty way to take them, which was by standing on the rocks or sands by the seaside, and holloing, laughing, and making the strangest outcry that possibly they could, with the noise whereof the birds would come flocking to that place, and settle upon the very arms and head of him that so cried, and still creep nearer and nearer, answering the noise themselves; by which our men would weigh them with their hand, and which weighed heaviest they took for the best and let the other alone; and so our men would take twenty dozen in two hours of the chiefest of them; and they were a good and well-relished fowl, fat and full as a partridge. In January we had great store of their eggs, which as great as an hen's egg, and so fashioned and white-shelled, and have no difference in yolk nor white from an hen's egg. There are thousands of these birds, and two or three islands full of their burrows, whither at any time in two hours' warning we could send our cockboat and bring home as many as would serve the whole company; which birds, for their blindness (for they see weakly during the day) and for their cry and hooting, we called the 'sea owl'. They will bite cruelly with their crooked bills* (Strachey in Haille 1998:398-399).

By 1609, the settlers had devastated the cahow population on the main island of Bermuda, so when a plague of introduced rats caused a famine, the islanders looked to the cahows who still existed on the smaller surrounding islands (Halliday 1978). Finally, fearing the demise of the cahow, the Governor of Bermuda issued proclamations in 1616 and 1621 to stop "the spoyle and havock of the Cahowes." Unfortunately, the proclamations were not effective and the cahow was not seen in the Bermuda islands for over 300 years (Halliday 1978).

In 1951, a systematic search for the species revealed that a few nests—about 18 pairs—were located on tiny offshore islands where many tropical birds nest. On these rocky islands where it has been forced to breed due to human presence on the main island, the

cahow cannot burrow into the hard ground but inhabits natural holes. This has put the cahow into competition with the long-tail tropical bird, which also nests in rocky crevices. Long-tails were destroying defenseless cahow chicks left in the nest, so they could take over the rocky holes for their own nest. With the help of Bermuda's conservation department, artificial burrows were made and protective covers, which only cahows could squeeze into, were placed over nest holes. These measures helped to increase the cahow population, but in the 1960s a new threat was evident. Eggs were failing to hatch and chicks were dying due to DDT residues the cahows had picked up from the ocean environment. Legislation has finally controlled the use of DDT in North America, and the cahows are making a comeback once again. As of 1985, the cahows had increased their population to 35 pairs (Schreiber et al. 1987).

Jamestown Birds

The Chesapeake Bay is the largest estuary in North America and the primary destination of literally millions of migratory waterfowl during the winter months. Some of the bird species that were identified in the Jamestown assemblages are considered to be migratory fowl although certain environmental conditions can affect their presence and absence in an area. Birds such as the ducks, geese, and ring-billed gull would have probably been available to the colonists in larger amounts during several months of the year. The seasonal availability of certain birds was accounted by John Smith in his descriptions of Virginia:

> *In Winter there are great plentie of Swans, Cranes, gray and white with blacke wings, Herons, Geese, Brants, Ducke, Wigeon, Dotterell, Oxeies, Parrats, and Pigeons. Of all those sorts great abundance, and some other strange kinds, to us unknowne by name. But in sommer not any, or a very few to be seene* (Smith in Barbour 1986:111).

Other identified fowl in the Jamestown assemblages could have been year-round supplements to the diet of the inhabitants of Jamestown. Some of these species include cormorants, Canada geese, mallards, hawks, osprey, turkey vultures, owls, turkeys, and crows.

Heron or Egret. One bone from Pit 5 was identified as belonging to the family of herons and egrets (Family Ardeidae). This family includes wading birds with long legs, necks, and bills used for stalking food in shallow water. They are commonly found in marshes, swamps, ponds, and along the edges of rivers where they are often seen perching in trees. Some members of this family can only be found in the Chesapeake region during the spring and summer months. These species include the least bittern (*Ixobrychus exilis*), yellow-crowned night heron (*Nyctannassa violacea*), and the green-backed heron (*Butorides striatus*). Other species can be found in the waters of the Chesapeake all year around including the black-crowned heron (*Nycticorax* nycticorax), the little blue heron (*Egretta* caerulea), the snowy egret (*Egretta thula*), the great egret (*Casmerodius albus*), and the great blue heron (*Ardea herodias*) (National Geographic Society 1983).

Double-Crested Cormorant. Pit 5, Pit 8, and Pit 11 contained 25 bird bones that were identified as a double-crested cormorant (*Phalacrocorax auritus*). As a water bird, the cormorant can be found on rocky coasts, beaches, inland lakes, and rivers. They are identified by their dark body, set-back legs, and hooked bills. They typically dive from the surface for fish and may swim submerged to the neck (National Geographic Society 1983).

Swan. One bird element from Pit 8 was identified as belonging to a swan (*Cygnus* spp.). In the winter, the tundra swan (*Cygnus columbianus*) can be found in the Chesapeake region where it usually inhabits sheltered fresh-water areas or occasionally bays, estuaries, and flooded fields. Although the tundra swan is the only native species of swan that is found along the East coast, the mute swan (*Cygnus olor*) is an Old World species that can also be occasionally seen in the Chesapeake region (National Geographic Society 1983).

Goose. Fourteen bones from Structure 166 and Pits 5, 8, 9 and 10 were only identified as goose (Goose spp.), since there were not enough distinguishing attributes to determine the specific species. These bones are probably from either the Canada goose (*Branta canadensis*) or the brant (*Branta bernicla*).

Canada Goose. A total of 62 bones from all of the features could be identified as Canada goose (Branta canadensis). Preferring to breed in open or forested areas near water, the Canada goose is the most common and familiar wild goose. When they migrate, the flocks usually fly in a V-formation, and stop to feed in wetlands, grasslands, or cultivated fields. The Canada goose is a common visitor to the York River and the Chesapeake region (National Geographic Society 1983).

Duck spp. Sixty-four bones from Pit 5, Pit 8, Pit 9, and Pit 11 could only be identified as duck. The bones were fragmented so that there were not enough distinguishing features to identify the species. The Chesapeake Bay region and the environment surrounding Jamestown, are primary wintering areas for a large variety of duck species because of its size, habitat diversity, and waterways with significant submerged vegetation and shellfish.

Dabbling Duck. Four bones from Pit 5, nine bones from Pit 8, and one bone from Pit 11 were identified to the genus of dabbling ducks (*Anas* spp.). The dabbling or surface-feeding ducks feed by tipping tail-up to reach aquatic plants, seeds, and snails. They can be found primarily in freshwater shallows, but in winter they can also be found in salt marshes. Some of the more common dabbling ducks include the mallard (*Anas platyrhynchos*), the American Black Duck (*Anas rubripes*), the gadwall (*Anas strepera*), the green-winged teal (*Anas crecca*), and the American widgeon (*Anas penelope*) (National Geographic Society 1983).

Pochard. Pit 5 and Pit 9 produced three elements that could only be identified as a pochard (*Aythya* spp.). Pochards are diving ducks that have legs set far back and far apart which makes walking awkward. Their heavy bodies require them to have a running start

on water for take-off. There are five species of pochards that can be found wintering in the Chesapeake area—the canvasback (*Aythya valisineria*), the redhead (*Aythya americana*), the ring-necked duck (*Aythya collaris*), the greater scaup (*Aythya marila*), and the lesser scaup (*Aythya affinis*) (National Geographic Society 1983).

Redhead. One element from Pit 8 was identified as a redhead (*Aythya americana*), a specie of pochard duck. The redhead can be distinguished by its bill that is relatively shorter and tricolored. They are winter visitors to the Chesapeake region where they can be found in marshes, ponds, or lakes (National Geographic Society 1983).

Bufflehead. Three bird bones from Pit 8 were identified as belonging to a bufflehead (*Bucephala albeola*). The bufflehead is a member of the sea duck family, which is comprised of stocky, short-necked diving ducks. In the wintertime it is common to find the bufflehead along the East Coast congregating in loose flocks. They tend to nest in woodlands near small lakes and are found also in sheltered bays and rivers (National Geographic Society 1983).

Whooping Crane. Two bones from Pit 8 were identified as the remains of a whooping crane, a species that is now endangered. As the tallest North American bird, the whooping crane can stand almost five feet in height with impressive black and white plumage, a bare red face, and a dark olive-gray bill. Mating for life, whopping cranes can live to be 22 to 24 years of age. They are omnivorous feeders thriving on insects, frogs, rodents, small birds, minnows, berries, acorns, snails, blue crabs, and clams. While they prefer a salt marsh environment, whooping cranes can also be found around ponds, grasslands, oak brush, and even dry prairies. Historically, the range of the whooping crane once extended from the Artic coast south to central Mexico, and from Utah east to New Jersey, all the way down the east coast into Florida (US Fish and Wildlife Services 1997). At one time, the Whooping crane could have been a winter visitor to the waters of the Chesapeake and the area surrounding Jamestown.

Ring-Billed Gull. At least one bone from Pit 9 belonged to a ring-billed gull (*Larus delawarensis*). Considered a three-year gull, the ring-billed gull acquires a new and different plumage in each of the first three falls of its life. It is very common and can be found wintering along the east and west coasts (National Geographic Society 1983).

Hawk or Eagle. Pit 5 and Pit 8 contained a total of 13 bones that were identified to the Family Accipitridae, which includes hawks and eagles. This is a large, worldwide family of birds of prey, equipped with hooked bills and strong talons.

Osprey. Pit 9 produced four elements belonging to an osprey (*Pandion haliaetus*). As spring and summer visitors to the Chesapeake, ospreys return to the area in March where they make their nests nest near salt or fresh water. By late July, most young ospreys in the Chesapeake area are on the wing, and by the end of August they begin their journey to the wintering grounds in the Caribbean, Central America, and South America. Ospreys primarily hunt for fish and can be seen hovering over the water, then diving and plunging feet first to retrieve their prey (National Geographic Society 1983).

Red-Tailed Hawk. One element from Pit 11 was identified as a red-tailed hawk (*Buteo jamaicensis*). Found throughout the United States, the red-tailed hawk is a year around resident along the East coast. Their habitat varies from woods, to open fields, to plains, and even the desert, where they feed on rodents (National Geographic Society 1983).

Turkey Vulture. Pit 8 produced at least three bones identified as the remains of a turkey vulture (*Cathartes aura*). With weak talons ill suited for holding live prey, turkey vultures rely on their small, unfeathered heads and hooked bills to aid in the consumption of carrion. They do not build nests but lay their eggs in sheltered areas such as cliffs, caves, or hollow logs. They are a year around resident of the Chesapeake area where they are common in dry, open country or woodlands (National Geographic Society 1983).

Turkey. Thirty-three bird bones from Pits 5, 8, 9, and 11 were identified as turkey (*Meleagris gallopavo*). The turkey is essentially a woodland bird. When Europeans first colonized North America, the turkeys inhabited wide forests, preferring wooded swamps and mature hardwood forests. As the land became cleared they adapted to open fields, savannas, and meadows as they foraged for insects, berries, and other foods (Bent 1963). In his description of the wildlife in Virginia, William Strachey remarked that "Turkeys there be great store wild in the woods like pheasants in England, 40 in company, as big as our tame here, and it is an excellent fowl, and so passing good meat as I may well say it is the best of any kind of flesh which I have ever yet eaten there" (Strachey in Haile 1998:683). Prehistoric sites in Virginia commonly include turkey, and John Smith was impressed that "in March and April [local Indians] live much upon the fishing weares, and feed on fish, turkies, and squirrels…" (Smith in Barbour 1986:162).

Wild turkeys were taken to Europe, domesticated, and reintroduced to North America (Bent 1963). Since they continued to breed with their wild progenitor, it is not surprising that no osteological distinction can be made between wild and domestic animals. For the purpose of this analysis, they have been considered wild and therefore have been included with wild fowl in the relative dietary estimates.

Chicken. Domestic chicken (*Gallus gallus*) was identified by 74 elements from Pits 5, 8, 9, and 11. Chickens provided another source of fresh meat to the early colonists. In terms of the actual amount of meat, chickens were not nearly as important as wildfowl, wild mammals, domestic mammals, or fish, but they did provided a year-round source of fresh meat. Chickens and their eggs were prepared in a number of ways: roasted, boiled, fried, broiled, and minced (Noël Hume 1978).

Typical Owls. One bone from Pit 5 was identified to the family of typical owls (Family Strigidae). These are distinctive birds of prey with immobile eyes and large heads. Many of the species hunt at night and roost during the day. In the Chesapeake area, typical owls include the great horned owl (*Bubo virginianus*), barred owl (*Strix varia*), and the Eastern screech owl (*Otus asio*) (National Geographic Society 1983).

Perching Bird. There were a total of 22 bird bones from Pit 5 and Pit 8 that were recorded only as perching birds (Order Passeriformes). Since the bones were not

complete enough to identify a specific species, they were recorded in the broad category of perching birds.

Common Crow. At least six bones from Pit 5 and six bones from Pit 8 were identified as American crows (*Corvus brachyrhynchos*). As one of the largest species in the crow family, the American crow is easily identified not only by its size but also by its distinctive and familiar *caw* call. They can be found in a variety of habitats throughout the United States and are very common in Virginia (National Geographic Society 1983).

Fish Crow. A single element from Pit 9 was identified as a fish crow (*Corvus ossifragus*). This species prefers tidewater marshes and valleys along rivers of the East coast. They can be found year around near the waters of the Chesapeake (National Geographic Society 1983).

WILD MAMMALS

All of the identified wild mammal species identified in the Jamestown features were native to Virginia in the seventeenth century and could have supplemented the diet throughout the year.

Opossum. Opossum (*Didelphis virginiana*) was identified by 45 elements from Structure 166, Pit 5, Pit 8, Pit 9 and Pit 11. Opossums are known for their activity at night and for their frequency around swampy areas that are common along the shores of the East Coast. The seasonal abundance of food, water, and the availability of den areas (Gardner 1982) can influence their presence in these habitats. The meat of the opossum was described by William Hugh Grove, a Virginian, in 1732 as "resembling Hog flesh, exceeding fat and Lusious" (Barnett and Gilliam 1989).

Mole. One bone from Pit 5 and one bone from Pit 8 could only be identified to the family of moles (Family Talpidae). While there are several species of moles in Virginia, only one specie, the Eastern mole (*Scalopus aquaticus*), can be found in eastern section of Virginia. The Eastern mole can inhabit almost any type of environment with well-drained loam or sand. They have greatly enlarged forefeet, which allows them to excavate complex systems of tunnels for shelter and passage to feeding areas (Webster et al. 1985). The presence of moles in the Jamestown assemblages suggests the remains of an accidental visitor to the site, rather than food remains.

Eastern Cottontail. Five bones from Pit 5, Pit 8, and Pit 9 were identified as eastern cottontail (*Sylvilagus floridanus*). Eastern cottontails prefer a vegetative habitat of perennial grasses or a dense, low growing environment. They are herbivores, preferring grasses and a wide variety of plants that provide a basic nutritional balance (Chapman et al. 1982).

Squirrel. At least 163 bones from Structure 166, Pit 5, Pit 8, and Pit 9 could only be identified as squirrel (*Sciurus* spp.). Although the bones are either from eastern gray

squirrel (*sciurus carolinensis*) or eastern fox squirrel (*Sciurus niger*), they did not have enough distinguishing features to identify the exact species.

Eastern Gray Squirrel. Identified in all of the features, a total of 277 elements were identified as eastern gray squirrel (*Sciurus carolinensis*). The gray squirrel prefers a mature hardwood habitat with dense undergrowth. Its range may vary depending on food availability, population size, and age. They consume a diversity of foods including acorns, a variety of nuts, fruits, seeds, certain tree barks, fungi, and insects (Flyer and Gates 1982). Squirrels were and still are often hunted for their meat, which can be served boiled, stewed, or barbecued.

In his discussion of Virginia wildlife, William Strachey commented that "Squirrels they have and those in great plenty are very good meat. Some are near as great as our smallest sort of wild rabbits, some are blackish or black and white like those which are here called silver-haired, but the most are gray" (Strachey in Haile 1998:681).

Eastern Fox Squirrel. Structure 166, Pit 5, Pit 8, Pit 9, and Pit 10 produced 43 bones identified as eastern fox squirrel (*Sciurus niger*). As the largest of the North American tree squirrels, the fox squirrel is distinguished by its gray body and its bluish gray or black face. Historically, fox squirrels could have been found throughout the mid-Atlantic region but today they are predominately found in the coastal areas of South Carolina, the southeastern coastal plains of North Carolina and the mountain regions of both North Carolina and Virginia. Their restricted distribution is due to the decline of their natural habitat that includes mature longleaf pine and hardwood forests. Although they will feed on a variety of fruits and seeds they prefer pine seeds, eating both green and mature cones (Webster et al. 1985).

Beaver. Nine elements from Structure 166, Pit 8, and Pit 9 were identified as beaver (*Castor canadensis*). The beaver is found throughout most of the United States, wherever water and plant materials suitable for winter food are present. Remaining active throughout the year, the beaver lives in lakes, ponds, rivers, and streams, but prefers the relatively flat terrain of fertile valleys and lowlands. They are a nocturnal species that feed on bark and small twigs, and can be found leveling trees to construct dams and lodges (Webster et al. 1985).

At the time of initial European contact, the beaver population is estimated to have been 60,000,000 or more. Colonization and fur trapping significantly reduced the population, until the beaver almost became extinct in North America (Webster et al. 1985). Beavers were valued not only for their fur, but also for their long teeth that Native Americans would use for tools and weapons. As a food source, the beaver has long been a favored source of fat and protein, including their tail, which Strachey described as being "somewhat like the form of a racket, bare without hair, which to eat the savages esteem a great delicate" (Strachey in Haile 1998:681). Reintroduction and protection policies have resulted in the beaver reclaiming much of its former habitat.

Muskrat. A total of 35 bones from Pits 5, 8, 9, and 11 were identified as muskrat (*Ondatra zibethica*), a semiaquatic mammal that is abundant in the marshes surrounding the Chesapeake Bay. Their presence in an area is usually marked by the occurrence of their homes, large mounds of vegetation. However, when muskrats live in streams and ponds they tend to build their dens in tunnels into the surrounding banks. Like the beaver, the muskrat has long been valued for its pelt but their high rate of productivity has enabled them to prosper in areas where their habitat has been maintained (Webster et al. 1985).

Known as "muscascus" in the Virginia Algonquian language, William Strachey described muscascus as

> *"a black beast in color, proportioned like a water rat. He hath a cod within him which yieldeth a strong scent like unto musk. It is good meat if the cod be taken out, otherwise the flesh will taste most strong and rank of the musk; so will the broth wherein it is sod "* (Strachey in Haile 1998:681).

Ocean Dolphins. A total of 20 elements from Pit 5 and Pit 8 could only be identified to the family of ocean dolphins (Family Delphinidae). In the waters of the Chesapeake, there are at least five known species of dolphin including the bottle-nosed dolphin (*Tursiops truncates*), the rough-toothed dolphin (*Steno bredanensis*), the saddle-backed dolphin (*Delphinis delphis*), the Atlantic white-sided dolphin (*Lagenorhynchus acutus*), and Risso's dolphin (*Grampus griseus*). While most of the species are rare to the area, the bottle-nosed dolphin is very abundant along the coast of Virginia (Webster et al. 1985).

Bottle-Nosed Dolphin. At least five bones from Pit 8 were identified (using the collections of the Smithsonian) as bottle-nosed dolphin (*Tursiops truncatus*). Bottle-nosed dolphins are typically medium to dark gray on their dorsal side and pale gray to whitish on their underbelly. They have been known to measure up to twelve feet in length and can weigh as much as six hundred pounds. The bottle-nosed dolphin can be found along the Atlantic coast but is unique from other dolphins since they prefer to inhabit inshore waters and frequently enter sounds, rivers, and tidal creeks. They feed primarily on squid and fish but have also been known to eat shrimp and octopus (Webster et al. 1985).

Dolphins are known to have been taken in Virginia's coastal waters and John Fontaine, an English visitor to Virginia in 1715 considered it "a very dry fish and requires a great deal of sauce" (Alexander 1972). Francis Louis Michel, who also visited Virginia in the early eighteenth century, made a reference to porpoises in his report. Although the harbor porpoise (*Phocoena phocoena*) can also be found in the inshore waters and coastal bays of Virginia, Michel's description of porpoise is instructive, since they are close in appearance and can easily be misidentified. He reported:

> *A good fish, which is common and found in large numbers, is the porpoise. They are so large that by their unusual leaps, especially when the weather changes, they make a great noise and often cause anxiety for the small boats or canoes. Especially do they endanger those that bathe. Once I cooled and amused myself in the water with swimming, not knowing that there was any danger, but my host informed me that there was* (Michel in Hinke 1916:34).

Gray Fox. One element from Pit 5 was identified as a gray fox (*Urocyon cinereoargenteus*). As their name implies, the gray fox is dominantly gray in color with reddish patches of fur on its side, neck, tail, and legs. They can be found throughout Virginia from the coast to the mountains, where they prefer to inhabit woodland areas. They feed primarily on rabbits and rodents, but can also be seen eating fruits and insects (Webster et al. 1985).

Black Bear. Seven phalanges from Pit 5 and Pit 10 were identified as the remains of a black bear (*Usus americanus*). Typically weighing from 100 to 200 pounds, black bears would have provided a substantial source of meat to the earlier settlers and their Native American neighbors. As William Strachey wrote in his early accounts,

> *"Bears there be many toward the seacoast, which the Indians hunt most greedily, for indeed they love them above all other their flesh, and therefore hardly sell any of them unto us unless upon large proffers of copper, beads, and hatchets. We have eaten of them and they are very toothsome, sweet venison, as good to be eaten as the flesh of a calf of two years old…"* (Strachey in Haile 1998:681).

In mountainous regions, black bears can be found inhabiting mixed hardwood forests, while bears living in coastal areas can be found in swamps and flatwoods. Black bears are omnivores and their diet fluctuates with the changing seasons. In spring they can be found eating fresh grasses, in summer and fall they search for berries and fruit, while winter diets consist of acorns. Supplementary food consists of insects, mammals, and carrion. During the coldest part of winter, black bears make dens in hollow trees, caves, or crude nests. Although they are not true hibernators, they do become inactive until warmer weather arrives (Webster et al. 1985).

Raccoon. A total of 298 bones from all of the features were identified as raccoon (*Procyon lotor*). The raccoon is a nocturnal carnivore that inhabits areas near water sources such as fresh and saltwater marshes, hardwood swamps, and flood plain forests. Omnivorous and opportunistic when it comes to finding food, it consumes both plants and animals. Since they are active at active throughout winter, these animals could have been hunted year-around (Webster et al. 1985). While they provided the colonists with a source of meat, the Native Americans also used their skins. John Smith accounted for this when he described a visit with Powhatan, "Before a fire upon a seat like a bedsted, he sat covered with a great robe, made of Rarowcun skinnes, and all the tayles hanging by" (Smith in Barbour 1986 2:150)

Striped Skunk. A single element from Pit 9 was identified as a striped skunk (*Mephitis mephitis*). With their distinctive black and white fur, the striped skunk is well known for their well-developed scent glands at the base of the tail. When threatened, the skunk is able to propel a strong musk up to six yards. Generally nocturnal, skunks spend their days in subterranean dens and come out at dusk to feed on insects, small mammals, frogs, and bird eggs (Webster et al. 1985).

Bobcat. Four bones from Pit 5 were identified as the remains of a bobcat (Felis rufus). Bobcats are secretive, solitary animals preferring areas of thick cover. They are most active just after dusk and before dawn when they hunt for medium-sized prey such as small mammals and the occasional deer. They often cover their kill with leaves, grass, snow, and even hair to save for later consumption. Their habitats are varied including coastal swamps, forests, and rocky outcrops (Webster et al. 1985). Their pelts are highly sought after today as they would have been to the Native Americans surrounding Jamestown.

White-Tailed Deer. White-tailed deer (*Odocoileus virginianus*) were identified by a total of 126 bones excavated from Structure 166, Pit 5, Pit 8, Pit 9, and Pit 11. White-tailed deer are herbivores that inhabit most environmental settings and consume a diversity of foods, selecting the most nutritional and tasty foods available. Their activity depends on a number of factors, including population size, season of year, and weather conditions (Hesselton and Hesselton 1982).

During the initial settlement period deer were quite prevalent, and large numbers of deer remains are typically found in early historic sites. While deer may have been hunted in the surrounding woods of Jamestown, Captain John Smith also remarked on Native American traders who provided the colonists with venison. Impressed by their hunting skills, Smith wrote in detail how Native Americans hunted deer both in large groups and as a single hunter:

> *One Salvage hunting alone, useth the skinne of a Deere slit on the one side, and so put on his arme, through the neck, so that his hand comes to the head which is stuffed, and the hornes, head, eyes, eares and every part as artificially counterfeited as they can devise. Thus shrowding his body in the skinne by stalking, he approacheth the Deere, creeping on the groun from one tree to another* (Smith in Barbour 1986, 2:118).

Beginning in the mid-seventeenth century in the coastal region of the Chesapeake, deer populations declined, as evidenced by the decreasing number of bones found on archaeological sites from this time period (Miller 1984). Settlers looked to deer for subsistence and, to a lesser degree, for sport, which contributed to the decline of the deer population. The diminished deer population, coupled with the increasing utilization of pig and cattle, greatly curtailed the importance of deer in the diet.

COMMENSAL MAMMALS

Commensal animals are those that live with another species and share its food, both animals possibly benefiting from each other through this association (Davis 1987). Three commensal species which live in close proximity to humans were found in the assemblages. Except in times of emergency, they are rarely eaten and are typically not considered food remains in normal zooarchaeological studies.

Rats. Four elements from Pit 8 and three elements from Pit 5 were identified to the broad category of rats (there were not enough distinguishing features to identify a specific species). Many species of rat can be found in the eastern part of Virginia, including the marsh rice rat (*Oryzomys palustris*), the hispid cotton rat (*Sigmodon hispidus*), the Eastern woodrat (*Neotoma floridana*), the roof rat (*Rattus rattus*), and the Norway rat (*Rattus norvegicus*).

Roof or Black Rat. Pit 8 produced two bones that were identified as roof rats (*Rattus rattus*). Also known as the black rat, the roof rat is basically an arboreal animal, preferring to live in trees, shrubs, vines, and the attics and walls of buildings. They feed on a variety of grains, fruits, and vegetables and are most active in the late afternoon and evening hours. A native of the Old World, the roof rat was introduced into North America by early explorers and colonists and quickly became distributed in the eastern portion of the United States (Jackson 1982). Captain John Smith remarked on their productivity when he wrote, "In searching our casked corn we found it half rotten and the rest so consumed with so many thousands of rats that increased so fast (but their original was from the ships) as we knew not how to keep that little we had" (Smith in Haile 1998:319). Later during the Starving Time, the colonists were forced to search for rats as a food source to satisfy their hunger. When the Norway rat reached North America around 1775, they gradually drove the roof rat from much of its range. Today they are likely to be found in the vicinity of shipping ports, such as Baltimore, Norfolk, Wilmington and Charleston (Webster et al.1985).

Mouse, Rat, Lemming, or Vole. Structure 166, Pit 5, Pit 8 and Pit 10 produced ten bones identified as belonging to the mouse, rat, lemming, or vole family (Family Cricetidae). Members of this family are typically active year round and can be found in a variety of habitats including houses, barns, fields, forests, sand dunes, and trash piles. Since members of this family consume anything edible, they are highly destructive to stored grains and other foods eaten by humans and domestic mammals (Webster et al. 1985).

Cat. One bone from Pit 8 was identified to the family of cats (Family Felidae). It is not surprising to find cats in the Jamestown assemblages since they were and still are often kept in homes and on farms to serve as mousers or ratters.

Dog or Wolf. Twenty-five tooth and bone fragments from Structure 166, Pit 5, Pit 8, Pit 9, and Pit 10 were identified as belonging to *Canis* spp., which includes both dogs and wolves. This classification was used since the bones were not complete enough to make

accurate measurements or a positive identification. However, the size of the bones and teeth suggest a large, robust dog. It is recommended that an expert in canine skeletons be consulted to determine the species after taking precise measurements and comparing them to known specimens, including Native American dogs and English breeds.

Dogs are known to have been brought to Jamestown, and even Captain John Smith gave Powhatan a white greyhound as a gift. Dogs are also mentioned by William Strachey as being used for hunting wild pigs on the island of Bermuda and as a source of food during the starving period (Haile 1998).

Wolves, both the gray wolf (*Canis lupus*) and the red wolf (*Canis rufus*), were once a frequent site in the Chesapeake region. While the red wolf preferred swamp forests and coastal marshes, the gray wolf occupied a variety of habitats, from the forest to the plains. The gray wolf (*Canis lupus*), was especially admired by Native Americans, not only for their hunting abilities and their close family ties, but also for their fur. Once plentiful, the gray wolf and the red wolf have now been almost eliminated from much of the east coast. The last recorded killing of a gray wolf in Virginia was in 1910 in Tazewell, Virginia (Webster et al. 1985).

DOMESTIC MAMMALS

Brought over to the New World possibly with the first ship, but most certainly with the first shipment in early January 1608, livestock were present at Jamestown very early (Barbour 1986 V.I:273; Dandoy 1997:13-14). Records hint that horses, swine, goats, sheep, and chickens were among the earliest newcomers, but by June 1610, Lord De La Warr had brought milk cows, oxen, goats, hogs, and poultry. Thus from the earliest days they provided an important source of nourishment, so much so, that during the Starving Time all but possibly one hog was killed for food. Subsequent shipments of settlers also brought more livestock, and to protect them from hungry colonists in June 1611 Thomas Dale protected them by enacting a law "that no man shall dare to kill, or destroy any Bull, Cow, Calfe, Mare, Horse, Colt, Goate, Swine, Cocke, Henne, Chicken, Dogge, Turkie or any tame Cattel, or Poultry of what condition soeuer; whether his owne, or appertaining to another man, without leaue from the Generall… (Force 1947:14). As early as 1616, colonists claimed they could maintain themselves with meat from their livestock (Brown 1891 (I):776). By 1619, the census recorded 120 humans, 500 cattle, some horses and goats, and an "infinite" number of swine (Kingsbury 1933 (III):118). The mild climate, the fertile soil, and the presence of rivers were the reasons Captain John Smith gave for why the domestic animals would do well in Virginia: "Here will live any beasts, as horses, goats, sheepe, asses, hens, etc. as appeared by them that were carried thether" (Smith in Barbour 1986, 2:113).

Bermuda Swine

At least some of the swine were probably from Bermuda. Various accounts indicate that the colonists were capturing some of the wild boars while on the island of Bermuda and may have transported some of them to Virginia. Future analysis of either DNA samples

or phytoliths surviving on the plaque remaining on pig teeth might help to determine whether these early hogs were from Bermuda.

As William Strachey wrote of Bermuda swine in 1610:

> *We had knowledge that there were wild hogs upon the island at first by ourown swine preserved from the wrack and brought to shore. For they straying into the woods, an huge wild boar followed down to our quarter, which at night was watched and taken in this sort: One of Sir George Summers' men went and lay among the swine. When the boar being come and groveled by the sows, he put over his hand and rubbed the side gently of the boar, which then lay still, by which means he fast'ned a rope with a sliding knot to the hinder leg, and so took him, and after him in this sort two or three more.*
>
> *But in the end (a little business over), our people would be a-hunting with our ship dog, and sometimes bring home thirty, sometimes fifty boars, sows, and pigs in a week alive. For the dog would fasten on them and hold whilest the huntsmen made in. And there be thousands of them in the islands, and at that time of the year—in August, September, October, and November—they were well fed with berries that dropped from the cedars and the palms.. And in our quarter we made sties for them, and gathering of these berries served them twice a day, by which means we kept them in good plight…* (Strachey in Haile 1998:399).

Jamestown Swine

There were a total of 190 swine (*Sus scrofa*) elements from Structure 166, Pit 5, Pit 8, and Pit 9. Although the ranking of pork among early diets may be argued by some, it is clear that the domestic pig was an important food source from the initial years of settlement on through the twentieth century. A prolific breeder that thrived on mast, roots, and tubers in an open woodland setting, they were born in the spring and by the next winter had grown to a good slaughter weight. In comparison to cattle that provided only about 50-60% of dressed meat per individual after slaughter, swine provided 65-80% and its flesh when salted was perfect for use as a year-round source of preserved meat (Reitz, Gibbs, and Rathbun 1985; Bowen 1990a, 1990b).

Archaeologically swine are omnipresent, and in every faunal assemblage their remains account for a substantial proportion, either in terms of NISP, MNI, usable meat weight, or biomass. From the early years, pork contributed 10% of the biomass, by 1620-50 anywhere from 6 to 17%, by 1660-1700 an average of 11%, and throughout the eighteenth century on rural plantations anywhere from 12 to 17% (Walsh et. al. 1997:351). This archaeological evidence, backed by historical accounts, demonstrate hogs did well in Virginia. Smith wrote, "Of three sows in eighteen months increased 60 and odd pigs…But the hogs were transported to Hog Isle, where also we built a blockhouse with a garrison…" (Smith in Haile 1998:319).

Cattle. Domestic cattle (*Bos taurus*) were identified by 53 elements recovered from all six features. By 1608, and possibly earlier cattle arrived on Jamestown Island. They flourished in the woodland environment, and as early as the 1620s, herds had become so large that beef was able to become the mainstay of the colonists' diet, a pattern that stood firm throughout the colonial period (Miller 1984; Bowen 1990a). Throughout the colonial period cattle provided primarily meat, but also some milk and dairy products, and beginning in the late-seventeenth and early-eighteenth centuries they were used to plow fields (Miller 1984; Bowen 1994). In terms of their contribution to the meat diet, in c. 1610 cattle contributed 14% to the total biomass, by 1620-1650 anywhere from 37 to 57%, by 1660-1700 47%, and throughout the eighteenth century on rural plantations anywhere from 34 to 56% of the total biomass (Walsh et. al. 1997:351). For a more complete discussion of cattle husbandry, see *Provisioning Early American Towns. The Chesapeake: A Multidisciplinary Case Study* (Walsh et al. 1997).

Caprines. Only one tooth from Pit 8 was identified as either a sheep (*Ovis aries*) or goat (*Capra hircus*). These species, despite their outward appearance, are usually grouped together by faunal analysts because they are almost skeletally indistinguishable.

Starting in the mid-seventeenth century sheep were more commonly raised. While pigs and cows were allowed to roam free, sheep never became really profitable since they were unable to defend themselves from predators and would not freely reproduce (Reitz 1979). It was not until the 1690s that it became viable to raise sheep, because of the decline in the wolf population (Walsh 1988). While sheep were raised primarily for their wool, the by-product, mutton, remained a relatively small but important meat in the diet of individuals throughout the colonial period (Noël Hume 1978: Walsh et al. 1997).

Goats were introduced to the New World, possibly with the first arrivals, but certainly with the first supplies. Goats were hardy, they browsed on undergrowth, and they were better able to protect themselves from predators than sheep (Dandoy 1997; Walsh et al. 1997). With the first years of colonization, they supplied both milk and meat, but as fields were established and predators brought under better control, sheep were introduced in increasingly large numbers. By the mid-seventeenth century sheep had begun to replace most of the goats, though occasionally they still were raised primarily for their milk (Walsh et. al. 1997).

In terms of contribution to the meat diet, in c. 1610 caprines (sheep and goats combined) contributed 2.4% of the total biomass. By 1620-1650 they contributed anywhere from .7% to 4.3%, by 1660-1700 anywhere from 1 to 12.5%, and throughout the eighteenth century on rural plantations anywhere from 2 to 10% of the total biomass (Walsh et al. 1997:351).

Horse/Ass. Seven bones from Pits 5 and 8 were identified as being from either a horse or an ass (*Equus* spp.). These animals are so similar osteologically that they are lumped together in the same grouping. Although these animals were typically used for draft purposes throughout the colonial periods, there are also accounts from the late seventeenth century of wild horses being trapped or hunted for their meat. Some of the

horse bones from Jamestown are butchered, indicating that they were probably used as a food source. This is supported by accounts from William Strachey and George Percy who wrote that during the starving period horses and mares were some of the first animals to be killed for food (Haile 1989)

Fishing and Hunting

When the promoters of the Virginia colony were trying to lure people to lay the groundwork for future settlements in the New World, the land and its resources were often portrayed in an overly favorable light. The descriptions of the wildlife and the accounts of plentiful sources of food were written by explorers who often visited the New World in the bountiful spring and summer. In England, fishing and hunting had been considered leisure activities of the aristocrats, but in the New World these skills became crucial to their survival. Although the colonists came with fishing equipment and hunting equipment, their new surroundings proved challenging. As John Smith lamented in the early 1600s, "Though there be fish in the sea, fowls in the air, and beasts in the woods, their bounds are so large, they are so wild, and we so weak and ignorant, we cannot much trouble them" (Smith in Wharton 1957:6). As the settlers attempted to adapt their lifestyle to the new land, the progression of hunting and fishing techniques developed in conjunction with their relationship with the Native Americans. The following paragraphs summarize these relationships and how these techniques and equipment evolved as the colony changed.

As mentioned above, early descriptions of the New World indicated that fish were plentiful in the waters along the coast. Within the first days of their arrival, colonists were put to work not only cutting down trees, pitching their tents, and making gardens, but also constructing nets to use with the fishing equipment they brought (Smith in Arber 1910:91). Apparently not many fishing nets were used during their first summer since the men who survived lived mainly upon sturgeon and crabs that were easily taken in the shallow water with little effort and minimum equipment (Smith in Haile 1998:230).

As winter approached, the Jamestown colonists continued to find fishing in the New World to be demanding, as they made use of fish found in the frozen James River as accounted in a letter by Francis Perkins:

> *So excessive are the frosts, that one night the river froze over almost from bank to bank, in front of our harbour, although it was there as wide as that of London. There died from the frost some fish in the river, which were taken out after the frost was over, were very good and so fat that they could be fried in their own fat without adding butter or such thing* (Perkins in Haile 1998:133).

It was not until the spring of 1608, however, that Powhatan sent some of his people to teach the colonists not only how to sow the grain of the country but also how to make certain traps with which to fish the local waters. The most detailed accounts of Native

American fishing techniques were written by Robert Beverley in 1705, who not only described the Native American fishing techniques of the early eighteenth century but also methods that were used before the English arrived in Virginia. Beverley wrote that the Native American would use carved bone for hooks and spears and the barks of trees, the skin of deer, and the local grass to weave fishing nets. Although fish in shallow water was easily taken with pointed sticks, fishing traps were used by the Native Americans to catch larger fish found in deeper water. One of these techniques was described by Beverley:

> *The larger Fish, that kept in deeper Water, they were put to a little more Difficulty to take; But for these they made Weyrs; that is, a Hedge of small riv'd Sticks, or Reeds, of the Thickness of a Man's Finger, these they wove together in a Row, with Straps of Green Oak, or other tough Wood, so close that the small Fish cou'd not pass through. Upon High-Water Mark, they pitched one End of this Hedge and the other they extended into the River, to the depth of Eight or Ten Foot, fastening it with Stakes, making Cods out from the Hedge on one side, almost at the End, and leaving a Gap for the Fish to go into them, which were contrived so, that the Fish could easily find their Passage into those Cods, when they were at the Gap, but not see their Way out again, when they were in; Thus if they offered to pass through, they were taken* (Beverley 1705:38).

Although the Native Americans may have shown the Jamestown colonists their techniques for fishing, some of the colonists improvised their own methods and tools to catch fish as accounted by John Smith in the summer of 1608:

> *…we found… in diverse places, that abundance of fish lying so thicke with their heads above the water, as for want of nets, our barge driving amongst them we attempted to catch them with a frying pan; but we found it a bad instrument to catch fish with… Our captaine sporting himselfe to catch them by nailing them to the ground with his sword, set us fishing in that manner. By this devise, we tooke more in an houre then we all could eat* (Smith in Barbour 1986:168).

The need for skilled fishermen and adequate supplies was finally addressed in February 1610, when a letter was sent to London requesting that tradesmen be sent to Jamestown including fishermen and net makers (Brown 1891:469). However, when the supply ship finally arrived in Jamestown there were few fishermen and "sturgeon dressers" on board and few nets were delivered to the colony. Acquiring fish for food continued to be precarious and in 1619 the Assembly permitted six Native Americans to live within the settlement if they engaged in fishing for the colonists (Wharton 1957:23). A similar arrangement probably continued until local disputes between the colonists and the Native Americans led to an uprising in 1622 which brought a renewed instability for English subsistence.

Around 1623 fishing gear ceased to be colony controlled and the colonists began to purchase their own fishing equipment and boats. The listing of estates soon began to include fishing lines and hooks, while seines became increasingly important to capture shad and herring in the local rivers. The fishing techniques of colonial Virginia continued to progress through the end of the eighteenth century when river plantation owners such as George Washington developed better fishing equipment to promote their own fishing industries (Pearson 1942b).

In terms of hunting, the early colonists were also influenced by a variety of factors. To begin with, the English brought with them ideas about wild animals and the social precepts of hunting. In the seventeenth century hunting in England was considered a recreation activity restricted to royalty, nobility, and the private gentlemen (Cox 1697). Since there were few large wild animals left in England at that time, the majority of the remaining animals were enclosed in deer parks, that were used exclusively by the nobility and the well-to-do. Although the lower class wanted the same access to wild game to supplement their diet, poaching by yeomen was punishable under forest laws (Thomas 1983). Many of the early Jamestown colonists were from privilged families and most likely had experience with game hunting.

Although the archaeology indicates that the first James Fort colonists brought crossbows, longbows, matchlock muskets, and snaphaunce fowlers (Straube 2008), the early writings from Jamestown contain few descriptions of the hunting techniques utilized by the colonists. Instead, the accounts from the Jamestown colony indicate that before the 1622 uprising, colonists relied heavily on trade with the Native Americans in acquiring wild game, especially deer. The Native Americans were skilled and experienced hunters which John Smith commented on this in his descriptions of the Native Americans,

> *In their hunting and fishing they take extreame paines; yet is being their ordinary exercise from their infancy, they esteeme it a pleasure and are very proud to be expert therein. And by their continuall ranging, and travell, they know all the advantages and places most frequented with Deere, Beasts, Fish, Foule, Roots and Berries* (Smith in Barbour 1986:118).

After the uprising, the colonists had to rely upon their own hunting skills to supplement their diet. In response to their precarious relationship with their Native American neighbors, a hunting law was instituted that promised "severe censure of punishment by the Governor and Council" if anyone went out hunting without a sufficient number of well armed men (Wharton 1957:28). Other hunting laws and restrictions soon followed that dictated where people could hunt and occasionally what they could hunt. In a 1632 statute, hunting for wolves and game in the forests was encouraged so that the colonists would have training in the use of firearms, and help to keep the Native Americans at a distance (Hening 1823(1):199). Professional hunters were also being hired for the cost of powder, food, drink, and lodging. This practice of hiring hunters enabled some of the more wealthy landowners to focus their attentions on planting and developing the surrounding land (Miller 1986).

By the second half of the seventeenth century, the Native Americans had been pushed away from the prime hunting, fishing, and planting areas, as the English took over these areas for their own homes and plantations (Miller 1986). With the increase of land ownership, social divisions and distinctions became more evident and the perception of the wilderness changed as the colonists adapted to their new land. Hunting and fishing began to be seen by the colonists as a sport and leisure activity again not as a means of survival. Domestic animals had become well established and were the primary source of meat, so that fish, fowl, and wild mammals were seen only as a supplement.

TAPHONOMIC INFLUENCES

This section briefly describes each of the taphonomic influences and how bones from Structure 166, Pit 5, Pit 8, Pit 9, Pit 10, and Pit 11 have been modified.

Structure 166. Only 14 domestic mammal and deer bones were examined from Structure 166 for taphonomic influences (see Table 3). Overall, these bones were in fair condition with minimal taphonomic modifications. While none of the domestic mammal or deer bones display signs of having been burned, there are at least 247 bones that do appear to have been burned. As explained in the "Analytic Techniques" section of this report, it often takes extreme temperatures to produce burn marks on a bone so there may be other bones in this assemblage that had been burned but do not exhibit a charred appearance. Although there were a few bones with a calcined appearance, most of the burned indeterminate bones had definite scorch marks. The marks suggest the bones were probably burned during the preparation of food, not as the result of a large scale fire.

A close inspection of the bones also revealed limited evidence of chewing. Carnivores such as dogs will typically gnaw on the soft ends of long bones to create channels that allow them to get at the marrow. Smaller bones belonging to fish, birds, and small mammals are easily broken and digested by larger carnivores, so usually there is minimal evidence of carnivore gnawing on these bones. Based on the appearance of puncture marks and specific chewing patterns, only one cow, two pig, and one deer bone appear to have been chewed by a carnivore.

Although most of the faunal material from Structure 166 had probably been butchered, only bones that were identified to species and element were examined for evidence of butchering. For this reason, there may have been indeterminate bones that had also been butchered but were not recorded as butchered or included in the description of taphonomic influences. Five domestic mammal and deer bones show evidence of having been butchered with either an ax or a cleaver. In addition to these bones, there is also a beaver femur that was hacked with an ax or a cleaver. The location of the hack marks on the domestic mammal and deer bones from Structure 166 will be discussed in the section on butchering.

Pit 5. As with the other features, Pit 5 does not have any bones that were affected by weathering (see Table 3). Burn marks, however, were noted on several identifiable bones including eight crab claws, one opossum mandible, one chicken bone, and one duck bone. In terms of indeterminate bones, there are at least 322 bones that appear to have been burned. This number may actually be greater, since these are only the bones that exhibit a charred appearance. Evidence of gnawing by a carnivore was noted on at least one cow, one Canada goose, and twelve pig bones.

In the Pit 5 faunal assemblage, there are frequent butcher marks on the domestic and wild mammal remains. Butchered domestic bones include six cattle bones and ten pig bones, all hacked with either an ax or a cleaver. Other evidence of butchering was seen on two dolphin vertebrae, two bobcat long bones, two dog/wolf bones, and six white-tailed deer bones. A discussion of the butchery patterns for the identifiable bones can be found in a later section of this report. As mentioned earlier, most of the faunal material from the features had probably been butchered, only bones that were identified to species and element were examined for evidence of butchering.

Pit 8. A total of 138 domestic mammal and deer bones were analyzed for taphonomic influences from Pit 8 (see Table 3). While there were no weathered bones in this assemblage, there were several bones that appear to have been burned including 265 indeterminate remains. Burned identifiable bones include five box turtle, five fox squirrel, four gray squirrels, and one pig element. In terms of chewed bones, there are two pig and two duck bones exhibiting the distinctive gnawing pattern left by a rodent. There are also one pig, one cow, one deer, one Canada goose, and two goose bones that appear to have been chewed by a carnivore. Evidence of carnivore gnawing is apparent from puncture holes left by canine teeth or by specific gnawing patterns left on the surface of the bone.

Pit 8 also has several identifiable bones that display evidence of butchering. These bones include five pig bones, twelve cattle bones, nineteen deer, one beaver, and two dolphin bones. All appear to have been hacked with either an ax or a cleaver. Only the identifiable remains were examined for butchering, so there are certainly more bones from this assemblage that had been butchered.

Pit 9. From the 57 domestic mammal and deer bones analyzed from Pit 9, there is only one deer bone that has a charred appearance (see Table 3). Other burned remains include one crab claw, ten box turtle remains, one sturgeon scute, and eighty-four indeterminate remains. As with the other features, it often takes extreme temperatures to produce burn marks on a bone so there may be other bones in the Pit 9 assemblage that had been burned but do not exhibit a charred appearance.

In addition to burn marks, at least two deer bones, one cow, one Canada goose, and one box turtle bone exhibit gnaw marks consistent with those of a carnivore. Carnivores such as dogs will typically gnaw on the soft ends of long bones to create channels that allow them to get at the marrow. Smaller bones belonging to fish, birds, and small mammals are

easily broken and digested by larger carnivores, so usually there is minimal evidence of carnivore gnawing on these bones.

Finally, butchering by an ax or a cleaver was recorded for seven deer bones, eight cattle bones, two pig bones, and four ribs identified as horse/ass. A more detailed description of the butchering patterns will be discussed in a later section of the report.

Table 3
Site 44JC1123
Taphonomic Influences On Domestic Mammal and Deer Bones

	Total Count	Gnawed	Hacked	Weathered	Burned
Structure 166					
Cattle	4	1	3	0	0
Pig	5	2	1	0	0
Sheep/Goat	0	0	0	0	0
Deer	5	1	1	0	0
Pit 5					
Cattle	11	1	6	0	0
Pig	137	12	10	0	0
Sheep/Goat	0	0	0	0	0
Deer	9	0	6	0	0
Pit 8					
Cattle	22	1	12	0	0
Pig	70	1	5	0	1
Sheep/Goat	1	0	0	0	0
Deer	45	3	19	0	0
Pit 9					
Cattle	9	1	8	0	0
Pig	8	0	2	0	0
Sheep/Goat	0	0	0	0	0
Deer	40	2	7	0	0
Pit 10					
Cattle	1	0	1	0	1
Pig	0	0	0	0	0
Sheep/Goat	0	0	0	0	0
Deer	0	0	0	0	0
Pit 11					
Cattle	6	1	4	0	0
Pig	0	0	0	0	0
Sheep/Goat	0	0	0	0	0
Deer	27	0	13	0	0

Pit 10. As the smallest of all the assemblages, Pit 10 only produced a single cow bone for analysis of taphonomic influences (see Table 3). This cow bone exhibits burn marks and appears to have been hacked with either an ax or a cleaver. In addition to this bone, there are also 87 indeterminate bones that have a charred appearance.

Pit 11. Burn marks were noted on only 37 indeterminate remains from Pit 11. Although there were no domestic mammal or deer bones that appear to have been burned, it must be kept in mind that it often takes extreme temperatures to produce burn marks on a bone. For this reason, so there may be other bones in this assemblage that had been burned but do not exhibit a charred appearance.

While none of the bones from Pit 11 have a weathered appearance, there is at least one cow bone that displays gnaw marks consistent with those of a carnivore (see Table 3). As mentioned earlier, evidence of carnivore gnawing is apparent from puncture holes left by canine teeth or by specific gnawing patterns left on the surface of the bone. Carnivores such as dogs will typically gnaw on the soft ends of long bones to create channels that allow them to get at the marrow.

In addition to burning and chewing, butchering marks were noted on at least twenty-two identifiable bones, including thirteen deer, four cattle, one raccoon, and four horse/ass bones. As mentioned earlier, only bones that were identified to species and element were examined for evidence of butchering. For this reason, although the majority of the indeterminate bones had also been butchered, they were not recorded as butchered or included in the description of taphonomic influences.

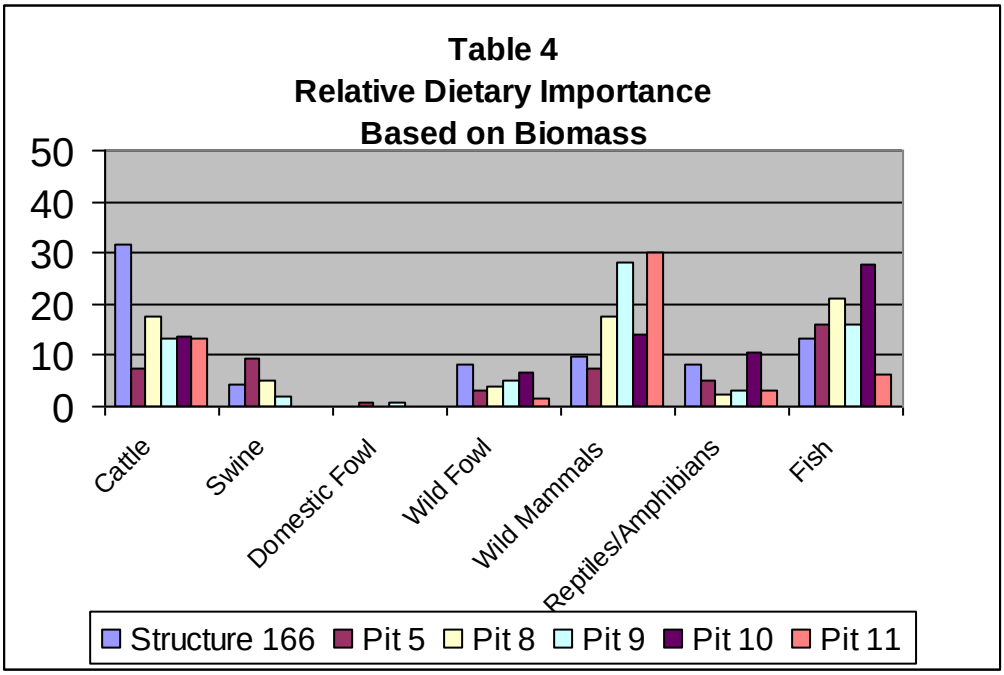
RELATIVE DIETARY IMPORTANCE

The following section discusses the relative dietary importance of each taxon based on each of the four main quantification methods mentioned earlier in the "Analytic Techniques" section of this report. It must be realized that these are relative measures and they do not reflect anything absolute about the amount of meat provided. Each feature will be discussed separately below and detailed summary charts are provided in Appendix A, Tables 10-15. To help in the interpretation of the biomass percentgages, Table 4 shows each feature and how cattle, swine, domestic fowl, wild fowl, wild mammals, reptiles/amphibians, and fish contributed to the overall biomass percentages.

Structure 166. The faunal assemblage for Structure includes 1,604 bones that are identifiable to 18 different species (see Appendix A, Table 10). Due to the high degree of fragmentation, indeterminate remains dominated the assemblage accounting for 66.8% of the NISP figures. Identifiable remains make up the remaining 33.2% of the NISP totals including gar at 16.7%, loggerhead turtle at 8.3%, and sturgeon at 4.8%. All of the remaining identified species each contribute less than 1% to the NISP totals.

The MNI numbers show that all of the identified species are represented by one adult individual, with the exception of gray squirrel represented by two adult individuals. In terms of meat weight, domestic cattle make up the greatest percentage at 47.2%, followed by swine, white-tailed deer, and sturgeon each at 11.8%. Other significant contributors to the meat weight totals include loggerhead turtle at 9.4%, beaver at 2.9%, and raccoon at 1.7%. The remaining species each contributed less than 1% to the meat weight figures.

The biomass results from Structure 166 reveal that domestic cattle also dominated the overall diet of the assemblage, accounting for 31.6% of biomass figures (see Table 4) Other significant contributors to the biomass include sturgeon at 8.7%, loggerhead at 8.2%, white-tailed deer at 4.4%, and swine at 4.3%. As mentioned previously, the biomass figures can be somewhat masked by the "other mammal" category, which includes bones that are almost certainly cattle, pig, deer, and sheep/goat which were simply too fragmentary to identify to species. Indeterminate mammals make up 17.1%, large mammals make up 3.6%, medium mammals make up 6.0%, and small mammals contribute 0.1% to the biomass figures.



Pit 5. In Pit 5 there are a total of 5,498 bones, of which 39.7% are identifiable to at least 48 different species (see Appendix A, Table 11). As the NISP numbers reveal, indeterminate remains make up the largest percentage, totaling 60.1% of the assemblage. In terms of identifiable bones, the remains of sturgeon account for 20.5% of the NISP figures, followed by the remains of gray squirrel at 2.7%, box turtle at 2.4%, and swine at 2.2%. The remaining identified species each contribute around 1% or less to the total NISP numbers.

When looking at the MNI values, the faunal assemblage from Pit 5 produced at least eighty adult and six immature individuals. While most species were represented by three or less individuals, other species made a more significant contribution to the MNI totals. Specifically, freshwater catfish accounted for 9.3% of the MNIs, followed by white perch and gray squirrel at 8.1%. In total, wild species make up 80.3% of MNIs, while domestic species only account for 12.1%.

In terms of useable meat weight, domestic species make up the greatest percentage at 48.8%, closely followed by wild species at 32.2%. The high percentage of useable meat

weight from wild species is due to some of the larger species such as dolphin at 16.9%, bear at 10.0%, shark at 6.7%, and white-tailed deer at 4.2%. For the domestic species, cattle and horse/ass each account for 16.9% of the useable meat weight, followed by swine at 14.8%.

When the bone weight is taken into account, sturgeon and horse/ass contribute the greatest amount to the biomass percentages accounting for 12.7% and 12.6% of the total diet. Swine are the next significant contributor to biomass at 9.3%, followed by cattle at 7.4%, box turtle at 3.3%, and dolphin at 2.4% (see Table 4). The remaining species contribute less than 2% to the biomass totals. It must also be kept in mind that the mammal figures can be somewhat masked by the "other mammal" category, composed of indeterminate mammal bones that are too fragmented to identify to species. Indeterminate large mammal remains make up 11.1%, followed by indeterminate medium mammal remains at 7.6%, indeterminate mammal remains at 9.2%, and indeterminate small mammals at 1.7%.

Pit 8. As the largest of the analyzed assemblages, Pit 8 produced 7,059 bones with at least 35.3% of the bones identifiable to at least 56 different species (see Appendix A, Table 12). As the NISP numbers reveal, indeterminate remains make up the largest percentage, totaling 64.7% of the assemblage. In terms of identifiable bones, sturgeon remains are the highest contributors to the NISP at 14.2%, followed by freshwater catfish at 3.3%, white perch and box turtle at 1.5% each, and skates/rays and gar at 1.4% each. The remaining identified species each contribute less than 1% to the total NISP numbers.

According to the MNI values, most of the species are represented by four or less adult individuals. Exceptions to this include freshwater catfish with 23 individuals, sucker with ten individuals, and white perch with ten individuals. The high number of individual fish accounts for fish species making up 47.2% of the MNI values. In total, wild species dominated the MNIs at 86.4%.

In terms of meat weight, dolphins are the greatest contributor accounting for 21.5% of the useable meat weight totals. Other significant wild species include white-tailed deer at 17.2%, followed by shark at 6.8%, sturgeon at 4.3%, and catfish at 1.9%. In the domestic species, cattle and horse/ass each make up 17.2%, swine at 8.6%, and sheep/goat at 1.5%. The remaining species each account for less than 1% of the meat weight numbers.

The biomass results show that cattle are the greatest contributor, accounting for 17.6% of the total meat diet (see Table 4). Sturgeons are the second greatest contributor at 13.0%, followed by white-tailed deer at 10.2%, swine at 5.1%, and bottle-nosed dolphin at 2.0%. All remaining species make up less than 2% of the biomass totals. It must also be kept in mind that the mammal figures can be somewhat masked by indeterminate mammal bones too fragmented to identify to species. Indeterminate mammals make up 7.1%, large mammals make up 6.3%, medium mammals make up 6.5%, and small mammals make up 1.0%.

Pit 9. Pit 9 produced a total of 3,225 bones, of which almost half (49.6%) are identifiable to at least 29 different species (see Appendix A, Table 13). As the NISP

numbers reveal, indeterminate remains only make up 50.4% of the bones. This low number of indeterminate bones is due to the high number of sturgeon remains that account for 28.9% of the NISP totals. Other significant species to the NISP include box turtle at 4.6%, gar remains at 3.4%, and catfish bones at 3.3%. The remaining identified species each contribute less than 1% of the total NISP numbers.

According to the MNI values, the majority of the species are represented by one or two adult individuals. Exceptions to this include freshwater catfish represented by thirteen individuals, temperate bass with three adult individuals, and box turtle with three adult individuals. When the meat weight for each species is considered, cattle make up the greatest percentage accounting for 40.4% of the useable meat. White-tailed deer are the next highest contributor at 20.2%, followed by swine and sturgeon each contributing 10.1%. Each of the remaining species accounts for 3% or less of the useable meat weight totals.

When the bone weight is taken into account, white-tailed deer contribute the greatest amount to the biomass percentages accounting for 22.1% of the total diet. Other significant contributors to the diet include cattle at 13.4%, sturgeon at 12.1%, box turtle at 2.2%, and swine at 2.0% (see Table 4). All other species contribute less than 2% to the biomass totals. It must also be kept in mind that the mammal figures can be somewhat masked by the "other mammal" category, composed of indeterminate mammal bones that are simply too fragmented to identify to species. Indeterminate mammal remain make up 8.6%, large mammals make up 3.5%, medium mammals make up 4.7%, and small mammal make up 0.4% of the biomass figures.

Pit 10. As the smallest assemblage, Pit 10 only produced 284 bones. Although there were few remains, the assemblage was productive since at least 47.9% of the bones were identifiable to at least 13 different species (see Appendix A, Table 14). As the NISP numbers reveal, sturgeon remains account for 25.3%, followed by box turtle remains at 10.9%, gray squirrel bones at 3.1%, and gar bones at 2.1%. All other identified species contribute 1% or less to the NISP totals.

The MNI numbers show each species is represented by one adult individual, with the exception of gray squirrel represented by two adult individuals. In terms of meat weight, cattle account for 52.1% of the useable meat weight totals. Other significant contributors to meat weight include black bear at 30.7%, sturgeon at 13.0%, and raccoon at 1.9%. The remaining species account for less than 1% each to the meat weight totals.

The biomass results reveal that sturgeon dominated the overall diet by making up 24.0% of the biomass percentage. Cattle are the second greatest contributors with 13.8%, followed closely by box turtles at 9.9%, and then Canada goose at 6.3% (see Table 4). As mentioned with the other assemblages, the mammal biomass figures can be somewhat masked by the "other mammal" category, composed of indeterminate mammal bones that are mostly deer and other wild mammal remains too fragmented to identify to species. Indeterminate mammal remains make up 8.6%, indeterminate large mammal bones make up 11.0%, and indeterminate small mammal remains account for 0.6% of the biomass figures.

Pit 11. A total of 1,383 bones were recovered from Pit 11, with 565 of these bones identifiable to at least 26 different species (see Appendix A, Table 15). The most frequently identified species in this assemblage were raccoon (167 bones), freshwater catfish (52 bones), and gar elements (38 bones). The MNI calculations reveal that most of the species were represented by one or two adult individuals. Exceptions to this include white sucker fish and opossum represented by three adult individuals, and freshwater catfish represented by six adult individuals.

In terms of the meat weight it is not surprising to find that the larger-sized species such as cattle, white-tailed deer, sturgeon, and raccoon each contributed at significant amount. The remaining species each contributed less than 3% to the total meat weight percentage.

When the weight of the bones was taken into consideration, white-tailed deer contributed the largest amount (23.0%) to the biomass for the identified species. Cattle were the second largest contributors to the biomass with 13.2%, followed by raccoon with 4.8%, and sturgeon at 2.8%. The indeterminate remains may mask the domestic mammal and deer percentages wince they were too fragmentary to identify to species. For the biomass percentages, indeterminate remains make up 5.2%, indeterminate large mammal remains make up 4.3%, medium mammal remains make up 3.2%, and small mammal remains make up 0.5%. In total, domestic species make up 43.0% of the biomass, with wild species close behind at 41.1%.

KILL-OFF PATTERNS

Aging methods were employed to help understand the husbandry techniques that underlay the availability of food. There is a direct relationship between the agricultural economies and how livestock are bred, raised, and slaughtered. In subsistence farming, animal husbandry focuses on raising livestock to serve multiple purposes. For example, a farmer might raise cattle for milk, meat, and draft uses, or sheep for both their wool and their meat. The farmers typically raise the livestock to provide for their own household's needs, and only after their needs are met is any surplus sold. On the other hand, specialized farming focuses on raising livestock to produce a product directly for market, and the focus shifts to carefully managing livestock to produce the greatest profit. Since this is best accomplished by focusing on a single product from an animal, commercially-oriented farming has developed very specialized farms with highly developed breeds that will most efficiently produce a product: dairy cows to produce milk, beef cattle to produce meat.

In the Chesapeake, the specialized production of livestock evolved directly out of the region's plantation economy, not long after the first settlement. Livestock first arrived with the earliest of settlers at Jamestown but by as early as the 1620s herds of cattle and swine were thriving within a protected woodland environment. Domestic herds were doing so well that in 1619 John Pory wrote that cattle "do mightily increase here, both

kine, hogges and goates, and are much greater in stature, than the race of them first brought out of England "(Tyler 1946:213).

By the late seventeenth and early eighteenth century, the once lush environment was slowly disappearing. Forests, where cattle, swine, and horses once thrived, had been cut down to make way for tobacco and corn fields and tobacco farming had begun to deplete soil. Some purchased lands to the west, but others shifted their focus to wheat, a crop that required plowing. Animal husbandry adapted to the new situation, and soon sheep, thriving in enclosed pastures, began to appear in ever larger numbers. By the late seventeenth century references to domestic herds reflect the change by describing a decline in the health of their animals. New zooarchaeological evidence marks the significant shift in size came in the early eighteenth-century, but as early as 1688, John Clayton wrote in a letter that the cattle "have little or no Grass in winter, so that… [they] are pinned and starved, and many that are brought low and weak, when the Spring begins, venture too far into the Swamps after the fresh Grass, where they perish; so that several Persons lose ten, twenty or thirty heads of Cattle in a Year" (Force 1947:25-26; Arbuckle 1999).

By the early eighteenth century, more cattle, pigs, and sheep were raised for profit, and in response planters began to shift to more aggressive animal husbandry techniques that would hasten the time needed to fatten livestock. At least dairy cows and their calves were kept in pastures with sheep, fattening techniques were pursued, and in a more profitable period of time, livestock could be sent to the emerging urban and foreign markets (Bowen 1996; Walsh et al. 1997).

Kill-off patterns from sites in the Chesapeake have reflected the changes that occurred in the animal husbandry techniques (Bowen 1994; Walsh et al. 1997). Slaughter ages of cattle from sites dating from the early seventeenth century have shown that typically 51% of the cattle population were killed when they were four years and older. By the late seventeenth century, the number of cattle being killed at greater than four years of age increased to 68%. This pattern has been attributed to grass feeding, where it takes about four years for cattle to reach their mature slaughter weight. As animal husbandry techniques were refined in the eighteenth century, cattle elements from faunal assemblages include larger percentages of younger individuals aged between 36-48 months. This probably reflects the more specialized form of cattle husbandry that allowed the cattle to mature to a slaughter weight at less than four years of age (Bowen 1996; Walsh et al. 1997).

The kill-off patterns for pigs from sites from the seventeenth century show that during the first half of the century, almost half the population of slaughtered swine was less than a year old. Over the next hundred and fifty years, this number decreased until by the last half of the eighteenth century only 19-28% of the killed pigs were less than a year old. In contrast, pigs between the ages of 12-24 months increased from 11-17% in the seventeenth century to 31-38% in the late eighteenth century. Again, this change reflects a shift in pig husbandry patterns in response to the introduction of commercial markets and the increase of specialized farming (Bowen 1996; Walsh et al. 1997).

Finally, little is known about the slaughter patterns of caprines (sheep/goats) in the first half of the seventeenth century due to the fact that so few caprine bones have been excavated. Sites dating from the second half of the seventeenth century and the early half of the eighteenth century, however, have produced a substantial amount of sheep/goat bones for the purpose of kill-off analysis. Data from these sites indicates that caprines in the Chesapeake were being raised primarily for meat since most of the individuals were killed during their second and third years of age. As the century progressed, assemblages show a dramatic increase of older individuals, indicating that sheep were being increasingly raised for their wool (Walsh et al. 1997).

Based on what has been previously studied about animal husbandry patterns in the early to mid-seventeenth century, the kill-off patterns for the Jamestown assemblages should reflect the subsistence-oriented farming that was being practiced by the early colonists and later, by plantation owners. To accurately assess the kill-off patterns from an assemblage, large numbers of elements are needed in proportions that are roughly equal to that of a normal skeleton. Unfortunately, Structure 166, Pit 10, and Pit 11 did not produce any swine bones that could be used for compiling age data. While Pits 5, 8, and 9 did produce some ageable swine bones, they did not singly produce enough bones to make any conclusive statements about the kill-off patterns. In an attempt to achieve a larger database, the kill-off data from Pits 5, 8, and 9 were combined together since they date from the same period. But even when this was done, there was not enough data to accurately access the kill-off patterns for cattle or sheep. There were, however, 31 pig bones in the combined assemblages. Although this is a small number of bones, some generalizations have been made in the following paragraphs about the kill-off patterns for pigs. For the purpose of future comparative work, the epiphyseal fusion tables for cattle and swine are included in Appendix B (Tables 16-21) when appropriate for Structure 166, Pit 5, Pit 8, and Pit 9. Along with the tables for the individual features, Appendix C (Tables 22-23) includes tables showing the swine and cattle data when the assemblages were combined.

Pig Kill-Off Patterns

Pig husbandry developed in the eighteenth and nineteenth centuries from subsistence-oriented practices that combined the use of open woodlands and pens to more commercially-oriented practices that increasingly used stys and fattening methods. Slaughter ages have varied, but typically pigs were killed either at 8-10 months or at 18-24 months of age. Historians and zooarchaeologists specializing in British agriculture have stated that pigs under 12 months have been the target slaughter age for subsistence farming, and the 18-24 month population as being the target age for slaughtering pigs intended for sale (Walsh et al. 1997). Pigs that were slaughtered at a younger age had been born in the spring, allowed to mature throughout the summer and then during the fall fattened and slaughtered as soon as temperature dropped. Those slaughtered at 18 months had been kept over the winter, allowed to fatten over the summer to a more mature weight, then fattened, and slaughtered the next fall.

As mentioned above, the pig kill-off data from Pits 5, 8, and 9 were combined together since the three assemblages date from ca. 1607-1610 (Structure 166, Pit 10, and Pit 11 did not produce any swine bones that could be used for establishing age data). Once combined, the assemblages produced a total of 31 swine bones that could be examined for kill-off patterns. As Table 4 shows, 75% of the pigs were killed within their first year of life, and the remaining 25% were killed within the second year. This is very similar to swine age data previously analyzed from other Jamestown features. The combined data from Pit 1, Pit 3, and the Bulwark Ditch show that in 1610 the majority (66.7%) of the pigs were being killed during the first year. The remaining 33% were split almost evenly between swine being killed between one and two years of age, and pigs being killed two and three years of age (Table 5) (Bowen and Andrews, 1999).

The swine age data from the early assemblages (1607-1610) are dominated by pigs that were slaughtered within the first year of age indicating animal husbandry consistent with subsistence farming. The data may also be an indication that the colonists were practicing an even more specific type of animal husbandry. Could they have been systematically slaughtering the younger swine and allowing the older individuals to live as breeders? Although it is not possible to prove this at this time, the complete absence of older individuals in the faunal assemblages does raise some interesting questions regarding the husbandry practices for swine.

The kill-off patterns for swine changed in the second half of the century when the younger age groups decreased and the number of older swine increased. Previously analyzed Jamestown assemblages dating from ca. 1620-1650 seem to represent the beginnings of the transition. In these later assemblages, the pig age distribution is shifted from the 0-12 month group to the 12-24 month group, and at least 10% of the pigs fell in the older age category (Table 5) (Bowen and Andrews 1999).

Table 5
Jamestown
Kill-Off Pattern Based on Long Bone Fusion
Domestic Pig

Assemblage	0-12 Months	12-24 Months	24-36 Months	36-42 Months	>42 Months	Number Of Bones
Pit 5, Pit 8, and Pit 9						
1607-1610	**75.0%**	**25.0%**	**0.0%**	**0.0%**	**0.0%**	**31**
Pit 1, Pit 3, and Bulwark Ditch						
1610	66.7%	16.6%	16.7%	0.0%	0.0%	19
Ditch 6, Ditch 7, and Midden 1						
1620-1650	18.8%	71.2%	0.0%	0.0%	10.0%	44

ELEMENT DISTRIBUTION AND CUTS OF MEAT

Many historical zooarchaeologists have focused their analysis of faunal remains on determining the social and economic status of households (Schulz and Gust 1983; Lyman

1987a; Crader 1984; Crader 1990; Reitz 1987; Bowen 1992). By looking at the presence or absence of various cuts of meat in an assemblage, they have concluded the presence of feet and heads, which are considered less valuable cuts, are indicators of low social and economic status. Consequently, the presence of fleshier cuts of meat, indicated by body elements, is considered to be more valuable and therefore, an indicator of a household with high status (Crader 1984; Miller 1984). Bowen (1992; 1994), however, demonstrated that preferences for heads and feet as cuts of meat have changed throughout history. For example, heads, particularly those of swine and calves, were often considered to be delicacies and therefore could not necessarily be considered a less valuable cut of meat.

In general, zooarchaeologists have not been able to identify distinctive characteristics of ethnic groups or high- and low-status diets (Bowen 1992; 1994). Particularly in seventeenth- and eighteenth-century assemblages, "low" and "high" quality cuts of meat are found intermingled in both high- and low-status assemblages. In his comparisons of known high-status and low-status seventeenth-century sites in Virginia, Henry Miller found very few differences in the distribution of particular elements. Similar species and cuts of meat were present in similar proportions on both types of sites, and in both, elements from "high-quality" cuts made up the majority of the bones (Miller 1984:360).

In studies of slave diet, where the assumption has been that slaves (presumably "low status") were provided the cuts of meat the white owners did not like, attempts have been made to demonstrate that "low-status" cuts such as the heads and feet were the cuts of meat most commonly consumed. Diana Crader looked for the presence of different cuts of meat to define the status of slave households associated with Monticello. In her comparative study of slave households associated with Thomas Jefferson's household and a slave household, she found a greater number "low-quality" cuts in the slave assemblage and a greater number of "high-quality" cuts in the main household assemblage. But like Miller, Crader found both high-quality cuts in the slave assemblage and low-quality cuts in the main household assemblage (Crader 1984, 1990).

To examine the proposition that meat cuts can be distinguished at Jamestown, element distribution tables were generated for Structure 166, Pit 5, Pit 8, Pit 9, Pit 10, and Pit 11 (Appendix D, Tables 24-29). As with the kill-off data, the majority of the assemblages produced too few bones to give an accurate interpretation of the true element distribution. For this reason, the element distribution data for cattle and swine were combined from the appropriate features to produce larger assemblages for analysis (see Table 6).

Besides comparing the Jamestown percentages from the combined features to the normal element distribution percentages for each domestic mammal (to show deviations or skewed distributions suggesting favored cuts), Table 6 also compares this data to previously analyzed Jamestown features that date to ca. 1610 and to ca. 1620-1650 (Bowen and Andrews, 1999). Element distribution percentages compiled from seven rural Chesapeake sites dating from 1620 to 1660 is also included in Table 6. The data from these sites was included in *Provisioning Early American Towns. The Chesapeake: A Multidisciplinary Case Study* (Walsh et. al. 1997) and includes the Hampton University site, Kingsmill Tenement, Bennett Farm, and three homesteads from Jordan's Journey.

Cattle Element Distribution

Cattle elements from the ca. 1607-1610 assemblages are predominately the body or meat-bearing elements (73.6%) (see Table 6). Bones from the head made up only 5.7% of the element distribution, and 20.8% came from bones of the foot. It is surprising that so few cranial and foot bones were identified in these assemblages since those elements (especially teeth) are very dense and tend to survive even in acidic soil conditions. While at a first glance, the concentration of body elements may indicate a certain bias towards "high-quality" cuts of meat, this is unlikely since the early colonists were striving to find enough food and would have eaten all parts of the animal. The skewed element distribution may be the result of a small number of bones, although another equally plausible explanation is that these bones might possibly represent beef that had been barreled in Britain and brought over as supplies.

The element distribution percentages from the ca. 1607-1610 assemblages are very similar to the data from the ca. 1610 assemblages. In both sets of data, body elements dominate the assemblage, while head and foot bones are under represented. In comparison, the assemblages from ca. 1620-1650, show a distribution of cattle elements almost identical to the normal skeletal distribution, indicating that the colonists were utilizing the entire animal.

Pig Element Distribution

A total of 190 swine elements were analyzed from the ca. 1607-1610 assemblages. As Table 6 shows, bones from the head and the body were almost equally represented accounting for 42.1% and 41.6% of the elements. Bones from the foot only account for 16.3% of the assemblages. This element distribution is closer to the ca. 1620-1650 data than the ca. 1610 assemblages. In these groups, bones from the head are represented by greater than normal proportions. This is similar to other Virginia sites, where 66.6% of the swine bones are from the head (largely because pig teeth are so durable and easily identified, but also presumably because pig's head was a delicacy).

Foot bones, on the other hand, are found in less than normal proportions in all of the Jamestown and Virginia sites dating from ca. 1620 to 1660. This consistency of low percentages of swine foot bones in seventeenth-century sites raises questions that need to be researched in greater detail. Since foot bones are quite dense and are likely to survive in faunal assemblages, lower numbers of swine foot bones from seventeenth-century sites can not be readily attributed to general preservation factors. Were these portions consumed in their entirety by canines? Were possibly they processed for gelatin, or some other use, then discarded elsewhere?

The element distribution for swine in the Jamestown assemblages still raises questions as to whether these bones are the remains of pigs that came from Britain live, barreled pork from Britain, or possibly live animals or barreled pork from Bermuda. Future research needs to be conducted, particularly on the Bermuda connection.

Table 6
Combined Features
Element Distribution

	Head		Body		Feet		
	No.	%	No.	%	No.	%	NISP
Cattle Normal		**29.7**		**42.2**		**28.1**	
Jamestown, 1607-1610	**3**	**5.7**	**39**	**73.6**	**11**	**20.8**	**53**
Jamestown, c.1610	3	5.3	45	80.4	8	14.3	56
Jamestown,1620-1650	73	28.6	109	42.7	73	28.6	255
1620-1660 Sites		50.1		28.9		20.9	1867
Swine Normal		**28.2**		**34.5**		**37.3**	
Jamestown, 1607-1610	**80**	**42.1**	**79**	**41.6**	**31**	**16.3**	**190**
Jamestown, c.1610	20	25.0	48	61.0	11	14.0	79
Jamestown, 1620-1650	145	46.0	107	34.0	65	20.0	317
1620-1660 Sites		66.6		23.3		10.1	1271
Sheep/Goat Normal		**29.7**		**42.2**		**28.1**	
Jamestown, 1607-1610	**1**	**100.0**	**0**	**0.0**	**0**	**0.0**	**1**
Jamestown, c. 1610	2	25.0	6	75.0	0	0.0	8
Jamestown, 1620-1650	11	61.1	1	5.5	6	33.3	18
1620-1660 Sites		33.1		37.5		29.5	275

BUTCHERING AND CUTS OF MEAT

Although every zooarchaeologist must deal with butchery on a daily basis when analyzing faunal remains, few working with historical sites have dealt with butchery-related problems in print. With notable exceptions such as Lyman (1987b, 1996) and Crader (1990), zooarchaeologists have tended to leave their observations as only a laboratory function. Yet butchering data holds fascinating information on the transformation in foodways that occurred during the eighteenth and early nineteenth centuries, along with the commercialization and industrialization of food production, distribution, processing, and consumption of foods.

As faunal assemblages have come through Colonial Williamsburg's Zooarchaeology Laboratory, it has become apparent that a fundamental change occurred in butchering techniques during the seventeenth, eighteenth, and early nineteenth centuries. By working closely with the archaeologists to create tightly dated assemblages, we have had the opportunity to observe when the butchering technique shifted from chopping to sawing and formulate ideas on how and why this change occurred.

In his illustrative encyclopedia, Diderot (1978) depicts butchers in the seventeenth century with cleavers, knives, and broad axes, but no saws. Drawings of markets and butcher shops from eighteenth-century London also show broad axes and cleavers, not

saws. Saws begin to appear only during the late eighteenth century or early nineteenth century. In fact, the earliest evidence of a saw is a 1799 drawing of Philadelphia, where a butcher is holding a saw (Bowen and Manning 1993).

Characteristic of seventeenth-century assemblages, the butchered bones from the Jamestown site were all hacked with a chopping instrument. Overall the bones from swine, sheep/goat, and deer were chopped in similar forms to the butchering patterns recorded for cattle bones. One major difference, however, is that long bones tended to be slightly more complete in the pigs, sheep/goats, and deer since their bones are relatively smaller in size. Given the fundamental similarity in approach to butchering, the following butchering descriptions have been generalized, with any exceptions noted.

Butchery evidence is presented in this report in a descriptive form. Future research, where these patterns are combined with fragmentation studies, might lead to a better understanding of cookery methods. Was meat cooked in relatively complete pieces, possibly indicating roasting? Or were elements highly fragmented, and cooked as "one-pot" meals, either as pottages or other dishes that tend to be prepared in large pots? What cooking vessels can be correlated with the recovered bone remains?

While butchery research in zooarchaeology has been conducted for many decades, assumptions are based on what might seem to be rather naïve notions about nutrition, cooking methods, and economic well being. John Yellen's research conducted during the 1970s showed the ¡Kung Bushmen chopped up bones to extract marrow, then all were placed in the pot to cook what have been referred to as "one-pot" meals (Yellen 1977). In fact, the size of the bone was directly related to the size of the pot. Others have taken this research and generalized it to conclude highly fragmented bones indicate individuals were so poor they wrenched all possible nutrition from the bones by extracting marrow (Otto 1984).

Heads. Cranial bones that showed signs of being butchered include one pig mandible fragment from Pit 8, one temporal fragment from Pit 5, and one malar fragment from Pit 8. The pig mandible was butchered perpendicularly to the axis with cuts on both the proximal and distal portions of the bone.

Vertebrae. A total of 10 adult cattle vertebrae from Structure 166, Pit 5, Pit 8, Pit 9 and Pit 11 were recorded as being butchered. In addition to these cattle remains, two pig vertebra from Structure 166 and Pit 5 and five deer vertebrae from Pits 5 and 8 were recorded as having been butchered. A medieval form of butchering is to cut transversely through the centrum and main body of vertebrae (Maltby 1979). Most of these bones, however, exhibited a more modern method of butchering the carcass into two halves. Generally speaking, vertebrae were split with an ax or cleaver longitudinally along the axis, either along the center line or along either side of the centrum. This was also noted on the butchered dolphin vertebra from Pit 8.

Ribs. Axes or cleavers were used to chop ribs from adult cattle including seven ribs from Pits 5, 8, 9, and 11. There were also eight rib bones from Pits 9 and 11 identified as

either cattle or horse remains and recorded as butchered. Finally, five butchered deer ribs were recorded for Pits 5, 8, and 9. The butchery evidence demonstrates that the ribs were hacked parallel to the vertebral column. There were some variations as to where the division took place and the size or the portions created by the cut. Many of the adult cattle rib bones were chopped through the vertebral end or the rib, either at or just below the articulation with the vertebra. This was probably done in order to separate the rib section from the vertebra. Other ribs were hacked so that a more substantial portion of the bone was left attached to the vertebra, which would have formed a rib roast cut (Lyman 1996).

Scapulae. In all, there were three cattle and four deer bones recorded as being butchered. Generally, all the bones had been chopped either through the glenoid and neck, or through the blade itself. The goal of these two cuts seems to have been to sever the shoulder from the front leg, and secondly to bisect the shoulder itself. Since the flat bone of the blade is so fragile, there were many fragments that appeared to have been broken due to stress fractures.

Long Bones. Butchered humeri, radii, ulnae, femora, and tibiae were the most identified butchered elements from all of the domestic mammal and deer bones. In all, there were six cattle long bones, seven swine long bones, and twenty-two deer long bones identified as butchered from all of the assemblages. The majority of the cattle long bones had been chopped, probably with the intention of separating the joints. More often the cut was made below the proximal epiphysis through the shaft or above the distal epiphysis through the shaft. There were also a few bones that had been butchered mid-shaft. Experiments conducted by students and staff members working in Colonial Williamsburg's Zooarchaeological Lab have demonstrated the ease with which these cuts can be made. Two hits of a cleaver are enough to snap the long bone in two; one well-aimed hit of an axe will snap a joint in two. These cuts are part of the primary butchering process, not simply cuts made by those attempting to release marrow from inside the shaft.

An interesting observation was that the many pig long bones were from the middle of the shaft with no proximal or distal epiphyses, resulting in substantial cuts of meat. Many of the deer bones were hacked in a similar fashion but there were also a small number of butchered deer long bones that contained the epiphyses.

Innominates. Innominates from domestic mammals and deer were found butchered from Structure 166, Pit 5, Pit 8, and Pit 9. These included six cattle, three swine, and two deer. Like the scapula, the pelvic bones are vulnerable to breakage, and once butchered, its soft cancellous bone that is covered by a thin layer of compact bone makes it an easy target for dogs and feet. By viewing the innominates as a group, it is evident that they were always butchered, generally on either side of the acetabulum, through the ilium, ischium, and sometimes the pubis.

Lower Leg. Metapodials from cattle (two bones) and deer (six bones) were recorded as butchered from Pit 8, Pit 9, and Pit 11. Most of the butchered metapodials contained one

of the epiphyses and were chopped through the middle of the shaft. This cut would have ensured a large amount of meat remained on the bone.

CONCLUDING REMARKS

Prior to our analysis of faunal material from the Jamestown, our knowledge of seventeenth century subsistence patterns from English sites in North America was primarily based on sites dating from ca. 1620-1650. The excavations of Jamestown by the Jamestown Rediscovery team have opened the window into the past and have provided a glimpse into subsistence patterns that existed prior to 1620. The faunal data from Structure 166, Pit 5, Pit 8, Pit 9, Pit 10, and Pit 11 combined with the previous analyzed faunal material from Jamestown (Bowen and Andrews 2000) are now revealing the extent to which the early settlers utilized their surrounding environment and to what degree wild species played a role in the diet. In addition to revealing the importance of wild species, the faunal material associated with the Soldier's cabins is fundamental in trying to decipher the early ration system of James Fort. Finally, since these features date from ca. 1607-1610, it is possible that some of the faunal remains were deposited during the starving period of 1609-1610. A close examination of the assemblages can reveal what taboo foods may have been consumed during this period.

The importance of wild species in early diets was initially based on the work of Henry Miller of St. Mary's City in Maryland, who led the first studies on subsistence patterns of the early seventeenth century (Miller 1984, 1986). Using analysis based on useable meat weight totals, Miller's work, as well as data gathered from Colonial Williamsburg's Zooarchaeology Lab suggested wild species attributed 20% to 30% to the overall meat diet of the colonists in 1620-1650 (Brown 1989; Manning-Sterling 1994; Bowen 1992, 1994a, 1994b, 1995, 1996; Walsh et al. 1997).

This initial research was further refined after Miller's first work when it became possible to estimate biomass percentages which takes into account that the weight of each bone is related to the amount of flesh it supports. Since biomass calculations account for the growth of each individual species, a more accurate portrayal of the ranking of meat in the diet has emerged. When the biomass percentages were examined for sites dating to 1620-1660, the importance of wildlife ranged from 20% to less than 10%. When faunal assemblages from the late seventeenth century were compared to these early sites, it is clear that wildlife consumption dramatically reduced to only account for 10% or less of the overall diet (Bowen in Walsh 1997). As mentioned earlier in this report, by the mid to late seventeenth century, domestic mammals had become well established, so the need for the colonists to supplement their diet had diminished.

As Table 7 shows, the faunal assemblages from the early James Fort reveal wild species made a greater contribution to the overall diet than what has been seen in previously analyzed assemblages from Jamestown dating to ca. 1610 (Bowen and Andrews 2000).

When each feature is examined separately, wild species contribute from 31.7% to 84.7% to the biomass totals. When the ca. 1607-1610 features are combined together to form one assemblage, the totals show wild species contributing 42.4% to the overall diet, a higher percentage than what was seen in the ca. 1610 features. These early assemblages reinforce our understanding of how heavily the colonists relied upon their surrounding environment for their food and survival.

Table 7
Relative Dietary Importance
Wild vs. Domestic Species
Biomass

	Struct.166	Pit 5	Pit 8	Pit 9	Pit 10	Pit 11	Total 1607-1610 Features	Total ca.1610 Features
Wild	32.1%	31.7%	45.4%	52.4%	65.2%	84.7%	**42.4%**	**37.8%**
Domestic	35.9%	30.8%	24.2%	24.1%	13.8%	15.3%	**30.8%**	**34.9%**

When the biomass percentages for individual species are examined for the ca. 1607-1610 features, it is apparent that a wide range of species were consumed by the early colonists, including species that are absent or rarely seen in assemblages that date after 1620 (see Table 8). Species such as dolphin, cormorant, swan, crow, ring-billed gull, crane, eel, and sturgeon, would have been thought of as exotic, highly prized foods to the early colonists. Even though the faunal assemblages and the documentary evidence from Jamestown support the idea that wild animals were numerous in the surrounding forests and nearby rivers provided ample fish and wild fowl, the colonists still sought out some of the more unusual food choices. Even if they did not know how to prepare some of the high style dishes, the faunal remains suggest colonists partook in foods they probably believed were reserved for nobility.

The assemblages also contain species that would have been considered taboo by the colonists (see Table 8). In her research on taboo species, Bowen (2000) examined food history texts and compared them to what was identified in the previously analyzed ca. 1610 faunal assemblages from Jamestown. She was able to create a list of animals that the early colonists would have considered taboo and would have consumed only in desperate times. Primarily, these species include horse, dog, cat, rats, mice, raptors, snakes, frogs, some turtles, and humans (Bowen and Andrews 2000). Unfortunately determining taboo species is often complicated because many of these animals are considered to be commensal species, animals that live in close proximity with another species and share its food. Smaller species like snakes, frogs, rodents, and turtles often live in the same area as humans. When these commensal species die, their remains are then mixed in with the trash and food remains deposited by the occupants of a site. Larger species, such as dogs and horses, are easier to interpret because they often display butchering marks. In the assemblages previously analyzed from ca. 1610 assemblages, several horse remains displayed distinctive signs of having been butchered. Horse remains were also identified in the early ca. 1607-1610 assemblages. These pits mainly produced teeth and cranial elements that did not display signs of having been butchered.

As with the previously analyzed ca. 1610 assemblage, snakes, rats, and some taboo turtle species, and some taboo small mammal species were present in the ca. 1607-1610 assemblages (see Table 8). One of these taboo species, the mud/musk turtle, was identified from Pit 5, Pit 10, and Pit 11. Although other turtle species are commonly found in historic faunal assemblages (snapping turtle, box turtle, and slider/cooter turtles, and diamondback terrapin), members of the stinkpot family of turtles are typically not found. Their absence in later faunal assemblages, along with the presence of two musk glands that secrete a foul smell, suggests they were probably not considered a desirable food source. The presence of these turtles may be an indication of the starvation period.

Rats were also found in Pits 5, 10, and 11, including the remains of *Rattus rattus*, the European black rat (see Table 8). This species of rat was originally a native of Asia but extended into Europe by land and by ship. They came to Jamestown via the first ships and quickly established their presence on the island. They congregated in large groups and made their homes in trees and the upper floors of buildings. It is not certain whether the remains in the ca. 1607-1610 assemblages are evidence of food from the starving period or just accidental remains from commensal species on the site.

Another taboo species identified in Pit 9 was the striped skunk, a species not commonly considered a food source (see Table 8). Like the mud/musk turtles, the offending musk glands of the skunk, insures that this species would not have been a part of the regular diet of the early colonists. Although as with the rat and the mud/musk turtle remains, the single element from a striped skunk may be just a visitor to the site or it may represent the severity of the starvation period of ca. 1609-1610.

Although the exotic species and the taboo species from the ca. 1607-1610 assemblages demonstrate some interesting contradictions in the interpretation of the site, the wild mammal and fish remains are a definite gauge of how the local resources were utilized to their full potential. The faunal record from these assemblages indicate that bear, raccoon, bobcat, opossum, grey squirrel, fox squirrel, beaver, gray fox, and deer played an essential part in the colonist's existence at James Fort. Whether they hunted for these animals themselves or traded with the local Native Americans for them, these animals not only provided the early colonists with much needed nourishment, but many of these species would have also supplied them with furs, an activity encouraged by the Virginia Company (Haile 1998: 25).

Diversity in the fish species from the ca. 1607-1610 faunal assemblages also demonstrates the richness of the surrounding environment. As John Smith wrote, "neither better fish, nor plenty, nor more variety for small fish had any of us ever seen in

Table 8
James Fort Assemblages, ca. 1607-1610
Biomass Percentages

	Structure 166 (N=1,604) Biomass	Pit 5 (N=5,498) Biomass	Pit 8 (N=7,059) Biomass	Pit 9 (N=3,225) Biomass	Pit 10 (N=284) Biomass	Pit 11 (N=1,383) Biomass	Previous Analyzed Jamestown Features Dating to ca. 1610 Average of Biomass Totals (N=12,516) Biomass
FISH	**11.8**	**13.3**	**15.7**	**13.7**	**25.9**	**5.1**	**10.9**
Shark	xx	<0.1	<0.1	xx	xx	xx	xx
Skates/Rays	xx	xx	<0.1	xx	xx	xx	<0.1
Sturgeon	8.7	12.7	13.0	12.1	24.0	2.8	9.5
Gar	2.9	0.1	0.2	0.4	1.2	0.5	0.2
Eel	xx	<0.1	<0.1	xx	xx	xx	xx
Herring	xx	xx	<0.1	xx	xx	xx	<0.1
Shad	xx	xx	xx	xx	xx	xx	0.2
Sucker	xx	0.1	0.7	0.1	xx	0.3	0.2
Catfish	0.1	0.3	1.3	1.0	0.7	1.3	0.4
Pickerel	xx	xx	xx	xx	xx	xx	<0.1
Codfish	xx	<0.1	<0.1	xx	xx	<0.1	<0.1
Sunfish	0.1	<0.1	xx	xx	xx	xx	<0.1
White Perch	<0.1	0.1	0.2	xx	xx	xx	0.2
Striped Bass	xx	xx	xx	xx	xx	xx	<0.1
Sea Bass	xx	xx	<0.1	xx	xx	xx	xx
Temperate Bass	xx	<0.1	<0.1	0.1	xx	0.2	xx
Grouper	xx	xx	xx	xx	xx	xx	<0.1
Croaker/Drum	xx	xx	<0.1	<0.1	xx	<0.1	xx
Boxfishes	xx	xx	xx	xx	xx	<0.1	xx
Yellow Perch	xx	xx	<0.1	xx	xx	xx	xx
Snapper	xx	<0.1	xx	xx	xx	xx	<0.1
Sheepshead	xx	xx	0.1	xx	xx	xx	<0.1

Table 8 cont'd.
James Fort Assemblages, ca. 1607-1610
Biomass Percentages

	Structure 166 (N=1,604) Biomass	Pit 5 (N=5,498) Biomass	Pit 8 (N=7,059) Biomass	Pit 9 (N=3,225) Biomass	Pit 10 (N=284) Biomass	Pit 11 (N=1,383) Biomass	Previous Analyzed Jamestown Features Dating to ca. 1610 Average of Biomass Totals (N=12,516) Biomass
REPTILES	**8.2**	**5.0**	**2.4**	**3.2**	**10.7**	**3.2**	**3.4**
Snapping Turtle	xx	xx	0.9	1.0	xx	0.9	0.5
Musk/Mud Turtle	xx	0.2	xx	xx	0.8	0.2	<0.1
Slider/Cooter Turtle	xx	0.4	0.1	xx	xx	0.1	1.1
Diamondback Terrapin Turtle	xx	1.1	0.5	xx	xx	xx	<0.1
Box Turtle	xx	3.3	1.6	2.2	9.9	1.9	1.1
Sea Turtle	8.2	xx	xx	xx	xx	xx	0.7
Snake	xx	xx	<0.1	xx	xx	xx	<0.1
Viper	xx	xx	xx	xx	xx	xx	<0.1
WILD BIRDS	**0.7**	**3.2**	**4.1**	**5.2**	**6.7**	**1.6**	**3.4**
Cormorant	xx	0.6	<0.1	xx	xx	0.1	>0.1
Bermuda Petrel	<0.1	0.2	<0.1	xx	xx	xx	<0.1
Heron	xx	<0.1	xx	xx	xx	xx	xx
Swan	xx	0.1	0.3	xx	xx	xx	xx
Goose spp.	0.1	<0.1	1.3	0.6	0.4	xx	0.5
Canada Goose	0.6	0.5	1.1	2.7	6.3	0.6	1.2
Wild Ducks	xx	0.5	0.6	0.1	xx	xx	0.2
Killdeer	xx	xx	xx	xx	xx	xx	<0.1
Whopping Crane	xx	xx	<0.1	xx	xx	xx	xx
Ring-billed Gull	xx	xx	xx	<0.1	xx	xx	<0.1
Hawk	xx	<0.1	<0.1	xx	xx	0.1	<0.1

Table 8 cont'd.
James Fort Assemblages, ca. 1607-1610
Biomass Percentages

	Structure 166 (N=1,604) Biomass	Pit 5 (N=5,498) Biomass	Pit 8 (N=7,059) Biomass	Pit 9 (N=3,225) Biomass	Pit 10 (N=284) Biomass	Pit 11 (N=1,383) Biomass	Previous Analyzed Jamestown Features Dating to ca. 1610 Average of Biomass Totals (N=12,516) Biomass
Bald Eagle	xx	xx	xx	xx	xx	xx	<0.1
Osprey	xx	xx	xx	0.1	xx	xx	xx
Turkey Vulture	xx	xx	0.2	xx	xx	xx	xx
Turkey	xx	0.9	0.6	1.7	xx	0.8	1.2
Owl	xx	<0.1	xx	xx	xx	xx	<0.1
Bobwhite	xx	xx	xx	xx	xx	xx	<0.1
Crow	xx	<0.1	<0.1	<0.1	xx	xx	<0.1
Woodpecker	xx	xx	xx	xx	xx	xx	<0.1
WILD MAMMALS	**9.8**	**7.6**	**17.6**	**28.0**	**13.9**	**30.0**	**19.3**
Mole	xx	<0.1	<0.1	xx	xx	xx	xx
Opossum	1.7	0.1	<0.1	1.8	xx	1.0	0.2
Cottontail	xx	<0.1	<0.1	0.1	xx	xx	<0.1
Woodchuck	xx	xx	xx	xx	xx	xx	<0.1
Grey Squirrel	<0.1	1.6	0.5	0.2	2.2	0.8	0.4
Fox Squirrel	0.3	<0.1	0.4	0.3	0.9	xx	0.1
Beaver	3.0	xx	0.3	0.8	xx	xx	0.4
Muskrat	xx	<0.1	<0.1	0.3	xx	1.0	0.1
Dolphin	xx	2.4	0.5	xx	xx	xx	4.2
Grey Fox	xx	<0.1	xx	xx	xx	xx	xx
Bear	xx	0.4	xx	xx	5.7	xx	xx
Skunk	xx	xx	xx	<0.1	xx	xx	xx
Raccoon	1.8	0.7	3.4	1.9	4.5	4.8	1.3

Table 8 cont'd.
James Fort Assemblages, ca. 1607-1610
Biomass Percentages

	Structure 166 (N=1,604) Biomass	Pit 5 (N=5,498) Biomass	Pit 8 (N=7,059) Biomass	Pit 9 (N=3,225) Biomass	Pit 10 (N=284) Biomass	Pit 11 (N=1,383) Biomass	Previous Analyzed Jamestown Features Dating to ca. 1610 Average of Biomass Totals (N=12,516) Biomass
Bobcat	xx	0.6	xx	xx	xx	xx	xx
River Otter	xx	xx	xx	xx	xx	xx	<0.1
Mink	xx	xx	xx	xx	xx	xx	<0.1
Deer	4.4	1.6	10.2	22.1	xx	23.0	12.5
COMMENSALS	**xx**	**<0.1**	**<0.1**	**xx**	**xx**	**<0.1**	**2.4**
Rat	xx	<0.1	<0.1	xx	xx	<0.1	<0.1
Cat	xx	xx	<0.1	xx	xx	xx	<0.1
Dog	xx	xx	xx	xx	xx	xx	1.8
DOMESTIC BIRDS	**xx**	**0.8**	**<0.1**	**0.7**	**xx**	**xx**	**0.6**
Domestic Goose	xx	xx	xx	xx	xx	xx	0.4
Chicken	xx	0.8	<0.1	0.7	xx	<0.1	0.2
DOMESTIC MAMMALS	**35.9**	**30.0**	**24.2**	**23.4**	**13.8**	**43.0**	**29.6**
Cattle	31.6	7.4	17.6	13.4	13.8	13.2	14.0
Pig	4.3	9.3	5.1	2.0	xx	xx	10.3
Sheep/Goat	xx	xx	0.1	xx	xx	xx	2.4
Horse	xx	12.6	1.4	xx	xx	xx	3.7
Horse/Cow	xx	0.7	xx	8.0	xx	29.5	xx

any place so swimming in the Water than in the Bay of Chesapeack…"(Smith in Haile 1998:261). The presence of at least eighteen different species from the combined assemblages substantiates Smith's comments and attests to the variety of fish they consumed.

Of all the identified fish species, sturgeon was the greatest contributor to the fish biomass totals in each of the assemblages (see Table 8). Their remains account for 43% of all identified bones and 9.2% of the overall biomass. This is just slightly less than what was found in the previously analyzed Jamestown assemblages dating ca. 1610 where sturgeon made up 48% of the identified material and contributed 10% to the biomass figures.

Sturgeon was so plentiful in the nearby waters from May to September that John Smith commented, "We had more sturgeon than could be devoured by dog and man…" (Smith in Haile 1998:320). No doubt, the Jamestown settlers knew sturgeon caviar as a luxury item reserved for the nobility. Although they envisioned sturgeon as the first "cash crop" in the New World, early attempts at exporting sturgeon to England failed. It is not clear whether the sturgeon remains identified from the early assemblages represent dietary consumption, evidence of commercial activity, or a combination of the two. It is clear, however, that harvesting sturgeon, whether for food or industry, was a seasonal task crucial to the survival of the colony.

Also crucial to colony's existence as a fortified frontier settlement, were the English soldiers, who arrived on the first ships. Most likely from varied backgrounds, the first soldiers at Jamestown were probably veterans of earlier wars fought by the English. They were probably accustomed to the practice of daily rations that would have been issued to troops while on the march or in camp. When they arrived at Jamestown, however, it is not clear what form, if any, their rations took. Were the soldiers given a daily allotment of provisions? Were officers given better cuts of meat than the unlisted men and colonists? The assemblages from the ca. 1607-1610 features are all associated with soldier's cabins and should therefore reflect the diet of the men who lived there. These remains, combined with some of the written accounts, may provide some clues to the soldier's diet.

When Captain Newport set sail for England in June 1607, John Smith wrote that they were left with 13 or 14 weeks of food (Smith in Haile 1998:147). Quickly their circumstances became dire as fear of Native American attacks increased and their food supplies diminished. Smith comments that, "Only sturgeon we had great store…the sack, aqua vitae, and other preservatives for our health being kept only in the president's hand for his own diet and his few associates" (Smith in Haile 1998:148). He goes on to say that Captain Gonad died within three weeks of falling sick and that Captain Radcliff was also very weak and sick. These comments suggest that, if anything, the officers were not given some of the stored supplies or special rations reserved for some members of the Virginia council.

Trading with the Native Americans ensured that food supplies, although inconsistent, were being obtained to sustain the first settlers at Jamestown. It would seem logical that

since they had no indication of when supplies would be coming from England, any food they did acquire would be rationed to the occupants.

If the soldiers were given consistent rations or if officers were given better cuts of meat than the other men, the faunal remains from the soldier's cabins might reflect this in the element distribution percentages, showing greater proportions of the more meat bearing elements. However, when the element distribution patterns for cattle are examined, it quickly becomes apparent that the ca. 1607-1610 assemblages are very similar to the ca. 1610 assemblages previously analyzed by Bowen and Andrews (2000). Bones from the body were the most frequently identified element in both groups, followed by bones from the foot, and then bones and teeth from the head (see Table 9). Although the sample size for the cattle bones is low, body elements are present in greater than normal proportions suggesting that those who utilized these features had access to the more meat bearing elements.

The sample size for the swine bones from the soldier's features is larger and may be more accurate. When the features were combined, the distribution shows head and body elements were represented almost equally with less than normal representation of foot bones. Most of the bones came from Pit 5 that produced 137 bones and from Pit 8 that produced 40 bones (see Appendix D, Tables 25-26). When these features are examined separately Pit 5 shows 50.4% of the bones from the body, 37.2% from the head, and 12.4% from the foot. Pit 8, on the other hand, has 67.5% from the head, only 20.0% from the body, and 12.5% from the foot. Did the soldiers that utilized the early cellar in Structure 165 have access to better pieces of pork than the soldier's who had access to Pit 8?

Table 9
Combined Features
Element Distribution

	Head		Body		Feet		
	No.	%	No.	%	No.	%	NISP
Cattle Normal		**29.7**		**42.2**		**28.1**	
Jamestown, 1607-1610	**3**	**5.7**	**39**	**73.6**	**11**	**20.8**	**53**
Jamestown, c.1610	3	5.3	45	80.4	8	14.3	56
Jamestown,1620-1650	73	28.6	109	42.7	73	28.6	255
1620-1660 Sites		50.1		28.9		20.9	1867
Pig Normal		**28.2**		**34.5**		**37.3**	
Jamestown, 1607-1610	**80**	**42.1**	**79**	**41.6**	**31**	**16.3**	**190**
Jamestown, c.1610	20	25.0	48	61.0	11	14.0	79
Jamestown, 1620-1650	145	46.0	107	34.0	65	20.0	317
1620-1660 Sites		66.6		23.3		10.1	1271

Unfortunately, the answer to that question and many others is difficult to interpret. The faunal record does not show any distinct differences between the features from ca. 1607-1610 and the features previously examined from ca. 1610. Both sets of assemblages

show a vast diversity of wild species showing their dependence on the surrounding environment. Although the more exotic animals may suggest the soldiers and colonists were seeking the lifestyle of the English upper-class, the reality was their lifestyle was limited by the harsh Virginia environment. Exotic species, along with taboo species, were consumed in an attempt to keep famine at the door and put food in their cooking pot.

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APPENDIX A.
Summary Charts

Structure 166, Pit 5,
Pit 8, Pit 9, Pit 10, and Pit 11

Table 10
Summary of Faunal Remains
Structure 166

	NISP		MNI		Meat Weight		Biomass	
	No.	Pct.	MNI	Pct.	Lbs.	Pct.	Kg	Pct.
Class Osteichthyes (Bony Fish)	57	3.5	—	——	——	——	0.18	1.6
Acipenser spp. (Sturgeon)	78	4.8	1	5.2	100.0	11.8	1.00	8.7
Lepisosteus spp. (Gar)	269	16.7	1	5.2	5.0	0.5	0.33	2.9
Family Ictaluridae (Freshwater Catfish)	3	0.1	1	5.2	2.0	0.2	0.01	0.1
cf. Family Centrarchidae (Freshwater Bass or Sunfish)	2	0.1	1	5.2	0.0	0.0	0.01	0.1
Morone Americana (White Perch)	1	0.0	1	5.2	1.0	0.1	0.00	0.0
Order Testudines (Turtle)	167	10.4	—	——	——	——	0.00	0.0
Family Cheloniidae (Marine Turtle)	134	8.3	1	5.2	80.0	9.4	0.94	8.2
Class Aves (Bird)	10	0.6	—	——	——	——	0.06	0.5
Class Aves/Mammalia III (Bird/ Small Mammal)	22	1.3	—	——	——	——	0.11	0.9
cf. *Anser* spp.(Goose)	1	0.0	—	——	——	——	0.02	0.1
Branta canadensis (Canada Goose)	2	0.1	1	5.2	6.0	0.7	0.07	0.6
Pterodroma cahow (Bermuda Petrel)	2	0.1	1	5.2	1.5	0.1	0.00	0.0
Class Mammalia (Mammal)	770	48.0	—	——	——	——	1.96	17.1
Class Mammalia I (Large Mammal)	7	0.4	—	——	——	——	0.42	3.6
Class Mammalia II (Medium Mammal)	36	2.2	—	——	——	——	0.69	6.0
Class Mammalia III (Small Mammal)	3	0.1	—	——	——	——	0.02	0.1
Didelphis virginiana (Opossum)	1	0.0	1	5.2	8.0	0.9	0.62	1.7
Sciurus spp. (Squirrel)	4	0.2	—	——	——	——	0.00	0.0
cf. *Sciurus* spp. (Squirrel)	2	0.1	—	——	——	——	0.00	0.0
Sciurus carolinensis (Eastern Gray Squirrel)	2	0.1	2	10.5	2.0	0.2	0.00	0.0
Sciurus niger (Eastern Fox Squirrel)	1	0.0	1	5.2	0.8	0.0	0.04	0.3
Castor Canadensis (Beaver)	4	0.2	1	5.2	25.0	2.9	0.34	3.0
Family Cricetidae (Mouse, Rat, Lemming, Vole)	1	0.0	1	5.2	0.0	0.0	0.00	0.0
Canis spp. (Dog or Wolf)	2	0.1	1	5.2	0.0	0.0	0.17	1.4
cf. *Canis* spp. (Dog or Wolf)	2	0.1	—	——	——	——	0.01	0.1
Proycon lotor (Raccoon)	1	0.7	1	5.2	15.0	1.7	0.21	1.8
cf. *Proycon lotor* (Raccoon)	1	0.0	—	——	——	——	0.00	0.0
Order Artiodactyla I (Sheep, Goat, Deer, or Pig)	2	0.1	—	——	——	——	0.07	0.5
cf. Order Artiodactyla II (Sheep, Goat, or Deer)	3	0.1	—	——	——	——	0.03	0.2
Sus scrofa (Pig)	4	0.2	1	5.2	100.0	11.8	0.38	3.3
cf. *Sus scrofa* (Pig)	1	0.0	—	——	——	——	0.12	1.0
Odocoileus virginianus (White-Tailed Deer	5	0.3	1	5.2	100.0	11.8	0.51	4.4
Bos taurus (Domestic Cow)	2	0.1	1	5.2	400.0	47.2	3.12	27.3
cf.. *Bos taurus* (Domestic Cow)	2	0.1	—	——	——	——	0.49	4.3

Table 10 Cont'd.
Summary of Faunal Remains
Structure 166

	NISP		MNI		Meat Weight		Biomass	
	No.	Pct.	MNI	Pct.	Lbs.	Pct.	Kg	Pct.
Fish	410	25.2	5	26.0	108.0	12.6	1.53	13.4
Reptiles/Amphibians	301	18.7	1	5.2	80.0	9.4	0.94	8.2
Wild Birds	5	0.2	2	10.5	7.5	0.8	0.10	0.7
Domestic Birds	—	——	——	——	—	——	——	——
Wild Mammals	22	0.9	8	41.6	150.8	17.5	11.7	9.8
Domestic Mammals	9	0.4	2	10.5	500.0	59.0	4.13	35.9
Commensals	—	——	——	——	—	——	——	——
Wild	738	45.0	16	83.2	346.3	40.3	14.27	32.1
Domestic	9	0.4	2	10.5	500.0	59.0	4.13	35.9
Identified	532	33.2	19	100.0	846.3	100.0	7.99	70.2
Indeterminate	1072	66.8					3.44	29.8
Totals	1604	100.0	19	100.0	846.3	100.0	11.43	100.0

Table 11
Summary of Faunal Remains
Pit 5

	NISP		MNI		Meat Weight		Biomass	
	No.	Pct.	MNI	Pct.	Lbs.	Pct.	Kg	Pct.
Callinectes sapidus (Blue Crab)	9	0.1	1	1.1	0.2	0.0	0.00	0.0
Order Lamniformes (Typical Shark)	5	0.0	1	1.1	160.0	6.7	0.00	0.0
Class Osteichthyes (Bony Fish)	1080	19.6	—	——	——	——	1.26	2.6
Acipenser spp. (Sturgeon)	1128	20.5	1	1.1	100.0	4.2	5.90	12.4
cf.*Acipenser* spp. (Sturgeon)	3	0.0	—	——	——	——	0.15	0.3
Lepisosteus spp. (Gar)	30	0.5	1	1.1	5.0	0.2	0.08	0.1
cf. *Lepisosteus* spp. (Gar)	1	0.0	—	——	——	——	0.00	0.0
Family Anguillidae (Common Eel)	2	0.0	1	1.1	0.0	0.0	0.01	0.0
Family Catostomidae (Sucker)	15	0.2	2	2.3	2.0	0.0	0.06	0.1
Family Ictaluridae (Freshwater Catfish)	44	0.8	8	9.3	16.0	0.6	0.19	0.3
cf. Family Ictaluridae (Freshwater Catfish)	1	0.0	—	——	——	——	0.01	0.0
Order Gadiformes (Codfish or Hake)	2	0.0	1	1.1	4.8	0.2	0.02	0.0
Family Centrarchidae (Freshwater Bass Or Sunfish)	2	0.0	—	——	——	——	0.00	0.0
Lepomis spp. (Sunfish)	1	0.0	1	1.1	0.4	0.0	0.00	0.0
Morone americana (White Perch)	60	1.0	7	8.1	7.0	0.3	0.06	0.1
Morone spp. (Temperate Bass)	3	0.0	1	1.1	1.0	0.0	0.00	0.0
cf. *Morone* spp. (Temperate Bass)	1	0.0	—	——	——	——	0.00	0.0
Family Lutjanidae (Snapper)	1	0.0	1	1.1	9.0	0.3	0.00	0.0
Order Testudines (Turtle)	202	3.6	—	——	——	——	0.00	0.0
Family Kinosternidae (Musk or Mud Turtle)	6	0.1	1	1.1	0.4	0.0	0.07	0.1
cf. Family Kinosternidae (Musk or Mud Turtle)	4	0.0	—	——	——	——	0.06	0.1
Chrysemys spp. (Slider or Cooter)	3	0.0	2	2.3	6.0	0.2	0.13	0.2
cf. *Chrysemys* spp. (Slider or Cooter)	12	0.2	—	——	——	——	0.11	0.2
Malaclemys terrapin (Diamondback Terrapin)	68	1.2	1	1.1	0.6	0.0	0.55	1.1
cf. *Malaclemys terrapin* (Diamondback Terrapin)	6	0.1	—	——	——	——	0.02	0.0
Terrapene carolina (Box Turtle)	135	2.4	3	3.4	0.9	0.0	1.49	3.1
cf. *Terrapene carolina* (Box Turtle)	14	0.2	—	——	——	——	0.10	0.2
Class Aves (Bird)	296	5.3	—	——	——	——	1.24	2.6
Class Aves/Mammalia III (Bird/ Small Mammal)	87	1.5	—	——	——	——	0.48	1.0
Cygnus spp. (Swan)	1	0.0	1	1.1	10.0	0.4	0.08	0.1
cf. *Anser* spp. (Goose)	1	0.0	—	——	——	——	0.01	0.0
Branta Canadensis (Canada Goose)	10	0.1	1	1.1	6.0	0.2	0.26	0.5
Anas spp. (Dabbling Duck)	4	0.0	1	1.1	1.5	0.0	0.05	0.1
Aythya spp. (Pochard)	1	0.0	1	1.1	1.0	0.0	0.04	0.0
Duck spp. (Duck)	2	0.0	—	——	——	——	0.01	0.0
Goose spp. (Goose)	13	0.2	—	——	——	——	0.21	0.4
cf. Goose spp. (Goose)	3	0.0	—	——	——	——	0.07	0.1
Family Laridae (Gull)	1	0.0	1	1.1	3.5	0.1	0.01	0.0
Family Accipitridae (Hawk or Eagle)	3	0.0	1	1.1	5.0	0.2	0.03	0.0
Meleagris gallopavo (Turkey)	9	0.1	2	2.3	15.0	0.6	0.37	0.7
cf. *Meleagris gallopavo* (Turkey)	4	0.0	—	——	——	——	0.13	0.2
Gallus gallus (Chicken)	35	0.6	1/3	4.6	5.5	0.2	0.38	0.8
cf. *Gallus gallus* (Chicken)	4	0.0	—	——	——	——	0.03	0.0

Table 11 cont'd.
Summary of Faunal Remains
Pit 5

	NISP		MNI		Meat Weight		Biomass	
	No.	Pct.	MNI	Pct.	Lbs.	Pct.	Kg	Pct.
Order Strigiformes (Owl)	1	0.0	1	1.1	2.0	0.0	0.02	0.0
Order Passeriformes (Perching Bird)	5	0.0	3	3.4	0.6	0.0	0.00	0.0
Corvus brachyrhynchos (Common Crow)	5	0.0	2	2.3	2.0	0.0	0.03	0.0
cf. *Corvus brachyrhynchos* (Common Crow)	1	0.0	—	——	——	——	0.01	0.0
Family Ardeidae (Heron or Egret)	1	0.0	1	1.1	7.5	0.3	0.03	0.0
Phalacrocorax auritus (Double-Crested Cormorant)	15	0.2	2	2.3	10.0	0.4	0.25	0.5
cf. *Phalacrocorax auritus* (Double-Crested Cormorant)	8	0.1	—	——	——	——	0.09	0.1
Pterodroma cahow (Bermuda Petrel)	19	0.3	3	3.4	4.5	0.1	0.10	0.2
Class Mammalia (Mammal)	1121	20.3	—	——	——	——	4.38	9.2
Class Mammalia I (Large Mammal)	74	1.3	—	——	——	——	5.29	11.1
Class Mammalia II (Medium Mammal)	268	4.8	—	——	——	——	3.63	7.6
Class Mammalia III (Small Mammal)	178	3.2	—	——	——	——	0.84	1.7
Didelphis virginiana (Opossum)	3	0.3	1	1.1	8.0	0.3	0.06	0.1
Family Talpidae (Mole)	1	0.0	1	1.1	0.0	0.0	0.01	0.0
cf. *Sylvilagus floridanus* (Eastern Cottontail)	1	0.0	1	1.1	2.0	0.0	0.01	0.0
Sciurus spp. (Squirrel)	46	0.8	—	——	——	——	0.14	0.2
cf. *Sciurus* spp. (Squirrel)	15	0.2	—	——	——	——	0.03	0.0
Sciurus carolinensis (Eastern Gray Squirrel)	150	2.7	7	8.1	7.0	0.3	0.78	1.6
cf. *Sciurus carolinensis* (Eastern Gray Squirrel)	16	0.2	—	——	——	——	0.04	0.0
Sciurus niger (Eastern Fox Squirrel)	1	0.0	1	1.1	0.8	0.0	0.03	0.0
Family Cricetidae (Mouse, Rat, Lemming, or Vole)	3	0.0	1	1.1	0.0	0.0	0.00	0.0
cf. Family Cricetidae (Mouse, Rat, Lemming, or Vole)	1	0.0	—	——	——	——	0.00	0.0
Ondatra zibethica (Muskrat)	1	0.0	1	1.1	2.0	0.0	0.01	0.0
Rat spp. (Rats)	3	0.0	1	1.1	0.0	0.0	0.02	0.0
Family Delphinidae (Ocean Dolphins)	7	0.1	1	1.1	400.0	16.9	1.18	2.4
Canis spp. (Dog or Wolf)	3	0.0	1	1.1	0.0	0.0	0.14	0.2
cf. *Canis* spp. (Dog or Wolf)	3	0.0	—	——	——	——	0.20	0.4
cf. *Urocyon cinereoargenteus* (Grey Fox)	1	0.0	1	1.1	10.0	0.4	0.00	0.0
Family Ursidae (Bear)	5	0.0	1	1.1	236.0	10.0	0.24	0.4
Proycon lotor (Raccoon)	15	0.2	2	2.3	30.0	1.2	0.32	0.6
cf. *Proycon lotor* (Raccoon)	9	0.1	—	——	——	——	0.07	0.1
Felis rufus (Bobcat)	2	0.0	1	1.1	25.0	1.0	0.16	0.3
cf. *Felis rufus* (Bobcat)	2	0.0	—	——	——	——	0.15	0.3
Equus spp. (Horse or Ass)	5	0.0	1	1.1	400.0	16.9	5.74	12.0
cf. *Equus* spp. (Horse or Ass)	1	0.0	—	——	——	——	0.30	0.6
Order Artiodactyla I (Sheep, Goat, Deer, or Pig)	6	0.1	—	——	——	——	0.18	0.3
Sus scrofa (Pig)	122	2.2	2/3	5.8	350.0	14.8	4.07	8.5
cf. *Sus scrofa* (Pig)	15	0.2	—	——	——	——	0.41	0.8
Odocoileus virginianus (White-Tailed Deer	5	0.0	1	1.1	100.0	4.2	0.57	1.2

Table 11 Cont'd.
Summary of Faunal Remains
Pit 5

	NISP		MNI		Meat Weight		Biomass	
	No.	Pct.	MNI	Pct.	Lbs.	Pct.	Kg	Pct.
cf. *Odocoileus virginianus* (White-Tailed Deer)	4	0.0	—	——	——	——	0.21	0.4
Bos taurus (Domestic Cow)	10	0.1	1	1.1	400.0	16.9	3.35	7.0
cf.. *Bos taurus* (Domestic Cow)	1	0.0	—	——	——	——	0.21	0.4
Bos taurus/Equus spp. (Domestic Cow, Horse, or Ass)	4	0.0	—	——	——	——	0.38	0.7
Fish	2379	42.6	25	27.5	305.2	12.3	7.74	15.9
Reptiles/Amphibians	450	7.8	7	7.7	7.9	0.2	2.54	5.0
Wild Birds	136	1.5	20	22.0	68.6	2.3	1.99	3.2
Domestic Birds	39	0.6	1/3	4.4	5.5	0.2	0.41	0.8
Wild Mammals	288	4.2	20	22.0	820.8	17.4	4.01	7.6
Domestic Mammals	158	2.5	4/3	7.7	1150.0	48.6	14.46	30.0
Commensals	3	0.0	1	1.1	0.0	0.0	0.02	0.0
Wild	3262	56.2	73	80.3	1202.7	32.2	16.28	31.7
Domestic	197	3.1	11	12.1	1155.5	48.8	14.87	30.8
Identified	2192	39.7	80/6	100.0	2358.2	100.0	30.46	64.2
Indeterminate	3306	60.1					17.13	35.8
Totals	5498	100.0	80/6	100.0	2358.2	100.0	47.59	100.0

Table 12
Summary of Faunal Remains
Pit 8

	NISP		MNI		Meat Weight		Biomass	
	No.	Pct.	MNI	Pct.	Lbs.	Pct.	Kg	Pct.
Callinectes sapidus (Blue Crab)	3	0.0	1	0.8	0.2	0.0	0.00	0.0
Order Lamniformes (Typical Shark)	2	0.0	1	0.8	160.0	6.8	0.00	0.0
Order Rajiformes (Skates or Rays)	101	1.4	2	1.6	0.0	0.0	0.00	0.0
Order Carcharhiniformes (Requiem Sharks)	5	0.0	1	0.8	0.0	0.0	0.00	0.0
Class Osteichthyes (Bony Fish)	2514	35.6	—	——	——	——	3.08	5.5
Acipenser spp. (Sturgeon)	981	13.9	1	0.8	100.0	4.3	6.45	11.6
cf.*Acipenser* spp. (Sturgeon)	23	0.3	—	——	——	——	0.79	1.4
Lepisosteus spp. (Gar)	100	1.4	1	0.8	5.0	0.2	0.15	0.2
Clupea harengus (Atlantic Herring)	1	0.0	1	0.8	0.4	0.0	0.01	0.0
Family Anguillidae (Common Eel)	5	0.0	2	1.6	0.0	0.0	0.01	0.0
Family Catostomidae (Sucker)	128	1.8	10	8.3	10.0	0.4	0.44	0.7
Family Ictaluridae (Freshwater Catfish)	238	3.3	23	19.1	46.0	1.9	0.76	1.3
Order Gadiformes (Codfish or Hake)	1	0.0	1	0.8	4.8	0.2	0.01	0.0
Perca flavescens (Yellow Perch)	1	0.0	1	0.8	1.0	0.0	0.00	0.0
Family Percichthyidae (Temperate Bass)	3	0.0	1	0.8	0.0	0.0	0.01	0.0
Morone americana (White Perch)	106	1.5	10	8.3	10.0	0.4	0.13	0.2
Morone spp. (Temperate Bass)	17	0.2	1	0.8	1.0	0.0	0.02	0.0
Family Serranidae (Sea Bass)	1	0.0	1	0.8	0.0	0.0	0.02	0.0
Archosargus probatocephalus (Sheepshead)	4	0.0	1	0.8	7.5	0.3	0.06	0.1
Family Sciaenidae (Croaker or Drum)	1	0.0	1	0.8	21.5	0.9	0.01	0.0
cf. Family Sciaenidae (Croaker or Drum)	3	0.0	—	——	——	——	0.12	0.2
Order Testudines (Turtle)	247	3.4	—	——	——	——	0.07	0.1
Chelydra serpentina (Snapping Turtle)	4	0.0	1	0.8	10.0	0.4	0.09	0.1
cf. *Chelydra serpentina* (Snapping Turtle)	8	0.1	—	——	——	——	0.09	0.1
cf. *Chrysemys* spp. (Slider or Cooter)	1	0.0	1	0.8	3.0	0.1	0.07	0.1
Malaclemys terrapin (Diamondback Terrapin)	9	0.1	1	0.8	0.6	0.0	0.11	0.2
cf. *Malaclemys terrapin* (Diamondback Terrapin)	8	0.1	—	——	——	——	0.17	0.3
Terrapene carolina (Box Turtle)	106	1.5	4	3.3	1.2	0.0	0.90	1.6
cf. *Terrapene carolina* (Box Turtle)	3	0.0	—	——	——	——	0.03	0.0
Family Colubridae (Snake)	41	0.5	1	0.8	0.0	0.0	0.05	0.0
Class Aves (Bird)	577	8.1	—	——	——	——	1.97	3.5
Class Aves/Mammalia III (Bird/ Small Mammal)	39	0.5	—	——	——	——	0.13	0.2
Cygnus spp. (Swan)	2	0.0	1	0.8	10.0	0.4	0.22	0.3
cf. *Anser* spp. (Goose)	1	0.0	—	——	——	——	0.02	0.0
Branta Canadensis (Canada Goose)	27	0.3	3	2.5	18.0	0.7	0.66	1.1
cf. *Branta Canadensis* (Canada Goose)	3	0.0	—	——	——	——	0.03	0.0
Anas spp. (Dabbling Duck)	9	0.1	1	0.8	1.5	0.0	0.21	0.3
Aythya americana (Redhead)	1	0.0	1	0.8	1.6	0.0	0.01	0.0
Bucephala albeola (Bufflehead)	2	0.0	1	0.8	1.6	0.0	0.01	0.0
cf. *Bucephala albeola* (Bufflehead)	1	0.0	—	——	——	——	0.00	0.0
Duck spp. (Duck)	26	0.3	—	——	——	——	0.21	0.3
cf. Duck spp. (Duck)	3	0.0	—	——	——	——	0.03	0.0
Goose spp. (Goose)	37	0.5	—	——	——	——	0.67	1.2
cf. Goose spp. (Goose)	9	0.1	—	——	——	——	0.08	0.1

Table 12 Cont'd.
Summary of Faunal Remains
Pit 8

	NISP		MNI		Meat Weight		Biomass	
	No.	Pct.	MNI	Pct.	Lbs.	Pct.	Kg	Pct.
Grus americana (Whopping Crane)	2	0.0	1	0.8	2.0	0.0	0.05	0.0
Family Laridae (Gull)	5	0.0	1	0.8	3.5	0.1	0.03	0.0
Family Accipitridae (Hawk or Eagle)	7	0.1	1	0.8	5.0	0.2	0.05	0.0
Cathartes aura (Turkey Vulture)	3	0.0	1	0.8	3.0	0.1	0.12	0.2
Meleagris gallopavo (Turkey)	5	0.0	1	0.8	7.5	0.3	0.37	0.6
cf. *Meleagris gallopavo* (Turkey)	2	0.0	—	——	——	——	0.04	0.0
Gallus gallus (Chicken)	4	0.0	1/2	2.5	4.5	0.1	0.03	0.0
cf. *Gallus gallus* (Chicken)	5	0.0	—	——	——	——	0.03	0.0
Order Passerifornes (Perching Bird)	17	0.2	2	1.6	0.4	0.0	0.04	0.0
Corvus brachyrhynchos (Common Crow)	5	0.0	2	1.6	2.0	0.0	0.05	0.0
cf. *Corvus brachyrhynchos* (Common Crow)	1	0.0	—	——	——	——	0.01	0.0
Phalacrocorax auritus (Double-Crested Cormorant)	1	0.0	1	0.8	5.0	0.2	0.05	0.0
Pterodroma cahow (Bermuda Petrel)	3	0.0	1	0.8	1.5	0.0	0.01	0.0
Class Mammalia (Mammal)	788	11.1	—	——	——	——	3.97	7.1
Class Mammalia I (Large Mammal)	50	0.7	—	——	——	——	3.53	6.3
Class Mammalia II (Medium Mammal)	226	3.2	—	——	——	——	3.60	6.5
Class Mammalia III (Small Mammal)	127	1.8	—	——	——	——	0.55	1.0
Didelphis virginiana (Opossum)	1	0.0	1	0.8	8.0	0.3	0.05	0.0
Family Talpidae (Mole)	1	0.0	1	0.8	0.0	0.0	0.00	0.0
cf. *Sylvilagus floridanus* (Eastern Cottontail)	3	0.0	1	0.8	2.0	0.0	0.04	0.0
Order Rodentia (Rodent)	1	0.0	—	——	——	——	0.00	0.0
Sciurus spp. (Squirrel)	54	0.7	—	——	——	——	0.17	0.3
cf. *Sciurus* spp. (Squirrel)	14	0.2	—	——	——	——	0.03	0.0
Sciurus carolinensis (Eastern Gray Squirrel)	56	0.7	4	3.3	4.0	0.1	0.30	0.5
cf. *Sciurus carolinensis* (Eastern Gray Squirrel)	3	0.0	—	——	——	——	0.01	0.0
Sciurus niger (Eastern Fox Squirrel)	26	0.3	3	2.5	2.4	0.1	0.25	0.4
cf. *Sciurus niger* (Eastern Fox Squirrel)	3	0.0	—	——	——	——	0.01	0.0
Castor Canadensis (Beaver)	1	0.0	1	0.8	25.0	1.0	0.20	0.3
Family Cricetidae (Mouse, Rat, Lemming, or Vole)	11	0.1	3	2.5	0.0	0.0	0.03	0.0
cf. *Ondatra zibethica* (Muskrat)	1	0.0	1	0.8	2.0	0.0	0.01	0.0
Rattus spp. (Old World Rats)	2	0.0	—	——	——	——	0.01	0.0
Rattus rattus (Roof Rat)	2	0.0	1	0.8	0.0	0.0	0.01	0.0
Rat spp. (Rats)	2	0.0	—	——	——	——	0.01	0.0
Family Delphinidae (Ocean Dolphins)	12	0.1	—	——	——	——	0.19	0.3
cf. Family Delphinidae (Ocean Dolphins)	1	0.0	—	——	——	——	0.18	0.2
Tursiops truncates (Bottle-Nosed Dolphin)	5	0.0	1	0.8	500.0	21.5	1.11	2.0
Canis spp. (Dog or Wolf)	10	0.1	2	1.6	0.0	0.0	0.60	1.0
cf. *Canis* spp. (Dog or Wolf)	1	0.0	—	——	——	——	0.04	0.0
Proycon lotor (Raccoon)	62	0.8	3	2.5	45.0	1.9	1.79	3.2
cf. *Proycon lotor* (Raccoon)	14	0.2	—	——	——	——	0.11	0.2
Family Felidae (Cat)	1	0.0	1	0.8	0.0	0.0	0.01	0.0
Equus spp. (Horse or Ass)	1	0.0	1	0.8	400.0	17.2	0.80	1.4
Order Artiodactyla I (Sheep, Goat, Deer, or Pig)	7	0.1	—	——	——	——	0.44	0.7

Table 12 Cont'd.
Summary of Faunal Remains
Pit 8

	NISP		MNI		Meat Weight		Biomass	
	No.	Pct.	MNI	Pct.	Lbs.	Pct.	Kg	Pct.
Order Artiodactyla II (Sheep, Goat, or Deer)	3	0.0	—	——	——	——	0.09	0.1
Sus scrofa (Pig)	29	0.4	2	1.6	200.0	8.6	2.17	3.9
cf. *Sus scrofa* (Pig)	11	0.1	—	——	——	——	0.69	1.2
Odocoileus virginianus (White-Tailed Deer	35	0.5	2/1	2.5	250.0	10.7	4.76	8.6
cf. *Odocoileus virginianus* (White-Tailed Deer)	10	0.1	—	——	——	——	0.91	1.6
Bos taurus (Domestic Cow)	19	0.2	1	0.8	400.0	17.2	9.31	16.8
cf.. *Bos taurus* (Domestic Cow)	3	0.0	—	——	——	——	0.45	0.8
Ovis aries/Capra hircus (Domestic Sheep or Goat)	1	0.0	1	0.8	35.0	1.5	0.08	0.1
Fish	4235	59.4	59	47.2	367.2	15.4	12.09	21.2
Reptiles/Amphibians	427	5.2	8	8.8	14.8	0.1	1.58	2.5
Wild Birds	172	1.6	18	14.4	62.6	2.0	2.97	4.1
Domestic Birds	9	0.0	1/2	2.5	4.5	0.1	0.06	0.0
Wild Mammals	314	3.7	21/1	17.6	838.4	35.6	10.10	17.6
Domestic Mammals	64	0.7	5	4.0	1035.0	44.5	13.50	24.2
Commensals	6	0.0	1	0.8	0.0	0.0	0.03	0.0
Wild	5151	69.9	108	86.4	1283.2	53.1	267.40	45.4
Domestic	73	0.8	8	6.4	1039.5	44.6	13.56	24.2
Identified	2491	35.3	117/3	100.0	2322.7	100.0	38.41	69.8
Indeterminate	4568	64.7	—	——	——	——	16.91	30.2
Totals	7059	100.0	117/3	100.0	2322.7	100.0	55.32	100.0

Table 13
Summary of Faunal Remains
Pit 9

	NISP		MNI		Meat Weight		Biomass	
	No.	Pct.	MNI	Pct.	Lbs.	Pct.	Kg	Pct.
Callinectes sapidus (Blue Crab)	2	0.0	1	1.8	0.1	0.0	0.00	0.0
Class Osteichthyes (Bony Fish)	424	13.1	—	——	——	——	0.83	2.3
Acipenser spp. (Sturgeon)	934	28.9	1	1.8	100.0	10.1	4.27	12.1
Lepisosteus spp. (Gar)	110	3.4	1	1.8	5.0	0.5	0.16	0.4
Catostomus commersoni (White Sucker)	3	0.0	1	1.8	1.0	0.1	0.04	0.1
Family Ictaluridae (Freshwater Catfish)	109	3.3	13	24.5	26.0	2.6	0.38	1.0
cf. Family Ictaluridae (Freshwater Catfish)	1	0.0	—	——	——	——	0.03	0.0
Morone Americana (White Perch)	5	0.1	2	3.7	2.0	0.2	0.01	0.0
Morone spp. (Temperate Bass)	21	0.6	3	5.6	3.0	0.3	0.03	0.1
cf. *Morone* spp. (Temperate Bass)	4	0.1	—	——	——	——	0.00	0.0
Family Sciaenidae (Croaker or Drum)	1	0.0	1	1.8	21.5	2.1	0.00	0.0
Order Testudines (Turtle)	114	3.5	—	——	——	——	0.00	0.0
Chelydra serpentine (Snapping Turtle)	19	0.5	1	1.8	10.0	1.0	0.31	0.8
cf. *Chelydra serpentine* (Snapping Turtle)	3	0.0	—	——	——	——	0.08	0.2
Terrapene carolina (Box Turtle)	150	4.6	3	5.6	0.9	0.0	0.78	2.2
cf. *Terrapene carolina* (Box Turtle)	1	0.0	—	——	——	——	0.01	0.0
Class Aves (Bird)	119	3.6	—	——	——	——	0.76	2.1
Class Aves/Mammalia III (Bird/ Small Mammal)	48	1.4	—	——	——	——	0.23	0.6
Branta Canadensis (Canada Goose)	14	0.4	2	3.7	12.0	1.2	0.97	2.7
Aythya spp. (Pochard)	2	0.0	1	1.8	1.0	0.1	0.01	0.0
Duck spp. (Duck)	2	0.0	—	——	——	——	0.07	0.1
Goose spp. (Goose)	8	0.2	—	——	——	——	0.19	0.5
cf. Goose spp. (Goose)	2	0.0	—	——	——	——	0.07	0.1
Larus delawarensis (Ring-billed Gull)	1	0.0	1	1.8	4.0	0.4	0.01	0.0
Pandion haliaetus (Osprey)	4	0.1	1	1.8	3.0	0.3	0.07	0.1
Meleagris gallopavo (Turkey)	5	0.1	1	1.8	7.5	0.7	0.61	1.7
Gallus gallus (Chicken)	17	0.5	2	3.7	5.0	0.5	0.21	0.6
cf. *Gallus gallus* (Chicken)	7	0.2	—	——	——	——	0.06	0.1
Corvus ossifragus (Fish Crow)	1	0.0	1	1.8	0.7	0.0	0.00	0.0
Class Mammalia (Mammal)	736	22.8	—	——	——	——	3.01	8.6
Class Mammalia I (Large Mammal)	17	0.5	—	——	——	——	1.25	3.5
Class Mammalia II (Medium Mammal)	106	3.2	—	——	——	——	1.67	4.7
Class Mammalia III (Small Mammal)	36	1.1	—	——	——	——	0.15	0.4
Didelphis virginiana (Opossum)	33	1.0	2	3.7	16.0	1.6	0.62	1.7
cf. *Didelphis virginiana* (Opossum)	2	0.0	—	——	——	——	0.04	0.1
Sylvilagus floridanus (Eastern Cottontail)	1	0.0	1	1.8	2.0	0.2	0.05	0.1
Family Sciuridae (Squirrel)	2	0.0	—	——	——	——	0.05	0.1
Sciurus spp. (Squirrel)	26	0.8	—	——	——	——	0.17	0.4
cf. *Sciurus* spp. (Squirrel)	2	0.0	—	——	——	——	0.02	0.0
Sciurus carolinensis (Eastern Gray Squirrel)	14	0.4	2	3.7	2.0	0.2	0.09	0.2
Sciurus niger (Eastern Fox Squirrel)	10	0.3	2	3.7	1.6	0.1	0.14	0.3
Castor canadensis (Beaver)	4	0.1	1	1.8	25.0	2.5	0.31	0.8
Ondatra zibethica (Muskrat)	6	0.1	1	1.8	2.0	0.2	0.13	0.3
Canis spp. (Dog or Wolf)	2	0.0	1	1.8	0.0	0.0	0.11	0.3
Proycon lotor (Raccoon)	25	0.7	2	3.7	30.0	3.0	0.57	1.6
cf. *Proycon lotor* (Raccoon)	2	0.0	—	——	——	——	0.11	0.3
Mephitis mephitis (Striped Skunk)	1	0.0	1	1.8	8.0	0.8	0.03	0.0

Table 13 cont'd.
Summary of Faunal Remains
Pit 9

	NISP		MNI		Meat Weight		Biomass	
	No.	Pct.	MNI	Pct.	Lbs.	Pct.	Kg	Pct.
Order Artiodactyla I (Sheep, Goat, Deer, or Pig)	1	0.0	—	——	——	——	0.15	0.4
cf. Order Artiodactyla II (Sheep, Goat, or Deer)	1	0.0	—	——	——	——	0.02	0.0
Sus scrofa (Pig)	7	0.2	1	1.8	100.0	10.1	0.68	1.9
cf. *Sus scrofa* (Pig)	1	0.0					0.04	0.1
Odocoileus virginianus (White-Tailed Deer	28	0.8	2	3.7	200.0	20.2	4.69	13.3
cf. *Odocoileus virginianus* (White-Tailed Deer)	12	0.3	—	——	——	——	3.09	8.8
Bos taurus (Domestic Cow)	6	0.1	1	1.8	400.0	40.4	3.78	10.7
cf.. *Bos taurus* (Domestic Cow)	3	0.0	—	——	——	——	0.98	2.7
Bos taurus/Equus spp. (Domestic Cow, Horse, or Ass)	9	0.2	—	——	——	——	2.83	8.0
Fish	1612	49.5	22	39.6	158.5	15.9	5.76	16.0
Reptiles/Amphibians	287	8.6	4	7.2	10.9	1.0	1.18	3.2
Wild Birds	39	0.8	7	12.6	28.2	2.7	1.98	5.2
Domestic Birds	24	0.7	2	3.7	5.0	0.5	0.27	0.7
Wild Mammals	169	4.5	14	25.2	286.6	28.8	10.12	28.0
Domestic Mammals	26	0.5	2	3.7	500.0	50.5	8.31	23.4
Commensals	—	——	——	——	—	——	——	——
Wild	2109	63.4	48	86.4	484.4	48.4	19.04	52.4
Domestic	50	1.2	4	7.4	505.0	51.0	7.31	24.1
Identified	1625	50.4	53	100.0	989.4	100.0	26.35	75.2
Indeterminate	1600	49.6	—	——	——	——	8.68	24.8
Totals	3225	100.0	53	100.0	989.4	100.0	35.03	100.0

Table 14
Summary of Faunal Remains
Pit 10

	NISP		MNI		Meat Weight		Biomass	
	No.	Pct.	MNI	Pct.	Lbs.	Pct.	Kg	Pct.
Class Osteichthyes (Bony Fish)	17	5.9	—	——	——	——	0.05	1.7
Acipenser spp. (Sturgeon)	72	25.3	1	7.1	100.0	13.0	0.67	24.0
Lepisosteus spp. (Gar)	6	2.1	1	7.1	5.0	0.6	0.04	1.2
Family Ictaluridae (Freshwater Catfish)	3	1.0	1	7.1	2.0	0.2	0.02	0.7
Order Testudines (Turtle)	61	21.4	—	——	——	——	0.00	0.0
Family Kinosternidae (Musk or Mud Turtle)	2	0.7	1	7.1	0.4	0.0	0.02	0.8
Terrapene Carolina (Box Turtle)	31	10.9	1	7.1	0.3	0.0	0.27	9.9
Class Aves/Mammalia III (Bird/ Small Mammal)	9	3.1	—	——	——	——	0.07	2.3
Branta Canadensis (Canada Goose)	3	1.0	1	7.1	6.0	0.7	0.17	6.3
Goose spp. (Goose)	1	0.3	—	——	——	——	0.01	0.4
Class Mammalia (Mammal)	49	17.2	—	——	——	——	0.24	8.6
Class Mammalia II (Medium Mammal)	10	3.5	—	——	——	——	0.31	11.0
Class Mammalia III (Small Mammal)	2	0.7	—	——	——	——	0.02	0.6
Sciurus carolinensis (Eastern Gray Squirrel)	7	2.4	2	14.2	2.0	0.2	0.05	1.8
cf. *Sciurus carolinensis* (Eastern Gray Squirrel)	2	0.7	—	——	——	——	0.01	0.4
Sciurus niger (Eastern Fox Squirrel)	1	0.3	1	7.1	0.8	0.1	0.03	0.9
cf. Family Cricetidae (Mouse, Rat, Lemming, or Vole)	1	0.3	1	7.1	0.0	0.0	0.02	0.6
Canis spp. (Dog or Wolf)	2	0.7	1	7.1	0.0	0.0	0.11	3.9
Ursus americanus (Black Bear)	2	0.7	1	7.1	236.0	30.7	0.16	5.7
Proycon lotor (Raccoon)	2	0.7	1	7.1	15.0	1.9	0.13	4.5
Bos taurus (Domestic Cow)	1	0.3	1	7.1	400.0	52.1	0.39	13.8
Fish	98	34.3	3	21.3	107.0	13.8	0.78	27.6
Reptiles/Amphibians	94	33.0	2	14.2	0.7	0.0	0.30	10.7
Wild Birds	4	1.3	1	7.1	6.0	0.7	0.18	6.7
Domestic Birds	0	0.0	—	——	——	——	0.00	0.0
Wild Mammals	15	5.1	6	42.6	253.8	33.0	0.40	13.9
Domestic Mammals	1	0.3	1	7.1	400.0	52.1	0.39	13.8
Commensals	0	0.0	—	——	——	——	0.00	0.0
Wild	211	73.7	12	85.2	367.5	47.5	1.66	65.2
Domestic	1	0.3	1	7.1	400.0	52.1	0.39	13.8
Identified	136	47.9	14	100.0	767.5	100.0	2.10	75.8
Indeterminate	148	51.8	—	——	——	——	0.69	24.2
Totals	284	100.0	14	100.0	767.5	100.0	2.79	100.0

Table 15
Summary of Faunal Remains
Pit 11

	NISP		MNI		Meat Weight		Biomass	
	No.	Pct.	MNI	Pct.	Lbs.	Pct.	Kg	Pct.
Class Osteichthyes (Bony Fish)	426	30.8	—	——	——	——	0.30	1.2
Acipenser spp. (Sturgeon)	34	2.4	1	2.4	100.0	12.0	0.69	2.8
Lepisosteus spp. (Gar)	38	2.7	1	2.4	5.0	0.6	0.13	0.5
Catostomus commersoni (White Sucker)	18	1.3	3	7.3	3.0	0.3	0.10	0.3
cf. *Catostomus commersoni* (White Sucker)	1	0.0	—	——	——	——	0.01	0.0
Family Ictaluridae (Freshwater Catfish)	52	3.7	6	14.6	12.0	1.4	0.32	1.3
Family Gadidae (Codfish)	1	0.0	1	2.4	4.8	0.5	0.02	0.0
Morone spp. (Temperate Bass)	22	1.5	2	4.8	2.0	0.2	0.05	0.2
cf. *Morone* spp. (Temperate Bass)	1	0.0	—	——	——	——	0.00	0.0
Micropogon undulates (Atlantic Croaker)	1	0.0	1	2.4	1.0	0.1	0.00	0.0
Family Ostraciidae (Boxfishes)	1	0.0	1	2.4	0.0	0.0	0.01	0.0
Rana catesbeiana (Bullfrog)	1	0.0	1	2.4	0.1	0.0	0.00	0.0
cf. *Rana catesbeiana* (Bullfrog)	1	0.0	—	——	——	——	0.00	0.0
Order Testudines (Turtle)	27	1.9	—	——	——	——	0.00	0.0
Chelydra serpentine (Snapping Turtle)	11	0.8	1	2.4	10.0	1.2	0.18	0.7
cf. *Chelydra serpentine* (Snapping Turtle)	2	0.1	—	——	——	——	0.07	0.2
Family Kinosternidae (Musk or Mud Turtle)	13	0.9	1	2.4	0.4	0.0	0.07	0.2
Chrysemys spp. (Slider or Cooter)	1	0.0	1	2.4	3.0	0.3	0.02	0.1
Terrapene carolina (Box Turtle)	27	1.9	2	4.8	0.6	0.0	0.47	1.9
cf. *Terrapene carolina* (Box Turtle)	1	0.0	—	——	——	——	0.01	0.0
Class Aves (Bird)	20	1.4	—	——	——	——	0.04	0.1
Class Aves/Mammalia III (Bird/ Small Mammal)	22	1.5	—	——	——	——	0.12	0.4
Branta Canadensis (Canada Goose)	3	0.2	1	2.4	6.0	0.7	0.16	0.6
Anas spp. (Dabbling Duck)	1	0.0	1	2.4	1.5	0.1	0.02	0.0
Duck spp. (Duck)	1	0.0	—	——	——	——	0.01	0.0
Buteo jamaicensis (Red-Tailed Hawk)	1	0.0	1	2.4	2.5	0.3	0.05	0.1
Meleagris gallopavo (Turkey)	6	0.4	2	4.8	15.0	1.8	0.17	0.7
cf. *Meleagris gallopavo* (Turkey)	2	0.1	—	——	——	——	0.03	0.1
cf. *Gallus gallus* (Chicken)	2	0.1	1	2.4	2.5	0.3	0.02	0.0
Phalacrocorax auritus (Double-Crested Cormorant)	1	0.0	1	2.4	5.0	0.6	0.02	0.1
Class Mammalia (Mammal)	285	20.6	—	——	——	——	1.27	5.2
Class Mammalia I (Large Mammal)	21	1.5	—	——	——	——	1.06	4.3
Class Mammalia II (Medium Mammal)	32	2.3	—	——	——	——	0.80	3.2
Class Mammalia III (Small Mammal)	27	1.9	—	——	——	——	0.13	0.5
Didelphis virginiana (Opossum)	5	0.3	3	7.3	24.0	2.8	0.25	1.0
Sciurus carolinensis (Eastern Gray Squirrel)	24	1.7	2	4.8	2.0	0.2	0.21	0.8
cf. *Sciurus carolinensis* (Eastern Gray Squirrel)	3	0.2	—	——	——	——	0.02	0.0
Ondatra zibethica (Muskrat)	27	1.9	1	2.4	2.0	0.2	0.26	1.0
Rat spp. (Rats)	1	0.0	1	2.4	0.0	0.0	0.01	0.0
Proycon lotor (Raccoon)	165	11.9	2	4.8	30.0	3.6	1.18	4.8
cf. *Proycon lotor* (Raccoon)	2	0.1	—	——	——	——	0.01	0.0
Odocoileus virginianus (White-Tailed Deer	18	1.3	2	4.8	200.0	24.0	4.89	20.1
cf. *Odocoileus virginianus* (White-Tailed Deer)	9	0.6	—	——	——	——	0.73	2.9

Table 15 cont'd.
Summary of Faunal Remains
Pit 11 cont'd.

	NISP		MNI		Meat Weight		Biomass	
	No.	Pct.	MNI	Pct.	Lbs.	Pct.	Kg	Pct.
Bos taurus (Domestic Cow)	4	0.2	1	2.4	400.0	48.0	2.46	10.2
cf.. *Bos taurus* (Domestic Cow)	2	0.1	—	——	——	——	0.73	3.0
Bos taurus/Equus spp. (Domestic Cow, Horse, or Ass)	19	1.3	—	——	——	——	7.20	29.5
Fish	595	42.3	16	38.4	127.8	15.1	1.63	6.3
Reptiles/Amphibians	84	5.6	6	14.4	14.1	1.5	0.82	3.2
Wild Birds	16	0.7	6	14.4	30.0	3.5	0.46	1.6
Domestic Birds	2	0.1	1	2.4	2.5	0.3	0.02	0.0
Wild Mammals	253	17.9	10	24.0	258.0	30.8	7.31	30.0
Domestic Mammals	25	1.6	1	2.4	400.0	48.0	10.39	43.0
Commensals	1	0.0	1	2.4	0.0	0.0	0.01	0.0
Wild	948	66.5	38	91.2	429.9	50.9	10.22	41.1
Domestic	27	1.7	2	4.4	402.5	48.3	10.41	43.0
Identified	565	40.7	41	100.0	832.4	100.0	20.64	84.7
Indeterminate	818	59.2	—	——	——	——	3.72	15.3
Totals	1383	100.0	41	100.0	832.4	100.0	24.36	100.0

APPENDIX B
AGE DISTRIBUTION DATA FOR INDIVIDUAL FEATURES JAMESTOWN

Structure 166, Pit 5, Pit 8
Pit 9, Pit 10, Pit 11

Table 16
Age Distribution Based on Epiphyseal Fusion
Structure 166
***Bos taurus* (Domestic Cattle)**
N=1

Age of Fusion - 0 to 12 Months

Bone and Epiphysis	Fused	Not Fused
Scapula	0	0
Innominate	1	0
	1	0
Percent of Age Range	100.0%	0.0%

Age of Fusion - 12 to 24 Months

Bone and Epiphysis	Fused	Not Fused
Humerus - distal	0	0
Radius - proximal	0	0
First Phalange - proximal	0	0
Second Phalange - proximal	0	0
	0	0
Percent of Age Range	0.0%	0.0%

Age of Fusion - 24 to 36 Months

Bone and Epiphysis	Fused	Not Fused
Metacarpal	0	0
Tibia - distal	0	0
Metatarsal	0	0
Metapodial	0	0
	0	0
Percent of Age Range	0.0%	0.0%

Age of Fusion - 36 to 48 Months

Bone and Epiphysis	Fused	Not Fused
Humerus - proximal	0	0
Ulna - proximal	0	0
Ulna - distal	0	0
Radius - distal	0	0
Femur - proximal	0	0
Femur - distal	0	0
Tibia - proximal	0	0
Calcaneus	0	0
	0	0
Percent of Age Range	0.0%	0.0%

Source of Fusion Ages: Silver 1969; Chaplin 1970; Maltby 1979.

Table 17
Age Distribution Based on Epiphyseal Fusion
Pit 5
***Sus scrofa* (Domestic Pig)**
N=28

Age of Fusion - 0 to 12 Months		
Bone and Epiphysis	**Fused**	**Not Fused**
Scapula	0	5
Innominate	2	2
Humerus - distal	0	0
Radius - proximal	0	1
Second phalange - proximal	0	0
	2	8
Percent of Age Range	20.0%	80.0%

Age of Fusion - 12 to 24 Months		
Bone and Epiphysis	**Fused**	**Not Fused**
Metacarpal	0	3
First phalange - proximal	0	0
Tibia - distal	0	0
	0	3
Percent of Age Range	0.0%	100.0%

Age of Fusion - 24 to 36 Months		
Bone and Epiphysis	**Fused**	**Not Fused**
Calcaneus	0	2
Metatarsal	0	0
Fibula - distal	0	0
	0	2
Percent of Age Range	0.0%	100.0%

Age of Fusion - 36 to 42 Months		
Bone and Epiphysis	**Fused**	**Not Fused**
Humerus - proximal	0	2
Radius - distal	1	2
Ulna - proximal	0	1
Ulna - distal	0	0
Femur - proximal	0	2
Femur - distal	1	0
Tibia - proximal	0	2
Fibula - proximal	0	2
	2	11
Percent of Age Range	15.4%	84.6%

Source of Fusion Ages: Silver 1969; Chaplin 1970; Maltby 1979.

Table 18
Age Distribution Based on Epiphyseal Fusion
Pit 8
***Sus scrofa* (Domestic Pig)**
N=2

Age of Fusion - 0 to 12 Months

Bone and Epiphysis	Fused	Not Fused
Scapula	0	0
Innominate	1	0
Humerus - distal	0	0
Radius - proximal	0	0
Second phalange - proximal	0	0
	1	0
Percent of Age Range	100.0%	0.0%

Age of Fusion - 12 to 24 Months

Bone and Epiphysis	Fused	Not Fused
Metacarpal	0	0
First phalange - proximal	0	0
Tibia - distal	0	0
	0	0
Percent of Age Range	0.0%	0.0%

Age of Fusion - 24 to 36 Months

Bone and Epiphysis	Fused	Not Fused
Calcaneus	0	1
Metatarsal	0	0
Fibula - distal	0	0
	0	1
Percent of Age Range	0.0%	100.0%

Age of Fusion - 36 to 42 Months

Bone and Epiphysis	Fused	Not Fused
Humerus - proximal	0	0
Radius - distal	0	0
Ulna - proximal	0	0
Ulna - distal	0	0
Femur - proximal	0	0
Femur - distal	0	0
Tibia - proximal	0	0
Fibula - proximal	0	0
	0	0
Percent of Age Range	0.0%	0.0%

Source of Fusion Ages: Silver 1969; Chaplin 1970; Maltby 1979.

Table 19
Age Distribution Based on Epiphyseal Fusion
Pit 8
***Bos taurus* (Domestic Cattle)**
N=6

Age of Fusion - 0 to 12 Months		
Bone and Epiphysis	**Fused**	**Not Fused**
Scapula	0	0
Innominate	2	0
	2	0
Percent of Age Range	100.0%	0.0%

Age of Fusion - 12 to 24 Months		
Bone and Epiphysis	**Fused**	**Not Fused**
Humerus - distal	0	0
Radius - proximal	0	0
First Phalange - proximal	0	0
Second Phalange - proximal	0	0
	0	0
Percent of Age Range	0.0%	0.0%

Age of Fusion - 24 to 36 Months		
Bone and Epiphysis	**Fused**	**Not Fused**
Metacarpal	0	0
Tibia - distal	0	0
Metatarsal	0	0
Metapodial	0	2
	0	2
Percent of Age Range	0.0%	100.0%

Age of Fusion - 36 to 48 Months		
Bone and Epiphysis	**Fused**	**Not Fused**
Humerus - proximal	0	0
Ulna - proximal	0	0
Ulna - distal	0	0
Radius - distal	0	0
Femur - proximal	0	0
Femur - distal	0	1
Tibia - proximal	0	0
Calcaneus	0	1
	0	2
Percent of Age Range	0.0%	100.0%

Source of Fusion Ages: Silver 1969; Chaplin 1970; Maltby 1979.

Table 20
Age Distribution Based on Epiphyseal Fusion
Pit 9
***Sus scrofa* (Domestic Pig)**
N=1

Age of Fusion - 0 to 12 Months		
Bone and Epiphysis	**Fused**	**Not Fused**
Scapula	0	0
Innominate	0	0
Humerus - distal	0	0
Radius - proximal	0	0
Second phalange - proximal	0	1
	0	1
Percent of Age Range	0.0%	100.0%

Age of Fusion - 12 to 24 Months		
Bone and Epiphysis	**Fused**	**Not Fused**
Metacarpal	0	0
First phalange - proximal	0	0
Tibia - distal	0	0
	0	0
Percent of Age Range	0.0%	0.0%

Age of Fusion - 24 to 36 Months		
Bone and Epiphysis	**Fused**	**Not Fused**
Calcaneus	0	0
Metatarsal	0	0
Fibula - distal	0	0
	0	0
Percent of Age Range	0.0%	0.0%

Age of Fusion - 36 to 42 Months		
Bone and Epiphysis	**Fused**	**Not Fused**
Humerus - proximal	0	0
Radius - distal	0	0
Ulna - proximal	0	0
Ulna - distal	0	0
Femur - proximal	0	0
Femur - distal	0	0
Tibia - proximal	0	0
Fibula - proximal	0	0
	0	0
Percent of Age Range	0.0%	0.0%

Source of Fusion Ages: Silver 1969; Chaplin 1970; Maltby 1979.

Table 21
Age Distribution Based on Epiphyseal Fusion
Pit 9
***Bos taurus* (Domestic Cattle)**
N=2

Age of Fusion - 0 to 12 Months

Bone and Epiphysis	Fused	Not Fused
Scapula	0	0
Innominate	2	0
	2	0
Percent of Age Range	100.0%	0.0%

Age of Fusion - 12 to 24 Months

Bone and Epiphysis	Fused	Not Fused
Humerus - distal	0	0
Radius - proximal	0	0
First Phalange - proximal	0	0
Second Phalange - proximal	0	0
	0	0
Percent of Age Range	0.0%	0.0%

Age of Fusion - 24 to 36 Months

Bone and Epiphysis	Fused	Not Fused
Metacarpal	0	0
Tibia - distal	0	0
Metatarsal	0	0
Metapodial	0	0
	0	0
Percent of Age Range	0.0%	0.0%

Age of Fusion - 36 to 48 Months

Bone and Epiphysis	Fused	Not Fused
Humerus - proximal	0	0
Ulna - proximal	0	0
Ulna - distal	0	0
Radius - distal	0	0
Femur - proximal	0	0
Femur - distal	0	0
Tibia - proximal	0	0
Calcaneus	0	0
	0	0
Percent of Age Range	0.0%	0.0%

Source of Fusion Ages: Silver 1969; Chaplin 1970; Maltby 1979.

APPENDIX C
AGE DISTRIBUTION DATA FOR COMBINED FEATURES
JAMESTOWN

Table 22
Age Distribution Based on Epiphyseal Fusion
All Features Combined
***Sus scrofa* (Domestic Pig)**
N=31

Age of Fusion - 0 to 12 Months		
Bone and Epiphysis	**Fused**	**Not Fused**
Scapula	0	5
Innominate	3	2
Humerus - distal	0	0
Radius - proximal	0	1
Second phalange - proximal	0	1
	3	9
Percent of Age Range	25.0%	75.0%

Age of Fusion - 12 to 24 Months		
Bone and Epiphysis	**Fused**	**Not Fused**
Metacarpal	0	3
First phalange - proximal	0	0
Tibia - distal	0	0
	0	3
Percent of Age Range	0.0%	100.0%

Age of Fusion - 24 to 36 Months		
Bone and Epiphysis	**Fused**	**Not Fused**
Calcaneus	0	3
Metatarsal	0	0
Fibula - distal	0	0
	0	3
Percent of Age Range	0.0%	100.0%

Age of Fusion - 36 to 42 Months		
Bone and Epiphysis	**Fused**	**Not Fused**
Humerus - proximal	0	2
Radius - distal	1	2
Ulna - proximal	0	1
Ulna - distal	0	0
Femur - proximal	0	2
Femur - distal	1	0
Tibia - proximal	0	2
Fibula - proximal	0	2
	2	11
Percent of Age Range	15.4%	84.6%

Source of Fusion Ages: Silver 1969; Chaplin 1970; Maltby 1979.

Table 23
Age Distribution Based on Epiphyseal Fusion
All Features Combined
***Bos taurus* (Domestic Cattle)**
N=2

Age of Fusion - 0 to 12 Months		
Bone and Epiphysis	**Fused**	**Not Fused**
Scapula	0	0
Innominate	5	0
	5	0
Percent of Age Range	100.0%	0.0%

Age of Fusion - 12 to 24 Months		
Bone and Epiphysis	**Fused**	**Not Fused**
Humerus - distal	0	0
Radius - proximal	0	0
First Phalange - proximal	0	0
Second Phalange - proximal	0	0
	0	0
Percent of Age Range	0.0%	0.0%

Age of Fusion - 24 to 36 Months		
Bone and Epiphysis	**Fused**	**Not Fused**
Metacarpal	0	0
Tibia - distal	0	0
Metatarsal	0	0
Metapodial	0	0
	0	2
Percent of Age Range	0.0%	100.0%

Age of Fusion - 36 to 48 Months		
Bone and Epiphysis	**Fused**	**Not Fused**
Humerus - proximal	0	0
Ulna - proximal	0	0
Ulna - distal	0	0
Radius - distal	0	0
Femur - proximal	0	0
Femur - distal	0	1
Tibia - proximal	0	0
Calcaneus	0	1
	0	2
Percent of Age Range	0.0%	100.0%

Source of Fusion Ages: Silver 1969; Chaplin 1970; Maltby 1979.

APPENDIX D
ELEMENT DISTRIBUTIONS

Structure 166, Pit 5, Pit 8
Pit 9, Pit 10, Pit 11

Table 24
Structure 166
Element Distribution

	Head		Body		Feet		
	No.	**%**	**No.**	**%**	**No.**	**%**	**NISP**
Cattle Normal		**29.7**		**42.2**		**28.1**	
Structure 166	0	0.0	4	100.0	0	0.0	4
Swine Normal		**28.2**		**34.5**		**37.3**	
Structure 166	1	20.0	1	20.0	3	60.0	5
Sheep/Goat Normal		**29.7**		**42.2**		**28.1**	
Structure 166	0	0.0	0	0.0	0	0.0	0

Table 25
Pit 5
Element Distribution

	Head		Body		Feet		
	No.	**%**	**No.**	**%**	**No.**	**%**	**NISP**
Cattle Normal		**29.7**		**42.2**		**28.1**	
Pit 5	0	0.0	9	81.8	2	18.2	11
Swine Normal		**28.2**		**34.5**		**37.3**	
Pit 5	51	37.2	69	50.4	17	12.4	137
Sheep/Goat Normal		**29.7**		**42.2**		**28.1**	
Pit 5	0	0.0	0	0.0	0	0.0	0

Table 26
Pit 8
Element Distribution

	Head		Body		Feet		
	No.	**%**	**No.**	**%**	**No.**	**%**	**NISP**
Cattle Normal		**29.7**		**42.2**		**28.1**	
Pit 8	2	9.1	11	50.0	9	40.9	22
Swine Normal		**28.2**		**34.5**		**37.3**	
Pit 8	27	67.5	8	20.0	5	12.5	40
Sheep/Goat Normal		**29.7**		**42.2**		**28.1**	
Pit 8	1	100.0	0	0.0	0	0.0	1

Table 27
Pit 9
Element Distribution

	Head		Body		Feet		
	No.	**%**	**No.**	**%**	**No.**	**%**	**NISP**
Cattle Normal		**29.7**		**42.2**		**28.1**	
Pit 9	0	0.0	9	100.0	0	0.0	9
Swine Normal		**28.2**		**34.5**		**37.3**	
Pit 9	1	12.5	1	12.5	6	75.0	8
Sheep/Goat Normal		**29.7**		**42.2**		**28.1**	
Pit 9	0	0.0	0	0.0	0	0.0	0

Table 28
Pit 10
Element Distribution

	Head		Body		Feet		
	No.	**%**	**No.**	**%**	**No.**	**%**	**NISP**
Cattle Normal		**29.7**		**42.2**		**28.1**	
Pit 10	0	0.0	1	100.0	0	0.0	1
Swine Normal		**28.2**		**34.5**		**37.3**	
Pit 10	0	0.0	0	0.0	0	0.0	0
Sheep/Goat Normal		**29.7**		**42.2**		**28.1**	
Pit 10	0	0.0	0	0.0	0	0.0	0

Table 29
Pit 11
Element Distribution

	Head		Body		Feet		
	No.	**%**	**No.**	**%**	**No.**	**%**	**NISP**
Cattle Normal		**29.7**		**42.2**		**28.1**	
Pit 11	1	16.7	5	83.3	0	0.0	6
Swine Normal		**28.2**		**34.5**		**37.3**	
Pit 11	0	0.0	0	0.0	0	0.0	0
Sheep/Goat Normal		**29.7**		**42.2**		**28.1**	
Pit 11	0	0.0	0	0.0	0	0.0	0

APPENDIX E
BONE MEASUREMENTS

Structure 166, Pit 5, Pit 8
Pit 9, Pit 10, Pit 11

Key to Bone Measurements
From
A Guide to the Measurement of Animal Bones From Archaeological Sites
By Anglea Von Den Driesch

Scapula
- GLp – Greatest length of the Processus articularis
- LG – Length of the glenoid cavity
- BG – Breadth of the glenoid cavity
- SLC – Smallest length of neck of scapula

Humerus
- Bd – Greatest breadth of the distal end
- SD – Smallest breadth of the diaphysis

Radius
- Bd – Greatest breadth of the distal end

Ulna
- DPA-Depth across the Processus anconaeus
- BPC-Greatest breadth across the coronoid process

Innominate
- LA-Length of the acetabulum including the lip

Femur
- SD - Smallest breadth of the diaphysis

Tibia
- Bp – Greatest breadth of the proximal end
- SD – Smallest breadth of the diaphysis

Astragalus
- GLl – Greatest length of the lateral half

Metapodials
- B – Breadth in the middle of the diaphysis
- Bp – Greatest breadth of the proximal end

Phalanx I
- SD – Smallest breadth of the diaphysis
- Bd – Grestest breadth of the distal end

Table 30
Bone Measurements
Jamestown, 1607-1610 Assemblages

UBNo.	ER#	Taxon	Element	Description	Measurement (mm)
Structure 166					
17355	409N	*Bos taurus*	Innominate	LA	62.5
Pit 5					
17832	731B	*Sus scrofa*	Ulna	BPC	18.3
17838	731B	*Sus scrofa*	Metapodial	B	10.4
				Bp	16.6
18331	731C	*Sus scrofa*	Femur	SD	20.4
18311	731C	*Sus scrofa*	Metapodial	B	15.4
				Bp	20.4
17857	731B	*Odocoileus virginianus*	Scapula	GLp	30.7
				LG	28.9
				BG	30.7
				SLC	24.8
18490	731F	*Odocoileus virginianus*	Tibia	SD	19.9
Pit 8					
16260	1795G	*Sus scrofa*	Astragalus	GL	38.9
13962	1795B	*Bos taurus*	Astragalus	GL	72.8
15469	1795E	*Bos taurus*	Innominate	LA	67.3
14651	1795D	*Odocoileus virginianus*	Radius	Bd	26.9
15497	1795E	*Odocoileus virginianus*	Tibia	SD	21.7
16032	1795F	*Odocoileus virginianus*	Tibia	Bp	63.2
16612	1795H	*Odocoileus virginianus*	Tibia	SD	25.5
Pit 9					
13343	1530B	*Odocoileus virginianus*	Phalange	SD	11.1
				Bd	13.3
13345	1530B	*Odocoileus virginianus*	Phalange	SD	10.8
				Bd	9.9
13078	1530C	*Odocoileus virginianus*	Tibia	Bp	53.6
				SD	26.5
Pit 11					
13526	1220C	*Odocoileus virginianus*	Scapula	GLP	41.6
				LG	33.7
				BG	29.2
				SLC	24.4
13524	1220C	*Odocoileus virginianus*	Ulna	BPC	21.1
				DPA	36.2
13522	1220C	*Odocoileus virginianus*	Humerus	Bd	37.6
				SD	18.3
13676	1220D	*Odocoileus virginianus*	Scapula	GLP	41.0
				LG	34.2
				BG	30.0
				SLC	25.0

APPENDIX F
LIST OF BONES BY CONTEXT

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
Contexts Related to Structure 166					
Context: 1111A					
16894	Order Testudines		Carapace	1	0.6
Context: 1113C					
16893	Class Mammalia		Indeterminate	1	0.1
Context: 409A					
17000	Class Mammalia		Indeterminate	1	9.2
16866	Class Mammalia	I	Indeterminate	45	4.0
Context: 409B					
16889	Class Mammalia		Indeterminate	2	0.1
Context: 409C					
17001	*Lepisosteus* spp.	I	Scale	3	0.2
16856	Class Aves		Limb bone	1	0.2
17003	Class Mammalia		Cranium	1	4.4
16858	Class Mammalia		Indeterminate	9	2.9
17004	Class Mammalia I		Indeterminate	1	5.0
16855	Class Mammalia II		Vertebra	7	8.1
16857	Class Mammalia III		Limb bone	1	0.6
17002	*Castor canadensis*	L	Mandible	1	7.2
Context: 409D					
16860	*Acipenser* spp.		Scute	7	0.9
17009	*Acipenser* spp.	I	Scute	7	11.0
17008	*Lepisosteus* spp.	I	Scale	19	1.0
16863	Order Testudines		Carapace	1	0.4
16861	Class Aves/Mammalia III		Limb bone	5	4.4
17019	Class Aves/Mammalia III		Indeterminate	1	0.4
17011	cf. *Anser* spp.	L	Ulna	1	1.0
16859	Class Mammalia		Indeterminate	43	3.1
16865	Class Mammalia		Indeterminate	102	11.9
17012	Class Mammalia		Indeterminate	1	5.1
17018	Class Mammalia		Indeterminate	1	17.6
16864	Class Mammalia I		Rib	4	13.8
17014	Class Mammalia II	I	Scapula	2	5.9
16862	Class Mammalia II		Limb bone	1	0.9
17016	Class Mammalia II		Limb bone	1	1.8

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
17020	Order Artiodactyla II	I	Premolar or molar	3	1.2
17021	*Sus scrofa*	I	Premolar or molar	1	0.1
17015	cf. *Bos taurus*	I	Scapula	1	13.1
Context: 409E					
16875	Class Osteichthyes		Vertebra	2	0.0
17064	Class Osteichthyes		Scale	19	0.1
16876	Class Osteichthyes		Indeterminate	10	0.2
16867	*Acipenser* spp.	I	Scute	10	9.6
17063	*Lepisosteus* spp.		Scale	48	1.7
17090	Family Ictaluridae	L	Cleithrum	1	0.0
17091	Family Ictaluridae	A	Vertebra	1	0.1
17089	Family Ictaluridae	L	Pectoral spine	1	0.1
17092	*Morone americana*	L	Preopercular	1	0.1
16878	Order Testudines		Carapace	1	0.2
16877	Class Aves/Mammalia III		Limb bone	15	1.2
16871	Class Mammalia		Tooth	1	0.1
16872	Class Mammalia		Indeterminate	174	22.4
16874	Class Mammalia		Indeterminate	27	1.4
16869	Class Mammalia I		Limb bone	2	3.0
16870	Class Mammalia II		Lepidotrich	5	3.0
16868	Class Mammalia II		Limb bone	8	7.7
16873	Class Mammalia II		Limb bone	4	3.1
17098	Class Mammalia III	I	Phalanx	1	0.1
17095	*Didelphis virginiana*	A	Thoracic vertebra	1	1.5
17071	cf. *Sciurus* spp.	I	Bulla tympanica	1	0.0
17069	*Sciurus* spp.	I	Incisor	2	0.2
17070	*Sciurus* spp.	I	Premolar or molar	1	0.0
17066	*Sciurus* spp.	A	Vertebra	1	0.1
17067	cf. *Sciurus* spp.	I	First phalanx	1	0.0
17096	*Sciurus carolinensis*	L	Mandible	1	0.2
17068	*Castor canadensis*	I	Premolar or molar	1	0.6
17076	*Castor canadensis*	R	Femur	1	7.4
17082	*Castor canadensis*	R	Femur	1	2.2
17072	Family Cricetidae	I	Premolar or molar	1	0.0
17701	*Canis* spp.	R	Innominate	1	5.6
17097	cf. *Procyon lotor*	I	Phalanx	1	0.2
17085	Order Artiodactyla I	I	Scapula	1	1.1
17077	Order Artiodactyla I	I	Scapula	1	1.7
17075	*Sus scrofa*	L	Calcaneus	1	5.6
17079	*Sus scrofa*	R	Calcaneus	1	7.8
17081	cf. *Sus scrofa*	L	Astragalus	1	5.6
17078	*Sus scrofa*	A	Caudal vertebra	1	6.3
17094	*Odocoileus virginianus*	I	Premolar	1	0.4
17080	*Odocoileus virginianus*	L	Scapula	1	12.4

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
17087	*Odocoileus virginianus*	L	Femur	1	8.1
17083	*Odocoileus virginianus*	I	Carpal or tarsal	1	3.9
17084	*Odocoileus virginianus*	I	Carpal or tarsal	1	2.2
17088	cf. *Bos taurus*	A	Thoracic vertebra	1	13.1
Context: 409F					
16890	Class Mammalia		Indeterminate	6	1.1
Context: 409G					
16882	Class Mammalia		Indeterminate	10	1.2
Context: 409H					
16888	Class Osteichthyes		Spine	2	0.5
17153	*Acipenser* spp.	I	Scute	15	13.9
17154	*Lepisosteus* spp.		Scale	58	3.8
16885	Class Aves		Limb bone	8	1.4
16886	Class Mammalia		Indeterminate	30	3.6
16887	Class Mammalia		Indeterminate	33	3.9
16884	Class Mammalia II		Vertebra	7	6.2
Context: 409K					
16880	Class Osteichthyes		Indeterminate	5	5.9
17239	*Acipenser* spp.	I	Scute	4	8.5
16879	*Acipenser* spp.	I	Indeterminate	3	4.4
17238	*Lepisosteus* spp.	I	Scale	6	0.1
17240	*Branta canadensis*	L	Cuneiform	1	0.3
17241	*Branta canadensis*	L	Carpometacarpus	1	3.8
16881	Class Mammalia		Indeterminate	28	4.7
Context: 409L					
17263	*Acipenser* spp.	I	Scute	12	13.5
17264	*Lepisosteus* spp.	I	Scale	21	0.9
17265	Class Aves		Limb bone	1	1.6
16891	Class Mammalia		Indeterminate	4	0.2
16892	Class Mammalia		Indeterminate	9	0.4
17266	*Canis* spp.	A	Cervical vertebra	1	2.3
Context: 409M					
16900	Class Osteichthyes		Vertebra	1	0.1
17304	*Acipenser* spp.	I	Scute	10	7.4
17303	*Lepisosteus* spp.	I	Scale	22	2.0
16899	Class Mammalia		Indeterminate	8	0.9

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
16901	Class Mammalia		Indeterminate	32	4.6
17310	cf. *Canis* spp.	I	Ungual phalanx	1	0.1
17311	cf. *Canis* spp.	I	Third phalanx	1	0.2
17308	*Procyon lotor*	L	Mandible	1	10.2
17305	*Bos taurus*	A	Lumbar vertebra	1	27.0
Context: 409N					
17422	Class Osteichthyes		Spine	1	0.3
16903	Class Osteichthyes		Indeterminate	4	2.2
17350	*Acipenser* spp.	I	Scute	10	11.6
17349	*Lepisosteus* spp.	I	Scale	45	4.2
17348	*Lepisosteus* spp.	I	Scale	43	4.1
17421	cf. Family Centrarchidae	L	Premaxilla	1	0.4
17424	cf. Family Centrarchidae	R	Premaxilla	1	0.5
16905	Order Testudines		Carapace	81	0.4
16902	Order Testudines	I	Carapace	83	0.3
17363	Family Cheloniidae	A	Carapace	7	10.9
17364	Family Cheloniidae	A	Carapace	1	4.5
17367	Family Cheloniidae	A	Carapace	8	20.0
17368	cf. Family Cheloniidae	I	Carapace	13	53.0
17376	cf. Family Cheloniidae	I	Carapace	105	69.7
17420	*Pterodroma cahow*		Phalanx I, digit II	1	0.1
17419	*Pterodroma cahow*		Femur	1	0.2
16904	Class Mammalia		Indeterminate	167	11.7
16906	Class Mammalia		Indeterminate	2	0.1
17426	Class Mammalia		Indeterminate	2	0.6
17418	Class Mammalia III		First phalanx	1	0.1
17425	*Sciurus niger*	R	Femur	1	1.5
17355	*Bos taurus*	R	Innominate	1	175.1
Context: 409Q					
16883	Class Aves/Mammalia III		Limb bone	1	0.6
17674	Class Mammalia		Indeterminate	2	2.3
Context: 409R					
16897	Class Osteichthyes		Vertebra	1	0.1
16895	Class Osteichthyes		Spine	10	0.1
16898	Class Osteichthyes		Indeterminate	2	0.0
17676	*Lepisosteus* spp.		Scale	4	0.1
16896	Class Mammalia		Indeterminate	29	2.5
18799	*Sciurus carolinensis*	L	Mandible	1	0.1

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
Contexts Related to Pit 5					
Context: 731A					
18981	Class Osteichthyes		Vertebra	30	3.3
18988	Class Osteichthyes		Rib	7	0.3
18987	Class Osteichthyes		Spine	8	1.4
17738	Class Osteichthyes	I	Spine	2	0.2
18980	Class Osteichthyes		Scale	33	0.6
18982	Class Osteichthyes		Scale	9	0.1
18984	Class Osteichthyes		Indeterminate	35	10.2
18994	*Acipenser* spp.		Spine	1	0.7
17705	*Acipenser* spp.	I	Spine	1	2.1
17684	*Acipenser* spp.		Scute	103	49.2
17683	*Lepisosteus* spp.		Vertebra	1	0.3
17682	*Lepisosteus* spp.		Scale	8	0.8
17736	Family Catostomidae	R	Opercular	1	0.2
17737	Family Catostomidae	I	Pharyngeal plate	1	0.1
17735	Family Ictaluridae		Cranium	1	0.1
17732	Family Ictaluridae	R	Hyomandibular	1	0.4
17734	Family Ictaluridae	I	Cleithrum	1	0.3
17733	Family Ictaluridae	L	Cleithrum	1	0.2
17731	Family Ictaluridae	L	Pectoral spine	1	0.4
17691	cf. *Morone* spp.	R	Dentary	1	0.1
18115	Order Testudines	A	Carapace	5	1.1
18116	Order Testudines	A	Carapace	3	0.6
17703	*Chrysemys* spp.	A	Carapace	3	8.1
18983	Class Aves		Limb bone	55	17.4
18991	Class Aves		Limb bone	6	1.5
17746	Class Aves		Limb bone	3	0.9
17722	Class Aves	R	Tarsometatarsus	1	0.5
17729	*Branta canadensis*	L	Mandible	1	0.6
17717	*Branta canadensis*	R	Mandible	1	1.3
17720	*Branta canadensis*	L	Radius	1	0.3
17721	*Branta canadensis*	L	Phalanx I, digit II	1	0.8
17724	*Branta canadensis*	L	Femur	1	4.9
17725	Anas spp.	R	Radius	1	0.2
17730	cf. Duck spp.	I	Mandible	1	0.3
17728	Duck spp.	A	Sternum or sternabrae	1	0.2
17727	Duck spp.	R	Radius	1	0.3
17726	Duck spp.	R	Carpometacarpus	1	0.4
17743	Goose spp.	A	Cervical vertebra	2	0.5
17716	Goose spp.	L	Tibiotarsus	1	1.9
17713	Goose spp.	L	Tibiotarsus	1	0.9
17714	cf. *Meleagris gallopavo*	I	Humerus	1	4.3

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
17723	*Gallus gallus*	L	Tibiotarsus	1	1.2
17718	cf. *Gallus gallus*	L	Tibiotarsus	1	0.5
17715	*Gallus gallus*	R	Tibiotarsus	1	0.7
17748	*Pterodroma cahow*	L	Coracoid	1	0.3
18992	Class Mammalia		Indeterminate	13	5.5
19000	Class Mammalia		Indeterminate	81	48.1
19001	Class Mammalia		Indeterminate	25	5.1
18997	Class Mammalia I		Rib	5	18.7
18996	Class Mammalia I		Limb bone	7	43.8
18999	Class Mammalia I		Limb bone	4	7.0
18986	Class Mammalia II		Cranium	15	7.8
18993	Class Mammalia II		Vertebra	6	3.0
17700	Class Mammalia II		Vertebra	1	6.5
18998	Class Mammalia II		Rib	5	3.8
18989	Class Mammalia II		Limb bone	6	5.7
18995	Class Mammalia II		Limb bone	19	37.2
18530	Class Mammalia II		Limb bone	1	2.3
17708	Class Mammalia II		Limb bone	1	1.0
18985	Class Mammalia III		Cranium	3	0.8
17553	Class Mammalia III		Mandible	1	0.8
18990	Class Mammalia III		Rib	4	1.8
17712	Class Mammalia III		First phalanx	1	0.0
17711	Class Mammalia III		Indeterminate	1	0.1
17750	*Sciurus carolinensis*	R	Innominate	1	0.2
17754	*Sciurus carolinensis*	R	Tibia	1	0.4
17686	Family Cricetidae	L	Innominate	1	0.0
17752	cf. *Urocyon cinereoargenteus*	I	Metapodial	1	0.1
17687	Family Ursidae	I	First phalanx	1	2.8
17693	Family Ursidae	I	Second phalanx	1	2.6
17688	Family Ursidae	I	Second phalanx	1	2.6
17751	Family Ursidae	I	Fourth phalanx	1	1.3
17753	*Procyon lotor*	L	Meatus acusticus internus	1	1.4
17749	*Procyon lotor*	R	Radius	1	0.5
17709	*Procyon lotor*	R	Astragalus	1	0.7
17710	cf. *Procyon lotor*	I	Metapodial	1	0.3
17699	*Equus* spp.	L	Lower molar 2 or 3	1	35.1
17702	*Sus scrofa*	R	Temporal	1	6.5
17692	*Sus scrofa*	I	Premolar	1	0.2
17005	*Sus scrofa*	L	Upper premolar 2	1	9.6
17694	*Sus scrofa*	L	Innominate	1	10.6
17695	*Sus scrofa*	R	Innominate	1	14.0
17704	*Sus scrofa*	R	Femur	1	4.7
17706	cf. *Sus scrofa*	L	Calcaneus	1	3.5
17707	cf. *Sus scrofa*	I	Carpal or tarsal	1	0.8
17697	*Bos taurus*	A	Sacrum	1	30.8
17696	*Bos taurus*	I	Scapula	1	28.5

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
17689	*Bos taurus*	I	Metapodial	2	12.4
Context: 731B					
17926	*Callinectes sapidus*	I	Claw	3	0.4
18103	Order Lamniformes	A	Vertebra	4	8.8
18903	Order Lamniformes	A	Vertebra	1	0.7
16967	Class Osteichthyes		Vertebra	1	0.2
16991	Class Osteichthyes		Vertebra	80	11.6
16992	Class Osteichthyes		Vertebra	1	0.4
18218	Class Osteichthyes		Vertebra	1	0.4
16994	Class Osteichthyes		Rib	55	2.6
16989	Class Osteichthyes		Spine	46	10.1
16993	Class Osteichthyes		Spine	14	0.8
18221	Class Osteichthyes	I	Spine	2	0.2
18255	Class Osteichthyes	I	Spine	3	0.5
16970	Class Osteichthyes		Scale	3	0.9
16987	Class Osteichthyes		Scale	26	0.4
16988	Class Osteichthyes		Scale	5	0.0
16961	Class Osteichthyes		Indeterminate	26	13.0
16990	Class Osteichthyes		Indeterminate	11	0.4
16995	Class Osteichthyes		Indeterminate	66	14.1
16996	Class Osteichthyes		Indeterminate	15	0.4
16998	Class Osteichthyes		Indeterminate	21	2.1
18044	*Acipenser* spp.	I	Scute	115	295.0
18043	*Acipenser* spp.	I	Scute	397	255.4
18045	*Acipenser* spp.	I	Scute	3	0.1
18046	*Acipenser* spp.	I	Scale	1	0.3
18277	*Acipenser* spp.	I	Indeterminate	13	25.7
18112	*Lepisosteus* spp.	A	Cranium	1	0.1
18206	*Lepisosteus* spp.	A	Vertebra	1	0.2
17797	*Lepisosteus* spp.	I	Scale	10	0.5
18105	Family Anguillidae	L	Dentary/premaxilla	1	0.1
18216	Family Catostomidae	I	Frontal	1	0.2
18208	Family Catostomidae	L	Hyomandibular	2	0.2
18207	Family Catostomidae	L	Opercular	1	0.1
18092	Family Catostomidae	I	Subopercular	1	0.1
18214	Family Catostomidae	R	Cleithrum	1	0.3
18247	Family Ictaluridae	A	Frontal	1	0.1
18224	Family Ictaluridae	R	Hyomandibular	1	0.1
18223	Family Ictaluridae	R	Ceratohyal	1	0.1
18245	Family Ictaluridae	L	Cleithrum	2	0.2
18246	Family Ictaluridae	R	Cleithrum	2	0.3
18259	Family Ictaluridae	L	Angular	1	0.1
18244	Family Ictaluridae	A	Complex vertebra	1	0.7
18258	Family Ictaluridae	A	Complex vertebra	1	0.3

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
18107	Family Ictaluridae	L	Pectoral spine	4	0.7
18108	Family Ictaluridae	R	Pectoral spine	5	0.8
18109	Order Gadiformes	L	Posttemporal	1	0.3
18110	Order Gadiformes	R	Posttemporal	1	0.2
18217	*Lepomis* spp.	R	Opercular	1	0.1
18240	*Morone americana*	L	Premaxilla	1	0.0
18242	*Morone americana*	R	Premaxilla	1	0.0
18233	*Morone americana*	L	Maxilla	1	0.0
18211	*Morone americana*	A	Vomer	1	0.1
18239	*Morone americana*	I	Frontal	1	0.0
18238	*Morone americana*	R	Frontal	1	0.1
18235	*Morone americana*	L	Hyomandibular	1	0.1
18234	*Morone americana*	R	Hyomandibular	3	0.1
18254	*Morone americana*	L	Opercular	4	0.5
18253	*Morone americana*	R	Opercular	4	0.3
18252	*Morone americana*	L	Preopercular	5	0.4
18251	*Morone americana*	R	Preopercular	5	0.3
18250	*Morone americana*	L	Subopercular	2	0.2
18236	*Morone americana*	L	Interopercular	1	0.0
18237	*Morone americana*	R	Interopercular	1	0.0
18210	*Morone americana*	L	Cleithrum	1	0.1
18209	*Morone americana*	R	Cleithrum	2	0.2
18249	*Morone americana*	A	Supraoccipital	1	0.0
18241	*Morone americana*	R	Dentary	1	0.1
18213	*Morone americana*	L	Angular	2	0.2
18212	*Morone americana*	L	Scapula	1	0.1
18248	*Morone* spp.	R	Ceratohyal	1	0.0
18140	Order Testudines		Vertebra	1	0.5
18144	Order Testudines		Vertebra	1	0.1
18022	Order Testudines	A	Thoracic vertebra	1	0.1
18139	Order Testudines		Carapace	6	2.8
18117	Order Testudines		Carapace	5	3.5
18136	Order Testudines	A	Carapace	68	18.7
18135	Family Kinosternidae	A	Carapace	0	0.4
18138	Family Kinosternidae	A	Carapace	3	1.8
18137	Family Kinosternidae	A	Plastron	3	1.5
18141	cf. Family Kinosternidae	L	Humerus	1	0.1
18143	cf. *Terrapene carolina*	L	Innominate	1	0.3
18123	*Terrapene carolina*	A	Carapace	3	5.8
18124	*Terrapene carolina*	A	Carapace	3	5.7
18125	*Terrapene carolina*	A	Carapace	3	10.1
18126	*Terrapene carolina*	A	Carapace	4	5.8
18127	*Terrapene carolina*	A	Carapace	13	10.7
18128	*Terrapene carolina*	A	Carapace	6	3.3
18129	*Terrapene carolina*	A	Carapace	3	5.5
18130	*Terrapene carolina*	A	Carapace	30	12.4

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
18131	*Terrapene carolina*	A	Carapace	1	0.7
18132	*Terrapene carolina*	A	Carapace	5	2.6
18134	*Terrapene carolina*	A	Plastron	4	3.1
18142	cf. *Terrapene carolina*	R	Femur	1	0.3
18272	Class Aves			1	0.1
17872	Class Aves	L	Mandible	1	0.1
18084	Class Aves	R	Coracoid	1	0.2
17887	Class Aves	L	Humerus	1	0.2
17886	Class Aves	R	Humerus	1	0.2
18270	Class Aves	L	Ulna	1	0.1
18271	Class Aves	R	Ulna	1	0.1
17786	Class Aves	L	Radius	1	0.1
17882	Class Aves	R	Radius	1	0.1
17785	Class Aves	R	Radius	1	0.1
17787	Class Aves	R	Radius	1	0.0
17919	Class Aves	L	Carpometacarpus	1	8.9
16962	Class Aves		Limb bone	3	1.2
16975	Class Aves		Limb bone	97	27.7
16979	Class Aves		Limb bone	6	2.1
16980	Class Aves		Limb bone	2	0.8
18075	Class Aves		Limb bone	4	2.0
18077	Class Aves		Limb bone	1	0.8
18017	Class Aves		Limb bone	1	0.3
17953	Class Aves		Limb bone	1	0.4
17885	Class Aves	L	Tibiotarsus	1	0.1
18276	Class Aves	L	Tarsometatarsus	1	0.2
17789	Class Aves	L	Tarsometatarsus	1	0.1
16964	Class Aves		Indeterminate	10	2.7
16978	Class Aves		Indeterminate	32	4.7
18111	Class Aves		Indeterminate	1	0.2
17899	Class Aves		Indeterminate	1	0.4
16977	Class Aves/Mammalia III		Rib	8	0.9
18055	*Cygnus* spp.	L	Tibiotarsus	1	4.4
17866	*Branta canadensis*	R	Ulna	1	2.0
18061	*Branta canadensis*	L	Phalanx I, digit II	1	0.9
18062	*Branta canadensis*	R	Phalanx I, digit II	1	1.2
18069	*Branta canadensis*	L	Phalanx 2, digit II	1	0.3
17896	*Anas* spp.	R	Humerus	1	0.7
17920	*Anas* spp.	R	Carpometacarpus	1	1.0
18056	*Aythya* spp.	R	Humerus	1	2.1
17923	Duck spp.	I	Mandible	1	0.6
17918	Duck spp.	I	Mandible	1	0.4
18286	Duck spp.	A	Sternum or sternabrae	1	0.3
17892	Duck spp.	A	Furculum	1	0.2
18082	Duck spp.	L	Coracoid	1	0.6
18076	Duck spp.	I	Humerus	1	1.3

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
18070	Duck spp.	R	Humerus	1	0.3
17952	Duck spp.	L	Ulna	1	0.4
17795	Duck spp.		Radius	1	0.1
18013	Duck spp.	L	Radius	1	0.2
17884	Duck spp.	R	Phalanx I, digit II	1	0.2
18097	Duck spp.	R	Phalanx I, digit II	1	0.0
18098	Duck spp.	I	Phalanx 2, digit II	1	0.1
17980	Duck spp.	L	Tibiotarsus	1	0.3
17985	Duck spp.	R	Tibiotarsus	1	0.4
18051	Duck spp.	L	Tarsometatarsus	1	0.2
18052	Duck spp.	L	Tarsometatarsus	1	0.1
17950	Duck spp.	R	Tarsometatarsus	1	0.2
18121	Goose spp.	R	Dentary	1	1.2
17864	Goose spp.	R	Mandible	1	0.5
17869	Goose spp.	A	Sternum or sternabrae	1	1.3
17863	Goose spp.	A	Sternum or sternabrae	1	0.5
18063	Goose spp.	R	Phalanx I, digit II	1	0.5
17951	Family Accipitridae	L	Ulna	1	0.4
17925	Family Accipitridae	R	Ulna	1	0.6
18064	Family Accipitridae	I	Ungual phalanx	1	0.6
17993	*Meleagris gallopavo*	A	Sternum or sternabrae	1	13.5
17908	*Meleagris gallopavo*	R	Ulna	1	1.2
17876	*Gallus gallus*	R	Scapula	1	0.5
17873	*Gallus gallus*	L	Coracoid	1	0.9
18073	cf. *Gallus gallus*	I	Humerus	1	0.5
18053	*Gallus gallus*	L	Humerus	1	0.8
17921	*Gallus gallus*	L	Humerus	1	1.4
17893	*Gallus gallus*	R	Humerus	1	1.0
17978	*Gallus gallus*	L	Ulna	1	0.2
17878	*Gallus gallus*	I	Radius	1	0.2
17905	*Gallus gallus*	R	Radius	1	0.5
17875	*Gallus gallus*	L	Femur	1	0.9
17910	*Gallus gallus*	R	Femur	1	0.5
17870	*Gallus gallus*	L	Tibiotarsus	1	1.4
17895	*Gallus gallus*	L	Tibiotarsus	1	1.1
17907	*Gallus gallus*	L	Tibiotarsus	1	0.6
17909	*Gallus gallus*	L	Tibiotarsus	1	0.8
17888	*Gallus gallus*	R	Tibiotarsus	1	1.2
17889	Order Strigiformes	L	Innominate	1	0.8
18078	Order Passeriformes	L	Carpometacarpus	1	0.1
18079	Order Passeriformes	L	Carpometacarpus	1	0.1
18066	Order Passeriformes	L	Carpometacarpus	1	0.0
17927	Order Passeriformes	L	Tibiotarsus	1	0.0
17928	Order Passeriformes	R	Tibiotarsus	1	0.0
18274	*Corvus brachyrhynchos*	A	Synsacrum	1	0.4
17881	cf. *Corvus brachyrhynchos*	R	Ulna	1	0.4

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
17788	*Corvus brachyrhynchos*	R	Ulna	1	0.1
17890	*Corvus brachyrhynchos*	L	Carpometacarpus	1	0.4
18054	*Corvus brachyrhynchos*	R	Femur	1	0.2
18071	*Corvus brachyrhynchos*	R	Tarsometatarsus	1	0.4
18057	Family Ardeidae	R	Carpometacarpus	1	1.7
18284	cf. *Phalacrocorax* spp.	A	Sternum or sternabrae	1	0.3
18080	*Phalacrocorax* spp.	R	Coracoid	1	1.1
17847	*Phalacrocorax* spp.	R	Coracoid	1	0.6
18065	*Phalacrocorax* spp.	R	Humerus	1	0.8
17987	*Phalacrocorax* spp.		Radius	1	0.7
18096	*Pterodroma cahow*	L	Quadrate	1	0.1
18285	*Pterodroma cahow*	A	Sternum or sternabrae	1	0.1
18100	*Pterodroma cahow*	L	Scapula	1	0.2
18101	*Pterodroma cahow*	L	Scapula	1	0.1
18099	*Pterodroma cahow*	R	Scapula	1	0.1
18102	*Pterodroma cahow*	R	Scapula	1	0.1
18273	*Pterodroma cahow*	L	Coracoid	1	0.3
18089	*Pterodroma cahow*	R	Coracoid	1	0.2
18090	*Pterodroma cahow*	R	Coracoid	1	0.2
18091	*Pterodroma cahow*	R	Coracoid	1	0.1
17924	*Pterodroma cahow*	L	Humerus	1	0.6
17879	*Pterodroma cahow*	R	Humerus	1	0.6
18068	*Pterodroma cahow*	R	Humerus	1	0.3
17956	*Pterodroma cahow*	L	Tibiotarsus	1	0.2
18012	*Pterodroma cahow*	L	Tibiotarsus	1	0.1
16963	Class Mammalia		Indeterminate	255	57.7
16966	Class Mammalia		Indeterminate	19	7.4
16974	Class Mammalia		Indeterminate	51	12.6
16985	Class Mammalia		Indeterminate	43	52.1
16999	Class Mammalia		Indeterminate	82	8.1
17840	Class Mammalia		Indeterminate	1	2.6
17837	Class Mammalia		Indeterminate	1	2.9
17843	Class Mammalia		Indeterminate	1	0.9
17839	Class Mammalia		Indeterminate	1	3.0
17846	Class Mammalia		Indeterminate	1	1.3
18133	Class Mammalia		Indeterminate	1	0.8
16949	Class Mammalia I		Vertebra	3	7.4
16983	Class Mammalia I		Vertebra	4	12.0
16954	Class Mammalia I		Rib	6	84.9
16982	Class Mammalia I		Rib	4	10.5
16955	Class Mammalia I		Limb bone	2	17.5
16981	Class Mammalia I		Limb bone	24	100.4
16968	Class Mammalia II		Cranium	11	5.1
16951	Class Mammalia II		Vertebra	5	4.1
16952	Class Mammalia II		Vertebra	5	3.6
16960	Class Mammalia II		Vertebra	9	7.2

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
16972	Class Mammalia II		Vertebra	9	3.4
16984	Class Mammalia II		Vertebra	5	5.6
18002	Class Mammalia II		Vertebra	2	2.0
18007	Class Mammalia II		Vertebra	2	1.8
16956	Class Mammalia II		Rib	21	21.6
16958	Class Mammalia II		Rib	6	1.1
16973	Class Mammalia II		Rib	8	1.7
16959	Class Mammalia II		Limb bone	24	19.6
16971	Class Mammalia II		Limb bone	17	13.5
16976	Class Mammalia II		Limb bone	4	8.2
16986	Class Mammalia II		Limb bone	6	5.2
17854	Class Mammalia II		Indeterminate	1	3.6
16969	Class Mammalia III		Cranium	9	2.8
16997	Class Mammalia III		Cranium	8	1.0
16950	Class Mammalia III		Vertebra	12	9.4
16953	Class Mammalia III		Vertebra	13	2.9
18026	Class Mammalia III		Vertebra	6	0.2
17820	Class Mammalia III		Vertebra	2	0.1
16957	Class Mammalia III		Rib	27	7.9
16965	Class Mammalia III		Rib	5	0.4
17874	Class Mammalia III	I	First phalanx	1	0.4
17796	Class Mammalia III	I	First phalanx	1	0.4
18027	Class Mammalia III		Indeterminate	1	0.2
17906	*Didelphis virginiana*	I	Mandible	1	0.9
17813	*Didelphis virginiana*	L	Ulna	1	0.8
18205	Family Talpidae	L	Humerus	1	0.2
17997	*Sciurus* spp.	L	Mandible	1	0.5
17999	*Sciurus* spp.	L	Mandible	1	0.7
18003	*Sciurus* spp.	L	Mandible	1	0.3
18010	*Sciurus* spp.	L	Mandible	1	0.4
18001	*Sciurus* spp.	R	Mandible	1	0.5
18000	*Sciurus* spp.	R	Mandible	1	0.7
17929	*Sciurus* spp.	I	Incisor	4	0.4
18220	*Sciurus* spp.	I	Incisor	7	1.2
18095	*Sciurus* spp.	I	Premolar or molar	15	0.3
17817	*Sciurus* spp.	A	Cervical vertebra	1	0.3
17818	cf. *Sciurus* spp.	A	Cervical vertebra	1	0.1
17819	cf. *Sciurus* spp.	A	Thoracic vertebra	1	0.1
18023	cf. *Sciurus* spp.	A	Caudal vertebra	6	0.3
17917	*Sciurus carolinensis*	L	Premaxilla	1	0.1
17891	*Sciurus carolinensis*	L	Maxilla	1	0.3
17849	*Sciurus carolinensis*	A	Frontal	1	0.6
17901	cf. *Sciurus carolinensis*	I	Frontal	1	0.3
17871	*Sciurus carolinensis*	A	Occipital	1	0.3
18047	*Sciurus carolinensis*	L	Meatus acusticus internus	2	0.5
18048	*Sciurus carolinensis*	R	Meatus acusticus internus	2	0.8

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
17914	*Sciurus carolinensis*	L	Mandible	1	0.1
17915	*Sciurus carolinensis*	L	Mandible	1	0.1
17867	*Sciurus carolinensis*	R	Mandible	1	0.4
17868	*Sciurus carolinensis*	R	Mandible	1	0.4
17913	*Sciurus carolinensis*	R	Mandible	1	0.1
17916	*Sciurus carolinensis*	R	Mandible	1	0.1
18019	*Sciurus carolinensis*	A	Atlas	1	0.1
18020	*Sciurus carolinensis*	A	Axis	1	0.1
18021	*Sciurus carolinensis*	A	Thoracic vertebra	1	0.1
17812	*Sciurus carolinensis*	L	Innominate	1	0.8
17811	*Sciurus carolinensis*	L	Innominate	1	0.4
18004	*Sciurus carolinensis*	L	Innominate	1	0.2
17806	*Sciurus carolinensis*	L	Innominate	1	0.2
18283	*Sciurus carolinensis*	R	Innominate	1	0.2
17808	*Sciurus carolinensis*	R	Innominate	1	0.6
17807	*Sciurus carolinensis*	R	Innominate	1	0.3
17815	*Sciurus carolinensis*	R	Innominate	1	0.3
17801	*Sciurus carolinensis*	R	Innominate	1	0.1
17912	*Sciurus carolinensis*	L	Scapula	1	0.1
17911	*Sciurus carolinensis*	R	Scapula	1	0.1
17962	*Sciurus carolinensis*	L	Humerus	1	0.7
17965	*Sciurus carolinensis*	L	Humerus	1	0.6
17963	*Sciurus carolinensis*	L	Humerus	1	0.6
17961	*Sciurus carolinensis*	L	Humerus	1	0.5
17957	*Sciurus carolinensis*	L	Humerus	1	0.2
17958	*Sciurus carolinensis*	L	Humerus	1	0.3
17805	*Sciurus carolinensis*	L	Humerus	1	0.3
17800	cf. *Sciurus carolinensis*	L	Humerus	1	0.2
17960	*Sciurus carolinensis*	R	Humerus	1	0.4
17959	*Sciurus carolinensis*	R	Humerus	1	0.4
17955	*Sciurus carolinensis*	R	Humerus	1	0.2
17966	*Sciurus carolinensis*	R	Humerus	1	0.2
17803	*Sciurus carolinensis*	L	Ulna	1	0.2
17996	*Sciurus carolinensis*	L	Ulna	1	0.1
17802	*Sciurus carolinensis*	R	Ulna	1	0.2
17804	*Sciurus carolinensis*	R	Ulna	1	0.2
17794	*Sciurus carolinensis*	L	Radius	1	0.1
18015	*Sciurus carolinensis*	R	Radius	1	0.2
18058	*Sciurus carolinensis*	L	Femur	1	0.3
17990	*Sciurus carolinensis*	L	Femur	1	0.9
17986	*Sciurus carolinensis*	L	Femur	1	0.6
17981	*Sciurus carolinensis*	L	Femur	1	0.4
17792	*Sciurus carolinensis*	L	Femur	1	0.3
17809	cf. *Sciurus carolinensis*	L	Femur	1	0.4
18074	*Sciurus carolinensis*	L	Femur	1	0.3
18059	*Sciurus carolinensis*	R	Femur	1	0.4

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
17988	*Sciurus carolinensis*	R	Femur	1	0.8
17984	*Sciurus carolinensis*	R	Femur	1	1.1
17991	*Sciurus carolinensis*	L	Tibia	1	0.7
17989	*Sciurus carolinensis*	L	Tibia	1	0.6
17979	*Sciurus carolinensis*	L	Tibia	1	0.5
17982	*Sciurus carolinensis*	L	Tibia	1	0.5
17983	*Sciurus carolinensis*	L	Tibia	1	0.2
18016	*Sciurus carolinensis*	L	Tibia	1	0.2
18008	*Sciurus carolinensis*	L	Tibia	1	0.3
17798	*Sciurus carolinensis*	L	Tibia	1	0.3
17810	*Sciurus carolinensis*	L	Tibia	1	0.9
17816	*Sciurus carolinensis*	L	Tibia	1	0.2
18014	*Sciurus carolinensis*	R	Tibia	1	0.2
17793	*Sciurus carolinensis*	R	Tibia	1	0.1
17858	*Sciurus carolinensis*	L	Calcaneus	1	0.1
17859	*Sciurus carolinensis*	R	Calcaneus	2	0.3
17860	*Sciurus carolinensis*	L	Astragalus	1	0.1
17861	*Sciurus carolinensis*	R	Astragalus	1	0.1
17930	*Sciurus carolinensis*	I	Metapodial	5	0.4
17931	*Sciurus carolinensis*	I	Phalanx	2	0.0
17814	*Sciurus niger*	R	Tibia	1	1.2
18280	Family Delphinidae	R	Mandible	1	15.4
17824	Family Delphinidae		Tooth	4	1.3
17948	Family Delphinidae	A	Vertebra	1	37.1
17937	Family Delphinidae	A	Vertebra	1	14.6
18018	*Canis* spp.	I	Canine	1	1.6
17972	cf. *Canis* spp.	R	Tibia	1	8.6
17844	*Canis* spp.	L	Calcaneus	1	2.1
17835	Family Ursidae	I	Fourth phalanx	1	2.2
17306	*Procyon lotor*	R	Temporal	1	3.4
17307	*Procyon lotor*	R	Meatus acusticus internus	1	0.8
17017	*Procyon lotor*	R	Mandible	2	2.6
18011	cf. *Procyon lotor*	A	Cervical vertebra	1	0.6
17994	cf. *Procyon lotor*	A	Thoracic vertebra	2	0.6
17946	*Procyon lotor*	A	Lumbar vertebra	1	1.2
18024	cf. *Procyon lotor*	A	Caudal vertebra	4	0.8
17845	*Procyon lotor*	L	Calcaneus	1	0.6
17968	cf. *Equus* spp.	I	Mandible	1	14.8
17971	*Equus* spp.	R	Upper premolar 1	1	49.1
17973	*Equus* spp.	R	Upper premolar 2	1	57.8
17938	Order Artiodactyla I	A	Thoracic vertebra	1	2.3
17900	Order Artiodactyla I	A	Thoracic vertebra	1	0.9
17945	Order Artiodactyla I	A	Lumbar vertebra	1	1.1
17897	Order Artiodactyla I	I	Carpal or tarsal	1	0.6
17848	*Sus scrofa*	R	Occipital	1	1.9
17904	*Sus scrofa*	I	Paramastoid process	1	0.4

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
17903	*Sus scrofa*	R	Paramastoid process	1	0.8
18005	*Sus scrofa*	L	Upper incisor	1	0.5
17826	*Sus scrofa*	R	Lower molar 1	1	1.0
17940	*Sus scrofa*	A	Cervical vertebra	1	3.5
17949	*Sus scrofa*	A	Cervical vertebra	1	1.2
17943	*Sus scrofa*	A	Cervical vertebra	1	1.7
18006	*Sus scrofa*	A	Thoracic vertebra	1	1.9
18009	*Sus scrofa*	A	Thoracic vertebra	1	0.1
17942	*Sus scrofa*	A	Thoracic vertebra	1	3.7
17944	*Sus scrofa*	A	Thoracic vertebra	1	2.3
17842	*Sus scrofa*	A	Thoracic vertebra	1	1.7
17947	*Sus scrofa*	A	Thoracic vertebra	1	0.6
17941	*Sus scrofa*	A	Sacrum	1	2.8
17976	*Sus scrofa*	R	Innominate	1	11.6
17974	*Sus scrofa*	R	Innominate	1	7.5
17977	*Sus scrofa*	R	Innominate	1	3.5
17827	cf. *Sus scrofa*	I	Scapula	1	2.5
17856	*Sus scrofa*	L	Scapula	1	1.0
17836	*Sus scrofa*	L	Humerus	1	2.4
18029	cf. *Sus scrofa*	L	Humerus	1	0.7
18060	*Sus scrofa*	R	Humerus	1	0.6
17880	*Sus scrofa*	R	Humerus	1	0.2
17832	*Sus scrofa*	L	Ulna	1	6.1
17841	*Sus scrofa*	L	Ulna	1	0.5
17838	*Sus scrofa*	L	Metacarpal III	1	2.5
17877	*Sus scrofa*	L	Metacarpal III	1	0.7
17865	cf. *Sus scrofa*	I	Fibula	1	1.9
17898	*Sus scrofa*	L	Fibula	1	0.6
17853	*Sus scrofa*	R	Fibula	1	0.6
17850	*Sus scrofa*	L	Calcaneus	1	0.0
17852	*Sus scrofa*	L	Calcaneus	1	0.0
17833	*Sus scrofa*	R	Calcaneus	1	10.6
18025	cf. *Sus scrofa*	I	Carpal or tarsal	1	0.3
17851	*Sus scrofa*	I	First phalanx	1	1.4
17834	*Odocoileus virginianus*	A	Atlas	1	7.3
17857	*Odocoileus virginianus*	L	Scapula	1	22.3
17964	cf. *Odocoileus virginianus*	L	Femur	1	3.1
17939	*Bos taurus*	A	Thoracic vertebra	1	36.8
17828	*Bos taurus*	I	Rib	1	31.0
17829	cf. *Bos taurus*	I	Rib	1	10.3
17830	*Bos taurus*	I	Rib	1	7.0
17855	*Bos taurus*	I	Scapula	1	26.0
17967	*Bos taurus*/*Equus* sp.	A	Premaxilla	1	2.4
17969	*Bos taurus*/*Equus* sp.	I	Maxilla	1	2.9
17970	*Bos taurus*/*Equus* sp.	A	Nasal	1	10.0

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
Context: 731C					
18298	*Callinectes sapidus*	I	Claw	4	0.5
18952	Class Osteichthyes		Vertebra	4	0.7
18953	Class Osteichthyes		Vertebra	1	0.0
18951	Class Osteichthyes		Spine	5	1.5
18288	*Acipenser* spp.		Scute	6	3.8
18359	Family Catostomidae	I	Premaxilla	1	0.1
18354	Family Catostomidae	L	Hyomandibular	1	0.1
18358	Family Ictaluridae	R	Premaxilla	1	0.3
18355	Family Ictaluridae	L	Opercular	1	0.1
18357	Family Ictaluridae	I	Cleithrum	1	0.3
18353	Family Ictaluridae	R	Cleithrum	1	0.2
18352	Family Ictaluridae	R	Pectoral spine	1	0.2
18356	*Morone americana*	L	Cleithrum	1	0.1
18958	Order Testudines		Carapace	1	0.4
18119	Order Testudines		Indeterminate	4	1.1
18368	cf. Family Kinosternidae	A	Carapace	1	0.5
18369	cf. Family Kinosternidae	A	Plastron	2	2.0
18366	*Terrapene carolina*	A	Carapace	1	4.0
18367	*Terrapene carolina*	A	Plastron	4	3.2
18324	Class Aves	A	Sternum or sternabrae	1	0.1
18947	Class Aves		Limb bone	8	2.5
18312	Class Aves		Limb bone	1	2.8
18316	Class Aves		Limb bone	1	0.3
18323	Class Aves	R	Fibula	1	0.1
18948	Class Aves		Indeterminate	3	0.5
18959	Class Aves		Indeterminate	13	2.4
18949	Class Aves/Mammalia III		Rib	16	1.8
18310	*Branta canadensis*	R	Humerus	1	4.5
18346	Duck spp.	A	Premaxilla	1	0.9
18307	Duck spp.	I	Mandible	1	0.5
18305	Duck spp.	A	Sternum or sternabrae	1	1.0
18334	Duck spp.	L	Carpometacarpus	1	0.5
18313	Goose spp.	A	Furculum	1	1.2
18296	cf. Goose spp.	A	Furculum	1	0.4
18318	Goose spp.	L	Humerus	1	1.8
18302	cf. Goose spp.	I	Tibiotarsus	1	2.2
18314	Goose spp.	L	Tibiotarsus	1	1.2
18349	Goose spp.	R	Tibiotarsus	1	1.3
18303	cf. Goose spp.	I	Tarsometatarsus	1	1.6
18295	Family Laridae	L	Tarsometatarsus	1	0.4
18304	*Meleagris gallopavo*	R	Humerus	1	1.8
17679	cf. *Meleagris gallopavo*	I	Femur	2	2.9
18338	cf. *Gallus gallus*	R	Radius	1	0.2

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
18305	*Phalacrocorax* spp.	A	Vertebra	2	1.4
18289	cf. *Phalacrocorax* spp.		Cervical vertebra	5	3.3
18333	*Phalacrocorax* spp.	A	Synsacrum	1	1.6
18340	*Phalacrocorax* spp.	A	Synsacrum	1	0.9
18351	*Phalacrocorax* spp.	A	Synsacrum	1	1.7
18362	cf. *Phalacrocorax* spp.	A	Synsacrum	1	1.3
18361	cf. *Phalacrocorax* spp.	A	Sternum or sternabrae	1	0.3
18309	*Phalacrocorax* spp.	L	Scapula	1	0.8
18350	*Phalacrocorax* spp.	L	Coracoid	1	1.2
14548	*Phalacrocorax* spp.	R	Coracoid	1	0.8
18306	*Phalacrocorax* spp.	L	Humerus	1	3.3
18364	*Phalacrocorax* spp.	L	Tibiotarsus	1	0.7
18360	*Phalacrocorax* spp.	R	Tibiotarsus	1	0.5
18308	*Pterodroma cahow*	R	Humerus	1	1.0
18950	Class Mammalia		Indeterminate	28	13.4
18957	Class Mammalia		Indeterminate	5	2.0
18960	Class Mammalia		Indeterminate	14	1.4
18325	Class Mammalia		Indeterminate	1	2.5
18944	Class Mammalia I		Vertebra	2	6.4
18943	Class Mammalia I		Limb bone	2	17.9
18954	Class Mammalia I		Limb bone	2	5.3
18945	Class Mammalia II		Vertebra	9	8.9
18956	Class Mammalia II		Vertebra	1	0.4
18946	Class Mammalia II		Rib	5	1.9
18955	Class Mammalia II		Limb bone	8	6.9
18322	Class Mammalia III		Indeterminate	1	0.1
18336	*Sciurus carolinensis*	L	Innominate	1	0.2
18319	*Sciurus carolinensis*	R	Innominate	1	0.1
18320	*Sciurus carolinensis*	L	Scapula	1	0.1
18329	*Sciurus carolinensis*	L	Tibia	1	0.5
18342	*Sciurus carolinensis*	L	Tibia	1	0.3
18321	*Sciurus carolinensis*	I	Carpal or tarsal	1	0.1
18317	*Equus* spp.	L	Maxilla	1	216.1
18335	*Sus scrofa*	A	Cervical vertebra	1	3.9
18297	*Sus scrofa*	A	Cervical vertebra	1	1.4
18332	*Sus scrofa*	R	Innominate	1	4.5
18337	*Sus scrofa*	L	Scapula	1	1.0
18341	*Sus scrofa*	L	Scapula	1	3.1
18328	*Sus scrofa*	R	Scapula	1	1.5
18344	*Sus scrofa*	R	Radius	1	1.7
18311	*Sus scrofa*	L	Metacarpal III	1	10.7
18331	*Sus scrofa*	R	Femur	1	11.5
18327	*Sus scrofa*	L	Tibia	1	7.5
18343	*Sus scrofa*	I	First phalanx	1	1.2
18339	*Odocoileus virginianus*	I	Fibula	1	0.3
18345	*Odocoileus virginianus*	I	Fibula	1	0.3

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
18330	*Bos taurus*	A	Lumbar vertebra	1	8.3
18326	*Bos taurus*	R	Radius	1	37.7
Context: 731D					
18416	*Callinectes sapidus*	I	Claw	1	0.1
18917	Class Osteichthyes		Vertebra	27	1.8
18934	Class Osteichthyes		Vertebra	21	1.2
18932	Class Osteichthyes		Rib	5	0.1
18941	Class Osteichthyes		Rib	4	0.1
18918	Class Osteichthyes		Spine	15	1.7
18935	Class Osteichthyes		Spine	13	0.4
18430	Class Osteichthyes	I	Spine	3	1.2
18931	Class Osteichthyes		Scale	30	0.9
18942	Class Osteichthyes		Scale	266	2.1
18927	Class Osteichthyes		Indeterminate	20	2.7
18937	Class Osteichthyes		Indeterminate	62	3.5
18414	cf. *Acipenser* spp.	I	Urohyal	1	0.4
18379	*Acipenser* spp.	I	Scute	8	16.1
18417	*Lepisosteus* spp.	A	Vertebra	1	0.3
18378	*Lepisosteus* spp.	I	Scale	2	0.4
18436	*Lepisosteus* spp.	I	Scale	5	0.2
18441	Family Anguillidae	I	Dentary/premaxilla	1	0.1
18439	Family Catostomidae	R	Maxilla	1	0.1
18419	Family Catostomidae	L	Hyomandibular	1	0.1
18440	Family Catostomidae	I	Pharyngeal plate	2	0.2
18418	Family Catostomidae	L	Cleithrum	1	0.1
18422	Family Ictaluridae	I	Hyomandibular	1	0.1
18421	Family Ictaluridae	A	Ethmoid cornu	1	0.1
18420	Family Ictaluridae	A	Basioccipital	1	0.6
18438	Family Ictaluridae	I	Pectoral spine	1	0.1
17771	Family Centrarchidae	L	Dentary	1	0.0
17772	Family Centrarchidae	L	Dentary	1	0.0
18447	*Morone americana*	R	Maxilla	1	0.0
18425	*Morone americana*	A	Parasphenoid	1	0.1
18428	*Morone americana*	L	Frontal	1	0.1
18443	*Morone americana*	L	Frontal	1	0.2
17769	*Morone americana*	L	Quadrate	1	0.0
18427	*Morone americana*	R	Posttemporal	1	0.0
17768	*Morone americana*	R	Hyomandibular	1	0.0
18445	*Morone americana*	I	Opercular	1	0.0
18426	*Morone americana*	R	Opercular	1	0.0
18424	*Morone americana*	R	Preopercular	2	0.2
17770	*Morone americana*	L	Ceratohyal	1	0.0
18429	*Morone americana*	R	Ceratohyal	1	0.0
18446	*Morone americana*	I	Cleithrum	1	0.0

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
18423	*Morone americana*	L	Cleithrum	1	0.3
18444	*Morone americana*	A	Basioccipital	1	0.1
18408	*Terrapene carolina*	A	Carapace	4	10.5
18409	*Terrapene carolina*	A	Carapace	4	4.3
18410	Class Aves	A	Dentary	1	0.2
18412	Class Aves		Radius	1	0.2
18413	Class Aves	L	Radius	1	0.0
18411	Class Aves	I	Phalanx 2, digit II	1	0.1
18924	Class Aves		Limb bone	11	2.9
18921	Class Aves/Mammalia III		Limb bone	15	10.6
18399	cf. *Anser* spp.	I	Patella	1	0.4
18383	*Anas* spp.	L	Tarsometatarsus	1	1.0
18380	*Meleagris gallopavo*	L	Phalanx I, digit II	1	0.5
18382	*Meleagris gallopavo*	L	Tarsometatarsus	1	2.0
18406	cf. *Meleagris gallopavo*	I	Ungual phalanx	1	0.2
18381	*Gallus gallus*	L	Coracoid	1	0.2
18401	*Pterodroma cahow*	L	Humerus	1	0.6
18384	*Pterodroma cahow*	R	Humerus	1	0.8
18925	Class Mammalia		Indeterminate	9	2.6
18933	Class Mammalia		Indeterminate	97	22.9
18936	Class Mammalia		Indeterminate	72	6.9
18940	Class Mammalia		Indeterminate	111	9.0
18930	Class Mammalia I		Tooth	1	1.7
18920	Class Mammalia I		Rib	1	9.3
18926	Class Mammalia I		Limb bone	1	3.6
18919	Class Mammalia II		Vertebra	7	7.0
18922	Class Mammalia II		Rib	4	6.2
18929	Class Mammalia II		Rib	5	2.2
18939	Class Mammalia II		Rib	1	0.3
18923	Class Mammalia II		Limb bone	4	4.6
18928	Class Mammalia III		Vertebra	10	4.3
18938	Class Mammalia III		Limb bone	3	1.3
18391	cf. *Canis* spp.	L	Lower incisor	2	1.0
18385	*Procyon lotor*	A	Cervical vertebra	1	0.8
18389	*Procyon lotor*	A	Thoracic vertebra	1	0.7
18388	*Procyon lotor*	A	Thoracic vertebra	1	0.3
18437	cf. *Procyon lotor*	A	Lumbar vertebra	1	0.7
18404	cf. *Felis rufus*	A	Cervical vertebra	1	3.4
18395	cf. *Felis rufus*	A	Thoracic vertebra	1	3.3
18396	*Felis rufus*	R	Tibia	1	6.1
18403	*Felis rufus*	R	Tibia	1	1.5
18398	*Sus scrofa*	L	Nasal	1	3.2
18386	cf. *Sus scrofa*	A	Caudal vertebra	1	0.5
18442	cf. *Sus scrofa*	R	Innominate	1	0.1
18405	*Sus scrofa*	L	Scapula	1	3.6
18394	*Sus scrofa*	L	Humerus	1	1.1

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
18402	*Sus scrofa*	R	Ulna	1	0.6
18390	cf. *Sus scrofa*	I	Femur	1	2.5
18393	*Sus scrofa*	L	Tibia	1	1.3
18400	*Bos taurus*/*Equus* sp.	I	Premolar or molar	1	4.0
Context: 731F					
18544	Class Osteichthyes	L	Dentary	1	0.1
18974	Class Osteichthyes		Vertebra	5	0.8
18973	Class Osteichthyes		Spine	2	0.3
18976	Class Osteichthyes		Indeterminate	6	0.9
18510	Class Osteichthyes		Indeterminate	1	0.7
18975	*Acipenser* spp.		Spine	12	2.2
18448	*Acipenser* spp.		Scute	57	44.9
18565	cf. *Acipenser* spp.	I	Indeterminate	2	6.1
18454	*Lepisosteus* spp.	I	Scale	1	0.0
18545	cf. Family Ictaluridae	I	Cranium	1	0.1
18543	Family Ictaluridae	R	Frontal	1	0.1
18541	Family Ictaluridae	L	Opercular	1	0.1
18539	Family Ictaluridae	R	Cleithrum	1	0.3
18542	Family Ictaluridae	L	Angular	1	0.1
18540	Family Ictaluridae	R	Pectoral spine	2	0.4
18495	Family Lutjanidae	L	Phalanx 2, digit II	1	0.1
18571	Order Testudines		Indeterminate	21	7.9
18567	*Terrapene carolina*	A	Carapace	2	5.7
18568	*Terrapene carolina*	A	Carapace	1	4.2
18569	*Terrapene carolina*	A	Carapace	1	4.3
18570	*Terrapene carolina*	A	Carapace	9	10.1
18572	cf. *Terrapene carolina*	L	Scapula	1	0.2
18455	Class Aves	A	Furculum	1	0.0
18471	Class Aves		Limb bone	1	1.9
18961	Class Aves/Mammalia III		Limb bone	37	17.7
18566	Class Aves/Mammalia III		Indeterminate	1	0.3
18465	Duck spp.	A	Sternum or sternabrae	1	0.5
18474	Duck spp.	R	Ulna	1	0.9
18462	Duck spp.	L	Phalanx I, digit II	1	0.3
18494	Duck spp.	L	Phalanx 2, digit II	1	0.1
18463	*Meleagris gallopavo*	L	Phalanx I, digit II	1	0.3
18464	*Meleagris gallopavo*	R	Phalanx I, digit II	1	0.4
18469	*Meleagris gallopavo*	L	Tarsometatarsus	1	1.8
18470	*Meleagris gallopavo*	R	Tarsometatarsus	1	2.4
18527	*Gallus gallus*	R	Scapula	1	0.2
18472	*Gallus gallus*	L	Coracoid	1	0.4
18466	*Gallus gallus*	L	Coracoid	1	0.4
18468	*Gallus gallus*	R	Coracoid	1	0.5
18460	*Gallus gallus*	L	Humerus	1	1.1

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
18475	*Gallus gallus*	L	Humerus	1	1.2
18505	*Gallus gallus*	R	Humerus	1	0.7
18458	*Gallus gallus*	R	Humerus	1	0.5
18497	*Gallus gallus*	R	Humerus	1	0.3
18492	*Gallus gallus*		Limb bone	1	0.5
18473	*Gallus gallus*	L	Femur	1	0.4
18506	*Gallus gallus*	R	Femur	1	0.7
18457	*Gallus gallus*	L	Fibula	1	0.1
18456	cf. *Gallus gallus*	R	Fibula	1	0.1
18503	*Gallus gallus*	L	Tibiotarsus	1	1.6
18498	*Gallus gallus*	R	Tibiotarsus	1	0.3
18514	*Gallus gallus*	R	Tibiotarsus	1	0.3
18461	*Gallus gallus*	R	Tibiotarsus	1	1.7
18971	Class Mammalia		Indeterminate	62	7.3
18977	Class Mammalia		Indeterminate	12	2.1
18979	Class Mammalia		Indeterminate	6	1.6
18964	Class Mammalia I		Vertebra	1	4.0
18967	Class Mammalia I		Vertebra	1	3.8
18966	Class Mammalia I		Rib	2	6.1
18965	Class Mammalia II		Vertebra	4	3.9
18972	Class Mammalia II		Vertebra	2	0.2
18968	Class Mammalia II		Rib	10	4.2
18970	Class Mammalia II		Limb bone	6	5.1
18969	Class Mammalia III		Cranium	38	6.8
18963	Class Mammalia III		Vertebra	6	0.6
18978	Class Mammalia III		Vertebra	1	0.3
18962	Class Mammalia III		Rib	12	1.1
18520	Class Mammalia III		Indeterminate	2	0.3
18553	Class Mammalia III		Indeterminate	1	0.4
18459	*Didelphis virginiana*	L	Scapula	1	0.7
18488	cf. *Sylvilagus floridanus*	R	Scapula	1	0.3
18516	*Sciurus carolinensis*	L	Mandible	1	0.1
18450	*Sciurus carolinensis*	I	Incisor	1	0.1
18452	*Sciurus carolinensis*	A	Cervical vertebra	2	0.8
18451	*Sciurus carolinensis*	A	Sacrum	0	0.2
18478	*Sciurus carolinensis*	L	Innominate	1	0.4
18449	*Sciurus carolinensis*	R	Humerus	1	0.2
18480	*Sciurus carolinensis*	R	Ulna	1	0.5
18479	*Sciurus carolinensis*	R	Ulna	1	0.2
18481	*Sciurus carolinensis*	L	Femur	1	0.5
18548	*Sciurus carolinensis*	R	Femur	1	0.2
18486	*Sciurus carolinensis*	R	Femur	1	0.9
18499	*Sciurus carolinensis*	R	Femur	1	0.4
18493	*Sciurus carolinensis*	R	Tibia	1	0.1
18491	*Equus* spp.	R	Upper premolar or molar	1	39.1
18554	Order Artiodactyla I	I	Carpal or tarsal	1	2.3

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
18551	*Sus scrofa*	L	Maxilla	1	1.1
18532	*Sus scrofa*	R	Maxilla	1	2.3
18563	*Sus scrofa*	L	Malar	1	0.2
18555	*Sus scrofa*	L	Frontal	1	0.6
18536	*Sus scrofa*	R	Frontal	1	0.5
18535	cf. *Sus scrofa*	I	Pterygoid	1	0.8
18557	*Sus scrofa*	R	Occipital	1	1.9
18562	*Sus scrofa*	R	Occipital	1	0.4
18525	*Sus scrofa*	I	Bulla tympanica	1	0.1
18558	*Sus scrofa*	L	Meatus acusticus internus	1	2.4
18524	*Sus scrofa*	L	Meatus acusticus internus	1	0.4
18552	cf. *Sus scrofa*	I	Mandible	1	0.5
18531	*Sus scrofa*	I	Mandible	1	0.4
18556	*Sus scrofa*	R	Mandible	1	3.8
18584	*Sus scrofa*	R	Upper incisor	1	0.2
18583	*Sus scrofa*	I	Lower incisor	10	1.3
18577	*Sus scrofa*	L	Upper premolar 4	1	0.7
18579	*Sus scrofa*	L	Upper premolar 4	1	0.4
18578	*Sus scrofa*	L	Upper molar 2	1	0.6
18581	*Sus scrofa*	R	Upper molar 2	1	0.4
18580	*Sus scrofa*	R	Lower molar 1	1	0.3
18582	*Sus scrofa*	I	Premolar or molar	12	1.2
18526	*Sus scrofa*	A	Vertebra	2	0.3
18519	*Sus scrofa*	A	Vertebra	1	0.2
18508	*Sus scrofa*	L	Innominate	1	0.5
18476	cf. *Sus scrofa*	R	Innominate	1	3.9
18477	*Sus scrofa*	R	Scapula	1	0.8
18515	cf. *Sus scrofa*	I	Humerus	1	0.2
18523	*Sus scrofa*	L	Humerus	1	0.2
18513	*Sus scrofa*	R	Humerus	1	1.0
18517	*Sus scrofa*	R	Humerus	1	1.2
18507	*Sus scrofa*	L	Ulna	1	0.9
18496	*Sus scrofa*	R	Ulna	1	0.7
18522	cf. *Sus scrofa*	I	Radius	1	0.2
18512	*Sus scrofa*	L	Radius	1	0.7
18529	*Sus scrofa*	L	Radius	1	0.9
18501	*Sus scrofa*	R	Radius	1	0.4
18509	*Sus scrofa*	L	Femur	1	1.0
18518	*Sus scrofa*	L	Femur	1	0.7
18467	*Sus scrofa*	R	Femur	1	18.7
18500	*Sus scrofa*	R	Femur	1	0.7
18490	*Sus scrofa*	L	Tibia	1	38.3
18511	*Sus scrofa*	L	Tibia	1	0.8
18502	*Sus scrofa*	R	Tibia	1	0.5
18504	*Sus scrofa*	R	Tibia	1	1.1
18483	*Sus scrofa*	I	Carpal or tarsal	3	1.0

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
18484	*Sus scrofa*	I	Carpal or tarsal	1	0.2
18549	*Sus scrofa*	I	Carpal or tarsal	1	0.0
18550	*Sus scrofa*	I	Carpal or tarsal	1	0.0
18560	cf. *Odocoileus virginianus*	I	Rib	1	3.0
18537	cf. *Odocoileus virginianus*	I	Rib	1	2.6
18534	cf. *Odocoileus virginianus*	I	Rib	1	1.5
18489	*Odocoileus virginianus*	R	Scapula	1	0.5
Context: 731G					
16917	Class Osteichthyes		Indeterminate	4	0.2
18605	*Acipenser* spp.	I	Spine	45	12.1
18603	*Acipenser* spp.		Scute	120	67.2
18604	cf. *Lepisosteus* spp.	I	Scale	1	0.0
16914	Order Testudines	I	Vertebra	1	0.1
16916	Order Testudines		Carapace	1	0.2
18607	*Terrapene carolina*	R	Humerus	1	0.8
16915	Class Mammalia II		Vertebra	1	0.1
18606	*Procyon lotor*	R	Upper molar 2	1	0.6
18608	Order Artiodactyla I	A	Vertebra	1	1.2
18609	*Sus scrofa*	A	Thoracic vertebra	1	3.5
Context: 731H					
18611	*Acipenser* spp.	I	Spine	19	11.5
18610	*Acipenser* spp.	I	Scute	20	15.5
18612	Family Ictaluridae	L	Pectoral spine	1	0.2
18613	Class Aves		Limb bone	1	1.0
16919	Class Mammalia		Indeterminate	1	0.3
16920	Class Mammalia		Indeterminate	63	1.4
16918	Class Mammalia III		Vertebra	1	0.4
Context: 731J					
18680	*Acipenser* spp.	I	Scute	33	18.0
18681	*Acipenser* spp.	I	Indeterminate	47	8.5
16921	Order Testudines		Carapace	2	0.4
18684	cf. *Terrapene carolina*	A	Carapace	3	1.8
18682	*Terrapene carolina*	L	Humerus	1	0.4
18686	cf. Duck spp.	I	Phalanx I, digit II	1	0.1
16924	Class Mammalia		Indeterminate	2	0.7
16923	Class Mammalia II		Rib	2	2.1
16922	Class Mammalia III		Vertebra	1	0.1
18683	*Sciurus carolinensis*	R	Femur	1	0.2
18685	cf. *Sus scrofa*	A	Thoracic vertebra	1	2.5

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
Context: 731K					
16909	Class Osteichthyes		Spine	1	0.1
18691	Class Osteichthyes		Spine	1	0.4
18688	*Acipenser* spp.	I	Spine	11	3.1
18687	*Acipenser* spp.	I	Scute	50	29.2
18028	Order Testudines		Vertebra	1	0.2
16911	Order Testudines	I	Carapace	1	0.1
18689	*Terrapene carolina*	R	Innominate	1	0.2
16910	Class Aves		Limb bone	4	0.7
16912	Class Mammalia		Indeterminate	1	0.1
16913	Class Mammalia II		Vertebra	3	1.5
18690	*Procyon lotor*	R	Temporal	1	1.3
18692	*Procyon lotor*	R	Occipital	1	1.2
Context: 731L					
16929	Class Osteichthyes		Vertebra	1	0.0
16930	Class Osteichthyes		Spine	1	0.0
18702	*Acipenser* spp.	I	Vertebra	10	3.9
18703	*Acipenser* spp.	I	Spine	13	4.5
18701	*Acipenser* spp.	I	Scute	14	3.1
18698	Family Ictaluridae	R	Opercular	1	0.1
18711	Family Ictaluridae	L	Ceratohyal	1	0.1
18710	Family Ictaluridae	L	Pectoral spine	1	0.1
18712	*Morone americana*	R	Preopercular	1	0.1
18713	*Morone* spp.	L	Ceratohyal	1	0.0
18699	Order Testudines		Vertebra	1	0.4
18730	Order Testudines	A	Vertebra	1	0.0
16927	Order Testudines		Carapace	3	0.3
18733	Order Testudines		Limb bone	5	1.2
16926	Order Testudines		Indeterminate	4	0.8
18750	Order Testudines		Indeterminate	6	1.1
18746	cf. *Chrysemys* spp.	L	Innominate	1	0.3
18747	cf. *Chrysemys* spp.	R	Innominate	1	0.4
18739	cf. *Chrysemys* spp.	L	Humerus	1	0.6
18737	cf. *Chrysemys* spp.	L	Femur	1	0.5
18748	cf. *Terrapene carolina*	I	Innominate	1	0.1
18763	*Terrapene carolina*	A	Carapace	1	2.5
18697	*Terrapene carolina*	I	Carapace	1	61.1
18700	*Terrapene carolina*	I	Carapace	14	2.5
18749	cf. *Terrapene carolina*	L	Scapula	1	0.3
16925	Class Aves		Limb bone	6	1.1
16928	Class Mammalia		Indeterminate	53	3.9
18732	Class Mammalia		Indeterminate	1	1.7
16931	Class Mammalia I		Rib	2	2.3

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
18717	Class Mammalia III		Limb bone	1	0.1
18704	cf. *Sciurus* spp.	I	Carpal or tarsal	4	0.2
18721	*Sciurus carolinensis*	L	Meatus acusticus internus	1	0.2
18744	*Sciurus carolinensis*	R	Mandible	1	0.4
18719	*Sciurus carolinensis*	R	Mandible	1	0.2
18718	*Sciurus carolinensis*	I	Incisor	1	0.1
18724	*Sciurus carolinensis*	A	Cervical vertebra	3	0.5
18725	cf. *Sciurus carolinensis*	A	Caudal vertebra	1	0.0
18720	*Sciurus carolinensis*	L	Scapula	1	0.1
18722	cf. *Sciurus carolinensis*	I	Humerus	1	0.1
18716	*Sciurus carolinensis*	R	Humerus	1	0.2
18738	*Sciurus carolinensis*	L	Ulna	1	0.4
18741	*Sciurus carolinensis*	R	Ulna	1	0.2
18709	*Sciurus carolinensis*	L	Radius	1	0.3
18715	*Sciurus carolinensis*	R	Calcaneus	1	0.1
18705	cf. Family Cricetidae	I	Carpal or tarsal	1	0.0
Context: 731M					
18783	*Callinectes sapidus*	I	Claw	1	0.1
16934	Class Osteichthyes		Vertebra	4	0.2
16933	Class Osteichthyes		Rib	7	0.3
16935	Class Osteichthyes		Spine	8	0.6
16939	Class Osteichthyes		Scale	1	0.0
16938	Class Osteichthyes		Indeterminate	11	1.1
16940	Class Osteichthyes		Indeterminate	8	1.5
16948	Class Osteichthyes		Indeterminate	42	3.8
18786	*Acipenser* spp.		Spine	19	11.9
18785	*Acipenser* spp.		Scute	9	1.6
16908	*Acipenser* spp.	I	Scute	1	0.2
18869	Family Ictaluridae	I	Frontal	1	0.2
18867	*Morone americana*	R	Opercular	2	0.2
18868	*Morone* spp.	L	Preopercular	1	0.1
18878	Order Testudines	A	Vertebra	2	0.8
16937	Order Testudines		Carapace	3	0.4
18894	Order Testudines		Carapace	46	14.5
18854	Order Testudines		Limb bone	9	2.3
18873	cf. *Chrysemys* spp.	L	Dentary	1	0.6
18877	cf. *Chrysemys* spp.	R	Dentary	1	0.7
18826	cf. *Chrysemys* spp.	L	Innominate	1	0.4
18827	cf. *Chrysemys* spp.	L	Humerus	1	0.6
18858	cf. *Chrysemys* spp.	L	Humerus	1	0.5
18862	cf. *Chrysemys* spp.	R	Humerus	1	0.7
18745	cf. *Chrysemys* spp.	L	Femur	1	0.5
18819	cf. *Chrysemys* spp.	R	Femur	1	0.9
18830	cf. *Malaclemys terrapin*	A	Vertebra	6	0.5

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
18824	*Malaclemys terrapin*	A	Carapace	18	24.4
18811	*Malaclemys terrapin*	A	Carapace	12	20.1
18812	*Malaclemys terrapin*	A	Carapace	7	10.3
18828	*Malaclemys terrapin*	A	Carapace	6	7.9
18829	*Malaclemys terrapin*	A	Carapace	22	7.3
18831	*Malaclemys terrapin*	A	Carapace	3	2.1
18875	cf. *Terrapene carolina*	I	Dentary	1	0.5
18874	*Terrapene carolina*	L	Dentary	1	0.6
18893	cf. *Terrapene carolina*	R	Innominate	1	0.5
18839	*Terrapene carolina*	A	Carapace	1	55.7
18888	*Terrapene carolina*	A	Carapace	2	6.0
18889	*Terrapene carolina*	A	Carapace	2	6.0
18890	*Terrapene carolina*	A	Carapace	1	1.4
18891	*Terrapene carolina*	A	Carapace	4	7.3
18892	*Terrapene carolina*	A	Carapace	3	3.1
16907	*Terrapene carolina*	I	Carapace	1	55.6
18857	cf. *Terrapene carolina*	R	Coracoid	1	0.1
18853	cf. *Terrapene carolina*	R	Radius	1	0.2
18861	cf. *Terrapene carolina*	L	Femur	1	0.5
18820	cf. *Terrapene carolina*	R	Femur	1	0.5
18784	Class Aves		Indeterminate	1	0.0
16936	Class Aves/Mammalia III		Limb bone	9	1.4
16944	Class Aves/Mammalia III		Limb bone	1	0.0
16943	Class Mammalia		Indeterminate	2	1.1
16947	Class Mammalia		Indeterminate	6	5.0
18806	Class Mammalia II		Cranium	1	0.9
16942	Class Mammalia II		Vertebra	1	0.9
16932	Class Mammalia II		Rib	2	1.2
16941	Class Mammalia II		Rib	1	1.0
16945	Class Mammalia II		Limb bone	1	2.0
17086	Class Mammalia II		Limb bone	1	2.9
16946	Class Mammalia III		Cranium	2	1.1
18865	Class Mammalia III		Cranium	2	0.5
18884	Class Mammalia III		Vertebra	2	0.2
18841	*Sciurus* spp.	I	Incisor	8	0.9
18842	*Sciurus* spp.	I	Premolar or molar	3	0.0
18883	cf. *Sciurus* spp.	A	Cervical vertebra	1	0.2
18879	cf. *Sciurus* spp.	A	Thoracic vertebra	1	0.0
18880	*Sciurus* spp.	A	Thoracic vertebra	2	0.2
18881	cf. *Sciurus* spp.	A	Caudal vertebra	1	0.1
18836	*Sciurus carolinensis*	L	Premaxilla	1	0.5
18834	*Sciurus carolinensis*	R	Premaxilla	1	0.3
18833	*Sciurus carolinensis*	L	Maxilla	1	0.2
18835	*Sciurus carolinensis*	R	Maxilla	1	0.2
18863	*Sciurus carolinensis*	L	Frontal	1	0.2
18864	*Sciurus carolinensis*	R	Frontal	1	0.2

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
18837	*Sciurus carolinensis*	R	Mandible	1	0.8
18782	*Sciurus carolinensis*	A	Cervical vertebra	1	0.3
18787	*Sciurus carolinensis*	A	Sacrum	1	0.5
18808	*Sciurus carolinensis*	L	Innominate	1	0.3
18818	*Sciurus carolinensis*	R	Innominate	1	0.3
18816	*Sciurus carolinensis*	R	Innominate	1	0.2
18805	*Sciurus carolinensis*	R	Innominate	1	0.1
18867	*Sciurus carolinensis*	R	Scapula	1	0.0
18868	*Sciurus carolinensis*	R	Scapula	1	0.1
18792	*Sciurus carolinensis*	L	Humerus	1	0.3
18809	*Sciurus carolinensis*	R	Humerus	1	0.4
18804	*Sciurus carolinensis*	R	Humerus	1	0.2
18790	*Sciurus carolinensis*	R	Humerus	1	0.3
18825	*Sciurus carolinensis*	L	Ulna	1	0.2
18823	*Sciurus carolinensis*	L	Ulna	1	0.2
18815	*Sciurus carolinensis*	R	Ulna	1	0.3
18821	*Sciurus carolinensis*	R	Ulna	1	0.1
18789	*Sciurus carolinensis*	L	Radius	1	0.2
18788	*Sciurus carolinensis*	L	Radius	1	0.1
18794	*Sciurus carolinensis*	R	Radius	1	0.2
18801	*Sciurus carolinensis*	R	Radius	1	0.2
18813	*Sciurus carolinensis*	L	Femur	1	0.4
18822	*Sciurus carolinensis*	L	Femur	1	0.3
18814	*Sciurus carolinensis*	R	Femur	1	0.3
18793	*Sciurus carolinensis*	R	Femur	1	0.4
18798	*Sciurus carolinensis*	R	Tibia	1	0.9
18791	*Sciurus carolinensis*	R	Tibia	1	0.3
18797	*Sciurus carolinensis*	R	Tibia	1	0.4
18807	*Sciurus carolinensis*	R	Tibia	1	0.2
18802	*Sciurus carolinensis*	R	Tibia	1	0.4
18882	*Sciurus carolinensis*	R	Tibia	1	0.0
18845	cf. *Sciurus carolinensis*	I	Metapodial	11	0.7
18810	Family Cricetidae	R	Humerus	1	0.0
18800	Family Cricetidae	R	Tibia	1	0.0
18843	*Ondatra zibethica*	L	Upper premolar or molar	1	0.2
18817	Rat spp.	R	Femur	1	0.2
18795	Rat spp.	R	Tibia	1	0.3
18876	Rat spp.	R	Tibia	1	0.1
18838	*Canis* spp.	L	Upper canine	1	2.5

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
Contexts Related Pit 8					
Context: 1795A					
13917	Order Rajiformes	I	Dentary/premaxilla	1	1.4
16834	Class Osteichthyes		Vertebra	12	3.6
16837	Class Osteichthyes		Rib	7	0.5
16836	Class Osteichthyes		Spine	23	3.3
13941	Class Osteichthyes		Spine	2	0.2
16835	Class Osteichthyes		Scale	13	0.4
16838	Class Osteichthyes		Indeterminate	25	3.1
13888	*Acipenser* spp.	I	Scute	5	9.0
13898	*Lepisosteus* spp.	A	Vertebra	1	0.4
13895	Family Catostomidae	R	Maxilla	1	0.1
13896	Family Catostomidae	R	Opercular	1	0.2
13940	Family Ictaluridae	L	Opercular	1	0.1
13875	Family Ictaluridae	L	Cleithrum	1	0.2
13872	Family Ictaluridae	R	Cleithrum	1	0.1
13873	Family Ictaluridae	L	Pectoral spine	1	0.1
13874	Family Ictaluridae	R	Pectoral spine	1	0.1
13897	*Morone* americana	R	Cleithrum	1	0.1
13899	cf. Family Sciaenidae	I	Spine	3	6.0
16847	Class Aves		Limb bone	1	0.4
13831	Class Aves		Limb bone	1	2.0
13806	Class Aves		Limb bone	1	0.8
13852	cf. *Cygnus* spp.	I	Ulna	1	6.8
13829	cf. *Cygnus* spp.	R	Tibiotarsus	1	6.8
13804	Family Accipitridae	R	Scapula	1	1.4
13905	Family Accipitridae	I	Ungual phalanx	1	0.4
13810	cf. *Gallus gallus*	L	Innominate	1	0.4
13813	cf. *Gallus gallus*	L	Coracoid	2	0.2
13805	*Gallus gallus*	R	Ulna	1	0.8
14179	*Gallus gallus*	R	Phalanx I, digit II	1	0.1
13807	*Gallus gallus*	L	Tarsometatarsus	1	0.5
16846	Class Mammalia		Indeterminate	164	77.0
16851	Class Mammalia		Indeterminate	10	3.8
13920	Class Mammalia		Indeterminate	1	1.2
16841	Class Mammalia I		Cranium	9	15.8
13933	Class Mammalia I		Tooth	3	4.3
16840	Class Mammalia I		Rib	6	50.0
16839	Class Mammalia I		Limb bone	8	40.9
16848	Class Mammalia II		Cranium	2	0.7
13877	Class Mammalia II		Cranium	1	0.4
13938	Class Mammalia II		Tooth	3	0.5
13925	Class Mammalia II		Tooth	3	1.3
16844	Class Mammalia II		Vertebra	18	10.5

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
16843	Class Mammalia II		Rib	9	8.6
16842	Class Mammalia II		Limb bone	25	39.7
13878	Class Mammalia II		Limb bone	1	0.9
16850	Class Mammalia II		Indeterminate	3	8.1
13819	Class Mammalia II		Indeterminate	1	5.3
13863	Class Mammalia II		Indeterminate	1	2.5
16845	Class Mammalia III		Limb bone	21	9.1
16849	Class Mammalia III		Limb bone	1	0.3
13902	Family Talpidae	L	Radius	1	0.0
13901	*Sciurus* spp.	I	Vertebra	1	0.2
16610	*Sciurus carolinensis*	R	Premaxilla	1	0.1
16611	*Sciurus carolinensis*	I	Incisor	1	0.0
13861	*Sciurus carolinensis*	R	Femur	1	0.7
13903	Family Cricetidae	R	Ulna	1	0.1
13890	*Rattus rattus*	L	Maxilla	1	0.1
13889	*Rattus rattus*	R	Mandible	1	0.3
13801	*Procyon lotor*	L	Mandible	1	6.5
13839	Order Artiodactyla I	I	Scapula	1	2.5
13930	Order Artiodactyla II	R	Upper molar	1	1.8
13926	Order Artiodactyla II	I	Premolar or molar	1	1.1
13935	Order Artiodactyla II	I	Premolar or molar	1	1.0
13853	*Sus scrofa*	R	Occipital	1	9.9
13876	*Sus scrofa*	R	Meatus acusticus internus	1	1.5
13800	*Sus scrofa*	L	Mandible	1	42.1
13931	*Sus scrofa*	I	Lower incisor	1	1.9
13932	*Sus scrofa*	I	Lower incisor	1	1.4
13918	*Sus scrofa*	R	Upper premolar	1	1.2
13928	*Sus scrofa*	I	Canine	1	0.8
13929	*Sus scrofa*	I	Canine	1	0.3
13921	*Sus scrofa*	I	Canine	1	0.5
13867	cf. *Sus scrofa*	L	Innominate	1	3.4
13843	cf. *Sus scrofa*	R	Tibia	1	3.0
13834	cf. *Sus scrofa*	R	Tibia	1	4.6
13894	*Odocoileus virginianus*	R	Occipital	1	4.9
13818	*Odocoileus virginianus*	I	Antler	1	9.5
13939	*Odocoileus virginianus*	R	Upper premolar 3	1	0.5
13923	*Odocoileus virginianus*	R	Lower molar 3	1	1.5
13822	*Odocoileus virginianus*	R	Innominate	1	3.3
13832	cf. *Odocoileus virginianus*	R	Humerus	1	10.5
13821	cf. *Odocoileus virginianus*	L	Tibia	1	9.8
13824	*Odocoileus virginianus*	R	Tibia	1	11.5
13820	*Odocoileus virginianus*	I	Main metatarsal	1	7.2
13837	*Odocoileus virginianus*	I	Main metatarsal	1	6.2
13882	*Odocoileus virginianus*	I	Carpal or tarsal	1	2.4
13851	*Odocoileus virginianus*	I	Carpal or tarsal	1	0.7
13937	*Bos taurus*	L	Upper premolar	1	5.0

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
13927	*Bos taurus*	I	Lower molar	1	8.3
13825	*Bos taurus*	L	Innominate	1	32.2
13816	*Bos taurus*	L	Scapula	1	52.7
13815	*Bos taurus*	R	Main metacarpal	1	46.0
13835	*Bos taurus*	L	Femur	1	29.7
13865	*Bos taurus*	L	Calcaneus	1	6.8
13803	*Bos taurus*	I	Main metatarsal	1	27.9
13864	*Bos taurus*	L	Metapodial	1	19.3
13854	*Bos taurus*	L	Metapodial	1	18.5
13848	*Bos taurus*	I	Carpal or tarsal	1	5.0
13855	*Bos taurus*	I	First phalanx	1	4.0
13934	*Ovis aries/Capra hircus*	R	Lower molar 1 or 2	1	3.6
Context: 1795B					
16097	*Callinectes sapidus*	I	Claw	2	0.2
14917	Order Rajiformes	I	Dentary/premaxilla	5	2.5
16806	Class Osteichthyes		Vertebra	3	0.7
16807	Class Osteichthyes		Indeterminate	92	22.3
14079	Class Osteichthyes		Indeterminate	3	0.5
14080	*Acipenser* spp.	I	Cranium	4	5.9
14039	*Acipenser* spp.	I	Scute	87	44.6
14121	*Lepisosteus* spp.	A	Vertebra	1	0.2
14243	*Lepisosteus* spp.	I	Scale	2	0.1
14057	Family Ictaluridae	L	Cleithrum	1	0.9
14100	Family Ictaluridae	R	Cleithrum	1	0.4
14099	Family Ictaluridae	R	Supracleithrum	1	0.2
14098	Family Ictaluridae	A	Basioccipital	1	0.8
14102	Family Ictaluridae	L	Dentary	1	0.1
14101	Family Ictaluridae	A	Complex vertebra	1	0.3
14078	Family Percichthyidae	L	Hyomandibular	1	0.7
14075	*Archosargus probatocephalus*	L	Frontal	1	0.4
14167	Order Testudines		Carapace	6	1.3
14161	Order Testudines		Indeterminate	1	0.2
14178	Class Aves		Vertebra	1	0.1
13954	Class Aves		Cervical vertebra	2	0.4
14140	Class Aves	R	Radius	1	2.0
14175	Class Aves		Phalanx 2, digit II	1	0.2
16808	Class Aves		Limb bone	29	8.9
14141	Class Aves		Limb bone	4	4.1
14076	Class Aves		Limb bone	1	0.3
16809	Class Aves		Indeterminate	46	7.2
14134	Class Aves		Indeterminate	4	0.8
14077	cf. *Anser* spp.		Dentary	1	0.9
14177	*Branta canadensis*	R	Cuneiform	1	0.3
14067	*Anas* spp.	L	Scapula	1	0.6

Table 31
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UBNo.	Taxon	Sym	Element	NISP	Wgt
14068	*Anas* spp.	L	Humerus	1	3.1
14292	Duck spp.	L	Radius	1	0.4
13953	cf. Goose spp.	A	Cervical vertebra	2	0.7
14139	cf. Goose spp.	A	Sternum or sternabrae	1	0.8
13975	*Larus* spp.	L	Coracoid	1	0.3
14182	Family Accipitridae	I	Ungual phalanx	1	0.1
16814	Class Mammalia		Indeterminate	44	19.9
16815	Class Mammalia		Indeterminate	20	2.3
16817	Class Mammalia		Indeterminate	44	8.6
16810	Class Mammalia I		Rib	2	14.5
16812	Class Mammalia I		Rib	1	2.1
16813	Class Mammalia II		Vertebra	9	7.6
16811	Class Mammalia II		Limb bone	7	12.4
16816	Class Mammalia II		Limb bone	6	9.5
13955	Class Mammalia III	A	Vertebra	1	0.7
14108	Class Mammalia III		Indeterminate	2	0.3
14107	*Sciurus* spp.	A	Vertebra	1	0.0
14106	*Sciurus* spp.	A	Caudal vertebra	2	0.2
14183	Family Cricetidae	L	Innominate	1	0.2
14180	Family Cricetidae		Radius	1	0.0
14181	Family Cricetidae	R	Femur	1	0.0
14184	Family Cricetidae	I	Tibia	1	0.1
14201	*Rattus* spp.	R	Femur	1	0.2
14291	Rat spp.	R	Tibia	1	0.2
14109	Rat spp.	R	Tibia	1	0.1
14144	Family Felidae	I	Carpal or tarsal	1	0.3
13972	Order Artiodactyla I	A	Cervical vertebra	1	2.4
13950	Order Artiodactyla I	A	Thoracic vertebra	1	4.0
13951	Order Artiodactyla I	A	Lumbar vertebra	1	3.3
13959	Order Artiodactyla I	A	Lumbar vertebra	1	1.2
14173	*Sus scrofa*	L	Paramastoid process	1	2.6
13971	cf. *Sus scrofa*	R	Mandible	1	4.8
14113	cf. *Sus scrofa*	I	Upper incisor	1	0.1
14114	*Sus scrofa*	L	Lower incisor	1	0.1
14120	*Sus scrofa*	R	Lower canine	1	2.9
14115	*Sus scrofa*	I	Premolar	1	0.3
14145	*Sus scrofa*	R	Ulnar carpal	1	1.8
14146	*Sus scrofa*	I	Third phalanx	1	0.3
13964	*Odocoileus virginianus*	R	Temporal	1	2.0
14142	*Odocoileus virginianus*	R	Meatus acusticus internus	1	3.2
14143	cf. *Odocoileus virginianus*	L	Mandible	1	0.4
14147	*Odocoileus virginianus*	I	Antler	1	3.9
14148	*Odocoileus virginianus*	I	Antler	1	4.3
14116	*Odocoileus virginianus*	R	Upper molar 2 or 3	1	1.7
14117	*Odocoileus virginianus*	I	Premolar or molar	1	0.6
13958	cf. *Odocoileus virginianus*	A	Lumbar vertebra	1	6.3

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
13970	*Odocoileus virginianus*	R	Innominate	1	9.7
16201	cf. *Odocoileus virginianus*	L	Humerus	1	2.6
13973	*Odocoileus virginianus*	I	Metacarpal	1	4.2
13967	*Odocoileus virginianus*	R	Tibia	1	11.9
13952	*Bos taurus*	A	Atlas	1	83.4
13962	*Bos taurus*	L	Astragalus	1	56.2
Context: 1795C					
14530	Order Rajiformes	I	Dentary/premaxilla	12	6.0
14583	Order Carcharhiniformes	A	Vertebra	1	2.3
16821	Class Osteichthyes		Vertebra	42	2.7
16824	Class Osteichthyes		Vertebra	2	1.2
16823	Class Osteichthyes		Spine	14	4.6
14371	Class Osteichthyes		Spine	1	0.5
16822	Class Osteichthyes		Scale	86	2.6
16825	Class Osteichthyes		Indeterminate	103	12.1
16833	Class Osteichthyes		Indeterminate	19	1.1
14368	Class Osteichthyes		Indeterminate	1	0.3
14507	Class Osteichthyes		Indeterminate	1	0.1
14444	*Acipenser* spp.	I	Scute	81	64.7
14254	cf. *Acipenser* spp.		Indeterminate	9	36.5
14253	cf. *Acipenser* spp.		Indeterminate	3	5.1
14490	Family Catostomidae	R	Frontal	1	0.1
14372	Family Catostomidae	L	Opercular	1	0.6
14491	Family Catostomidae	R	Opercular	1	0.1
14489	Family Catostomidae	R	Subopercular	1	0.2
15963	Family Ictaluridae	A	Cranium	5	1.0
15988	Family Ictaluridae	R	Frontal	1	0.2
14510	Family Ictaluridae	L	Quadrate	3	0.1
14501	Family Ictaluridae	R	Hyomandibular	2	0.2
14508	Family Ictaluridae	L	Opercular	1	0.1
15962	Family Ictaluridae	A	Urohyal	1	0.1
14506	Family Ictaluridae	A	Urohyal	1	0.1
14540	Family Ictaluridae	L	Cleithrum	1	0.4
15961	Family Ictaluridae	L	Cleithrum	1	0.3
14541	Family Ictaluridae	R	Cleithrum	1	0.0
14542	Family Ictaluridae	L	Angular	1	0.1
15586	Family Ictaluridae	A	Complex vertebra	1	0.1
14509	Family Ictaluridae	A	Second pterygiophore	1	0.1
14363	Family Ictaluridae	L	Pectoral spine	2	0.7
14502	*Morone americana*	L	Maxilla	1	0.1
14495	*Morone americana*	L	Quadrate	1	0.0
14493	*Morone americana*	R	Quadrate	2	0.1
14496	*Morone americana*	L	Preopercular	2	0.2
14492	*Morone americana*	R	Cleithrum	2	0.2

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
14494	*Morone americana*	R	Dentary	2	0.1
14498	*Morone americana*	L	Angular	1	0.1
14497	*Morone* spp.	L	Posttemporal	1	0.0
14504	*Morone* spp.	A	Supraorbital	1	0.0
14503	*Morone* spp.	A	Basioccipital	2	0.2
14499	*Morone* spp.	L	Scapula	1	0.0
14500	*Morone* spp.	R	Scapula	1	0.0
14505	*Archosargus probatocephalus*	I	Posttemporal	1	0.7
14352	Order Testudines		Carapace	28	12.7
16831	Order Testudines		Carapace	3	0.5
14262	*Malaclemys terrapin*	A	Carapace	3	1.8
14270	cf. *Malaclemys terrapin*	A	Carapace	3	5.2
14920	*Terrapene carolina*	A	Carapace	1	2.6
14332	*Terrapene carolina*	A	Carapace	2	1.8
14335	*Terrapene carolina*	A	Carapace	1	3.1
14263	*Terrapene carolina*	A	Carapace	3	1.5
14337	*Terrapene carolina*	A	Carapace	3	1.6
14268	*Terrapene carolina*	A	Plastron	1	1.8
14280	Class Aves		Cranium	1	0.7
16819	Class Aves		Rib	3	0.3
14276	Class Aves	A	Sternum or sternabrae	1	0.4
14256	Class Aves	R	Scapula	1	0.4
16818	Class Aves		Limb bone	22	7.4
14257	Class Aves		Limb bone	2	1.8
16820	Class Aves		Indeterminate	38	5.5
14547	Class Aves		Indeterminate	2	0.3
16830	Class Aves/Mammalia III		Limb bone	1	0.7
14305	Class Aves/Mammalia III		Limb bone	1	0.2
14264	*Branta canadensis*	R	Radius	1	0.5
14488	Duck spp.	R	Humerus	1	3.4
14302	cf. Goose spp.	A	Cervical vertebra	1	0.4
14546	cf. *Gallus gallus*	A	Cervical vertebra	1	0.4
14259	cf. *Gallus gallus*	R	Innominate	1	0.3
14544	Order Passeriformes	A	Sternum or sternabrae	1	0.0
14545	Order Passeriformes	R	Femur	1	0.1
14543	Order Passeriformes	R	Fibula	1	0.0
16829	Class Mammalia		Indeterminate	69	19.1
16832	Class Mammalia		Indeterminate	16	3.7
16826	Class Mammalia I		Vertebra	1	5.3
16827	Class Mammalia I		Rib	2	9.7
14277	Class Mammalia II		Rib	1	1.6
16828	Class Mammalia II		Limb bone	17	13.7
14303	Class Mammalia III	A	Caudal vertebra	2	0.1
14304	Class Mammalia III		Indeterminate	1	0.3
14580	Order Rodentia	I	Upper incisor	1	0.0
14301	cf. *Sciurus* spp.	L	Mandible	1	0.1

Table 31
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UBNo.	Taxon	Sym	Element	NISP	Wgt
14553	*Sciurus carolinensis*	A	Thoracic vertebra	1	0.1
14550	*Sciurus carolinensis*	A	Caudal vertebra	1	0.2
14551	*Sciurus niger*	R	Scapula	1	0.2
14549	*Sciurus niger*	L	Ulna	1	0.2
14272	*Sciurus niger*	R	Tibia	1	1.3
14552	*Sciurus niger*	L	Calcaneus	1	0.2
14487	Family Delphinidae	I	Tooth	1	0.6
14556	*Procyon lotor*	R	Upper premolar	1	0.2
14918	*Procyon lotor*	L	Innominate	1	4.1
14265	*Procyon lotor*	L	Calcaneus	1	1.1
14555	*Procyon lotor*	L	Astragalus	1	0.9
14554	*Procyon lotor*	R	Astragalus	1	0.5
14273	*Sus scrofa*	A	Frontal	1	4.1
14267	*Sus scrofa*	I	Calcaneus	1	1.8
14578	cf. *Odocoileus virginianus*	I	Premolar or molar	1	0.3
14282	cf. *Odocoileus virginianus*		Rib	1	3.6
14275	*Odocoileus virginianus*	R	Tibia	1	4.8
14266	cf. *Bos taurus*	I	Carpal or tarsal	1	7.0
Context: 1795D					
15116	*Callinectes sapidus*		Claw	1	0.1
15385	Order Rajiformes	I	Dentary/premaxilla	31	14.0
15445	Order Carcharhiniformes	A	Vertebra	2	2.3
16726	Class Osteichthyes		Vertebra	19	3.3
16802	Class Osteichthyes		Vertebra	142	8.2
16702	Class Osteichthyes		Rib	15	0.7
16705	Class Osteichthyes		Rib	9	0.6
16701	Class Osteichthyes		Spine	48	3.5
16704	Class Osteichthyes		Spine	43	2.5
16727	Class Osteichthyes		Spine	32	3.2
16805	Class Osteichthyes		Spine	46	5.9
16725	Class Osteichthyes		Scale	19	1.2
16803	Class Osteichthyes		Scale	220	3.3
16804	Class Osteichthyes		Scale	7	0.4
16703	Class Osteichthyes		Indeterminate	253	33.6
16706	Class Osteichthyes		Indeterminate	26	13.0
16707	Class Osteichthyes		Indeterminate	233	28.5
15174	Class Osteichthyes		Indeterminate	3	0.2
15027	Class Osteichthyes		Indeterminate	9	0.6
15028	Class Osteichthyes		Indeterminate	5	0.5
15191	*Acipenser* spp.	I	Scute	258	205.2
15417	*Lepisosteus* spp.	I	Scale	40	2.2
16501	*Clupea harengus*	L	Dentary	1	0.2
15029	Family Anguillidae	L	Dentary/premaxilla	2	0.2
15133	Family Catostomidae	A	Cranium	2	0.4

Table 31
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UBNo.	Taxon	Sym	Element	NISP	Wgt
15145	Family Catostomidae	L	Premaxilla	1	0.3
15146	Family Catostomidae	R	Premaxilla	2	0.3
15035	Family Catostomidae	L	Maxilla	1	0.2
15036	Family Catostomidae	R	Maxilla	2	0.2
15059	Family Catostomidae	A	Parasphenoid	3	0.6
15020	Family Catostomidae	I	Frontal	1	0.1
15037	Family Catostomidae	L	Quadrate	3	0.3
15148	Family Catostomidae	R	Quadrate	1	0.1
15038	Family Catostomidae	R	Quadrate	3	0.5
15383	Family Catostomidae	L	Hyomandibular	1	0.1
15106	Family Catostomidae	L	Hyomandibular	1	0.2
15384	Family Catostomidae	R	Hyomandibular	2	0.4
15143	Family Catostomidae	R	Hyomandibular	1	0.2
15033	Family Catostomidae	L	Opercular	4	0.7
15034	Family Catostomidae	R	Opercular	5	1.0
15017	Family Catostomidae	L	Subopercular	3	0.3
15147	Family Catostomidae	I	Pharyngeal plate	2	0.1
16116	Family Catostomidae	I	Pharyngeal plate	1	0.2
16117	Family Catostomidae	I	Pharyngeal plate	2	0.3
15019	Family Catostomidae	I	Pharyngeal plate	1	0.0
16383	Family Catostomidae	R	Cleithrum	1	0.2
15144	Family Catostomidae	R	Cleithrum	2	0.6
15018	Family Catostomidae	R	Angular	1	0.1
15042	Family Catostomidae	A	Vertebra	1	0.6
15125	Family Ictaluridae	L	Premaxilla	2	0.4
15126	Family Ictaluridae	R	Premaxilla	1	0.1
15123	Family Ictaluridae	I	Palatine	1	0.2
15170	Family Ictaluridae	L	Frontal	1	0.1
15169	Family Ictaluridae	R	Frontal	2	0.5
15168	Family Ictaluridae	R	Quadrate	2	0.2
15152	Family Ictaluridae	L	Hyomandibular	3	0.6
15153	Family Ictaluridae	L	Opercular	5	0.5
15156	Family Ictaluridae	R	Opercular	1	0.1
15023	Family Ictaluridae	R	Opercular	1	0.0
15173	Family Ictaluridae	I	Interopercular	1	0.1
15172	Family Ictaluridae	L	Ceratohyal	1	0.1
15171	Family Ictaluridae	R	Ceratohyal	2	0.2
15124	Family Ictaluridae	A	Urohyal	1	0.1
15100	Family Ictaluridae	L	Cleithrum	6	1.8
15154	Family Ictaluridae	L	Cleithrum	2	0.3
15155	Family Ictaluridae	R	Cleithrum	8	2.5
15129	Family Ictaluridae	R	Cleithrum	1	0.5
15166	Family Ictaluridae	L	Supracleithrum	1	0.3
15167	Family Ictaluridae	R	Supracleithrum	1	0.1
15021	Family Ictaluridae	A	Ethmoid cornu	1	0.0
15157	Family Ictaluridae	A	Basioccipital	2	0.8

Table 31
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UBNo.	Taxon	Sym	Element	NISP	Wgt
15128	Family Ictaluridae	I	Dentary	2	0.3
15161	Family Ictaluridae	L	Dentary	1	1.0
15057	Family Ictaluridae	L	Dentary	1	0.1
15127	Family Ictaluridae	L	Dentary	2	0.2
15160	Family Ictaluridae	R	Dentary	2	0.4
15058	Family Ictaluridae	R	Dentary	1	0.1
15158	Family Ictaluridae	L	Angular	3	1.5
15159	Family Ictaluridae	R	Angular	2	0.3
15430	Family Ictaluridae	A	Complex vertebra	4	1.3
15105	Family Ictaluridae	L	Pectoral spine	8	1.0
15151	Family Ictaluridae	L	Pectoral spine	2	0.5
15149	Family Ictaluridae	R	Pectoral spine	4	0.5
15150	Family Ictaluridae	R	Pectoral spine	2	0.8
15162	Family Ictaluridae	L	Coracoid	4	0.6
15163	Family Ictaluridae	L	Coracoid	1	0.1
15164	Family Ictaluridae	R	Coracoid	3	0.5
15165	Family Ictaluridae	R	Coracoid	1	0.2
15022	Family Ictaluridae	R	Coracoid	1	0.0
15211	Order Gadiformes	L	Posttemporal	1	0.2
15131	Family Percichthyidae	L	Opercular	1	0.1
15132	Family Percichthyidae	A	First pterygiophore	1	0.1
15031	*Morone americana*	L	Premaxilla	1	0.1
15377	*Morone americana*	L	Frontal	4	0.6
15378	*Morone americana*	R	Frontal	2	0.2
15119	*Morone americana*	L	Quadrate	1	0.0
15120	*Morone americana*	R	Quadrate	1	0.0
15117	*Morone americana*	L	Posttemporal	1	0.0
15118	*Morone americana*	R	Posttemporal	1	0.1
15375	*Morone americana*	I	Opercular	2	0.2
15025	*Morone americana*	I	Opercular	1	0.1
15374	*Morone americana*	L	Opercular	2	0.1
15376	*Morone americana*	R	Opercular	1	0.1
15101	*Morone americana*	L	Preopercular	2	0.3
15371	*Morone americana*	L	Preopercular	1	0.0
15371	*Morone americana*	R	Preopercular	3	0.3
15026	*Morone americana*	I	Interopercular	1	0.0
15032	*Morone americana*	L	Ceratohyal	1	0.1
15380	*Morone americana*	L	Cleithrum	1	0.1
15381	*Morone americana*	L	Cleithrum	2	0.2
15382	*Morone americana*	R	Cleithrum	2	0.2
15379	*Morone americana*	A	Supraoccipital	1	0.1
15372	*Morone americana*	L	Dentary	3	0.3
15373	*Morone americana*	R	Dentary	2	0.2
15121	*Morone americana*	L	Angular	4	0.2
15122	*Morone americana*	R	Angular	2	0.2
15024	*Morone americana*	R	Scapula	1	0.1

Table 31
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UBNo.	Taxon	Sym	Element	NISP	Wgt
15327	Order Testudines		Carapace	74	20.2
14847	Order Testudines		Carapace	15	5.1
15440	Order Testudines		Carapace	5	1.0
14761	Order Testudines	I	Carpal or tarsal	1	0.8
14671	Order Testudines	I	Carpal or tarsal	1	0.6
15443	*Chelydra serpentina*	L	Innominate	1	0.9
14786	cf. *Chelydra serpentine*	R	Quadrate	1	1.1
14799	*Malaclemys terrapin*	A	Carapace	4	2.7
14858	*Malaclemys terrapin*	A	Carapace	1	1.6
15439	*Terrapene carolina*	I	Innominate	1	0.1
14916	*Terrapene carolina*	R	Innominate	1	0.3
14809	*Terrapene carolina*	A	Carapace	1	11.3
14833	*Terrapene carolina*	A	Carapace	1	7.1
14808	*Terrapene carolina*	A	Carapace	4	10.3
14853	*Terrapene carolina*	A	Carapace	1	0.9
14807	*Terrapene carolina*	A	Carapace	30	21.5
14822	*Terrapene carolina*	A	Carapace	8	4.1
14826	*Terrapene carolina*	A	Carapace	1	5.3
14800	*Terrapene carolina*	A	Plastron	1	0.8
15438	*Terrapene carolina*	L	Radius	2	0.3
15435	*Terrapene carolina*	R	Femur	2	1.1
15436	*Terrapene carolina*	L	Tibia	1	0.2
15437	*Terrapene carolina*	R	Tibia	1	0.2
15317	Family Colubridae	A	Vertebra	41	3.8
16711	Class Aves		Cranium	13	3.0
14781	Class Aves	A	Premaxilla	1	0.2
14779	Class Aves	A	Dentary	1	0.1
14780	Class Aves	A	Dentary	1	0.2
16710	Class Aves		Vertebra	6	1.7
16709	Class Aves		Rib	14	2.6
14767	Class Aves	I	Radius	1	1.5
16708	Class Aves		Limb bone	54	15.2
14737	Class Aves		Limb bone	6	2.3
13976	Class Aves		Limb bone	1	1.3
15350	Class Aves		Third phalanx	2	0.2
16712	Class Aves		Indeterminate	79	19.1
14764	Class Aves		Indeterminate	2	1.4
15346	Class Aves		Indeterminate	9	0.7
15107	cf. *Branta canadensis*	R	Quadrate	1	0.1
14763	*Branta canadensis*	A	Sternum or sternabrae	1	3.1
15393	*Branta canadensis*	L	Scapula	1	1.5
15397	*Branta canadensis*	L	Scapula	1	0.6
15398	*Branta canadensis*	L	Humerus	1	2.1
15112	cf. *Branta canadensis*	L	Humerus	1	0.7
15113	cf. *Branta canadensis*	L	Humerus	1	0.6
15399	*Branta canadensis*	R	Humerus	1	8.8

Table 31
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UBNo.	Taxon	Sym	Element	NISP	Wgt
15111	*Branta canadensis*	R	Radius	1	0.2
15108	*Branta canadensis*	L	Cuneiform	1	0.3
15392	*Branta canadensis*	L	Tarsometatarsus	1	1.1
15009	*Anas* spp.	R	Scapula	1	0.6
15401	*Anas* spp.	R	Coracoid	1	0.9
15010	*Anas* spp.	R	Humerus	1	1.6
15402	*Anas* spp.	R	Humerus	1	3.6
15012	*Anas* spp.	L	Carpometacarpus	1	0.7
15011	*Anas* spp.	L	Carpometacarpus	1	0.6
15013	*Anas* spp.	R	Carpometacarpus	1	1.1
15014	*Aythya* americana	R	Tibiotarsus	1	0.3
15394	*Bucephala albeola*	L	Coracoid	1	0.5
15395	*Bucephala albeola*	L	Ulna	1	0.2
15348	Duck spp.	A	Vertebra	8	1.2
14783	Duck spp.	A	Sternum or sternabrae	1	0.2
14784	Duck spp.	A	Furculum	1	0.1
14785	Duck spp.	A	Furculum	1	0.1
15446	Duck spp.	R	Humerus	1	0.3
15447	Duck spp.	R	Humerus	1	0.2
14750	Duck spp.	I	Tibiotarsus	1	0.9
15318	Goose spp.	A	Frontal	1	1.5
15326	Goose spp.	R	Occipital	1	0.6
15114	Goose spp.	A	Cervical vertebra	3	1.2
15331	Goose spp.	A	Sternum or sternabrae	1	0.5
15391	Goose spp.	A	Sternum or sternabrae	1	1.9
15306	Goose spp.	A	Sternum or sternabrae	1	0.7
15310	Goose spp.	A	Sternum or sternabrae	1	0.7
15305	Goose spp.	A	Sternum or sternabrae	1	0.8
14740	Goose spp.	A	Sternum or sternabrae	1	0.7
14762	Goose spp.	A	Sternum or sternabrae	1	0.5
14770	cf. Goose spp.	A	Sternum or sternabrae	1	0.3
15307	cf. Goose spp.	A	Sternum or sternabrae	1	0.4
15109	Goose spp.	L	Coracoid	1	0.3
15400	Goose spp.	R	Coracoid	1	0.9
15110	Goose spp.	R	Coracoid	1	0.1
14748	Goose spp.	I	Humerus	1	2.7
15396	Goose spp.	L	Humerus	1	11.1
15345	Goose spp.	L	Humerus	1	0.6
15209	*Larus* spp.	A	Premaxilla	1	0.1
15210	*Larus* spp.	A	Premaxilla	1	0.1
15405	Family Accipitridae	I	Ungual phalanx	4	0.9
15390	*Cathartes aura*	R	Ulna	2	4.9
15387	*Cathartes aura*	L	Femur	1	1.9
15404	*Meleagris gallopavo*	L	Innominate	1	1.5
15403	*Meleagris gallopavo*	R	Coracoid	1	1.9
15344	*Gallus gallus*	L	Coracoid	1	0.1

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
14749	Order Passeriformes	L	Coracoid	1	0.5
14782	Order Passeriformes	L	Coracoid	1	0.2
14775	Order Passeriformes	R	Carpometacarpus	1	0.0
14736	Order Passeriformes	R	Phalanx I, digit II	1	0.2
14769	Order Passeriformes	R	Phalanx I, digit II	1	0.1
14777	Order Passeriformes		Phalanx 2, digit II	1	0.1
14778	Order Passeriformes		Phalanx 2, digit II	1	0.1
14774	Order Passeriformes	L	Tibiotarsus	1	0.1
14776	Order Passeriformes	L	Tibiotarsus	1	0.1
14773	Order Passeriformes	R	Tibiotarsus	1	0.2
15207	cf. *Corvus brachyrhynchos*	R	Radius	1	0.4
15008	*Corvus brachyrhynchos*	R	Carpometacarpus	1	0.5
15015	*Corvus brachyrhynchos*	R	Carpometacarpus	1	0.7
15016	*Corvus brachyrhynchos*	R	Carpometacarpus	1	0.2
15389	*Corvus brachyrhynchos*	L	Tarsometatarsus	1	0.7
15388	*Corvus brachyrhynchos*	R	Tarsometatarsus	1	0.8
15007	*Phalacrocorax auritus*	L	Tibiotarsus	1	2.6
14772	*Pterodroma cahow*	L	Radius	1	0.2
16721	Class Mammalia		Indeterminate	49	38.5
16724	Class Mammalia		Indeterminate	37	6.2
14683	Class Mammalia		Indeterminate	1	1.4
14674	Class Mammalia		Indeterminate	1	1.0
14795	Class Mammalia		Indeterminate	4	0.4
16715	Class Mammalia I		Cranium	1	4.7
16714	Class Mammalia I		Rib	5	25.0
16716	Class Mammalia I		Limb bone	4	11.6
16719	Class Mammalia II		Vertebra	26	13.2
16718	Class Mammalia II		Rib	9	7.4
16717	Class Mammalia II		Limb bone	15	18.3
16723	Class Mammalia II		Limb bone	7	6.0
16713	Class Mammalia III		Cranium	29	5.5
15323	Class Mammalia III		Cranium	1	1.2
16722	Class Mammalia III		Tooth	1	0.2
14787	Class Mammalia III		Tooth	3	0.5
16720	Class Mammalia III		Rib	12	2.3
14791	Class Mammalia III		Indeterminate	1	0.4
15199	Rabbit spp.	L	Ulna	1	0.7
15200	Rabbit spp.	L	Ulna	1	0.6
14765	cf. *Sylvilagus floridanus*	R	Femur	1	0.5
15416	*Sciurus* spp.	I	Canine	7	0.9
14793	cf. *Sciurus* spp.	I	Carpal or tarsal	10	0.7
14797	*Sciurus* spp.	I	Phalanx	2	0.0
15425	*Sciurus carolinensis*	A	Cervical vertebra	4	0.4
15062	*Sciurus carolinensis*	L	Innominate	1	0.2
15066	*Sciurus carolinensis*	L	Innominate	1	0.2
15063	*Sciurus carolinensis*	R	Innominate	1	0.2

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
15071	*Sciurus carolinensis*	L	Scapula	1	0.1
15068	*Sciurus carolinensis*	R	Scapula	1	0.1
15070	*Sciurus carolinensis*	R	Humerus	1	0.1
15060	*Sciurus carolinensis*	R	Ulna	1	0.2
15061	*Sciurus carolinensis*	R	Radius	1	0.2
14746	*Sciurus carolinensis*	L	Femur	1	0.7
14771	*Sciurus carolinensis*	L	Tibia	1	0.3
15065	*Sciurus carolinensis*	L	Calcaneus	1	0.1
15067	*Sciurus carolinensis*	L	Astragalus	1	0.2
15075	cf. *Sciurus niger*	A	Cranium	2	0.1
15073	*Sciurus niger*	L	Premaxilla	1	0.3
15074	*Sciurus niger*	A	Occipital	1	0.2
15208	*Sciurus niger*	R	Innominate	1	0.6
14948	*Sciurus niger*	L	Scapula	1	0.3
15205	*Sciurus niger*	L	Humerus	1	0.8
15072	*Sciurus niger*	R	Humerus	1	0.2
15202	*Sciurus niger*	R	Ulna	1	0.3
15201	*Sciurus niger*	R	Ulna	1	0.3
15204	*Sciurus niger*	L	Femur	1	0.5
15206	*Sciurus niger*	R	Femur	1	0.8
15203	*Sciurus niger*	L	Tibia	1	0.4
14743	*Sciurus niger*	R	Tibia	1	0.5
15064	*Sciurus niger*	R	Calcaneus	2	0.4
14653	*Castor canadensis*	L	Innominate	1	9.7
15220	Family Cricetidae	R	Humerus	2	0.0
15221	Family Cricetidae	R	Femur	1	0.1
15069	cf. *Ondatra zibethica*	R	Scapula	1	0.2
14200	*Rattus* spp.	R	Tibia	1	0.3
15218	*Tursiops truncatus*	I	Tooth	1	0.9
15219	*Tursiops truncatus*	I	Rib	1	6.5
15196	*Canis* spp.	R	Premaxilla	1	3.8
15194	*Canis* spp.	I	Canine	1	2.0
15195	*Canis* spp.	I	Canine	1	5.7
15198	*Canis* spp.	I	Canine	1	1.6
14766	cf. *Canis* spp.	I	Vertebra	1	1.6
15197	*Canis* spp.	L	Third phalanx	1	0.2
15354	*Procyon lotor*	L	Premaxilla	1	0.3
15314	*Procyon lotor*	L	Maxilla	1	3.9
15358	*Procyon lotor*	L	Maxilla	1	1.9
15315	*Procyon lotor*	R	Maxilla	1	3.4
15330	cf. *Procyon lotor*	L	Palatine	1	1.1
15351	cf. *Procyon lotor*	A	Nasal	1	0.4
14754	*Procyon lotor*	A	Frontal	1	1.2
15322	cf. *Procyon lotor*	I	Frontal	1	2.2
15355	*Procyon lotor*	R	Frontal	1	0.4
14682	*Procyon lotor*	L	Temporal	1	1.6

Table 31
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UBNo.	Taxon	Sym	Element	NISP	Wgt
15352	cf. *Procyon lotor*	R	Temporal	1	0.3
14738	*Procyon lotor*	R	Temporal	1	1.1
15357	*Procyon lotor*	L	Meatus acusticus internus	1	0.2
15332	*Procyon lotor*	L	Mandible	1	1.8
15316	*Procyon lotor*	R	Mandible	1	8.9
15363	*Procyon lotor*	L	Upper premolar	1	0.1
14792	cf. *Procyon lotor*	I	Incisor	1	0.0
15366	*Procyon lotor*	I	Incisor	4	0.5
14789	cf. *Procyon lotor*	I	Canine	1	0.1
15364	*Procyon lotor*	L	Upper canine	1	0.8
15365	*Procyon lotor*	I	Lower canine	1	0.8
15360	*Procyon lotor*	L	Upper molar 1 or 2	1	0.5
15361	*Procyon lotor*	L	Lower molar 1	1	0.3
15359	*Procyon lotor*	L	Lower molar 2	1	0.4
15362	*Procyon lotor*	I	Lower molar 3	1	0.2
15356	*Procyon lotor*	A	Cervical vertebra	1	0.9
15353	*Procyon lotor*	L	Innominate	1	0.9
14664	*Procyon lotor*	L	Scapula	1	1.5
14669	*Procyon lotor*	L	Scapula	1	1.3
14654	*Procyon lotor*	L	Humerus	1	4.4
14676	*Procyon lotor*	L	Humerus	1	1.7
14657	*Procyon lotor*	R	Humerus	1	2.4
14661	*Procyon lotor*	L	Ulna	1	1.8
14679	*Procyon lotor*	L	Ulna	1	0.8
14658	*Procyon lotor*	R	Radius	1	2.7
14667	*Procyon lotor*	R	Radius	1	1.1
14768	cf. *Procyon lotor*	I	Metapodial	1	0.3
14788	cf. *Procyon lotor*	I	Carpal or tarsal	2	0.4
14790	cf. *Procyon lotor*	I	Carpal or tarsal	5	0.4
14584	Order Artiodactyla I	R	Tibia	1	8.8
15313	*Sus scrofa*	L	Mandible	1	33.4
15335	*Sus scrofa*	L	Mandible	1	5.9
15284	*Sus scrofa*	L	Upper incisor	1	0.6
15286	*Sus scrofa*	L	Upper premolar 3 or 4	1	0.5
15284	*Sus scrofa*	L	Lower premolar 4	1	1.1
15285	*Sus scrofa*	L	Upper molar 1 or 2	1	0.9
15312	cf. *Sus scrofa*	A	Thoracic vertebra	1	6.0
15308	cf. *Sus scrofa*	A	Thoracic vertebra	1	5.5
14726	*Sus scrofa*	I	Third phalanx	1	0.2
15294	*Odocoileus virginianus*	I	Antler	1	9.9
15293	*Odocoileus virginianus*	A	Cervical vertebra	1	6.1
15309	cf. *Odocoileus virginianus*	A	Thoracic vertebra	1	12.4
14663	cf. *Odocoileus virginianus*	I	Rib	1	2.4
14651	*Odocoileus virginianus*	L	Radius	1	9.9
15217	*Bos taurus*	I	Rib	1	28.0
14652	*Bos taurus*	L	Innominate	1	47.8

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
15216	*Bos taurus*	L	Innominate	1	81.1
14655	cf. *Bos taurus*	I	Humerus	1	7.6
Context: 1795E					
15511	Order Lamniformes	A	Vertebra	2	3.2
15782	Order Rajiformes	I	Dentary/premaxilla	45	16.4
15780	Order Rajiformes	I	Dentary/premaxilla	6	6.7
15781	Order Carcharhiniformes	A	Vertebra	1	1.9
16748	Class Osteichthyes		Vertebra	63	4.4
16749	Class Osteichthyes		Vertebra	6	1.0
15508	Class Osteichthyes		Vertebra	1	0.3
16751	Class Osteichthyes		Rib	6	0.4
16750	Class Osteichthyes		Spine	55	11.5
15597	Class Osteichthyes		Spine	5	0.4
15908	Class Osteichthyes		Spine	1	0.7
15610	Class Osteichthyes		Spine	7	1.1
16747	Class Osteichthyes		Scale	90	2.5
16752	Class Osteichthyes		Indeterminate	213	65.2
15598	Class Osteichthyes		Indeterminate	10	0.8
15611	Class Osteichthyes		Indeterminate	1	0.0
15637	Class Osteichthyes		Indeterminate	8	3.0
15625	Class Osteichthyes		Indeterminate	7	1.8
15540	Class Osteichthyes		Indeterminate	1	0.4
15902	*Acipenser* spp.		Spine	2	2.0
15620	*Acipenser* spp.	I	Spine	7	5.4
15509	cf. *Acipenser* spp.	I	Spine	2	3.8
15650	*Acipenser* spp.	I	Scute	30	154.5
15705	*Acipenser* spp.	I	Scute	268	246.2
15640	cf. *Acipenser* spp.	I	Indeterminate	9	13.0
15936	*Lepisosteus* spp.	A	Vertebra	1	0.1
15814	*Lepisosteus* spp.		Scale	53	2.9
15608	Family Anguillidae	L	Dentary/premaxilla	1	0.1
15609	Family Anguillidae	R	Dentary/premaxilla	1	0.1
15991	Family Catostomidae	L	Maxilla	1	0.3
15992	Family Catostomidae	R	Maxilla	1	0.1
15596	Family Catostomidae	R	Frontal	1	0.1
15994	Family Catostomidae	L	Quadrate	2	0.1
15989	Family Catostomidae	L	Hyomandibular	2	0.3
15990	Family Catostomidae	R	Hyomandibular	1	0.1
15993	Family Catostomidae	L	Dentary	1	0.1
15935	Family Catostomidae	A	Vertebra	1	0.2
15567	Family Ictaluridae	L	Premaxilla	3	0.3
15568	Family Ictaluridae	R	Premaxilla	1	0.1
15912	Family Ictaluridae	L	Hyomandibular	1	0.9
15910	Family Ictaluridae	R	Hyomandibular	2	0.9

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
15984	Family Ictaluridae	L	Opercular	2	0.3
15974	Family Ictaluridae	R	Opercular	2	0.1
15981	Family Ictaluridae	A	Basioccipital	1	0.4
15911	Family Ictaluridae	R	Dentary	1	0.6
15985	Family Ictaluridae	R	Dentary	4	0.6
15982	Family Ictaluridae	L	Angular	3	1.1
15983	Family Ictaluridae	R	Angular	2	0.7
15817	Family Ictaluridae	L	Pectoral spine	8	3.1
15980	Family Ictaluridae	L	Pectoral spine	3	0.2
15986	Family Ictaluridae	L	Coracoid	1	0.1
15987	Family Ictaluridae	L	Coracoid	1	0.3
15607	*Perca flavescens*	L	Opercular	1	0.1
15585	*Morone americana*	L	Frontal	1	0.1
15572	*Morone americana*	R	Frontal	2	0.2
15601	*Morone americana*	L	Quadrate	1	0.1
15602	*Morone americana*	R	Posttemporal	1	0.0
15599	*Morone americana*	L	Hyomandibular	1	0.0
15600	*Morone americana*	R	Hyomandibular	1	0.1
15575	*Morone americana*	L	Opercular	1	0.1
15576	*Morone americana*	L	Opercular	1	0.0
15577	*Morone americana*	R	Opercular	1	0.1
15581	*Morone americana*	I	Preopercular	1	0.0
15605	*Morone americana*	L	Preopercular	1	0.1
15579	*Morone americana*	L	Preopercular	2	0.6
15580	*Morone americana*	L	Preopercular	2	0.2
15582	*Morone americana*	R	Preopercular	2	0.2
15583	*Morone americana*	R	Preopercular	4	0.4
15606	*Morone americana*	R	Interopercular	1	0.0
15634	*Morone americana*	L	Epihyal	1	0.0
15573	*Morone americana*	L	Cleithrum	1	0.0
15578	*Morone americana*	R	Cleithrum	2	0.3
15784	*Morone americana*	L	Dentary	1	0.1
15603	*Morone americana*	L	Scapula	1	0.1
15574	*Morone* spp.	L	Ceratohyal	2	0.2
15584	*Morone* spp.	R	Dentary	3	0.3
15907	Family Serranidae	L	Posttemporal	1	1.6
15750	*Archosargus probatocephalus*	I	Incisor	1	0.3
15566	Family Sciaenidae	I	Pharyngeal plate	1	0.2
14915	Order Testudines		Carapace	65	22.2
16737	Order Testudines		Carapace	1	0.4
16738	Order Testudines		Carapace	9	2.4
15894	*Chelydra serpentina*	A	Carapace	2	2.4
15825	*Chelydra serpentina*	A	Carapace	1	1.4
14914	cf. *Chelydra serpentina*	A	Carapace	8	4.7
15826	cf. *Malaclemys terrapin*	A	Carapace	2	5.4
15838	*Terrapene carolina*	A	Carapace	1	2.1

Table 31
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UBNo.	Taxon	Sym	Element	NISP	Wgt
15898	*Terrapene carolina*	A	Carapace	4	2.4
15835	*Terrapene carolina*	A	Carapace	1	1.2
15824	*Terrapene carolina*	A	Carapace	1	1.3
15896	*Terrapene carolina*	A	Carapace	10	9.9
15830	*Terrapene carolina*	A	Carapace	1	1.9
15840	*Terrapene carolina*	A	Carapace	1	1.8
15892	*Terrapene carolina*	A	Carapace	1	0.7
14913	*Terrapene carolina*	A	Carapace	3	2.1
15899	*Terrapene carolina*	A	Carapace	1	1.8
15841	*Terrapene carolina*	L	Carapace	2	4.5
15833	*Terrapene carolina*	R	Carapace	1	5.2
15832	*Terrapene carolina*	A	Plastron	1	10.6
15890	*Terrapene carolina*	A	Plastron	1	0.8
14912	*Terrapene carolina*	A	Plastron	1	0.7
15829	*Terrapene carolina*	R	Plastron	1	0.8
15901	cf. *Terrapene carolina*	R	Humerus	1	0.2
18149	cf. *Terrapene carolina*	R	Humerus	1	0.2
16744	Class Aves		Cranium	7	1.5
15915	Class Aves	A	Cervical vertebra	9	2.1
16745	Class Aves		Rib	8	1.2
15534	Class Aves		Rib	1	0.2
16739	Class Aves		Limb bone	3	1.0
16743	Class Aves		Limb bone	31	10.1
16746	Class Aves		Limb bone	26	5.0
15503	Class Aves		Limb bone	1	0.2
15505	Class Aves		Limb bone	7	6.0
15853	Class Aves		Indeterminate	1	0.3
15479	Class Aves		Indeterminate	3	1.2
15474	Class Aves/Mammalia III		Cranium	1	1.3
16736	Class Aves/Mammalia III		Limb bone	17	1.1
16740	Class Aves/Mammalia III		Limb bone	6	1.3
16520	*Branta canadensis*	R	Scapula	1	2.0
15957	*Branta canadensis*	L	Mandible	1	2.0
15958	*Branta canadensis*	L	Ulna	1	3.8
15996	*Branta canadensis*	R	Ulna	1	0.9
15591	*Branta canadensis*	L	Cuneiform	1	0.4
15950	*Branta canadensis*	L	Carpometacarpus	1	3.9
15951	*Branta canadensis*	L	Carpometacarpus	1	2.3
15949	*Branta canadensis*	L	Carpometacarpus	1	2.2
15954	*Branta canadensis*	L	Carpometacarpus	1	1.4
15956	*Branta canadensis*	L	Phalanx I, digit II	1	1.0
15953	*Branta canadensis*	L	Phalanx I, digit II	1	1.0
15952	*Branta canadensis*	L	Phalanx I, digit II	1	0.9
15955	*Branta canadensis*	R	Femur	1	1.2
15550	cf. *Bucephala albeola*	R	Scapula	1	0.2
15532	cf. Duck spp.	A	Sternum or sternabrae	1	0.7

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
15542	cf. Duck spp.	A	Sternum or sternabrae	1	0.4
15548	cf. Duck spp.	A	Sternum or sternabrae	1	0.2
15997	Duck spp.	L	Scapula	1	0.6
15999	Duck spp.	L	Coracoid	1	1.2
15851	Duck spp.	R	Coracoid	1	0.3
15516	Duck spp.	I	Ulna	1	1.4
15998	Duck spp.	L	Phalanx I, digit II	1	0.2
15852	Goose spp.	L	Mandible	1	0.4
15905	Goose spp.	R	Mandible	1	0.4
15914	Goose spp.	A	Cervical vertebra	1	1.0
15547	Goose spp.	R	Innominate	1	0.8
15507	cf. Goose spp.	R	Humerus	1	1.0
15535	Goose spp.	L	Phalanx 2, digit II	3	0.9
15521	Goose spp.	I	Digit indeterminate	1	0.2
15481	Goose spp.	R	Tibiotarsus	1	0.6
15464	Goose spp.	L	Tarsometatarsus	1	1.9
15959	*Larus* spp.	R	Coracoid	1	0.5
15960	*Larus* spp.	R	Ulna	1	0.8
15545	cf. *Meleagris gallopavo*	A	Cervical vertebra	1	0.9
15453	*Meleagris gallopavo*	A	Synsacrum	2	11.8
15482	cf. *Meleagris gallopavo*	A	Synsacrum	1	1.0
15467	*Meleagris gallopavo*	A	Sternum or sternabrae	1	9.3
15502	Order Passeriformes	I	Radius	1	0.0
15501	Order Passeriformes	L	Femur	1	0.0
16733	Class Mammalia		Indeterminate	114	28.5
16742	Class Mammalia		Indeterminate	41	8.3
15541	Class Mammalia		Indeterminate	1	0.9
15451	Class Mammalia		Indeterminate	6	12.6
15453	Class Mammalia		Indeterminate	1	1.3
16732	Class Mammalia II		Cranium	6	1.8
16730	Class Mammalia II		Vertebra	6	3.6
16728	Class Mammalia II		Rib	6	8.7
15461	Class Mammalia II		Rib	1	2.3
16729	Class Mammalia II		Limb bone	10	19.3
16741	Class Mammalia II		Limb bone	2	2.1
15457	Class Mammalia II		Limb bone	1	1.6
16731	Class Mammalia III		Cranium	3	0.5
15504	Class Mammalia III		Cranium	1	0.2
16735	Class Mammalia III		Rib	13	1.5
16734	Class Mammalia III		Limb bone	3	0.6
15514	Class Mammalia III		Limb bone	1	0.8
15554	Class Mammalia III		Metapodial	1	0.1
15470	Class Mammalia III	L	First phalanx	1	0.3
15971	*Sciurus* spp.	I	Maxilla	2	0.4
15967	*Sciurus* spp.	R	Maxilla	1	0.1
15763	*Sciurus* spp.	I	Incisor	4	0.8

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
15767	*Sciurus* spp.	I	Incisor	1	0.5
15553	*Sciurus* spp.	A	Thoracic vertebra	1	0.0
15563	*Sciurus* spp.	A	Caudal vertebra	16	1.3
15941	*Sciurus* spp.	R	Femur	1	0.5
15942	*Sciurus* spp.	R	Tibia	1	0.6
15565	*Sciurus* spp.	I	Metapodial	3	0.1
15564	*Sciurus* spp.	I	First phalanx	2	0.1
15752	*Sciurus carolinensis*	A	Frontal	1	0.8
15751	*Sciurus carolinensis*	A	Parietal	1	0.6
15761	*Sciurus carolinensis*	L	Occipital	1	0.6
15762	*Sciurus carolinensis*	R	Occipital	1	0.5
15764	*Sciurus carolinensis*	I	Premolar or molar	1	0.0
15933	*Sciurus carolinensis*	A	Atlas	1	0.1
15934	*Sciurus carolinensis*	A	Cervical vertebra	1	0.1
15972	*Sciurus carolinensis*	L	Innominate	1	0.2
15973	*Sciurus carolinensis*	L	Innominate	1	0.1
15968	*Sciurus carolinensis*	R	Innominate	1	0.5
15846	*Sciurus carolinensis*	L	Scapula	1	0.2
15947	*Sciurus carolinensis*	R	Humerus	1	0.9
15948	*Sciurus carolinensis*	R	Humerus	1	0.5
15519	*Sciurus carolinensis*	R	Humerus	1	0.4
15966	*Sciurus carolinensis*	R	Radius	1	0.3
15946	*Sciurus carolinensis*	L	Femur	1	0.6
15969	*Sciurus carolinensis*	R	Calcaneus	2	0.3
15970	*Sciurus carolinensis*	R	Astragalus	2	0.4
15940	*Sciurus niger*	L	Mandible	1	0.4
15939	*Sciurus niger*	I	Lower incisor	1	0.2
15847	*Sciurus niger*	R	Scapula	1	0.3
15945	*Sciurus niger*	L	Humerus	1	0.8
15845	cf. *Sciurus niger*	R	Humerus	1	0.3
15943	*Sciurus niger*	L	Femur	1	0.5
15944	*Sciurus niger*	L	Femur	1	1.1
15848	Family Cricetidae	L	Innominate	1	0.1
15480	Family Cricetidae	R	Innominate	1	0.3
15856	Family Cricetidae	R	Humerus	1	0.1
15450	cf. Family Delphinidae	I	Nasal	1	6.8
15484	Family Delphinidae	I	Tooth	10	7.3
15485	Family Delphinidae	A	Vertebra	1	1.1
15771	*Tursiops truncatus*	L	Nasal	1	17.6
15770	*Tursiops truncatus*	R	Nasal	1	19.6
15938	*Canis* spp.	L	Maxilla	1	7.4
15937	*Canis* spp.	L	Maxilla	1	3.2
15454	*Canis* spp.	R	Temporal	1	5.4
15465	*Canis* spp.	R	Temporal	1	1.7
15455	*Canis* spp.	R	Temporal	1	1.6
15475	*Procyon lotor*	L	Third tarsal	1	1.2

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
15857	*Procyon lotor*	L	Astragalus	2	1.0
15772	*Equus* spp.	I	Third phalanx	1	44.3
15463	cf. *Sus scrofa*	I	Nasal	1	1.4
15456	*Sus scrofa*	R	Malar	1	1.4
15754	*Sus scrofa*	R	Upper premolar	1	0.4
15850	*Sus scrofa*	I	Molar	1	0.6
15468	cf. *Sus scrofa*	L	Innominate	1	5.2
15849	cf. *Sus scrofa*	R	Femur	1	2.7
15858	cf. *Sus scrofa*	I	Carpal or tarsal	1	1.3
15498	*Odocoileus virginianus*	I	Antler	1	23.8
15499	*Odocoileus virginianus*	I	Antler	1	10.5
15500	*Odocoileus virginianus*	I	Antler	1	6.5
15459	*Odocoileus virginianus*	L	Scapula	1	1.2
15513	*Odocoileus virginianus*	L	Scapula	1	0.4
15497	*Odocoileus virginianus*	R	Tibia	1	25.8
15469	*Bos taurus*	L	Innominate	1	96.5
Context: 1795F					
16002	Order Carcharhiniformes	A	Vertebra	1	1.9
16767	Class Osteichthyes		Vertebra	4	0.2
16768	Class Osteichthyes		Vertebra	9	0.3
16769	Class Osteichthyes		Vertebra	15	0.7
16765	Class Osteichthyes		Spine	27	3.4
16766	Class Osteichthyes		Scale	13	0.1
16770	Class Osteichthyes		Indeterminate	89	13.4
14024	Class Osteichthyes		Indeterminate	2	0.3
16087	*Acipenser* spp.	I	Scute	49	62.4
15913	Family Catostomidae	I	Maxilla	1	0.1
16065	Family Catostomidae	L	Maxilla	2	0.7
16165	Family Catostomidae	R	Maxilla	1	0.3
16023	Family Catostomidae	A	Parasphenoid	1	0.2
16177	Family Catostomidae	L	Frontal	3	1.3
16169	Family Catostomidae	R	Frontal	2	0.4
16067	Family Catostomidae	L	Quadrate	2	0.3
16066	Family Catostomidae	R	Quadrate	2	0.3
14023	Family Catostomidae	I	Hyomandibular	1	0.1
16174	Family Catostomidae	L	Hyomandibular	3	0.7
16197	Family Catostomidae	R	Hyomandibular	1	0.3
16172	Family Catostomidae	I	Metapterygoid	2	0.6
16164	Family Catostomidae	L	Opercular	1	0.6
16160	Family Catostomidae	L	Opercular	2	0.5
16179	Family Catostomidae	R	Opercular	3	0.7
16016	Family Catostomidae	L	Subopercular	2	0.3
16176	Family Catostomidae	R	Subopercular	1	0.2
16017	Family Catostomidae	L	Interopercular	1	0.1

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
16168	Family Catostomidae	I	Cleithrum	1	0.7
16199	Family Catostomidae	L	Cleithrum	4	1.2
16182	Family Catostomidae	R	Cleithrum	2	0.7
16099	Family Catostomidae	A	Vertebra	1	0.1
14025	Family Catostomidae	A	Dorsal fin spine/ray	2	0.3
14026	Family Catostomidae		Indeterminate	1	0.2
16161	Family Ictaluridae	R	Hyomandibular	3	1.3
13987	Family Ictaluridae	L	Opercular	1	0.1
13985	Family Ictaluridae	R	Opercular	1	0.1
13989	Family Ictaluridae	L	Interopercular	1	0.4
13986	Family Ictaluridae	I	Cleithrum	1	0.1
16170	Family Ictaluridae	L	Cleithrum	1	1.4
13982	Family Ictaluridae	R	Cleithrum	1	0.2
13983	Family Ictaluridae	L	Angular	1	0.3
16198	Family Ictaluridae	R	Angular	1	1.0
16167	Family Ictaluridae	A	Complex vertebra	2	1.2
13988	Family Ictaluridae	A	Second pterygiophore	1	0.1
13992	Family Ictaluridae	L	Pectoral spine	2	0.7
16015	Family Ictaluridae	R	Pectoral spine	3	0.9
13984	Family Ictaluridae	L	Coracoid	2	0.4
16010	*Morone americana*	L	Premaxilla	1	0.1
16024	*Morone americana*	L	Frontal	3	0.7
16012	*Morone americana*	L	Quadrate	1	0.0
16025	*Morone americana*	R	Hyomandibular	2	0.2
16026	*Morone americana*	L	Opercular	1	0.1
16027	*Morone americana*	R	Opercular	2	0.1
16022	*Morone americana*	L	Preopercular	2	0.2
16011	*Morone americana*	L	Cleithrum	2	0.3
16020	*Morone americana*	L	Angular	1	0.1
16021	*Morone americana*	R	Angular	1	0.2
13991	*Morone* spp.	R	Premaxilla	1	0.0
16013	*Morone* spp.	A	Vomer	1	0.1
13990	*Morone* spp.	L	Quadrate	1	0.0
16014	*Morone* spp.	R	Ceratohyal	1	0.1
16138	Order Testudines		Carapace	6	3.7
16121	Order Testudines		Carapace	7	1.4
16758	Order Testudines		Carapace	2	0.2
16130	cf. *Chrysemys* spp.	A	Carapace	1	3.6
16132	*Malaclemys terrapin*	A	Carapace	1	0.4
16129	*Terrapene carolina*	A	Carapace	1	3.9
16133	*Terrapene carolina*	A	Plastron	1	6.9
16763	Class Aves		Cranium	4	0.9
16762	Class Aves		Rib	5	0.9
16761	Class Aves		Limb bone	22	5.4
16146	Class Aves		Limb bone	1	0.3
16764	Class Aves		Indeterminate	4	0.6

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
16151	Class Aves		Indeterminate	1	0.8
16753	Class Aves/Mammalia III		Limb bone	3	1.3
16034	cf. Goose spp.	A	Cervical vertebra	1	0.7
16008	Goose spp.	I	Innominate	1	0.8
16005	Goose spp.	L	Humerus	1	8.7
16007	Goose spp.	L	Humerus	1	0.8
16009	Goose spp.	L	Femur	1	0.8
16006	Goose spp.	R	Tibiotarsus	1	0.7
16100	cf. Goose spp.	I	Ungual phalanx	1	0.1
16757	Class Mammalia		Indeterminate	21	3.6
16760	Class Mammalia		Indeterminate	15	1.7
16031	Class Mammalia		Indeterminate	3	1.5
16754	Class Mammalia I		Limb bone	1	5.8
16756	Class Mammalia III		Cranium	6	0.9
16771	Class Mammalia III		Cranium	2	0.9
16094	Class Mammalia III		Cranium	1	0.1
16095	Class Mammalia III		Tooth	1	0.0
16755	Class Mammalia III		Vertebra	3	0.5
16759	Class Mammalia III		Limb bone	10	1.4
16119	*Sciurus* spp.	I	Incisor	1	0.3
16120	*Sciurus* spp.	I	Incisor	1	0.1
16036	*Sciurus* spp.	A	Caudal vertebra	2	0.1
16149	*Sciurus* spp.	R	Innominate	1	0.2
16037	*Sciurus* spp.	A	First phalanx	1	0.1
16063	*Sciurus carolinensis*	A	Axis	1	0.2
16004	*Sciurus niger*	L	Mandible	1	0.7
16003	*Sciurus niger*	R	Humerus	1	0.7
16001	*Tursiops truncatus*	A	Vertebra	1	19.3
16030	*Procyon lotor*	L	Temporal	1	20.1
16093	*Procyon lotor*	L	Mandible	1	7.8
16091	*Procyon lotor*	R	Mandible	1	9.8
16035	*Procyon lotor*	I	Metapodial	1	0.3
16060	*Procyon lotor*	I	Metapodial	1	0.2
16114	Order Artiodactyla I	I	Sesamoid	1	0.7
16092	*Odocoileus virginianus*	I	Antler	1	19.2
16032	*Odocoileus virginianus*	R	Tibia	1	37.6
16028	*Odocoileus virginianus*	R	Tibia	1	32.2
Context: 1795G					
16301	Order Rajiformes	I	Dentary/premaxilla	1	0.3
16786	Class Osteichthyes		Vertebra	35	2.4
16788	Class Osteichthyes		Rib	5	0.7
16787	Class Osteichthyes		Spine	30	3.2
16500	Class Osteichthyes	I	Spine	1	0.5
16785	Class Osteichthyes		Scale	52	1.2

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
16789	Class Osteichthyes		Indeterminate	94	13.6
16790	Class Osteichthyes		Indeterminate	11	0.4
16364	Class Osteichthyes		Indeterminate	2	0.2
16341	Class Osteichthyes		Indeterminate	1	1.5
16493	Class Osteichthyes		Indeterminate	1	0.2
16307	*Acipenser* spp.	I	Scute	190	199.3
16304	*Lepisosteus* spp.	I	Scale	2	0.3
16494	Family Anguillidae	L	Dentary/premaxilla	1	0.2
16460	Family Catostomidae	I	Frontal	1	0.2
16498	Family Catostomidae	L	Frontal	2	0.2
19499	Family Catostomidae	R	Frontal	2	0.6
16382	Family Catostomidae	R	Quadrate	3	0.3
16381	Family Catostomidae	L	Opercular	1	0.2
16343	Family Catostomidae	R	Opercular	1	0.6
16463	Family Catostomidae	R	Preopercular	1	0.1
16461	Family Catostomidae	L	Subopercular	1	0.1
16462	Family Catostomidae	R	Subopercular	1	0.1
16339	Family Catostomidae	L	Cleithrum	1	0.6
16495	Family Ictaluridae	L	Premaxilla	1	0.1
16497	Family Ictaluridae	R	Maxilla	1	0.2
16496	Family Ictaluridae	L	Palatine	1	0.2
16485	Family Ictaluridae	L	Frontal	2	0.3
16357	Family Ictaluridae	R	Frontal	3	0.9
16342	Family Ictaluridae	L	Hyomandibular	2	0.7
16475	Family Ictaluridae	R	Hyomandibular	1	0.1
16476	Family Ictaluridae	L	Opercular	2	0.2
16477	Family Ictaluridae	R	Opercular	1	0.2
16481	Family Ictaluridae	L	Epihyal	1	0.1
16480	Family Ictaluridae	R	Epihyal	1	0.1
16484	Family Ictaluridae	L	Ceratohyal	1	0.1
16479	Family Ictaluridae	R	Ceratohyal	1	0.1
16328	Family Ictaluridae	I	Cleithrum	1	0.8
16354	Family Ictaluridae	L	Cleithrum	5	1.3
16349	Family Ictaluridae	R	Cleithrum	5	1.3
16486	Family Ictaluridae	L	Supracleithrum	1	0.2
16340	Family Ictaluridae	L	Dentary	1	0.1
16478	Family Ictaluridae	L	Angular	3	0.6
16204	Family Ictaluridae	A	Complex vertebra	1	0.1
16483	Family Ictaluridae	A	Second pterygiophore	1	0.1
16336	Family Ictaluridae	L	Pectoral spine	3	1.0
16345	Family Ictaluridae	R	Pectoral spine	4	0.9
16356	Family Ictaluridae	L	Coracoid	1	0.2
16458	Family Ictaluridae	L	Coracoid	2	0.4
16482	Family Ictaluridae	R	Coracoid	1	0.2
16527	*Morone americana*	A	Parasphenoid	1	0.1
16459	*Morone americana*	R	Frontal	1	0.1

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
16522	*Morone americana*	L	Opercular	1	0.1
16526	*Morone americana*	R	Cleithrum	1	0.1
16525	*Morone americana*	L	Dentary	1	0.1
16524	*Morone americana*	R	Dentary	1	0.1
16523	*Morone* spp.	L	Preopercular	1	0.2
16528	*Morone* spp.	L	Ceratohyal	1	0.0
16326	*Archosargus probatocephalus*	R	Quadrate	1	1.0
16281	Order Testunides		Carapace	25	8.1
16344	*Chelydra Serpentina*	L	Quadrate	1	1.1
16358	*Chelydra Serpentina*	R	Quadrate	1	1.2
16288	cf. *Malaclemys terrapin*	A	Carapace	2	1.4
16275	cf. *Malaclemys terrapin*	L	Humerus	1	0.3
16283	*Terrapene carolina*	A	Carapace	2	5.8
16278	*Terrapene carolina*	A	Carapace	1	2.8
16280	*Terrapene carolina*	A	Carapace	2	2.2
16274	*Terrapene carolina*	A	Carapace	1	0.7
16284	*Terrapene carolina*	A	Plastron	1	1.4
16313	Class Aves			1	1.8
16784	Class Aves		Vertebra	1	0.1
16783	Class Aves		Rib	2	0.2
16780	Class Aves		Limb bone	24	3.2
16322	Class Aves		Limb bone	1	0.5
16781	Class Aves		Indeterminate	3	0.7
16782	Class Aves		Indeterminate	19	2.1
16324	Class Aves	R	Indeterminate	1	0.3
16315	*Branta canadensis*		Coracoid	1	1.1
16517	Duck spp.		Sternum or sternabrae	1	0.8
16317	Duck spp.	A	Sternum or sternabrae	1	0.3
16515	Duck spp.	L	Innominate	1	0.4
16518	Duck spp.	L	Ulna	1	0.2
16516	Duck spp.	R	Tibiotarsus	1	0.5
16519	Goose spp.	R	Frontal	1	1.5
16474	Order Passeriformes	A	Dentary	1	0.1
16473	*Pterodroma cahow*	R	Scapula	1	0.1
16400	*Pterodroma cahow*	R	Coracoid	1	0.3
16777	Class Mammalia		Indeterminate	48	12.3
16779	Class Mammalia		Indeterminate	17	2.4
16774	Class Mammalia I		Cranium	1	6.7
16772	Class Mammalia I		Rib	3	31.5
16775	Class Mammalia II		Cranium	5	3.1
16314	Class Mammalia II		Cranium	2	4.2
16776	Class Mammalia II		Rib	4	3.6
16259	Class Mammalia II		Rib	1	1.7
16773	Class Mammalia II		Limb bone	4	7.9
16778	Class Mammalia II		Limb bone	1	2.4
16269	Class Mammalia III		Indeterminate	1	0.2

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
16405	*Sciurus* spp.	L	Innominate	1	0.5
16406	*Sciurus* spp.	L	Humerus	1	0.6
16404	*Sciurus* spp.	R	Radius	1	0.2
16268	cf. *Sciurus* spp.	I	Carpal or tarsal	1	0.0
16267	cf. *Sciurus* spp.	I	Phalanx	1	0.1
16270	cf. *Sciurus* spp.	I	Phalanx	1	0.1
16334	*Sciurus carolinensis*	R	Frontal	1	0.2
16266	*Sciurus carolinensis*	L	Mandible	1	0.4
16263	*Sciurus carolinensis*	L	Innominate	1	0.2
16402	*Sciurus carolinensis*	L	Humerus	1	0.5
16403	*Sciurus carolinensis*	L	Humerus	1	0.3
16401	*Sciurus carolinensis*	R	Humerus	1	0.3
16265	*Sciurus carolinensis*	L	Radius	1	0.3
16262	*Sciurus carolinensis*	R	Femur	1	0.3
16264	*Sciurus carolinensis*	R	Femur	1	0.3
16335	*Procyon lotor*	A	Frontal	1	2.0
16215	*Sus scrofa*	L	Mandible	1	15.5
16218	*Sus scrofa*	L	Metatarsal II	1	0.9
16329	cf. *Odocoileus virginianus*	A	Cervical vertebra	1	3.0
16260	*Odocoileus virginianus*	R	Astragalus	1	7.0
Context: 1795H					
16800	Class Osteichthyes		Vertebra	2	0.1
16799	Class Osteichthyes		Rib	10	1.0
16798	Class Osteichthyes		Spine	8	0.6
16570	Class Osteichthyes		Spine	1	0.5
16801	Class Osteichthyes		Indeterminate	47	3.6
16569	Class Osteichthyes		Indeterminate	3	0.2
16567	Family Catostomidae	L	Frontal	1	0.2
16563	Family Catostomidae	L	Hyomandibular	1	0.1
16562	Family Catostomidae	R	Hyomandibular	2	0.4
16566	Family Catostomidae	I	Cleithrum	1	0.2
16564	Family Catostomidae	L	Cleithrum	1	0.4
16565	Family Catostomidae	R	Cleithrum	1	0.3
16609	Family Catostomidae		Indeterminate	2	0.2
16568	Family Ictaluridae	L	Premaxilla	1	0.3
16555	Family Ictaluridae	L	Hyomandibular	1	0.1
16556	Family Ictaluridae	R	Cleithrum	3	0.2
16554	Family Ictaluridae	R	Dentary	1	0.1
16552	Family Ictaluridae	L	Angular	1	0.2
16553	Family Ictaluridae	R	Angular	1	0.1
16551	Family Ictaluridae	L	Pectoral spine	1	0.6
16550	Family Ictaluridae	R	Pectoral spine	3	0.2
16592	cf. *Terrapene carolina*	L	Scapula	1	0.5
16796	Class Aves		Rib	7	1.2

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
16795	Class Aves		Limb bone	17	5.2
16632	Class Aves		Limb bone	2	2.8
16797	Class Aves		Indeterminate	12	1.9
16604	Class Aves		Indeterminate	1	0.4
16793	Class Aves/Mammalia III		Limb bone	10	1.7
16589	*Branta canadensis*	L	Scapula	1	1.9
15587	*Branta canadensis*	L	Ulna	1	0.5
16588	*Branta canadensis*	R	Carpometacarpus	1	0.8
16630	Goose spp.	A	Sternum or sternabrae	1	0.9
16631	Goose spp.	A	Sternum or sternabrae	1	0.7
16629	Goose spp.	R	Radius	1	0.2
16590	*Grus americana*	A	Furculum	2	2.7
16628	Order Passeriformes	R	Ulna	1	0.1
16794	Class Mammalia		Indeterminate	59	6.4
16791	Class Mammalia II		Vertebra	8	2.9
16792	Class Mammalia II		Limb bone	5	3.1
16603	Class Mammalia III		Limb bone	1	0.4
16602	Class Mammalia III		Indeterminate	4	0.3
16593	*Didelphis virginiana*	L	Ulna	1	2.0
16597	cf. *Sciurus carolinensis*	I	Maxilla	1	0.2
16599	*Sciurus carolinensis*	L	Temporal	1	0.1
16601	*Sciurus carolinensis*	L	Occipital	1	0.2
16586	*Sciurus carolinensis*	L	Radius	1	0.3
16598	*Sciurus carolinensis*	R	Calcaneus	1	0.1
16596	*Sciurus carolinensis*	I	Carpal or tarsal	1	0.0
16600	cf. *Sciurus carolinensis*	I	Phalanx	2	0.1
16594	*Procyon lotor*	I	Carpal or tarsal	1	0.3
16595	*Procyon lotor*	I	Phalanx	4	0.4
16612	*Odocoileus virginianus*	R	Tibia	1	28.8
16613	*Odocoileus virginianus*	R	Tibia	1	9.5
16614	*Bos taurus*	I	Rib	1	31.3
16615	cf. *Bos taurus*	I	Humerus	1	8.6

Contexts Related to Pit 9

Context: 1530A

13124	Class Osteichthyes		Vertebra	2	0.1
13122	Class Osteichthyes		Indeterminate	23	5.3
13121	*Acipenser* spp.		Scute	14	3.0
13120	*Lepisosteus* spp.		Scale	1	0.0
13123	Order Testudines	I	Carapace/plastron	2	0.4
13137	Class Aves/Mammalia III		Limb bone	3	1.6
13128	Class Mammalia		Tooth	2	0.5
13126	Class Mammalia		Indeterminate	28	6.1
13138	Class Mammalia		Indeterminate	33	7.8

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
13134	Class Mammalia I		Rib	1	7.3
13133	Class Mammalia I		Limb bone	1	8.4
13135	Class Mammalia II		Limb bone	3	4.1
13136	Class Mammalia II		Limb bone	10	3.9
13127	*Sciurus* spp.	R	Tibia	1	0.2
13681	cf. *Sciurus niger*	R	Innominate	1	0.5
13125	*Ondatra zibethica*	I	Lower molar	1	0.3
13680	*Canis* spp.	R	Maxilla	1	3.2
13131	*Procyon lotor*	R	Radius	1	0.8
13140	cf. Order Artiodactyla II	I	First phalanx	1	0.9
13139	cf. *Odocoileus virginianus*	A	Thoracic vertebra	2	5.7
13129	*Odocoileus virginianus*	R	Scapula	1	10.8
13130	cf. *Odocoileus virginianus*	I	Metapodial	1	3.9
13132	cf. *Bos taurus*	L	Tibia	1	19.4
Context: 1530B					
13315	Class Osteichthyes		Vertebra	4	0.7
13319	Class Osteichthyes		Vertebra	1	0.2
13313	Class Osteichthyes		Scale	1	0.0
13318	Class Osteichthyes		Scale	4	0.3
13317	Class Osteichthyes		Indeterminate	61	8.6
13265	*Acipenser* spp.		Scute	105	74.8
13316	*Acipenser* spp.		Indeterminate	6	3.6
13266	*Lepisosteus* spp.		Scale	36	1.8
13286	Family Ictaluridae	L	Frontal	1	0.3
13285	Family Ictaluridae	A	Occipital	2	0.2
13288	Family Ictaluridae	R	Opercular	1	0.0
13281	Family Ictaluridae	L	Cleithrum	3	0.3
13282	Family Ictaluridae	R	Cleithrum	1	0.1
13280	Family Ictaluridae	R	Angular	1	0.5
13289	Family Ictaluridae	A	Complex vertebra	2	0.5
13290	Family Ictaluridae	A	Second pterygiophore	1	0.1
13283	Family Ictaluridae	L	Pectoral spine	2	0.4
13284	Family Ictaluridae	R	Pectoral spine	2	0.1
13287	Family Ictaluridae	L	Coracoid	1	0.1
13297	cf. *Morone* spp.	I	Maxilla	1	0.1
13295	cf. *Morone* spp.	I	Frontal	1	0.1
13291	*Morone* spp.	R	Quadrate	1	0.1
13294	*Morone* spp.	L	Opercular	1	0.0
13293	*Morone* spp.	R	Opercular	1	0.0
13296	*Morone* spp.	I	Interopercular	1	0.0
13292	*Morone* spp.	R	Angular	1	0.1
13311	Order Testudines		Carapace	7	1.6
13312	Order Testudines		Indeterminate	1	1.9
13302	*Chelydra serpentina*	R	Innominate	1	1.5

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
13306	*Chelydra serpentina*	I	Carapace	5	8.4
13307	*Chelydra serpentina*	I	Carapace	1	0.5
13301	*Chelydra serpentina*	L	Scapula	1	2.8
13303	*Chelydra serpentina*	R	Humerus	1	2.7
13304	*Chelydra serpentina*	L	Ulna	1	0.8
13305	*Chelydra serpentina*	L	Radius	1	0.5
13298	*Terrapene carolina*	I	Carapace	1	0.3
13299	*Terrapene carolina*	I	Carapace	9	5.7
13300	*Terrapene carolina*	I	Carapace	4	0.8
13308	cf. *Terrapene carolina*	R	Coracoid	1	0.1
13309	*Terrapene carolina*	R	Radius	1	0.0
13320	Class Aves		Limb bone	21	12.0
13321	Class Aves		Indeterminate	7	2.0
13333	Class Aves/Mammalia III		Cranium	11	1.3
13330	Class Aves/Mammalia III		Rib	8	1.2
13329	Class Aves/Mammalia III		Limb bone	7	5.4
13310	Goose spp.	I	Sternum or sternabrae	1	2.7
18148	*Meleagris gallopavo*	I	Tarsometatarsus	1	3.9
13277	cf. *Gallus gallus*	A	Cervical vertebra	3	0.5
13278	*Gallus gallus*	A	Synsacrum	1	0.6
13279	*Gallus gallus*	A	Synsacrum	3	3.1
13276	*Gallus gallus*	L	Innominate	1	1.2
13274	*Gallus gallus*	L	Scapula	1	0.8
13270	*Gallus gallus*	L	Coracoid	1	0.8
13268	*Gallus gallus*	L	Humerus	1	2.0
13271	*Gallus gallus*	L	Ulna	1	0.8
13272	*Gallus gallus*	L	Ulna	1	0.2
13273	*Gallus gallus*	L	Ulna	1	0.4
13275	*Gallus gallus*	L	Radius	1	0.2
13269	*Gallus gallus*	R	Tibiotarsus	1	2.5
13331	Class Mammalia		Tooth	1	0.1
13314	Class Mammalia		Indeterminate	26	5.8
13324	Class Mammalia		Indeterminate	195	40.0
13339	Class Mammalia	L	Indeterminate	1	1.1
13325	Class Mammalia I		Rib	11	12.3
13328	Class Mammalia I		Limb bone	1	10.0
13323	Class Mammalia II		Rib	8	3.4
13322	Class Mammalia II		Limb bone	8	7.5
13332	Class Mammalia III		Vertebra	6	2.0
13260	cf. *Didelphis virginiana*	I	Innominate	1	0.2
13257	*Didelphis virginiana*	L	Innominate	1	0.6
13256	*Didelphis virginiana*	R	Innominate	1	0.7
13255	*Didelphis virginiana*	R	Humerus	1	2.4
13259	cf. *Didelphis virginiana*	I	Radius	1	1.2
13261	*Didelphis virginiana*	I	Radius	1	0.4
13258	*Didelphis virginiana*	L	Fibula	1	0.2

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
13727	*Sylvilagus floridanus*	L	Innominate	1	2.0
13709	*Sciurus* spp.	A	Cranium	1	0.7
13710	*Sciurus* spp.	A	Cranium	1	0.4
13711	*Sciurus* spp.	I	Incisor	1	0.2
13262	*Sciurus* spp.	A	Cervical vertebra	4	0.3
13267	*Sciurus* spp.	L	Radius	1	0.4
13263	*Sciurus* spp.	L	Femur	1	0.1
13264	*Sciurus* spp.	L	Femur	1	0.7
13712	*Sciurus* spp.	I	Carpal or tarsal	2	0.2
13728	*Sciurus niger*	R	Innominate	1	0.4
13729	*Sciurus niger*	L	Femur	1	1.1
13253	*Castor canadensis*	R	Radius	1	1.5
13254	*Canis* spp.	R	Upper canine	1	1.6
13252	*Procyon lotor*	R	Temporal	1	0.6
13248	cf. *Procyon lotor*	R	Occipital	1	1.6
13244	*Procyon lotor*	R	Mandible	1	2.0
13245	*Procyon lotor*	L	Lower molar	1	0.9
13246	*Procyon lotor*	R	Lower molar	1	0.3
13247	*Procyon lotor*	R	Lower canine	1	0.4
13249	*Procyon lotor*	L	Ulna	1	3.0
13250	*Procyon lotor*	I	Radius	1	1.4
13251	*Procyon lotor*	L	Fibula	1	0.2
13338	Order Artiodactyla I		Rib	1	7.2
13337	cf. *Sus scrofa*	R	Frontal	1	1.8
13336	*Sus scrofa*	R	Fourth tarsal	1	3.9
13335	*Sus scrofa*	I	Carpal or tarsal	1	0.4
13334	*Sus scrofa*	I	Second phalanx	1	1.4
13340	cf. *Odocoileus virginianus*	R	Mandible	1	4.5
13341	*Odocoileus virginianus*	I	Lower incisor	1	0.2
13347	cf. *Odocoileus virginianus*	A	Thoracic vertebra	1	1.3
13348	cf. *Odocoileus virginianus*	I	Rib	2	2.1
13346	*Odocoileus virginianus*	I	Main metacarpal	1	5.4
13342	*Odocoileus virginianus*	I	Main metatarsal	1	7.3
13343	*Odocoileus virginianus*	I	First phalanx	1	3.1
13344	*Odocoileus virginianus*	I	First phalanx	1	0.8
13345	*Odocoileus virginianus*	I	Second phalanx	1	2.2
13327	*Bos taurus*	I	Rib	1	16.1
13326	*Bos taurus*/*Equus* sp.	I	Rib	1	63.0
Context: 1530C					
13104	Class Osteichthyes		Vertebra	8	0.6
13106	Class Osteichthyes		Spine	12	1.0
13119	Class Osteichthyes		Scale	3	0.0
13105	Class Osteichthyes		Indeterminate	109	21.2
13033	Class Osteichthyes	I	Indeterminate	24	1.8

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
13034	*Acipenser* spp.	I	Scute	507	326.3
13001	*Lepisosteus* spp.	I	Scale	11	0.8
13018	Family Ictaluridae	A	Parasphenoid	1	0.3
13021	Family Ictaluridae	L	Opercular	2	0.5
13022	Family Ictaluridae	L	Ceratohyal	1	0.1
13010	Family Ictaluridae	L	Cleithrum	1	0.2
13011	Family Ictaluridae	L	Cleithrum	1	0.7
13012	Family Ictaluridae	L	Cleithrum	1	0.1
13013	Family Ictaluridae	L	Cleithrum	1	0.2
13015	Family Ictaluridae	L	Cleithrum	1	0.1
13016	Family Ictaluridae	L	Cleithrum	1	0.2
13007	Family Ictaluridae	R	Cleithrum	1	0.7
13008	Family Ictaluridae	R	Cleithrum	1	0.2
13009	Family Ictaluridae	R	Cleithrum	1	0.6
13014	Family Ictaluridae	R	Cleithrum	1	0.1
13017	Family Ictaluridae	L	Supracleithrum	1	0.3
13006	Family Ictaluridae	L	Angular	1	0.3
13005	Family Ictaluridae	R	Angular	1	0.4
13019	Family Ictaluridae	A	Complex vertebra	1	0.5
13020	Family Ictaluridae	A	Complex vertebra	3	0.5
13004	Family Ictaluridae	A	Second dorsal spine	1	0.3
13002	Family Ictaluridae	L	Pectoral spine	2	1.0
13003	Family Ictaluridae	R	Pectoral spine	2	0.2
13024	Family Ictaluridae	L	Coracoid	1	0.4
13023	Family Ictaluridae	R	Coracoid	1	0.3
13030	*Morone* americana	L	Frontal	1	0.2
13029	*Morone* americana	L	Hyomandibular	1	0.0
13028	*Morone* americana	R	Opercular	1	0.1
13031	*Morone* americana	R	Preopercular	1	0.1
13032	*Morone* americana	R	Preopercular	1	0.1
13027	*Morone* spp.	I	Cleithrum	2	0.1
13026	*Morone* spp.	L	Cleithrum	1	0.1
13025	*Morone* spp.	R	Dentary	1	0.2
13042	Order Testudines		Indeterminate	24	6.5
13103	cf. *Chelydra serpentina*	L	Innominate	1	1.0
13046	cf. *Chelydra serpentina*	I	Humerus	1	1.4
13045	*Chelydra serpentina*	L	Femur	1	1.2
13035	*Terrapene carolina*	I	Carapace	10	6.1
13036	*Terrapene carolina*	I	Carapace	1	2.8
13037	*Terrapene carolina*	I	Carapace	19	20.0
13038	*Terrapene carolina*	I	Carapace	7	7.7
13039	*Terrapene carolina*	I	Carapace	24	21.1
13040	*Terrapene carolina*	I	Carapace	8	7.9
13041	*Terrapene carolina*	I	Plastron	2	7.4
13043	*Terrapene carolina*	L	Humerus	1	0.1
13044	*Terrapene carolina*	R	Humerus	1	0.1

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
13111	Class Aves		Limb bone	31	12.6
13112	Class Aves		Indeterminate	11	4.5
13115	Class Aves/Mammalia III		Cranium	11	2.6
13113	Class Aves/Mammalia III		Rib	6	2.3
13587	*Branta canadensis*	A	Sternum or sternabrae	3	7.5
13588	*Branta canadensis*	R	Sternum or sternabrae	1	1.6
13583	*Branta canadensis*	R	Coracoid	1	2.9
13598	*Branta canadensis*	I	Humerus	1	4.3
13584	*Branta canadensis*	L	Humerus	1	13.9
13585	*Branta canadensis*	L	Humerus	1	3.4
13586	*Branta canadensis*	L	Humerus	1	11.0
13579	Duck spp.	L	Humerus	1	2.2
13096	Duck spp.	I	Femur	1	1.6
13101	Goose spp.	L	Mandible	1	0.6
13099	Goose spp.	A	Sternum or sternabrae	2	1.1
13094	Goose spp.	A	Furculum	1	1.8
13097	Goose spp.	R	Scapula	1	1.6
13098	Goose spp.	L	Humerus	1	1.8
13074	*Meleagris gallopavo*	A	Synsacrum	1	25.1
13075	*Meleagris gallopavo*	A	Sternum or sternabrae	1	6.4
13076	*Meleagris gallopavo*	R	Innominate	1	6.6
13095	cf. *Gallus gallus*	I	Femur	1	1.9
13571	*Corvus ossifragus*	R	Coracoid	1	0.1
13107	Class Mammalia		Indeterminate	151	48.2
13117	Class Mammalia		Indeterminate	10	2.6
13118	Class Mammalia		Indeterminate	5	1.5
13109	Class Mammalia I		Limb bone	2	19.1
13116	Class Mammalia II		Cranium	3	3.4
13110	Class Mammalia II		Rib	15	12.1
13114	Class Mammalia II		Limb bone	6	14.1
13050	*Didelphis virginiana*	L	Maxilla	1	0.8
13051	*Didelphis virginiana*	L	Maxilla	1	0.2
13049	*Didelphis virginiana*	R	Maxilla	1	2.0
13053	*Didelphis virginiana*	R	Frontal	1	1.9
13058	*Didelphis virginiana*	L	Occipital	1	0.5
13057	*Didelphis virginiana*	R	Occipital	1	0.5
13048	*Didelphis virginiana*	L	Mandible	1	5.6
13056	*Didelphis virginiana*	L	Upper molar	2	0.3
13054	*Didelphis virginiana*	R	Canine	2	0.7
13052	*Didelphis virginiana*	L	Scapula	1	0.7
13055	*Didelphis virginiana*	L	Fibula	1	0.5
13735	*Sciurus* spp.	L	Maxilla	1	0.3
13731	*Sciurus* spp.	L	Mandible	2	1.4
13073	cf. *Sciurus* spp.	R	Mandible	1	0.1
13732	*Sciurus* spp.	R	Mandible	2	1.3
13733	*Sciurus* spp.	R	Mandible	1	0.2

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
13734	*Sciurus* spp.	R	Mandible	1	0.2
13730	*Sciurus* spp.	I	Incisor	1	1.2
13736	*Sciurus* spp.	I	Premolar or molar	3	0.1
13068	*Sciurus* spp.	A	Atlas	1	0.1
13069	*Sciurus* spp.	A	Axis	1	0.1
13100	cf. *Sciurus* spp.	L	Tibia	1	0.6
13740	*Sciurus carolinensis*	R	Mandible	1	0.3
13738	*Sciurus carolinensis*	R	Scapula	1	0.2
13739	*Sciurus carolinensis*	R	Scapula	1	0.2
13737	*Sciurus carolinensis*	R	Ulna	1	0.2
13742	*Sciurus carolinensis*	L	Femur	1	0.5
13741	*Sciurus carolinensis*	I	Fibula	1	0.1
13744	*Sciurus niger*	R	Humerus	1	0.9
13743	*Sciurus niger*	L	Femur	1	1.1
13047	*Castor canadensis*	R	Radius	1	1.6
13059	*Ondatra zibethica*	L	Tibia	1	0.9
13060	*Ondatra zibethica*	L	Tibia	1	1.0
13061	*Ondatra zibethica*	L	Calcaneus	1	0.6
13064	cf. *Procyon lotor*	L	Frontal	1	3.3
13063	*Procyon lotor*	L	Temporal	1	1.2
13062	*Procyon lotor*	L	Occipital	1	6.2
13066	*Procyon lotor*	L	Mandible	1	3.0
13067	*Procyon lotor*	R	Mandible	1	1.2
13065	*Procyon lotor*	L	Upper molar	1	0.3
13080	*Sus scrofa*	L	Femur	1	15.0
13070	*Sus scrofa*	R	Astragalus	1	14.3
13072	*Sus scrofa*	R	Central tarsal	1	1.6
13071	*Sus scrofa*	L	First phalanx	1	0.8
13089	*Odocoileus virginianus*	A	Cervical vertebra	1	5.1
13085	cf. *Odocoileus virginianus*	A	Thoracic vertebra	1	3.9
13087	cf. *Odocoileus virginianus*	A	Thoracic vertebra	1	4.3
13088	*Odocoileus virginianus*	A	Thoracic vertebra	1	3.6
13091	cf. *Odocoileus virginianus*	A	Thoracic vertebra	1	169.2
13086	*Odocoileus virginianus*	A	Sacrum	1	5.2
13082	*Odocoileus virginianus*	L	Innominate	1	3.1
13077	*Odocoileus virginianus*	R	Scapula	1	23.1
13081	*Odocoileus virginianus*	I	Femur	1	2.8
13079	*Odocoileus virginianus*	L	Tibia	1	9.2
13083	*Odocoileus virginianus*	L	Tibia	1	1.9
13078	*Odocoileus virginianus*	R	Tibia	1	72.7
13084	*Odocoileus virginianus*	I	Metapodial	2	4.8
13090	*Odocoileus virginianus*	I	Carpal or tarsal	1	1.2
13093	*Bos taurus*	A	Thoracic vertebra	1	25.1
13102	*Bos taurus*	I	Rib	1	15.9
13092	*Bos taurus*/*Equus* sp.		Rib	4	39.9

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
Context: 1530D					
13174	*Callinectes sapidus*	I	Claw	2	0.1
13211	Class Osteichthyes		Vertebra	15	1.9
13210	Class Osteichthyes		Spine	12	0.6
13209	Class Osteichthyes		Indeterminate	93	12.5
13189	*Acipenser* spp.	I	Scute	67	48.7
13190	*Acipenser* spp.		Indeterminate	3	3.6
13158	Family Ictaluridae	A	Parasphenoid	4	1.7
13157	Family Ictaluridae	A	Occipital	2	0.4
13159	cf. Family Ictaluridae	R	Occipital	1	0.7
13155	Family Ictaluridae	L	Hyomandibular	4	0.2
13156	Family Ictaluridae	R	Hyomandibular	2	0.1
13162	Family Ictaluridae	L	Opercular	1	0.1
13165	Family Ictaluridae	R	Epihyal	1	0.1
13166	Family Ictaluridae	I	Ceratohyal	1	0.1
13150	Family Ictaluridae	L	Cleithrum	10	1.2
13151	Family Ictaluridae	R	Cleithrum	7	1.5
13153	Family Ictaluridae	R	Supracleithrum	1	0.1
13163	Family Ictaluridae	L	Angular	1	0.2
13164	Family Ictaluridae	R	Angular	1	0.2
13154	Family Ictaluridae	A	Complex vertebra	1	0.1
13152	Family Ictaluridae	A	Second pterygiophore	1	0.2
13148	Family Ictaluridae	L	Pectoral spine	7	1.0
13149	Family Ictaluridae	R	Pectoral spine	8	2.0
13161	Family Ictaluridae	L	Coracoid	1	0.0
13160	Family Ictaluridae	R	Coracoid	3	0.1
13212	*Morone* spp.	A	Parasphenoid	1	1.0
13171	*Morone* spp.	L	Quadrate	2	0.1
13167	*Morone* spp.	L	Posttemporal	1	0.0
13170	*Morone* spp.	R	Hyomandibular	1	0.1
13172	*Morone* spp.	R	Opercular	2	0.2
13173	cf. *Morone* spp.	I	Interopercular	2	0.1
13169	*Morone* spp.	L	Dentary	1	0.1
13168	*Morone* spp.	R	Dentary	1	0.1
13177	Family Sciaenidae	I	Tooth	1	0.1
13203	Order Testudines		Carapace	27	8.7
13202	*Chelydra serpentina*	A	Vertebra	1	0.2
13200	*Chelydra serpentina*	I	Carapace	2	2.6
13201	cf. *Chelydra serpentina*	I	Carapace	1	1.5
13199	*Chelydra serpentina*	I	Plastron	4	8.6
13195	*Terrapene carolina*	A	Carapace	1	0.2
13196	*Terrapene carolina*	A	Carapace	1	0.9
13193	*Terrapene carolina*	I	Carapace	10	2.5
13194	*Terrapene carolina*	I	Carapace	9	2.9

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
13197	*Terrapene carolina*	I	Carapace	5	1.8
13198	*Terrapene carolina*	I	Carapace	1	0.7
13222	Class Aves		Vertebra	2	0.3
13213	Class Aves		Limb bone	26	12.3
13214	Class Aves		Indeterminate	12	3.1
13215	Class Aves/Mammalia III		Cranium	2	0.2
13596	*Branta canadensis*	A	Sternum or sternabrae	1	1.2
13597	*Branta canadensis*	I	Sternum or sternabrae	1	0.4
13589	*Branta canadensis*	L	Coracoid	1	1.8
13590	*Branta canadensis*	L	Humerus	1	14.5
13591	*Branta canadensis*	L	Humerus	1	7.5
13578	*Aythya* spp.	L	Carpometacarpus	1	0.1
13577	*Aythya* spp.	R	Carpometacarpus	1	0.5
13205	cf. Goose spp.	L	Humerus	1	2.1
13206	cf. Goose spp.	R	Humerus	1	1.6
13204	Goose spp.	L	Ulna	1	2.0
13574	*Larus delawarensis*	R	Phalanx I, digit II	1	0.3
13572	*Pandion haliaetus*	R	Tarsometatarsus	1	1.7
13573	*Pandion haliaetus*	I	Ungual phalanx	3	2.0
13208	*Gallus gallus*	R	Radius	1	0.2
13217	*Gallus gallus*	I	Cuneiform	1	0.1
13218	*Gallus gallus*	R	Phalanx I, digit II	1	0.1
13207	cf. *Gallus gallus*	I	Tibiotarsus	2	0.6
13221	Class Mammalia		Indeterminate	79	41.6
13224	Class Mammalia		Indeterminate	23	4.7
13225	Class Mammalia		Indeterminate	3	0.6
13216	Class Mammalia II		Rib	8	1.8
13219	Class Mammalia II		Rib	5	4.8
13231	Class Mammalia II		Rib	3	12.4
13220	Class Mammalia II		Limb bone	16	4.6
13223	Class Mammalia III		Carpal or tarsal	8	1.3
13175	*Didelphis virginiana*	R	Mandible	1	4.1
13176	*Didelphis virginiana*	I	Carpal or tarsal	1	0.2
13178	Family Sciuridae	R	Scapula	1	0.1
13179	Family Sciuridae	R	Tibia	1	1.9
13723	*Sciurus carolinensis*	R	Humerus	1	0.3
13721	*Sciurus carolinensis*	L	Ulna	1	0.3
13722	*Sciurus carolinensis*	R	Ulna	1	0.1
13719	*Sciurus carolinensis*	R	Radius	1	0.1
13720	*Sciurus carolinensis*	R	Radius	1	0.3
13724	*Sciurus carolinensis*	R	Femur	1	0.4
13725	*Sciurus carolinensis*	R	Femur	1	0.5
13726	*Sciurus carolinensis*	L	Tibia	1	0.3
13718	*Sciurus niger*	L	Innominate	1	0.3
13713	*Sciurus niger*	L	Ulna	1	0.2
13716	*Sciurus niger*	L	Radius	1	0.5

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
13715	*Sciurus niger*	L	Femur	1	1.1
13714	*Sciurus niger*	L	Tibia	1	0.4
13717	*Sciurus niger*	L	Tibia	1	0.3
13191	*Castor canadensis*	L	Mandible	1	7.0
13192	*Castor canadensis*	L	Mandible	1	5.4
13180	*Ondatra zibethica*	L	Mandible	1	3.1
13183	*Procyon lotor*	R	Malar	1	0.3
13186	*Procyon lotor*	L	Upper molar 2	1	0.3
13185	*Procyon lotor*	R	Upper molar 3	1	0.5
13188	*Procyon lotor*	R	Humerus	1	0.3
13184	*Procyon lotor*	R	Calcaneus	1	0.6
13187	*Procyon lotor*	I	Metapodial	2	0.7
13182	*Procyon lotor*	L	Temporal	1	1.0
13183	*Procyon lotor*	R	Temporal	1	0.3
13185	*Procyon lotor*	L	Upper molar 1	1	0.3
13186	*Procyon lotor*	R	Lower molar 2	1	0.5
13181	*Procyon lotor*	A	Axis	1	1.6
13188	*Procyon lotor*	R	Humerus	1	0.3
13184	*Procyon lotor*	L	Calcaneus	1	0.6
13187	*Procyon lotor*	I	Carpal or tarsal	2	0.7
18145	Mephitis mephitis	L	Mandible	1	1.2
13228	*Odocoileus virginianus*	A	Lumbar vertebra	1	24.3
13230	*Odocoileus virginianus*	I	Rib	1	7.8
13233	*Odocoileus virginianus*	I	Rib	1	4.3
13226	*Odocoileus virginianus*	R	Humerus	1	36.9
13227	*Odocoileus virginianus*	R	Humerus	1	24.4
13229	cf. *Odocoileus virginianus*	R	Tibia	1	4.2
13234	cf. *Odocoileus virginianus*	I	Metapodial	1	0.7
13232	*Odocoileus virginianus*	I	Sesamoid	2	1.1
13146	cf. *Bos taurus*	A	Thoracic vertebra	1	12.7
13145	*Bos taurus*	L	Rib	1	20.3
13141	*Bos taurus*	L	Innominate	1	89.6
13142	*Bos taurus*	L	Innominate	1	82.3
13143	cf. *Bos taurus*	L	Innominate	1	23.4
13147	*Bos taurus*/*Equus* sp.	A	Vertebra	2	17.6
13144	*Bos taurus*/*Equus* sp.	I	Rib	2	60.6
Context: 1530E					
13235	Class Osteichthyes		Indeterminate	1	0.1
13236	Class Mammalia		Indeterminate	1	0.0
Context: 1530F					
13241	Class Osteichthyes		Vertebra	1	0.2
13237	*Acipenser* spp.	I	Scute	2	0.1
13238	Order Testudines		Carapace	1	0.1

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
13243	Class Aves		Indeterminate	1	0.0
13239	Class Mammalia		Indeterminate	12	1.0
13240	Class Mammalia		Indeterminate	2	0.6
13242	Class Mammalia III		Rib	1	0.0

Contexts Related to Pit 10

Context: 1752A

13607	Class Osteichthyes	I	Vertebra	4	0.3
13618	Class Osteichthyes		Scale	1	0.1
13619	Class Osteichthyes		Indeterminate	12	1.4
13606	*Acipenser* spp.	I	Scute	69	46.3
13617	*Acipenser* spp.		Indeterminate	3	0.7
13608	*Lepisosteus* spp.	I	Scale	6	0.9
13616	Family Ictaluridae	L	Frontal	1	0.2
13614	Family Ictaluridae	R	Cleithrum	1	0.2
13615	Family Ictaluridae	R	Coracoid	1	0.0
13622	Order Testudines		Carapace	61	14.5
13629	Family Kinosternidae	I	Carapace	1	0.3
13630	Family Kinosternidae	I	Plastron	1	0.4
13624	*Terrapene carolina*	A	Carapace	1	1.1
13623	*Terrapene carolina*	I	Carapace	4	6.8
13625	*Terrapene carolina*	I	Carapace	8	7.5
13626	*Terrapene carolina*	I	Carapace	12	5.7
13627	*Terrapene carolina*	I	Plastron	3	3.0
13628	*Terrapene carolina*	I	Plastron	3	1.4
13634	Class Aves/Mammalia III		Vertebra	1	0.1
13632	Class Aves/Mammalia III		Limb bone	8	3.6
13635	Class Mammalia		Indeterminate	26	5.5
13637	Class Mammalia		Indeterminate	23	6.2
13633	Class Mammalia II		Rib	1	0.7
13631	Class Mammalia II	I	Limb bone	9	14.8
13621	Class Mammalia III		Cranium	2	0.7
13613	cf. *Sciurus carolinensis*	I	Vertebra	1	0.1
13611	*Sciurus carolinensis*	A	Sacrum	1	0.4
13686	*Sciurus carolinensis*	L	Humerus	1	0.6
13612	cf. *Sciurus carolinensis*	L	Tibia	1	0.3
13685	*Sciurus niger*	R	Innominate	1	1.0
13620	cf. Family Cricetidae	R	Tibia	1	0.6
13609	*Procyon lotor*	L	Mandible	1	5.7
13610	*Procyon lotor*	I	Lower incisor	1	0.0
13636	*Bos taurus*	I	Humerus	1	19.8

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
Context: 1752B					
13779	Class Osteichthyes		Vertebra	10	0.9
13778	Class Osteichthyes		Scale	3	0.0
13764	Class Osteichthyes		Indeterminate	1	0.2
13790	Class Osteichthyes		Indeterminate	36	5.4
13747	*Acipenser* spp.	I	Scute	230	112.2
13746	*Lepisosteus* spp.	A	Vertebra	3	0.8
13745	*Lepisosteus* spp.	I	Scale	59	3.6
13766	Family Catostomidae	L	Cleithrum	1	0.5
13767	Family Catostomidae	R	Cleithrum	1	0.2
13765	Family Catostomidae	L	Pectoral spine	1	0.4
13763	Family Ictaluridae	R	Cleithrum	1	0.5
13791	Family Ictaluridae		Dentary	1	0.1
13762	Family Ictaluridae	L	Angular	1	0.3
13761	Family Ictaluridae	R	Angular	1	0.1
13759	Family Ictaluridae	R	Pectoral spine	1	0.4
13760	Family Ictaluridae	A	Dorsal spine	3	0.5
13770	*Morone* spp.	L	Quadrate	1	0.0
13769	*Morone* spp.	R	Opercular	1	0.1
13768	*Morone* spp.	L	Cleithrum	1	0.1
13775	Order Testudines		Carapace	52	7.6
13774	*Terrapene carolina*	R	Innominate	1	0.6
13771	*Terrapene carolina*	I	Carapace	18	20.1
13772	*Terrapene carolina*	I	Carapace	13	7.4
13773	*Terrapene carolina*	I	Plastron	3	3.4
13789	Class Aves		Rib	1	0.4
13785	Class Aves		Limb bone	7	5.7
13594	*Branta canadensis*	R	Coracoid	1	5.4
13593	*Branta canadensis*	R	Ulna	1	4.2
13595	*Branta canadensis*	R	Tarsometatarsus	1	1.1
13592	Goose spp.	I	Mandible	1	0.6
13758	*Meleagris gallopavo*	R	Quadrate	1	0.2
13756	cf. *Gallus gallus*	L	Carpometacarpus	1	0.4
13757	*Gallus gallus*	I	Phalanx	1	0.1
13780	Class Mammalia		Indeterminate	63	11.8
13784	Class Mammalia		Indeterminate	101	20.0
13781	Class Mammalia I		Limb bone	1	16.1
13783	Class Mammalia II		Rib	12	11.4
13782	Class Mammalia II		Limb bone	9	17.3
13786	Class Mammalia III		Cranium	5	0.6
13787	Class Mammalia III		Vertebra	8	1.7
13788	Class Mammalia III		Rib	8	1.3
13690	*Sciurus carolinensis*	L	Mandible	1	0.2
13692	*Sciurus carolinensis*	R	Innominate	1	0.2

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
13691	*Sciurus carolinensis*	L	Humerus	1	0.1
13689	*Sciurus carolinensis*	L	Femur	1	0.2
13688	*Sciurus carolinensis*	R	Tibia	1	0.4
13682	*Canis* spp.	R	Humerus	1	4.0
13683	*Canis* spp.	L	Ulna	1	0.9
13684	*Ursus americanus*	I	Third phalanx	2	7.5
13755	*Didelphis virginiana*	I	Cranium	3	1.9
13753	*Didelphis virginiana*	I	Temporal	1	0.5
13752	*Didelphis virginiana*	A	Parietal	1	2.7
13754	*Didelphis virginiana*	L	Mandible	3	1.6
13751	*Didelphis virginiana*	A	Vertebra	5	4.5
13750	*Ondatra zibethica*	I	Incisor	1	0.1
13748	*Procyon lotor*	R	Humerus	1	3.2
13749	*Procyon lotor*	I	Fibula	1	0.4
13777	*Odocoileus virginianus*	R	Femur	1	18.6
13776	*Odocoileus virginianus*	I	Main metatarsal	1	37.1

Contexts Related to Pit 11

Context: 1220A

13349	Class Osteichthyes		Vertebra	2	0.2
13363	Class Osteichthyes		Vertebra	37	2.1
13436	Class Osteichthyes		Vertebra	2	0.2
13383	Class Osteichthyes		Rib	43	2.1
13384	Class Osteichthyes		Spine	8	0.6
13352	Class Osteichthyes	I	Scale	267	2.3
13409	Class Osteichthyes		Indeterminate	5	0.7
13410	Class Osteichthyes		Indeterminate	1	0.1
13351	*Acipenser* spp.	I	Scute	17	29.7
13350	*Lepisosteus* spp.	I	Scale	27	2.3
13358	Family Catostomidae	R	Maxilla	2	0.2
13357	Family Catostomidae	I	Quadrate	1	0.1
13355	Family Catostomidae	L	Hyomandibular	2	0.3
13354	Family Catostomidae	R	Hyomandibular	3	0.6
13359	Family Catostomidae	L	Opercular	1	0.6
13406	Family Catostomidae	I	Interopercular	2	0.2
13356	Family Catostomidae	I	Pharyngeal plate	1	0.1
13407	Family Catostomidae	L	Cleithrum	3	1.0
13408	Family Catostomidae	R	Cleithrum	2	0.2
13360	cf. Family Catostomidae	L	Angular	1	0.1
13362	Family Catostomidae	R	Angular	1	0.1
13378	Family Ictaluridae	R	Premaxilla	1	0.1
13369	Family Ictaluridae	A	Parasphenoid	1	0.8
13382	Family Ictaluridae	L	Frontal	1	0.2

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
13368	Family Ictaluridae	R	Frontal	1	1.2
13374	Family Ictaluridae	L	Opercular	1	0.5
13373	Family Ictaluridae	R	Opercular	1	0.1
13381	Family Ictaluridae	I	Basihyal	1	0.2
13366	Family Ictaluridae	L	Cleithrum	4	1.8
13367	Family Ictaluridae	R	Cleithrum	2	1.0
13372	Family Ictaluridae	L	Supracleithrum	1	0.0
13380	Family Ictaluridae	I	Hypohyal	2	1.3
13370	Family Ictaluridae	A	Basioccipital	1	0.2
13376	Family Ictaluridae	L	Dentary	1	0.6
13379	Family Ictaluridae	L	Dentary	1	1.0
13377	Family Ictaluridae	R	Dentary	1	0.6
13371	Family Ictaluridae	A	Complex vertebra	2	0.4
13375	Family Ictaluridae	L	Pectoral spine	1	0.6
13365	Family Ictaluridae	L	Coracoid	2	0.2
13404	*Morone* spp.	A	Parasphenoid	1	0.5
13400	*Morone* spp.	L	Frontal	1	0.3
13401	*Morone* spp.	R	Frontal	1	0.3
13399	*Morone* spp.	R	Hyomandibular	1	0.0
13397	*Morone* spp.	L	Opercular	2	0.2
13398	*Morone* spp.	R	Opercular	1	0.1
13396	*Morone* spp.	L	Preopercular	2	0.1
13405	*Morone* spp.	R	Ceratohyal	2	0.7
13390	*Morone* spp.	L	Cleithrum	1	0.8
13393	*Morone* spp.	L	Cleithrum	2	0.1
13394	*Morone* spp.	L	Angular	1	0.1
13395	*Morone* spp.	R	Angular	1	0.1
13391	*Morone* spp.	L	Mandible	2	0.1
13392	*Morone* spp.	R	Mandible	1	0.1
13402	*Morone* spp.	I	First pterygiophore	2	0.2
13403	*Morone* spp.	R	Coracoid	1	0.1
13353	Micropogon undulatus	I	Pharyngeal plate	1	0.1
13364	Family Ostraciidae	I	Pharyngeal plate	1	0.1
13423	cf. *Rana catesbeiana*	A	Xiphisternum	1	0.1
13422	*Rana catesbeiana*	L	Innominate	1	0.1
13421	Order Testudines		Vertebra	1	0.5
13451	Order Testudines		Vertebra	1	0.1
13419	Order Testudines		Carapace	1	3.0
13427	Order Testudines		Limb bone	1	0.6
13420	cf. *Chelydra serpentina*	L	Coracoid	1	1.9
13412	Family Kinosternidae	A	Carapace	1	0.9
13413	Family Kinosternidae	A	Carapace	6	1.0
13414	Family Kinosternidae	A	Carapace	4	0.8
13411	Family Kinosternidae	I	Carapace	2	0.9
13418	*Terrapene carolina*	I	Carapace	7	0.4
13415	*Terrapene carolina*	I	Plastron	1	1.5

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
13416	*Terrapene carolina*	I	Plastron	1	1.8
13417	*Terrapene carolina*	I	Plastron	1	13.0
13448	Class Aves		Limb bone	6	1.8
13361	Class Aves		Eggshell	1	0.0
13442	Class Aves		Indeterminate	11	0.1
13431	Class Aves/Mammalia III		Cranium	9	1.5
13452	Class Aves/Mammalia III		Limb bone	1	0.2
13581	*Branta canadensis*	R	Scapula	1	1.5
13580	*Branta canadensis*	R	Coracoid	1	4.3
13599	*Branta canadensis*	L	Humerus	1	3.7
13441	Duck spp.	A	Sternum or sternabrae	1	0.3
13570	Buteo jamaicensis	R	Femur	1	2.5
13437	*Meleagris gallopavo*	L	Scapula	1	2.0
13440	cf. *Gallus gallus*	A	Cervical vertebra	2	0.9
13443	Class Mammalia		Indeterminate	19	2.2
13450	Class Mammalia		Indeterminate	65	13.7
13444	Class Mammalia I		Limb bone	4	20.7
13446	Class Mammalia II		Vertebra	2	2.3
13445	Class Mammalia II		Rib	1	2.1
13449	Class Mammalia III		Vertebra	3	0.6
13447	Class Mammalia III		Rib	3	1.0
13424	*Didelphis virginiana*	L	Mandible	1	5.5
13425	*Didelphis virginiana*	L	Mandible	1	3.8
13435	*Sciurus carolinensis*	R	Scapula	1	0.2
13704	*Sciurus carolinensis*	L	Humerus	1	0.5
13705	*Sciurus carolinensis*	R	Humerus	1	0.6
13706	*Sciurus carolinensis*	L	Femur	1	0.7
13707	*Sciurus carolinensis*	R	Femur	1	0.7
13426	*Ondatra zibethica*	R	Mandible	1	3.0
13389	*Procyon lotor*	R	Maxilla	1	4.5
13453	*Procyon lotor*	L	Occipital	1	1.8
13454	*Procyon lotor*	R	Mandible	1	9.6
13439	*Procyon lotor*	A	Cervical vertebra	4	1.2
13438	*Procyon lotor*	A	Thoracic vertebra	1	0.8
13386	*Procyon lotor*	R	Ulna	1	3.3
13387	*Procyon lotor*	L	Tibia	1	6.1
13582	*Procyon lotor*	L	Malar	1	0.3
13581	*Procyon lotor*	A	Axis	1	1.6
13388	*Procyon lotor*	R	Tibia	1	2.8
13385	*Procyon lotor*		Indeterminate	132	9.6
13428	*Odocoileus virginianus*	A	Axis	1	27.7
13429	*Odocoileus virginianus*	A	Cervical vertebra	1	20.6
13430	*Odocoileus virginianus*	A	Cervical vertebra	1	7.8
13433	*Odocoileus virginianus*	L	Radius	1	10.9
13432	*Bos taurus*/*Equus* sp.	I	Rib	6	124.9
13434	*Bos taurus*/*Equus* sp.	I	Rib	1	12.0

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
Context: 1220B					
13563	Class Osteichthyes		Scale	1	0.1
13561	*Acipenser* spp.		Scute	1	0.1
13562	*Lepisosteus* spp.		Scale	1	0.1
13566	Class Reptilia		Indeterminate	4	1.5
13565	*Terrapene carolina*	I	Carapace	1	0.9
13567	*Meleagris gallopavo*	L	Carpometacarpus	1	1.0
13568	*Meleagris gallopavo*	L	Carpometacarpus	1	1.5
13564	Class Mammalia		Indeterminate	1	1.9
13604	Class Mammalia		Indeterminate	4	0.8
13605	Class Mammalia		Indeterminate	5	0.2
13603	Class Mammalia II		Rib	1	2.4
13601	Class Mammalia II		Limb bone	1	2.8
13602	Class Mammalia III		Phalanx	1	0.1
13600	*Odocoileus virginianus*	I	Ulnar carpal	1	0.8
Context: 1220C					
13486	Class Osteichthyes		Vertebra	7	1.1
13505	Class Osteichthyes		Spine	6	0.5
13484	Class Osteichthyes	I	Scale	1	0.0
13504	Class Osteichthyes	I	Indeterminate	19	3.1
13485	*Acipenser* spp.	I	Scute	13	7.9
13483	*Lepisosteus* spp.	I	Scale	4	0.7
13498	Family Ictaluridae	R	Sphenotic	1	0.3
13497	Family Ictaluridae	R	Frontal	2	0.7
13500	Family Ictaluridae	R	Prootic	1	0.1
13501	Family Ictaluridae	R	Opercular	1	0.1
13490	Family Ictaluridae	L	Cleithrum	3	1.5
13491	Family Ictaluridae	R	Cleithrum	4	1.5
13499	Family Ictaluridae	A	Supraoccipital	1	0.5
13494	Family Ictaluridae	R	Dentary	2	0.2
13495	Family Ictaluridae	R	Dentary	1	0.1
13496	Family Ictaluridae	L	Angular	2	0.5
13492	Family Ictaluridae	L	Pectoral spine	1	0.2
13493	Family Ictaluridae	R	Pectoral spine	3	0.3
13503	Family Ictaluridae	I	Coracoid	1	0.1
13502	Family Ictaluridae	R	Coracoid	2	0.4
13506	Family Gadidae	I	Supracleithrum	1	0.3
13553	Order Testudines		Vertebra	1	0.6
13517	Order Testudines		Indeterminate	3	1.0
13521	*Chelydra serpentina*	I	Carapace	1	1.8
13518	*Chelydra serpentina*	R	Humerus	1	3.9
13519	*Chelydra serpentina*	L	Femur	1	1.5
13520	*Chelydra serpentina*	L	Femur	1	1.1

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
13508	Chrysemys spp.	L	Innominate	1	0.7
13510	cf. *Terrapene carolina*	L	Innominate	1	0.3
13515	*Terrapene carolina*	A	Carapace	1	0.6
13516	*Terrapene carolina*	A	Carapace	2	2.0
13513	*Terrapene carolina*	I	Carapace	1	3.4
13514	*Terrapene carolina*	I	Carapace	4	5.3
13511	*Terrapene carolina*	A	Plastron	1	8.8
13512	*Terrapene carolina*	A	Plastron	1	5.0
13509	*Terrapene carolina*	L	Coracoid	1	0.4
13550	Class Aves		Limb bone	2	0.5
13546	Class Aves/Mammalia III		Limb bone	11	4.8
13575	Anas spp.	L	Humerus	1	0.8
18146	Duck spp.	L	Coracoid	1	0.2
13487	*Meleagris gallopavo*	L	Carpometacarpus	1	0.9
13489	*Meleagris gallopavo*	L	Carpometacarpus	1	0.4
13488	*Meleagris gallopavo*	L	Tibiotarsus	1	4.7
13569	Phalacrocorax auritus	R	Radius	1	1.2
13540	Class Mammalia		Indeterminate	1	0.3
13548	Class Mammalia		Indeterminate	95	36.8
13543	Class Mammalia I		Limb bone	11	14.7
13549	Class Mammalia II		Cranium	1	0.8
13551	Class Mammalia II		Tooth	1	0.6
13544	Class Mammalia II		Vertebra	7	11.1
13542	Class Mammalia II		Rib	9	15.3
13545	Class Mammalia II		Rib	4	2.5
13507	Class Mammalia III		Cranium	14	3.2
13552	Class Mammalia III		Tooth	2	0.2
13554	Class Mammalia III		Vertebra	1	0.1
13547	Class Mammalia III		Rib	3	0.7
13478	*Didelphis virginiana*	R	Humerus	1	1.0
13471	*Sciurus carolinensis*	R	Maxilla	1	0.4
13475	cf. *Sciurus carolinensis*	I	Incisor	3	0.6
13479	*Sciurus carolinensis*	A	Atlas	1	0.3
13481	*Sciurus carolinensis*	A	Axis	1	0.1
13472	*Sciurus carolinensis*	L	Innominate	1	0.4
13473	*Sciurus carolinensis*	L	Innominate	1	0.1
13702	*Sciurus carolinensis*	R	Humerus	1	0.7
13708	*Sciurus carolinensis*	R	Humerus	1	0.7
13703	*Sciurus carolinensis*	R	Femur	1	0.5
13474	*Sciurus carolinensis*	R	Tibia	1	1.4
13482	*Ondatra zibethica*	A	Cervical vertebra	3	1.3
13476	*Ondatra zibethica*	L	Humerus	1	1.2
13687	Rat spp.	L	Femur	1	0.2
13456	*Procyon lotor*	L	Maxilla	1	2.7
13462	*Procyon lotor*	L	Temporal	1	1.8
13463	*Procyon lotor*	R	Temporal	1	1.8

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
13466	*Procyon lotor*	I	Meatus acusticus internus	1	0.7
13455	*Procyon lotor*	R	Mandible	1	4.0
13477	*Procyon lotor*	R	Mandible	1	4.0
13465	*Procyon lotor*	L	Lower incisor	1	0.1
13468	*Procyon lotor*	I	Upper molar	1	0.2
13469	*Procyon lotor*	I	Canine	1	0.7
13464	*Procyon lotor*	R	Molar	1	0.9
13459	*Procyon lotor*	R	Lower molar 1	1	0.2
13457	*Procyon lotor*	R	Lower molar 2	1	0.4
13458	*Procyon lotor*	R	Lower molar 3	1	0.3
13480	*Procyon lotor*	A	Thoracic vertebra	1	0.9
13461	*Procyon lotor*	R	Innominate	1	3.5
13460	*Procyon lotor*	L	Scapula	1	1.6
13470	*Procyon lotor*	L	Calcaneus	1	1.2
13467	cf. *Procyon lotor*	I	Carpal or tarsal	1	0.3
13532	*Odocoileus virginianus*	A	Thoracic vertebra	1	19.3
13531	*Odocoileus virginianus*	A	Lumbar vertebra	1	17.9
13538	cf. *Odocoileus virginianus*	I	Rib	1	3.3
13526	*Odocoileus virginianus*	R	Scapula	1	25.9
13522	*Odocoileus virginianus*	R	Humerus	1	34.0
13528	cf. *Odocoileus virginianus*	R	Humerus	1	11.4
13524	*Odocoileus virginianus*	L	Ulna	1	11.1
13525	*Odocoileus virginianus*	L	Radius	2	16.0
13523	*Odocoileus virginianus*	R	Femur	1	26.1
13530	*Odocoileus virginianus*	R	Femur	1	11.5
18147	*Odocoileus virginianus*	R	Femur	1	18.4
13529	cf. *Odocoileus virginianus*	I	Tibia	1	6.0
13527	*Odocoileus virginianus*	L	Tibia	1	17.8
13533	*Odocoileus virginianus*	L	Main metatarsal	1	25.1
13541	cf. *Bos taurus*	L	Mandible	1	8.1
13537	*Bos taurus*	A	Thoracic vertebra	1	46.3
13536	*Bos taurus*	I	Scapula	1	29.1
13535	*Bos taurus*	L	Scapula	1	54.3
13534	*Bos taurus*/*Equus* sp.	I	Rib	4	124.3
13539	*Bos taurus*/*Equus* sp.	I	Rib	3	37.0
Context: 1220D					
13668	Class Osteichthyes		Vertebra	4	1.0
13667	Class Osteichthyes		Indeterminate	21	3.0
13661	*Acipenser* spp.		Indeterminate	3	11.1
13663	*Lepisosteus* spp.		Scale	3	0.3
13662	*Lepisosteus* spp.		Indeterminate	2	1.5
13664	Family Ictaluridae	L	Cleithrum	1	0.2
13665	Family Ictaluridae	L	Cleithrum	1	0.1
13666	cf. *Morone* spp.	I	Opercular	1	0.0

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
13658	Class Reptilia		Carapace	14	2.2
13652	*Chelydra serpentina*	A	Vertebra	7	5.6
13653	cf. *Chelydra serpentina*	I	Rib	1	1.3
13655	*Terrapene carolina*	A	Carapace	1	1.2
13654	*Terrapene carolina*	I	Carapace	1	7.7
13657	*Terrapene carolina*	I	Carapace	2	1.2
13656	*Terrapene carolina*	R	Carapace	1	3.5
13672	Class Aves/Mammalia III		Limb bone	1	0.3
13659	cf. *Meleagris gallopavo*	A	Cervical vertebra	1	0.7
13660	cf. *Meleagris gallopavo*	A	Synsacrum	1	0.9
13669	Class Mammalia		Indeterminate	3	0.4
13673	Class Mammalia		Indeterminate	81	15.6
13642	Class Mammalia I		Vertebra	1	9.5
13670	Class Mammalia I		Rib	5	16.1
13671	Class Mammalia II		Limb bone	5	4.5
13643	*Didelphis virginiana*	L	Mandible	1	1.3
13644	*Didelphis virginiana*	L	Mandible	1	0.9
13694	*Sciurus carolinensis*	L	Premaxilla	1	0.4
13699	*Sciurus carolinensis*	I	Maxilla	1	0.1
13693	*Sciurus carolinensis*	R	Maxilla	1	0.8
13697	*Sciurus carolinensis*	L	Humerus	1	0.6
13698	*Sciurus carolinensis*	L	Humerus	1	0.2
13701	*Sciurus carolinensis*	L	Humerus	1	0.2
13674	*Sciurus carolinensis*	R	Humerus	1	0.1
13696	*Sciurus carolinensis*	L	Ulna	1	0.3
13695	*Sciurus carolinensis*	L	Radius	1	0.2
13700	*Sciurus carolinensis*	L	Radius	1	0.1
13650	*Ondatra zibethica*	A	Vertebra	19	7.2
13651	*Ondatra zibethica*	A	Vertebra	3	0.2
13649	cf. *Procyon lotor*	I	Paramastoid process	1	0.2
13648	*Procyon lotor*	A	Cervical vertebra	2	1.5
13647	*Procyon lotor*	L	Scapula	1	0.9
13645	*Procyon lotor*	R	Scapula	1	1.4
13646	*Procyon lotor*	R	Scapula	1	0.3
13679	cf. *Odocoileus virginianus*	I	Rib	2	2.8
13676	*Odocoileus virginianus*	L	Scapula	1	41.8
13677	cf. *Odocoileus virginianus*	R	Scapula	1	6.2
13678	cf. *Odocoileus virginianus*	L	Tibia	3	10.2
13641	cf. *Bos taurus*	I	Lumbar vertebra	1	31.8
13640	*Bos taurus*	I	Rib	1	25.1
13638	*Bos taurus*/*Equus* sp.		Rib	4	187.6
13675	*Bos taurus*/*Equus* sp.		Rib	1	24.7

Table 31
Faunal Remains from James Fort

UBNo.	Taxon	Sym	Element	NISP	Wgt
Context: 1220E					
13555	Class Osteichthyes		Scale	2	0.1
13556	*Lepisosteus* spp.		Scale	1	0.1
13557	Order Testudines		Carapace	1	0.2
13558	Class Mammalia		Indeterminate	2	0.4
13559	Class Mammalia		Indeterminate	8	1.8
13560	Class Mammalia		Indeterminate	1	0.2