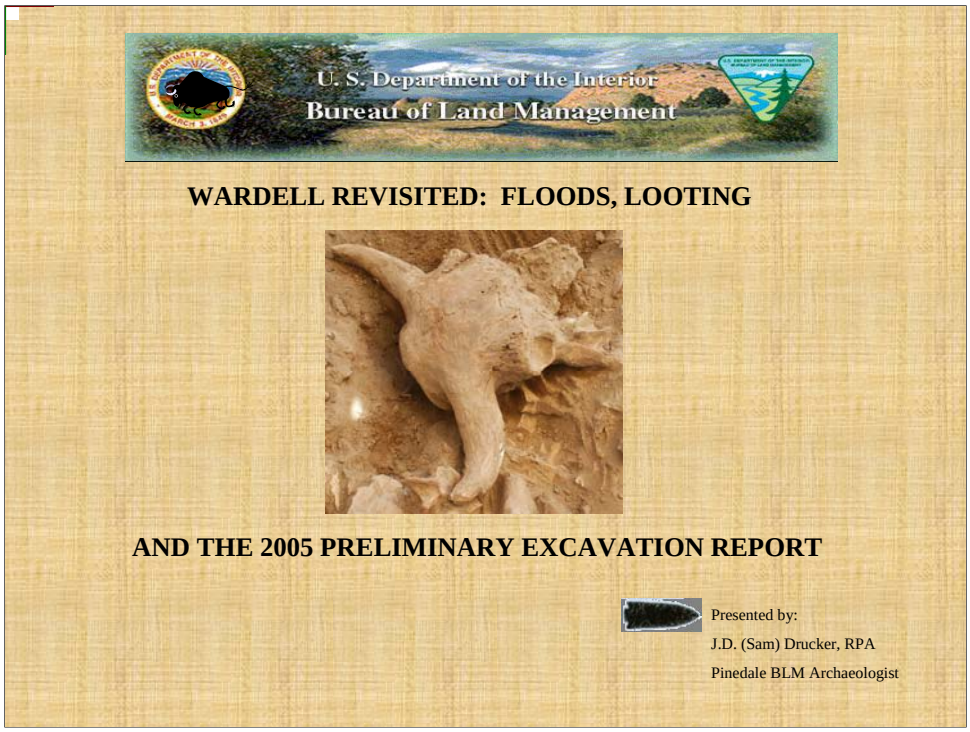
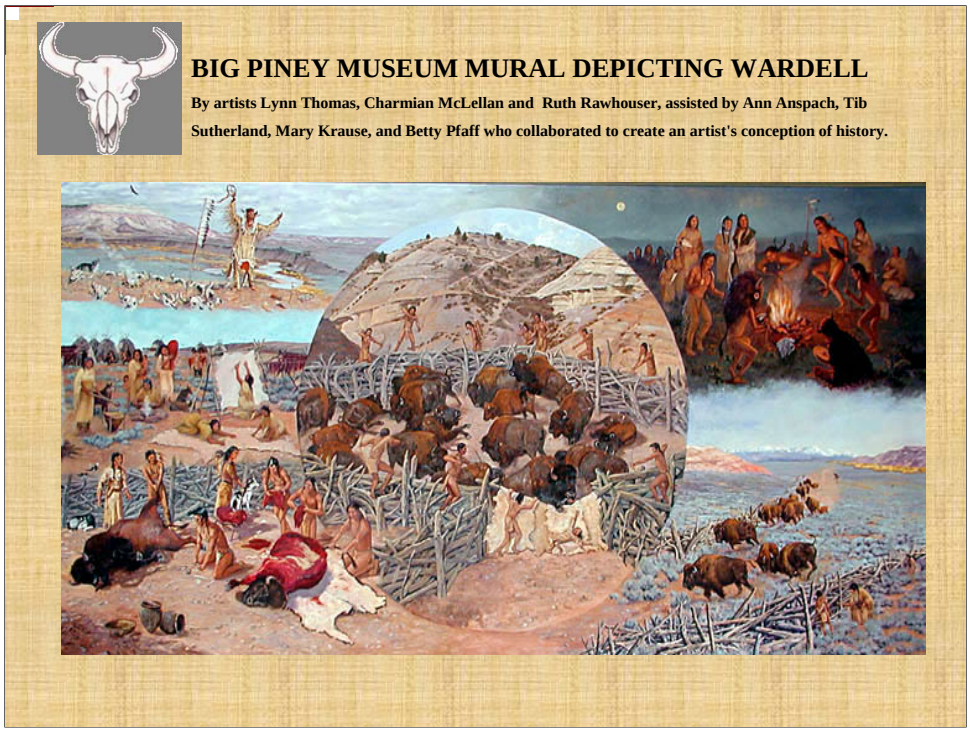


This presentation focuses on to the volunteer efforts surrounding the 2005 salvage excavation at the Wardell Site (48SU301). The salvage excavation was conducted due to flooding during the summer of 2004, as well as two episodes of vandalism during the spring and early summer of 2005. An area of approximately 18 square meters was salvaged, and, on average, two meters deep throughout the season. These are the preliminary results of this excavation.

SATELLITE VIEW OF THE UPPER GREEN RIVER BASIN

The Wardell Site is located east of Marbleton and Big Piney in Sublette County WY, very near the confluence of the Green and New Fork Rivers.



48SU301 represents the earliest known Wyoming communal Bison kill site using the bow and arrow technology. Wardell was first excavated in the early 1970's by Dr. George Frison and Dr. Charles Reher. Areas investigated included the kill and processing zones of the site. The Green River Valley Museum in Big Piney has an excellent display centered on the original Wardell dig.

Dr. Frison and Dr. Reher had much more bone to contend with than was uncovered in 2005. The original excavation took out approximately four tons in two field seasons, whereas the 2005 work recovered about ¾ of a ton.

48SU301, WARDELL BONE BED, 1970s. NOTE POST MOLDS

The original excavation discovered post molds, suggesting the location of the pound or trap. No post molds were located during the 2005 excavation; however, that work was centered below the hypothetical trap and post molds were not really expected.

DR. GEORGE FRISON KNEE DEEP IN BONES

Students to 'Dig' Old Buffalo Jump

Casper Star-Tribune — Tuesday, May 5, 1970 — 9

Seek Clues to Ancient Green River People

LARAMIE — Three hundred years ago, or more, a band of prehistoric people rendezvoused in southwest Wyoming for their annual buffalo kill.

No one knows for sure whether the hunters ran the animals off a cliff, or whether they forced their prospective food and clothing supply into some kind of trap.

"That's one of the things we hope to find ," said George Frison, head of the niversity of Wyoming's anthropology department.

Frison and an eight-man student crew will begin digging next month at what is known as the Wardell buffalo-kill site in the Green River basin.

The operation, financed by a $13,600 grant from the National Science Foundation, is expected to last about seven weeks.

Exposing the area won't be easy work. All digging must be done slowly by hand and in all kinds of weather. At least, though, the crew will have a roof over their heads—an old, empty ranch house nearby.

The temporary discomforts of the dig should be worth the effort. A buffalo jump at Glenrock excavated by Frison and his students last year yielded much information about the pre-historic buffalo economy of the northwestern plains.

Frison is especially interested in finding out more about prehistoric butchering methods, tool use, and meat processing. Stones used for pounding, chopping, and cutting were usually abandoned by the hunters at the kill site, he explained. By comparing these tools with marks left on the bones, anthropologists can tell how the hunters removed the hides and cut up their meat.

Prehistoric men trapped and "jumped" buffalo annually as long as 4,000 years ago, maybe even longer. Frison believes, however, that the Green River site is a fairly recent one — not much older than 300 years.

If the Green River kill is typical, Frison and his students will find bones of other animals lying among those of the buffalo.

"Remains of the kill naturally attracted all kinds of carnivores," Frison continued. At other kill sites, for example, the anthropologists have unearthed not only buffalo bones, but also those of bear, bobcat, coyote, dog, and carnivorous birds.

After a summer's work in the field, the crew will bring artifacts back to UW for future study. Specimens from other digs already fill all available laboratory space and most of the basement space in the Arts and Sciences building.

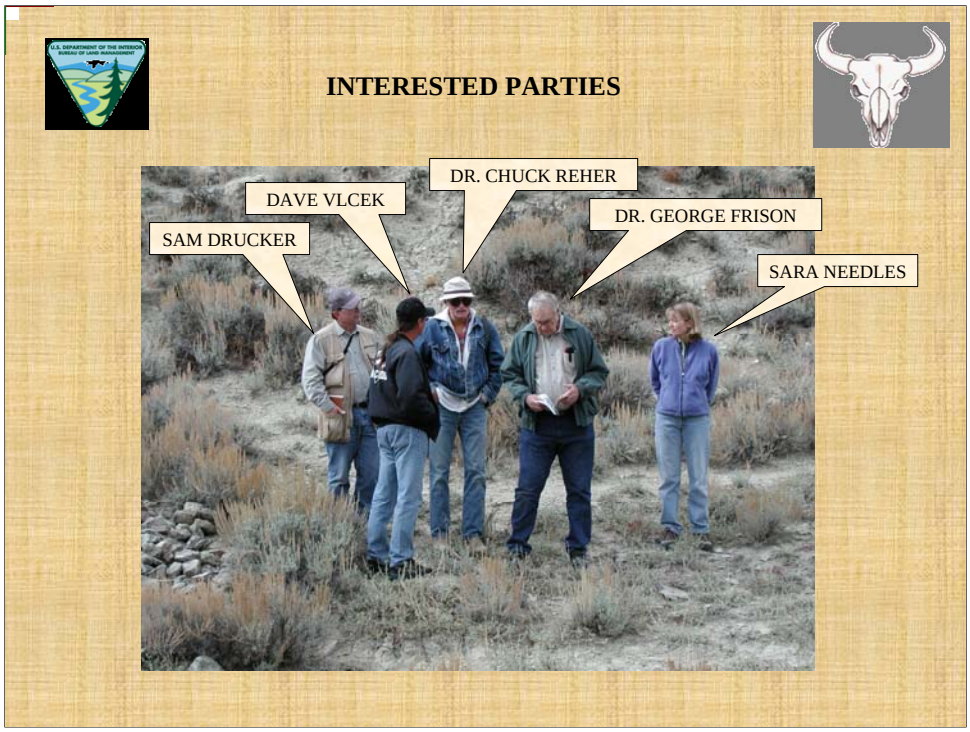
There are bones on the tables, bones on the floor, bones on the shelves, and bones stacked in corners. Sandwiched between bones are specimens of weapons and cutting implements.

"You can see that we don't have much space," Frison commented as he surveyed his growing collection. "Many of these belong in a natural history museum, but we don't have one."

Although there are no immediate plans for such a museum at UW, Frison hopes that one will be built someday.

He also hopes that Wyoming's buffalo-kill sites will be carefully safeguarded. These are, of course, potential tourist attractions, but more important, they are part of Wyoming's past — a past that

Here is an article describing the original excavation. Dr. Frison appears to be knee deep in bones. Bones from the original excavation are used as learning tools in the taphonomy class taught by Dr. Danny Walker at the University of Wyoming.



During the fall of 2004 a meeting took place at Wardell to brainstorm ideas about how to stabilize the erosion problems. Here Dr. Frison and Dr. Reher are explaining the history of their excavation to BLM archaeologists, Sam Drucker and Dave Vlcek, and Sara Needles, who was SHPO at the time.

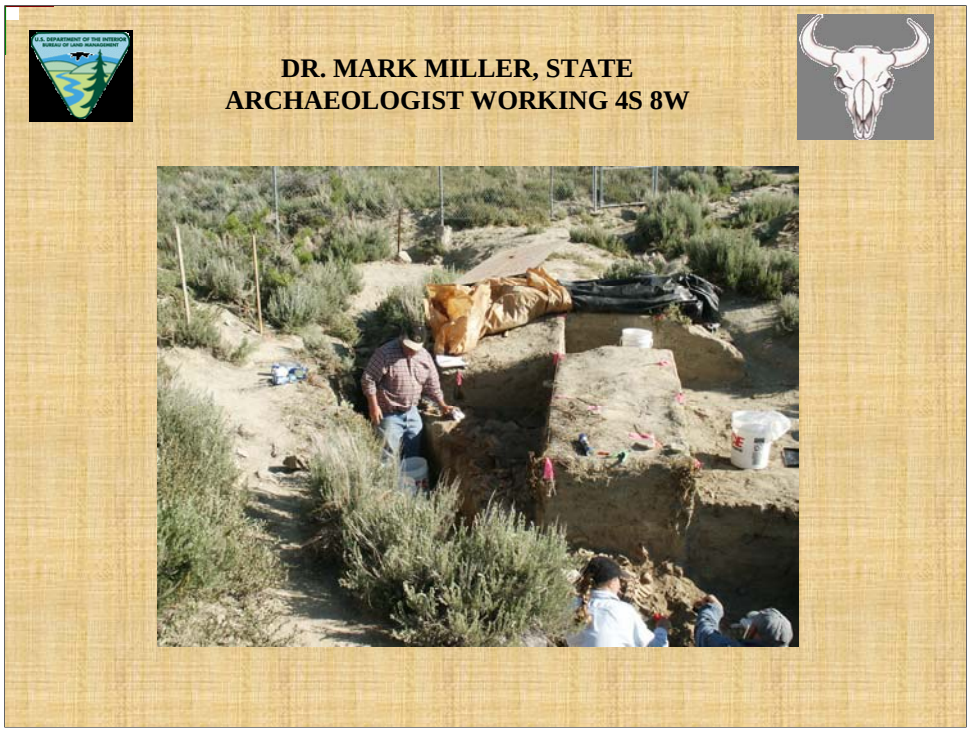
Dr. Bob Kelly, from the University of Wyoming, has visited the site and expressed concern over the erosion problems. Dr. Kelly has conducted field school at the Pine Springs site in southwest Wyoming.

INTERESTED PARTIES

TRIBAL CONSULTATION WITH MR. AND MRS. RICHARD FERRIS, SHOSHONE CONSULTANTS

Late in September of 2005, BLM initiated tribal consultation with the Shoshone tribe. The tribe agreed to the stabilization plan and expressed satisfaction regarding the work completed at that time. They also indicated they would like to see the chain link fence taken out so that less attention would be drawn to Wardell and to allow natural forces to help cover the site with sediment.

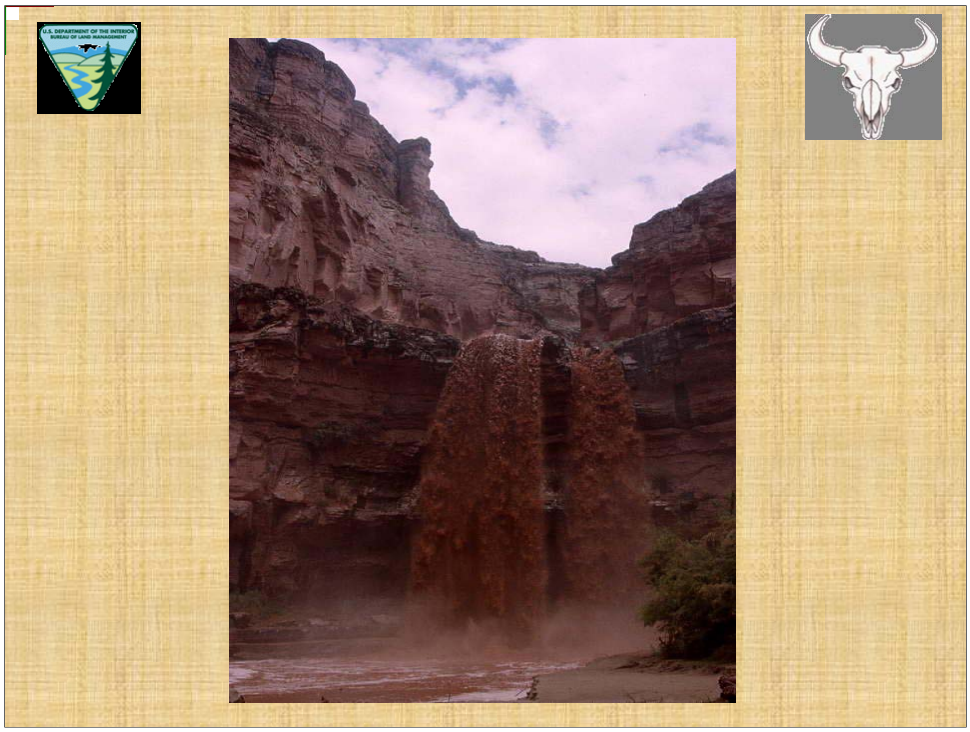
Archaeologist Kierson Crume, former archaeologist with BLM's Pinedale Field Office, was involved in trying to stabilize Wardell. Dave Vlcek, BLM archaeologist, also spent time helping with the set up of the dig and excavated for several days at the site during the first few weeks. Sara Needles, SHPO, assisted by helping cut through bureaucratic red tape which allowed the excavation to be completed in a timely manner.



Dr. Mark Miller, Wyoming State Archaeologist, was able to spend a few days early on in the excavation.

This is the famous Wardell Buffalo Trap near Big Piney, Wyoming. Archaeologists have removed tons of bison bone and nearly 500 arrowheads. More work is scheduled for this summer of 2005 to try and stabilize the run-off problems.

Flat Stanley, a famous world traveler, also visited the Wardell site. He suggested using volunteers to help excavate part of the area that was eroded. His advice was taken – thanks Stanley!



This is not the Wardell site, but the photo does show how torrential rains and erosion can affect land formations.

EROSION AND FLOODING PROBLEMS

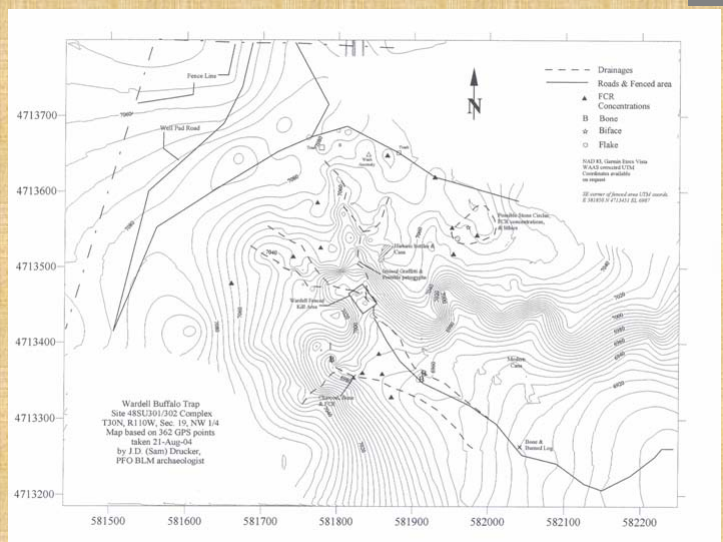
The main efforts of stabilization were focused on this portion of the gully, which is below and south of the kill area.

EROSION AND FLOODING PROBLEMS

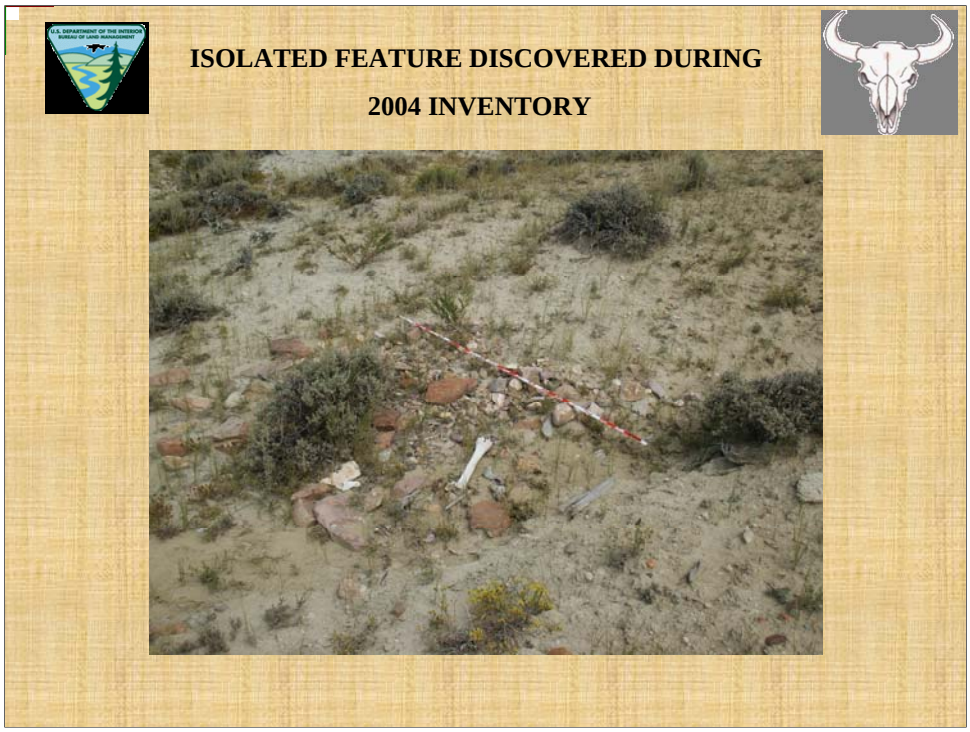
This photograph shows that the drainage extends quite a distance from the fenced kill area. In some places the gully is up to 2½ meters deep and is cutting through an exposed bone layer that is at least one meter thick.

Dr. Frison inspected the bone exposure in the arroyo, as several archaeologists watch.

2004 WARDELL COMPLEX MAP



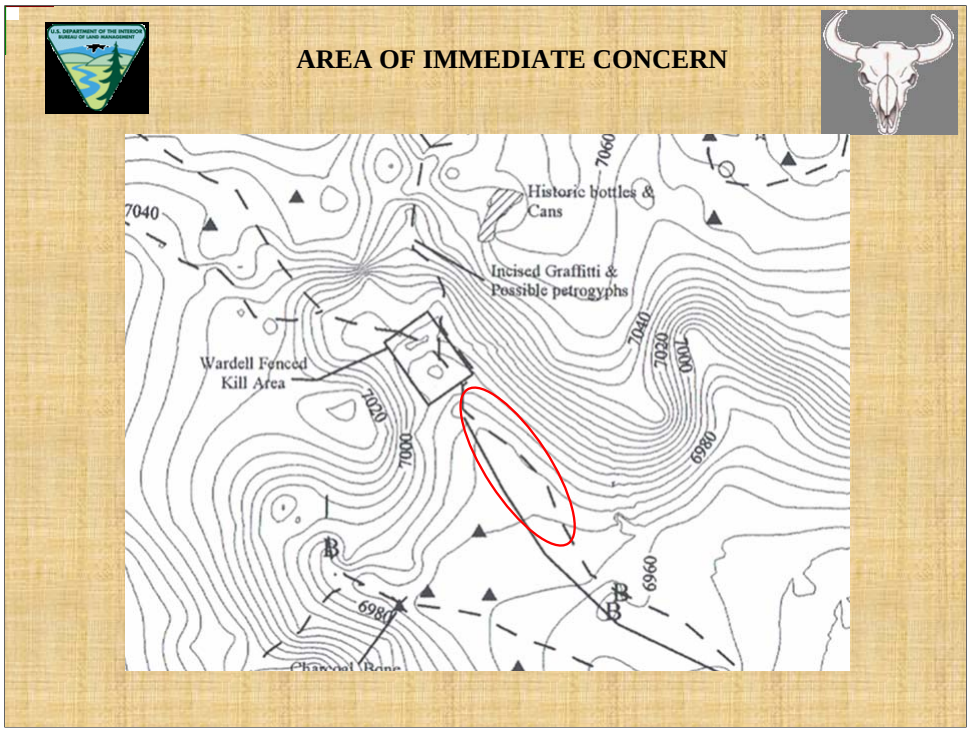
Soon after the flood episodes of 2004, BLM archaeologists gathered GPS information to create an overview of the Wardell complex. This map shows that several more activity areas and features were discovered during the inventory which expanded the site boundary.



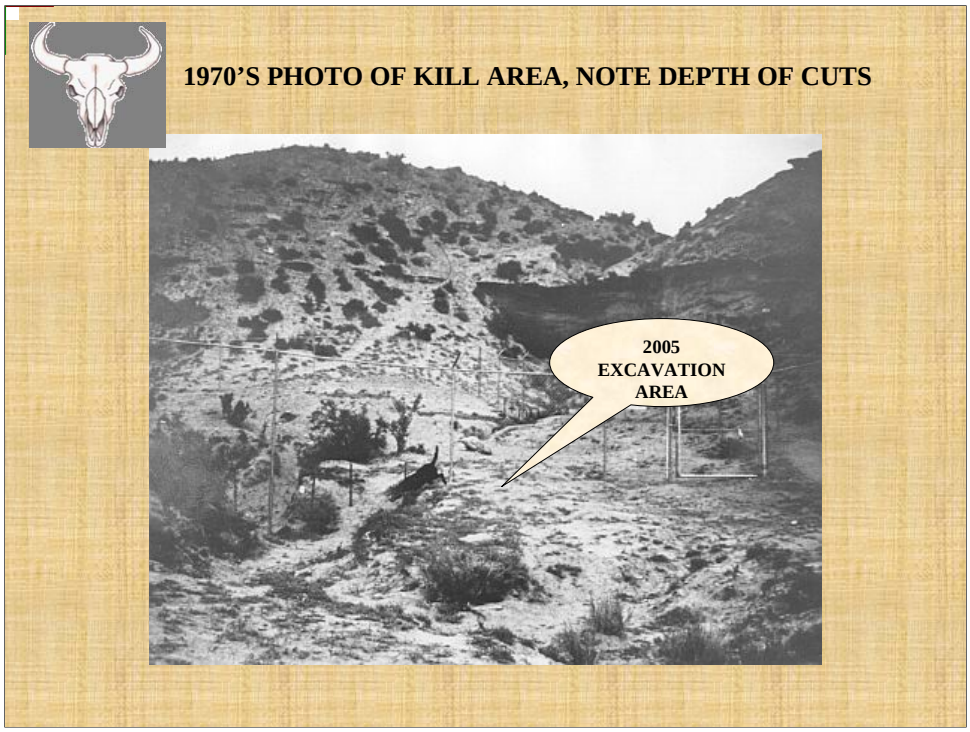
Here is an isolated feature found on top of the mesa to the north. The red and white rod in this photo is 2 meters long. Most of this material is fire cracked rock with some mingled lithic debitage and bone.

ISOLATED FINDS DISCOVERED DURING 2004 INVENTORY

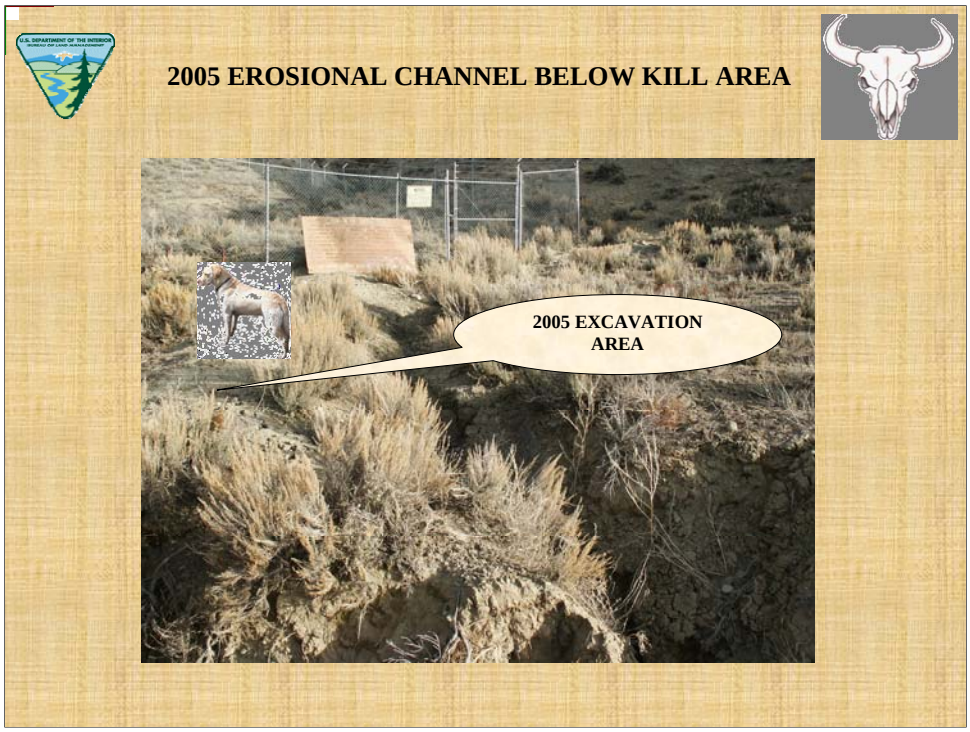
Here are two isolates found during the inventory: a large flaked quartzite tool and a quartzite biface. Interestingly, very little quartzite was found during the 2005 excavation.



Erosion has heavily impacted an area approximately 50 meters downstream of the fenced kill site of 48SU301. As stated, stabilization efforts are centered on this main drainage and include the placement of an erosion mat followed by soil fill material and covered with rip rap. Several small check dams will also serve to slow the effects of erosion on the site. As recommended by the Shoshone tribal consultants, removal of the fence will allow the natural flow of sediment to cover exposed bone in the area and will also support less attention being drawn to the site. The BLM engineer has incorporated this strategy into the stabilization project.

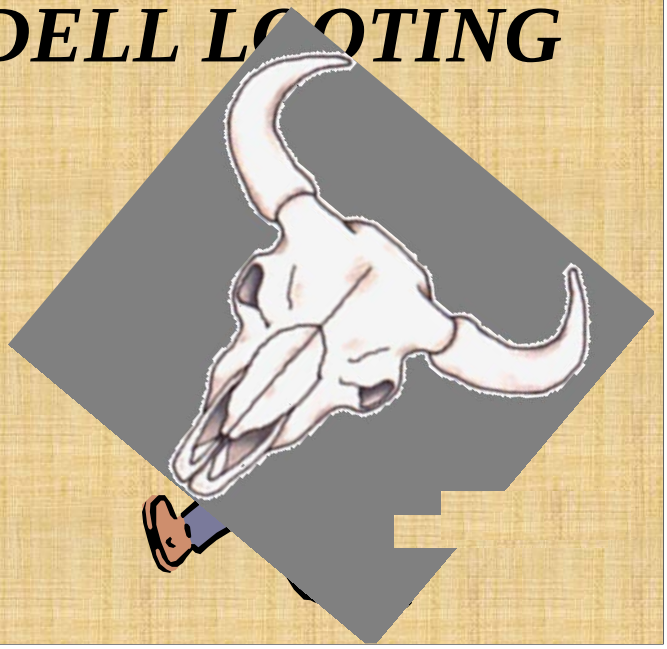


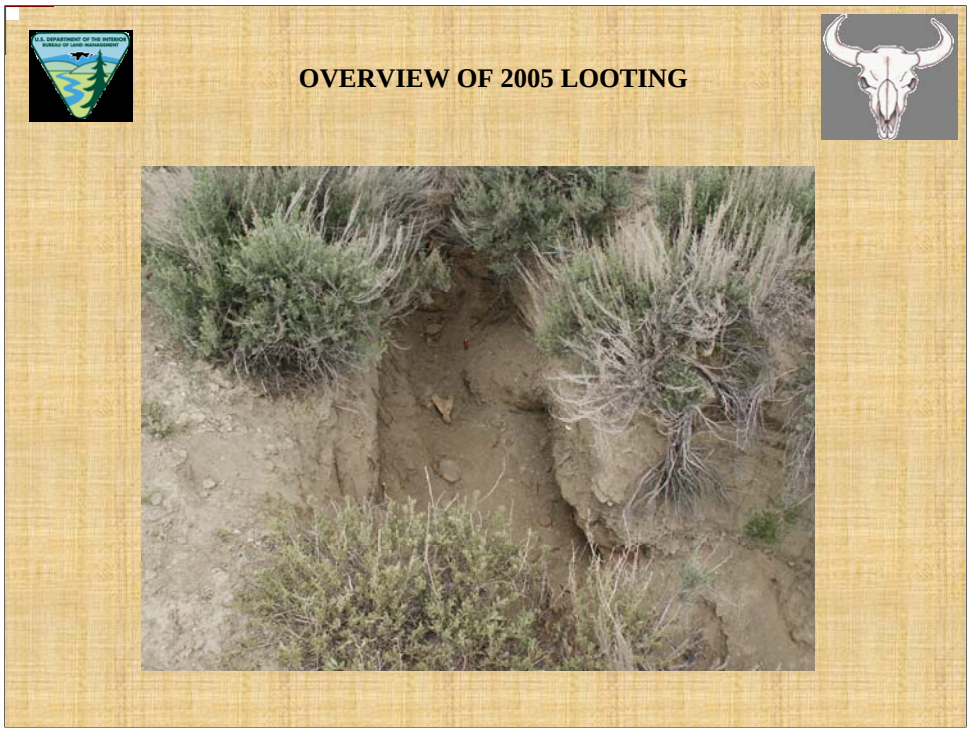
During the 1970's the erosion channels were apparently just starting to cut into the site. In addition, local residents remember a trail running along the east side of the gully to the site. This trail may have led to the erosion problems of today, as remnants of the old trail are now hidden by the deeply cut arroyo.



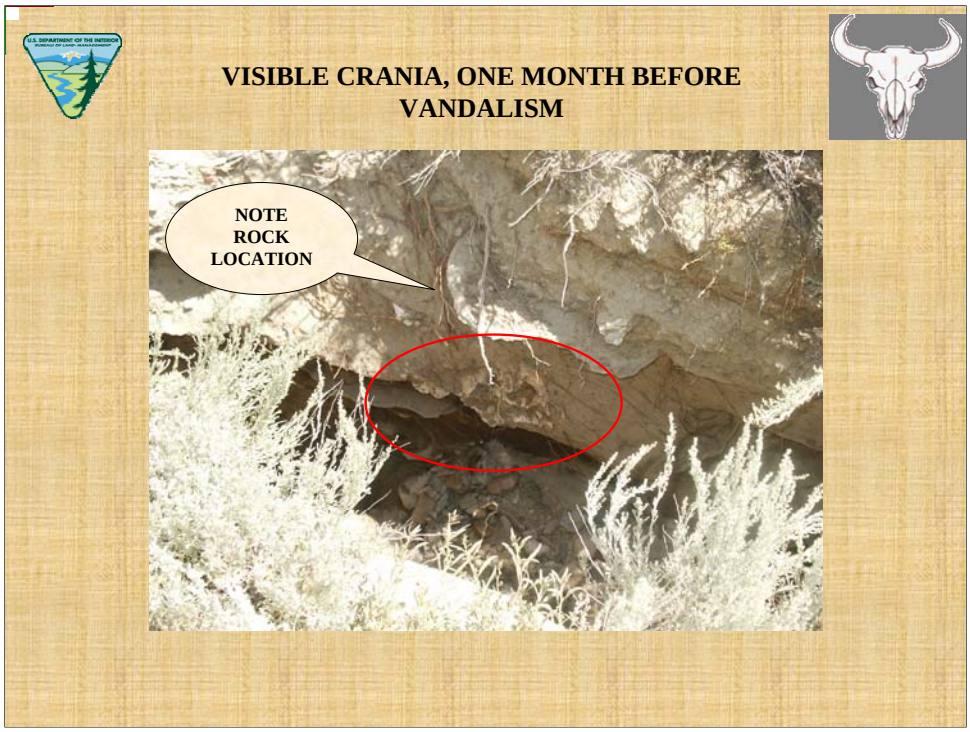
As seen in this photograph, the channels are now over two meters deep in places and advancing toward the kill site. Note dog for scale. The depth has advanced the necessity for stabilization.

WARDELL LOOTING

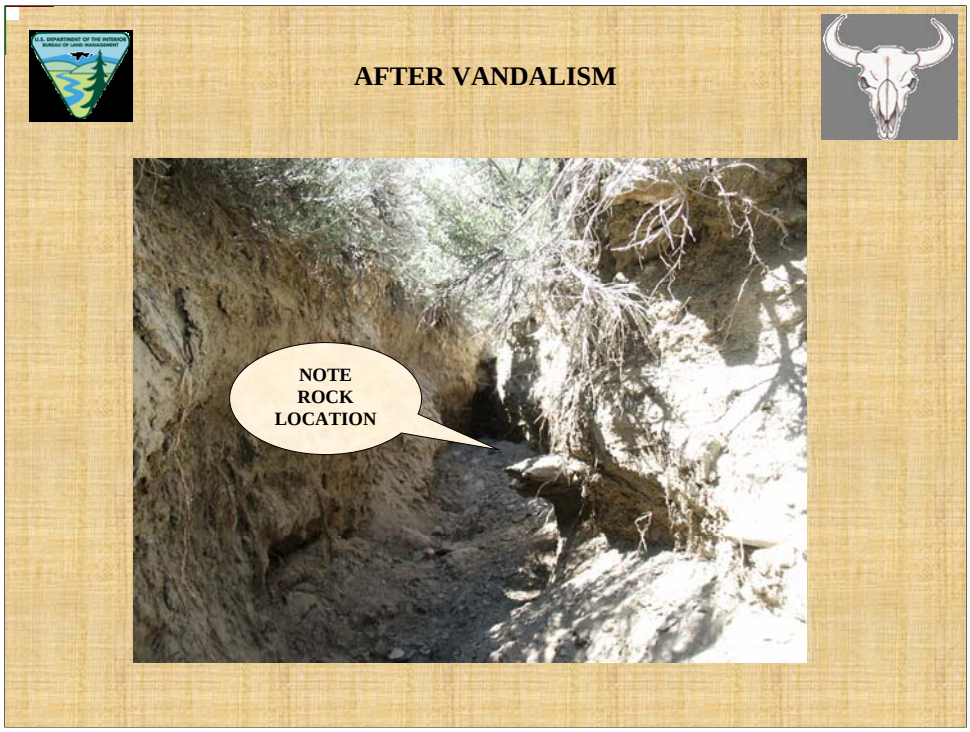




The day after the 2005 spring looting episode, a BLM archaeologist and Ranger visited the site. They were surprised by the amount of vandalism. Interestingly, another BLM Ranger had visited the site the day before and had seen no signs of looting. With the Ranger's direction, all evidence was carefully photographed. The vandals did not get away with the intact skulls they expected. Pieces of skulls were found, along with footprints, from the site to the parking area and up the hill to the northwest. Shotgun shell casings were found in the main drainage. Apparently, the vandals shot up the original Wardell signage. This vandalism is noted in the following few slides.



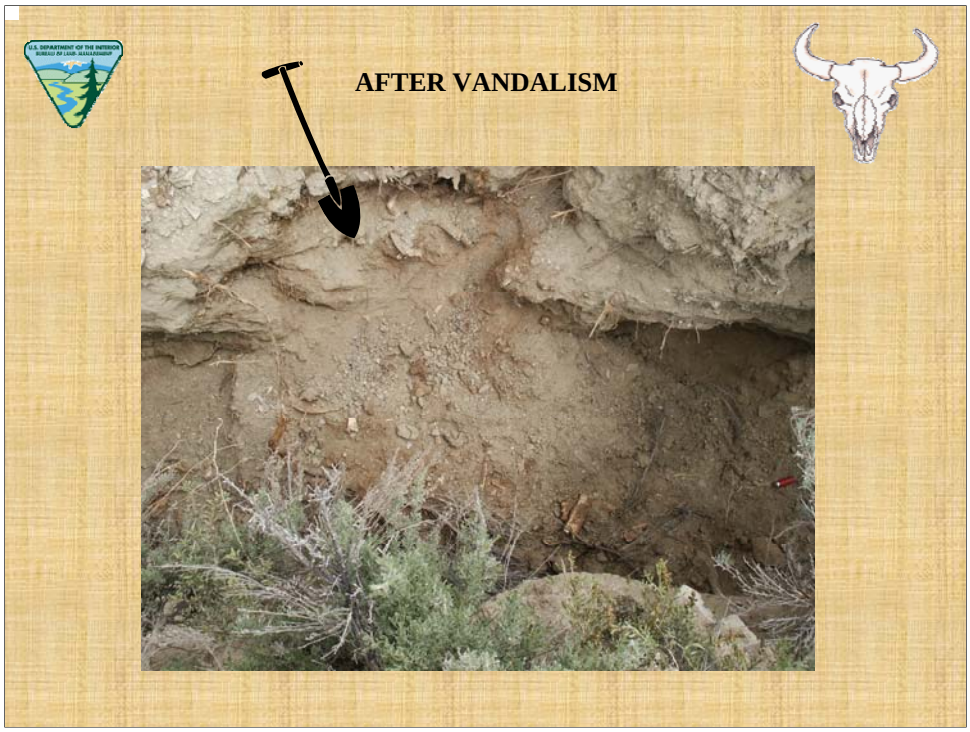
In early spring 2005, it was noted that several bison skulls had been exposed over the winter. These exposures encouraged BLM to speed up the stabilization project. Unfortunately, four skulls were looted before the work could begin.



The previous slide showed the location of a skull under this rock, which was later removed by unknown individuals. During this episode of looting, the vandals disturbed many complete bone specimens and pieces of debitage.

VISIBLE CRANIA, ONE MONTH BEFORE VANDALISM

Another exposed skull showing the back of the head and horn cores.



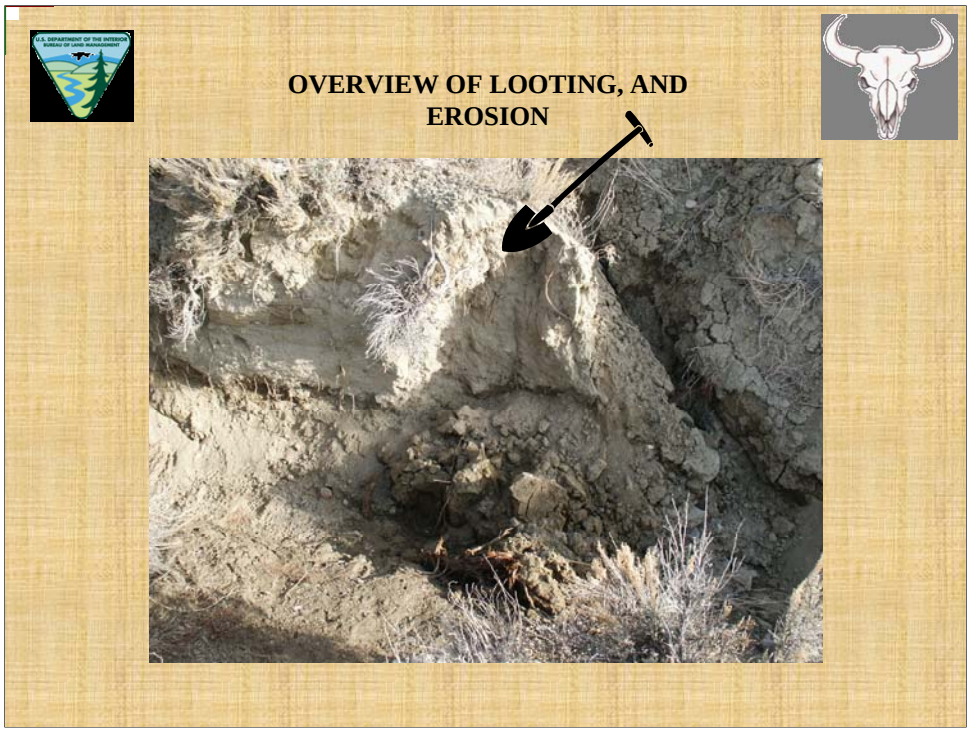
A month later, that skull was also gone. The void at the top of the picture is where the looters hacked down through the bonebed to get the skull. The broken bone can be seen at the bottom of the wash.

VISIBLE HORN CORE ONE MONTH BEFORE LOOTING

Here is another horn core and partial skull eroding from the cut bank

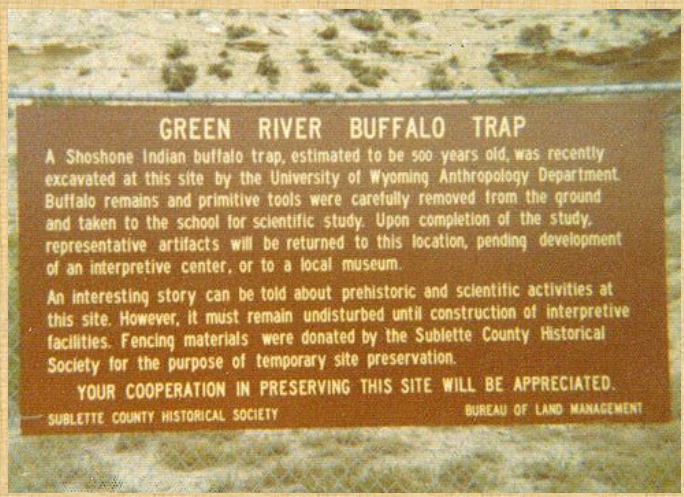
AFTER VANDALISM

One month later there was nothing left but a hole. Disturbed bone can be seen at the bottom of the arroyo.



This shows the area where the two drainages come together. This slump was caused by someone shoveling through the area.

ORIGINAL SIGNAGE ON THE KILL AREA CHAINLINK FENCE



This photograph shows the newly placed 1970-era sign. It was in pristine condition at the time.

ORIGINAL SIGNAGE ON THE KILL AREA AFTER VANDALISM

This is the same sign after the vandalism. Although the sign had deteriorated and faded over the years, new shotgun blasts are apparent.

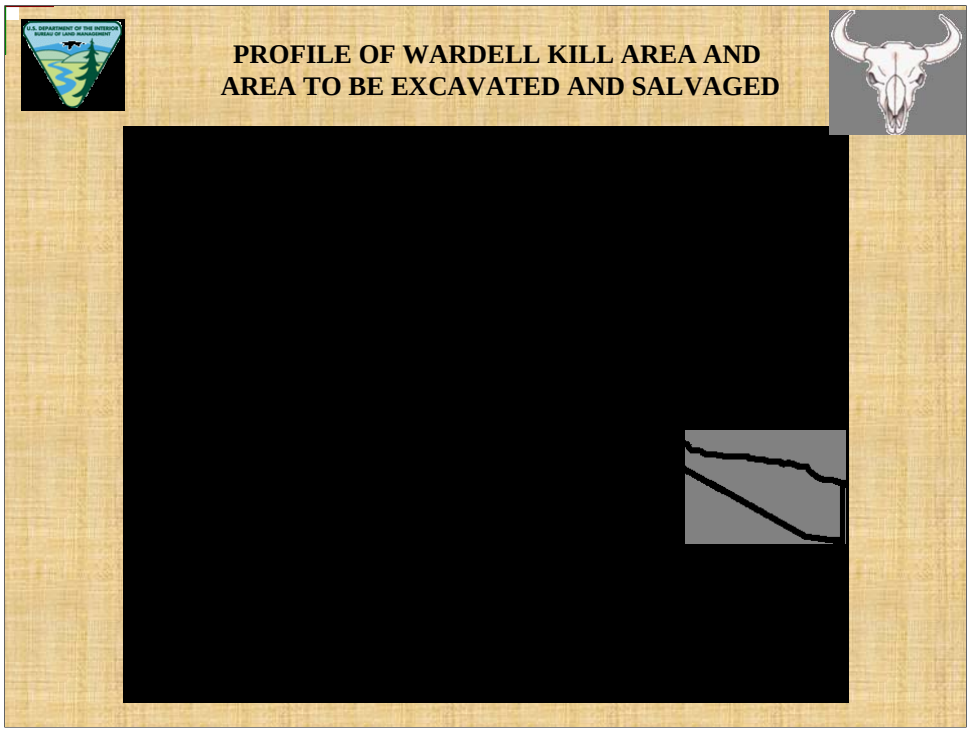
THE EXCAVATION

KILL AREA AT WARDELL (ARTIST'S RENDITION)
FROM BIG PINEY MUSEUM

The rounds of vandalism spurred the BLM to start a program of excavation and salvage.

WARDELL KILL AREA OVERVIEW SHOWING AREA TO BE EXCAVATED, SALVAGED AND RIP-RAPPED

This plan view represents where the salvage excavation would be centered, below the fenced kill area and removing the area between the two drainages.



This profile provides a visualization of what material needed to be removed.

48SU301, 70's KILL AREA EXCAVATION

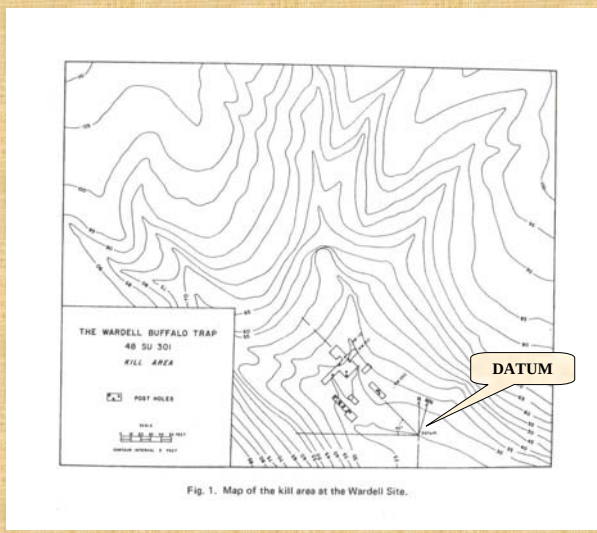


Fig. 1. Map of the kill area at the Wardell Site.

From: Frison, 1973

The Wardell Buffalo Trap 48SU301: Communal Procurement in the Upper Green River Basin, Wyoming. Contribution by Charles A. Reher. Page 9

The original Frison/Reher datum point was relocated, shown here at the angle point of the two base lines. This allowed the 2005 work to be tied to the original data, with a few changes. In the early 1970's it was common practice to use foot measurements, while today's archaeologists use the metric system. Conversions will allow the data to be combined.

PROCESSING AREA OF WARDELL, 70'S EXCAVATIONS

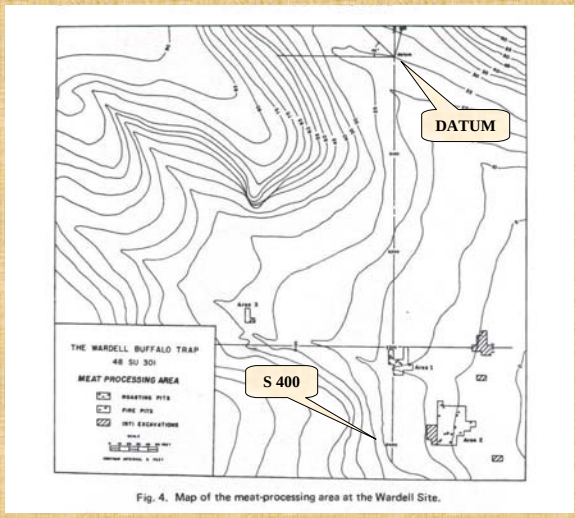
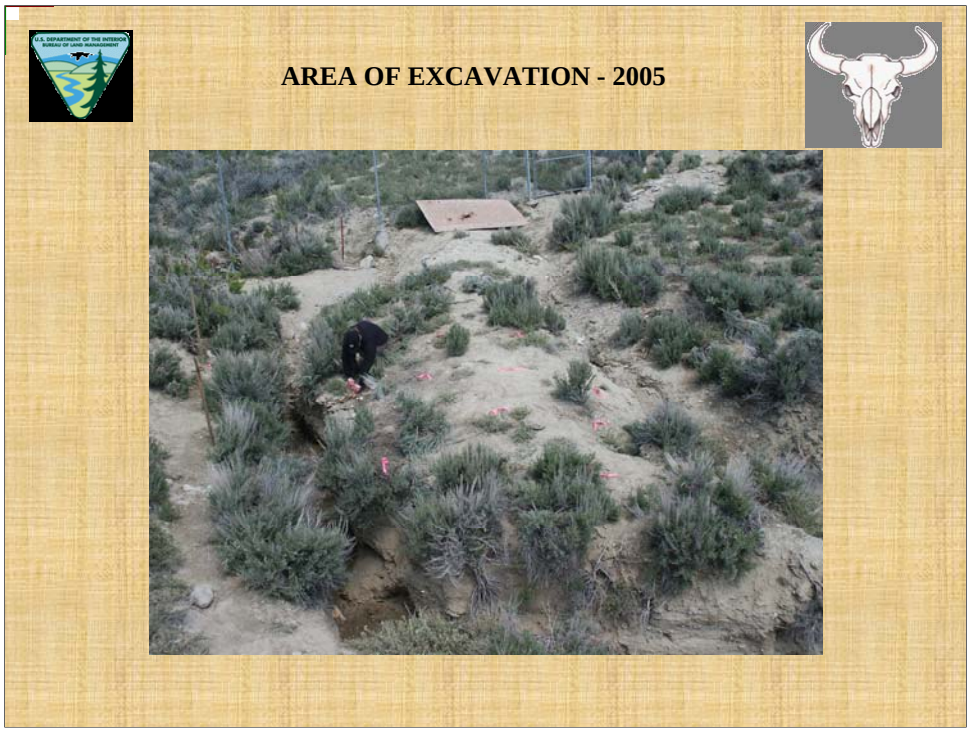


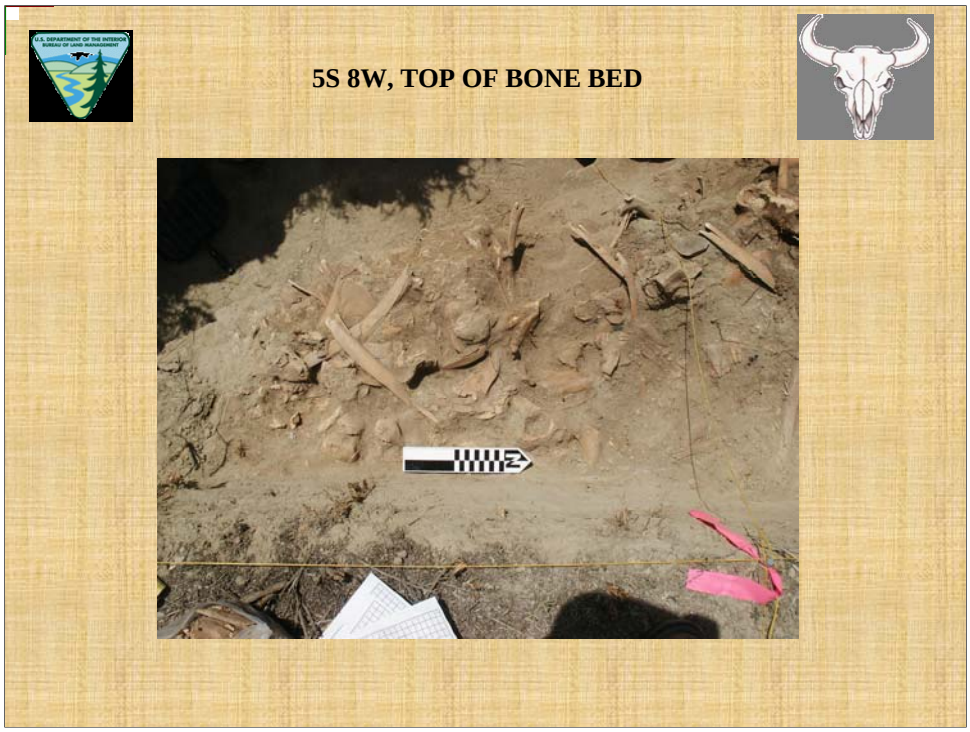
Fig. 4. Map of the meat-processing area at the Wardell Site.

From: Frison, 1973
The Wardell Buffalo Trap 48SU301: Communal Procurement in the Upper Green River Basin, Wyoming.
Contribution by Charles A. Reher. Page 24

Luckily, the excavators found an original Frison stake on the due south baseline at the south 400 location. This location fell within one centimeter of the new GPS'd baseline, so it was decided to hold the original alignment. Finding a 34 year old wooden stake was almost historic!



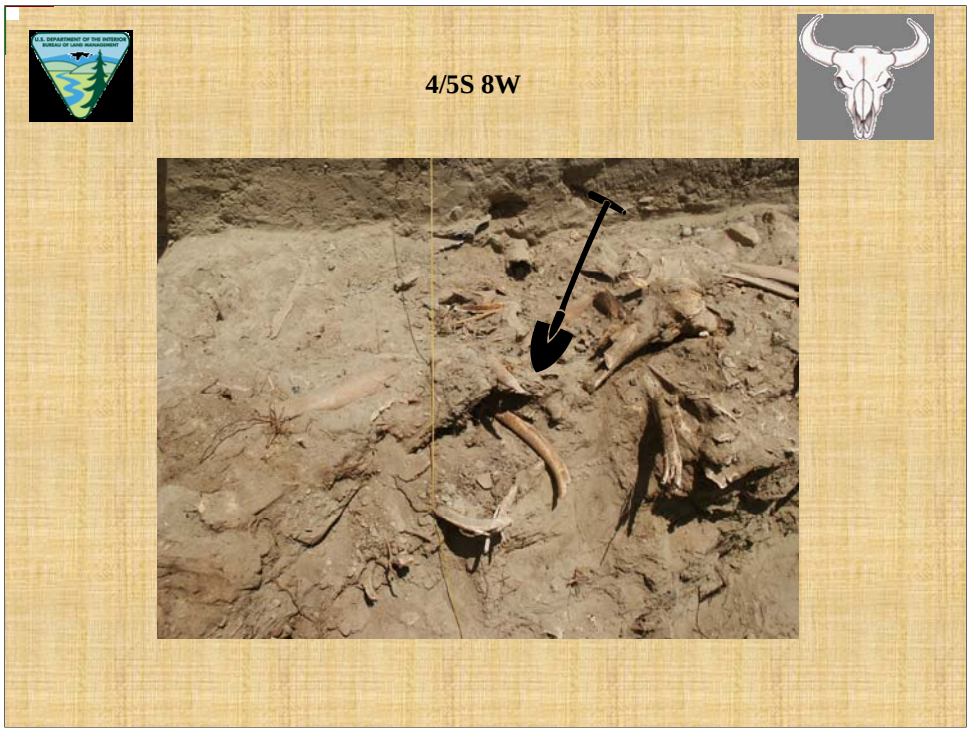
Originally 16 square meter units were laid out, with several partial units. The plan was to remove most of the area between the two drainages, sloping the floor of the arroyo to make it easier for stabilization material placement once the excavation was completed.



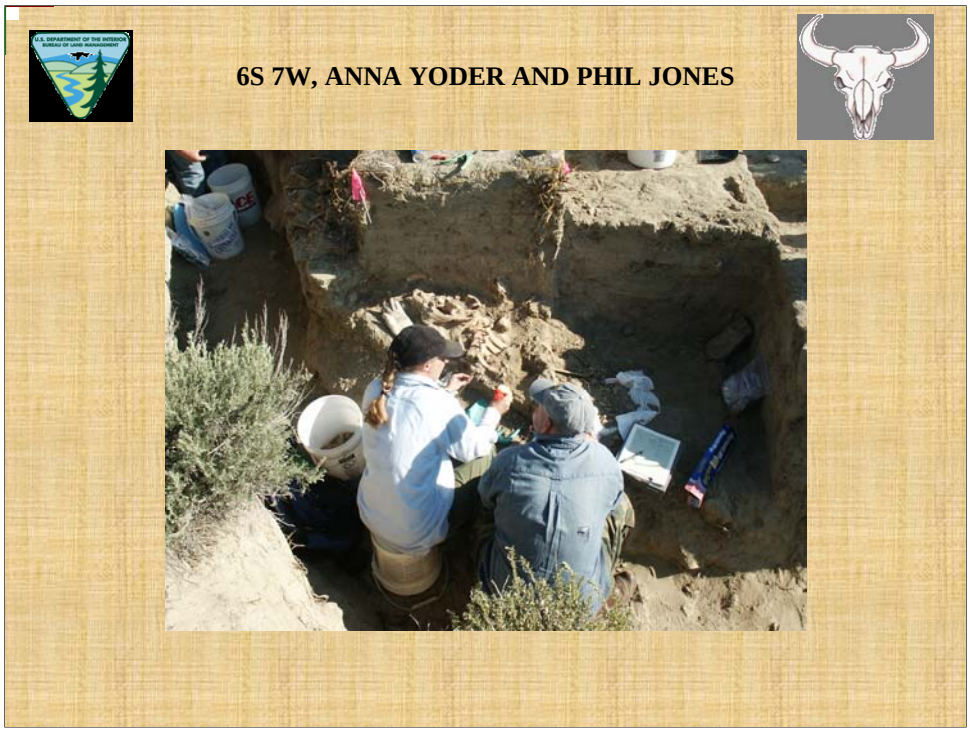
After removing approximately a ½ meter of fairly sterile layer of overburden, the bonebed was exposed.

SCOTT McKERN OF CURRENT ARCHAEOLOGICAL RESEARCH (CAR) SCREENING DIRT

Several experienced volunteers were utilized.



This is one of the locations hacked through by the spring vandals.

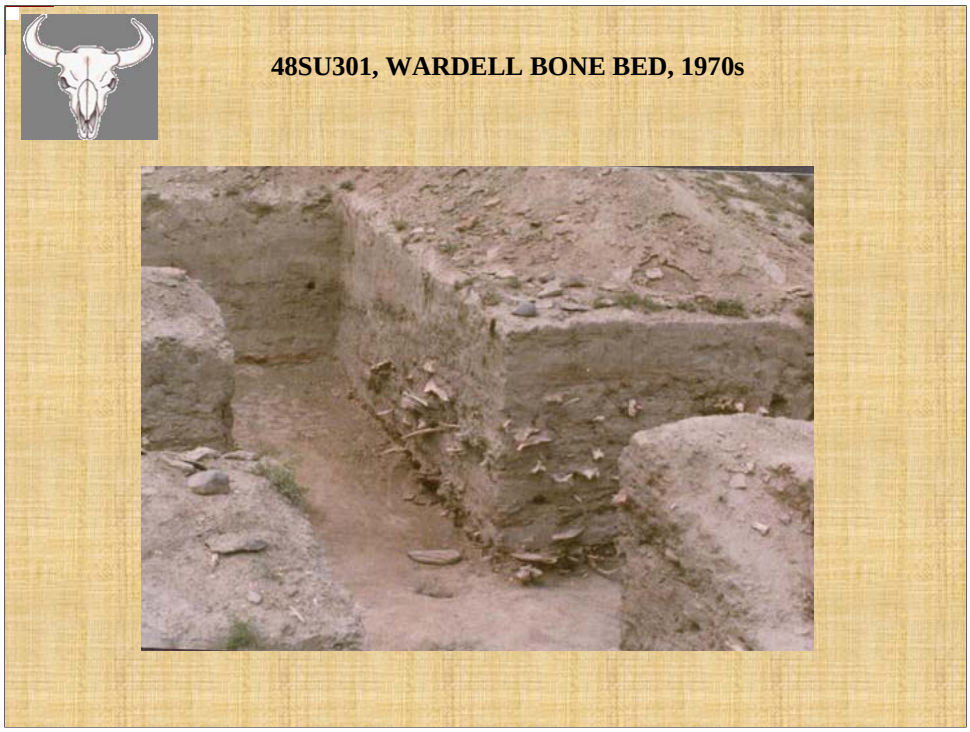


Volunteers expose the bonebed.

GOOD OVERVIEW OF BONE BED

Karen Rogers documents bone and stone locations.

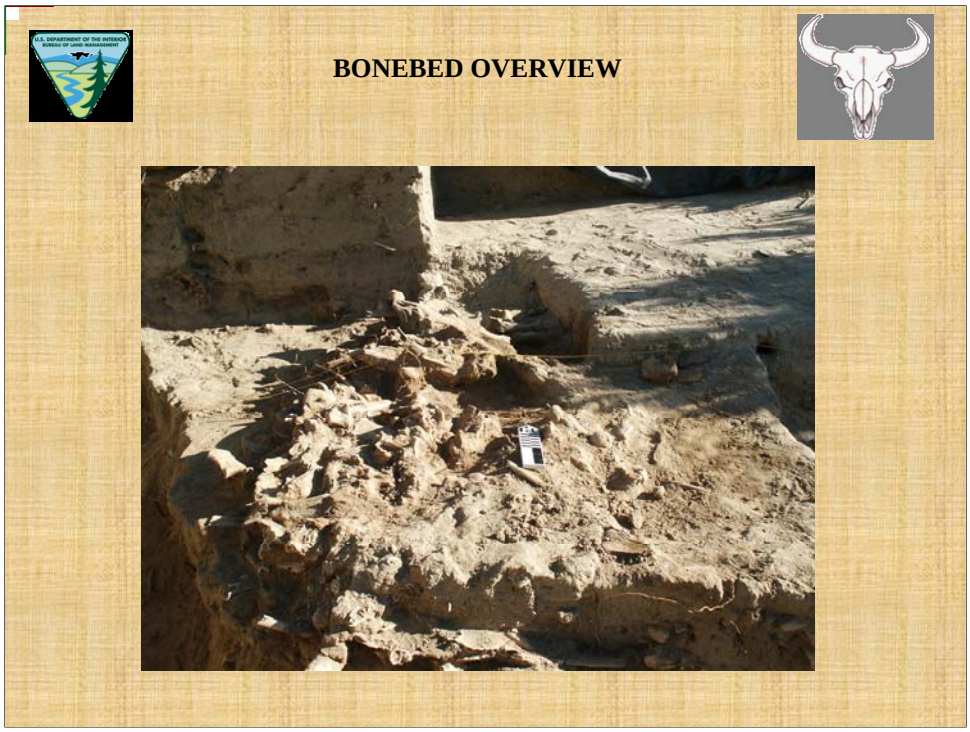
This photo shows what is believed to be the old arroyo, now filled with bone. From this bone-filled arroyo an estimated ¾ ton of Bison bone was recovered. Other animals represented in the excavation include Canid, Antelope and possibly a large Raptor. Bison calf and fetal bones were also recovered. In places preservation was good enough to save costal ribs and sternal elements. From this work, supplemental information about the season of use originally calculated by Dr. Frison and the MNI (minimum number of individuals) can be added to the primary data.



For comparison, the 1970's excavation is shown in this slide. Several 2005 units were dug to approximately 2 1/2 meters below the existing surface.

48SU301, WARDELL BONE BED, 1970s

Here are some very nice articulated backbones and leg parts, excavated by Dr. Chuck Reher in the 1970's.



This slide shows what is believed to be the old arroyo channel that was filled with Bison bone.

Most of the sterile material above the bone bed is slope wash, possibly mixed with some colluvium.

JUNE 13, 2005, - 5S 8W

In some areas thick masses of musty smelling, organic filled material was encountered, usually containing hundreds of blow fly casings. Other sites have also included this type of material and has been termed the remains of the bison's paunch (stomach) – highly organic/grass filled gut.

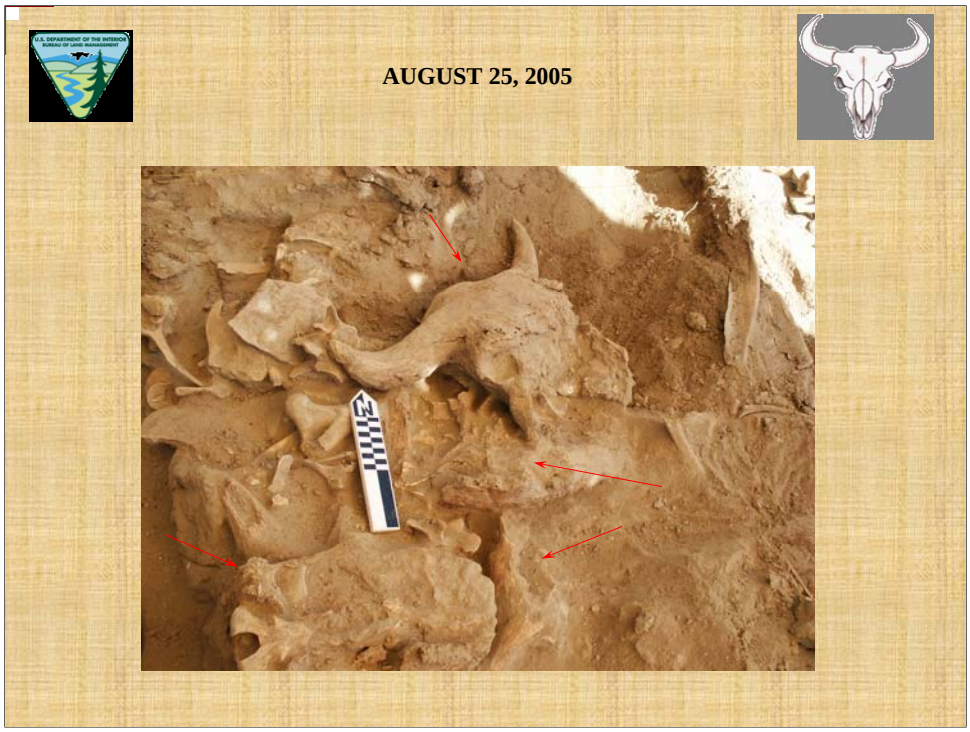
AUGUST 17, 2005, - 5S 8W

No alignment with the direction of water flow suggested a drop and toss zone to clear the kill site of unwanted obstacles and the stench of putrification.

The bone layer was surrounded by compacted, fine grain, sandy sediment that may represent the sides of a 1000 year old arroyo. Most of the bones are associated with a looser mix of sand and gravels that also contained made small pieces of shale and sandstone.

Note the organic reddish fill material surrounding the bones. This is the layer where the blow fly casings are found.

The orange hue of some of the photos is due to the sunshade set up throughout the summer. Without it the excavators would have suffered greatly from too much sun and heat. This photograph shows many articulated backbones and leg parts, very similar to the excavations of the 1970's.



On August 25th, 2005, four skulls were discovered; two of these required casting for stabilization purposes, while a third held up fine just in foil. The last skull was taken out on September 27th.

This photograph shows the casting of the two skulls.

On the last day, four additional skulls were uncovered. As is the way with the final day of most excavations, more discoveries lead to more excavation.

Twenty-eight projectiles were found over the summer. Most of the points were made of obsidian and analysis should provide data on the parent material origination.

Unit 4S 7W yielded what appeared to be a typical Avonlea point made of Tiger Chert (on the right). This point is also burned. The only preform found during the excavation also came from this unit (on the left). To some archaeologists from Canada, a preform is known as a triangular point. These have been found north of the border in Avonlea sites and are purported to be made expediently and used immediately.

Typical Avonlea projectile points are finely flaked, have delicate notching and a concave base. Avonlea point types associated with Wardell also suggest the migration of people from the north. Avonlea people have been traced from Canada, through Montana, Wyoming and on to the southwest. Coordinated bison drives and traps such as Wardell, imply a high degree of cohesive community organization in which the members of several different groups may have participated, suggesting that numerous bands of Avonlea people may have inhabited the Upper Green River Basin. By utilizing and studying the different aspects of 48SU301 the lifestyles of these prehistoric people can be better understood. As with all studies of ancient lifeways, information pertaining to the present can become apparent and useful to interested parties across the country.

Points and tools from this unit were made of local quartzites.

The drill found in 6S 6W is extremely thin and does not show signs of much use. It also doesn't appear to be crafted from a broken projectile point, as other drills are. Additionally, it does not have the concave base of typical Avonlea points.

6S 7W produced a tiny projectile point, measuring a mere 12 millimeters in length and 8 mm in width. Several ideas have been proposed for the use of a small point such as this: 1) actually used to puncture a bison's diaphragm, thus making breathing very hard to accomplish and slowing the animal down; 2) as a children's point, used in play and mimicking adult actions; and 3) as a ceremonial point placed in the bonebed as gifts to the spirits. Further ethnographic information will be needed in order to draw conclusions.

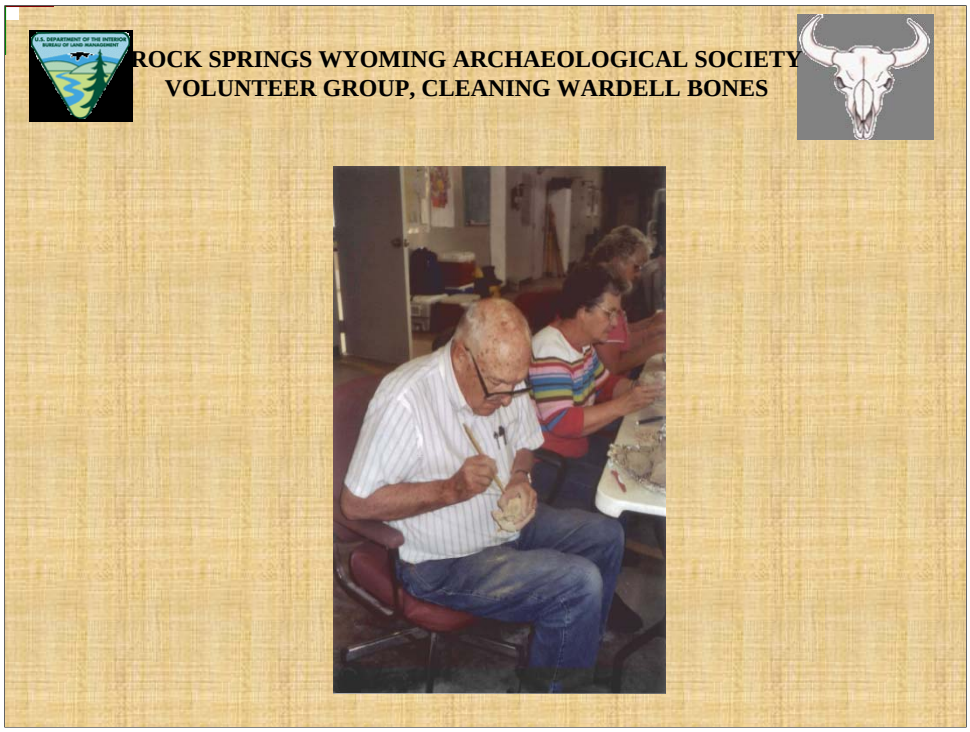
The oolitic chert point does not have the typical concave base associated with Avonlea, but still falls within the basic typology.

POINTS OF INTEREST, DRAINAGE CLEANUP

While leveling out the bottom of the drainage these three points were found in the screen. They may have been dislodged during the spring looting episode or just washed out of place.

POINTS OF INTEREST,
LARGEST / SMALLEST

Comparing the smallest point (12 mm in length and 8 mm wide) to the typical Avonlea point (38 mm long and 14 mm wide). The Avonlea point is approximately 2½ time larger than the smallest one.



Volunteers from the Rock Springs chapter of the Wyoming Archaeological Society spent hours cleaning the faunal material excavated in 2005 from the Wardell site. They also discovered two more projectile points and many bone anomalies.

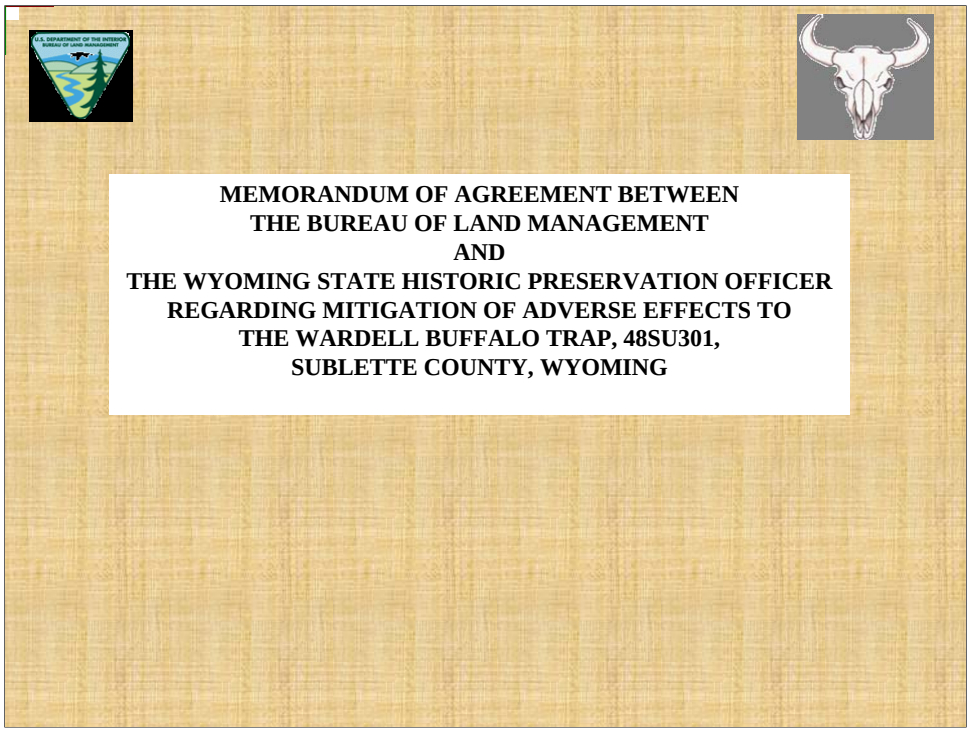
ROCK SPRINGS WYOMING ARCHAEOLOGICAL SOCIETY VOLUNTEER GROUP, CLEANING WARDELL BONES

The cleaning of the bones is the first step in the curation and analysis efforts for the excavated Wardell material.

ROCK SPRINGS WYOMING ARCHAEOLOGICAL SOCIETY
VOLUNTEER GROUP, CLEANING WARDELL BONES

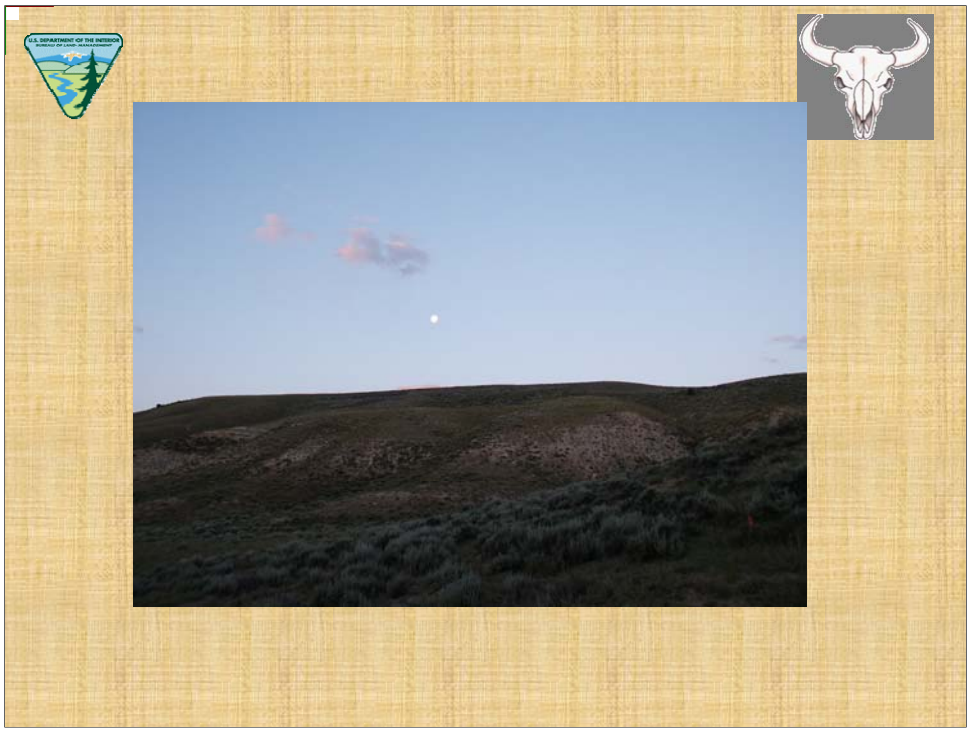
These volunteers contributed many hours of work.

BLM archaeologist Sam Drucker is the lead for the Wardell work.



BLM crafted an MOA with SHPO to work through the mitigation of adverse effects to the Wardell Buffalo Trap. Funds for stabilization and additional work were obtained through BLM's budget process.

Wardell is currently being considered for nomination to the National Historic Landmark Program under the National Park Service. Dr. Danny Walker from Wyoming State Parks & Cultural Resources will be working on a nomination in 2007.



In conclusion, several years of bone analysis will be needed. Wardell could also benefit from additional excavation. BLM will be launching its Site Steward program at the Wardell site during 2007. This program will allow volunteers to keep track of activities at the site, minimizing vandalism and recording damaging events.

Thanks to Bill Current and employees of Current Archaeological Research for their excavation assistance; to the WAS Rock Springs chapter for volunteer work cleaning bones; to Dawn Ballou and Clint Gilcrist, early site stewards, for documenting the second looting episode and writing an article about the work done at Wardell; to Judy Wolf, Sara Needles and Dr. Danny Walker from Wyoming State Parks & Cultural Resources for their assistance with the MOA; to Charles Haecker of the National Park Service for encouraging BLM to work toward National Historic Landmark status; and last to Ultra Resources for recognizing the importance of the Wardell site and providing financial assistance for curation and analysis of the Wardell collection at the University of Wyoming.