Archeological Reconnaissance of Two Possible Sites of the Sand Creek Massacre of 1864

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Introduction

The Sand Creek Archeological project was a part of a multi-disciplinary effort coordinated under the Direction of Dr. Richard Ellis, Fort Lewis College, and funded by a State Historical Fund Grant (96-01-162) administered by the Colorado Historical Society. The purpose of the grant was to establish the location of the Sand Creek Massacre of November 29, 1864. On that date, Colorado troops under the command of Col. John Chivington attacked a village of Cheyenne and Arapaho on Sand Creek near modern Chivington, Colorado. Although the state has erected markers adjacent to the property owned by William Dawson, the actual location of the battlefield remains unverified. The grant research design called for the skills of archeologists, historians, geologists, map experts, aerial photographers and Cheyenne and Arapaho representatives to establish the location of the site

It is important to establish the location of the Sand Creek Massacre, because it was one of the most significant events in Colorado history and is one of the most important events in the history of Indian/White relations on the Great Plains. It is an event of enormous significance to Cheyenne and Arapaho people and to all Americans. It is the only major site of Indian/White conflict that remains unverified.

The Sand Creek Massacre has been imbedded in controversy since 1864 and has become the most potent symbols of White treachery in the history of Indian/White relations in the United States. It is an event of international notoriety, for it is well known to European students of American Indian history. It has become the basis for judging subsequent military action such as that of Lt. Calley at My Lai. The site is important to Cheyenne and Arapahos, and its significance can be seen in the existence of tribal organizations of Sand Creek Descendants among both the Northern and Southern Cheyenne.

The Sand Creek Massacre sites actual location has been debated for some years. There are conflicting opinions among historians and Sand Creek researchers as to the actual location of the site. It was expected that archeology could easily identify the location and parameters of the battle, and that it could provide information not available in the rather scanty and often culturally biased historical record. Historical archeology has been dramatically successful in defining and verifying the location of various battle sites in the Trans-Mississippi West (Scott et al. 1989; Scott 1994; Lees 1994; Haecker 1997) The Sand Creek project was designed to assess both oral tradition and the historical and archaeological record in order to locate and verify the actual site of the massacre.

Fieldwork was conducted in late September and early October 1997 on properties owned by William Dawson (figure 1) and a Mr. Rhoades (figure 2). Project personnel included the authors, Dr. Gary Roberts, Richard Fike, Julie Costello, members of the Pikes Peak Adventure League, Brooks Bond, Larry Gibson, Tom Frew, Tom Baker, Norma Irwin, and William Dawson. Tribal representatives from the Northern Cheyenne, Southern Cheyenne, and Arapaho consulted and participated in the on-site investigations. The tribal representatives were Steve Brady and Mildred Red Cherries of the Northern Cheyenne Sand Creek Descendents, Laird and Colleen Cometsevah

and Joe Big Medicine of the Southern Cheyenne Sand Creek Descendents, and Eugene and Gail Ridgeley of Northern Arapaho Tribe.

Geology of Sand Creek

The geology of the Sand Creek area is quoted from Coffin (1967) and describes the current depositional context. This description is provided as baseline data for interpreting the context of the archeological findings. It should be noted that Coffin's geological description post-dates major land altering activities in the Arkansas River basin, such as the dust bowl of the 1930s, major dust storms of the 1950s, and several major flood episodes dating from the late 1860s through 1965.

The valley fill along Big Sandy and Rush Creeks is composed of sand, gravel, silt, and clay and ranges from 0 to about 70 feet in thickness. The average thickness is 25 to 30 feet. The sand and gravel were derived mostly from igneous and metamorphic rocks but 1 o some extent from limestone and sandstone. The grains and pebbles are subangular to well rounded, and the pebbles generally are more rounded. Compared with the upland deposits, the valley fill contains only small amounts of caliche and is well sorted. Crossbedding is apparent in most exposures of the valley-fill deposits.

Test-well logs and the outcrops of the valley-fill deposits show a vertical gradation from very fine to fine gravel and sand near the base to silt and clay or very fine to fine sand near the top. The basal valley-fill deposits also grade downvalley from cobble-size material near the headwaters of Big Sandy Creek to very fine gravel near the Kiowa County and Prowers County line.

At least four terraces and the flood plain are developed on the valley fill along Big Sandy Creek. The mapped units from youngest to oldest are: the flood plain deposits; younger terrace deposits, which include at least three terrace levels; and older terrace deposits.

The flood plain lies at about the same level as the top of the stream channel. It is fairly smooth, although there are some meander scars and discontinuous 1- to 2-foot terraces. This is attributed to the percolation of floodwater into the underlying deposits. As flood discharge decreases downstream because of percolation, the area needed for flow also decreases, and thus the width of the flood plain decreases.

The downstream decrease in discharge, as indicated by the downstream decrease in flood-plain width, implies that the thickness of the fine-grained flood-plain deposits must increase downstream. If most of the suspended load originates from the drainage basin rather than from the flood plain, then a decrease in discharge by percolation results in a concentration of the suspended load. As the concentration increases some of the load may be deposited, for the slope of the stream profile decreases downstream. The deposits increase in thickness from Hugo to about the Cheyenne County and Kiowa County line. Downstream from the county line there is little increase in thickness of the fine-grained deposits because most floods originate above Wild

Horse and are absorbed before they reach the county line.

The younger terrace includes at least three unmapped units. Although the heights above the flood plain differ from place to place, the first unit is about 3 feet above the flood plain, the second is about 3 feet above the first, and the third is from 10 to 20 feet above the second. The three units are not everywhere present where the youngest terrace is shown. The lowest unit commonly has been removed, and in many places the highest unit is poorly developed or covered by dune sand.

The older terrace ranges in height above the flood plain from about 100 feet near Hugo to about 35 feet downstream from Kit Carson. Both the terrace and its deposits are discontinuous, and its wide range in height above the flood plain makes correlations between outcrops tentative.

The valley fill is reworked Pliocene and lower Pleistocene deposits that were originally derived from the mountains, as shown by the abundance of igneous and metamorphic rock fragments. These fragments were deposited by eastward-flowing Pliocene and early Pleistocene streams in and along channels. In many places the material along adjacent streams may have coalesced to form sheet deposits. As the southeastward-flowing Big Sandy Creek began to develop its drainage area, it destroyed the early topography and incorporated the older sand and gravel into the present valley fill.

In the Big Sandy Creek valley all terraces do not necessarily have the same genetic relations with the deposits beneath them; that is, terraces may be formed either by deposition or by erosion. The presence of 20 to 30 feet of valley fill does not necessarily imply that the terrace is depositional. The sand and gravel of the valley fill could simply have been exchanged for the siltstone and claystone of the bedrock by the downcutting stream. On the other hand, the valley-fill deposits may have once filled the valley to the height of the uppermost terrace, and successive downcutting and planation by the stream may have produced the present terrace levels.

Most of the valley fill beneath the flood plain and the younger terrace was probably deposited as a unit; that is, the valley was probably filled to an altitude 20 or 30 feet above the present channel, and, therefore, the highest level of the younger terrace is a surface of deposition. This is indicated throughout the unit by (1) the uniform upward gradation from sand and gravel to silt and clay, as shown by testhole logs, (2) the uniform downstream gradation from cobbles to very fine gravel in the lower 5 feet of the valley fill, and (3) the fact that both the upward and downstream gradation are continuous throughout the valley. The two lower levels of the younger terrace may represent periods of downcutting and planation; thus they may be surfaces of erosion. This is indicated by the absence of a silt and clay layer immediately below the surface; the layer probably has been removed by erosion.

The scattered outcrops of the deposit beneath the older terrace makes the origin of the terrace difficult to interpret. In the Hugo area the base of the valley fill beneath the older terrace is several feet above the younger terrace, and the valley fill grades from gravel at

the base to silt and clay near the top. Downstream, north of Chivington, the older terrace merges into the younger terrace; the deposit beneath the older terrace is primarily sandy clay. The dissimilarity of lithologic characteristics and the wide variation in height of the remnants above the channel permit speculation that perhaps the remnants of the older terrace deposit result primarily from downcutting and exchange of sand and gravel for fine-grained bedrock.

In essence the geological data suggest there may be dunal deposits in several places overlaying the oldest terrace. Field observations suggest the higher terrace on the Dawson property where the Colorado volunteers may have initially deployed its guns is subject to wind blown sand and soil deposition. Thus archeological evidence may be deeply buried in those areas. The valley floor situation of the Dawson property is less clear, although this is a depositional environment particularly enhanced by periodic flooding of the creek. The Rhoades property exhibits a slightly different depositional context, which probably reflects a microenvironment of its immediate area. The higher terraces do not have the dunal deposits found further downstream. There appears to be little or no soil buildup on the terraces, and the valley floor may have minimal aggradation due to flooding or wind-blown deposits. The Rhoades property valley and terraces are more open and exposed than those of the Dawson property thus the Rhoades property is more likely to be in an erosional context and the Dawson property in a depositional context.

Preliminary Review of Previous Relic Collection Efforts

Local tradition indicates the Sand Creek site was subject to relic collecting over many years. The extent to which these collecting efforts effected the site cannot be fully assessed given the current state of knowledge. However, there are several known collecting episodes that have effected the archeological record. It appears that collecting began within a month of the event. In 1932 the Colorado Historical Society accepted a collection purportedly from the site. *"The Society has received a gift from Mrs. Blanche Squires Lester (Mrs. Barton G. Lester), comprising a number of valuable Indian relics which were gathered at the Sand Creek battlefield in December 1864, by her father, George C. Squires, formerly of Boulder, Colorado"* (1932 Colorado Magazine 9(2):120).

An inspector from the Army's Department of the Colorado visited the Sand Creek site in January 1865 and is reported to have collected relics and human remains. Those relics and human remains collected were supposedly sent to Washington. Several years later a detachment of Company A, Fifth U.S. Infantry spent a day at the Sand Creek site collecting relics. Former infantryman Luke Cahill recorded that *"After dinner General Sherman requested that all the escort hunt all over the battleground and pick up everything of value. He wanted to take the relics back to Washington. We found many things, such as Indian baby skulls; many skulls of men and women; arrows, some perfect, many broken, spears, scalps, knives, cooking utensils, and many other things too numerous to mention"* (Cahill undated typescript:16).

Early Kiowa County homesteader Henry Fluke, who lived on two different properties during his years in the area (one about 4.5 miles south of the Dawson property and a second 3 miles south of the Dawson property), is reported by Stone (1918: 239-240) as having collected cannonballs, arrows, and other evidence of the fight in the early 1900s.

Archeologists Richard Fike and Julie Costello along with Historian Gary Roberts visited the family of a well-known local collector, the late Preston Root. Mr. Root apparently visited and collected the Sand Creek site many times during the 1930s and 1950s. He visited and collected the site each time there was a significant dust storm that caused various portions of the site to be exposed. Mr. Root was the owner of a small store in Chivington and is reported to have closed the store to go artifact hunting after any dust bowl era windstorm. He is reported to have collected many items from the battlefield including bags of balls and arrowheads. The family reported that the Sand Creek collection was sold about twenty years ago to a man in Nebraska who intended to establish a private museum. Before the museum could be established the man died and the collection was subsequently dispersed. The family members were interviewed as to the location where Mr. Root collected. At least two members of the family had accompanied Mr. Root on his collecting trips and they identified the general area of the finds as about 1/4 mile northwest of the Sand Creek commemorative marker on the Dawson property.

Another collection of material gathered at the site is remembered to have been on display in the Prowers County courthouse in Lamar. The relics are believed to have been transferred to the Big Timber Museum, however, they have not been located in their collections.

Archeological Project Methods

A primary research goal of the1997 Sand Creek Massacre Archeological Project was to ascertain the presence or absence of battle-related artifacts on two areas of private lands. According to oral tradition and historic documents either could be the site. The first requirement, then, was to develop field procedures that were capable of examining the area and finding battle-related materials or ascertain with a reasonable degree of certainty that no such materials were present. Faced with examining a large area, and assuming that most artifacts of war are either metallic or associated with metal, metal detectors were employed as an inventory tool based on the previous success of the technique at Little Bighorn Battlefield National Monument (Scott and Fox 1987; Scott et al. 1989), Big Hole battlefield (Scott 1994), and Palo Alto battlefield (Hacker 1994).

The use of metal detectors operated by knowledgeable people has overwhelmingly proven its value. The recovery methods, which meticulously uncovered artifacts with minimal disturbance, were an integral part of the field procedures.

The metal detector survey and excavations located a relatively small quantity of artifacts. Locational control or artifact provenance was accomplished through the use of a Precision Lightweight Global Positioning System Receiver (PLGR). This unit contains the so-called AP-chip that eliminates the selective availability of the current satellite system. The PLGR was

placed at each artifact find spot to be recorded and the resulting readout in UTM coordinates was recorded in a field note book along with a short descriptor and a field catalog number of the artifact. The PLGR was also used to plot the perimeter of the inventory area.

Field Methods

The fieldwork was conducted from September 28 to October 3, 1997 and focused on metal detecting. The inventory phase employed electronic metal detectors (figure 3), visual survey methods, and piece-plot recording techniques as described below. Geophysical remote sensing techniques were also employed and are also described below.

General Procedures

Standard archaeological data-recording methods were used in each the operation. Individual artifacts received unique Field Specimen (FS) numbers. Selected in-place artifact specimens, and topography were photographed and recorded in black-and-white print and color slide film (figure 4).

Inventory

The inventory phase included three sequential operations: 1)survey, 2)recovery, and 3)recording. During survey artifact finds were located and marked. The recovery crew followed and carefully uncovered subsurface finds, leaving them in place. The recording team then plotted individual artifact locations, assigned field specimen numbers, and collected the specimens.

Survey

Survey operations were designed primarily to locate subsurface metallic items with the use of electronic metal detectors. Visual inspection of the surface was carried out concurrently with the metal detector survey. We used various brands of metal detectors during the survey. Volunteer operators furnished their own machines, and this contributed to the variety. The standardization of machines (i.e., all one brand), though perhaps methodologically desirable, was highly impractical. Like models operate on the same frequency, causing interference at close intervals. We therefore needed to alternate different brands of machines on the line to ensure adequate survey coverage. Metal-detector operators were aligned at approximately 10-meter intervals. The operators walked transects oriented to cardinal directions or, upon occasion, route orientations were dictated by topographic feature orientation, particularly along bluff edges, slopes, and bases, where straight transects lines were impossible to maintain. Each transect line was identified by a series pinflags set along its outside edge. The daily composition of the detector crew ranged from eight to twelve operators.

Detector operators proceeded in line, using a sweeping motion to examine the ground. We estimate that each operator covered a sweep of 1.5 to 2 meters depending on individual height and technique. A pin flag was placed at each target located by an operator. As soon as the location was pinned, the operator continued along the transect.

Recovery

The recovery crew excavated artifact locations marked by pin flags and left the artifacts in place for recording. This team consisted of excavators and metal-detector operators who pinpointed targets. The number of operators and excavators varied from day to day depending on the workload.

Excavation procedure was based on the concept of artifact patterning, a central tenet in the research strategy. Provenience data, the location in space and the position in the ground of each artifact, were considered of primary importance. Excavation therefore proceeded with great care so as to expose each artifact without disturbance, although some damage occurred to several artifacts during excavation.

Hand tools, such as spades and trowels were used to expose subsurface artifacts. Excavators were assisted by metal detector operators to ensure in-place exposure. Detector operators provided pinpointing and depth information to the excavator, thereby allowing a careful and accurate approach to the artifact. In some instances accidental disturbance of the artifact occurred. Artifacts were rarely found at depths that exceeded six inches. After exposure the pin flag was left upright at the location to signal the recording crew.

Recording

The recording crew assigned field-specimen numbers, recorded artifact provenience, and collected the specimens. Recorders backfilled artifact-location holes upon completion. Artifacts were assigned sequential field-specimen numbers beginning at 001. Records were kept in a hand written field book.

Area Inventoried

The PLGR was used to determine the perimeter of the inventory area. The metal detecting inventory took place on the Rhoades property in portions of Sections 1, 2, 11, 12, 13, 23 and 24 in Township 16 S, Range 47W, Cheyenne County, Colorado (figure 5). This portion of the inventory effort encompassed approximately 550 acres. The Dawson property inventory work took place on Section 30, T17S, R45W and portions of Sections 24 and 25, T17S, R46W in Kiowa County (figure 6). This encompassed approximately 390 acres. The metal detecting inventory covered a total of approximately 940 acres.

Remote Sensing

Don H. Heimmer of Geo-Recovery Systems, Incorporated of Golden, Colorado volunteered to conduct some remote sensing inventories on selected areas. Two methods of geophysical remote sensing were used during the investigation. An EM-38 (electromagnetic device that can detect anomalies to a depth of approximately one meter) was employed in two separate areas. Two 100

foot square grids were established, one as an test grid located at the edge of Mr. Dawson field in Section 30 and a field grid centered on the picket pin find spot location. The EM-38 data was collected at five-foot intervals. No anomalies were recorded.

Mr. Heimmer then employed a deep seeking magnetic device, a Schonstadt which is designed to locate buried iron objects to a depth of one meter. The Schonstadt has a very narrow detection width, circa 10 centimeters. It is essentially a wand type iron detector that is passed over the ground surface in overlapping sweeps. The device was employed in random survey on both the Dawson and Rhoades property including in both locations bluff tops, slopes, and bottomland. A variety of post-battle iron debris was found. The device was also employed on the 100 foot grid established centered on the picket pin location. No other iron objects were found within this grid.

Analytical Procedures

The methods employed in cleaning and analyzing the artifacts are the standard laboratory procedures. Essentially they consist of dry brushing or washing the accumulated dirt and mud from each artifact and then determining the condition of the artifact to see whether it requires further cleaning or conservation. After it was cleaned each artifact was rebagged in a self-sealing clear plastic bag with its appropriate Field Specimen (FS) number and other relevant information on the bag. The artifacts were then identified, sorted, photographed with a macro lens, described, and analyzed. Sorting and identification of the artifacts were undertaken by personnel experienced with artifacts of this period, who compared the artifacts with type collections and with standard reference materials.

Artifact Description and Analysis

A total of fifteen artifacts were collected during the field investigations. This was a selective artifact collection. There were a great many finds of baling wire, barbed wire, farm machine parts, nuts, bolts, and screws found during the metal detector sweeps. The obviously recent and clearly post-battle artifacts were not collected or recorded. They were reburied as found, with a few exceptions. A few items, such as lengths of barbed wire were removed from the field and discarded at the request of the landowner. Artifacts dating to the nineteenth century and those of questionable identification or temporal span were collected for further identification and analysis.

Upon completion of the analysis the artifacts from the Dawson property were returned to the landowner. The artifacts from the Rhoades property are in the possession of the project director, Richard Ellis at Fort Lewis College.

Henry .44-Caliber

The .44-caliber Henry rimfire cartridge was developed in the late 1850s by B. Tyler Henry, the plant superintendent for Oliver Winchester at the New Haven Arms Company. The company's name was changed to Winchester Repeating Arms Co. in the mid-1860s. Henry also developed the first successful repeating rifle that would fire this cartridge by improving Smith & Wesson's Volcanic repeating arms that were a failure due to the small caliber and extraction problems. Henry's conception of a flexible claw shaped extractor was probably the most important single improvement leading to the success of the Henry Repeating Rifle and its .44- caliber rimfire cartridge (Harmon 1987). This extractor principle is still in use today, being used in the Ingram submachine gun (Kinzer 1983:34-38).

Henry designed a double firing pin for his repeating rifle that would strike the rim of the cartridge at points on opposite sides. The firing pins were wedge-shaped, each being located on one side of the breech pin collar. The collar was threaded into the breech pin that was designed to move a fraction of an inch forward and rearward during firing. Both the Henry Rifle and its improved version, the Model 1866 Winchester, had firing pins that were exactly alike in shape and dimensions (Madis 1979:97). The firing pins were less pointed on some Model 1866s between serial numbers 24,000 and 26,000 but were changed back to their original shape due to misfire problems (Madis 1979:79).

The cartridge case (RFS4) (figure 7) recovered on the Rhoades property is the long case variety with a raised H headstamp in a recessed depression. This headstamp was used from about 1860 until the late 1880s (Barber 1987).

.44-Caliber Cartridge Case and Bullet

A single .44-caliber center-fire cartridge case (DFS1) in .44-40-caliber and a .44-caliber bullet (DFS2) (figures 8 and 9 respectively) were recovered on the Dawson property. The lead bullet bears the rifling marks clear enough to identify as having been fired from either the Henry rifle or Winchester Models 1866 and 1873. The rifling in these weapons is five-groove right hand twist. The brass case is centerfire and is primed with a Boxer-type primer. The .44/40 cartridge was first introduced in 1873 along with the lever action Model 1873 Winchester Repeating Rifle (Madis 1979:132, 214) thus this cartridge post-dates the battle by nine years.

Sharps .44 or .45-Caliber

The Sharps firearm was patented in 1852 and was a very popular military and commercial firearm for the next 50 years. It was produced in both percussion and cartridge styles. Its popularity was due to its accuracy and its reputation for having effective stopping power. Particularly in the larger calibers it was the favored gun of big game hunters on the plains and in the west in general (Gluckman 1965:230,268; Barnes 1989:139). A single .44 or .45-caliber distinctive Sharps bullet (DFS8) (figure 10) is a round nose smooth bodied paper patched was found on the Dawson

property. This bullet type was introduced with the Model 1874 musket (Sellers 1982) and thus post-dates the Sand Creek massacre.

.54-Caliber Bullet

A single .54-caliber lead bullet (DFS10) (figure 11) was recovered on the Dawson property. It is a standard U.S. arsenal type hollow based bullet. The bullet diameter is consistent with the .54-caliber bullet used in the Model 1841 AMississippi Rifle (Logan 1967; Thomas and Thomas 1996).

.58-Caliber Centerfire Cartridge Case

The Rhoades property revealed six .58-caliber centerfire cartridge cases. Two (RFS 1 and 3) were collected as samples (figure 12). The .58-caliber cartridge was introduced about 1869 for use in the Berdan breech-loading conversion of the standard Civil War .58-caliber musket (Barnes 1989:142). This cartridge was never manufactured or adopted by the U.S. Army, but was used experimentally for a very short period. The guns and their cartridges were readily available on the civilian market during last quarter of the nineteenth century. This cartridge case post-dates the battle by at least five years.

.58-Caliber Bullet

One lead .58-caliber conical bullet (RFS2) (figure 13) was recovered on the Rhoades property. It is a standard U.S. compressed 3-ring hollow base .58-caliber conical bullet (Thomas and Thomas 1996:39-40). It is flattened from impact. It is undoubtedly associated with the .58-caliber cartridge cases found on the Rhoades property. Although a Civil War style bullet the probable association with the cartridge case suggests the likely deposition was post-battle.

Axe

A broken axe head (DFS5) (figure 14) was recovered on the Dawson property. The forged iron axe is missing its poll, apparently breaking due to its misuse as a wedge. The axe is wrought iron with a steel edge or bit insert. The axe form is a style from 1750 to 1850 or slightly later (Peterson 1965; Russell 1967).

Arrowhead

A brass arrowhead (DFS3) (figure 15) was found on the Dawson property. Metal arrowheads, primarily iron were common trade items from the early 1600s to the early twentieth century, and had almost completely supplanted chipped stone projectiles by the mid-nineteenth century

(Hanson 1972; Russell 1967). The arrowhead appears to be hand made and is a stemmed or tanged point made from brass stock. It is 1.12 inches long and its maximum width is .42 inch. The tang is about .5 inch long. One side is flat and clean while the other side bears scratch mark roughly along is center axis, which may have originated with the maker, as it appears to be a guide line for determining the center of the points axis.

This arrowhead style is typical of those available to Indians during the latter part of the nineteenth century. Metal arrowheads were neither endemic to the Plains, nor to the Cheyenne. Use of this arrowhead type is documented by the Surgeon General (War Department 1871). The type is reported to have been found in wounds of soldiers and civilians from Texas and Arizona to the Northern Plains.

Picket Pin

A Model 1859 army issue picket pin (DFS4) (figure 16) was recovered on the Dawson property. The picket pin is typical of those commonly issued to cavalry units during the Civil War and well into the 1870s (Steffen 1978). This specimen retains its figure-eight loop for attaching a snaphook. The head is battered and the tip is bent and slightly deformed demonstrating use in hard or rocky ground prior to its deposition on the Dawson property.

Trade Silver Fragment

The fragment of sheet silver (DFS6) (figure 17) is roughly square with rounded corners. It is .94 inch wide and .96 inch long. Under magnification there are inscribed linear marks on one side. The marks may have formed part of a design element of a large piece from which this was cut. It appears to be a scrap of sheet silver cut from another item.

Girth D-ring Fragment

A fragment of a brass girth D-ring (DFS11) (figure 18) was found on the Dawson property. The remaining fragment is 1.77 inches long and 1.05 inches wide. The girth D-ring was used to attach various straps and the girth to a saddle. This style is consistent with the type used on the military saddles of the Civil War era, the McCellan saddle (Steffen 1973; 1978).

Cut Nail

A single cut nail (DFS7) was collected from the Dawson property. It is a common cut nail (3 1/16 inch long) of the 12d size.

Table 1. Artifact find locations

Field Specimen #	Artifact description	UTM Easting	UTM Northing
D-1	.44-40 cart. case	0717302	4269928
D-2	.44-cal. bullet	0717304	4269930
D-3	Arrowhead	0717258	4270083
D-4	Picket pin	0717105	4269895
D-5	Axe head	0717158	4269731
D-6	Silver fragment	0717009	4270114
D-7	Cut nail	0716985	4269911
D-8	.45 Sharps bullet	0716869	4269966
D-9	Not used		
D-10	.54-cal bullet	0716005	4273546
D-11	Girth ring fragment	0715675	4275853
R-1	.58-cal cart.	0704537	4279773
R-2	.58-cal bullet	0704421	4279973
R-3	.58-cal cart.	0704552	4279798
R-4	.44-cal Henry cart.	0704561	4279768

Conclusions and Recommendations

The archeological investigations to locate the Sand Creek Massacre site were only partially successful and inconclusive at best. A good deal of land area was inventoried with metal detectors and some artifacts probably dating to the decade of the 1860s were recovered. Some of the artifacts found on the Dawson property are of the type that would have been carried by the Colorado Volunteer Cavalry during the Sand Creek episode. The picket pin, .54-caliber bullet, and the girth-ring fragment are all consistent with material culture that could be associated with the Civil War Colorado Cavalry (see appendix).

Likewise the axe, brass arrowhead, and fragment of trade silver are types of artifacts that might be expected to be found in the Cheyenne camp. Nevertheless, the absence of definitive artifacts or more numerous items of material culture dating to the same period is problematic. Six artifacts may define a site, but they are not adequate to definitively state the Dawson property is the Sand Creek Massacre site.

This portion of the eastern Colorado plains was occupied and used by various Native American groups for thousands of years. The Sand Creek drainage is well known to have been used for Cheyenne and Arapaho camps during the 1860s. The material culture from any 1860s camp is

likely to be similar in type to those items found on the Dawson property and most of the items in private and museum collections purportedly from Sand Creek. The definitive artifacts for determining the site to be Sand Creek are ordnance items, such as cannonball fragments or friction primers. Unfortunately none were found.

The soil depositional context on the Dawson property appears to be aggrading in the valley due to agricultural conservation practices undertaken by the owner, and the natural flooding and silt deposition of the creek at this location. The highest terrace above the creek is clearly covered with dunal deposits. This depositional pattern may have a long history, but there is a recent depositional history associated with windblown and deposited soils originating in the Dust Bowl era of the 1930s and the droughts of the 1950s. The Dawson property may well have enough soil deposition to bury 1864 era material at or near the maximum depth to which metal detectors can currently penetrate. The Dawson property cannot be conclusively stated to be the Sand Creek Massacre site, based on the currently available evidence, but it cannot be excluded without further study.

On the other hand, the Rhoades property did not yield any artifacts that date exclusively to the Sand Creek episode, 1864. The relatively few artifacts recovered all post-date the 1864 engagement by at least five or more years. Soil deposition, particularly on the higher terraces, does not appear to be of the nature as was experienced on the Dawson property. The Rhoades property artifacts were found at very shallow depths and even at or on the surface. Rather than aeolian deposition the Rhoades property is either very stable or may have undergone deflation. Thus, it is our opinion that the Rhodes property is unlikely to be the Sand Creek Massacre site and can be excluded from further consideration.

We are recommending continued archeological and historical research on or related to the Dawson property and other properties along Sand Creek in a continuing effort to conclusively located the Sand Creek Massacre site. In order to accomplish this goal we recommend the archeological research component be composed of the following four tasks.

- A geomorphologic study of the terrace and valley sediments to ascertain the nature and age of the deposits as well as potentially identify likely areas for further investigation.

- A concerted effort to identify and study any artifact collections purportedly from the Sand Creek site. Interviews should be undertaken with collectors to determine where Sand Creek artifacts have been found and when such finds were made. The collections should be fully documented for comparison with one another and with the archeological collection.

- A program of non-intrusive remote sensing work be undertaken on the Dawson and other properties. It is recommended that any remote sensing surveys be a multi-instrument type. Ground penetrating radar does not lend itself to this application. However, electromagnetic survey, electrical resistivity survey, and/or magnetic susceptibility survey may have the most potential to yield information on buried cultural features, deposits, and the presence of larger iron artifacts such as cannonballs.

- The metal detecting inventory be continued on the Dawson property, particularly to the east of the currently inventoried area. Metal detector inventory should be undertaken on other properties along Sand Creek as other research dictates.

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APPENDIX

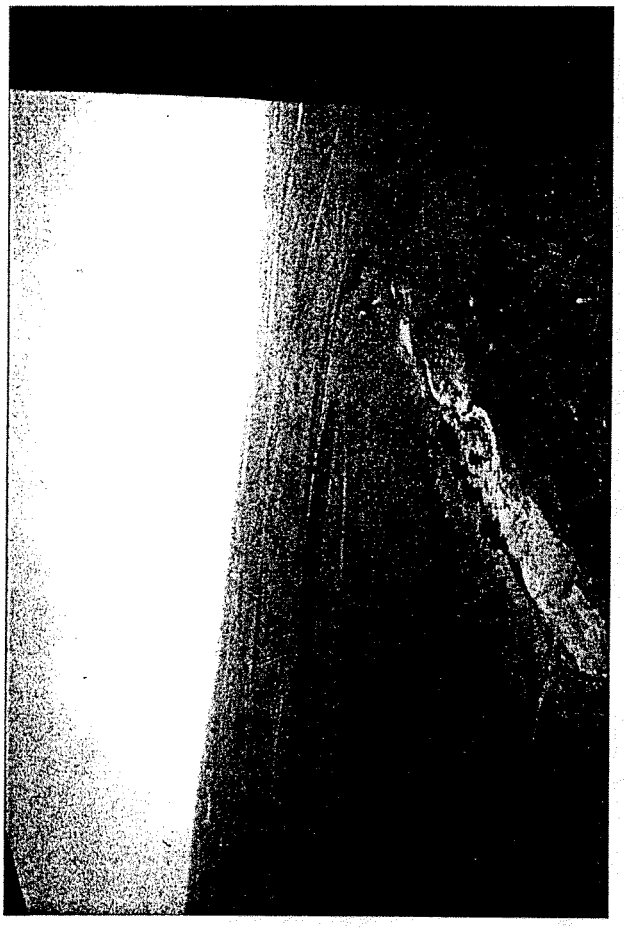
During the testimony given during the investigation into the Sand Creek Massacre and reported in the Report of the Secretary of War, 39th Congress, 2nd Session, Senate Executive Document No. 26, February 4, 1867, First Lieutenant Charles C. Hawley, First Colorado Volunteer Cavalry and acting Ordnance Officer for the District of Colorado reported the ordnance stores issued and returned by Third Colorado Volunteer Cavalry during their 100 day enlistment period. As some of these items were in used at the time of the Sand Creek Massacre it is useful to record them as some of these types may be present archeologically.

Ordnance Stores Issued	Returned	Deficiencies
772 rifles; caliber .54	493	279
224 muskets; caliber .69	92	132
16 muskets; caliber .71	8	8
1012 cartridge boxes, infantry	658	354
1105 cap pouches and picks	455	650
1019 waist-belts and plates	523	496
633 gun slings	358	275
620 cartridge-box belts	279	341
650 screw-drivers and cone wrenches	160	490
28 Sharp's carbines	17	11
58 Starr's carbines	169	-
29 Starr's revolvers	19	10
2 Colt's army revolvers	2	0
72 Whitney revolvers	12	60
82 carbine slings and swivels	114	-
63 carbine cartridge boxes	16	3
39 brush wipers and thongs	49	-
107 pistol-belt holsters	43	64
71 pistol cartridge pouches	5	66
5 Colt's repeating rifles	-	5
7 Cavalry sabers	13	-
122 saber-belts and plates	59	63
527 saddles complete, (pattern of 1859)	412	115
527 curb-bridles	382	145
376 watering bridles	275	101
500 halters and straps	225	275
624 saddle blankets	80	544
426 surcingles	239	187
515 spurs and straps	193	322
562 horse brushes	321	241
565 curry combs	342	223

Ordnance Stores Issued	Returned	Deficiencies
354 lariats	50	304
354 picket pins	64	290
500 links	139	371
146 nose bags	-	146
245 wipers	22	223
14 spring vices	4	10
12,000 cartridges; caliber .71	10,000	2,000
9,000 cartridges; caliber .69	1,000	8,000
11,000 cartridges; caliber .58	-	11,000
66,000 cartridges; caliber .54	1,000	65,000
22,500 cartridges; caliber .44	11,000	11,500
15,700 cartridges; caliber .36	1,000	14,700
1,500 pounds of lead	700	800
20 kegs of powder	12	8
15 quires of cartridge paper	15	-

FIGURES

Figure 1. Aerial view of the Dawson property to the northwest.



CHEYENNE COUNTY, COLORADO

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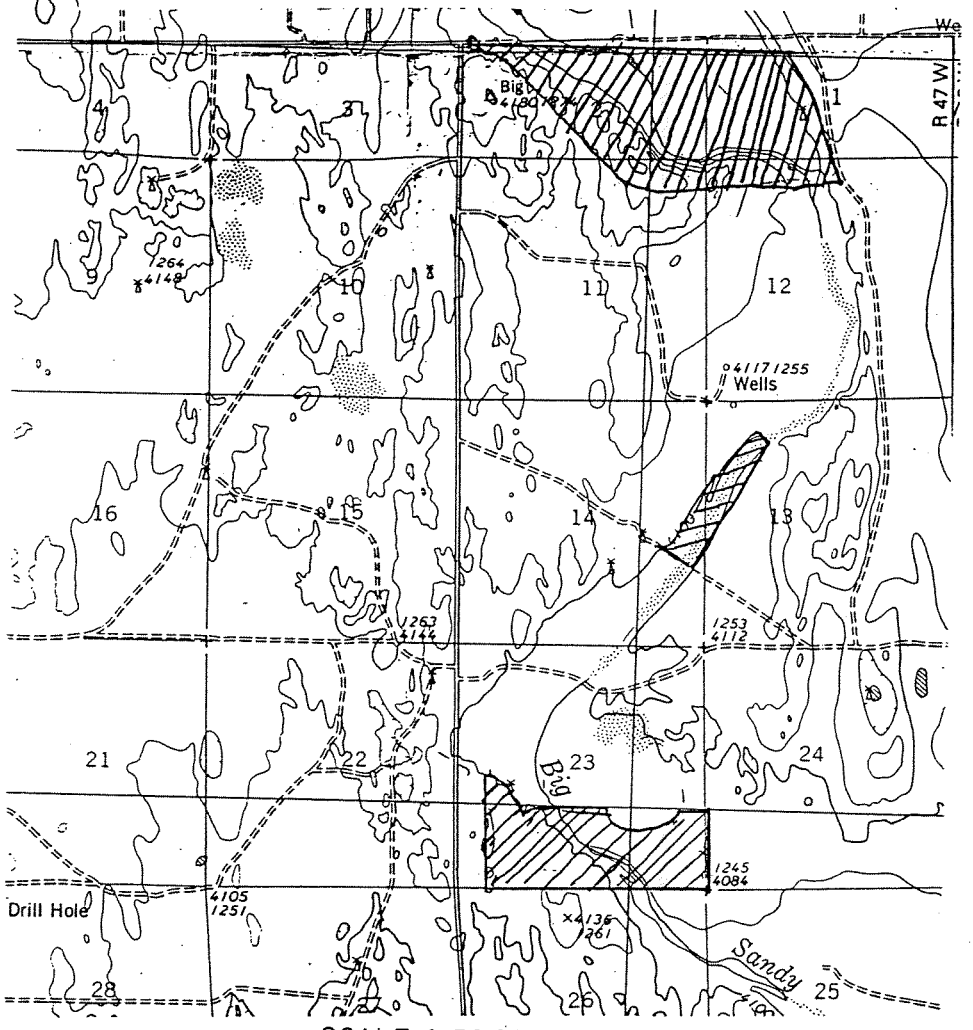

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1 .5 0 1 2 3 4 5 KILOMETERS

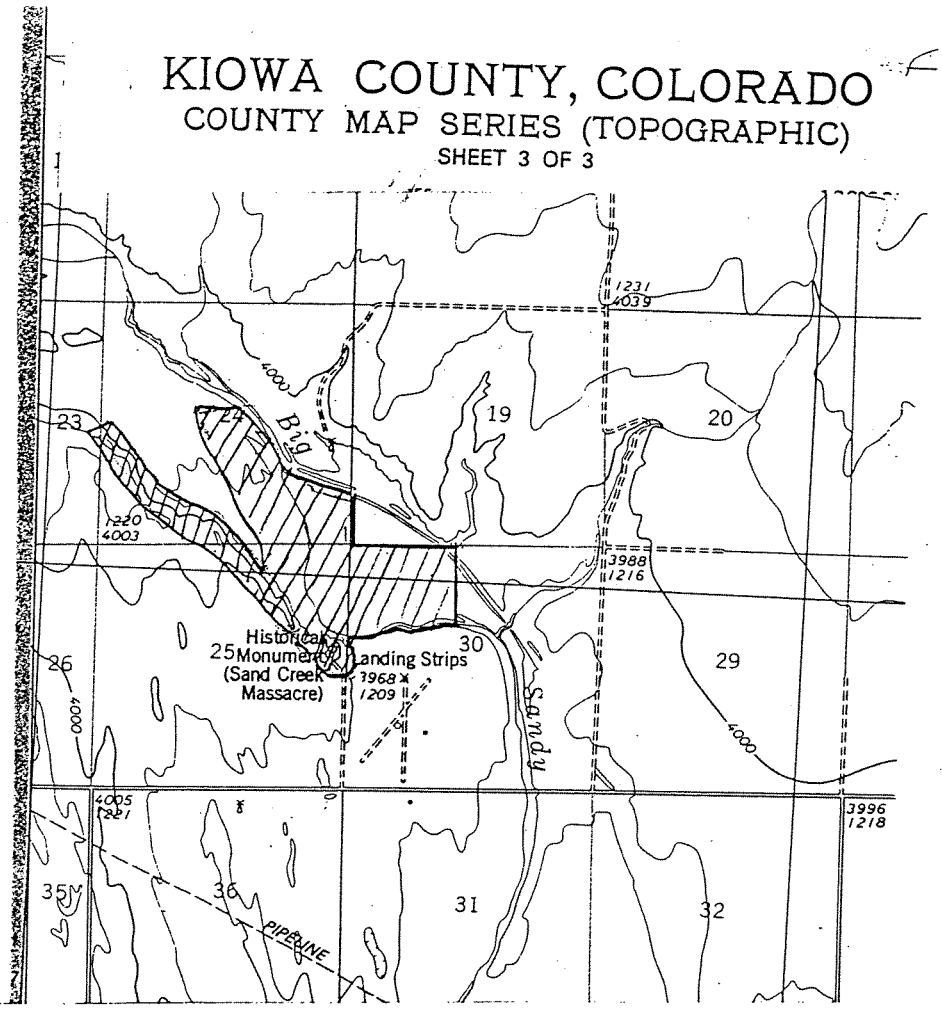
CONTOUR INTERVAL 20 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

KIOWA COUNTY, COLORADO

COUNTY MAP SERIES (TOPOGRAPHIC)

SHEET 3 OF 3



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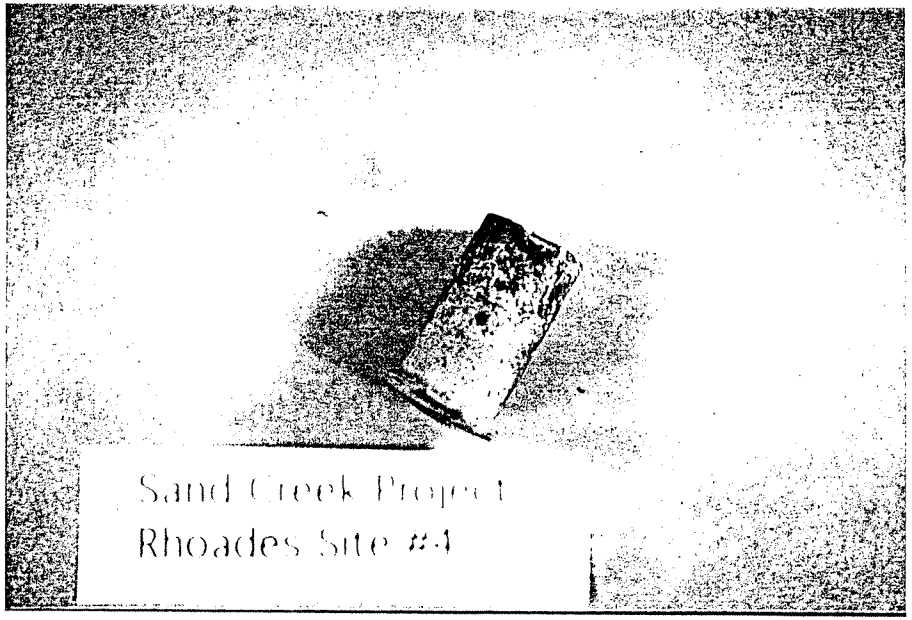
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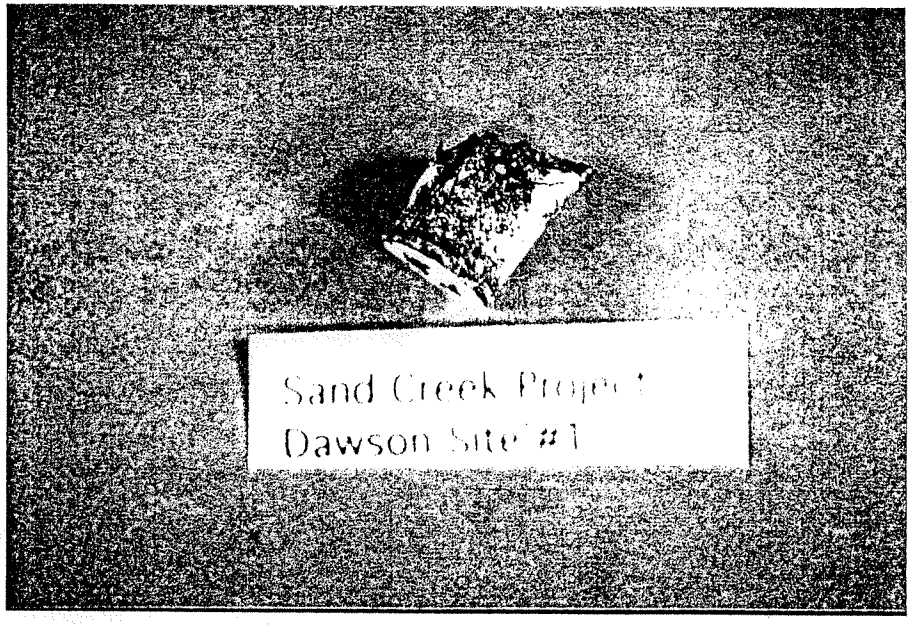
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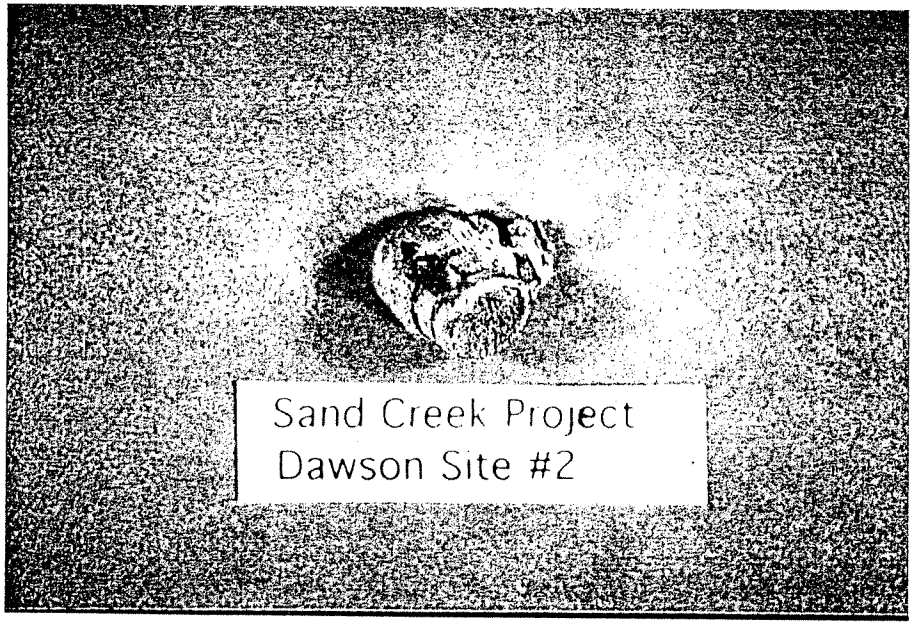
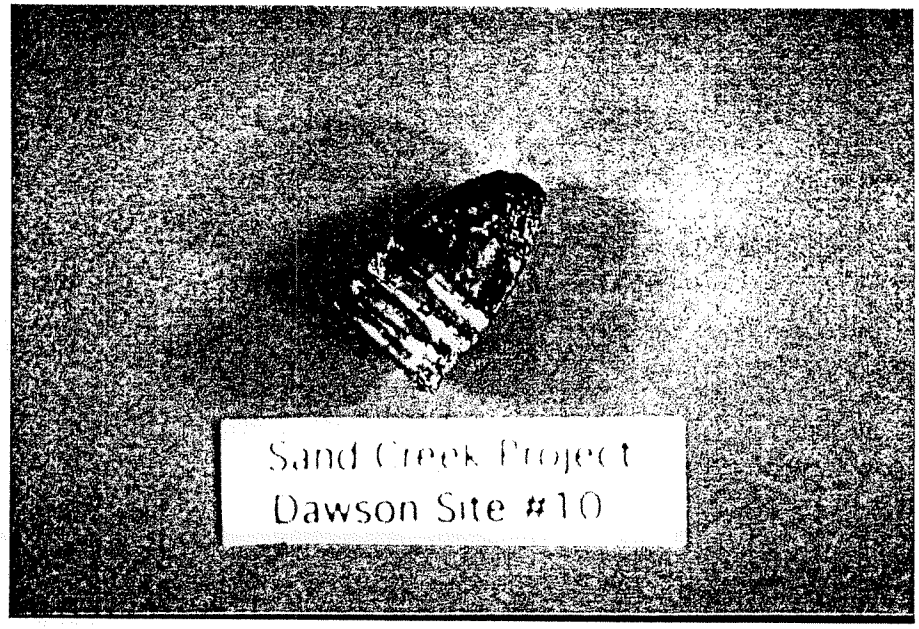

Sand Creek Project
Dawson Site #2


Sand Creek Project
Dawson Site #8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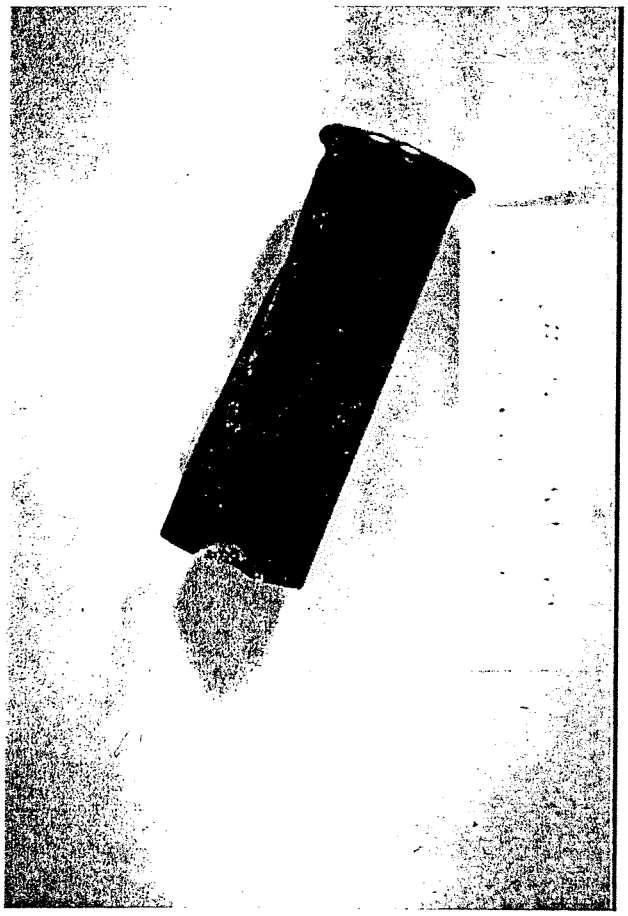

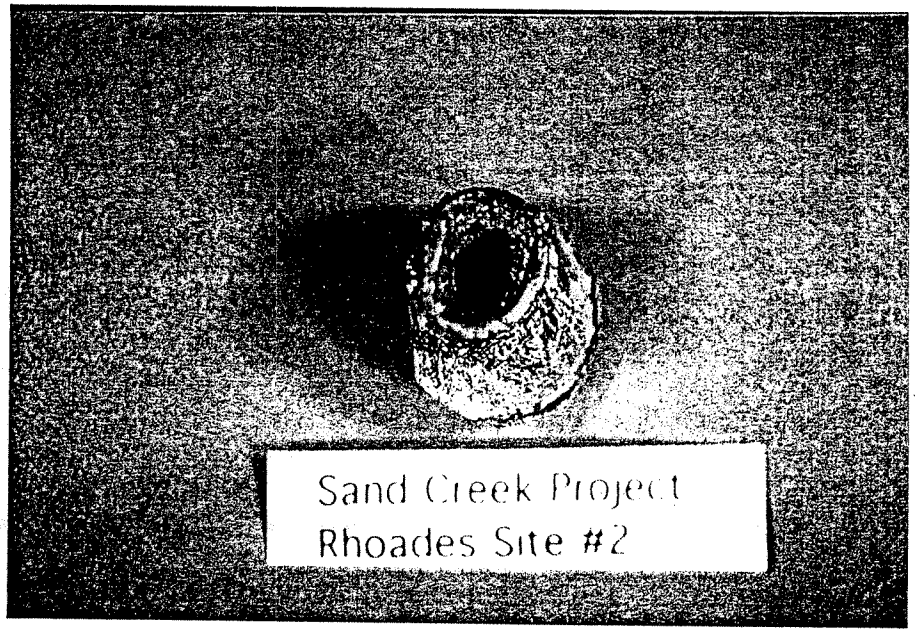
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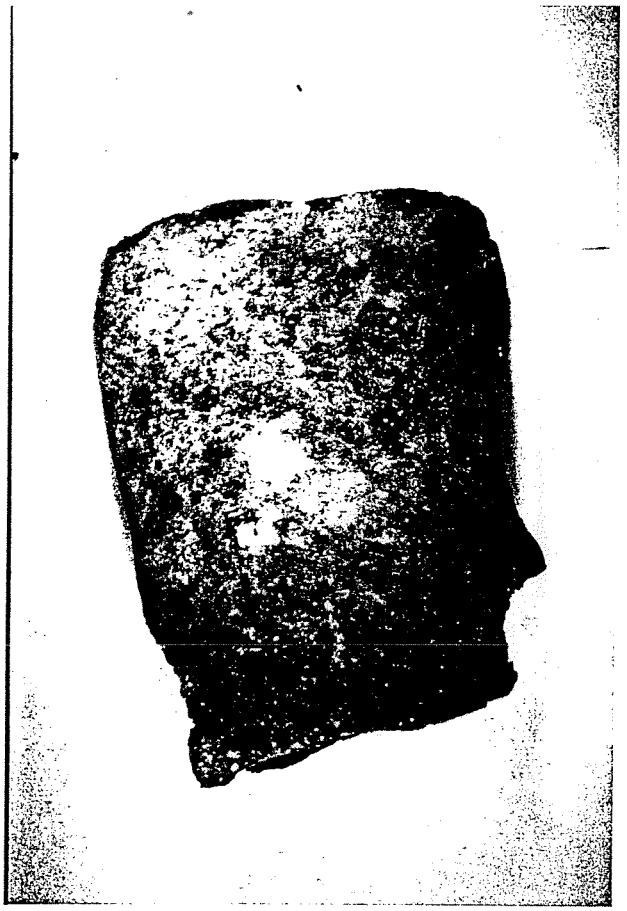
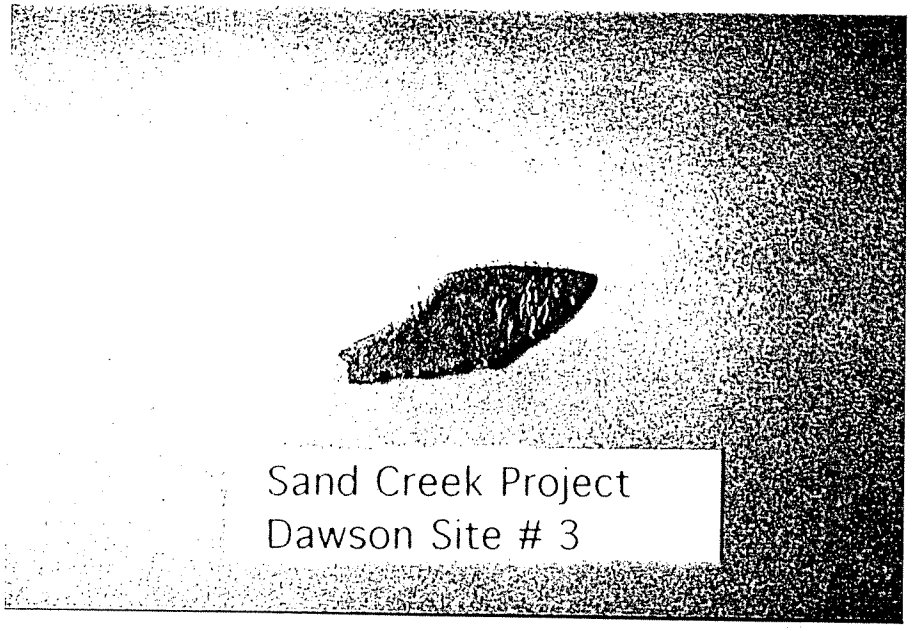
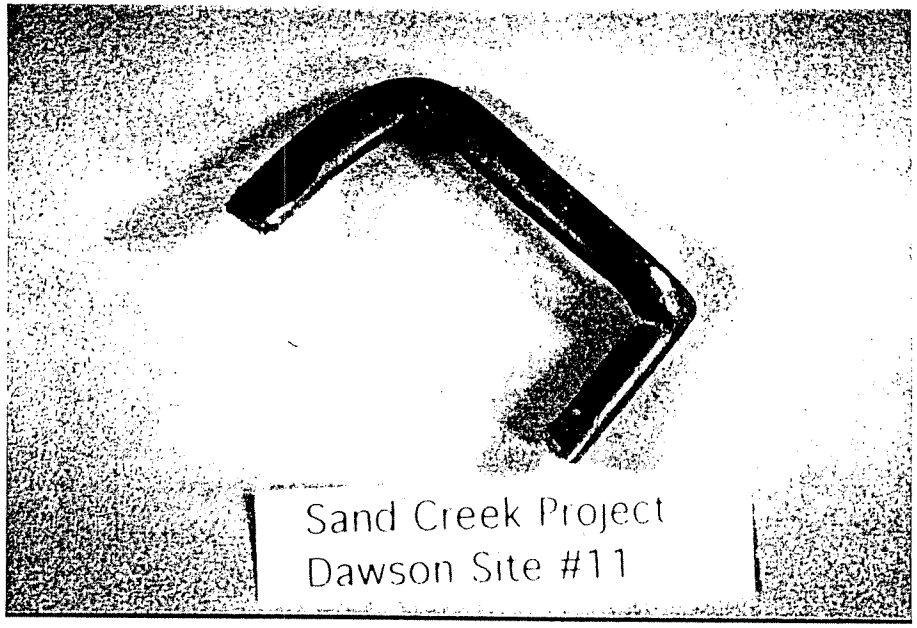



Sand Creek Project
Dawson Site # 3


Sand Creek Project
Dawson Site #6



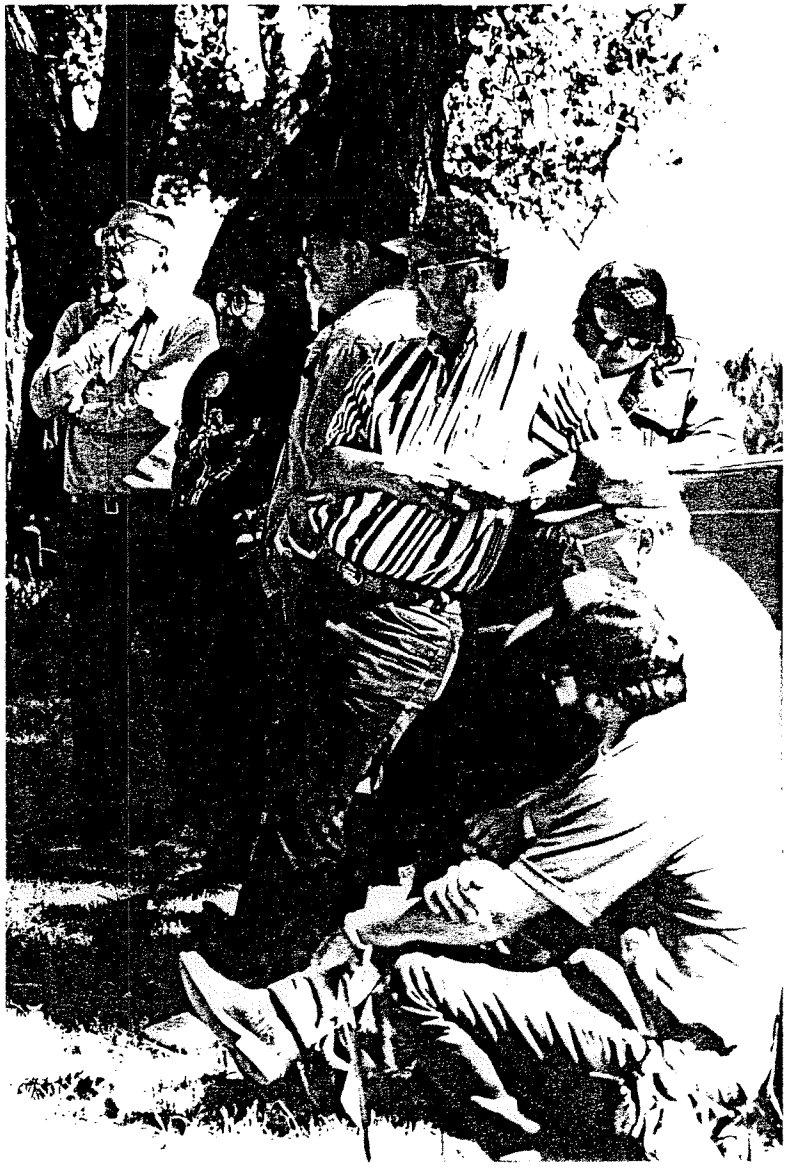
Sand Creek Project
Dawson Site #11

9/28 Brady Ridgely
Dawson Site

9/28 Ellis Brady Cometsevah
Dawson Side

Archeological Reconnaissance of Two Possible Sites of the Sand Creek Massacre of 1864
September 27 – October 3, 1997
Misc Photos by Tom Meier

9/28 Roberts
Dawson Site

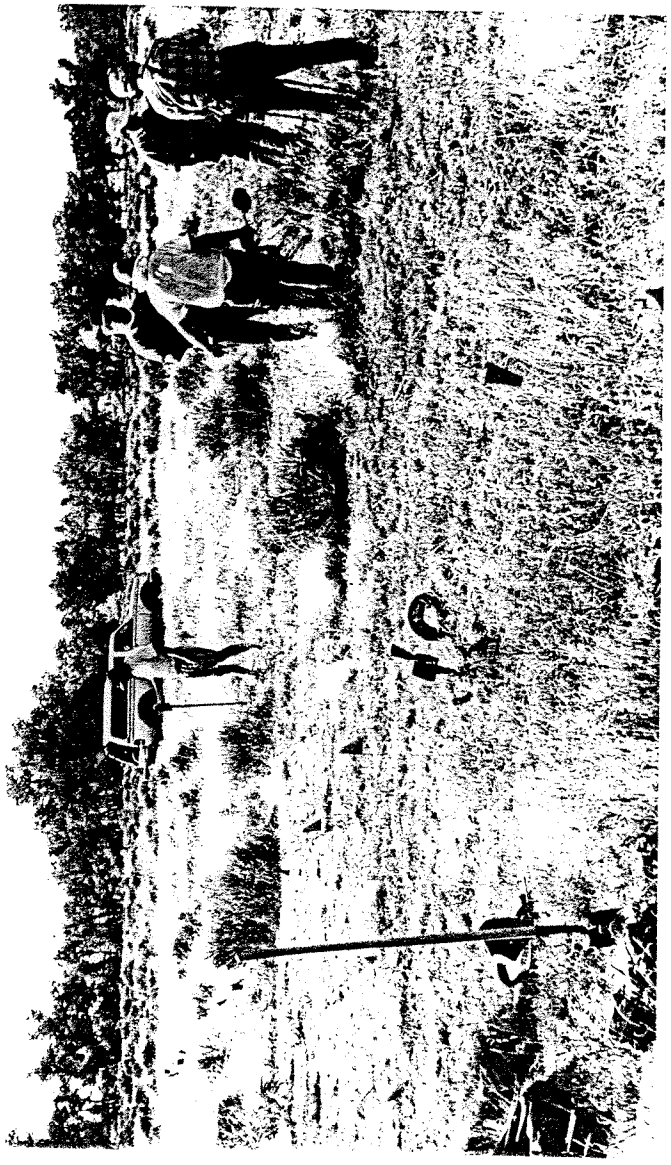


9/28 Dawson Site

9/29 (DFSG Site) Trade Silver Fragment Lee

(DFSG Site) Scott & Lees

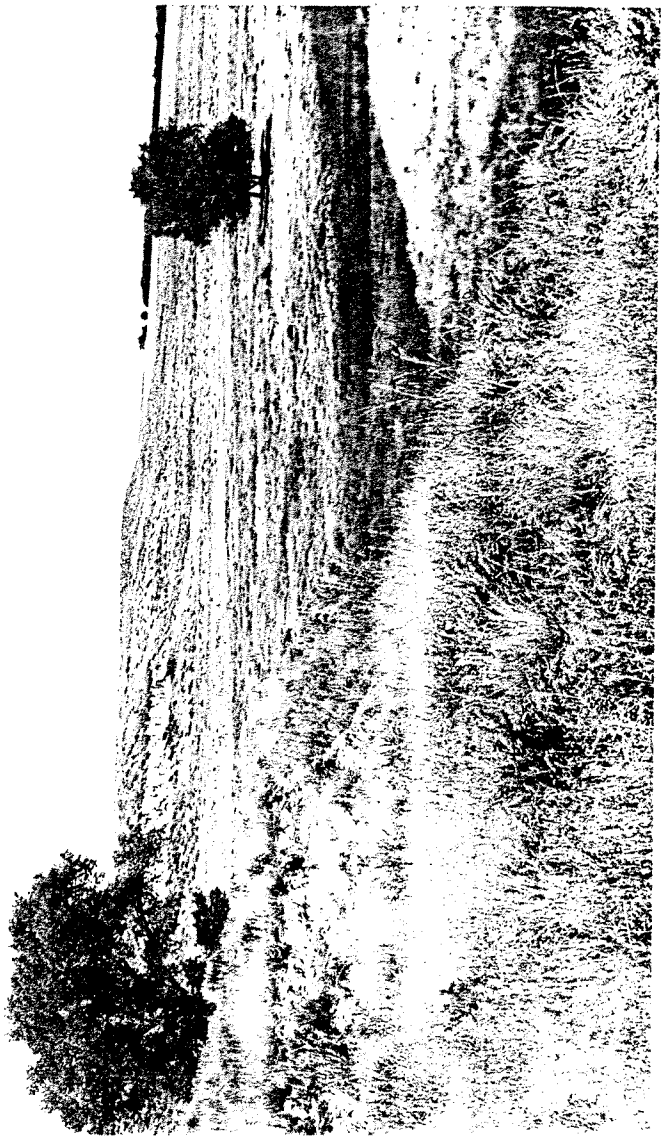
9/30 Geo-Recovery equipment



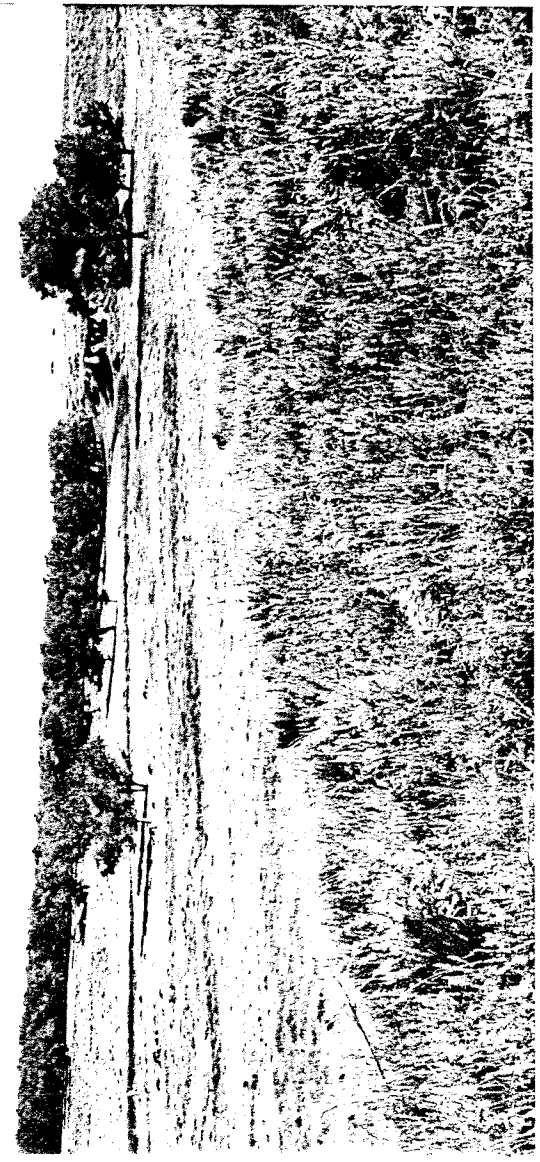
9/30 Geo-Recovery - transect of Picket Pin site

9/30 . Crew - Dawson Site

9/30 Roberts Gibson
Dawson Site

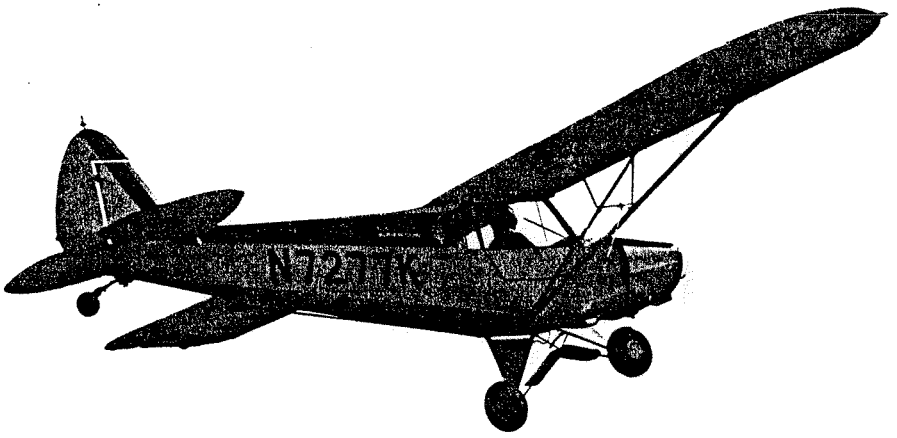


9/30 Overview Dawson - Looking NW



9/30 Overview Dawson - Looking SE

101 Rhoades cite



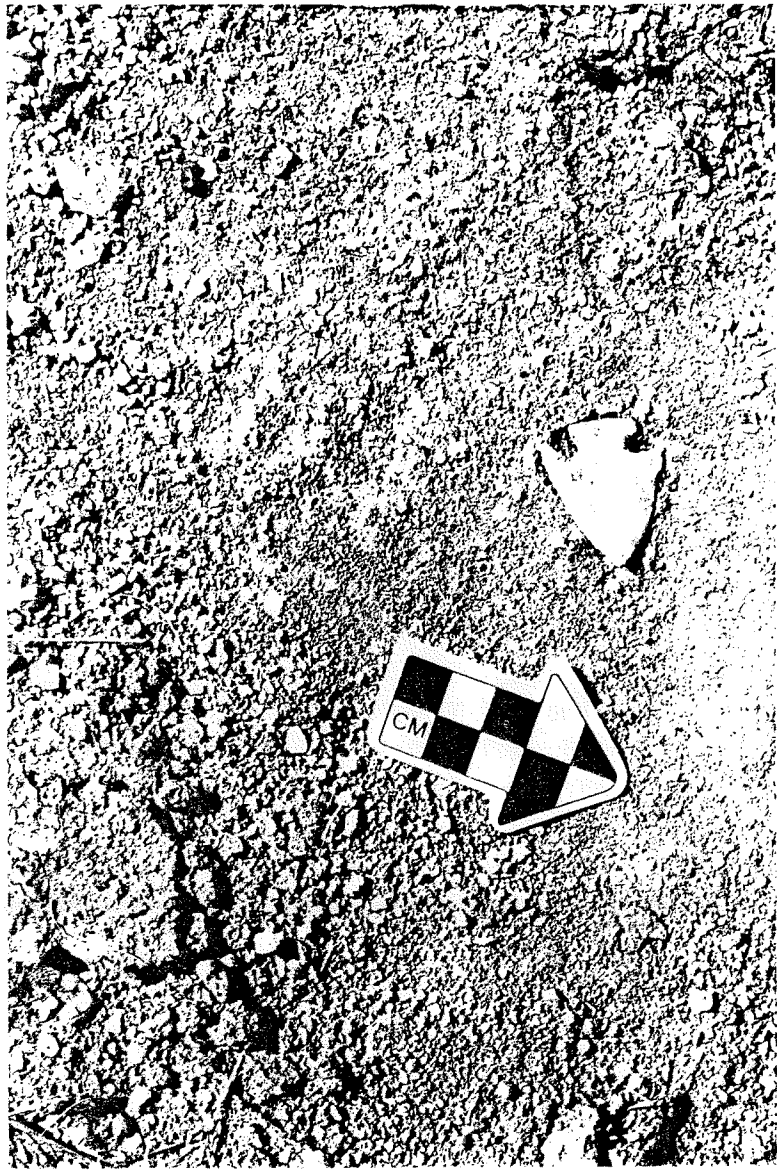
16/1 Tom Baker
Rhoades 516

101 Rhoades site

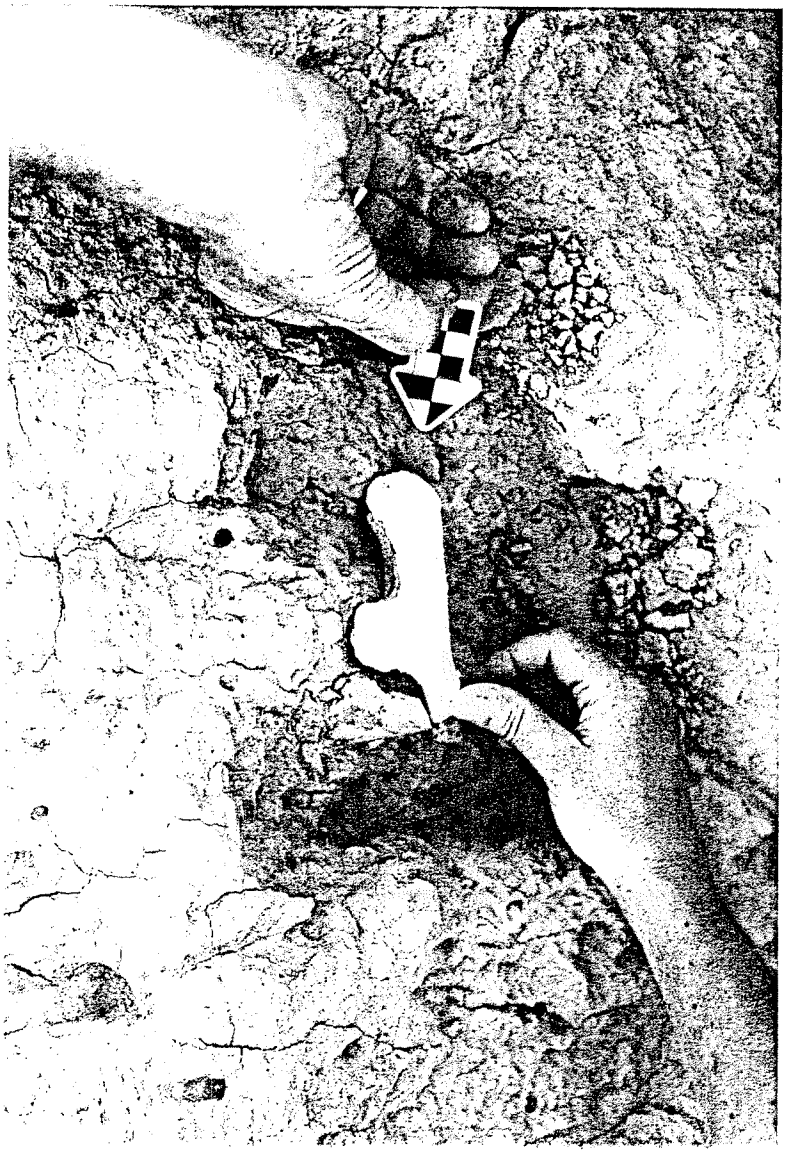
Ellis Brady G. Ridgely

101 Rhoades site

Roberts Ellis Brady Lees G. Ridgely Red Cheevers

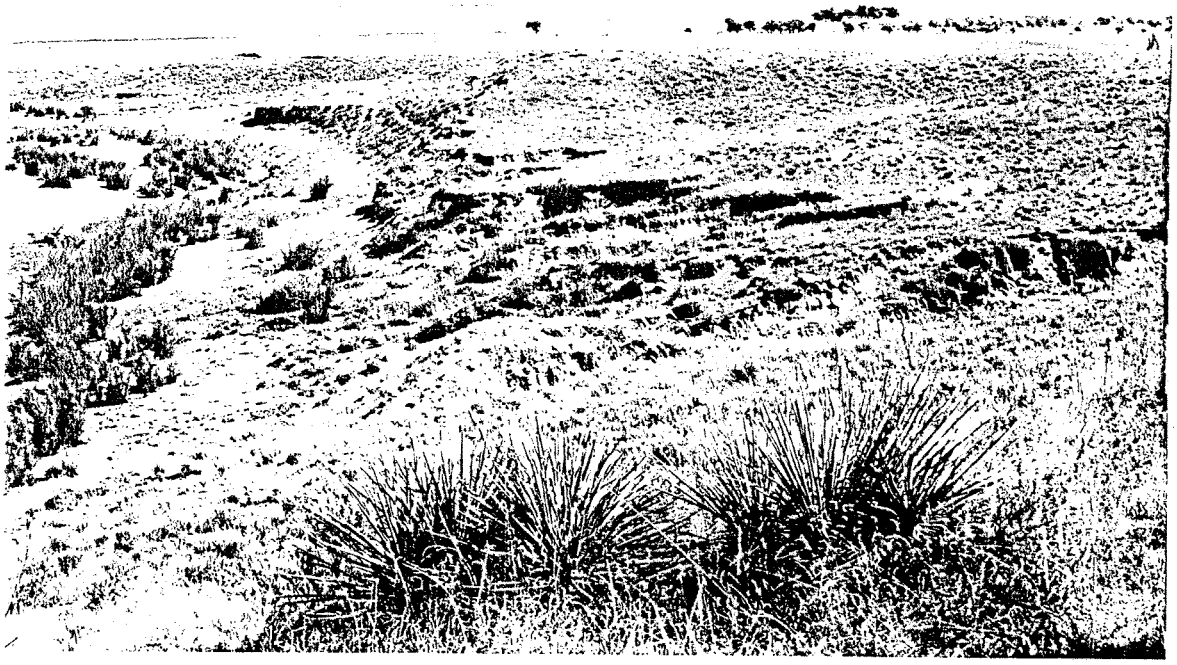


10/1 Rhoades site -
Lithic found by Dawson



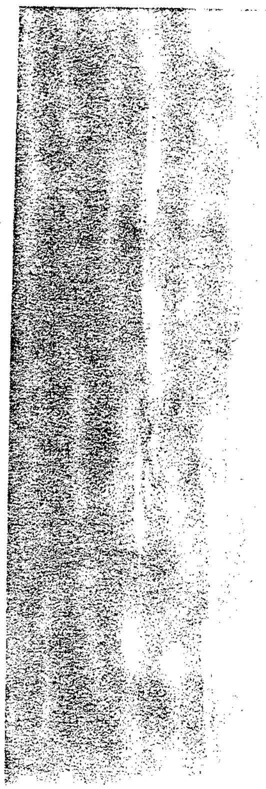
10/1 Rhoades site
Bovine bone found by Cometsevah

10/1 Rhoades site looking E

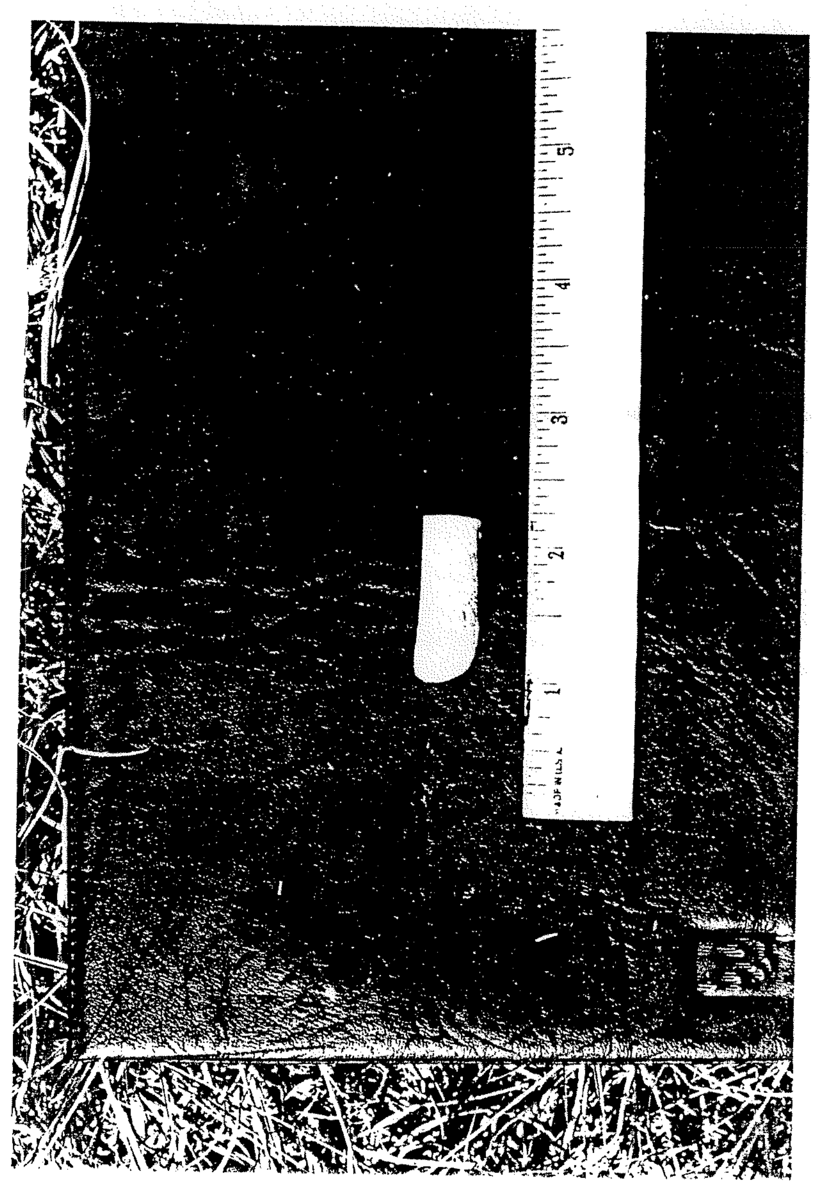


10/1 Rhoades Site

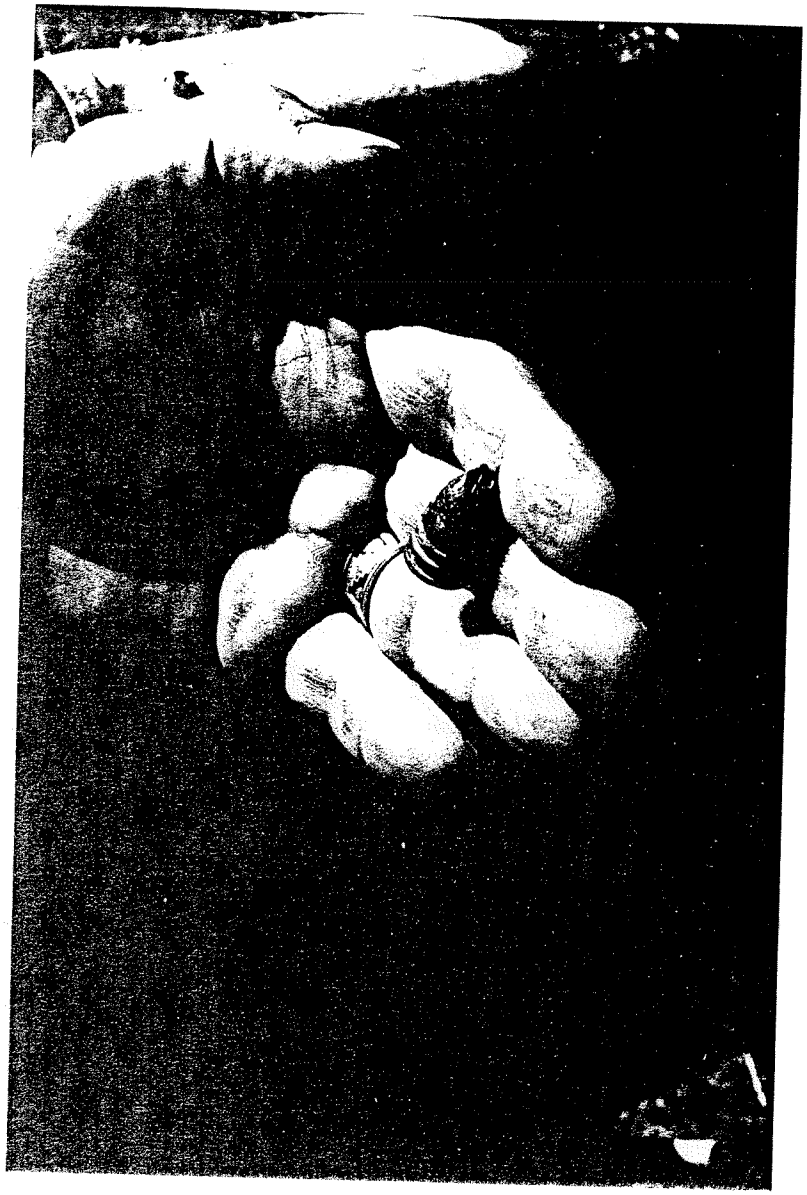
G. Scott Brady



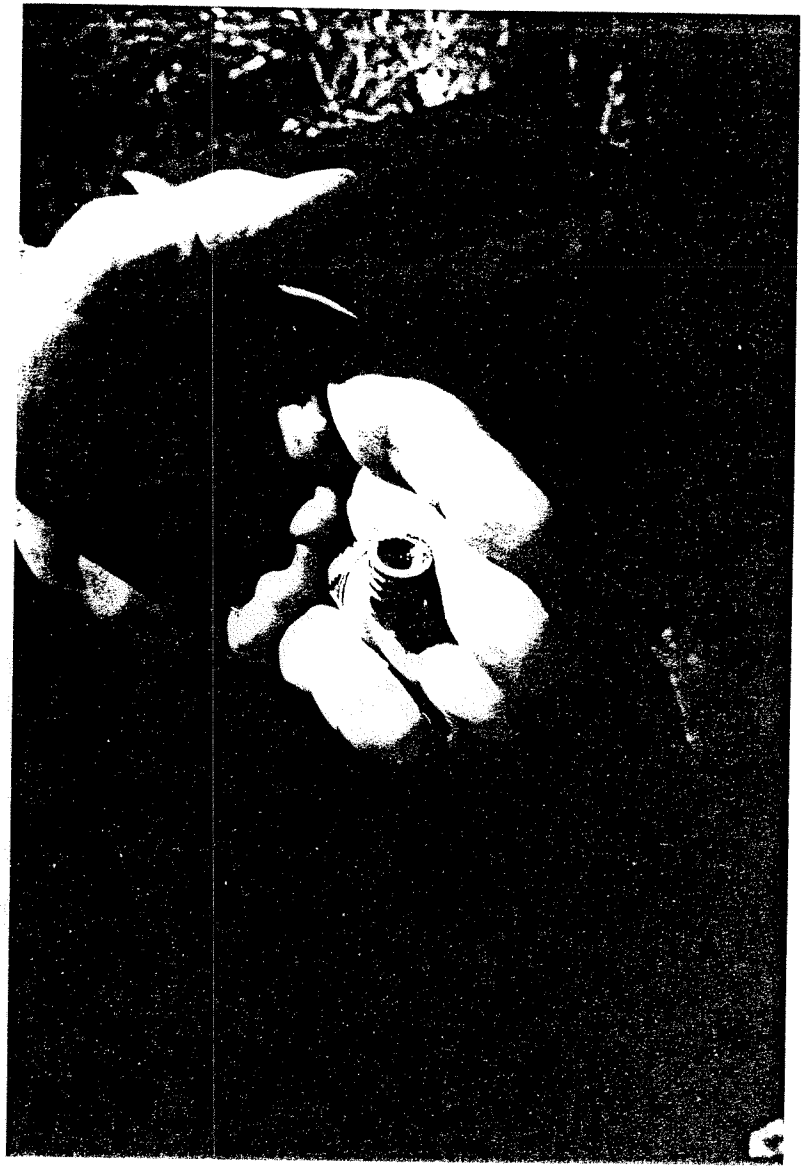
10/7 Dawson Site



10/7 Dawson site (DFS 5)
Sharps

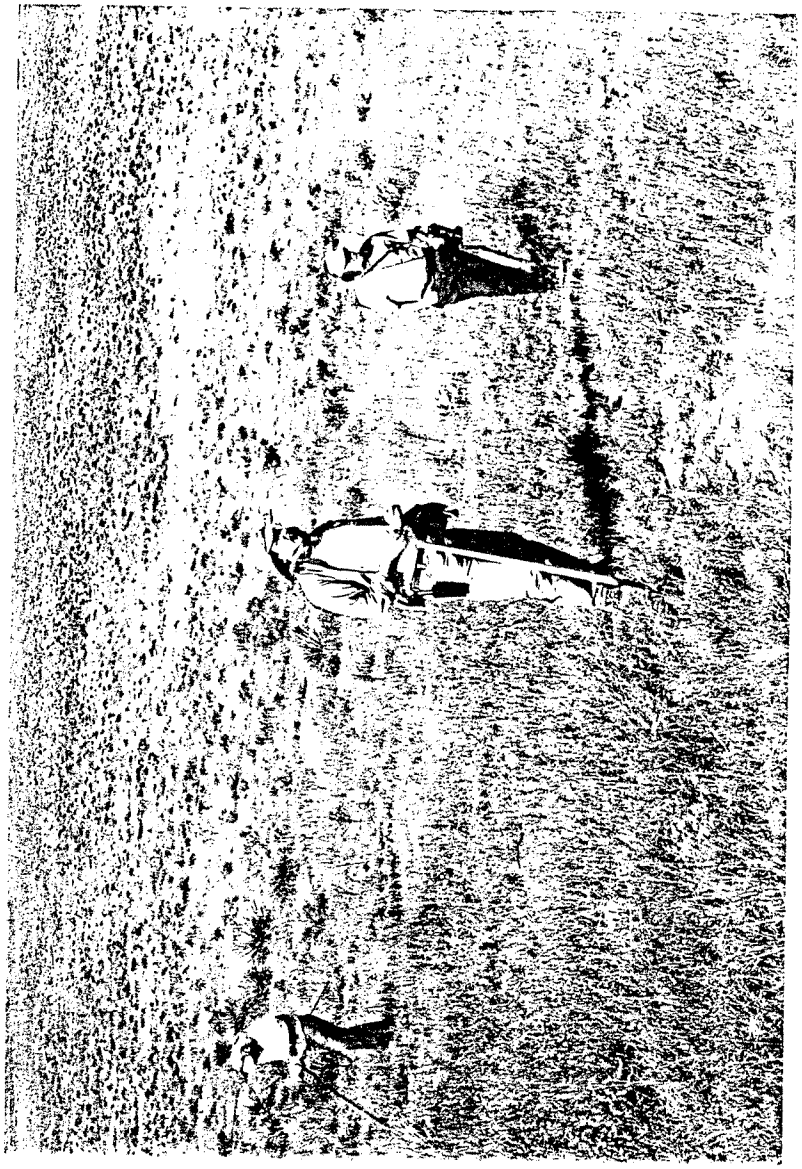


10/3 DFS 10 Dawson Site
.54 cal,

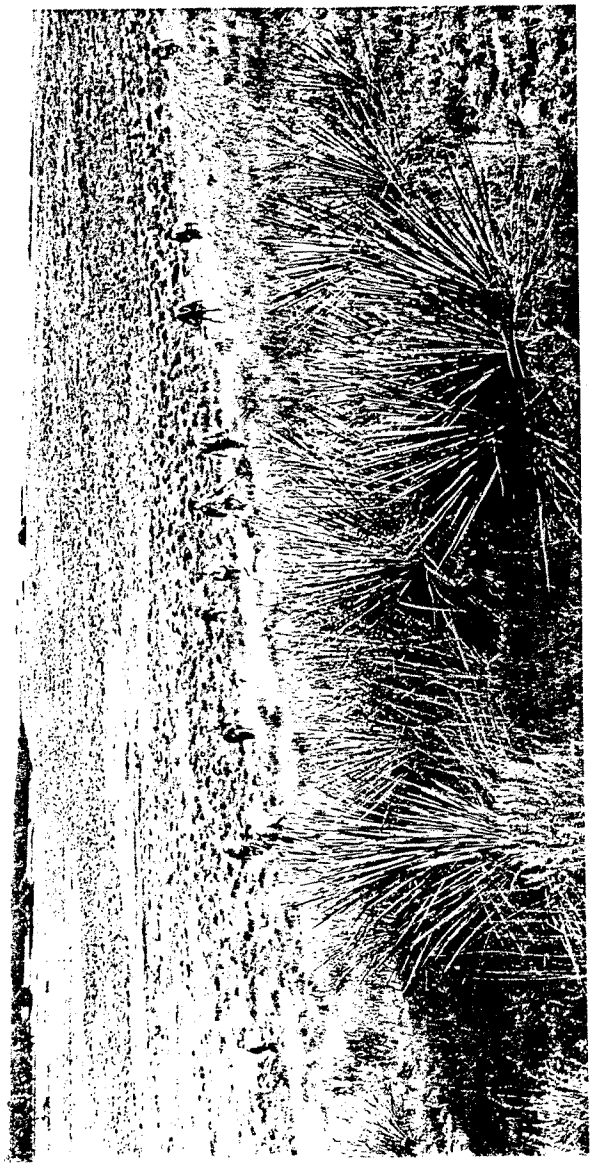


10/3 DFS 10 Dawson Site
.54 cal

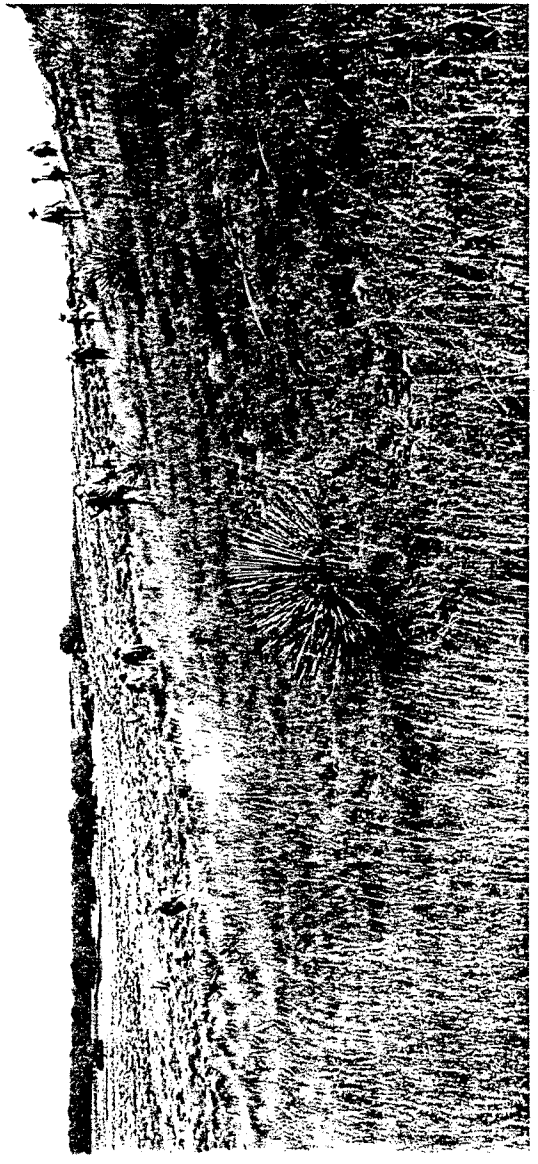
10/3 (DFS 11) Girth Ring Frag. Dawson



10/3 Site of (DFS 10 & 11)
Far West Dawson Property



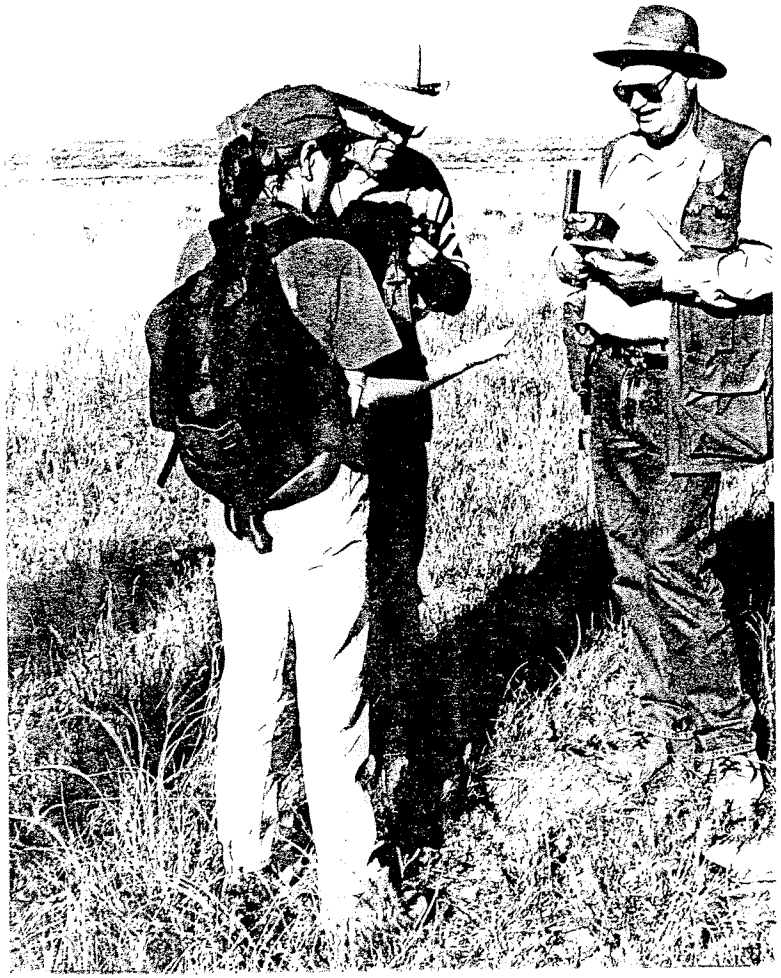
10/3 Dawson Last Sweep
Looking SE



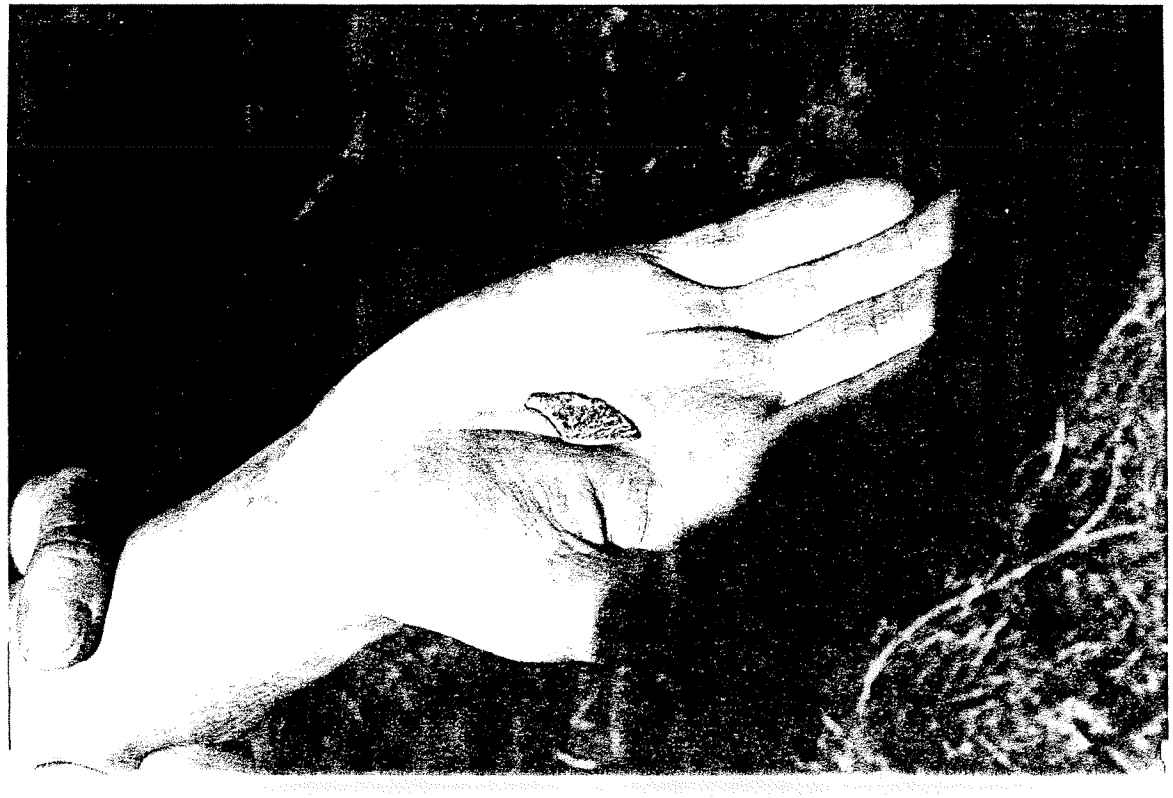
10/3 Dawson Last Sweep
Looking SE

9/28 Scott Dawson Site

9/28 Dawson Site



9/28 Dawson Site (DFS3)5A)



9/28 (DFS3)

9/28 (DFS 4 site) Picket Pin

9/28 Picket Pin in situ