

Native American culture and prehistoric bison hunting in the Black Hills

By Anne M. Wolley Vawser and Timothy Schilling

LOCATED IN THE BLACK HILLS OF southwestern South Dakota, Wind Cave National Park has been home to large herds of bison since legislation passed in 1912 established the Wind Cave National Game Preserve. The National Park Service manages the herd at the park to ensure genetic diversity and herd health through a program that is a model for bison management (NPS 2006). Despite the success of this program, little is known about the history of Native American bison-hunting techniques and management practices in what is today the national park. Hence, when the Park Service acquired a 5,556-acre (2,248 ha) tract of land in 2011 that contained what many believed to be an ancient bison jump, park staff sought the help of archeologists from the Midwest Archeological Center to investigate. In 2012 scientists spent three weeks evaluating remains found at this site through survey, mapping, excavation, and geophysical prospection (figs. 1A and 1B). Additional analysis of recovered artifacts continued in the lab to confirm tool type, manufacture, use, and faunal analysis of the bison bone.

Background

Paleoindian people began to appear on the Great Plains 10,000 to 12,000 years ago. Initially they hunted a variety of large mammals, but shifted to bison after prey such as the mammoth became extinct. Hunting involved a range of techniques, from small groups taking individual bison on the open plains to large-scale, communal events. Trapping entailed herding a group of bison to natural landscape features or constructed enclosures where the animals could be killed. “Jumps” involved the strategic stampeding of bison toward



Figure 1A. Archeological technician Stephen Damm collects geophysical data with a dual magnetometer at the top of the bluff near the drive line. This modern technology allows a view into the ground without excavation and helped identify additional drive line features at the site.



Figure 1B. In this overview of the Sanson site (looking northeast) the buffalo jump is marked by the black line at the top of the bluff and the bone bed excavation area at the base. The village area occupied the terrace where the vehicles are seen south of the jump. The nearby creek (indicated by the line of trees) is now dry but supplied both bison and Native Americans with water at the time of the site's use.

Abstract

Wind Cave National Park has played a pivotal role in restoring bison to the Great Plains as well as preserving their once extensive grassland habitats. The Midwest Archeological Center is contributing to the park's knowledge about the history of bison through research at a park archeological site that includes remnants of an occupation by Native Americans whose culture was centered on plains bison. Archeological evidence recovered at the site suggests that while these people practiced communal hunting by driving bison off a nearby cliff, they apparently did not regularly kill more bison than the group could use as no large bone bed was discovered below the bluff. The site was also occupied multiple times over hundreds of years suggesting sustained bison populations through time.

Key words

archeology, bison ecology, Black Hills, Plains Indian culture, Wind Cave National Park



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Figure 2. An excavation trench at the base of the cliff resulted in discovery of a narrow band of soil where all of the artifacts and bison bone were discovered. In this photo archeologist Tim Schilling collects soil samples for further analysis in the lab.

lines of people, brush, or other features, which in turn directed the animals over a cliff. These techniques often resulted in the killing of more animals than could be used, as evidenced by the large bone beds that usually remain at trap and jump locations. Trapping and jumping were practiced from the end of the last ice age until native peoples acquired horses (Kornfeld et al. 2010) in the 17th or early 18th century. In the late 19th century, Euroamerican contact was disastrous for both Native Americans and bison. Native lands were divided, hunting territories were confiscated, and Euroamerican hunting practices devastated bison herds and nearly brought about the extinction of this symbol of the Great Plains.

The archeological site

The Sanson site is a roughly 30-acre archeological site including a bison jump and village that is located along an

intermittent creek in the tract of land recently added to Wind Cave National Park (fig. 1b). Here a rock wall rises nearly 15 meters (49 ft) above the valley floor just above the creek. Archeological excavation has revealed the scattered remains of an undetermined number of bison. While we recovered 84 bone fragments, analysis by a zooarcheologist identified five fragments, mostly vertebrae, as bison (fig. 2). Based on the size and stratigraphic association of the remaining 79 fragments, all but two (identified as commensal species: plains pocket gopher and eastern cottontail) are probably also bison. Isotopic analysis and radiocarbon dating suggest the remains represent at least two individual bison that lived in the late 13th or early 14th century. Above the cliff are linear stone anomalies that we interpret as “drive lines” (fig. 3). These alignments mark the location where obstacles such as brush or stakes would have been placed or where people waving

hides or other items would have stood to drive the bison toward the cliff. This same line of stones also includes rock cairns that are often interpreted as ceremonial features. Additional visible elements are stone circles (tipi rings), cooking and food processing features (anvil stones and hearths), and artifacts associated with bison hunting and processing (fig. 4, page 29). Large stone tools such as choppers were used for initial processing of bison, and finer tools such as bifaces and scrapers were used to further process meat and hides.

Findings

The 2012 investigations led us to conclude that the Sanson site has a long history of use. An early McKean-style projectile point found at the site provides the earliest date, of about 4,000 years ago. Radiocarbon analysis of charcoal from two fire pits at the site returned dates of 1,200 and 920 years ago (Agenbroad 1989). Finally, radio-



Figure 3. In this view looking west from the top of the cliff a row of stones indicates one of the drive lines. The edge of the cliff is marked by the arrows. Note how the downhill approach to the cliff makes it appear as if the prairie simply continues and hides the cliff edge from the charging bison.

The Native Americans who hunted and lived at the Sanson site practiced smaller, sustainable hunts for up to 4,000 years before Euroamericans nearly drove the bison to extinction.

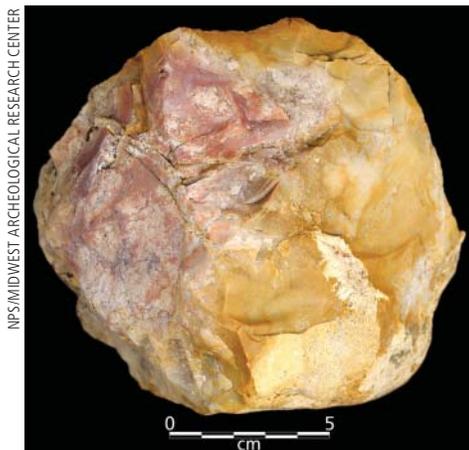


Figure 4. This large chopping tool is made of chert and would have been used for the initial dismemberment of bison, such as separating large pieces from the body, to transport to the village for additional processing.

carbon dating of bison bone from the site indicates the most recent occupation at the site was about 700 years ago. The area was used for several purposes: as a bison jump and processing location, a stone source for tool production, a habitation site, and the locale of individual or group ceremonies.

In addition to its multicomponent nature, the Sanson site is atypical for a bison jump site where archeological investigations commonly document the remains of hundreds of animals (Frison 2004). Although the “killing floor” at Sanson has likely been affected by changes in the stream channel, the geomorphic setting of the jump site, the spatially restricted nature of the remains, and multiple size classes of bone fragments (from > 10 cm to < 1 mm) indicate that flooding or stream migration would not have been sufficient to completely remove a large bone bed. Rather, it appears that the bone bed never contained the remains of more than a few individual animals.

The archeological remains suggest that communal bison hunting was just one part of a complex culture of these Plains

Native Americans whose methods of bison hunting may have changed over time. Here, bison jumping appears to have been a well-planned and highly managed activity. Hunters likely targeted only a few animals at a time and drove them off the jump, ensuring death in small-scale, efficient hunts. We conclude that the Native Americans who hunted and lived at the Sanson site practiced smaller, sustainable hunts for up to 4,000 years before Euroamericans nearly drove the bison to extinction. Whether or not this type of hunting helped sustain bison populations that led to long and prosperous use of the area by native peoples remains a topic for further study. However, our research provides biologists and modern national park and grassland managers with information that more fully tells the story of Native American Plains life in the vicinity of Wind Cave National Park.

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