

Zooarchaeology

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Archaeological sites produce many kinds of artifacts, which provide clues to aid archaeologists in understanding the past. Along with the more commonly recognized artifacts such as stone tools or fragments of pottery, animal (**faunal**) remains are also frequently found. **Zooarchaeology** is the term used for the study of faunal remains from archaeological sites. Archaeologists who study animal remains are called faunal specialists or **zooarchaeologists**. Faunal remains recovered from archaeological sites generally consist of the hard parts of animals such as bone, tooth, antler, or shell. Soft parts such as meat, hide, hair, and feathers decay rapidly so they are not usually preserved. Zooarchaeology differs from **paleontology** in that zooarchaeologists are interested in animals that lived at the same time as humans. Thus, zooarchaeologists use faunal remains to learn about the interactions between animals and people in the past, and how these interactions affected people and their environment.

Faunal remains found on archaeological sites usually represent the accumulation of waste over a long period of time. Therefore, the fragments of bone, tooth and shell represent the remains of numerous animals that were once present at the site. These animals could have been used for food, work animals, pets or might have just lived around the site. To begin to make sense out of the piles of bone, tooth and shell recovered from archaeological sites, the individual fragments (**specimens**) must first be sorted and certain information recorded for each piece. The information gathered from these individual fragments is then combined to provide information about the past.

So, what kinds of information do zooarchaeologists gather from individual specimens? Zooarchaeologists are trained to identify what types of animals (**species**) and what parts of the skeleton of those animals (**elements**) are represented by each specimen. Bones from different animals have particular sizes, shapes (**morphology**) and textures, and these characteristics are used to identify which species and elements are represented in the collection. After the species and elements of the specimens are identified, other kinds of information like age, sex, and modifications can be recorded.

The most useful fragments for determining age are the teeth and the limb bones. Teeth go through a sequence of eruption, wear and loss. The order of replacement of the baby (**deciduous**) teeth with adult teeth, and later wear on adult teeth can provide an approximate age of the animal. The limb bones are useful for determining age because in young animals the ends of the bone (**epiphyses**) are not attached to the shafts (**diaphyses**), but as an animal gets older the epiphyses and the diaphyses fuse. These attachments take place at known rates giving an estimated age. Determining if an animal is male or female is sometimes impossible from a fragment of bone. However, in certain animals such as deer, the distinction can be made because the male has antlers while the female does not. Other more subtle clues such as the shape of the skull and hip bones can also be used.

Modifications to faunal remains can include marks made by stone or metal tools during butchering, gnawing marks from dogs or rodents, or evidence of burning from cooking or disposal.

Once the information from individual fragments has been recorded, the zooarchaeologist combines the data to answer questions about past human and animal interactions. Zooarchaeology uses the principles of anthropology, biology, ecology and zoology to interpret faunal remains. Using information from all of these disciplines produces a more accurate picture of the relationships between humans, animals and their environment. Animals play a wide range of roles in human life. They provide food, shelter, clothing, tools, ornaments, symbols, companionship, and sources of labor. Some of the questions that can be answered with faunal remains include information about past diets, hunting practices, animal husbandry, seasonality, past environments, social status and ethnicity.

One of the primary questions that zooarchaeologists ask is what species of animals did people in the past use for food. In Mississippi, white-tailed deer is frequently the most common animal found on prehistoric sites. Deer were useful because they provided a large amount of meat, but they also provided hide for clothing and shelter, and bone, antler and teeth for tools and ornaments. Prehistoric people also used a wide variety of other native animals for food, including fish, turkey, rabbits, squirrels, raccoons, turtles, mussels, and oysters. Faunal remains from historic sites in Mississippi usually represent domestic animals. These remains represent animals such as cattle, pig, sheep and chicken. Wild animals are also recovered from historic sites, but generally in smaller numbers than domestic animals.

Other areas of research for zooarchaeologists include studies of past hunting practices and animal husbandry. Hunters, fishermen and herders are the providers of animal resources. They have a wealth of knowledge about animals and their habitats, which has been passed down through the generations. Stable **subsistence strategies** (or how people survive) are based on this knowledge and allow repeated success in acquiring or raising animals. The kinds of questions about subsistence relating to hunting practices and animal husbandry can include: what species were hunted or herded, what habitats were exploited by hunters, how domestic herds were managed, what tools and techniques were used to capture animals, how different species were butchered, or how they were cooked.

Another question that can be answered by using faunal remains is what season of the year a particular site was occupied. Only during modern times have people had fresh food throughout the year. For most of Mississippi's past, people had to cope with the seasonal patterns and availability of animals. One way they did this was by moving from place to place to acquire different kinds of resources. Faunal remains can be used to determine what season a site was occupied by examining the age at death of the animal remains, or the presence of certain species. By determining the age of the animal, zooarchaeologists can use modern breeding information to estimate what season the animal was killed. The presence of animals like migratory birds that are only available during certain seasons also allows us to determine what time of the year a site was occupied.

Faunal remains can also be used to reconstruct past environments. Because we know that particular animals occur in specific habitats we can use our present-day knowledge to reconstruct what the environment was like during the time the site was occupied. Small mammals and snails are particularly good indicators of past environments because they have very specific habitat requirements.

Besides providing information about past diets, subsistence strategies, seasonality and environmental conditions, faunal remains can also shed light on social status and ethnicity. Even today, animals are important symbols that convey many different meanings. We use animals as symbols for our sports teams and political parties and attribute certain traits to animals (the sly fox or wise old owl). The importance attributed to certain animals can say something about social distinctions. For example, wealthy individuals may eat better cuts of meat (filet mignon compared to hot dogs) or own expensive pets. Ethnic distinctions can also be seen in the types of food we eat or the way we prepare certain dishes (southern fried chicken or grits). Zooarchaeologists study social status and ethnicity by examining the patterns displayed in faunal remains. For example, the presence of dangerous or rare animals (bears, cougars, or eagles) or higher quality cuts of meat (hindquarters) at an archaeological site may indicate the occupants were of high social standing. The animal remains recovered from mound sites in Mississippi display this pattern, suggesting that important individuals were present. On plantation sites in Mississippi, the study of faunal remains has shown that African-American slaves were mostly provided rations of pork, but they also hunted wild game to diversify their diet. Hunting may have also been a way for slaves to enhance their sense of self-worth and personal identity.

Faunal remains are one of the many types of artifacts recovered from archaeological sites. By studying faunal remains we can understand how human and animal interactions have changed over time. Interpreting the past through artifacts depends on the identification and detailed analysis of evidence collected during excavation. When the information from zooarchaeological analysis is combined with the data collected from other artifacts recovered from a site, we gain a more complete picture of our ancestors' way of life.

Suggestions for further reading

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