

**Documenting Domestic Landscapes at Crow Stone Circle Sites in  
Bighorn Canyon,  
Southern Montana and Northern Wyoming**



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## ***Project Background***

Stone circle sites represent one of the single greatest archaeological resources managed by Bighorn Canyon NRA (Figure 1). Stone circles, commonly referred to as “tipi rings,” are one of the few forms of domestic architecture known on the northern High Plains (Kehoe 1958). Prior to the Historic use of wooden stakes as tent pegs, Plains Indians used stones as tipi weights. Once moved, stones often stayed in place preserving to some extent the superstructure characteristics of the lodge. Today stone circle studies remain important to archaeological research because they allow researchers to focus on social and economic organization, use of space, ideology, and daily practice.

From 1968 through 1974, nearly 120 stone circle sites were documented in Bighorn Canyon NRA and the surrounding landscape (Loendorf and Weston 1983). The number of stone circles at individual sites ranged from 1 to 230 with an average of 7 features per site. Over 2,000 stone circles are estimated within the park boundaries, a figure that grows with each new field season. The primary goal of ongoing research at Bighorn Canyon NRA is to develop and implement a research design that efficiently and effectively collects data from stone circle sites. This research design provides data



**Figure 2. Stone Circle Map**

necessary for management of these abundant yet critical resources while simultaneously advancing a research program into aboriginal life in the Middle Rocky Mountains and northern High Plains. In this paper we provide an overview of the methodology employed in our study and discuss the preliminary findings of our recent field study.

### ***Methodology***

Our fieldwork uses a three-stage strategy that includes surface mapping, remote sensing, and excavations. We begin surface mapping by thoroughly examining the site to identify all features and artifacts. A hand drawn planview map of each stone circle is then created (Figure 2).

Each stone of the feature is assigned three-



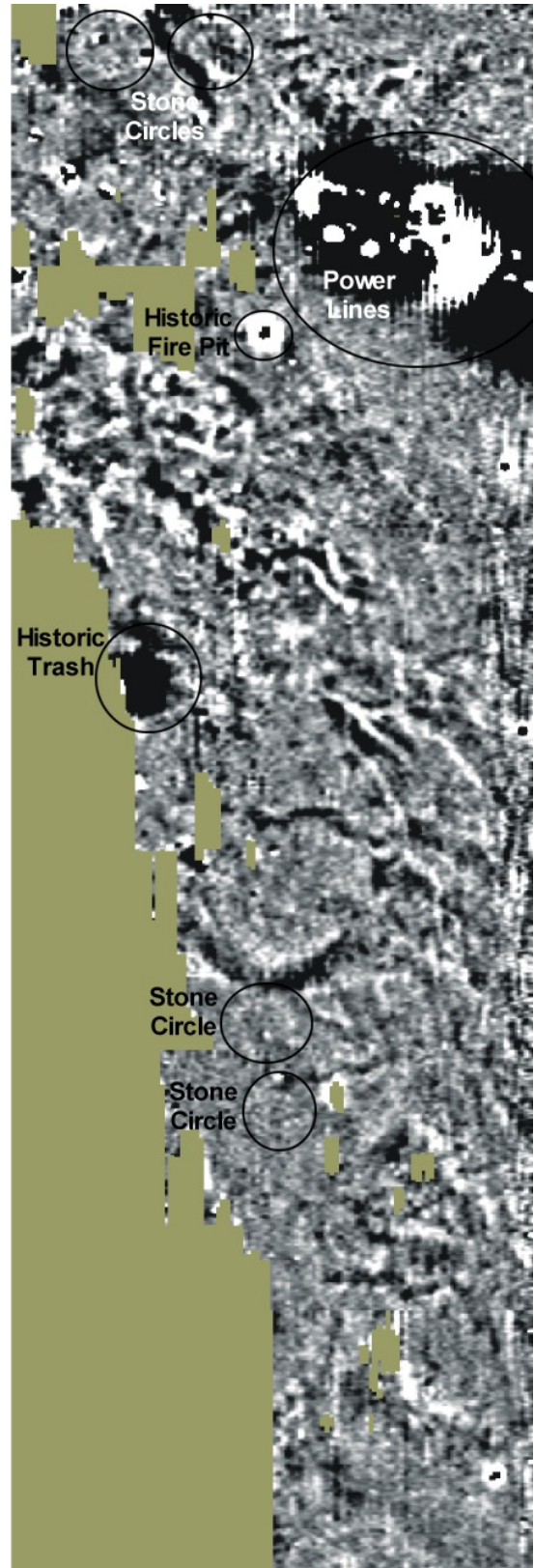
**Figure 1. Map of Bighorn Canyon NRA**

attribute data for every recorded rock, artifact, and feature. Remote sensing measures the contrast between differential magnetic fields of archaeological features, specifically stone circles and fire hearths, and the surrounding geological matrix. The remote sensing survey blocks are included in the GIS model and serve as a subsurface map showing the distribution of potential archaeological features (Figure 3). The purpose of the remote sensing survey was to inform and guide subsequent test excavations.

### **Results**

Our project recorded 20 stone circles at three archaeological sites during 2006. The three sites show considerable variation in the number of stone circles present, as well as the size and overall structure of each stone circle. We also selected sites that occurred in geological locations that are suitable for rapid burial of artifacts and features. For example, two sites are located at the base of hillslopes where sediments wash across the surface during snowmelt and rainstorms. Rapid burial preserves fire hearths for radiocarbon dating and artifacts in the original place left by the site inhabitants. Such information is necessary for accurate reconstructions of ancient life at archaeological sites.

Based on the structure of stone circles at one site, we concluded that it was most likely occupied during the wintertime. While it may have been necessary to weight down tipi edges during summertime with a single course of stones, stronger winter winds and the use of a secondary lining required use of more stones that often form multiple courses. Stone circles at this site also commonly had internal stone fire hearths, which supports an interpretation of a wintertime occupation. Remote sensing (Figure 3) helped identify two stone circles that were buried by sediments washing off of the hillslope. Excavations of these stone circles resulted in recovery of artifacts and charcoal with which we can determine the age of the features and the types of activities that occurred there. Surface artifacts are not common at the site because it is close to the Bad Pass Road and has a long history of



**Figure 3. Remote Sensing Map**



**Figure 4. GPS Mapping**

observations of limited potential for buried deposits. No artifacts were recorded on the surface indicating that this site was also likely subject to a long history of unauthorized collection.

#### ***Conclusions***

Our study developed a methodology for documenting stone circles that is applicable in both research and management contexts. Our integrated GPS and GIS methodology provides data that creates an accurate digital model of stone circle distributions in Bighorn Canyon NRA. We determined that stone circles positioned in certain geologic settings rapidly bury artifacts and features. Remote sensing is a valuable guide for identifying buried stone circles and fire hearths and for guiding successful excavations. Our pilot study shows that a combination of innovative techniques provides information necessary for establishing the age of sites and artifact distributions that are necessary in understanding the domestic life of nomadic bison hunters. Future years' work following the established protocol will contribute to a growing stone circle database at Bighorn Canyon NRA.

unauthorized artifact collecting.

To contrast the first site, our second site consisted of smaller stone circles with single stone courses. Archaeologists generally believe smaller stone circles represent older (pre-horse) occupations. The single stone courses also indicate a summer or fall occupation of the site. Remote sensing was a valuable aid at this site. Our focused excavations in two stone circles found fire hearths, stone tools, and butchered animal bones. Surface artifacts were rare because of unauthorized collection. This site will be important for comparisons with other Bighorn Canyon stone circles.

The third site investigated consisted of five stone circles with robust, single courses of stones. Due to the geologic setting no sediments had accumulated allowing burial of archaeological remains. Remote sensing surveys supported our



**Figure 5. Mapping and Recording Data**

***References Cited***

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Cover Image: Northern Cheyenne women tanning buffalo hides, mouth of the Yellowstone River, ca. 1878. From stereo card by Stanley J. Morrow. National Anthropological Archives (NAA neg #3701).