

FAUNA FROM MID-NINETEENTH CENTURY STRUCTURES AT CASTLE HILL STATE PARK, SITKA, ALASKA

by Renee Petruzelli and Diane K. Hanson

Paper presented at the 8th International Congress of the International Council For
Archaeology
ICAZ '98
August 27, 1998

Abstract

Archaeologists from the Alaska Office of History and Archaeology excavated a portion of Baranof Castle State Historic Site in Sitka, Alaska during the summer of 1997. The bulk of the material recovered was deposited between AD 1830 and 1840 when Sitka, or New Archangel as it was then called, was the capital of Russian Alaska. During this time, the town was occupied primarily by Tlingits, Aleuts, Kodiak Islanders and Russians. The area excavated is believed to have been used by craftsmen working for the Russian American Company. There are remains of a structure, possibly a brick smithy's kiln or oven, and copper items may also have been manufactured there. The conditions were excellent for the preservation of leather, cordage, fur, hair, basketry, wood and feathers, but the acidic soils appear not to have been so conducive for bone or shell preservation in some areas.

While Russian settlers imported domestic animals from California and Russia, their subsistence patterns were influenced by the Native inhabitants. The wet climate was not suitable for growing hay for the livestock or for subsistence gardening. With the exception of officers and high ranking officials, the European settlers endured difficult living conditions and periods of starvation. Ships sailing to New Archangel with supplies were inconsistent and the Russians came to rely upon the Tlingits and Aleuts to procure food for them. Indigenous fauna, therefore, became a large part of the diet for the people of Sitka when little or no imported food was available.

Shellfish remains are uncommon and consist primarily of California mussel (*Mytilus californianus*). Cod (*Gadidae*) dominate the archaeological fish assemblage and may be indicative of late winter or spring activities when food stores were low. Salmon (*Onchorynchus* sp.) and halibut (*Hippoglossus stenolepis*) are also present in smaller numbers. Bird bones and feathers are abundant at the site and are currently undergoing analysis. Local large fauna exploited include sea lions (*Eumetopias jubata*), seal (*Phoca vitulina*) and deer (*Odocoileus hemionus*), and imported domestic ungulates are dominated by pigs (*Sus scrofa*) and cows (*Bos taurus*). The remains of rats (*Rattus* sp.) provide additional evidence of European influences on the local environment.

Introduction

The Alaska Office of History and Archaeology conducted excavations at Sitka's Baranof Castle State Historic Site during the summers of 1997 and 1998. Castle Hill is located within the town of Sitka in Southeast Alaska, and is the place where Alaska was transferred to the United States from Russia in 1867 (Figure 1). Excavations focused on an area near the base of the east side of the hill where there were Russian buildings as early as 1805 (Figure 2). Work was associated with the scheduled construction of a wheelchair accessible ramp by the Alaska Department of Transportation. Undisturbed archaeological deposits dating from the early to mid-nineteenth

century have been identified, and remains of four possible structures were uncovered. Organic preservation was extraordinary and included numerous examples of textiles, leather, fur, feathers, hair and a large number of animal bones.

During the Russian occupation of Sitka, the diet of the officers and well-to-do was largely European, while the economically more modest settlers incorporated large amounts of local foods into their menu. Conditions in Sitka were unfavorable for raising crops and domestic animals which were more suited to warmer drier climates, so Russians bought large quantities of fish and game from the Tlingit at the local market. The ultimate purpose of this study is to determine the relationship of ethnicity and food use and distribution at Sitka, but the initial work, using faunal remains recovered in 1997, is designed to identify some of the most basic patterns of animal use.

Methods

During the 1997 field season, fifty-two 1x1-meter units were excavated between a natural rockface at the base of the hill to a gravel path (Figure 3). Excavations began by troweling in arbitrary 10-cm levels, and the materials were dry screened through ¼-inch mesh. Soil samples were collected from the units and bagged by level. Methods changed, however, when it became clear that there was a disturbed layer at the surface, approximately 20-cm thick, containing both modern and early historic artifacts. The disturbed layer was shovel skimmed and screened, and the remaining sediments were excavated by natural levels.

Below the disturbed layer was a Russian period deposit extending from approximately 20-cm below the surface to sterile sediments. The fauna examined for this study came from this level, and three units were chosen for analysis. Two adjacent units near the path were selected because of the distinctive organic layer present, and a unit near the rockface was selected to determine if different activities were taking place there or if a different time period was represented. Only vertebrate remains were analyzed although shellfish were present and collected.

The remains were identified using the zooarchaeological comparative collection from the Department of Anthropology Laboratory at the University of Alaska, Anchorage and personal collections. The material was quantified as Number of Identified Specimens (NISP). Fragments of mammal ribs, vertebrae and long bone shafts were assigned to species when possible. Elements described as large mammals are cow to deer sized, medium mammals are dog or cat sized, and small mammals are rat sized and smaller. Bird ribs were not identified to specific taxon, but vertebrae and long bone shafts were when possible. Large birds are eagle to goose sized, medium birds are duck sized, and small birds include small shore birds and small passerines. Fish remains which passed through a 2-mm screen in the lab were not counted. No attempt was made to identify spines, rays, ribs or branchials to a taxon more specific than "fish". An attempt was made to identify all other elements unless it became apparent the taxon was not present in the comparative collection.

Results

Fish were the most frequently identified taxon in the sample from the units near the path, but no fish were present in the unit near the rockface. True cods (*Gadidae*) dominated the assemblage. Salmon (*Oncorhynchus* sp.), halibut (*Hippoglossus stenolepis*), and rockfish (*Sebastes* sp.) were also present in smaller numbers. The true cods were well represented by lateral headbones, some neuro-cranial bones, and abundant vertebrae. Halibut head and vertebral elements were also identified. Salmonids were represented only by vertebrae and no cranial elements, and only three rockfish lateral head bones were identified (Figure 4).

Bird remains came primarily from waterfowl. Ducks and geese dominated, followed distantly by raven, eagle, cormorant and shorebirds. All body parts of the waterfowl appear to be well represented for the small assemblage (Figure 5).

Mammalian fauna were recovered from the unit near the rockface, and there were fewer identified elements than in the other two units, because many of the bones from this unit were in poor condition. Of those identified, over half ($n=4$) were sea lion (*Eumatopias jubata*) elements which were possibly from a single forelimb. The other remains were a femur from a cow (*Bos taurus*) and a rib and tarsal from an unidentified ungulate. Even unidentified elements were from large land and sea mammals or medium land mammals. The only axial elements recovered were ribs and a caudal vertebra from unidentified mammals (Figure 6).

The assemblage from the units near the path were not so size exclusive. Fauna include mammals from rats (*Rattus* sp.) and unidentified rodents up to deer (*Odocoileus* sp.) and sea lions. Pig (*Sus scrofa*), deer, sea lion and harbor seal (*Phoca vitulina*) were all recovered from these units. No cow bones were identified in the 1997 assemblage but may be present as unidentified large land mammals (Figure 7). Cow bones were identified during the 1998 excavation.

Bones were examined for butchering marks, and although uncommon, were observed on ungulates and medium and large mammals. This was not unexpected since larger animals require more processing than smaller animals. Six of the nine elements from the path units with butchering marks were ribs. Cut marks were also found on one phalanx, a cervical vertebra and an unidentified fragment. Only two bird bones, a coracoid and a humerus, and only one cod vertebra was cut. The pattern is different, however, in the rockface unit materials. Cut marks were found on a radius and metacarpal of a sea lion and two unidentified fragments from land mammals. The butchering marks were made with metal tools and range from small cut marks to chopping. There were no whole appendicular bones in the collection from this unit, and a large portion of the mammal remains were shaft fragments.

Rodent gnawing was noted on five bones from the units near the path and seven elements were extensively modified by carnivores and exhibited scooping. Burning was minimal and was identified on only two bones. Virtually all the bones from the units near the path were stained

green. In contrast, the remains from the rockface unit showed no signs of rodent or carnivore chewing and none had the green staining.

Discussion

Ships carrying supplies to Sitka from Russia were infrequent. The voyages were long and difficult, and cargo often arrived in poor condition. Gibson (1976) described how heat, moisture and rats damaged and destroyed large amounts of food destined for Sitka. Grain became musty and caught fire, and damp flour spoiled as a result of leaks in the ships' hulls. Livestock were imported from other areas to provide the Russian settlers with fresh meat and milk, as stockbreeding in Sitka was largely unsuccessful due to a lack of suitable food for the animals. Incessant rain destroyed virtually all the hay grown there, and shipping hay to the colony was expensive. With dwindling supplies and few domesticated animals, the Russians came to rely upon the Tlingit and Aleut hunters to procure food for them. Gibson (1976) reported that the company was forced to substitute fish for meat, and at New Archangel, had to buy their food from the Tlingit at high prices.

True cods, the predominant fish in the materials analyzed, are generally caught in spring when they come close to shore to spawn (Hart 1980). Emmons (1991) reported that cod was not cured but eaten fresh. Predators attracted to the spawning cod such as harbor seals and sea lions were also traditionally hunted in the spring (Emmons 1991:121-122). Pinnipeds were important to the Tlingit because of their abundant fat and oil (Emmons 1991:150). They also provided the raw materials required to make line, floats and containers. Emmons (1991:150, 122) reported that seals were split and the backbone and skull discarded. The flippers were kept as they were a delicacy.

Halibut were usually caught in late winter or early spring although they were present in smaller numbers year around (Emmons 1991). Halibut was eaten fresh or dried and smoked. Salmon, caught in the spring through the fall were also eaten fresh or cured (Emmons 1991). Salmon vertebrae were found in the units near the path, but unlike the cod, halibut and rockfish remains, no salmon cranial bones were present. Salmon head bone density is less than the vertebrae, and they are less likely to preserve (Butler and Chatters 1994). Heads may also have been processed and disposed of elsewhere. Many times, the salmon heads were boiled in a canoe on the shore and then pressed under a board with heavy weights to remove the oil (Emmons 1991:143). Cranial bones, when boiled in fish head soup, softened and were ingested. Each of these factors can reduce salmon bone representation in the assemblage (Lubinsky 1996, Nicholson 1996).

Cod dominated the Castle Hill assemblage, and yet, Emmons (1991:148) stated that cod was considered an unimportant part of the Tlingit diet if salmon and halibut were available. Historic records confirm that cod was popular in Sitka, because it was available almost year around (Gibson 1976:40, Khlebnikov 1994). Halibut was also popular because of its year around availability and was sold to the Russians in large numbers. Between 22,000 and 138,000 pounds

of halibut were purchased each year from the Tlingit from 1846 to 1866 in addition to the yearly average of 13,000 pounds of halibut the company procured itself (Gibson 1987:94). The emphasis on halibut brought to Sitka and sold to the Russian-American Company would lead to the prediction that halibut should dominate the assemblage, yet this is not the case. It may be a case where cod were readily available and not worthy of special consideration in historic documents.

It is puzzling that herring do not appear in the assemblage. Herring spawned in February or March (Wrangell 1980:6) and Sitka was described as the center for herring exploitation (deLaguna in Emmons 1991). Sampling could partly account for the absence since the sediments were screened with ¼-mesh. One-millimeter screens are generally recommended for recovering herring bones, although they have been recovered at sites using ¼-inch screens (Bullock 1990, Hanson 1991). Column samples will be examined to determine if the absence is an artifact of sampling procedures.

Despite the small number of bird elements analyzed, the remains are coming from all parts of the body. Wing elements normally dominate archaeological assemblages from prehistoric sites on the Northwest coast. This has led to speculation that the wings were taken to the site with the breast meat (Garvin 1987, Unfreed 1989), that the bones were ingested (Matson et al. 1980), that wings were collected for their feathers from carcasses which had floated to the beach (Schalk 1993) or that they were used as whisk brooms as is common in Alaska even now (Iutzi-Mitchell 1998 pers. comm., pers. obs.). An articulated raven wing with the associated feathers was recovered from the site, but in general that prehistoric pattern does not hold for Sitka. The faunal assemblage confirms statements in historic documents that waterfowl, apparently whole, were sold to the Russians. There were domesticated ducks at Sitka (Wrangell 1980:6) which could account for the complete representation. Chickens were also raised in Sitka (Andrews 1965:37), but remains have not yet been identified. Emmons (1991:151) reported that ravens, hawks and small forest birds were not normally eaten and the eagle only under dire circumstances, which would account for their low representation in the faunal assemblage.

Some mammalian remains were identified to no more specific a taxon than ungulate, because it will be necessary to locate a comparative specimen of mountain goat (*Oremnos americanus*), Dall's sheep (*Ovis dalli*) and domestic goat (*Capra hircus*) and sheep (*Ovis aries*) to determine if these animals are present. Ethnohistoric records mention that mountain goats and Dall's sheep were hunted in the winter and early spring when they moved to lower elevations (Gibson 1987). A goat horn core was recovered at Sitka although it was not part of the assemblage analyzed for this report.

Land mammals were an important source of meat for the Russians. During the 1850's, approximately 400 deer each year were brought into Sitka annually (Gibson 1987:93) and an estimated 2,700 game animals were sold in Sitka during the winter of 1861-1862 (Andrews

1965:37). Bear were also hunted and trapped according to ethnohistoric records (Emmons 1991), but no bear or fur bearers were identified in materials analyzed.

Pigs and cows are the primary large domesticated mammals present in the assemblage. Cows were imported to provide fresh meat, milk and butter, but it was reported that their flesh was “greasy and tasted watery” and they did not produce much butter or milk. (Gibson 1976:102). Pigs were raised in large numbers, but their meat was not generally eaten. Khlebnikov (1994: 179) stated that they had a “repulsive taste”, because they were fed on fish and shellfish. It appears that pigs were also not popular with the indigenous fauna. Lutke (in: Andrews 1965:37) stated that ravens “bit the tails off the young pigs, so that all the hogs of the place were tailless”. Unfortunately, this piece of information could not be confirmed from the fauna analyzed.

One unforeseen consequence of importing food to the colonists was the infestation of rats. Gibson (1976) reported that in 1823, the frigate *Cruiser* was unloaded and fumigated at New Archangel, and more than one thousand dead rats were found on board. Some of the rats obviously escaped from the ships and made it to shore. Bones provide direct evidence of their presence, and there is extensive rodent chewing on larger bones. The rats became such a problem that lead strips had to be tacked around the bases of walls to prevent them from chewing through.

No dog remains were identified in the faunal assemblage, but the extensive gnawing on some of the bones and the presence of digested phalanges may be evidence of their activities at the site. Scooping is characteristic of canid chewing and was noted on some of the larger elements. It is expected that dog bones will be found as analysis continues. Dogs were used extensively in land mammal hunting and as pack animals (Emmons 1991). Emmons (1991:139) reported that the dogs were fed fish and had to scavenge and hunt what they could to survive. Cats, too, may have been present at the site, however, they have not yet been identified in the material examined. DeLaguna (in Emmons 1991) noted that the Tlingit kept cats as pets by the 1880's.

Carnivore chewing and rodent gnawing were observed only from materials collected near the path. The chewing indicates that the bones were lying on the ground surface and accessible to scavenging animals. Carnivores prefer fresh bone with fat in the cancellous tissue at the ends of the shaft and in the marrow cavity, while rodents prefer dry bone that has been exposed for some time (Blumenschine and Marean 1993, Brain 1980).

The bones from the units near the path were well preserved and exhibited a distinctive green stain which appears to be a result from the large number of copper artifacts associated with the organic layer. Bones from the rockface unit, however, were generally in poor condition and not stained. There were few copper artifacts in this unit, and the organic layer was not present. This area may be part of a dump which developed at the base of the hill.

In general, the picture that emerges from this investigation is that foods normally obtained in the largest quantities in the spring such as cod, seals and sea lions were well represented, with the puzzling exception of herring. Domestic animals were present, but local fauna appear to have

provided the bulk of the food consumed. Continued analysis of the faunal remains from Castle Hill will answer the questions which resulted from this initial study. The material from the three units examined, confirms statements in the historic records of the Russians' dependence on Native peoples and local foods for their survival at Castle Hill.

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