

## Bison Kill Site audio tour

### **Station One: Reader Board outside LYFIC front door**

Welcome to the Challis Bison Kill Site. This tour takes you along a paved pathway, less than a half mile round trip, to an area near the base of the site. This audio tour was made possible by a partnership between the Idaho Department of Parks and Recreation and the Bureau of Land Management. During this audio tour, you will encounter several numbered signposts along the trail. When you see one of these signs, jump to the corresponding number on this CD to learn more. Before setting out on the tour, you may want to pick up a copy of the Bison Kill brochure. You may also want to stop and read the different interpretative signs along the trail. Are you ready? Then let's go! Please proceed to the next station and punch in the number corresponding to the signpost on the pathway. Please do not leave the pathway or enter the site area. This is an archaeological site, and the information it holds is still being investigated.

### **Station Two: Just before crossing service road**

Welcome to station 2. Before crossing the service road, let's talk about volcanoes. Challis sits in the middle of a large volcanic formation known as the Challis Volcanic Group. This formation did not form from one huge volcano. The Challis Volcanic Group formed through a series of small events occurring 40-50 million years ago, when volcanic material erupted from vents, fissures, or fractures in the earth. These eruptions eventually created a thick layer of different types of volcanic rock material that ultimately became the cliffs you see. These layers can be up to 3000 feet thick in some places. The volcanic materials can be ash, lava, and breccias or lava with coarse, angular, volcanic fragments. Most of these volcanic vents have since been eroded or are buried within the volcanic pile. Throughout the area you can see dramatic changes in rock type, structure, and alteration in both the horizontal and vertical dimensions of the rock formation.

### **Station Three: at bench across service road**

You may hear the terms bison and buffalo used interchangeably, but technically, they are different animals. Several species of buffalo are found in Africa and Asia. Here in North America, bison once roamed over millions of acres. These magnificent animals were once hunted to near-extinction in the 19<sup>th</sup> century. Now, remnant populations can be found throughout the United States.

Large herds of plains bison are known to have existed on the Snake River Plain as early as 10,000 years ago. Bison traveled mainly in two different social groups – cow/calf groups and bull groups – similar to how elk behave today. Smaller groups would have joined up during breeding season – generally in the summer time – to form large herds. This type of large herd was described in the journals of early explorers and settlers to the Eastern Snake River Plain, located about 80 miles southeast of here.

It's quite possible that after breeding season, smaller groups of bison traveled up the Lost River Valley to this area because of the cooler summer time temperatures. Over the years, small groups of bison may have moved up the valleys to areas like Challis and adapted to local food sources and climates. Early explorer's journals document seeing small bison herds in the area.

#### **Station Four: midway between benches 1 & 2 along trail**

In North America, researchers have found some common elements to bison jump sites. These sites generally have a naturally-occurring large grazing or gathering area near the top of a cliff. Drive lines marked with cairns were built where American Indians directed the herds. The cliffs would be a moderate drop to talus or scree rock piles below, with evidence in the form of large bone beds at the base of the cliffs. Finally, American Indian oral histories generally recorded these events over long periods of time with the use occurring primarily in the fall season.

Here at the Challis site, there is a large, gently sloping gathering area above the cliffs, which would have provided a moderate drop. However, the area's topography would have provided a couple of easy escape route for the bison when they were running toward the cliff, making the pushing of a large herd over the cliff difficult. There is no archaeological evidence that bison were killed here more than one time.

#### **Station Five: by 2<sup>nd</sup> bench**

In 1970, Challis resident John Ivie discovered what he thought was bison bone mixed with talus and some artifacts at the base of the cliff. He contacted Idaho State University's B. Robert Butler, and that summer, Butler arranged to have an ISU archaeology field school excavate the site.

Butler's excavations in 1970 included the kill site located at the base of the talus slope and Quill Cave, a tiny cave located at the top of the talus slope. Quill Cave yielded all of the intact bison bone recovered from the site; bison bone recovered at the base of the talus slope was severely decomposed and

fragmented. Identifiable bones from bison, sage grouse, rabbit, porcupine, marmot, rocky mountain big horn sheep, coyote, and wolf were recovered from Quill Cave. Some of the bison bone recovered was from very young or unborn calves, indicating that the kill occurred in late winter or early spring.

Following the 1970 excavation, Butler chose to interpret the site as a late prehistoric-early historic bison jump based on the presence of trade beads and late prehistoric arrowheads mixed in with the bison bones. Because the trade beads dated 1860 – 1880, Butler also presumed that horses could have been used in the hunt. Several years later, Butler reported finding several small rock cairns above the jump, which he interpreted as evidence of a drive line. Despite numerous investigations, these rock cairns have never been re-located.

Some of the artifacts found here were actually significantly older than the 1700s Butler had estimated. Butler chose to focus on the evidence that he thought was associated directly with the bison jump, which excluded the evidence showing another six thousand years of utilization.

Because of the questions raised since the 1970 excavation, archeologists decided to investigate the site again starting in 2002.

## **Station 6: by “all the pieces are needed”**

Since the 1970s there have been improvements in archaeological methods that can help us re-assess what happened here. Because materials from the 1970 excavation were carefully stored at the University of Idaho, we can apply new analysis methods, such as direct radiocarbon dating, to those same excavation materials. For example, a bison rib from Quill Cave was dated to approximately 1212 AD, and a sample of blowfly puparial cases was dated to approximately 1160 AD. These results suggest that the bones recovered from the cave are probably related to the actual bison kill, and give us a considerably older date for the bison kill than previously thought.

The dark layer of blow fly puparial cases found at the site in association with the bison bone and cultural materials is one of the things that makes the Challis Bison Kill site unique and has many researchers scratching their heads. No other bison jump site has had these eclosed (or hatched out) maggot casings present.

## **Station 7: by third bench**

The study of how bones come to be present in an archaeological site is called taphonomy. Factors affecting bone placement can include human activity,

scavenging by animals, and erosion events that can move bones around within an archaeological site. Archaeologists look for distinctive evidence on bones like cut marks, which might indicate human butchering, or gnaw marks that might indicate animals chewing on the bones.

The bones within the kill site at the base of the cliff were very poorly preserved, but many of the bones excavated from Quill Cave were intact and easily identified. We do not know if the bones from Quill Cave were purposely placed in the cave by people, or dragged there by animals. One of the bones from the cave shows signs of a possible cut mark, but there is very little else to indicate that people purposely carried butchered bison parts to the cave for storage or preservation.

### **Station 8: by “layers of history” sign**

Part of an archaeologist’s job is to leave well-documented records of exactly where excavations take place, and what is found in the different layers uncovered. Because of the maps and descriptions made during the first excavation, in 2007 we were able to re-locate areas previously disturbed. A large trench, first opened up in 1970 to reveal the site’s separate and distinct layers of soil was opened up again in 2007. The same layers of time pondered by Butler in 1970 were subjected to new methods of archaeological, geochemical, geomorphic and entomological examination. Results from this latest re-analysis are still pending.

### **Station 9: by “diverse lands, diverse people” sign**

Another new analysis process used on the 1970s excavation materials is X-ray fluorescence or XRF. XRF spectrometry is a non-destructive method of measuring selected major, minor and trace elements of the tool stone used to make specific artifacts. The resulting data for each artifact is compared to known chemical “fingerprints” that tell us where the source of that material is located. Obsidian, a glass-like stone, is the most reliably sourced tool stone material found in archaeological sites.

XRF spectrometry tell us that the obsidian tool stone sources for artifacts found at the Challis Bison kill site come from as far away as Yellowstone (200 miles east), Timber Butte (150 miles southwest), with a majority of the source material coming from Bear Gulch (150 miles northeast).

### **Station 10: by “Challis bison jump” sign near state sign**

The bison kill site cliffs reddish and brownish colors come from “iron staining” that resulted from the weathering of iron in the iron-bearing minerals in the rocks. The white stains are from nesting birds. The Salmon River has downcut through this area to form the cliffs on either side of the Salmon River canyon, including the bison kill site cliffs. Most of the recent downcutting over the last 100,000 years occurred during relatively short time intervals when the Salmon River had enormous flow due to alpine glaciers melting in the nearby mountain ranges.

We have talked about Quill Cave previously. It can be seen from here if you know where to look. Skim across the base of the cliff until you notice a slight dip or impression. This is Quill Cave.

There were many different types of animal bones found in the cave. Some of these include: bighorn sheep, coyote, wolf, cottontail rabbit, rack rabbit, porcupine, marmot, sage grouse and freshwater mussel. Also discovered in the cave was a large pack rat nest. Pack rats use plant material and any other small object that interest them as building materials for their nest. Pack rats use the same nest and continually build new layers each year on top of the nest. This happened in Quill Cave and resulted in many generations of pack rats creating a pile of information useful to researchers. Samples from the nest were taken and will be analyzed to determine age and type of plant material.

Just a reminder, please do not enter the archaeological site area. This is a site on the National Register of Historic Sites and we are still learning about the event that happened at this site. Removal of any material or artifacts is prohibited.

-- TURN AROUND HEAD BACK TO CENTER --

### **Station 11: by state highway sign**

New information and interpretation of results are not always accepted –even in professional and academic circles. This sign, written using the 1970s interpretation of the site, points out the many changes in our knowledge about the Challis Bison kill site. This sign is due to be replaced in the next few years, and the new information from recent investigations will be incorporated into the new sign.

The gravel road that cuts through the pathway is one of the old wagon roads that led to Challis.

### **Station 12: on trail prior to detour for two signs**

As you walk along the pathway try to imagine what the area looked like 700 years ago. Picture the river closer to the cliffs and a marshy, meadow area with cattails, willows and various bushes of currents and chokecherries. Strip away at least half of the sage brush and paint the scene with a variety of grasses and blooming flowers. Some of these grasses, such as Indian Rice Grass, Needle and Thread, Squirrel Tail and Great Basin Wild Rye are still visible today, but likely more plentiful 700 years ago. These grasses all produce a seed head used as a food source for the local indigenous people who lived here during that time period and on up through the years.

As the river moved closer to its present path, the vegetation and plants changed accordingly. More desert type plants became plentiful, while the water loving plants declined.

Now, during the spring and early summer months, this pathway is lined with blooms from the Scarlet Globe Mallow, 4-Wing Saltbush, Lupine, Pussy-toes, Prickly Pear, Barrel Cactus, Indian Paintbrush, and Balsam Root. In late summer and fall the distinct yellow blooms of Rabbit Brush contrast with the cliffs and sage brush. You will also find Asters, Curly Cup Gum Weed, Salsify and Desert Parsley blooming during the season. During the past 100 years, invasive plant species such as Kochia, Cheat Grass, Russian Thistle and Mustard species., have invaded the landscape and made themselves at home.

### **Station 13: Located ½ ways between third bench and all pieces**

Archaeological information gathered during the excavations and surveys in this vicinity tell us that this area has been intensively used for many thousands of years. The large and varied assemblage of arrowheads, spear points, butchering tools and stone tool-making remnants reveal that people found resources and materials close by that made camping here attractive.

The new techniques used recently to re-analyze the 1970s excavation materials have greatly altered the original interpretation of this site. What we think of now as cutting edge techniques may be obsolete in the next 20 years. Please help us preserve all pieces of the puzzle by staying off the site, and not picking up materials you might find. This way, as new techniques become available, we have the materials we need to deepen our knowledge about this site.

### **Station 14: located at Station 4**

As you look around you will notice that Challis is located in a round valley. This valley is the result of many geologic events caused by volcanoes and earthquakes. In more recent times on October 28, 1983, a 7.3 earthquake rocked the valley and the entire Custer County. It lasted 40 seconds and the epicenter was 35 miles southeast of Challis at the base of Mt. Borah. 21 miles of surface faulting can still be seen along the western flank of the Lost River Mountain Range. Mt. Borah raised a foot and the valley floor west of the fault dropped 7.5 feet during the quake.

The quake caused \$12.5 million in property damage between Challis and Mackay. Another result was a significant change in the water table, changing the level and temperature of many ground water wells. The earthquake is also thought to have affected the frequency of eruptions at Old Faithful Geyser in Yellowstone National Park. Two school children, on their way to school, were killed in Challis by a falling rock building. There were no other casualties.

### **Station 15: before crossing the service road back to center**

As you travel back towards the center, let's talk about some other residents of the valley and take a short history lesson. On your right is one of the many cattle ranches and alfalfa fields in Round Valley. This harshly beautiful yet forbidding Salmon River country challenged early inhabitants and travelers. After the discovery of the area by white fur trappers, in the early to mid-1880s, many came seeking gold. In 1876, gold was discovered on the Yankee Fork Mining District, which led to the founding of Challis as a supply town for the surrounding remote mining camps. People needed supplies, transportation and more supplies. Farming, ranching and other types of businesses moved in and Challis soon became the larger town in the area and county seat. Mining is still an important part of industry in the area along with agriculture.

Turn around in a circle and survey the elegant mountains that surround this valley. Today, many people come to this area to recreate. There are numerous diverse activities, from hunting and camping, to riding ATVs and looking at historic sites. We invite you to Stay and Play with us.

### **Station 16:**

We hope you enjoyed your audio tour of the Challis Bison Kill Site. Please be sure to return your listening device to the desk inside. If you haven't already, please take time to enjoy the displays inside the visitor center relating to the bison kill site and mining history, and pick up a brochure about the Bison

Kill site. We also have information about camping areas and interesting places to visit while you are in the area.