

**ARCHAEOLOGICAL SITES INVENTORY OF THE
TRAINING AREA 10 AND 12 PORTIONS
OF THE PINON CANYON MANEUVER SITE,
LAS ANIMAS COUNTY, COLORADO**

VOLUME 1



By
Mark Owens and Lawrence L. Loendorf

With contributions by

Richard E. Hughes
Richard A. Krause
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Pamela R. Owens

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National Park Service, Lincoln, Nebraska
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Prepared by
The Department of Sociology and Anthropology
New Mexico State University
Las Cruces, New Mexico

Fort Carson Cultural Resources Management Series
Contribution Number 10



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Popular Abstract

During a large archaeological survey at the Piñon Canyon Maneuver Site, Las Animas County, Colorado, 315 sites were identified. The Piñon Canyon Maneuver Site is a large military base used by the United States Army as a training area for mechanized tracked and wheeled vehicle maneuvers. Most sites are cultural material scatters or places where fragments of chipped-stone flaking debris, chipped-stone tools, or ground-stone tools are exposed on the ground surface. Nearly a quarter of the project sites, however, contain the remnants of stone houses like tipi rings or Apishapa phase structures. Project sites are often found along the canyon edges where access to food and water is good. As such, the types of artifacts identified by archaeologists at these locations indicate canyon areas were used for the past 10,000 years.

Professional Abstract

This report presents the results of an archaeological survey in the Training area 10 and 12 portions of the Piñon Canyon Maneuver Site, Las Animas County, Colorado. In this survey, archaeologists identified and recorded 304 new sites and revisited 11 known sites. Most of these were lithic material scatters, though locations with contiguous wall and spaced-stone architectural units were identified on 23% of the project sites. Regarding contiguous wall architectural units, many were found along the canyon edges, suggesting a line-of-sight communications network. Others, however, were found in flat terrain and are related to the human need for acquiring food and water. Locally available materials dominate the material type assemblage, but a high frequency of non-local materials like Jemez Mountain obsidian or Alibates dolomite suggests that the prehistoric inhabitants of Piñon Canyon region were either highly mobile or were involved in a broad network of trade and exchange.

All of the sites were evaluated with respect to their potential to inform on the research domains outlined in Andrefsky et al. (1990) and Zier and Kalasz (1999). Two hundred and thirty-nine sites were determined to have low information potential, and were recommended as not eligible for inclusion to the National Register of Historic Places. These require no further archaeological or management work. The remaining 76 sites, have been determined to meet at least one of the National Register Criterion, and were recommended as eligible. These eligible sites need to be preserved and protected from future adverse impacts.

Acknowledgments

We are grateful to the many individuals and organizations that have contributed to the overall success of this project; several deserve special mention. The support of the Directorate of Environmental Compliance and Management, United States Army, Fort Carson, is greatly appreciated. Specifically, we appreciate Cody Anderson, Steve Chomko, Mike Flowers, Randy Korgel, Bob Hill, Thad Swan, Tom Warren, and Kelly Wright for providing support, in a great variety of ways, throughout the project. Steven DeVore coordinated the project for the National Park Service, Midwest Archaeological Center. Other Park Service personnel deserving thanks include Kevin Baldwin, Ann Chancey, Mike Chidley, Melissa Connor, Forest Frost, Ralph Hartley, Ron Marvin, and Linda Zumpfe. All are thanked for their professionalism and hard work. We would also like to thank the National Park Service's Carrol Moxham for her assistance in the printing and production of this report.

Our field team, who helped us collect, process, and record all field data, deserves the lion's share of credit for the success of our project. Rich Burleson, Mike Chidley, Mike Flowers, Mark Owens, and Ardeth Vineyard were the field crew chiefs. Field crew members Nancielee Albin, Kelli Barnes, Joe Bergstrom, Jane Ann Blakney, Rich Burleson, Karen Clem, Marilyn Cunningham, Chris Ecker, Sean Graebner, Keith Hahn, Wes Hahn, Roche Lindsey, Caralee Maechtle, Matt Mallery, Thad Swan, Dulce Wassil, Kay Winchester and Courtney Yilk did a great job for us despite the fact that the bugs were thick and the temperatures were often extreme. Volunteers Jeff Fladung, Anna Gray, Jennifer Hudson, Don Owens, Josh Schneider, Marissia Tice, Bill Tilley, and Cheryl Wagner also contributed as surveyors. Camp cooks Lorrie Lincoln-Babb, Sheri Landis, and Terry Moody kept up crew morale with their wonderful meals. Bonnie Newman was the project lab director, assisted at times by Kelli Barnes.

Our office administrators, Renee Beltran and Elaine Nimmo, kept things running smoothly. They also served as our project pinch-hitters, contributing as photographers, data analysts, and editors at times.

Specialized analysis and consultations also contributed to overall project success. Richard A. Krause of the University of Alabama helped to identify the project ceramic types. Richard E. Hughes, the director of Geochemical Research Laboratory, identified obsidian material specimens. Jack Hofman (University of Kansas) and Stan Ahler (Paleocultural Research Group) provided assistance with projectile point identification. Pam Rasfeld Owens, of New Mexico State University, researched project historic sites and provided genealogies for families living in the area now designated as the PCMS.

Foreword

The archeological investigations reported in this manuscript are an important part of the Fort Carson Cultural Resources Management Program whose goal is to maintain the largest possible area for military training while protecting significant cultural and environmental resources. The current study of Training Areas 10 and 12 is part of an integrated plan that takes a long-term systematic approach to meeting identification, evaluation, and resource protection requirements mandated by the National Historic Preservation Act. While meeting legislated requirements, this project also provides a valuable contribution to our knowledge of the prehistory and resources of Las Animas County, Colorado. Through an Interagency Service Agreement, the National Park Service, Midwest Archeological Center (MWAC), assists Fort Carson in accomplishing its cultural resources goals and meeting its legal obligations. New Mexico State University completed the reported project under a cooperative agreement with the MWAC.

Fort Carson began cultural resource studies on the Pinon Canyon Maneuver Site in 1983, immediately following the purchase of these lands. The Cultural Resource Program takes a multidisciplinary approach, combining archeological theory and historical methods with geological, geomorphological, botanical, and statistical techniques and procedures in order to focus its efforts to locate, evaluate, and protect significant cultural resources. Professional studies and consultations with Native American tribes have resulted in the identification of National Register of Historic Places eligible sites and districts. The cultural resources of Fort Carson and the Pinon Canyon Maneuver Site represent all major prehistoric and historic cultural periods recognized in the Great Plains and Rocky Mountains. Sites of the Paleoindian, Archaic, and Ceramic stages are present as are sites from the Fur Trade era, 19th century Hispanic and Euroamerican settlements, early 20th century homesteading and ranching, and World War II and Cold War era military sites. The project reported here completes the first phase of the archeological inventory program – identification and documentation of archeological sites to determine their National Register of Historic Places (NRHP) eligibility.

The Cultural Resources Management Program is in the Directorate of Environmental Compliance and Management (DECAM). The directorate is tasked with maintaining Fort Carson's compliance with federal, state, and local environmental laws and mandates. The DECAM holistic management philosophy holds that all resources are interrelated. Decisions affecting one resource will impact other resources. The decisions we make today will affect the condition of Department of Army lands and resources for future training, research, and recreation. Mission requirements, training resources, wildlife, range, soil, hydrology, air, and recreation influence cultural resources management decisions. Integrating compliance and resource protection concerns into a comprehensive planning process reduces the time and effort expended on the compliance process, minimizes conflicts between resource protection and use, allows flexibility in project design, minimizes costs, and maximizes resource protection.

Federal laws protect the resources on the Pinon Canyon Maneuver Site and Fort Carson. Theft and vandalism are federal crimes. Protective measures ensure that Army activity does not inadvertently impact significant cultural and paleontological sites. Fort Carson does not give out site location information nor are sites developed for public visitation. Similar resources are located in the Picketwire Canyonlands where public visits can be arranged through the U.S. Forest Service, Comanche National Grasslands in La Junta, Colorado.

Fort Carson endeavors to make results of the resource investigations available to the public and scientific communities. Technical reports on cultural resources are on file at the Fort Carson Curation Facility (Building 2420) and the Colorado State Historic Preservation Office. They are also available through the National Technical Information Service, Springfield VA. Selected reports have been distributed to public libraries in Colorado. Three video programs produced by Fort Carson are periodically shown on Public Broadcasting Stations. Non-technical reports on the prehistory, history, and rock art of southeastern Colorado have been distributed to schools and libraries within the state. Fort Carson continues to demonstrate that military training and resource protection are mutually compatible goals.

Thomas L. Warren
Director
Directorate of Environmental Compliance and Management
Fort Carson, Colorado
February 2004

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Chapter I: Introduction

This report describes the results of archaeological investigations conducted within Training Areas 10 and 12 on the Piñon Canyon Maneuver Site (PCMS), Las Animas County, Colorado. These investigations were conducted during the first half of the field season in 1998 (April to July) and the first field session of 1999 (May). Work continued in Training Area 10 during all of the 2000 field season and was completed in May of 2001. New Mexico State University (NMSU) completed the project through a cooperative agreement (No. 1443-CA-6000-98-016) with the National Park Service (NPS) Midwest Archeological Center who administered and supported the fieldwork. The Directorate of Environmental Compliance and Management (DECAM), Fort Carson, Colorado funded the project.

The sites described and interpreted in this report are located in the Priority 1 portion of Training Areas 10 and 12. Training Area 12 is a mechanized training locale situated along the northern edge of the base and at the eastern edge of the Bear Springs Hills. Overall, Training Area 12 encompasses a total of 3013.20 acres. The Priority 1 portion of Training Area 12 is 1738.78 acres and was divided into a total of eight study units for survey. These study units are located along, and in, the arroyos that form the northern Stage Canyon drainage basin. Training Area 12 is bounded on the north by the Iron Springs Hills landform and the northern PCMS boundary, on the south by the Stage Canyon Arroyo, on the west by the east end of the Bear Springs Hills, and on the east by Red Rocks Road and MSR 1A.

Training Area 10 is the largest of the training areas on the base with a combined total of 64,362 acres within its boundary. In such an expanse of land, one hundred percent surface coverage is not feasible when time and financial constraints are considered. In the case of the PCMS, effective surface sampling, based on a statistically valid sample of sites from survey work in the 1980's, led to the development of a site predictive model. This model (Kvamme 1990:IV 6-83) determined that there were 23,907.29 acres of high priority land with the greatest potential for locating previously unknown sites (Figure 2.2). Lockwood Canyon, Red Rocks Canyon, Welsh Canyon, Big Water Arroyo, and Taylor Arroyo are contained within Training Area 10. This large tract of land is bounded on the east by the Purgatoire River, on the south by Taylor Arroyo, on the west by MSR3 and the soil conservation protection fence, and on the north by the Stage Canyon Arroyo. The Stage Canyon arroyo separates Training Areas 10 and 12.

The objectives for these survey investigations are fourfold. The first is to identify cultural resources (prehistoric, or historic archaeological sites) located within the project area. The second objective involves determining National Register of Historic Places (NRHP) eligibility for these sites. Objective three is to provide recommendations for the protection of sites that can potentially be impacted by mechanized military maneuvers. The fourth objective is to recommend additional survey or excavation work, including data recovery, if needed. This project and data recovered from it will ultimately enable the Department of the Army to comply with the requirements of Sections 106 and 110 of the National Historic Preservation Act, to assess potential effects on cultural properties as part of the Archeological Resources Protection Act, and to fulfill the mitigation measures outlined in the 1985 Memoranda of Agreement between Fort Carson, the Colorado State Historic Preservation Officer, and the Advisory Council on Historic Preservation.

Cultural resources, in the form of historic properties in most cases, must undergo a significance determination process (King 1998:224). The National Register Criteria (36 CFR 60.4) as well as details regarding their application, appear in *National Register Bulletin 15* (National Register 1991). If a property fulfills the criteria, has integrity, and does not fall under one of the criteria considerations (i.e., cemeteries, birthplaces, graves, reconstructed properties) it is eligible for the National Register and impacts on it must be considered under Section 106. Integrity is in the eye of the beholder. On sites in the PCMS this usually means that archaeologists believe that a property is intact enough to be further studied. Traditional Cultural Properties are also considered to have integrity. The *Guidelines for Evaluating and Documenting Traditional Cultural Properties* (National Register Bulletin 38, 1990) states, "[T]he integrity of a traditional cultural property must be considered with reference to the views of traditional practitioners; if its integrity has not been lost in their eyes, it probably has sufficient integrity to justify further evaluation."

The guidelines set forth in the National Register Criteria define five categories of historic properties including buildings, structures, objects, sites, and districts. In Training Areas 10 and 12, the majority of the cultural remains encountered during survey were classified as sites. In *National Register Bulletin 15* a site is defined as "the location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself possesses historic, cultural, or archaeological value regardless of the value of any existing structure."

Sites were determined significant or not based on any or all of the four NRHP criteria. For the most part, the eligible sites recorded in this project were deemed eligible under Criteria D ("...have yielded, or may be likely to yield, information important in prehistory or history"). Sites with distinct styles of rock art or early and relatively unknown types of projectile points, were determined eligible under Criteria C ("...embody the distinctive characteristics of a type, period, or method of construction...")

In previous PCMS research projects, Andrefsky's (1990) four "research domains" have been used to aid in the evaluation of prehistoric sites. These include chronology, paleoenvironments, settlement-subsistence systems, and exchange and mobility. If data related to these research domains can be recovered, the site should be evaluated as significant for the NRHP. The research themes, chronology, population dynamics, technology, settlement and subsistence strategies (i.e., site type and locational variability, economy, and architecture), rock art, and geomorphology and paleoclimate, in Zier and Kalasz (1999:43) were also consulted to aid project personnel in making site eligibility and significance determinations.

Three hundred and fifteen sites (304 unrecorded and 11 previously recorded) are discussed in this report. Results from the fieldwork indicate that 76 sites should be nominated to the National Register, while a total of 239 sites are not significant and require no further work. Justifications for these determinations are given in the section pertaining to the eligibility recommendation for each of the sites investigated, and in Appendix VII. The site descriptions are given for the eligible sites in Chapter IV and the non-eligible sites are described in Chapter V. Materials derived from this work including notes, forms, photographic prints and negatives,

scaled drawings, and artifacts are currently curated at the New Mexico State University Museum (Kent Hall) in Las Cruces, New Mexico. In time, this material will be housed with other archaeological remains at the Fort Carson, Colorado, Curation Facility.

Chapter II: PHYSICAL AND CULTURAL BACKGROUND

By

Mark Owens and Pamela R. Owens

Physical Background of the PCMS

The PCMS covers an area of 235,604 acres and is located in the northern portion of Las Animas County in southeastern Colorado (Figure 2.1). It is comprised of considerable landform diversity and within this area four major topographic units, or landscape settings, have been designated as units of analysis for geomorphological and geoarcheological investigations (Schuldenrein et al. 1985:25). The defined units are the steppes, hogback, arroyo/canyons, and the hills, and portions of each are found within Training Area 10. It should be noted that only the steppe landscape is present within the boundaries of Training Area 12. In the Training Area 10 portion of the PCMS, the steppes are found in flat or rolling terrain between the Purgatoire River and the Bear Springs Hills. Several arroyos and canyons bisect the steppes including Taylor Arroyo, Big Water Arroyo, Lockwood Canyon, Red Rocks Canyon, and Welsh Canyon. As units of analysis, the hills and the hogback have no bearing on the project's spatial data though both contain sources of high-quality lithic material and artifacts produced from these quarry sources are abundant in site assemblages. The Black Hills landform borders the east edge of the project area, while the Bear Springs Hills are to the northwest.

The plains, low hills, and canyons of the PCMS range in elevation from 1341 to 1768 m (4400 to 5800 ft) above sea level (asl). In the Training Areas 10 and 12 project area, the elevation peaks in the Bear Springs Hills (5440 ft at the "Old Baldy" landmark) and then gently slopes towards the southeast, terminating at an elevation of 5175 ft above the confluence of Red Rocks and Welsh Canyons. In general, there are two main types of terrain in the project area. First are the steep to gently sloping hillsides created by erosional processes along the alluvial fans that extend south and east from the Bear Springs Hills landform. The second would be the upper drainage basins and canyon heads of the previously mentioned canyons and arroyos.

Regionally, the PCMS is located along the western edge of the Central Great Plains physiographic province. Historically, the prairie grasslands, including riparian areas, forests, sagebrush prairies, and rivers and streams dominated the Great Plains. In many areas, agriculture has changed many of the natural ecosystems into rangeland and farmland. The PCMS is rather unique in that the remnant natural ecosystems are fairly well preserved.

Geology and Hydrology

Sedimentary rocks dominate the PCMS, ranging in age from Triassic through Quaternary (Evanoff 1998). The oldest exposed rocks come from the Dockum Group red sandstone, and are comprised of fine-grained and horizontally bedded fluvial, lacustrine, and paleosol deposits. Overlying the Dockum Group are the Entrada Sandstone, Bell Ranch Formation, and the Morrison Formation rocks of the Jurassic period. Three Morrison units or members are recognized in the PCMS. These include a gypsum sequence at the base, overlain with a limestone, and then a mudstone and sandstone sequence on top. Next, in ascending order, are

rocks of the Cretaceous period; strata from the Dakota Group were deposited first and are comprised of the Lytle Formation, Glencairn Formation, Mesa Rica Sandstone, Pajarito Sandstone, and a sequence of unnamed transitional units. These are the resistant canyon forming beds that are well exposed at the eastern edge of the military installation. The upper Cretaceous deposits are the Graneros Shale, Greenhorn Formation, Carlile Shale, and the Niobrara Formation.

Rising along the southwest edge of the PCMS is the Tertiary age landform referred to locally as the Hogback. This is a sheet-like basalt intrusion that was injected horizontally into the pre-existing Cretaceous strata. As the area was subjected to subsequent erosional processes, the upper edge of the dike was exposed at the surface. It is fringed by sedimentary rocks that show evidence for contact metamorphism, in which argillite deposits were created. This material has been a highly sought after raw material resource in the PCMS since Paleoindian times. Some of the more recent soil deposits on the military installation are alluvial, pediment sediment, and colluvial deposits of Holocene age. These are visible on the modern ground surface as surficial clayey silt, earthflow deposits, or terrace gravels.

Permanently available water, in the form of surface water sources, is abundant over most of the area contained in Training Area 10. In steppe/canyon contact areas, researchers have identified numerous continuously flowing springs at shale/sandstone contacts. It should be noted that Training area 12 contains no permanent surface water, though a large spring can be found at the mouth of Stage Canyon, 780 m east of its southeast corner. The best surface water sources in the Training Area 10 portion of the PCMS are the Purgatoire River, and the springs or catchments in Welsh Canyon, Red Rocks Canyon, Lockwood Canyon, Big Water Arroyo, and Taylor Arroyo. The numerous side drainages feeding these waterways contain many intermittent water sources that would have been utilized by prehistoric and historic people during wetter times (von Guerard et al. 1987).

Modern Climate

The temperature and quantity of precipitation registered for the PCMS and Las Animas County are related to five factors. These are distance from the equator (latitude), continental position, elevation, topography, and winter storm track pattern (Siemer 1977). The leeward location of the PCMS relative to the southern Rocky Mountains directly influences the present climate. As eastward traveling air masses pass over the mountains, they rise and cool. Because cooler air holds less moisture than warm air, condensation occurs and precipitation is released over the mountains. Thus, the PCMS, being in the rain shadow of the Rockies, receives much less precipitation than the nearby mountains. Another reason why the PCMS stays relatively dry is that moisture from the Gulf of Mexico or the Pacific Ocean must travel long distances before arriving in Colorado. Also, the normal track of the jet streams directs potential sources of moisture north or south of Colorado.

It is difficult to generalize the climate of the PCMS and Las Animas County because of microclimates created by local topographic features. In Las Animas County, the wettest months are May through August, with November through February being the driest months (Trinidad Airport Weather Station 1948-1996). The average yearly precipitation in Colorado is 17 inches.

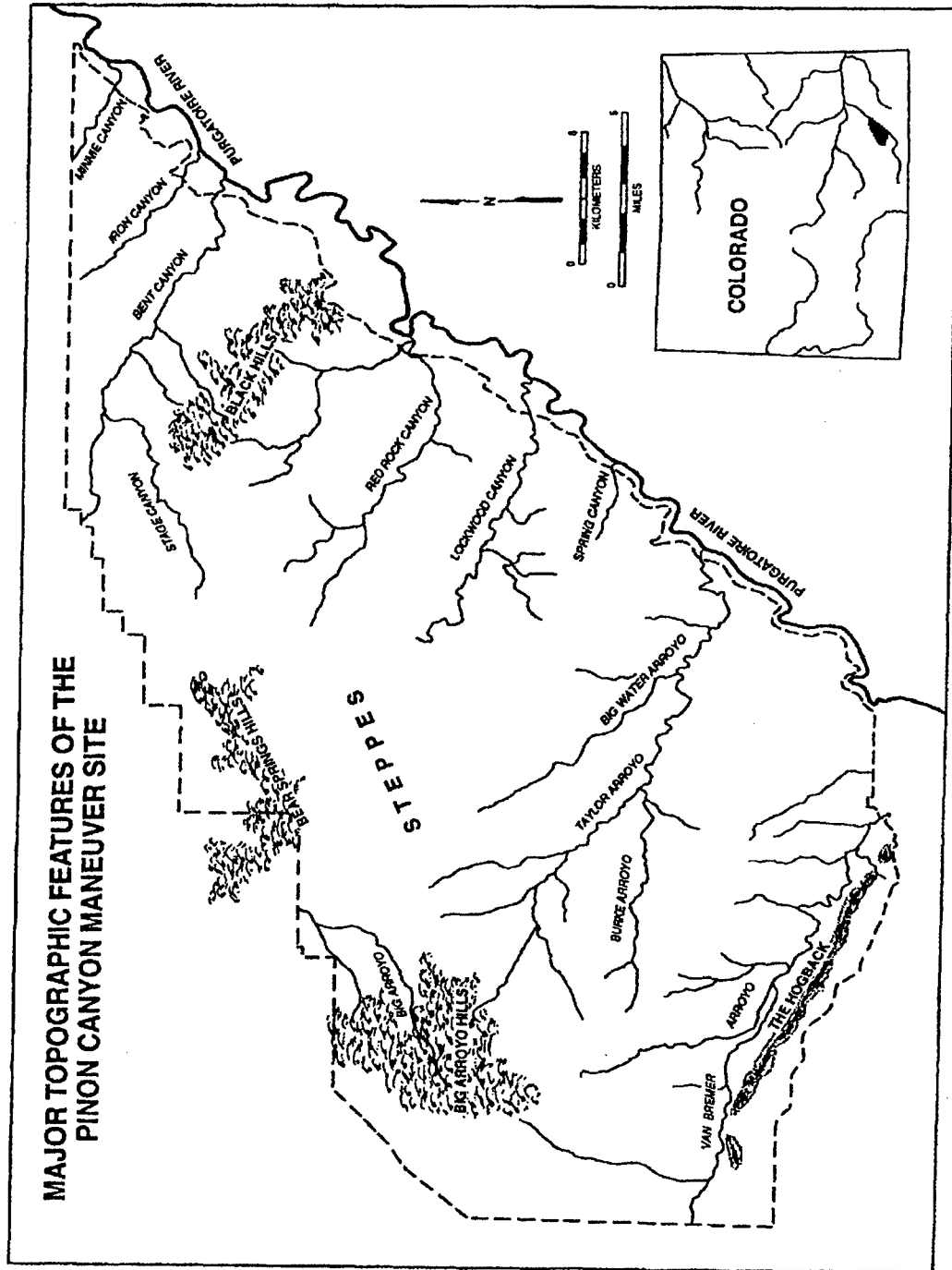


Figure 2.1: Major Topographic Features of the Pinon Canyon Maneuver Site

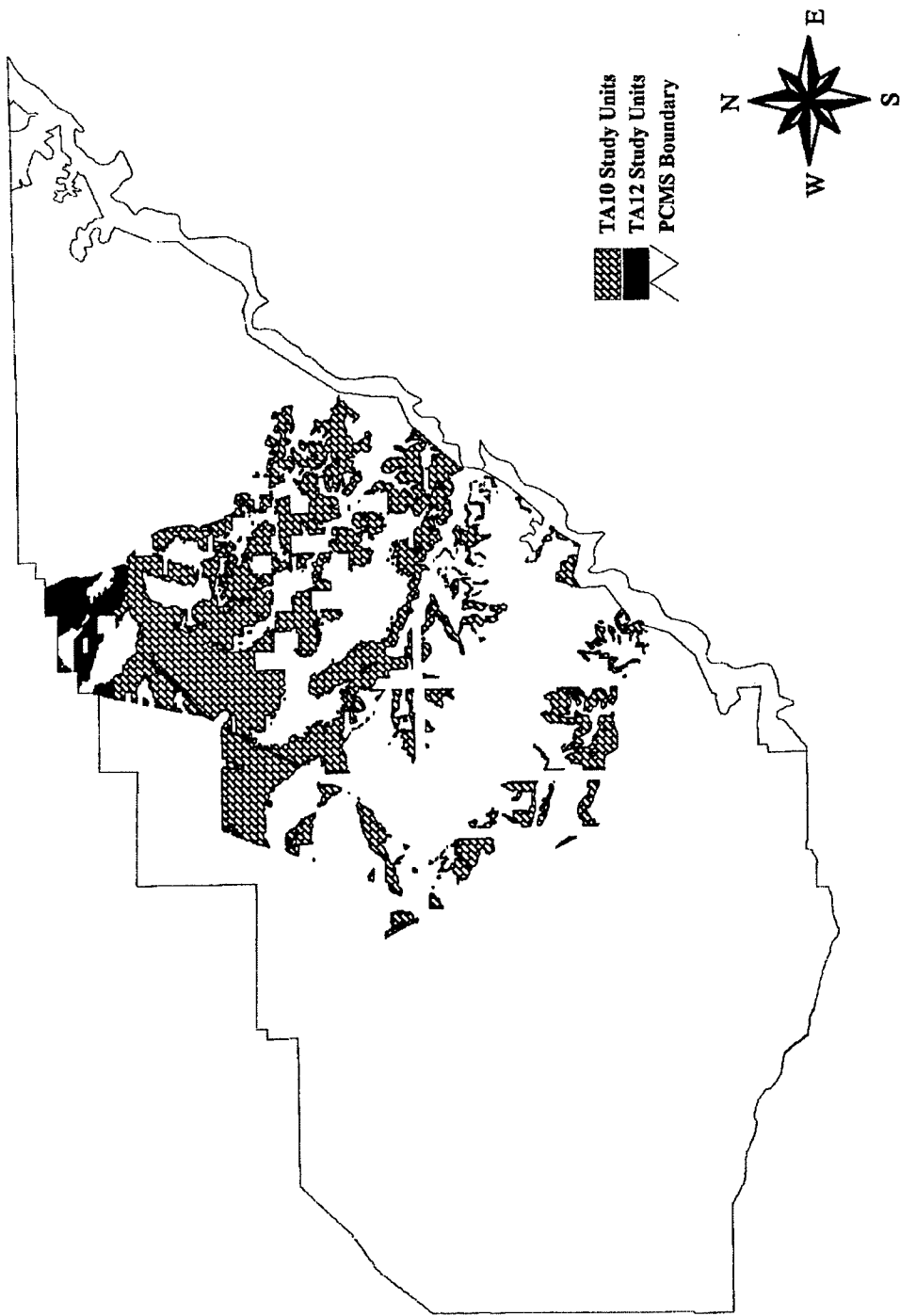


Figure 2.2: Training Area 10 and 12 locations within the PCMS.

The annual precipitation for Las Animas County is 12.9 inches, with total yearly snowfall averaging 40.2 inches; most snow usually occurs in March (7.1 inches), November (6.3 inches), and December (6.4 inches).

Temperatures are affected by passing regional warm or cold fronts, and also by daytime surface heating. Maximum daily temperatures generally occur during the afternoon as the sunrays warm the land. The average yearly temperature in Las Animas County is 51.7 degrees F. This ranges from a yearly low in January (31.4° F) to a high of 73.5° F in July.

Timpas 13SW weather station provided data from a location closer to the PCMS, but it was only active from 1978 – 1993. The average yearly precipitation recorded was 14.9 inches. The wettest months annually were May (2.09 inches) and August (2.06 inches), and the driest, December (.60 inches) and January (.57 inches). Total yearly snowfall averages 53 inches with the most accumulating in the month of March (11.6 inches). The average yearly temperature in Timpas is 52.7° F, with a low of 29.5° F in December and a high of 74.3° F in August. The mean maximum temperature ranges from 92.1° F in July to 42.3° F in December. The average number of days with temperatures below 0 degrees Fahrenheit is eight and the number of days with a minimum temperature of less than 32 degrees Fahrenheit is 152. Temperatures exceed 90 degrees Fahrenheit 60 days of the year, and an average annual growing season (142 days) begins in mid-May and ends in early October.

Paleoclimate and Paleoenvironment

A basic outline for regional climate change can be found in Zier and Kalasz (1999) and Antevs' (1955) general model for Holocene climatic changes. Antevs' (1955) refers to a series of warming and cooling events which began roughly 13,000 years before present and ended with the "Little Ice Age" (AD 1550-1700). Brunswig (1992) presents an excellent synthesis of local Paleoindian paleoclimates and environments, and how they changed through time.

During the Pleistocene, in what Brunswig (1992:6) refers to as the Early Pre-Clovis subperiod (21,000 to 14,500 BP), the climate in Colorado became clearly colder and dryer during the glacial maximum (Wisconsin IV) based on faunal and paleoclimatic data. Early in this subperiod, at the Lamb Spring site along the northern portion of Colorado's Front Range, the environment is primarily grassland. Later, towards the end of the early Pre-Clovis, alpine tundra was found to exist there. At this time, the area containing the PCMS is thought to have been comprised of mixed spruce and pine tree forests and cold, dry grassland. The Late Pre-Clovis period (14,000 to around 11,500 BP), defined by the glacial retreat from the polar and mountainous regions, points to somewhat warmer and more mesic conditions. On a large scale, and outside of Colorado, the global temperature was about 6° C cooler during periods of maximum glacial advance and cooling was more pronounced at the poles than at the equator (Barry and Chorley 1987; Crowley and North 1991).

A comparison of fossil insects, faunal remains, soils, and pollen data led Brunswig (1992: 10-12) to conclude that during the Clovis period (11,500 to 10,950 BP), temperatures continued to warm. As this occurred, glacial runoffs declined, and water tables dropped dramatically. Southeastern Colorado was known to be tall-grass prairie, and the Pre-Clovis

pine/spruce forests broadened during this time. Through the Folsom period (10,950 to 10,250 BP) and into the Plano period (10,250 to 7800 BP) climatic conditions stabilized into approximately those we experience today, and as such, the vegetation was much the same as today. In Folsom period landscapes (Brunswig 1992:12-14), PCMS vegetation is both tall- and short-grass prairie with scattered pine and spruce woodlands dispersed throughout. Deciduous woodlands are present in and around the major watercourses.

Roughly 8000 years before present, the hot and arid conditions triggered by prevailing westerly winds signaled the beginning of the Altithermal climatic event. Smaller episodic fluctuations appear in the record at this time and paleoclimatic sequences of the Early Archaic period have yet to be agreed upon by many researchers. Benedict (1979) interprets two droughts, both during the Early Archaic period (7000 to 6500 BP and 6000 to 5500 BP). Johnson and Holliday (1986) also suggest that two droughts occurred during the Altithermal, one during the Early Archaic period (6400 to 5500 BP) and one in the Middle Archaic period (5000 to 4500 BP). In southeastern Colorado the vegetation changed to those plants that thrive in drought conditions; shortgrass and yucca prairies covered the landscape (Zier and Kalasz 1999:23).

Early in the Middle Archaic period (5000 to 3000 BP) after the climate reached its maximum warmth and dryness in the Altithermal, more modern or mesic conditions prevailed. Information recovered from sedimentary deposits on the PCMS demonstrate that since the Late Archaic Period (3000-1850 BP) landscape and climatic transitions have not been as extreme as those seen in the past. Scott-Cummings and Moutoux (2001:262), based on pollen samples recovered from PCMS sites 5LA5255, 5LA6568, 5LA6592, and 5LA6595, identify primarily warmer and wetter conditions for the PCMS with periods of aridity around 980 BP and after AD 1200. Pollen evidence shows the period between 450 BC and 520 BC exhibited somewhat wetter conditions than just after 520 BC. Periods characterized by less effective moisture began at approximately AD 970, and by AD 1200 conditions ameliorated with a return to more mesic conditions. Schuldenrein et al. (1985) identifies a drier and warmer period between 350 BC and AD 1000 with a warm and dry climate continuing after AD 1000. Loendorf et al. (1996: 279-280) propose a wetter climate trend between 2500 and 1000 BP and Chomko's (1997) research at the PCMS reveals that the environment of the Diversification period (i.e., Ceramic stage) remained stable.

Flora and Fauna

The vegetation within the project area is strongly affected by soils, climate, aspect, grazing (prior to 1983), and military use. Twenty-six plant communities are found in the PCMS and these are further described and listed in Shaw et al. (1989). The uplands or hill portions support such species as piñon and ponderosa pine, juniper, mountain mahogany, skunkbrush, and scrub oak. Indian ricegrass, black and hairy grama, threeawn grasses, and alkali sacaton are common in the understory. The floodplains along the river and canyon edges support stands of aspen, greasewood, saltbush, cottonwood, currant, sedges, rushes, American plum, rabbitbrush, American Elder, hackberry, gooseberry, willow, and wildrye. The steppes or grasslands in the central portions of the military facility support galleta, pale wolfberry, onions, needlegrass, prickly pear, ground cherries, chokecherries, sand dropseed, sunflowers, sagebrush, tumblegrass,

squirreltail, coneflower, goldenrod, globemallow, eriogonum, snakeweed, little bluestem, cholla, muhly, soapweed, yucca, wheatgrass, winterfat, and the grama grasses.

Numerous species of migratory and native fauna inhabited the project vicinity prior to and during its early settlement and were available for exploitation by both prehistoric and historic populations. Commonly observed animals present in the area today include pronghorn, elk, mule deer, bighorn sheep, coyote, red-tailed hawk, cottontail and jack rabbit, prairie dog, bobcat, mountain lion, badger, and porcupine. Small mammals and nongame mammals found in the area are snowshoe hare, squirrel, muskrat, weasel, ringtail, shrew, mole, chipmunk, woodrat, mouse, bat, vole, ground squirrel, pocket gopher, skunk, and fox (swift and red). Black bears have been seen in the area and are likely seasonal migrants. Reptiles present include such species as the western bullsnake, prairie rattlesnake, racers, garter snakes, western hognose snake, corn snake, short-horned lizard, and painted turtle. Birds present include bald and golden eagles, turkeys, owls, sparrows, western meadowlark, jays, woodpeckers, quail, and a number of others. A more extensive discussion regarding fauna can be found in Fitzgerald et al. (1994). Several prehistorically significant species, such as bison, grizzly bear, and gray wolf were removed from the area in historic times. The Purgatoire River and many of the larger pools of standing water in the larger canyons would have provided a variety of fish (Bramblett 1989) and other freshwater animal resources.

Cultural Overview of the PCMS

This section provides a brief overview of the prehistory in southeastern Colorado. This information is derived from contributions by Zier and Kalasz (1999), Gunnerson (1987), Lintz and Anderson (1989), Carrillo (1990), Hanson and Chirinos (1989), Butler (1988), and others, who provide us with a fairly complete picture of the prehistoric and historic sequence for southeastern Colorado. The proposed cultural taxonomy for the Arkansas River Basin (Zier and Kalasz 1999) will be the framework used in this report. In general, the prehistory of the Arkansas River Basin is divided into three stages, ten periods, and two phases (Table 2.1).

The Paleoindian Stage is the earliest occupation in eastern Colorado that is accepted by most North American archaeologists. One of the most interesting debates in American archaeology deals with whether human occupation of the New World predates ca. 11,500 BP. Putative occupations predating 11,500 BP are referred to as pre-Clovis occupations. To date there are few accepted sites in the Americas that predate 11,500 BP, though the Cactus Hill (Adovasio 2002) site in southeastern Virginia, the Topper site in South Carolina (Goodyear 2002), and the Meadowcroft (Adovasio and Carlisle 1988) rockshelter site in Pennsylvania have apparent pre-Clovis age artifacts. The most noteworthy and generally widely accepted pre-Clovis site is Monte Verde (Dillehay 1989; Meltzer et al. 1997) in southern Chile. No apparent pre-Clovis remains have been encountered in southeastern Colorado or the PCMS, but the triangular projectile points encountered at Meadowcroft and Cactus Hill may eventually key very early occupations.

Paleoindians were nomadic hunters and gatherers who arrived in the New World approximately 11,500 BP. Most archaeologists believe that they descended from the human populations who entered North America from eastern Asia by walking across a land bridge connecting modern day Siberia with Alaska that was temporarily exposed by the lowering of the

sea level at the end of the Wisconsin glaciation. Members of these first groups were thought to be composed of small, highly mobile populations who rapidly increased in number as they spread throughout the Americas through the ice-free corridors that opened up as the glaciers retreated. In North America, Paleoindians have left behind stone, bone, and ivory tools, but because perishable items are seldom found on sites, little is known regarding many of their ways of life.

Table 2.1: Classificatory Scheme for the Arkansas River Basin (from Zier and Kalasz 1999).

Stage/Period/Phase	Dates
Paleoindian	>11,500-7800 B.P.
Pre-Clovis	>11,500 B.P.
Clovis	11,500-10,950 B.P.
Folsom	10,950-10,250 B.P.
Plano	10,250-7800 B.P.
Archaic	7800-1850 B.P. (A.D. 100)
Early	7800-5000 B.P.
Middle	5000-3000 B.P.
Late	3000 B.P.-1850 B.P. (A.D. 100)
Late Prehistoric	1850-225 B.P. (A.D. 100-1725)
Developmental	1850-900 B.P. (A.D. 100-1050)
Diversification	900-500 B.P. (A.D. 1050-1450)
Apishapa Phase	900-500 B.P. (A.D. 1050-1450)
Sopris Phase	900-750 B.P. (A.D. 1050-1200)
Protohistoric	500-225 B.P. (A.D. 1450-1725)

Zier and Kalasz (1999) recognize four periods of the Paleoindian Stage in southern Colorado: Pre-Clovis (>11,500 BP), Clovis (11,500-10,950 BP), Folsom (10,950-10,250 BP), and Plano (10,250-7800 BP). Though archaeologists have recorded Paleoindian sites from Alaska to South America, Paleoindian artifacts are rare in the PCMS and are found as isolated tool fragments in mixed occupational surface assemblages. As of this report, archaeologists at the PCMS have recovered approximately 15 Paleoindian projectile points. In field seasons since the Training Area 10 and 12 fieldwork, another ten have been identified. There are several known Paleoindian sites found outside of the PCMS in nearby southeastern Colorado and northeastern New Mexico, including Olsen-Chubbuck, Hahn, and the type site for the Folsom period, located approximately 49 km directly south in New Mexico. Folsom points recovered as isolates have been found at Red Top Ranch, the Fort Carson Military Reservation, the Flank Field Storage Area, the Mid-Huerfano Project Area, and the Cyprus Mines Hanson Project Area (Zier and Kalasz 1999:74). Jack Hofman has identified a new and fairly exciting Folsom camp site near the town of Calhan, Colorado approximately 172 km to the northwest.

In general, Paleoindian remains are often associated with Pleistocene megafauna such as mammoth and an extinct ancestor of the bison. This association led many archaeologists to suggest that Paleoindian subsistence was almost exclusively based on big game animals. However, recent studies have shown that Paleoindian people were hunters and gatherers and exploited a variety of small animals such as rodents, turtles, alligators, fish, birds, prairie dogs, cotton and jackrabbits, and marmots (Dixon 1999) with the occasional large mammoth (Judge in Adovasio 2002:128), bison, or horse. During the Plano period the occurrence of ground-stone tools indicates an increase in vegetal food processing and suggests that Paleoindians had a broader subsistence base than was once recognized.

Paleoindian occupations in Colorado are recognized by the appearance of the diagnostic lanceolate, fluted Clovis points, fluted Folsom points, Midland points, and projectiles from the later Plainview, Milnesand, Agate Basin, Hell Gap, Cody, and Allen/Fredrick complexes. Associated artifacts include burins, bifaces, cutting tools, scraping tools, graters, cores, and debitage. Clovis sites are also known to have prismatic blades, blade cores, and blade tools in their assemblages (Collins 1999:45-71). Sites of the Folsom age contain ultrathin bifaces and radial fracture tools. At the PCMS, we primarily deal with surface artifact remains so, without proper contextual information, it is unknown whether other items from the Paleoindian tool kit have been encountered. Hofman (personal communication) indicates that a blade tool from a personal collection found near the PCMS could be of Paleoindian age.

Archaeological sites in southeastern Colorado from the Archaic stage are more abundant. During this stage the hunting and gathering strategy employed by the Paleoindians appears to have continued, though much more diversified food sources were sought. This change in food sources is thought to have been due, in part, to the retreat of the glaciers at the end of the ice age, and the subsequent disappearance of the associated megafauna. The Archaic stage is subdivided into three periods: Early (7,800-5,000 BP), Middle (5,000-3,000 BP), and Late (3,000-1850 BP). The oldest rock art encountered thus far in the PCMS is found at Archaic sites. These are usually composed of abstract designs, but animal forms are also known (Loendorf 1989:354).

Archaic sites yield grinding stones, large stemmed and notched projectile points, other bifacially and unifacially made chipped-stone tools, flake tools, and worked bone and shell. Unnotched and unstemmed projectile points also occur. Archaic site types include open campsites, rockshelters, subterranean structures, lithic and ground-stone scatters, and quarry sites (Zier and Kalasz 1999:100-137). There are also special function sites, such as game drive sites or stone ring sites, but these have been found outside of the PCMS. Features associated with Archaic sites include hearths and hearth remnants (piles of heat altered stone), rock art panels, pit features, and burned rock middens.

The transition from the Archaic to the Late Prehistoric Stage is characterized by the appearance of fired clay pottery and the emergence of agriculture. There is evidence to suggest that the bow and arrow were adopted at this time. Most of the sites discussed in this report date to the Late Prehistoric Stage, which is divided into three periods: Developmental (1850 to 900 BP), Diversification (AD 1050-1450), and Protohistoric (AD 1450-1725). Other terms, such as Apishapa Phase and Sopris Phase, are employed to divide the Diversification Period (Campbell 1969; Gunnerson 1987; Zier and Kalasz 1999).

Mobility decreased and sedentism increased from the Developmental Period (AD 100-1050) to the Diversification Period (AD 1050-1450) as attested to by the presence of stone slab structures. In the PCMS, these structures tend to be small (approximately 2-3 m in diameter), circular structures with upright slabs. More architectural units and elements, such as enclosing or dividing walls also appear in rockshelters at this time.

Environmental information regarding the Late Prehistoric Stage has been developed through excavations at sites in Welsh Canyon. Schiavitti et al. (2001:2) conclude, based on pollen evidence, that Welsh Canyon experienced wet and dry cycles during the Ceramic Stage (Diversification Period). Even though these climatic conditions were not severe, some were associated with what appears to be a population increase throughout Welsh Canyon. Adaptive response to these changes seems to have taken the form of diversification of subsistence practices, and an increase in trade and exchange with groups or individuals outside of southeastern Colorado.

The arrival of non-Native Americans and the introduction of the horse at around 300 BP characterize the Protohistoric Period. Horses with riders are depicted on numerous rock art panels throughout the region during this time. In the early 1700's the Jicarilla Apache lived south of Raton Pass. The Carlana Apache lived north of the Purgatoire River and the Penxaye Apache frequented the area east of the Purgatoire (Schroeder 1965:57). There was active trade between the Plains Apache and the Pueblo Indians of this period. Carrillo (1990:7) indicates that Pueblo traders exchanged corn, pottery, and blankets for Apache deerskins, buffalo hides, meat, and tallow. In the early 18th century the Utes and Comanche moved onto the plains, driving the Apache southward. The *Comanchero* period (1786 to 1860) brought Spaniards, New Mexicans, and the Comanche together for trading on the southern plains (Kenner 1969:78-97), and at the same time, New Mexican buffalo hunters known as *ciboleros* hunted throughout the region.

Spanish explorers had penetrated into Colorado by the early 1700's. The Purgatoire River is said to have received its name because Spanish soldiers had died there and did not receive last rites. Perhaps members of the Bonilla and Humana expedition of 1594 (Taylor 1963) were the servicemen mentioned in this account. The river's Spanish name, "Rio de las Animas", means river of souls, to which was later added "Perdidas en Purgatorio," or lost in Purgatory. But the majority of scholars (Friedman 1989; Thomas 1924:289-299) believe that the Humana expedition went into Kansas and not Colorado. A skeleton in Spanish armor reportedly was found in a canyon near La Junta in about 1925 (Jeancon) and chain mail found at the confluence of the Purgatoire and Arkansas rivers in 1981 (Church and Cowen 2003) collaborate nicely with the legend.

The French Canadian brothers, Paul and Peter Mallet, are credited with the first expedition up the Arkansas and Purgatoire River valleys while traveling to Santa Fe in 1739 (Taylor 1959:8). On the journey, they apparently found stones bearing Spanish inscriptions on the banks of the Arkansas River (Folmer 1939:163-167). Although their exact route is not known, they may have followed the prehistoric Indian trade route, which would later become known as the Santa Fe Trail (Church and Cowen 2003).

American military expeditions into Colorado began in 1806 with that of Zebulon Pike. The expedition of Major Long, traveling from the Arkansas River south to the Canadian River, in 1820, is thought to have followed the deep red rock canyons of the Purgatoire River and Chacuaco Canyon for several days (Tucker 1963:185-199). This seems to be the earliest written record documenting Euro-American exploration in the area of the PCMS.

In 1821, William Becknell set out from Missouri to trade with the Comanches, but learning of the new opportunities opened by Mexican independence, proceeded to Santa Fe. The old trade route he took across the plains and over Raton Pass became known as the Mountain Branch of the Santa Fe Trail (Taylor 1971:3). The Mountain Branch of the Santa Fe Trail more or less follows State Highway 350 along the Timpas Creek drainage, and site 5LA4965 represents the small segment that passes through PCMS land holdings (Johnson and Carrillo 1987).

Bent's Fort was established as a trading post on the Santa Fe Trail in about 1830. It was located on the north bank of the Arkansas River, which defined the international border between the United States and Mexico. Taylor (1959:15) indicates that the Cheyenne, Comanche, Arapaho, Ute, Kiowa, and others were actively trading at Bent's Fort (approximately 45 km north of the PCMS). Later, sometime between 1846 and 1852, the Cheyenne and Arapaho occupied the territory north of the Arkansas, the Jicarilla lived south of the Ratons, the Ute occupied the upper Purgatoire Drainage, and the Kiowa settled where the Purgatoire River Canyon down cut red sandstone (Taylor 1959:29). The last reference applies specifically to PCMS lands, as the Purgatoire River and red sandstone contact is found at the confluence of Welsh and Red Rocks Canyon.

The end of the Mexican-American War in 1848 produced a change in national boundaries; land in southern Colorado and New Mexico became U.S. territory. Over the next three decades appreciable changes transpired throughout the region as the Anglo presence increased. Merchants and miners came west on the Santa Fe Trail, and the Homestead Act of 1862 lured settlers from across the United States and Europe with the promise of nearly free land. This insurgence necessitated service from "the states," and stage lines and later national railways were the result. Buffalo were slaughtered nearly to extinction by 1874, and Native Americans, settlers, buffalo hunters and rustlers clashed at this time.

Fort Wise, named for a Virginia Governor, was constructed along the bottomlands of the Arkansas River near Bent's New Fort in the summer of 1860 (Taylor 1971:18). It was renamed Fort Lyon in 1862, flooded in June 1867, then relocated about 30 miles upriver near present day Las Animas. Various cavalry and infantry units were stationed here and charged with patrolling the Santa Fe Trail, escorting stage and mail coaches, and protecting settlers from Indian depredations.

The Mountain Branch of the Santa Fe Trail went from Fort Lyon, to Bent's Old Fort and then proceeded southwest to Trinidad. Stage stations had been established in 1861 at Gray's Ranch (4 miles east of Trinidad) and at Iron Spring (Taylor 1971:78). Barlow and Sanderson were awarded a mail contract in April 1866, and added new stations at Hole-in-the-Prairie (near

Model, Colorado) and Hole-in-the-Rock (near Thatcher, Colorado) according to Friedman (1989:50).

In the spring of 1871, Barlow & Sanderson's Southern Overland Mail & Express Company established a new route that left the Santa Fe Trail at Iron Spring and meandered southeast through Sheep Canyon to what would later be PCMS lands. PCMS sites 5LA4967 and 5LA5040 (Johnson and Carrillo 1987) represent segments of this route, which crossed the head of Bent Canyon (PCMS site 5LA3179, Church and Cowen 2003), and then proceeded from east to west through Stage Canyon, to upper Lockwood Canyon (5LA5454, Johnson and Carrillo 1987) along the modern Military Service Roads (MSR) 1 and 1a. From the Lockwood Canyon stage stop, the trail (PCMS site 5LA5039) continued southwest across the prairie to the Hogback Stage Station (5LA5824, Hunt 1998), then to Gray's Ranch, and subsequently to Trinidad (Taylor 1971:153; Jones 2003). A home station, providing meals and a change of horses, was opened at aforementioned Bent Canyon in April 1871. The stage route was later relocated closer to the Purgatoire as described in a June 1875 *Las Animas Leader* article reporting that the first stage station was at Alkali, 20 miles out from West Las Animas. Approximately a quarter of a mile beyond, the road then branched, and the left fork went to the Nine Mile Bottom, eventually passing through Fagin and Brown's sheep camp, otherwise known as Vogel station (approximately 11 miles from Alkali). From here, it was then 15 miles further to Bent Canyon station (Taylor 1971:167).

In the end, the stage line was short-lived. The *Las Animas Leader* (Aug 27, 1874) proclaimed the day that the Atchison, Topeka and Santa Fe (AT&SF) Railroad reached town. By the spring of 1876, the AT&SF had reached Pueblo (*Leader* Feb 25, 1876), and the Denver & Rio Grande was providing service to Trinidad (Taylor 1971:21). The Southern Overland Mail and Express Company terminated service on the Purgatoire route on September 1, 1876 (Taylor 1971:173).

The Supplement to the Official Records (Hewett 2001) provides details of troop movements near or through the PCMS during the Civil War. In August, 1862, 1st Colorado Cavalry and 2nd Colorado Volunteer Infantry were stationed at Pleasant Valley Camp, midway between Fort Lyon, Colorado and Fort Union, New Mexico, under orders to protect mail and wagon trains on the Mountain Branch of the Santa Fe Trail. They also escorted horses to the Quartermaster at Fort Union. Troops were again stationed at this post, later referred to as Gray's Ranch, the following two summers. They responded to reports of Indian depredations on the Purgatoire River in January, 1864 and were stationed at Iron Spring Stage Station from July to September because of "Indian troubles." Santa Fe Trail historian Margaret Long, who interviewed area residents, believed there was a fort at the Hole in the Rock stage station used for protection, or by the military escorts patrolling the area (Simmons 2001:154).

Troops remained stationed at Fort Lyon through the 1870's and when the stage road was relocated, patrol duties shifted to the Purgatoire Road. In 1873 companies of the 6th Cavalry were sent to 9 Mile Bottom and Red Rocks to intercept Indians in those areas. In May 1874, H Co. 6th Cavalry established camp on the Purgatoire River midway between that post and the Raton Mts. (Adjutant General's Office 2002). Indian troubles flared across the plains in July of 1874, and herders were attacked in Bent Canyon. Cavalry stationed at Fort Lyon were

dispatched in pursuit (Taylor 1971:164; Adjutant General's Office 2002). Two 19th Infantry companies assigned to escort Cavalry horses to Trinidad left graffiti near Bent Canyon Stage station (National Archives 2002; Owens & Owens, report in progress). It is possible that other historic graffiti and sites within the PCMS will be attributed to these early military activities.

In the late 1860's, the Piñon Canyon region went from being a nearly uninhabited region to a viable ranching community. Hispanic pioneers came north from New Mexico with their sheep and goats to found plazas along the Purgatoire River and its drainages. As transportation to the area improved with the service from the stage line and railroad, the number of Anglo settlers increased and cattle were introduced. In the 1880's large Anglo-owned cattle ranches began to challenge for control of the range, often buying up water sources and allowing their herds to roam across public and private land. By the early 1920's most of the public land had been claimed by homesteaders, though many soon found the area too dry to support their families and sold out to the larger ranches. It is the homestead and ranching activity from about 1870-1970 that accounts for most of the historic remains on the PCMS (Friedman 1989:4, 24, 64).

Chapter III: FIELD AND LABORATORY METHODS

The Training Area 10 and 12 survey projects were completed during the 1999 field season (May through November), the 2000 field season (April to October), and the first summer session of 2001 (May). Permanent NMSU staff included Lawrence L. Loendorf, Principal Investigator; Mark Owens, Field Coordinator; and Bonnie Newman, Laboratory Director. Those who functioned as crew chiefs include Rich Burleson, Mike Chidley, Mike Flowers, Mark Owens, and Ardeth Vineyard. Those who participated as survey crewmembers are listed as follows: Nancielee Albin, Kelli Barnes, Joe Bergstrom, Jane Ann Blakney, Rich Burleson, Karen Clem, Marilyn Cunningham, Chris Ecker, Sean Graebner, Keith Hahn, Wes Hahn, Roche Lindsey, Caralee Maechtle, Matt Mallery, Thad Swan, Dulce Wassil, Kay Winchester and Courtney Yilk. Other NPS personnel who contributed to the project include Melissa Connor and Steven DeVore, Project Coordinators, crew chief Mike Chidley, and crewmembers Kevin Baldwin, Ann Chancey, Forest Frost, and Ron Marvin. Steve Chomko, Mike Flowers, Randy Korgel, Thad Swan, Cody Anderson, and Kelly Wright of DECAM assisted in the field at various times. Jeff Fladung, Anna Gray, Jennifer Hudson, Don Owens, Josh Schneider, Marissia Tice, Bill Tilley, and Cheryl Wagner volunteered at various times during the project. Camp cooks Lorrie Lincoln-Babb, Sheri Landis, and Terry Moody kept up crew morale with their wonderful meals.

The field and analytical methods used to conduct this project followed the procedures established in Dean (1992). The intent of the survey was to locate and record all historic and prehistoric cultural remains found in the Priority I, II, and III portions of Training Areas 10 and 12, and to collect data in a manner that would supplement previous and future archaeological investigations in the PCMS.

After arriving in the project area, corner boundaries were located for the study unit to be surveyed using a Global Positioning System (GPS). From this known reference point, parallel transects of 20 m were performed on cardinal compass bearings. In difficult terrain or in areas where the topographic features may have hidden small sites, crews sometimes left the transect path to inspect these areas. Usually after a short time the transect was resumed.

Once cultural materials were identified, a pin flag was placed at the initial find. The survey crew then examined the surrounding area for additional artifacts, structures, or features. When artifacts were noted a single flag was placed in the ground. Double pin flags were placed at structures, features, diagnostic artifacts, and formal chipped- or ground-stone tools. If the location contained fewer than four artifacts or a single diagnostic artifact, it was recorded as an isolated find (IF). If a diagnostic artifact with one or more additional artifacts was noted, the location was recorded as a site. If features or structures were found, the location was then recorded as a site regardless of the artifact density. Additional criteria used for determining prehistoric and historic sites, as well as isolated finds, are found in Dean (1992: IV 11-12). Once the size of the site boundary was established (20 m break in artifacts), the recording procedures began.

Data recovery on each site began with the establishment of a site datum to serve as a reference for all measurements. Forty-five cm lengths of ½ inch steel re-bar were used for this project and, for the most part, these were placed at the center of the site or directly in front of rockshelters. Stamped site identification tags (military "dog" tags) were then wired to the base of the datum and covered with tabular rocks stacked in cairn-like fashion.

Location information was collected using a Trimble™ Pathfinder Global Positioning System (GPS) and a military Rockwell International Precision Lightweight GPS Receiver (PLGR). A minimum of 180 point readings were collected for each datum using the Trimble™ GPS, and a file containing these readings was designated using the site number. Because the signal recorded by this GPS is encrypted, data collected by this unit is only initially accurate to approximately ±100 m. The site number file was later differentially corrected, then grouped, in the laboratory using Pathfinder Office™ software and base station files obtained from Compasscom, Inc.® (a base station and mapping data supplier) from the internet. The result produced a single exact Universal Transverse Mercator (UTM) position for the site datum. The PLGR is capable of accuracy between 10 and 15 m and was used to plot site locations on U. S. Geological Survey (USGS) 7.5' topographic maps, to quickly locate the corners and boundaries of study units, and to determine field position in difficult terrain.

For each site a sketch map and feature planview maps were made, photographs were taken, the State of Colorado site forms were completed, and lithic and historical artifact analysis was performed. To facilitate the management and comparability of collected data, field specimen (FS) numbers and feature numbers were assigned when applicable. FS numbers were assigned to patterned or formal tools, unique lithic specimens and diagnostic artifacts.

Every site and isolated find was plotted on a U.S.G.S. 7.5 minute quadrangle map by a crew chief. Measurements for each site and feature map were made in the metric system. Elements incorporated into the maps include contour lines, site datum location and/or distance to datum from feature, site boundary, features (numerical designation), all tools (FS numbers), landmarks or natural features, roads and fences, previously surveyed or tested areas, all man made disturbances, and a legend. The legend included scale, contour interval, site number, north arrow, mapper's initials, and date as well as symbols used on the map.

For each isolated find a State of Colorado isolated find form was completed. Location information was taken from the PLGR and the location was plotted on the appropriate U.S.G.S. quadrangle map. Artifacts were collected using the same criteria employed at sites.

Field Artifact Recording Procedures

Lithic materials constituted the bulk of the artifacts encountered in our project area. All lithic materials are described within two major categories: chipped stone (debitage and patterned tools) and ground stone. Field analysis was performed on all artifacts using the coding formats found in Owens and Loendorf (2002, Appendices A, B, and C). The guidelines and definitions for this analysis were based on the standards set forth in Owens et al. (2000:17-22) and can be found again in Chapter VI. The attribute data was then logged into portable field computers in

Excel database format. At the end of each field day, separate site files contained in the field computers were backed-up, then downloaded into the master project database.

Historic artifacts were recorded on the State of Colorado Historic Component form and a Record of Cans not Collected form if appropriate.

Collected artifacts were placed in specimen bags and labeled with project designation, site number, FS number, contents, date, and collector and crew chief initials. The collected artifacts include: patterned or formal lithic tools, edge-ground cobbles, unique or non-local lithic materials, prehistoric ceramics, diagnostic artifacts (historic and prehistoric), cartridge cases, and datable historical items.

Laboratory Procedures

A temporary laboratory facility was established at Red Rocks Ranch and was intended to support all field operations, organize the collected artifacts, and review all field records for omissions. At the end of each of the three field seasons, laboratory operations were moved to the New Mexico State University Museum (Kent Hall).

Laboratory processing began with a cross-inventory of forms, artifacts, photographs, maps, and databases. Errors or omissions were listed and this list was reviewed by the appropriate field crew chief, after which corrections were made. Following initial inventory, artifacts were cleaned, catalogued, and labeled. Artifacts were then placed in a plastic specimen bag with site number, FS number, date, collector name, and project designation written on the outside. An acid free label containing the same information was placed in the bag, which is then ready for curation.

Further lithic analysis encompassed chipped-stone tools and edge-ground cobbles. These were analyzed using the established criteria in Owens et al. (2000:241-245, 293-297), which created the coding formats found in Appendices D and E in Owens and Loendorf (2002). Analysis of the chipped-stone tools included the following traits: artifact type, dimensions, intactness, material type, cortex, drill rotation (on drills only), manufacturing stage, usewear, and utilized edge assessments. Edge-ground cobble analysis included observations on material type and grain characteristics, facet number, facet/bevel assessments, modification, and secondary mano usage.

Ceramic samples were sent to Richard Krause of the University of Alabama for analysis and are discussed in Appendix II and IV. A sample of the obsidian specimens was sent to Richard E. Hughes, the Director of the Geochemical Research Laboratory. The results of his analysis are shown in Appendix I. Elaine Nimmo of New Mexico State University photographed the classifiable projectile points and a sample of the patterned lithic tools.

Chapter IV : ELIGIBLE SITES

Seventy-seven sites encountered during the Training Area 10 survey project were determined to meet at least one of the four criteria considerations and determined eligible for the National Register of Historic Places. In general, all eligible sites encountered in this project fell into Criterion D (have yielded, or may be likely to yield, information important in prehistory or history). In the following sections, sites are discussed with details regarding location, environmental setting, features, artifacts, temporal placement, research domain potential, eligibility recommendation, and management recommendation. No eligible sites were encountered in the Training Area 12 survey area.

5LA2240

During the field inspection, it was determined that field crews from Larson- Tibesar & Associates, Inc had abbreviated the site documentation at the edge of an undesignated survey block. In other words, though the site continued outside of their survey block, it seems they created an arbitrary site boundary at the southern edge of their study unit. During the NMSU survey project, we found that site components continued an additional 100 m into Study Unit 169. Also, while checking DECAM's database of previously recorded sites, we found that we had extended the site boundary by an additional 600 m to the south. Because the surface lithic scatter continued into our survey block we inspected it and found five tipi rings, four rockshelters, three rock art panels, and an alcove containing tool grooves. To complete the site forms all of the new features were photographed, mapped, and recorded, and a new site map was drawn (Figure 4.1). In addition, all patterned tools were collected from the surface of the 1999 acreage addition and a 150-piece sample of the debitage was recorded using the current lithic analysis system. Two other small sites (5LA5628 and 5LA5627) are encompassed in this large lithic scatter because there is no discernable break in cultural remains on the entire southern landform.

The site extends across the Lockwood Arroyo floodplain, then continues up a large ridge to the grassy flats south of the arroyo. There is a large meander in the arroyo floodplain and on the inside of this meander, a resistant sandstone outcropping forms the ridge. At the base of this outcrop, and on the west side of the site, differential erosion has formed a series of small shelters and alcoves; all of the recorded rockshelters and prehistoric rock art panels were encountered here. As mentioned in the Larson-Tibesar report, there are several hearth remnants along the terrace slope on the south edge of the floodplain. They also mention spaced stone circles above the terrace and these are assumed to be the tipi rings that our crew encountered. We were able to locate a datum placed on the lower terrace from the original site map. We think that this may be datum C. However, we cannot be sure because the accuracy of the original site sketch map seems rather poor. See Larson-Tibesar (1987) for more detail regarding topography, vegetation, and feature location from their original survey work.

Features

Prior to the 1999 field season, 102 features had been recorded at the site. NMSU located 13 more, bringing the site total to 115 features. All new features were recorded south of the 1983 boundary except for Feature 114, which was encountered just north of a 1983 rockshelter (Feature 102).

Features 103 to 107 are spaced stone circles located in a group at the southern edge of the site. All are single course units and overall, the camp arrangement appears to be roughly linear in planview. Each ring is found singly; however, there is some wall intermixing in Features 105, 106, and 107. The circles have a rough diameter of 5.5 m and the embedded depth of the fieldstones ranges from 5 to 10 cm. It is probable that additional stone circles are present on the site, but heavy grass cover made absolute counts and analysis difficult. Kalasz (1989:109) presents two sets of dates for spaced stone circles; the early one is AD 780 and the later date AD 1350.

Feature 108, a rockshelter, is located approximately 50 m west of the 1999 site datum and at the base of the sandstone cliff paralleling the western site boundary (Figure 4.3). It is rather large (11 x 5 m) and has the remnants of a prehistoric retaining wall at its south end. A bedrock metate was positioned centrally on the floor (FS 55). It is a heavily used, circular grinding surface that measures 28 x 24 cm and is 3 cm deep. In the retaining wall rubble a quartzite mano (FS 54) was recorded. Very little soil remains within this feature, though an activity area with deposition is noted outside its dripline. Quartzite flakes and pieces of fire-cracked rock are exposed on the surface.

Feature 109, another shelter, can be found 16 m north of Feature 108. It is composed of two sections or areas and overall measures 10 x 2.6 m. The first section measures approximately 5 x 2.4 m and has a bedrock bench at its north end, 80 cm above the modern ground surface. The other section is nearly the same size (5 x 2.6 m) and has no associated wall features. A bedrock metate (FS 58) was found outside the shelter and a quartzite core (FS 57) was found on the floor in the southern section. Again, little soil remains in this feature but there are substantial deposits just outside of the dripline.

Feature 110 was located 180 m and 328 degrees from the 1999 site datum. It too is a large rockshelter, measuring approximately 8 x 2.5 m. The floor slopes from the mouth down at an angle of 3 degrees to the back wall and two large roof fall boulders of sandstone are centrally located in the shelter. One displays a single milling surface (FS 59) on top of it and the other has eight distinct milling surfaces (FS 60 through 67). Very little deposition remains inside the shelter and outside the dripline.

The remaining shelter (Feature 112) is the northernmost of the rockshelters and is 260 m and 331 degrees from the 1999 site datum. It is the smallest of all of the shelters, measuring 4.5 x 3.5 m. It has a double course rock enclosure inside of it, but this enclosure has deteriorated to the point that only a rough, semi-circular ring remains. A pinflag probe has revealed fifteen centimeters of deposition and quartzite flakes litter the modern ground surface.

A total of three rock art panels were also observed and recorded. Panel 1 (Feature 115) depicts random stipple-pecks, a horizontal undulating line with squared curves, upside down u-shaped elements, and a solid-pecked bisected line (Figure 4.2). Overall, this panel measures 6 x 5 m and the lowest elements are 4.2 meters above the modern ground surface. A sandstone shelf at the base of the panel would have allowed access to this high sandstone face. Patination is visible over all elements; it is much thicker over the undulating line. This patination, coupled with element design, indicates an Archaic age for these elements.

Panel 2, Feature 113 is located approximately 260 m and 337 degrees from the 1999 datum. It measures 50 x 35 cm and contains a single, solid-pecked bisected line. The face is deteriorated because of weather exposure but there is heavy patination over this element and it is likely related to the Feature 115 occupation.

The last panel (Feature 111) recorded by NMSU contains an undulating line with a partially eroded circle. Both are solid-pecked elements that show rather heavy design patination. This panel measures 99 x 45 cm and was found on the face of a sandstone boulder 75 cm off the ground.

Another feature recorded during our 1999 survey is a small sandstone bedrock outcrop with numerous tool grooves. It was encountered on the north end of the ridge, and just north of a shelter recorded by Larson-Tibesar (1983). This feature was apparently overlooked in 1983 and we designated the grooves as Feature 114.

Lithic Artifacts

A total of 160 pieces of chipped-stone debitage were recorded (Table 4.1). This total represents an unsystematically selected sample of the flakes on the surface when the site was recorded. Of the total debitage, 53% is quartzite, 19% is chert, 13% is argillite, 8% is porcelanite, 5% is obsidian, 1% is chalcedony, and 1% is quartz. Thirty-three percent is the large size grade, while 67% is small; 19% has cortex and 81% is noncortical. The debitage classifications are simple flakes (56%), complex flakes (36%), shatter (6%), and biface-thinning flakes (2%). The above percentages reflect an emphasis on raw material reduction with all stages represented. It appears, for the most part, that many of the materials were initially roughed out at the quarry and brought to the site in noncortical form. Once on site, these materials were manufactured into early-stage bifaces or used to produce flakes. Not counting the obsidian items, all materials can be recovered within 20 km of this location. Specifically, the quartzite outcrops in Lockwood Canyon less than 1.5 km away.

Five of the eight projectile points recovered from the surface of this site appear temporally diagnostic. The first point fragment (FS 7, Figure 6.9) is chert and similar to Anderson's (1989:142) P26 type. It is presumed that this style begins about 1000 BC and continued until AD 500. The next item, a chert preform (FS 9), was assigned to the P50 type. Anderson (1989:175) suggests these were in use between AD 1000 and AD 1750. A third point (FS 22) is nearly complete and made of chert. Assigned a P83 type it has a probable range of dates between AD 750 and AD 1650. The other chert point fragment (FS 53, Figure 6.15) is a

P58 and has associated dates that range from AD 600 to AD 1200. Field Specimen 10 is classified as a P10 (5000/3000 BC to AD 500), but likely represents nothing more than a large projectile point preform. Based on these artifacts, the site likely had both an Early Archaic and a Late Prehistoric occupation.

The remaining stone tools consist of twelve cores, ten flake tools, eight bifaces, and four scrapers (Table 4.2). The cores were analyzed in the field and not collected. These were made of quartzite (7), argillite (3), chert (1), and basalt (1). Artifacts assigned to the biface category are quartzite (6) and orthoquartzite (2). Seven bifaces are broken; four are classified as unfinished and broken during manufacture and two are nearly finished bifaces. Only one biface is utilized (FS 51). It is complete, and has a single acute edge showing light use wear. There were six complete and four broken utilized flakes. Eight of these show wear patterns on one or more steep edges (implied scraping), and two show wear on acute edges (cutting). Field specimen 33 is the most interesting of these, as it is Flattop chert, a non-local material that is known to outcrop near the Colorado/Nebraska border. The scraping tools are two end scrapers, a single end/side scraper, and a side scraper. These were originally made on large flakes of chert (2), and basalt (2).

Table 4.1: Summary Description of Chipped-Stone Debitage for 5LA2240.

	Argillite	Chalcedony	Chert	Obsidian	Porcelanite	Quartz	Quartzite	Total
Total	20	2	30	8	13	1	86	160
Large	8	0	6	0	2	1	36	53
Small	12	2	24	8	11	0	50	107
Cortical	3	0	2	3	3	0	20	31
Noncortical	17	2	28	5	10	1	66	129
Complex	7	1	13	2	5	0	29	57
Shatter	4	0	2	0	1	0	3	10
Biface-Thinning	1	1	0	0	0	0	1	3
Simple	8	0	15	6	7	1	53	90

Table 4.2: Stone Tool Type by Material Group for 5LA2240.

Material	Type							Total
	Biface	Core	Projectile	Scraper	Flake Tool	Mano	Metate	
Argillite	0	3	0	0	1	0	0	4
Flattop Chalcedony	0	0	0	0	1	0	0	1
Chert	0	1	8	2	3	0	0	14
Coarse-grained Quartzite	5	6	0	0	3	3	0	17
Fine-grained Quartzite	1	1	0	0	0	0	0	2
Hornfels/Basalt	0	1	0	2	1	0	0	4
Sandstone	0	0	0	0	0	6	41	47
Orthoquartzite	2	0	0	0	1	0	0	3
Total	8	12	8	4	10	9	41	92

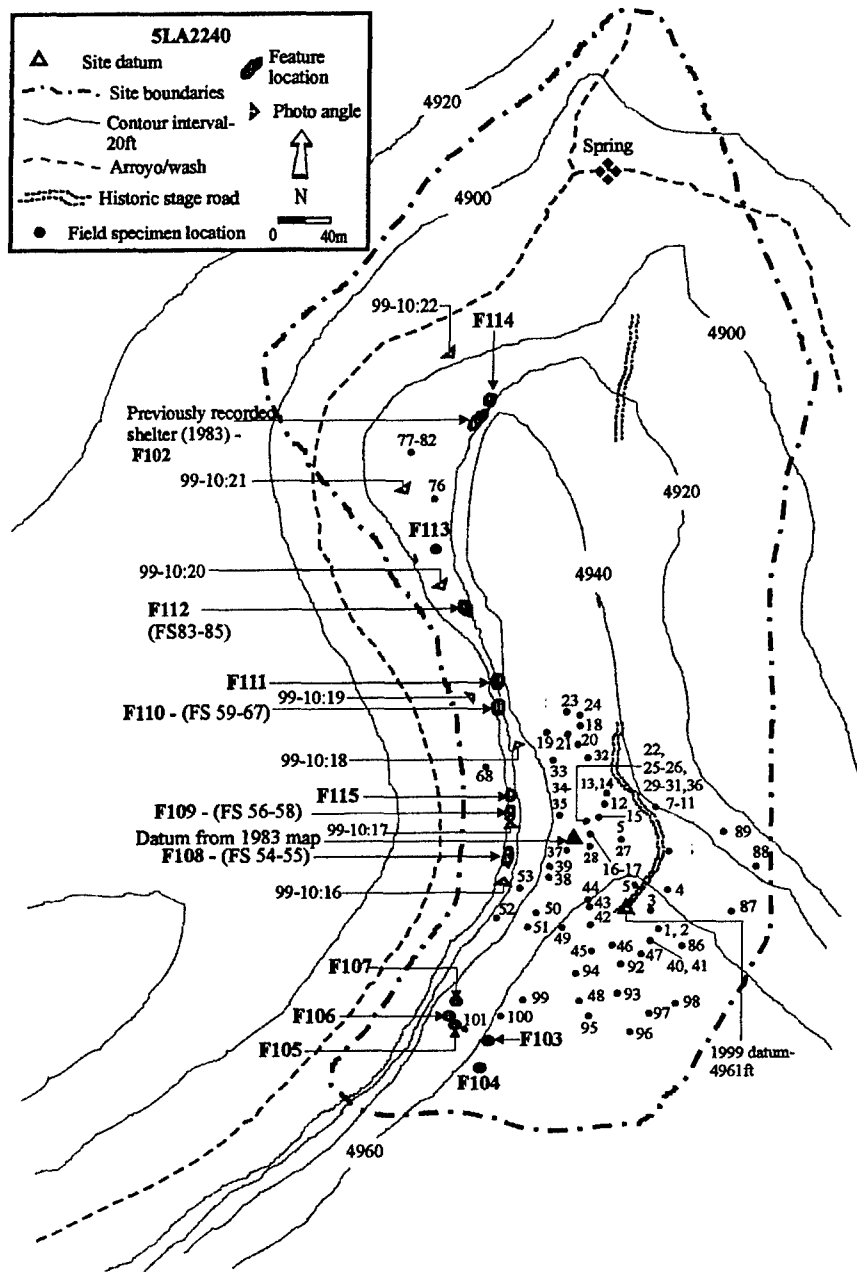


Figure 4.1: Site map, 5LA2240.

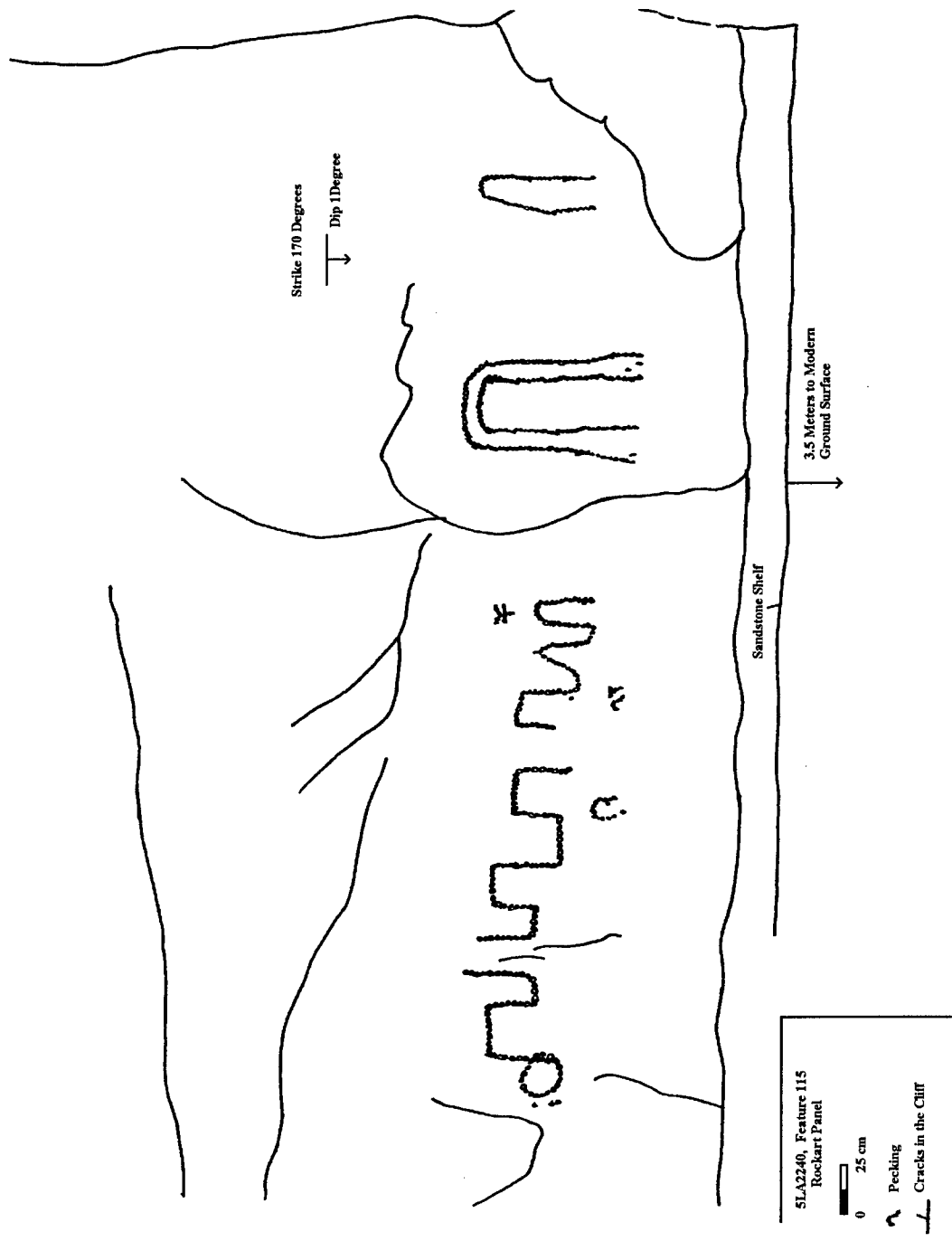


Figure 4.2: Feature 115, rock art panel, 5LA2240.

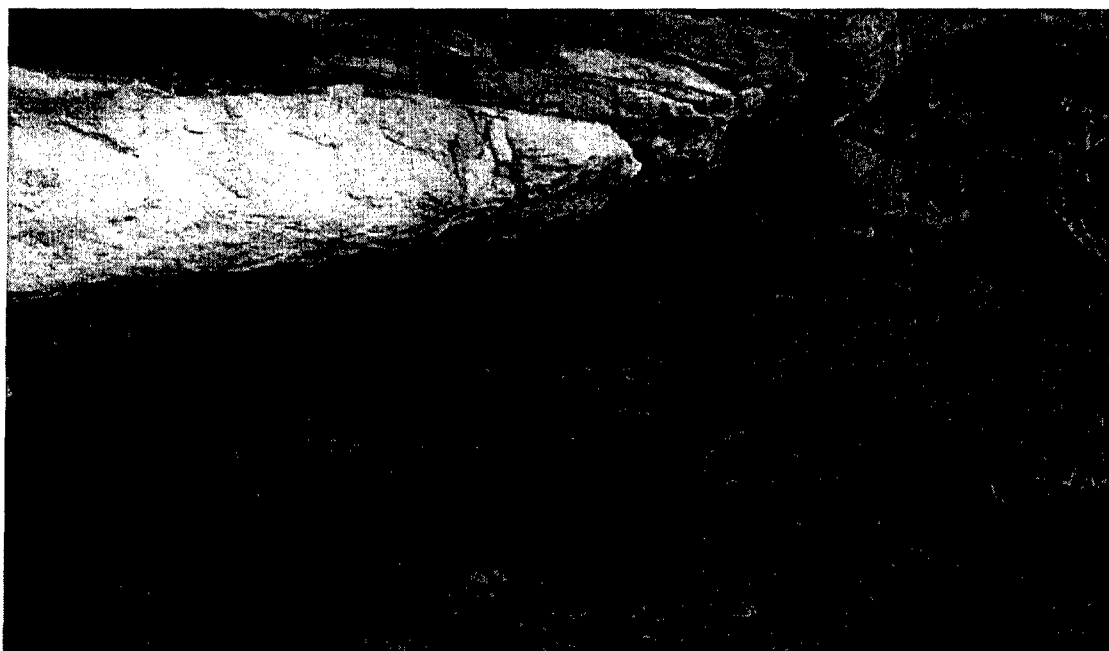


Figure 4.3: Feature 108, rockshelter, 5LA2240.

The ground-stone assemblage on this site is substantial. Bedrock metates are found throughout the site area and account for 31 separate milling surfaces. Other ground tools include nine metate fragments, five one-hand mano fragments, four complete manos, and a complete metate.

Interpretation and Summary

This multicomponent site was recommended eligible for nomination to the National Register during the 1983 Larson-Tibesar survey. Site 5LA2240 is a huge chipped debris scatter and structure site with rock shelters, rock art panels, several thermal features, and numerous pieces of non-portable ground stone. The site has several temporally diagnostic artifacts and areas with deep soils provide a likelihood of encountering buried cultural deposits. This is especially true along the flood plain margins.

Though this site has been previously tested (Larson-Tibesar 1987), the rockshelters show up to 20 cm of deposition outside of their drip lines. Additional test excavations here may reveal the presence of data such as pollen, macrobotanical, and/or faunal remains useful for reconstructing paleoenvironment and subsistence patterns. Because the main site components are located on and along the ridge, they do not appear to be in imminent danger of impact from military training. All of the previous site maps are crude and very confusing, thus we suggest that the site be revisited for detailed mapping. Areas where there is a good potential for

subsurface, cultural deposits should be noted and test excavations carried out. If buried cultural deposits are encountered, the site should be fenced for its protection against potential impact from military activities.

5LA4725

This large multicomponent site incorporated two previously recorded sites-- 5LA4725 and 5LA4844 (Larsen-Tibesar Associates, 1987). The NMSU survey crew discovered lithic debris north of these two sites in Study Unit 59: as pinflagging continued, the scatter of lithic debris continued onto both previously recorded sites and over the edge of the canyon's two sub drainages where previously unrecorded rockshelters were located. A decision was made to incorporate the entire cultural event as one large site and to assign the number of the oldest site, 5LA4725 to the collective cultural remains. It is interesting to note that there were rockshelters (Features 6-9) with distinct cultural remains within the original site boundary of 5LA4725. These shelters seem to have never been recorded in the original survey work.

The site is a lithic scatter and rockshelter site located at the head of a canyon that forms a northern tributary of Red Rock Canyon (Figures 4.4, 4.5, and 4.6). The lithic scatter is situated in the upper drainage basin area and extends down the slopes of the canyon where nineteen rockshelters can be found. Ephemeral seeps are found in several shelters, and there is standing water at a spring source in the canyon below. Covering an area of approximately 584 m (east to west) and 543 m (north to south) the site extends from the highest portion of the drainage basin to the canyon bottom in the south. A new site datum was placed on the ridge top at approximately 1,524 m (5,000 ft asl.) and the canyon bottom is about 35 m below this ridge top. The head of the canyon splits along the southern site boundary forming two large forks; one trends south to north and the other trends east to west. Outcropping beds of Dakota Sandstone form the canyon edge and many shelters are found at the contact of this sandstone bed and the Morrison Formation.

Most of the site area is considered a juniper woodland plant community, especially along the canyon rim. Juniper, grama grasses, threawn, and cholla grow throughout the upper drainage basin. Wild currant, mountain mahogany, and wild grape are thick along the sidewalls of the canyon. Soils and their deposition vary greatly across the site. Overall, they are shallow along the canyon edge, and are a sandy clay matrix composed of both rotten sandstone bedrock (on site) and alluvium from the landform north of the site. There is dark-brown, silty loam on the slopes and bottom of the canyon that could be as much as 1 m deep. An interesting geological feature, an outcropping of baked shale/clay, is positioned on a shelf on the slope near the canyon forks. There is much prehistoric evidence within the surface lithic assemblage (heat-treated items and flaked items) that prehistoric occupants mined this outcrop to procure raw material for use in pipes or jewelry items.

Features

A total of 22 features were recorded at 5LA4725 – nineteen rockshelters, two lithic concentrations, and a single roasting pit. All are found within 50 m of the canyon edge; the lithic

concentrations were identified in the southwest and northeast edges of the site, the thermal feature is centrally located, and the shelters occur throughout the site at approximately 4980 ft. in elevation.

Feature 1 is a concentration of lithic materials measuring approximately 27 x 16 m. A fifty-piece debitage sample was recorded at this location along with five pieces of ground-stone, and two chipped tools. This concentration is 280 m northwest of the original 5LA4725 site datum at a bearing of 356 degrees.

Feature 21 also contains a dense scatter of lithic debris. It measures 46 x 32 m and is 250 m northwest of the site datum. No ground tools were encountered within its boundary and only four chipped tools. Another fifty-item lithic debitage sample was recorded here.

A large area of scattered ash and heat altered stone (Feature 22), that seems to have resulted from repeated roasting activities, was found near the canyon edge at what could be considered the central portion of the site. This thermal feature measures 11.5 x 5.2 m and is located approximately 240 m northwest of the site datum.

Feature 2 is a small (5.8 x 4 m) rockshelter positioned slightly above the drainage of the western fork of the canyon. Water erosion has scoured this feature to bedrock, though there is some recent shale slump noted along the back wall. There are five tool grooves on the back wall of this shelter and bedrock grinding surfaces were found on the floor.

Another shelter, Feature 3, is found below a pointed landform that overlooks the spring area to the south. Soil deposition is poor (< 10 cm) and FS 52, a bedrock metate, constitutes the only cultural remains from this feature. Shelter dimensions are 7.5 x 4.2 m and the maximum floor-to-roof measurement is 2.9 m.

Feature 4 is a small rockshelter found on the north side of the east/west canyon fork. Field Specimen 1, a very large white quartzite core (29 x 15 x 11 cm) was encountered outside the dripline along with five pieces of quartzite debitage. Large roof fall blocks cover the floor of this 6 x 1.5 m shelter.

Feature 5 is a shallow rock shelter with a partial wing wall and two upright slabs still in their original position. Most likely, the missing wall blocks have eroded down hill or were robbed for use in other site features. No artifacts of any kind were encountered in this 6 x 2.8 m shelter.

Feature 6 is a large rock shelter (11 x 4.2 m) with a seep along its back wall. The shelter exhibits good soil deposition (at least 30 cm) and the floor is covered with thick moss. An edge-ground cobble was collected inside the drip line, and there is charcoal flecking on an area of the floor. Shale slump caps most of the floor and it is likely that test excavations here would uncover prehistoric occupation surfaces.

A long narrow rockshelter (Feature 7), with cultural deposition, was found at the base of a large sandstone cliff on the south side of the east/west drainage. A mano (FS 90), biface (FS 91), and two pieces of debitage were found exposed on the floor of this shelter.

Feature 8 is another large rockshelter but it has poor deposition potential. No chipped- or ground-stone tools were encountered, but two flakes of quartzite were recorded from the floor surface. Overall, measurements for this shelter are 9.5 x 3 m and there is a maximum floor to roof measurement of 2.4 m.

Wing wall remnants and associated cultural material were encountered in Feature 9, another rockshelter. These artifacts included seven flakes, a quartzite core (FS 5), an edge-ground cobble (FS 4), and two large slab metates (FS 2 and 3). Soils are deep here and there appears to be an activity area with some excavation potential to the north and west of the shelter. The shelter measures 14.5 x 4.2 x 1.9 m in size.

Feature 10 is a narrow rockshelter (7 x 1.5 x 1.2 m) on the south side of the large feeder canyon. It exhibits poor soil deposition and only one quartzite flake was found on the floor.

Feature 11 has the best-preserved wing wall, or structural unit, of any of the shelters. It was found within the 5LA4725 site boundary and the original site datum was positioned near its dripline. Measuring 5 x 2.5 x 1 m, this shelter displays some soil deposition. The greatest data recovery potential at this locale lies in the activity area located outside the drip line. Twenty pieces of debitage, a one-hand mano (FS 8) and two cores (FS 6 and 7) were found in this intensively used activity area.

Another large rockshelter at the southern edge of the site was designated Feature 12. It exhibits little deposition and no debitage or ground stone was encountered. A quartzite core (FS 9) was the only cultural item encountered in the feature. Overall dimensions for this shelter are 11.8 x 5.5 x 4.9 m.

Feature 13 is a very small rockshelter found in between two large sandstone boulders. Three pieces of debitage were found in this sheltered area, but no stone tools or ground stone. Its location is at the base of the sandstone cliff 25 m south of Feature 12. The shelter measures 1.7 x 1 x 3 m in size and there is no evidence for buried deposits inside its dripline.

Feature 14 (Figure 4.8) is a large rockshelter (17 x 7 x 10 m) with a high artifact count. The shelter was found on the south side of the canyon at an elevation of approximately 4996 ft, and has a shale deposit along the back wall that has collapsed, covering cultural and soil deposits. These cultural deposits are eroding to the surface near the dripline, as evidenced by the artifacts exposed here. Three metates, three manos, and one edge-ground cobble represent the ground-stone assemblage. Four cores, four utilized flakes, a biface, and a flaked hammer stone form the chipped tool assemblage.

A narrow rockshelter (Feature 15) was encountered 25 m north of Feature 14 and it contains two metate fragments and a utilized flake tool. It measures 8 x 1.7 x 2.5 m and has

several large roofs fall boulders near its dripline. There are developed soils here and a test unit could uncover one or more prehistoric occupation surfaces.

Feature 16 is a rockshelter on the west side of the large feeder canyon. It contains one metate, but no flakes or stone tools were located in this small (4.1 x 2.2 m) feature. Surface remains lead us to believe that there is no potential for buried cultural deposits.

Feature 17 is a small (6x 4x 1.2 m) rockshelter with three pieces of quartzite debitage in association (Figure 4.7). No tools were found in the shelter and soil deposition is poor. Additional work at this feature is not recommended.

Feature 18, another small rockshelter, is unique in that it is positioned under two large tipped-together bedrock boulders. A quartzite core and a metate fragment were found on the surface and there is a semi-circular arrangement of unmodified sandstone that would have formed a single habitation unit. Five of these wall blocks remain upright suggesting the boulders have protected the area from erosion. Because of this, there is good sediment deposition here. The shelter measures 5 x 2.5 m and the maximum floor-to-roof height is 2.3 m.

A wing wall remnant was encountered in Feature 19; however, water erosion has scoured out all soil deposition. No artifacts were found in the feature, but artifacts were identified on top of the roof and above the main living space. The shelter dimensions are 4.0m long x 2.1m wide x 1.23 high at the mouth.

Feature 20 is the last of the rockshelters recorded by NMSU and it was found in a low sandstone ledge above the main canyon forming sandstone outcrops on the west side of the main canyon. Cultural materials have eroded out from the structure, but two quartzite flakes were encountered just outside of the dripline. The shelter is oriented north-south and measures 7.5 x 1.8 x 1.2 m.

In addition to the recorded rockshelters, there are twelve overhangs/alcoves, which were almost certainly used for cover by prehistoric peoples. These lacked visible evidence for cultural material and were, therefore, not recorded as shelters.

Lithic Artifacts

Tool classes noted at the surface include debitage, patterned chipped-stone tools, and ground stone. A 197 piece sample of debitage from the surface of the site was analyzed; 51 items from general context and 146 in and around the features. Both of the lithic concentrations (Features 1 and 21) had fifty-flake sample data collected. Table 4.3 summarizes the debitage artifacts by material type for the overall site assemblage. Locally available quartzite (73%) and chert (15%) are the dominant materials, with lesser amounts of argillite (6%), baked shale/ baked clay (4%), basalt (2%), and quartz (1%). All of the material encountered in this assemblage can be found on the PCMS; everything other than the basalt and the argillite can be found in Red Rock Canyon south of the site area. The assemblage mainly contains simple (41%) and complex (41%) flakes, with some shatter specimens (17%), and biface-thinning flakes (1%) also seen.

Fifty-six percent of the debitage specimens are noncortical, and 44% show some degree of dorsal cortex. In the cortical items (86), 65 are large flakes and 21 are small. The above data reflects an emphasis on early-stage raw material reduction with all stages represented. It appears that many pieces of raw material were carried to the site in nodule or cobble form and once here, these materials were manufactured into early-stage bifaces or used to produce flakes.

Fifty (25%) of the debitage specimens were recorded in Feature 1. Of these, 23 are simple flakes, 19 are complex flakes, 7 are shatter, and 1 is a biface-thinning flake. Material types for this group are quartzite (36), chert (6), argillite (4), and baked shale/baked clay (4). All reduction stages are represented in the sample, with small, noncortical flakes (42%); large, cortical flakes (26%); large, noncortical flakes (16%); and small, cortical flakes (16%) recorded. The small complex flakes total seven items. The above data indicates that Feature 1 functioned chiefly as a quartzite reduction area, with parent nodules or cobbles reduced. This is not surprising, considering that quartzite outcrops throughout this area of the base. Most of the activity appears to have concentrated on the manufacture of large, unfinished biface tools and the production of flake blanks. Based on the presence of the quartzite biface-thinning flake, at least one biface was finished in this area.

The Feature 21 assemblage also contained a sample of 50 items, of which, 22 are simple flakes, 20 are complex flakes, and 8 are shatter. These were made of quartzite (41), and chert (9). The reduction stage information is similar to that from the Feature 1 data set with 42% small, noncortical flakes and (16%) small cortical flakes; however, the percentage of large, cortical flakes (26%) is smaller than the Feature 1 assemblage; the large, noncortical flakes (16%) are higher than the Feature 1 assemblage. Like Feature 1, the reduction strategy revolved around the manufacture of large, unfinished biface tools and the production of flake blanks.

Chipped-stone tools present in the assemblage are non-bipolar core (28), flake tool (13), biface (9), projectile point (4), drill (2), and scraper (1). Table 4.4 shows the tool class by material type breakdown for the assemblage. Only two of the projectile points recovered from the surface of this site are temporally diagnostic. The first point fragment (FS 82) is made of chert and is most similar to Anderson's (1989) Type P54. This type of point is associated with dates ranging from AD 750 to AD 1400. The second point (FS 104) is also chert and is a P58. These points seem to have been used from AD 600 to AD 1200. Based on the projectiles, the site had one occupation in the Developmental to Diversification period of the Late Prehistoric stage.

Of the bifaces, four of the nine specimens are broken. Six of these are quartzite and three are chert; eight are classified as unfinished bifaces and one (FS 33) has a lightly used scraping edge. The cores were found throughout the site in no apparent concentration. Like the debitage assemblage, most items here are quartzite. It is interesting to note that three of these are made out of the baked clay or baked shale.

The flake tools are quartzite (7), chert (3), basalt (1), and sandstone (1). Recorded edge angles show seven specimens were used for scraping, four items were used as flake knives, and there is one freshly sharpened uniface with no apparent wear. The remaining three chipped tools in the overall assemblage are two drill fragments and an end/side scraper.

Fifty pieces of ground stone were recorded at the site. Several of these were found in and around the rockshelters and there is a dense concentration of ground-stone tools between the main canyon body and Feature 1. Of the overall assemblage, 20 are slab metates, 16 are one-hand manos, 10 are bedrock metates, and five are edge-ground cobbles.

Table 4.3: Summary Description of Chipped-Stone Debitage for 5LA4725.

	Argillite	Chert	Hornfels/Basalt	Kaolinite	Quartz	Quartzite	Total
Total	12	30	3	7	1	144	197
Large	7	12	3	4	0	83	109
Small	5	18	0	3	1	61	88
Cortical	4	15	2	5	1	59	86
Noncortical	8	15	1	2	0	85	111
Complex	5	15	1	2	0	57	80
Shatter	3	7	0	2	1	21	34
Biface-Thinning	0	0	0	0	0	2	2
Simple	4	8	2	3	0	64	81

Table 4.4: Stone Tool Type by Material Group for 5LA4725.

Material	Type								Total
	Biface	Core	Projectile	Drill	Scraper	Flake Tool	Mano	Metate	
Argillite	0	0	0	0	0	0	0	0	0
Baked claystone	0	3	0	0	0	0	0	0	3
Chert	3	1	4	0	1	3	0	0	12
Coarse-grained Quartzite	4	23	0	1	0	3	1	1	33
Fine-grained Quartzite	2	0	0	1	0	4	0	0	7
Hornfels/Basalt	0	1	0	0	0	1	1	0	3
Sandstone	0	0	0	0	0	1	16	29	46
Granite	0	0	0	0	0	0	1	0	1
Conglomerate	0	0	0	0	0	0	1	0	1
Orthoquartzite	0	0	0	0	0	1	0	0	1
Total	9	28	4	2	1	13	20	30	107

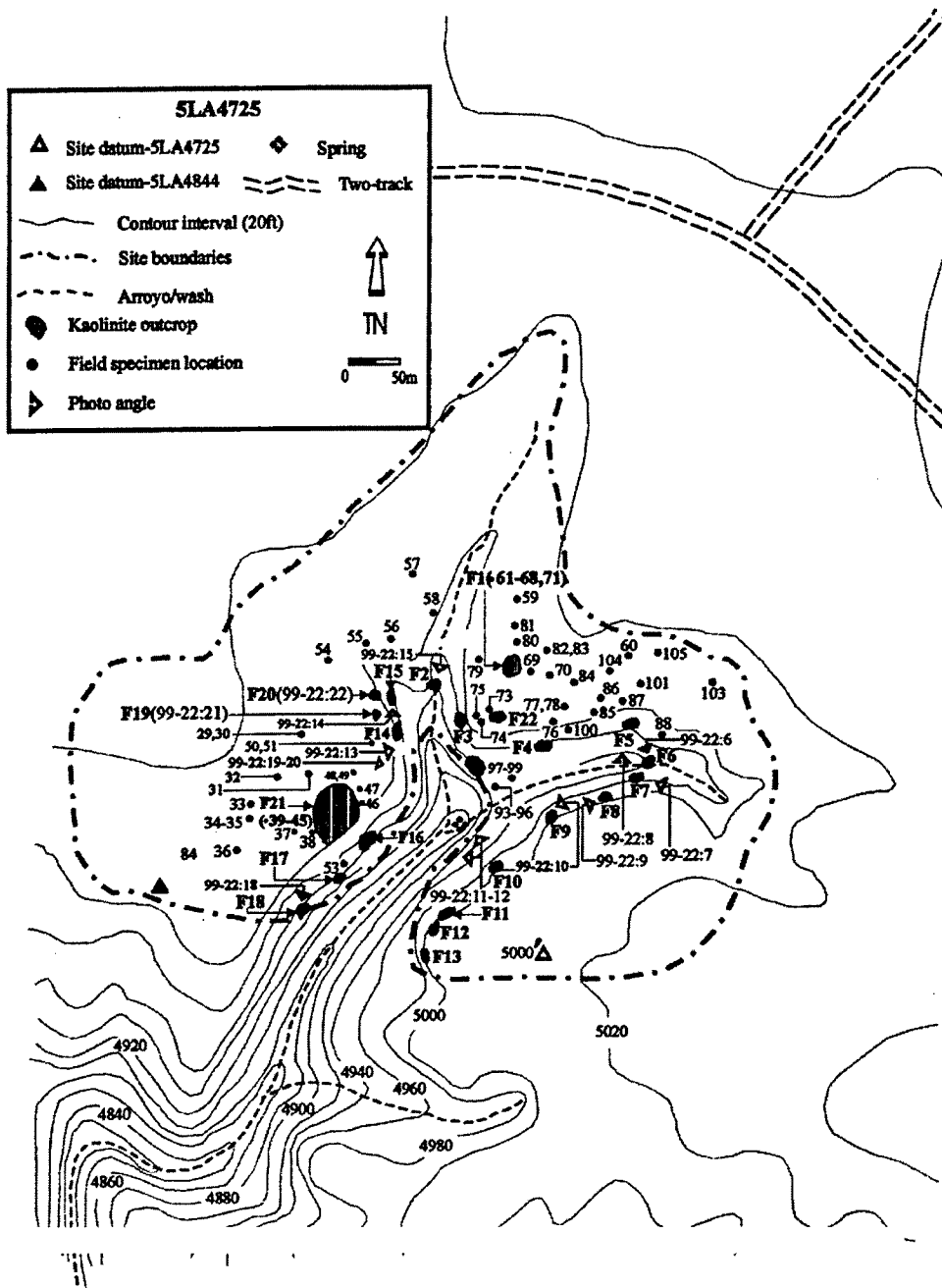


Figure 4.4: Site map, 5LA4725.

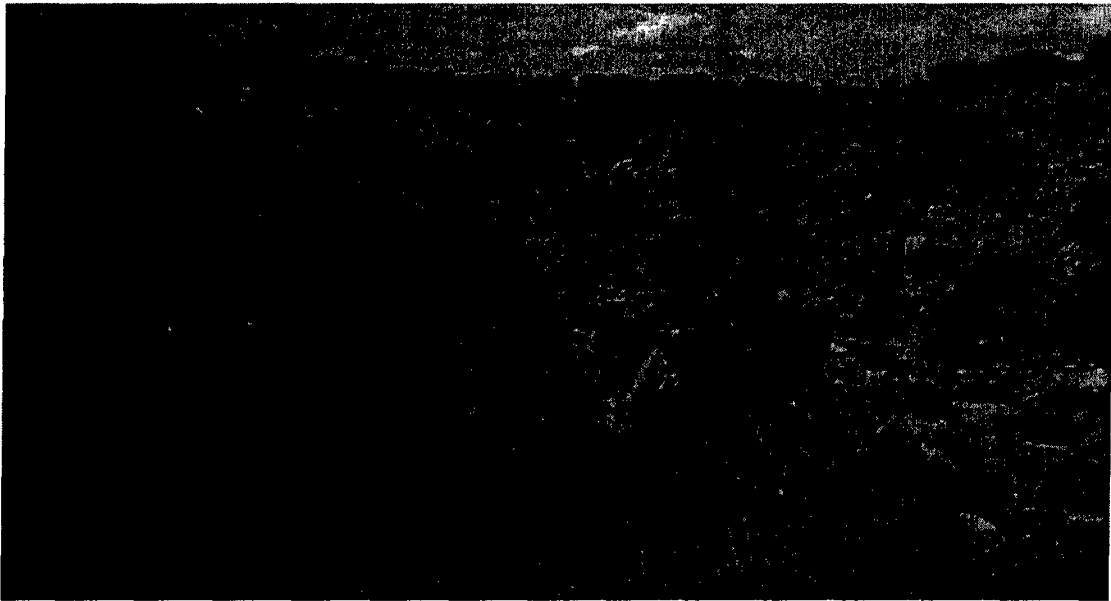


Figure 4.5: Site overview photograph of 5LA4725 facing the east/west side canyon. Photo (PCMS 99-22:20) facing east at 105 degrees.

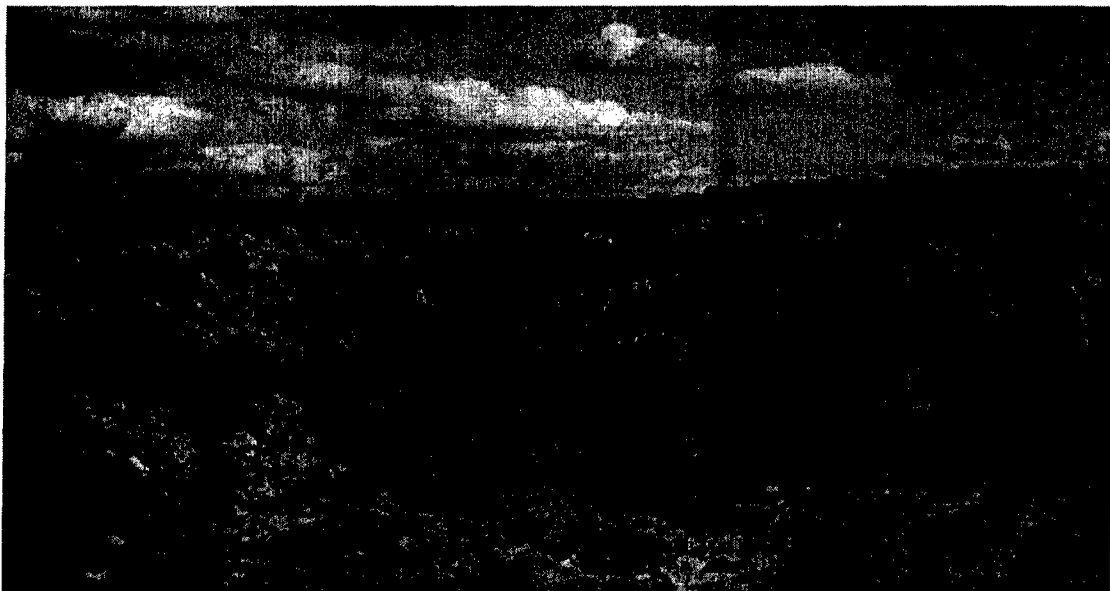


Figure 4.6: Site overview photograph of 5LA4725 showing the central portion of the site and the north/south canyon. Photo (PCMS 99-22:11) taken facing 326 degrees.

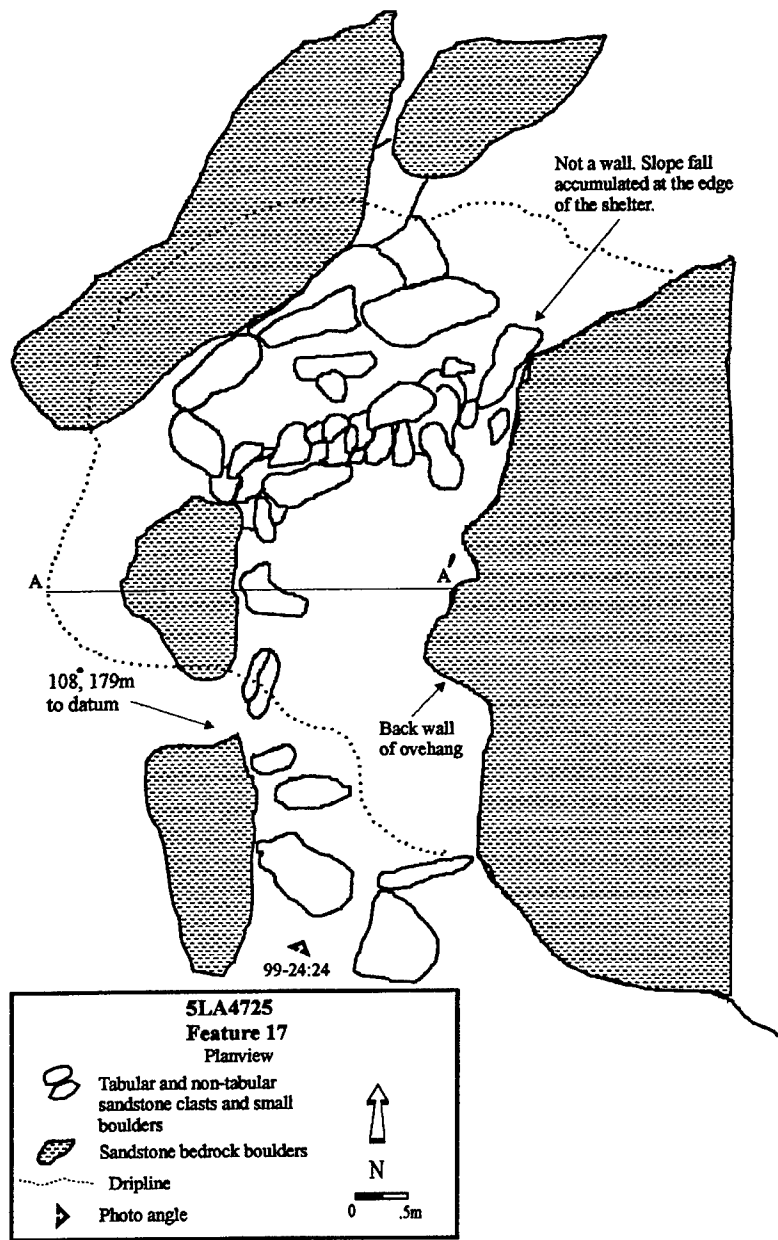


Figure 4.7: Planview map of Feature 17, a rockshelter with an internal structure, 5LA4725.

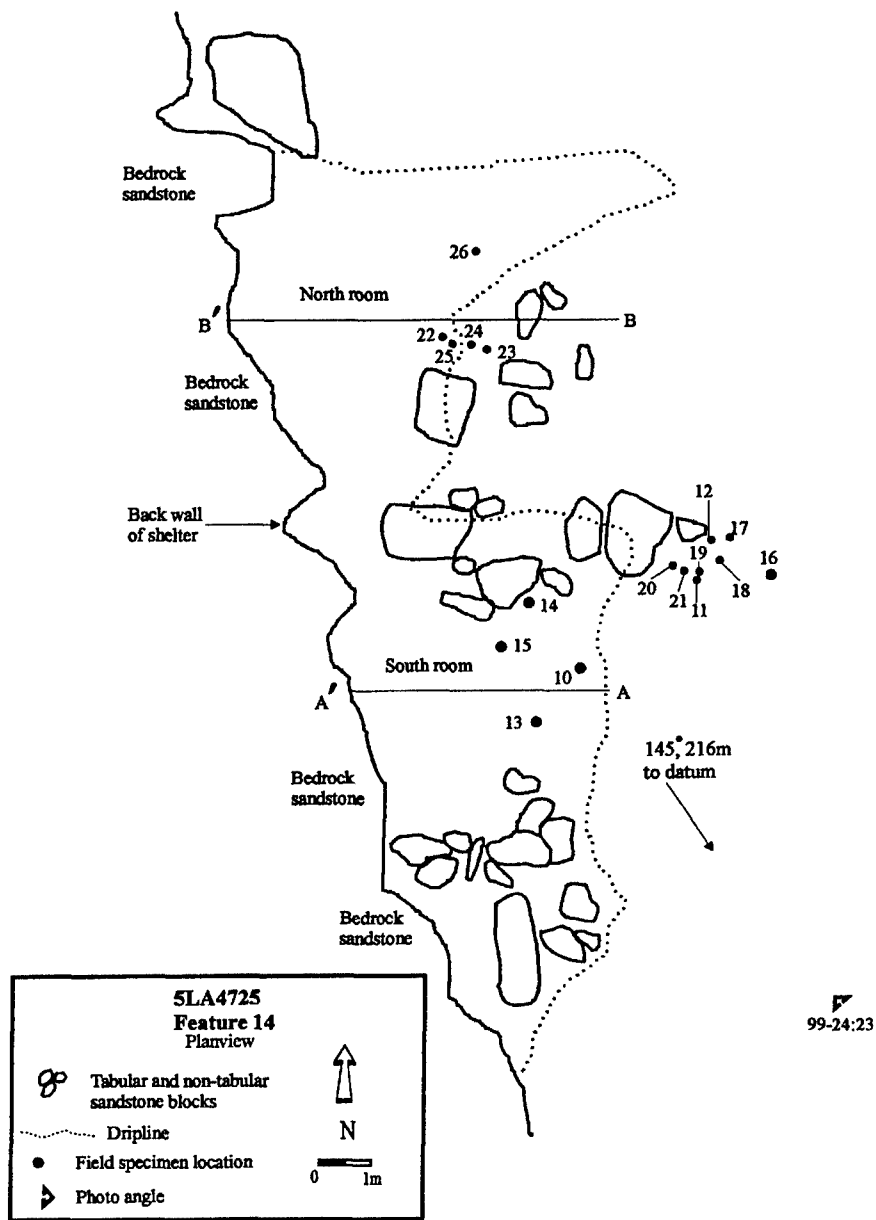


Figure 4.8: Planview map of Feature 14, rockshelter, 5LA4725.

Interpretation and Summary

We recommend that this site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). The presence of rockshelters and a thermal feature suggests the site can be useful for addressing questions concerning settlement patterns. There is good potential for the presence of buried deposits in Features 5-9, 11, 14, 18, and 22 and the presence of abundant ground stone indicates the likelihood that pollen, faunal, and macrobotanical remains useful in reconstructing subsistence and paleoenvironment will be recovered through test excavations in these features. The site exhibits excellent soil deposition and there are areas containing 1 m of depth above the canyon. The ground- and chipped-stone tools at the site indicate the primary site activities were raw material reduction, early-stage biface manufacture, and food processing. The presence of a hearth and fire-cracked ground-stone tool fragments suggests cooking or roasting. This site also served as a procurement location for baked clay/baked shale. Pieces of this same material have been found on other sites in the PCMS in the form of jewelry items and pipes or cloud blowers.

We also propose that the area of the site with the thermal feature be fenced as it can be easily accessed by motor vehicle. In addition, the site should be revisited for more detailed mapping and surface collection.

5LA4940 (Cowboy Springs Site)

This site has both historic and prehistoric components. Combined crews from Larsen-Tibesar & Associates and Centennial Archaeology previously recorded the majority of the historic material as 5LA4940 in 1987. Our field inspections in 1999 revealed that only the main house structures and some of the prehistoric components had been recorded. A site map was drawn (Figure 4.9) to record our additions, prehistoric artifacts were analyzed using our format, and all of the additional features were recorded.

This site is centrally located in Training Area 10 on the southern fork of upper Red Rock Canyon. It was found on the south side of an intermittent arroyo and the west side is nestled in an area of yellowish-colored Dakota sandstone erosion remnants. A spring is located on the northern edge of the wash. This permanent water source has likely been utilized by inhabitants of the region for a long time, and it has historically been modified (a small concrete trough) to make water access more efficient. The site covers an area of approximately 16 acres and has several circular slab structures at the west edge and in the area of the erosion remnants. The old site datum was encountered near the historic house structure and was used for our entire mapping. It sits at an elevation of 1,500 m (4,920 ft) asl. There is significant topographic relief on the site, with water generally draining to the north. The southwest corner of the site has the highest elevation.

Juniper woodland vegetation dominates the site and the surrounding area, however patches of sagebrush can be found. In addition, grama grasses, threeawn, tree cholla, soapweed, currant, and wolfberry were observed. Soil deposition is considerable in places, especially in the sandy dune areas between Features 9 and 1. Sandstone bedrock terraces the surface in the northern half of the site for the most part.

Features

A total of 12 new features were recorded at 5LA4940: 7 stone rings, two rock art panels, a rockshelter, an historic well, and an historic thermal feature. All were found within 50 m of the arroyo bottom and minimally 80 m north of the original historic feature. Spatially, this is a long distance away but the rather dense surface scatter of lithics is associated with all the features.

Feature 2 is a large historic rock art panel measuring 7.1 x 1 m. It (Figures 4.10 to 4.13) includes names and dates, pecked faces, and brands. Several of the names and dates are from June 12, 1888. Local resident and PCMS employee Bob Hill, whose name was pecked onto panel in 1955, notes that many elements have weathered away since he first saw the panel.

Feature 3 is a rockshelter measuring 6.5 x 2.3 m (Figure 4.15). It has significant cultural depth and two distinct areas of burning and fire-cracked rock are starting to expose at the surface. A single diagnostic projectile point (FS 26) and two unfinished bifaces were encountered at the surface as well as a thick scattering of lithic debitage. Test units here would likely expose multiple prehistoric occupation surfaces and carbon recovered here could help to date these occupations.

Four deflated circular stone structures (Features 4-6, 13) are found on the cliff edge above the arroyo north of the datum. Feature 4 measures 3.7 m in diameter, Feature 5 is 3.6 x 3 m, Feature 6 is 4.5 m in diameter, and Feature 13 is 4 x 2.5 m. Unmodified sandstone blocks were used in their construction but the original placement of these stones (horizontally or vertically laid) is impossible to determine. These are small for living structures and may represent hunting blinds that were used for ambushing animals traveling to the spring.

Feature 7 is a circular arrangement of spaced stone blocks measuring 3.9 x 2.2 m (Figure 4.14). It was found on exposed bedrock and there are no artifacts in association. All of the wall blocks are unmodified and represent a single course of wall blocks used to hold down some kind of covering. Feature 8 is another small (3.7 x 3.2 m) spaced stone circle on eroded bedrock.

Feature 9 is the best preserved of the habitations. It measures about 4.2 x 4.5 m and has a modern ground surface to highest construction element measurement of 20 cm. There are no apparent openings or doors in the walls that at one time were constructed of upright and unmodified sandstone slabs. There is still at least 25 cm of fill in this feature and the prehistoric occupation surface should remain intact, as alluvial and aeolian deposits have capped it. Several pieces of debitage were found in association but there were no chipped- or ground-stone tools. According to Kalasz (1989:102), this would be a Class V contiguous rock wall and isolated unit. These architectural features are associated with dates from approximately 1640 BC to AD 1360 but it is unknown exactly where this feature should be placed within this broad time range.

Feature 10 is a small rock art panel located at the northeast edge of the site along a low sandstone ledge. It is a solid-pecked tailed circle that has some patination over the pecking.

Features 11 and 12 were found in the same area of the site and are historic in nature. Feature 11 is a large thermal feature and Feature 12 is a well that has been capped with a concrete lining. The ash and trash from the thermal feature results from a large fire and surrounds the well. It seems likely that the well would have frozen over in the winter and fires would have been necessary to keep it thawed.

Lithic Artifacts

The surface artifact assemblage consists of 152 pieces of debitage, 31 ground-stone artifacts, and 28 patterned chipped stone tools. Table 4.5 presents a summary of the chipped-stone debitage recorded at the site. The debitage is 66% coarse-grained quartzite, 16% chert, 9% fine-grained quartzite, 5% argillite, 2% hornfels/basalt, 1% obsidian (Cerro del Medio type, Appendix I), and 1% chalcedony. Excluding the obsidian, all of these materials can be found inside the PCMS; however, only the quartzites and the cherts can be found in the immediate site area. The debitage is 59% simple flakes, 29% complex flakes, and 12% shatter.

Fifty-five percent of the debitage items show some degree of dorsal cortex. Of these, 30% are large cortical items and 25% are small cortical items. Six pieces of argillite and four chert specimens show a red or black color change from thermal exposure.

Of the 69 simple flakes, most are argillite (25), hornfels/basalt (17), and coarse-grained quartzite (13). Those remaining are fine-grained quartzite (9), chert (4), and quartz (1). Thirty-four complex flakes were recorded-- argillite (12), quartzite (9), chert (6), hornfels/basalt (6), and chalcedony (1). The shatter specimens are made of argillite (6), hornfels/basalt (5), chert (1), quartz (1), and quartzite (1). The high number of cortical flakes, coupled with the lack of biface-thinning flakes indicates that early stage lithic reduction was employed to produce most of the debitage items. The presence of small noncortical flakes (33%) shows a fairly strong emphasis on early-stage biface manufacture with little final biface thinning or resharpening. In other words, most of the materials appear to have been quarried locally and were reduced to large bifaces on the site. Either the smaller biface-thinning flakes have been transported from the surface by erosion, or this activity was performed at another locale. Though some heat treatment is evident, most of the local materials seem to have high conchoidal fracture properties.

Twenty-eight tools representing five classes were recorded in the stone tool assemblage. These are nine bifaces, eight non-bipolar cores, six projectile points, three flake tools, and two scrapers. The cores are coarse-grained quartzite (5), chert (2), and argillite (1). Six of the bifaces are broken. There are four unfinished bifaces, four nearly finished bifaces, and one finished biface. The finished biface (FS 18) seems to be the lateral edge of a large projectile point or a knife. All of the nearly finished and unfinished bifaces were broken during manufacture and none of these were reduced to the finished tool.

Only three of the six projectile points were complete enough to be assigned to one of Anderson's (1989) classes. One of these (FS 11) is made of orthoquartzite and is similar to a P18 type and has associated dates that range between 3000 BC to 500 BC. A chert projectile point (FS 26) resembles the P52 type and has associated dates extending between AD 800 and

AD 1350. The final diagnostic projectile point (FS 7) is also chert and similar to a P74 type, which is associated with dates that range from AD 600 to AD 950. Based on these artifacts, the site had at least two prehistoric occupations. One would have been sometime between the Middle and Late Archaic stage and the other at some point within the Developmental or Diversification Period of the Late Prehistoric stage.

The flake tools are chert (2) and coarse-grained quartzite (1). With measured edge angles of greater than 45 degrees, they were probably used as expedient scrapers. A complete chert endscraper (FS 24) and a broken end/side scraper (FS 5) were also encountered.

The ground-stone tools consisted of 19 milling slicks on bedrock, five one hand manos, four edge-ground cobbles, and three slab metates. With the exception of a quartzite edge-ground cobble (FS 39), all of the ground stone items are sandstone.

A single shaft straightener was found in the breaks at the west edge of the site. Though it is broken, a single u-shaped groove is observed on one face.

Table 4.5: Summary Description of Chipped-Stone Debitage for 5LA4940.

	Argillite	Chalcedony	Chert	Obsidian	Basalt	F. Qzt	Q. Qzt	Total
Total	8	1	25	1	4	13	100	152
Large	4	0	2	0	2	5	50	63
Small	4	1	23	1	2	8	50	89
Cortical	0	0	2	0	1	1	27	31
Noncortical	8	1	23	1	3	12	73	121
Complex	3	0	10	1	2	10	43	69
Shatter	2	0	5	0	0	1	10	18
Simple	3	1	10	0	2	2	47	65

Table 4.6: Stone Tool Type by Material Group for 5LA4940.

Material	Type							Total
	Biface	Core	Projectile	Scraper	Flake Tool	Mano	Metate	
Argillite	1	1	0	0	0	0	0	2
Flattop Chalcedony	0	0	0	0	0	0	0	0
Chert	5	2	2	1	2	0	0	12
Coarse-grained Quartzite	0	5	0	0	1	1	0	7
Fine-grained Quartzite	2	0	2	1	0	0	0	5
Hornfels/Basalt	0	0	0	0	0	0	0	0
Sandstone	0	0	0	0	0	8	22	30
Orthoquartzite	1	0	2	0	0	0	0	3
Total	9	8	6	2	3	9	22	59

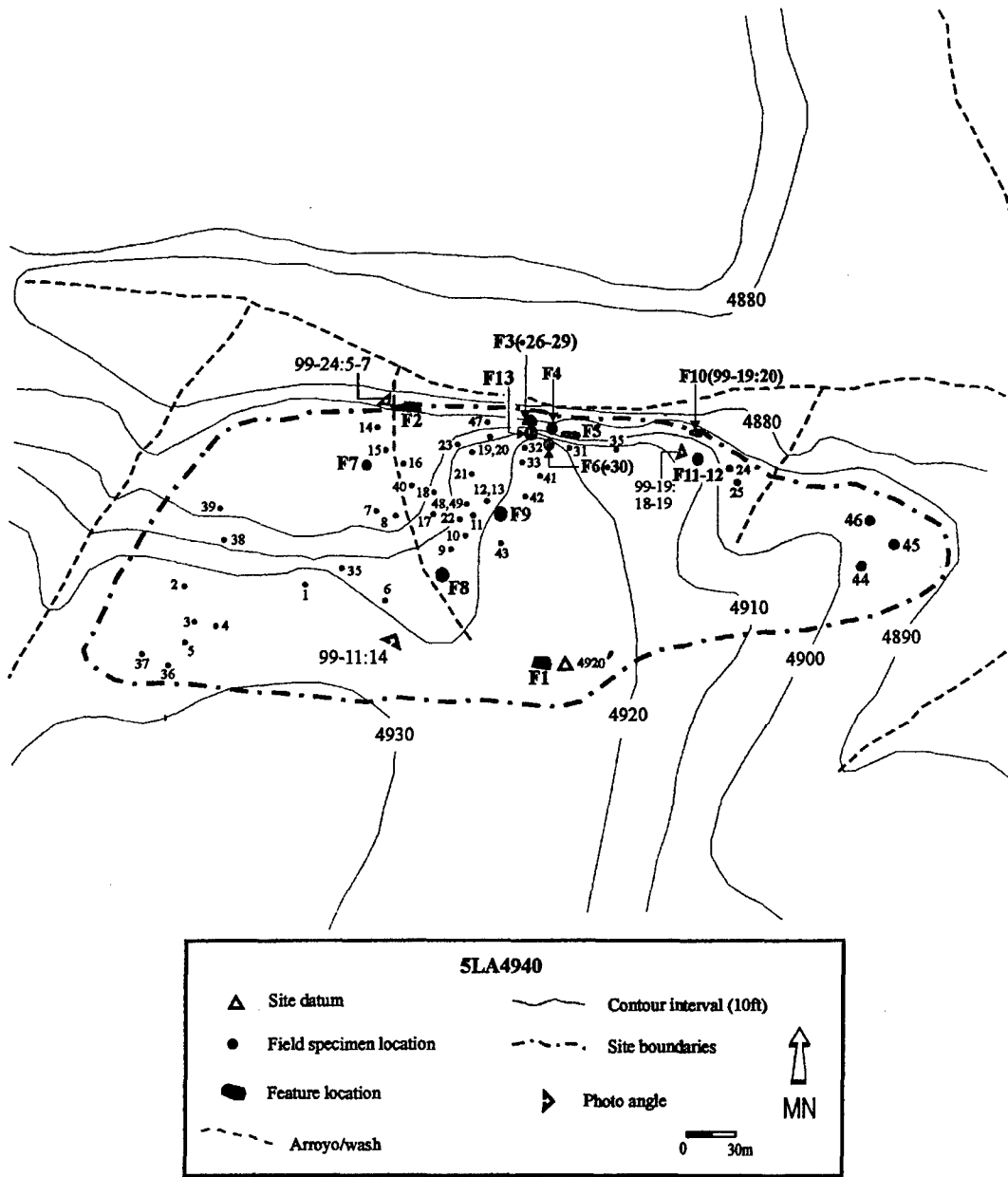


Figure 4.9: Site map, 5LA4940.

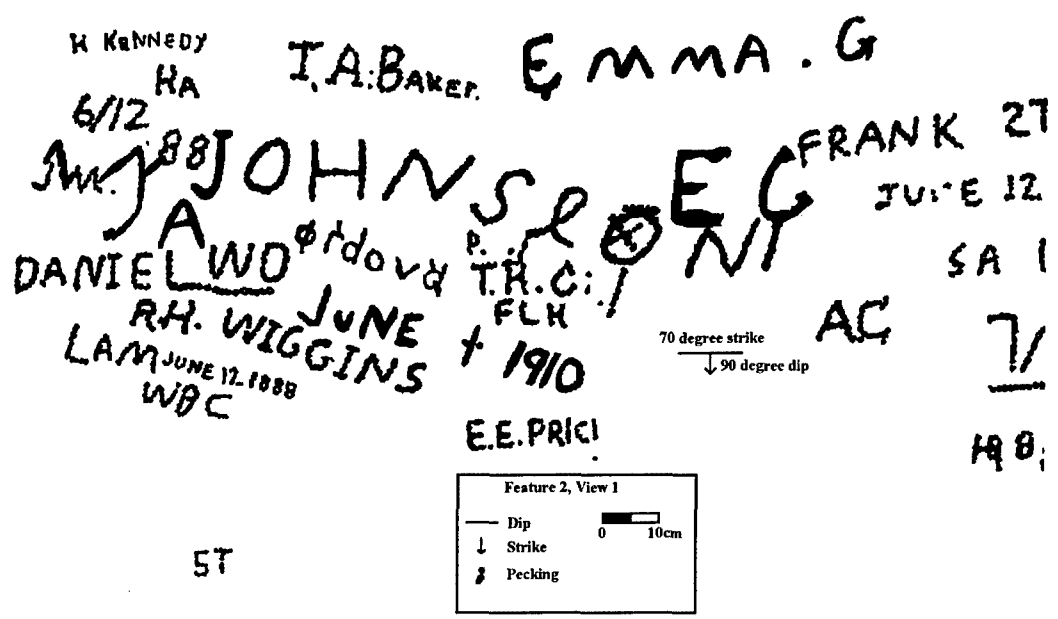


Figure 4.10: Historic rock art panel, Feature 2, View 1, 5LA4940.

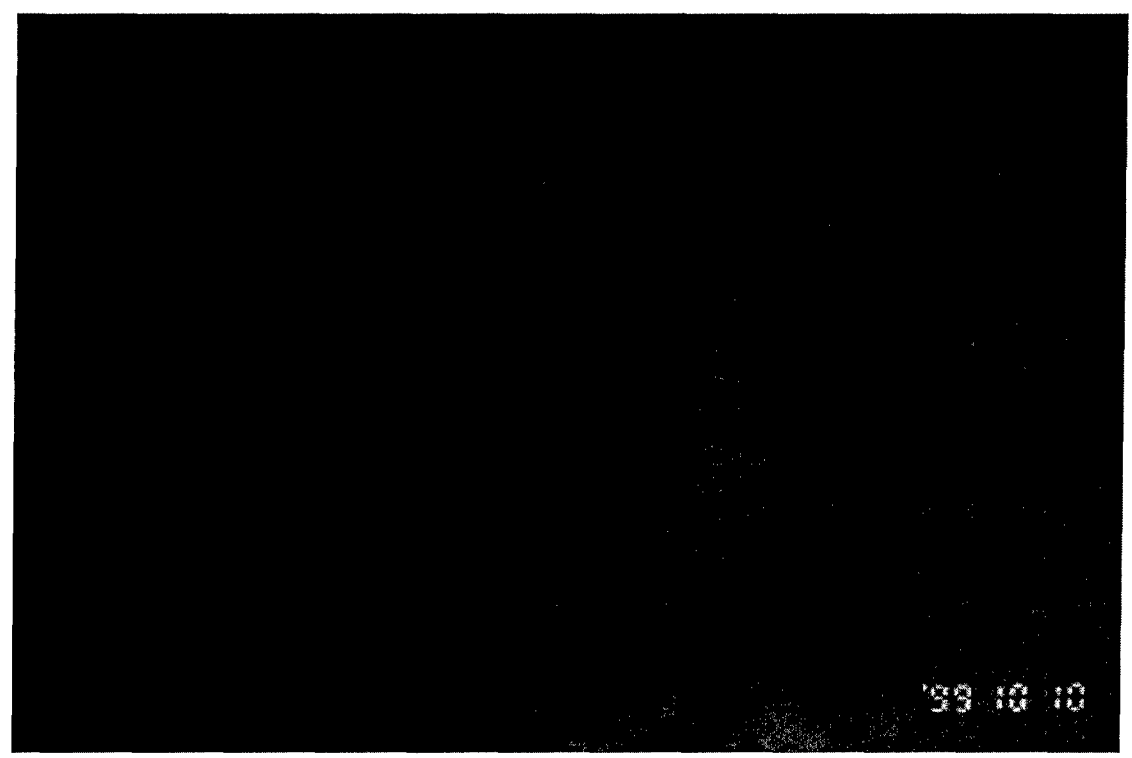


Figure 4.11: Feature 2, historic rock art panel, 5LA4940.

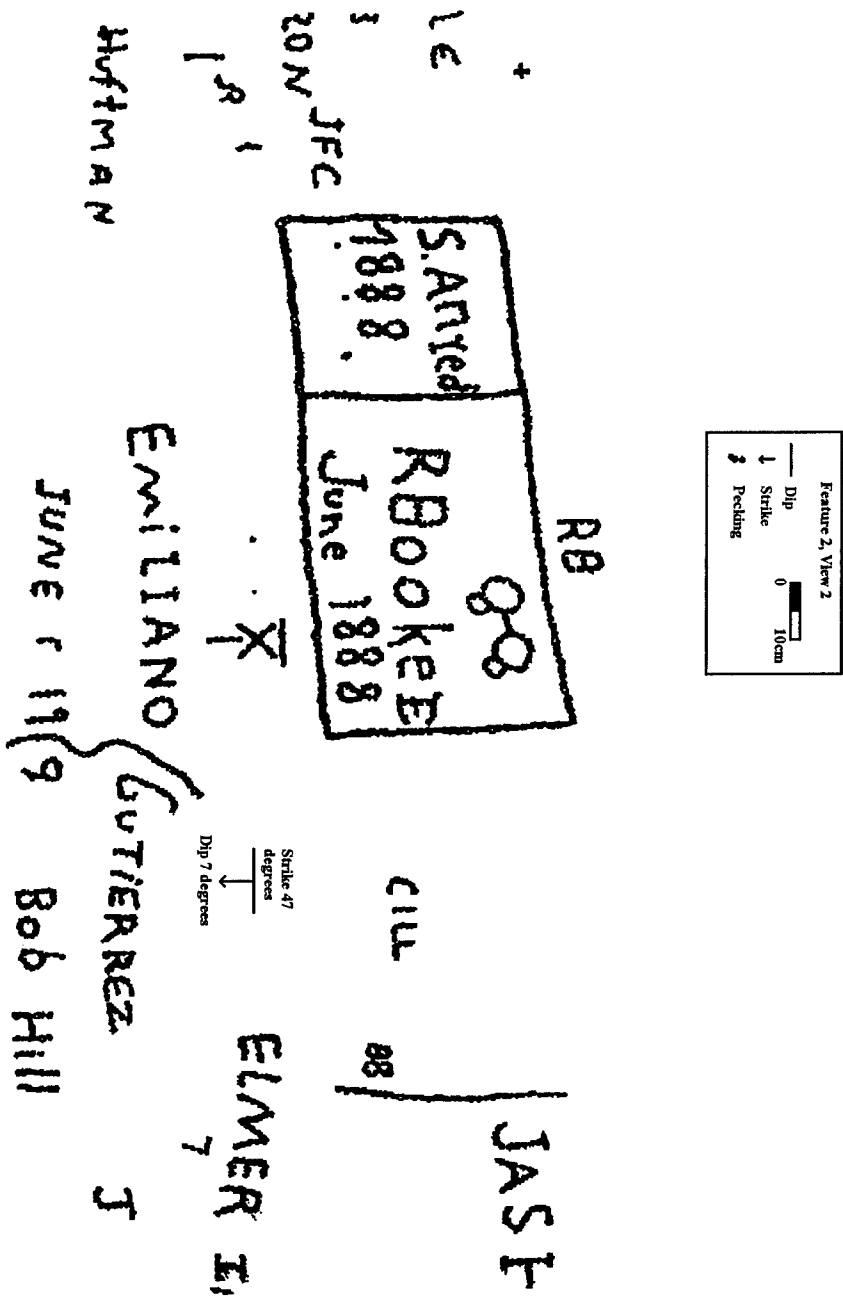
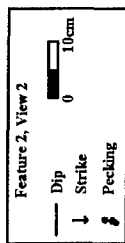


Figure 4.12: Historic rock art panel, Feature 2, View 2, 5LA4940.



ELLIS
 38 | GEORGE SHOOP
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 7 /

THOMAS
 412/88

THAI

VIN

FLOYD
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MOAST HN
 BOB DANIELSON
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 DANIELSON 54
 EVERETT CROWDER

7-21-39 °

Strike 36 degrees
 ↓
 Dip 26 degrees

DARIA G
 1978

ANNA JONES

Figure 4.13: Historic rock art panel, Feature 2, View 3, 5LA4940.

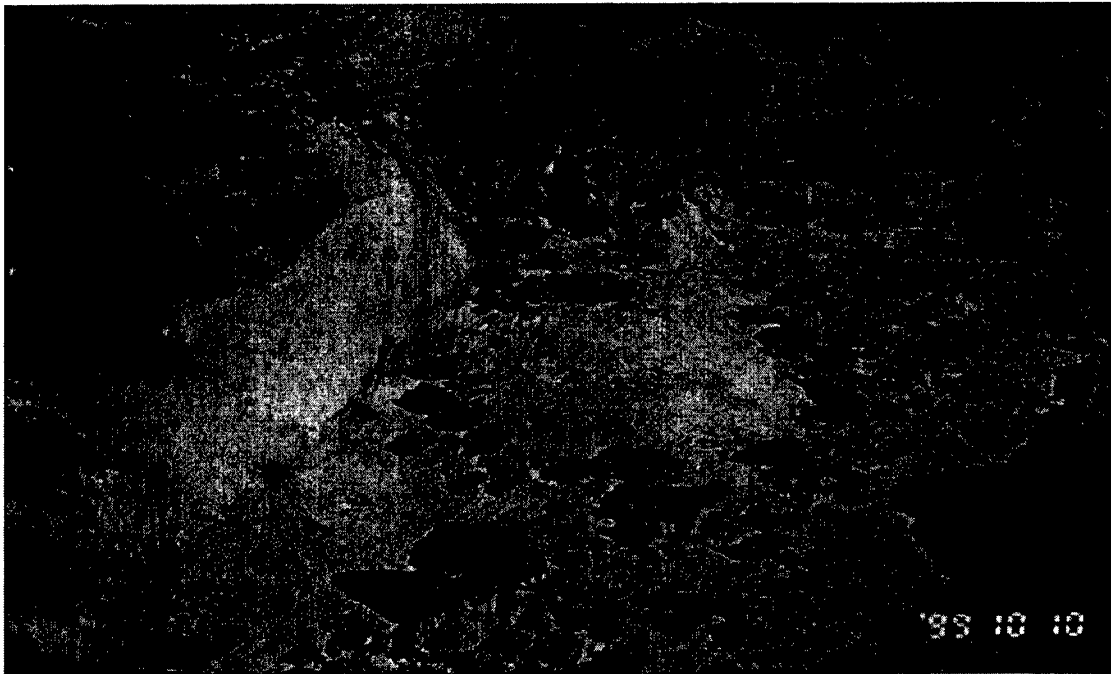


Figure 4.14: Feature 7, stone circle, 5LA4940. Photo (PCMS 99-24: 4) taken facing northeast.



Figure 4.15: Photograph (PCMS 99-19:24) of Feature 3, rockshelter, 5LA4940.

Interpretation and Summary

The historic component (land patent data indicates that Cresantos Moya held this land in 1882) of the site was determined to be significant during the 1987 Larson-Tibesar and Centennial Archaeology survey and the main historic structure (Feature 1) on the site was fenced. The prehistoric component is also significant as there is considerable deposition within Features 3, 5, 6, and 9. Given the excellent archaeological potential, we judge this site eligible for inclusion to the NRHP. Sites 5LA8620 and 5LA8616 are located just to the north, and the drainage near the edges of the two sites was used as an arbitrary site boundary. It is quite likely that all of the sites are very closely related and in fact, may be separate parts of one very large site.

The protection fence on the site needs to be expanded to encompass the entire site as several of the structures are in terrain accessible to military vehicles. The historic rock art panel needs better documentation than a scaled field map. A professional rock art illustrator should revisit this site for more thorough documentation. Test excavations within Features 3, 5, 6 and 9 could produce more diagnostic artifacts and carbon for addressing chronological issues. Subsistence and settlement information and paleoenvironmental data could also be recovered in the form of pollen, faunal, and macrobotanical specimens.

5LA5239

The site consists of a large lithic scatter with dense concentrations of lithics (Feature 1, 2 and 3) and a historic component (Figures 4.16 and 4.17). The site boundaries have been extended beyond those designated by Van Ness/Carillo, Denver University, 6/5/83. It is located on an upper eastern terrace of Big Water Arroyo, 500 m north of its confluence with Taylor Arroyo. There were standing pools of water in the sandstone. The site is set in the juniper/black grama and sagebrush/blue grama (Shaw et al., 1989:24, 28) plant communities found in the PCMS. Prickly pear, cholla, sage, juniper, snakeweed, grama grass, foxtail, Russian thistle, daises, and scrub oak were seen growing on site. Soil depth up to 20 cm was noted in some areas of the site with exposed bedrock on the west and northwest boundary near the drainage.

Features

Feature 1 is a 5-x-8 m concentration of lithic debitage 20m north of the datum. Feature 2 is a 10-x-8 m concentration of lithic debitage 130m at 90 degrees from datum. Feature 3 is a 3-x-3 m concentration of lithic debitage 150m at 285 degrees from the datum. The overwhelming majority of the flakes recorded in these features are made of quartzite.

The historic component of 5LA5239 consists of two areas of stoneware artifacts. This appears to be a single event "pot drop" of an early 1900s ironstone crock. The crockery has a tan glaze with brown speckled exterior and smooth dark-brown glazed interior. A glazed blue "flower" pattern was noted on some fragments. The crock rim fragments were pieced together suggesting a diameter of approximately 8-8.5 inches.

Lithic Artifacts

Tool classes noted at the surface include debitage, patterned chipped-stone tools, and ground stone. A 153-piece sample of debitage from the surface of the site was analyzed. Table 4.7 summarizes the debitage artifacts by material type. Locally available fine-grained quartzite (74%) is the dominant material, with lesser amounts of argillite (13%), chert (7%) and basalt (6%). The assemblage consists of simple flakes (38%), complex flakes (37%), biface-thinning flakes (18%) and shatter (7%). Eighty-four percent of the debitage specimens are noncortical, and 90% were classified as small. These data suggest biface production was a major site activity.

Chipped-stone tool classes are biface (2), projectile point (1) and utilized flake (2). All three bifaces are broken; FS 8 is an unused nearly finished specimen made of coarse-grained quartzite, FS 7 a chert biface broken during manufacture, and FS 9 is made from fine-grained quartzite and exhibits heavy use on both faces. The utilized flakes are made of chert (FS 5) and hornfels/basalt (FS 6). The chert specimen has an edge angle > 45 degrees and shows light use wear on one face.

One highly fragmented projectile point (FS 1, Figure 6.2) was recovered. Jack Hofman (personal communication) has tentatively identified this chert base as Hell Gap or Agate Basin.

Three pieces of ground stone were recorded on this site; one mano fragment (FS 2) and two interior slab metate fragments (FS 3 and 4). All of these pieces are made of sandstone.

Table 4.7: Summary Description of Chipped-Stone Debitage for 5LA5239.

	Argillite	Chert	Fine-Grained Quartzite	Hornfels/Basalt	Total
Total	20	11	113	9	153
Large	1	2	11	0	14
Small	19	9	102	9	139
Cortical	1	2	20	2	25
Noncortical	19	9	93	7	128
Complex	12	2	43	0	57
Shatter	3	0	6	2	11
Simple	2	5	43	7	57
Biface-Thinning	3	4	21	0	28

Table 4.8: Stone Tool Type by Material Group for 5LA5239.

Material	Type					Total
	Biface	Core	Projectile	Scraper	Flake Tool	
Chert	0	0	1	0	1	2
Coarse-Grained Quartzite	1	0	0	0	0	1
Fine-Grained Quartzite	1	0	0	0	0	1
Hornfels/Basalt	0	0	0	0	1	1
Total	2	0	1	0	2	5

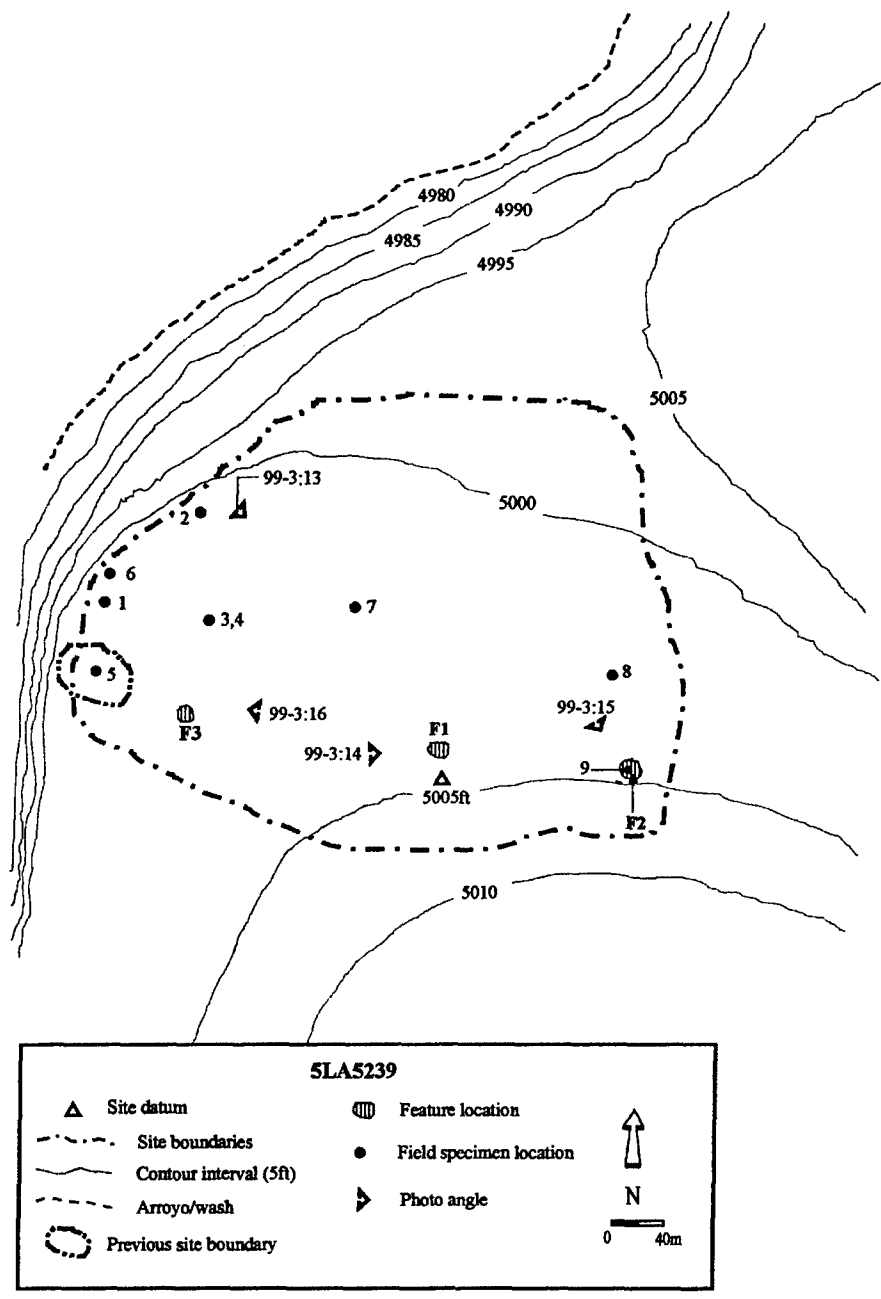


Figure 4.16: Site map, 5LA5239.

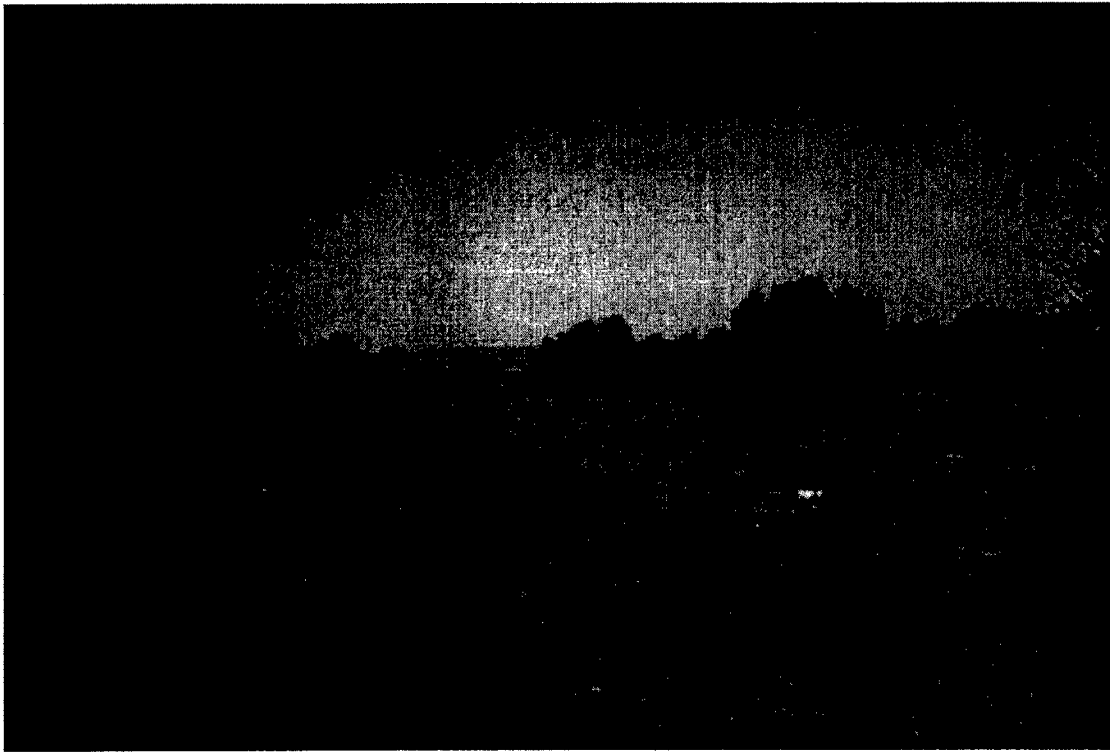


Figure 4.17: Site overview photograph (PCMS 99-3:16), 5LA5239. View towards Feature 2, a lithic concentration.

Interpretation and Summary

Site 5LA5239 is a lithic scatter that likely represents a biface manufacturing/reduction location for locally available quartzite. A lack of thermal features and expedient flake tools suggests this was not a habitation location. Paleoindian sites are relatively rare on the PCMS, and this site may provide additional chronological information about this poorly known period of time. This site has as much as 20 cm of soil deposition in several areas. Test excavations may reveal the presence of data such as pollen, macrobotanical, and/or faunal remains that could be useful for reconstructing paleoenvironment and subsistence patterns. Based on the presence of an Early-Middle to Middle Paleo-period projectile point and the probability of encountering intact subsurface deposits through test excavation, we recommend that this site be nominated for the National Register of Historic Places under Criteria D.

We recommend that the site be fenced for protection and tested to determine the extent of subsurface cultural deposits.

5LA5830

This site (Figure 4.18) consists of two deflated historic structures situated 160 m northwest of Cross Ranch (5LA5830). The location overlooks Lockwood Arroyo 200 m to the southeast. The boundary of the Cross Ranch site as designated by Carillo, Kalasz, Barnes, Coder of Larson-Tibesar Associates/Centennial Archaeology, 6/17/87, has been extended to include these structures, though they may be attributed to the original (1919) patent holder Thomas Hughes. No associated historic trash was recorded in the area of either structure. The site is found within the juniper/grassland vegetative plant community of the PCMS. Cholla, juniper, western wheatgrass, low sage, foxtail, yucca and sunflowers were seen growing across the site. The soil on site is shallow, with deposition ranging from 0 cm on exposed bedrock, to 10 cm in areas of greatest deposition. U.S. Army maneuvers have the potential to impact this area of the site, as it has not been fenced.

Features

Two new structures (Features 8-9) were recorded; these are in varying states of preservation, ranging from fair to ruins. Feature 8 (Figure 4.19) is 12 x 10 ft in size, and is 55 m at 290 degrees from datum. It consists of one to four courses of tabular sandstone blocks with a door opening apparent in the southeast wall. There is very little sediment fill associated with the feature.

Feature 9 is a rectangular structure (6.6 X 8 ft) constructed of stacked tabular sandstone blocks. The existing walls consist of one to five courses of rock, and there is a door opening in the east wall. The center of this structure appears to have been dug one to two feet below the modern ground surface. This feature contains intact fill, and may yield intact buried cultural deposits, and should be tested to determine their extent.

Interpretation and Summary

We recommend that this site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of history (Criterion D). This historic site consists of two structure features probably associated with the primary Cross Ranch occupation. Though this area of the site exhibits shallow deposition, Feature 9 has indication of deposition in excess of 30 cm. This feature may contain intact, buried cultural deposits that could provide valuable information on the ranching community in the Post-Silver-Crash to World War II (1894 to 1946) periods.

We suggest the current Cross Ranch site protection fence be extended to include the newly found structures and that the structures be tested if this does not prove to be feasible.

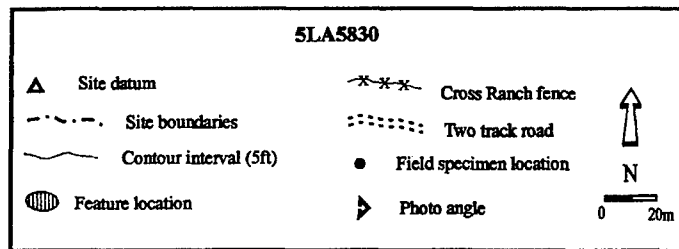
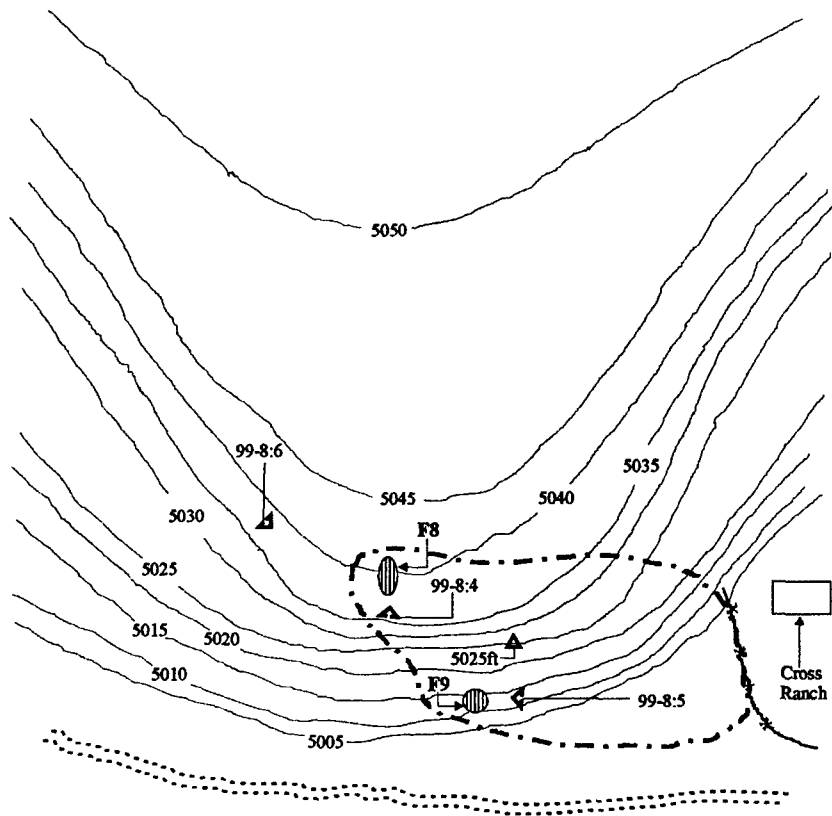


Figure 4.18: Site map, 5LA5830.

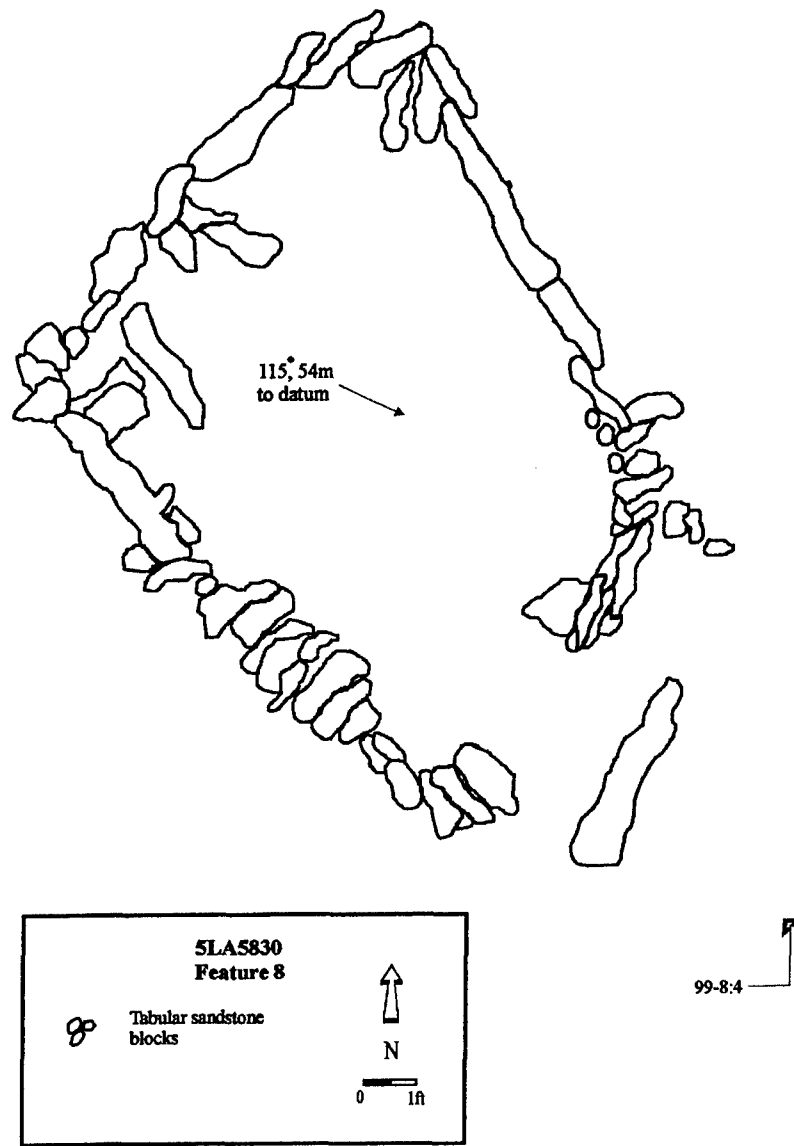


Figure 4.19: Planview of house foundation, Feature 8, 5LA5830.

5LA6101

The historic portion of this site was recorded in 1993 by archaeologists from Western Cultural Resource Management and was comprised of 22 features. During field inspection by crews from NMSU in 1999, the prehistoric component of the site was recorded. The site sketch map was enlarged to add the extent of the prehistoric component.

The prehistoric component on this site is a lithic scatter and several rock overhangs that were used for temporary and permanent shelter. 5LA6101 is located at the head of one of several narrow southwest to northeast trending ridges that feed the Mary Doyle arm of Welsh Canyon. The site occupies the head of the canyon and its adjacent slopes near the canyon edge. Though the artifact distribution is fairly light, the site boundary measures approximately 610 m north to south and 263 m east to west (Figure 4.20). Artifact density is highest on the slopes above the canyon.

Juniper is thick near the canyon edge, but grasses, the *Opuntias*, yucca, and grama grasses occur on the slopes. Soils are thin near the canyon rim; however, relatively thick deposits (up to ca. 40 cm) were noted on the slopes and down in the sheltered area of the canyon.

Features

Feature 23, a rockshelter, is located approximately 57 m southwest of the site datum at the base of a low sandstone cliff (Figure 4.21). It is rather small (4 x 2.5 m) and has the remnants of a circular prehistoric structure inside of it. Debitage, metates (FS 1 and 6), a scraper (FS 2), a utilized flake (FS 3), a preform (FS 4), a one-hand mano (FS 21), burned bone (FS 5), a ceramic (FS 20), and a hammerstone (FS 7) are eroding out of it. This erosion is being caused by a small arroyo on the south side of the shelter. Wall blocks are falling down into the west side of the arroyo. The structural unit within the feature still contains upright slabs on its west and east sides and significant internal deposition remains. These deposits however, are also being destroyed by the arroyo and the feature must be excavated before all available data is lost to natural processes.

Feature 4, another rockshelter was also revisited. Based on its association with the historic structures and the presence of some organic material (animal dung) it was assigned as a possible residence for historic people and/or animals and one mano was recorded within it during our fieldwork. A direct structural and topographic association with Feature 23 and the presence of lithic artifacts in the immediate area suggests Feature 4 also contains one or more prehistoric components. A pinflag probe reveals at least 40 cm of deposition here, though it is unknown how much of this might simply be post abandonment fill. The general structure of this overhang and its relation to the canyon bottom suggests that there may be cultural depths here of over a meter.

Lithic Artifacts

One hundred fifty pieces of debitage were recorded as a general sample of the lithics present on the site. Of the overall sample 73% are simple flakes, 23% are complex flakes, 3% are shatter, and less than 1% are biface-thinning flakes. Material types used are coarse-grained quartzite (63%), hornfels/basalt (19%), chert (12%), silicified wood (3%), and fine-grained quartzite (2%). All materials are available locally on the PCMS.

All phases of raw material reduction are seen in the debitage assemblage (Table 4.9). Fifty-eight percent of the items were classified as large and forty-two percent as small. Forty-two percent of the debitage is large cortical items and twenty-three percent are small cortical items. Of the cortical specimens (97 items), 63 were classified as large and 34 were small. In the noncortical specimens (52 items) 23 were large and 29 were small. All cortical flakes and the noncortical large flakes appear to be the result of hard hammer raw material reduction activity, or in some small part, early-stage biface manufacture. It appears all stages of core reduction are represented. The large number of small noncortical flakes, small complex flakes, and the single biface-thinning flake suggests a less substantial emphasis on biface reduction activities. Heat treatment was not evident in the debitage assemblage.

A single diagnostic preform (FS 4) was encountered in the assemblage. It is complete, made of orthoquartzite, and similar to Anderson's (1989) P48 type that has an expected temporal range from AD 1000 to AD 1400.

Of the remaining chipped-stone tools recovered at the surface, there are four cores, three bifaces, three utilized flakes, and two scraping tools (Table 4.10). The core category contains two specimens of hornfels/basalt, and single specimens for coarse- and fine-grained quartzite. The bifaces are argillite, chert, and fine-grained quartzite. Two specimens are broken and one is complete, and all can be best classified as unfinished bifaces that were discarded sometime in the manufacturing sequence. Field Specimen 18 appears to have been broken during heat treatment. All of the utilized flakes are complete; and all were used for cutting (evidenced by use angle of less than 45 degrees and polish along edge). Three material types were recorded: chert, fine-grained quartzite, and siltstone. Both of the complete end/side scrapers are quartzite.

Ground-stone artifacts were found throughout the site, with all of the bedrock metates recorded in one localized area on the upper terrace of the south side of the canyon. All other ground artifacts were randomly encountered across the surface and in Feature 23. The portable ground-stone pieces are three slab metate fragments, and a single one-hand mano fragment. All ground-stone tools are made of, or were on, locally outcropping sandstone.

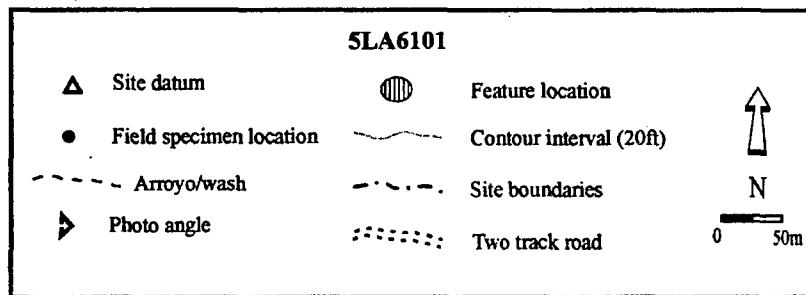
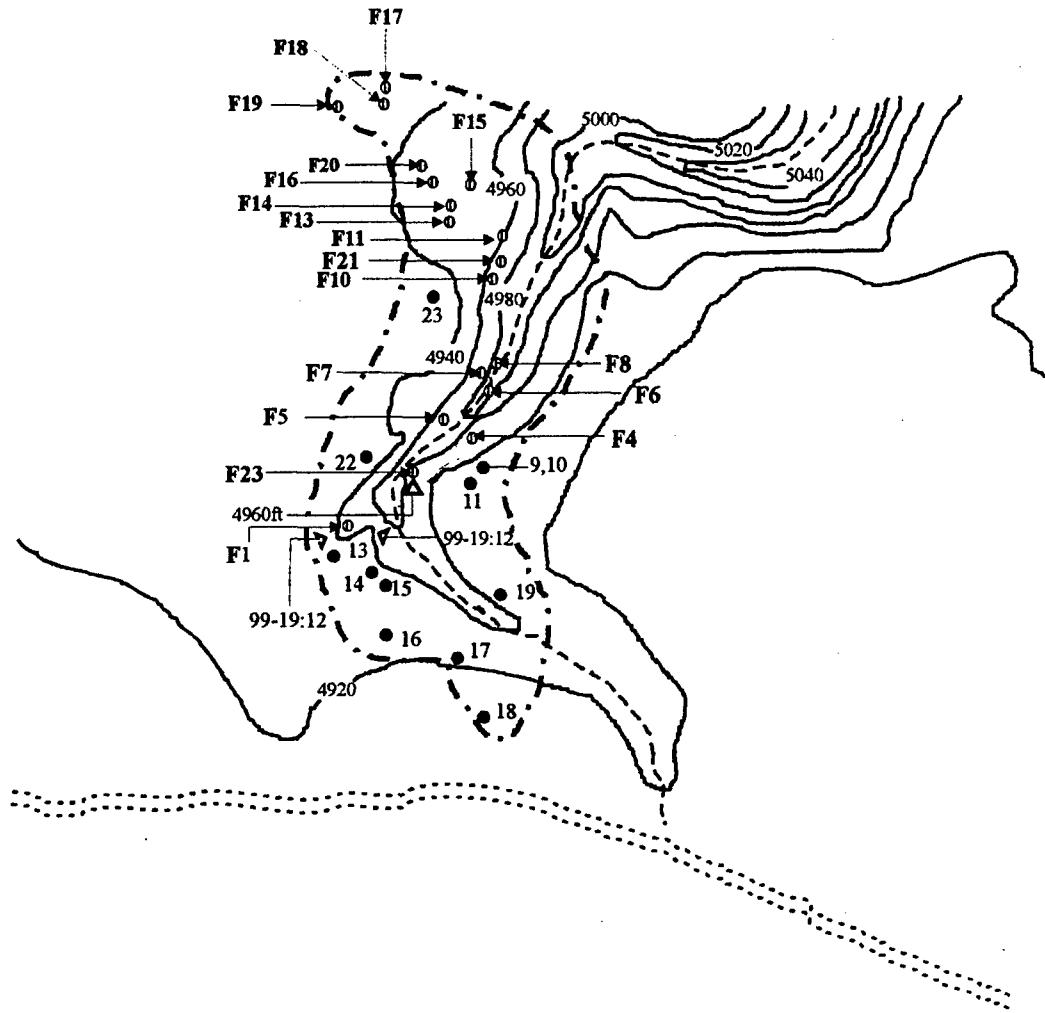


Figure 4.20: Site map, 5LA6101.

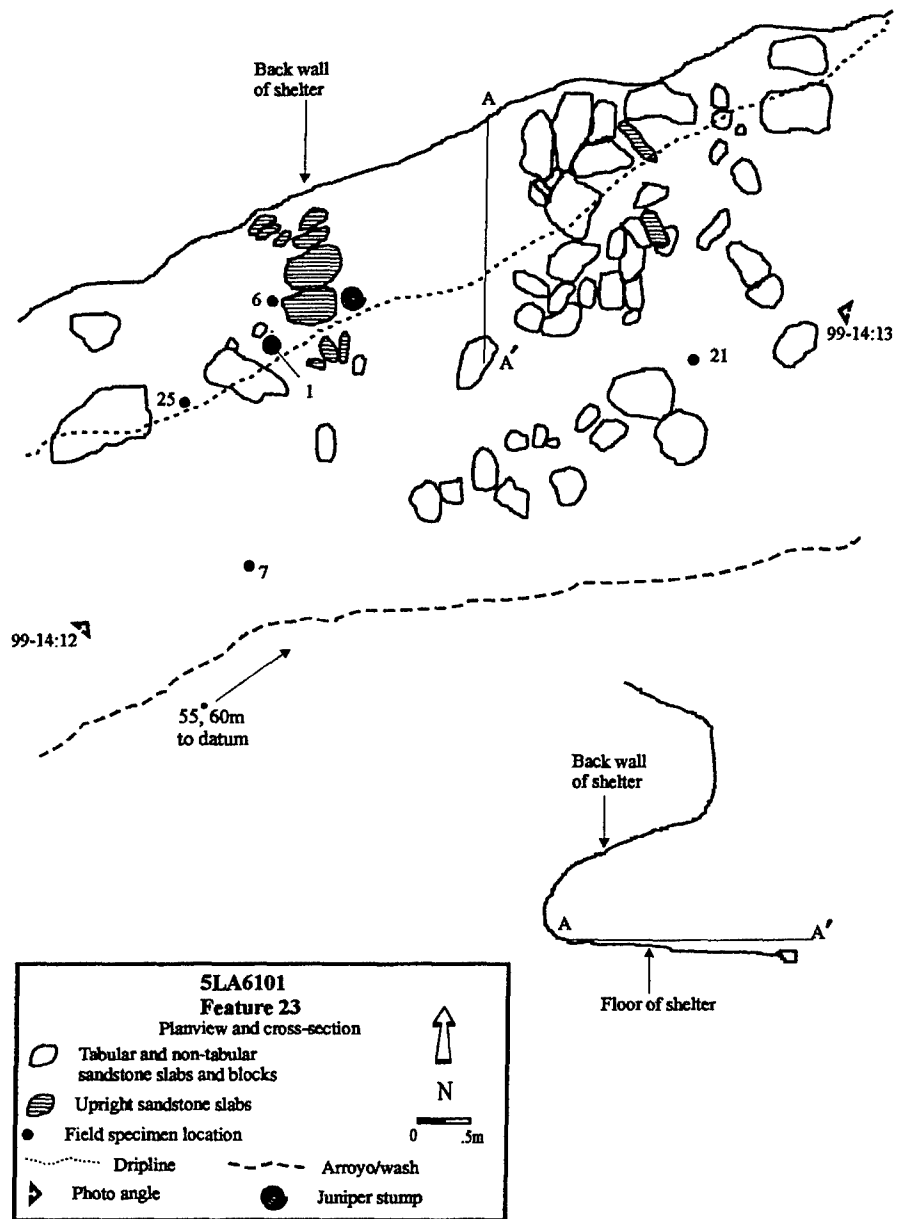


Figure 4.21: Planview of Feature 23, rockshelter with prehistoric architectural unit, 5LA6101.



Figure 4.22: Feature 23, rockshelter with structure, 5LA6101.

Table 4.9: Summary Description of Chipped-Stone Debitage for 5LA6101.

	Chert	Fine Quartzite	Hornfels/Basalt	Course Quartzite	Sil. Wood	Total
Total	18	3	29	94	5	149
Large	11	2	20	51	2	86
Small	7	1	9	43	3	63
Cortical	9	2	22	59	5	97
Noncortical	9	1	7	35	0	52
Complex	8	2	6	17	2	35
Shatter	0	0	1	2	1	4
Simple	10	1	22	74	2	109
Biface-Thinning	0	0	0	1	0	1

Table 4.10: Stone Tool Type by Material Group for 5LA6101.

Material	Type							Total	
	Biface	Core	Projectile	Scraper	Flake	Tool	Mano		Metate
Argillite	1	0	0	0	0	0	0	0	1
Chert	1	1	0	0	1	0	0	0	3
Coarse-grained Quartzite	0	1	0	0	0	0	0	0	1
Fine-grained Quartzite	1	0	0	2	1	0	0	0	4
Hornfels/Basalt	0	2	0	0	0	0	0	0	2
Sandstone	0	0	0	0	0	1	7	0	8
Siltstone	0	0	0	0	1	0	0	0	1
Orthoquartzite	0	0	1	0	0	0	0	0	1
Total	3	4	1	2	3	1	7	0	21

Ceramic Artifacts

A single sherd was encountered near the south wall of Feature 23. It was not diagnostic. Appendix IV shows additional data for ceramic artifacts collected on the PCMS.

Interpretation and Summary

From the 1993 work conducted by Western Cultural Resource Management it was determined that the historic component of the site is significant. NMSU determined that prehistoric component is significant too. Accordingly, the site is judged eligible for inclusion to the NRHP for its information potential (Criterion D). There is significant deposition in the rock shelters and excavation could yield intact cultural deposits, hearths, or pollen that would be useful in addressing area settlement and subsistence patterns. The important prehistoric features of the site are protected inside the canyon and in an area away from potential military impact. This is not the case however for the upper historic structures at the northwest edge of the site.

Recent military activity here has left tracked vehicle tracks inside the site boundary and in the area of Features 13, 14, and 15. Because of this, we recommend that the upper portion of the site be fenced to ensure that these structures remain free from military impact. Water erosion continues to expose artifacts along the southern edge of Feature 23 and this erosion is rather quickly destroying the feature. A data recovery plan for this feature must be developed before all contextual information is lost.

5LA6104 (La Placita)

In 1993, researchers from Western Cultural Resource Management recorded the historic component of this site. During this work, 18 historic features were recorded. This site was contained within the 2000 NMSU survey area and we performed a record search to determine whether the prehistoric component of the site had been recorded. Though noted, it had not been fully recorded so, on October 12, NMSU field crewmembers recorded the prehistoric component of the site. We completed a prehistoric component form and recorded two new features. A new site map was also drawn and all of the surface lithic artifacts were recorded using our system.

The site is located on a broad bench or erosional terrace that overlooks a large northern tributary of the Red Rock Canyon system. At the southern edge of the site and along the slope of the canyon there is a spring at the back of a large rock overhang. The spring and the rock shelter have apparently been modified in historic times to facilitate livestock watering. Sandstone bedrock outcrops over most of the site and large terraces have formed along the northern site boundary (Figure 4.23). These would have afforded protection from the elements and many of the historic structures abut this landform. This type of setting is precisely the same as other prehistoric structure sites of the PCMS. It may not be the case, but it seems possible that prehistoric structures could be buried at the foot of this landform and beneath the historic structures. This assumption is supported by the fact that Bonnie Clark (2003) encountered prehistoric materials beneath below a historic interval in Feature 7.

Vegetation on site is chiefly juniper woodland. Mountain mahogany, cedar, yucca, cholla, prickly pear, grama grasses, and piñon trees occur, but overall, the vegetation could be classified as rather sparse. In the area of the spring, riparian species were encountered. Though pockets of aeolian soil deposition (up to 40 cm) were seen at the east end of the site and in the vicinity of the terraces, soils are generally quite shallow near the canyon edge. In these areas many lithic artifacts were encountered on bedrock exposures. Areas of lithic concentration were also seen on the terrace above and to the north of the historic structures.

Features

Recent erosion exposed a large hearth (5 x 5 m) at the south and east edge of the site. It was designated Feature 20 and is an irregularly shaped charcoal stain with distinguishable chunks of fire-cracked rock eroding out of it. There are also several large and unmodified sandstone slabs around its edge. Cultural depth (> 10cm) is shown in an animal burrow at the center of this feature. There were no prehistoric or historic artifacts in the fill and this thermal feature is of unknown age. Both prehistoric and historic artifacts were encountered in the vicinity, however.

Feature 19 is a bedrock metate with a single milling surface (FS 25). This circular ground area measures 20 x 15 cm and exhibits light use wear. The milling surface has experienced some modification in the form of pecking.

Lithic Artifacts

The site contains several distinct components. One of these, as demonstrated by the presence of structures and artifacts, is clearly Spanish-American. Many ethnographic accounts describe the use of stone tools by this group. The other component is prehistoric in age and likely represents multiple occupation events. There is no way to know which lithic tools are associated with which group, however, as erosion has led to some artifact mixing. Perhaps the break down into component groups can be explained by horizontal spatial analysis. The following analysis represents the findings from the general surface scatter.

Artifact classes recorded at the surface include debitage, patterned chipped-stone tools, and ground stone. A 150-piece general sample of debitage was analyzed and Table 4.11 summarizes the debitage artifacts by material type. Locally available quartzite (17% coarse-grained and 72% fine-grained in the total assemblage) is the dominant material, with lesser amounts of chert (7%), orthoquartzite (3%), and basalt (1%). All of these materials are considered local when the entire region of the PCMS is considered. The assemblage mainly contains simple flakes (68%), with a large amount of complex flakes (29%) also. Biface-thinning flakes are not observed and the proportion of shatter (3%) is considered small. Fifty-seven percent of the debitage specimens are noncortical, and 43% show some degree of dorsal cortex. Nearly all of the cortical flakes were large in size. This reflects an emphasis on primary core reduction. It appears that raw materials were brought to the site in both cortical and noncortical form. Because there are no biface-thinning flakes and few small complex flakes (2), it seems that once materials were brought to the site they were used to produce flake blanks.

The chipped-stone tool included cores (11), utilized flakes (3), projectile points (2), a biface (1), a scraper (1), and a drill (1). The material information for these is contained in Table 4.12. Neither of the projectile point fragments is complete enough to be assigned to an Anderson (1989) category classification. All of the ground artifacts, with the exception of the bedrock metate, are broken.

In trying to determine which surface artifacts might be attributed to a specific culture group, horizontal group relationships were noted for artifacts from the surface of 5LA6104. Three distinct clusters seem apparent from the site map. Field Specimens 19 through 24 (all ground-stone tools) were found in the vicinity of Feature 11, a historic structure, and very well could represent historic artifacts from an activity area. This is the only cluster of ground stone noted on the site. There are also two distinct clusters of chipped tools; one is at the base of a bedrock ledge in the vicinity of Feature 7 and outside of the plaza area (Feature 12), the other cluster is along a low sandy ridge at the eastern edge of the site. Based on spatial relationships alone, these seem more likely to be the remains from prehistoric occupants. These assumptions are problematic though and likely the only way to determine which artifact clusters can be attributed to either component is through some kind of excavation program.

Three rather unique items were also recorded at the site. Field Specimen 34 is interpreted as a jewelry blank or gaming piece. It is a worked piece of baked clay and exhibits facial striations and some edge shaping through grinding. There is another worked piece of baked clay (FS 17) with a central drill hole and edge grinding. This was interpreted as a pipe or cloud blower preform. Two fragments of unmodified shell (FS 10) were found at the northeastern edge of the site.

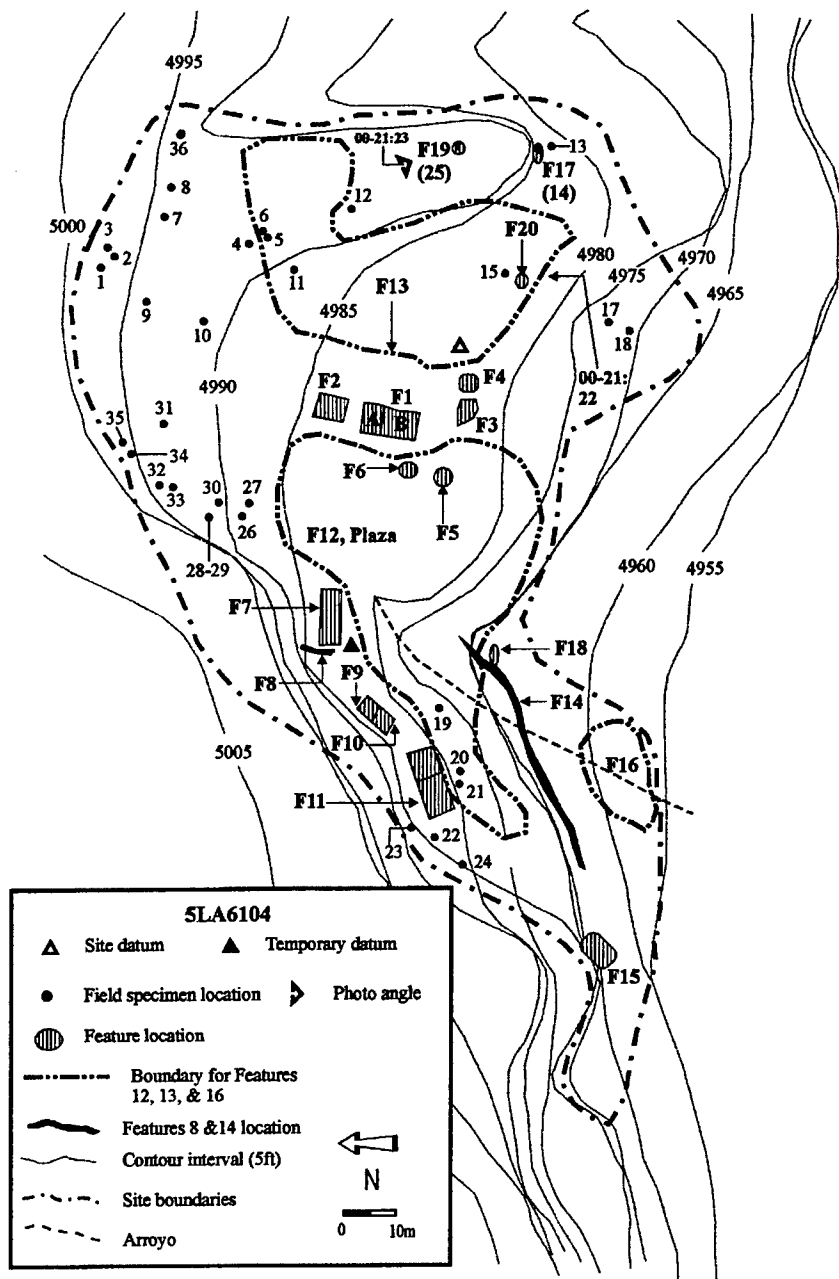


Figure 4.23: Site map, 5LA6104.

Table 4.11: Summary Description of Chipped-Stone Debitage for 5LA6104.

	Chert	Coarse Quartzite	Fine Quartzite	Hornfels/Basalt	Orthoquartzite	Total
Total	10	25	109	2	4	150
Large	7	25	102	2	2	138
Small	3	0	7	0	2	12
Cortical	3	14	47	0	1	65
Noncortical	7	11	62	2	3	85
Complex	7	7	25	2	2	43
Shatter	0	2	3	0	0	5
Simple	3	16	81	0	2	102

Table 4.12: Stone Tool Type by Material Group for 5LA6104.

Material	Type								Total
	Biface	Core	Projectile	Scraper	Util. Flake	Drill	Mano	Metate	
Argillite	0	1	0	0	0	0	0	0	1
Chert	1	0	1	0	0	1	0	0	3
Coarse Quartzite	0	5	0	0	1	0	0	0	6
Fine Quartzite	0	4	0	1	1	0	0	0	6
Sandstone	0	0	0	0	0	0	3	10	13
Hornfels/Basalt	0	0	0	0	0	0	0	0	6
Orthoquartzite	0	1	1	0	1	0	0	0	3
Total	1	11	2	1	3	1	3	10	38

Interpretation and Summary

This is a large site with a good water source within a rockshelter (Feature 15). Because the site has experienced long-term historic occupation, most of the prehistoric component is difficult to see. The spring within the shelter has been developed historically and no evidence for prehistoric habitation remains. Also, it is unknown whether Feature 20 is historic or prehistoric in nature. The Western Cultural Resource Management field crew made this site eligible for the National Register in 1993 and we agree with this nomination. During the summers of 2000 and 2001, crews from UC Berkeley performed test excavations in the area of the historic structures (Clark 2003). They did encounter lithic artifacts in subsurface context, but prehistoric features were not identified.

Based on our observations of the surface lithic scatter, the prehistoric component of the site is not significant. Almost all of the upper historic structures have the potential to be adversely impacted by military activities. As such, the site should be avoided and fenced.

5LA6105

This is a large site with both a prehistoric component (recorded by NMSU in 2000) and a historic component recorded by Western Cultural Resource Management (WCRM) in 1993. No prehistoric component form was completed during the earlier investigation of this site. 5LA6105 is located at the head of a side drainage canyon feeding Red Rock Canyon and is situated along the western rim (Figure 4.24). It is bordered on the east side by a canyon and its associated

arroyo; all other site boundaries were determined by the extent of the surface lithic scatter. Feature 5, as recorded by WCRM, is a rockshelter with a permanent spring at its back wall. This served both the historic and prehistoric occupants of this site as a fairly reliable water source.

Like all of the other sites located along Red Rock Canyon, the vegetation here is predominately juniper woodland. Other species observed were grama grasses, skunkbrush, wild currant, wild grape, wheatgrass, yucca, cholla, and prickly pear.

The 2000 investigation of 5LA6105 revealed three rock shelters (Features 9-11) on a sloping terrace above the historic component of the site, a large midden (Feature 7) located on the terrace in front of the three shelters, and a large roasting pit (Feature 8). Other observed features were two bedrock metates (Features 14 and 15), and a circular stone structure (Feature 6). Since the drainage and canyon were used as geographic boundaries for the site, no searches were made below the 5000 ft site contour. When a canyon survey of Red Rock Canyon and its tributaries is made at some future date, this drainage should definitely be explored.

Features

The crew from WCRM designated a total of five features. Those recorded by NMSU in 2000 are described below.

Feature 6 is a circular stone structure constructed of tabular and non-tabular sandstone blocks and cobbles, two of which are of upright construction. It is highly deflated and the exact diameter of the original wall block settings is unknown; it is currently 5 m in diameter. According to Kalasz (1989), this would be a Class V contiguous rock wall isolated unit. These architectural features are associated with a very broad time range and without diagnostic projectile points, ceramics or charcoal, it is unknown where this feature should be placed within it. An age estimate sometime in the Developmental or Diversification periods of the Late Prehistoric stage seems most likely.

Several burnt pieces of sandstone were found at the center of Feature 6 along with at least 10 cm of dark ashy soil. A slab metate (FS 73), a piece of worked baked clay (FS 77), and two cord-marked ceramics (FS 5 and 45) were found along with two chert cores (FS 78 and 79) and two drill bits, one chert (FS 76) and one argillite (FS 74). This feature has intact fill and is being actively impacted by erosional processes; thus it should be excavated immediately (i.e., data recovery) as it has good potential for the recovery of intact cultural deposits.

Feature 7 is a large (25 x 16 m) midden (Figure 4.26) located on the sloping terrace below (east) the three rockshelters (Features 9-11). It has minimally 20 cm of depth and is also being actively impacted by erosion. There is a high potential for the recovery of floral/faunal material from the midden, and ash and charcoal here suggest datable charcoal can be obtained from subsurface context. Numerous tools and pieces of lithic debris are eroding out of this ashy fill. The artifact assemblage here consists of two chert utilized flakes, one silicified wood biface, three projectile point fragments: one chert (FS 14), one fine-grained quartzite (FS 13) and one orthoquartzite (FS 50). Three sandstone mano fragments represent the ground stone tools. The

most abundant tool class identified in this feature is the core, and in several cases, these were used to the point that platform angles could no longer be obtained. A total of 28 cores were identified. Three of these are fine-grained quartzite (FS 16, 20, and 42), two are hornfels-basalt (FS 17 and 49), chert accounts for seven specimens (FS 25, 27, 29-31, 43, and 44), and the rest are coarse-grained quartzite (FS 15, 18, 22, 33-41, 46, and 48). Several cores exhibit either a red color change or cracking from heat exposure.

Feature 8 is a large (4 x 3.5 m) roasting pit in the vicinity of Feature 6. Its surface consists of very dark ashy soil and fire-cracked rock pieces. There are also tools eroding out of its fill; FS 1 a granite mano fragment, and FS 11 a quartzite core. A sample of 50 flakes was recorded from in and around this feature to try and determine its secondary function (see debitage description below). Feature 8 is also a candidate for testing as it has at least 20 cm of intact fill and is experiencing erosion as well.

Feature 9 is a large rockshelter measuring 6.5 m at the mouth, 8.35 m front-to-back, and ranges in height from 1.1 m at its mouth to a mere 20 cm at the back wall. The shelter is filled with aeolian duff and there is at least 20 cm of sedimentation. Most appears to be post abandonment deposition, though there is slight potential for intact buried cultural deposits.

Feature 10 is a small rockshelter measuring 4.3 x 3 m and has a roof to floor height of 1.7 m. The floor is natural sandstone, and there is only 5 to 10 cm of what appears to be secondary depth at the mouth. A few roughly stacked blocks on the southern edge of the shelter and wall-fall on the outside at the eastern edge may indicate the remains of a wall or partition. There is some fire-cracked rock in the vicinity of the stacked blocks but their purpose is unknown. No artifacts were found inside the shelter, and heavy erosion has taken place on the slope in front.

Another rockshelter, Feature 11, was located 3 m south of Feature 10. This shelter is small, measuring 3.7x 4.1x 1.5 m. Artifacts are also absent inside the shelter but there is some debitage located outside the dripline. Roof-fall and a large packrat midden cover the shelter floor. The roof-fall blocks and areas of the present roof exhibit sooting and suggest multiple occupations of this shelter.

A small hearth consisting of a smear of ash and some fire-cracked rock was designated Feature 12. Outside dimensions are 2.5 x 2.1 m and a pin-flag probe gives a minimal sediment depth of 30 cm. It is unknown whether the internal soils are cultural or the result of natural secondary deposition, though, debitage was encountered on the surface of this feature. A test unit may be the only way to determine cultural depth.

Feature 13 is a 2 x 1.8 m thermal feature of unknown cultural depth. Its fill contains ash and fire-cracked rock, most of which has been brought to the surface by rodent activity. This suggests that this area of the site has buried cultural depth, though lithic tools were not encountered on the modern ground surface.

We also encountered a bedrock metate (Feature 14) with six individual grinding surfaces (FS 56 through 61). The overall size of the bedrock outcrop is 5.5 x 3.8 m and the ground areas range in size from 18 x 5.5 cm to a maximum of 65 x 53 cm. Depth ranges from .5 to 2 cm

indicating light to heavy usage. The orientation here suggests that some of the surfaces may have been used as solar ovens. Five of the slicks were oval in shape and one is rectangular.

Feature 15 is another bedrock metate with a cluster of eight milling surfaces in one relatively compact area (FS 114 to 121). Three of the surfaces show grinding and pecking and five exhibit grinding only with no pecking modification; seven are oval in shape, and one is irregular. Four surfaces exhibit moderate usage, three were heavily used, and one has only light use wear. Grinding surface size ranges from 20 x 20 cm and no depth, to 47 x 40 cm and 3 cm of depth. This feature is located on the upper ridge in the west central portion of the site.

Lithic Artifacts

A total of 251 pieces of debitage were recorded at the site (Table 4.13): 143 general surface artifacts, 50 items from Feature 6, 50 items from Feature 7, and 8 items from the vicinity of Feature 8. Nine material types were noted, with single specimens of chalcedony, silicified wood, and siltstone. Of the total debitage, 51% is fine-grained quartzite, 20% is chert, 19% is coarse-grained quartzite, 4% is argillite, 3% is orthoquartzite, 2% is basalt, and less than 1% for silicified wood, siltstone, and chalcedony. Most are simple flakes (61%), with fewer complex flakes (29%), shatter (6%), and biface-thinning flakes (4%). The sample is 48% large items, and 52% small ones; 39% of the debitage has cortex and 61% is noncortical. From the debitage data it seems freehand percussion was used to generate the quartzite, basalt, orthoquartzite, and argillite flakes. The abundance of cortical items indicates that these materials were quarried locally. Quartzite and chert can be found in Red Rock Canyon below.

The frequency of small complex flakes is low (11% of the total assemblage) and only 9% of the debitage were biface-thinning flakes suggesting that either biface reduction and other late-stage reduction techniques were performed elsewhere in the area or erosional processes have displaced these small flakes, making their recovery impossible. Biface-thinning flakes were recorded in five different material types so at least 5 bifaces were manufactured on the site.

Fifty (20% in overall assemblage) of the debitage specimens were recorded in Feature 6. Of these, 28 are simple flakes, 18 are complex flakes, two are biface-thinning flakes, and two pieces are shatter. Material types for this group are fine-grained quartzite (30), coarse-grained quartzite (11), chert (6), argillite (1), orthoquartzite (1), and siltstone (1). All reduction stages are represented in the sample, with small noncortical items (35%); large cortical items (29%); large noncortical items (25%), and small cortical items (10%) recorded. This data indicates that Feature 6 functioned chiefly as a quartzite reduction area, with some parent nodules or cobbles reduced. Many of the debitage items are the direct result of core reduction with the detached flakes removed for usage. This idea is not supported by the tool data though which is surprising. Likely the large simple and complex flakes were utilized, however, the rough nature of the edge coupled with very expedient usage may result in a lack of obvious wear.

Another 50 debitage specimens were recorded in Feature 7. Overall the count for quartzite specimens is lower than that for Feature 6; 21 items are fine-grained quartzite and seven items are coarse grained. In a much higher proportion is chert (17). Remaining materials in Feature 7 are argillite (3), basalt (1), and orthoquartzite (1). There were 37 simple flakes, 11

complex flakes, and two pieces of shatter. Again, like Feature 6, all reduction stages are represented in the sample. Mostly there were small noncortical items (36%) and large cortical items (32%), with fewer large noncortical items (18%) and small cortical items (14%). There were only a few small complex flakes (5) and biface-thinning flakes were not seen so finished biface tools were not manufactured here. Most of the activity in Feature 7 seems to have revolved around the production of flakes.

Only three of the five projectile points recovered at the surface were complete enough to be assigned to one of Anderson's (1989) classes. One of these (FS 50) is made of orthoquartzite and is similar to a P28 type and has associated dates that range between 2000 BC and AD 1000. Another projectile point (FS 101) is made of fine-grained quartzite and resembles the P47 type (3300 BC to AD 1000). The final projectile point (FS 91) is chert, similar to a P48 type, and is associated with dates that range from AD 500 to AD 1400. Based on these artifacts, there are two separate occupations represented; one in the Archaic and another in the either the Developmental or Diversification periods based on the small point, the circular slab structure, and the presence of ceramics.

The remaining 88 tools were recovered throughout the site; as noted above, many of the cores came from the vicinity of the midden (Feature 7). Of the cores, a wide variety of material types were evident; all of the materials are considered local to the PCMS. In the cores (Table 4.14) thirty-one are coarse-grained quartzite, fourteen are chert, three are argillite, three are fine-grained quartzite, and two are basalt. Most of these would be considered "exhausted" and seven show evidence of heat exposure. Most of the utilized/retouched flakes are fine-grained quartzite (13). Also recorded in lower numbers were specimens of chert (5), coarse-grained quartzite (3), argillite (2), orthoquartzite (3), basalt (1), and silicified wood (1). Eighteen of the utilized/retouched flakes are broken and twelve are complete. Visible edge angle inspection indicated that 22 specimens were used for scraping, five items were used for cutting, and in one specimen, the edge has been freshly resharpened and its function cannot be determined.

The remaining seven tools are five bifaces and two drill fragments. Both drills were found directly associated with Feature 6. The chert specimen (FS 76) is highly patinated and the other (FS 74) is made of argillite. Of the bifaces, there are two of orthoquartzite, two of quartzite, and one of chert. Manufacturing stages show that three are nearly finished bifaces and two are unfinished. Three of these are bifaces are broken; two during manufacture and the other apparently shattered when exposed to intense heat. Field Specimen 110 has cutting wear along one edge and FS 107 has a distinct scraping edge.

Discounting the bedrock metates described above, there were eight one-hand mano fragments, eight metate fragments, two complete manos, and a broken edge-ground cobble fragment. One metate fragment was found in direct association with Feature 6. Feature 7 contained three one-hand manos and two slab metate fragments. For the most part, all of the ground-stone tools were encountered between the rockshelters and the small arroyo that forms the east edge of the site.

The unique artifacts include a shaped piece of baked clay (FS 77) and a shell pendant fragment with a single drilled hole (FS 108). The pendant and a piece of burned bone (FS 24) were found in Feature 6.

Two coiled, cord roughened sherds were encountered near the south wall of Feature 23 (FS 45 and 5). They are made of mica-bearing clay with grit temper. They likely represent a conoidal bottomed vessel with high round shoulders and a constricted mouth. Appendix IV shows additional data for ceramic artifacts collected on the PCMS.

Table 4.13: Summary Description of Chipped-Stone Debitage for 5LA6105.

	Arg.	Chal.	Chert	Cqzt.	Fqzt.	Basalt	Ortho.	Sil.	Wood	Silt.	Total
Total	11	1	49	48	129	4	7	1	1	1	251
Large	6	0	15	37	57	1	3	0	1	1	120
Small	5	1	34	11	72	3	4	1	0	0	131
Cortical	2	0	17	27	48	2	3	0	0	0	99
Noncortical	9	1	32	21	81	2	4	1	1	1	152
Complex	6	0	14	11	39	0	3	0	0	1	74
Biface-thin.	0	1	2	1	4	0	0	1	0	0	9
Shatter	2	0	6	2	5	0	0	0	0	0	15
Simple	3	0	27	34	81	4	4	0	0	0	153

Table 4.14: Stone Tool Type by Material Group for 5LA6105.

Material	Type							Total
	Biface	Core	Projectile	Drill	Flake Tool	Mano	Metate	
Argillite	0	3	0	1	2	0	0	6
Schist	0	0	0	0	0	1	0	1
Chert	1	14	3	1	5	0	0	24
Coarse-grained Quartzite	1	31	0	0	3	1	1	37
Fine-grained Quartzite	1	3	1	0	13	0	0	18
Hornfels/Basalt	0	2	0	0	1	0	0	3
Sandstone	0	0	0	0	0	7	21	28
Granite	0	0	0	0	0	2	0	2
Orthoquartzite	2	0	1	0	3	0	0	6
Silicified Wood	0	0	0	0	1	0	0	1
Total	5	53	5	2	28	11	22	126

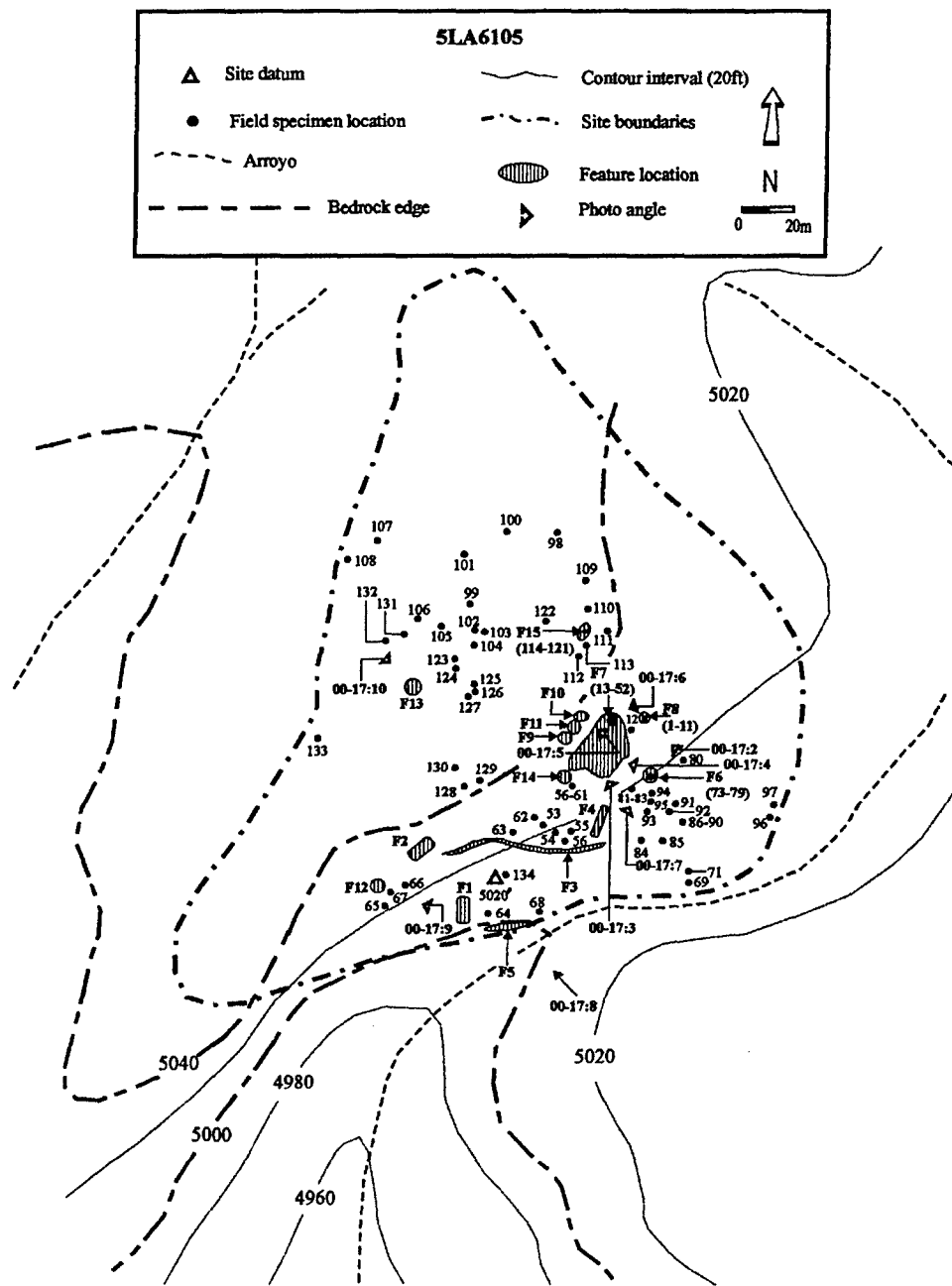


Figure 4.24: Site map, 5LA6105.

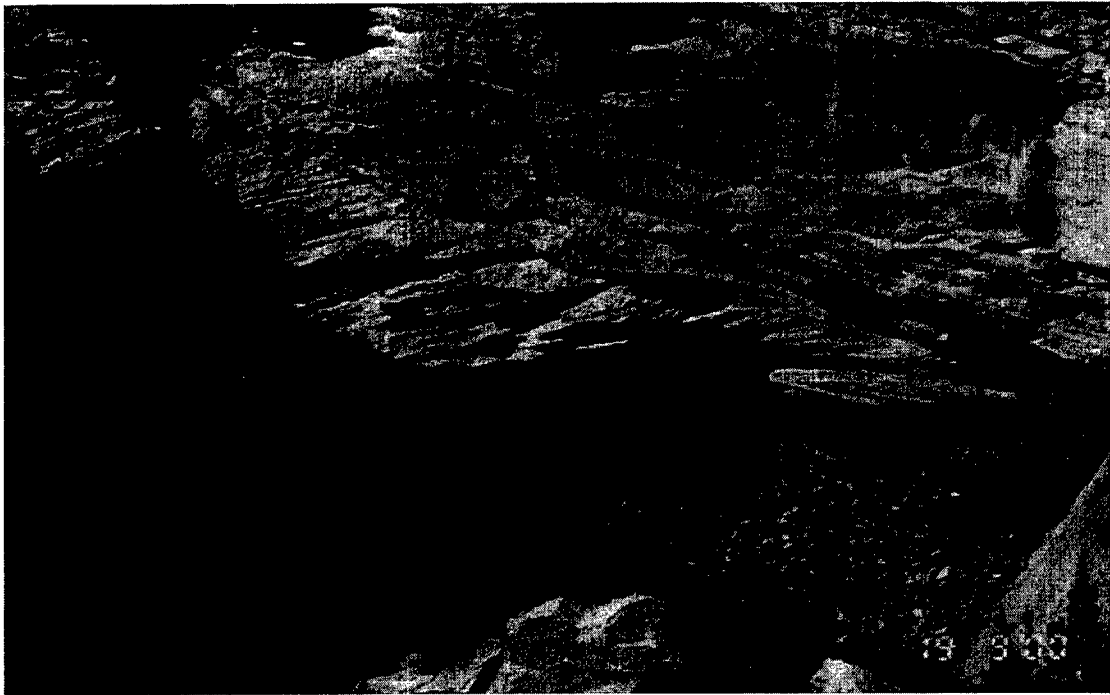


Figure 4.25: Photograph (PCMS 00-17:8) of Feature 5, rockshelter, 5LA6105.



Figure 4.26: Photograph (PCMS 00-17:3) of Feature 7, midden. Feature 9, rockshelter in background.

Interpretation and Summary

The site was determined eligible for the National Register in 1993. Based on the intact deposits within Features 6-9, 12, and 13 the prehistoric component is also significant and should yield information important to our understanding of prehistory (Criterion D). Thick midden deposits like those seen in Feature 7 are rare on the PCMS or in southeast Colorado for that matter. Test excavations here could provide data to address all of the research domains as well as identify several prehistoric occupation surfaces. The presence of the circular structure and the midden indicate that the site may be useful for addressing questions concerning settlement patterns. Artifact analysis suggests that there are fairly discrete activity areas around the rockshelters and more could be found to help determine the site function. The potential for datable carbon is good in the midden and the other three thermal features and the presence of ground stone in these areas indicates the likelihood that pollen, faunal, and macrobotanical remains will be recovered through excavation. The site is not in immediate danger from military maneuvers. Features 6, 7, 8 and 12 are being destroyed by erosion and are washing down slope.

Our management recommendation is that the military avoid the site and immediate excavation should occur on the features being destroyed by erosion.

5LA6744

During our field project in the summer of 2000, we found a lithic scatter at the western edge of study unit 37. As we inspected this scatter we found that it connected with existing site 5LA6744. We found the previously recorded features on the New Mexico State Site form (Korgel 1996) as well as a rock art panel and a very large thermal feature. We expanded the site boundary to include the new features and artifacts and updated the prehistoric component form. All of the lithic material on the surface of the site was evaluated using our lithic analysis system.

This site is a large lithic scatter and rockshelter site with thermal features and a rock art panel (Figure 4.27). It is located at the head of a large and unnamed feeder canyon in the Welsh Canyon system and at the base and on top of a large outcropping of what appears to be Lytle Sandstone. Several large boulders form a sheltered area along this sandstone exposure and it is here that the shelter and rock art panel were identified. From this outcropping the terrain dips to the south and west toward the canyon and aeolian sand has been deposited here.

Permanent water does not appear to be available in the arroyo but there seem to be seasonal catchments around the site and permanent water can be obtained in Welsh Canyon 500 m to the north. Above the largest cliff-forming outcrop of sandstone additional sandstone outcroppings form several small terraces, and given the rather steep surface gradient here (up to 4 degrees), the site seems prone to sheetwash erosion. Only the southern half of the site has accumulated soil depth—up to 35 cm based on a pinflag probe. The site is located in a juniper woodland vegetative community. Juniper, yucca, mountain mahogany, and grama grasses are present on the modern ground surface. A large stand of scrub oak is 600 m southeast of this location.

Features

Two additional features were recorded during NMSU's work; a rock art panel and a large thermal feature. The rock art panel is 16 m north of the existing site datum. It is found on the west wall of a small alcove along the cliff edge and has four areas of pecking. The panel measures 2.7 x 1.7 m but the individual elements are scattered randomly across this surface (Figures 4.28 and 4.29). Five elements were noted – a curvilinear meander, a solid pecked starburst, two pecked circles, and an area of random pecking. Overall this panel is highly eroded. The pecked circles may have been part of a larger element at one time.

The second feature noted is a burned rock midden measuring 14 x 10.2 m. This large ash stained area has several small erosional cuts exposing fire-cracked rock, debitage, and ground stone. In viewing the erosional cuts at least 30 cm of fill remains. This feature should be tested as it is being destroyed by erosion and its exact function, and composition are unknown.

Lithic Artifacts

The lithic assemblage contains a 150 item sample of debitage, 26 chipped-stone tools, and an additional 7 ground-stone artifacts (other than the bedrock metates). A single worked piece of baked clay (FS 24) was also encountered and a small polishing stone was collected for further analysis in the laboratory. The debitage classifications are 83 simple flakes, 53 complex flakes, 11 pieces of shatter, two biface-thinning flakes, and a single bipolar flake (Table 4.15). Most of these were made of coarse-grained quartzite (71%), with fewer fine-grained quartzite (9%), chert (9%), argillite (7%), and basalt (2%) items. Single specimens were recorded for orthoquartzite and silicified wood. It appears that all of these materials can be found on the PCMS in cobble or nodule form, though the exact source for the silicified wood is questionable.

Sixty-two percent of the debitage specimens are non-cortical (7% small items and 55% large items). Of the cortical specimens, 37% are large and 1% are small pieces. The large number of cores coupled with the presence of shatter and large flakes indicates that a large amount of core reduction was being performed on site. Only two biface-thinning flakes and a single small complex flake were encountered. This suggests that the reduction emphases for the inhabitants of the site did not revolve around the manufacture of bifaces or finished tools.

Twenty-six tools representing five tool classes were recorded in the chipped-stone tool assemblage (Table 4.16). Of these, 12 are non-bipolar cores, seven are bifaces, three are projectile points, two are scrapers, and two are flake tools. The materials here mirror the debitage materials with the biggest difference shown in fine-grained quartzite (debitage 9%, chipped tools 29%). The cores were recorded in the field and only material type data is available. These are fine-grained quartzite (5), coarse-grained quartzite (4), chert (2), and argillite (1). The bifaces are fine-grained quartzite (4), chert (2), and coarse-grained quartzite (1). Five of the seven bifaces are broken; four are classified as unfinished bifaces, two are finished bifaces, and one is of an unknown manufacturing stage. Both finished specimens (FS

13 and 14) exhibit at least one acute edge that was used for cutting. Among the unfinished bifaces, one broke during heat treatment and the other was discarded because it could not be further thinned.

Only one of the four points is temporally diagnostic. This chert point fragment (FS 33) was classified as a P48 using the Anderson (1989) system and this style has a date range of AD 500 to AD 1400. Both chert end scraper fragments are broken and Field Specimen 7 has been cracked by heat exposure. The utilized flakes are made of Black Forest silicified wood (FS 18), and coarse-grained quartzite (FS 32). Both are complete tools that were used for scraping activity.

Ground-stone tools include three slab metate fragments, two complete manos, two broken manos and a polishing stone. All were found scattered across the site surface in no apparent concentration. Sandstone (2), granite (1), and quartzite materials were recorded for the manos and all of the metates are sandstone.

Table 4.15: Summary Description of Chipped-Stone Debitage for 5LA6744.

	Argillite	Chert	C. Quartzite	F. Quartzite	Hornfels/Basalt	Ortho. Sil.	Wood	Total
Total	11	13	107	14	3	1	1	150
Large	10	10	101	13	2	1	1	138
Small	1	3	6	1	1	0	0	12
Cortical	5	3	42	6	0	1	0	57
Noncortical	6	10	65	8	3	0	1	93
Complex	5	9	33	5	1	0	0	53
Shatter	2	0	7	1	1	0	0	11
Bipolar	0	0	1	0	0	0	0	1
Biface-Thinning	0	1	0	0	0	0	1	2
Simple	4	3	66	8	1	1	0	83

Table 4.16: Stone Tool Type by Material Group for 5LA6744.

Material	Biface	Core	Projectile	Scraper	Flake	Tool	Pol. Stone	Mano	Metate	Total
Argillite	0	1	0	0	0	0	0	0	0	1
Chert	2	2	3	2	0	0	0	0	0	9
Coarse-grained Quartzite	1	4	0	0	1	0	0	0	0	6
Fine-grained Quartzite	4	5	0	0	0	0	1	0	0	10
Baked claystone	0	0	0	0	0	1	0	0	0	1
Sandstone	0	0	0	0	0	0	2	3	0	5
Silicified Wood	0	0	0	0	1	0	0	0	0	1
Granite	0	0	0	0	0	0	1	0	0	1
Total	7	12	3	2	2	1	4	3	0	34

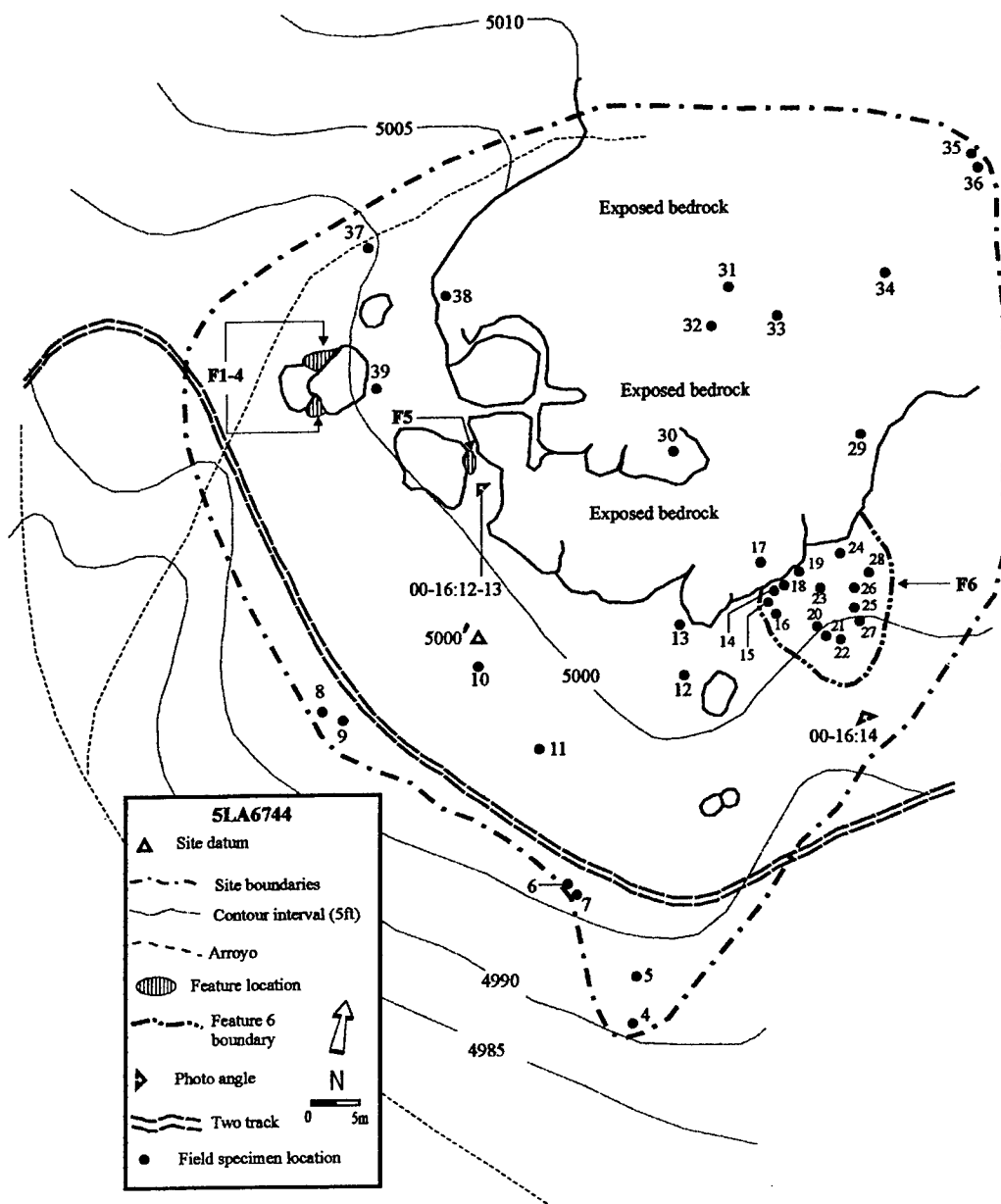


Figure 4.27: Site map, SLA6744.

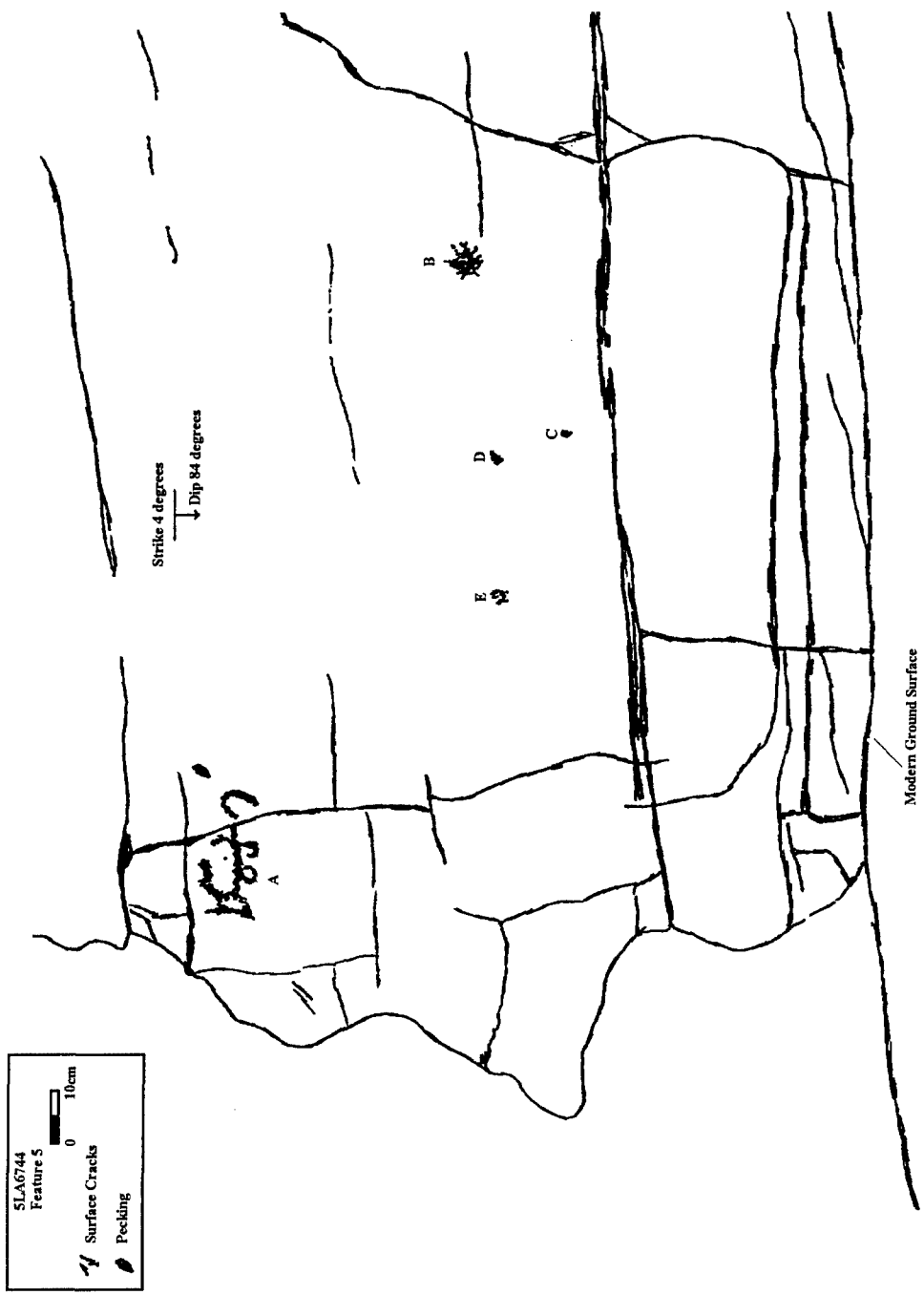


Figure 4.28: Feature 5, rock art panel, 5LA6744.

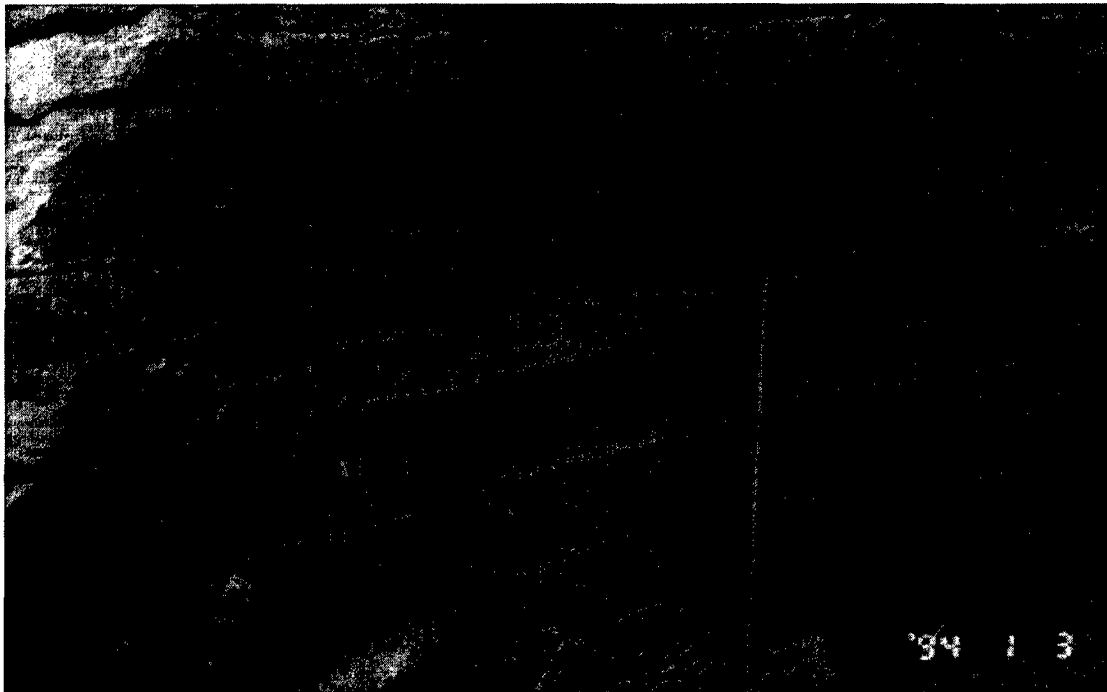


Figure 4.29: Photograph (PCMS 00-16:12) of Feature 5, rock art panel, 5LA6744.

Interpretation and Summary

The site was recommended eligible for the National Register during the 1996 NMSU Welsh Canyon Survey Project. The addition of Features 5 and 6 buttress the nomination. The rock art may be useful in addressing the research domain of ideology, and the significant deposits in the midden could yield charcoal and botanicals useful in researching chronology and subsistence.

Our management recommendation is data recovery. The site is not in danger from military activity; however, the area contained in Feature 6 is threatened by erosion. We recommend that this feature be tested before all available data washes away.

5LA8289

The site is a 103 x 75-meter historic homestead site consisting of eight features, a historic artifact scatter, and a small sparse prehistoric lithic scatter. The site is located on a sloping terrace near the edge of Lockwood Canyon at an elevation of 5010 ft. Juniper, cholla, prickly pear, wheatgrass and sunflowers are abundant across the site. Surface sediments are a light brown sandy silt, with deposition ranging from 0 cm on exposed bedrock, to up to 40 cm in some of the features. Sheetwash erosion and U.S. Army maneuvers have lightly impacted 5LA8289 and some artifacts may have been washed downslope.

Features

There are four structures (Features 1-4), a foundation (Feature 5), a privy foundation (Feature 7), an animal pen (Feature 6), a corral (Feature 8), and a fence line. These structures are in varying states of preservation, ranging from fair to ruins.

Feature 1 is a large rectangular structure constructed of stacked tabular sandstone blocks and juniper logs. This structure was most likely the "main house" on this homestead; it contained three rooms and measured 50 x 15 ft., and would have encompassed approximately 750 square feet. There is a possible lean-to, or porch on the west end of the structure. A "DIETZ BLIZZARD" kerosene lantern was found inside Feature 1. This model was produced after 1898. This feature contains intact fill, and may yield intact buried cultural deposits, and should be tested to determine their extent.

Feature 2 is a possible "bunkhouse," constructed of horizontally stacked tabular sandstone blocks. Its roof is collapsed milled lumber, and the structure rests on a bedrock foundation. Wire nails held the milled lumber and juniper log framework together. Feature 2 measures 36 x 18 ft., and would have had about around 648 square feet of interior space. Feature 2 had a higher artifact density compared to the other features on site; glass fragments, "celluloid," metal, bedsprings, wire nails, and a "LEE" jeans button (Henry Lee of Kansas began selling Lee Jeans in 1915) were all located within the feature. Although deposition within Feature 2 is minimal (5-10 cm), the architectural style appears to be quite unique when compared to other structures in the area.

Feature 3 is the remains of a storage building, or perhaps a chicken coop. It measures 21 x 16 ft, and is constructed of tabular sandstone block walls stacked one to five feet high, with milled lumber on the west side. A standing juniper tree on the western portion of the north wall was used for structural support, with boards nailed to it, and barbed wire wrapped around the limb. Chicken wire was located in and around the superstructure, indicating that perhaps chickens or other small barnyard livestock were kept here. Although no artifacts were located in the feature, there is considerable deposition, as evidenced by a rodent burrow. Also, the structure is fairly intact along the northern wall, and the potential for intact, buried cultural deposits exists, as at least 25 cm of fill remains.

Feature 4 appears to have been a storage building, with a rather dense historic artifact concentration located approximately five feet to the south of the structure. Feature 4 measures 12 x 10 ft, and is constructed of tabular sandstone blocks laid in horizontal courses. The south end of the structure has vertical slabs with horizontal blocks laid in between. One doorway, measuring 2 ft. 6 in wide was blocked in during construction. The walls in this structure are two to three feet wide. Most of the architecture is intact and soil deposition within the feature appears good, based on visual depth in animal burrows. The potential for intact buried cultural material exists, with at least 25 cm of fill, and testing should be done to determine their extent.

Feature 5 is a circular foundation constructed of tabular sandstone slabs and blocks, with an interior crescent alignment of blocks. It is located 10 meters to the east of Feature 2. This feature measures 16 ft in diameter, and was fairly substantial, but its original function can not be

deduced from its foundation. Due to the unique architecture, and at least 10 cm of intact fill within the feature there is potential for the recovery of intact deposits, and Feature 5 should be tested to determine their scope.

Feature 6 is the remains of an animal pen consisting of a small pile of sandstone blocks and milled lumber, held together by wire nails and sheet metal. One of the sections resembles a gate and in other areas of the pen, standing juniper trees are incorporated into the construction. The pen measures 17 feet east-west and 14 north-south. Tin cans, glass fragments, and bits of whiteware were located in and around the feature.

Feature 7 is a possible privy foundation consisting of stacked tabular sandstone blocks. This feature is located in close proximity to Feature 1, and measures 2 x 2 ft.

Feature 8 is a corral measuring 34 feet east-west and 32 feet north-south. It is constructed of juniper logs strung with four strands of barbed wire. Baling wire, a chain-and-hook, and a cast iron headboard were located around the corral. The headboard was possibly used as a gate. The hook is fashioned out of round horse-hitches at either end of an eight-inch log chain, held in place by nuts and bolts.

A fence line runs primarily north-south across the site, and is constructed of juniper logs with three strands of barbed wire. This fence runs roughly parallel to the canyon edge, but approximately 40 m south of Feature 6, it turns and runs east-west for about 20 m, then returns to parallel the canyon. This fence encompasses the northern portion of the site and protects it from military impact.

Historic Artifacts

The historic component of 5LA8289 consists of a wide spectrum of artifacts that would typically be found on a homestead from this time period. Approximately 200 pieces of glass were sampled, and included solarized amethyst glass, aqua glass, light green jar glass, bottle bases (both clear and amethyst), clear fragments, bits of window glass, pressed glass, jar seals, and some very dark purple specimens. Whiteware, both plain and decorated, as well as porcelain and red ware "flower pot" fragments were also located. Over 300 wire nails, of varying sizes were sampled, as were solder-sealed and sanitary tin cans. A tobacco tin and some small crimp-sealed cans were also recorded. Over 150 pieces of milled lumber, 50 axe-cut juniper logs, and four sheet metal sections were noted in the various structures. Other items like bedsprings, door-hatch covers, tile rubber, wire mesh, barrel hoop fragments and a kerosene lantern would have been commonplace items for a homestead such as this one. Amethyst colored glass results when bottle glass made before 1917 is exposed to the sun for prolonged periods.

Lithic Artifacts

5LA8289 also contained a small, sparse prehistoric component, which was scattered randomly across the site. A total of 60 pieces of chipped stone debitage were recorded (Table 4.17). This total represents all of the debitage encountered by the survey crew at the surface of the site. Of the debitage, 61% is coarse-grained quartzite, 28% is fine-grained quartzite, 5% is argillite, 3% is chert, and 2% is basalt. Overall, 48% is the large size grade while 52% is small; 55% has cortex and 45% is noncortical; and 50% is recorded as simple flakes, 47% as complex flakes, and 3% as shatter. In summary, the debitage appears to have been generated by free-hand percussion techniques. The percentage of small, cortical, quartzite flakes (23%) is high for sites in this portion of the PCMS.

The chipped-stone tools are an unfinished biface of quartzite, a scraping tool of argillite, and a quartzite core. No ground-stone tools were encountered by the survey team. The prehistoric component of this site is not significant and needs no further work.

Table 4.17: Summary Description of Chipped-Stone Debitage for 5LA8289.

	Argillite	Chert	Course Quartzite	Fine Quartzite	Hornfels/Basalt	Total
Total	3	2	37	17	1	60
Large	0	1	19	9	0	29
Small	3	1	18	8	1	31
Cortical	0	1	20	11	1	33
Noncortical	3	1	17	6	0	27
Complex	2	1	14	11	0	28
Shatter	0	1	1	0	0	2
Simple	1	0	22	6	1	30

Table 4.18: Stone Tool Type by Material Group for 5LA8289.

Material	Type			Total
	Biface	Core	Scraper	
Argillite	0	0	1	1
Coarse-grained Quartzite	1	0	0	1
Fine-grained Quartzite	0	1	0	1
Total	1	1	1	3

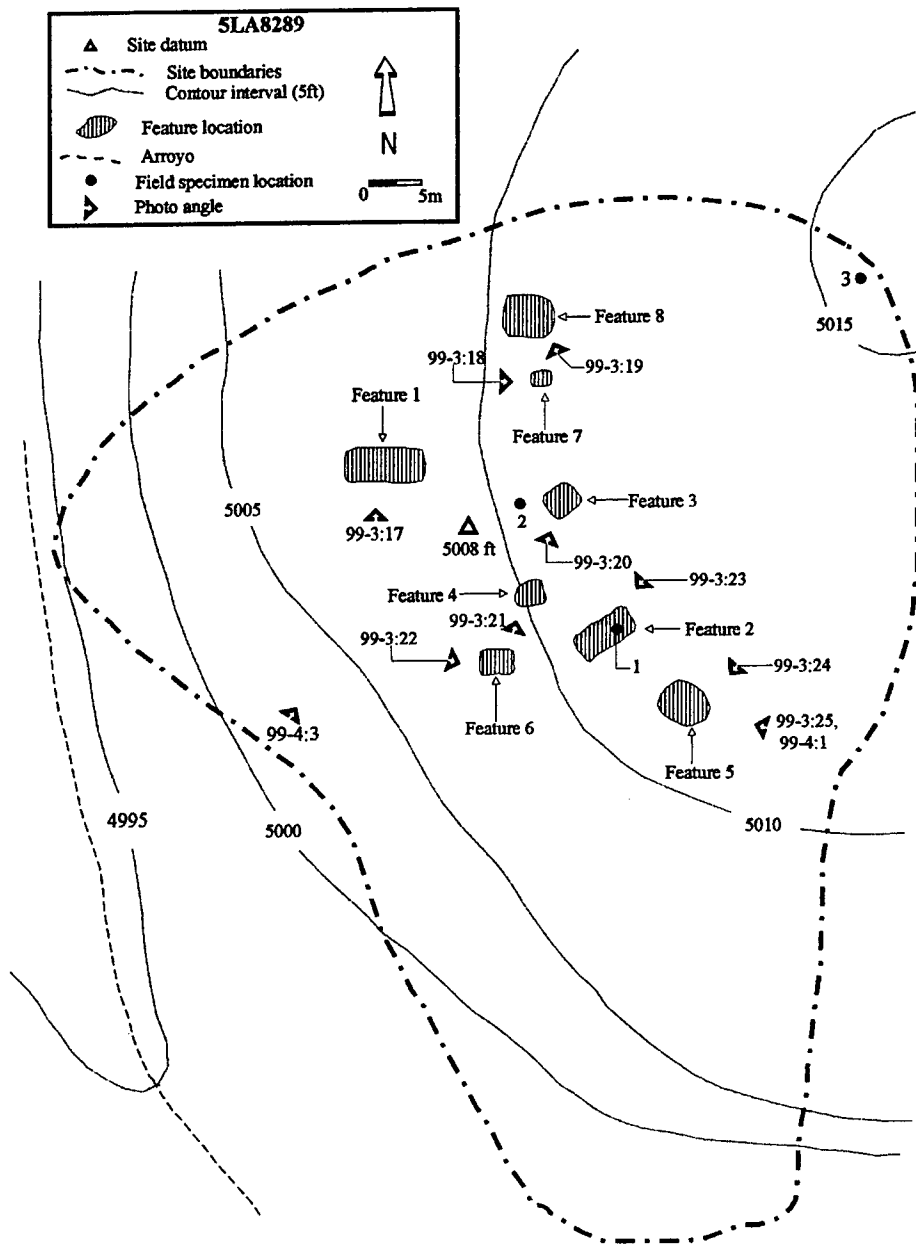


Figure 4.30: Site map, 5LA8289.



Figure 4.31: Feature 1, main ranch house. Photo (PCMS 99-3: 17) taken facing north at 344 degrees.



Figure 4.32: Feature 4, storage structure with doorway, 5LA8289. Photo (PCMS 99-3:21) taken facing north at 16 degree.

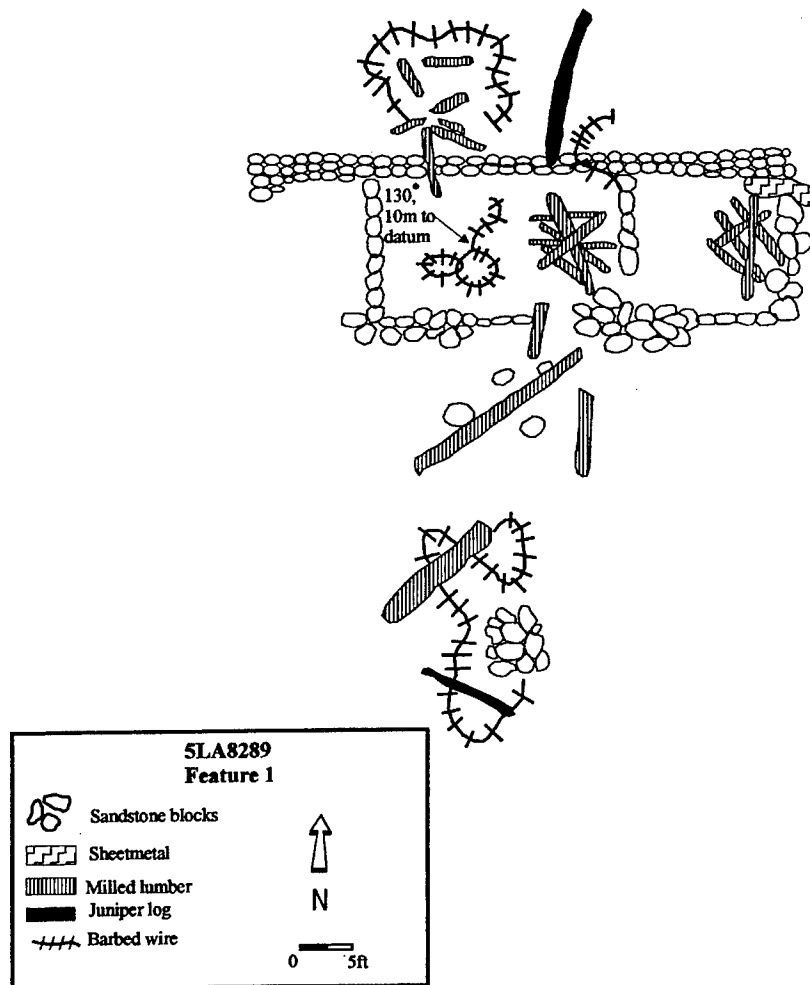


Figure 4.33: Planview, Feature 1, 5LA8289.

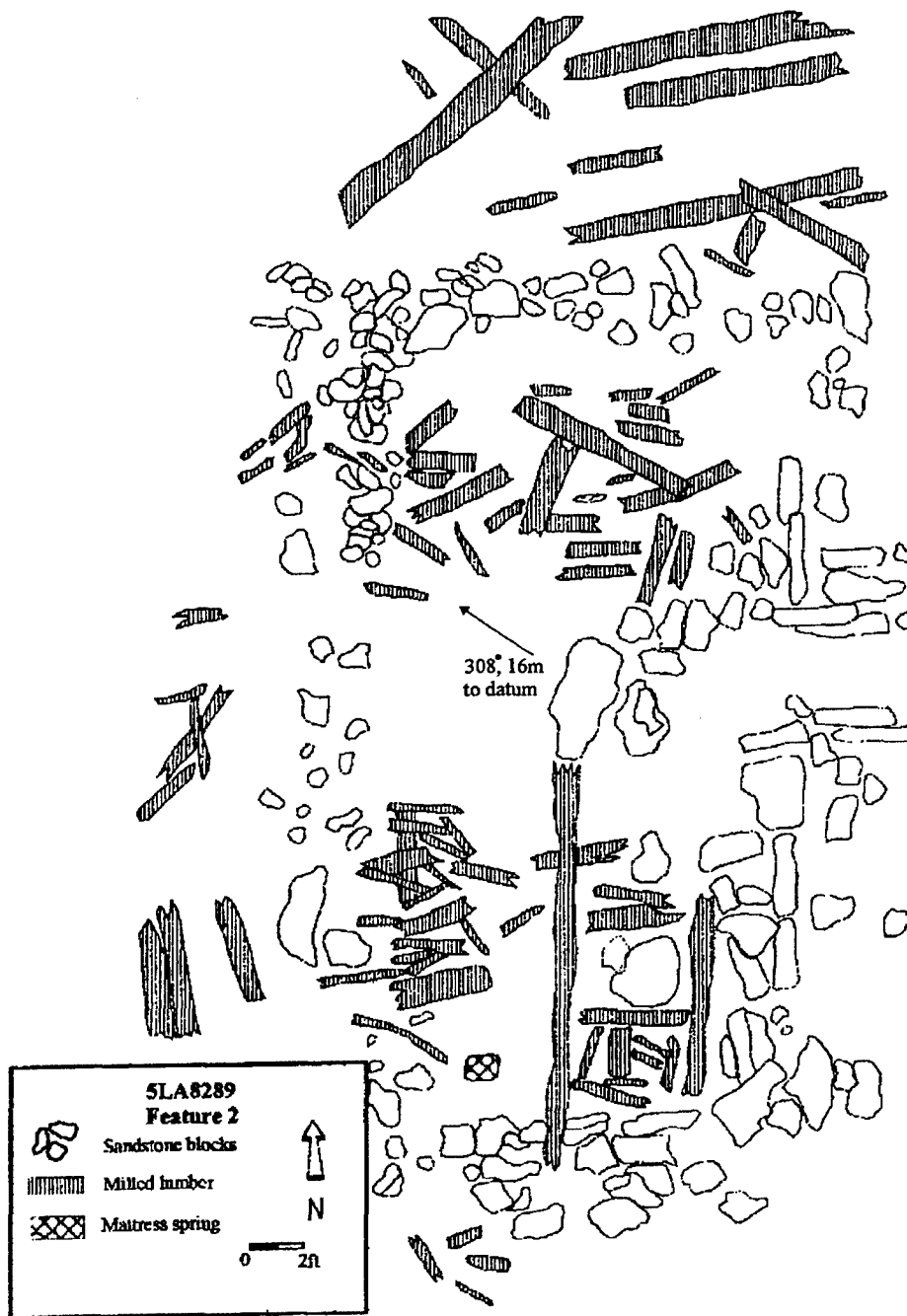


Figure 4.34: Planview, Feature 2, 5LA8289.

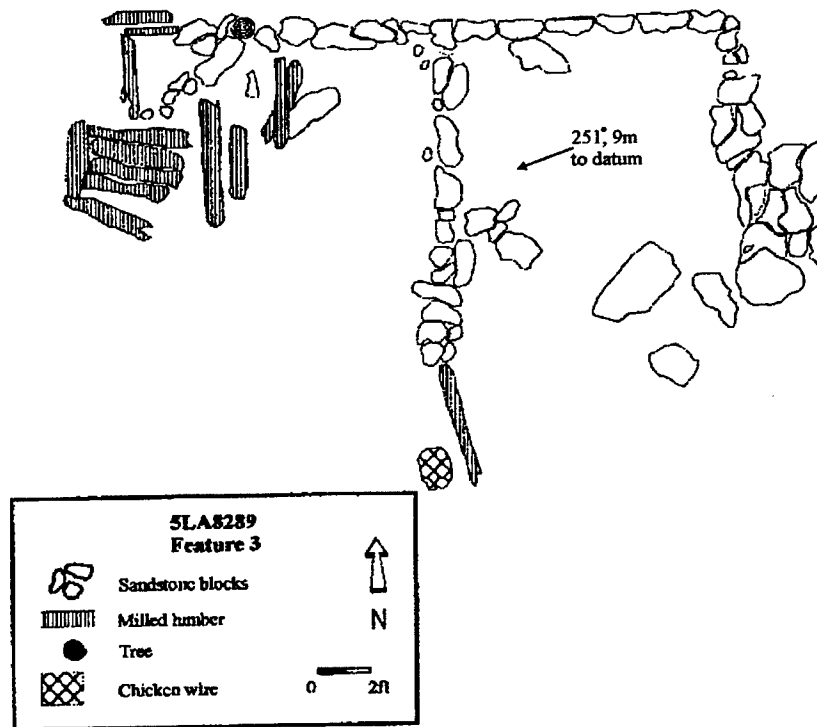


Figure 4.35: Planview, Feature 3, 5LA8289.



Figure 4.36: Feature 3, two room structure and milled lumber fence, 5LA8289. Photo (PCMS 99-3: 20) taken facing north at 20 degrees.

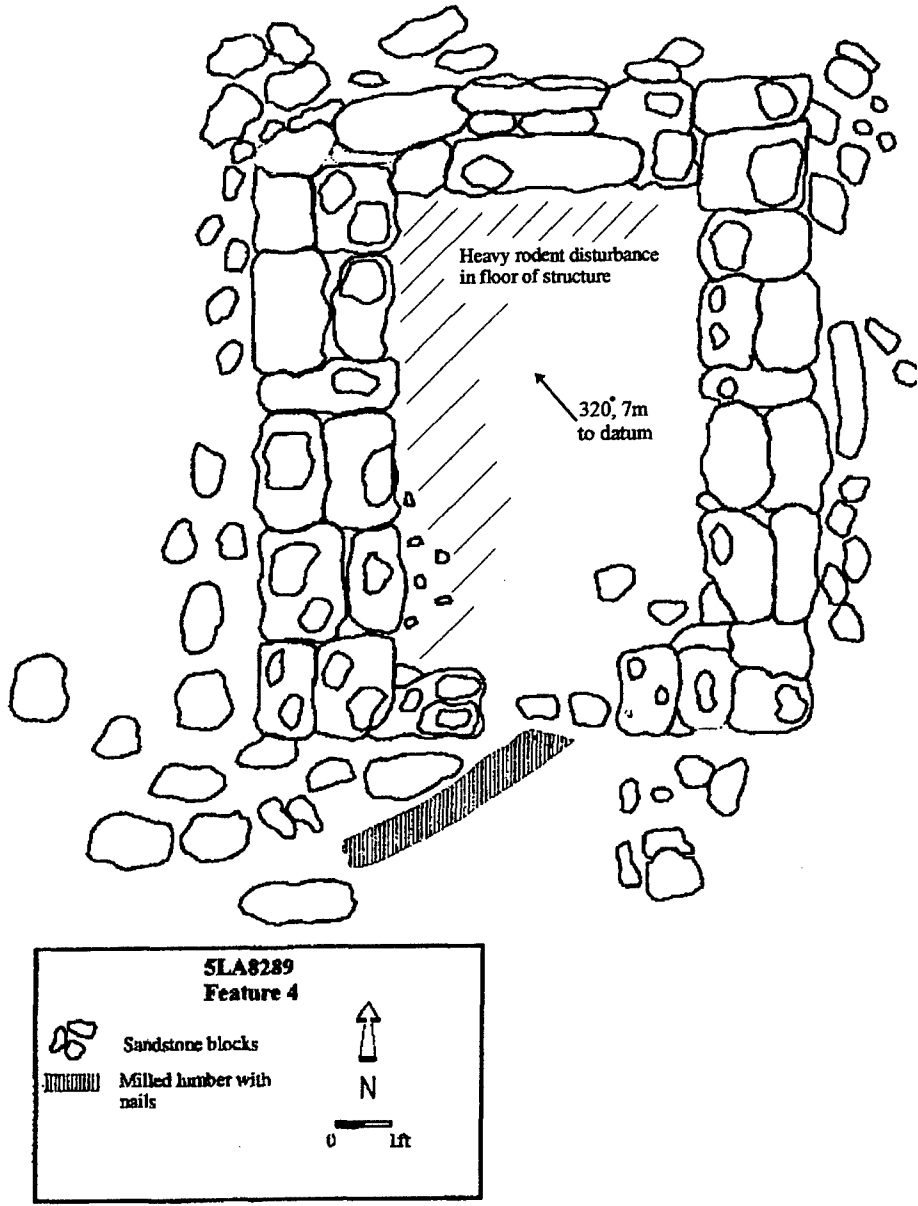


Figure 4.37: Planview, Feature 4, 5LA8289.

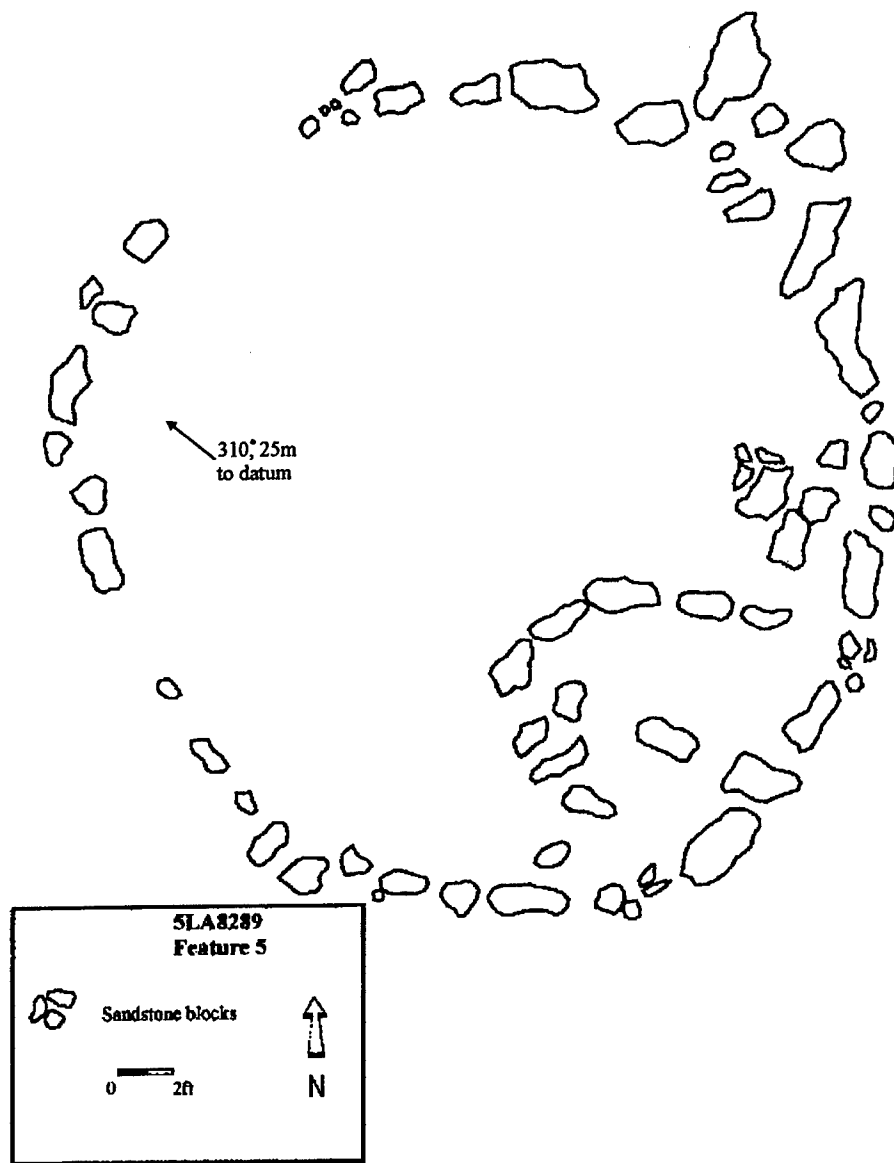


Figure 4.38: Planview, Feature 5, 5LA8289.

Interpretation and Summary

We recommend that this site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of history (Criterion D). The original land patent was granted to James Dutton in 1924, and this homestead is located at the southern edge of the original parcel. J. Dutton appears on the 1920 census in the Thatcher Precinct as a 24-year old Missouri-born ranch hand working for Jerome Gregory. The historic artifacts agree with a 1920- 1925 occupation date. Overall, this is a rather compact multi-component site. Features 1, 2, and 5 have at least 10 cm of intact fill. Features 3 and 4 have 25 cm or more of intact deposition and are the best candidates for further research. All of these features may contain intact, buried cultural deposits that could provide valuable information on the ranching community in the Post-Silver-Crash to World War Two period.

Our management recommendation is to fence and avoid the site. It should be also revisited for more detailed transit mapping and a more thorough surface collection.

5LA8291

This site is a large lithic scatter and structure site located on a terraced floodplain below the confluence of Lockwood Arroyo and one of its westernmost large tributaries (380 m southwest). The 14-acre site is on the northwest side of Lockwood Arroyo with the terrain gently dipping from north to south at an angle of 2 degrees. The site datum was placed at approximately 1,500 m (4920 ft) asl with the lowest portions of the site situated near the arroyo (Figure 4.39).

The site is located in a grassland community typical of the open portions of the PCMS. Cholla, prickly pear, soapweed, foxtail barley, saltbush, rabbitbrush, alkali sacaton, thistles, and needle and thread grass were seen growing on the site. Near the edge of the arroyo, surface visibility is good. Near the eastern and southern boundaries, ground visibility was completely lost due to thick prairie grass. Soils appear relatively deep, especially near the arroyo (1 meter seen in cutbank); however, areas of slightly less deposition are noted in the structures and near the northern boundary of the site.

Features

Eight features were recorded at the site, three of which (Features 1, 2 and 8) are single coursed, spaced sandstone slab structures. Feature 1 measures 6.5 x 7.5 m and is made of randomly placed and unmodified sandstone cobbles (Figure 4.40). There may be a hearth starting to expose at the center and two pieces of debitage were found inside. The second structure (Feature 2) is poorly preserved and is a semi-circular alignment of sandstone boulders measuring 3.25 x 3 meters. Part of this structure may be buried. Feature 8 is constructed of sandstone boulders in a circular arrangement that measures approximately 2.5 m in diameter. A considerable amount of sheetwash erosion coupled with thick surface vegetation suggests that

there are likely more tipi rings on the site. All of these structural features conform to Kalasz's (1989:109) Class IV structure type, which is represented by two vastly different radiocarbon dates: AD 780 and AD 1350.

Features 3 through 5 are deflated hearths; two of these are along the western arroyo edge and one is centrally located on the site. Feature 6 is a lithic reduction area measuring 4 x 1.7 m. Fifteen pieces of lithic material were recorded here and seem to be the result of a single reduction event. Feature 7 is a dense artifact concentration comprised of ceramic sherds from multiple vessels, flakes of various materials, tools, scattered fire-cracked rock, and some sandstone blocks. Although the blocks did not form any pattern, they are obviously not in their original geologic setting. It is possible that they are the remains of a structure or portioned activity area (Figure 4.41).

Lithic Artifacts

A total of 155 pieces of chipped-stone debitage were recorded from the site (Table 4.19). This total represents an unsystematically selected sample of the flakes seen on the ground surface. Nine material types were noted. Of the total debitage, 38% is unspecified chert, 32% is coarse-grained quartzite, 20% is fine-grained quartzite, <1% appears to be Knife River flint-like, 3% is silicified wood, 2% is chalcedony, 1% is Hartville Uplift chert, 1% is an unidentified obsidian-like substance, 1% is hornfels/basalt, and 1% is siltstone. From the overall assemblage, 79% falls into the small size grade while 21% is recorded as large; 8% of the debitage has cortex and 92% is noncortical; and 69% is recorded as complex flakes, 6% as shatter, 24% as simple flakes, and 6% as a biface-thinning flakes.

Freehand percussion was used to generate the chipped-stone debitage. The relative paucity of cortical, small flakes suggests late-stage reduction as tool manufacture/maintenance. The high percentage of small complex flakes (48%) and the presence of nine biface-thinning flakes from six different material types support this. Of particular interest is the presence of nonlocal Knife River flint-like material, and a dendritic chert that appears to be the kind found at the Hartville Uplift in Wyoming. These materials make-up 8% of all the debitage assemblage, and when compared to the overall data for the project, this is one of the highest percentages for a site in the project area. When considering all of the debitage data it appears that the inhabitants of this site were highly mobile or were involved in some kind of trade system.

Two projectile points were recovered from the surface of this site, one of which is temporally diagnostic. The first (FS 7) is similar to Anderson's (1989) type P49, associated with dates that range between AD 800 and AD 1750. The second (FS 13) is the tip of a small projectile point. Based on the diagnostic artifact, it seems likely that the site had at least one Late Prehistoric occupation (somewhere between the Developmental Period and the Protohistoric). This date is consistent with the age of the ceramic artifacts.

A single one-hand mano fragment made of sandstone (FS 6) represents the ground stone. The surface exhibits heavy to moderate grinding on two faces and it measures 10 x 6.5 x 4.5 cm.

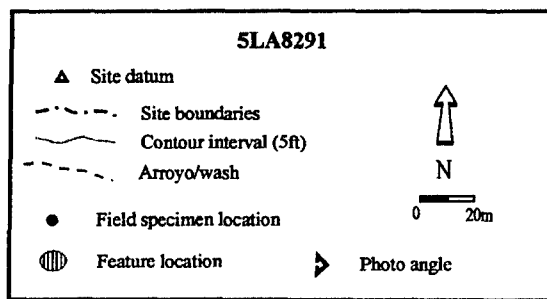
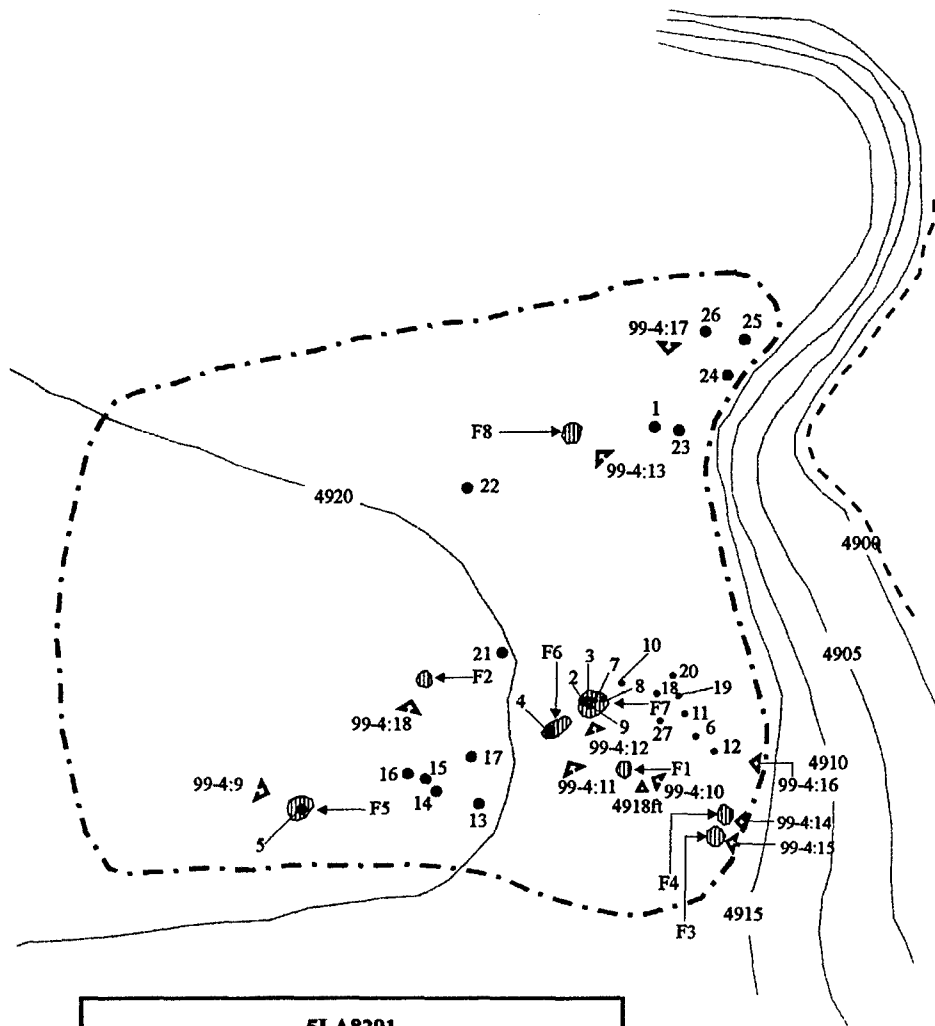


Figure 4.39: Site map, 5LA8291.

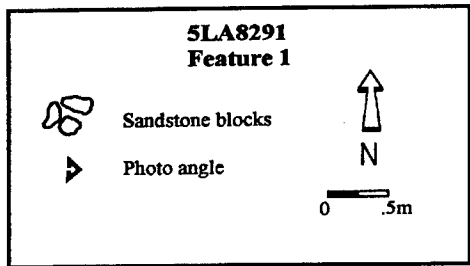
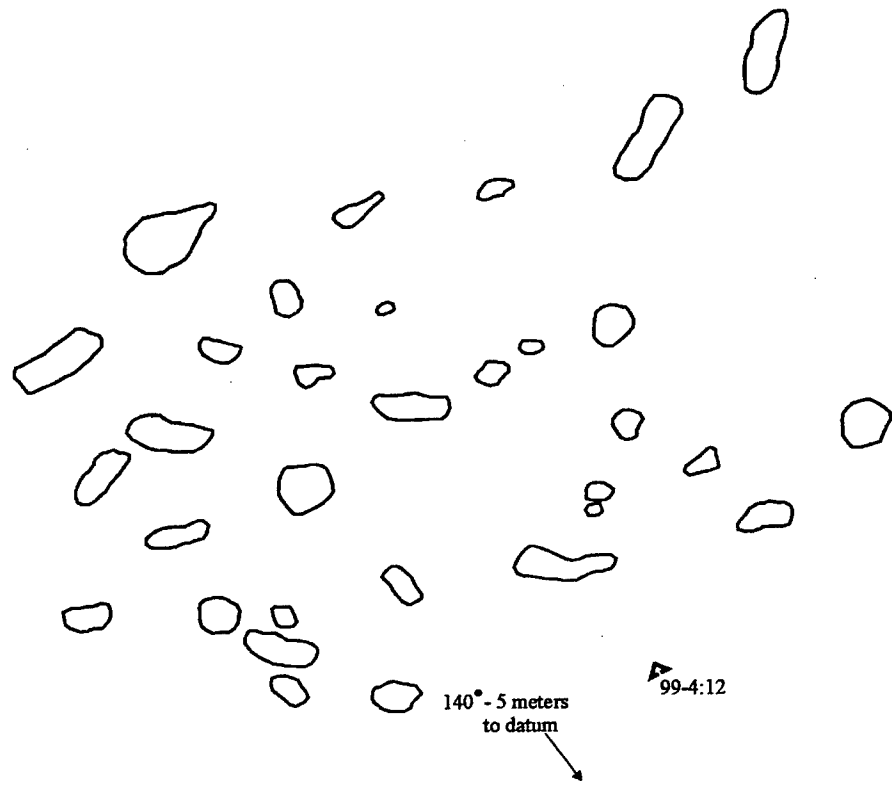


Figure 4.40: Planview, Feature 1, 5LA8291.

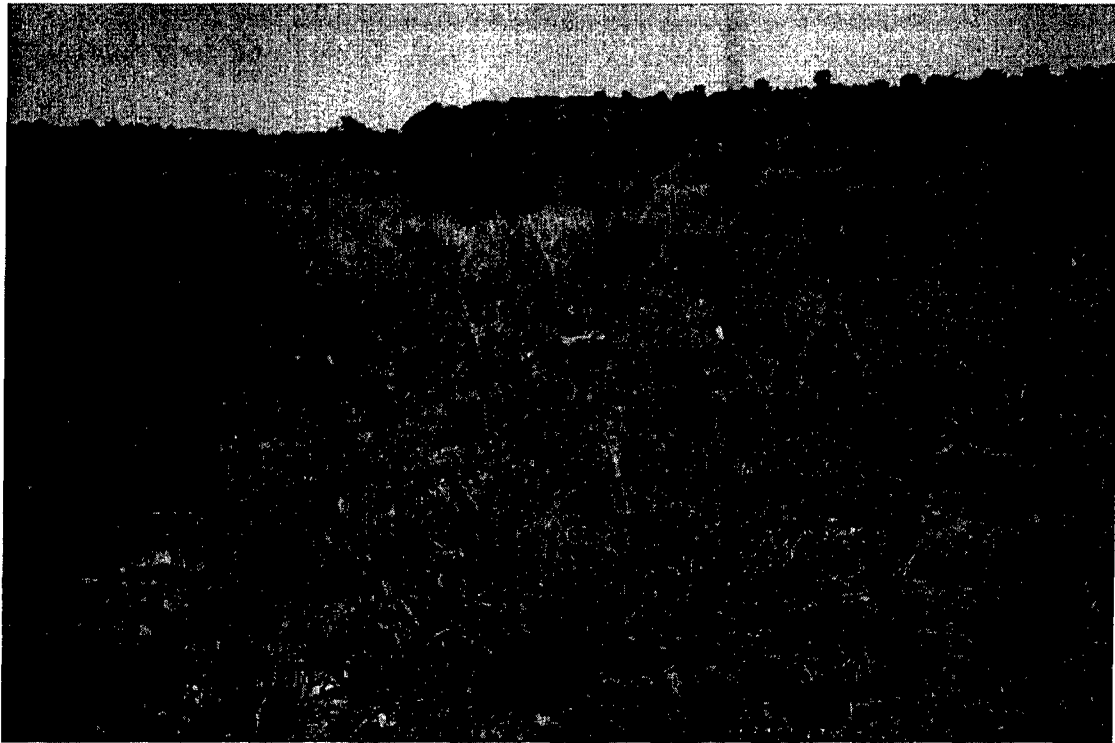


Figure 4.41: Site overview photograph with Feature 7, a ceramic and lithic concentration in the foreground. Photo (PCMS 99-4: 12) taken facing north at 10 degrees.

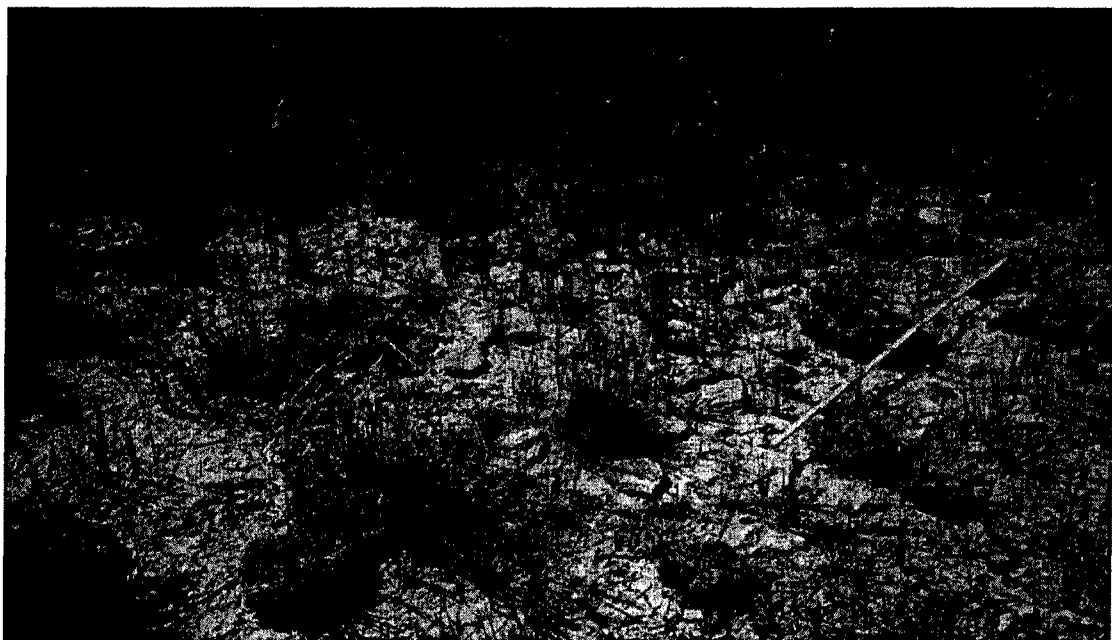


Figure 4.42: Feature 5, deflated hearth. 5LA8291. Photo (PCMS 99-4: 9) taken facing southeast at 136 degrees.

Nine artifacts comprise the remainder of the flaked-tool assemblage (Table 4.20). Of these, three are non-bipolar cores, three are bifaces, two are scraping tools, and one is a retouched flake tool. Material types for the cores are quartzite (1), basalt (1), and chert (1). The bifaces are coarse-grained quartzite (2), and chert from the Hartville Uplift (1). All are complete with two exhibiting use wear and one nearly finished specimen (FS 14) was not used. The heat-treated biface (FS 24) was used for cutting and both lateral edges show light wear on the lateral margins. The Hartville Uplift biface (FS 26) has one lightly used cutting edge and one heavily used scraping edge. The first scraping tool (FS 1) is highly patinated, classified as an end/side scraper, made of Hartville Uplift chert, and is broken. The end scraper (FS 23) is complete, made of unspecified chert, and was freshly resharpened with little wear evident on its distal end. The left lateral edge of the chert flake (FS 11) has an edge angle of greater than 45 degrees, which indicates the primary function was scraping.

Table 4.19: Summary Description of Chipped-Stone Debitage for 5LA8291.

	Chalced.	Chert	Exotic	Fine Quartzite	Hornfels/Basalt	Course Quartzite	Sil. Wood	Siltstone	Total
Total	3	58	12	25	1	49	5	2	155
Large	0	2	2	9	0	16	1	2	32
Small	3	56	10	16	1	33	4	0	123
Cortical	0	6	0	0	0	4	1	1	12
Noncortical	3	52	12	25	1	45	4	1	143
Complex	2	40	8	18	1	27	3	1	100
Shatter	0	4	0	1	0	3	0	1	9
Simple	0	10	1	6	0	19	1	0	37
Biface-Thinning	1	4	3	0	0	0	1	0	9

Table 4.20: Stone Tool Type by Material Group for 5LA8291.

Material	Type					Total
	Biface	Core	Projectile	Scraper	Flake Tool	
Chert	0	1	2	1	1	5
Coarse-Grained Quartzite	2	1	0	0	0	3
Hartville Uplift Chert	1	0	0	1	0	2
Hornfels/Basalt	0	1	0	0	0	1
Total	3	3	2	2	1	11

Ceramic Artifacts

Fifty-five cord-marked sherds were collected on site and likely represent fragments from four vessels: one coiled and smoothed, one coiled and simple stamped, one mass-modeled and smoothed, and one mass-modeled and simple stamped. Of the sherds, 20 are body fragments and three are rim fragments. Appendix IV shows additional artifact data for the collected ceramic artifacts. In addition, three pieces of fresh water shell were collected (FS 10).

Interpretation and Summary

We recommend that the site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). The site is a lithic scatter with architecture and thermal features and parts of it appear buried by significant alluvial deposits (up to 1 meter). Because the site is partly covered in sandy silt it is possible that intact subsurface cultural deposits could be located, particularly down near the edge of Lockwood Arroyo. The ground- and chipped-stone tools at the site indicate the primary activities were late-stage raw material reduction, tool manufacture, and food processing. Non-local lithic materials, projectile points, shell, ground-stone artifacts, and ceramics are useful for addressing the research domains of chronology, subsistence, trade and exchange, and possibly paleoenvironment. Artifact density is relatively high, though there are no clearly defined artifact concentrations.

Our management recommendation is to avoid and test the site because its location near the arroyo makes it highly vulnerable to wind, and particularly water erosion. The site should also be revisited periodically to determine if additional artifacts or features are eroding out of the arroyo terrace. The areas around the hearths and the ceramic concentrations are perhaps the best places for testing. If cultural deposits or features are encountered, then a permanent fence should be constructed. If no buried cultural deposits are encountered during testing, then no further work would be recommended.

5LA8297

This light lithic scatter and structure site is located on a west sloping face of a low hill north of Lockwood Canyon (300 m south). To the west of this hill is a large drainage that flows south into Lockwood. The east side of the site occupies the grassy flats and the west side slopes down into the arroyo with many areas of outcropping sandstone. Rockshelters are off the ridge top facing westward across a narrow canyon while, chipped-stone debitage and tools are located throughout the site and on the talus slopes along the western site boundary (Figure 4.43). The site occupies approximately 5.1 acres and its datum was placed at an elevation of approximately 1518 m (4980 ft) asl.

The site is in the juniper to grassland transition zone typically found above the major feeder canyons of the Purgatoire River. Sagebrush, grama grasses, cholla, and prickly pear grow with the juniper on the landform. Soils on top of the ridge are deep and range from exposed bedrock near the arroyo edge to 30 cm in depth near the eastern boundary.

Features

Three tipi rings and a rock alignment were recorded at the site and all are located in close proximity to one another. Feature 1 (Figure 4.45) is a stone circle of spaced tabular sandstone blocks. It measures 4.5 m in diameter and contains a high concentration of artifacts and two pieces of fire-cracked rock near its center that could be a thermal feature starting to expose.

There appears to be at least 8 cm of buried soil here. Feature 2 measures 2.5 x 4.5 m across and loose, spaced blocks that make up its outline. There is 10 to 15 cm of sediment within the feature and this is based on the visible side walls of animal burrows near its center. A third stone circle is found in the north-central portion of the site and measures 5 m in diameter. There is very little depth here and few artifacts were found in association. Feature 4 (collapsed stone alignment) measures 5.5 x 4.5 m and was made of stacked tabular sandstone blocks. It sets in the V-shaped opening between two large sandstone boulders and appears to have been a circular structure with upright slab construction (Figure 4.44). Because this feature is completely deflated its exact function remains unclear.

Lithic Artifacts

A total of 149 pieces of chipped-stone debitage were recorded from the site (Table 4.21). Seven material types were noted. Of the total, 67% is coarse-grained quartzite, 15% is chert, 10% is fine-grained quartzite, 4% is hornfels/basalt, 2% is baked clay, 1% is siltstone, and 1% is argillite. Most (42%), were classified as complex flakes, with fewer simple flakes (40%), shatter (17%), and biface-thinning flakes (1%). Unlike many sites in this area, most of the debitage items are small (54%) and cortex is present on half (50%) of the assemblage. Heat treatment is not apparent in the assemblage. It appears that freehand percussion generated nearly all of the debitage, although it should be noted that the sample size for items other than quartzite and chert is small. The overall quartzite assemblage appears to have been generated by an early reduction strategy, but the presence of small, complex flakes (24) and biface-thinning flakes suggests some later stage reduction activities. No exotic or non-local lithic materials were identified and all of the materials recorded here can presumably be found in the canyon below. There seems to be a selection preference (75% of the assemblage) for coarse-grained materials and these appear to have been used for the production of expedient flake tools. Fine-grained materials, in many cases, are associated with the production of patterned tools and on this site; the presence of fine-grained, small complex flakes (15) appears to follow this pattern.

The Feature 1 assemblage contained seven coarse-grained quartzite items, six chert items, and one simple basalt flake. Of the chert and quartzite items, there are five complex flakes, four pieces of shatter, three simple flakes, and a single biface-thinning flake. Eleven items are small and three are large; eight items are noncortical and six display dorsal cortex.

A sample of 47 debitage flakes was taken in and around Feature 2. Unlike the overall debitage assemblage, simple flakes (20) outnumber complex flakes (16). There were 10 pieces of shatter and a biface-thinning flake was also recorded. Most were made of coarse-grained quartzite (45) with single items of chert and fine-grained quartzite. There were more large (24) than small (23) items and 23 items display dorsal cortex.

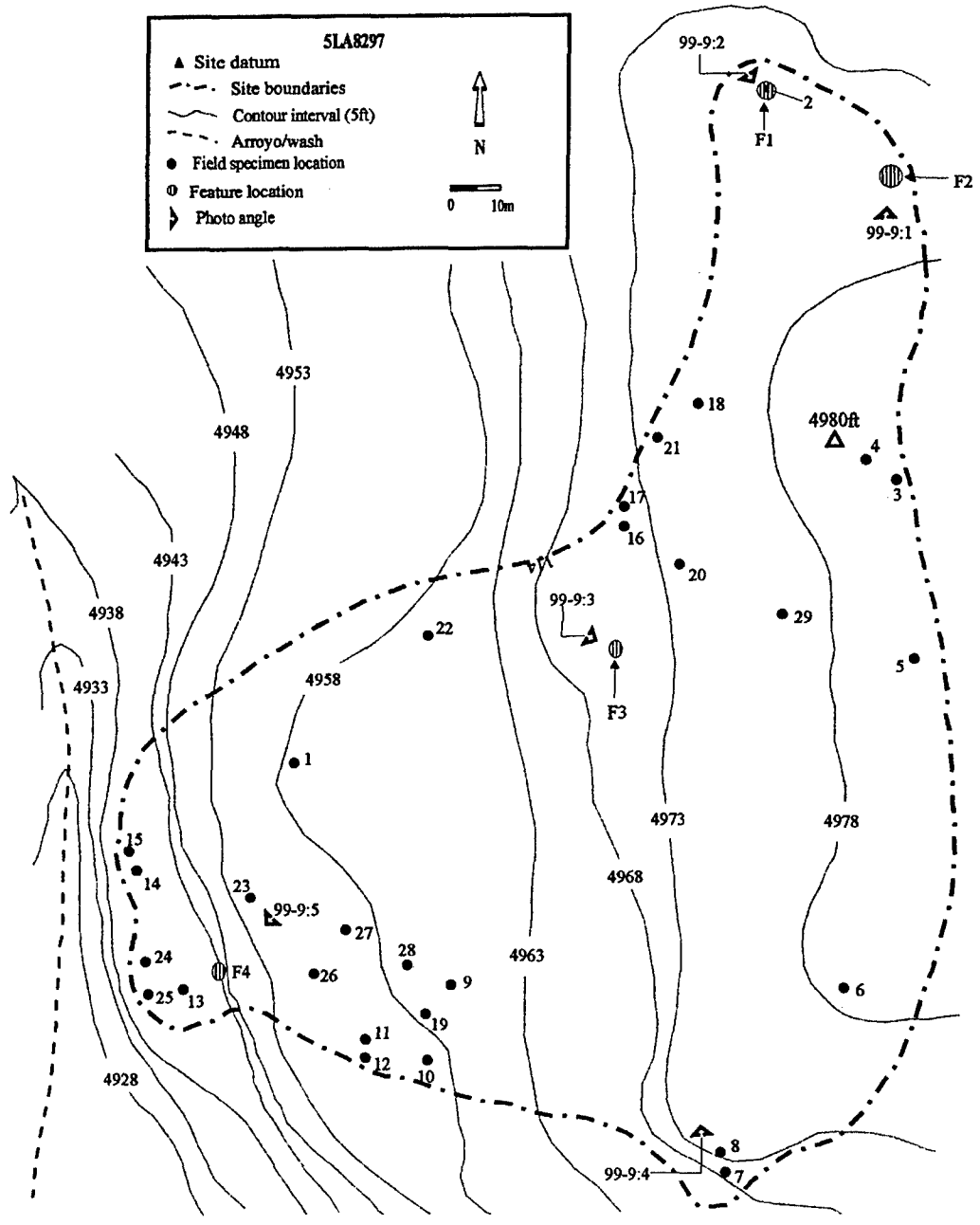


Figure 4.43: Site map, 5LA8297.

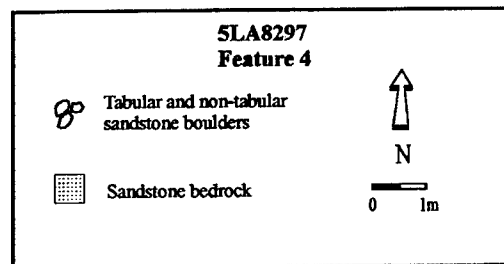
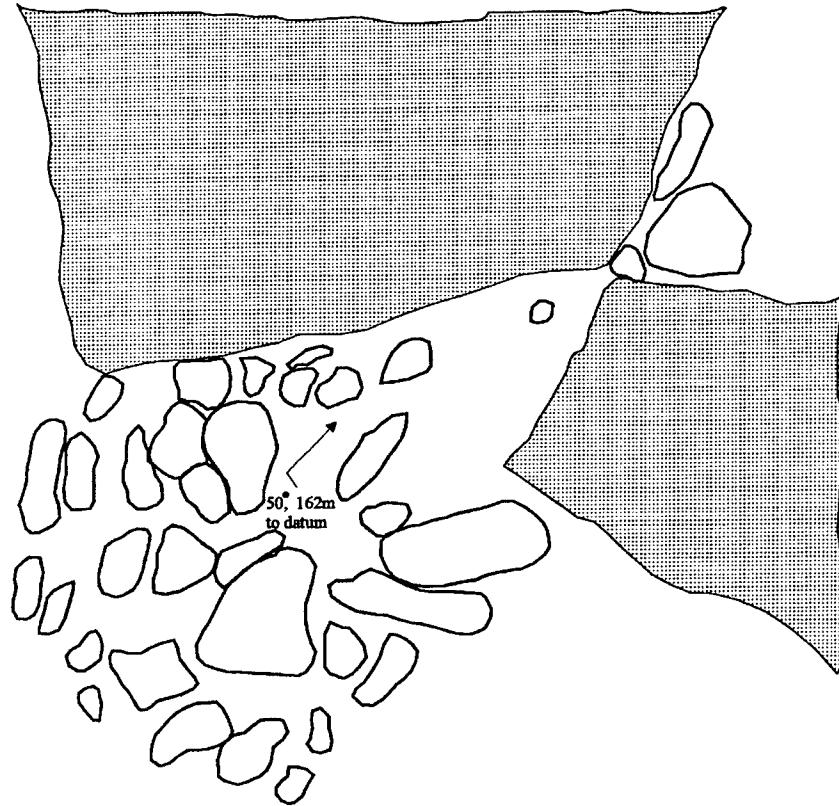


Figure 4.44: Planview, Feature 4, 5LA8297.

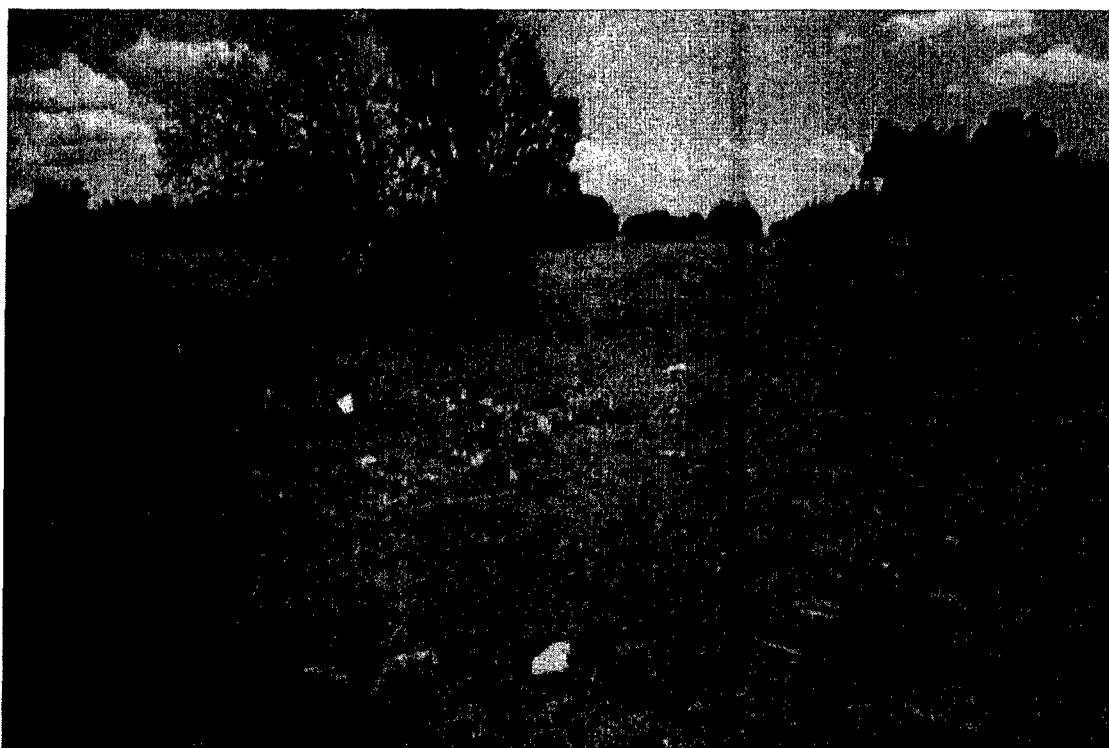


Figure 4.45: Site overview photograph with Feature 1, tipi ring in the foreground. Photograph (PCMS 99-9: 2) faces southeast at 145 degrees.

The tool assemblage consists of five projectile points, four utilized flakes, three non-bipolar cores, three bifaces, two end/side scrapers, a side scraper, a graver, and a uniface tool. Table 4.22 shows the material data for tools collected at the surface. Two bifaces, FS 13 and 18, are nearly finished and were broken during the later stages of manufacture. The other biface (FS 16) was broken early in manufacture. We determined that the utilized flakes had all been used for scraping. Three (FS 20, 23, and 24) showed light usage on at least one lateral edge and one (FS 28) was heavily used on both lateral edges. All of the formal scrapers (FS 6, 14, and 26) were complete and showed moderate to heavy use. The remaining two chipped-stone tools are an informal graver (FS 10) made of non-local Black Forest Silicified Wood and a uniface (FS 25) that has one scraping edge.

Five projectile points were recovered from the surface of this site and all were temporally diagnostic. The first point fragment (FS 19) is similar to Anderson's (1989) Type P26 and is made of chert. This large type is associated with dates that range between 1000 BC to AD 500. A second large quartzite projectile point fragment (FS 1) is a P28 and ranges in time between 2000 BC and AD 1000. A third rather large and complete point (FS 5) made of argillite was assigned to the P42 class. These have a date range that extends from AD 600 to AD 1600. A small chert point (FS 15) was recorded as a Type P79, which dates AD 1000 to AD 1750. The last specimen (FS 2) is a small chert preform. Though the notches and basal characteristics were not completed, Anderson assigns this type of artifact as a P49. Dates for this class extend from AD 800 to AD 1750. Based on these five artifacts, the site likely had at least one occupation in

the Late Prehistoric stage (AD 100 to AD 1750) and perhaps an earlier occupation during the Late Archaic (1000 BC to AD 200).

Eight pieces of ground stone were recorded at the site and all were recovered randomly from the surface assemblage. Only two specimens are complete. Field Specimen 12 is a whole edge-ground sandstone cobble and measures 11 x 7 x 4 cm. One ground edge measures 7.5 x 1 cm and both faces show typical mano use wear. FS 17 is also whole, measures 41 x 34 x 6 cm and is a slab metate with one heavily used grinding surface. Six additional pieces of ground stone are broken. These include three slab metate fragments and three one-hand mano fragments. All of the ground-stone items are made of locally available sandstone.

Six pieces of burned bone was found on the southern end of the site (FS 7). No burned soil was found associated with this area, although a large mano fragment (FS 8) was recovered three meters north of the bone.

Table 4.21: Summary Description of Chipped-Stone Debitage for 5LA8297.

	Argillite	Chert	Fine Quartzite	Hornfels/Basalt	Kaolinite	Coarse Quartzite	Siltstone	Total
Total	1	22	15	6	3	100	2	149
Large	0	2	10	0	1	56	0	69
Small	1	20	5	6	2	44	2	80
Cortical	0	7	5	2	1	58	2	75
Noncortical	1	15	10	4	2	42	0	74
Complex	0	13	11	1	0	37	0	62
Shatter	0	6	2	0	0	17	1	26
Simple	1	3	2	5	3	44	1	59
Biface-Thinning	0	0	0	0	0	2	0	2

Table 4.22: Stone Tool Type by Material Group for 5LA8297.

Material	Type							Total
	Biface	Core	Projectile	Scraper	Flake	Tool	Mano	
Argillite	0	0	1	0	1	0	0	2
Chert	0	1	3	3	3	0	0	10
Coarse-grained Quartzite	1	2	0	0	0	0	0	3
Fine-grained Quartzite	1	0	1	0	1	0	0	3
Sandstone	0	0	0	0	0	4	4	8
Orthoquartzite	1	0	0	0	0	0	0	1
Silicified Wood	0	0	0	0	1	0	0	1
Total	3	3	5	3	6	4	4	28

Interpretation and Summary

Site 5LA8297 is a large lithic scatter and tipi ring site with areas of high artifact density (especially on the slope at the western portion of the site). The presence of numerous pieces of ground stone indicates that plant processing was carried out. Feature 1 has 10 cm of intact fill

that could contain cultural material valuable to the understanding of paleoenvironmental conditions, settlement and subsistence patterns, and chronological data within the PCMS area. Feature 4, is possibly a deflated Apishapa phase structure that could contain at least 20 cm of capped fill and an intact floor assemblage. Test excavations here could easily provide important data for the reconstruction of subsistence patterns and architectural information regarding these types of structures. We recommend that this site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D).

We suggest that the site be revisited for more detailed mapping and a more thorough surface collection. This site has been highly disturbed by tracked vehicles: however, it is in an area of the base that is not an active training area and is surrounded by fencing.

5LA8303

Site 5LA8303 is a large, fairly dispersed scatter of lithic materials (Figures 4.46) containing a single deflated hearth, a rock art panel, and seven rock shelters. It is located at the head of an unnamed tributary canyon on the north side of Lockwood Canyon. The arroyo channel in Lockwood Canyon is 283 m south, however there is a natural spring on site just northwest of Feature 1. When this site was recorded, the spring contained a good water supply (at least 30 cm in depth, in a pool measuring roughly 4 x 4 m). Numerous areas of sandstone outcrop on the site surface, especially at the canyon edge. Overall, the terrain slopes from the northeastern part of the site to the southwestern edge at a 2 to 10 degree gradient. A series of terraced landforms were noted in the area around the datum and there is a steep cliff at the southern site boundary. With the steep gradient present over most of the site surface, it is apparent that sheetwash erosion continues to erode the soils down into Lockwood Canyon below. A large, but dry, arroyo bisects the site from north to south and it is along this that most of the rockshelters were encountered.

Two plant communities were recorded within the site boundary; its east half is juniper/black grama (Shaw et al. 1989:28) and on either side of the arroyo it is sagebrush/blue grama (Ibid 1989:24). Plant types most readily apparent at the surface include cholla, soapweed, prickly pear, snakeweed, sagebrush, wild grapes, blue grama, black grama, juniper, currant, and mountain mahogany. At the spring, cottonwood trees, brome grass, and cattail grow in abundance. The soils are residual in nature and are classified as sandy clay. Various depths were noted in erosional features, with a maximum depth of 20 cm just north of the datum.

The prehistoric inhabitants of the PCMS would have favored this site's location as it offers good access into Lockwood Canyon. Having surveyed both edges of the canyon during the 1999 and 2000 field seasons we can safely say that this the first reliable access out of the Lockwood Arroyo system when heading west from the Purgatoire River. A game trail marks access to the canyon and it seems that there may be areas where the prehistoric or historic inhabitants of the PCMS modified this trail.

Features

A total of nine features were recorded: six rock shelters, a circular stone structure, a deflated hearth, and a rock art panel. The shelters are set in sandstone bedrock at the base of the cliff (Features 4 and 5), at the top of the cliff (Features 2, 3, and 6), and along the arroyo (Feature 1). The deflated hearth was encountered at the northeast edge of the site at the crest of a small, thin ridgeline. The rock art panel was found on the western edge of the arroyo near Feature 1.

Feature 1 is a rockshelter that measures approximately 9.1 x 3.4 m. It has a wing wall remnant at its north end, and most of the sediments have been flushed out by sheetwash erosion originating on the terrain above. Two bedrock metates (FS 5 and 6) were found just outside of its dripline and a scattering of lithic debris was recorded on the slope just south of the southern end. No evidence for thermal features exists in this activity area.

Feature 2 is a circular sandstone slab wall located underneath a low sandstone boulder (Figure 4.49). It was originally constructed of unmodified sandstone slabs, and these would have been stacked several courses high. The floor to roof measurement at the highest point in the shelter is approximately 40 cm, and overall, the rock wall measures 3.5 m in diameter. Though there is a wall remnant here, we do not believe that this feature was used for habitation. There is little "head room" and the setting for this feature makes it very difficult to get to, much less find. A person has to follow a crack in the sandstone cliff down, then follow a later crack for several meters to the west. At this point one follows another crack in large sandstone boulders to the feature. It seems this feature was used to cache some type of resource, and testing is the only way to learn what that may be. After being placed within the shelter, the material (s) were then covered with sandstone blocks until the site was visited again. There is soil deposition (15 cm) within the feature and testing here could help to determine what materials were being cached.

Feature 3, another rockshelter, is located approximately 4 m west of Feature 2 and is accessed using the same maze of cracks below the cliff face. It is rather large measuring 6 x 4 m with a floor to roof height of nearly four meters at its center. Thermal features were not encountered on its floor, but there is significant deposition here for testing.

Feature 4 is a large and substantial rockshelter at the base of the sandstone cliff, below the point where the arroyo that bisects the site drains into the canyon. It measures 31 x 11 x 7.5 m and is crescent shaped in planview. Along the back wall of this shelter there is a shale/sandstone contact that forms a seep. With a little modification, prehistoric people would have been able to collect water here. Because the shale layer is quite crumbly, there is much roof fall and shale slump on the modern ground surface. When viewing the shelter from the outside, it is clear that deeply buried cultural materials may exist. In fact, there are likely many episodes of buried deposits that have been capped by shale slump. Several of the eroded sandstone blocks inside this shelter evidence vandalism in the form of freshly carved initials.

Located 18 m south of Feature 4 is another shelter which was designated Feature 5. This large overhang (12.5 x 4.7 m) is set at the base of the sandstone cliff and has a maximum height of slightly over 2 m. There is significant deposition here and a few flakes and pieces of ground stone were found on the surface.

Feature 6 (Figures 4.47 and 4.50) is a large shelter (7 x 3.8 m) with two modified sections. The first section (4.2 x 3.5 m) or habitation unit was found beneath the rock overhang. It is constructed of a single course of unmodified tabular sandstone blocks that may have been used to support a wood or hide covering at the edge of, or just inside the dripline. The other section is oval in planview and measures 3.5 x 2.5 m. It was found outside of the dripline just north of the shelter. It too is a single course of unmodified sandstone blocks. Using Kalasz's attributes, Feature 6 would be classified as a rock shelter, partial enclosure, agglutinated unit with continuous rock walls. According to Kalasz (1989:108), other Class VI structures have associated radiocarbon dates of AD 709 to AD 1380. Assuming this date can be reliably used to cross-date Feature 6, then we can infer at least one occupation of the site some time during either the Developmental or Diversification periods.

Feature 7 is a rock art panel located 80 m west of the site datum (Figure 4.48). The panel is highly weathered and most of the solid-pecked elements, particularly on the lower panel area, appear to have eroded away. Identifiable elements include two amoeba-shaped dots, a bisected line, and a square-shaped element with a bisected line at its top. The petroglyph style is consistent with other specimens on the PCMS that have been assigned to the Middle to Late Archaic time period (3000 BC – AD 150).

Feature 8 is a circular arrangement of unmodified sandstone blocks. It measures roughly 3.5 m in diameter and appears to be constructed of a single course of horizontally laid stones. It is located in a relatively flat area above the edge of the canyon and southeast of the site datum. There is a good view to the south and into Lockwood canyon from here. This structure would be classified as a Class IV, spaced rock wall unit, according to Kalasz (1989:109). Similar structures have been dated between AD 780 and AD 1350.

At the northeast edge of the site, and on a small ridge, a deflated hearth (Feature 9) and many lithic artifacts were identified. This hearth measures 2.5 m in diameter, and is composed of gray ash and small pieces of fire-cracked sandstone.

Lithic Artifacts

The surface artifact assemblage consists of a 150-piece sample of the observed debitage, 28 ground-stone artifacts, and 19 patterned chipped-stone tools. Table 4.23 presents a summary of the chipped stone debitage recorded at the site. The debitage is 66% coarse-grained quartzite, 10% chert, 9% argillite, 9% fine-grained quartzite, and 5% basalt. All of these materials can be found inside the PCMS in cobble or nodule form, or outcropping in beds at the surface. In the case of the quartzite, there is a bed of this material that outcrops at the west edge of the site and west of the arroyo. Tested cobbles of this material abound and there are several large simple flakes that were recorded from this area. The debitage assemblage consisted of 49% complex flakes, 34 % simple flakes, 16% shatter, and less than 1% biface-thinning flakes.

Thirty-six percent of the debitage items show some degree of dorsal cortex. Of these, 19% are large cortical items and 17% are small cortical items. Heat treatment is not evident in

the assemblage. The site obviously functioned at least in part as a raw material location. Large pieces of quartzite were quarried at the outcrop, and initially reduced there. Once this initial reduction occurred, the cores, flake blanks, and early-stage bifaces were removed to another location. The argillite and basalt were procured from the hogback area of the PCMS 21 km southwest of this location, and chert is found in cobble form in Lockwood Arroyo below.

Nineteen tools representing five tool classes were recorded in the chipped-tool assemblage (Table 4.24). These are nine bifaces, five flake tools, three cores, a complete end/side scraper of quartzite (FS 38), and a chert projectile point fragment. The projectile point was so highly fragmented that it could not be placed within the Anderson (1989) system. Flake tools were recorded as three unifaces (all fine-grained quartzite) and two utilized flakes (one argillite, one fine-grained quartzite). Based on visible edge angle, both of the utilized flakes and two of the unifaces were used for scraping. The other uniface shows use as an expedient knife. Six of the bifaces are broken and were classified as unfinished. All are quartzite with the exception of FS 23 (argillite) and FS 30 (basalt). The coarse-grained specimen (FS 46) and one fine-grained specimen (FS 39) show distinct use wear on one lateral edge.

The ground-stone artifact classes include bedrock metates (13), slab metates (10), one-hand manos (4), and an edge-ground cobble (1). Of the slab metates, only one is whole. Three of the manos and the edge-ground cobble are also whole.

Table 4.23: Summary Description of Chipped-Stone Debitage for 5LA8303.

	Argillite	Chert	Fine Quartzite	Hornfels/Basalt	Course Quartzite	Total
Total	14	15	14	8	99	150
Large	5	4	6	2	48	65
Small	9	11	8	6	51	85
Cortical	3	4	6	4	37	54
Noncortical	11	11	8	4	62	96
Complex	7	8	6	2	51	74
Shatter	6	4	3	3	8	24
Biface-Thinning	0	0	0	0	1	1
Simple	1	3	5	3	39	51

Table 4.24: Stone Tool Type by Material Group for 5LA8303.

Material	Type							Total
	Biface	Core	Projectile	Scraper	Flake Tool	Mano	Metate	
Argillite	1	0	0	0	1	0	0	2
Chert	0	2	1	0	0	0	0	3
Coarse-grained Quartzite	1	1	0	0	0	0	0	2
Fine-grained Quartzite	5	0	0	1	4	0	0	10
Sandstone	0	0	0	0	0	4	23	27
Hornfels/Basalt	2	0	0	0	0	1	0	3
Total	9	3	1	1	5	5	23	47

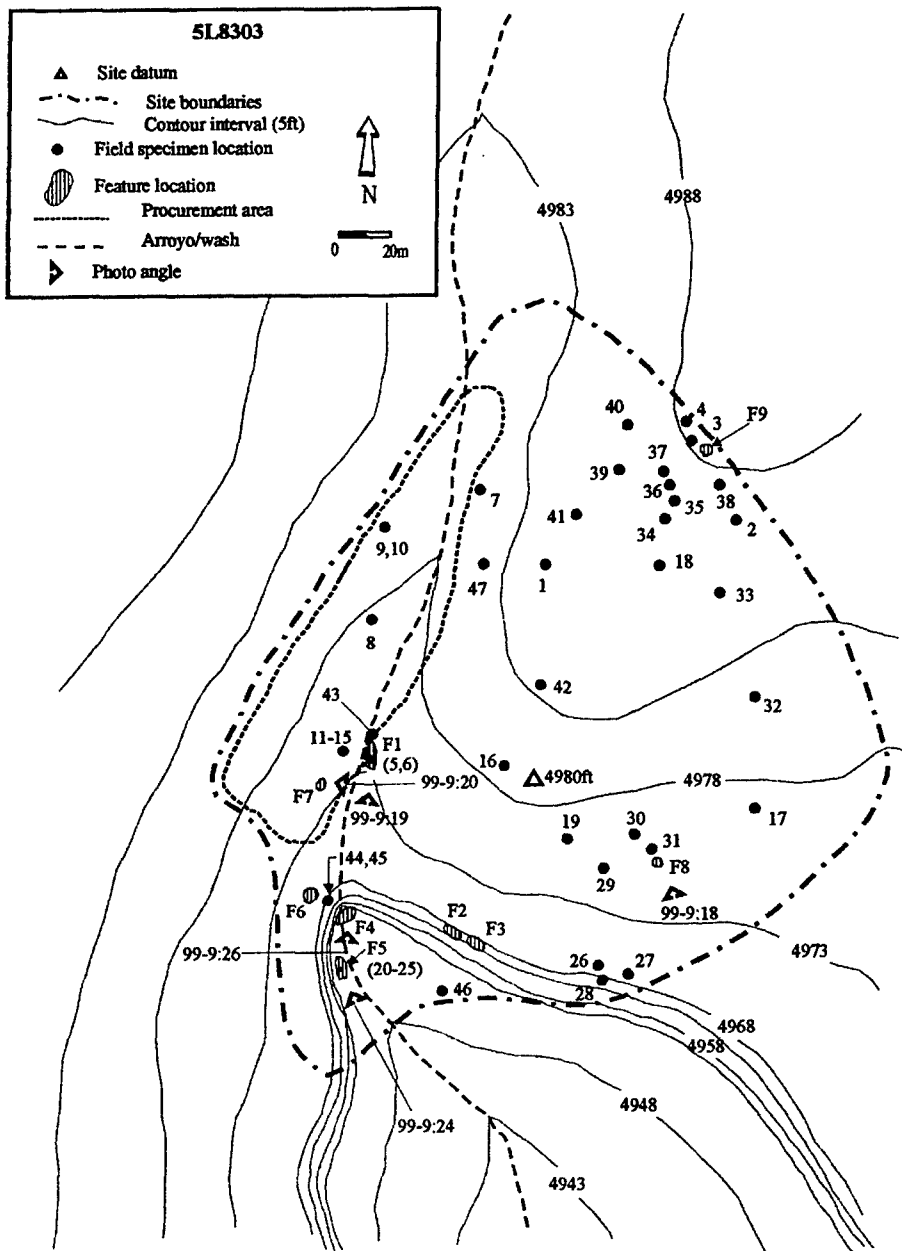


Figure 4.46: Site map, 5LA8303.

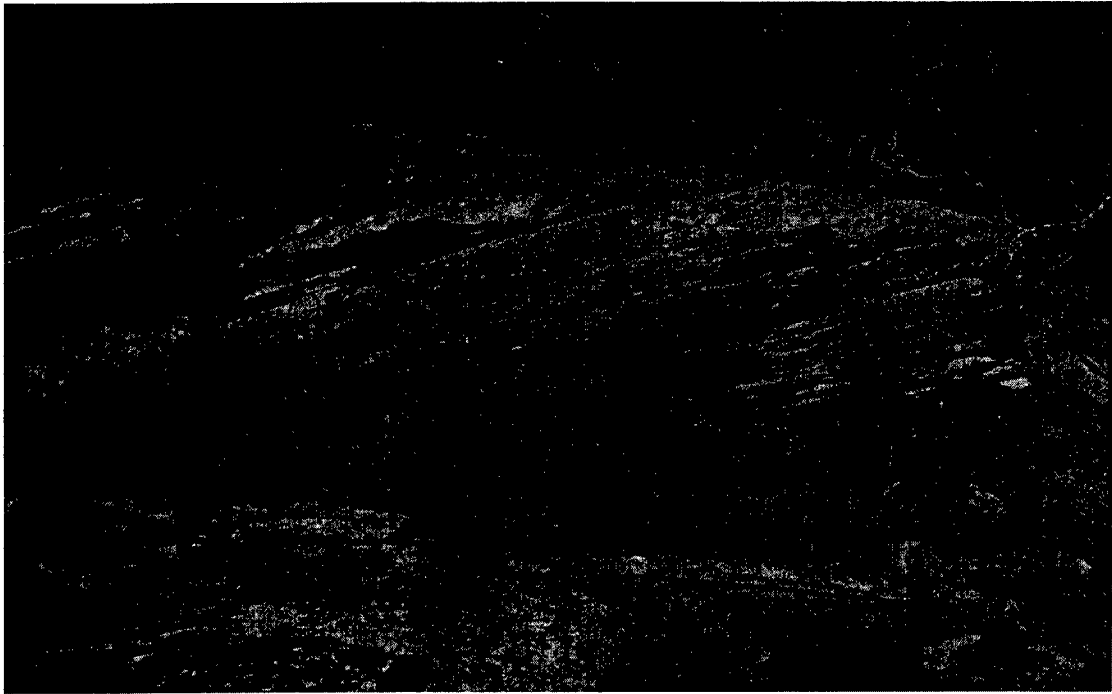


Figure 4.47: Feature 6, rockshelter, 5LA8303. Photograph (PCMS 99-9:23) taken facing northwest.



Figure 4.48: Feature 7, rock art panel, 5LA8303. Photograph (PCMS 99-9:17) taken facing northeast.

99-9:21
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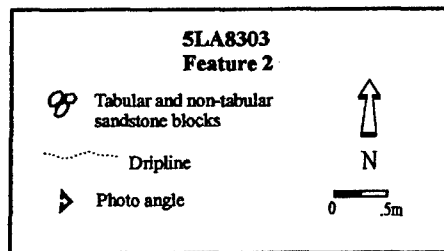
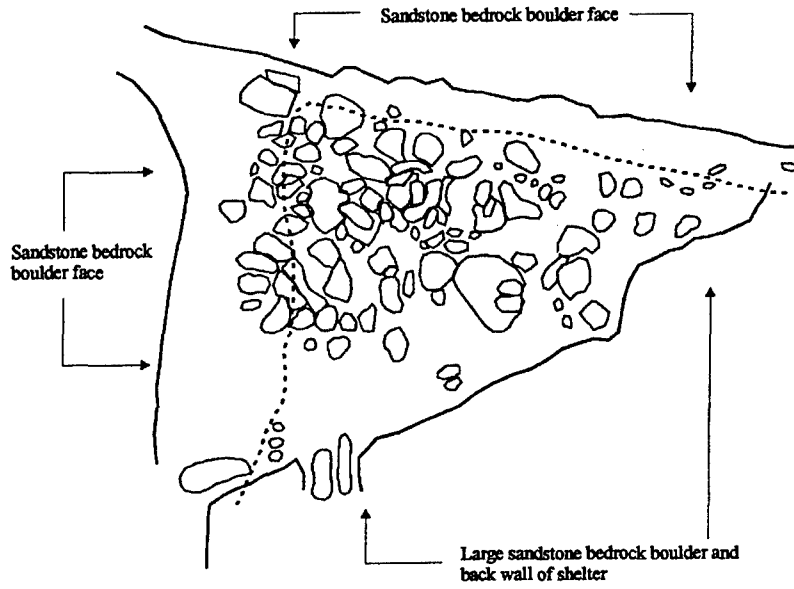


Figure 4.49: Planview, Feature 2, rockshelter, 5LA8303.

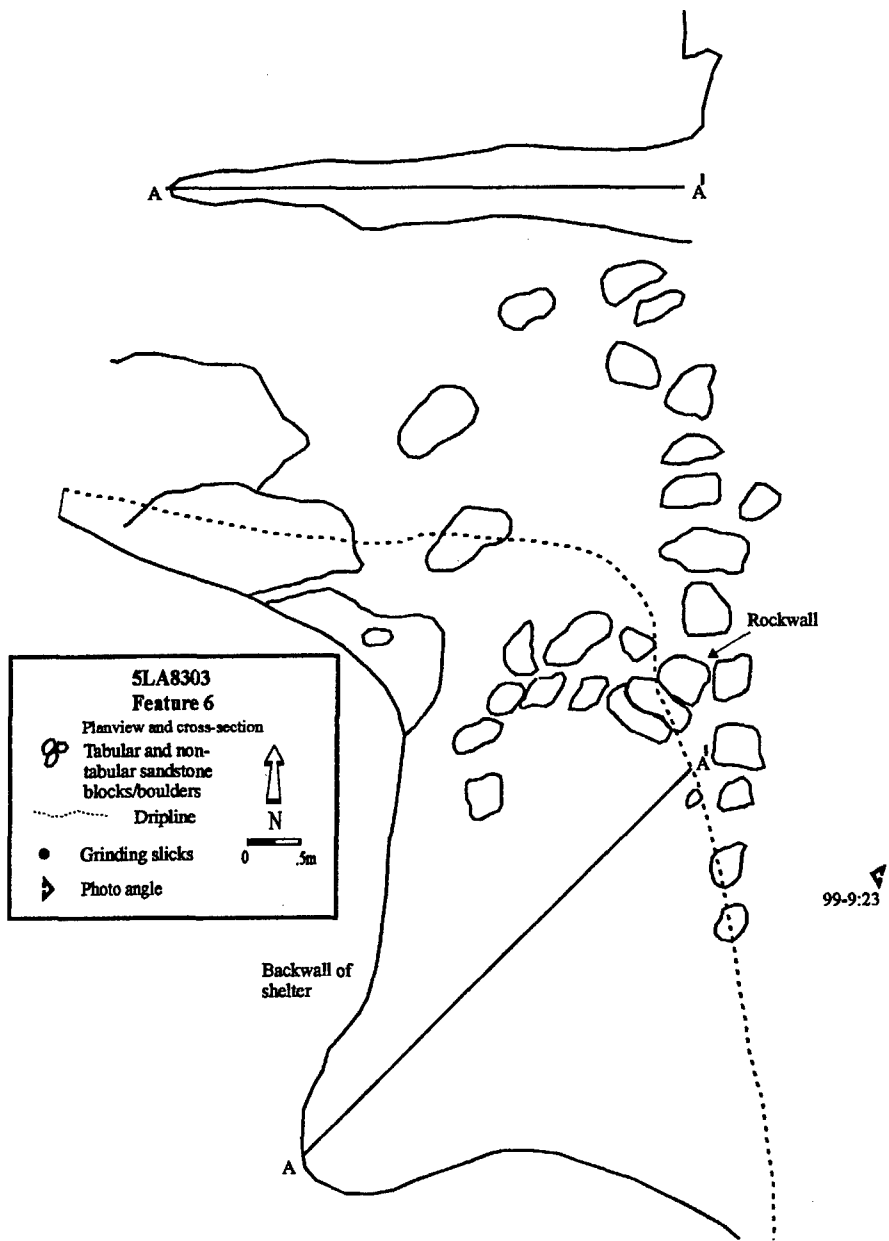


Figure 4.50: Planview map of Feature 6, 5LA8303.

Interpretation and Summary

We recommend that this site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). The presence of rockshelters and a circular slab structure suggest the site is useful for addressing questions concerning settlement patterns. There is good potential for the recovery of buried deposits in Features 2 through 5, and the presence of several pieces of ground stone indicates the likelihood that pollen, faunal, and macrobotanical remains useful in reconstructing subsistence and paleoenvironment will be recovered through the test excavation of these features. Overall, the site exhibits poor soil deposition though there are areas of up to 20 cm above the canyon. A thermal feature may indicate the presence of intact buried deposits in the northeast area of the site. Ground- and chipped-stone tools indicate the primary site activities were raw material reduction, early-stage biface manufacture, and food processing. The presence of a hearth and fire-cracked ground-stone tool fragments suggest cooking or roasting. Site 5LA8303 is closely associated with 5LA8606 (45 m northeast) which has large roasting pits and both Archaic and Late Prehistoric age projectile points at its surface. There is a petroglyph panel at 5LA8303 attesting to the potential for the site to contribute to the understanding of the ideology and cosmology of the prehistoric inhabitants of the PCMS.

There is modern graffiti in one of the shelters, but overall, the site is not really in danger from military maneuvers. Our management recommendation is that the site receives no further consideration at this time.

5LA8306

The site is a historic homestead/sheepherder's cabin and a sparse, prehistoric lithic scatter (Figures 4.51 and 4.56). It is located in the southwest portion of Training Area 10 on the western terrace of Big Water Arroyo. The confluence of Big Water and Taylor Arroyo is approximately 1.1 km south and a permanent, but unnamed spring is 400 m east. The site and its components extend over an area of approximately 4.5 acres. The site datum is situated at an elevation of approximately 1529 m (5015 ft) asl and is located near the southern boundary. Terrain slopes moderately from south to north into Big Water Arroyo and the erosional channel is 175 m northeast of the northernmost portion of the site.

A juniper woodland plant community best describes the vegetation along this canyon edge. The overstory is dominated by juniper with very thick grama and galleta grass cover at the surface. Prickly pear, cholla, mountain mahogany, sagebrush, skunkbrush sumac, and wax currant were also seen growing at the site. Small ledges of outcropping sandstone terrace the hill slope. In fact, all of the historic structures are tucked into these geologic features. Below these outcroppings, most of the site has rather deep soil deposition, especially the northern half of the site. The areas around the historic structures exhibit deposits of at least 20 cm and may be covering intact cultural deposits.

Features

A small (11 x 19 ft), D-shaped sandstone structure (Feature 1) and its associated corral (Feature 5) dominate the historic component of the site (Figure 4.52). The foundation of the structure appears as unmodified sandstone blocks, randomly placed on the outcropping sandstone. At least the southern wall appears to have been constructed with several courses of blocks; several of these appear to have been placed upright. The presence of a metal grommet near this feature suggests Feature 5 functioned as a tent platform. This is a questionable call, and because of the direct association with the corral, the feature might have been used for tools or tack. No household items were found within this feature, though a couple of solder-sealed cans were found a few meters to the north. The associated corral measures 18 x 16 ft and utilizes a low sandstone ledge as its southern wall. Individual sandstone blocks were placed along its southwest corner to form a confining wall. Two areas of collapsed sandstone blocks were noted in front of the ledge and these may have been support collars for wooden posts. A single piece of smooth wire (bailing wire?) was found within the wall blocks.

A depression located to the north and east of the datum was designated Feature 2 (Figure 4.53). This depression measures 15 x 14 ft and contains a stacked wall of sandstone blocks at its southeast corner. All of the other structural components were either scavenged for use elsewhere or have collapsed and have been buried in the pit. With sandstone bedrock visible at its north end it is likely a fairly shallow depression (based on a pin-flag probe, at least 30 cm). All of the other historic artifacts- glass fragments, a nail, tin cans, a tobacco can lid, a metal barrel hoop, and a sheet metal frame- were found in this vicinity. The structure is tentatively dated between 1910 and 1930 based, in part, on the artifact assemblage. This period of time corresponds to the socio-political period of Early Ranching (1910-1930), though the original land patent for the landform containing these features dates to 1875.

Near the central portion of the site, and along another sandstone outcropping are what appear to be a lambing pen (Feature 3) and a collapsed block feature (Feature 4). Feature 3 (Figure 4.54) is triangularly shaped in planview and backed into a sandstone bedrock ledge, which forms its west wall. Axe-cut juniper trees form a portion of the containment wall on the north and south side with large, stacked sandstone blocks forming the eastern half of the pen. Feature 4 may have functioned as a large post collar or may be the remains of a small foundation (Figure 4.55).

No prehistoric features were noted within the site boundary, though Feature 1 could have originally been a prehistoric structure that was dismantled and, then reused in historic times.

Lithic Artifacts

The prehistoric component of the site is comprised of a sparse lithic scatter found in its northern half. Specifically, most items, including the tools, were found in the Big Water Arroyo floodplain. Only 17 pieces of chipped-stone debitage were recorded (Table 4.25). The stone-tool assemblage consists of two unifaces and two scraping tools (Table 4.26). Three complete sandstone manos comprise the ground stone.

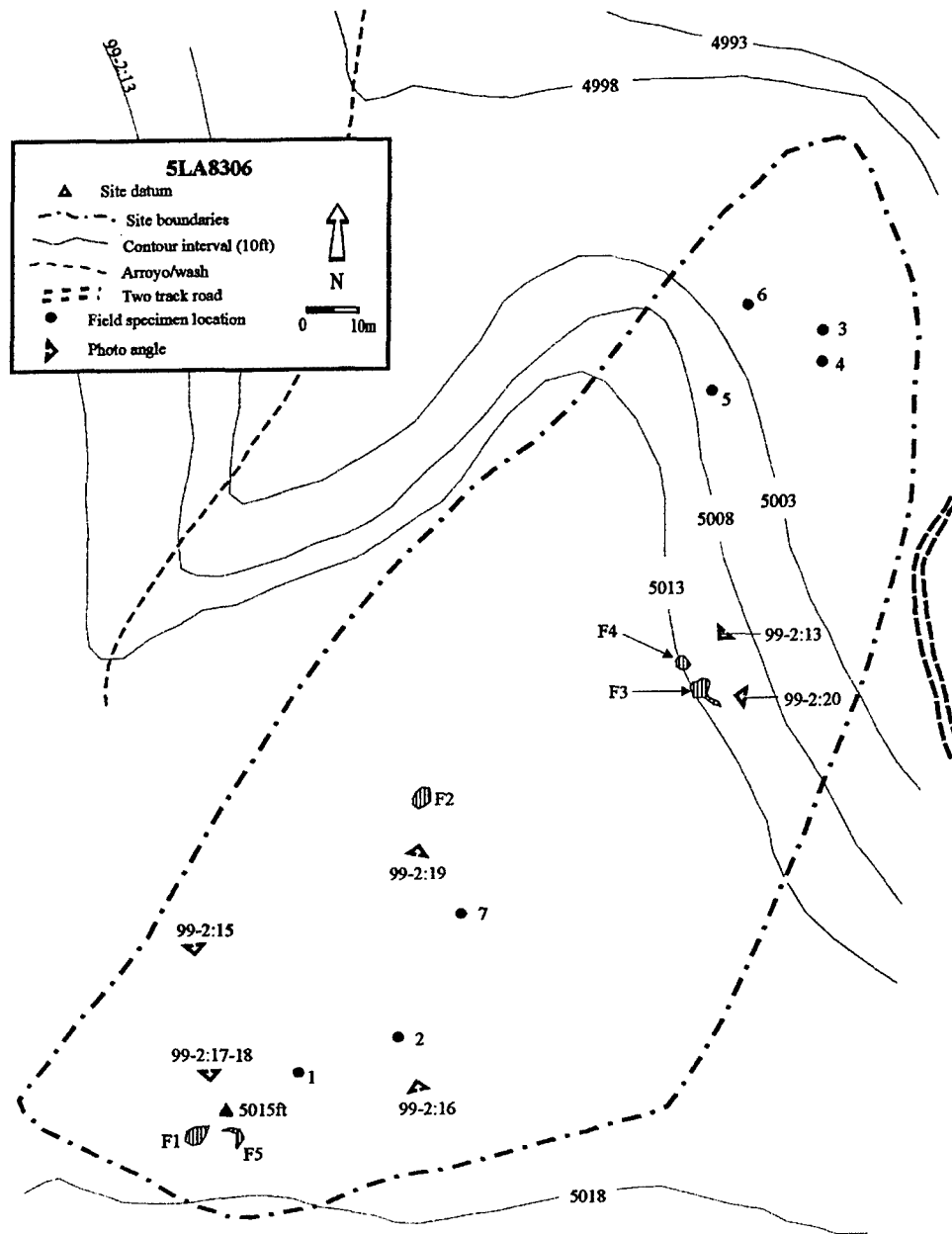


Figure 4.51: Site map, 5LA8306.

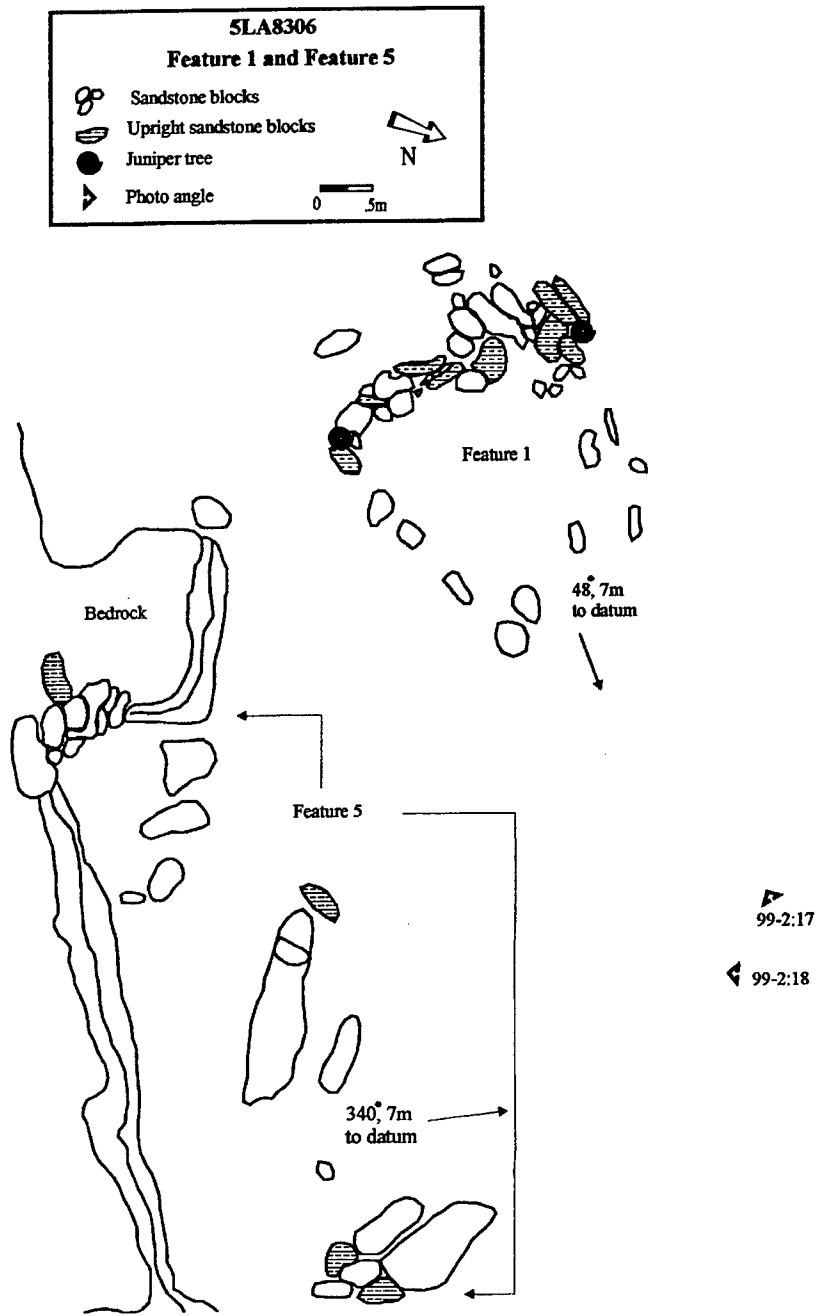


Figure 4.52: Relationship and planview maps for Features 1 and 5, 5LA8306.

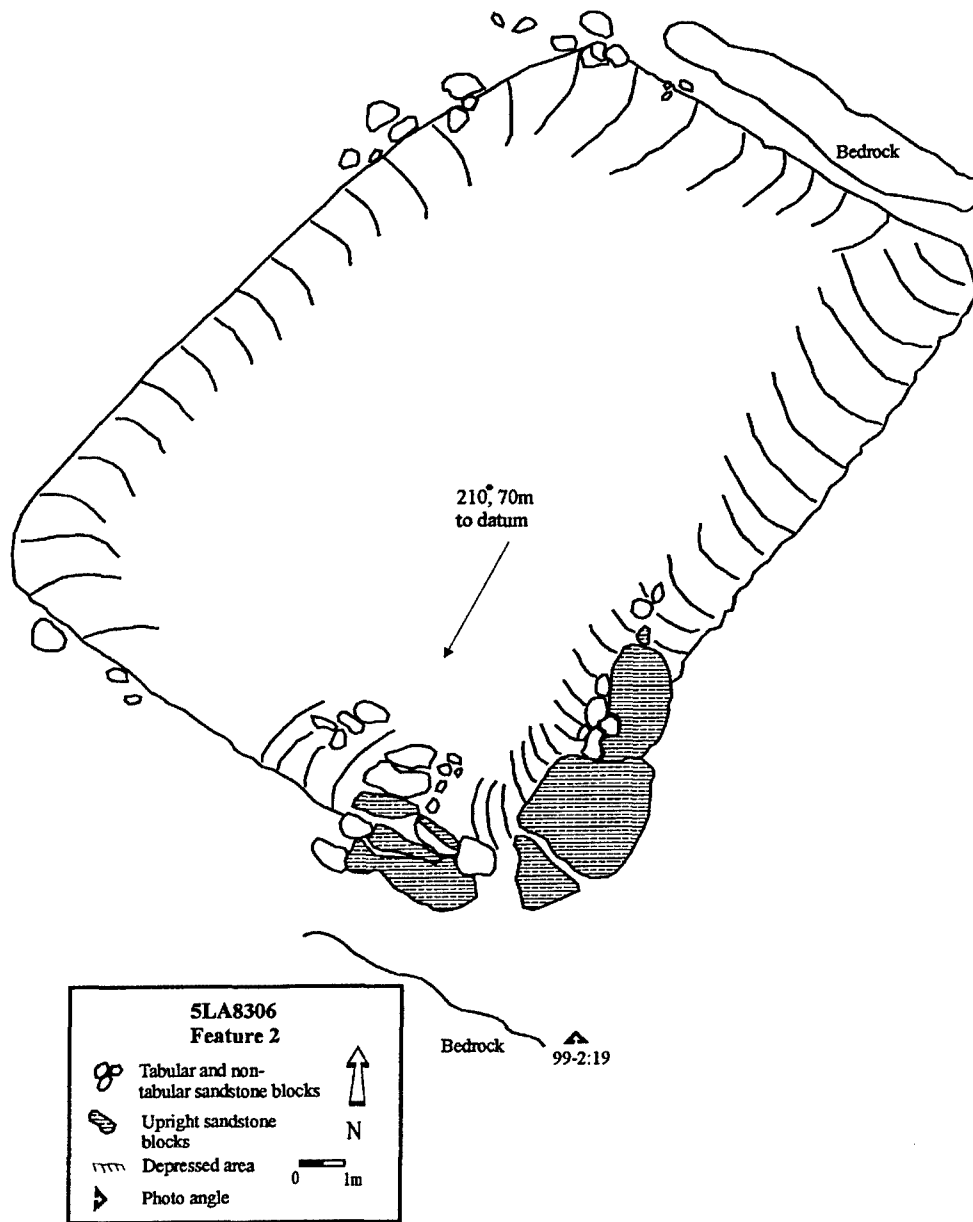


Figure 4.53: Planview map of , Feature 2, a dugout, 5LA8306.

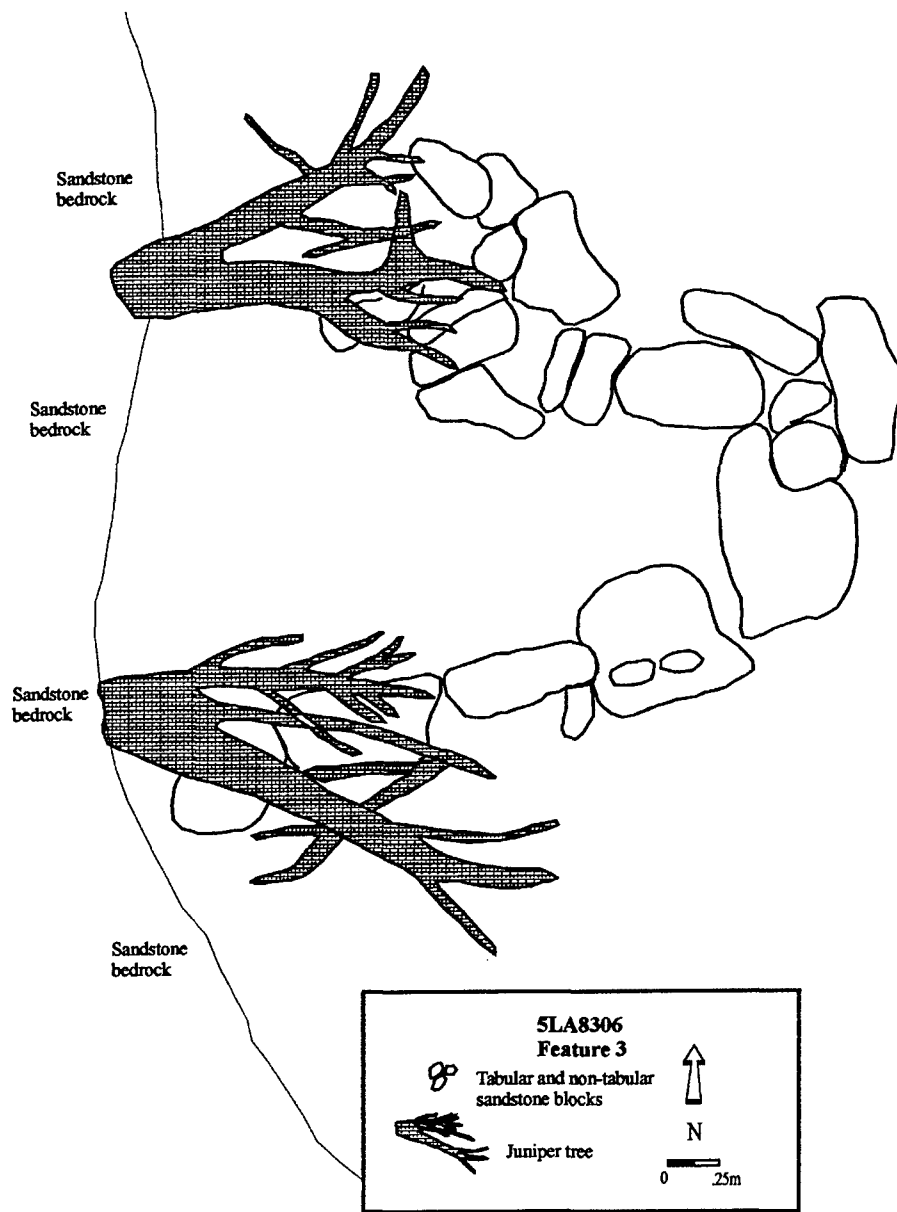


Figure 4.54: Planview map of Feature 3, a historic structure, 5LA8306.

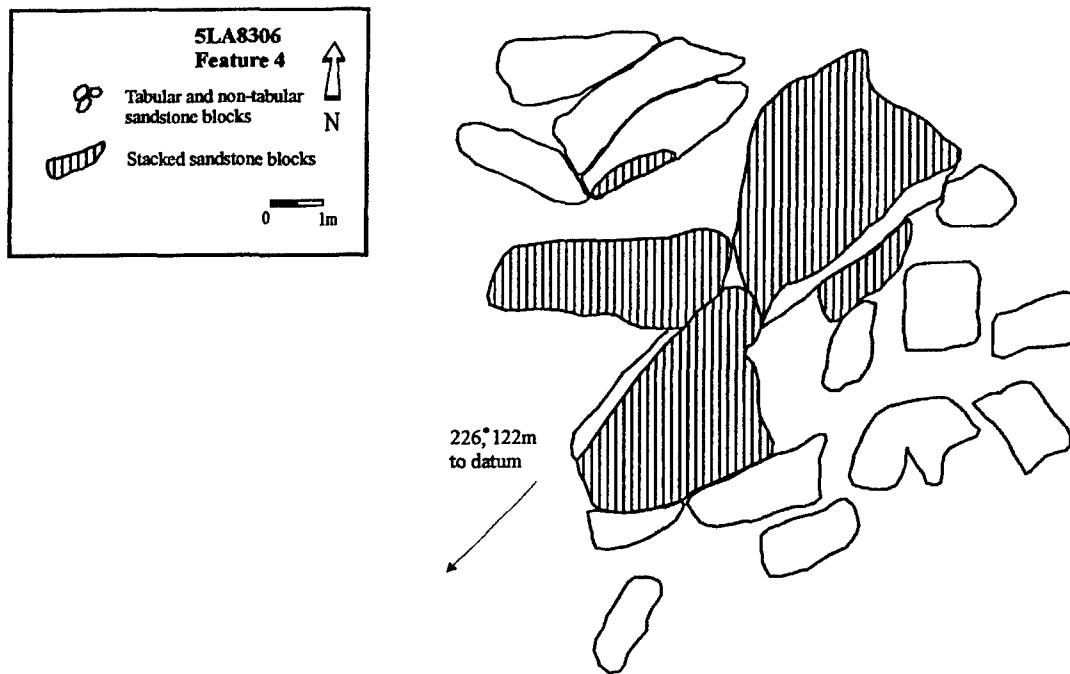


Figure 4.55: Planview map of Feature 4, 5LA8306.



Figure 4.56: Site overview photograph, 5LA8306. Photo (PCMS 99-2: 16) taken facing southwest facing 225 degrees.

Table 4.25: Summary Description of Chipped-Stone Debitage for 5LA8306.

	Argillite	Chert	Fine Quartzite	Hornfels/Basalt	Total
Total	1	6	5	5	17
Large	1	0	0	1	2
Small	0	6	5	4	15
Cortical	1	2	0	1	4
Noncortical	0	4	5	4	13
Complex	0	2	4	2	8
Simple	1	4	1	3	9

Table 4.26: Stone Tool Type by Material Group for 5LA8306.

Material	Type				Total
	Side Scraper	End Scraper	Uniface	Mano	
Coarse-grained Quartzite	0	1	0	0	1
Fine-grained Quartzite	1	0	2	0	3
Sandstone	0	0	0	3	3
Total	1	1	2	3	7

Interpretation and Summary

We recommend that this site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of history (Criterion D). The historic component of the site was originally patented in 1875 by Wilford Riley. This may be the 28-year old Canadian Wilford Riley who appears as a laborer in Yuma, AZ on the 1870 federal census. Post abandonment deposition and some wall fall may have sealed and protected intact, cultural deposits beneath the surface of this potentially early site.

No further work is needed at this time, as the site cannot be easily accessed by military maneuvers. The site should be monitored periodically. If military impact or heavy erosion begins to endanger site integrity then the management recommendation should be re-evaluated.

5LA8309

Site 5LA8309 is located in the central portion of Training Area 10 on the north side of Lockwood Canyon, in the flat grasslands above the uppermost terrace. This large lithic scatter and tipi ring complex is bordered on the east by an unnamed drainage and on the west by the "Sharps Ranch" road. The west side of this 4.8-acre site extends along the top of a long ridge that slopes gradually to the south. Areas of sandstone bedrock are exposed on the eastern edge

of this ridge. Considerable sheetwash erosion has disturbed the site area, leaving gravelly to silty soils. Soil depths vary across the site, but in some areas up to 50 cm was observed. The site is located in a transitional zone between open prairie and a juniper forest with intermittent piñon pine trees. A wide variety of vegetation was observed, including cholla, soapweed, prickly pear, wheatgrass, foxtail barley, needle and thread grass, squirreltail grass, sagebrush, and sunflowers.

The site contains an historic component, which stretches from the southern top of the ridge, eastward and down slope toward the arroyo. The trash assemblage consists of a variety of sanitary cans, a few amethyst bottle fragments, a 45-60 cartridge casing, a brass button, and one metal spoon handle with a floral design. Based on the artifact assemblage and the sites spatial relationship with other historic sites on base, a date range for this trash scatter is postulated at 1890-1920. No structural elements or historic features were encountered within the boundaries of the site, but Sharp's Ranch, which was originally patented in 1882, is found only a few hundred meters south. This scatter likely is the result of trash dumping from this location and is not significant.

Features

The six features recorded at the site include five complete stone rings and one partial stone ring. All can be attributed to Kalasz's (1989:109) Class IV spaced rock wall structures. Overall, the camp arrangement appears to be a rough semi-circle in planview (Figure 4.57). This seems to coincide with the ridge line on the west side of the site and from this we can assume that the prevailing winds came from the north and west. From the map we can see that there are two distinct clusters with Features 1 and 2 found at the northern site boundary and Features 3-6 along the western boundary. All of the rings are found singly with no intermixing of rocks or walls. They have a rough diameter of 8 m, which is misleading, because as stones were removed from the hide covering during the breakdown of camp, stones were typically tossed away from the wall. This makes the maximum outside diameter appear greater than when the tipi was actually used. None of the rings contain enough rocks to represent more than one single course of stones (Figure 4.58) and the embedded depth of rocks within each ring ranges from 5 to 10 cm. We believe that in prehistoric times there were more stone circles on this site but the erosional nature of the Lockwood Arroyo terrace makes the positive identification of more rings difficult. Also, slope wash and natural erosion of the western ridge could be covering more stone rings, possible communal areas or thermal features.

Lithic Artifacts

Table 4.27 presents a summary of the 157 chipped-stone debitage items recorded at the site. Ten material types were noted. Of the total debitage, the overwhelming majority is quartzite (fine-grained 41%, coarse-grained 18%) and unspecified chert (17%). The remaining 24% percent of the materials are argillite, chalcedony, Alibates dolomite, basalt, obsidian, silicified wood, and siltstone. Other than the obsidian and Alibates items, and possibly the silicified wood, all materials are locally available. Hughes identified the obsidian source as Cerro del Medio in the Jemez Mountains of New Mexico (Appendix I).

The debitage consisted of 73 simple flakes, 59 complex flakes, 18 pieces of shatter, and 7 biface-thinning flakes. The assemblage mainly consists of small, noncortical debitage (61%). Cortex was present on only 15 (10%) of the simple flakes, 12 (8%) of the complex flakes, and three (2%) of the shatter specimens. Overall, 68% of the debitage was classified as small, and 32% is large. With cortex present on 6% of the small flakes and 13% of the large flakes, it appears that the site functioned chiefly as a secondary raw material reduction and early- to late-stage biface manufacture location, with most of the local materials types brought to the site as prepared cores or early-stage bifaces. The low count of flake tools on site, coupled with the low emphasis on primary core reduction, suggests that expedient flake tool technology was not in use. The high number of biface-thinning flakes and small complex flakes (43) also indicates that biface tool manufacture was a dominant site activity. The non-local Alibates and obsidian pieces were all non-cortical and represent three complex flakes, two biface-thinning flakes, and single specimens of shatter and simple flakes.

Only one projectile point was recovered from the site surface, and this shattered chert specimen (FS 10) conforms to Anderson's P35 type, which has associated dates between 1000 BC and AD 1200. Points assigned to this class have extreme variability in style so the exact temporal placement is problematic.

The remaining chipped-stone tools consist of twelve artifacts, of which three are bifaces, three are side-scrapers, two are end/side scrapers, two are non-bipolar cores, one is a uniface, and one is a utilized flake. Material types noted for the bifaces are quartzite (2) and chert (1). Of these, two (FS 7 and 12) were broken early in the manufacturing process. The nearly finished biface (FS 6) was broken late in manufacture. Within the overall scraper category, two specimens are broken and the other is complete. All display at least one single, unidirectionally retouched edge with an angle of greater than 45 degrees. Of the two remaining flake tools, the uniface (FS 14) has one lightly used scraping edge and the utilized flake (FS 4) was moderately used on one lateral edge. No evidence for adhesions exists on any of the scraping tools.

Two interior metate fragments of sandstone and a complete edge-ground cobble of quartzite constitute the ground-stone assemblage. In addition, no pottery fragments were encountered on site.

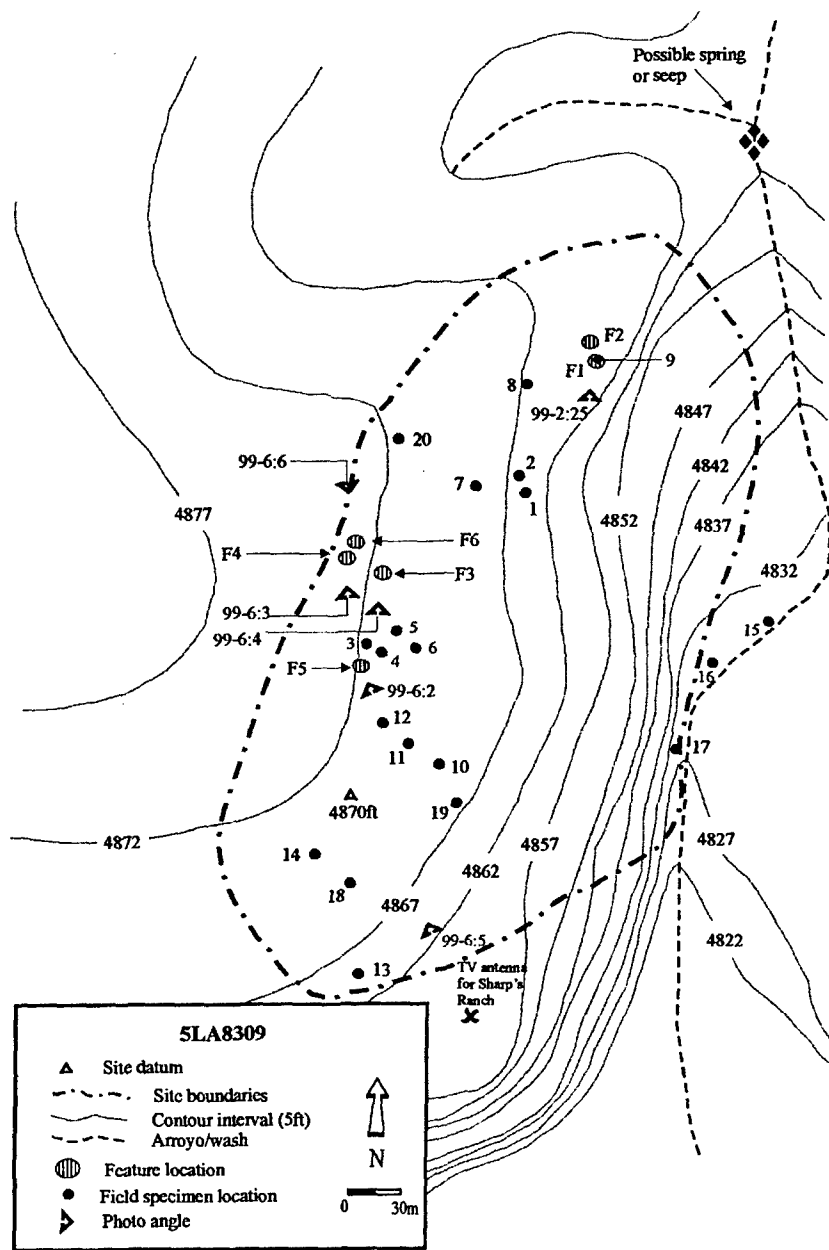


Figure 4.57: Site map, 5LA8309.

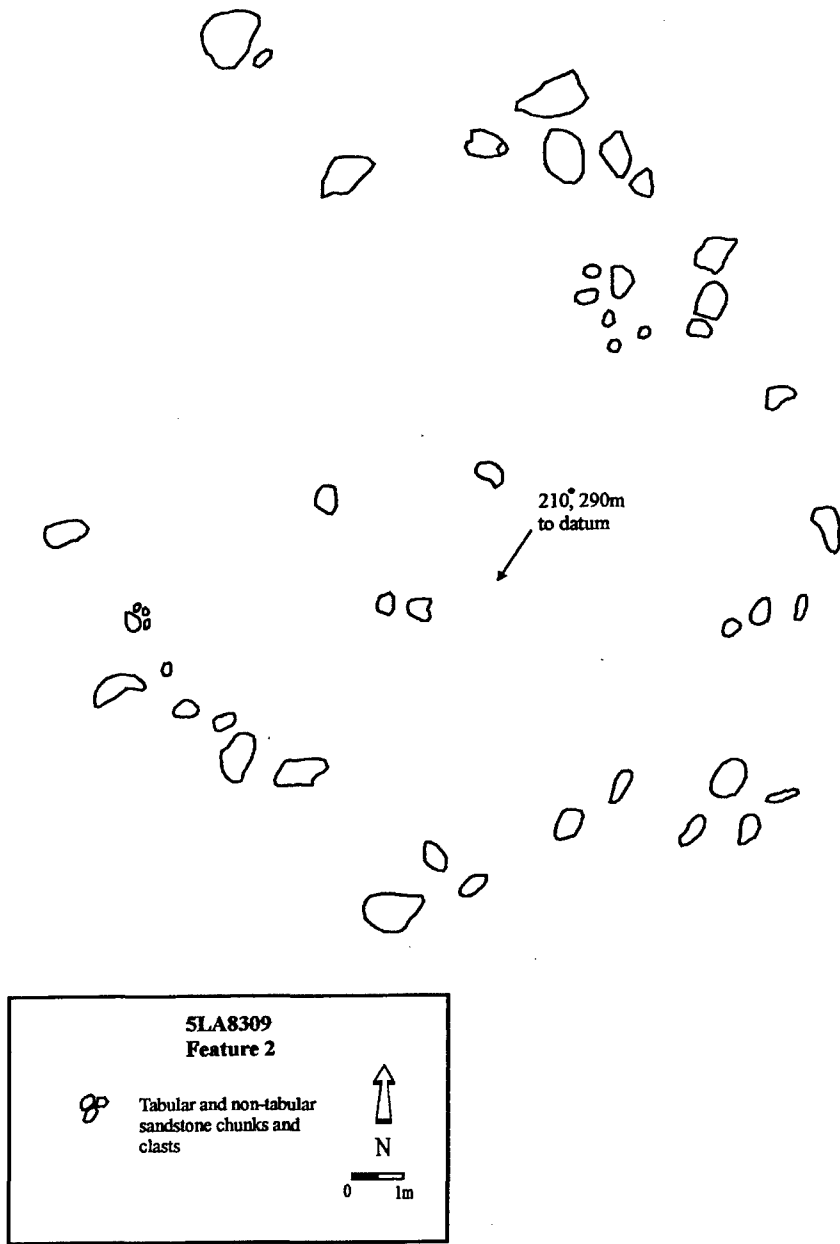


Figure 4.58: Planview, Feature 2, a tipi ring, 5LA8309.



Figure 4.59: Site overview photograph, 5LA8309. Crew member in the background recording Feature 6, a tipi ring. Photo (PCMS 99-6: 6) taken facing south.

Table 4.27: Summary Description of Chipped-Stone Debitage for 5LA8309.

	Arg.	Chalced.	Chert	Exotic	F. Quartzite	Hornfels/Basalt	C. Quartzite	Sil.	Wood	Silt.	Total
Total	12	1	26	7	64	15	28	3	1	157	
Large	5	0	4	0	21	4	15	1	1	51	
Small	7	1	22	7	43	11	13	2	0	106	
Cortical	4	0	6	0	8	2	8	1	1	30	
Noncortical	8	1	20	7	56	13	20	2	0	127	
Complex	4	1	14	3	21	3	10	2	1	59	
Shatter	3	0	4	1	6	1	3	0	0	18	
Simple	3	0	7	1	35	11	15	0	1	73	
Biface-Thinning	2	0	1	2	2	0	0	0	0	7	

Table 4.28: Stone Tool Type by Material Group for 5LA8309.

Material	Type							Total
	Biface	Core	Projectile	Scraper	Flake	Tool	Edge Ground	
Argillite	0	0	0	1	0	0	0	1
Chert	1	1	1	2	0	0	0	5
Coarse-grained Quartzite	1	1	0	0	1	1	0	4
Fine-grained Quartzite	1	0	0	2	0	0	0	3
Sandstone	0	0	0	0	0	0	2	2
Obsidian	0	0	0	0	1	0	0	1
Total	3	2	1	5	2	1	2	16

Interpretation and Summary

We recommend that the site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). The main significance of this site is that it has a very high artifact density in connection with stone circles. This is an occurrence not usually seen in Plains Indian tipi ring sites. The projectile point and the lack of thermal features and ceramics give us no way to positively date this site. However, based on the point style and the presence of tipi rings it appears that the site is multicomponent with a highly visible Protohistoric component. It may contain information for addressing chronological and processual issues in buried deposits found west of the rings in areas that are covered by post abandonment deposits. The presence of Alibates dolomite and Jemez Mountain obsidian also suggest the possibility of expanding PCMS knowledge on the trade and exchange of non-local items.

The boundary fence at Sharp's Ranch currently protects the site and because of this, our management recommendation is that the site should receive no further consideration at this time. However, the site should be revisited regularly and if thermal features or diagnostic ceramics become exposed, then the management recommendation can be re-evaluated.

5LA8311

This site is a large lithic scatter and stone circle site located along the top and west side of a north to south trending ridge that overlooks Lockwood Canyon to the south (Figure 4.60). This large 250 x 120 m site has many outcropping beds of sandstone and shale, which form a series of terraces down the ridge. Most habitation features recorded at the site are confined to the crest of the ridge, though three were found at the western boundary. Chipped-stone debitage and stone tools are found from the grassy flats north of the structures down to the cliff above the arroyo. The site datum was placed at approximately 1,521 m (4,990 ft) asl with the lowest portions of the site situated near the arroyo bottom at an elevation of approximately 1,511 m (4,960 ft) asl.

The site is located in the woodland vegetative community typically found on the exposed canyons of the base. Juniper, soapweed, tree cholla, and sagebrush dominate the overstory but blue grama, sand dropseed, threeawn, muhley, galleta grass, and currant were also seen growing. Sediments are relatively thin, especially on the ridge top; however, areas of more deposition (up to 50 cm) are noted below the erosional terraces and on the slope on the western margin of the site.

Features

All features recorded at this site are architectural in nature with two distinct types of structures noted. Though they are also stone alignments, Features 1, 2, and 8 are slightly subterranean with substantial wall fall from upright or horizontally laid stones within the pit.

These do not look like the classic Apishapa phase structures found throughout the PCMS. Rather, they seem to be reinforced tipi rings with a high number of stones used to hold down a hide covering. It also seems likely that some upright slab construction was used to protect the contact point between the prehistoric ground surface and the hide covering. All three of these structures are found at the crest of the ridge where protection from the prevailing winds would have been minimal.

The remaining circular stone structures (Features 3-7, 9 and 10) contain a single discontinuous course of rocks. Features 6 and 7 are only partial rings. It is interesting to note that these tipi rings have a very high number of fieldstones used to hold down a potential hide covering. Among other tipi ring sites in the immediate area (5LA2240, 5LA8291, 5LA8309) fewer stones were found. Two possible interpretations exist. Perhaps this site was a winter camp where tipis were more durably constructed (and excavated into the substrate) or the exposed nature of the terrain allowed high winds, thus causing the potential collapse of a tipi.

From the map one can see that there are three distinct clusters of tipi rings: Features 1, 2, and 10 comprise one group, Features 3, 6, and 7 another, and Features 8 and 9 the third. There were also two isolated rings, Features 4 and 5. In every case, the rings are found singly (i.e., no sharing or intermixing of walls). They have a minimum inside diameter of 2.8 m and maximum of inside diameter of 7 m. Features 3, 4, 6, and 7 seem to have been built in a location that would protect them from the prevailing winds. It is interesting that the subterranean features were among the smallest in diameter.

There is very thick surface vegetation on the site and with sheetwash erosion affecting the southern and western portions, additional stone rings and features may be buried. We suspect that a large subsurface component may be present. No formal fire features appear to be present, but fire-cracked rock is scattered randomly across the surface of the landform.

Lithic Artifacts

A total of 161 pieces of chipped-stone debitage were recorded from the site (Table 4.29). Of the total debitage, 30% is chert, 25% is argillite, 20% is fine-grained quartzite, 7% is silicified wood, 6% is coarse-grained quartzite, 6% is baked claystone, 3% is obsidian, 2% is hornfels/basalt, and there is less than 1% Alibates dolomite. Of the total debitage, 73% is of the small size grade, while the remaining 27% is large; 80% of the debitage is noncortical and 20% has cortex. The flakes were identified as 47% complex flakes, 5% shatter, 9% biface-thinning flakes, and 39% simple flakes.

Of the chert debitage, 19% is the large size grade, and most (81%) is small; 86% of the debitage is noncortical and 14% has cortex; and 45% is complex flakes, 10% shatter, 20% biface-thinning flakes, and 25% simple flakes. The percentage of chert found in the overall assemblage is higher than that for other sites in Training Area 10. Based on the high number of complex and biface-thinning flakes late-stage lithic reduction generated most of the debitage.

However, two chert cores and the presence of simple flakes and shatter show a less substantial reliance on free hand percussion or early-stage raw material reduction.

All of the obsidian and Alibates dolomite artifacts were found in the vicinity of Features 1, 2, and 10. All are noncortical, with four of these items recorded as complex flakes and two as simple flakes. Even though the count for these non-local materials is low, it does appear that biface manufacture or resharpening produced these items and they were originally brought onto the site as nearly finished tools. The obsidian was sourced to the Cerro del Medio dome at the eastern edge of the Valles Caldera in New Mexico (Appendix I).

Five diagnostic projectile points were recovered from the surface of the site and four are relatively recent in age. Two of them (FS 7 and 10) are chert, are similar in size and shape, and fall into Anderson's (1989) P80 and P79 types. Both have a date range between AD 1000 and AD 1750. A chert preform (FS 18) resembles Anderson's P49 type and has associated dates of AD 800 to AD 1750. Chert point fragment (FS 21) is a P58 with dates between AD 600 and AD 1200. The final projectile point (FS 3) is made of chalcedony, is similar to a P16 type, and is associated with dates that range from 3000 BC to 200 BC. Based on these artifacts, the site was minimally occupied two or three times. One occupation appears to be Archaic, and the other two in the Late Prehistoric stage. The most distinct occupation occurred sometime during the Protohistoric period.

The remaining stone-tool assemblage consists of 15 artifacts, of which five are utilized flakes, three are cores, four are bifaces, two are end/side scrapers, and one is a side scraper. Because the cores were analyzed in the field, only the material type is recorded (Figure 4.30). Material types for the cores are chert (2) and quartzite (1). There are three nearly finished bifaces and one blank made of baked clay. This specimen (FS 20) likely represents an early-stage jewelry item. The coarse-grained quartzite biface (FS 17) shows moderate wear on its acute (<45 degree) lateral edges.

The utilized flakes are chert (2), fine-grained quartzite (1), baked clay (1), and obsidian (1). Three are complete and two are broken. Recorded edge angles show three specimens (FS 4, 15, and 23) with an angle of >45 degrees (scraping activity) and two flakes (FS 16 and 22) were used for cutting. Two items show evidence of heat exposure.

Three scrapers were collected. Two of these are Alibates dolomite and are complete. Field Specimen 8 is made on a large blade flake with steep angle retouch on both lateral edges. Field Specimen 14 is an end/side scraper with a distinct spur on one corner. It has heavy retouch modification and use wear on both lateral edges and the distal end. Field Specimen 2 is a broken chert end/side scraper. It shows a red color change from heat exposure, heavy retouch modification and use wear on both lateral edges and the distal end.

No ground-stone tools were located by the survey crewmembers. A piece of burned bone (FS 28) was found southwest of the Feature 1,2, and 10 grouping. This specimen had eroded to the surface and no evidence for a fire was found nearby.

Ceramic Artifacts

One sherd (FS 31) was found along the ridge line. Its composition and form could not be determined because of its small size.

Table 4.29: Summary Description of Chipped-Stone Debitage for 5LA8311.

	Arg.	Chert	F. Quartzite	Exotic Hornfels/Basalt	Kaolinite	C. Quartzite	Sil. Wood	Total
Total	40	49	33	6	4	9	9	161
Large	17	7	11	0	0	5	2	43
Small	23	42	22	6	4	4	7	118
Cortical	15	7	8	0	0	1	0	32
Noncortical	25	42	25	6	4	8	9	129
Complex	16	22	15	4	2	6	3	75
Shatter	3	5	0	0	0	0	0	8
Simple	20	12	17	2	2	3	5	63
Biface-Thinning	1	10	1	0	0	0	1	15

Table 4.30: Stone Tool Type by Material Group for 5LA8311.

Material	Type					Total
	Biface	Core	Projectile	Scraper	Flake Tool	
Baked claystone	1	0	0	0	1	2
Chert	1	2	4	1	2	10
Coarse-grained Quartzite	1	1	0	0	0	2
Fine-grained Quartzite	1	0	0	0	1	2
Alibates Dolomite	0	0	0	2	0	2
Chalcedony	0	0	1	0	0	1
Obsidian	0	0	0	0	1	1
Total	4	3	5	3	5	20

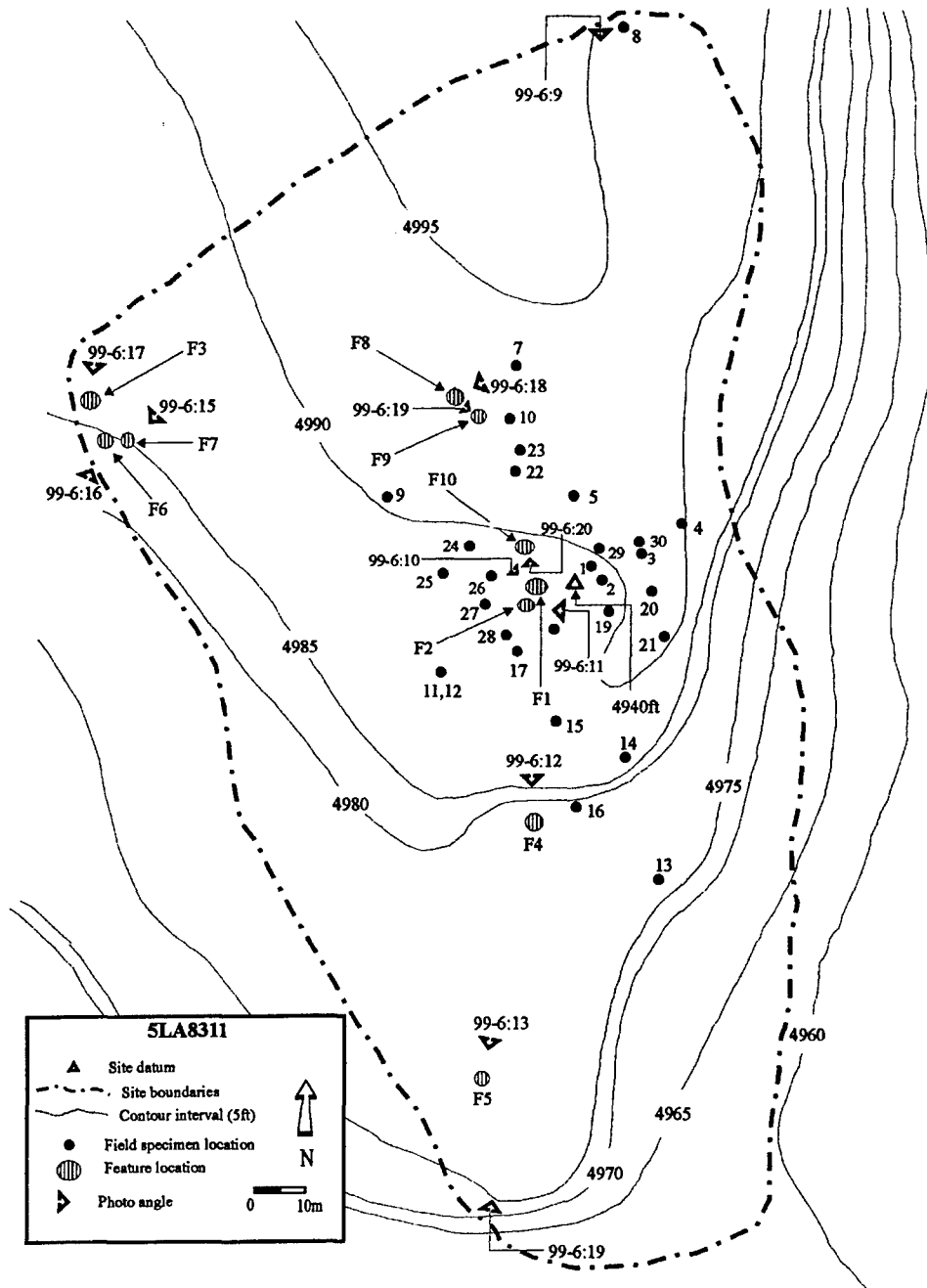


Figure 4.60: Site map, 5LA8311.

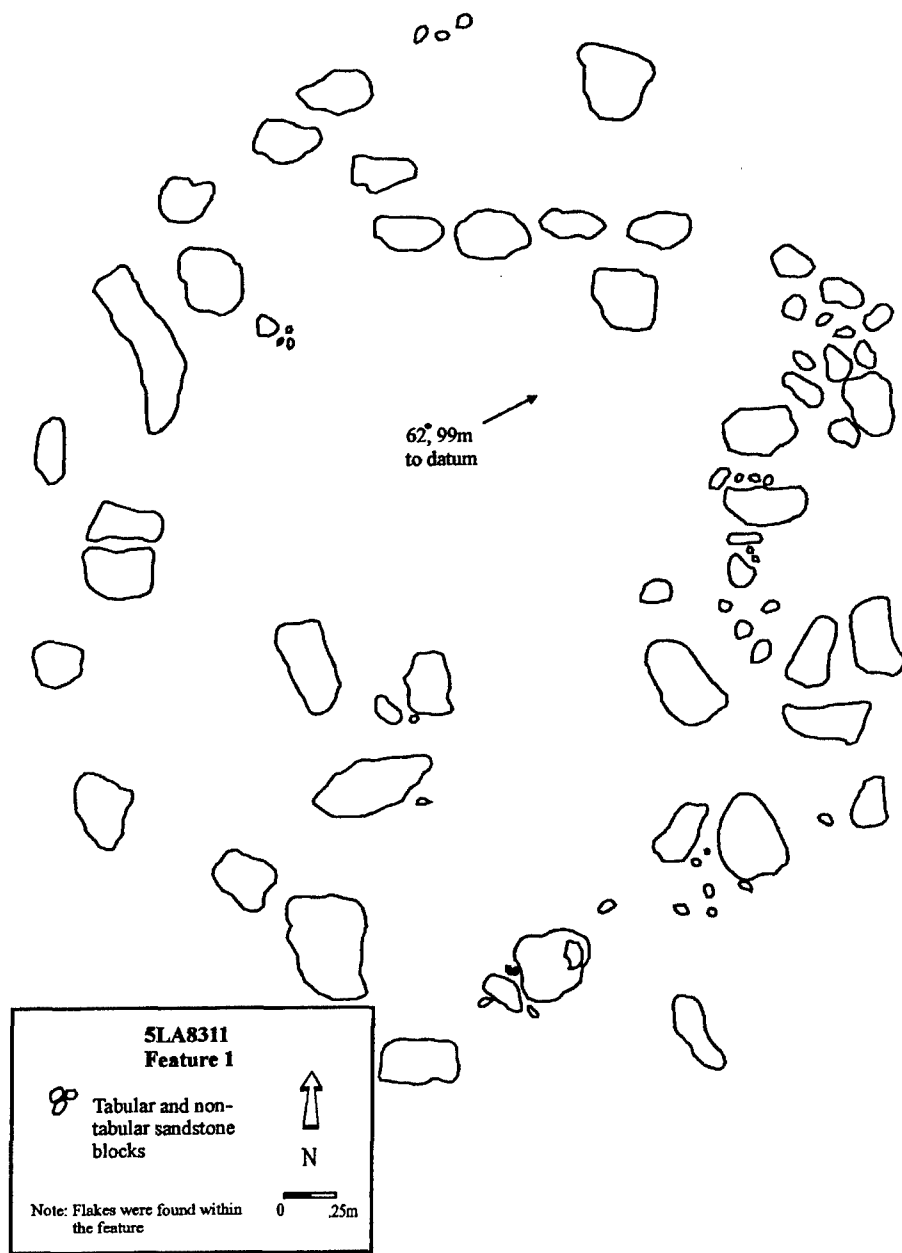


Figure 4.61: Planview map of Feature 1, a spaced-stone circle, 5LA8311.

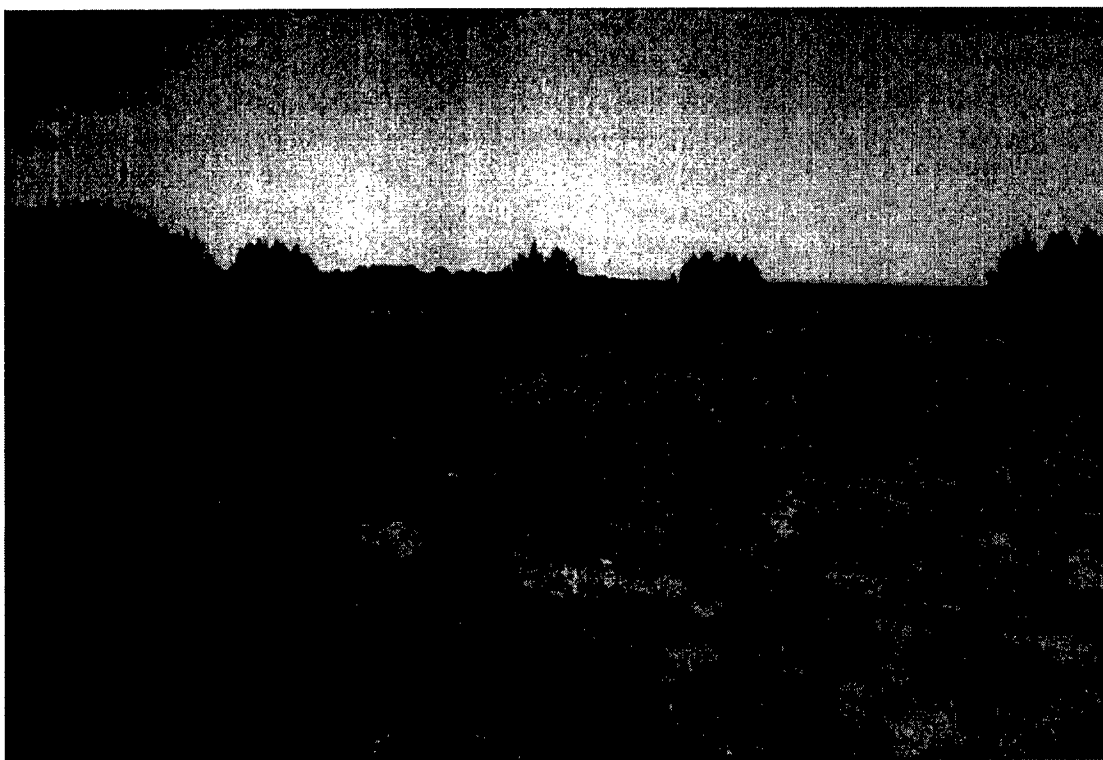


Figure 4.62: Site overview from north boundary facing south, 5LA8311, (PCMS 99-6: 9).



Figure 4.63: Feature 1, tipi ring, 5LA8311.

Interpretation and Summary

We recommend that the site be considered for nomination to the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). Site 5LA8311 is a multi-component lithic scatter and structure site that has a high chipped-stone artifact density with no evidence for ground-stone tools. Features 1, 2, and 8 are subterranean stone alignments with substantial wall fall and post abandonment fill protecting the prehistoric occupation surface. These features also do not look like any other prehistoric structures recorded on the PCMS. All have a probability of yielding charcoal that can be used for dating and chronological purposes. These may also yield data regarding architectural construction for seasonal (possible winter) Protohistoric habitation. A single piece of burned bone was recovered which indicates a high probability of recovering information bearing on the reconstruction of subsistence practices and paleoenvironment in subsurface context. The structures provide important information that has a bearing on the reconstruction of the regional settlement system, and, while most have shallow deposition, there still are probable subsurface cultural deposits within some. The presence of Alibates dolomite and obsidian could provide information useful to reconstructing trade and exchange networks.

Our management recommendation is to avoid and test. The entire site is located in an area moderately disturbed by mechanized training. It is in danger from military impact and Features 1, 2, and 8 should be tested. If intact cultural deposits are encountered, then the site should be fenced for its protection.

5LA8606

This site is a large lithic scatter with a rockshelter (Feature 3) and two large middens or roasting pits (Features 1 and 2). It is located on an east to west trending ridge on the east side of a minor drainage that feeds Lockwood Canyon (470 m southwest). The ridge is capped by outcropping beds of sandstone that have formed hoodoos along the southern site boundary (Figure 4.64 and 4.66). At the eastern edge of the site a series of small arroyos dissect the terrain and form an erosional basin that would have sheltered prehistoric inhabitants from the prevailing winds. The northern portion of the site gently dips to the north and west. The site covers approximately 9 acres and is localized around the ridge. Lithics were found across the entire surface of the site but were denser in the erosional basin. The elevation of the datum is 1,521 m (4990 ft) and the site ranges in elevation from a low of approximately 1,514 m (4,970 ft) to a high of 1,528 m (5,015 ft).

Juniper, mountain mahogany, currant, cholla, yucca, cacti, sideoats and blue grama, blackfoot daisy, sunflowers, and skunkbrush were noted. Overall the vegetation is sparse with small stands growing in the sandy soil pockets between outcroppings of bedrock. Soil deposits are thin at the central part of the site where large areas of bedrock are exposed. In the southern and western part of the site, deposits of up to 25 cm in depth were noted.

Features

Three prehistoric features were recorded at the site, two of which appear to be middens or large roasting pits. (Figures 4.65, 4.67, 4.69). Each is primarily composed of darkened soil with a large amount of fire-cracked rock (ranging from 2 cm in size to over 35 cm), some ash and artifact fragments. Feature 1 measures 8.2 x 5.9 m and has an observed depth of 35 cm. Small arroyos are found on either side of this feature and are actively eroding, and destroying it. Feature 2 is 5.5 x 4.3 m in size and 35 cm in depth. It too is being destroyed by erosion with small erosional cuts on the north and south sides. Feature 3 is a small rockshelter set into a small overhang on the south side of the ridge. It measures 6 m in length, 1.6 m in depth, and has a floor to roof height of 1.3 m. No artifacts were noted here and all cultural deposits have eroded out through time. Wing wall remnants in the form of tabular sandstone blocks were observed along its west edge.

Lithic Artifacts

A total of 154 pieces of chipped-stone debitage were recorded from the site (Table 4.31). The majority is coarse-grained quartzite (69%) and chert (12%). The remaining items are argillite (7%), basalt (6%), fine-grained quartzite (3%), and obsidian (2%). Of the total debitage, 56% is the large size grade, while the remaining 44% is small; 53% of the debitage has cortex and 47% is noncortical; and 35% is recorded as simple flakes, 56% as complex flakes, and 8% is shatter. A single biface-thinning flake was recorded. For the most part, early-stage raw material reduction generated the debitage. There are high percentages of large (36%) and small (17% of total) cortical flakes to support this. The presence of bifaces and the high percentage of small complex flakes (25% of the overall assemblage) suggest that various stages of biface manufacture also occurred.

Seven projectile points were recovered at the surface, of which six could be classified using the Anderson (1989) system. These seem to suggest multiple occupations for the site ranging between the Middle Archaic period and the Protohistoric period of the Late Prehistoric stage (3000 BC to AD 1750). One basalt projectile point (FS 3) is classified as a P19 and fits dates assigned to the Middle Archaic period (2000 BC to AD 1000). A second point (FS 1) is made of orthoquartzite and similar to Anderson's P20 type, which has associated dates between 500 BC and AD 1. The third point (FS 2) is dendritic chert (possibly Hartville Uplift) and classified as a P36. Anderson assigns no dates to this class, but it is similar in appearance to Hanna points that have a date range of 2500 BC to 850 BC. The fourth point (FS 90) is made of fine-grained quartzite and is classified as a P58 (AD 400 to AD 1400). The other two points are small preforms classified as a P48, which dates from AD 500 to AD 1400, and a P49 with dates of AD 800 to AD 1750.

The stone-tool assemblage of 50 artifacts consisted of 14 non-bipolar cores, 11 bifaces, eight utilized flakes, seven projectile points, six scrapers, and four unifaces (Table 4.32). Because the cores and core-tools were analyzed in the field, only the material type was recorded. Material types for the cores are coarse-grained quartzite (8), chert (3), argillite (2), and basalt (1).

Of the bifaces, seven of the eleven specimens are broken. The majority are chert (4) and fine-grained quartzite (3), with fewer coarse-grained quartzite (2) and argillite (2) specimens noted. Seven of the bifaces are classified as unfinished, two are nearly finished, and two are finished bifaces. Six of the biface specimens exhibit use wear. A nearly finished, chert specimen (FS 16) shows moderate scraping (> 45-degree) use wear on one lateral edge. A finished, chert specimen (FS 49) exhibits light cutting use wear along one acute (< 45-degree) lateral margin. An unfinished coarse-grained quartzite specimen (FS 67) was used as a scraping tool with wear present on its platform end. Another biface is made of fine-grained quartzite (FS 68) and has light scraping wear on one lateral edge. Both lateral edges and ends were used on one argillite biface (FS 77). This multi-function tool exhibits battering and grinding around its periphery. Field specimen 81 is also made of argillite, is classified as unfinished, and has light scraping wear on its left lateral edge.

All of the uniface tools are complete. Two of the four are made of chert and two are quartzite. Three show scraping wear and one was used for cutting. Heat exposure was noted on two specimens. Half of the utilized flakes are broken. Most are chert (5), with fine-grained quartzite (2), and Polvadera Peak obsidian (1) noted. Five were used for scraping and three exhibit cutting as the primary function. Two of these were exposed to heat and one (FS 83) is highly patinated.

The remaining six artifacts are five end/side scrapers and one end scraper. Four of the end/side scrapers are broken and one is complete. Chert and quartzite are the dominant material types (each with 2) with a single orthoquartzite item. The end scraper is complete, and made of coarse-grained quartzite. No heat exposure was indicated on the scrapers.

In the vicinity of Feature 2, six grinding slicks (FS 4-9) were found on a large sandstone boulder. Another bedrock metate (FS 46) with a single milling surface was found along the caprock west of Feature 3. The 28 other recorded ground-stone artifacts were 16 slab metate fragments, 8 one-hand mano fragments, 2 complete slab metates, one complete mano, and an edge-ground cobble fragment. Eight pieces of ground-stone were found associated with Feature 2, suggesting that it was used for cooking some type of vegetal product and the heated product was processed directly out of the fire.

No ceramics, jewelry items, or burned bone were encountered by the survey crew.

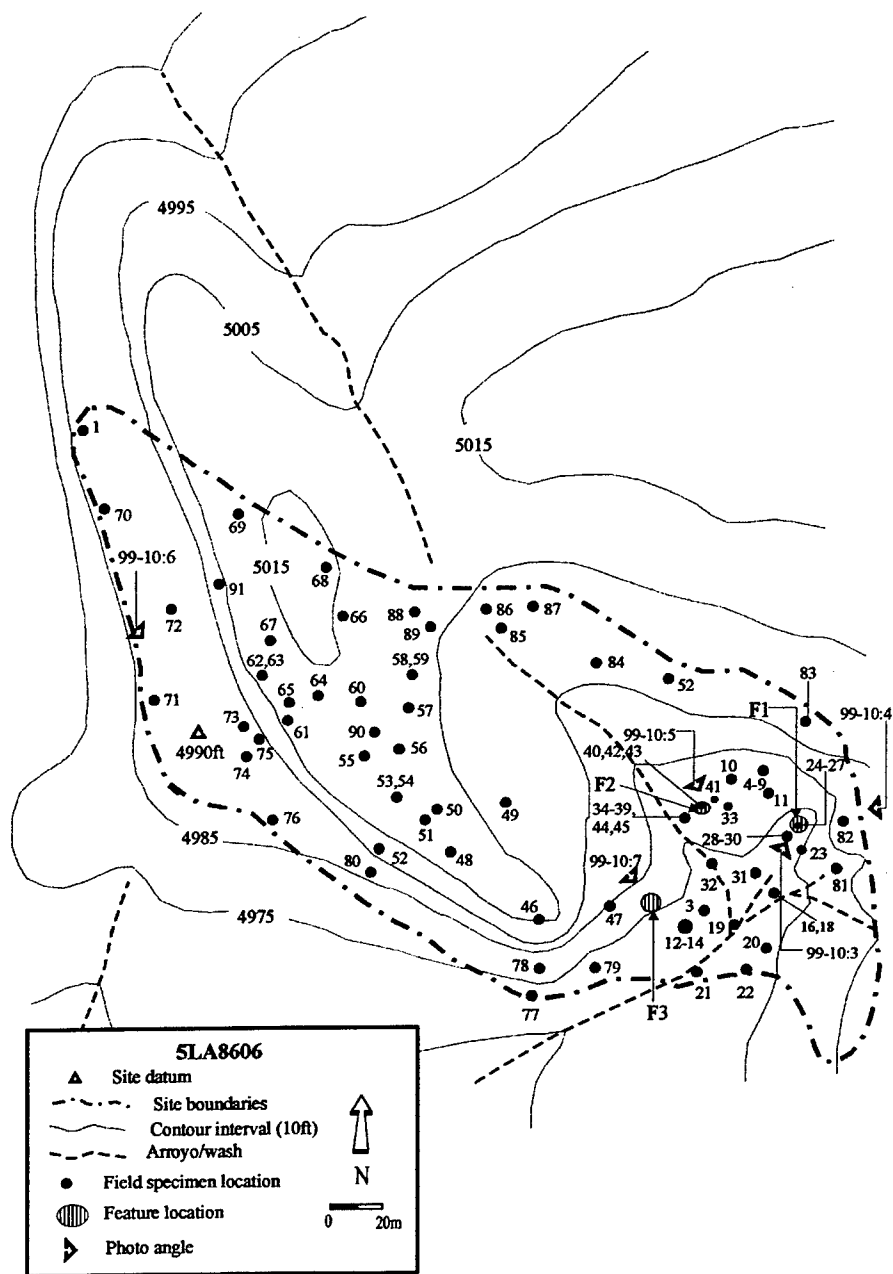


Figure 4.64: Site map, 5LA8606.

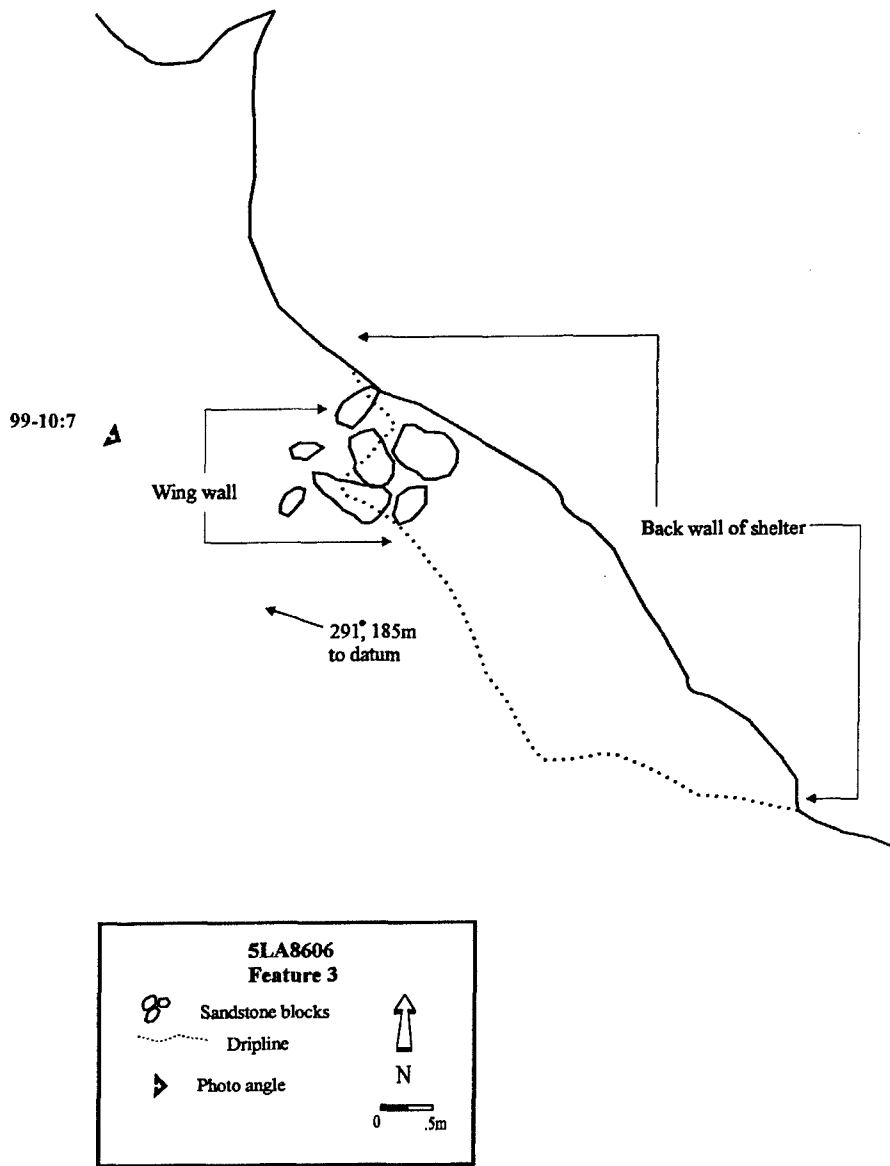


Figure 4.65: Planview, Feature 3, a rockshelter, 5LA8606.



Figure 4.66: Site overview photograph (PCMS 99-10: 6) facing south, 5LA8606. Datum present in right side of frame.



Figure 4.67: Feature 1, fire-cracked rock and ash midden, 5LA8606. Photo (99-10: 4) was taken facing northeast.

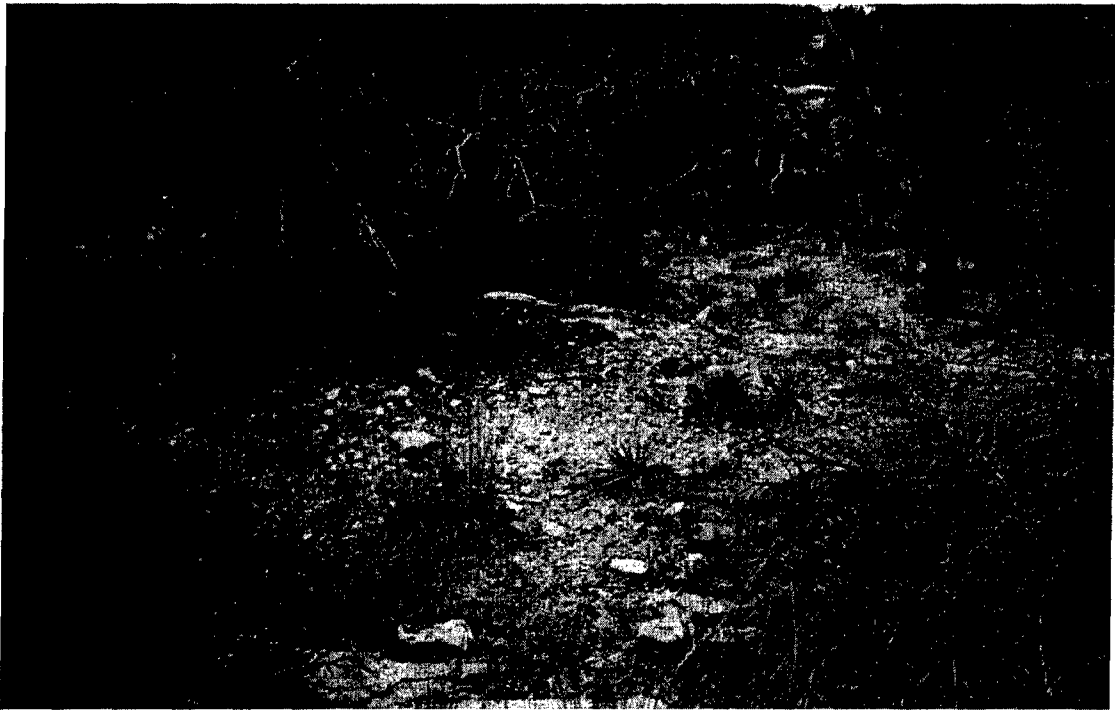


Figure 4.68: Feature 2, fire-cracked rock and ash midden, 5LA8606. Photo (PCMS 99-10: 5) taken facing south.



Figure 4.69: Feature 3, rockshelter near southeast edge of site, 5LA8606. Photo (PCMS 99-10:7) was taken facing southeast and across shelter.

Table 4.31: Summary Description of Chipped-Stone Debitage for 5LA8606.

	Argillite	Chert	F. Quartzite	Hornfels/Basalt	Obsidian	C. Quartzite	Total
Total	11	19	5	9	3	107	154
Large	4	7	3	9	0	64	87
Small	7	12	2	0	3	43	67
Cortical	3	6	2	7	0	63	81
Noncortical	8	13	3	2	3	44	73
Complex	10	10	4	6	0	56	86
Shatter	1	5	0	1	0	6	13
Simple	0	4	1	2	2	45	54
Biface-Thinning	0	0	0	0	1	0	1

Table 4.32: Stone Tool Type by Material Group for 5LA8606.

Material	Type							Total
	Biface	Core	Projectile	Scraper	Flake Tool	Mano	Metate	
Argillite	2	2	1	0	0	0	0	5
Granite	0	0	0	0	0	1	0	1
Chert	4	3	1	2	7	0	0	17
Coarse-grained Quartzite	2	8	0	2	1	1	0	14
Fine-grained Quartzite	3	0	3	1	3	0	0	10
Sandstone	0	0	0	0	0	8	18	26
Hornfels/Basalt	0	1	1	0	0	0	0	2
Orthoquartzite	0	0	1	1	0	0	0	2
Obsidian	0	0	0	0	1	0	0	1
Total	11	14	7	6	12	10	18	78

Interpretation and Summary

We recommend the site be considered for nomination to the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). Site 5LA8606 is a multi-component lithic scatter with a rockshelter (Feature 3) and two large thermal features (Features 1 and 2) that were apparently used to process some vegetal material. Some areas of the site exhibit soil depths of up to 25 cm. The site is large, with a high artifact count and density. There is a good probability of finding intact cultural deposits that may include pollen and macrobotanical remains. Test excavations in Features 1 and 2 could yield important data for the reconstruction of subsistence patterns and/or paleoenvironment. Diagnostic artifacts, useful for addressing issues about chronology were located, and they indicate the possibility of recovering more in buried context. Because the site has had more than one occupation, test excavations could determine the date range for these types of features in the PCMS.

A data recovery plan needs to be developed for these valuable thermal features as heavy water erosion continues to impact their integrity. There is some military disturbance here; however, the low bedrock ledge protects the important components of this site and fencing would be redundant.

5LA8607

This site is a large lithic scatter and tipi ring site located on the flat top of a large southwest to northeast trending ridge above Lockwood Canyon (Figures 4.70, 4.71). The arroyo within the canyon is 250 m southwest and another eligible site (5LA8606) is 100 m northwest. The 5.9-acre site is mostly on the ridge top, but also extends down into an erosional basin in the northernmost portion of the site. The architectural features recorded at the site are confined to the highest points on the ridge, and only chipped-stone debitage and stone tools are located along the ridge margins. The site datum was placed at the highest point of the site, approximately 1,525 m (5,005 ft) asl.

The site is located in the woodland plant community typically found on sandstone derived soils. Juniper, sagebrush, winterfat, skunkbrush, mountain mahogany, cholla, and grama grasses were seen growing on the surface. The tree and shrub cover is denser along the south and west edges of the site; grassland dominates the eastern edge. Soils are relatively thin, especially on the ridge top; however, there are areas of greater deposition (up to 35 cm) along the northern boundary and the eastern margin of the site. The northern half of the site has several small blowout areas with several of the artifacts and some fire-cracked rock pieces eroding out of the sidewalls. This indicates buried cultural deposits are present on the landform. The soils on the ridge are sandy in nature and contrast sharply with silty soils found on the slopes around the site perimeter.

Features

Three features were recorded at the site, all of which are tipi rings (Figure 4.72). Like other tipi ring sites in the area, all were found at the crest of a ridge. Feature 1 is a circular pattern of discontinuous sandstone block. Located near the top of a small rise at the central portion of the site, it measures 5 m in diameter and contains a single course of stones that are embedded to a depth of 8 cm. Two more rings were found together near the cliff edge at the southern border of the site. Both have deflated down to sandstone bedrock with no soil deposition recorded. Feature 3 is the largest at 5.5 m in diameter and it is a single, discontinuous course of unmodified sandstone blocks with an apparent gap on the southeast side. It is unknown whether this gap represents the door flap or the stones here were robbed for use at a later time. A smaller ring (Feature 2) was found 10 m west of Feature 3. It measures 4.7 m in diameter and is also a single, discontinuous course of sandstone blocks. All three units conform to Kalasz's (1989) Class IV, and are freestanding, full-enclosure, spaced rock wall units. Only two radiocarbon dates are associated with this type of architecture (Kalasz 1989:109), AD 780 and AD 1350.

Lithic Artifacts

A total of 150 pieces of chipped-stone debitage were sampled from the surface (Table 4.33). Seven material types were noted. Of the total debitage, 63% is coarse-grained quartzite, 25% chert, 5% basalt, 4% fine-grained quartzite, 1% argillite, 1% obsidian, and 1% silicified

wood. Seventy-seven items fall into the small size grade and 73 are large; 105 items are noncortical while 45 have cortex; and 80 items are complex flakes, 56 are simple flakes, 13 are shatter, and there is 1 biface-thinning flake.

With cortex present on 20% of the large flakes and 8% of the small flakes, it appears that locally available materials were being reduced primarily at the source and materials were arriving on site as noncortical cores of early-stage bifaces. The presence of several utilized and retouched flakes, as well as uniface supports secondary core reduction to produce usable flakes. The presence of only one biface-thinning flake indicates that late-stage biface manufacture or maintenance rarely occurred. Because there were 36 small complex flakes in the assemblage, it is safe to assume that early-stage biface manufacture occurred to some degree.

A single temporally diagnostic projectile point fragment (FS 6) made of argillite was recovered northwest of the datum. This specimen is similar to Anderson's (1989) type P10 and has a range from 5500 BC to 3000 BC. This time range suggests an occupation that falls within the Early Archaic stage (5800 BC to 3000 BC). Obviously, the date for this point is inconsistent with dates for tipi rings and suggests at least two occupations for the site.

There were 31 tools into the following classes: utilized flake (7), end/side scraper (7), biface (6), side scraper (4), uniface (4), and non-bipolar core (3). All were recovered randomly from the site surface with no apparent concentration. The chipped-stone tools are made of most of the same material types as the debitage (Table 4.34). Most tools are fine-grained quartzite (32%) and unspecified chert (29%). Hartville Uplift chert (16%), argillite (10%), and coarse-grained quartzite (6%) were also noted. Edwards Plateau chert and Jemez Mountain obsidian are represented by one item (3%) each. These materials are 42% microcrystalline, 52% cryptocrystalline, and 6% macrocrystalline. In the chipped-stone debitage the materials are 11% microcrystalline, 26% cryptocrystalline, and 63% macrocrystalline. The proportions are clearly different and they can best be explained this way. Because of low fracture toughness, fine-grained materials are well suited for thinning and shaping into patterned tool types. In contrast, high fracture toughness in most coarse-grained materials makes them extremely difficult to retouch by pressure flaking into some patterned tool types. High fracture toughness would have been advantageous for their use as expedient tools because the working edges would have dulled much less quickly than fine-grained materials that are more brittle. Consequently, fine-grained materials are closely associated with the production of patterned tools, whereas coarse-grained materials appear to have been more commonly used for the production of expedient flake tools. This is clearly seen in the more formal tools; however, the flaked tools are not necessarily coarse-grained on this site. This seems easy to explain. The higher fracture toughness materials, especially coarse-grained quartzite, tend to show little wear (without the aid of magnification) and thus, utilized flakes from this material were not identified during field analysis.

Of the bifaces, five of the six specimens are broken. The majority are fine-grained quartzite (3), with fewer made of chert (2), and coarse-grained quartzite (1). Five are classified as unfinished and were broken early in the manufacturing process. One biface (FS 5) shows light cutting wear on both lateral edges. Field specimen 33, a chert biface, is complete and was discarded because it could not be further thinned. It has a very wide base, which suggests an older age. One of the bifaces (FS 28) appears to have broken during heat treatment.

Four of the seven utilized flakes were broken. Material types include chert (3), fine-grained quartzite (2), Hartville Uplift chert (1), and Polvadera Peak Obsidian (1). Six of these show at least one scraping edge and one (FS 37) is a flake knife. One (FS 10) is a large blade flake (98 x 31 x 14 mm), which exhibits light wear on its steep left lateral edge.

Within the scraper category there are seven end/side scrapers and four side scrapers. These are made of Hartville Uplift chert (4), unspecified chert (3), argillite (2), Edwards Plateau chert (1), and locally available fine-grained quartzite (1). All of these artifacts appear to be different from other scrapers found on the PCMS in that they are made on blades, not the typical short and thick flakes often observed. Because of this, each will be described separately below.

FS 7

This complete side scraper is a fine-grained quartzite blade. It shows heavy wear and retouch modification on both lateral edges. Its length is 56 mm, width 26 mm, thickness 10 mm, and the weight is 15.1 grams.

FS 15

This complete end/side scraper is made of a highly patinated piece of argillite. Heavy retouch modification and use wear are present on the distal end and right lateral edge. Light use wear is seen on the left lateral edge. The length is 43 mm, width 26 mm, thickness 11 mm, and the weight is 14.9 grams.

FS 20

This is the end of a heat-treated chert side scraper. This chert appears to be non-local; however, its texture and patterning is not out of the range of variability for the PCMS. Both lateral edges show retouch modification with light wear on the left lateral edge and heavy wear on the right lateral edge. Its length is 49 mm, width 36 mm, thickness 14 mm, and its weight is 34.1 grams.

FS 21

This complete end/side scraper is made of patinated argillite. It is made on a very large flake (possible blade) with heavy retouch and wear on both lateral edges. The distal end was lightly used. Both lateral edges are deeply concave and highly worn. The length is 34.2 mm, width 55 mm, thickness 49 mm, and the weight is 34.2 grams.

FS 22

This complete end/side scraper is made of heat-treated chert. The exact source for the chert is unknown but it is definitely a non-local material. Moderate wear is seen on its lateral edges and the distal end was heavily used. Its length is 21.5 mm, width 45 mm, thickness 32 mm, and the weight is 21.5 grams.

FS 24

This end/side scraper is a large blade flake of Hartville Uplift chert. It was broken at the haft and only the distal end and portions of the lateral edges remain. Retouch modification is seen, with heavy wear on the distal end and right lateral edge. The left lateral edge displays moderate wear. The length is 29 mm, width 31 mm, thickness 6 mm, and weight is 4.7 grams.

FS 29

This complete side scraper is a large blade flake of Hartville Uplift chert. Retouch modification is seen on both lateral edges with light wear on the left lateral edge and heavy wear on the right lateral edge. The length is 59 mm, width 38 mm, thickness 7 mm, and the weight is 22.8 grams.

FS 34

This complete end/side scraper is made of a thin piece of non-local chert. It has been exposed to fire and is very highly patinated. Retouch modification and heavy use wear is seen on the left lateral edge and distal end. The length is 41 mm, width 26 mm, thickness 8 mm, and the weight is 8.2 grams.

FS 35

This broken end/side scraper is made of a large blade flake of Hartville Uplift chert. Heavy retouch and moderate wear are present on both lateral edges. The distal end shows very heavy usage. Its length is 66 mm, width 60 mm, thickness 11 mm, and its weight is 40.7 grams.

FS 36

This complete end/side scraper tool is made of Hartville Uplift chert. Retouch modification and moderate use wear are present on the distal end and right lateral edge. Light wear is seen on the left lateral edge. The length is 50 mm, width 44 mm, thickness 16 mm, and the weight is 37.7 grams.

FS 38

This broken side scraper is made on a large blade flake and visually compares to Edwards Plateau chert. It was broken at the haft and exhibits retouch modification and heavy wear on its left lateral edge. The right lateral edge was moderately used. The length is 74 mm, width 29 mm, thickness 8 mm, and the weight is 19.3 grams.

The remaining seven artifacts are four uniface tools and three non-bipolar cores. The cores were analyzed in the field and were made of argillite, chert, and fine-grained quartzite. The unifaces are all locally available quartzite; three items are fine grained and one is coarse-grained. All were used for scraping and display at least one edge of over 45 degrees.

A total of nine ground-stone artifacts were identified. They were divided into the following classes -- slab metates (4) and one-hand manos (5). Eight of the nine tools were broken and only one mano remained complete. The slab metate fragments are all made of locally available sandstone. The manos are sandstone (3), quartzite (1), and granite (1). Five of these artifacts (FS 11-14, and 26) were found in the immediate vicinity of the cliff edge at the southwestern corner of the site. The others (FS 30-32, and 40) were found in a scattered group 80 m north of the datum in the blowout areas.

Table 4.33: Summary Description of Chipped-Stone Debitage for 5LA8607.

	Argillite	Chert	F. Quartzite	Hornfels/Basalt	Obsidian	C. Quartzite	Silicified Wood	Total
Total	2	37	6	8	1	95	1	150
Large	1	7	2	4	0	59	0	73
Small	1	30	4	4	1	36	1	77
Cortical	0	7	1	3	0	34	0	45
Noncortical	2	30	5	5	1	61	1	105
Complex	2	18	5	4	1	49	1	80
Shatter	0	5	0	0	0	8	0	13
Simple	0	13	1	4	0	38	0	56
Biface-Thinning	0	1	0	0	0	0	0	1

Table 4.34: Stone Tool Type by Material Group for 5LA8607.

Material	Type							Total
	Biface	Core	Projectile	Scraper	Flake Tool	Mano	Metate	
Argillite	0	1	1	2	0	0	0	4
Hartville Uplift Chert	0	0	0	4	1	0	0	5
Unspecified Chert	2	1	0	3	3	0	0	9
Coarse-grained Quartzite	1	0	0	0	1	1	0	3
Fine-grained Quartzite	3	1	0	1	5	0	0	10
Sandstone	0	0	0	0	0	3	4	7
Obsidian	0	0	0	0	1	0	0	1
Edwards Plateau Chert	0	0	0	1	0	0	0	1
Granite	0	0	0	0	0	1	0	1
Total	6	3	1	11	11	5	4	41

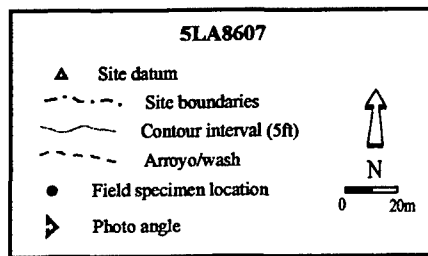
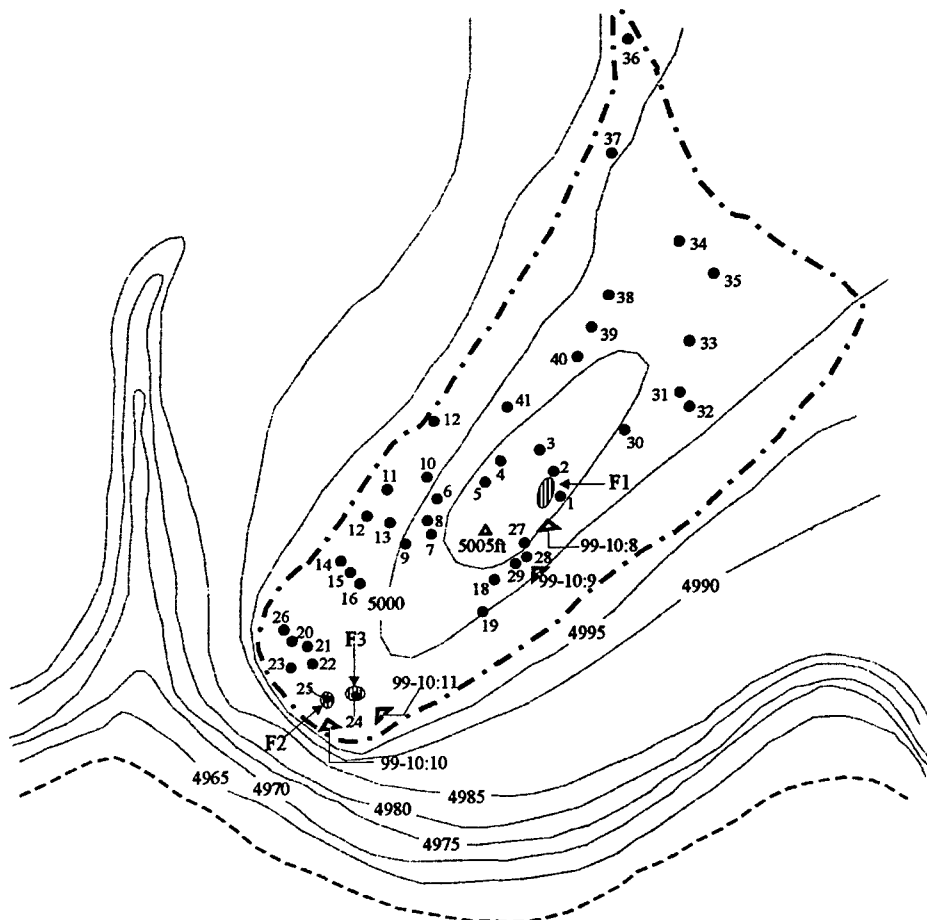


Figure 4.70: Site map, 5LA8607.

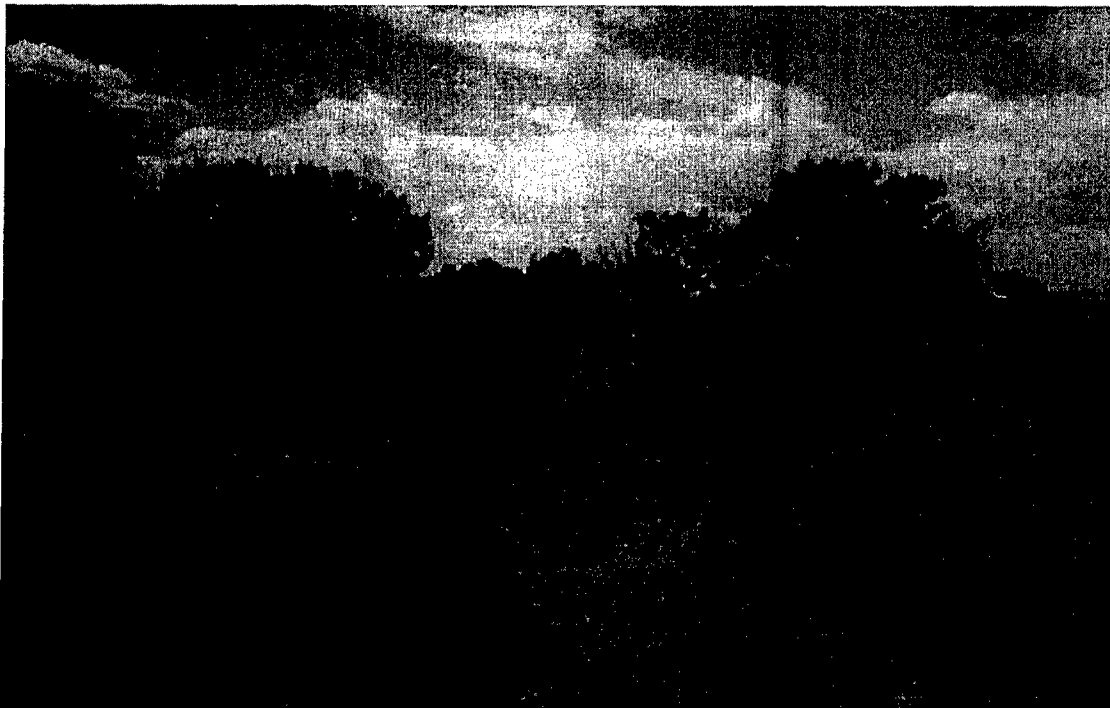


Figure 4.71: Site overview photo toward datum (99-10: 9), 5LA8607, taken facing west at 260 degrees.



Figure 4.72: Feature 3, tipi ring, 5LA8607. Photo (99-10: 11) was taken facing north.

Interpretation and Summary

This is a multi-component site with Late Prehistoric age structures with a high artifact and ground stone density. Though only one time-diagnostic artifact was recovered, there are several patinated tools and a blade tool technology that indicates the site might have significant age. The blade tools, patinated artifacts, and tools made of exotic raw materials were found scattered across the surface of the site in three disperse groupings. The first grouping contains Field Specimens 20-22 and 24. These were found along the canyon rim in an area that is highly deflated. The second grouping (FS 7, 15, and 29) occurs south of the datum near the edge of the sandy blowouts at a very similar elevation (roughly 4997 to 5004 ft). There are buried deposits here and it appears that the oldest site occupation is eroding out in this area. The last group (FS 34, 35, and 38) is found at the north end of the site and artifacts here have eroded out of the blowouts. Again, this indicates that buried deposits with substantial age could exist here. The site may be useful in addressing regional chronology.

Test excavations could date this site more precisely and potentially yield information on Paleoindian or Early Archaic habitation. Based on this, we recommend that this site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). The site is not in eminent danger from military maneuvers or erosion, though we suggest that it be revisited for more detailed mapping and a more thorough surface collection. Our management recommendation is to avoid and test the site.

5LA8615

This site is a historic homestead/sheepherder's cabin and a sparse, prehistoric lithic scatter (Figure 4.73, 4.74). It is near the upper Red Rock Canyon drainage basin, specifically the western tributary drainage. The site and its historic artifact scatter extend over an area of approximately .3-acres. The site datum is situated at an elevation of approximately 1,501 m (4,925 ft) asl. There is little topographic relief across the site area, but the terrace edge of the arroyo is located 109 m to the west.

The vegetative community is best described as a contact zone between grassland and juniper woodland. Juniper trees and grama grass dominate the vegetation, but prickly pear, bigelow sagebrush, and threeawn grasses were also noted. Large skunkbrush and currant bushes grow along the walls of the structure and a large cedar tree is located 1.7 m south. Most of the site has fairly deep soils (up to 15 cm). There are mounded areas around the historic structure that exhibit deposits of at least 20 cm and wall fall within the structure could protect as much as 15 cm of cultural deposits. Post abandonment fill has capped the floor and any of its associated features.

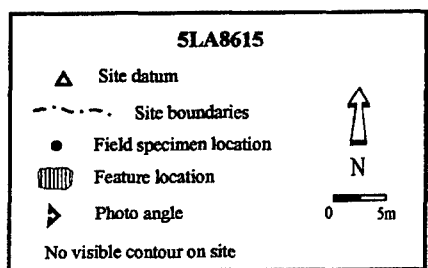
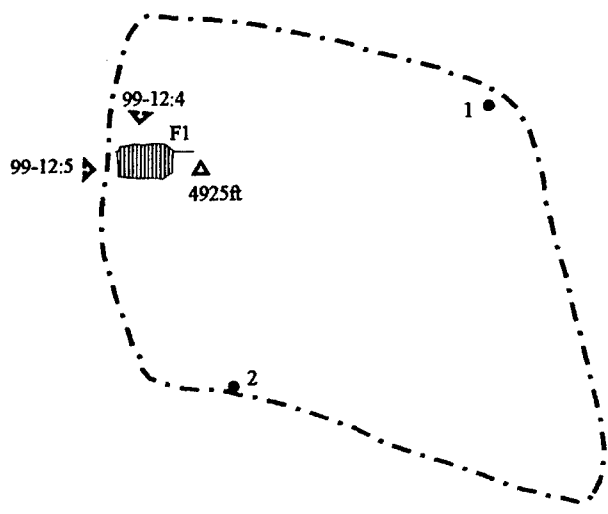


Figure 4.73: Site map, 5LA8615.



Figure 4.74: Site overview with historic structure on right, 5LA8615. Photo (PCMS 99-12: 6) taken facing south at 165 degrees.

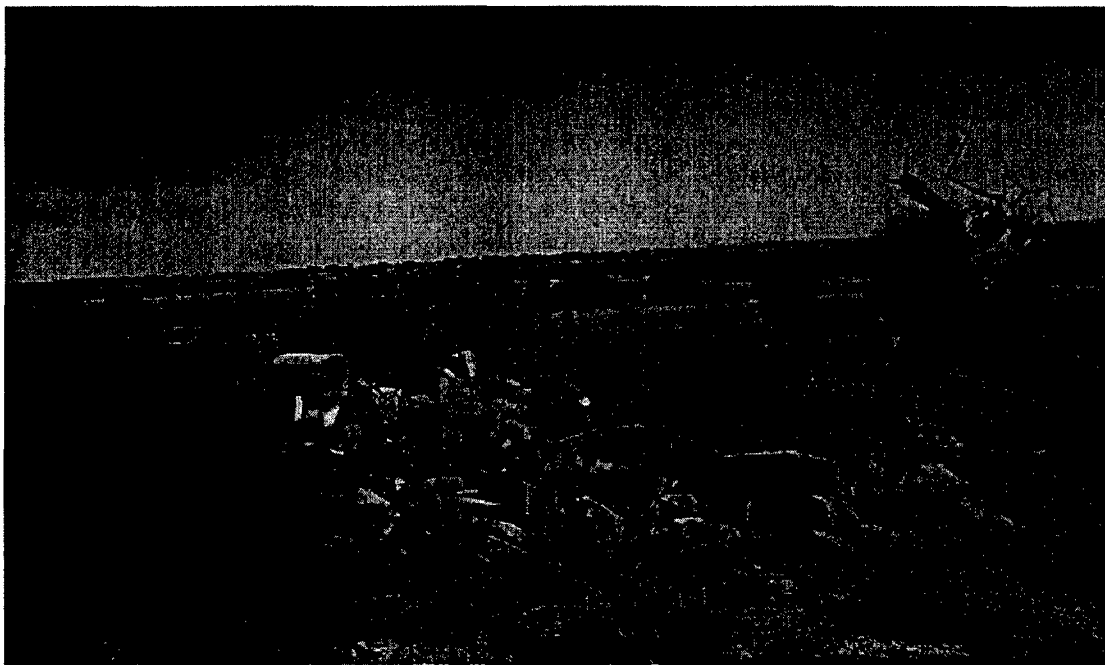


Figure 4.75: Feature 1, sandstone block structure, 5LA8615. Photo (PCMS 99-12:4) taken facing southeast.

Features

The historic component of the site is dominated by a small (16 x 14.5 ft), rectangular sandstone structure (Figure 4.75). The foundation of the structure (Feature 1) is likely set in a shallow builder's trench. The walls were constructed using modified sandstone blocks that were stacked end-to-end and side-by-side, two wide. The remaining walls are three courses high in the northwest corner, two courses in the southwest corner, four courses in the southeast corner and five courses in the northeast corner. No roofing materials were noted and the only apparent opening is a door on its south wall. The walls have collapsed across the interior of the structure, perhaps burying cultural deposits.

A fairly diffuse scatter of historic trash is associated with the structure. The trash is comprised of amethyst bottle glass, Mason jar glass fragments, tobacco tins, tin cans, a bucket handle, and a colorless liquor bottle fragment. Most of the trash is located to the east of the structure with a very sparse scatter of materials to the south and north. The structure is tentatively dated to between 1910 and 1918 based, in part, on the presence of amethyst glass. This period of time corresponds to the socio-political period of Early Ranching (1910-1930).

Lithic Artifacts

The prehistoric component of the site is comprised of a sparse lithic scatter east of the historic structure. Only four pieces of chipped-stone debitage were recorded and the stone tools are a quartzite side scraper (FS 2), and a large orthoquartzite projectile point (FS 1). All of the debitage is chert and includes two simple flakes, one complex flake, and one biface-thinning flake. The projectile point is large and complete, and is similar in style to Anderson's (1989) P30 type with associated dates estimated between 1000 BC and AD 1000. Therefore, the occupation of the prehistoric component of the site could have been anywhere from the Late Archaic to the Developmental period of the Late Prehistoric stage.

Interpretation and Summary

Our government land office (GLO) search indicates that Dora Betty Gregory originally patented the land here in 1922. Because the wall fall of Feature 1 may have sealed and protected intact, cultural deposits beneath the modern ground surface, we suggest the site be fenced for its protection and revisited for more detailed mapping and surface collection. Test units should be excavated in, and around, Feature 1 to determine if subsurface, cultural deposits are present. If none are encountered, there is no need to fence the site. At this point, we recommend that this site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of history (Criterion D).

5LA8616

This site is located along a northwest to southeast trending ridge on the east terrace of a tributary drainage that feeds Red Rock Canyon (Figures 4.76 and 4.77). A sandstone outcrop has been exposed along the east side this drainage and forms a cliff here that ranges from 2 to 10 meters high. The site consists of a sparse lithic scatter, seven rockshelters, a circular stone ring, and a pot drop. Most debitage items were found above the cliff on the eastern half of the site, while chipped-stone tools were found right above and along the cliff edge. The site datum was placed below the outcrop and in front of Feature 4 at approximately 1,492 m (4,895) asl. The drainage bottom is about 12 m below the ridge top.

The site is in the shrub vegetative community common on the rocky slopes of the upper canyons of the PCMS. Skunkbrush, wax currant, sunflowers, small juniper trees, blue grama, little bluestem, soapweed, and prickly pear are present. Soils are variable over the site. They tend to be very shallow on the ridge top with slight depth to the east. Deposits reach approximately 20 cm at the base of the slope along the western site boundary. In four of the rockshelters (Features 2 and 6-8) there appears to be cultural depth.

Features

Feature 1 is a slightly subterranean structure with large wall fall blocks from construction collapsed into the pit. This does not look like one of the "classic" Apishapa phase structures found in the region, and its construction on a hill slope is somewhat unique. It measures roughly 4 m in diameter and was constructed of a single upright course of large unmodified sandstone slabs. It was found along the site's southern border 130 m south of the datum. Like the other two structural units that were found in shelters, Feature 1 fits within Kalasz's classification for a freestanding, fully enclosed, isolated unit.

Rockshelter 1 (Feature 2) is located approximately 59 m south of the site datum (Figure 4.78). It is rather small and composed of a single room or unit. A large sandstone boulder sits below the dripline and could have served as a wind deflector. Two wing walls were built on either side of this boulder forming an enclosed area measuring roughly 3 m in diameter. It appears that both wing walls were originally constructed with upright sandstone slabs, but through time, these have collapsed. A single quartzite flake was found within the room and though bedrock is exposed along the back wall of the shelter, there is significant soil depth near the large boulder. A test unit here could very well uncover a hearth and additional artifacts from the prehistoric ground surface.

Rockshelter 2 (Feature 3) is located 41 m south of the datum and measures approximately 4.7 x 3.3 m. A small pile of rocks was encountered along the back wall (east). These are unmodified sandstone blocks arranged in a semi-circle, but heavy sheetwash erosion has scoured out the shelter and made the function of this apparent feature impossible to determine. It was likely some kind of storage unit that originally had upright slabs. No chipped-stone artifacts were encountered, but a grinding surface (FS 13) was found on the floor of the shelter.

The site datum is 3 m in front of Rockshelter 3 (Feature 4, Figures 4.79 and 4.81). This 5.6 x 4.7 m shelter faces to the southwest and has a maximum floor to roof measurement of 1 m. It has a tabular and non-tabular sandstone block-enclosing wall inside of its dripline. Like Feature 2, these were originally placed upright but they have collapsed. The room contained within this wall would have been roughly 3.5 m in diameter. Some aeolian deposition is present here, but it seems that water erosion has scoured out the cultural deposits and wind blown materials have deposited on the floor rather recently. On top of the sandstone bedrock that forms the roof there were three milling surfaces (FS 5-7). Four quartzite flakes and a basalt flake were found on the modern ground surface. The structure is consistent with Kalasz's (1989:102-104) Class V, contiguous rock walls, isolated unit even though part of wall has been destroyed by erosion.

Feature 5 is a 12.6 x 3 m shelter with no apparent architectural features (Figure 4.80). It was encountered 10 m north of Feature 4 at the base of the caprock. All cultural fill has been washed out and only a single milling slick (FS 12) was encountered on the floor in the shelter's southwest corner.

Rockshelter 5 (Feature 6) is located 42 m northwest of the datum. It is small, with large roof fall blocks on the ground surface. These blocks are scattered near the dripline and seem to have prevented cultural materials from washing away. The area contained within the dripline measures 7 x 4.2 m and the shelter has a floor to roof measurement of 35 cm at the back of the shelter and a measurement of 1.3 m at the mouth. There were no interior walls or artifacts noted here.

Rockshelter 6 (Feature 7) is located 60 m northwest of the site datum (Figure 4.82). It is very large, measuring approximately 13 x 4.5 m and contains three tiers. Tier 1 is found at the southern end of the overhang and is simply a shallow shelf that has eroded as part of the main feature. It measures 7 x 3.2 m and has three milling surfaces (FS 9-11) on its floor. The floor of tier 1 is approximately 3 meters higher than the tier 3 floor. Tier 2 measures 5.3 x 2.5m and is found in the middle third of the shelter. The floor here is 1.5 m higher than the floor of tier 3. Tier three is the largest, 9.7 x 4.5 m, and is found on the modern ground surface. The maximum floor to roof measurement here is 3.1 m. A large number of roof fall blocks and smaller sandstone slabs are found here and these were likely constructed together to form a room unit at one point. An historic fence line leads up to this shelter and it appears that it was used to shelter livestock. This might explain the destruction of the prehistoric architecture. There is still some soil deposition and test excavations could likely expose the prehistoric ground surface and diagnostic materials.

The shelter with the most intact architecture is Feature 8 (Figure 4.83). This is a long (12.5 m) and thin (2.5 m) shelter with little head room (80 cm) from the floor to the roof. At its northern end is a single room unit made of horizontally laid tabular and non-tabular sandstone blocks. It is 2.2 m in diameter and the wall blocks extend upward in several courses to within a few centimeters of the roof. At its western edge is a gap in the rocks that may have been a doorway. According to Kalasz (1989:103), Feature 8 is a Class V contiguous rock wall, partially enclosed, isolated unit. These architectural features are associated with dates that range from

approximately AD 270 to AD 1360. The function of this room is unclear. Because there is little head room within the walls, it is likely an intact storage feature or a winter habitation that could be completely sealed from the cold. If it is a storage feature, then there is an excellent possibility that excavation could provide valuable data on prehistoric diet and curation practices.

Lithic Artifacts

The surface lithic assemblage consists of 33 pieces of debitage, nine bedrock metates, and four patterned chipped stone tools. Table 4.35 presents a summary of the chipped stone debitage recorded at the site. The debitage is 51% coarse-grained quartzite, 36% fine-grained quartzite, 6% basalt, 3% chert, and 3% argillite. All of these materials can be found inside the PCMS in cobble or nodule form, or outcropping in beds at the surface. The debitage is 52% simple flakes, 45% complex flakes, and a single biface-thinning flake. Only 24% of the debitage items show some degree of dorsal cortex. Of the total, 18% are large cortical items and 6% are small cortical items. The high number of noncortical flakes, coupled with the biface-thinning flake and small complex flakes indicates that some early- to late-stage biface manufacturing was employed to produce most of the debitage items. The presence of simple flakes, cortical items, and cores in the assemblage shows a fairly strong emphasis on secondary raw material reduction. In other words, most of the materials appear to have been quarried away from the site and were reduced to flakes on site.

Four tools representing three tool classes were recorded in the stone tool assemblage. These are two non-bipolar cores, a side scraper, and a projectile point fragment. The cores are argillite and chert. The scraper (FS 4) is broken, made of patinated Hartville Uplift chert, and displays light use wear on its left lateral edge and heavy wear on the right edge. A large chert projectile point fragment (FS 1) was recovered near Feature 4. It is the medial portion of a blade with only a small portion of one notch visible and thus, cannot be classified using the Anderson (1989) system.

All of the ground-stone artifacts are bedrock metates and other than those described with rockshelter descriptions, only one other (FS 8) was noted. This milling surface was encountered on the sandstone cliff between Features 6 and 7.

Table 4.35: Summary Description of Chipped-Stone Debitage for 5LA8616.

	Argillite	Chert	F. Quartzite	Hornfels/Basalt	C. Quartzite	Total
Total	1	1	12	2	17	33
Large	0	0	3	1	10	14
Small	1	1	9	1	7	19
Cortical	1	0	2	0	5	8
Noncortical	0	1	10	2	12	25
Complex	0	1	6	0	8	15
Simple	1	0	6	1	9	17
Biface-Thinning	0	0	0	1	0	1

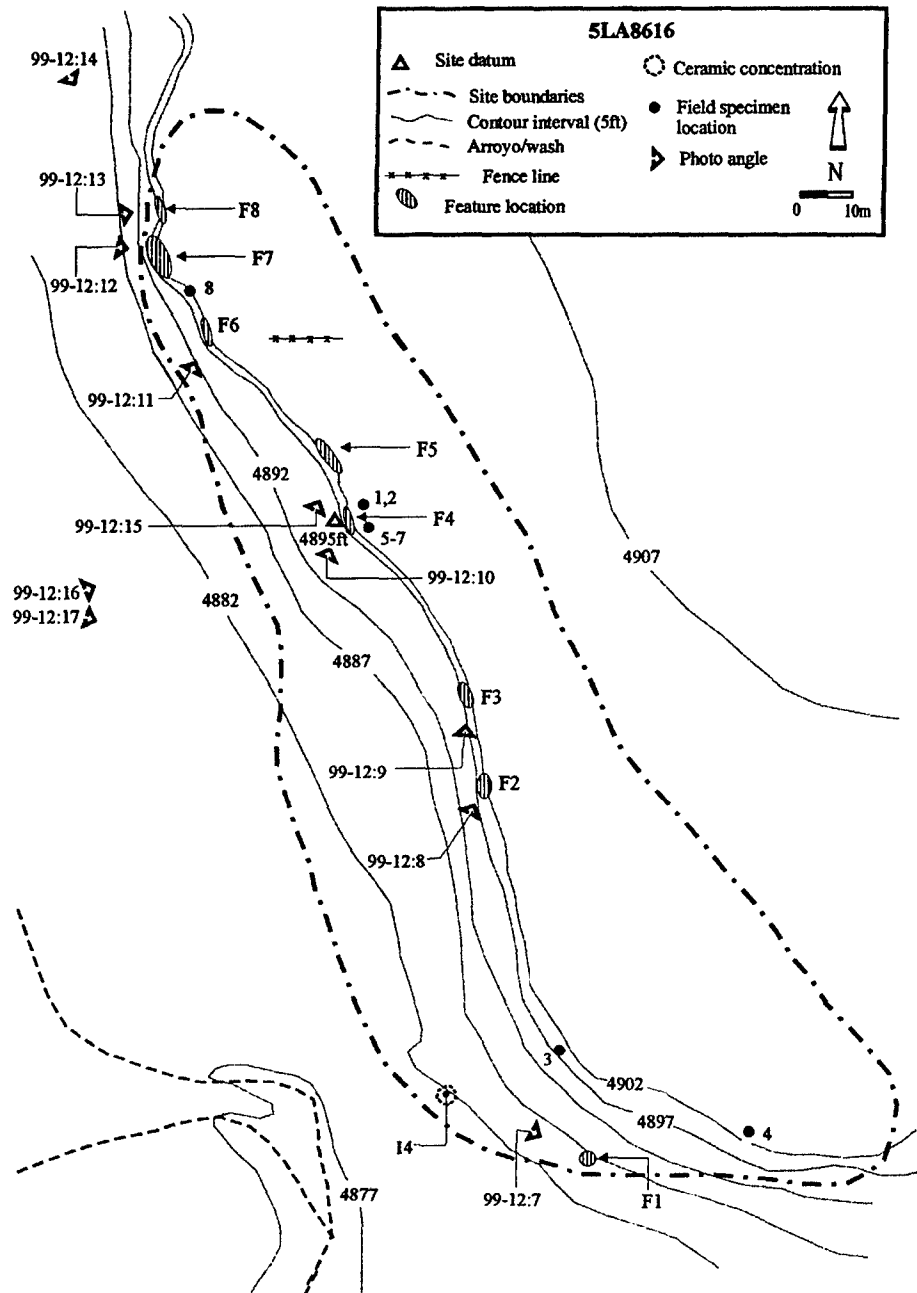


Figure 4.76: Site map, 5LA8616.



Figure 4.77: Site overview photograph, 5LA8616. Photo (PCMS 99-12: 14) taken facing south.



Figure 4.78: Feature 1, prehistoric structure, 5LA8616 (PCMS 99-12:7).



Figure 4.79: Feature 4, rockshelter, 5LA8616 (PCMS 99-12:10).

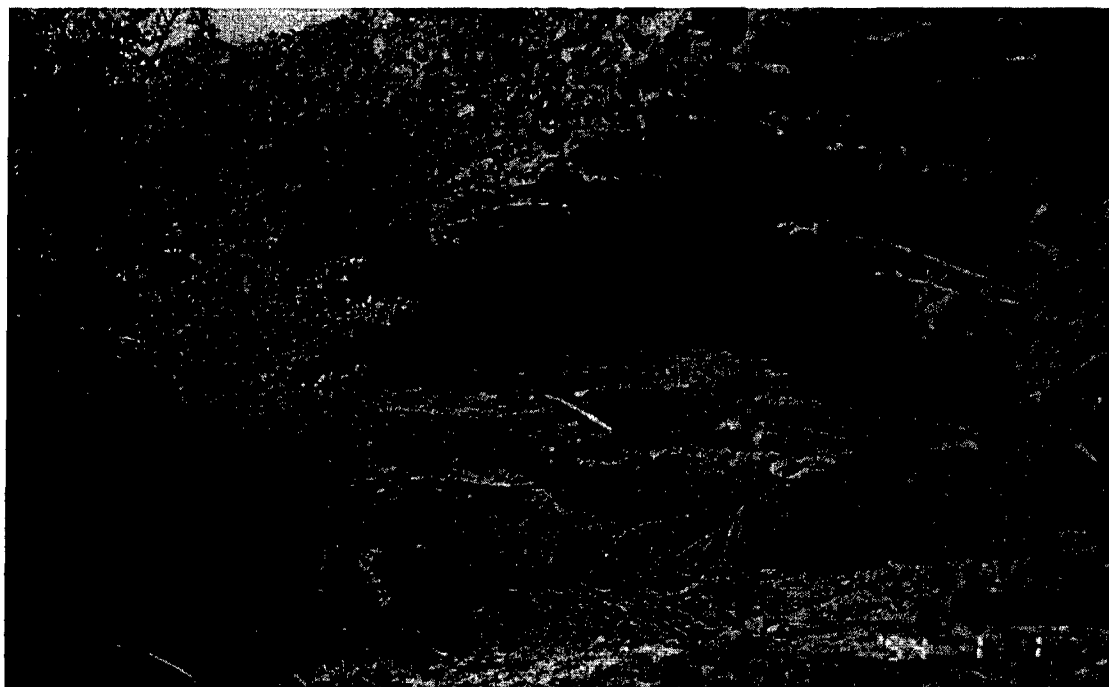


Figure 4.80: Feature 5, rockshelter with tape aligned north to south (PCMS 99-12:15), 5LA8616.

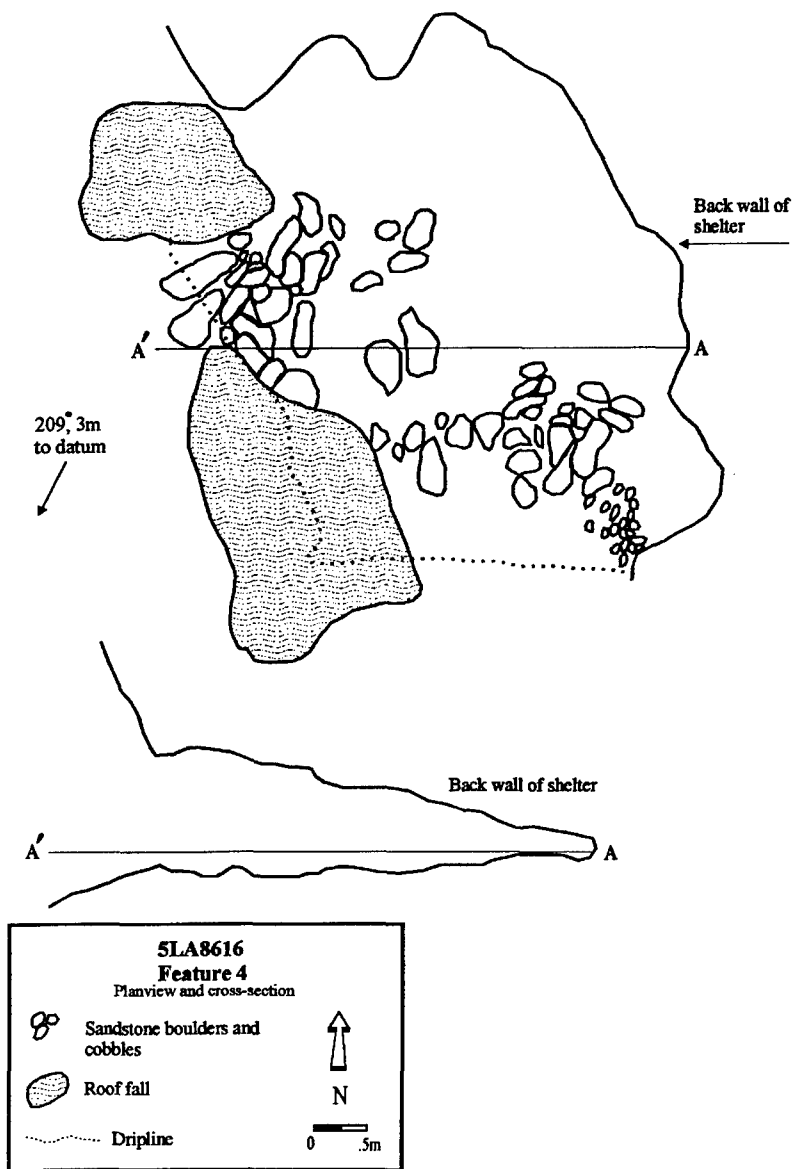


Figure 4.81: Planview, Feature 4, 5LA8616.

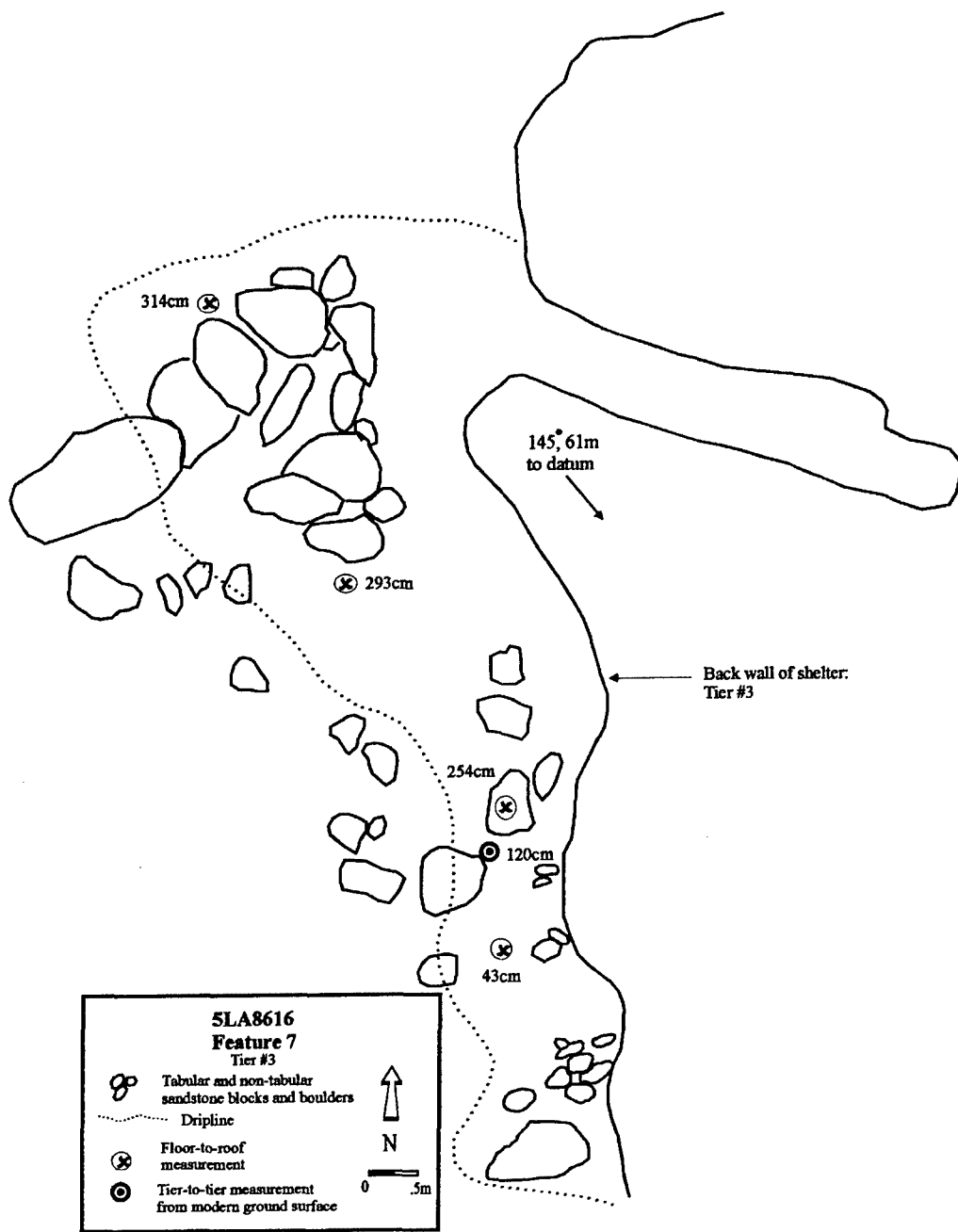


Figure 4.82: Planview, Feature 7 (tier 3), 5LA8616.

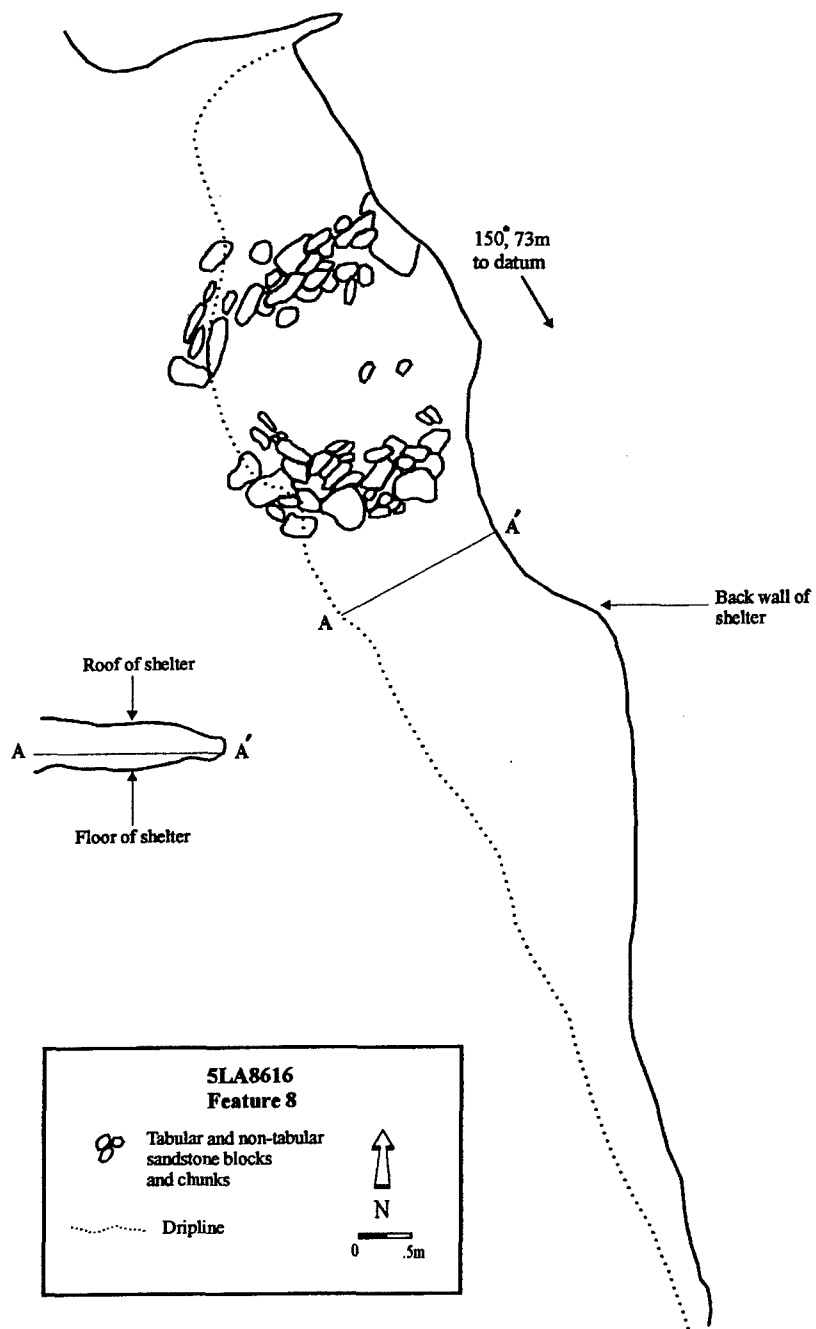


Figure 4.83: Planview, Feature 8, 5LA8616.

Ceramic Artifacts

Nineteen body sherds belonging to two coiled vessels were found and these are further described in Appendix IV. The vessel forms were determined to be conoidal bottomed with high round shoulders and a constricted mouth. One was simple stamped and the other smoothed, both were made from mica-bearing clay with grit temper. These sherds resemble Hummer's (1989: 350) Micaceous Category, which was commonly found after A.D. 1300.

Interpretation and Summary

Site 5LA8616 is a sparse lithic scatter and rockshelter site (Features 2 through 8) with a single, isolated architectural feature. Most of the site exhibits shallow soil deposition; however, Features 2, 6, 7, and 8 appear to have cultural depth potential. If so, testing may yield macrobotanical, pollen, and faunal remains useful for understanding subsistence patterns. There is potential for recovering carbon and time diagnostic artifacts. A Hartville Uplift scraper was recovered and others found in buried context may contribute to an understanding of trade and exchange routes.

Based on excavation potential within the shelters, we recommend that the site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). This site does not warrant further consideration at this time, as mechanized vehicle traffic can in no way impact the site features and there is no imminent danger from water erosion.

5LA8617

This is a rockshelter site with a scattering of artifacts in front and down slope (Figures 4.84, 4.85). A light scattering of lithic debris was noted above the shelter at the edge of the terrace. The site is set on the west side of an unnamed feeder drainage that flows south into Red Rock Canyon. Site 5LA8616, another site that contains several rockshelters, is across the arroyo 272 m southeast. The shelter is found at the base of a small outcropping of native sandstone that trends southeast to northwest. The site elevation at the datum is 1,493 m (4,898 ft) asl, the top of the terrace in the west is 1,495 m (4,905 ft) asl, and the lowest point of the site is in the drainage at an elevation of 1,489 m (4,888 ft) asl.

Thick stands of skunkbrush and currant are present on the hill slope on either side of the shelter. Bluestem, sideoats and blue grama, and galleta grass are found in the drainage below. Along with thin patches of grass, juniper trees are present on the upper terrace. Soil deposition ranges from exposed bedrock on top of the shelter, to around 40 cm along the drainages. At least 40 cm of deposition is noted in the rockshelter.

Features

The rockshelter (Feature 1) is located 5 m northwest of the datum (Figure 4.86). The mouth of the shelter is 10 m in length and faces northeast at 60 degrees. The shelter is not very deep (3.5 m) or high (1 m) and is actually more of a slight rock overhang. A linear wall is found along the drip line at the northern edge of the shelter. Several small tabular sandstone blocks were placed among large boulders to form this irregular wall. Several animal burrows cut down into the floor, and in these we noted two quartzite flakes and the edge of a three course wall. This wall contains unmodified blocks of sandstone that were horizontally and very tightly stacked. Another burrow in the vicinity of FS 7, a slab metate fragment, contains ash staining. Its location directly in front of a boulder suggests that there is an internal hearth, and the boulder was used as a deflector.

Lithic Artifacts

Artifact types noted include debitage, patterned chipped-stone tools, and ground-stone. A total of 45 pieces of debitage were recorded at the surface. Table 4.36 summarizes the debitage artifacts by material type. Locally available quartzite (69%) and chert (20%) are the dominant materials, with lesser amounts of argillite (4%), basalt (2%), siltstone (2%), and obsidian (2%). The geological source for the obsidian item is the Jemez Mountains of New Mexico. This suggests some nonlocal lithic materials were brought into the area by seasonal movement or in exchange with people from central New Mexico. The assemblage mainly contains simple flakes (58%), with some complex flakes (22%), shatter (13%), and biface-thinning flakes (7%) also recorded. Fifty-six percent of the debitage specimens show dorsal cortex, and 44% are noncortical. Among the cortical items, 10 are large flakes and 7 are small. This reflects an emphasis on raw material reduction with all stages represented. It appears, for the most part, that raw materials were collected at the quarry and brought to the site in cobble or nodule form. Once on site, these were reduced to produce both flakes and bifaces.

The chipped stone tool classes are non-bipolar core (3) and utilized flake (1). This complete utilized flake (FS 2) is made of fine-grained quartzite with light scraping wear along one margin. It was placed in a fire at one point and was nearly destroyed as it spalled and fractured. The cores were analyzed in the field and not collected; these are the same materials found in the debitage-- chert, argillite, and quartzite.

A single one-hand mano fragment (FS 3) and the slab metate fragment (FS 7) found in the wing wall of the shelter represent the ground stone. The mano was nearly complete. All of the chipped- and ground-stone tools were found inside or just outside the mouth of the shelter. No time diagnostic artifacts or ceramics were encountered.

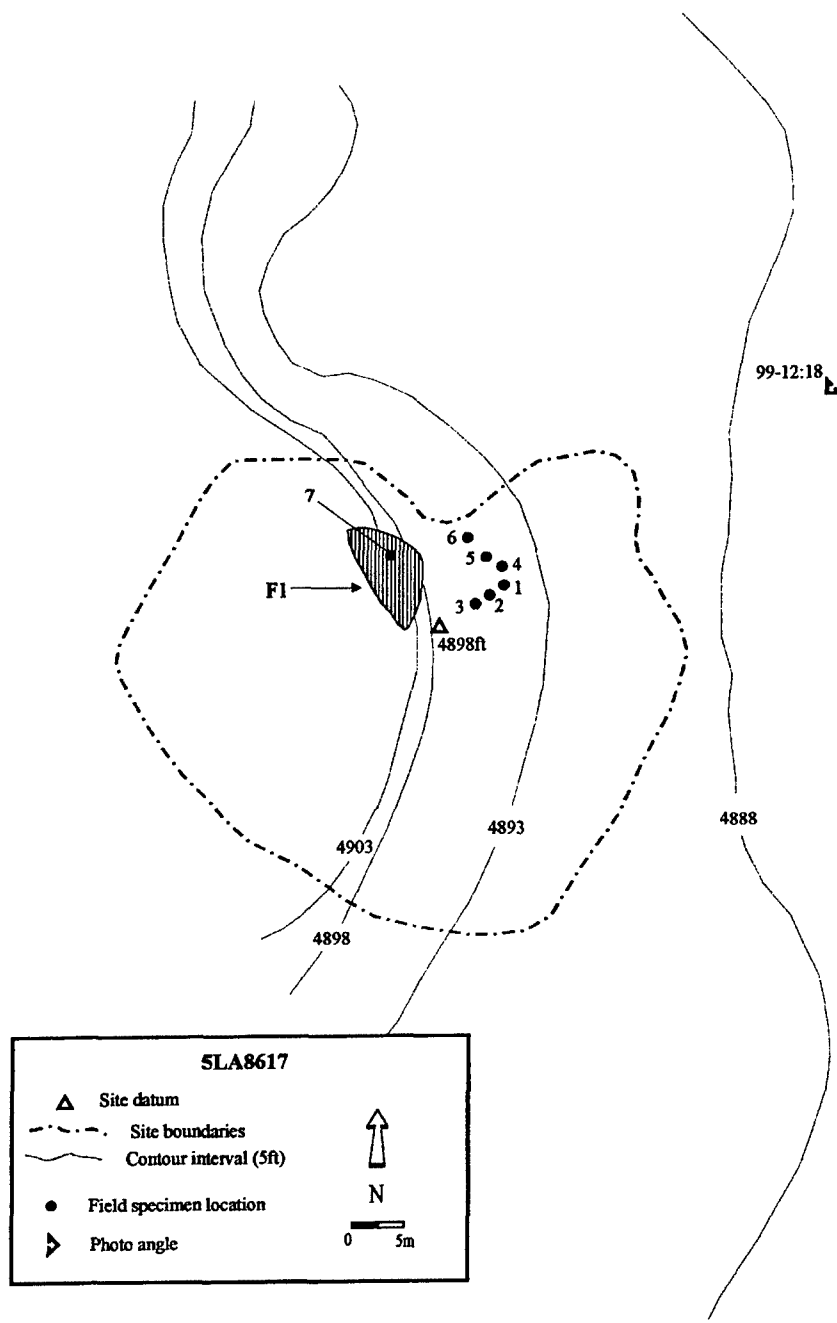


Figure 4.84: Site map, 5LA8617.

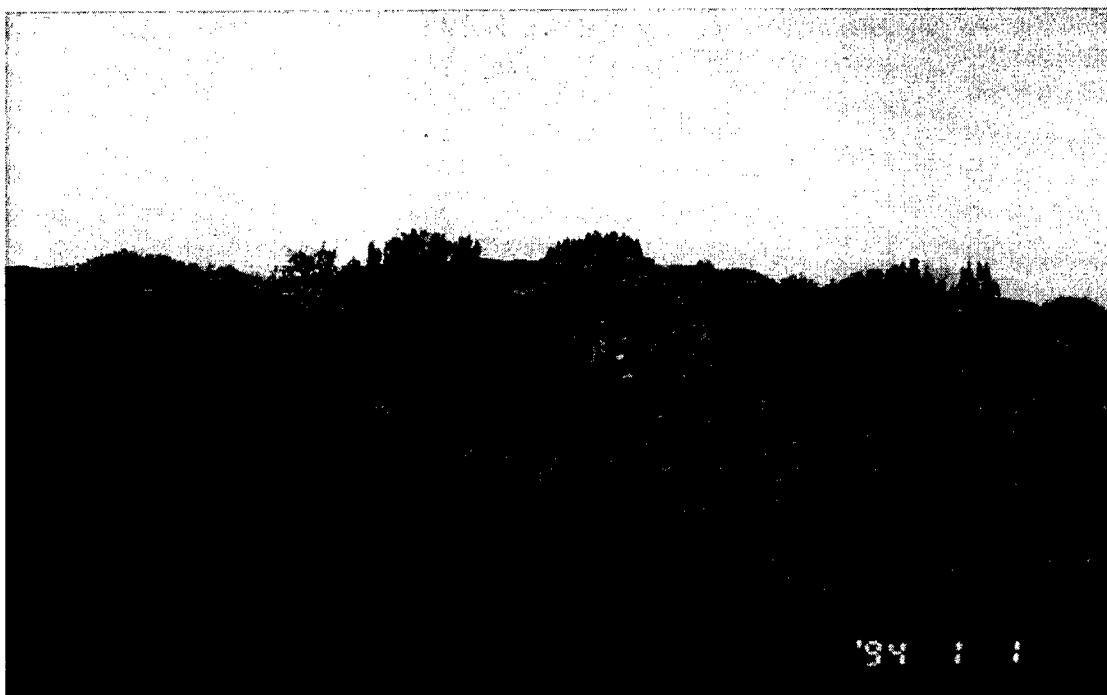


Figure 4.85: Site overview photograph, 5LA8617, from arroyo (PCMS 99-12:18) facing southwest .



Figure 4.86: Feature 1 with back pack for scale, 5LA8617. Animal burrows seen within the shelter and a portion of the wing wall is shown in the right side of the frame (PCMS 99-12:19).

Table 4.36: Summary Description of Chipped-Stone Debitage for 5LA8617.

	Argillite	Chert	Hornfels/Basalt	Obsidian	C. Quartzite	Siltstone	Total
Total	2	9	1	1	31	1	45
Large	0	5	1	0	24	1	31
Small	2	4	0	1	7	0	14
Cortical	1	4	1	1	17	1	25
Noncortical	1	5	0	0	14	0	20
Complex	0	3	0	0	7	0	10
Shatter	0	4	0	0	2	0	6
Simple	1	1	1	1	21	1	26
Biface-Thinning	1	1	0	0	1	0	3

Interpretation and Summary

We recommend that the site be considered for nomination to the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). Animal burrows inside the rock shelter show evidence for at least one buried fire feature and there is an intact wall of unknown type or function profiled in another. In addition, two pieces of debitage were found on a backdirt pile from one of these burrows. The presence of ground stone indicates that plant processing may have occurred at the site and that there is a good potential for recovering macrobotanical and/or pollen material from test excavations. The presence of obsidian indicates that the site may yield data pertinent to the reconstruction of trade and exchange networks.

The site's location in the drainage protects it from military maneuvers and severe erosion. No further work is needed at this time; however, the cultural deposits are being churned by animal borrowing. This site should be revisited periodically, and if this animal disturbance continues the management recommendation should be reevaluated.

5LA8619

This site is a large lithic scatter with 25 stone circles (Figure 4.89). It is located along the top of the northern terrace of the southern fork of upper Red Rock Canyon. This large 320 x 281 m site sits in the grassy plains. The terrain gently slopes to the south and west. The canyon below contains seasonal pools of water and flowing springs, so the occupants of this site did not have to carry water a long way. Two groups of rings were encountered on the site and may represent two occupations. The first is at the southern boundary along the canyon edge where the terrain is very flat. The second group is oriented along the leeward side of a low crescent-shaped ridge in the northern and central part of the site. Chipped-stone debitage and stone tools were noted throughout the area with one distinct cluster north of the first ring group. The site datum was placed at the center of the second ring group at approximately 1,498 m (4,915 ft) asl.

The site is located in a juniper woodland plant community. Sunflowers, blue and sideoats grama, yucca, and sagebrush were also noted. The grass cover is very thick, and only a few

shrubs and trees were encountered within the site boundary. Over the edge of the cliff, skunkbrush and currant were identified. Soils are thin over most of the site's surface with some depth (up to 20 cm) south and west of the datum. There is also soil deposition at the northeastern edge of the site.

Features

Twenty-five stone rings were identified at 5LA8619. Features 15 and 20 are small and well defined rings, and may be hearths or small storage features, though no artifacts, ash or fire-cracked rock were encountered. The other stone structures consist of single discontinuous circular courses of rocks (Figure 4.88). These would be classified as Class IV, spaced rock wall units, according to Kalasz (1989:100-102). Two similar structures have associated radiocarbon dates of AD 780 and AD 1350. These dates are suspect, and it is more likely that the site was occupied somewhere in the Protohistoric period (AD 1450 to AD 1725).

In terms of spatial patterning, none of the circles overlap, though four close circle associations were noted. These are Features 17 and 18, 21 and 22, 7 and 8, and 9 and 10. Camp organization is shown in two groups; Group 1 (Features 16 - 24), near the southern boundary contains nine features and Group 2 (Features 1-15, and 25), at the central and northern portion of the site contains sixteen features (Figure 4.87). The average ring diameter in Group 1 is 3.38 meters and the average diameter of Group 2 is 5.94 meters. Three extremely large circles primarily distort the average size of the Group 2 circles. Features 3, 4, and 13 are larger than 9.5 meters in diameter and may have served some kind of special function.

In Group 1, six of the rings are complete and three are partial. Eight of the rings have a sparse number of rocks remaining, while one circle contains a high number of fieldstones. All of the Group 2 circles are of sparse rock construction and fourteen of the sixteen circles are incomplete. The apparent robbing of stones in Group 2, coupled with the presence of isolated blocks scattered throughout the central portion of the site, suggests multiple occupations, though we do not believe that these occupations can be temporally separated. In both groups, the relatively even distribution of rocks suggests that the prevailing winds were not a threat to the campsite. It has often been observed on other tipi ring sites that there are typically more stones placed on the side exposed to the direction of the prevailing wind.

There is thick grass cover on this site and military maneuvers have impacted much of the site area. We suspect that this entire landform may have been covered with stone rings at one point, but these were either covered by vegetation or destroyed by military maneuvers. No distinct hearth remains were encountered but thick grass cover or soil deposition may be covering this type of feature.

Lithic Artifacts

Most of the debitage specimens are from deflated contexts and were found on exposed bedrock or in small erosional pockets. Because of this, there are pseudo concentrations north of Group 1 and west of Group 2. The debitage consists of 77 simple flakes, 46 biface-thinning

flakes, 14 complex flakes, and 11 pieces of angular shatter. Site 5LA8619 is one of the few sites which has yielded a high percentage of biface-thinning flakes and chert items in the debitage assemblage. Most were encountered in the area of FS 20 and seem to represent a single biface reduction episode of chert. This chert is visually similar to Alibates dolomite; however, its coloration and texture falls within the range of variability for locally available Ralston Creek chert. We tested several samples of this chert using both short- and long-wave ultraviolet light emissions. Some were noted to fluoresce a dull yellow-green like Alibates samples in the NMSU collection, but without more testing of Ralston Creek chert it is unknown whether ultraviolet light can be used to distinguish these two material types.

The material data for the debitage is presented in Table 4.37. The material types are 55% chert, 28% quartzite, 11% basalt, 3% obsidian, and 2% Alibates dolomite. The presence of cortex on 16 percent of the specimens indicates that most of the materials were reduced at the source location, with only a small amount of material brought to the site in cobble or nodule form. The obsidian specimens are from the Cerro del Medio and Polvadera Peak sources in the Jemez Mountains of New Mexico. There are two simple flakes, two complex flakes, and a single biface-thinning flake; all are noncortical. Three apparent Alibates dolomite pieces are also noncortical and include a biface-thinning flake, a complex flake, and a simple flake. Nonlocal lithic materials seem to have been brought to the site as formal tools or noncortical cores, and the procurement tactic likely involved seasonal movement or exchange.

Of the overall debitage assemblage, most of the items (66%) are small. The percentage of small, noncortical flakes (62%) indicates that both early- to late-stage biface reduction, and late-stage raw material reduction were responsible for the debitage recorded on the site. Biface-thinning flakes of five different materials were noted, so at least five bifaces were manufactured or reworked on site.

The tool assemblage consists of fifteen artifacts, of which five are projectile point fragments, four are utilized flakes, two are end/side scrapers, two are slab metates, one is a broken biface fragment, and one is a non-bipolar core. Of the utilized flakes, two chert tools are broken and the argillite and quartz items are complete. All show at least one scraping edge. All of the projectile points are incomplete and made of chert (3), basalt (1), and silicified wood (1). Only two of the points were complete enough to be placed within the Anderson (1989) system. The first specimen (FS 7) is made of basalt and has a broken tip. It resembles a P18 type stylistically, though it is much smaller than those described by Anderson (1989:131). The base thickness is so small that this point would have had to be socketed into an arrow shaft. I suspect this point was curated from another location and was reduced to a smaller size. The second specimen (FS 16) is similar to a P63 type, is made of chert, has one broken shoulder, and its tip was rounded to produce a "stunning" effect upon impact. Neither points fits well with the Anderson (1989) classification and their temporal placement is suspect. Anderson presents a date range of 3000 BC to 500 BC for P18, and a range of AD 600 to AD 1100 for P63 points.

For a site this large it is unusual to find only two ground-stone artifacts. A small, yet complete, slab metate (FS 13) was found face down (curated) under a low bedrock shelf at the south site boundary. An internal slab metate fragment (FS 21) was found near the chert biface reduction location. In addition, no ceramic artifacts were identified.



Figure 4.87: Site overview photograph (PCMS 99-19: 16) from northeast site boundary facing datum, 5LA8619.

Table 4.37: Summary Description of Chipped-Stone Debitage for 5LA8619.

	Alibates	Chert	Hornfels/Basalt	Obsidian	Course Quartzite	Total
Total	3	82	16	5	42	148
Large	1	17	7	2	24	51
Small	2	65	9	3	18	97
Cortical	0	4	5	0	15	24
Noncortical	3	78	11	5	27	124
Complex	1	3	3	2	5	14
Shatter	0	2	4	0	5	11
Simple	1	39	5	2	30	77
Biface-Thinning	1	38	4	1	2	46

Table 4.38: Stone Tool Type by Material Group for 5LA8619.

Material	Type						Total
	Biface	Core	Projectile	Scraper	Flake Tool	Metate	
Argillite	0	0	0	1	1	0	2
Quartz	0	0	0	0	1	0	1
Chert	1	0	3	1	2	0	7
Coarse-grained Quartzite	0	1	0	0	0	0	1
Sandstone	0	0	0	0	0	2	2
Hornfels/Basalt	0	0	1	0	0	0	1
Silicified Wood	0	0	1	0	0	0	1
Total	1	1	5	2	4	2	15

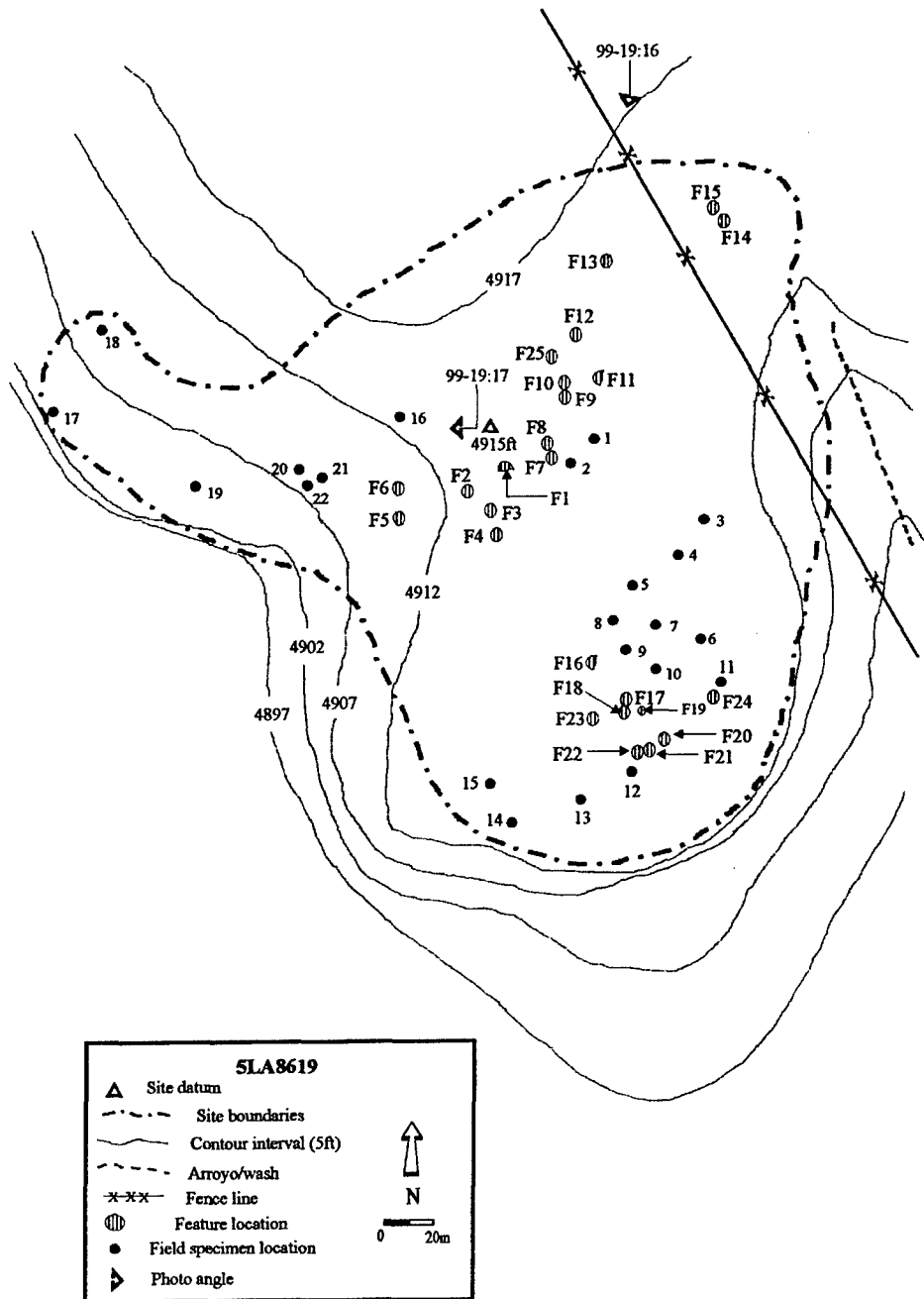


Figure 4.88: Site map, 5LA8619.

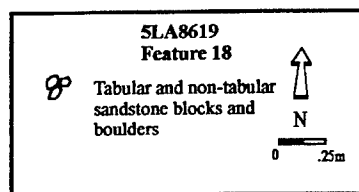
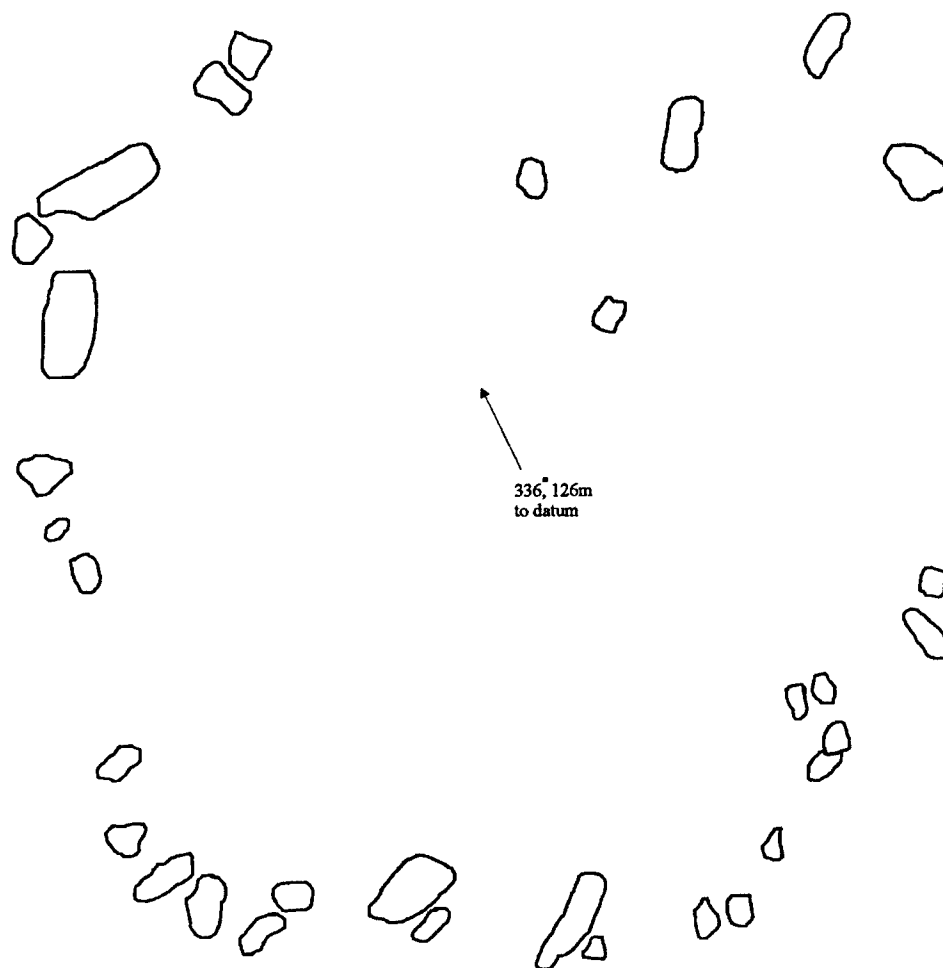


Figure 4.89: Planview, Feature 18, a tipi ring, 5LA8619.

Interpretation and Summary

We recommend that the site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). The main significance of this site is its association with other tipi ring sites in the area: 5LA4940, 5LA8620, 5LA8614, 5LA8690, and 5LA8689. All have a very high artifact density in connection with stone circles. Though there are nearly complete projectile points on this site, their specific temporal placement is problematic. The same may be said about the spaced-stone structures, as they can generally be dated using Kalasz's (1989) system. What this means is that we have no secure way to date the primary site occupation. Although there is little deposition over most of the site, more substantial deposits are present around the Group 2 cluster of circles. Test excavations here may yield important data that could augment our understanding of ring sites for the PCMS, and provide chronological information for placing this occupation more securely into a time frame. The presence of Alibates dolomite and Jemez Mountain obsidian suggest that data may be forthcoming that can be used to address issues regarding trade and exchange.

Heavy maneuver impact was seen on the site surface, and because this is one of the largest aggregates of stone circles in the PCMS, a protection fence should be built. We also suggest that the site should be revisited for instrument mapping so more in-depth spatial analysis can be performed. Areas where there is good potential for locating subsurface deposits and features should be tested to determine their presence or absence. If none are found, then the site fencing can be removed and the management recommendation can be reevaluated.

5LA8620

This lithic scatter and structure site is located on a gently sloping erosional terrace that is on the north side, and at the head of a tributary drainage feeding Red Rock Canyon (Figures 4.90, 4.91). Most of the structures and artifacts were found on the slope and a series of low bedrock ledges that contour the site at elevations of 4910 and 4930 ft. The drainage (30 m south) contains numerous small seeps and pockets that would hold seasonal pools of water. A large, flowing spring is 125 m south of the eastern site edge. The site is just to the north of 5LA4940 and 5LA8614, two large lithic scatters with at least one structure. The site datum is at an elevation of approximately 1,494 m (4,900 ft) asl. The northwestern part of the site rises approximately 13 m above the site datum.

Several plant communities grade together on this large site. The upper (northwest) portion of the site is grassland, predominantly blue grama and galleta grass, with some ricegrass noted. Further down slope, shrubs were noted and include soapweed, tree cholla, and juniper as overstory vegetation. Just above the drainage fourwing saltbush, alkali sacaton, and wolfberry were seen. At the drainage bottom, skunkbrush and wax currant dominated the landscape with thick patches of sideoats grama. A small stand of cottonwood trees grow in the arroyo.

This approximately 43-acre site has relatively deep soil deposition along its north edge. Down slope and along the bedrock terraces there is up to 1 m of deposition. The drainage has considerable depth and it is very likely that over 2 m of deposition exists here. For the most part, the soils are very sandy; higher clay content was found further up the slope.

Features

A total of ten features were recorded across the site and include six circular slab structures, two spaced stone circles, a rock art panel, and a hearth. All of the habitation features are isolated; four use a low rock ledge as a wall, three are free standing, and one was placed within a shallow rock shelter. The abutment structures resemble Kalasz's (1989) Class V, Categories 15 and 16, which are contiguous wall, rock abutment, fully enclosed, isolated units. Kalasz (1989:103) indicates similar stone structures from Carrizo Ranch have associated radiocarbon dates of 930 ± 225 BP and 630 ± 50 BP. If these dates can be reliably used to cross-date these features (1, 2, 7, and 10), then we can infer at least one occupation at the site either late in the Developmental period or in the Diversification period of the Late Prehistoric Stage. Both the free standing unit (Feature 8) and the unit within the shelter (Feature 3) are also Class V, Category 15 structures. The two spaced stone circles (Features 4 and 5) are Class IV units, according to Kalasz (1989:109). Other similar structures have dates of AD 780 and AD 1350.

Feature 1 is a circular structure made of sandstone slabs. It measures 5.7 x 5.3 m, and several upright slabs still stand along its north wall at the contact with a sandstone bedrock ledge (Figure 4.92). A considerable number of artifacts, including flakes, projectile points, cores, and ground stone, were noted in and around this feature. Most of the tabular block walls have collapsed, but a pin flag probe reveals at least 15 cm of soil depth.

Feature 2 is another structure that was built against a sandstone outcropping. It is located 8 m southwest of Feature 1 on a small, rocky ledge. This structure is highly eroded and very little soil remains within its collapsed sandstone block walls. The outline of this wall measures 5.6 x 5.3 m (Figure 4.93). Many artifacts are exposed on the surface.

Feature 3 is a semicircular structural unit (4.5 x 2.2 m) with a sandstone block wall that was placed outside of the dripline of a low rock shelter (Figure 4.94). There is an apparent opening/door present along its east side. Heavy erosion makes the wall construction difficult to interpret and it is unknown whether this is a spaced rock unit or contiguous wall unit. There is substantial soil deposition in the shelter.

Features 4 and 5 are large spaced rock structures measuring 7 m in diameter and 6.5 m respectively. Both are circular in plan view; Feature 4 is complete and Feature 5 had its northeast wall robbed of stones. Both were found on small, flat terraces on the hill slope in areas that were not yet disturbed by mechanized vehicles. This suggests that in the areas exposed to tracked vehicles, features or artifacts may have already been destroyed. Of particular interest, Feature 4 had no artifacts, but several large projectile points were recorded just outside Feature 5. A single diagnostic point (FS 30) and two large point fragments were found just outside of Feature 5. It seems unlikely that this point can be reliably used to cross-date Feature 5, as it infers an occupation of this feature at some time during the Middle to late Archaic period.

An eroded petroglyph and tool groove (Feature 6) were noted at the southern edge of the site, 163 m east of the datum. The petroglyph contains a series of curved and intersecting lines, but it is badly exfoliated and nearly destroyed (Figure 4.97).

Another upright slab structure (Feature 7) was found in a pocket between outcropping bodies of sandstone. Most wall blocks were robbed for use elsewhere and only a rough circle of them remain (4 x 4.5 m). One large block still remains upright and is deeply buried, suggesting architectural remains, specifically a prehistoric occupation surface that could be found in a test excavation. Two diagnostic projectile points (FS 4 and FS 7) were found to the south and west of this feature. Both are small preforms, and using Anderson's 1989 classification system, a date range of AD 800 to AD 1750 is postulated for FS 7 and a date of AD 500 to AD 1400 is suggested for FS 4. A steatite bowl fragment was also found west of this location.

Feature 8 is a semicircular structure made of upright sandstone slabs (Figure 4.95). At one time it was likely 3.5 m in diameter but its entire east side has been pulverized by tracked vehicles in a recent maneuver. A utilized flake (FS 67) and a slab metate fragment (FS 66) were found just outside of its wall. This feature should be tested before it is completely destroyed by military maneuvers.

A small arroyo has exposed a hearth (Feature 9) in the drainage 298 m southwest of the datum (Figure 4.96). It measures 1.5 m in diameter and is comprised of ashy soil and thermally altered rock. This feature may have as much as 30-40 cm of deposition and would be a good location for test excavations. No artifacts were encountered around the hearth, but this could be the result of erosion.

Feature 10 is a circular sandstone slab structure located below the lowest sandstone outcrop on the north side of the arroyo floodplain. This structure is the best preserved and most clearly distinguishable of the structures at the site. It is constructed of sandstone slabs in a circular arrangement that measures 5 x 3 m in diameter (Figure 4.98). Several wall blocks remain upright and based on a pinflag probe, there is 30 cm of fill above its bedrock floor. Test excavations in or near this feature will likely yield important data for the reconstruction of subsistence patterns and/or paleoenvironment. Temporally diagnostic artifacts or thermal features could be encountered here and would be useful for addressing the chronology of the site.

Lithic Artifacts

A sample of the chipped-stone debitage was recorded and includes 125 items from general surface context, 29 items from the Feature 1-3 cluster, and two pieces of debitage from Feature 4. Of the total, 61% is coarse-grained quartzite, 22% is chert, 9% is basalt, 4% is obsidian, 2% is fine-grained quartzite, and less than 1% of both granite, and sandstone (Table 4.39). These materials are 27% cryptocrystalline or microcrystalline (11%), and 62% macrocrystalline materials with some degree of conchoidal fracture properties. Other than the obsidian items, all materials are locally available. Comparison with a known obsidian collection suggests that specimens from both the Polvadera Peak and Cerro del Medio sources in New Mexico are present.

All stages of core and cobble reduction are represented in the assemblage. Overall, 71% of the assemblage is noncortical, while 29% shows some dorsal cortex. These percentages are further broken down as 42% large noncortical flakes, 29% small noncortical flakes, 26% large cortical flakes, and 3% small cortical flakes. Based on the low percentages for small complex flakes (7%) and biface-thinning flakes (9%), there appears to be little emphasis on making finished uniface and biface tools on site. Large complex flakes are likely related to early-stage biface manufacture. The shatter specimens and most of the large cortical flakes were being produced as a by-product of quartzite, and chert core reduction. These material types are all represented in the core assemblage. Based on the rather large percentage of cortical large items in the quartzite, and hornfels/basalt materials, we can infer that these items were being transported to the site in cobble or nodule form. No cortex is present for the obsidian flakes, and based on the type classifications, these materials were likely brought to the site in the form of biface tools or prepared cores. The presence of granite and sandstone flakes suggests resharpening of ground-stone artifacts. The high percentage (61%) of coarse-grained quartzite stands out compared to other sites in the region. It is possible that outcroppings of this material can be found on or near the site.

A sample of the chipped-stone debitage around Features 1-3 was recorded, and the following analysis provides a reasonable assessment of the lithic reduction strategy employed in that area. Of the total, 79% is course-quartzite, 11% is chert, 7% is basalt, and 3% is granite. Of the quartzite debitage, 78% is the large size grade, while the remaining 22% is small; 39% of the debitage had cortex and 61% is noncortical; and 60% is simple flakes, 31% as complex flakes, and 9% is shatter. Of the chert debitage, 44% is large and 56% is small; 31% is cortical and 69% is noncortical; and 44% is classified as simple, 19% as complex, and 36% is shatter. The debitage recovered from this area indicates there is also a strong emphasis on flake production for expedient use and little biface or tool manufacturing or resharpening is apparent.

The site yielded a total of 13 projectile points (Figures 6.6, 6.15, 6.21 and 6.22). Eight points seem to suggest multiple occupations for the site between the Plano period of the Paleoindian stage and the Protohistoric Period of the Late Prehistoric stage (BC 8250 to AD 1725). One of these (FS 10) is a Paleoindian point preform made of Brushy Basin chert. It was "end shocked" late in the manufacturing process and discarded without any apparent use. The next oldest point (FS 30) is nearly complete and made of chert. It is similar in size and shape to Anderson's P18 type, which has a date range from 3000 to 500 BC. Five points (FS 4, 7, 70, 80, and 84) are small, with dates ranging from AD 500 to AD 1750. Using the classificatory system developed by Zier and Kalasz (1999) these would fall into the Late Prehistoric Stage (AD 100 to AD 1725) and cover all three periods (Table 4.41). There is one unique point (FS 36) fragment made of nonlocal Black Forest silicified wood. It is a reworked Paleoindian stage point that is now very small in length and width, but very thick in cross-section. Its original shape is unknown and it may be related in age to the Paleoindian stage point preform. The remaining five points are too fragmentary to classify.

The remaining stone tools consist of 45 artifacts-- 26 non-bipolar cores, nine flake tools, six scraping tools, and four bifaces (Table 4.40). Material types for the cores are quartzite (21), chert (2), argillite (2), and basalt. Included in this group is a core-tool (FS 40) with heavy wear (chopping and grinding) on both of its lateral edges and distal end.

Of the bifaces, three of the four specimens are broken. Most are chert (3), with one recorded as orthoquartzite. Two bifaces are further classified as nearly finished, one is an unfinished biface, and one is a nearly finished biface. One of these (FS 43) displays polish wear along one <45 degree lateral edge and was likely used as a knife. The others (FS 21, 35, and 38), have at least one edge that was used for scraping.

Scraping tools are classified as three end/side scrapers, two end scrapers, and one side scraper. The remaining nine artifacts are expedient tools and include seven utilized flakes and two unifaces. There are six complete artifacts and three fragments; seven were used for scraping, one is a flake knife, and one freshly sharpened uniface has no use wear. Field specimen 63 is a heat-treated piece of quartzite and FS 68 is a highly patinated piece of argillite.

Thirty-five ground-stone items were recorded at the site. Of these, 12 are milling slicks tightly grouped on a single bedrock metate, 11 are slab metate fragments, 10 are one-hand mano fragments, one (FS 20) is a complete sandstone metate, and one (FS 106) is a small edge-ground cobble. The bedrock metate is a large sandstone boulder found on the east edge of the site near the rock art panel. The edge-ground cobble is unique because of its small size (85 x 50 x 15 mm). Typically edge-ground cobbles range from 131 to 194 mm in length and 60 to 125 mm in width (Owens and Loendorf 2001:178). We may be seeing an edge-ground/polished artifact that was used for scraping pottery instead of hides.

Table 4.39: Summary Description of Chipped-Stone Debitage for 5LA8620.

	Chert	F. quartzite	Granite	Hornfels/Basalt	Obsidian	C. Quartzite	Sandstone	Total
Total	35	3	1	14	7	95	1	156
Large	18	2	1	8	0	77	0	106
Small	17	1	0	6	7	18	1	50
Cortical	10	0	0	1	0	35	0	46
Noncortical	25	3	1	13	7	60	1	110
Complex	8	0	0	3	4	37	0	52
Shatter	2	0	0	2	0	2	0	6
Simple	16	3	1	9	2	52	1	84
Biface-Thinning	9	0	0	0	1	4	0	14

Table 4.40: Stone Tool Type by Material Group for 5LA8620.

Material	Type							Total
	Biface	Core	Projectile	Scraper	Flake	Tool	Mano	
Alibates Dolomite	0	0	1	0	0	0	0	1
Argillite	0	2	0	1	2	0	0	5
Unspecified Chert	3	2	7	2	1	0	0	15
Coarse-grained Quartzite	0	20	0	2	3	0	0	25
Fine-grained Quartzite	0	1	1	1	2	1	0	6
Obsidian	0	0	2	0	1	0	0	0
Sandstone	0	0	0	0	0	10	24	34
Hornfels/Basalt	0	1	1	0	0	0	0	6
Orthoquartzite	1	0	0	0	0	0	0	1
Silicified Wood	0	0	1	0	0	0	0	1
Total	4	26	13	6	9	11	24	93

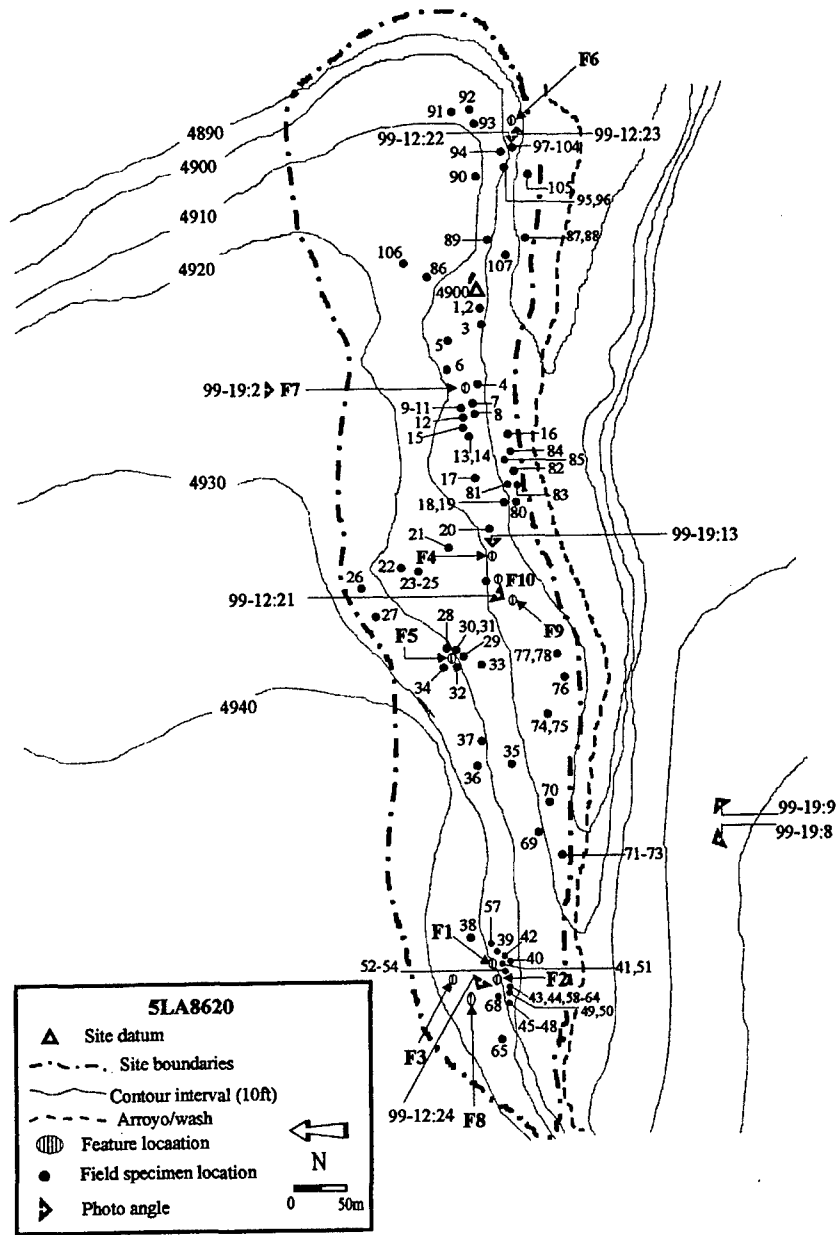


Figure 4.90: Site map, 5LA8620.



Figure 4.91: Site overview photo (PCMS 99-12: 20) of crew at datum, 5LA8620.



Figure 4.92: Feature 1, overhang with structure. Photo (PCMS 99-19: 4) taken facing 324 degrees.

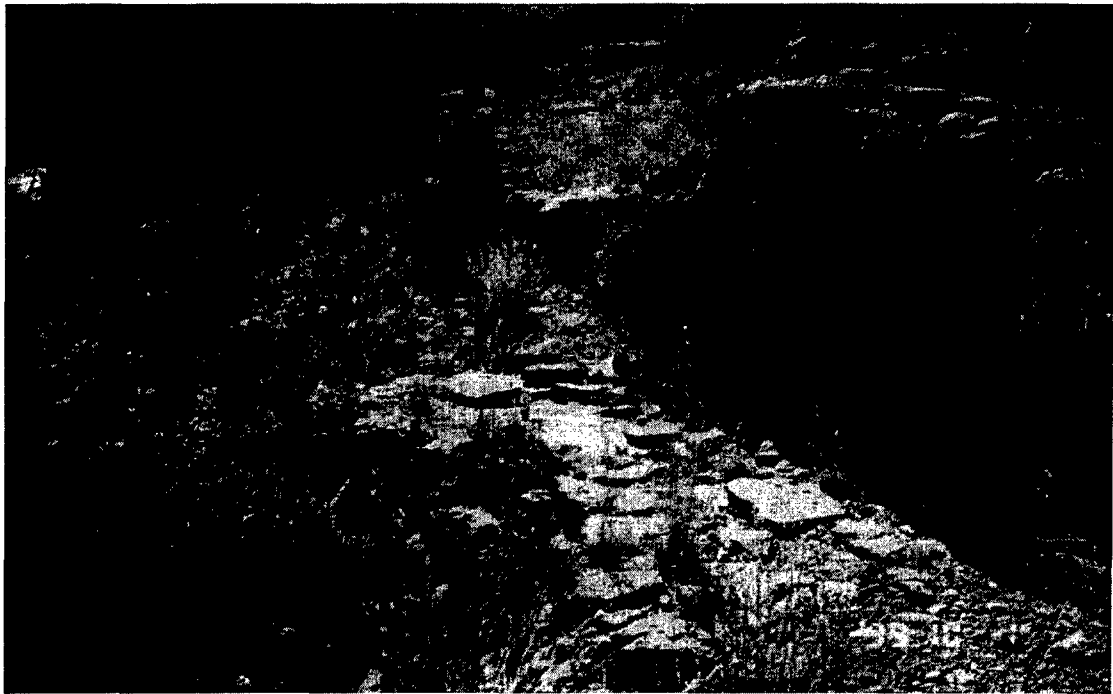


Figure 4.93: Feature 2, deflated structure, 5LA8620 (PCMS 99-19:5).

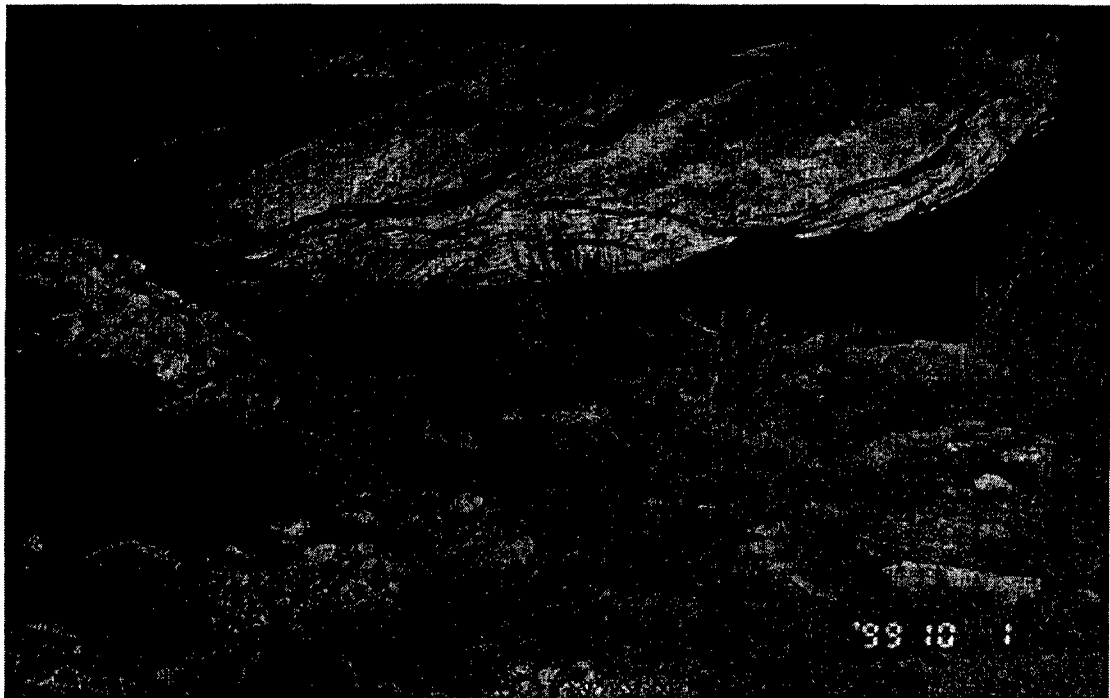


Figure 4.94: Feature 3, rockshelter with deflated wing wall, 5LA8620. Photo (PCMS 99-19:6) taken facing north (23 degrees).



Figure 4.95: Feature 8, contiguous wall structure, 5LA8620 (PCMS 99-12:24).



Figure 4.96: Feature 9, hearth, 5LA8620 (PCMS 99-12: 21).

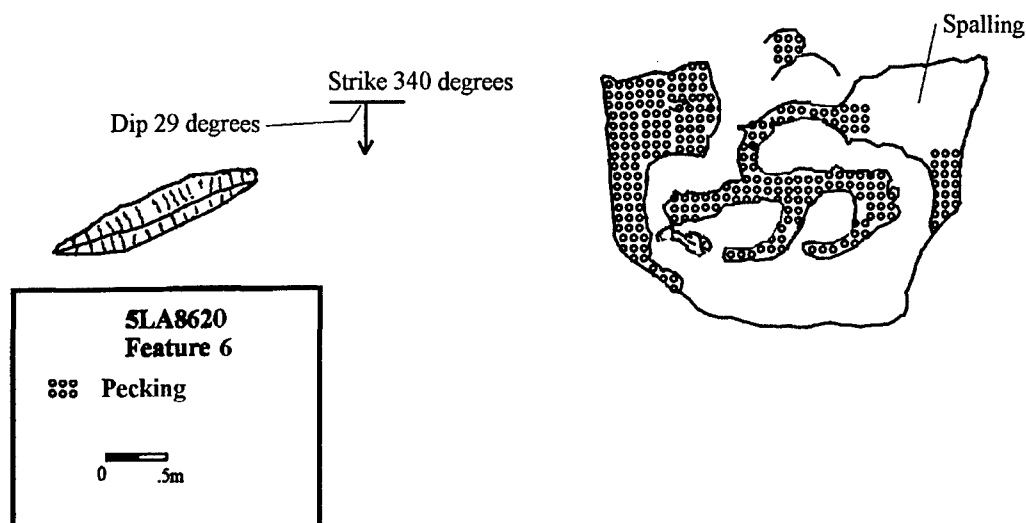


Figure 4.97: Rock art panel and tool groove, Feature 6, 5LA8620.

Table 4.41: Projectile Point Data, 5LA8620.

FS	Material	Portion	Size	Anderson Type	Date Range
4	chert	base fragment	small	P48	AD 500 -1400
7	chert	tip missing	small	P49	AD 800 - 1750
9	chert	medial blade fragment	small	unknown	unknown
10	Brushy Basin chert	tip missing	large	P3	8250 - 5800 BC
17	obsidian	medial blade fragment	small	unknown	unknown
30	chert	tip missing	large	P18	3000 - 500 BC
31	chert	medial blade fragment	small	unknown	unknown
36	Black Forest silicified wood	tip missing	small	P51	unknown
44	chert	medial blade fragment	large	unknown	unknown
67	basalt	medial blade fragment	small	unknown	unknown
70	Alibates dolomite	tip missing	large	P83	AD 750 - 1650
80	fine quartzite	tip missing	small	P58	AD 600 - 1200
84	obsidian	tip missing	small	P49	AD 800 - 1750

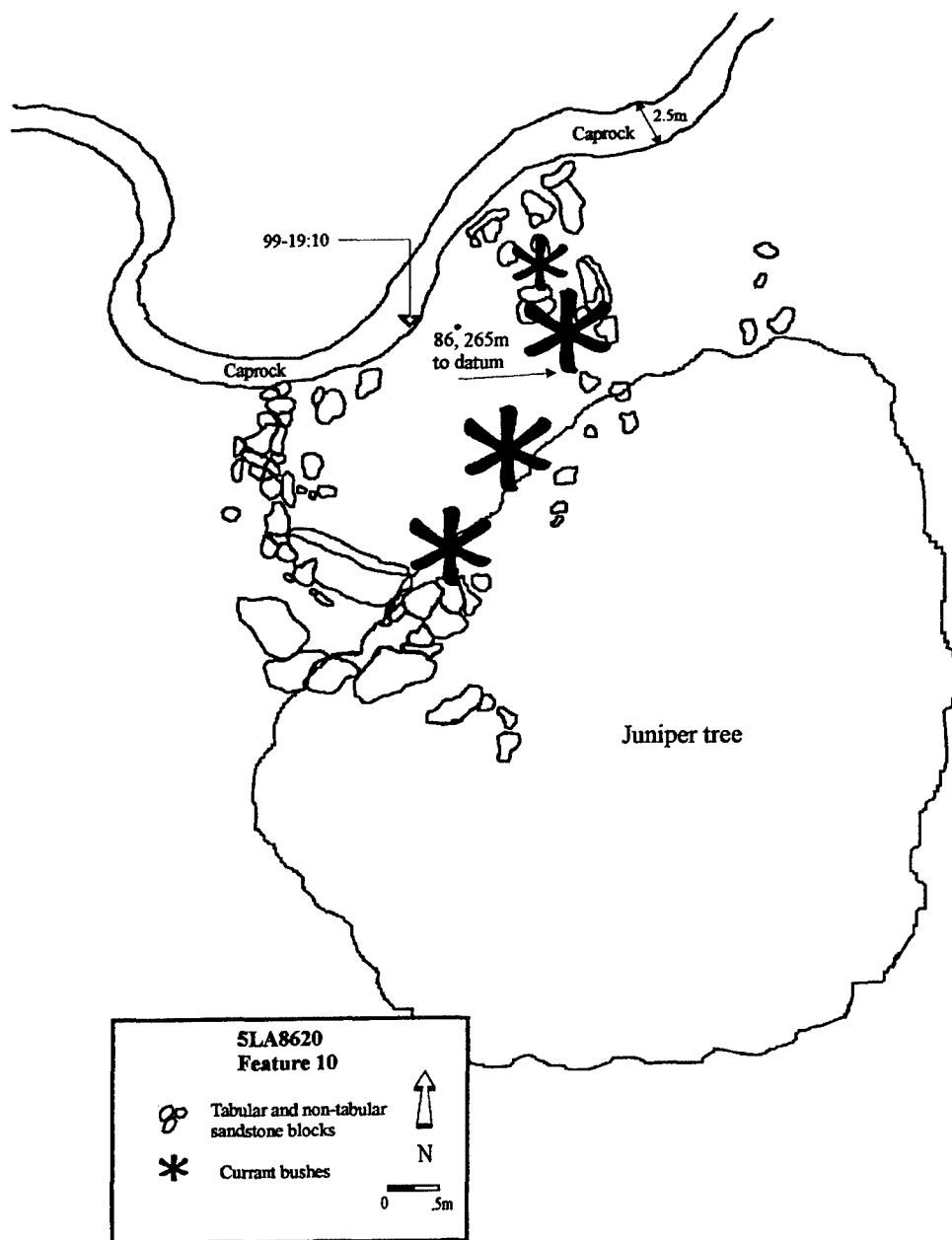


Figure 4.98: Planview, Feature 10, 5LA8620.

Ceramic Artifacts

Two pieces of micaceous pottery (FS 88 and 90) and the edge of a steatite bowl (FS 15) were recorded. The pottery sherds were found along the sandstone cliff edge, approximately 75 m east of the datum. Both are rim sherds of a small conoidal bottomed vessel with high shoulders, a constricted mouth, and a gently flaring rim with a round lip (Appendix IV).

Interpretation and Summary

We recommend this site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). Site 5LA8620 is a multi-component lithic scatter and structure/habitation site with a high ground-stone count and areas of high artifact density. The density of ground stone in the Feature 1-3 cluster, around Feature 5, and along the lowest bedrock terrace indicates that plant processing was a dominant activity. Features 1, 2, and 9 have been partly destroyed by erosion, and a number of artifacts are eroding out of Feature 1. Soil deposits of up to 15 cm are still in the preserved portion of the feature and they indicate a good probability of finding intact cultural deposits that would include pollen and macrobotanical remains. Test excavations in Feature 9 would likely yield datable carbon and pollen and macrobotanical data important for the reconstruction of subsistence patterns and/or paleoenvironment. Feature 8 is a semicircular structure that has nearly been destroyed by a column of tracked vehicles. Only two areas on the upper (northern) portion of the site do not show heavy tracked vehicle damage, and in these, prehistoric structures were found. It seems likely that there were many more structures present at one time, but these have been destroyed by military impact. The presence of Alibates dolomite, obsidian, and the steatite bowl fragment suggest further work at the site might yield data useful for reconstructing trade and exchange networks.

Our management recommendation is data recovery and the site definitely needs a protection fence. Two modern fire-hearths and a rock grill were found near Features 1-3 along with two cans of lighter fluid. In addition, three recent looters piles were located in the northern part of the site and modern military trash is everywhere. This is a favorite campsite during military training exercises and the site has been severely impacted through the years. Features 1, 8, and 9 should be excavated not only because of the potential for recovering important data, but because erosion and military maneuvers are destroying them.

5LA8622

This is a lithic scatter and habitation site located at the eastern edge of the northern side branch of upper Red Rock Canyon. The 6.5-acre site is situated on a sloping ridge that drains north and west through sandstone caprock to a shallow and grass covered valley with a small, dry drainage (Figures 4.99, 4.100 and 4.101). Historic sites 5LA4387 and 4388 are located just to the southwest near the confluence of two drainages (419 m). The site datum for 5LA8622 is at approximately 1,500 m (4,920 ft) asl. The site slopes down to the north from flat terrain at the eastern part of the site.

Juniper woodland dominates the landform though grassland is found in the drainage below. Juniper, black grama, currant, winterfat, soapweed, skunkbrush, prickly pear, and sideoats grama were recorded on the site. Soils are very shallow (< 10 cm) over most of the sites surface with exposed bedrock present especially near the canyon edge and on the eastern edge of the site. Other areas, especially in the drainage and below the main caprock feature, have more soil deposition.

Features

A total of 5 features were recorded; three spaced stone circles (Features 3-5), an upright slab structure (Feature 1), and a deflated pile of unmodified sandstone slabs (Feature 2). Feature 1 is the most distinctive structure on site. It is nestled at the base of caprock at the northernmost edge of the site. According to Kalasz's (1989) classification, this isolated structure most closely resembles a Class V, Category 15, which is a contiguous wall, rock abutment, partial enclosure, isolated unit and is thought to date sometime during the Late Prehistoric Stage (AD 800/1000 to AD 1500). This structure is comprised of a well-preserved circular arrangement of sandstone slabs placed in front of a low outcropping of bedrock (Figure 4.102, 4.104). The structure measures approximately 3.2 x 2.5 m, and is constructed of horizontally laid sandstone blocks. Several cut juniper branches were erected against, and in, live juniper trees and may have been some kind of roof support. There are also cut branches on the ground and in front of the structure. These are obviously historic in nature and a second habitation here is likely related to the historic sites down the valley. There were no historic artifacts found here. Flakes only were recovered on the ground to the north and south.

Features 3-5 are located at the top of a low southeast to northwest trending ridge at the central portion of the site. All are partial tipi rings and are roughly circular in planview. A single course of unmodified sandstone blocks comprises each unit. Feature 4 is the largest of the three and measures 5 x 4 m. Features 3 and 5 are roughly 3 m in diameter. None have associated or internal features and soil deposition is shallow along the ridge. All are Class IV, spaced rock wall units (Kalasz 1989:100). Based on this, these structures were occupied somewhere in either the Developmental or Diversification periods of the Late Prehistoric stage (AD 100 to AD 1450).

A possible sandstone slab feature (Feature 2) was noted at the site (4.103). This loose collection of sandstone slabs sits along a small erosional drainage, which has destroyed it. It measures 90 x 55 cm overall with no soil or ash fill. All of the rocks are fire reddened and this may be a completely deflated hearth remnant.

Lithic Artifacts

A total of 153 pieces of chipped-stone debitage were recorded (Table 4.42). Of the debitage, 49% is quartzite, 44% is chert, 3% is argillite, 2% is obsidian, 1% is chalcedony, and

there is one flake of silicified wood. Of the quartzite debitage, 65% is the small size grade, 35% is large; 87% of the debitage is noncortical, 13% has cortex; 43% is recorded as simple flakes, 32% as shatter, 24% as complex flakes, and one is recorded as a bifacial-thinning flake. Of the chert debitage, 96% is the small size grade, and 4% is large; 79% of the debitage is noncortical and 21% has cortex; 43% is recorded as simple flakes, 26% as complex flakes, 19% as shatter, and 12% as biface-thinning flakes.

Primary and secondary raw material reduction activities generated most of the quartzite debitage. The high number of quartzite cores in the tool assemblage and high percentage of shatter in the debitage support this. The presence of a single biface-thinning flake and 8 small complex flakes indicates that at least one quartzite biface was manufactured here. Biface manufacture is more strongly supported in chert with 8 biface-thinning flakes, and 13 small, noncortical, complex flakes. Only 14 items have cortex; there are five simple flakes, five complex flakes, and four pieces of shatter. This shows that chert arrived on site as secondary cores; most with the cortex already trimmed. The only nonlocal material in the assemblage is obsidian and all three specimens were noncortical.

Four of the seven projectile points were complete enough to be temporally diagnostic. One complete point (FS 5) appears to be relatively early in age (Figure 6.22). It is made of highly patinated argillite and appears similar to Anderson's type P10. This class has dates that fall within the Early Archaic stage. The other three are similar in size; two appear to fit the P58 type and one is a P62. According to Anderson, the P58 points have a temporal range from AD 600 to AD 1400 and the P62 point style range from AD 500 to AD 1400. Based on these artifacts, it seems that the site had an Early Archaic occupation (5500 BC to 3000 BC) and another occupation ranging somewhere in the Developmental to Diversification periods of the Late Prehistoric Stage. The latter occupation is consistent with the age of the ceramics and structures.

Seventeen artifacts comprise the remainder of the tools (Table 4.42). Of these, eight are metate fragments, four are cores, three are utilized flakes, one is an end/side scraper, and one is a complete mano. All of the cores are locally available quartzite and this was noted as the dominant material in the debitage. The utilized flakes are chert (2) and basalt (1); two have acute edges and were used as flake knives and the other was used for scraping. The end/side scraper (FS 10) has notches for hafting on both sides. It is broken, made of chert, and displays steep retouch modification and heavy wear on the distal end and both lateral edges. All ground-stone tools are locally available coarse-grained quartzite.

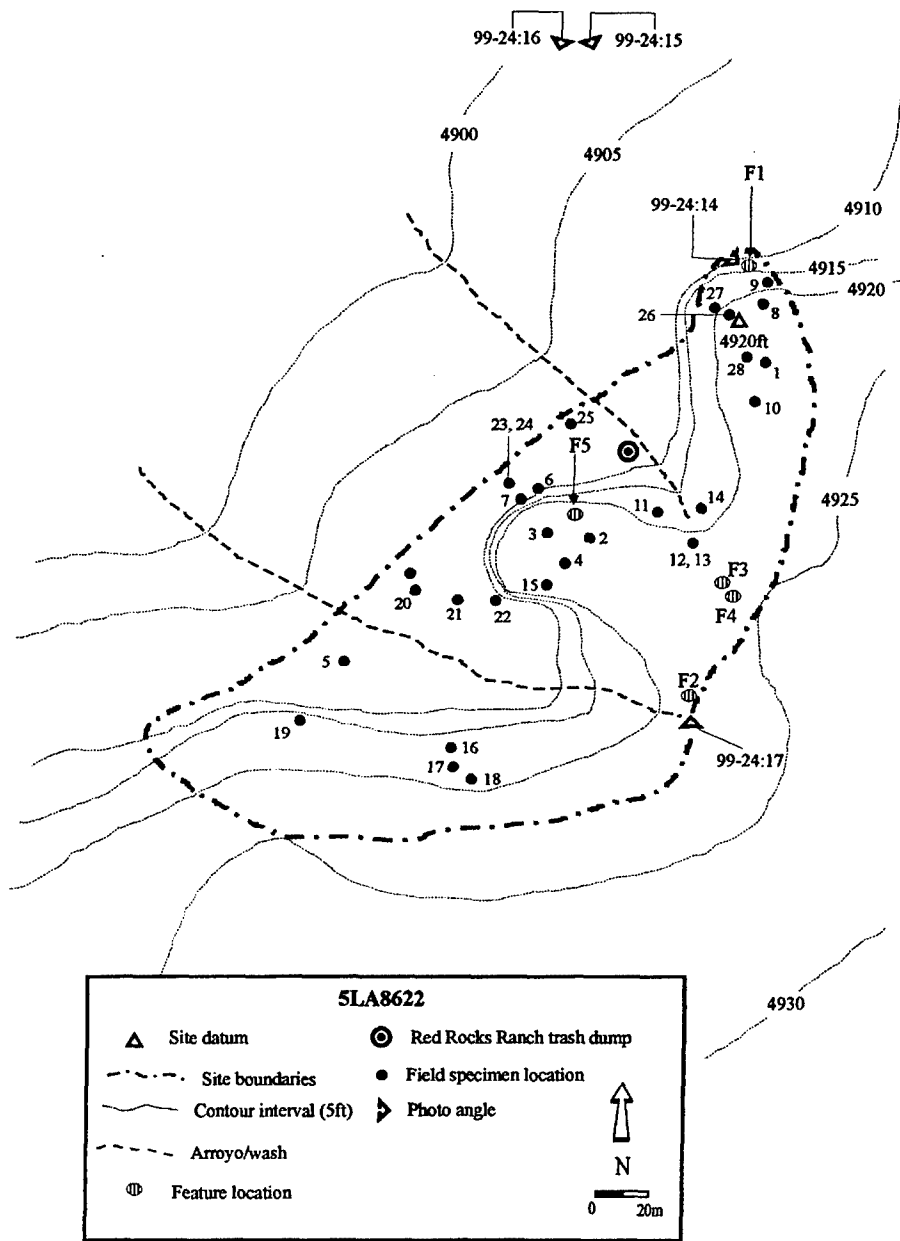


Figure 4.99: Site map, 5LA8622.



Figure 4.100: Site overview photo (PCMS 99-24: 15) showing east half of 5LA8622.

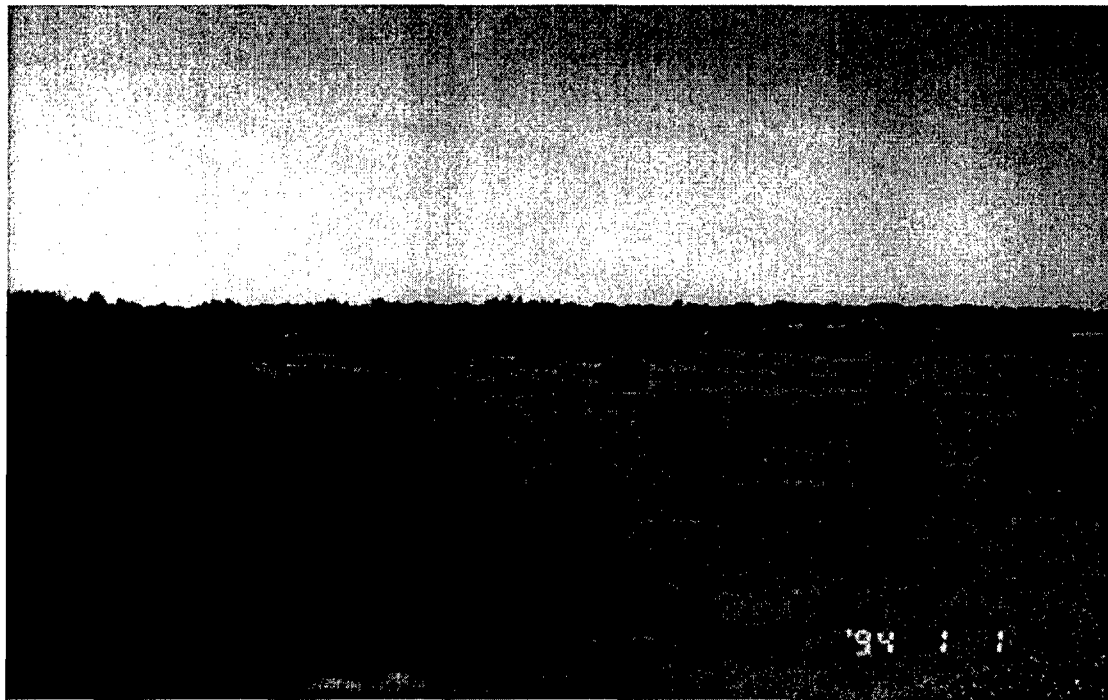


Figure 4.101: Site overview photo (PCMS 99-24: 16) showing the west half of 5LA8622.



Figure 4.102: Feature 1, prehistoric structure, 5LA8622 (PCMS 99-24:14).

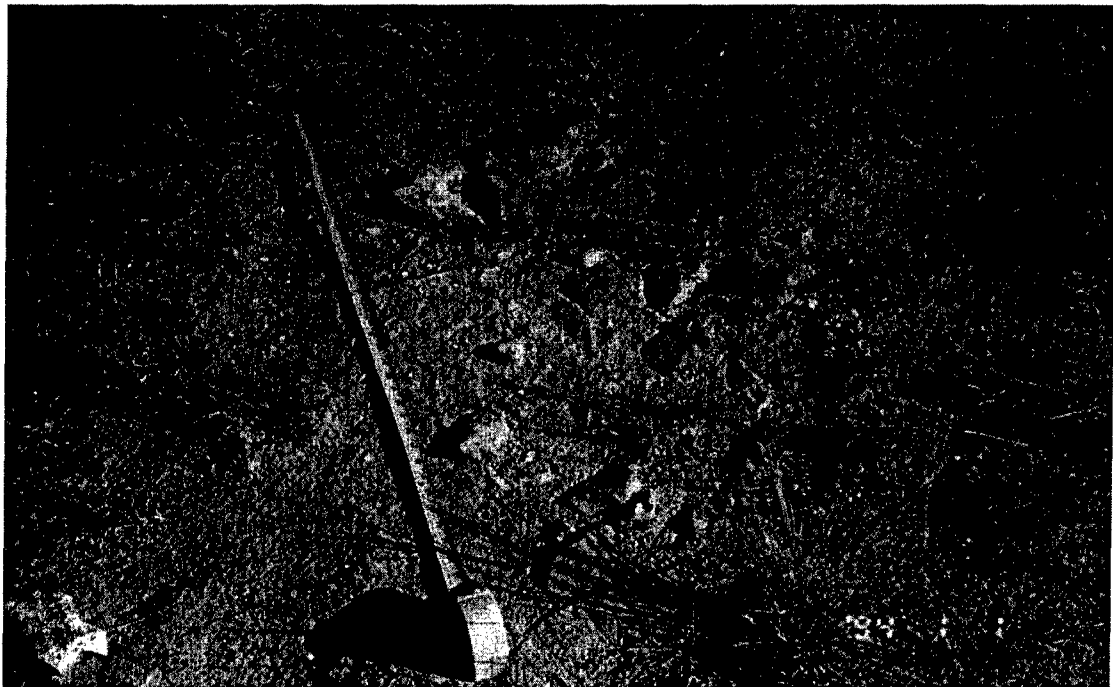


Figure 4.103: Feature 2, hearth, 5LA8622 (PCMS 99-24: 17).

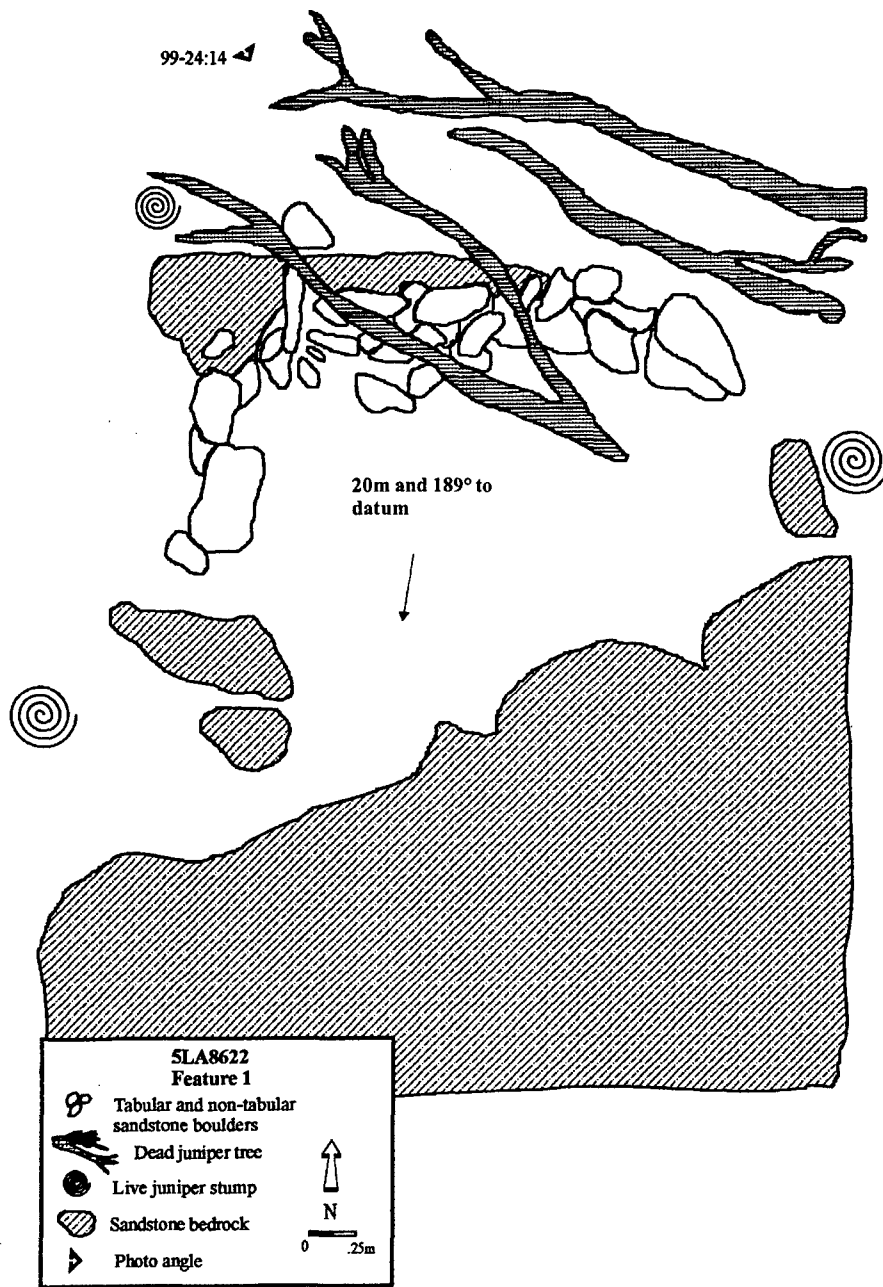


Figure 4.104: Planview, Feature 1, 5LA8622.

Table 4.42: Summary Description of Chipped-Stone Debitage for 5LA8622.

	Argillite	Chalcedony	Chert	Obsidian	Course-Quartzite	Silicified Wood	Total
Total	4	2	68	3	75	1	153
Large	2	0	3	0	26	0	31
Small	2	2	65	3	49	1	122
Cortical	2	0	14	0	10	0	26
Noncortical	2	2	54	3	65	1	127
Complex	2	1	18	2	18	1	42
Shatter	1	0	13	0	24	0	38
Simple	1	0	29	1	32	0	63
Biface-Thinning	0	0	8	0	1	0	9

Table 4.43: Stone Tool Type by Material Group for 5LA8622.

Material	Type						Total
	Core	Projectile	Scraper	Flake Tool	Mano	Metate	
Chert	0	6	1	2	0	0	9
Coarse-grained Quartzite	4	0	0	0	0	0	4
Fine-grained Quartzite	0	1	0	0	0	0	1
Sandstone	0	0	0	0	1	8	9
Hornfels/Basalt	0	0	0	1	0	0	1
Total	4	7	1	3	1	8	24

Ceramic Artifacts

Surface collection yielded four sherds from below the cliff along the northwest site boundary. One was identified as a mass-modeled smoothed base fragment with interior finger indentations. It represents a conoidal bottomed vessel (Appendix IV).

Interpretation and Summary

We recommend that the site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). Feature 1 has at least 20 cm of deposition and there is good potential for encountering intact subsurface cultural deposits. Two ceramic sherds and several projectile points suggest that the site may yield more data bearing on chronological issues. In addition, the presence of obsidian has potential for addressing issues of trade and exchange.

This area is off limits to military training and erosion poses no danger to Feature 1; as such, the site should receive no further consideration. That being said, the site needs revisited every five years to assess impacts.

5LA8656

The site consists of a sparse lithic scatter with a rockshelter (Feature 1) near its western border (Figures 4.105 and 4.107). It is on a sloping terrace on the south side of Lockwood Arroyo. There is a seasonal water catchment at the confluence of the arroyo and a tributary 516 m to the southeast, and a permanent spring 1 km to the east. The site is set in a woodland plant

community, with thick grass cover in the basin above the drainage. The prominent plant species are juniper, sagebrush, needle and thread grass, skunkbrush, snakeweed, grama grasses, and wheatgrass. Soil depth is generally shallow, with exposed sandstone near the western boundary. These soils are a light brown, sandy loam with a cryptogamic crust. The rockshelter has at least 20 cm of depth and some pockets of deposition can be found along the terrace at the southern and eastern site margins.

Feature

The rockshelter (F1) is located at the base of the sandstone outcropping approximately 4 m west of the datum (Figure 4.106). It is rather small (3.5 x 2.3 x 1.2 m) and is considered a single habitation unit. No architectural elements or floor features were noted, though a one-hand mano fragment (FS 5) was found on the floor of the shelter. No other artifacts were encountered, but the shelter has obvious cultural depth and is a good candidate for testing.

Lithic Artifacts

Artifact types include debitage, patterned chipped-stone tools, and ground stone. The debitage was produced from locally available material: coarse-grained quartzite (12), chert (7), basalt (4), fine-grained quartzite (3), and argillite (1). The assemblage contained simple flakes (10), complex flakes (10), shatter (6) and a biface-thinning flake. No cortex was observed on 59% of the debitage. Large cortical flakes represent 37% of the debitage and 4% are small cortical flakes. This reflects an emphasis on raw material reduction with all stages represented. Some of the materials were initially trimmed at the quarry and brought to the site in noncortical form. Once on site, these were manufactured into early-stage bifaces or used to produce flakes.

The chipped-stone tool classes are biface (2), utilized flake (1), and projectile point (1). Field Specimen 2 is a complete, unfinished biface made of heat-treated Brushy Basin chert. The second biface (FS 4) is the broken lateral edge from a finished obsidian tool. No use wear was noted. The utilized flake (FS 3) is a broken chert flake knife. It has visible use wear on both of its lateral edges. The projectile point (FS 1) was recovered from the edge of the erosional terrace at the northeastern site boundary. It is the base of a Hell Gap projectile made of fine-grained quartzite. There is distinct edge grinding and this tool evidently broke off at the haft. This type of point is associated with dates of 8000 to 7000 BC and indicates that the site may have had an occupation in the Plano period of the Paleoindian stage (Figure 6.2).

Table 4.44: Summary Description of Chipped-Stone Debitage for 5LA8656.

	Argillite	Chert	F. Quartzite	Hornfels/Basalt	Course-Quartzite	Total
Total	1	7	3	4	12	27
Large	1	4	1	2	7	15
Small	0	3	2	2	5	12
Cortical	0	2	1	3	5	11
Noncortical	1	5	2	1	7	16
Complex	0	3	1	1	5	10
Shatter	1	2	0	1	2	6
Simple	0	1	2	2	5	10
Biface-Thinning	0	1	0	0	0	1

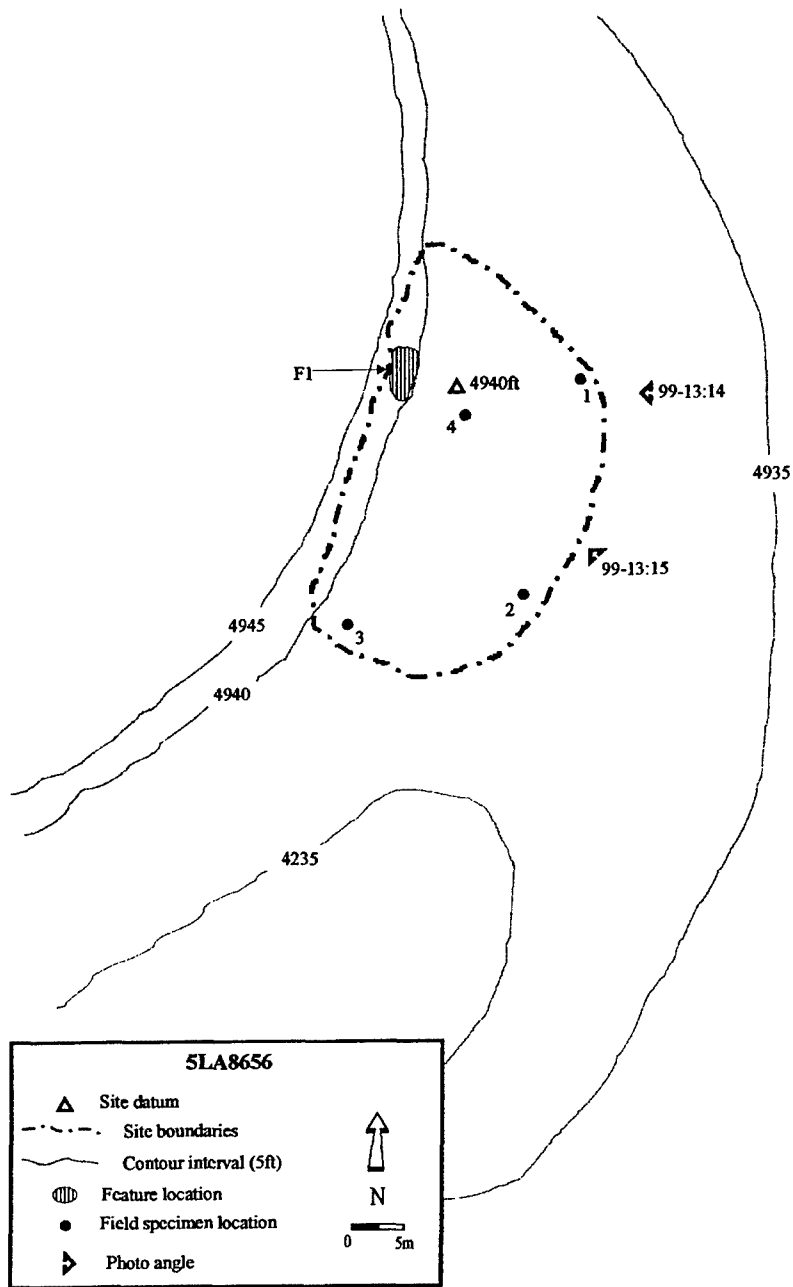


Figure 4.105: Site map, 5LA8656.

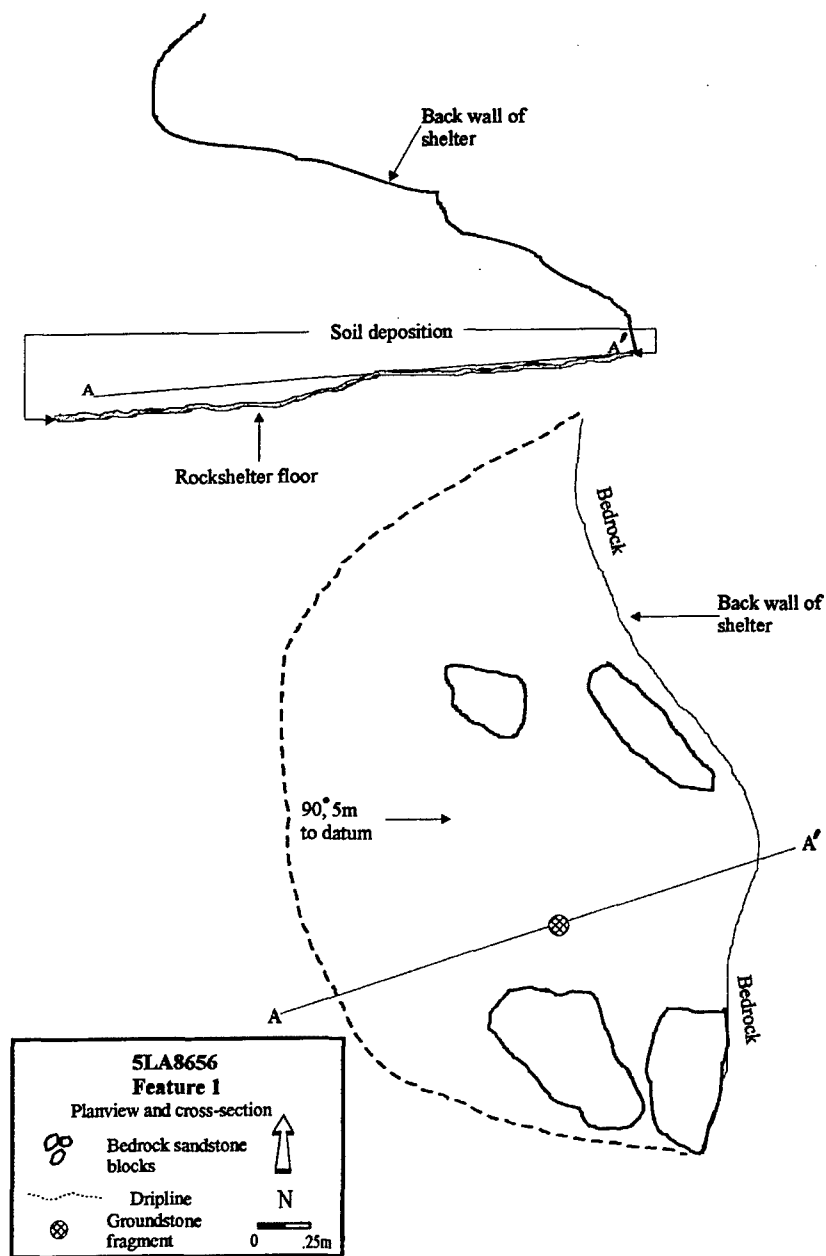


Figure 4.106: Planview, Feature 1, 5LA8656.

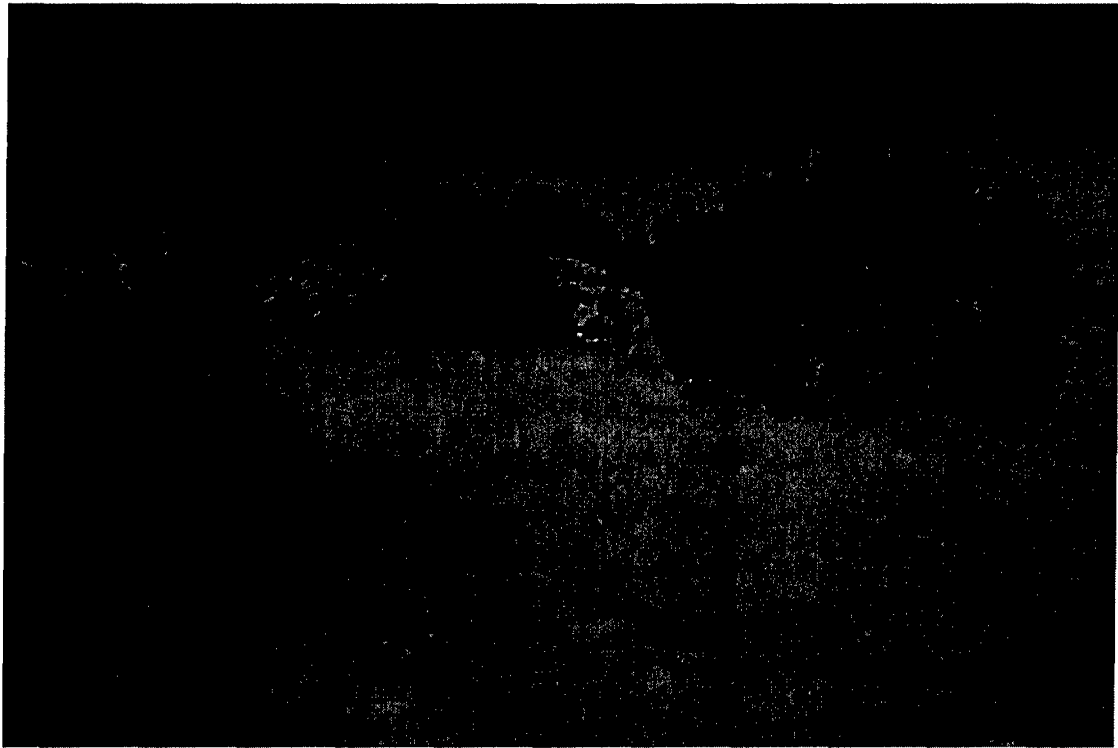


Figure 4.107: Site overview photograph (PCMS 99-13:15), 5LA8656.

Table 4.45: Stone Tool Type by Material Group for 5LA8656.

Material	Type				Total
	Projectile	Biface	Flake Tool	Mano	
Chert	0	1	0	0	1
Fine-grained Quartzite	1	0	0	0	1
Sandstone	0	0	0	1	1
Obsidian	0	1	1	0	2
Total	1	2	1	1	5

Interpretation and Summary

Site 5LA8656 contains a rockshelter and a lithic debris scatter of locally available materials. Found among the debris was the base of a Hell Gap point, which is also made of locally available quartzite. Paleoindian sites are relatively rare on the PCMS, and this site may provide important chronological information about this poorly known period of time. Though the site is small, there is potential cultural soil depth along the terrace edge and in Feature 1. Test excavations may reveal the presence of data such as pollen, macrobotanical, and/or faunal remains that could be useful for reconstructing paleoenvironment and subsistence patterns. In addition, Jemez Mountain obsidian was collected and this may contribute to an understanding of trade and exchange.

Based on the presence of a Plano Period projectile point and the probability of encountering intact subsurface deposits through test excavation, we recommend that this site be nominated for the National Register of Historic Places. Though there is heavy maneuver damage on the surface of this site, the rockshelter is in a protected location and is not in danger. Our management recommendation is sign and avoid.

5LA8658

The site is a rockshelter situated at the base of a large (approximately 10 m high) sandstone cliff located along the southern edge of the Lockwood Arroyo flood plain (Figure 4.108). There are no seeps in the shelter but seasonal water can be obtained in the arroyo bottom, which is 49 m north. The site datum was placed within the shelter at 1,518 m (4,980 ft) asl. The bottom of the shelter is roughly 15 m below the top of the cliff.

Vegetation on top of the outcropping and south of the site is juniper woodland. In front of the shelter and in the floodplain shrubs and grassland species were seen. Species observed include juniper, grama grasses, mountain mahogany, currant, tree cholla, and sagebrush. Soil depths are variable and tend to be shallow on the ridge top south of the site, and deep within the flood plain. Deposits seem to reach a minimum of 40 cm within the shelter itself.

Features

The shelter is rather large (9 m long, 5 m deep and 5 m high) and seems to be composed of four sections or activity areas (Figure 4.109). The first section measures approximately 5 x 2.5 m and is an enclosure formed by a single course of spaced sandstone blocks. It seems that a lean-to type structure was placed here and its hide covering was held in place on the ground in tipi fashion. The other sections are much smaller, section 2 measures 1.5 m in diameter, section 3 is 1.5 x 1 m, and section 4 measures 2.5 x 2m. There is also a single course of spaced stone slabs, but all appear to overlap at some point. These sections seem too small for habitation and are likely the remains for some type of storage feature. According to Kalasz (1989:109) these would classify as Class IV structures and would have been occupied sometime in the Developmental or Diversification periods. A large pack rat midden on the south side and a large area (2.5 x 1.5 m) of ashy soil are present in section 3. All of the lithic artifacts were recorded in or just outside of the shelter.

Lithic Artifacts

Only debitage and chipped-stone tools were encountered in the shelter (Table 4.46). Of the debitage, six items were quartzite, two items were basalt, two items were chert, and one was argillite. All of these materials are locally available and were reduced to produce seven complex flakes, three simple flakes, and a single piece of shatter. Six of the eleven specimens are noncortical and five have cortex; nine of these fall into the large size grade and two are small. All of the complex flakes are large suggesting biface manufacture did not occur here and all of the raw materials were reduced to produce flakes.

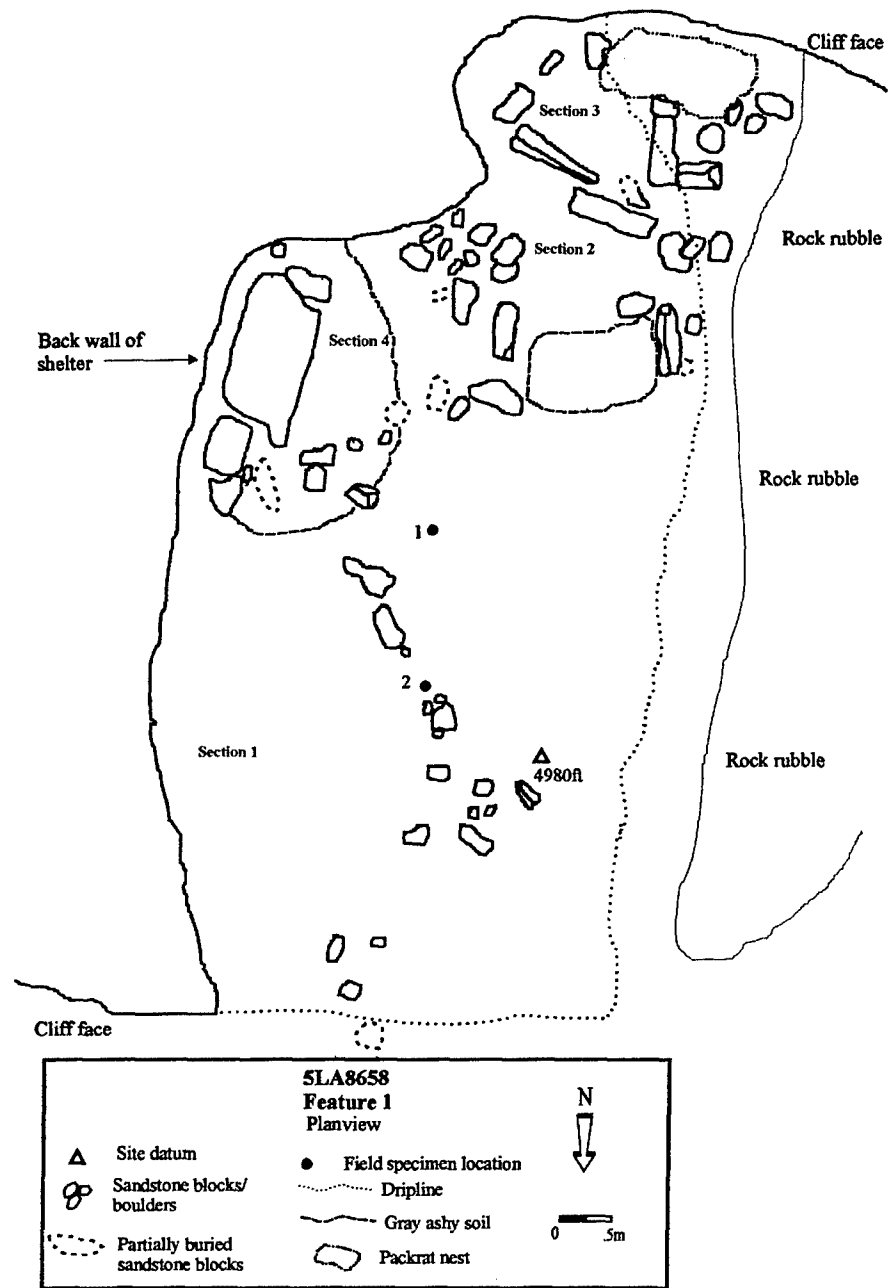


Figure 4.108: Site map and planview for Feature 1, a rockshelter, 5LA8658.

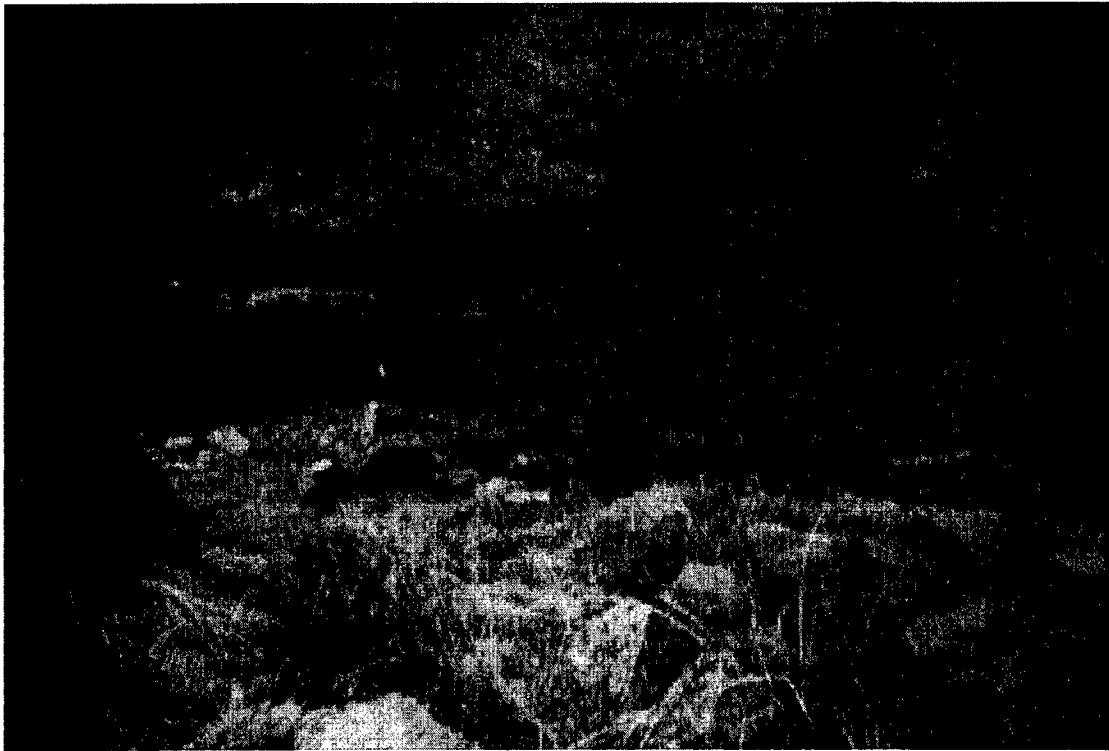


Figure 4.109: Site overview photograph with Feature 1 in the background, 5LA8658 (PCMS 99-13:20).

Table 4.46: Summary Description of Chipped-Stone Debitage for 5LA8658.

	Argillite	Chert	Hornfels/Basalt	Course Quartzite	Total
Total	1	2	2	6	11
Large	1	2	1	5	9
Small	0	0	1	1	2
Cortical	1	2	0	2	5
Noncortical	0	0	2	4	6
Complex	1	1	1	4	7
Shatter	0	1	0	0	1
Simple	0	0	1	2	3

A biface (FS 2) and an end-side scraper (FS 1) are the only recorded tools. The end/side scraper is made on a large blade flake of Hartville Uplift chert. It is broken and has heavy wear on both lateral margins and on the distal end. The biface is orthoquartzite, is very rough in outline, and was broken early in the manufacturing process. Since no orthoquartzite flakes were recorded in the debitage, it was likely manufactured at another location. No ground stone or time diagnostic artifacts were encountered; however, the scraper could represent an early occupation.

Interpretation and Summary

We recommend that this site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). The rockshelter contains at least 40 cm of soil deposition and there is good potential for buried deposits. It is likely that pollen, faunal, and macrobotanical remains useful in reconstructing subsistence and paleoenvironment will be recovered through excavation. Since section 2 contains an area of ash, there is a good probability that charcoal may be recovered for radiocarbon dating. The architectural elements contained within the shelter point to a Late Prehistoric (Developmental or Diversification period) occupation and though the original context of the scraping tools is unknown, its style and material type suggest another, earlier occupation.

Our management recommendation is to sign and avoid this site. Though there is much evidence for military impact outside the shelter the fill inside should remain undisturbed. Also, it is important to note that overbank deposits from Lockwood Arroyo have capped much of the fill as evidenced by partially buried architectural blocks.

5LA8671

The site consists of two rockshelters and a midden, with an associated lithic scatter. It is located at the head of a small dry drainage, 300 m north of Lockwood Canyon. The elevation at the datum is 1512 m (4960 ft asl), and the vegetative community is juniper woodland. Other plant species observed include wild grape, skunkbrush, yucca, mountain mahogany, sagebrush, grama grass, wheatgrass, and prickly pear. The soil is light-brown silty clay and varies in depth across the site, from 10 cm at the base of juniper trees to 45 cm in the area of the midden. Sandstone bedrock outcrops sporadically at the surface and ground visibility is good.

Features

The rockshelters (Features 1 and 2) were encountered on a ledge above the drainage, and a lithic concentration was noted on a terrace. The rockshelters are rather small; Feature 1 measures 4 x 2 m and Feature 2 measures 7.5 x 2 m. Both have secondary fill or exposed bedrock forming the floor so excavation potential is poor. A large ashy midden was noted at the mouth of both shelters but it is most distinct in front of Feature 1. A small erosional channel is washing away cultural deposits from the feature and two artifacts are exposed in the sidewall, an edge-ground cobble (FS 1) and a massive quartzite hoe/chopping tool (FS 2). Feature 3 is a small lithic concentration measuring 1.5 x 1.5 m. Debitage here consisted of 16 items of quartzite and likely represents a single reduction episode.

Lithic Artifacts

Only 17 pieces of chipped-stone debitage were encountered at the surface of the site; 16 are from Feature 3 and there is one general surface context item. All of the debitage resulted from the reduction of quartzite. Recorded classifications include seven simple flakes, seven pieces of shatter, and three complex flakes. Only four items are cortical though most (12) were classified as large items. These data suggest freehand percussion was used to generate the chipped-stone debitage. The lack of cortical items indicates that raw materials were initially reduced at the quarry and noncortical pieces of lithic material were then brought to the site for further reduction. There are only two small complex flakes so likely the reduction strategy here did not revolve around the production of a finished tool, rather raw materials were reduced to produce flakes.

No temporally diagnostic materials, such as projectile points or ceramics, were recovered and the only tools encountered at the site are those from the midden.



Figure 4.110: Site photograph, 5LA8671 (PCMS 99-20:20).

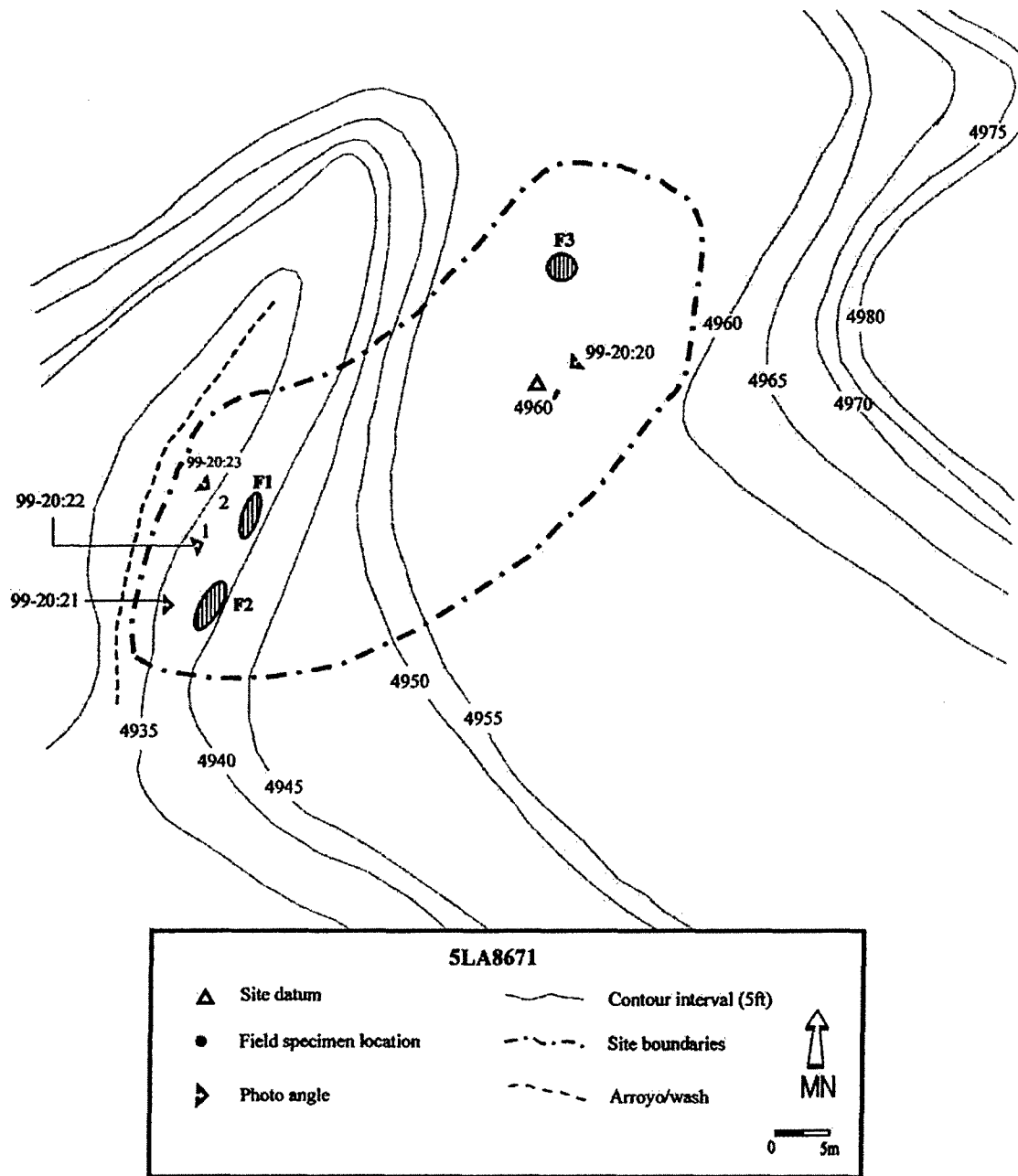


Figure 4.111: Site map, 5LA8671.

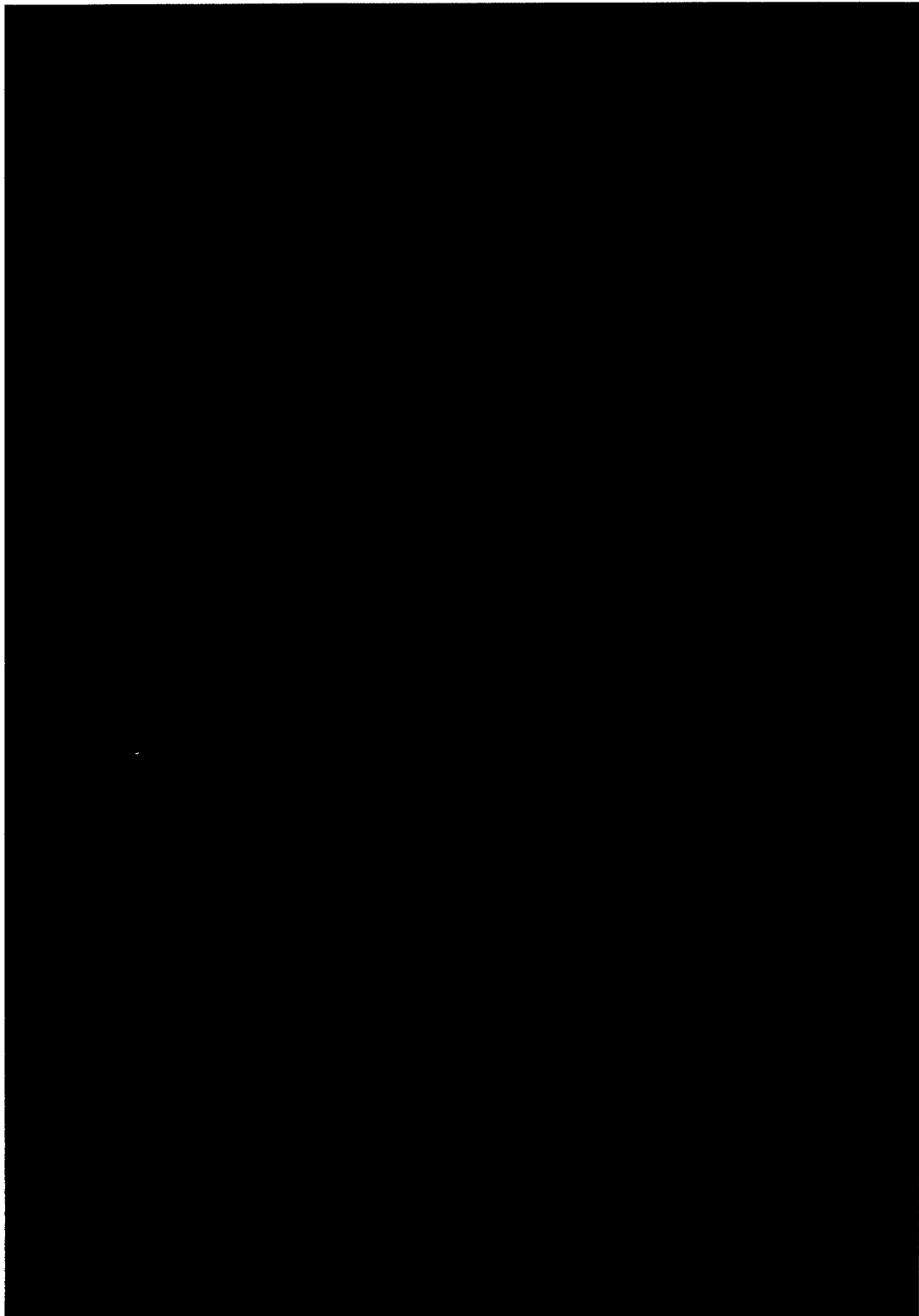


Figure 4.112: Photograph of midden in front of the rockshelters (PCMS 99-20:23)

Interpretation and Summary

We recommend that this site be determined eligible for the National Register on the grounds that the midden is likely to yield information important to our understanding of prehistory (Criterion D). Because few cultural remains were encountered at the surface of the site, testing could provide data to better understand its function. The ashy nature of the midden indicates that datable charcoal could be recovered to help date at least one occupation of the site. Typically middens contain faunal, pollen and macrobotanical remains that, if located through excavation, would aid in the reconstruction of subsistence patterns. Soil depths indicate potential for buried intact cultural deposits in other parts of the site. These areas should be tested to determine the presence or absence of cultural deposits.

An erosional channel is destroying the thermal feature and a data recovery plan must be developed before all available information is lost.

5LA8674

The site occupies the head of a dry drainage that empties into a side drainage of Lockwood Canyon (Figures 4.113, 4.114). The elevation at the datum is 1524m (5000 ft) asl., although the site varies from about 4940 ft in the drainage to 5020 ft at the eastern edge. Vegetation is juniper woodland plant community, with interspersed piñon pine. There is evidence of historic juniper logging, but no associated trash scatter or features were encountered. Rockshelters (Features 1 and 2) were encountered in the drainage, which also contains a wetland. The juniper trees are much taller here and there is a tall pine, possibly a Ponderosa, which is the only one of its kind in the area. The light-brown sandy loam soil has significant depth, ranging from 10 to 30 cm across the site. It contains sandstone gravels and a cryptogamic crust. Naturally occurring quartzite abounds on this site. Not surprisingly, quartzite artifacts dominate the lithic assemblage.

Features

Five features were located on 5LA8674. Features 1 and 2 are rockshelters that are adjacent to each other below the caprock. Feature 1 measures 6 x 3.5 m, and Feature 2 measures 4.5 x 3 m. Approximately 30 m west of the shelters is an ashy midden area (2 x 2 m) with exposed fire-cracked rock (Feature 3). There is considerable soil depth here and testing could provide datable charcoal, pollen, and macrobotanical remains. Feature 4 is a hearth that has been exposed along the bank of the drainage and datable carbon could be recovered for ¹⁴C dating from this 1 x 1 m feature (Figure 4.115). A concentration of lithic debris on the ridge above the shelters was designated Feature 5.

Lithic Artifacts

A sample of 150 pieces of debitage was examined (Table 4.47). This sample contained 75 simple flakes, 15 pieces of shatter, 59 complex flakes, and one bifacial thinning flake. Material types are overwhelmingly (95%) coarse-grained quartzite, with small amounts of chert (3%), fine-grained quartzite (1%), and argillite (< 1%). Only 17% of the assemblage had visible cortex, indicating that quartzite outcrops were extensively used through time. Many items (98) were assigned to the small size category, with only seven of these pieces exhibiting cortex. These numbers conflict with other primary quartzite reduction locations on the PCMS, where large pieces of lithic raw materials typically dominate the assemblage. The presence of a single biface-thinning flake and 26 small complex flakes indicate that some biface manufacturing did occur here.

One temporally diagnostic chert projectile point fragment (FS 5) was recovered at the northern edge of the site. It is similar to Anderson's (1989) P26 type. This style covers a broad time range: Late Archaic to the Developmental period (1000 BC to AD 500). The remaining chipped-stone tools consist of an unfinished chert biface (FS 2), a chert uniface (FS 3), and two utilized flakes of quartzite (FS 4 and 7). Two chert cores (FS 1 and 6) were also recorded. No ground-stone tools were encountered.

Table 4.47: Summary Description of Chipped-Stone Debitage for 5LA8674.

	Argillite	Chert	Fine-Grained Quartzite	Course-Grained Quartzite	Total
Total	1	5	2	142	150
Large	1	1	2	48	52
Small	0	4	0	94	98
Cortical	1	0	1	23	25
Noncortical	0	5	1	119	125
Complex	0	4	2	53	59
Shatter	0	0	0	15	15
Simple	1	1	0	73	75
Biface-Thinning	0	0	0	1	1

Interpretation and Summary

We recommend that this site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). The presence of rockshelters and thermal features suggests that the site is useful for addressing questions concerning settlement patterns. There is good potential for the presence of buried deposits in Features 3 and 4 and materials recovered here could be temporally diagnostic and help to date the components of the site.

We recommend data recovery for Feature 4. It is being destroyed by erosion and will be gone in only a short period of time.

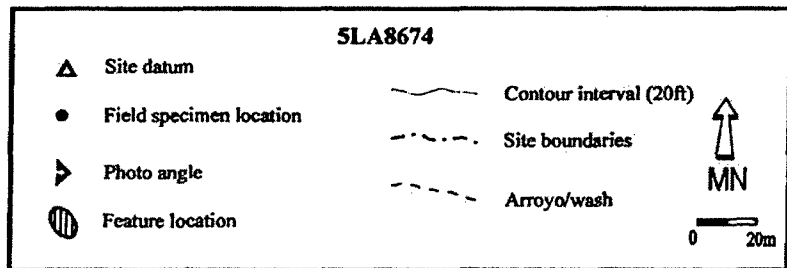
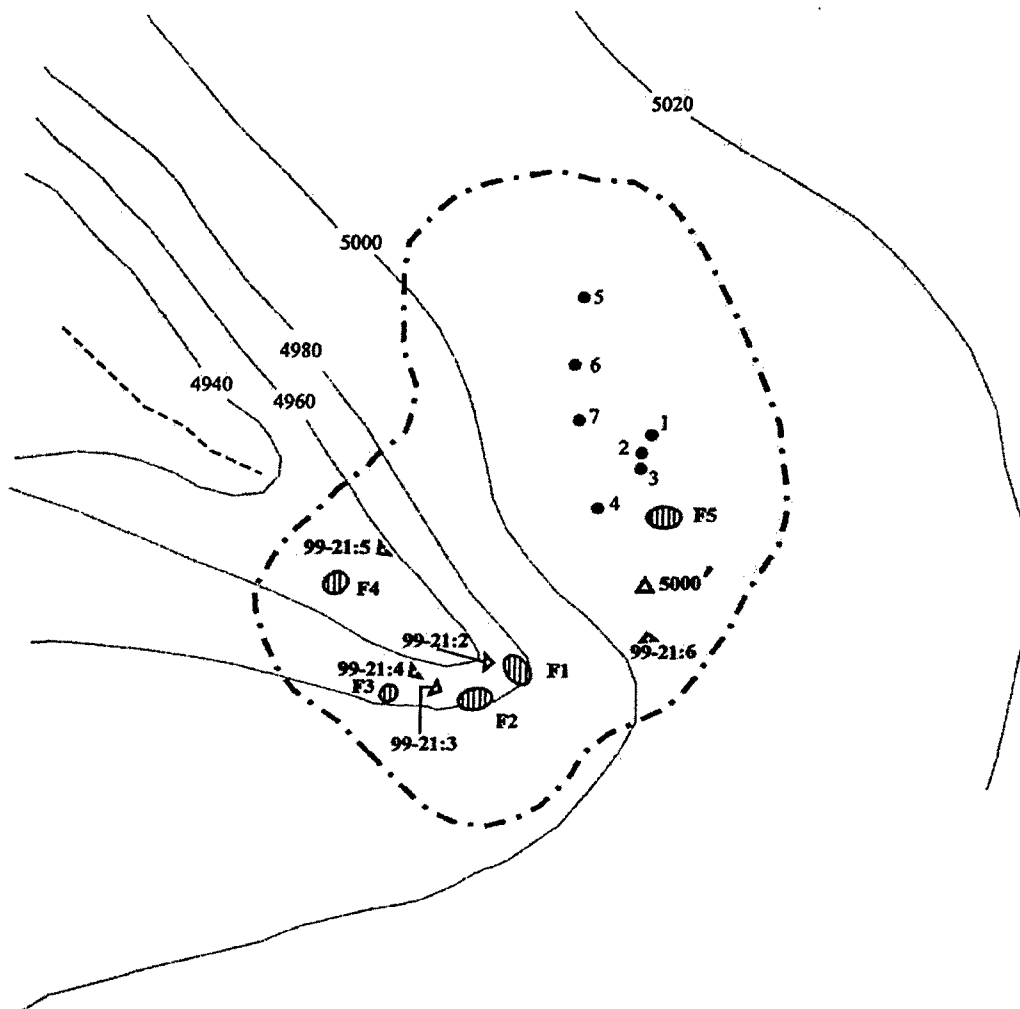


Figure 4.113: Site map, 5LA8674.

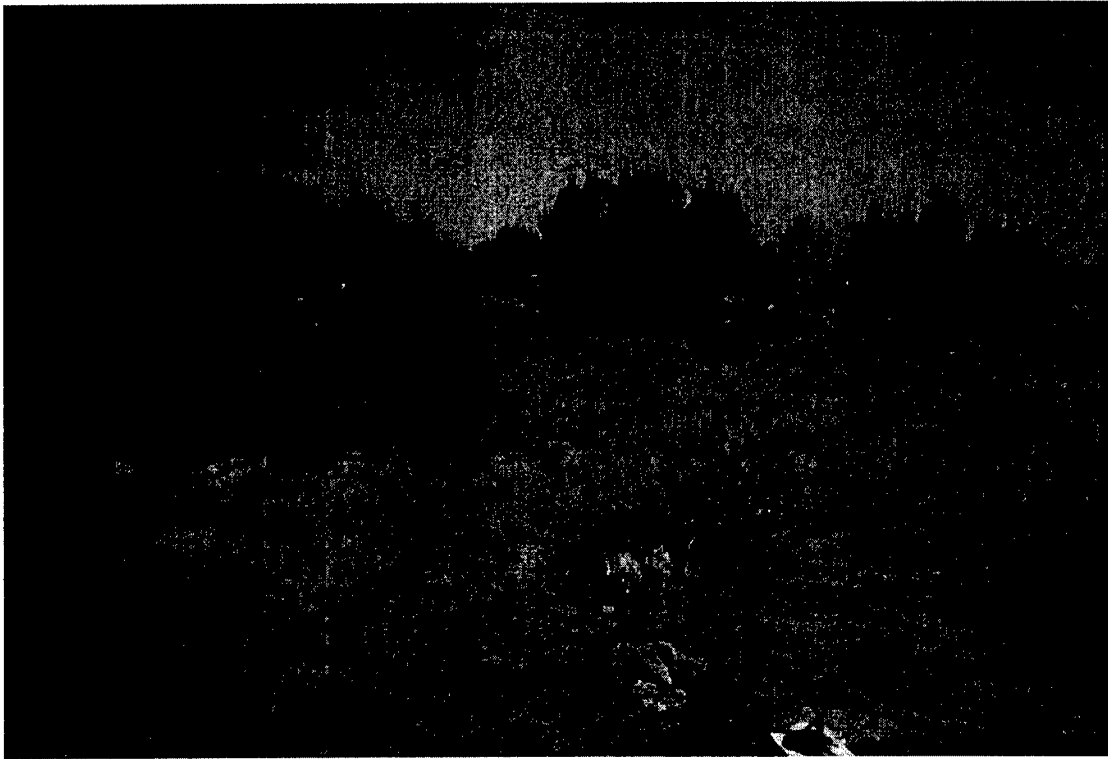


Figure 4.114: Site overview photograph, 5LA8674 (PCMS 99-21:6).

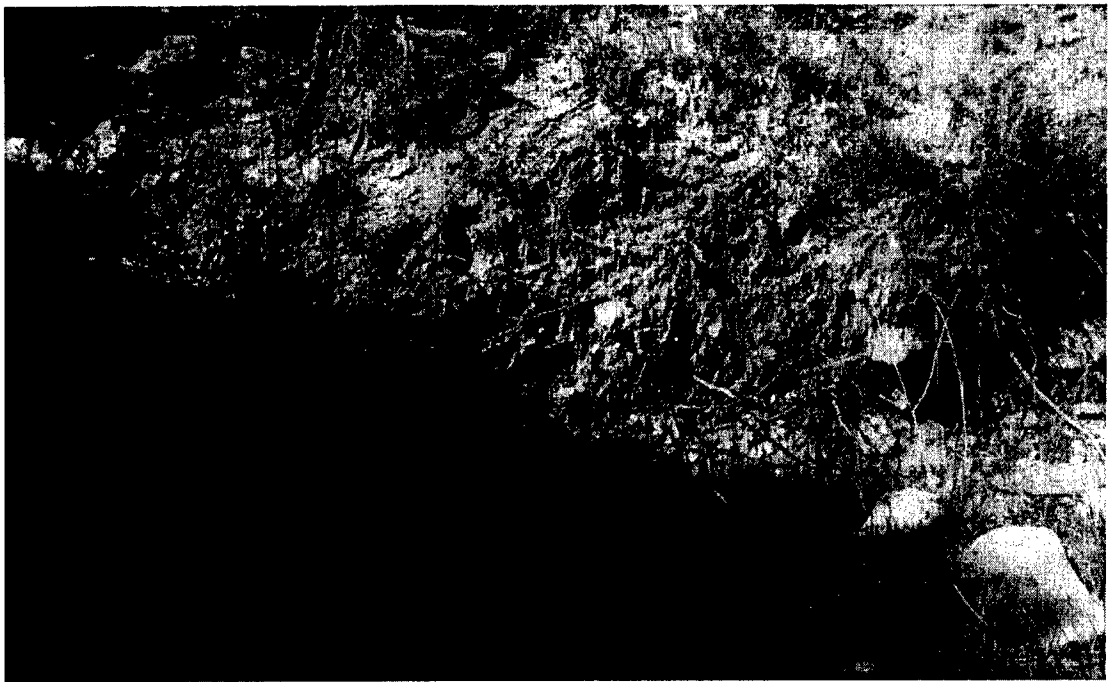


Figure 4.115: Feature 4, hearth eroding out of an erosional cut on site 5LA8674.

5LA8676

This lithic scatter and rockshelter site is located on a gently south-sloping terrace that is on the north side of Lockwood Canyon, 2.7 km southeast of Sharps Ranch (Figure 4.116, 4.117). The cliff edge forms the southern boundary and the other boundaries were determined by the extent of the lithic scatter at the surface. The site datum (1,518 m (4,980 ft) asl) was placed below a sandstone bedrock outcropping at the southern edge of the site. This exposed bedrock ridge rises approximately 4-6 m above the site datum.

On the surface of the northern part of the site, grassland is the dominant plant community. Here, both black and hairy grama is found in thick patches with some intermixed soapweed and sagebrush plants and juniper trees. As one proceeds down slope there are more juniper trees and the grass grades to sideoats grama.

The approximately 9.7-acre site consists of eight rockshelters, ceramics, manos, metates, debitage, and chipped-stone tools that include projectile points and biface diagnostics.

Features

Feature 1 (Figure 4.119) is a large rockshelter with a loose pile of unmodified sandstone slabs along its back wall. Its floor measures approximately 6 x 4.5 m and its floor to roof height is 1.6 m. A quartzite complex flake, a complete slab metate (FS 42), and a slab metate fragment (FS 43) was recorded on the floor. The soil here is ash stained, which may be the result of floor features starting to expose at the surface. A pinflag probe shows a minimum depth of 20 cm. There is also a thin shale layer at the back of the shelter and in times of greater moisture, this may actually form a seep.

Feature 2 (Figure 4.120) is a small shelter tucked under a large sandstone outcrop and has one large boulder forming its east side. It measures 3.5 x 2 x 1.6 m, and a log, or support post is eroding out of its floor. Like Feature 1, there are substantial (20 cm) ashy soil deposits on the floor of this overhang and small pieces of fire-cracked rock are intermixed in the fill.

Features 4 and 5 are sheltered areas between several large boulders (Figure 4.121). Feature 3 is a ceramic concentration that was found among boulders north of them. Feature 4 measures 4.5 x 1.5 m and Feature 5 is 4 x 1.5 m. There is some soil depth between the boulders (10 cm) but much has eroded away leaving sandstone gravel on the surface. Scattered debitage and an edge-ground cobble (FS 18) were recorded on the surface. A one-hand mano fragment (FS 17), and a slab metate fragment (FS 19) were found together on a low sandstone outcrop.

Feature 6 is another small shelter located to the south 4 m from Feature 4. It measures 4.5 x 2 x 2.5 m and a drill (FS 8) and biface (FS 23) were found near its drip line. The surface of this shelter is highly eroded and there is no excavation potential left.

Feature 7 is another shelter whose soil was scoured out by water erosion. It is large with a floor dimension of 6 x 5 m. The floor to ceiling measurement is 1.1 m. An edge-ground cobble fragment (FS 41) was found here.

Feature 8 (Figure 4.122) is the largest shelter (9.1 x 3.2 m) on the site. It is located on the east side of the site underneath a large sandstone outcropping. It has a floor to roof measurement of 1.7 m and there are several large and small roof fall blocks scattered on its floor. Water erosion has taken a heavy toll on this feature and all cultural deposits have been washed away.

Feature 9 (Figure 4.118, 4.123) is another shelter, formed by the overhangs of several large sandstone boulders. A loose pile of sandstone blocks was noted on the floor and may have been a wing wall at one point. There is no cultural deposition left here.

Lithic Artifacts

One hundred and six pieces of debitage were recorded at the site (Table 4.48). This sample area contained 46 complex flakes, 41 simple flakes, 18 pieces of shatter, and 1 bifacial thinning flake. These were 73% coarse-grained quartzite, 14% chert, 8% argillite, and 5% fine-grained quartzite. All the material types are locally available at the parent source outcrop in bed or nodule form. Overall, 42% of the assemblage has cortex. About half (53%) of the items were small in size, and the remainder were large. The percentage of small noncortical flakes (37%) is high in relation to most sites in the project area. This information, coupled with the presence of cores and bifaces in the tool assemblage, indicates there was a nearly equal emphasis placed on core reduction and biface tool manufacture at the site.

Though three projectile points were recovered from the surface of this site, only two could be classified in the Anderson (1989) system. The first point fragment (FS 1) is made of brown silicified wood and is similar to a P16. This style dates from the Middle to the Late Archaic Stage (3000 to 200 BC). The second projectile point (FS 2) is complete, made of chert, and is a P83. The assigned date range for a P83 point is AD 850 to AD 1650. Based on these artifacts, it seems that the site has at least two occupations, one in the Archaic period and one in the Late Prehistoric.

The remaining chipped-stone tools consist of five utilized flakes, three bifaces, three unifaces, a drill, and an end/side scraper. The cores are the same materials as the dominant debitage classes and include three specimens made of quartzite and one of chert.

The utilized flakes are chert (3), and coarse-grained quartzite (2). All are complete flakes; four have an acute edge and were used for cutting and one has a distinct scraping edge. The unifaces include two of fine-grained quartzite and one of chert. All were used for scraping.

Of the bifaces, two of the three specimens are complete. Two are coarse-grained quartzite and one is orthoquartzite; two are classified as nearly finished, and one is an unfinished biface. Both the orthoquartzite biface (FS 13) and one of the quartzite bifaces (FS 23) are preforms for very large projectile points and these likely are associated with the Archaic occupation of the site.

A chert drill fragment (FS 8) and an orthoquartzite end/side scraper (FS 12) were also collected.

All of the ground-stone tools are sandstone and include nine slab metate fragments, two complete manos, two complete edge-ground cobbles, an edge-ground cobble fragment, a complete slab metate, and a mano fragment. Ten items have been heat treated.

Table 4.48: Summary Description of Chipped-Stone Debitage for 5LA8676.

	Argillite	Chert	Fine Quartzite	Course Quartzite	Total
Total	9	15	5	77	106
Large	4	1	2	43	50
Small	5	14	3	34	56
Cortical	2	6	3	34	45
Noncortical	7	9	2	43	61
Complex	5	5	1	35	46
Shatter	3	5	2	8	18
Simple	1	4	2	34	41
Biface-Trinning	0	1	0	0	1

Table 4.49: Stone Tool Type by Material Group for 5LA8676.

Material	Biface	Core	Projectile	Drill and Scraper	Flake Tool	Mano	Metate	Total
Chert	0	1	1	1	4	0	0	7
Coarse-grained Quartzite	2	3	0	0	2	0	0	7
Fine-grained Quartzite	0	0	1	0	2	0	0	3
Sandstone	0	0	0	0	0	6	10	16
Orthoquartzite	1	0	0	1	0	0	0	2
Silicified Wood	0	0	1	0	0	0	0	1
Total	3	4	3	2	8	6	10	36

Ceramic Artifacts

Two mass-modeled and simple stamped body sherds (FS 3 and 4) were designated Feature 3 as they were found together and could be the upper portion of a vessel that is starting to expose at the surface. The material is non-mica bearing clay with grit temper and the form is a conoidal bottomed vessel with high round shoulders and a constricted mouth (Appendix IV).

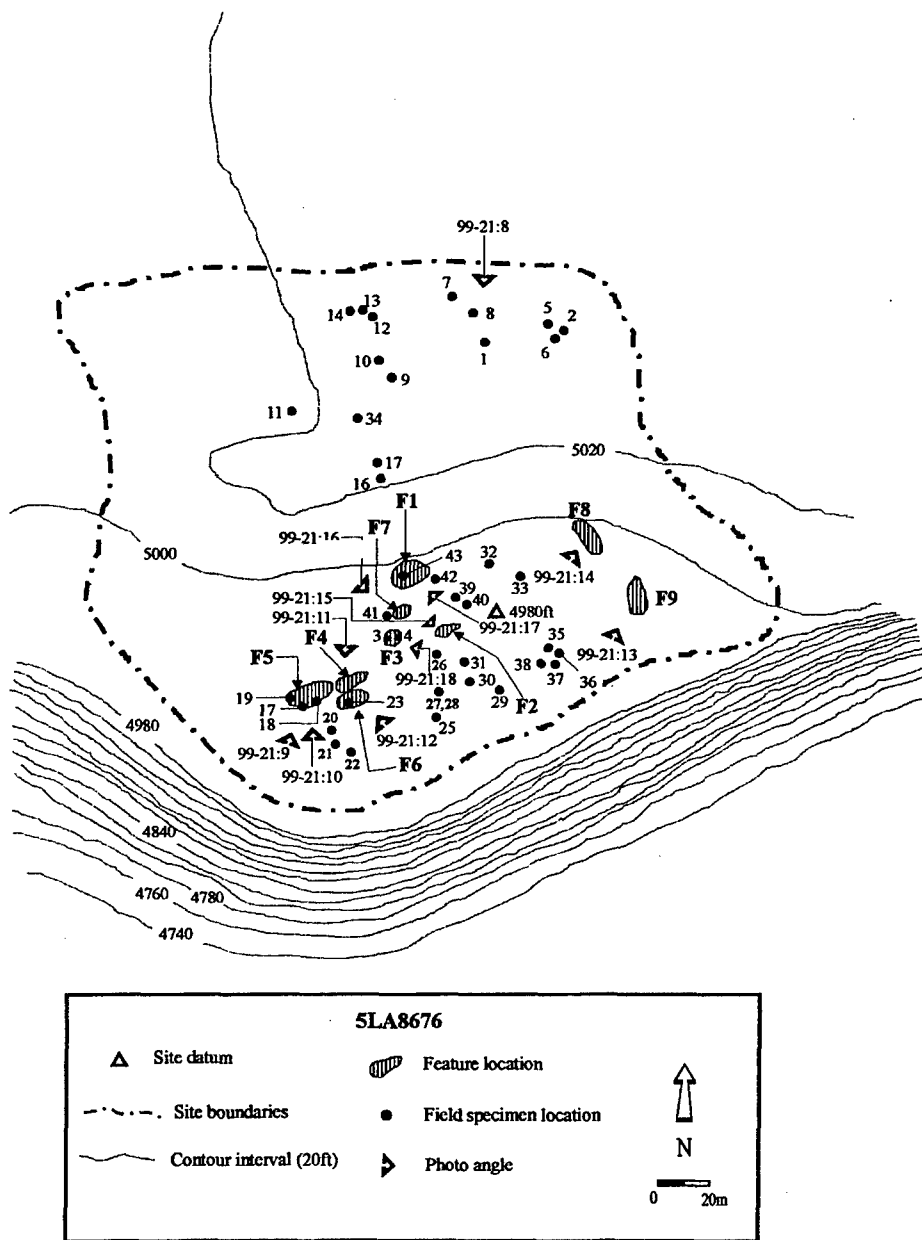


Figure 4.116: Site map, 5LA8676.



Figure 4117: Site overview photograph, 5LA8676 (PCMS 99-21:8).

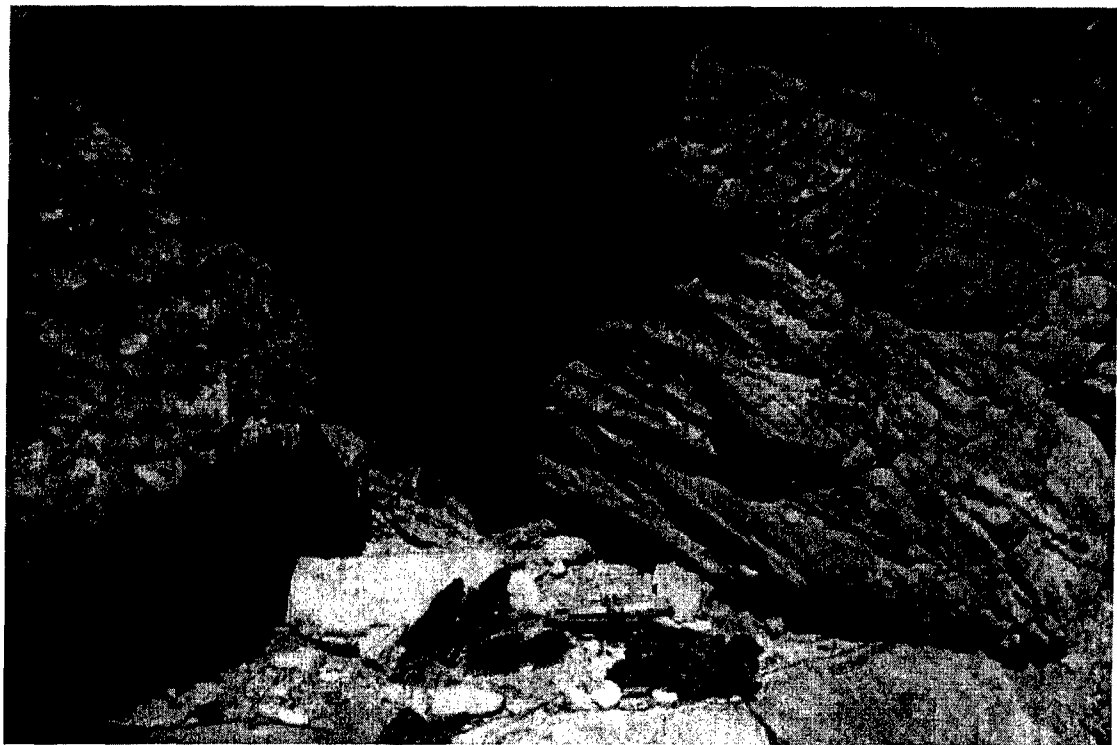


Figure 4.118: Feature 9, rockshelter, 5LA8676 (PCMS 99-21:13).

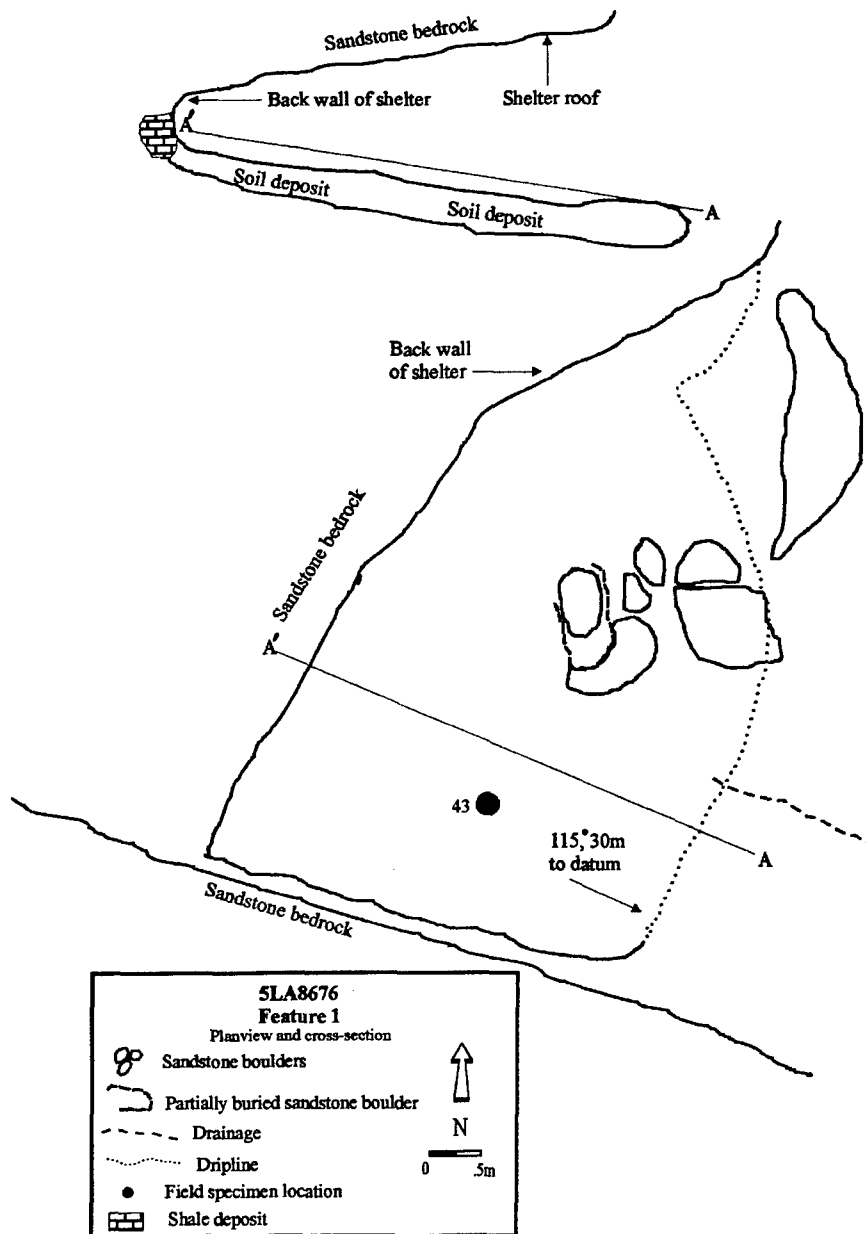


Figure 4.119: Planview, Feature 1, 5LA8676

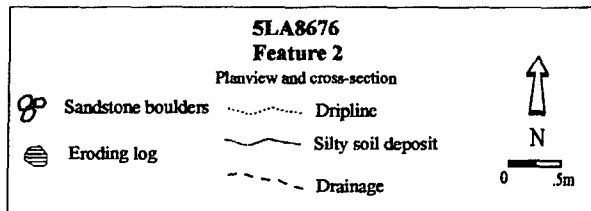
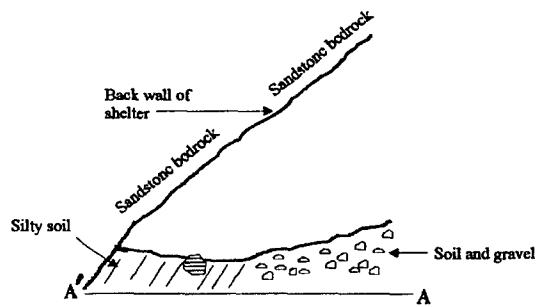
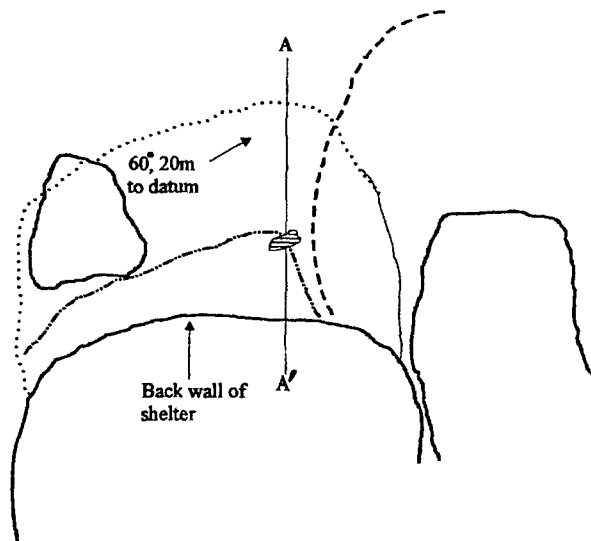


Figure 4.120: Planview, Feature 2, 5LA8676.

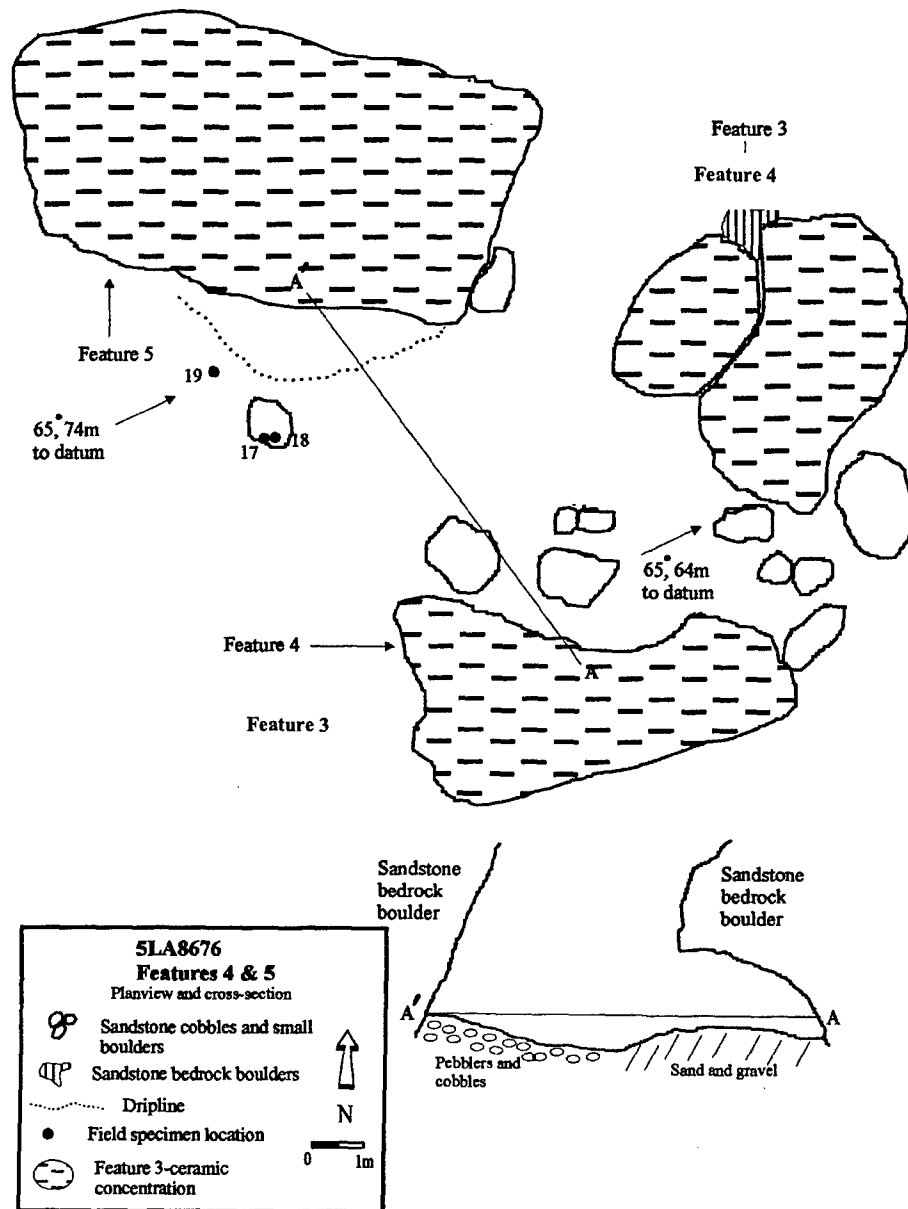


Figure 4.121: Planview, Features 4 and 5, 5LA8676.

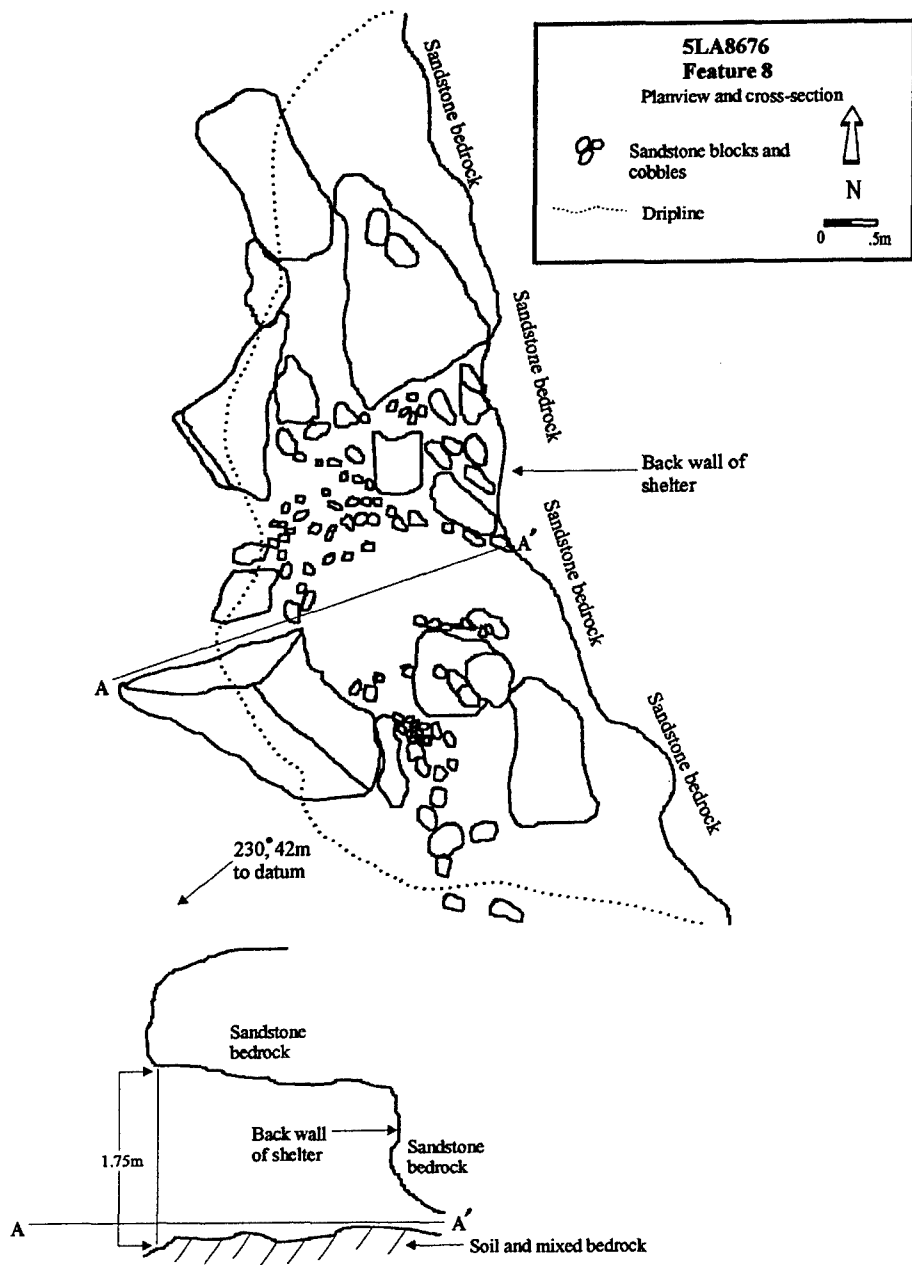
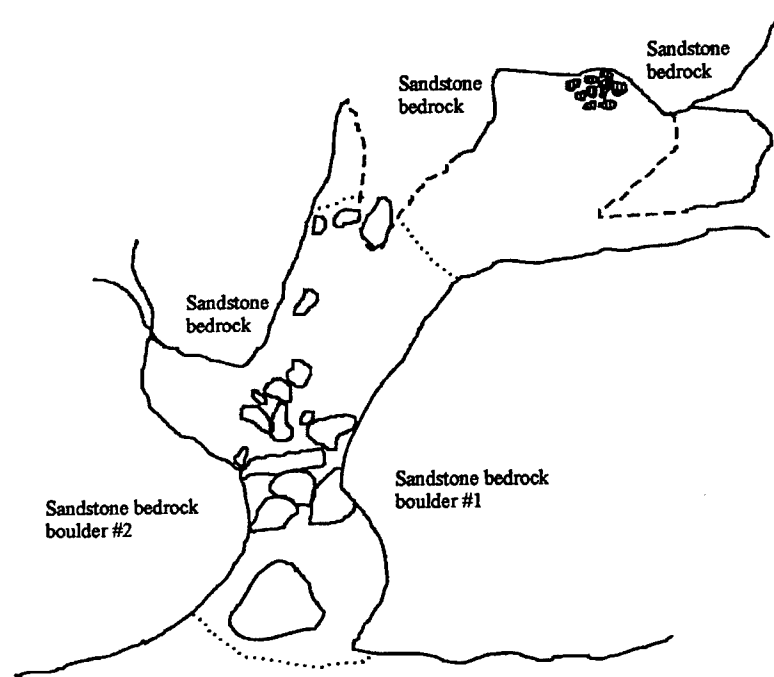


Figure 4.122: Planview, Feature 8, 5LA8676.



← 260° 50m
to datum

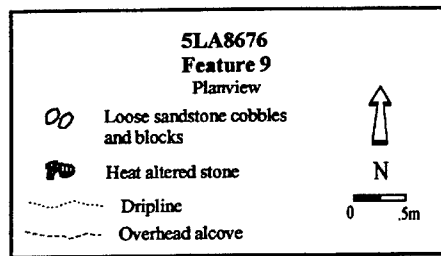


Figure 4.123: Planview, Feature 9, 5LA8676.

Interpretation and Summary

We recommend this site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). Site 5LA8676 is a lithic scatter and rockshelter site with a high ground-stone count and areas of high artifact density. The density of ground stone around the shelters indicates that plant processing was carried out chiefly at the southern end of the site. Some soil deposits of up to approximately 20 cm are still in the preserved in Features 1, 2, 4, and 5 and they indicate a good probability of finding intact cultural deposits that would include pollen and macrobotanical remains. Test excavations here could also yield important data for the reconstruction of subsistence patterns and/or paleoenvironment. The presence of potentially diagnostic artifacts indicates that test excavations may yield some additional chronological information. All of the shelters are protected from military maneuvers so the site warrants no further consideration.

5LA8678

This site is a lithic scatter and rockshelter site located on the northern terrace of Lockwood Canyon. For the most part, the site sits on the slope and bottom of a small side canyon with the northern part of the site on a relatively flat landform. A small drainage nearly bisects the site, and another is located just south of the datum. The site covers an area of approximately 6 acres and has a somewhat high density of lithic debris and patterned tools just north of the datum (Figures 4.124, 4.125). The site datum sits at an elevation of 1,524 m (5,000 ft) asl. Much topographic relief is present, with the eastern part of the site approximately 19 m lower than the western part.

Juniper woodland is the vegetative community that dominates the site and the canyon edge in general. Besides juniper, skunkbrush, sideoats grama, sagebrush, needle-and-thread grass, and cholla were seen growing on the site. Soil deposition at the site varies considerably, with depths of up to 20 cm recorded at the northern and western margins of the site.

Features

Four features were identified during recording procedures. Feature 1 is a rockshelter located just west of the drainage bottom (Figure 4.126). It measures 1.75 x 6.5 m, contains at least 20 cm of intact fill, and has several artifacts on its floor and outside the dripline. There are no surface indications of internal features, but with significant soil depth, it seems likely that they can be found in buried context. Feature 2 is another rockshelter located above the confluence of two intermittent side drainages that feed Lockwood Canyon. The slope leading down from the shelter is littered with metates, both complete specimens and fragments. Feature 2 is slightly larger than the other shelter (6 x 2.75 m). The remaining features are both deflated hearths; Feature 3 is on the east edge of the site near the drainage and Feature 4 is on the hill slope at the western edge of the site. Both are little more than scattered piles of fire-cracked rock and have no potential for further information.

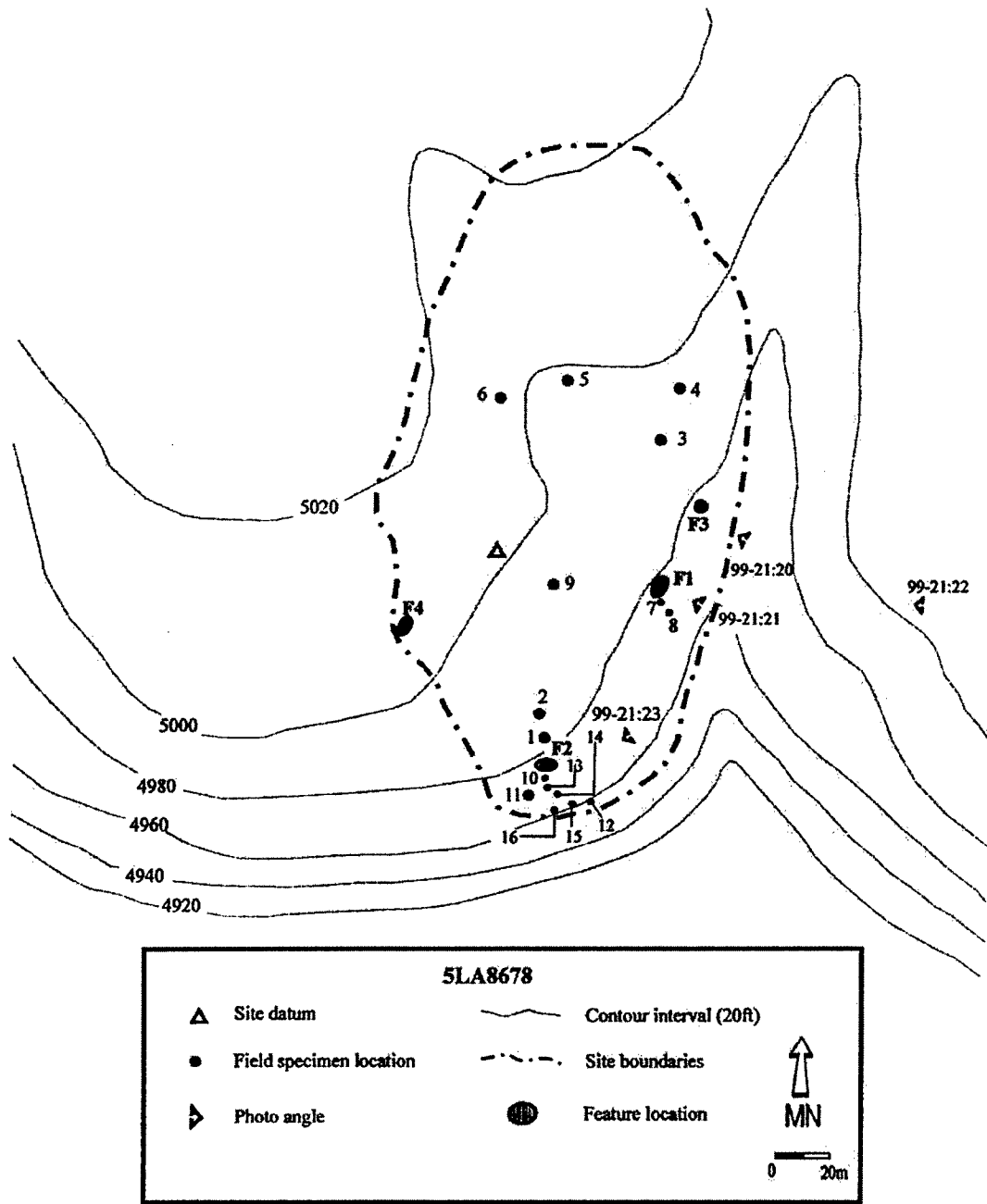


Figure 4.124: Site map, 5LA8678.

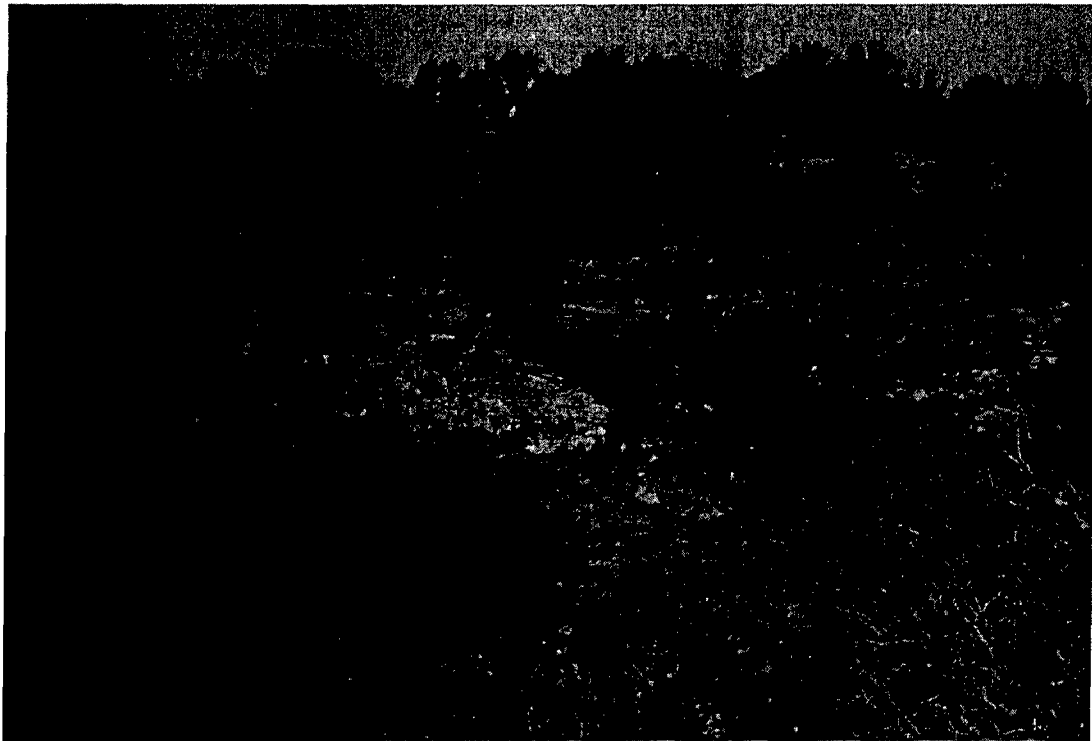


Figure 4.125: Site overview, 5LA8678. PCMS 99-21:22.

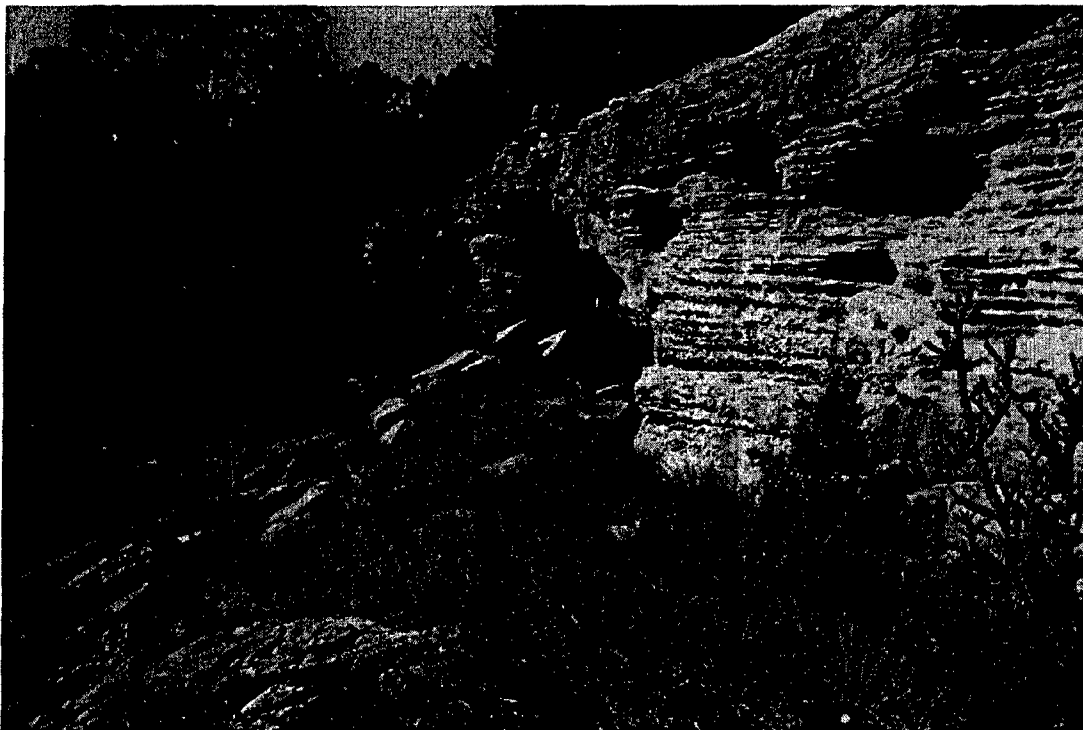


Figure 4.126: Feature 1, rockshelter, 5LA8678 (PCMS 99-21:21).

Lithic Artifacts

The surface artifact assemblage consists of 50 pieces of debitage: 27 simple flakes, 21 complex flakes, and two pieces of shatter. Two materials are present, with quartzite comprising 48 items and chert 2 items. Of the quartzite, 56% are large cortical items, 29% are large noncortical items, 10% are small noncortical items, and 4% are small cortical items. The above data suggests an emphasis on freehand percussion for the reduction of the materials. There are only two small complex flakes so biface and tool manufacture did not occur on the site.

Six quartzite cores, two utilized flakes of quartzite, and one chert projectile point (FS 3) comprise the chipped-stone tool assemblage. Though many of these were encountered at the northern edge of the site, they are quite scattered in location. Using Anderson's (1989) classification system, the point would be classified as a P62. This type of point is associated with dates ranging from AD 500 to AD 1400.

No manos were encountered in the ground-stone items though seven slab metates in various stages of completion were recorded. All of the slab metates are sandstone and many of these were found in the vicinity of Feature 2.

Interpretation and Summary

We recommend that this site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). The presence of rockshelters suggests that the site is useful for addressing questions concerning settlement patterns. There is good potential for the presence of buried deposits in Rockshelter 1. The ground stone near Feature 2 indicates the likelihood that pollen, faunal, and macrobotanical remains useful in reconstructing subsistence and paleoenvironment will be recovered through the excavation of test units.

We suggest that the site be revisited for more detailed mapping and a more thorough surface collection. Areas where there is a good potential for locating subsurface cultural deposits should be noted and tested to determine their presence or absence. Testing should be carried out in and around Rockshelter 1. The site is not in danger from military maneuvers so our management recommendation is to avoid and test.

5LA8681

Site 5LA8681 is located in the southern portion of Training Area 10 on the south side of Red Rock Canyon, in the juniper woodlands at the top of a southern side drainage. This large lithic scatter, rockshelter and tipi ring site sits on a gently sloping south to north trending ridge and is bordered on the east and west by two large unnamed drainages. The south side of this 15.5-acre site is relatively flat and the only real contour change is on the northeast side of the site near the rockshelters. Areas of sandstone bedrock are exposed along the drainage. Moderate wind and water erosion has disturbed the site area, down-cutting the silty loam soils. Soil depths

vary across the site, but in some areas greater than 30 cm was observed. The site is located in a transitional zone between open prairie and a juniper forest with intermittent mountain mahogany bushes. A wide variety of vegetation was observed, including cholla, soapweed, prickly pear, sagebrush, and grama grasses.

Features

Six features were recorded at the site and include two stone rings, two rockshelters, and two deflated hearths. From the map (Figure 4.127, 4.129) we can see that the stone rings (Features 3 and 4) are found in the flats, the shelters (Features 1 and 2) are found along the rocky cliff at the northeast edge of the site, and the hearths (Features 5 and 6) were found in the flats at the same contour as the rings. Both tipi rings are found singly with no intermixing of rocks or walls and each is made of a single course of stones. Both rockshelters were found together along the canyon edge, have more than 30 cm of deposition, and have outside activity areas based on the high number of tools outside their driplines. The hearths are partially deflated; however, each has enough depth (5 to 10 cm) to contain charcoal.

Lithic Artifacts

Table 4.50 presents a summary of the 150 chipped-stone debitage items recorded at the site. Five material types were noted. Of the total debitage, the overwhelming majority is coarse-grained quartzite (71%). The remaining 29% percent of the materials are chert (13%), argillite (8%), fine-grained quartzite (5%), and basalt (3%). All materials are locally available and can be found outcropping in Red Rock Canyon 850 m north of the site.

The debitage consisted of 66 simple flakes, 72 complex flakes, and 12 pieces of shatter. The assemblage mainly consists of large (35%) and small noncortical debitage (33%). Cortex was present on only 31 of the simple flakes, 14 of the complex flakes, and three of the shatter specimens. Overall, 57% of the debitage was classified as large, and 43% is small. With cortex present on 11% of the small flakes and 22% of the large flakes, it appears that the site functioned chiefly as a secondary raw material reduction and early- to late-stage biface manufacture location, with most of the materials brought to the site as prepared cores or early-stage bifaces. The high count of flake tools on site, coupled with the apparent emphasis on secondary core reduction, suggests that expedient flake tool technology was in use. The lack of biface-thinning flakes and the presence of small complex flakes (23) indicate that late stage biface tool manufacture was performed elsewhere.

Two projectile points were recovered from the surface of the site, though only one is complete enough to be typed. This broken basalt specimen (FS 1) was found just outside of Feature 1 and conforms to Anderson's P59 Type. This type has associated dates between AD 500 to AD 1200 and indicates the shelter was used at least once during either the Developmental or Diversification period.

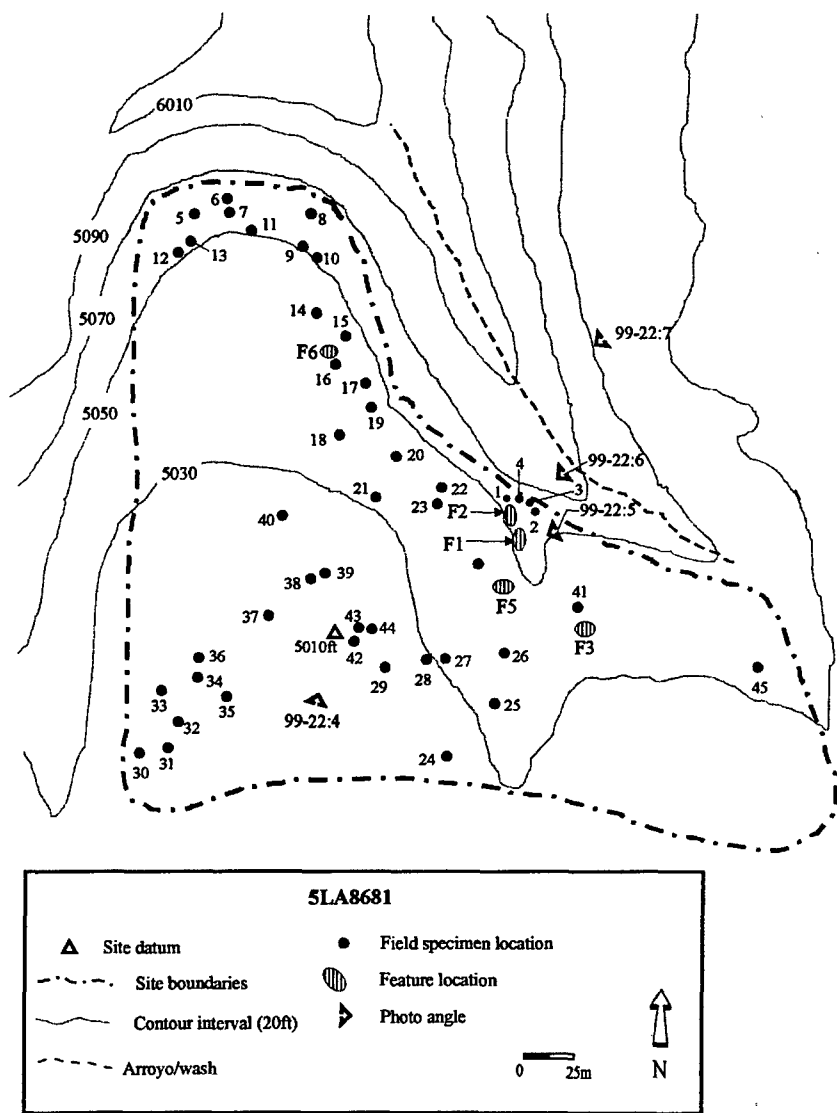


Figure 4.127: Site map, 5LA8681.

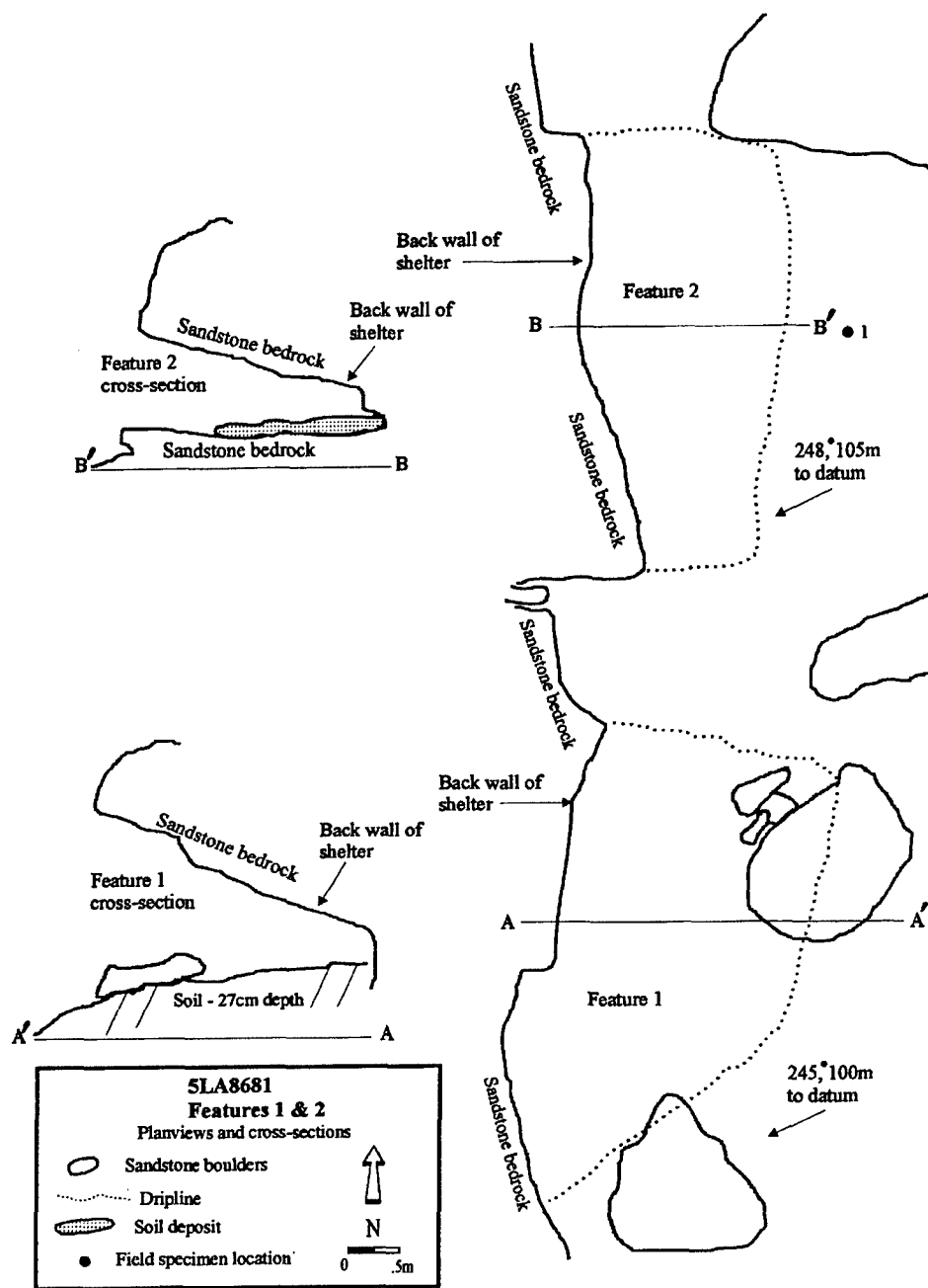


Figure 4.128: Planview maps and cross-sections of Features 1 and 2, 5LA8681.



Figure 4.129: Site overview photograph (PCMS 99-22: 4) with datum center frame.

The remaining chipped-stone tools consist of twenty-six artifacts, of which thirteen are utilized flakes, six are cores, three are bifaces, three are unifaces, and one is a spokeshave tool. Material types noted for the bifaces are chert (2) and orthoquartzite (1). Of these, FS 22 apparently shattered during heat treatment and FS 25 is a broken and burned knife fragment. Within the flake tool category there were thirteen utilized flakes and three unifaces. Thirteen of these were complete and three were broken. Edge angle analysis reveals that twelve items were used for scraping purposes and three were flake knives. One flake tool was freshly resharpened and showed no use wear. Field specimens 14 and 40 show some patination and Field Specimen 6 is a utilized edge on a large secondary (flake) core. The spokeshave (FS 32) is made of heat-treated chert, is broken, and has heavy wear on both lateral edges.

Seven metate fragments, six mano fragments, and a complete one-hand mano comprise the ground stone assemblage. In addition, no pottery fragments or jewelry items were encountered on site.

Table 4.50: Summary Description of Chipped-Stone Debitage for 5LA8681.

	Argillite	Chert	Fine Quartzite	Hornfels/Basalt	Course Quartzite	Total
Total	12	20	7	4	107	150
Large	5	1	4	3	72	85
Small	7	19	3	1	35	65
Cortical	2	5	3	1	38	49
Noncortical	10	15	4	3	69	101
Complex	6	11	6	2	47	72
Shatter	3	3	0	1	5	12
Simple	3	6	1	1	55	66

Table 4.51: Stone Tool Type by Material Group for 5LA8681.

Material	Type							Total
	Biface	Core	Projectile	Spokeshave	Flake Tool	Mano	Metate	
Argillite	0	0	0	0	2	0	0	2
Chalcedony	0	0	0	0	0	0	0	0
Chert	2	1	1	1	1	0	0	6
Coarse-grained Quartzite	0	3	0	0	1	0	0	4
Fine-grained Quartzite	0	0	0	0	9	0	0	9
Sandstone	0	0	0	0	0	6	7	13
Hornfels/Basalt	0	1	1	0	0	1	0	3
Orthoquartzite	1	0	0	0	3	0	0	4
Silicified Wood	0	1	0	0	0	0	0	1
Total	3	6	2	1	16	7	7	42

Interpretation and Summary

We recommend that this site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). The significance of this site is in the buried deposits found in hearths and rockshelters. These could provide data to help date occupations at this site because the one temporal date from the surface point (FS 1) likely does not represent the age of the tipi rings.

We recommend data recovery for both of the hearths. Not only are they being destroyed by erosion, but also military maneuvers are moderately impacting the area where they exist. Both of the tipi rings are undisturbed by mechanized vehicles; however, at one time there were likely more of these types of structures on the site and they have been destroyed in the recent past by vehicle traffic. The fill within the rockshelters is protected and no further work is needed for these features.

5LA8689

Site 5LA8689 is located in Training Area 10 on the south side of Red Rock Canyon, in the flat grasslands above the uppermost terrace (Figures 4.130, 4.131). This large lithic scatter and tipi ring complex is bordered on the north by a large, bowl-shaped erosional feature and to the east by an unnamed drainage. The Red Rocks Ranch complex is 373 m northeast and the power line that provides electricity to this facility bisects the site. The west side of this 5.2 acre site slopes gradually to the west and the terrain here and along the north edge of the site consists of several small terraces formed by resistant sandstone outcroppings. Considerable sheetwash erosion has impacted the north edge of the site, leaving gravelly to silty soils. Soil depths vary across the site, but the southern edge shows at least 25 cm. The site is located in a transitional zone between open prairie and intermittent juniper woodland. A wide variety of vegetation was observed, including cholla, soapweed, prickly pear, wax currant, skunkbrush, the grama grasses, sand dropseed, muhley, threecawn, and bluestem.

Features

Six tipi rings were recorded at the site and include two complete stone rings and four partial stone rings. All of these features conform to Kalasz's (1989) Class IV, which are freestanding, full- to partial-enclosure, isolated units with spaced rock walls. Kalasz (1989:109) indicates two dates for this type of structure (AD 780 and AD 1350). This is a wide variation in dates and either could very well miss the precise date for this occupation. There is no real camp arrangement in planview and rings were only located in fairly exposed areas. Features 1 and 2 cluster together on a small terrace at the northern edge of the site, and Features 3 and 4 were found together at the edge of an erosional feature. All features were found singly with no intermixing of rocks or walls; estimated diameters range from 3.2 to 6.2 m. All of the rings are a single course of stones; Features 1, 2, and 5 have deflated down to bedrock and the other rings have at least 5 cm of embedded rock depth. Secondary deposition covers the southern part of the site and it seems likely that additional stones and possibly thermal features can be found here. This is supported by the fact that Features 3 and 4 were found along the deposition boundary and are almost completely buried. Site 5LA8690 also contained spaced stone circles and is 60 m east of this site and across the drainage. These likely represent a single occupation, but erosion in the drainage wiped out cultural materials that would have connected them.

Lithic Artifacts

One hundred thirty-nine debitage specimens were sampled from the surface of the site. An additional 21 were recorded from in and around Feature 4. The overall debitage assemblage (n=160) consists of 103 simple flakes, 37 complex flakes, 12 pieces of angular shatter, and 8 biface-thinning flakes. The material types are 59% coarse-grained quartzite, 26% fine-grained quartzite, 8% chert, 4% basalt, 2% argillite, and 1% chalcedony. The presence of cortex on 29 percent of the specimens indicates that most of the materials were reduced at the source (Red Rock Canyon below), with only a small amount of material brought to the site in cobble or nodule form. All materials are locally available and can be found in various quantities in the canyons of the PCMS, and the igneous sources along the hogback.

Like many reduction sites in the area, most of the items (59%) were large. The percentages of small noncortical flakes (34%), biface-thinning flakes (5%) and small complex flakes (6%) show that a small amount of early- to late-stage biface reduction occurred on site. The dominant reduction strategy could have revolved around raw material procurement to produce flake tools; however, only one utilized flake was recorded in the tool sample. Also of note, only one unfinished biface was recorded. A distinct selection preference is seen in the debitage for high fracture toughness material (coarse-grained quartzite), and typically, it is tough to find use wear on these materials. It is possible that in our field analysis utilized flakes from this material were just not recognized.

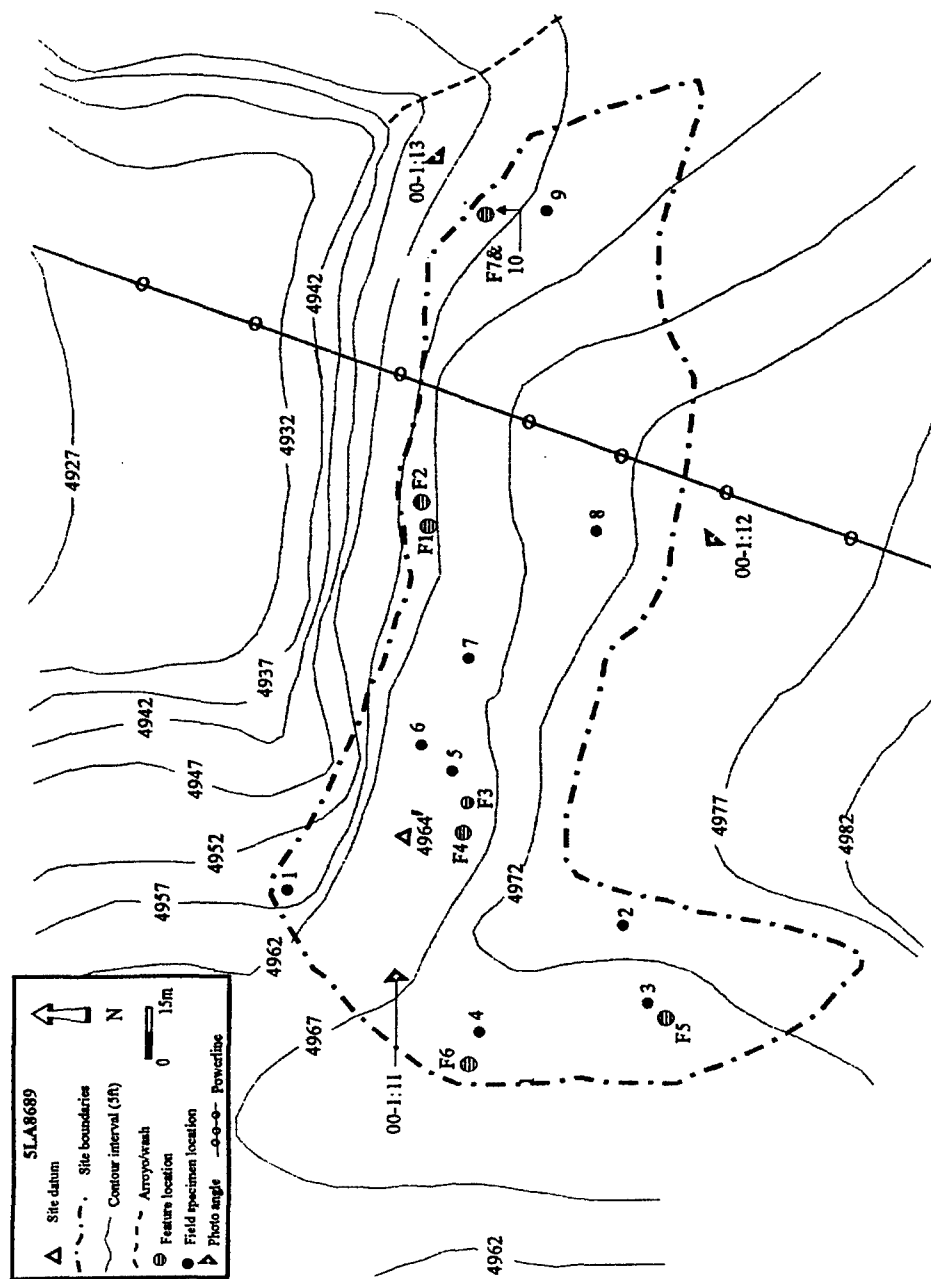


Figure 4.130: Site map, 5LA8689.

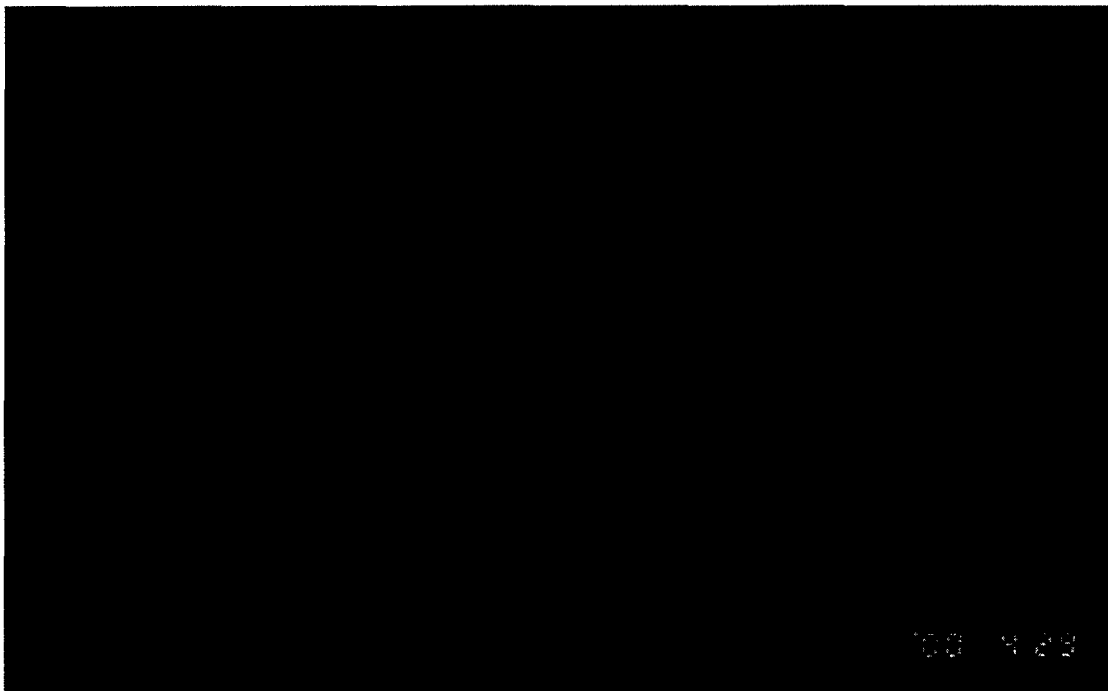


Figure 4.131: Site overview photograph (PCMS 00-1:12) taken from the southern boundary, 5LA8689.



Figure 4.132: Tipi ring with tape measure aligned north-south, 5LA8689 (PCMS 00-1:15).

Temporally diagnostic ceramics and projectile points were not encountered on the site, though a P50 preform of orthoquartzite was identified. The remainder of the stone tool assemblage consisted of eight artifacts, of which four were non-bipolar cores, a drill bit fragment of argillite, an unfinished orthoquartzite biface, a fine-grained quartzite utilized flake, and an end scraper made of fine-grained quartzite. The end scraper (FS 1) is actually a hafted scraper that was reworked from a very large (presumably Archaic) projectile point. No portable ground-stone tools were recorded though a single milling slick (Feature 7) measuring 26.5 x 19 cm was found on exposed sandstone bedrock at the eastern edge of the site.

Interpretation and Summary

We recommend that the site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). The main significance of this site is its association with 5LA8690 and that it has the potential for thermal features, diagnostic artifacts, and additional tipi rings beneath the secondary colluvial deposition in the southern half of the site. The preform dates from AD 1000 to AD 1750 and this could be contemporaneous with the spaced stone circles, representing a single occupation.

A tracked vehicle has gouged portions of Features 3 and 4, but the site is not in extreme danger from military maneuvers. The site should be revisited in the future, and if thermal features start to expose along the depositional contact they should be tested.

5LA8690

This lithic scatter and spaced stone circle site is located on the top and western edge of a broad ridge oriented northeast-southwest (Figures 4.133, 4.134). The ridge is flanked by two small drainages that flow north into Red Rock Canyon. Site 5LA8689, another tipi ring site is 60 meters west and the Red Rock Ranch facility is down in the canyon, 250 m north. Chipped-stone debitage and tools, for the most part, were found on the slopes north and west of the rings with very few materials found associated with the rings. The site occupies approximately 3.5 acres and the datum is at an elevation of approximately 1,506 m (4,940 ft) asl.

The site is in the juniper woodland vegetative community commonly found along the canyon edges. Sagebrush, grama grasses, yucca, skunkbrush, galletta grass, feathergrass, and sunflowers grow with the juniper on the site. The soils near the canyon edge are thin and range from exposed bedrock to only about 10 cm in depth. There is substantially more depth (25 cm +) on the top and sides of the ridge.

Features

Sixteen spaced stone circles were recorded at the site and include eight complete stone rings (Features 1, 2, 4-6, 8, 12, and 15) and eight partial stone rings. The complete stone rings for the most part cluster together on the crest of the ridge and are oriented in a southwest to

northeast direction. This may be a later re-occupation of the site by the same group as the average ring diameters are similar. Overall, the camp arrangement appears to have two favored locations (clusters) in planview (Figure 4.133). The first cluster contains Features 2 through 10 and the second cluster has Features 12 through 16. From the site map, one can see two semi-circular patterns of rings (one is Features 5-10, the other Features 12-16). Both are oriented in the same direction and have roughly the same form. This patterning is not a result of the topography and seems to have served some communal purpose. All of the rings are found singly with no intermixing of rocks or walls.

Rings have an average diameter of 3.67 m with a minimum size of 2.7 m and a maximum diameter of 4.7 m. The rings in Cluster 1 average 3.86 m in diameter, and those in Cluster 2 are 3.75 m in diameter so both groups seem to be from the same event or group based on size alone. None of the rings here contain enough rocks to represent more than one single course of stones and based on ring gaps, six have distinct door or flap openings. Three of these gaps are on the southwest edge of the wall, two are on the northwest edge, and one has an eastern opening. Of note, Features 5 and 6 have door openings that face each other. The embedded depth of rocks within each ring ranges from 5 to 10 cm. There is an apparent communal area between the clusters and Feature 11 is found there.

All rings are best characterized as Kalasz's (1989) Class IV, which are freestanding, full-to partial-enclosure, isolated units with spaced rock walls. Kalasz (1989:109) indicates two dates for this type of structure (AD 780 and AD 1350).

Lithic Artifacts

Artifact classes recorded at the surface include debitage, patterned chipped-stone tools, ceramics, and ground stone. A 151-piece sample of debitage from the surface of the site was analyzed. Table 4.52 summarizes the debitage artifacts by material type. Locally available quartzite (61% coarse-grained and 33% fine-grained) is the dominant material, with lesser amounts of chert (2%), orthoquartzite (2%), basalt (<1%), obsidian (<1%), and silicified wood (<1%). The geological source for the obsidian specimen is the Jemez Mountains of New Mexico. This suggests some nonlocal lithic materials were brought into the area by seasonal movement or in trade with people from central New Mexico. The assemblage mainly contains simple flakes (67%), with some complex flakes (28%), shatter (1%), and biface-thinning flakes (3%) also seen. Seventy-six percent of the debitage specimens are noncortical, and 24% show some degree of dorsal cortex. In the cortical items, 13 are large flakes and 23 are small. This reflects an emphasis on raw material reduction with all stages represented. It appears, for the most part, that many of the cores were initially roughed out at the quarry and brought to the site in noncortical form. Once on site, these were manufactured into early-stage bifaces or used to produce flakes.

The chipped-stone tool classes represented are projectile point (2), side scraper (1), core (1), and utilized flake (1). The side scraper (FS 4) is fine-grained quartzite and exhibits moderate wear on one lateral edge. The utilized flake (FS 2) is also fine grained quartzite and was used for scraping. Both of these tools were found together and with a quartzite core (FS 3) just west of

Feature 1. Both of the projectile points recovered from the surface of this site are temporally diagnostic. This first point fragment (FS 8) is similar to Anderson's (1989) Type P62 and is made of chert. This type is associated with ranging from AD 500 to AD 1400. The second projectile point fragment (FS 6) is fine-grained quartzite and is a P50 preform. Small preforms like this have been tentatively dated between AD 1000 and AD 1750. Based on the projectiles, the site had an occupation somewhere between the Developmental and Protohistoric period and this likely correlates to the age of the stone circles.

A single end fragment from a trough metate (FS 9) was recorded from the wall of Feature 15. This artifact is made of sandstone and exhibits high intensity surface grinding on one face (18 cm in width and 2 cm deep).

Ceramic Artifacts

Interestingly, the site yielded 11 sherds (FS 1). Four were of sufficient integrity to analyze. These came from a single micaceous mass-modeled and smoothed vessel with a conoidal bottom, high round shoulders and a constricted mouth (Appendix 4). These were found in a tight cluster along the northern site boundary and near the canyon slope.

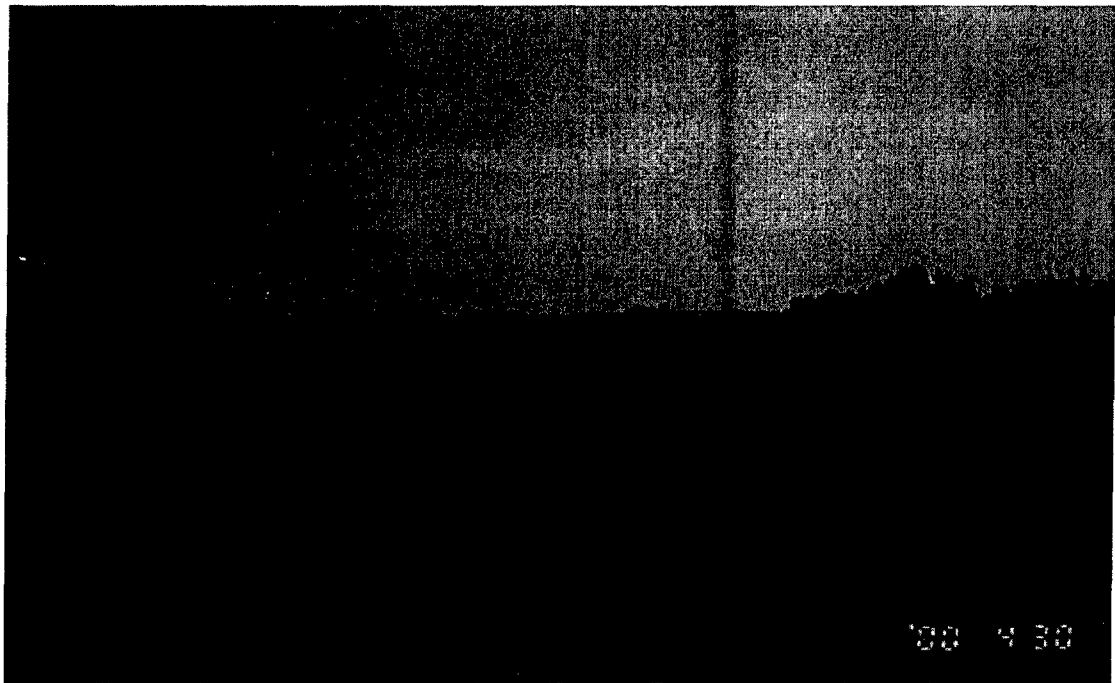


Figure 4.133: Site overview photo (PCMS 00-1:19), view toward datum from southwest site boundary, 5LA8690.

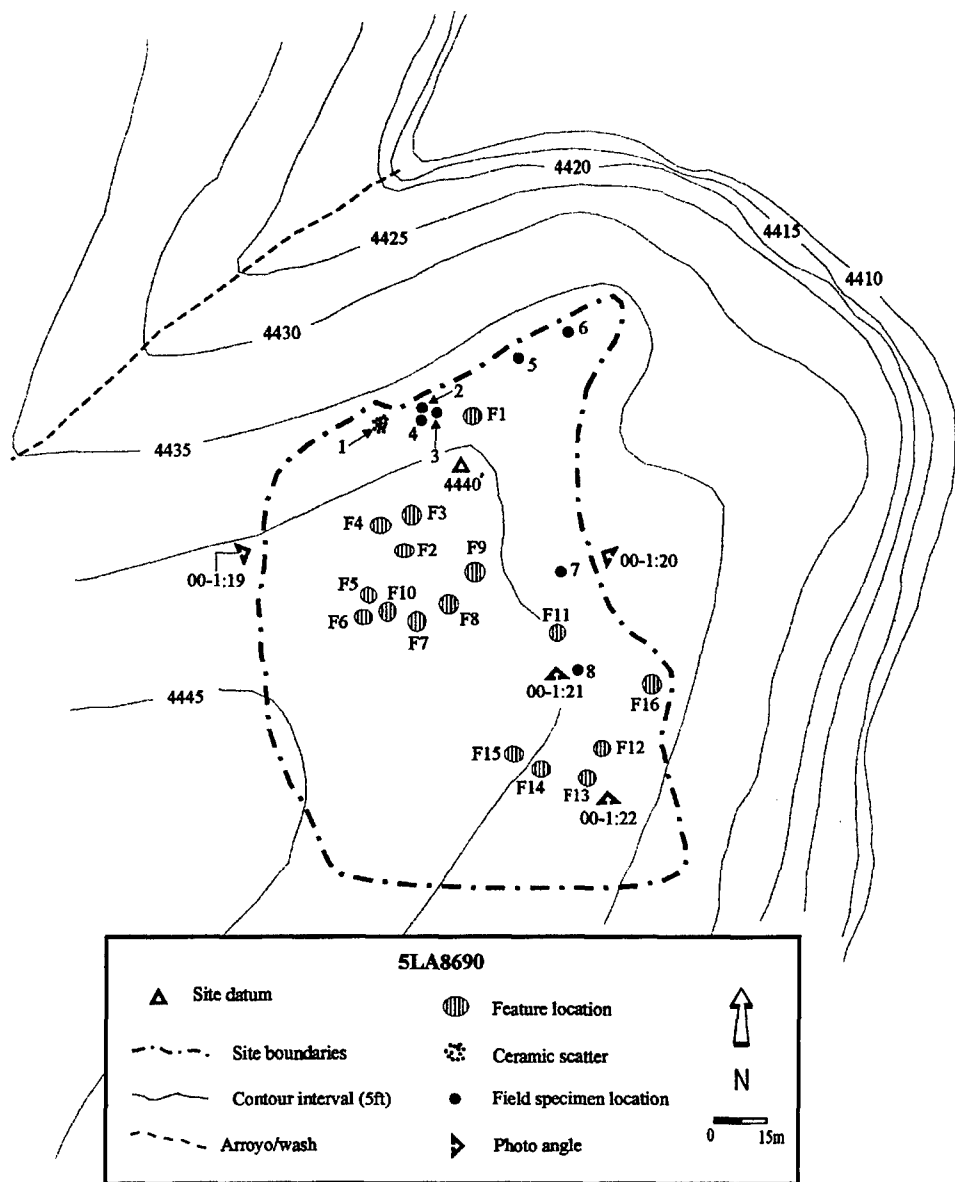


Figure 4.134: Site map, 5LA8690.

Table 4.52: Summary Description of Chipped-Stone Debitage for 5LA8690.

	Chert	C. Quartzite	F. Quartzite	Hornfels/Basalt	Obsidian	Orthoquartzite	Sil. Wood	Total
Total	3	92	50	1	1	3	1	151
Large	1	31	15	0	0	1	0	48
Small	2	61	35	1	1	2	1	103
Cortical	1	29	6	0	0	0	0	36
Noncortical	2	63	44	1	1	3	1	115
Complex	0	28	11	1	0	2	1	43
Shatter	0	2	0	0	0	0	0	2
Simple	2	60	37	0	1	1	0	101
Biface-Thinning	1	2	2	0	0	0	0	5

Interpretation and Summary

We recommend that this site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). Based on structure type and surface artifact correlation, the site was occupied sometime between AD 500 and AD 1750. Site 5LA8690 is a large lithic scatter, procurement area and prehistoric campsite with a high debitage count. The presence of several temporally diagnostic artifacts may aid in research designed to refine the regional chronology. The presence of at least sixteen structures will allow research to address issues regarding the settlement system at the PCMS. It is also likely that the deposits within and just outside of the structures will yield a prehistoric ground surface. This potential, along with the presence of a metate suggests the presence of pollen and/or macrobotanical remains. There are loosely scattered fire-cracked rocks near Feature 11, which suggests the presence of buried thermal features in the communal area between the tipi clusters. Tracked vehicles have cut through most of the site and churned-up the surface in many areas.

The site should receive no further consideration at this time. If erosion or military maneuvers expose thermal features anytime in the future, then these should be tested to better define the date range for this type of site in the PCMS.

5LA8692

The site consists of a small rockshelter and its associated internal features. It was found on the east side of a shallow side drainage that feeds Red Rock Canyon. The site datum was placed at the mouth of the shelter at approximately 1,500 m (4,920 ft). The site is located in the juniper woodland plant community typically found in the canyons. Black grama is the dominant species, but skunkbrush, bluestem, milkweed, and mountain mahogany also observed in the area. The soils are thin on this canyon slope, but silty clay of 20 cm depth was observed inside the shelter.

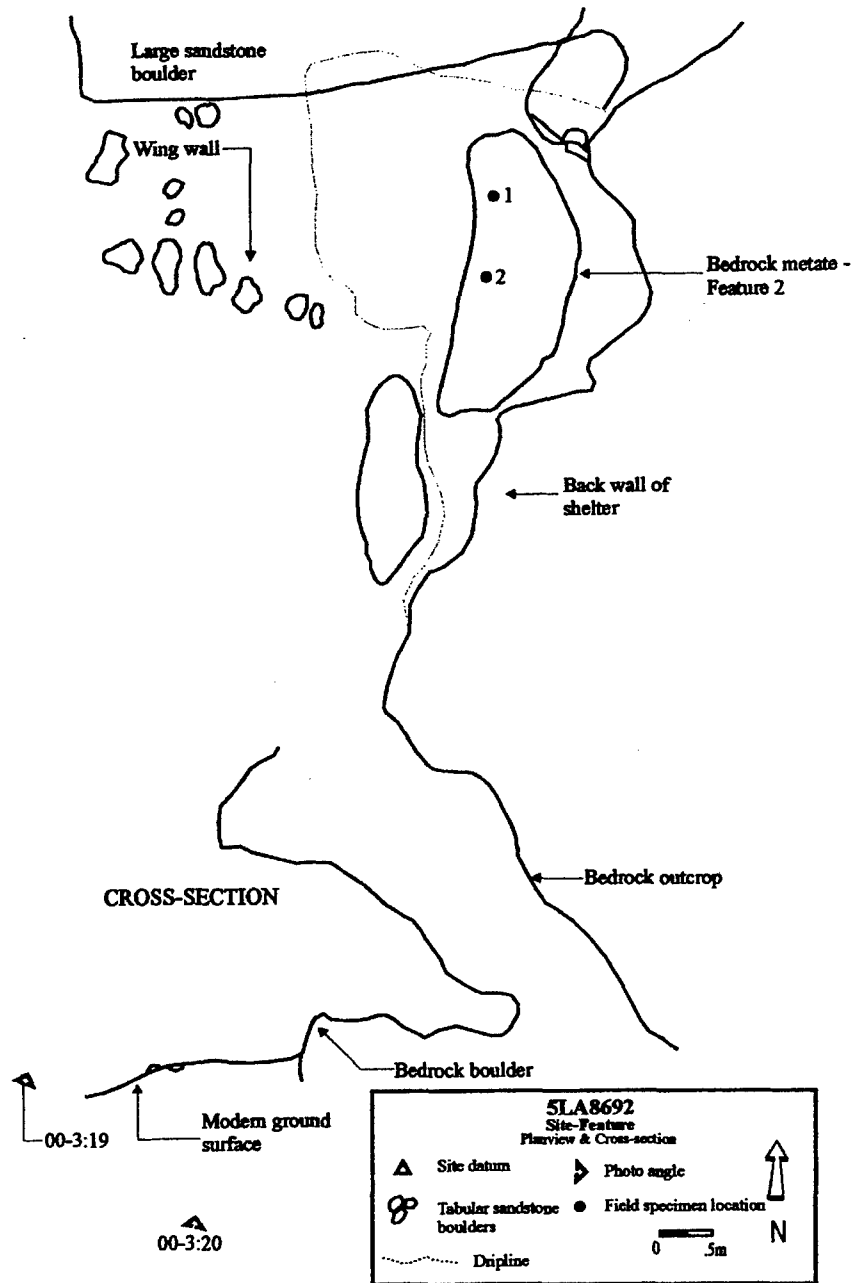


Figure 4.135: Site map and Feature 1 planview, SLA8692.

Features

The shelter is a large overhang (facing west) found in a rather large, but isolated outcropping of sandstone bedrock. It measures 5.6 x 5.3 m and contains a large boulder with two distinct milling surfaces (Feature 2). There is also a remnant from some kind of wing wall along its west edge. It is unknown if this alignment represents a structure unit or storage feature because sheetwash erosion has scoured out the shelter here. There is at least 20 cm of soil depth inside the shelter that could be covering one or more prehistoric occupation surfaces. Thermal features were not apparent on the floor and there were no stone tools or debitage encountered inside the shelter or outside the dripline.

Interpretation and Summary

We recommend that the site be considered for nomination to the National Register of Historic Places on the grounds that it is likely to yield information important to our understanding of prehistory. The shelter is subject to water and wind erosion, but Army maneuvers will not impact this site. There is a good potential for the recovery of debitage, ground- and chipped-stone tools, and floor features through testing.

Our management recommendation is that the site receives no further consideration. Other rock shelters on the PCMS offer greater information potential through testing.

5LA8693

The site is a lithic scatter with a rockshelter and a large thermal feature located along the southern terrace near the mouth of Stage Canyon (Figure 4.136, 4.137). There were also several tin cans scattered randomly across the surface. The 2.3-acre site is located on the top of a large sandstone outcropping and on the end of an alluvial fan formed by the erosion of the Black Hills. A rather steep drop off is located along the western edge of the site, while a gentler slope is found on the southwest. The datum is at approximately 1,500 m (4,920 ft) asl, and at the bottom of the outcrop, the site drops down an additional 10 meters.

The site is located in the juniper woodland vegetative community typically found on the fringes of the Black Hills. Along with juniper, goldenweed, winterfat, sagebrush, wolfberry, currant, skunkbrush, grama grasses, and yucca were observed. Above the cliff, the soils are well developed, with depths of up to 45 cm seen in small erosional remnants.

Features

A rockshelter (Figure 4.138, 4.139) was found at the central portion of the site under a low sandstone bedrock shelf. Feature 1 measures 4.5 x 1.3 x .4 m and has a semi-circular arrangement of unmodified sandstone blocks within its dripline. Several of the stones, particularly on the east side, were once upright and have collapsed into the inside of this ring.

This structural unit most closely resembles Kalasz's (1989) Class V, Category 14, which is a contiguous wall, fully enclosed, isolated unit with a rockshelter. Kalasz (1989:102) indicates there are no absolute dates for this type of unit. In similar stone structures (Category 15) there are associated radiocarbon dates of 920 ± 80 BP and 850 ± 60 BP, however the projectile point found near the mouth of this structure points to an Archaic date. Below the caprock at the west edge of the site there are large overhangs. No cultural material was recovered here as a small arroyo has scoured out all fill.

Feature 2 is a large roasting pit, situated 2 m east of Feature 1. It is a 3.1 m diameter area of ashy soil with intermixed pieces of fire-cracked rock and debitage. A pinflag probe reveals at least 25 cm of depth here. Erosion is a concern with the thermal feature; its location at the base of the sandstone outcrop exposes it to heavy sheetwash erosion.

Lithic Artifacts

One hundred and twenty-nine debitage items were recorded at the surface and found to be made from nine specific material types. Table 4.53 shows there is a strong selection preference for quartzite and basalt. The debitage is 45% coarse-grained quartzite, 21% basalt, 19% chert, 5% fine-grained quartzite, 3% orthoquartzite, 3% argillite, 2% chalcedony, 1% obsidian, and 1% siltstone. Nearly all of these material types are available in the region. Only one piece of debitage is made of material not available within the PCMS. Based on visual inspection, this flake is made of obsidian found in the Jemez Mountains of New Mexico. The lithic materials can be further reduced to the following: 33% microcrystalline, 45% macrocrystalline, 22% cryptocrystalline. The majority (64%) of the debitage samples were simple flakes. Complex flakes (33%), biface-thinning flakes (1%), and shatter (2%) make up the remainder.

All phases of raw material reduction are seen in the debitage assemblage. Forty percent of the debitage specimens showed dorsal cortex, and this cortex is exclusively found in argillite, chert, basalt, and quartzite items. Of the cortical specimens, 39 were classified as large and 13 were small. Of the noncortical specimens 34 were large and 43 were small. All cortical flakes and the noncortical large flakes appear to be the result of core-reduction activity, or in some small part, early-stage biface manufacture. The large number of small noncortical flakes suggests late-stage biface reduction activities as well. There was only one biface thinning flake in the assemblage and few (28) noncortical complex flakes. This indicates that the final reduction of bifaces often occurred somewhere else than this site. Burning was evident on one argillite flake.

There are 13 flaked lithic tools, which fall into the following classes: utilized flake (7), biface (2), core (2), projectile point (1), and chopping tool (1). Most were recovered from in front of the sandstone ledge where both of the features were encountered, and actually, the point and both bifaces were found just south of the rockshelter. The chipped-stone tools are made of most of the same material types as the debitage (Table 4.54). Most tools are quartzite (3 coarse-grained, and 2 fine-grained) and chert (4). Orthoquartzite (2), basalt (1), and silicified wood (1) are also represented. These materials are 38% microcrystalline, 38% cryptocrystalline, and 23% macrocrystalline. The proportion of macrocrystalline materials with conchoidal fracture properties is much lower in the stone tool assemblage when compared to the debitage

assemblage. There is a strong selection preference for cryptocrystalline materials for tool manufacture.

Four items warrant further discussion. The first is the diagnostic projectile point fragment (FS 13) found near the dripline of the rockshelter. Anderson's (1989) typology indicates that this is a P43, which has a temporal range from between 3000 to 500 BC. This would indicate the shelter was used sometime in the Middle or Late Archaic periods. Also of note is the large chopping/crushing tool (FS 28). It displays crushing on its distal end and battering on its proximal end. From this, it seems that it was likely used in a wedge-like fashion. Field Specimen 2 is the corner of a lightly used silicified wood end/side scraper. It has some patination on its dorsal face suggesting age. The last item of note is a chert utilized flake (FS 11). In addition to lateral edge wear it has a radial fracture and may have also served as a burin.

Sixteen pieces of ground stone are recorded at the site in two apparent concentrations. The first (FS 24, 29-33) is found roughly 15 m southeast of the shelter and the other (FS 3-7, and 9) 25 m northwest of the structure. The only whole item is an apparent polishing stone (FS 8). The rest are ten slab metate fragments and five one-hand mano fragments. Burning is present on 13 of the ground-stone tools.

Table 4.53: Summary Description of Chipped-Stone Debitage for 5LA8693.

	Arg.	Chalced.	Chert	C. Quartz.	F. Quartz.	Hornfels/Basalt	Obsidian	Ortho.	Siltstone	Total
Total	4	3	24	58	7	27	1	4	1	129
Large	1	2	11	40	2	16	0	0	1	73
Small	3	1	13	18	5	11	1	4	0	56
Cortical	2	0	9	26	2	13	0	0	0	52
Noncortical	2	3	15	32	5	14	1	4	1	77
Complex	1	2	13	16	1	8	1	0	0	42
Shatter	0	0	1	1	0	1	0	0	0	3
Simple	3	1	9	41	6	18	0	4	1	83
Biface-Thinning	0	0	1	0	0	0	0	0	0	1

Table 4.54: Stone Tool Type by Material Group for 5LA8693.

Material	Type									Total
	Biface	Core	Projectile	Chopper	Util. Flake	Mano	Polishing Stone	Metate		
Argillite	0	0	0	0	0	0	0	0	0	0
Gabbro	0	0	0	0	0	1	0	0	0	1
Chert	1	0	0	0	3	0	0	0	0	4
Coarse Quartzite	1	2	0	0	0	1	0	0	0	4
Fine Quartzite	0	0	0	0	2	0	0	0	0	2
Sandstone	0	0	0	0	0	2	1	10		13
Hornfels/Basalt	0	0	0	1	0	1	0	0	0	2
Orthoquartzite	0	0	1	0	1	0	0	0	0	2
Silicified Wood	0	0	0	0	1	0	0	0	0	1
Total	2	2	1	1	7	5	1	10		29

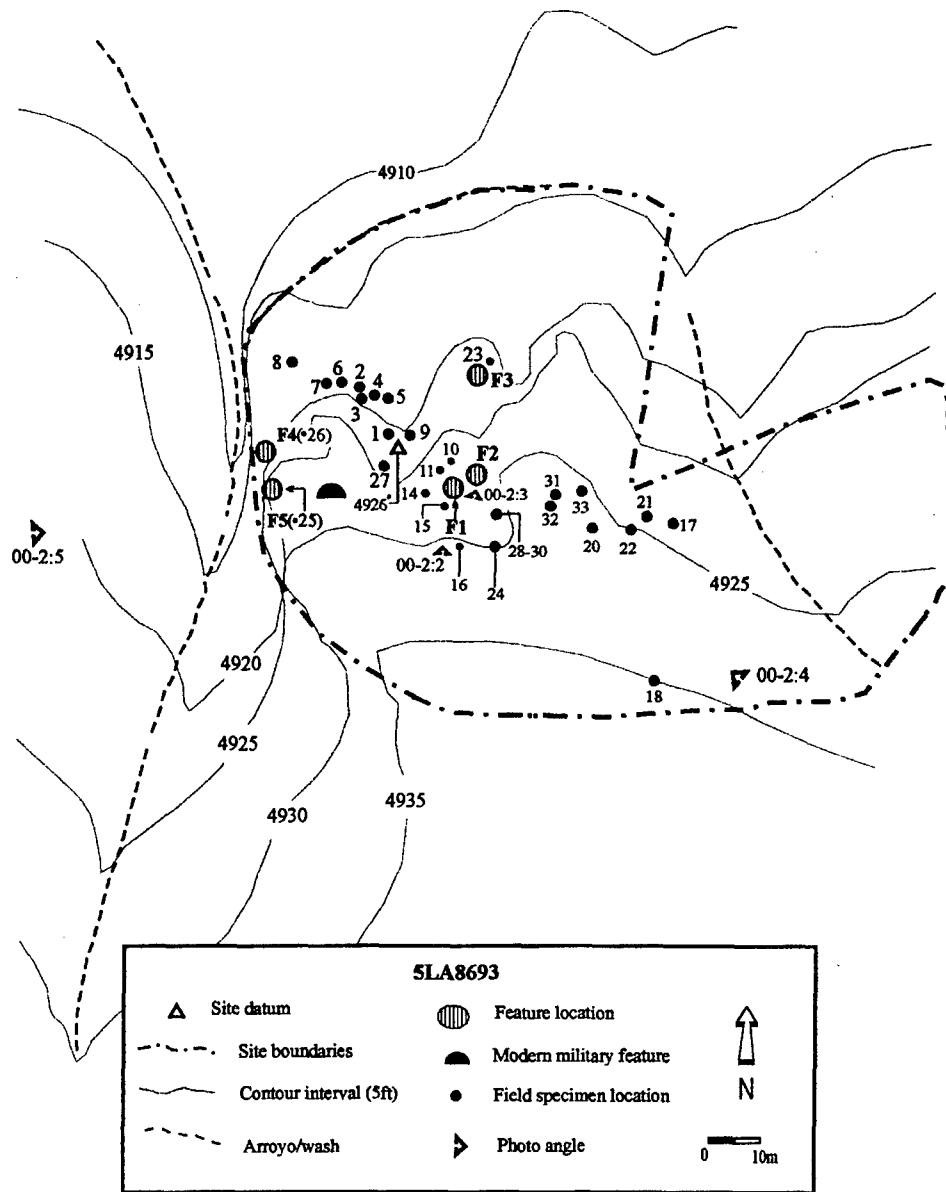


Figure 4.136: Site map, 5LA8693.

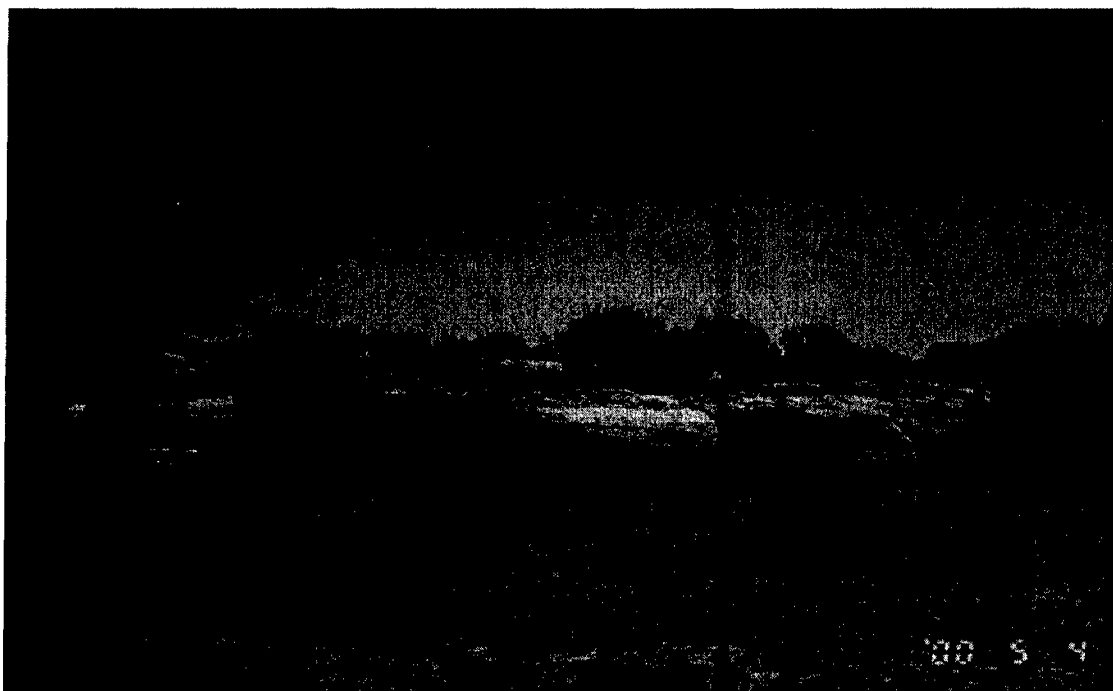


Figure 4.137: Site overview photo (PCMS 00-2: 5) facing the sandstone cliff on the west edge of the site, 5LA8693.

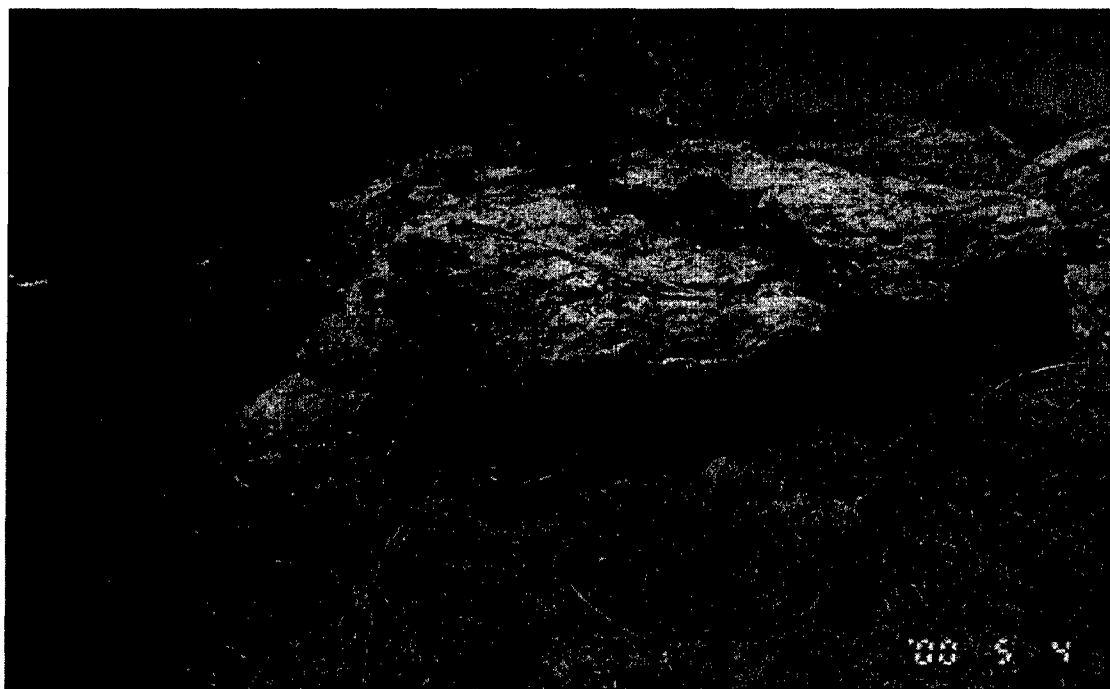


Figure 4.138: Photograph (PCMS 00-2: 2) of Feature 1, 5LA8693.

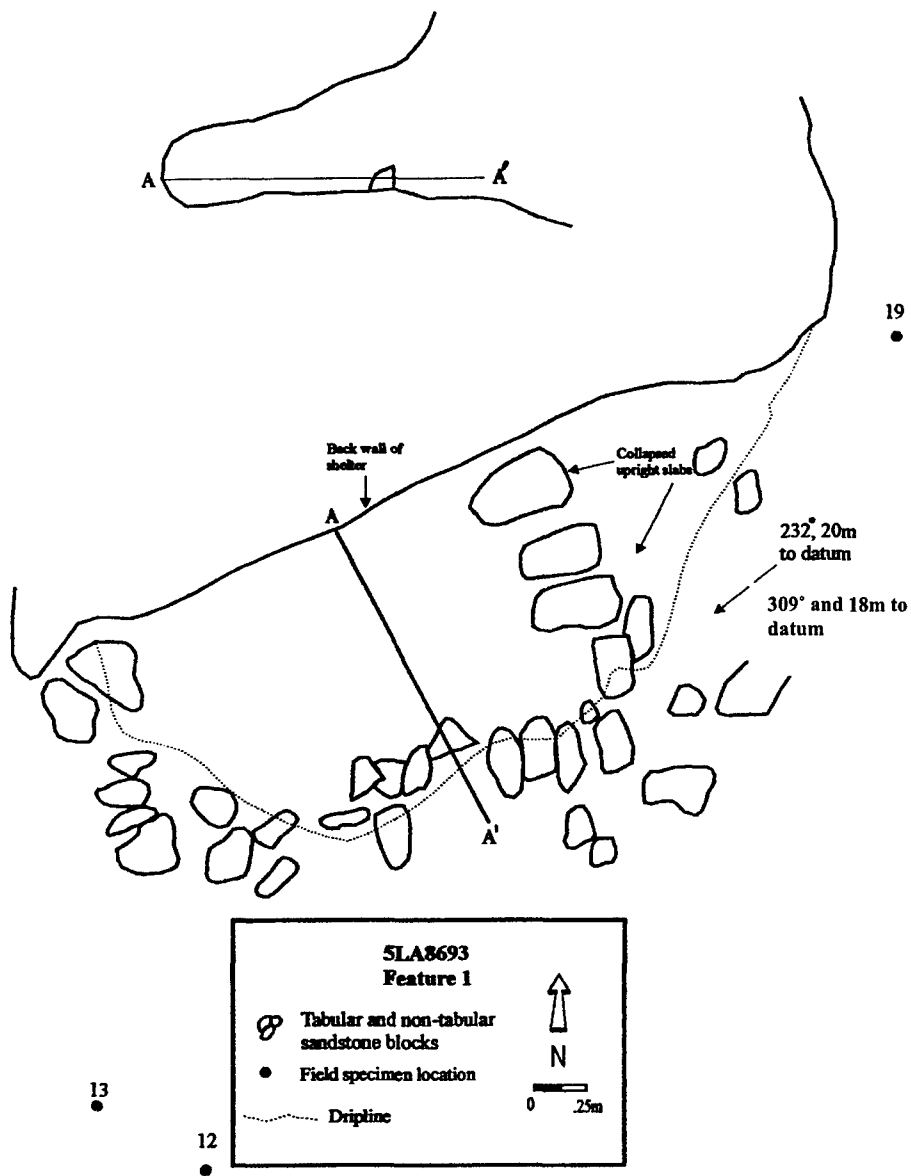


Figure 4.139: Planview map of Feature 1, a rockshelter, 5LA8693.

Interpretation and Summary

It is recommended that the site be considered for nomination to the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). The site has thick soil deposition overall, with a good density in the area of the two ground stone concentrations. Artifact frequencies and density are high in front of the low bedrock ledge, and several tools were identified as well as the broken remains of a diagnostic projectile point. The presence of ground stone and the roasting pit (Feature 2) also indicate the potential of locating pollen and macrobotanical data. The obsidian flake is potentially useful for reconstructing exchange networks. There is intact structural unit inside the shelter that falls into Kalasz's (1989) Class V, Category 14. There are no dates for this type of structure and a test unit here could provide datable carbon or time diagnostic artifacts that could help to date this class.

We recommend that the site be tested and avoided. Feature 2 is slowly being destroyed by erosion and a test unit here could provide a date for large, possibly Archaic, roasting features at the PCMS. This date could also help tighten the date range for Anderson's (1989) P43 projectile point class. The southern portion of the site has been impacted severely by military maneuvers, and a modern "machine gun nest" was placed west of the shelter. A sandstone outcrop protects both the rockshelter and thermal feature from tracked vehicles, but pedestrian traffic is a concern.

5LA8694

The site is a historic homestead and a small historic trash scatter (Figure 4.141, 4.142). It is in the northeastern portion of the project area near the mouth of Stage Canyon. The site and its components extend over an area of approximately .29-acres. The site datum is situated at an elevation of approximately 1505 m (4940 ft) asl. There is little topographic relief across the site area, but the southern branch of the Stage Canyon arroyo is located just off the southern edge of the site.

A grassland and scrub vegetative community is seen in the area around the site. Bigelow sagebrush, winterfat, ricegrass, cholla, squirreltail, blue and sideoats grama, and saltbush were seen growing at the site. The site has deep soils and overbank deposition has partially covered Features 1 and 2. It seems likely that these overbank deposits have also covered artifacts on the western half of the site. Feature 1, a historic dugout, exhibits deposits of at least 2 m, which may be covering intact deposits and architectural elements.

Features

The features on the site are a dugout (Feature 1), a foundation remnant (Feature 2), a well (Feature 3), and a possible privy foundation (Feature 4). The most impressive feature is the dugout (Figure 4.143). The pit measures 16' 8" x 10' 6" and the entrance ramp appears to have been placed on the east side. The building support system is intact with large upright beams on

either end and a latticework of axe-cut juniper branches laid across a large main beam. Post abandonment sedimentation here could reach at least 2 m and it seems likely that the floor and walls may be intact. The remnant of a foundation is located to the north of the northeast of the dugout (Feature 2). It is a series of unmodified sandstone blocks forming an L-shape, but the overall planview for the foundation is unclear as many blocks seem to have been removed for use elsewhere. Feature 3, a well, has been rebuilt and it seems likely that the blocks from F2 could have been reused here (Figure 4.140). There is a relatively recent (1950's or 60's) concrete cap that stabilizes this well and both support posts for the water drawing system remain intact. Though this feature was rebuilt, it seems possible that historic artifacts could be found in the deposits at the bottom of the well. The last feature (Feature 4) is a foundation remnant from a small building (possibly a privy). It is made of unmodified, horizontally stacked, sandstone blocks, but the original planview is unknown as a tracked vehicle drove over this feature and crushed many of the blocks.

A fairly diffuse scatter of historic trash was found in and around Features 1 and 2. The trash is comprised of bottle glass, whiteware sherds, a tin can, a metal ring, a horseshoe, and a button. Most of the trash is located to the east of the structure with a very sparse scatter of materials to the north. One object of note is FS 2, a worked piece of amethyst glass that was knapped into a scraping tool. The site is tentatively dated to the early 1900s based on the trash scatter.



Figure 4.140: Photograph (PCMS 00-2: 10) of well (Feature 3) with 1 meter tape aligned north-south, 5LA8694.

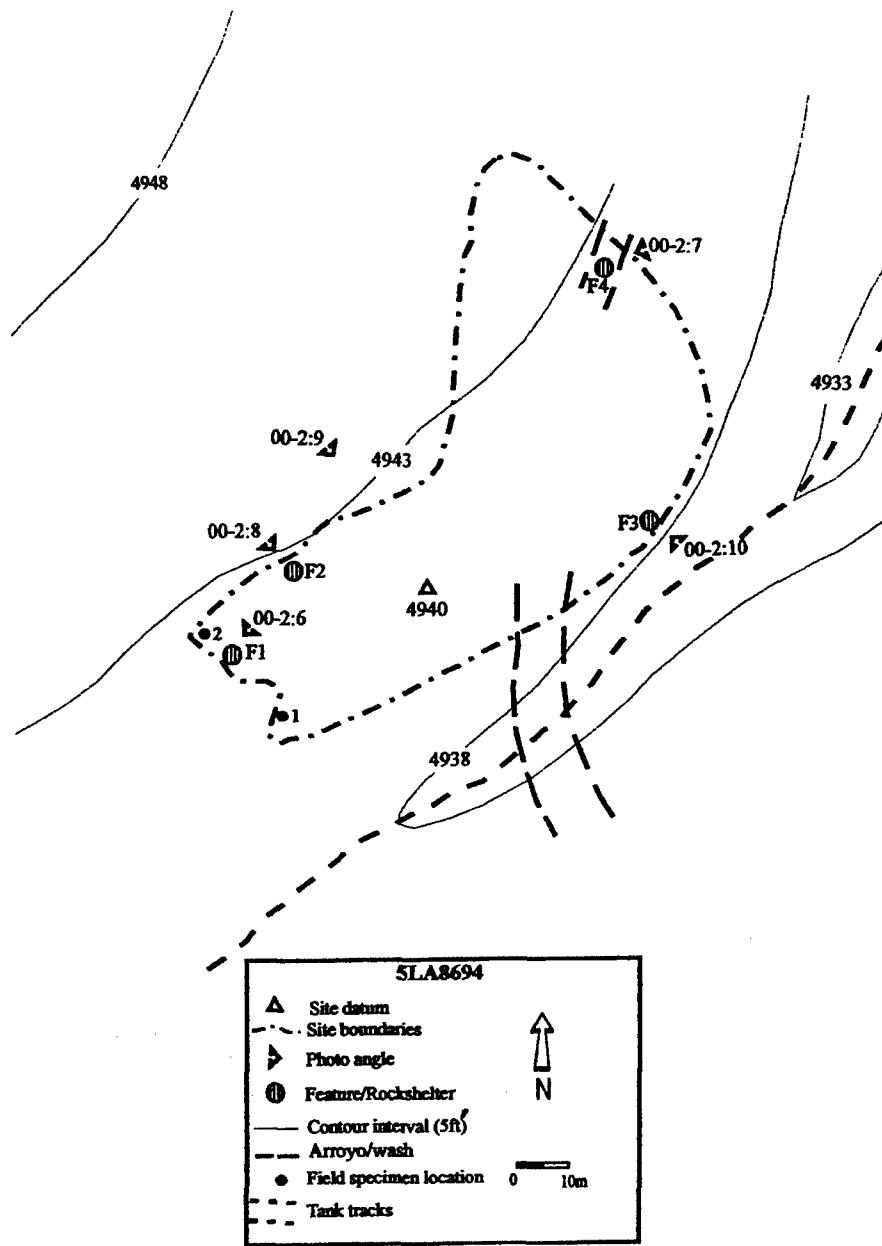


Figure 4.141: Site map, 5LA8694.

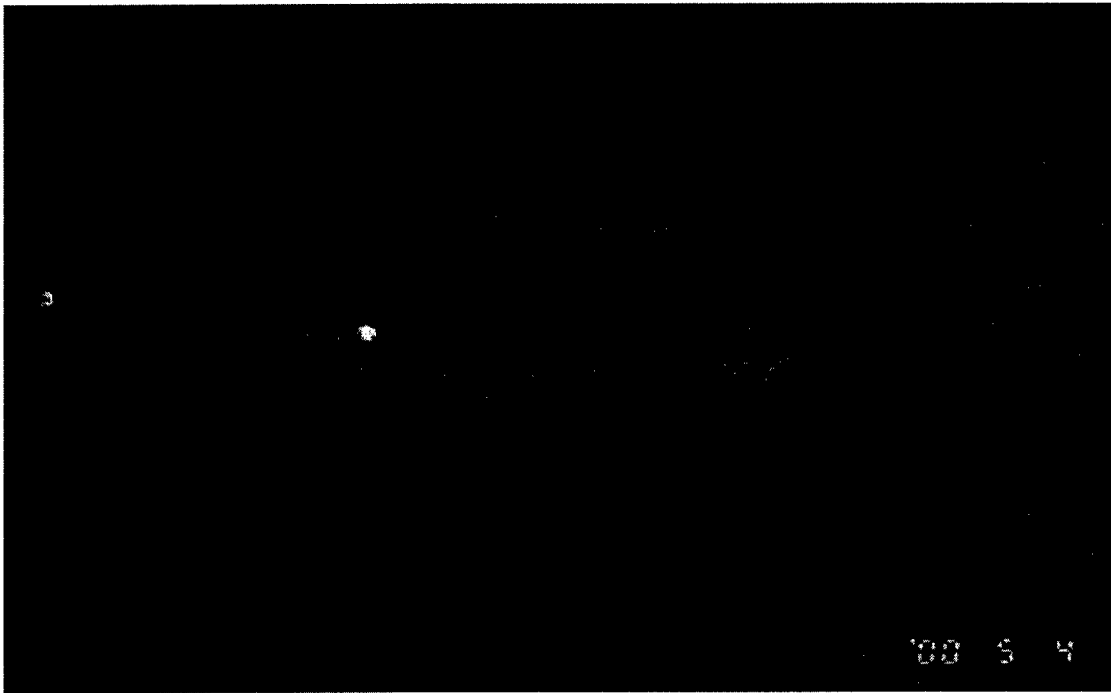


Figure 4.142: Site overview photograph (PCMS 00-2: 9), 5LA8694.

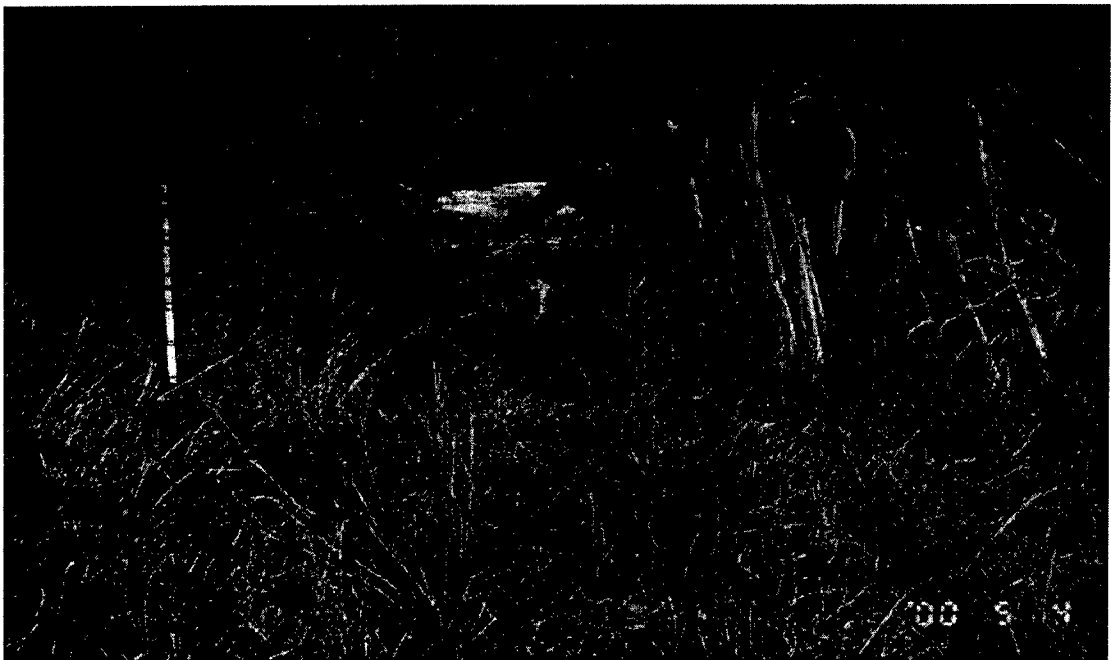


Figure 4.143: Feature 1, dugout with 1 meter tape aligned north to south (PCMS 00-2: 6).

Interpretation and Summary

Marvin and Nancy Eudy received a land patent for 640 acres for the area encompassing this site in 1921. Feature 1 is the only intact dugout known on the PCMS and its architectural elements are worth protecting. Post abandonment deposition seems to have sealed the floor and walls in Feature 1 and it seems likely that a test unit could determine floor and wall construction as well as provide possible time diagnostic artifacts. Given the sites archaeological potential, we judge this site to be eligible for the National Register (Criterion D).

Our management recommendation is to fence and avoid the site. Tracked vehicles have nearly destroyed Feature 4, and all of the other features sit close to the ground so tracked vehicles could easily impact them.

5LA9020

This site is a large lithic scatter and structure site located on the southern terrace of the largest arroyo that feeds Stage Canyon (Figures 4.144, 4.145). The 2.7-acre site is mainly on the flats above the arroyo, but rock art panels and the rock shelters were found along the Dakota sandstone that forms the edge of the arroyo on the north side of the site. The circular stone structures recorded at the site are confined to the east edge of the site, and only chipped-stone debitage and stone tools are located south and west of the datum. This datum was placed on a low ridge at the eastern edge of the site at approximately 1,524 m (5,000 ft) asl.

Permanent water does not appear available in the arroyo, though a seep was noted at the shale/sandstone contact at its edge. Several small, natural water catchments are found in the arroyo and seasonal water likely pools here. The sandstone bedrock forms several small terraces, and given the rather steep surface gradient (up to 4 degrees), the site seems prone to sheetwash erosion. The surface soils are silty clay with intermixed sandstone and shale gravels. Only the eastern quarter of the site shows accumulated depth—up to 35 cm based on a pinflag probe. The site is located in a mixed shrub and grassland vegetative community. Juniper, blue grama, ricegrass, threeawn, sagebrush, needle and thread grass, Carolina draba, bluebells, currant, and skunkbrush were seen growing on the site.

Features

Eleven features were recorded at the site-- four bedrock metates, three rock art features, two rock shelters, and two circular stone structures. Feature 1 is a sandstone structure located near the base of a slight rise north of the datum. This structure is well preserved and is constructed of sandstone slabs in a circular arrangement that measures approximately 4.5 m in diameter (Figure 4.146, 4.147). The walls appear to have been 55 to 70 cm high based on the occasional upright slab, and may have been constructed of horizontally stacked blocks on the western half of this structure. At least 25 cm of deposition is present and the prehistoric occupation surface may be preserved. Most of the site's artifacts were recorded within a 20 m radius of this feature and there is smearing of ash and fire-cracked rock around all of its sides.

None of the smears are distinct at the surface, but it appears there are burned features below the modern ground surface and test excavations here could provide a date for this type of structure. A second, less obvious, structure is located 20 m southeast of Feature 1. It is comprised of large boulders stacked in a single course, circular alignment. These are very large and unmodified boulders and this structure is very different from Feature 1. It appears to be a more robust tipi ring, or is an Apishapa phase structure that had its stones robbed for later use in Feature 1. There is some deposition here and a test unit might determine the original function of this feature. Feature 1 conforms to Kalasz's (1989) Class V, which is a freestanding, full-enclosure, isolated unit with continuous rock walls. Kalasz (1989:103) indicates two dates for similar (Category 15) structures in the PCMS (AD 1030 and AD 1100). Feature 2 is a freestanding, full-enclosure, isolated unit with spaced rock walls (Class IV) (Figure 4.148). There are no dates associated with a structure of this size according to Kalasz (1989).

Two rock shelters (Figure 4.152) are located in the outcroppings near the eastern site boundary. The first rockshelter (Feature 6) measures 10.9 x 2.5 m and has a large packrat midden along its back wall. The area in front of the shelter has thermally altered rocks, burned bone, lithic artifacts, and ash staining. No identifiable wing walls were found inside the shelter and no thermal feature outlines could be determined. The second rockshelter (Feature 11) measures 6.8 x 2 m and was incorporated into a historic drift fence that runs along the sandstone cliff. This was used as a livestock shelter at one point and the animal activity appears to have caused the erosion of surface soils. No artifacts or features were encountered.

A total of five rock art panels are present along the sandstone outcropping; four of these were found on large boulders on the eastern edge of the site below the rockshelters and the other was found on a large cliff at the central portion of the site. The first two panels (Feature 3) include nine petroglyph elements with five identified as quadrupeds and one as a bird or shaman figure (Figure 4.149). All of the quadrupeds are connected together by a thin line of pecking and the bird figure is isolated and above three of the quadrupeds on Panel 2. The other two quadrupeds were designated Panel 1 and were found on a face south of Panel 2. A separate face on Panel 2 shows a small group of pecked dots with a triangular shaped pecked line above it. No element patination was noted and the quadrupeds are missing both headgear and digits from the legs. Exposure to both wind and water has deteriorated the elements on this feature and it is likely that there were many more elements originally.

The next two panels (Feature 4) were found slightly downhill and northwest of Feature 3 (Figure 4.150). Six elements are present on these two panels. Panel 1 contains two solid pecked and connected circles, a series of curved and straight intersecting lines, a solid pecked u-shaped form, and two sets of pecked dots. Panel 2 has a single, large wavy line that crosses two faces on the rock. There is a set of pecked dots on its east end and a thin zigzag line on its west end. Heavy patination covers all of the elements and based on the element style Feature 4 dates to the Archaic Period.

The last panel contains two elements; both are bisected lines (Figure 4.151). These were found fairly far up a large sandstone cliff approximately 60 m west of Features 3 and 4. Moderate patination is present on both elements.

The remaining features are all bedrock metates (Feature 5, 8, 9, 10). Only one is significant. Feature 5 is a large sandstone block that broke away from the cliff face and sits on the arroyo slope at a steep angle. It has nine distinct milling surfaces.

Lithic Artifacts

The lithic artifact assemblage contains a 150 piece sample of debitage, 40 chipped-stone tools, and an additional 12 ground-stone artifacts (other than the bedrock metates). The debitage classifications are 70 simple flakes, 55 complex flakes, 19 pieces of shatter, and 6 biface-thinning flakes (Table 4.55). Most of these were made of coarse-grained quartzite (46%), chert (25%), and hornfels/basalt (19%); fewer are fine-grained quartzite (5%), obsidian (1%), orthoquartzite (1%), silicified wood (1%), and chalcedony (1%). Other than the obsidian, all of these materials can be found in the PCMS in cobble or nodule form. The obsidian specimens can be traced to the Cerro del Medio (Appendix I) dome in New Mexico. Seventy-one percent of the debitage specimens are non-cortical; 49% are small items and 22% are large items. Of the cortical specimens, 21% are large and 79% are small items. The large number of cores coupled with the presence of shatter and large flakes indicates that core reduction was being performed on site. Of interest here, none of the material types occur on or near the site and all must have been carried to the site from the Black Hills or Welsh Canyon (5.5 km east). The lack of readily available materials made the complete reduction of cores necessary. Most of the cores found on the site were exhausted, and most of the flakes (57%) were small. The high number of small noncortical flakes (74) suggests that biface manufacture also occurred on site. The six biface-thinning flakes are made from four different materials and that suggests at least four bifaces were manufactured on site. Heat treatment is evident in 11 pieces of the debitage.

Forty tools representing six tool classes were recorded in the chipped-stone tool assemblage. Of these, 13 are non-bipolar cores, 12 are projectile points and preforms, 5 are bifaces, 4 are scrapers, 4 are flake tools, and two are drills. The material type frequencies for the tools mirror the debitage frequencies, with the greatest variation seen between the chert artifacts (debitage 25%, chipped tools 55%). The cores were recorded in the field and only material type data is available. These are coarse-grained quartzite (5), chert (5), hornfels/basalt (2), and argillite (1). The bifaces are chert (4) and fine-grained quartzite (1). All are broken; four are classified as unfinished bifaces, and one is nearly finished. The nearly finished specimen (FS 20) is a knife with wear along one of its edges. In the unfinished bifaces, two were broken during heat treatment and two were broken during manufacture.

The scrapers are all end/side scrapers; three are large in size and one is a thumbnail scraper (FS 16). Two are broken and two are complete. They are all made of different materials, with the most significant made of Black Forest silicified wood (again FS 16). The utilized flakes are chert (2) and fine-grained quartzite (2). Based on the edge angles, all were used as expedient scraping tools. Both of the drills are broken. Field Specimen 9 is a drill bit fragment made of chert and Field Specimen 11 is a chert drill that is missing its distal end. FS 9 and 11 do not refit and are from two separate tools. Overall, the chipped-tool assemblage suggests hide-scraping functions were a dominant site activity with some expedient tools in use.

Seven of the projectile points and preforms recovered from the surface of this site are temporally diagnostic. The first point fragment (FS 22) does not fit into any of Anderson's (1989) categories and is made of basalt. There is heavy basal grinding and it appears to resemble points dating from either the late Paleoindian stage or the Early Archaic period. The second projectile point (FS 38) is chert, with only its tip missing. It was typed as a P53 and has a tentative date range of AD 700 to AD 1200 according to Anderson (1989:180). The next chert point (FS 41) is missing part of its tip and base and is classified as a P60 (AD 500 to AD 1300). The remaining chert point (FS 17) is whole and very well made. It was found just outside of Feature 1 and most closely resembles Anderson's P83 type (AD 750 to AD 1650). In the point assemblage, there are three small preforms and two large ones. Based on the points, and if FS 22 can be trusted as originating from this location (not a curated item), the site had one occupation in either the Plano Period or Early Archaic stage. There was another occupation between AD 700 to AD 1725.

Other than the bedrock metates, ground-stone tools are three slab metate fragments, three complete manos, three broken manos and a whole slab metate. All were found scattered at the eastern end on the site in no apparent concentration. A single hammerstone (FS 46) and two polishing stones (FS 62 and 63) were also recorded. Near the mouth of Feature 6 a piece of worked bone (FS 69) was encountered.

Table 4.55: Summary Description of Chipped-Stone Debitage for 5LA9020.

	Chalced.	Chert	C. Quartz.	F. Quartz.	Hornfels/Basalt	Obsidian	Ortho.	Sil.	Wood	Total
Total	1	38	69	8	28	2	2	2		150
Large	1	10	37	3	12	0	1	1		65
Small	0	28	32	5	16	2	1	1		85
Cortical	0	6	24	2	11	0	0	0		43
Noncortical	1	32	45	6	17	2	2	2		107
Complex	1	14	28	0	10	1	0	1		55
Shatter	0	10	4	1	3	0	0	1		19
Simple	0	13	35	6	15	0	0	0		69
Biface-Thinning	0	1	2	1	0	1	2	0		7

Table 4.56: Stone Tool Type by Material Group for 5LA9020.

Material	Type									Total
	Biface	Core	Projectile	Drill	Scraper	Flake Tool	Pol. Stone	Mano	Metate	
Argillite	0	1	0	0	0	0	0	0	0	1
Obsidian	0	0	1	0	0	0	0	0	0	1
Chert	4	5	8	2	1	2	0	0	0	22
Coarse Quartzite	0	5	0	0	0	0	0	1	0	6
Fine Quartzite	1	0	1	0	1	2	0	0	0	5
Ralston Creek	0	0	0	0	1	0	0	0	0	1
Sandstone	0	0	0	0	0	0	1	5	4	10
Hornfels/Basalt	0	2	1	0	0	0	1	0	0	4
Orthoquartzite	0	0	1	0	0	0	0	0	0	1
Silicified Wood	0	0	0	0	1	0	0	0	0	1
Total	5	13	12	2	4	4	2	6	4	52

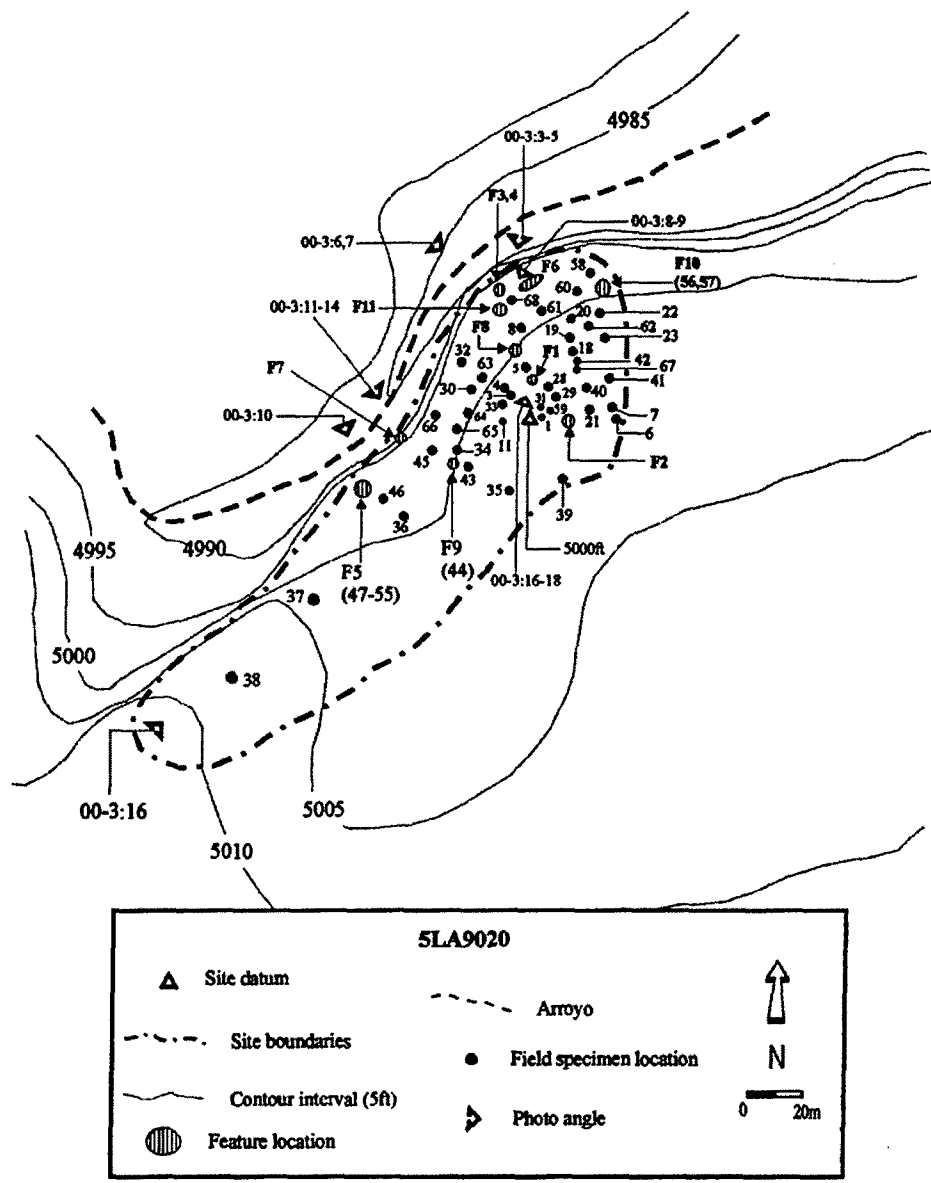


Figure 4.144: Site map, 5LA9020.



Figure 4.145: Site overview photograph (PCMS 00-2: 22) with sandstone cliff on right edge of frame and datum on left side, 5LA9020.



Figure 4.146: Photograph of Feature 1, a circular stone structure, 5LA9020.

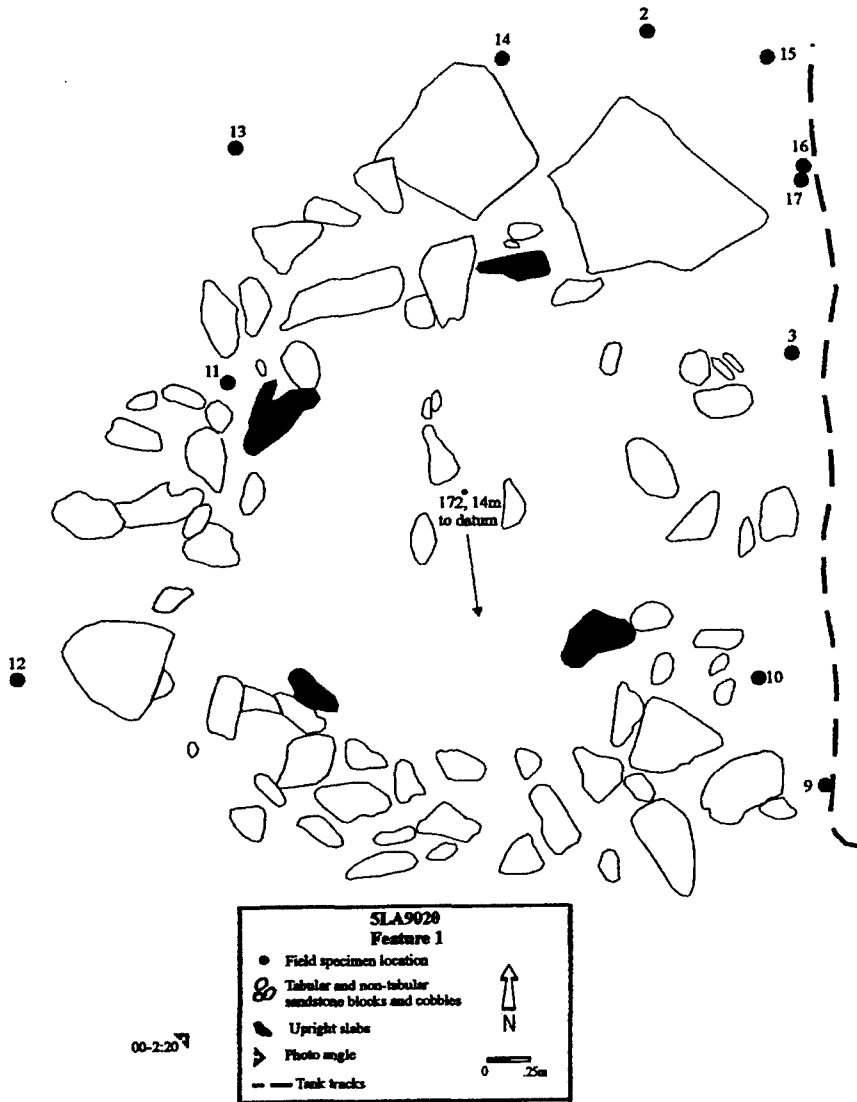


Figure 4.147: Planview map of Feature 1, a circular stone structure, 5LA9020.

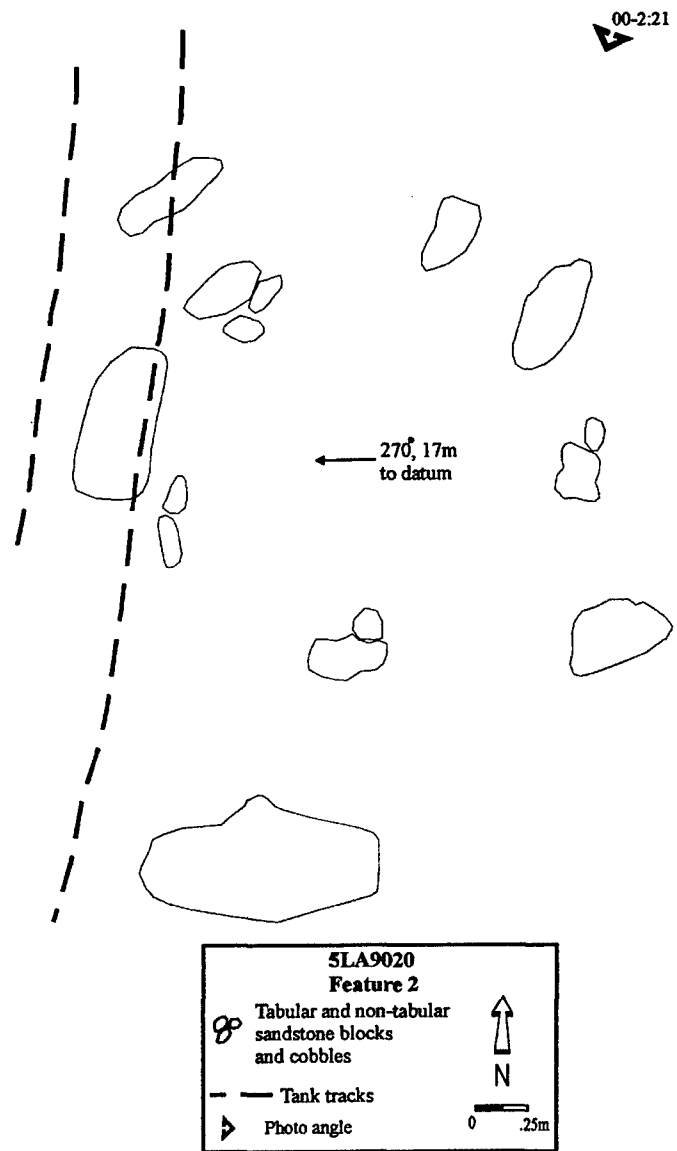


Figure 4.148: Planview map of Feature 2, circular stone structure, 5LA9020.

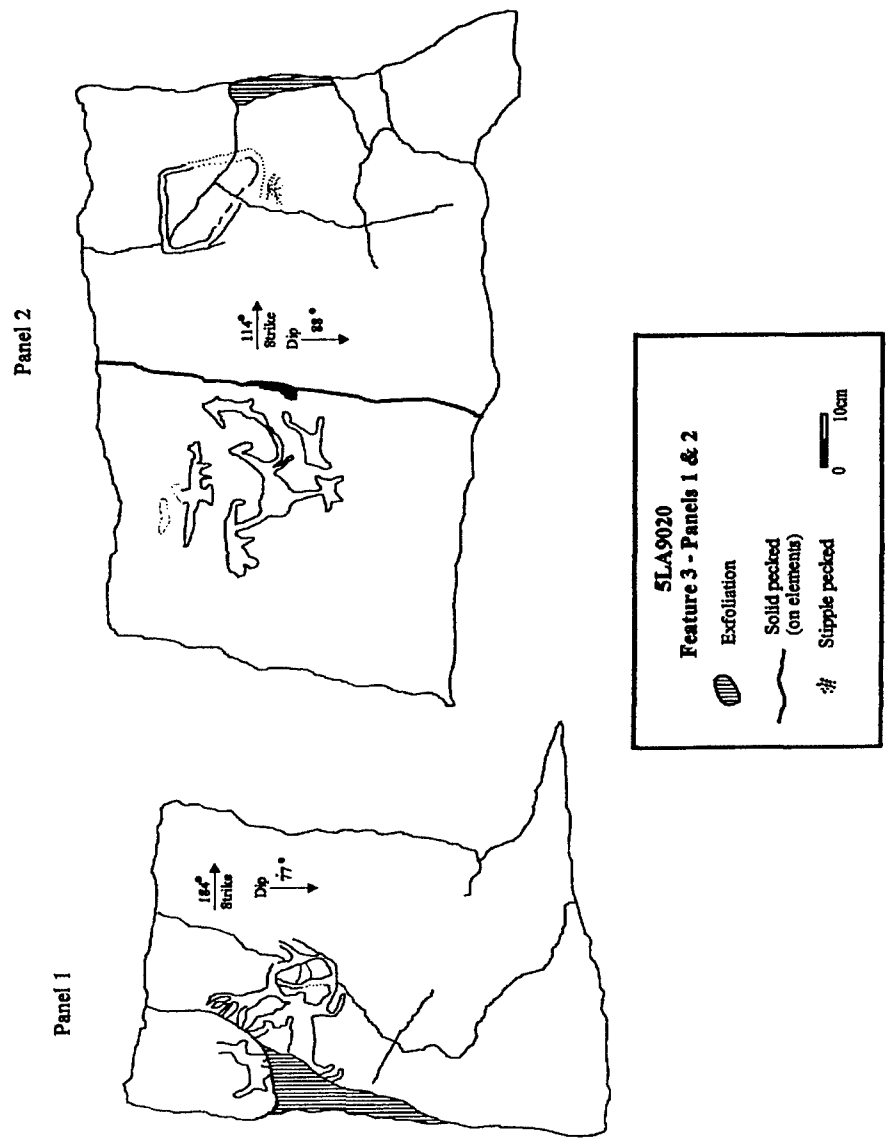


Figure 4.149: Petroglyph panels 1 and 2, Feature 3, 5LA9020.

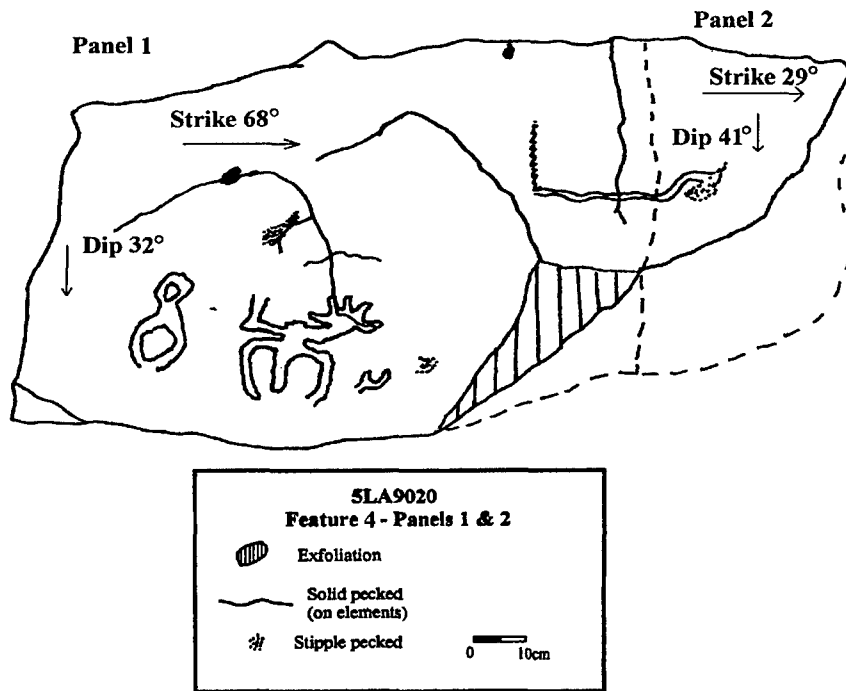


Figure 4.150: Feature 4, petroglyph panels 1 and 2, 5LA9020.

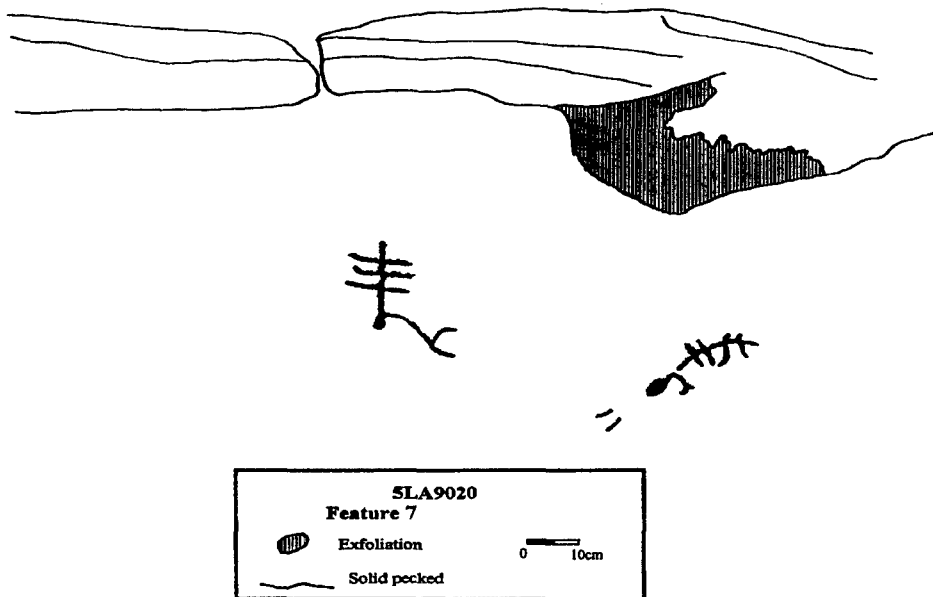


Figure 4.151: Feature 7, petroglyph panel, 5LA9020.

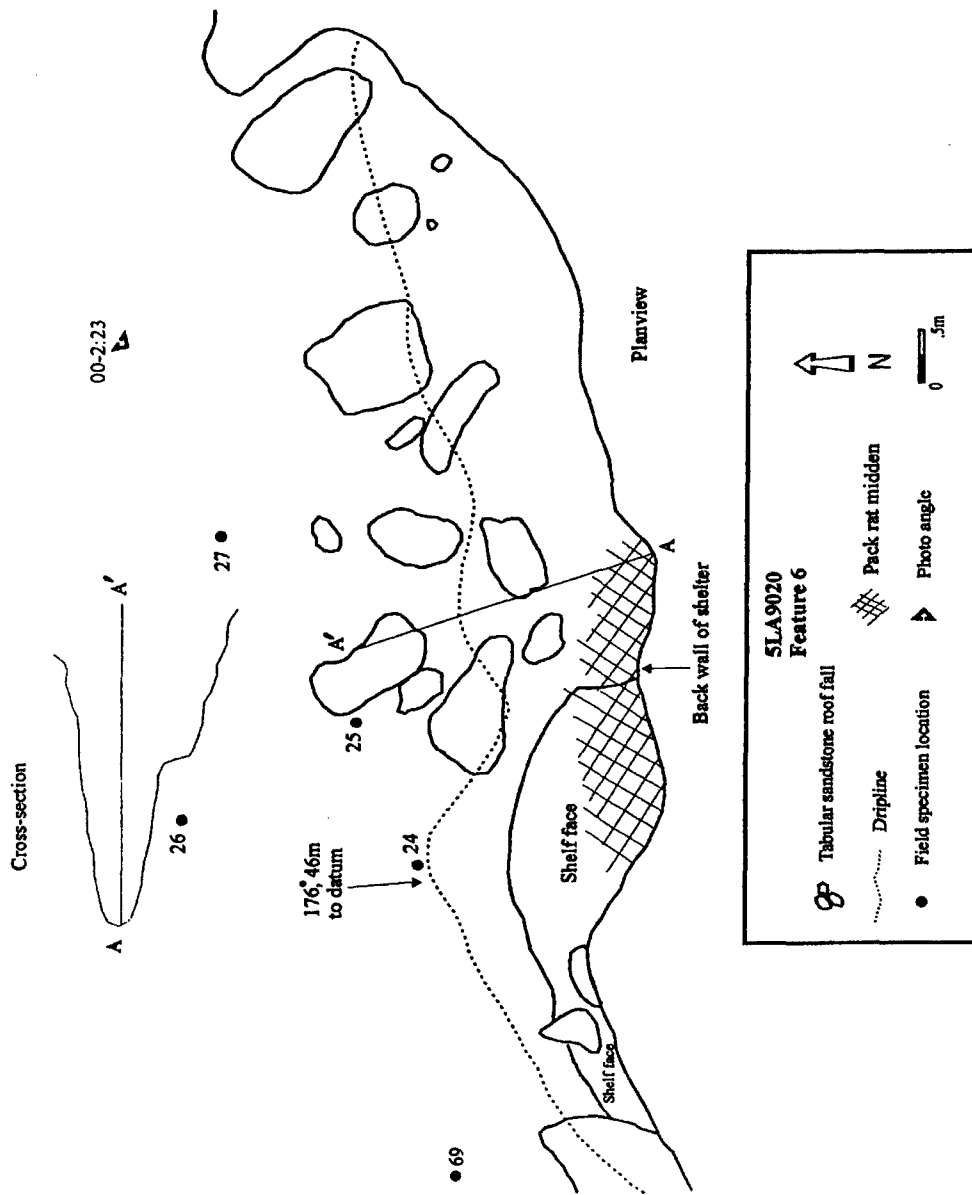


Figure 4.152: Planview and cross-section map, Feature 6, rockshelter, 5LA9020.

Ceramic Artifacts

A single ceramic sherd (FS 70) was located just east of Feature 1 and very near the P83 projectile point (FS 17). This body fragment is made of non-mica bearing clay with grit temper. The original vessel form for this sherd is unknown. See Appendix IV for more detailed ceramic analysis and description.

Interpretation and Summary

We recommend that this site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). This is a fairly large lithic scatter and structure site. Deposition in the two circular stone structures (Features 1 and 2) indicates that there is a good probability of recovering intact, buried, cultural deposits. Such deposits may yield pollen, faunal, and macrobotanical evidence useful for constructing subsistence and/or for reconstructing the paleoenvironment. There is also some deposition in the area of Features 6 and 11 (rockshelters). Obsidian and Black Forest silicified wood artifacts offer the potential for addressing issues regarding trade and exchange. The ceramics and the possible datable carbon from the ash staining outside of Features 1 and 6 could be useful for addressing chronological issues. Also, the presence of structures is useful for research about settlement. Finally, the presence of rock art panels is data relevant to the study of ideology and cosmological issues. One panel on this site and the one on 5LA9043 (567 m northwest and across the arroyo) show quadrupeds in a fashion similar to those found at Cross Ranch (5LA5830). The Cross Ranch panel signifies some kind of game drive. It is possible that the area of the PCMS containing sites 5LA9020 and 5LA9043 was also used for driving game, as there is no permanent water on site.

This multi-component site should be fenced to protect it from military activities. Tracked vehicles have impacted Features 1 and 2 and it is a wonder that neither were destroyed. The remaining features are protected from everything but pedestrian traffic by the cliff edge.

5LA9031

The site is a historic homestead and a dense, historic trash scatter (Figure 4.153, 4.154). It is in the northern portion of the project area near the lower fringes of the Bear Springs Hills. The site and its components extend over an area of approximately 3.2-acres. The site datum is situated at an elevation of approximately 1574 m (5165 ft) asl. There is little topographic relief across the site area, but the terrain dips gently (less than 2 degrees) to the south.

Grassland is the dominant vegetative community seen in this portion of the PCMS. Blue grama, Galleta grass, snakeweed, sand dropseed, wolfberry, saltbush, sagebrush, yucca, cholla, and juniper were seen growing at the site. Dense stands of juniper are present on a low hill 400 m north of the site. Most of the site has rather deep soil deposition due to its location on the fringe of an alluvial fan. The areas around the historic structures seem to exhibit at least 15 cm and may be covering intact deposits.

Features

The site consists of multiple features including a dugout (Feature 1), cistern (Feature 5), two concentrations of slag (Features 4 and 6), a possible privy (Feature 2), a small concrete slab (Feature 3), and a foundation remnant (Feature 7). Located at the central portion of the site is the dugout. This shallow depression measures almost 14 x 10 ft and is oval in planview. No construction elements protrude out the surface and there is no evidence for which end might have contained an entrance. Post abandonment deposition here seems to be significant and may be capping features and historic artifacts.

Feature 2 is a depression (6 x 5 ft), and it has an exposed end of a board along its east end. The function for this feature is unknown; however, it is small enough to be considered as a privy pit, though all of the other construction elements are missing. The position of the board (55 degrees) suggests significant depth. A test unit here could provide datable material for this site.

Feature 3 is a small, rectangular, concrete slab that measures nearly 6 x 4 ft. It sits just north of Feature 1. One cut wire nail was found on top of this and there is one anchor bolt still embedded along its south edge. The function for this feature is unknown.

Feature 5 is a cistern with a poured concrete collar that is square in planview (Figure 4.155). The cistern was originally dug and lined with unmodified sandstone slabs, but during a later usage it was plastered and we suspect that was when the collar was poured. The collar measures 5 x 4 ft and is at least 12 ft deep. There is no trash visible within the cistern and post abandonment deposition is shallow.

Feature 7 is a foundation remnant. It consists of only four sandstone blocks, one of which was crushed by a tracked vehicle. Very little of this feature remains and it is likely that the blocks used in this foundation were scavenged for cistern remodeling.

Historic Artifacts

A fairly dense scatter of historic trash is found throughout the site with an especially dense cluster just to the west of the modern barbed wire fence that bisects the site. The site is located on land patented to Henry Stoffel in 1923. Household materials, estimated to date from the early 1900's and from the 1940s to 1950s, were found. Numerous sherds of amethyst and brown bottle glass, milk glass, and aqua window glass were found. Several crockery sherds and multicolored pieces of ceramics were recorded. Many tin cans were also encountered-- tobacco tins, many undiagnostic fragments, a shoe polish can, and a baking powder lid ("Baking 25 c/KG 25c Powder"). Construction material included wire, tack, and cut nails and brick. Miscellaneous items found were gate hinges, a key base, a shell button, a metal clip for overalls (child size), a metal belt buckle, and metal chain (one link broken and replaced with smooth wire).

The earliest historic component of this site can be dated to between 1910 and 1930 based, in part, on the presence of amethyst glass. This period of time corresponds to the socio-political period of Early Ranching (1910-1930).

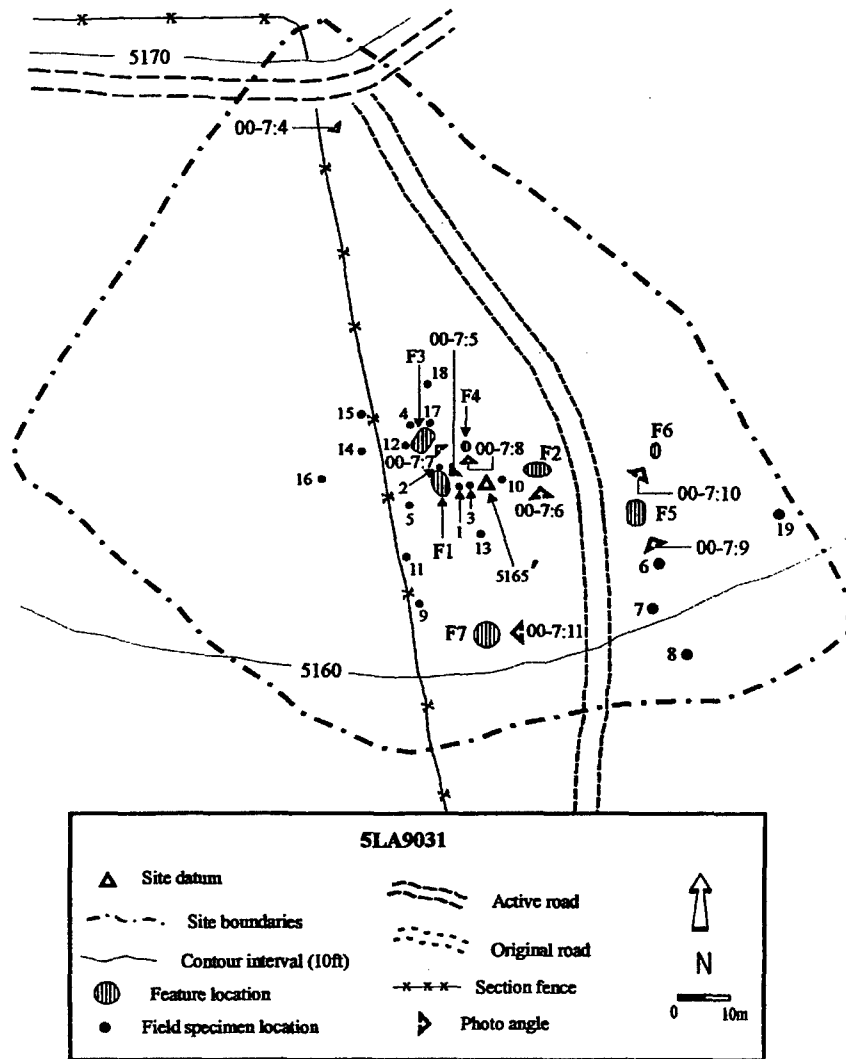


Figure 4.153: Site map, 5LA9031.



Figure 4.154: Site overview photograph (PCMS 00-7: 4) taken from north end of site, 5LA9031.



Figure 4.155: Photograph (PCMS 00-7: 9) Feature 5, cistern, 5LA9031.

Interpretation and Summary

This site is recommended eligible for the National Register on the grounds that it is likely to yield information important to our understanding of history (Criterion D). An inhabitant of this site was likely a blacksmith as evidenced by the slag piles. A hand-forged hinge is located on the gate north of the site boundary. The artifacts date from the early 1900s, to the 1940s or 1950s. The cistern appears to have been rebuilt and used at a later date. No habitation structures were positively identified and it is likely that the house was dismantled and the building materials were used elsewhere. Another historic site (5LA9210) is located 150 m to the northwest and it is likely that these two sites are related. Information of regional settlement may be available.

Because the site's significance is based primarily on Features 1 and 2, and both of these are capped, our management recommendation is to sign and avoid. A large opening exists above the cistern and this presents a hazard to military personnel. This feature should be capped as a safety measure.

5LA9037

This site is a large, but low-density lithic scatter located on a low ridge at the fringe of the Bear Springs Hills (Figures 4.156, 4.157). The site sits below the "Old Baldy" landmark in an area that is bisected by several small erosional drainages. The site covers approximately 5.6 acres and is localized along the southern edge of the ridge. A thin lithic scatter is seen at the west edge of the site with a much higher density in the southern drainage. The elevation of the datum is 1,588 m (5,210 ft) and the terrain ranges from a low of approximately 1,584 m (5,200 ft) to a high of 1,591 m (5,220 ft). The site slopes from west to east from 1 to 10 degrees.

Juniper, piñon, mountain mahogany, sagebrush, *Rhus trilobata*, ricegrass, grama grasses, wolfberry, prickly pear and snakeweed were noted on the site. Though the juniper and piñon tree cover is thick, all other species were found in sparse groupings. Soil deposits are thin at the edges of the eroded drainages where large areas of limestone bedrock are exposed. In the western part of the site above, between the drainages, deposits of up to 20 cm in depth were noted. Overall, this site is highly deflated and erosion has been increased by heavy mechanized vehicle disturbance.

Features

Two prehistoric features were recorded at the site, both of which appear to be hearths. Each is primarily composed of darkened soil with some ash and thermally altered rocks. Feature 1 measures 1.5 x 1 m, Feature 2 is 1 meter in diameter. Prehistoric artifacts were recorded around each of the features.

Lithic Artifacts

The surface artifact assemblage consists of 103 pieces of debitage, 26 chipped-stone tools, and 40 ground-stone tools. Table 4.57 presents a summary of the chipped stone debitage recorded at the site. The debitage is 35% chert, 25% fine-grained quartzite, 23% coarse-grained quartzite, 9% hornfels/basalt, 2% orthoquartzite, 2% chalcedony, 1% dendritic chert, 1% limestone, 1% obsidian, and 1% siltstone. Most of these materials can be found on the PCMS in cobble or nodule form, or outcropping in beds at the surface. The dendritic chert (Hartville Uplift source) and the obsidian (Grant's Ridge source) are nonlocal items. The debitage is 50% simple flakes, 40% complex flakes, 8% shatter, and 2% biface-thinning flakes.

Only 25% of the debitage items show some degree of dorsal cortex, of which 23% are large items and 2% are small. One piece of chert shows a red color change from heat exposure, and one piece of basalt is highly patinated.

Of the 52 simple flakes, most are chert (15), fine-grained quartzite (14), and coarse-grained quartzite (13). Those remaining are basalt (5), orthoquartzite (2), chalcedony (1), limestone (1), and siltstone (1). The complex specimens are made of chert (18), coarse-grained quartzite (10), fine-grained quartzite (9), basalt (2), obsidian (1), and chalcedony (1). The low number of cortical flakes indicates that the site was a location where noncortical cores were reduced. In other words, most of the materials appear to have been initially reduced at the quarry and noncortical cores or early stage bifaces were then brought to 5LA9037 for further reduction. The high number of simple flakes and presence of shatter indicates that free hand percussion was employed to produce most of the debitage items. The presence of small, complex flakes (16%) and biface-thinning flakes shows a fairly strong emphasis on late-stage biface thinning or resharpening. Because there are few small debitage items in general, it seems likely that the smaller biface-thinning flakes or late stage reduction debris has been transported from the surface by erosion. The Hartville uplift chert item is a biface-thinning flake and the Grant's Ridge obsidian specimen is a small complex flake. This indicates that nonlocal materials were brought to the site as nearly finished bifaces.

There appears to have been an overwhelming selection preference for locally available microcrystalline and macrocrystalline materials. It should be noted that this site is located in the flats away from the canyons and the closest source for the quartzite and chert is 6.3 km southeast.

Twenty-six tools representing six tool classes were recorded in the chipped-stone tool assemblage. These are eight projectile points, six flake tools, five bifaces, five cores, an end/side scraper, and a chopping tool. The cores are fine-grained quartzite (2), coarse-grained quartzite (2), and basalt (1); the chopper is made of coarse-grained quartzite. Of the flake tools, five are utilized flakes and one is a uniface. Only the uniface is broken. Five of these items were used for scraping, and one is a flake knife. All of the bifaces are broken and exhibit no use wear; three were broken during heat exposure, one is an end-shocked biface (FS 10), and the other was broken during later manufacture (FS 6). Field specimens 21 and 23 are finished bifaces and FS 6 is a nearly finished biface.

Eight projectile points were recovered from the surface of this site, of which five are temporally diagnostic. The first point (FS 25) is made of fine-grained quartzite, has broken barbs, and is similar to Anderson's (1989) type P34. This type is associated with dates that range between 4000/3000 BC to AD 1000. The second fine-grained quartzite point (FS 38) is a P42 and ranges in time between AD 600 and AD 1600. Field Specimen 27 is a fine-grained quartzite point that is missing its tip. It most closely resembles a P56, which has a date range of AD 750 to AD 1100. It is heavily polished with a green adhesion on one surface. There is heavy polish at the notches and may have been worn as a pendant. Another point fragment (FS 5) is made of Black Forest silicified wood and is a P62 (AD 500 to AD 1400). The remaining point fragment (FS 20) was classified as a P83 and ranges in age from AD 750 to AD 1650. Based on these five artifacts, the site likely had at least one occupation in the Late Prehistoric stage (AD 100 to AD 1725) and perhaps an earlier occupation sometime during the Archaic (5800 BC to AD 100).

The ground-stone assemblage is very large when compared to other sites in Training Area 10. All tools were found randomly with no apparent concentration. Artifact classes include one hand mano fragments (16), slab metate fragments (13), two-hand mano fragments (5), complete one-hand manos (5), and complete slab metate (1). Discounting the granite mano, the remaining tools are made of sandstone.

Table 4.57: Summary Description of Chipped-Stone Debitage for 5LA9037.

	Chalced.	Chert	C. Quartzite	Exotic	F. Quartzite	Hornfels/Basalt	Limestone	Ortho.	Siltstone	Total
Total	2	36	24	2	26	9	1	2	1	103
Large	1	11	22	0	18	7	1	1	1	62
Small	1	25	2	2	8	2	0	1	0	41
Cortical	0	7	12	1	4	1	1	1	0	27
Noncortical	2	29	12	1	22	8	0	1	1	76
Complex	1	18	10	1	9	2	0	0	0	41
Shatter	0	2	1	0	3	2	0	0	0	8
Simple	1	15	13	0	14	5	1	2	1	52
Biface-Thinning	0	1	0	1	0	0	0	0	0	2

Table 4.58: Stone Tool Type by Material Group for 5LA9037.

Material	Type								Total
	Biface	Core	Projectile	Scraper	Flake Tool	Chopper	Mano	Metate	
Argillite	0	0	0	0	0	0	0	0	0
Limestone	0	0	0	0	1	0	0	0	1
Chert	4	0	2	1	0	0	0	0	7
Coarse Quartzite	0	2	0	0	0	1	0	0	3
Fine Quartzite	1	2	4	0	5	0	0	0	12
Silicified Wood	0	0	1	0	0	0	0	0	1
Sandstone	0	0	0	0	0	0	25	14	39
Hornfels/Basalt	0	1	0	0	0	0	0	0	1
Orthoquartzite	0	0	1	0	0	0	0	0	1
Granite	0	0	0	0	0	0	1	0	1
Total	5	5	8	1	6	1	26	14	66

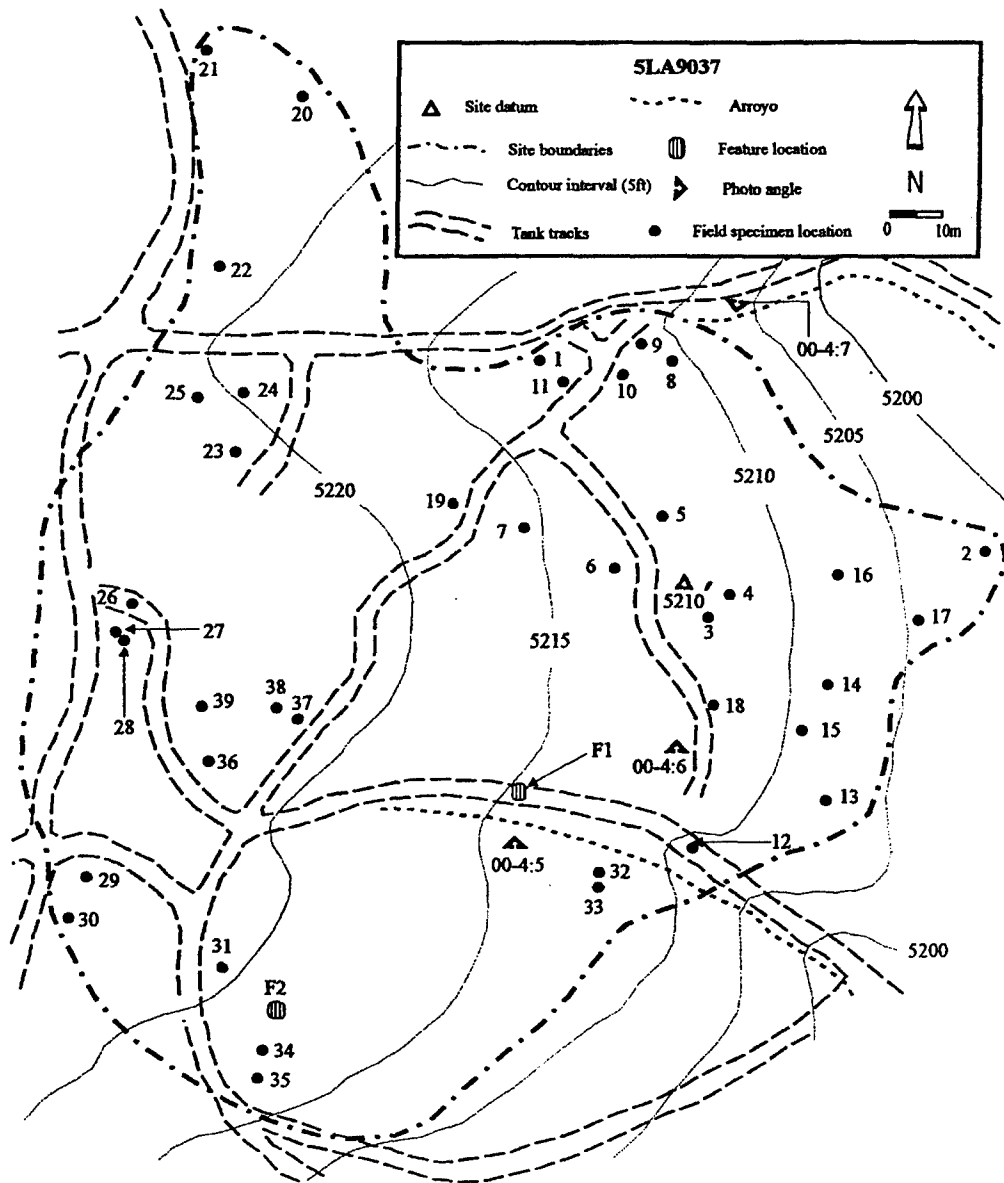


Figure 4.156: Site map, 5LA9037.

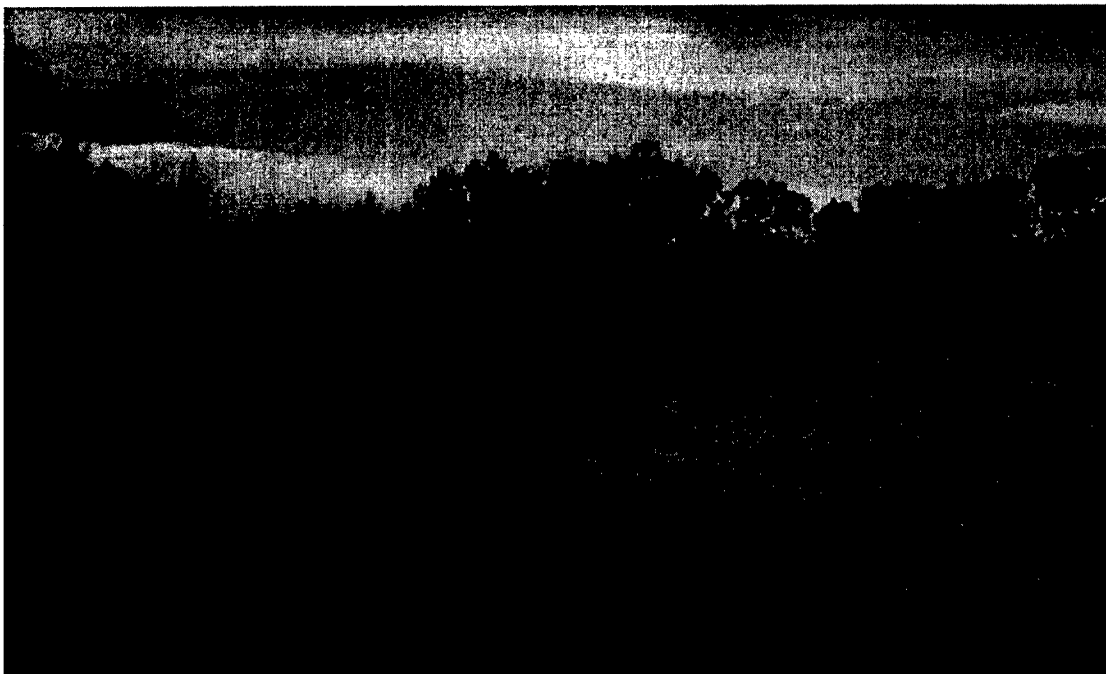


Figure 4.157: Site overview photograph (PCMS 00-4: 6), view north toward datum, 5LA9037.

Interpretation and Summary

The site exhibits soil deposits of up to 20 cm and thermal features that indicate the presence of intact buried deposits. Therefore, the site is eligible for nomination to the National Register based on Criterion D. The ground- and chipped-stone tools indicate the primary site activities were flake production, late-stage tool manufacture, and food processing. There are many piñon trees on the landform and this might explain the high number of ground-stone tools recorded. The presence of hearths suggests cooking and opportunistic camping. Nonlocal materials (including Grant's Ridge obsidian, Hartville Uplift chert, and Black Forest silicified wood), projectile point fragments, and considerable ground stone are useful for addressing the research domains of chronology, subsistence, trade and exchange, and possibly paleoenvironment. Overall, artifact density is low. The surface of this site is badly eroded and has nearly been destroyed by tracked vehicles.

Our management recommendation is avoid and test. Both of the thermal features will eventually be destroyed by erosion and test units here could mitigate the site as well as provide data regarding possible seasonal piñon or ricegrass exploitation.

5LA9043

The site is a sparse, prehistoric lithic scatter with a rock art panel and small historic trash scatter (Figure 4.158, 4.159). It is found in the steppes region of the PCMS in the upper Stage

Canyon drainage. The site extends over an area of approximately .15-acres and is situated on the northern terrace of an unnamed drainage, with a thick bed of sandstone forming the southern boundary. The highest point of the site is along its north boundary and the terrain dips gently to the southwest toward the arroyo. The datum is situated at an elevation of approximately 1530 m (5020 ft) asl. Several small erosional drainages cross the site from northeast to southwest.

Juniper woodland is the vegetative community in the area on the site, grassland can be found in all areas surrounding the site. Juniper, ricegrass, yucca, prickly pear larkspur, wolfberry, blue grama, and sagebrush were seen growing at the site. Most of the site has rather shallow soils, especially near the canyon edge, where it is badly eroded. However, there is some deposition along the northern site boundary (up to 10 cm).

The historic component of the site is a single tin can fragment and two pieces of ceramics. There is a well 70 m southwest of the site and it is likely related to the trash.

Features

A single panel of quadrupeds was located on a varnished sandstone face at the center of the site (Figure 4.160). It depicts four quadrupeds that appear to be deer; two does and two bucks. These are solid-pecked elements with no visible patination over the pecking. Also, the surface of the panel appears to have been prepared by surface grinding. One of the figures (third from left) shows a ground spot where the heart/lung area would be. This panel is stylistically similar to the Cross Ranch panel (5LA5830). In Loendorf and Kuehn (1991) the Cross Ranch panel was thought to have been produced between AD 1425 and 1575. Since both panels were made using a similar technique and have like elements, it seems reasonable to conclude that the Panel on 5LA9043 dates to around the same time period. This panel suffers from severe wind and water erosion and several areas of the rock face have spalled off. If there were any elements below the quadrupeds, they have been lost due to exfoliation.

Feature 2 is located approximately 13 m and 275 degrees from the site datum. It is a concentration of blue claystone that shows flaking characteristics. Though this is a high quality material it is too soft for tool production. Though striations were not visible on any of the specimens, it seems possible that some ornamental/jewelry items were manufactured here.

Feature 3 is a bedrock metate with two milling surfaces (FS 7 and 8). Both of these surfaces show moderate grinding wear with visible longitudinal striations. This feature is 12.5 m and 141 degrees from the site datum and sits on exposed bedrock at the edge of the arroyo.

Lithic Artifacts

Thirteen pieces of chipped-stone debitage were recorded at the surface. These artifacts consist of seven simple flakes and six complex flakes. None of the debitage were found together, all were found randomly across the site.

Table 4.59 presents the data on debitage type by material type. The debitage is coarse-grained quartzite (4), chalcedony (4), basalt (3), and orthoquartzite (2). Seven of these items are small and six are large; cortex is visible on eight items and five are noncortical. One large basalt flake was recovered at the foot of the panel and may have aided in its construction. All of these materials are locally available and can be found on the PCMS.

Unfortunately, no temporally diagnostic materials, such as projectile points or ceramics, were recovered from the surface. The recorded chipped-stone tools are a fine-grained quartzite biface (FS 1), an end/side scraper of Ralston Creek chert (FS 6), and utilized flakes of chalcedony (FS 3) and basalt (FS 2). Both of the utilized flakes were used for scraping. Two one-hand mano fragments were also recorded. The sandstone mano (FS 4) is broken, and the quartzite mano is complete.

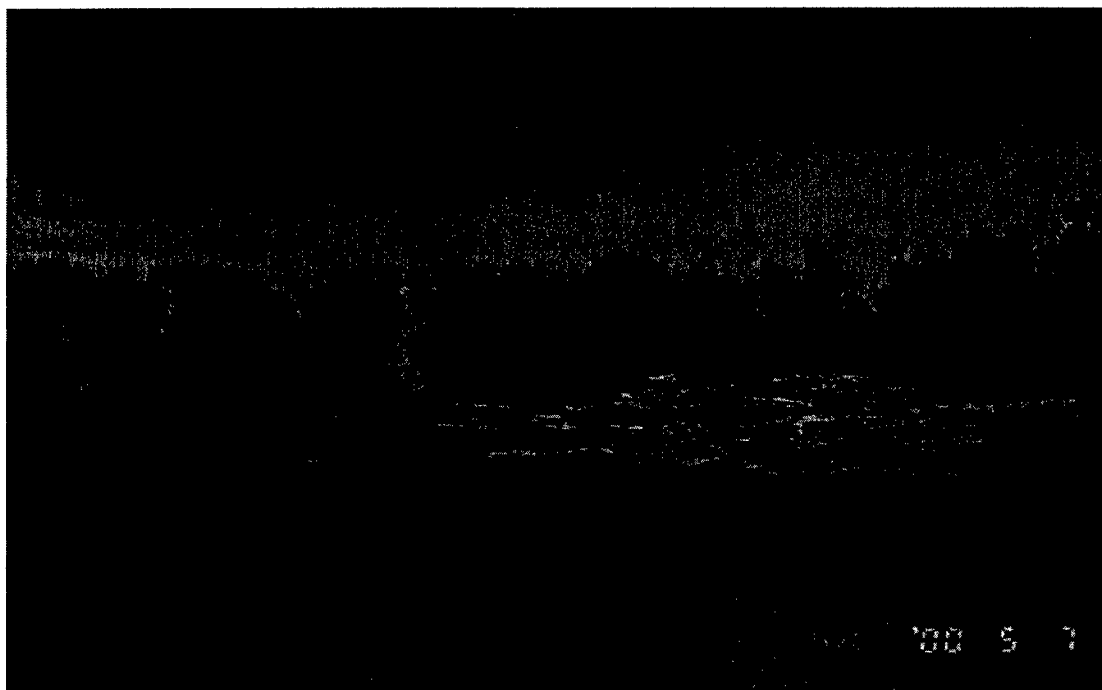


Figure 4.158: Site overview photograph (PCMS 00-2: 13) from arroyo facing towards the datum, 5LA9043.

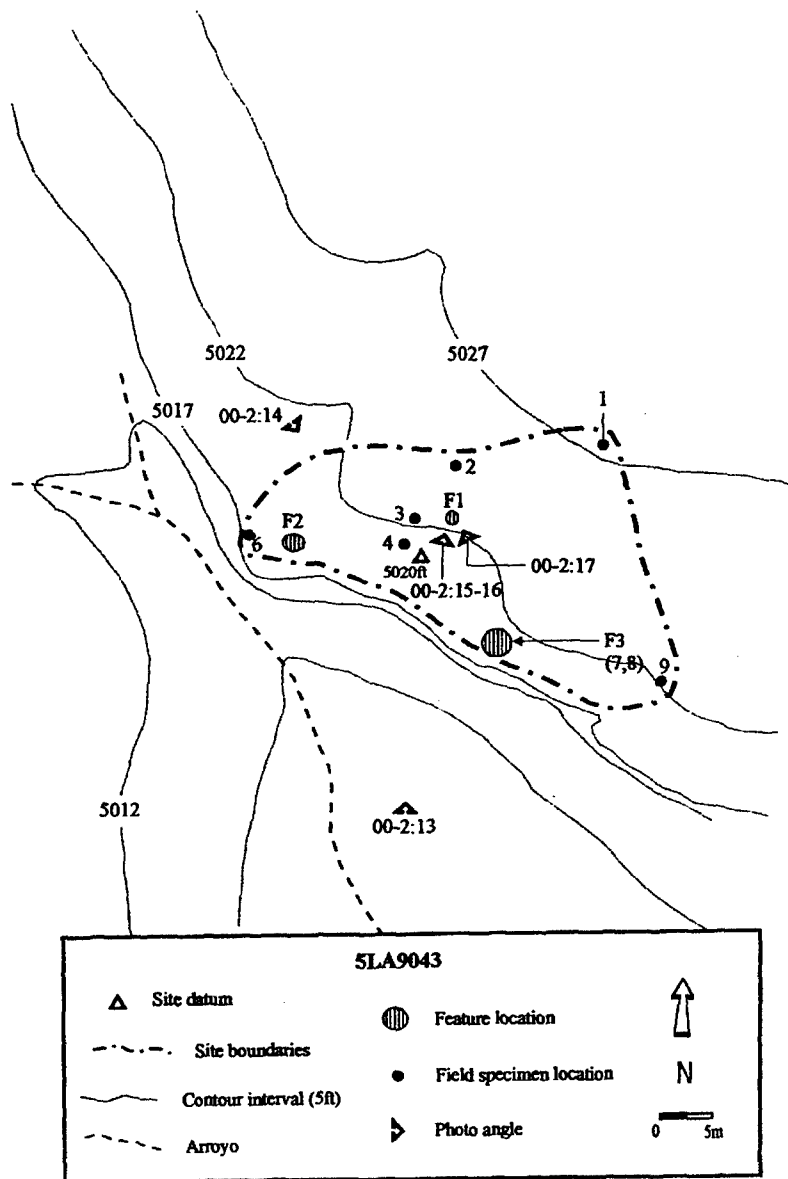


Figure 4.159: Site map, 5LA9043.

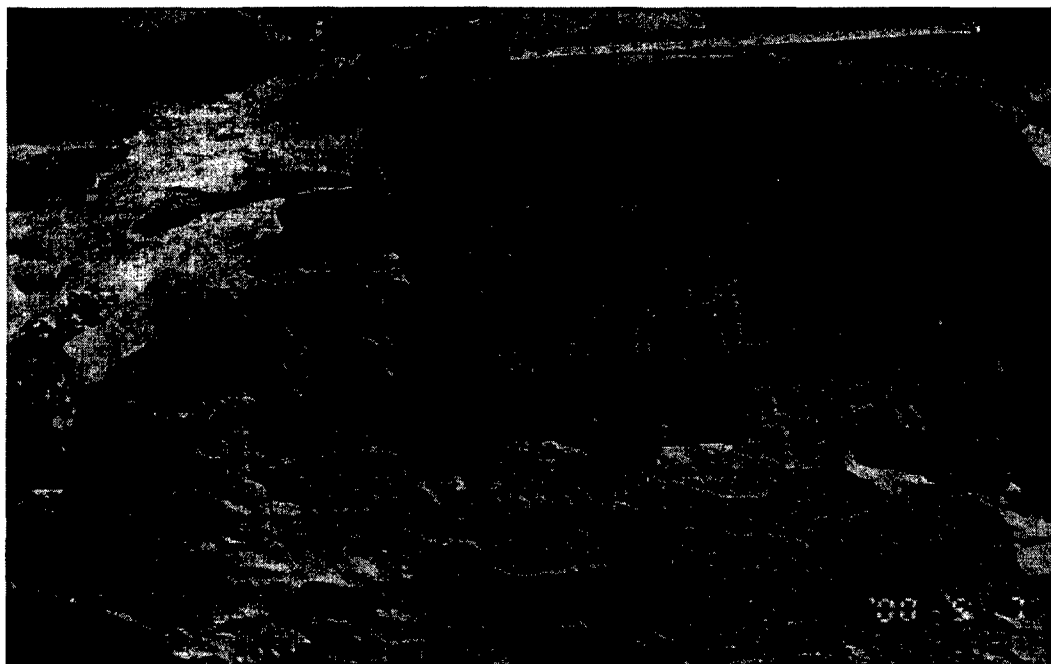


Figure 4.160: Photograph (PCMS 00-2: 16) of Feature 1, a petroglyph with four quadrupeds, 5LA9043.

Table 4.59: Summary Description of Chipped-Stone Debitage for 5LA9043.

	Chalcedony	Course Quartzite	Hornfels/Basalt	Orthoquartzite	Total
Total	4	4	3	2	13
Large	0	4	2	0	6
Small	4	0	1	2	7
Cortical	2	4	1	1	8
Noncortical	2	0	2	1	5
Complex	0	3	2	1	6
Simple	4	1	1	1	7

Interpretation and Summary

It is recommended that 5LA9043 be nominated for the NRHP on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). This is a sparse lithic scatter with evidence for early-stage lithic reduction and food processing. The rock art panel may provide information useful in addressing ideology concepts.

We also recommend fencing and avoiding this site, or at least the rock art panel, because the site is located in an area favored for Army maneuvers. The panel is deteriorating rapidly and should be professionally traced or stabilized before it is destroyed.

5LA9044

The site is a sparse lithic scatter and structure site located on the northern terrace of a shallow arroyo in the upper drainage basin of Stage Canyon (Figures 4.161, 4.162). The terrain is very flat and slopes gently to the south. A small erosional drainage can be found near the western site boundary. This site is .92-acres in size and the datum was set at approximately 1,530 m (5,020 ft) asl. It was located in the juniper woodland vegetative community typically found among feeder arroyos. Juniper, mountain mahogany, greasebush, ricegrass, and grama grasses were seen growing on the site. Soils are relatively thin, especially along the arroyo edge where exposed bedrock was common; however, areas of up to 10 cm of deposition were noted along the northern edge of the site.

Features

A single structure was recorded at the site (Feature 1). Feature 1 (Figure 4.163) is a circular structure that measures approximately 6 x 3.5 m and is located about 35 m southwest of the site datum. Distinct upright slabs were noted along the south and east wall and there are two intact multi-layer stacked walls here also. The maximum height along the south wall is 55 cm. Although there were no artifacts noted within this feature, there is 15 cm of fill and there could be buried cultural deposits. Animal burrowing has impacted this feature. Wall blocks from the west and north sides have been robbed for use elsewhere. This structure most closely resembles Kalasz's (1989) Class V, Category 17, which is a contiguous wall, rock abutment, fully enclosed, isolated unit. Kalasz (1989:103) indicates that similar stone structures from Carrizo Ranch have associated radiocarbon dates of 930 ± 225 BP and 630 ± 50 BP. If these dates can be reliably used to cross-date Feature 1, then we can infer an occupation of the site at sometime during the Developmental or Diversification period of the Late Prehistoric stage (AD 100 to AD 1450).

Feature 2 is represented by a single bedrock metate or grinding surface on the edge of the arroyo (FS 1) located about 36 m to the southwest of the site datum. The surface exhibits light grinding over an area measuring 41 x 34 x 1.5 cm.

Lithic Artifacts

Nine debitage specimens from the surface of 5LA9044 were analyzed. Only two debitage categories were encountered-- five simple flakes and four complex flakes. Table 4.60 presents chipped stone debitage type by material. Six material types were noted. Of the total debitage, two items were argillite, two were coarse-grained quartzite, and two were basalt. There were single entries for chalcedony, chert, and fine-grained quartzite.

The site yielded a total of eight chipped-stone tools-- two cores and six utilized flakes. Material types for the cores were chert and siltstone. The utilized flakes were argillite, Black Forest silicified wood, chert, fine-grained quartzite, orthoquartzite, and Ralston Creek chert. Three were broken, three were complete; all were used for scraping and have at least one steep utilized edge.

An edge-ground cobble of quartzite (FS 2) and a complete one-hand mano of sandstone (FS 10) comprise the recorded ground stone.



Figure 4.161: Site overview photograph taken toward datum (PCMS 00-2:18), 5LA9044.

Table 4.60: Summary Description of Chipped-Stone Debitage for 5LA9044.

	Argillite	Chalcedony	Chert	C. Quartzite	F. Quartzite	Hornfels/Basalt	Total
Total	2	1	1	2	1	2	9
Large	2	0	0	2	1	1	6
Small	0	1	1	0	0	1	3
Cortical	2	0	0	1	0	1	4
Noncortical	0	1	1	1	1	1	5
Complex	1	1	0	0	1	1	4
Simple	1	0	1	2	0	1	5

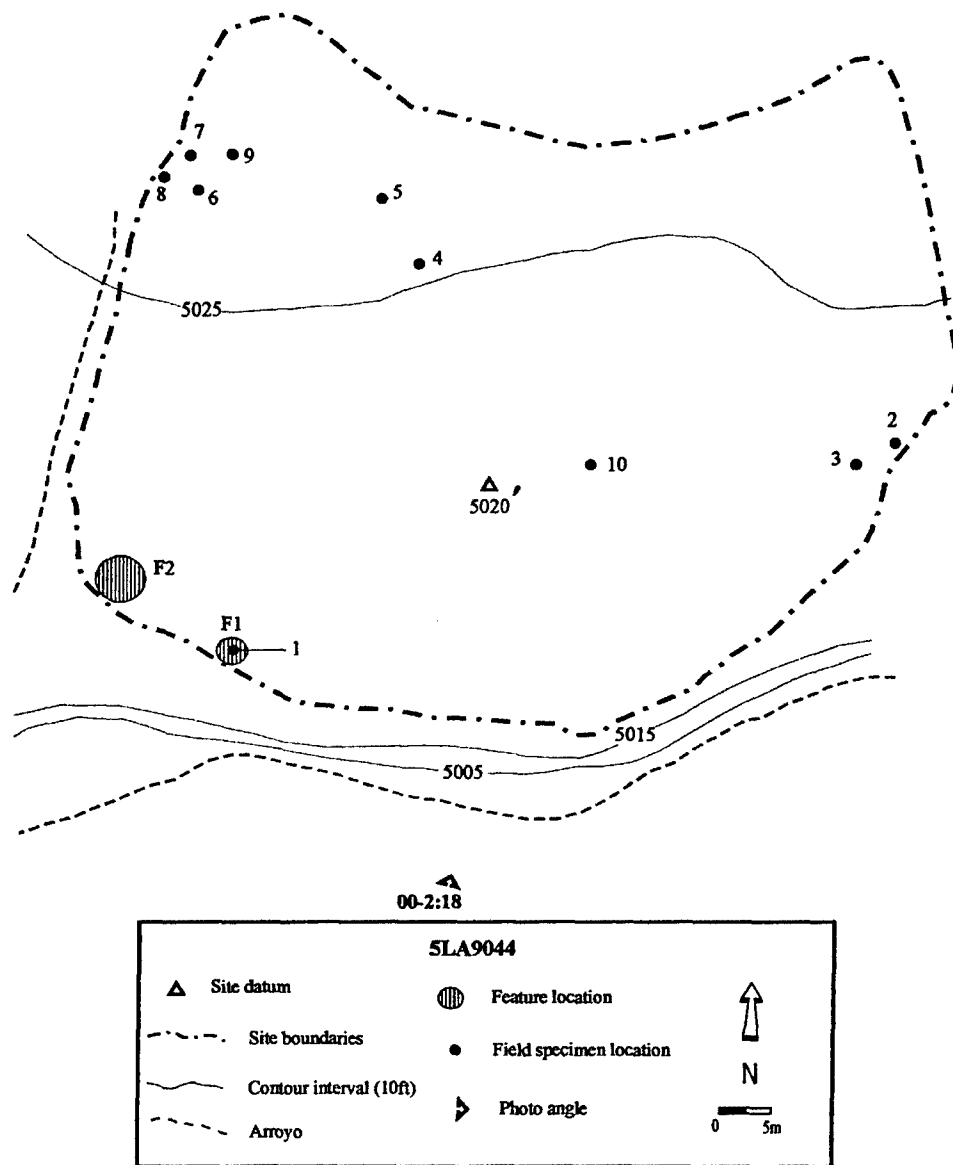


Figure 4.162: Site map, 5LA9044.

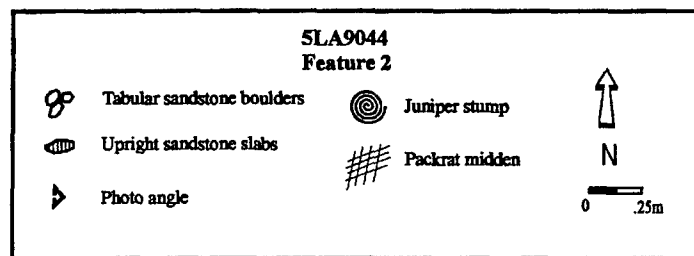
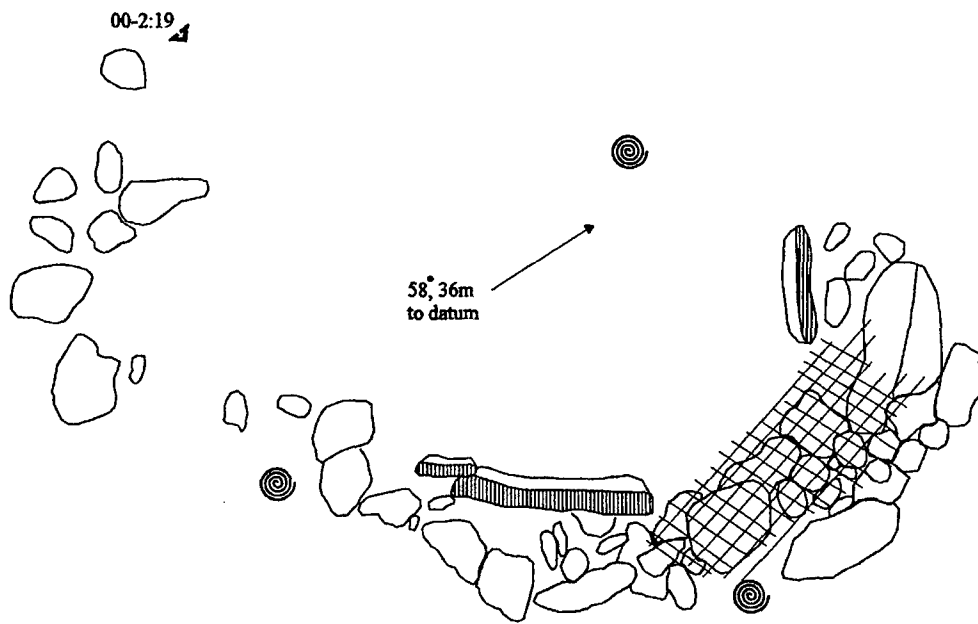


Figure 4.163: Planview, Feature 1, 5LA9044.

Interpretation and Summary

We recommend that this site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). This site is a small lithic scatter with a low density of artifacts and one circular stone structure. The structure (Feature 1) is in relatively good condition and has at least 15 cm of deposition. There is a good potential for encountering intact subsurface cultural deposits in or around this feature and its presence is significant when the research domains of settlement and architecture are considered. Other research domains such as chronology, technology, and subsistence strategy may be addressed through cultural materials encountered during excavation.

We suggest that the site receive no further consideration, as there is no current potential for military impact or erosion.

5LA9186

This site is a sparse lithic scatter and rock art site located on the western terrace of the Mary Doyle arm of Welsh Canyon. There is also an historic livestock fence along the canyon edge. The nearly 2-acre site sits on the canyon edge facing east and the terrain here dips to the east with the west part of the site being flat in nature (Figure 4.164, 4.165). The site extends over the canyon edge and incorporates part of the canyon walls and a low wall in southwest part of the site. The datum is at an elevation of approximately 1,515 m (4,970 ft). Site elevations range from a high of about 1,516 m (4,975 ft) in the western part of the site to a low of about 1,510 m (4,955 ft) along the cliff edge in the eastern part of the site.

Yucca, sagebrush, blue grama, cholla, sand dropseed, threeawn, galleta grass, and even some juniper trees were growing on the site when it was recorded. The vegetative community to the west is grassland and the community in the canyon is juniper woodland. Soil deposits are shallow across the site with sandstone bedrock exposed at the surface in the canyon, along the canyon edge, and in many places in the flat portion of the site. Most of the artifacts have eroded out at this bedrock surface.

Features

An eroded panel of petroglyphs was noted at the northern site boundary approximately 50 m and 320 degrees from the site datum (Figure 4.166). It seems to be only one element and is a series of intersecting solid-pecked lines with a single stipple-pecked line. Most of the rock surface has exfoliated off leaving the middle portion of the element unidentifiable. Patination covers this entire panel suggesting age. In the hogback area of the PCMS (Training Area 7), similar figures are known to be Archaic in age (Loendorf 1989).

Lithic Artifacts

A total of 54 pieces of chipped-stone debitage were recorded from the site (Table 4.61). Of the total debitage, 41% is coarse-grained quartzite, 17% is chert, 17% is fine-grained quartzite, 13% is hornfels/basalt, 11% is argillite, and there is one flake of chalcedony. Most debitage is large (76%), while the remaining 24% is small; 57% of the debitage is cortical and 43% has no cortex; and 52% is recorded as complex flakes, 6% as shatter, and 42% as simple flakes. Freehand percussion was likely the dominant technique for generating the debitage. There were some small complex flakes in the assemblage suggesting some middle-stage biface manufacture; however, early-stage lithic reduction generated much of the debitage. All of the materials noted here are found in the PCMS and many can be found in Welsh Canyon below.

No diagnostic materials, like projectile points or ceramics, were recovered from the site, though the chipped tool assemblage did contain of five pieces. One of these, FS 11, is a broken biface knife made of Niobrara jasper. Heavy wear is seen on both of its lateral edges. Another tool (FS 1) is a complete chert utilized flake with two scraping edges. The remaining three artifacts are cores, two coarse-grained quartzite and one chert.

Table 4.61: Summary Description of Chipped-Stone Debitage for 5LA9186.

	Argillite	Chalcedony	Chert	C. Quartzite	F. Quartzite	Hornfels/Basalt	Total
Total	6	1	9	22	9	7	54
Large	4	0	4	20	7	6	41
Small	2	1	5	2	2	1	13
Cortical	1	0	5	13	6	6	31
Noncortical	5	1	4	9	3	1	23
Complex	3	1	7	10	1	6	28
Shatter	1	0	0	1	1	0	3
Simple	2	0	2	11	7	1	23

Interpretation and Summary

Site 5LA9186 is a lithic scatter and rock art site (Feature 1) that functioned as an early-stage reduction area for locally available materials. The presence of an Archaic age panel, in this type of setting, is relevant to the study of ideology and cosmology. Therefore, the site is judged to be eligible for inclusion to the National Register of Historic Places

We recommend fencing the portion of the site containing the rock art panel as the site and the area around it are favored for military maneuvers.

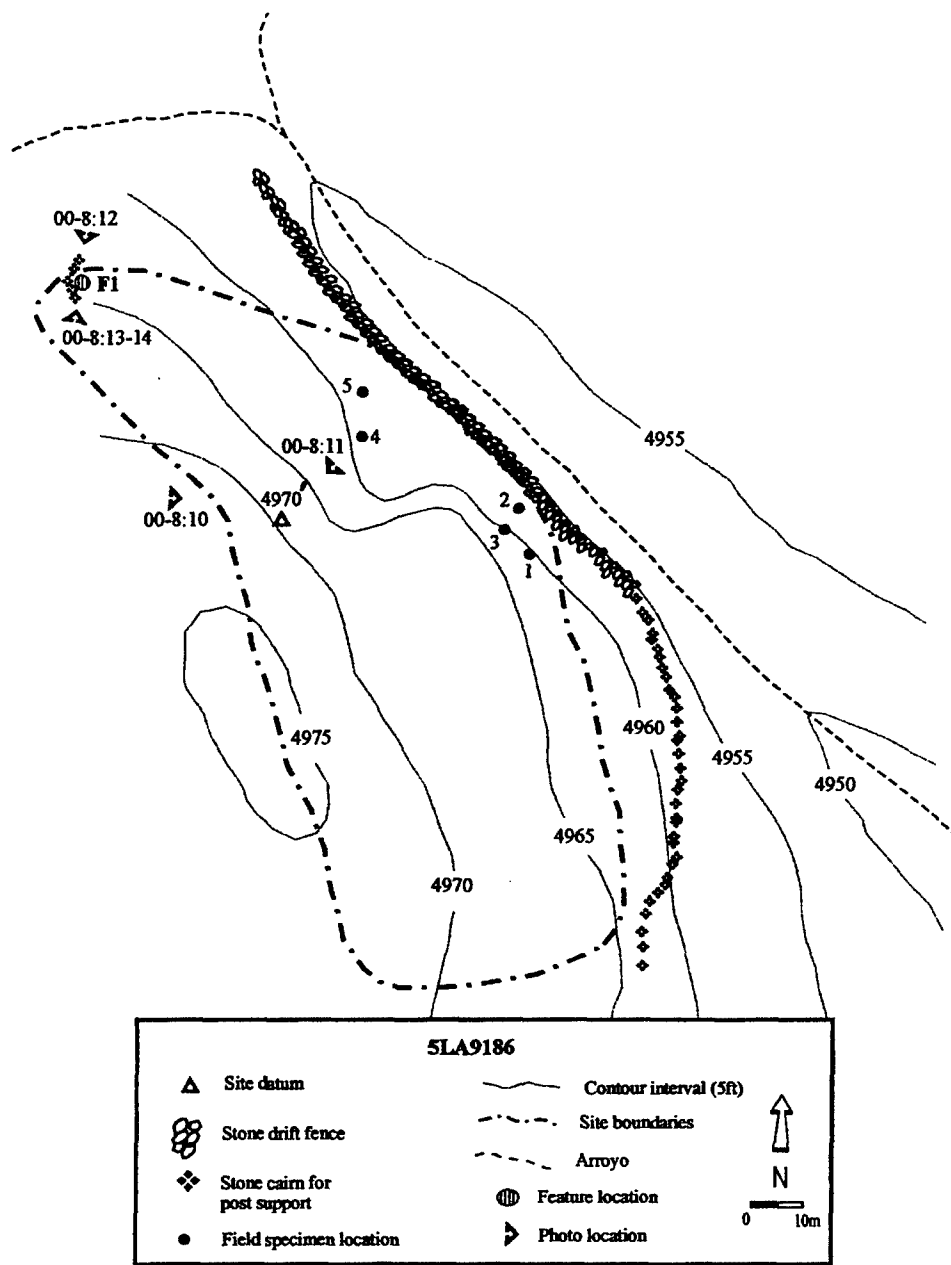


Figure 4.164: Site map, 5LA9186.

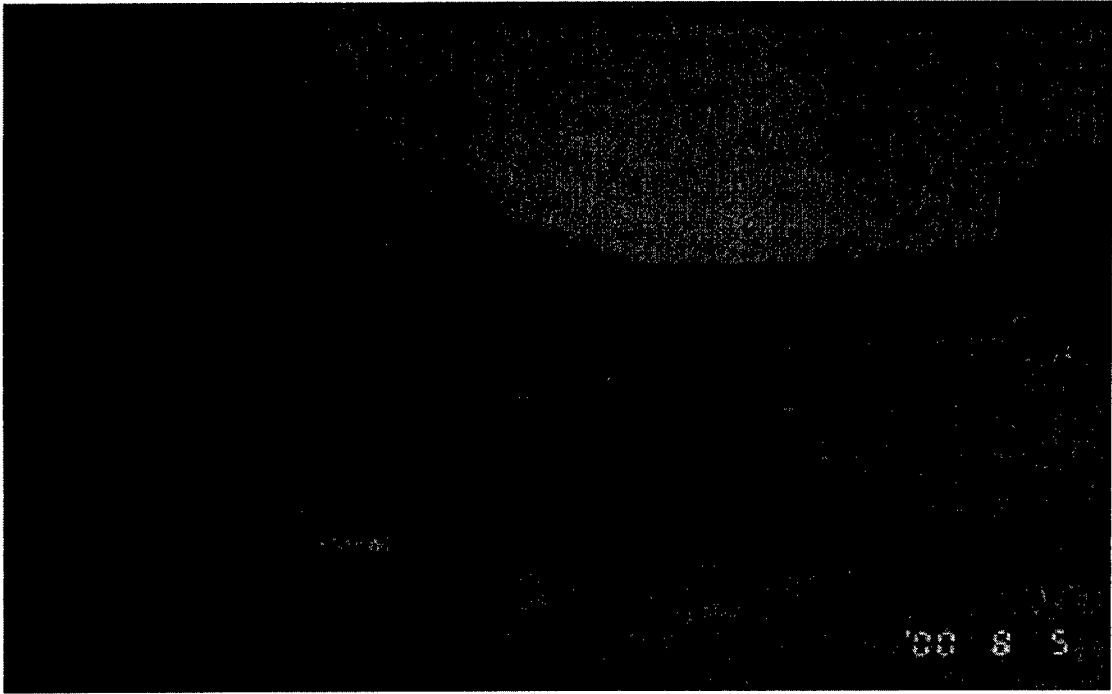


Figure 4.165: Site overview photograph (PCMS 00-8:10) with datum in right center portion of frame, 5LA9186.

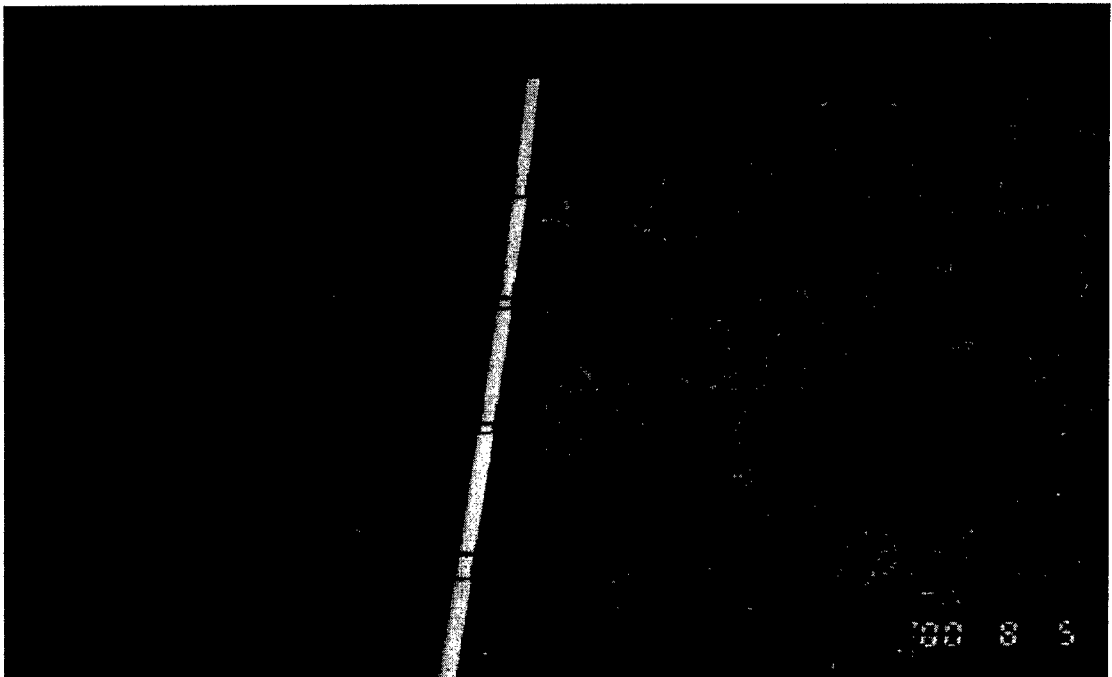


Figure 4.166: Photograph (PCMS 00-8:14) of Feature 1, a petroglyph panel.

5LA9187

This is a large, possibly multicomponent site with one distinct Late Prehistoric stage component and a possible Folsom component. A Folsom point fragment and three spurred side and end scrapers represent the possible early component. The largest and most substantial component is Late Prehistoric in age and is based on the presence of side-notched points and cord-marked ceramics.

This site is located on the eastern terraces of unnamed side drainage of Lockwood Arroyo. This drainage and Lockwood Arroyo proper converge 1.8 km northeast of the site. Most of the artifacts are eroding out of erosional cuts and arroyos; these are found on the slope above the arroyo and on the western edge of the site. Heavy erosion is present in the area of the datum and unsurprisingly, most of the site artifacts were clustered here. The surface soil grades from alluvium and colluvium near the arroyo to wind blown loess along the top of the terrace. Multiple terraces have formed at the surface, then sediment washed down from the limestone covered ridge to the east and south covering many parts of the site (depths of up to 30 cm are seen and depths could extend even deeper). Saltbush, sagebrush, and pale wolfberry dominate the overstory. Plant species also noted at the surface are foxtail barley, galleta grass, snakeweed, scarlet globemallow, goldenrod, sunflower, western wheatgrass, cholla, and prickly pear. During wet times the arroyo appears to grade into a riparian community. A large, dead cottonwood tree was observed in the arroyo bottom.

Features

A total of six features were observed and recorded. These are four spaced-stone rings (Features 1-4) of unmodified limestone boulders, and two deflated hearths. All four stone ring features were encountered west of the datum and down near the lowest arroyo terrace. These are found among thick vegetation and precise feature outlines are difficult to determine. Also, heavy mechanized vehicle traffic is apparent in this location and this has disturbed the features greatly. Feature 1 is the largest of the features and appears to be the remainder of a tipi ring. Features 2 and 3 are small stone circles that appear to be rock lined hearths at first glance. The hearth designation is problematic as there is no burning evident on any of the stones. Feature 4 could be the remainder of another tipi ring. Tracked vehicles have traveled repeatedly through this part of the site and have destroyed nearly all of the features. Possible hearths (Features 5 and 6) are highly deflated and no visible ash or small pieces of fire-cracked rock remain. All that remains is a loose scattering of large, burned tabular sandstone and limestone blocks. In addition, there are many small pieces of fire-cracked sandstone scattered widely across the site with no apparent concentrations. There are more of these burned pieces in the southwestern area of the site and it therefore seems likely that intact hearth features could be recovered from below the surface here.

Lithic Artifacts

The lithic assemblage is vastly different, and larger as a whole, than any other site encountered in the PCMS. Because of this, the surface of the site was collected during the

original recording effort, and four subsequent revisits; on 7/26/00, 9/8/00, 5/19/01, 7/19/01, 8/16/01. Two hundred and eighty-three debitage items were collected at the site with the vast majority of these encountered in the erosional area around and east of the datum. One thing making this site unique is that, in total number, more chipped- and ground-stone tools combined were recorded than debitage. The debitage consists of 108 simple flakes, 76 complex flakes, 57 pieces of angular shatter, 41 biface-thinning flakes, and a single core-rejuvenation flake. The material types are 37% chert, 34% silicified wood, 12% quartzite, 5% argillite, 4% basalt, 3% chalcedony, 2% orthoquartzite, 1% limestone, and 1% baked shale. The majority of the debitage items (61% of the entire assemblage) are from non-local sources-- Alibates dolomite (<1%), Black Forest silicified wood (30%), Flattop chalcedony (2%), Hartville Uplift chert (2%). It should be noted here that there were numerous chert, chalcedony, quartzite, and silicified wood items (26% overall) that are obviously non-local but the source location is unknown to us. This suggests that non-local lithic materials were brought onto the site as formal tools and the procurement tactic likely involved seasonal movement or exchange.

The presence of cortex on 21% of the specimens indicates that either most of the materials were reduced at the source or the occupants of this site carried only non-cortical cores (nearly exhausted), early-stage bifaces, or flake blanks. Most of the debitage is small and noncortical (57%), with large noncortical items (22%), large cortical items (12%), and small cortical items (9%) noted. See Table 4.62 for cortex, size, and debitage class breakdowns. The above percentages show that both early- to late- stage biface reduction and early-stage raw material reduction generated the debitage recorded on site. In addition, five material classes (argillite, basalt, chert, quartzite, and silicified wood) comprising nine specific materials (Alibates dolomite, argillite, basalt, Black Forest silicified wood, chalcedonic silicified wood, chert, fine-grained quartzite, Hartville Uplift chert, and Morrison chert) represent the biface-thinning flakes, so at least that many bifaces were manufactured or reworked on site. Though no use wear was noted during field analysis, these items were likely used as expedient cutting tools. Heat treatment was evident in 53% of the assemblage and patination was seen on a couple of items. Also, debitage items were carefully scrutinized for channel flakes and none were noted.

There are 369 flaked- and ground-stone tools in the assemblage that fall into the following classes-- small projectile point (108), utilized/retouched flake (92), scraper (50), core (35), biface (35), slab metate (17), pounder (14), mano (7), drill (5), shaft straightener (2), chopper (1), graver (1), hammerstone (1), and Folsom point (1). All were recovered randomly from the site surface, though an area containing exclusively projectile points is noted in the southern half of the site. The chipped-stone tools are made of most of the same material types as the debitage and strangely enough, the percentage of non-local materials (61%) is the same as in the debitage assemblage. The non-local materials are Polvadera Peak obsidian (New Mexico), Obsidian Cliff obsidian (Wyoming), plate chalcedony (South Dakota), dendritic chert (Hartville Uplift, Wyoming), Black Forest silicified wood (Palmer Divide, Colorado), Niobrara Jasper (outside the PCMS), Flattop chalcedony (eastern Colorado), Pedernal chert (New Mexico), and Tiger Eye chert (Rangely, Colorado). Most of the tools are chert (37%), silicified wood (28%), and quartzite (20%). See Table 4.63 for the remaining tool material types. Fifty percent of the tools show a red color change from heat exposure and 4% have patination.

Not counting the Folsom Point fragment (Flattop chalcedony, FS 16), the remaining points are similar in size and manufacture. A review of Anderson (1989) uncovered reference to these types of points and they are classified as P79, P80, P81, P82 and P83 projectile points. Of the points (109), 38 are chert, 27 are silicified wood, 26 are quartzite, eight are chalcedony, five are obsidian, four are orthoquartzite, and one is argillite. Non-local materials here mirror the overall chipped assemblage. Eighty-five points are complete enough to type using the Anderson (1989) typology, 18 specimens are whole and 51 points display impact fractures. This suggests that arrows were removed from game and then the broken points were discarded, particularly in the southern end of the site where only points were encountered (a rough triangle between FS 170, FS 185, and FS 135). Using dates assigned by Anderson (1989) the point styles date somewhere between AD 500 and 1750. During the 2001 field season at the PCMS, additional work was performed at 5LA9187 (Ahler 2002). Radiocarbon dates obtained during this fieldwork date the later component, from which these points are associated, to around 700 BP. There are two possible Plano stage point fragments but the nature of the fragmentation makes specific identification impossible.

The flake tools are made from eight types of materials-- argillite (5), basalt (1), chalcedony (3), chert (34), orthoquartzite (3), quartzite (18), rhyolite (1), and silicified wood (27). Again, most (61%) of the materials are from non-local sources. These are identified as 89 utilized flakes and three unifaces. As a group, 76 items have at least one steep scraping edge and 16 were used as cutting implements; most (62) are broken with fewer (30) complete flake tools. Most (58%) show evidence of heat exposure.

The scrapers are further classified as 32 end/side scrapers, 8 end scrapers, 6 side scrapers, a scraper/graver, a spokeshave, and a spokeshave/scrapper. There are more non-local materials here than in any other tool category (84% in the scraper assemblage). Materials are chert (23), silicified wood (17), chalcedony (5), orthoquartzite (3), and quartzite (2). The majority are broken (53%) and 71 percent of the scrapers were heated, and in many cases, shattered by heat exposure.

Twenty-three non-bipolar cores, eight exhausted cores, three secondary cores, and a single core/hammerstone were recorded in the chipped-tool assemblage. Forty-three percent of the cores are non-local material and all of the exhausted cores are non-local. Some of the non-local items include Flattop chalcedony (2), Black Forest silicified wood (8), and Pedernal chert (1). Thirty-three percent of the cores were highly burned, but only three of these were exhausted. Apparently, the inhabitants of this site were throwing reducible cores into a very hot fire, thus cracking them and making them unusable.

Bifaces were classified as either a preform (4) or unspecified biface (31). These were mainly quartzite (34%) or chert (31%), with fewer silicified wood (16%), chalcedony (6%), argillite (6%), basalt (3%), or orthoquartzite (3%) specimens. This class contains more locally available materials (47% of the biface assemblage), though many of the non-local sources are represented at least once. Thirteen are finished (the final form had been determined, 11 are nearly finished bifaces, and 11 are unfinished bifaces. Fourteen are knives and four have a single scraping edge. Most were burned (69%) and broken (71%).

A new class of artifact (for the PCMS) was recorded at the site. Pounders are large cylindrical tools with a high specific gravity and evidence of heavy battering and spalling on both ends. These tools were likely used to crush the large bones of big game animals. A total of 15 of these were collected. Four are coarse-grained quartzite, three are diorite, three are sandstone, two are fine-grained quartzite, two are limestone, and one is basalt.

The remaining tools are five drills, two shaft straighteners, a graver, and a hammerstone. Of the drills, two are Black Forest silicified wood, two are chert, and one is Flattop chalcedony. Four of these are broken, only (FS 162) the Flattop specimen, is complete. The graver (FS 214) is complete and made of fine-grained quartzite and has been recycled from an unknown tool form. The chopping tool (FS 576) is made of a large piece of sandstone and the hammerstone (FS 377) is fine-grained quartzite.

The ground-stone assemblage contains 17 metate fragments and nine mano fragments. All were found separately with no apparent concentration. One of the mano fragments and nine of the metate fragments are highly burned.

Overall, the artifact assemblage is the largest and most substantial of any encountered at the PCMS. Excluding the ground stone and miscellaneous artifacts, the assemblage is made up of nearly 60% non-local material. Black Forest silicified wood by far (44%) comprises the largest amount, with Flattop Chalcedony (5%) and Hartville Uplift chert (4.5%) the next highest amounts. The large number of Black Forest silicified wood specimens seems to indicate that the inhabitants of 5LA9187 traveled south from the Palmer Divide area of Colorado to the PCMS (approximately 150 km). The Flattop chalcedony is the next most abundant material and comes from further north than the Palmer Divide source, specifically the Colorado/Nebraska state line area. And the Hartville (southeastern Wyoming) quarry is further north of the Flattop source. It seems possible that the occupants of this site migrated, over a period of time, from Wyoming down through northeast Colorado, and then moved south along the Front Range of Colorado to the PCMS.

Another puzzling aspect of this assemblage is that once here, the occupants of this site seem to have discarded a substantial amount of their lithic material. This aspect needs further explanation. Only 11 unfinished bifaces or preforms were recorded, and of these, only seven could be considered local material. Also, only 24% of the debitage items were materials that could be found here at the PCMS; of these, seven items were biface-thinning flakes and 16 were complex flakes. These data seems to indicate that the manufacture of bifaces occurred at a very low incidence, though the expenditure of bifaces seems substantial. In the overall artifact assemblage, 51% of the items are reddened, and more times than not, completely cracked and broken by long-term heat exposure. This includes complete and still usable cores, scrapers, bifaces, and flake tools. Many of the ground tools were also shattered by heat exposure. All indications seem to point to the fact that tools, exhausted or not, were purposely discarded into fires. This is especially prevalent in the cores, where 15 of the 35 were rendered useless by heating, even though they were far from exhausted (including 3 Black Forest specimens, and one Flattop specimen).

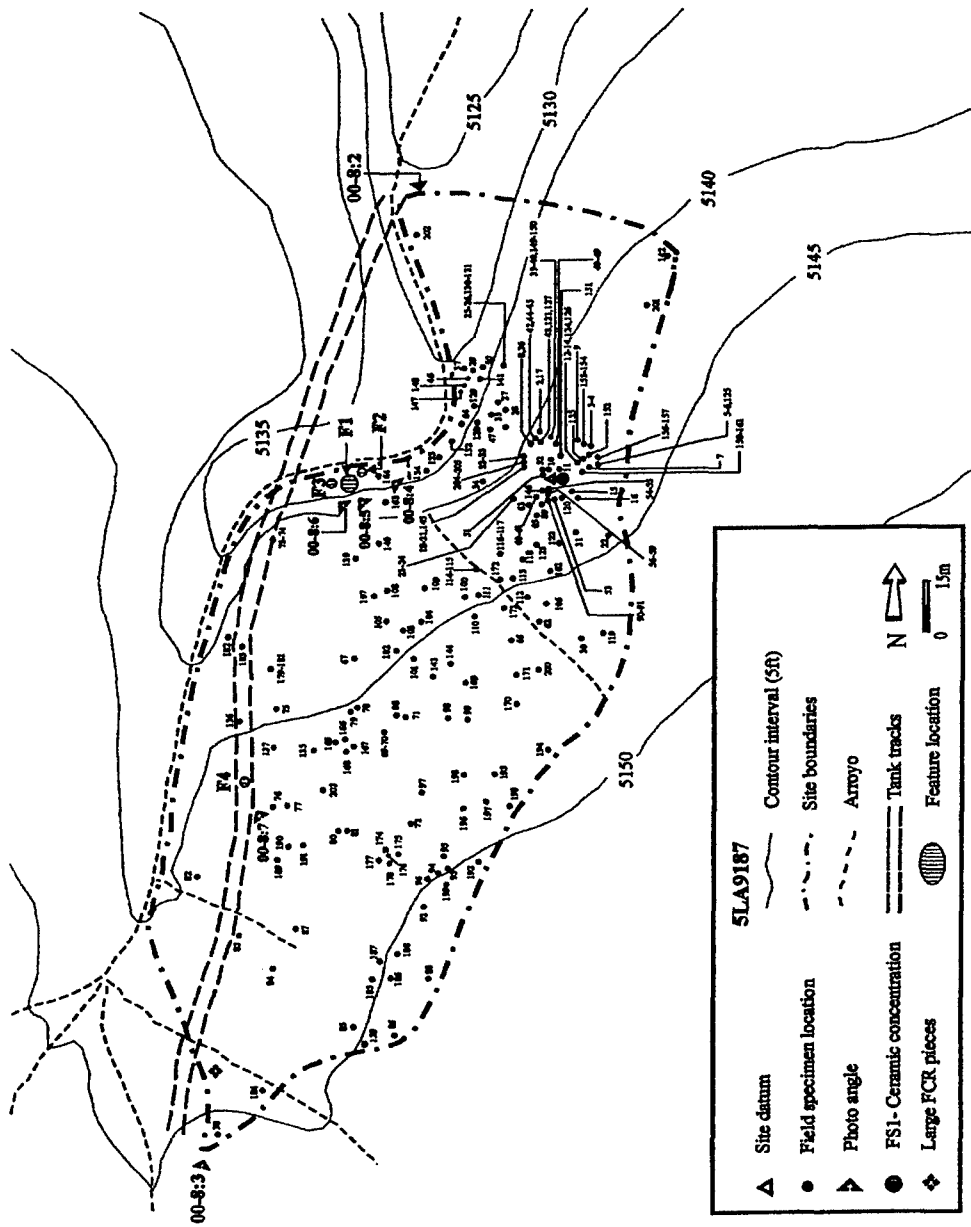


Figure 4.167: Site map, 5LA9187.

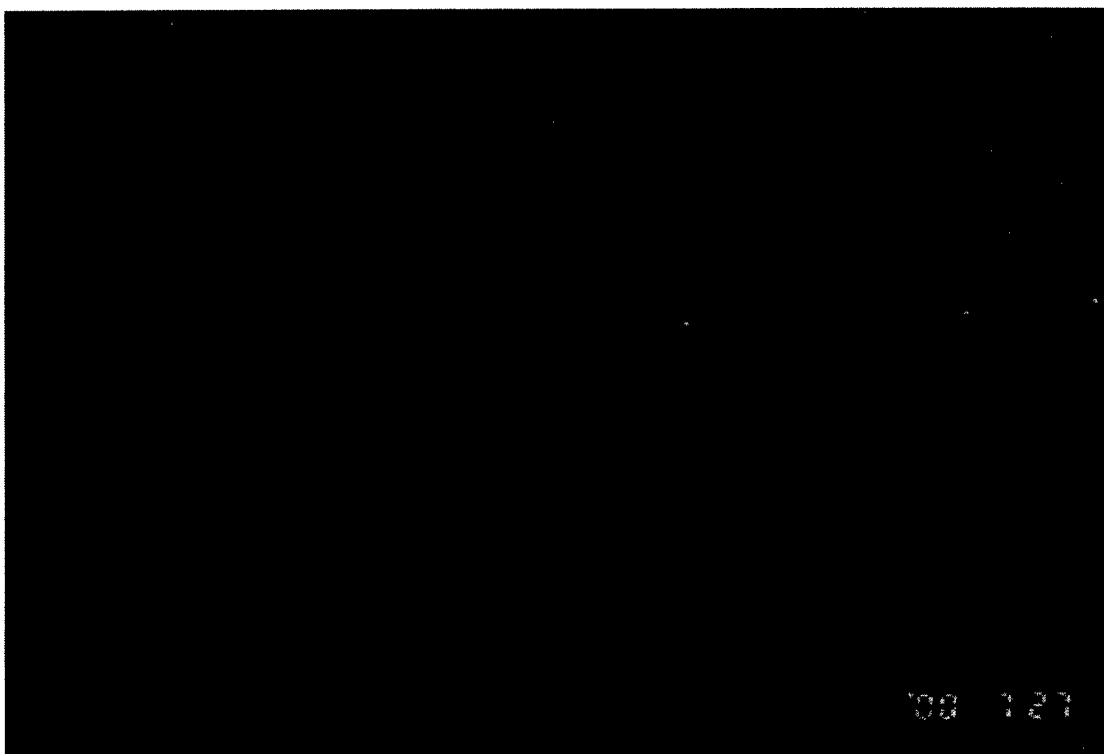


Figure 4.168: Site overview photograph (PCMS 00-8:3), 5LA9187.

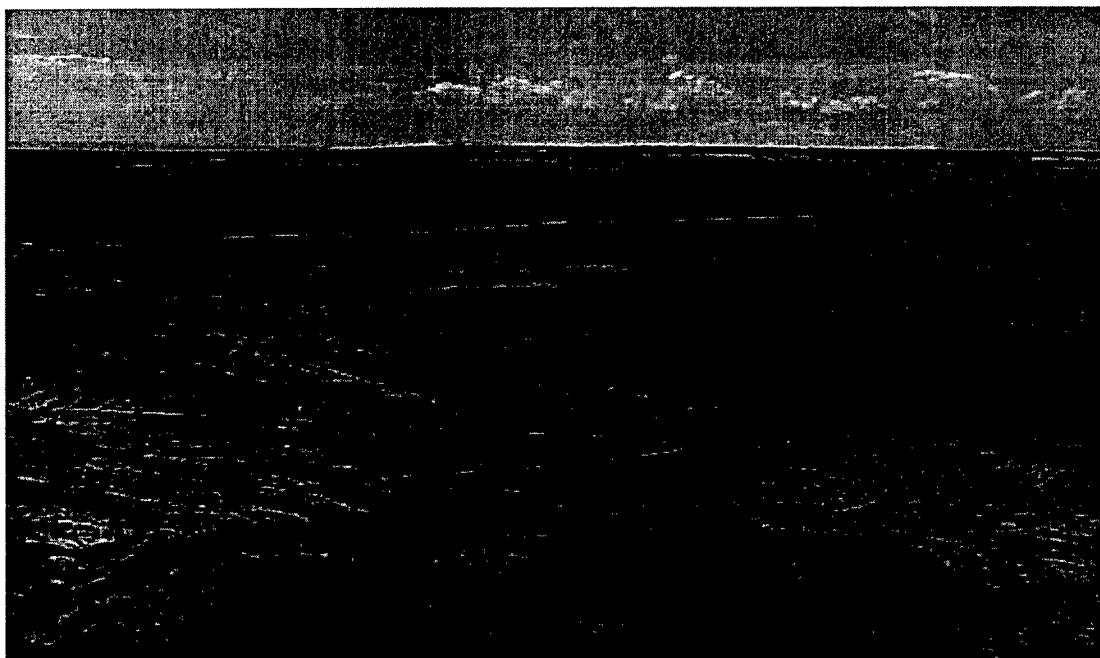


Figure 4.169: Aerial photograph of the southern portion of the site, 5LA9187.

Table 4.62: Summary Description of Chipped-Stone Debitage for 5LA9187.

	Argillite	Sh. Shale	H/Basalt	Chal.	Chert	Lime.	Orth.	Qzt.	S. Wood	Total
Total	15	3	11	8	105	4	5	35	97	283
Large	6	3	7	3	26	4	3	19	24	95
Small	9	0	4	5	79	0	2	16	73	188
Cortical	2	0	3	2	11	2	1	9	27	57
Noncortical	13	3	8	6	94	2	4	26	70	226
Complex	4	3	4	3	28	1	3	5	25	76
Shatter	3	0	0	0	29	1	0	9	15	57
Simple	5	0	6	5	28	2	2	19	41	108
Core Rejuvenation	0	0	0	0	0	0	0	0	1	1
Biface-Thinning	3	0	1	0	20	0	0	2	15	41

Table 4.63: Stone Tool Type by Material Group for 5LA9187.

Material	Type									Total
	Biface	Core	Projectile	Drill	Scraper	Flake Tool	Misc.	Mano	Metate	
Argillite	2	1	1	0	0	5	0	0	0	9
Basalt	1	0	0	0	0	1	1	0	0	3
Chalcedony	2	2	8	1	5	3	0	0	0	21
Chert	10	15	38	2	23	34	0	0	0	122
Diorite	0	0	0	0	0	0	3	0	0	3
Limestone	0	0	0	0	0	0	2	0	2	4
Obsidian	0	0	5	0	0	0	0	0	0	5
Orthoquartzite	1	0	4	0	3	3	0	0	0	11
Quartzite	13	6	26	0	2	18	7	1	0	73
Rhyolite	0	0	0	0	0	1	0	0	0	1
Sandstone	0	0	0	0	0	0	6	8	15	29
Silic. Wood	6	11	27	2	17	27	0	0	0	0
Total	35	35	109	5	50	92	19	9	17	371

Ceramic Artifacts and Jewelry Items

The remaining artifacts are cord-marked ceramic sherds (53), beads (3), pendant fragments (2), and a shell button. It is interesting to note that the button came from near the Folsom point, though its use date is obviously in the Late Prehistoric. The cord-marked sherds were collected from throughout the site, though the majority was collected in the vicinity of the datum. Those near the datum may represent a single pot drop and the sherds have eroded to the surface and were transported downhill toward the arroyo through erosion. See Appendix II for a description of the sherds. All of the beads are similar in size, shape, and manufacturing technique. See Lindsey (2001) for a more detailed description on beads of this type. Both pendants are broken and seem to be made of amazonite (FS 742) and polished sharks tooth (FS 662).

Interpretation and Summary

We recommend that the site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). This is a large lithic scatter that may be buried by alluvial and colluvial deposits. Since the site seems capped, especially along its eastern half, it is possible that intact, subsurface cultural deposits may be present. The numerous projectile points, pounders, scrapers, and utilized flakes indicate that in Late Prehistoric times this site was used as a butchering location for a very large scale hunt (likely for bison or antelope). An interesting point must be made at this time. First, no remains from the Archaic Stage are present at the surface. Based on the presence of large, dead cottonwood trees in the arroyo, a natural seep more readily apparent in times of greater moisture may be located here. If this is true, then subsurface testing could result in the collection of data supporting a wetter climate in Paleoindian and Late prehistoric times and less available moisture in Archaic times. Also, in comparison to hunting tools, the ground-stone assemblage is small. This supports the concept that the site represents a large butchering episode and not a long-term habitation site. No faunal remains were noted at the surface. It is likely that the bone bed associated with this site is nearby, though it may have decomposed or been washed away by the arroyo. In the ongoing survey of this portion of the PCMS we will look for a likely location for the bone bed. Site 5LA9029 is located across the arroyo and 300 m northeast and it is likely that these two sites are related. Heavy weathering and sheetwash erosion appear to have removed any direct connection though. Non-local lithic materials were found in the debitage and chipped-tool assemblage. This suggests that the Late Prehistoric inhabitants of this site were highly mobile. Artifact density is relatively high, though there are no clearly defined artifact concentrations (the area around the datum is extremely dense). This site may be used to address regional trade, movement and subsistence.

We recommend that the site be trenched to determine if intact Holocene deposits remain. If so, then units should be opened for the recovery of Folsom and Late Paleoindian artifacts and features. This site should also be fenced for its protection. Tracked vehicle tracks are visible throughout the site and Feature 4 has nearly been destroyed by mechanized vehicle traffic.

5LA9188

This site is a dense lithic scatter with circular stone structures along a small arroyo in the upper drainage of the northern branch of Red Rock Canyon (Figure 4.170, 4.171). The site slopes to the east and is bisected by this drainage and low sandstone bedrock ledges skirt the site. Overall, this approximately 4.9-acre site sits on a low bench in the middle of the grassland steppes. The site datum is at an elevation of approximately 1,533 m (5,030 ft).

A variety of plant communities integrate within the site boundary, ranging from woodland to grassland. In the woodland community, the overstory is juniper, currant, soapweed, and sagebrush and the understory is composed of grass species (black grama, blue grama, hairy grama, and threeawn). The grasslands above and below this low bench contain blue grama, galleta, tumble grass, sand dropseed, and the *Opuntias*. Soil depths vary greatly with pockets of accumulation reaching 40 cm below the sandstone ledges and along the eastern site boundary.

Sandstone bedrock outcrops over most of the western part of the site with an occasional pocket of aeolian sand. Some silty clay is present along the arroyo. There are extensive vehicle tracks across the site (both tracked and wheeled vehicles).

Features

Three circular stone structures and two hearths were recorded at the site (Features 1-5). All of the structures were found protected below the sandstone ledges. The drainage is just north of two of the structures (Features 1 and 2) and one of the hearths (Feature 3).

Feature 1 is the best preserved of the structures, located approximately 48 m and 165 degrees from the datum (Figure 4.172). It measures about 3 x 2.8 m and has a surface to highest construction element measurement of 59 cm. There are apparent openings or doors in the walls that were constructed of upright and unmodified sandstone slabs. There is still at least 25 cm of fill in this feature, and it should be tested because the arroyo has caused the northwest portion of the wall to slump and erode away. Episodic sheetwash erosion will destroy this feature in the near future. Four pieces of debitage were found here but there were no chipped- or ground-stone tools. When compared to Kalasz's typology (1989:108), Feature 1 is a Class V contiguous rock wall and isolated unit. These architectural features are associated with widely spaced dates, ranging from approximately 1640 BC to AD 1360.

Feature 2 is half of a circular structure that is eroding downhill into the arroyo (Figure 4.173). It is 5 m southwest of Feature 1. The structure is made of unmodified sandstone blocks that were once stacked upright into a single or double course wall (measuring 3.4 x 1.4 m). Three of the blocks are still upright and the highest of these is 39 cm above the modern ground surface. This feature has good potential for intact buried cultural deposits, as there is at least 20 cm of fill. No artifacts or thermal features were found in associating with this structure. The original planview for this feature is unknown but it too seems to have been a Class V unit.

Feature 3 is located approximately 2 m northwest of Feature 1. It is a highly deflated hearth or small roasting pit that sits at the edge of the arroyo (Figure 4.174). Numerous large and small, tabular and nontabular sandstone blocks and chunks comprise this feature. Some light ash staining and burned pieces of debitage are also present. Of the debitage, there are four chert pieces, two basalt pieces, and two quartzite pieces; these were classified as four simple flakes, three complex flakes, and a single biface-thinning flake.

Feature 4 is the northernmost of the structures and is located approximately 15 m and 280 degrees from the datum (Figure 4.175). It is oval in shape with a long north-south axis (3.7 x 3 m) and is situated at the base of a low sandstone ledge. The construction material is unmodified sandstone blocks that were originally set upright. The maximum height of this feature is 95 cm at the sandstone ledge. This structure most closely resembles Kalasz's Class V, Category 15, which is a contiguous wall, rock abutment, fully enclosed, isolated unit. Kalasz (1989:103) indicates that similar stone structures have associated radiocarbon dates of 850 ± 60 BP and 920 ± 80 BP. There is a thermal feature (Feature 5) at its southeast edge. It measures 70 x 54 cm and has pieces of fire-cracked rock ranging from pebble size to 8 cm in diameter. There is only 5 cm of fill within this feature but charcoal here could date specifically Feature 4 and likely the site.

Lithic Artifacts

Two hundred and ninety-three debitage specimens from the surface of 5LA9188 were analyzed. Debitage categories present in the assemblage include 135 simple flakes, 115 complex flakes, 33 pieces of angular shatter, and 10 biface-thinning flakes. Table 4.464 presents chipped stone debitage type by material. Eight material types are noted on this large site. Of the total debitage, 31% is fine-grained quartzite, 30% is coarse-grained quartzite, 16% is chert, 10% is basalt, 8% argillite, 3% orthoquartzite, 1% is silicified wood, and 1% is obsidian. These materials are 18% cryptocrystalline, 52% microcrystalline, and 30% macrocrystalline materials with some degree of conchoidal fracture properties. Other than the obsidian items, all materials are locally available. Comparison with a known obsidian collection suggests that one of the specimens is from the Polvadera Peak source in New Mexico.

Though this site is in the steppe portion of the PCMS and relatively far from any of the canyon areas (approximately 4.8 km to the closest raw material outcrops), all stages of core and cobble reduction are represented in the assemblage. Overall, 59% of the assemblage is noncortical, while 41% shows some dorsal cortex. These percentages are further broken down as 39% small noncortical flakes, 27% large cortical flakes, 20% large noncortical flakes, and 14% small cortical flakes. Based on the low percentage (15%) of small complex flakes and low number of biface-thinning flakes (n=10), there appears to be little emphasis on making finished uniface and biface tools on site. Portions of the debitage are related to early-stage biface manufacture based, in part, on the large complex flakes. The shatter specimens and most of the large cortical flakes were being produced as a by-product of argillite, hornfels/basalt, silicified wood, quartzite, and chert core reduction. Nearly all of these material types are represented in the core assemblage. Based on the rather large percentage of large cortical items in the quartzite, and hornfels/basalt materials, we can infer that these items were being transported to the site in cobble or nodule form. No cortex is present on the obsidian, and this material was brought to the site in the form of nearly finished biface tools.

The site yielded a total of 4 projectile points; three are time diagnostic. These, when considered in conjunction with the architectural elements, suggest multiple site occupations. One would have been sometime during the Middle Archaic period and the other at some point in the Late Prehistoric stage. One quartzite projectile point (FS 1) fragment cannot be classified but its size alone suggests an Archaic age. The argillite point (FS 2) is highly patinated and is more like a large and nearly finished preform. It is classified as P4 (Anderson 1989:119) and could date anywhere between 5000 BC and AD 500. Another diagnostic piece is a small chert preform (FS 4, Type P49), with dates ranging from AD 800 to AD 1750. The remaining chert point fragment (FS 5) is a P42, thought to have been used by prehistoric peoples between AD 600 and AD 1600 based on typology alone.

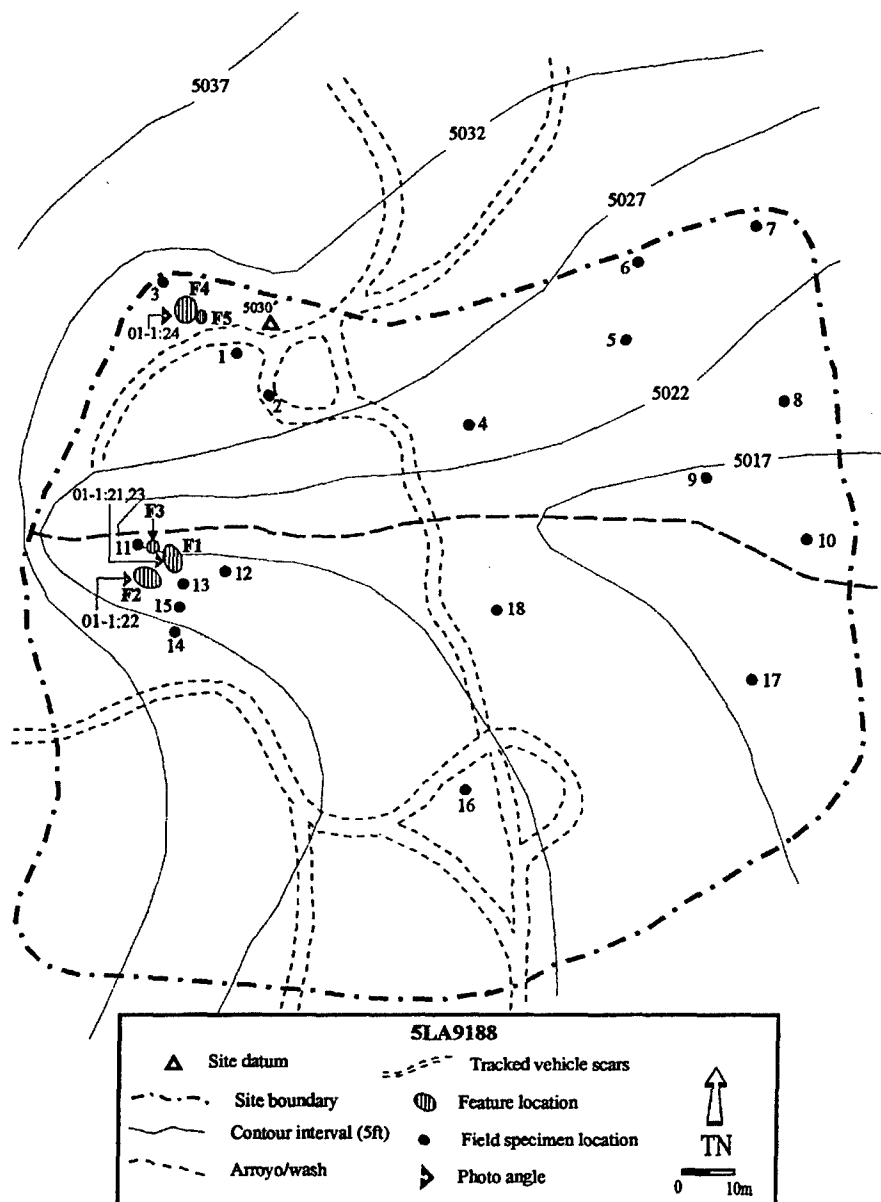


Figure 4.170: Site map, 5LA9188.

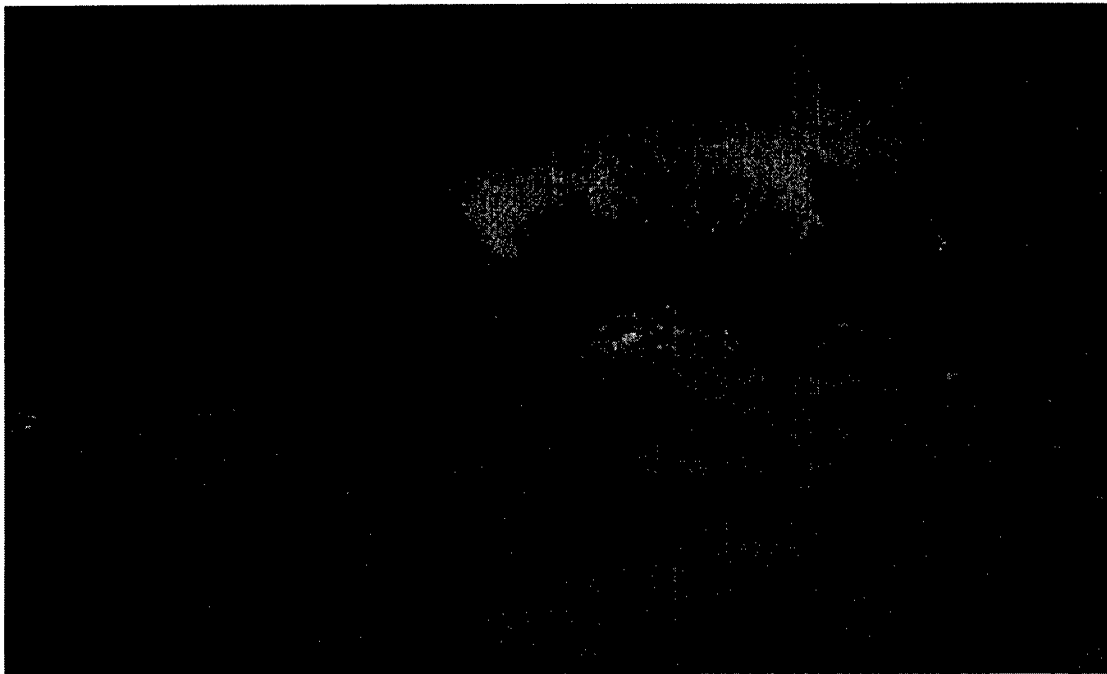


Figure 4.171: Site overview photograph (PCMS 00-22: 6), view facing west, 5LA9188.

Table 4.64: Summary Description of Chipped-Stone Debitage for 5LA9188.

	Argillite	Chert	C. Quartzite	Fine Quartzite	Hornfels/Basalt	Obsidian	Silicified Wood	Total
Total	9	20	36	43	12	1	2	123
Large	2	6	19	20	6	0	1	54
Small	7	14	17	23	6	1	1	69
Cortical	3	7	20	14	7	0	1	52
Noncortical	6	13	16	29	5	1	1	71
Complex	1	6	16	13	7	1	1	45
Shatter	0	7	4	1	3	0	0	15
Simple	3	7	15	28	2	0	1	56
Biface-Thinning	5	0	1	1	0	0	0	7

Remaining chipped-stone tools consist of eight artifacts-- four non-bipolar cores, two bifaces, a scraping tool, and a utilized flake. Because the cores and core-tools were analyzed in the field, only the material type is recorded. Material types for the cores are quartzite (2), basalt (1), and orthoquartzite (1). Four pieces of ground stone were recorded at the site. Of these, two are sandstone mano fragments, and two are sandstone slab metate fragments. Several "looter's piles" were found within the site boundary, and the tool assemblage as a whole is missing the finished and patterned pieces.

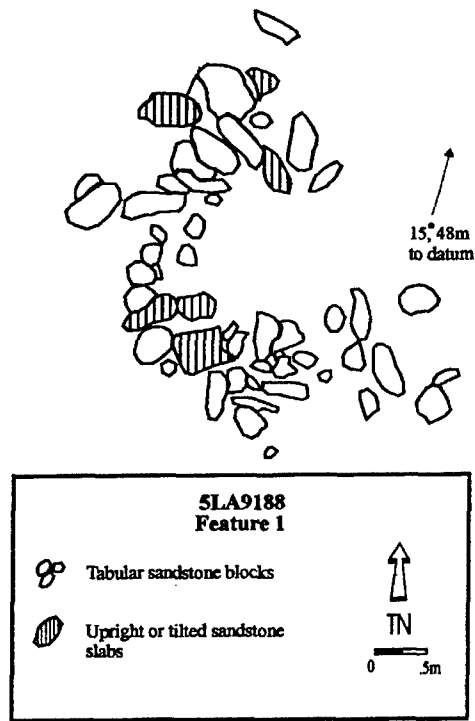


Figure 4.172: Planview, Feature 1, 5LA9188.

Table 4.65: Stone Tool Type by Material Group for 5LA9188.

Material	Biface	Core	Projectile	Scraper	Flake Tool	Mano	Metate	Total
Argillite	0	0	1	0	0	0	0	1
Chert	1	0	2	0	1	0	0	4
Coarse-grained Quartzite	0	2	0	1	0	0	0	3
Fine-grained Quartzite	1	0	1	0	0	0	0	2
Sandstone	0	0	0	0	0	2	2	4
Hornfels/Basalt	0	1	0	0	0	0	0	1
Orthoquartzite	0	1	0	0	0	0	0	1
Total	2	4	4	1	1	2	2	16

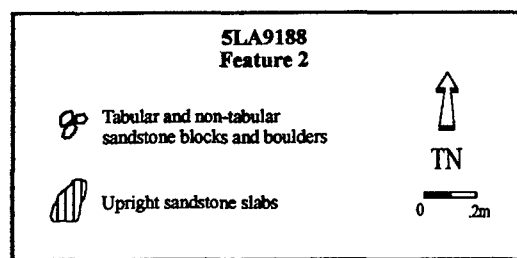
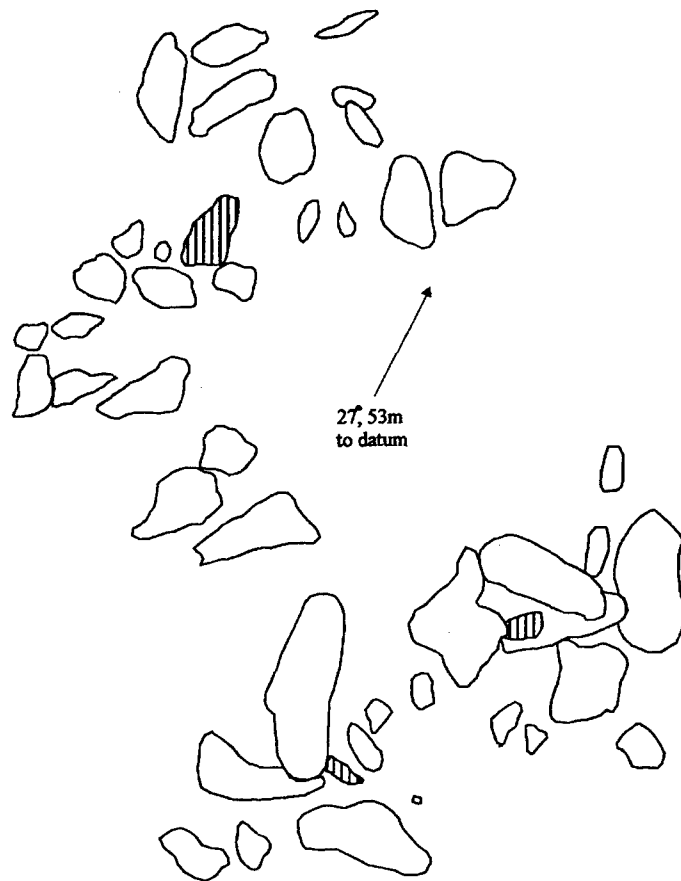


Figure 4.173: Planview, Feature 2, 5LA9188.

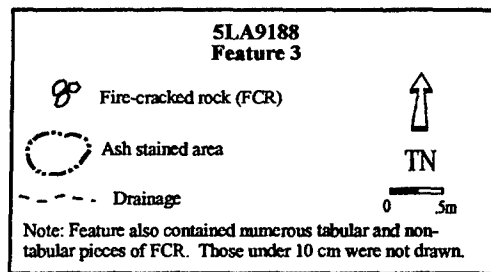
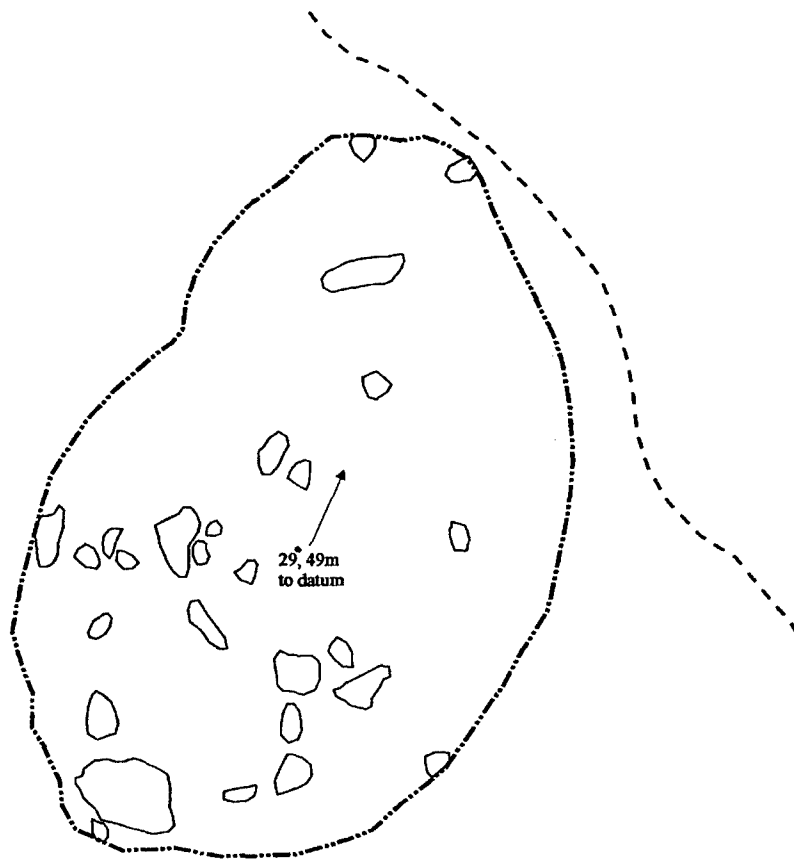


Figure 4.174: Planview, Feature 3, a deflated hearth, 5LA9188.

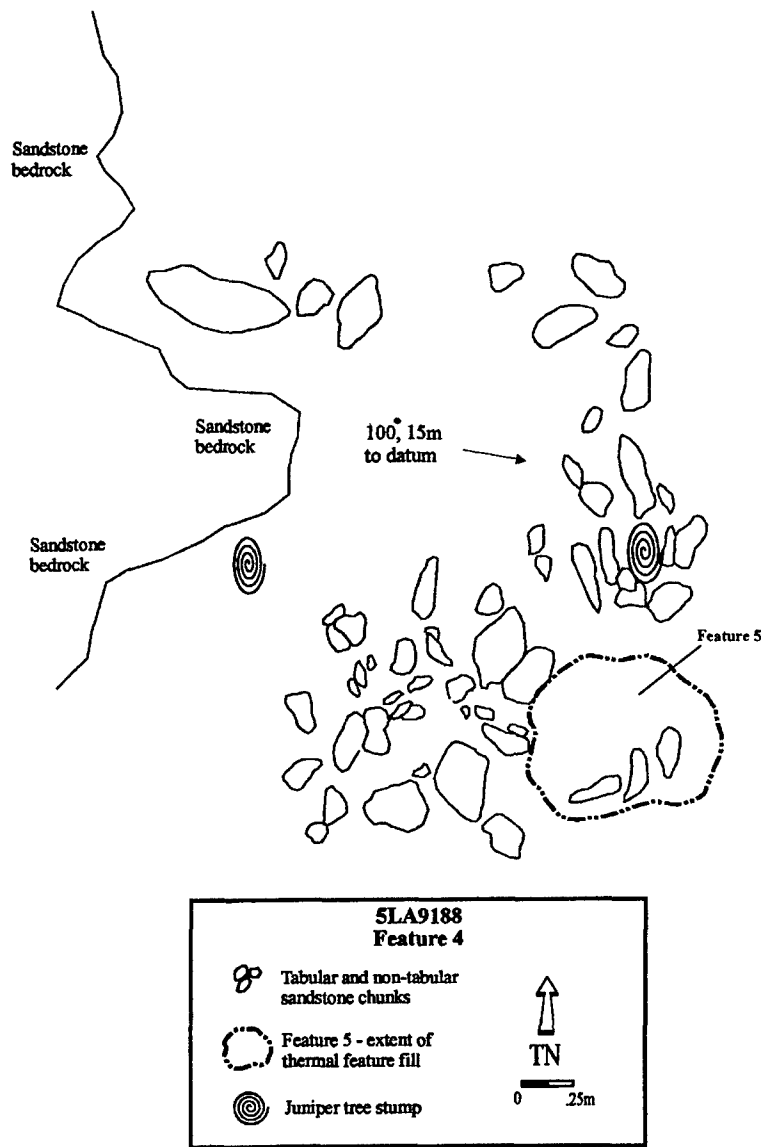


Figure 4.175: Planview map of Features 4 and 5, 5LA9188.

Interpretation and Summary

Site 5LA9188 is a lithic scatter and structure site with a high artifact density. The setting for this site is unique for Apishapa phase structures, since permanent water (a spring) is over 4 km away in Red Rock Canyon. The site is directly related to other nearby architecture sites (5LA9450 and 5LA4848) and lithic scatters 5LA4847, 5LA4849, and 5LA4851 and these might have formed one large complex if erosional and military disturbance had not obliterated the surface in several areas. Deep sediment deposition was observed in several places and all of the structures have intact soil deposits. Test excavations in Features 1, 2, and 4 have a good chance for locating data such as pollen, faunal, and macrobotanical remains useful for reconstructing subsistence and paleoenvironment. This area of the PCMS has been heavily used for maneuvers, and at one time there were likely more features and structures present. Features 1-5 have survived only because they are located in rougher terrain, and therefore protected from direct contact. We recommend that the site be considered for nomination to the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D).

Our management recommendation is data recovery. Features 1-3 are being destroyed by arroyo erosion and a data recovery plan must be developed before all data is lost. The area containing the structures should be fenced. Once they are tested, the management recommendation can be reevaluated.

5LA9192

The site is a lithic scatter with a rockshelter situated on the west edge of an unnamed feeder canyon that drains into Red Rock Canyon (250 m south). The Red Rock Ranch complex is nearly 3 km northwest of this location. The .65-acre site is on the upper terrace with a Dakota sandstone cliff along its eastern edge. Several small outcroppings of sandstone form small terraces across the surface and there are minimal pockets of soil between the terraces (Figures 4.176, 4.177). A rather steep drop off is located along the eastern side of the site, while a gentler slope is found on the west. The datum is at approximately 1,518 m (4,980 ft) asl, and the base of the shelter is lower by 7 meters.

The site is located in the juniper woodland vegetative community typical of this part of the base. Along with juniper, black grama, yucca, prickly pear, mountain mahogany, currant, and sagebrush were seen growing on the site when it was recorded. Soils are relatively thin, with most under 20 cm deep. Only along the west edge of the site is there any significant deposition and, for the most part, all of the lithic artifacts were found on or near bedrock.

Features

A rock shelter (Figure 4.178) was located at the base of the cliff near the east edge of the site. It (Feature 2) measures 12.2 x 5.2 m and has an area of ashy soil and burned bone (Feature 3) at its south edge. The maximum floor to ceiling measurement is 7.4 m. Deposition ranges

from 20 to 30 cm as the result of wind blown fine silts. Large sandstone blocks and slabs have spalled from the roof and are scattered around the opening of the shelter. One of these large boulders seems to serve as a windbreak or deflector for the hearth. There is a limited amount of cultural debitage and there is moderate rodent disturbance.

Feature 1 is a lithic reduction concentration measuring 14 x 4 meters and will be discussed below. It is located 11m and 187 degrees from the site datum. An unfinished biface (FS 4) and a utilized flake (FS 1) were found among the flaking debris.

Lithic Artifacts

Artifact types noted at the surface include debitage, patterned chipped-stone tools, and ground stone. A 184 flake sample of debitage from the surface of the site was analyzed; 125 items are from the Feature 1 concentration, 17 pieces are from Feature 2, and 42 items were sampled from the general surface of the site. Table 4.66 summarizes the debitage artifacts by material type. Locally available fine- (52%) and coarse-grained (41%) quartzite are the dominant materials. Chert (4%), argillite (2%), and basalt (1%) were encountered in dramatically smaller amounts. All of these materials are locally available and the quartzite and chert can be encountered in Red Rock Canyon below.

The assemblage mainly contains simple flakes (72%), with some complex flakes (25%), shatter (2%), and a single biface-thinning flake also seen. Forty-nine percent of the debitage specimens are noncortical, 42% are large cortical flakes and 9% are small cortical flakes. This reflects an emphasis on raw material reduction with all stages represented. It appears, for the most part, that many of the raw material chunks were initially roughed out at the quarry and some cores or early-stage bifaces were brought to the site in noncortical form. There were also many cortical pieces of raw material used at 5LA9192. Once on site, these materials seem to have been manufactured into early-stage bifaces or used to produce flakes.

One hundred and twenty-five (67%) of the debitage specimens were recorded in Feature 1. Of these, 94 are simple flakes, 26 are complex flakes, 4 are shatter, and one is the biface-thinning flake. Material types for this group are fine-grained quartzite (65), coarse-grained quartzite (52), chert (7), and argillite (1). Like the total flake sample raw material reduction is the dominant activity; core reduction and early-stage biface manufacture specifically. Based on the biface-thinning flake, at least one nearly finished biface was manufactured or reworked on the site.

No temporally diagnostic projectile points or ceramics were encountered in the surface scatter, so little can be said of how the site fits into the regional chronology. Five tools representing three tool classes were recorded in the stone tool assemblage. These are two bifaces, two utilized flakes, and a core. Both of the utilized flakes recorded at the surface are quartzite. One was used as a scraping tool (FS 2), and the other is a flake knife (FS 1). Both bifaces are broken. Field specimen 3 is orthoquartzite, classified as nearly finished, and was broken during manufacture. The other biface (FS 4) is unfinished and based on a red color change was possibly broken during heat treatment. No ground stone was identified.

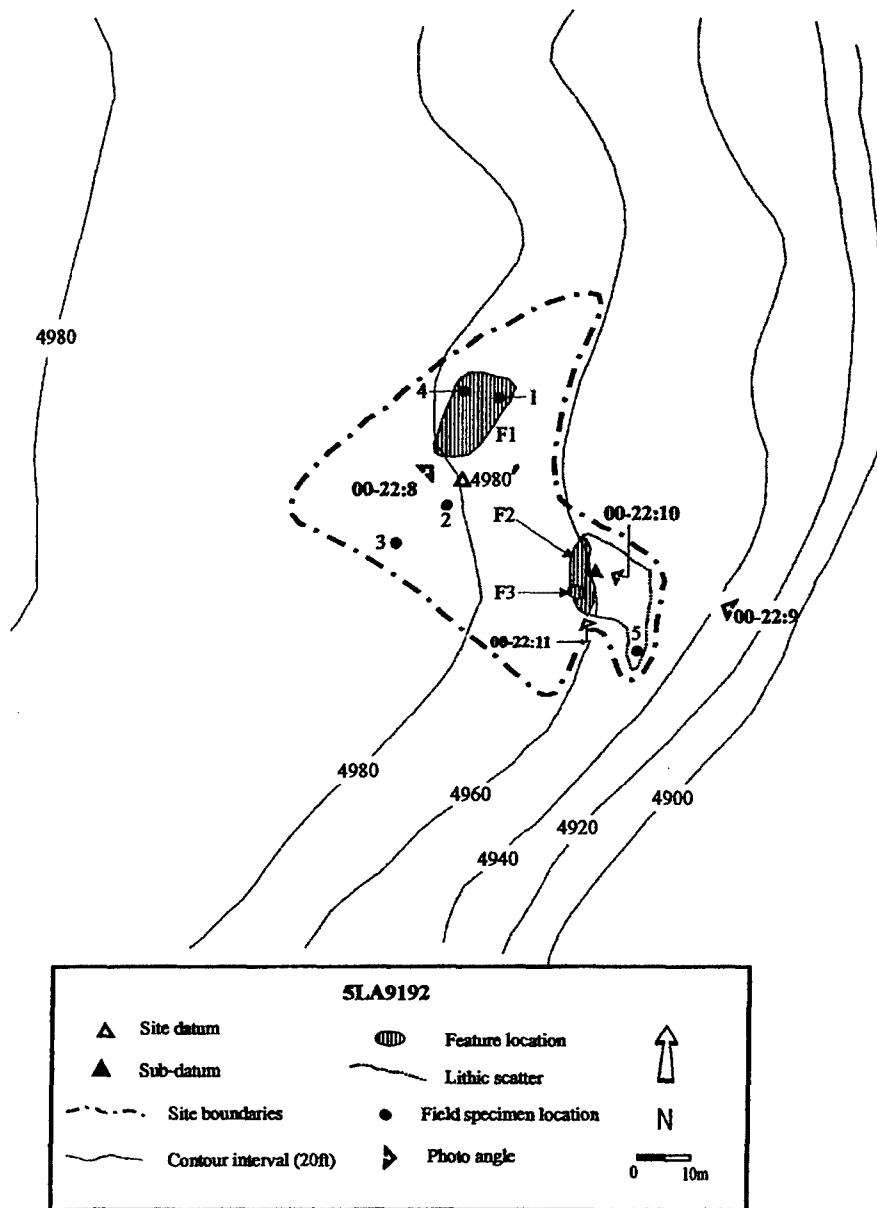


Figure 4.176: Site map, 5LA9192.

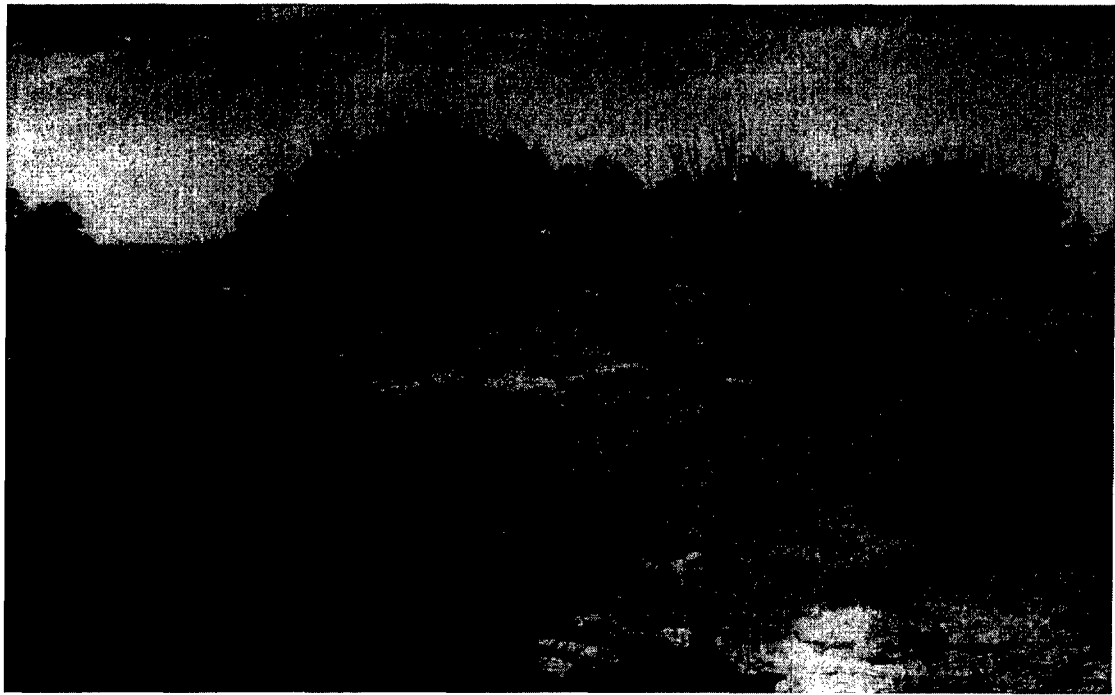


Figure 4.177: Site overview photograph (PCMS 00-22:9) of 5LA9192.



Figure 4.178: Photograph (PCMS 00-22:10) of Feature 2, a rockshelter.

Table 4.66: Summary Description of Chipped-Stone Debitage for 5LA9192.

	Argillite	Chert	Course Quartzite	Fine Quartzite	Hornfels/Basalt	Total
Total	3	8	76	96	1	184
Large	2	3	55	74	0	134
Small	1	5	21	22	1	50
Cortical	3	4	32	54	1	94
Noncortical	0	4	44	42	0	90
Complex	1	2	25	18	0	46
Shatter	0	0	3	1	0	4
Biface-Thinning	0	0	0	1	0	1
Simple	2	6	48	76	1	133

Interpretation and Summary

Site 5LA9192 judged eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). The rockshelter and its thermal feature are good candidates for testing and could yield information regarding the research domains of settlement, subsistence, and chronology. Shallow, and secondarily deposited sediments were identified over the rest of the site area. Artifact counts and densities are high, though few tools were recorded. At this time the site warrants no further consideration, as there is little chance for military impact or erosion within the rockshelter. It should be monitored for impacts every five years, however.

5LA9200

The site is located on the northern terrace of upper Lockwood Arroyo (Figures 4.179, 4.180). This small (.53-acre) lithic scatter is at the nick point of a small arroyo on the side of a gently (1-3 degree) sloping hillside. On-site landforms include a low, grassy dome and wind deflated blowouts. A resistant layer of sandstone is exposed at the southern site boundary. The site is located on grassland, with sparse juniper trees along the terrace edge. Recorded vegetation includes blue grama, milkweed, threeawn, tree cholla, needle and thread grass, and sand dropseed. No formal features were identified in the light-brown silty clay soil. Soil depths vary throughout the site, with depths of up to 50 cm noted in animal burrows and tank tracks at the northern edge of the site. Tracked vehicle ruts are present across the site's surface.

Lithic Artifacts

Only seven pieces of chipped-stone debitage (Table 4.67) were recovered at the surface, and these were widely scattered. Four material types are present, and all are locally available. Of the debitage, three pieces are basalt, two are chert, one is coarse-grained quartzite, and one is argillite. These are further classified as simple flakes (6) and a complex flake (1). Only four items have cortex; five items are large and two are small. The small overall count makes this site

difficult to interpret. The source area for the argillite and basalt is 23 km southwest of this location.

The tool assemblage consists of a lanceolate projectile point fragment and two cores. Of the cores, one (FS 2) is basalt, and the other (FS 3) is coarse-grained quartzite. The quartzite projectile point (FS 1) is a basal fragment and resembles Anderson's (1989) Type P1 (Figure 6.4). Jack Hofman (personal communication) identified this point as of the Plainview type (8500 BC to 7700 BC).

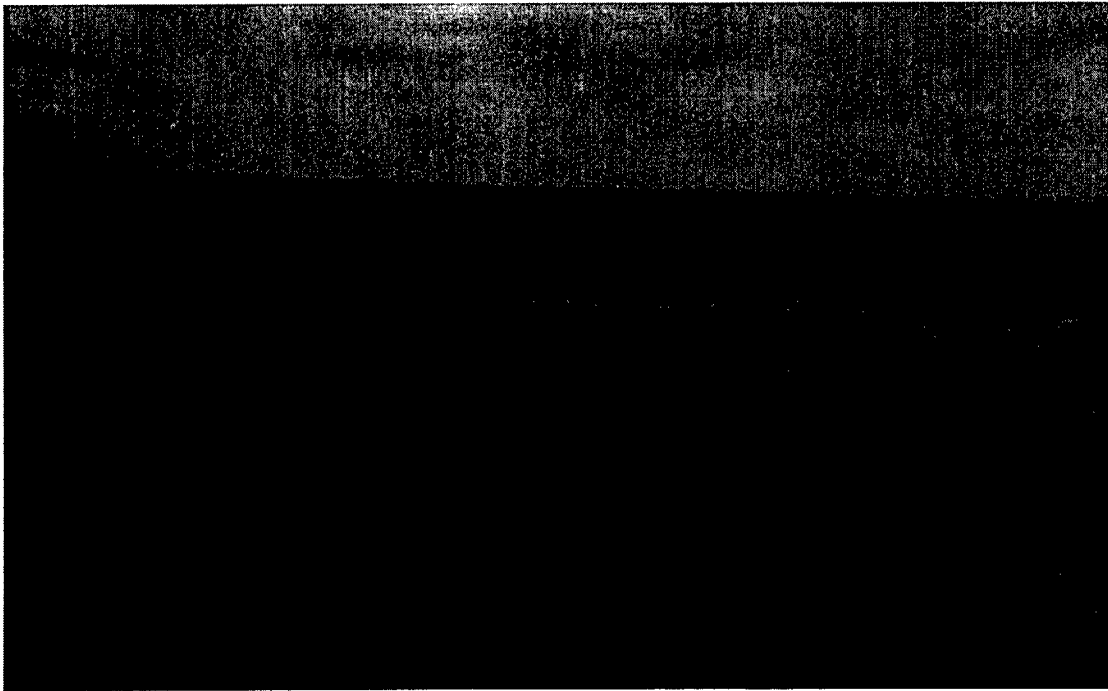


Figure 4.179: Site overview photograph (PCMS 00-4:13) south to datum with tracked vehicle ruts in the foreground, 5LA9200.

Table 4.67: Summary Description of Chipped-Stone Debitage for 5LA9200.

	Agillite	Chert	Course Quartzite	Hornfels/Basalt	Total
Total	1	2	1	3	7
Large	1	1	1	2	5
Small	0	1	0	1	2
Cortical	0	2	0	2	4
Noncortical	1	0	1	1	3
Complex	0	1	0	0	1
Simple	1	1	1	3	6

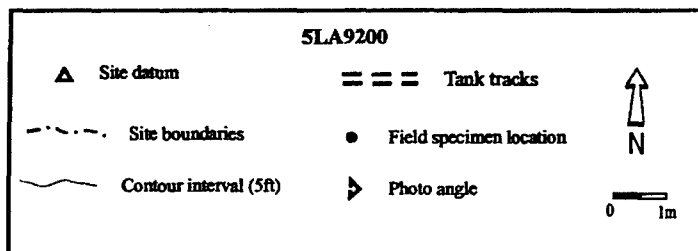
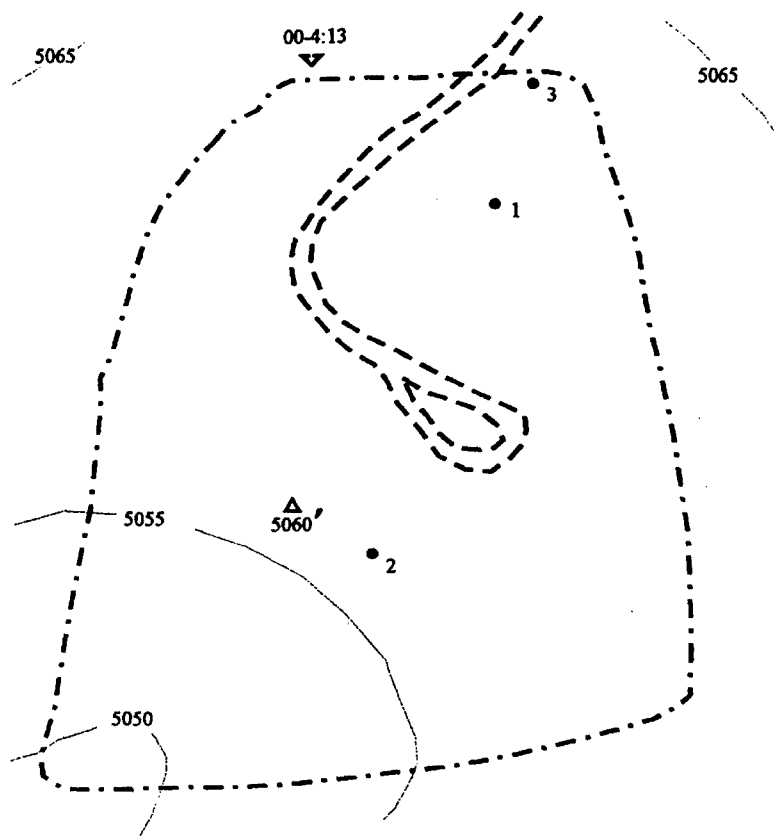


Figure 4.180: Site map, 5LA9200

Interpretation and Summary

The site has a low artifact density, but the presence of a Paleoindian point helps make it eligible for the National Register of Historic Places. With deposits of up to 50 cm, especially in the northern part of the site where the point was found, subsurface testing could reveal additional artifacts and information on early regional settlement. Also, one of the argillite flakes is highly patinated, so it seems that the point may not represent an isolated and curated piece. Alluvial and colluvial deposition seems to have covered this site from the terrain north of the site.

Since most of this site is capped, our management recommendation is that it receives no further consideration. The site needs to be revisited periodically, and if additional Paleoindian artifacts or thermal features commence to expose at the surface, then data recovery procedures should be initiated.

5LA9206

The site contains rock art, a single sandstone mano, and a bedrock metate. It was found in the upper portion of Lockwood Arroyo near the confluence (97 m north) with its largest northern tributary drainage. The .06-acre site follows an east-west trending sandstone ledge that forms the boundary between the first and second terraces on the south side of the arroyo (Figures 4.181, 4.182). The site datum is at the base of the ledge at approximately 1,536 m (5,040 ft) asl. Vegetation is extremely thick here and is best characterized as a shrub to grassland transition plant community. The dominant plants are saltbush, alkali sacaton, skunkbrush sumac, wax currant, snowberry, little bluestem, grama grasses. The ground is slightly moist at the base of the cliff and poison oak was noted here. Soils are very deep on the floodplain at the base of the cliff with depths of at least 40 cm. There are likely intact cultural deposits at the base of the rock, but these have been covered by overbank deposition from the arroyo.

Features

One bedrock metate was found at the western edge of the site. It has two distinct grinding slicks (FS 2 and 3). Field Specimen 2 measures 30 x 20 cm and FS 3 is 23 x 23 cm. It was located on top of the ledge.

The petroglyphs were encountered near the eastern edge of the ledge approximately 3 m south of the datum. The first rock art panel (Feature 1) is the easternmost feature on the site. It includes four elements: a solid-pecked circle, a solid-pecked u-shaped form, a solid-pecked curved line, and a solid-pecked circled line with two relatively straight lines extending down from the circle. The elements here have a light to moderate patination as compared to the rest of the rock surface. There is some wind and water erosion, but otherwise this panel is in good shape. Overall, the panel measures 1.4 x 1.2 m and faces north at 26 degrees. The other panel (Feature 2) contains only one element, a solid-pecked circle. Like Feature 1, there is some element patination. The petroglyph style on both panels is abstract with no real indication as to age. With patination on all of the elements, an Archaic age would be reasonable.

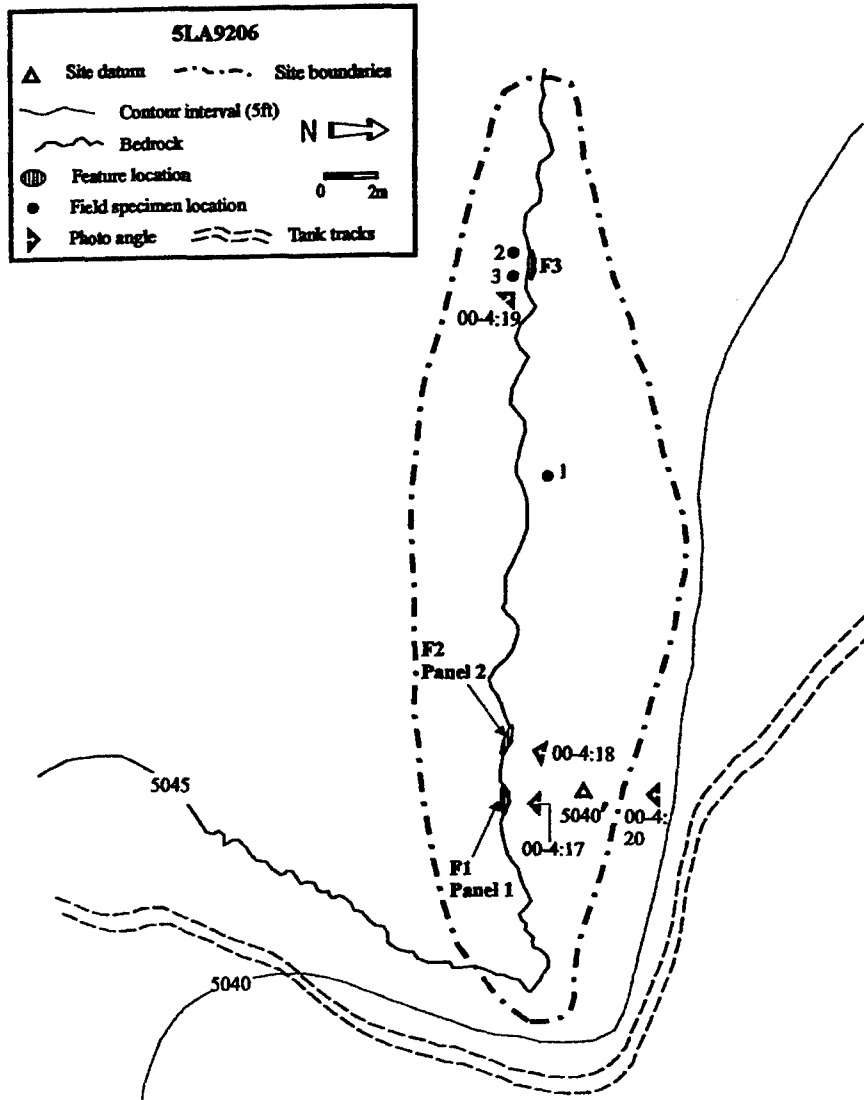


Figure 4.181: Site map, 5LA9206.



Figure 4.182: Site overview photograph (PCMS 00-4:20), facing south with sandstone outcropping containing the rock art elements on left side of frame, 5LA9206.

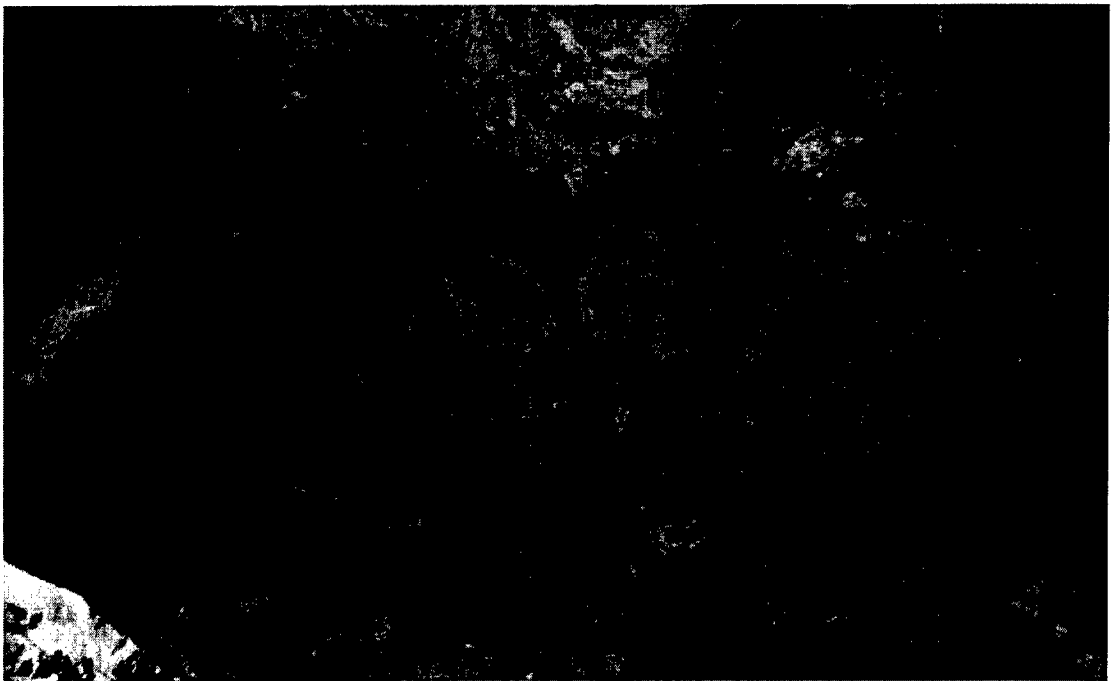


Figure 4.183: Feature 1, a petroglyph panel, 5LA9206.

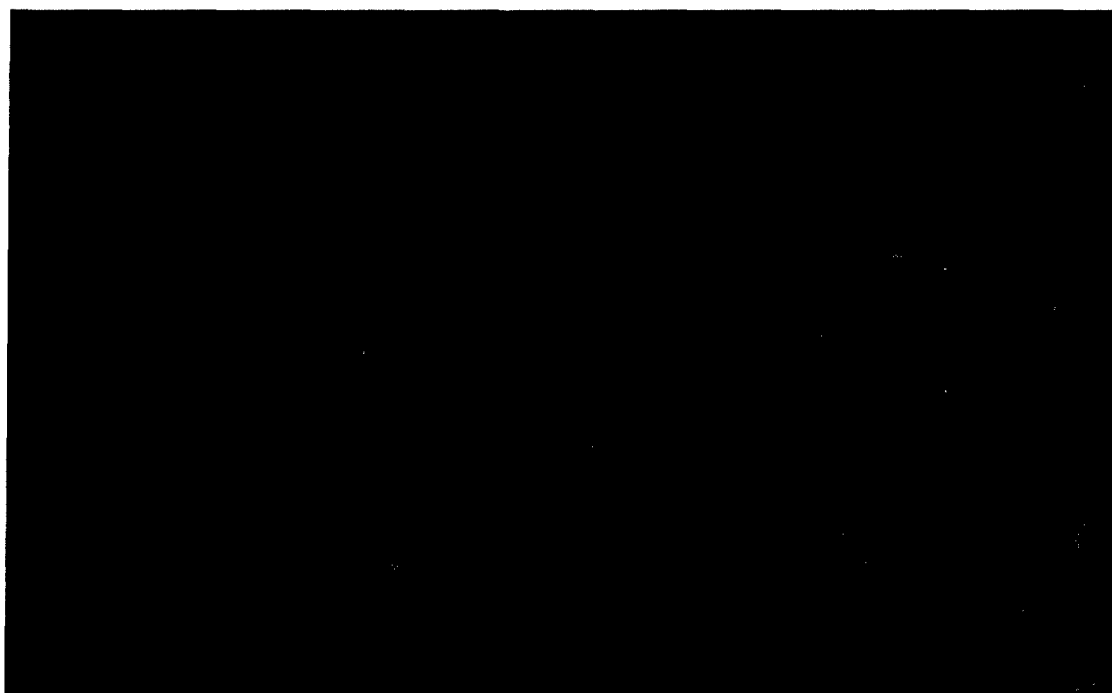


Figure 4.184: Feature 2, petroglyph panel, 5LA9206.

Interpretation and Summary

The site is considered eligible for nomination to the NRHP because it may provide both temporal data on the rock art styles and information concerning the ideological traditions of the prehistoric inhabitants of the region. This is one of two rock art sites in the immediate area but these are not contemporaneous (5LA9206 has Archaic elements, 5LA5830 has Late Prehistoric). Elements on this site were produced by solid-pecking techniques and this style (abstract, non-representational) shows a date range from Middle Archaic to the Developmental period. In the hogback area of the base, similar figures are Archaic in age (Loendorf 1989).

Neither the site nor the rock art panels are in extreme danger from erosion or military maneuvers, so our management recommendation is no further work is needed at this time.

5LA9210

This site is comprised of both a prehistoric and a historic component, and is located on the top, and along the sides of a relatively flat southeast-to-northwest trending ridge (Figure 4.185, 4.186). The surface of the ridge is eroded limestone and shale bedrock, which has formed a series of stair-stepping terraces. The historic structures are located in the southwest portion of the site, extending from the limestone-covered ridge down slope to the grassy flats. Historic trash was found scattered over the entire site.

Located in an area of active sheetwash erosion, very little deposition remains at the surface. Juniper woodland is the vegetative community and the landform containing the site was measured at about 1585 m (5200 ft) asl. Some of the larger species were juniper, rabbitbrush, greasewood, prickly pear, sage, saltbush, and pale wolfberry, while blue grama and threeawn were the dominant grasses on site. The nearest water source, other than the historic cistern, is a drainage located 300 meters to the south, while the nearest permanent source of water is 3.4 km to the southeast in Lockwood Arroyo.

The historic component consists of five structures or features and an associated trash scatter. Government Land Office records show that Charles Nally received a patent for the land on which this site occupies in 1923.

Features

The features are all historic in nature and include a possible barn structure (Feature 1), a possible house structure (Feature 3), a dugout or root cellar (Feature 4), a clinker concentration (Feature 5), and another undetermined feature located near the barn (Feature 2).

Feature 1, the barn, is a rectangular structure that measures 26 x 58 ft (Figure 4.187). It is constructed of stacked limestone block foundation and wing wall remnants and axe-cut juniper log supports. This feature is the largest on site, and is built back into a limestone outcrop. Because Feature 1 collapsed in on itself, it has the potential for the recovery of buried intact cultural deposits.

Feature 2, the foundation of an unknown structure, measures 11 x 15 ft, and is made of unmodified limestone blocks. Feature 3, the possible house structure, measures 20 x 23 ft and is constructed of unmodified limestone blocks. This feature is set on rather flat ground between juniper trees.

Feature 4 is the remains of a dugout or a root cellar that measures about 19 x 19 ft. This feature is an oval depression with limestone blocks scattered about. A pile of waste rock is located directly south of the feature, and there is a depression in the center where a foundation may have been located. Feature 4 has been directly impacted by tracked vehicle maneuvers.

Feature 5 is a concentration of clinker, with wood, nails, brackets, etc. scattered throughout. This feature measures about 14 x 31 ft, and is most probably a remnant of local blacksmith operation. Feature 5 is most northerly feature on the site.

Historic Artifacts

The historic artifact concentration was generally moderate across the site, with areas of heavy density, and represents the whole range of activities expected from a ranch/homestead. There were 21 historic field specimens including amethyst glass, porcelain buttons, crockery, corset fasteners, etc. Over 400 cans and can fragments were located, along with substantial

quantities (at least 135 pieces) of various colors of glass; aqua, blue, green, brown, clear, milk, and amethyst. Approximately 79 specimens of ceramics were recorded, including porcelain, ironstone, stoneware, and crockery. Another class of artifacts was those associated with general ranching duties; baling wire, latches, fence connectors, clamps, nails, doorjamb, etc.

Lithic Artifacts

The prehistoric component of 5LA9210 consisted of 26 chipped-stone tools, 12 pieces of ground stone, and a 151-flake sample of debitage taken from across the site (Table 4.68). Sixty-three percent of the debitage was chert, 14 % was fine-grained quartzite, and 10 % was coarse-grained quartzite. The remaining 13 % were basalt, argillite, Black Forest silicified wood, orthoquartzite, siltstone, and unknown silicified wood. The only non-local material present in the sample is the Black Forest silicified wood (from approximately 159 km north of the PCMS). Nearly half (71) of the flakes sampled were simple, with 60 complex items, 15 pieces of shatter, and 5 bifacial thinning flakes. All stages of raw material reduction are present in the assemblage. Thirty-four pieces exhibit some degree of cortex, and cortex is found on every material type except for the orthoquartzite and Black Forest silicified wood. The majority of the sample (122 items) falls into the small size grade, while 28 were large. All of the cortical and non-cortical flakes are the result of core-reduction activities. The large number of complex flakes and the presence of biface-thinning flakes suggest early-to-late-stage biface manufacture took place on site as well, and heat-treatment was evident on six pieces of debitage.

The ground-stone assemblage consisted of six sandstone one-hand mano fragments, five sandstone metate fragments, and one coarse-grained quartzite edge-ground cobble.



Figure 4.185: Site overview photograph (PCMS 00-8:21), 5LA9210.

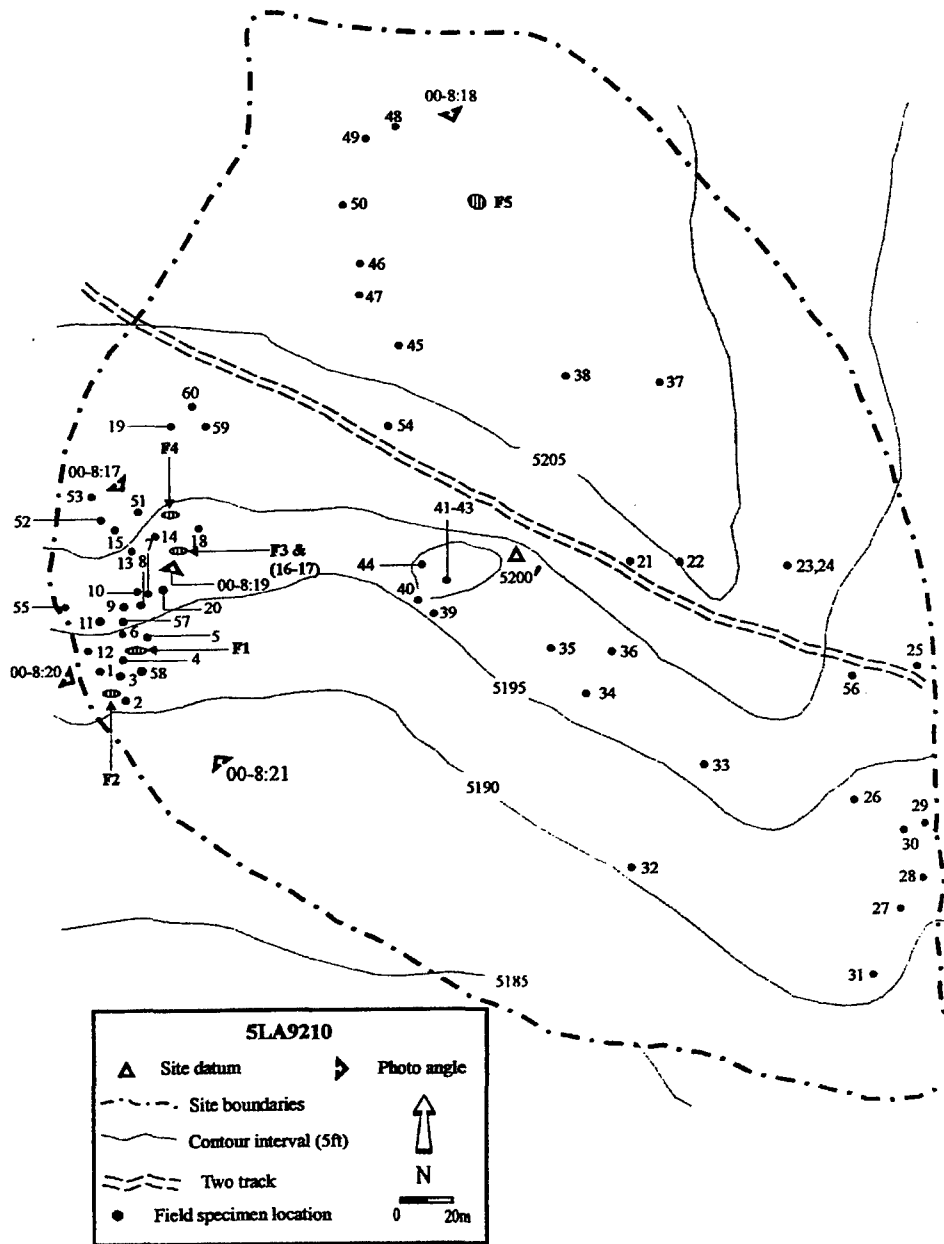


Figure 4.186: Site map, 5LA9210.

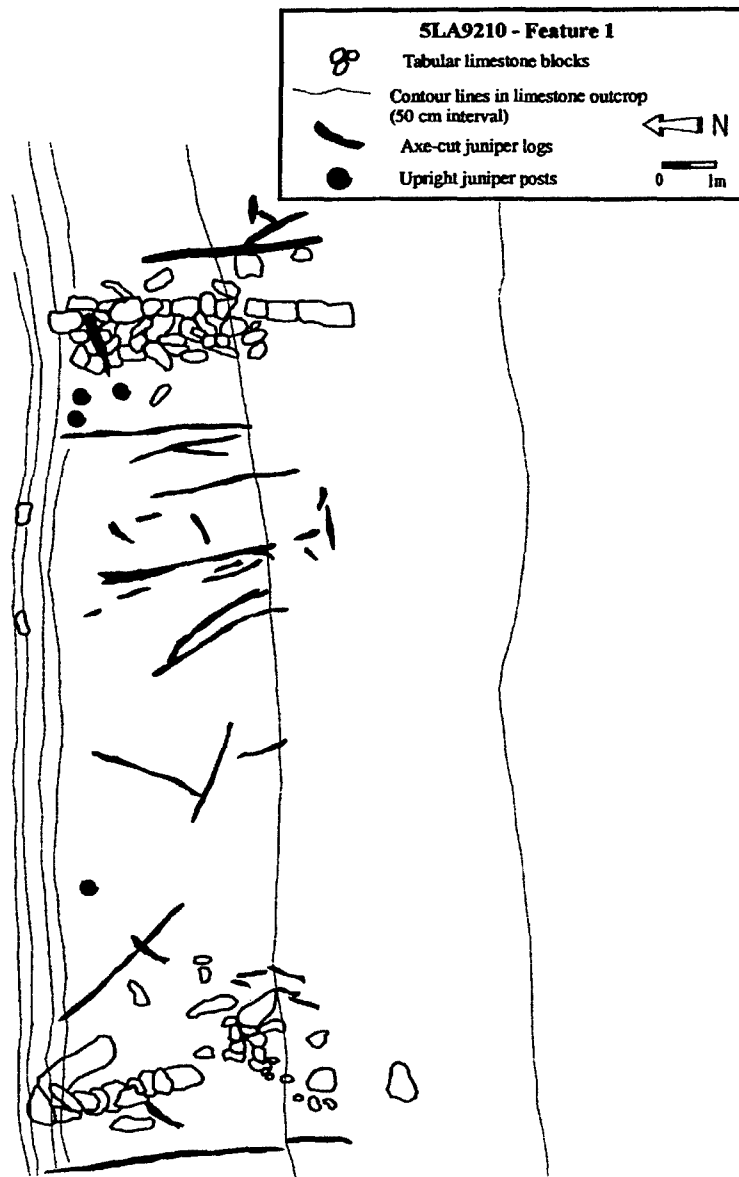


Figure 4.187: Planview map of Feature 1, a barn structure, 5LA9210.

Table 4.68: Summary Description of Chipped-Stone Debitage for 5LA9210.

	Argillite	Chert	C.Qzt	F. Qzt	Hornfels/Basalt	Ortho.	S. Wood	Siltstone	Total
Total	1	94	15	21	13	1	5	1	151
Large	1	8	8	6	4	1	1	0	29
Small	0	86	7	15	9	0	4	1	122
Cortical	1	11	9	7	4	0	1	1	34
Noncortical	0	83	6	14	9	1	4	0	117
Complex	0	37	6	9	3	1	4	0	60
Shatter	1	10	2	1	0	0	0	1	15
Simple	0	45	5	10	10	0	1	0	71
Biface-Thinning	0	2	2	1	0	0	0	0	5

Table 4.69: Stone Tool Type by Material Group for 5LA9210.

Material	Type							Total	
	Biface	Core	Projectile	Scraper	Drill	Flake Tool	Mano		Metate
Argillite	0	1	0	1	0	0	0	0	2
Obsidian	0	0	1	0	0	0	0	0	1
Alibates Dolomite	0	0	0	1	0	0	0	0	1
Hartville Uplift Chert	0	0	0	0	0	3	0	0	3
Ralston Creek Chert	0	0	0	0	1	2	0	0	3
Chert	0	0	2	1	1	2	0	0	6
Coarse-grained Quartzite	0	0	0	0	0	1	1	0	2
Fine-grained Quartzite	2	0	1	0	0	0	0	0	3
Sandstone	0	0	0	0	0	0	6	5	11
Orthoquartzite	2	0	1	0	0	0	0	0	3
Black Forest S. Wood	0	0	0	0	0	1	0	0	1
Silicified Wood	0	0	1	0	0	1	0	0	2
Total	4	1	6	3	2	10	7	5	38

The 26 chipped-stone tools were identified as ten flake tools, three scrapers, four small patterned bifaces, four unfinished bifaces, two large patterned bifaces, two drills and one core. Most of the tools (13) were made of chert; the non-local materials are obsidian, Hartville Uplift chert, and Black Forest silicified wood. Four of the six points are temporally diagnostic. Only one is a finished point. It (FS 31) is classified as a P84. Anderson (1989) assigns a date range of AD 750 to AD 1200 for this class of points. The other diagnostic items are small preforms (types P48 and 49). These are thought to have been manufactured prehistorically between AD 500 and AD 1750. Based on these points and preforms, the site likely had at least one occupation in the Late Prehistoric Stage (AD 100 to AD 1725).

One artifact of interest is an end/side scraper (FS 54), which appears to have a spur. Spurs can be indicative of Paleoindian artifacts; however, on this particular artifact, the spur appears to be the result of lateral edge reduction. Another end scraper (FS 22) is highly patinated argillite.

Interpretation and Summary

It is recommended that the site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of history (Criterion D). The architectural style of Feature 1 is unique for the PCMS and wall fall may have sealed and protected intact, cultural deposits. No prehistoric thermal features or structures were identified and several "looters piles" were found across the site. In addition, the surface of the site is highly eroded, so no additional work is needed for the prehistoric component. Overall, the historic component of 5LA9210 is representative of a small ranch or homestead of its time.

Feature 1 should be tested, as it contains intact deposits. However, the site in general is highly eroded and has been impacted by U.S. Army tracked vehicle maneuvers. As such, the site warrants no further consideration other than monitoring.

5LA9265

This sparse lithic scatter and rockshelter site is located on the western edge of the northern terrace of lower Red Rock Canyon. A low ridge is located to the north and east of the site and a small arroyo flows west into the canyon. The rockshelter is at the foot of the ridge which was formed by a resistant layer of sandstone that has outcropped at the surface. Chipped-stone debitage is located on the slope in front of the shelter as well as along the base of the sandstone outcrop (Figure 4.188). The site occupies approximately .19 acres. Datum is at an elevation of approximately 1,512 m (4,960 ft) asl.

The vegetative community is juniper woodland with a thick stand of juniper east of the site. Other vegetation in the area is black grama, yucca, mountain mahogany, currant, tree cholla, silver cholla, and blue grama. The soils on top of the ridge are thin and exposed bedrock dominates. Soil depths to 15 cm were observed at the base of the caprock. The surface soil is light-brown, silty sand.

Features

The rockshelter (Feature 1) measures 9.8 m across the opening by 3.8 m from the back of the shelter to the drip line. From floor to roof, it measures 1.6 m high. It contains a considerable amount of roof fall and aeolian deposition, which has created a protective barrier that has preserved two thermal features (Figure 4.189, 4.190). The first hearth (Feature 2) measures 1.1 m in diameter and is located in the northern end of the shelter. There are no fire-cracked rocks, but a thick layer of dark ashy soil, with burned bone, and identifiable pieces of charcoal is present. The overall shape of the hearth is unknown because it is partially covered by roof fall. Feature 3 is another hearth located near the dripline at the central portion of the shelter. It measures .95 x 1.2 m and is in an excellent state of preservation. Large quantities of charcoal and burned bone were observed in the dark, ashy soil.

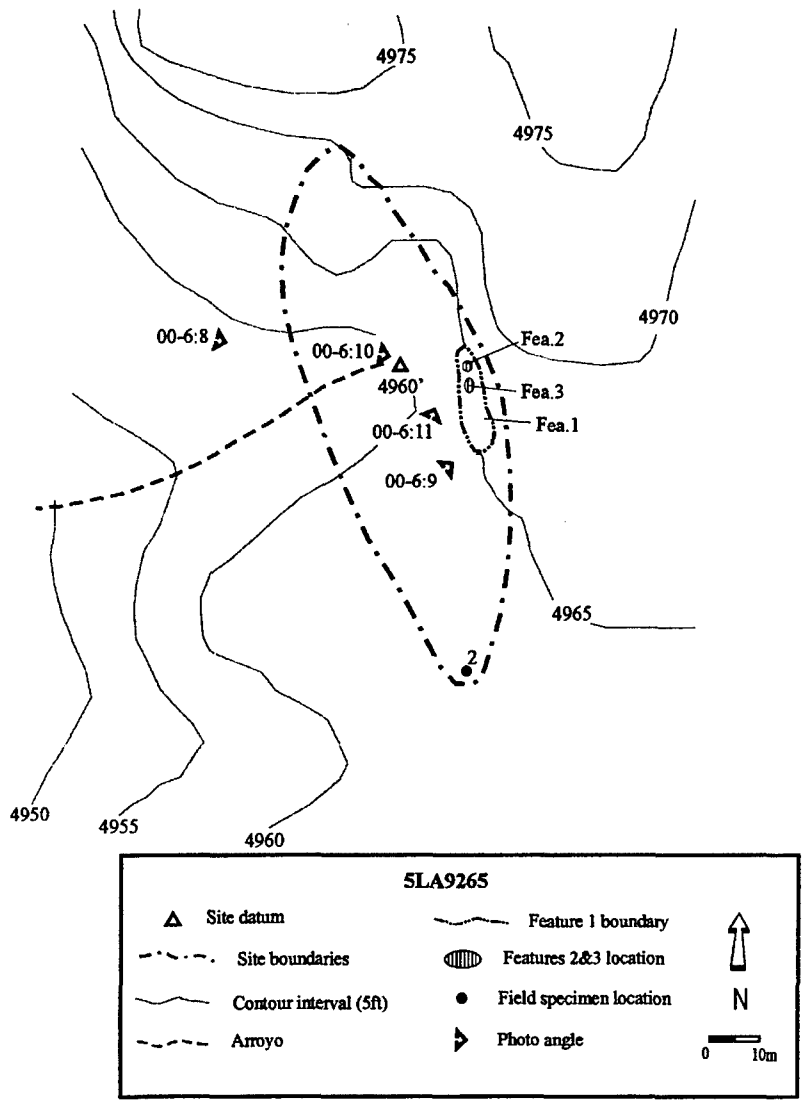


Figure 4.188: Site map, 5LA9265.

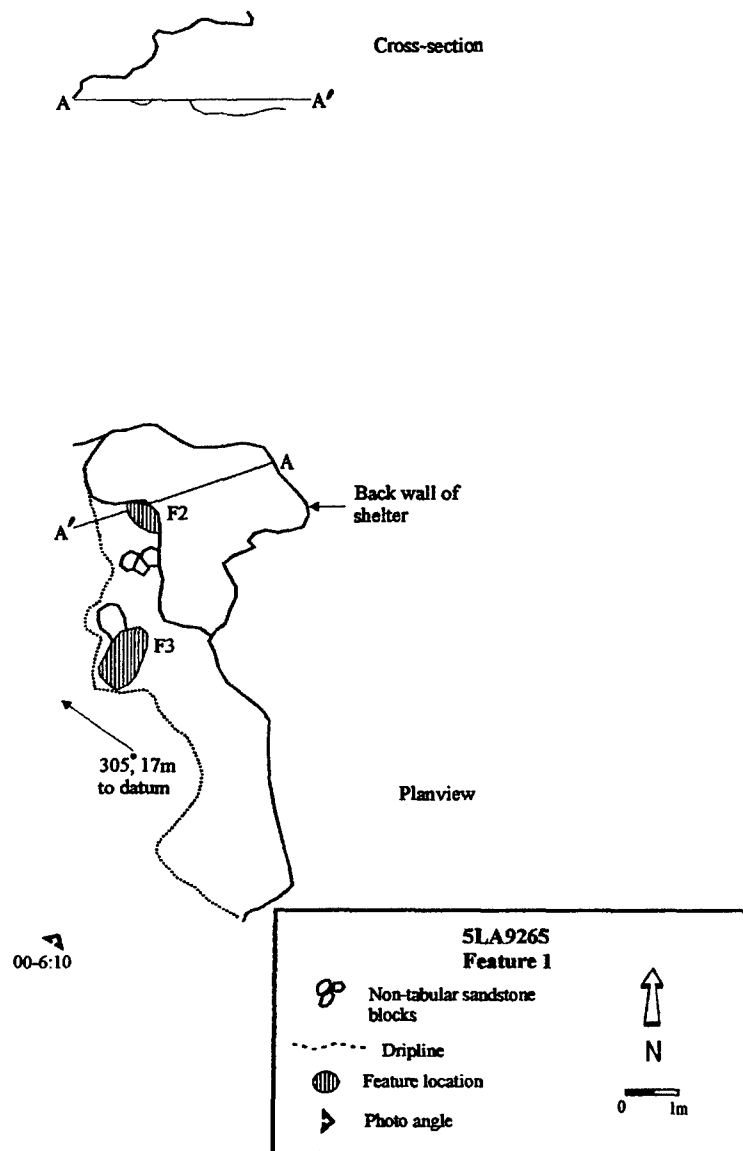


Figure 4.189: Planview and cross-section maps of Feature 1, a rockshelter, 5LA9265.

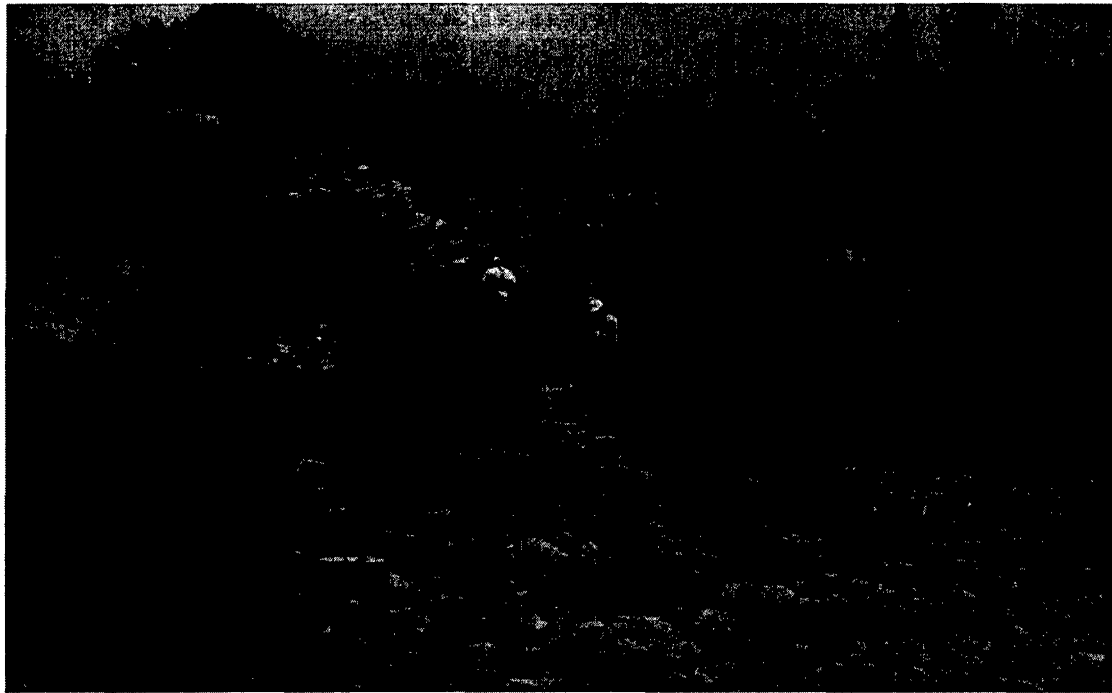


Figure 4.190: Photograph (PCMS 00-6:8) of Feature 1, 5LA9265.

Lithic Artifacts

Six pieces of chipped-stone debitage were recorded from the site-- all are quartzite; these include three simple flakes, two complex flakes, and a biface-thinning flake. Fragments of a sandstone one-hand mano and a slab metate were recorded. No diagnostic artifacts were found.

Interpretation and Summary

Site 5LA9265 is a sparse lithic scatter and rockshelter site. The presence of ground stone indicates that plant processing was carried out. There is at least 20 cm of deposition in the shelter, suggesting a good probability of finding intact cultural deposits that could include pollen and macrobotanical remains. Test excavations in Shelter 1 could provide important data for the reconstruction of subsistence patterns and/or paleoenvironment. Both hearths contain charcoal and a radiocarbon date here could provide an occupation date for the shelter. Burned bone and the possible recovery of floral materials in the hearths could provide crucial data to help construct patterns of subsistence and past environments.

We recommend that this site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). The site and its associated features are unlikely to be impacted by military maneuvers or erosion. Our management recommendation is that the site needs no further consideration.

5LA9277

Site 5LA9277 consists of a moderate lithic scatter in association with three rock shelters, a milling slick, a thermal feature and a historic drift fence (Figures 4.191, 4.193). It is located on the northwest facing slope above a side drainage of Red Rock Canyon. Site dimensions are 360 meters northeast to southwest by 170 meters northwest to southeast, covering an area of 10.7 acres. The northern two thirds of the site situated along the canyon rim are located in the juniper/black grama (Shaw et al., 1989:28) plant community of the PCMS. The remaining southern one third is in the sagebrush/blue grama (Shaw et al., 1989:24) plant community. Juniper, shunkbush, currant, snakeweed, prickly pear, cholla, yucca and grama grass were observed growing on site. Soil depth on site ranges from 0 to 20 cm in the rock shelters.

Features

Five features were identified and recorded in the field. Feature 1 (40 m at 48 degrees from datum) is a roasting pit or midden (5 x 5 m) containing dark ashy soil and eroding FCR. Feature 2 (46 m at 5 degrees from datum) is a rockshelter (6.75 x 3.1 x 1.47 m in height) with a single course sandstone block wing wall. Feature 3 is a small overhang with a possible wing wall at the west end. Soil depth within the overhang is 20 cm and there are artifacts eroding out downslope from this shelter (Figures 4.192, 4.194). Feature 4 (50 m at 305 degrees from datum) is a rockshelter and associated historic wall (3.28 x 3.48 x 1.17 m in height) with eroding FCR and a nearby drift fence. There is a milling slick (Feature 5) located in the rockshelter.

Lithic Artifacts

One hundred fifty-one pieces of debitage were recorded as a general sample of the lithics present on the site (Table 4.70). Of the overall sample 78 are simple flakes, 61 are complex flakes, 11 are shatter and 1 is a biface-thinning flake. Material types used are coarse-grained quartzite (46%), fine-grained quartzite (38%), and orthoquartzite (6%), with hornfels/basalt, chert and argillite also present. All materials are available locally and at the parent source in bed, or nodule form. One hundred and thirty flakes were classified as large and twenty-one as small. Fifty of the large flakes and four of the small flakes, or 36 % of the sample, had cortex.

Two temporally diagnostic projectile points (FS 7 and 10) were recorded. Field Specimen 7 is basalt, and similar in style to Anderson's (1989) P19 (2000 BC to AD 1000). The second projectile point is orthoquartzite and is similar to Anderson's (1989) P58 (AD 600 to AD 1200).

The chipped stone tool assemblage consists of one utilized flake, two bifaces and a uniface tool. The utilized flake (FS 20) is chert, has edge angles > 45 degrees and moderate use wear (scraping). Field Specimen 11 is a broken, fine-grained quartzite biface that was not finished. The other biface (FS 16) is also fine-grained quartzite. This unfinished biface was used as a scraping tool. The uniface (FS 13) is made of coarse-grained quartzite, has edge angles > 45 degrees and shows light use-wear.

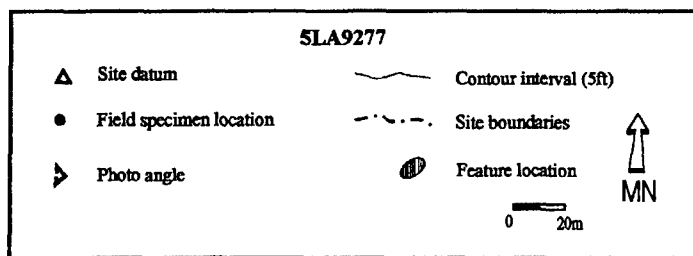
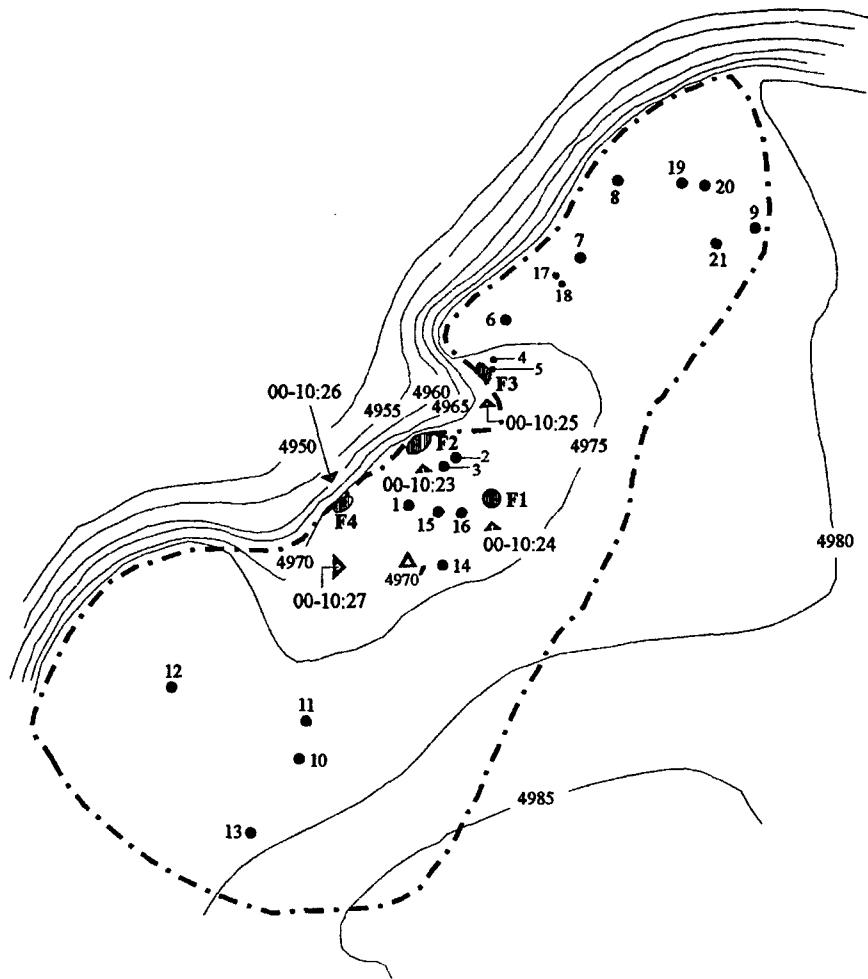


Figure 4.191: Site map, 5LA9277.

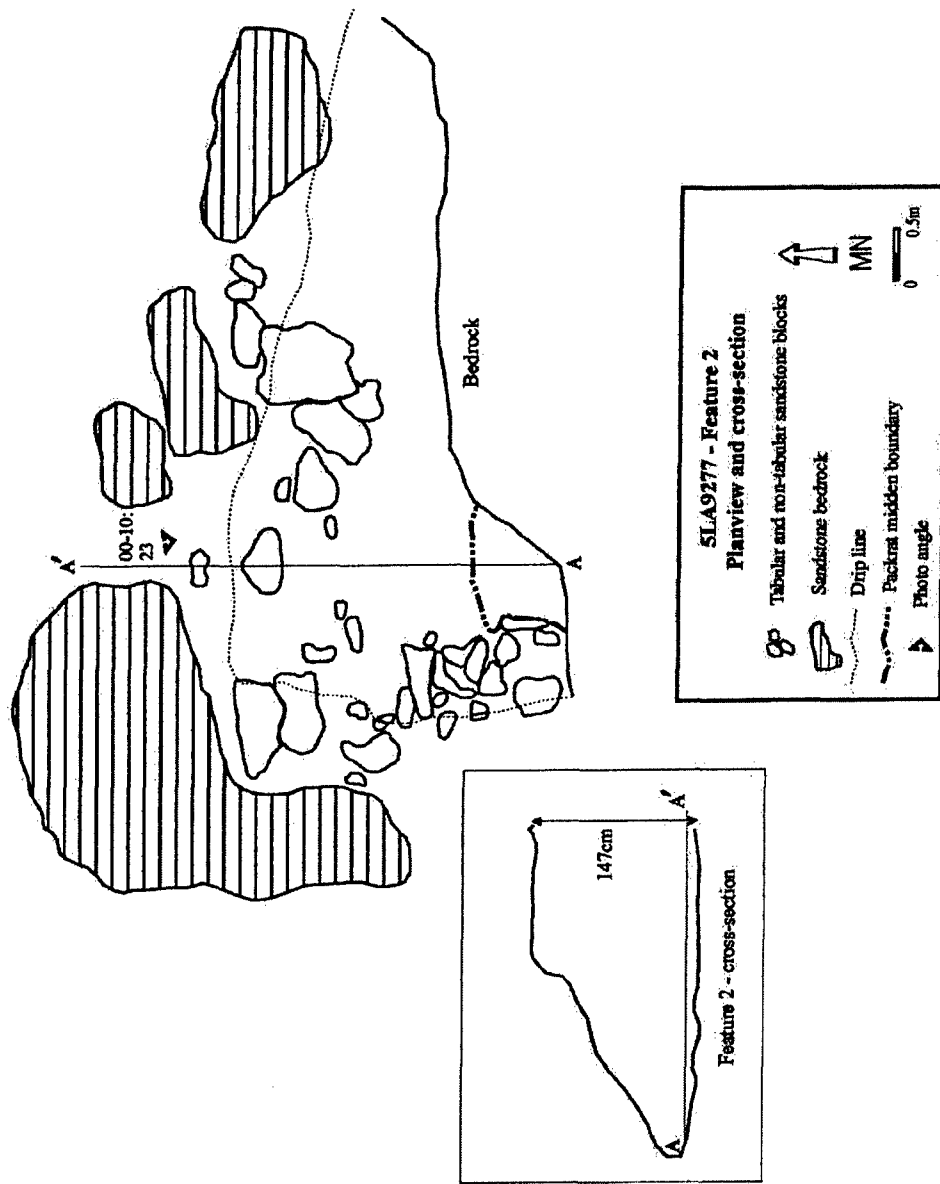


Figure 4.192: Planview and cross-section maps of Feature 2, rockshelter, 5LA9277.

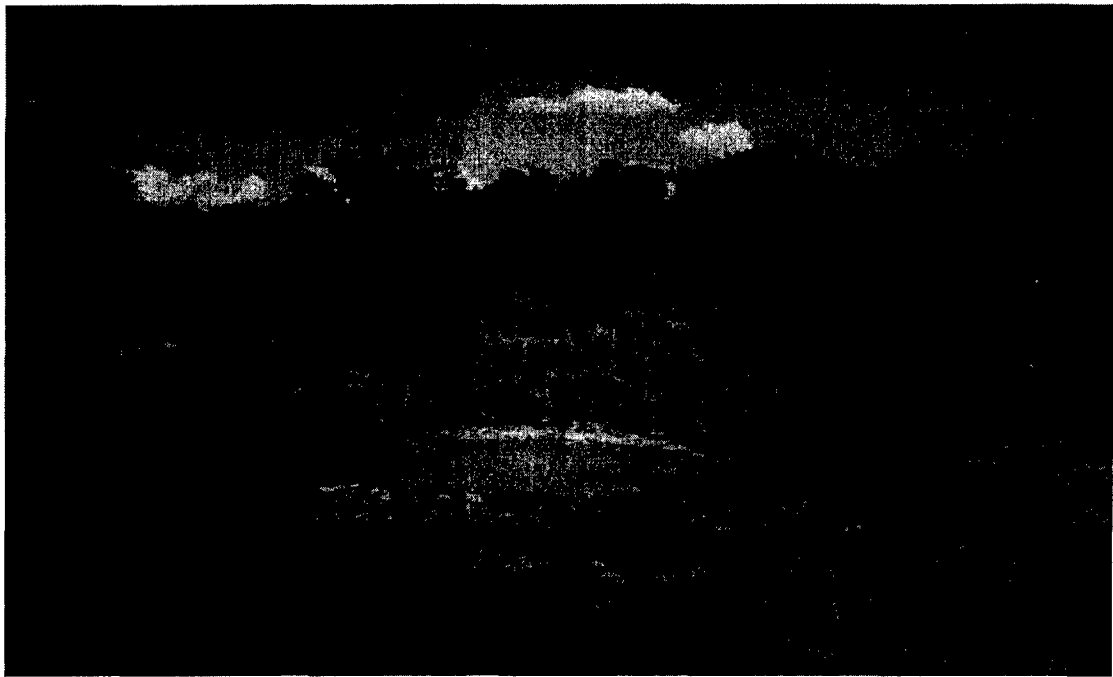


Figure 4.193: Site overview photograph (PCMS 00-10:27) taken toward datum, 5LA9277.



Figure 4.194: Photograph (PCMS 00-10:25) of Feature 3, a rockshelter, 5LA9277.

Table 4.70: Summary Description of Chipped-Stone Debitage for 5LA9277.

	Argillite	Chert	C. Quartzite	Fine Quartzite	Hornfels/Basalt	Orthoquartzite	Total
Total	3	7	69	57	6	9	151
Large	3	6	64	44	6	7	130
Small	0	1	5	13	0	2	21
Cortical	1	0	25	21	4	3	54
Noncortical	2	7	44	36	2	6	97
Complex	2	5	27	20	1	6	61
Shatter	1	0	6	1	2	1	11
Simple	0	2	36	35	3	2	78
Biface-Thinning	0	0	0	1	0	0	1

Interpretation and Summary

We recommend that this site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). Site 5LA9277 is a lithic scatter with rockshelters and a thermal feature. The presence of temporally diagnostic artifacts may aid research designed to refine the regional chronology. The presence of the milling surface and the roasting pit/midden may indicate the presence of pollen and/or macrobotanical remains that, if located, would aid in the reconstruction of subsistence patterns. Soil depths indicate potential for buried intact cultural deposits.

The rockshelters and roasting pit (Features 1-4) should be tested. This site should be monitored every five years to gauge the impact of water and wind erosion.

5LA9281

The cultural material scatter for site 5LA9281 consists of a thermal feature, ground-stone and chipped-lithic artifacts. These prehistoric remains were found on the southern edge of the Mary Doyle arm of Welsh Canyon near the Mary Doyle Ranch. The site is 16.9 acres in size, and situated on a gentle northeasterly facing slope extending from the plain on the east to the canyon rim on the north and west side of the site. The site is located in the juniper/black grama (Shaw et al., 1989:28) plant community typically found on the canyon edges in the PCMS. Juniper, ricegrass, currant, cholla, yucca, pale wolfberry, needle and thread grass, wheatgrass, milkweed and ox-eye daisy was seen growing on the site. Soil depths are 0-15 cm, with 10 cm being typical.

Features

The field crews recorded only two features. Feature 1 is a deflated area of ash and small pieces of thermally altered rocks measuring 7 m in diameter. This feature (127 m at 63 degrees from datum) is subject to erosion and therefore severely deflated. Feature 2 is a bedrock metate

on a sandstone outcrop (128 m at 204 degrees from datum). It has a single oval shaped grinding surface measuring 40 x 20 x 1.5 cm. Heavy grinding is present on this surface.

Lithic Artifacts

One hundred fifty-five pieces of debitage were recorded as a representative sample of artifacts present. This sample contained 72 simple flakes, 45 pieces of shatter, 37 complex flakes, and one bifacial thinning flake. Material types are 77% fine-grained quartzite, 14% chert, with argillite, glass, basalt, orthoquartzite, and silicified wood also present. All the material types other than the glass are locally available and at the parent source in bed or nodule form. Forty percent of the assemblage has cortex. Most items (107) were assigned to the large size category, with 48 items designated as small. The high numbers of large flakes with a lower percentage of cortical flakes would suggest that the material source is not close to the site. The presence of a biface-thinning flake suggests a single late stage biface was manufactured, though overall, the assemblage points to early to middle stage raw material reduction as the dominant reduction mechanism.

One temporally diagnostic projectile point (FS 6) was recovered from the surface of this site. It is similar to Anderson's (1989) P25. This point style dates to the Middle Archaic Stage (1500 BC to 1000 BC) and suggesting at least one site occupation during the Middle Archaic period.

The chipped-stone tools consist of four utilized flakes, four bifaces, three cores and a scraping tool. The utilized flakes are fine-grained quartzite (2), basalt (1), and historic glass (1). All the utilized flakes (FS 7, 10, 11 and 18) have recorded edge angles > 45 degrees (scraping activity). Three specimens (FS 7, 10 and 11) show heavy use wear, while one (FS 18) exhibits only light use. The scraping tool can be further classified as an end/side scraper and was made on a large secondary flake of fine-grained quartzite. Heavy use wear is present on both lateral edges. Three non-bipolar cores (FS 5, 17 and 20) were recorded in the field; one each of fine-grained quartzite, coarse-grained quartzite and chert.

Of the bifaces, two are chert, one is fine-grained quartzite and one is orthoquartzite. The fine-grained quartzite biface (FS 9) was broken late in manufacturing and then discarded. No use wear is present. The chert biface (FS 12) is unfinished and also has no use wear. Another chert biface (FS 13) has an edge angle of less than 45 degrees and shows moderate use wear on both faces. The orthoquartzite specimen (FS 16) has an edge angle of less than 45 degrees and evidence of heavy use.

Five one-hand manos, an edge-ground cobble and two metates make up the ground-stone assemblage. One complete mano (FS 8) is fine-grained quartzite and one complete mano (FS 19) is coarse-grained quartzite. Two sandstone manos are broken and another sandstone mano is complete. The slab metate (FS 3) is sandstone and incomplete (< 50%). Bedrock metate (FS 23) is on sandstone and is complete. It's single depression measures 40 x 20 x 1.5 cm and shows heavy grinding.

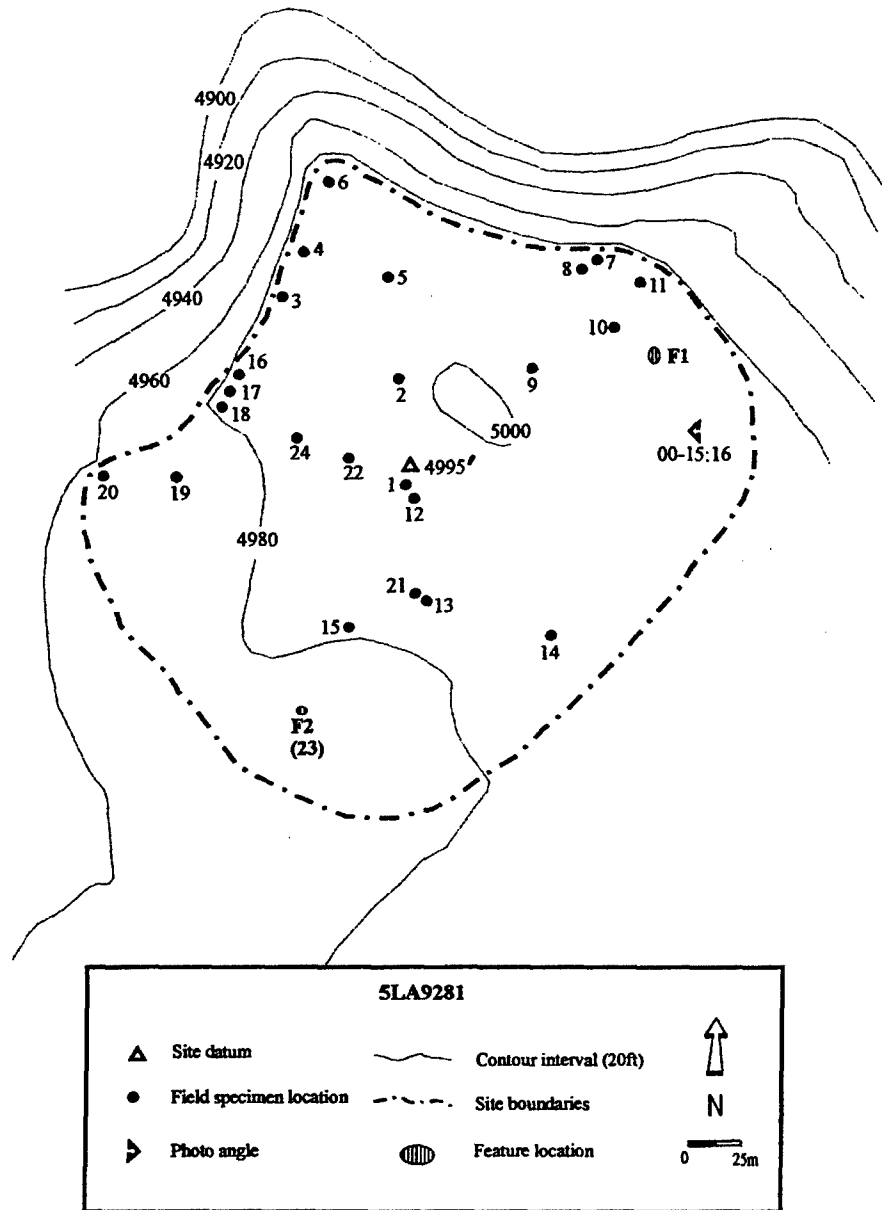


Figure 4.195: Site map, 5LA9281.

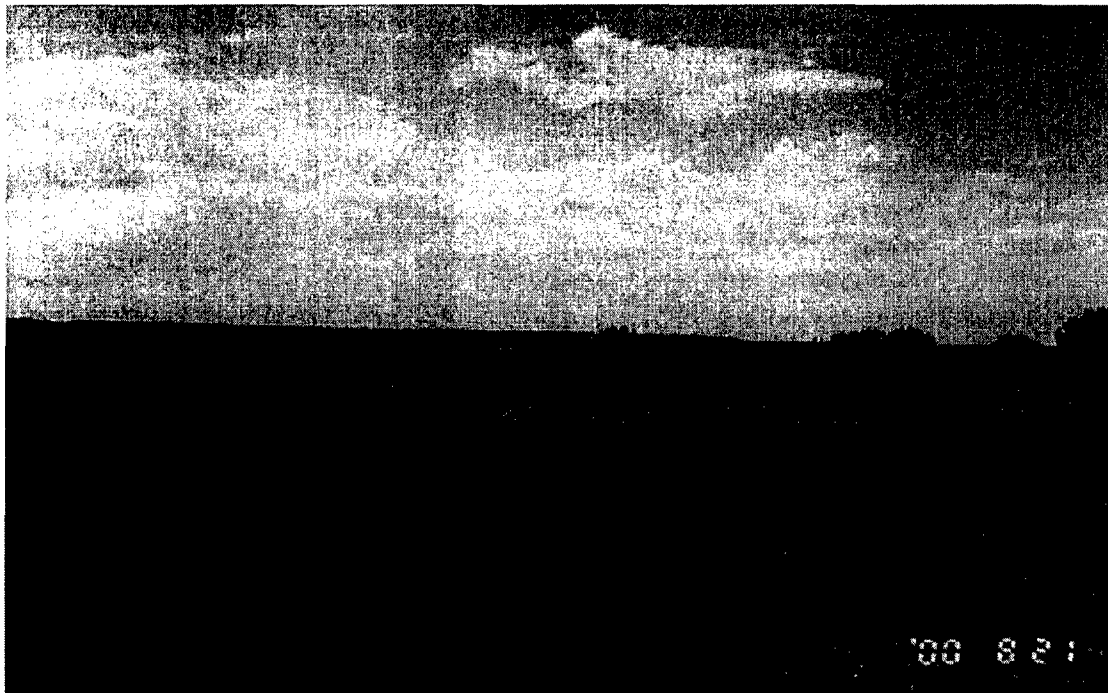


Figure 4.196: Site overview photograph (PCMS 00-15:16) facing west from eastern site boundary.

Table 4.69: Summary Description of Chipped-Stone Debitage for 5LA9281.

	Argillite	Chert	C. Quartzite	Fine Quartzite	Glass	Hornfels/Basalt	Ortho.	Silicified Wood	Total
Total	7	21	3	120	1	1	1	1	155
Large	5	9	2	88	1	1	1	0	107
Small	2	12	1	32	0	0	0	1	48
Cortical	3	8	1	50	0	0	0	0	62
Noncortical	4	13	2	70	1	1	1	1	93
Complex	3	7	0	24	1	1	1	0	37
Shatter	3	10	1	30	0	0	0	1	45
Simple	1	4	2	65	0	0	0	0	72
Biface-Thinning	0	0	0	1	0	0	0	0	1

Table 4.70: Stone Tool Type by Material Group for 5LA9281.

Material	Type							Total
	Biface	Core	Projectile	Scraper	Flake Tool	Mano	Metate	
Chert	2	1	0	0	0	0	0	3
Coarse-grained Quartzite	1	1	0	0	0	1	0	3
Fine-grained Quartzite	0	1	1	1	2	1	0	6
Sandstone	0	0	0	0	0	4	2	6
Hornfels/Basalt	0	0	0	0	1	0	0	1
Orthoquartzite	1	0	0	0	0	0	0	1
Glass	0	0	0	0	1	0	0	1
Total	4	3	1	1	4	6	2	21

Interpretation and Summary

This site has one temporally diagnostic projectile point and a thermal feature. It is a large (313 x 312 m) lithic scatter with intermediate and late-stage lithic reduction, vegetal processing, cooking, and expedient and formal tool usage (cutting and scraping) activities occurring. The age of the point (1500 BC to 1000 BC) indicates an occupation in the Middle Archaic period.

It is recommended that the site be avoided and tested. The thermal feature is considered important because it may yield macrobotanical, pollen or faunal material through test excavation. As a result, regional questions regarding subsistence, chronology and climate may be addressed. Because of its excellent archaeological potential, the site is eligible for NRHP inclusion under Criterion D.

5LA9283

This site consists of a large lithic scatter and prehistoric structure located on the rim of the Mary Doyle arm of Welsh Canyon northwest of the Mary Doyle ranch (Figures 4.197, 4.199). The site has sandstone outcrops to the south and west and gently slopes northeasterly to the canyon edge. Several small erosional opportunities and an arroyo intersect the site. Artifact density is highest along the canyon rim, as are the features. The site is located in the small sagebrush plant community typically found above the exposed canyon rims of the PCMS. Juniper, prickly pear, barrel cactus, sideoats grama, black grama, threeawn, yucca, rabbitbrush, currant and poison ivy were observed growing on the site. Soil depths range from 0 to 25 cm.

Features

Five features were recorded, all near the canyon edge. Feature 1 (61 m at 260 degrees from datum) is a single course of unmodified sandstone rocks arranged in a 3.5 m semi-circle. This feature has been damaged by water erosion. Feature 2 (190 m at 118 degrees from datum) consists of an Apishapa-style structure, 4 m in diameter, with soil staining and fire cracked rock present on the interior and immediately to the west (Figure 4.198). This feature has been partially damaged by an arroyo cutting through it west to east and likely has had some of its wall blocks removed for usage in the historic drift fence in the canyon below. Feature 3 (138 m at 115 degrees from datum) is a single milling slick found on a moderately large sandstone bedrock. Feature 4 (165 m at 118 degrees from datum) is another milling slick located on a large sandstone bedrock. Feature 5 (170 m at 120 degrees from datum) has 3 milling slicks found on a large sandstone bedrock outcrop.

Lithic Artifacts

One hundred and fifty one pieces of debitage were recorded as general sample of the lithics present on site and 40 were recorded in and around Feature 2 (Table 4.73). Of the overall

debitage sample there were 96 complex flakes, 68 simple flakes, 12 pieces of shatter and 15 biface-thinning flakes. Material types are fine-grained quartzite (50%), chert (23%), argillite (12%) and coarse-grained quartzite (7%); with hornfels/basalt, obsidian and orthoquartzite also present. All materials, excluding the obsidian, are available locally and at the parent source in bed, or nodule form. Cortex was absent on 79% of the flakes and 65% of the flakes were classified as small, suggesting later-stage manufacturing.

Six chert projectile points (FS 15, 30, 35 and 37) were recovered. Three of these artifacts are considered to be temporally diagnostic. Field Specimen 15 is similar to Anderson's (1989) P12 that dates from Middle Archaic to the Developmental Period (3000 BC – AD 500). Field Specimen 35 is similar to Anderson's (1989) P83 that dates from AD 750 – AD 1650. Field Specimen 37 is similar to Anderson's (1989) P18, which dates from 3000 BC – 500 BC.

The chipped stone tool assemblage consists of five utilized flakes, five bifaces, four cores, one chopper/hammerstone, one end scraper and one end/side scraper. The utilized flake materials are fine-grained quartzite (FS 29), three chert (FS 11, 18 and 28), and one obsidian (FS 8). All the utilized flakes have edge angles > 45 degrees and show heavy use wear. Materials used in the five bifaces-- two fine-grained quartzite, two chert, one basalt, and one argillite. All of the bifaces are broken and lack evidence of use. The end scraper (FS 26) is made of basalt, the end/side scraper (FS 33) from orthoquartzite and the chopper/hammerstone (FS 5) from fine-grained quartzite. All three of these artifacts (FS 5, 26 and 33) have heavy use wear.

In addition to the five bedrock metates (Features 3, 4 and 5), ten pieces of ground stone were recorded: two broken one-hand manos (<50 %), one whole one-hand mano, one complete metate and six metate fragments. All are made from sandstone with no evidence of burning present. The complete slab metate (FS 27) shows heavy usage. The milling surface is ground and pecked. It is oval in shape and measures 34 x 14 x 0.5 cm.

Table 4.73: Summary Description of Chipped-Stone Debitage for 5LA9283.

	Argillite	Chert	C. Quartzite	Fine Quartzite	Hornfels/Basalt	Obsidian	Ortho.	Total
Total	23	44	14	96	9	2	3	191
Large	12	9	7	35	4	0	0	67
Small	11	35	7	61	5	2	3	124
Cortical	5	1	6	25	2	1	0	40
Noncortical	18	43	8	71	7	1	3	151
Complex	14	17	7	52	4	1	1	96
Shatter	5	5	0	2	0	0	0	12
Simple	4	14	7	36	5	1	1	68
Biface-Thinning	0	8	0	6	0	0	1	15

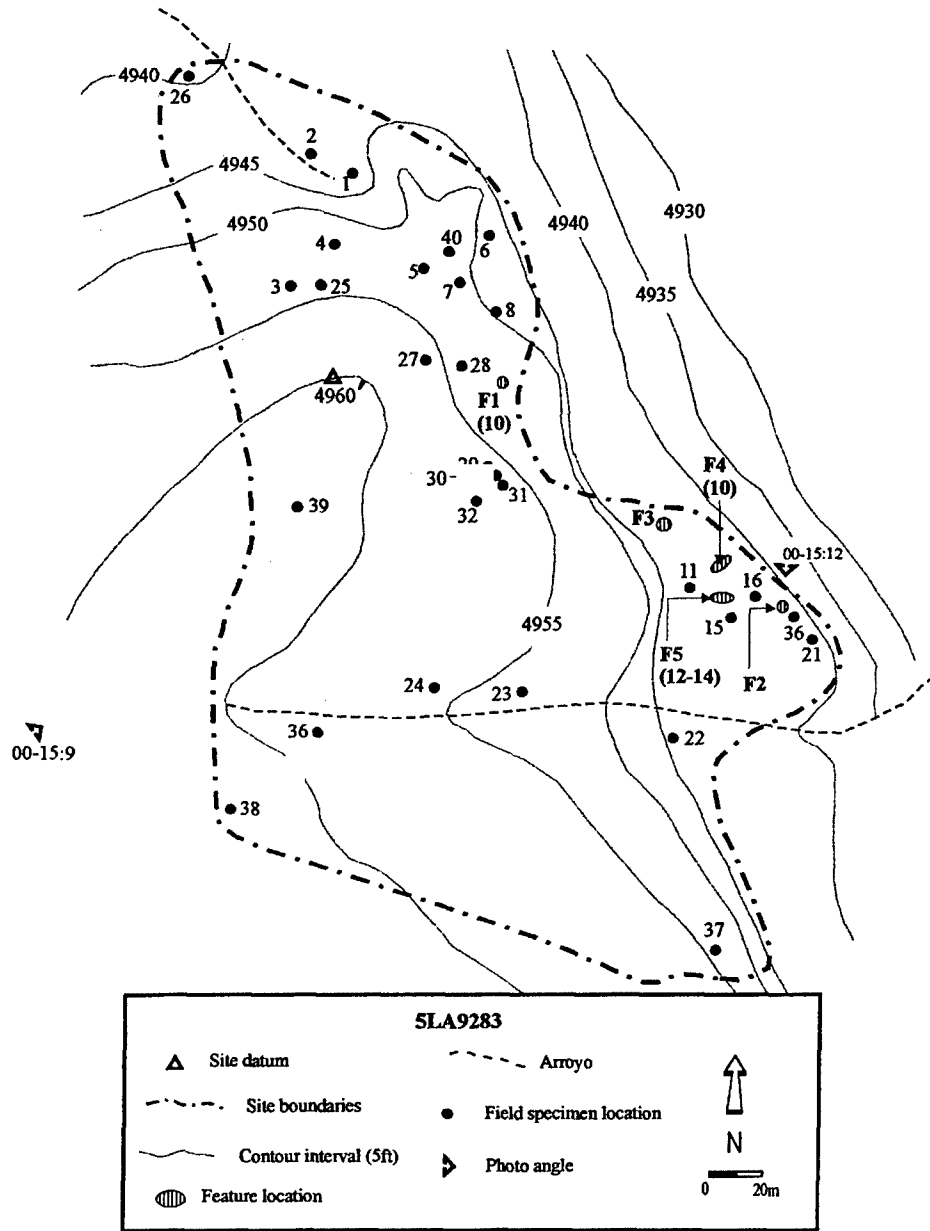


Figure 4.197: Site map, 5LA9283.

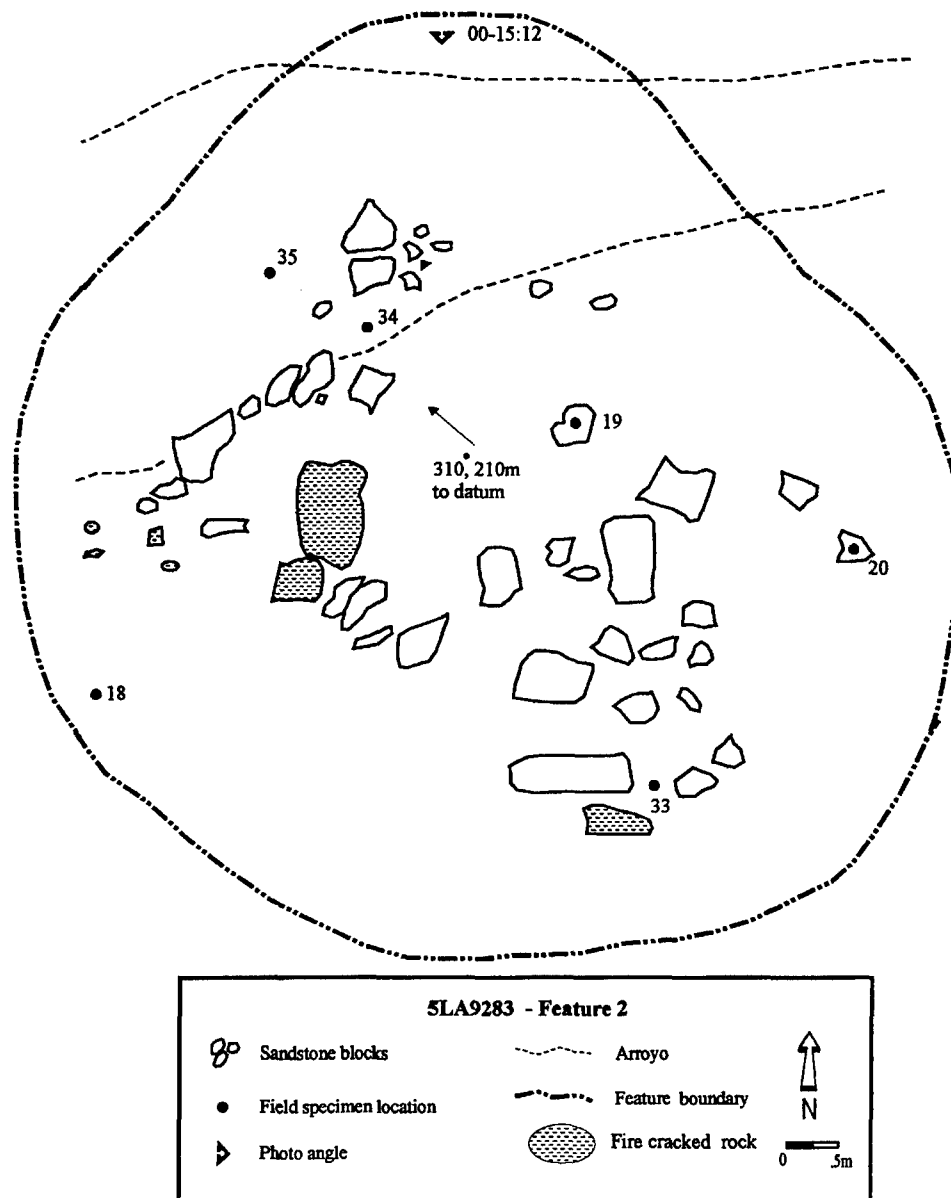


Figure 4.198: Planview map of Feature 2, a deflated circular slab structure, 5LA9283.

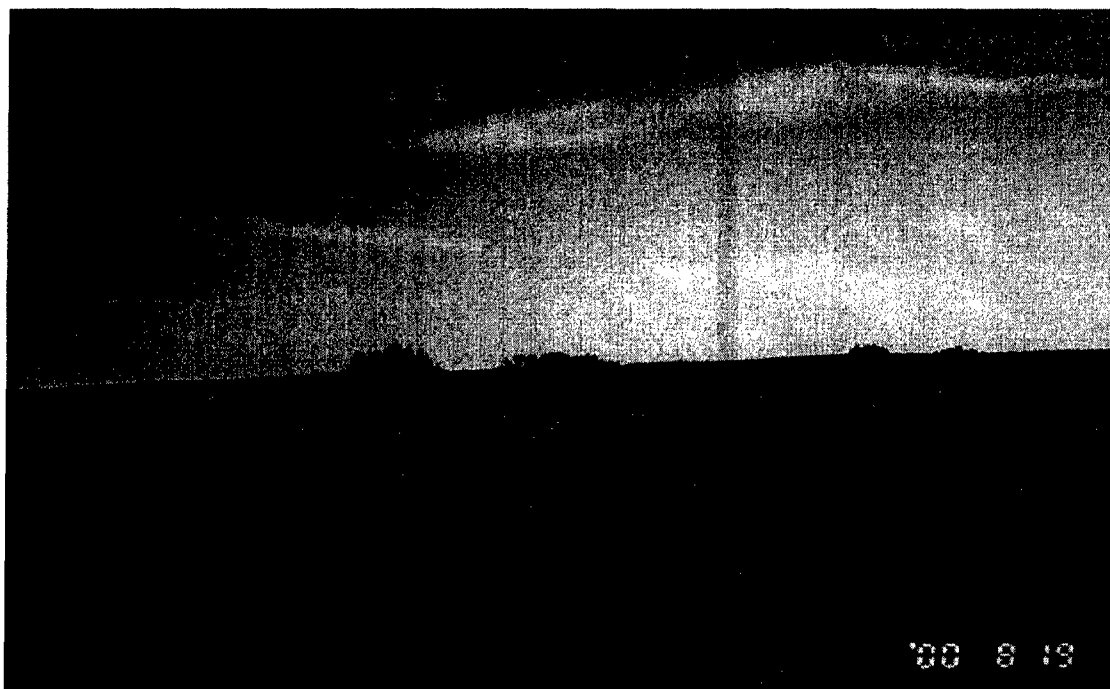


Figure 4.199: Site overview photograph (PCMS 00-15:9), 5LA9283.

Table 4.74: Stone Tool Type by Material Group for 5LA9283.

Material	Type								Total
	Biface	Core	Projectile	Scraper	Flake Tool	Chopper	Mano	Metate	
Argillite	1	1	2	0	0	0	0	0	4
Alibates Dolomite	0	0	1	0	0	0	0	0	1
Chert	1	0	3	0	3	0	0	0	7
Coarse-grained Quartzite	0	2	0	0	0	1	0	0	3
Fine-grained Quartzite	2	1	0	0	1	0	0	0	4
Sandstone	0	0	0	0	0	0	3	12	15
Hornfels/Basalt	1	0	0	1	0	0	0	0	2
Orthoquartzite	0	0	0	1	0	0	0	0	1
Obsidian	0	0	0	0	1	0	0	0	1
Total	5	4	6	2	5	1	3	12	38

Interpretation and Summary

Site 5LA9283 has three temporally diagnostic projectile points, a stone circle, and thermally altered soil and FCR associated with an Apishapa-style stone structure. This site is a large (411 x 238 m) lithic scatter with late stage lithic reduction, vegetal preparation, cooking and formal tool usage (cutting and scraping) occurring. The temporal age determinations for the points suggest at least two occupations. This site is recommended as eligible for NRHP designation on the grounds that it is likely to yield information important to our understanding of

prehistory (Criterion D). The thermal area in Feature 2 will eventually be destroyed by erosion and excavation could yield macrobotanical, pollen or faunal material and artifacts useful for addressing chronology, climate or subsistence. Soil depth is 10 to 25 cm and with ash present in or near Feature 2, the discovery of a prehistoric occupation surface is possible. We recommend that Feature 2 and the associated stained soils be avoided and tested.

5LA9284

This site is a relatively sparse scatter of chipped-stone tools, debitage, and ground stone situated on a broad alluvial fan along the south side of Lockwood Arroyo (Figure 4.200, 4.201). The site is bounded on the north, south, and east by the extent of the lithic artifacts and to the west by a small erosional cut that flows north into Lockwood Arroyo. Topographic relief at the site is nominal, with a slight slope towards the north.

There is a sparse covering of sagebrush, winterfat, grama grass, prickly pear, alkali sacaton, and juniper. The area of the site is 0.7-acres. There is significant soil deposition on site due to its location on an active alluvial fan. Sediment depths could reach well into the meters based on the arroyo cut, but cultural depth may only go down 30 cm.

Features

Feature 1 is an area of fire-cracked rock and angular gravels approximately 1 m in diameter and was found at the eastern site boundary. No ash is visible at the surface of this feature and may it have been flushed by rainwater erosion. One quartzite chopping tool is present in the feature, but it does not appear burned.

Lithic Artifacts

A total of 26 pieces of chipped-stone debitage were recorded (Table 4.75). Of the total, twelve pieces are quartzite, eight are basalt, five are chert, and there is a single flake of non-local Black Forest silicified wood. Most of these are simple flakes (18), with fewer complex flakes (6) and shatter (2) specimens recorded. There were 22 noncortical items and four cortical items; and there are 20 large pieces of debitage and six small ones. Based on the sparse data for the site, it appears that the debitage was generated using noncortical cores and these cores were likely reduced to produce expedient flake tools.

A single diagnostic projectile point was found at the southern edge of the site and near the base of a low hill. This orthoquartzite projectile point fragment is highly fractured but retained enough of its attributes to be assigned to Anderson's (1989) P26 type. A date range of 1000 BC to AD 500 is suggested for this class placing its manufacture somewhere between the Late Archaic and Developmental periods.

The remaining artifacts are the previously mentioned chopping tool, a fine-grained quartzite utilized flake, and five sandstone slab metate fragments. All of the tools were recovered randomly from the site surface with no apparent concentration.



Figure 4.200: Site overview photograph (PCMS 00-6:15), 5LA9284.

Table 4.75: Summary Description of Chipped-Stone Debitage for 5LA9284.

	Silicified Wood	Chert	C. Quartzite	F. Quartzite	Hornfels	Basalt	Total
Total	1	5	6	6	8		26
Large	1	3	4	5	7		20
Small	0	2	2	1	1		6
Cortical	1	0	1	1	1		4
Noncortical	0	5	5	5	7		22
Complex	0	0	3	1	2		6
Shatter	1	0	0	1	0		2
Simple	0	5	3	4	6		18

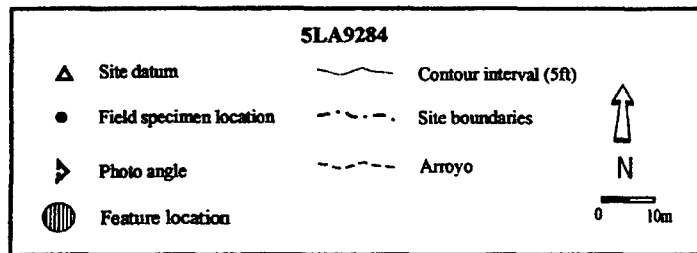
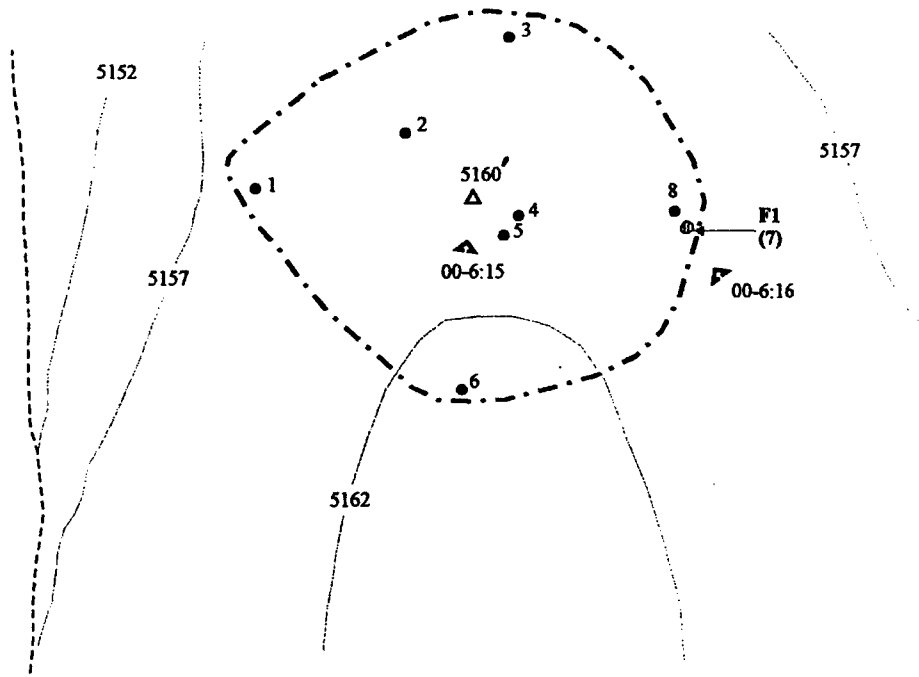


Figure 4.201: Site map, 5LA9284.

Table 4.76: Stone Tool Type by Material Group for 5LA9284.

Material	Type				Total
	Chopper	Projectile	Flake Tool	Metate	
Fine-grained Quartzite	1	0	1	0	2
Sandstone	0	0	0	5	5
Orthoquartzite	0	1	0	0	1
Total	1	1	1	5	8

Interpretation and Summary

It is recommended that the site be deemed eligible for the National Register because it is likely to yield information important to our understanding of prehistory (Criterion D). Site 5LA9284 is a small lithic scatter with a thermal feature (Feature 1) that is very likely a hearth. The area as a whole exhibits considerable deposition (up to perhaps 30 cm) and there is a good probability of finding intact cultural deposits that may include pollen and macrobotanical remains. Test excavations in Feature 1 could yield datable carbon and other important data for the reconstruction of subsistence patterns and/or paleoenvironment. A single temporally diagnostic artifact was found and it is potentially useful for addressing issues of chronology. There is also a possibility of locating points in a buried context. The presence of Black Forest silicified wood is potentially useful in addressing issues of trade and exchange or group mobility.

The site is in danger from erosion but, due to its location near Lockwood Arroyo, it is not in much danger from military maneuvers. Our management recommendation is to avoid the site and test Feature 1.

5LA9290

This is a large lithic scatter and rockshelter site that sits along a ridge following a major northern side drainage of Red Rock Canyon (Figures 4.202, 4.203). The site primarily follows the break of a small northeast to southwest ledge off the top of the primary ridge, but continues up onto the flat part of the ridge and down to a southeast trending ridge below the first ledge. The secondary ridge then breaks down into the actual drainage. Sandstone outcroppings form a series of small terraces across the site. The datum is at an elevation of about 1,524 m (5,000 ft).

Sagebrush, black and hairy grama, prickly pear, juniper, mountain mahogany, cholla, currant were noted growing at the surface. The vegetative community north of the site is grassland with threeawn, blue grama, and galleta grass dominating the surface cover. Soil deposition occurs in the flat areas below the sandstone bedrock and on top of the ridge but it is shallow (5 to 10 cm).

Features

Two rockshelters (Features 2 and 3) and a lithic concentration (Feature 1) were recorded at the site. Feature 1 is located about 32 m and 195 degrees from the site datum. It is a very dense scattering of lithic debris (11 x 5.5 m) that appears to be a knapping station. It contains mainly simple and complex flakes of quartzite and the base of a nearly finished quartzite projectile point (FS 18).

Feature 2 is 39 m and 175 degrees from the datum. The shelter faces southeast and overlooks the drainage. The 9 x 3.6 m shelter has no artifacts or visible surface features on its floor; however, in front of the opening there are many artifacts including a large Alibates dolomite point (FS 22). In front of the shelter, the canyon slope ranges from 5 to 15 degrees and a small erosional drainage produces significant erosion, but not within the feature proper.

Feature 3 is a 6.5 x 2.4 m overhang. There are no artifacts in association, but it was designated as a feature due to its placement within the site boundaries. It has a great deal of soil deposition (over 10 cm) and potentially could yield debitage or thermal features.

Lithic Artifacts

A total of 304 pieces of chipped-stone debitage were recorded from the site (Table 4.77), a 151-piece general surface sample and 153 pieces from Feature 1. Of the general sample, 34% was fine-grained quartzite, 33% is coarse-grained quartzite, 9% chert, 14% is hornfels/basalt, 3% orthoquartzite, 5% argillite, and there is less than 1% obsidian. A small amount of these materials exhibit cortex (24%) and all of the materials, with the exception of obsidian, have visible cortex on three or more specimens. Most of the assemblage is large (63%). There were 188 (62%) simple flakes, 90 (30%) complex flakes, 23 (8%) pieces of shatter, and three (1%) biface-thinning flakes in the overall sample. Of the Feature 1 debitage, 48% is fine-grained quartzite, 25% is coarse-grained quartzite, 18% is chert, 6% is orthoquartzite, 2% is basalt, and 1% is obsidian (Table 4.78). Unlike the overall sample, there are more small items (63%) and a much smaller percentage of cortical items (8%). Debitage classifications here yielded 104 (68%) simple flakes, 36 (24%) complex flakes, 10 (6%) shatter specimens, and the three (2%) biface-thinning flakes were found here.

The geological source for one of the obsidian specimens is the Polvadera Peak area of the Jemez Mountains of New Mexico. This suggests some non-local lithic materials were brought into the area by seasonal movement or in exchange with people from central New Mexico. All of the other materials can be found on the PCMS and the quartzites and cherts can be found below the site in both the side drainage and Red Rock Canyon. Freehand percussion was likely the most important technique in generating most of the debitage. Because there is little overall cortex, it seems that lithic materials were brought to the site in noncortical form. Once here, the debitage suggests that early-stage bifaces were manufactured for use elsewhere. The presence of a nearly finished point and biface-thinning flakes indicates, though minimally, some late-stage work also occurred. It also seems likely that some reduction centered around flake production for expedient use.

Only one diagnostic point was recorded at the site and it was found in direct association with Feature 2. This is a large Alibates point (FS 22) that was broken and then resharpened for use, though at this stage it can be considered exhausted. It was tentatively assigned to Anderson's (1989) P29 type, which dates from 500 BC and AD 600 (Late Archaic period to the Developmental period). Another large point fragment (FS 18) was encountered but was too fragmented to assign to a particular class.

Excluding the projectile points, the tool assemblage consists of an additional 15 artifacts. Of these, six are utilized flakes, four are non-bipolar cores, two are scrapers, one is a biface, one is a chopper, and one is a drill. Material types for the cores are fine-grained quartzite (3) and coarse-grained quartzite. The chopper specimen (FS 14) is fine-grained quartzite. Broken early in the manufacturing process, the biface (FS 33) is made of coarse-grained quartzite. Of the utilized flakes, five are quartzite and one is chert, three are broken and three are complete, and four were used for scraping and two were used as flake knives. The scrapers are a side scraper of Alibates dolomite (FS 7) and an end/side scraper of chert (FS 8). The remaining tool is a complete drill (FS 3) made of fine-grained quartzite. The flaked tools were found randomly distributed across the surface of the site in no apparent pattern.

Thirteen pieces of ground stone were recorded; nearly all were found in the vicinity of the shelters, and most of the metate fragments were encountered in front of Feature 2. Materials for this group include sandstone (11), granite (1), and quartzite (1). There were three complete one-hand manos, three broken manos, and seven slab metate fragments.



Figure 4.202: Site overview photo (PCMS 00-11:2), 5LA9290.

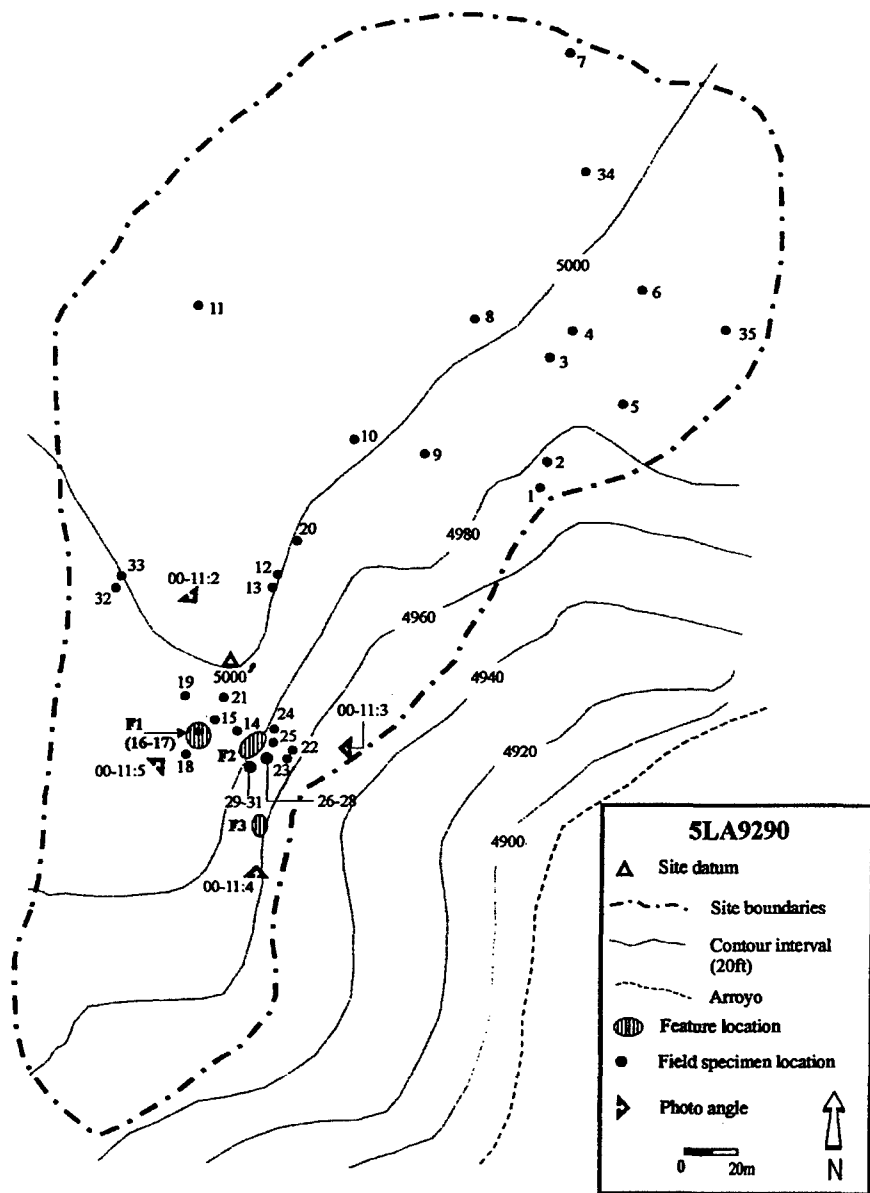


Figure 4.203: Site map, 5LA9290.

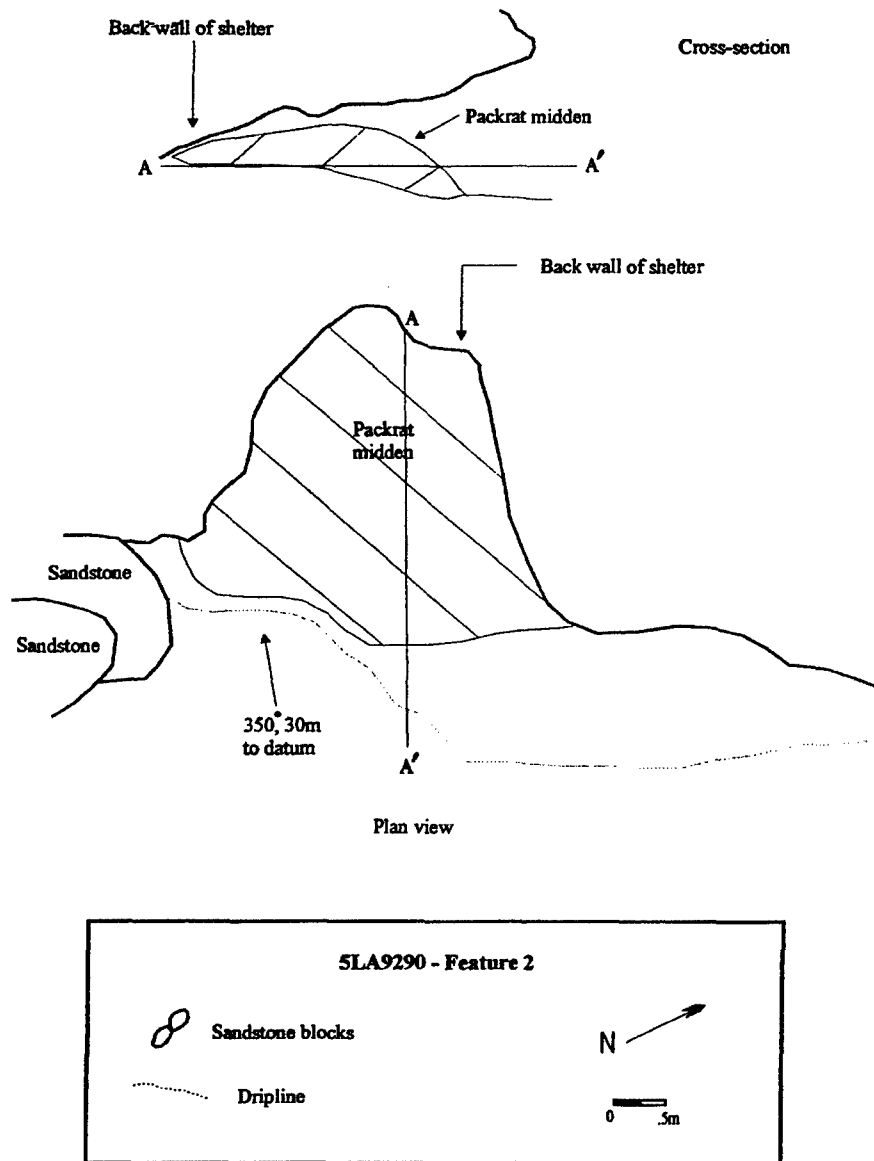


Figure 4.204: Planview and cross-section maps for Feature 1, 5LA9290.



Figure 4.205: Photograph (PCMS 00-11:4) of Feature 3, rockshelter, 5LA9290.

Table 4.77: Summary Description of Chipped-Stone Debitage for 5LA9290.

	Argillite	Chert	C. Quartzite	Fine Quartzite	Hornfels/Basalt	Obsidian	Ortho.	Total
Total	8	41	88	126	24	3	14	304
Large	8	15	64	73	21	3	7	191
Small	0	26	24	53	3	0	7	113
Cortical	7	3	28	18	13	0	5	74
Noncortical	1	38	60	108	11	3	9	230
Complex	5	15	18	44	1	1	6	90
Shatter	1	4	9	4	5	0	0	23
Simple	2	21	60	77	18	2	8	188
Biface-Thinning	0	1	1	1	0	0	0	3

Table 4.78: Summary Description of Chipped-Stone Debitage from Feature 1, 5LA9290.

	Chert	C. Quartzite	Fine Quartzite	Hornfels/Basalt	Obsidian	Ortho.	Total
Total	27	38	74	3	2	9	153
Large	4	20	26	2	2	3	57
Small	23	18	48	1	0	6	96
Cortical	1	3	3	1	0	4	12
Noncortical	26	35	71	2	2	5	141
Complex	7	7	18	0	1	3	36
Shatter	4	4	2	0	0	0	10
Simple	15	26	53	3	1	6	104
Biface-Thinning	1	1	1	0	0	0	3

Table 4.79: Stone Tool Type by Material Group for 5LA9290.

Material	Type									Total
	Biface	Core	Drill	Projectile	Scraper	Chopper	Flake Tool	Mano	Metate	
Alibates Dolomite	0	0	0	1	1	0	0	0	0	2
Chert	0	0	0	0	1	0	1	0	0	2
C. Quartzite	1	1	0	0	0	1	0	1	0	4
F. Quartzite	0	3	1	1	0	0	5	0	0	10
Sandstone	0	0	0	0	0	0	0	4	7	11
Granite	0	0	0	0	0	0	0	1	0	1
Total	1	4	1	2	2	1	6	6	7	30

Interpretation and Summary

Site 5LA9290 is a lithic scatter and rockshelter site (Features 2 and 3) and has a high artifact density. The site exhibits rather shallow soil deposition, however both of the shelters have intact soils and Feature 2 has an occupation area with depth in front of it. There is a high density of artifacts in the occupation area and there is potential to locate a buried thermal feature. Testing in and around Feature 2 may yield pollen, macrobotanical, and faunal remains useful for understanding subsistence patterns. The potential of recovering carbon from test excavations is good. The presence of obsidian from the Jemez Mountains of New Mexico and Alibates dolomite from Texas indicates trade or a route of migration from the south and suggests additional data may be forthcoming to address issues regarding trade and exchange. This site is likely best interpreted as a multicomponent habitation site with one distinct Late Archaic occupation. A full range of lithic reduction activities and much vegetal material processing occurred here. We recommend that the site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D).

The site is located outside the boundaries of the mechanized training area of the PCMS, and therefore is not in imminent danger from military maneuvers. Our management recommendation is that the site be avoided. If the boundary fence remains in place (150 m north of the site datum), we recommend no further work at the site.

5LA9295

This site is a lithic scatter with a rockshelter on the west side of a large northern side canyon of Red Rock Canyon. The site faces east, overlooking this relatively deep north-south tributary canyon. This approximately 2.7-acre site extends from the grassy flats down-slope to where the rockshelter is found on the western limits (Figures 4.206 and 4.207). A north-south trending gully bisects the site and exposes sandstone bedrock over most of the site's surface. The site datum is at an elevation of approximately 1,502 m (4,930 ft). The rockshelter can be found below the datum by an additional 5 m.

Two plant communities occur within the site boundary ranging from grassland in the flats to woodland along the canyon and in the drainage landform below. On the mesa top, both black and hairy grama dominate the ground cover with occasional sagebrush. On the slopes just above the canyon and further down the slope, juniper, scrub oak, prickly pear, cholla, skunkbrush, and currant were encountered. There is significant deposition at the eastern edge of the site and below nearly every shallow outcropping of sandstone. Depths of up to 15 cm were noted for this sandy soil.

Features

Three features were recorded at the site. The largest outcrop at the edge of the canyon houses the rockshelter (Feature 1). Feature 2, a rock alignment was found on top of a sandstone outcrop below a low hill at the northern end of the site. Feature 3, a bedrock metate was encountered on a flat bedrock surface at the southern edge of the site.

Feature 1 is the southernmost feature, located approximately 56 m and 142 degrees from the datum (Figure 4.208, 4.209). It measures about 9.5 x 5 m and has a floor to ceiling measurement at its highest point of 1.7 m. The shelter faces southeast, and a rock tumble seems to be a wing wall remnant composed of unmodified, tabular sandstone blocks. It is in a linear arrangement and may have divided the shelter into two activity areas. Three flakes and a metate were found here as well as charcoal flecking on the modern ground surface. Artifacts may indicate a limited use of the shelter, but there are potentially more as there is at least 30 cm of visual soil depth.

Feature 2 is a simple rock alignment on top of exposed bedrock. It may be a foundation or blind which incorporated a bedrock platform to the south of one wall and an alignment on the other. There is no soil deposition here and there are no artifacts in the area. Lichen patterns indicate that the wall blocks (unmodified sandstone) are probably not naturally occurring.

Feature 3 is a heavily patinated bedrock boulder with a single grinding slick (FS 10). The slick shows some pecking and very light grinding. Re-patination on the ground surface suggests significant age for this feature.

Lithic Artifacts

One hundred thirty-eight pieces of chipped-stone debitage were encountered at the surface of the site and are from five material classes. These artifacts consist of 61 pieces of coarse-grained quartzite, 56 pieces of fine-grained quartzite, 14 pieces of chert, 4 pieces of basalt, and three pieces of orthoquartzite. The assemblage contains 64 simple flakes, 51 complex flakes, and 23 pieces of angular shatter. Other than the basalt items, all materials can be recovered at the surface in Red Rock Canyon below. Table 4.80 presents the data on debitage and material type.

Large noncortical items comprise 46% of the assemblage, large cortical items are 42%, small noncortical items are 11%, and small cortical items comprise only 1% of the overall total. This site is very close to a raw material procurement location and the debitage assemblage reflects this. Free-hand percussion is the dominant reduction technique and this was performed during the manufacture of early-stage bifaces, flake blanks, and cores. Only six small complex flakes were recorded and no biface-thinning were found. This indicates that 5LA9295 did not function as a location where late-stage bifaces were manufactured.

A single diagnostic projectile point was collected (FS 3) in a cluster of other tools near the datum. It is made of chert and fits into Anderson's (1989) P83 class, which has associated dates of between AD 750 and AD 1650.

The remaining stone tools consist of 20 artifacts-- seven flake tools, seven non-bipolar cores, five bifaces, and a chopping tool. Because the cores and core-tools were analyzed in the field, only the material type was recorded. This included coarse-grained quartzite (6) and fine-grained quartzite (1). Of the bifaces, two of the five specimens are broken. All are fine-grained quartzite, broken during manufacture, and were classified as four unfinished bifaces, and one nearly finished biface. The flake tools are all quartzite; six were used for scraping work and one was used to cut. The chopping tool is large in size (155 x 76 x 59 cm) and made of fine-grained quartzite. Moderate wear from crushing or pulping is seen on its distal end.

Eight ground-stone tools were recorded at the site and all are sandstone. Of these, two were slab metate fragments, three were complete metates, one was a complete mano, there was one complete edge-ground cobble, and the bedrock metate.

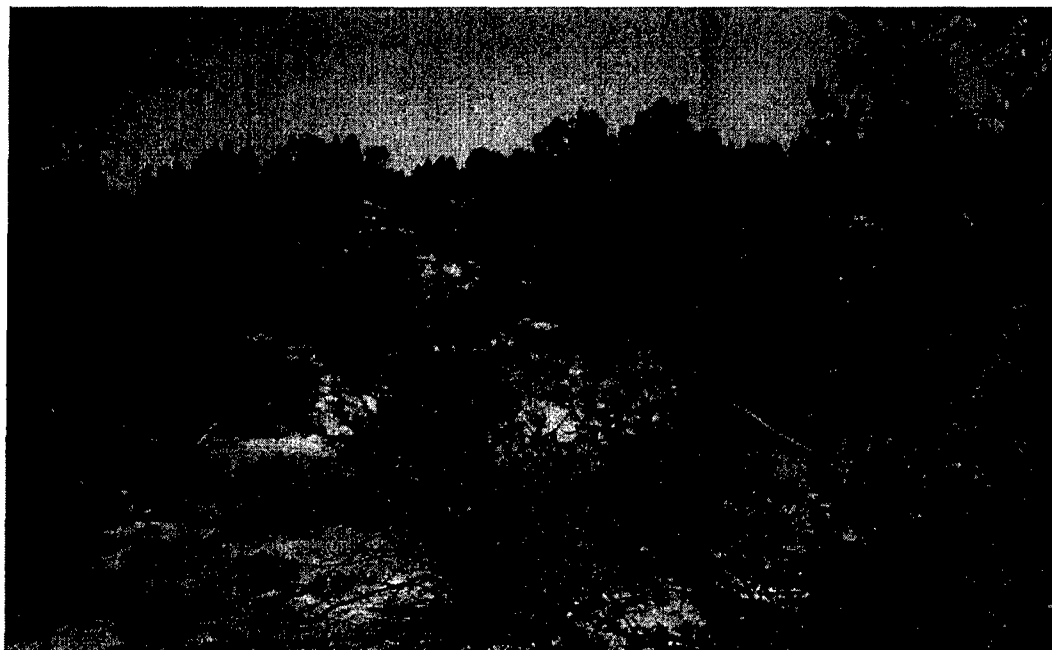


Figure 4.206: Site overview photograph (PCMS 00-11:8), 5LA9295.

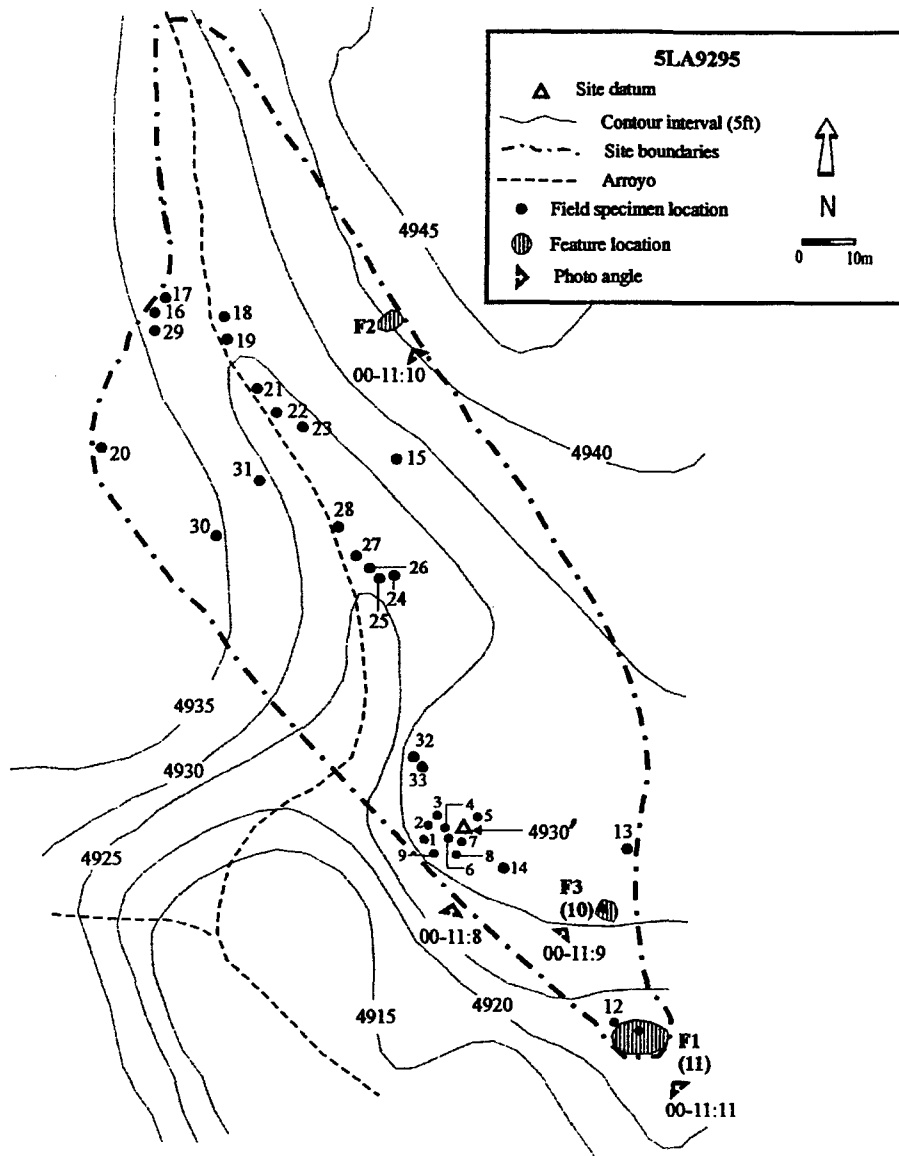


Figure 4.207: Site map, 5LA9295.

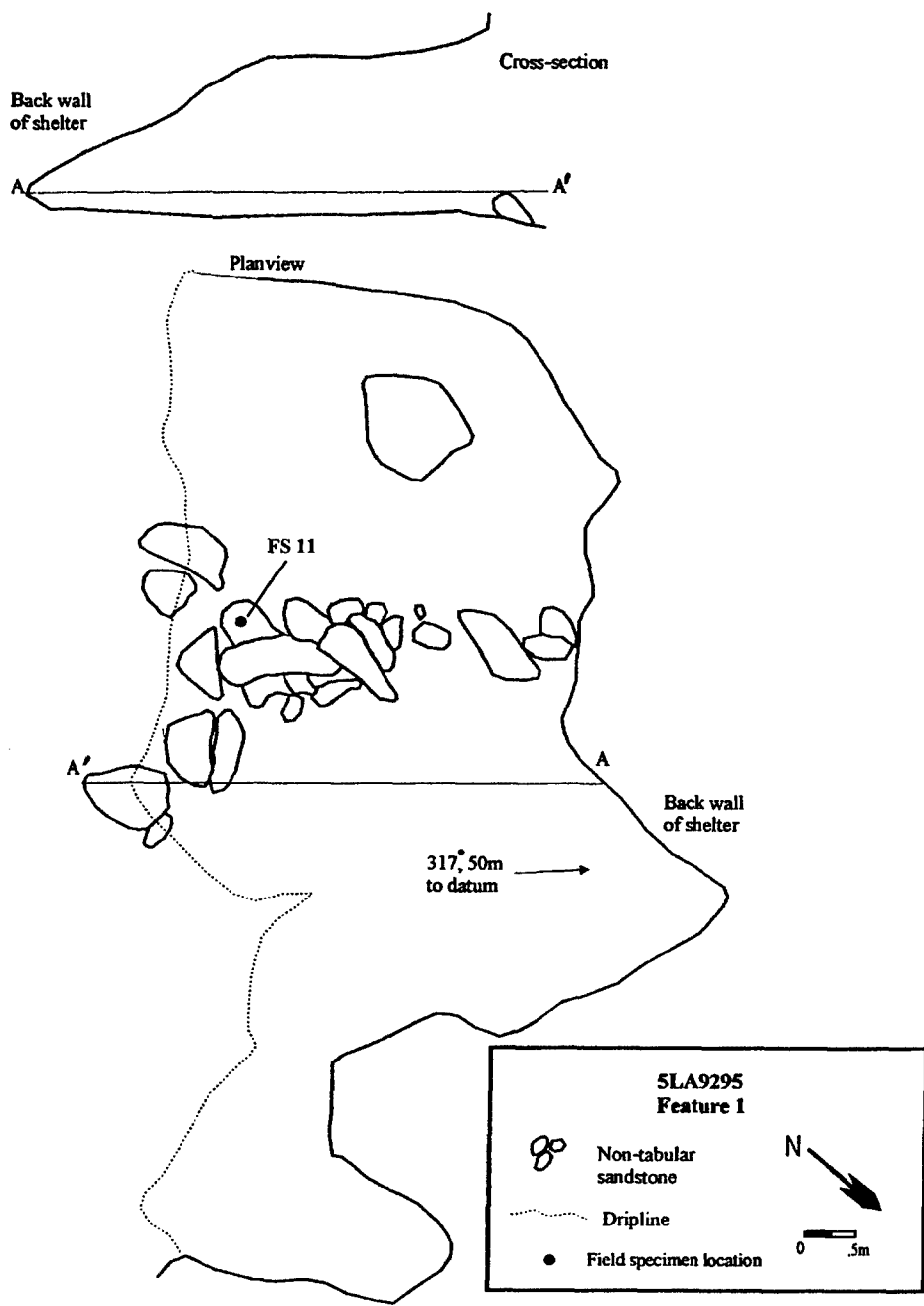


Figure 4.208: Planview and cross-section maps for Feature 1, 5LA9295.

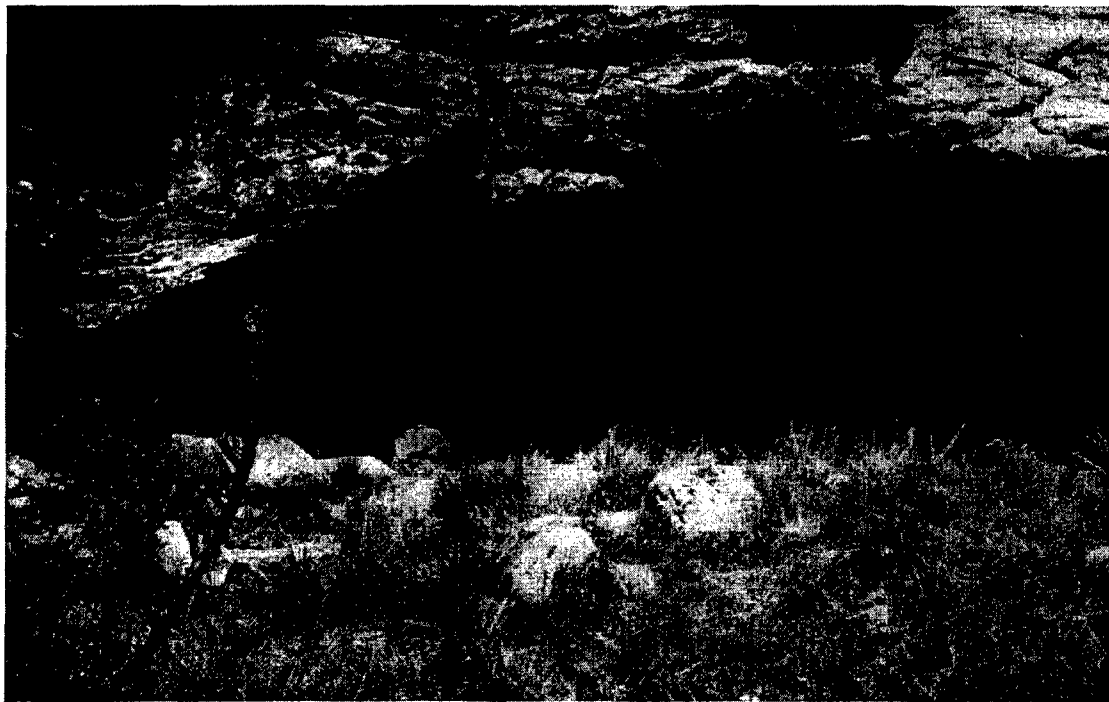


Figure 4.209: Photograph (PCMS 00-11:11) of Feature 1, a rockshelter, 5LA9295.

Table 4.80: Summary Description of Chipped-Stone Debitage for 5LA9295.

	Chert	C. Quartzite	F. Quartzite	Hornfels/Basalt	Orthoquartzite	Total
Total	14	61	56	4	3	138
Large	9	56	50	3	3	121
Small	5	5	6	1	0	17
Cortical	5	32	20	3	0	60
Noncortical	9	29	36	1	3	78
Complex	6	16	27	0	2	51
Shatter	2	16	3	1	1	23
Simple	6	29	26	3	0	64

Table 4.81: Stone Tool Type by Material Group for 5LA9295.

Material	Type							Total
	Biface	Core	Projectile	Chopper	Flake	Tool	Mano	
Argillite	0	0	0	0	1	0	0	1
Chert	0	0	1	0	0	0	0	1
Coarse-grained Quartzite	0	6	0	0	0	0	0	6
Fine-grained Quartzite	5	1	0	1	6	0	0	13
Sandstone	0	0	0	0	0	2	6	8
Total	5	7	1	1	7	2	6	29

Interpretation and Summary

This site has one apparent component in the Late Prehistoric period but easy access to high quality materials would have made this location favorable throughout prehistory. The site exhibits some soil deposition, which may be covering intact cultural deposits. The recorded shelter (Feature 1) has approximately 30 cm of deposition and may contain buried prehistoric occupational surfaces. In testing Feature 1 there is good potential for the recovery of pollen, faunal, and macrobotanical data useful for reconstructing both paleoenvironment and subsistence practices. As such, the site should be determined eligible for the National Register of Historic Places because it is likely to yield information important to our understanding of prehistory (Criterion D).

We recommend that the site be avoided. There are no visible military impacts and it is unlikely they will ever occur as the natural topography protects the significant cultural materials.

5LA9298

The site is a historic homestead (on land patented by Guernsey C. Selby in 1926) and a very sparse, prehistoric debris scatter (Figure 4.210, 4.211). A land records search indicates that Selby received a 640 acre patent here in 1926. It is in the northwest portion of the project area on the alluvial fan eroding from the Bear Springs Hills and on top of a ridge formed by outcropping limestone and shale beds. The terrain gently slopes to the east and the surface soil is silty loam with intermixed limestone gravels. The site and its components fit within an area that is 1.8 acres. The site datum is situated at an elevation of approximately 1,596 m (5237 ft) asl.

Juniper woodland is the dominant vegetative community in the site area; grassland is present to the west and south. Besides juniper, ricegrass, prickly pear, currant, piñon, wolfberry, and greasewood was seen growing at the site. Most of the site has rather shallow soils (< 10 cm), and rotten bedrock outcrops over most of the site's surface.

Features

All of the features are historic and include a house foundation (Feature 1), a wall (Feature 2), a dugout (Feature 3), and a foundation remnant (Feature 4) (Figure 4.212). Feature 1 is a single course, spaced rock, house foundation made of unmodified sandstone blocks. It measures 25 x 23 ft and seems to indicate two separate rooms for the house. The foundation is four long rows of blocks (long axis east to west) and there is an area of poured concrete along the north wall that would have served either as a step for a door opening or a foundation for a fireplace. Most of the surface artifacts were encountered in and around this feature. Feature 2 is a linear remnant of a double-course fence that was constructed out of unmodified limestone blocks. It measures 31 x 3 ft. Feature 3 consists of a round to oval circular depression that indicates the presence of a dugout. The construction blocks for the house foundation and the fence were likely quarried here and then the depression was used as a subterranean structure. There is much

depth here and the historic occupation surface likely remains intact. Tracked vehicles have gouged the surface here nearly making this depression indistinguishable. Feature 4 is a foundation remnant from an unknown structure. It too is made of unmodified sandstone blocks, but mechanized vehicle activity has destroyed its shape.

Historic Artifacts

A fairly diffuse scatter of historic trash is associated with the house foundation. Some ceramics but no porcelain or stoneware crockery were encountered. All of the wood building materials from this homestead have been scavenged for use elsewhere. The only remaining artifacts were sherds of bottle and window glass, ironstone ceramics, wire nails, horseshoe nails, coffee can lids, tobacco tins, and can fragments of unknown form. Some of the more interesting historical items encountered include a knife blade, overall buckles, internal alarm clock parts, hog nose rings, and a screen door spring. There are many axe-cut juniper trees on the site, though no wooden fence remnants were seen. Horseshoe nails and hog rings support the likelihood of a ranching operation here and car and machine parts indicate some farming.

Lithic Artifacts

The prehistoric component of the site is comprised of four pieces of debitage. There are two quartzite simple flakes, a piece of chert shatter, and a chert complex flake. With this small of a sample, little can be said regarding the reduction strategy.



Figure 4.210: Site overview photograph (PCMS 00-13:9), 5LA9298.

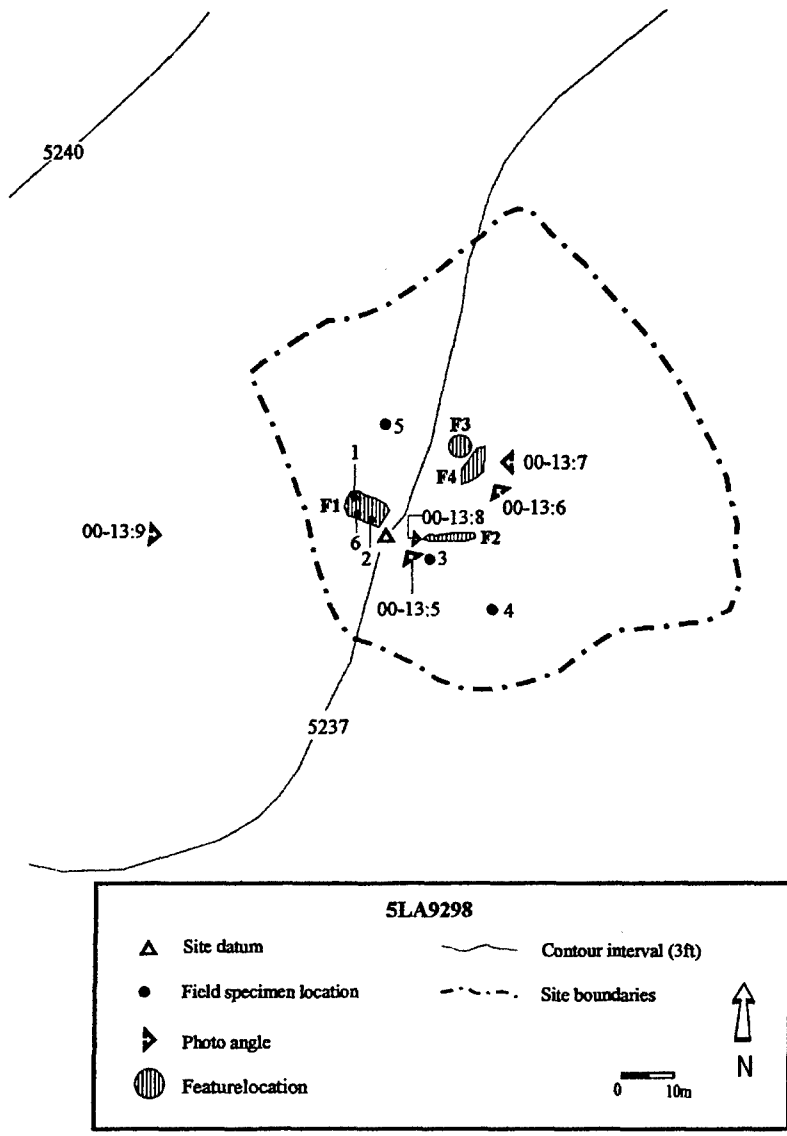


Figure 4.211: Site map, 5LA9298.

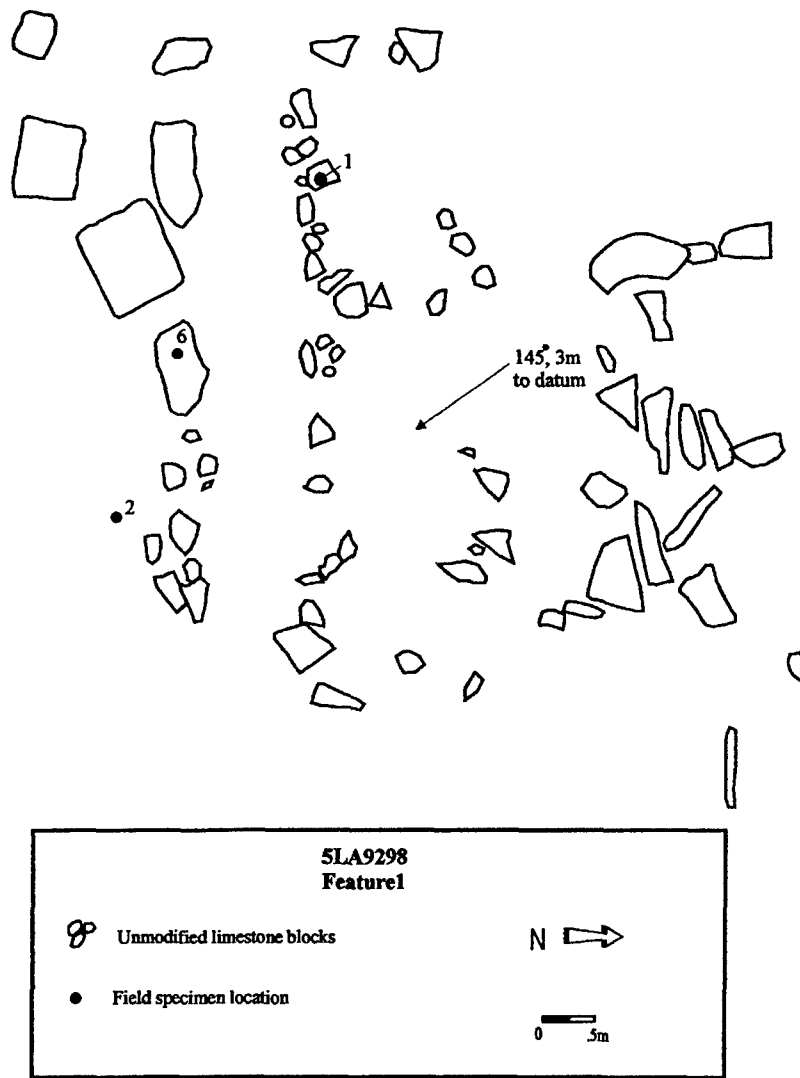


Figure 4.212: Feature 1 planview map, 5LA9298.

Interpretation and Summary

We recommended the site for nomination to the NRHP under Criterion D as post abandonment deposition may have sealed and protected intact, cultural deposits beneath the modern ground surface above the dugout and in the area of the foundations. The site should be fenced for its protection and be avoided if possible. The historic features should be tested to determine the presence or absence of cultural fill. If none is encountered, then the protection fence can be removed.

5LA9307

This is a large lithic scatter and structure site located on the southern terrace of Red Rock Canyon at its confluence with its largest southern feeder drainage (Figure 4.213, 4.215). The 5.8-acre site is on the side of a ridge, but also extends down into the drainage. It offers a good view of Red Rock Canyon to the north and east. The site datum was placed at approximately 1,532 m (5,025 ft) asl with the lowest portion of the site along the south boundary at an elevation of approximately 1,505 m (4,940 ft) asl.

The site is located in the juniper woodland plant community typically found on sandstone-derived soils. Juniper, black grama, cholla, prickly pear, poison oak, yucca, and mountain mahogany are the more noticeable plants growing at the surface. Soils are relatively thin (< 15 cm), especially on the ridge top; however, slightly more deposition is noted in and around the structure.

Features

Two features were recorded at the site, one of which (Feature 1) is a sandstone slab, circular structure located near the top of a slight rise near the edge of the ridge top. This structure is well preserved and is constructed of sandstone slabs in a circular arrangement that measures approximately 4.5 m in diameter (Figure 4.214). The feature conforms to Kalasz's (1989) Class VI, Category 17, which is a freestanding, full-enclosure, isolated unit with a contiguous rock wall. Kalasz (1989:103) indicates radiocarbon dates of 930 and 630 BP for this type of structure. Feature 2 is a bedrock metate that was located at the southern edge of the site.

Lithic Artifacts

A total of 159 pieces of chipped-stone debitage were recorded from the site (Table 4.82). This total represents an unsystematically selected sample of the flakes seen on the ground surface of the site. Only five material types were noted, and a single flake represents the obsidian. Of the total debitage, 65% is coarse-grained quartzite, 30% is fine-grained quartzite, 3% is chert, 1% is basalt, and 1% is obsidian. Most are simple flakes (63%), with fewer complex flakes (23%), and shatter (14%). The sample is 66% large items, and 34 % small ones; 48% of the debitage has cortex and 52% is noncortical. Freehand percussion generated the chipped-stone debitage.

The abundance of cortical items indicates that the quarry location is near the site. Outcrops of quartzite and small terraces with chert nodules are found in the canyon just north of the site. The frequency of small complex flakes is low (3) suggesting that biface reduction and other late-stage reduction techniques were performed elsewhere or at least in small amounts on this site.

No temporally diagnostic materials, such as projectile points or ceramics, were recovered. The single piece of obsidian was determined, through visible examination, to be from Polvadera Peak in the northern portion of the Jemez Mountains of New Mexico.

Twenty-five artifacts from the site assemblage are classified as tools. Of these, twelve are non-bipolar cores, five are manos, four are utilized flakes, two are bifaces, and two are milling slicks on the bedrock metate (Feature 2). The cores and are all locally available quartzite. Of the bifaces, the coarse-grained quartzite specimen (FS 11) is complete. It was apparently discarded early in manufacture due to a series of step flakes which rendered it useless. The fine-grained specimen (FS 1) is also an unfinished biface that was broken early in the manufacturing stage. All of the utilized flakes are quartzite. Three are complete and one is broken; based on visible edge angle, all were used for scraping. Of the manos, four are broken and one is complete.

There is a dense cluster of artifacts in front and on a lobed terrace southeast of the structure. Two pieces of ground stone were encountered here as well as several cores. Another small cluster of tools is located southeast of the datum.

Table 4.82: Summary Description of Chipped-Stone Debitage for 5LA9307.

	Chert	C. Quartzite	F. Quartzite	Hornfels/Basalt	Obsidian	Total
Total	5	103	48	2	1	159
Large	1	67	34	2	1	105
Small	4	36	14	0	0	54
Cortical	0	58	18	0	0	76
Noncortical	5	45	30	2	1	83
Complex	2	20	13	1	0	36
Shatter	1	20	0	0	1	22
Simple	2	63	35	1	0	101

Table 4.83: Stone Tool Type by Material Group for 5LA9307.

Material	Type					Total
	Biface	Core	Flake	Tool	Mano	
Argillite	0	0	0	1	0	1
Chert	0	0	1	0	0	1
Coarse-grained Quartzite	1	10	1	0	0	12
Fine-grained Quartzite	1	2	2	0	0	5
Sandstone	0	0	0	3	2	5
Granite	0	0	0	1	0	1
Total	2	12	4	5	2	25

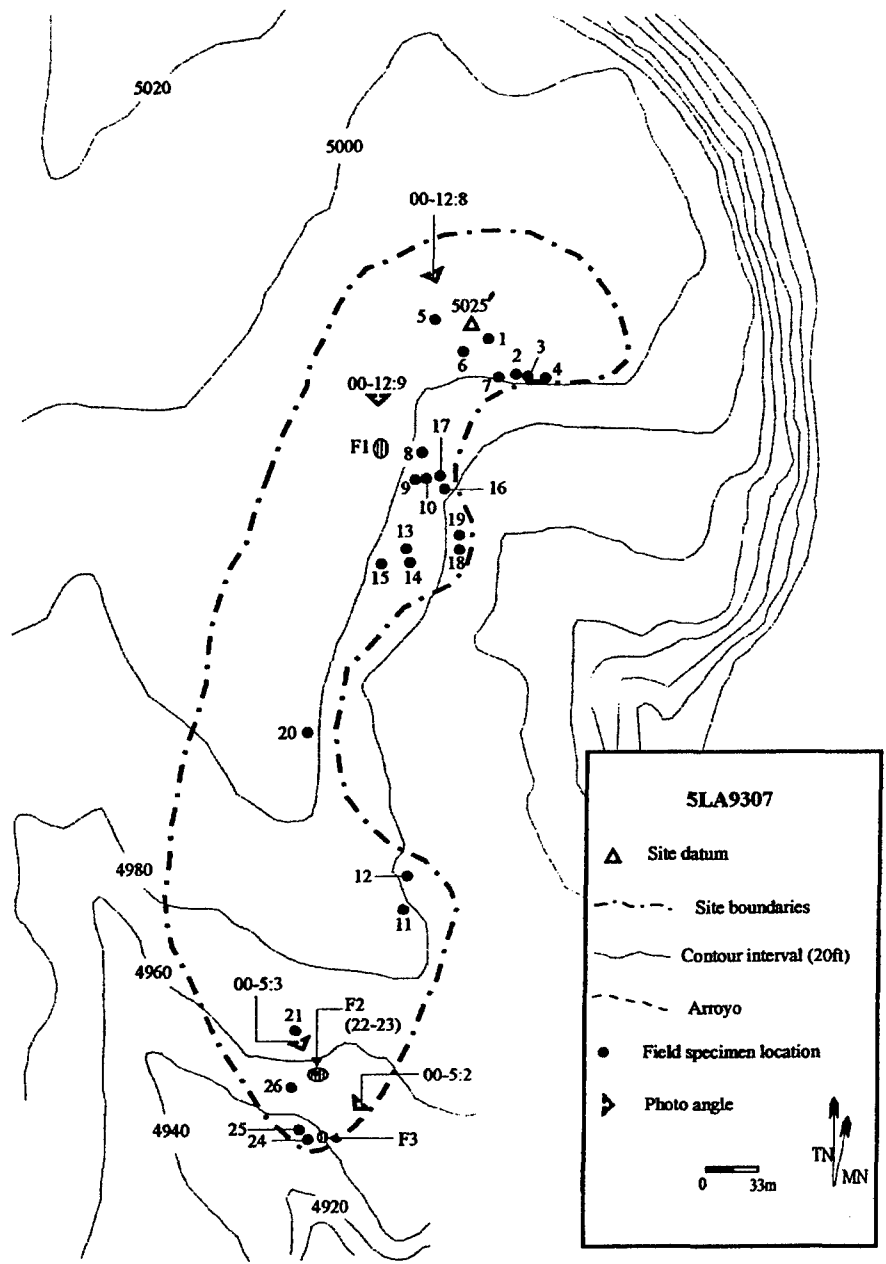


Figure 4.213: Site map, 5LA9307.

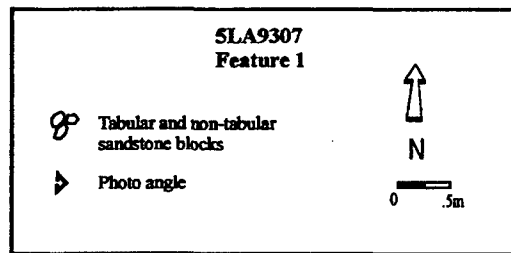


Figure 4.214: Planview map of Feature 1, a circular stone structure.



Figure 4.215: Site overview photograph (PCMS 00-12:8), 5LA9307.

Interpretation and Summary

It is recommended that the site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). Although there is little deposition along the southern site border, slightly deeper deposits are present below the ridge and in Feature 1. The structure's location on an isolated landform affords it good sight distance. The site may be useful for addressing questions concerning settlement patterns, and perhaps, communication systems. Artifact analysis suggests that there are fairly discrete activity areas near the structure and more could be found to help determine the site function. The potential for buried thermal features in or around the structure and the presence of ground stone suggest that pollen, faunal, and macrobotanical remains useful in reconstructing subsistence patterns and paleoenvironment could be recovered through excavation. The obsidian from the Polvadera Peak area of the Jemez Mountains suggests that data may be forthcoming to address issues regarding trade and exchange.

Feature 1 should be tested to determine the extent of buried cultural deposits. If they exist, this information, coupled with the uniqueness of the site setting makes a strong case for a protection fence. Our management recommendation is therefore fence and avoid.

5LA9308

This site occupies the ecotone transition between broken prairie to the northwest and the upper reaches of a 18 to 26 m deep canyon on the southeast (Figure 4.216, 4.218). It is centered

on a very small drainage leading to the unnamed canyon, which is a tributary canyon to the much larger Red Rock Canyon 1.85 km to the northeast. Site 5LA5831 (Moses Stevens homestead) lies about 175 m to the southeast on the opposite rim of the unnamed canyon and is plainly visible from 5LA9308. Three distinct landforms occur on site. On the northeast, northwest, and southeast margins, the site extends up into open prairie. A middle zone, centered on the small drainage and extending to the northeast to the site boundary, exhibits much exposed bedrock and thin, sandy soil. At the southeast boundary, several bedrock terraces have accumulated depth of sandy soil between each topographic feature. Erosive effects in the middle zone are great, with channel erosion threatening to obliterate the three thermal features (Features 1, 2, and 3) on site.

Deflation is active on the canyon rim terraces where three circular stone alignments (Features 4-6) are located. Natural erosion and deflation are least problematic on the open prairie (where no features have yet been observed). There is little tracked vehicle damage on site. The site appears to have been visited in historic times and looted: two looters piles of undiagnostic lithics were found within 15 m of the terrace (Features 4-6), and a dearth of diagnostic projectile points recovered by NMSU onsite suggests repeat visits by arrowhead collectors. Proximity to a well-populated Euro-American site (5LA5831) provided easy access to the prehistoric cultural resources in the past.

The site is located in the transitional grassland to juniper woodland vegetative community typically found on the exposed canyons of the base. Juniper, grama grasses, sagebrush, scrub oak, soapweed, cholla, currant, mountain mahogany, and skunkbrush were seen growing throughout the site area. Soils are relatively thin, especially along the canyon edge; however, areas of more deposition (up to 25 cm) are noted below the bedrock terraces and in the flats on the western margin of the site.

Features

A total of six features were recorded including three thermal features, three tipi rings, and a circular stone structure. A description of individual features follows.

Feature 1 is a 10 x 5 m blackened, "ashy" soil and heat-altered rock concentration eroding out of the small drainage bank in the northwest part of the site. It has ~1 m. of overburden on the upslope side and rests on a small terrace formed by gully outwash on its down slope. Feature formation and function are indeterminate due to its amorphous form. Lithic concentration is higher around and in Feature 1 than in other areas nearby.

Feature 2 is an ashy soil and heat-altered rock deposit measuring 5.6 x 5.2 m associated with the remains of a possible structure measuring 4.3 x 2.8 m (overall 9.9 x 6.7 m) (Figure 4.217). A wall of ~14 unaltered sandstone blocks and cobbles, one course high, extends southwest from a bedrock "return" wall, forming a possible building enclosure. Three sandstone blocks close to the bedrock may be another wall parallel to the first. Artifact density is high in and around this feature (FS 4, FS 7, and numerous flakes). Erosion and deflation continue to degrade the assemblage, particularly in the southeast corner. Inferred functions include a dwelling with hearth or an activity area for heating food, hides or lithic raw material.

Feature 3 is a small (4 x 4 m) accumulation of ashy soil and heat-altered rock of unknown function, eroding from the gentle slope at the transition between bedrock outcrop and lower terraces. It is the most protected of the three thermal features but is at risk of channel erosion.

Features 4-6 are the remains of circular stone alignments in tight association, located on a low terrace overlooking the canyon. All consist of small (typically 30 x 30 x 5 cm) sandstone blocks in spaced circles. Their terrace preserves a high artifact density. This terrace also preserved the two looters piles mentioned above. Feature 4 consists of ~15 stones and is nearly complete on its west side; Feature 5 consists of ~12 stones and is most complete on its northeast third. Feature 6 is the least complete (8-10 stones and one quarter complete on its south) but is perhaps obscured by the large juniper at its north side. According to Kalasz (1989:100) these features would be free standing, fully enclosed, isolated units with spaced rock walls. A date of AD 1345 – AD 1455 is tentatively assigned for features of this class.

The site is well separated into “usage zones” with thermal features (1-3) along sloping soil to bedrock contacts and circular alignments (Features 4-6) on the flat canyon rim terrace.

Lithic Artifacts

Chipped-stone tools onsite include one projectile point base (FS 2, Anderson (1989) Type P26), one large projectile point (FS 27, Anderson (1989) Type P31), seven other large bifaces, one scraper, and three utilized flakes. A number of non-bipolar cores – eight in all – were recorded. Ground-stone artifacts include two one-hand manos (FS 16, 26), a single two-hand mano and two slab metates. Flakes tools were made mostly from local quartzites (three quartzite, two fine-grained quartzite, one orthoquartzite; totaling six out of 14 tools), and six out of eight cores observed were quartzite (roughest grade). The prevalence of quartzites onsite is consistent with other sites up and down Red Rock Canyon.

Chert appears to have been favored for biface production, with five out of nine bifacially-worked objects made from this material. Chert was curated more intensely than were the local quartzites, as evidenced by the smaller size of chert tools and debitage. Orthoquartzite and basalt turn up only once each in the formalized tools; the rest is all lower-grade quartzite and chert. Formalized tools outnumber expedient tools (i.e., utilized flakes) by ten to three. Actually, expedient tools are sparse onsite. An analysis of flaked stone tools shows that: (1) patterned tools and projectile points were more intensively used than expedient tools, suggesting long-term and/or regular habitation of landform; (2) core reduction of local quartzites predominated, while argillite, basalt, and chert resources were conserved; (3) local quartzites were used for expedient tools while finer materials (chert, basalt and argillite) were used for smaller, pattern tools. The presence of so many quartzite cores (six out of eight) suggests that this raw material was procured in the near vicinity (this material can be found in the canyon below the site and in Red Rock Canyon). Local materials (quartzites and sandstone) also predominate for ground-stone tools (four out of five), while the two-hand mano (diorite) appears to be a river cobble that was manuported to site.

Analysis of lithic debitage supports the interpretation drawn from the tools: all stages of lithic reduction – from core to tertiary – are present, with 49% of the sample being simple morphology, 42% complex, 7% shatter and 2% biface-thinning flakes. Cortex is present on only a minority of flakes (60 of 139 large and 1 of 11 small), showing that secondary reduction is certainly present. The material resource is dominated by locally-available quartzites (quartzite, fine-grained quartzite, and orthoquartzite) at ~76% of entire sample, while cherts (21%), argillite (2%), and basalt (1%) round out the debitage material types. (The sampling strategy in the field was not, however, random; an attempt was made to provide a representative cross-section of material types.) The overwhelming majority of large to small flakes (139 to 11) is not unusual for surface surveys but may also reflect the intensive primary and secondary stage reduction occurring onsite.

Based on the age estimates from the two diagnostic projectile points (P26 and P31) it seems that the site had at least one occupation between 1000 BC and AD 500 (Late Archaic to Developmental periods).

Table 4.84: Summary Description of Chipped-Stone Debitage for 5LA9308.

	Argillite	Chert	C. Quartzite	F. Quartzite	Hornfels/Basalt	Orthoquartzite	Total
Total	3	31	101	10	2	3	150
Large	3	26	95	10	2	3	139
Small	0	5	6	0	0	0	11
Cortical	1	12	43	5	0	0	61
Noncortical	2	19	58	5	2	3	89
Complex	1	20	33	7	2	0	63
Biface-Thinning	0	0	2	0	0	1	3
Shatter	0	1	9	1	0	0	11
Simple	2	10	57	2	0	2	73

Table 4.85: Stone Tool Type by Material Group for 5LA9308.

Material	Type							Total
	Biface	Core	Projectile	Scraper	Flake Tool	Mano	Metate	
Argillite	0	1	0	0	0	0	0	1
Diorite	0	0	0	0	0	1	0	1
Chert	4	1	2	0	1	0	0	8
Coarse-grained Quartzite	0	6	0	0	0	1	0	7
Fine-grained Quartzite	2	0	1	0	3	0	0	6
Sandstone	0	0	0	0	0	1	2	3
Hornfels/Basalt	0	0	0	0	0	0	0	0
Orthoquartzite	0	0	0	1	0	0	0	1
Silicified Wood	0	0	0	0	0	0	0	0
Total	6	8	3	1	4	3	2	27

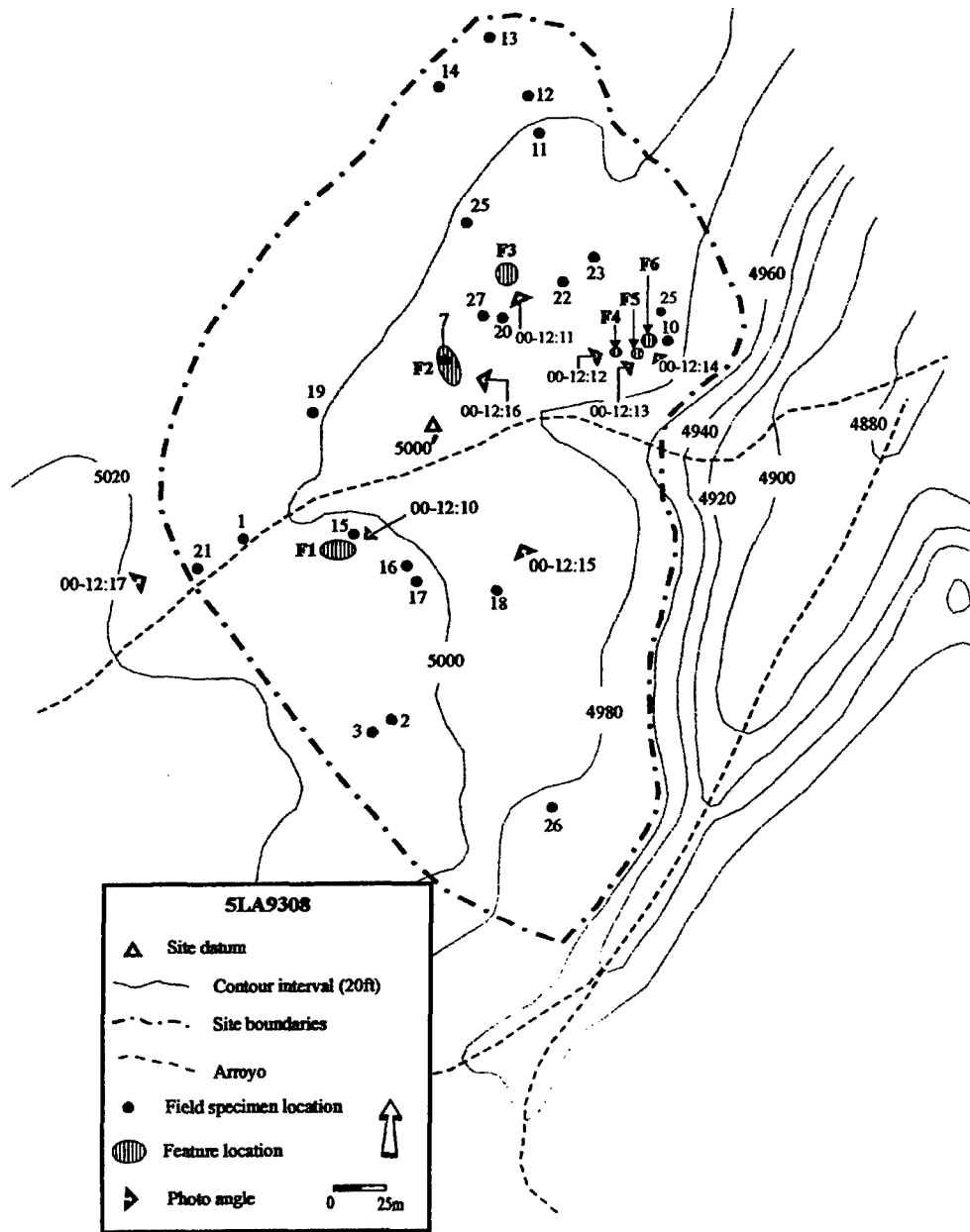


Figure 344: Site map, 5LA9308.

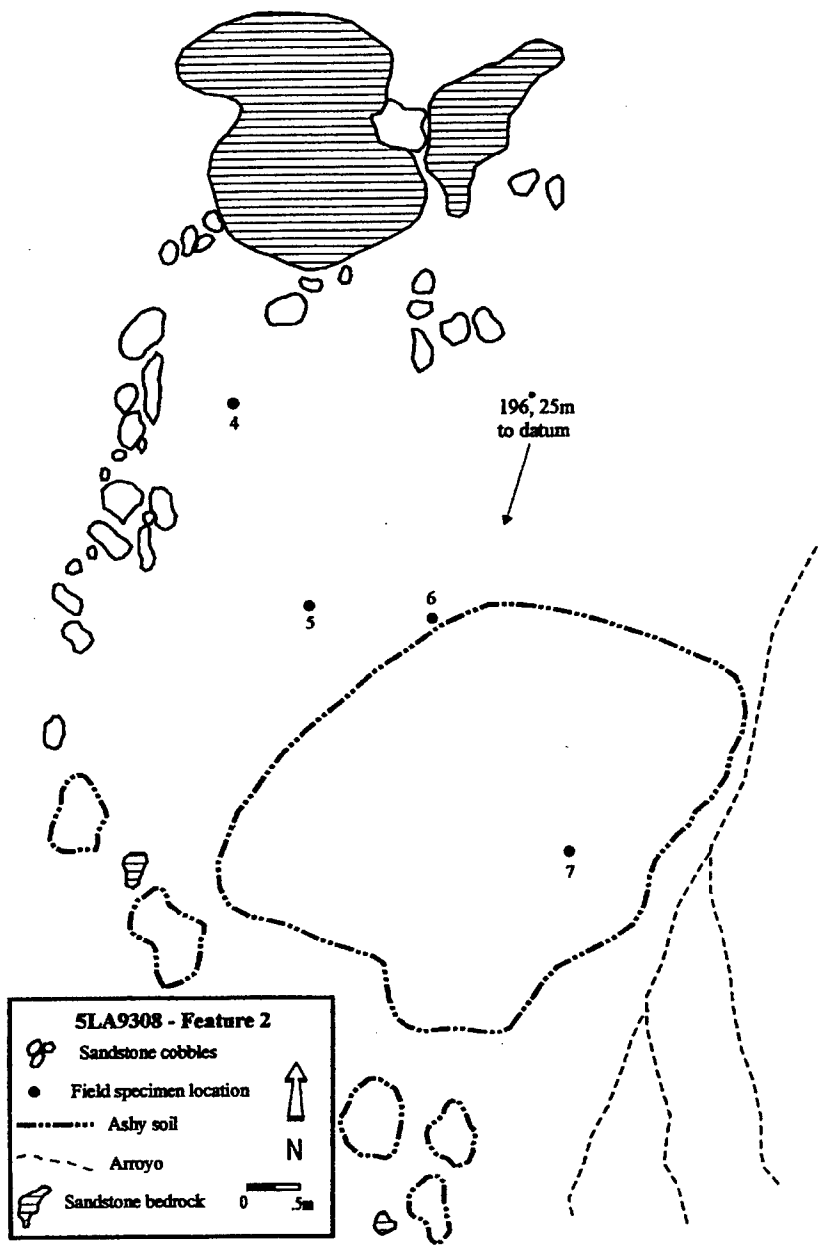


Figure 4.217: Planview of Feature 2, 5LA9308.



Figure 4.218: Site overview photograph (PCMS 00-12:17), 5LA9308.

Interpretation and Summary

The site is considered eligible for the National Register because it is likely to yield information important to our understanding of prehistory (Criterion D). The site includes two identifiable prehistoric components, a Late Archaic or early Late Prehistoric stage occupation, as evidenced by two large, clunky, corner-notched dart points, and a Late Prehistoric event, as evidenced by three tipi rings. The three thermal features could yield information on chronology, settlement and subsistence through excavation. A wide variety of activities occurred on site including habitation, cooking, food processing, and both hard and soft hammer lithic reduction.

Our management recommendation is to avoid the site and excavate Features 1 through 3 before they are completely destroyed by erosion. Features 4 through 6 should be tested to determine depth (if any) of buried cultural deposits, although these receive low priority compared to the need for data recovery in the aforementioned thermal features (Features 1-3).

5LA9316

5LA9316 is a small rockshelter in association with a sparse lithic scatter. It is situated at the head of the largest western side canyon of Welsh Canyon and sets on a narrow finger ridge overlooking the side canyon. The site is located in a juniper woodland plant community. In addition to the juniper trees, cholla, yucca, broom snakeweed, prickly pear and blue grama grass were observed growing on site. Soil depth within the rockshelter proper appears to be 70 cm.

Features

Feature 1, the rockshelter, measures 6 m across the opening, approximately 3.5 from dripline to the back wall and 2m in height (Figure 4.221). There appears to be evidence of smoke stain on the ceiling. A very large pack-rat midden is found at the back of the shelter. Two large pieces of roof fall near the front of the rockshelter have apparently protected much the original soil deposits from erosion.

Lithic Artifacts

Twenty-four pieces of debitage were recorded in the field as well as a diorite hammerstone (FS 1) and a basalt core (FS 2). Debitage categories present in the assemblage include 11 simple flakes, 12 complex flakes, and shatter. Materials present are coarse-grained quartzite (18), chert (4) and siltstone (2). Table 4.86 presents chipped stone debitage type by material. Cortex is present on 15 flakes and 23 flakes are classified as large.

Two one-hand manos fragments (>50%) made of granite were recorded (FS 3, 4). Field Specimen 3 showed evidence of heavy use while FS 4 showed no use wear. One sandstone slab metate fragment (> 50%) was recorded (FS 5). This specimen shows light use.

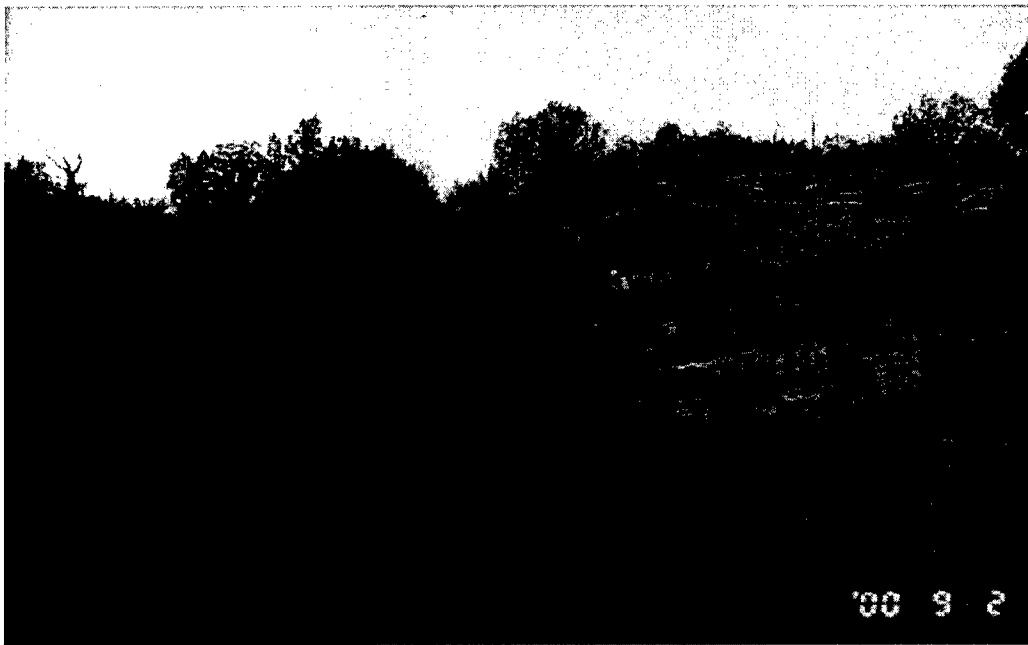


Figure 4.219: Site overview photograph (PCMS 00-13:19) of 5LA9316.

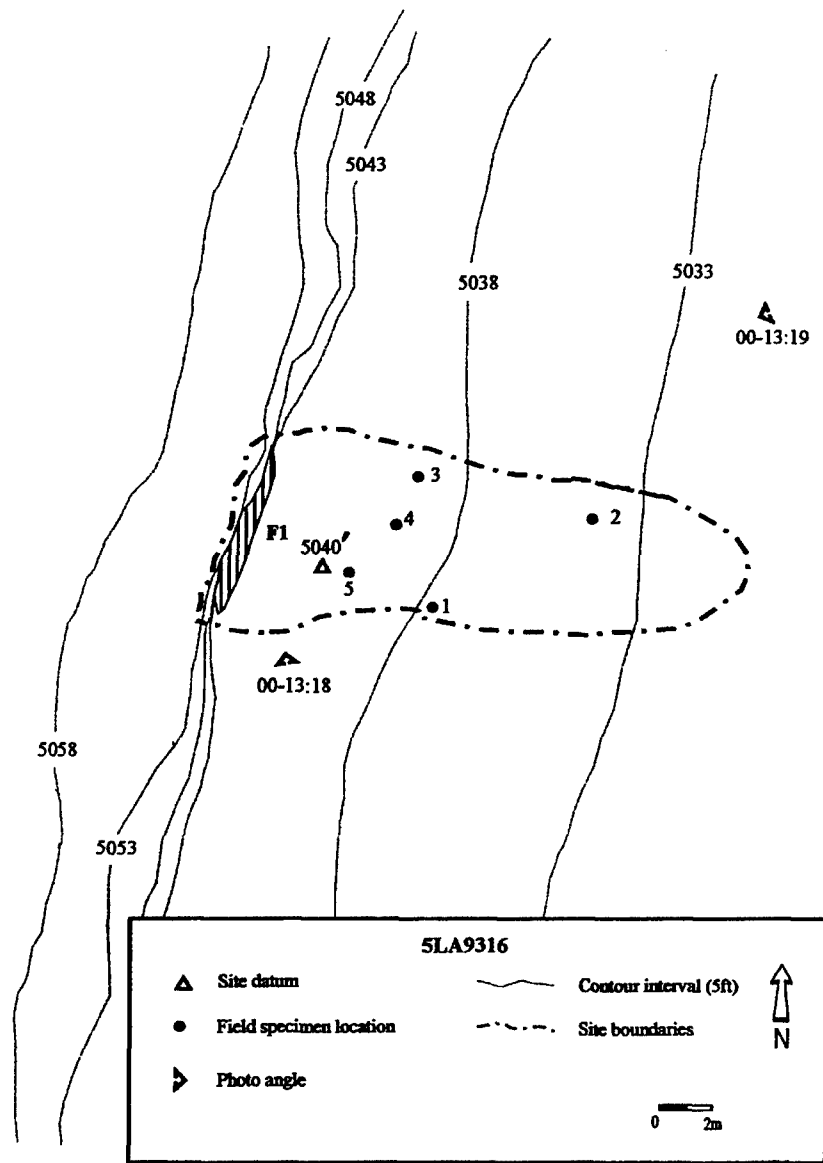


Figure 4.220: Site map, 5LA9316

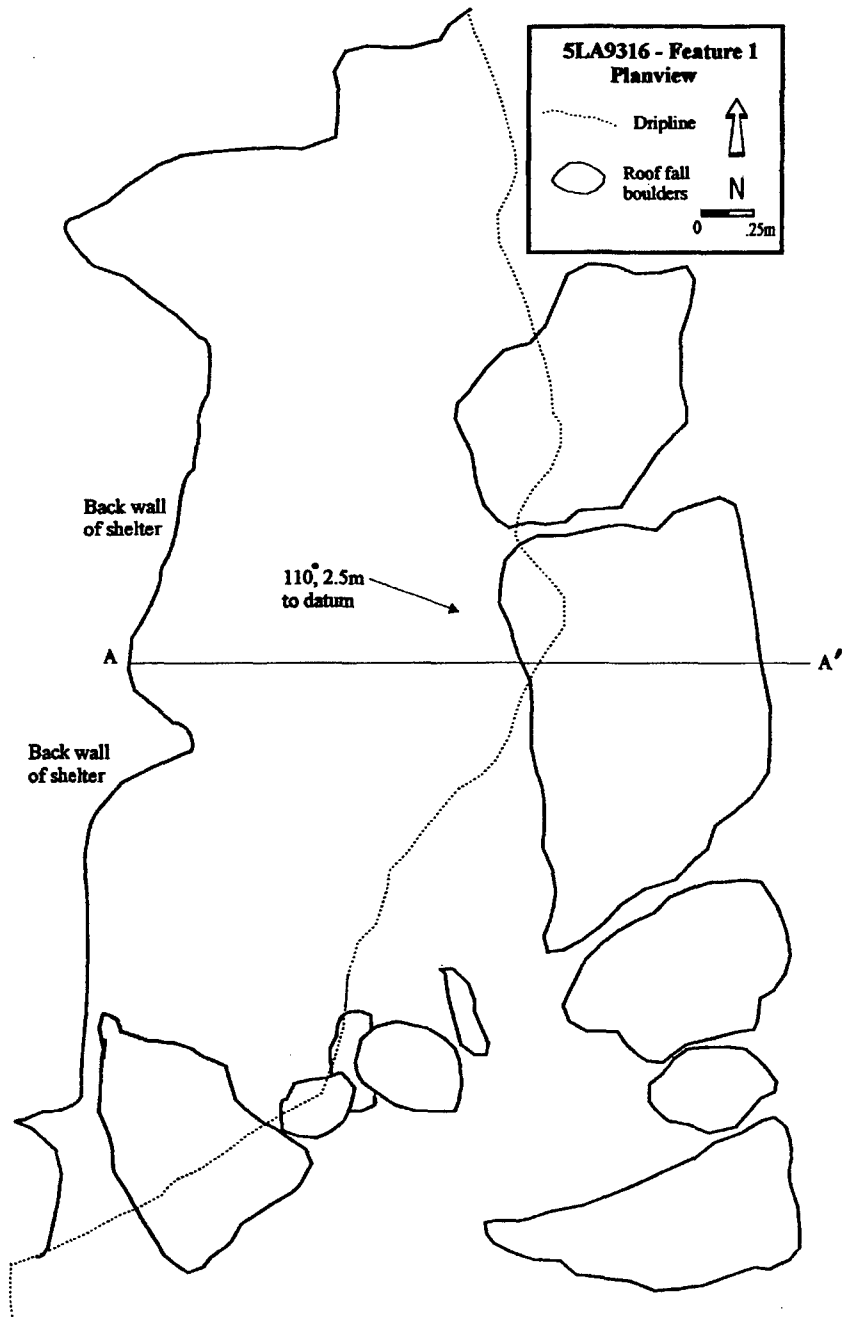


Figure 4.221: Feature 1 planview map, 5LA9316

Table 4.86: Summary Description of Chipped-Stone Debitage for 5LA9316.

	Chert	C. Quartzite	Siltstone	Total
Total	4	18	2	24
Large	3	18	2	23
Small	1	0	0	1
Cortical	0	14	1	15
Noncortical	4	4	1	9
Complex	3	8	1	12
Shatter	0	1	0	1
Simple	1	9	1	11

Interpretation and Summary

We recommend that this site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). The rockshelter may be useful for addressing questions concerning settlement systems. There is good potential for buried deposits in Feature 1, and the presence of ground stone indicates the likelihood that pollen, faunal, and macrobotanical remains useful in reconstructing subsistence and paleoenvironment will be recovered through the excavation of test units. The lithic assemblage indicates that core reduction was another site activity.

We suggest that the site be avoided and tested. Testing should be carried out in and around the rockshelter, given its depth of soil deposits and its association with ground stone.

5LA9319

This is a sparse lithic scatter and habitation site located on the northern terrace of Taylor Arroyo approximately 800 m west of Rock Crossing (Figures 4.222, 4.223). There are also historic sheep pen remnants within the site boundary. The site encompasses the rocky terrace of the arroyo and the hill slope that extends down into the arroyo floodplain. The sheep pens and the rockshelter were encountered on the slope and a light scattering of lithic debris was encountered on the terrace. A 1/2-inch diameter rebar datum was set at approximately 1,543 m (5,065 ft) asl. The site slopes down to the south with a bottom elevation at 1,527 m to 1,539 m (5,050 ft) asl.

Grassland dominates the area surrounding the site. Tree cholla, blue grama, galleta, juniper, prickly pear, currant, squirreltail, threeawn, feathergrass, and prickly pear were recorded on the site. Soils are shallow with sandstone bedrock on the upper terrace to 10 cm on the hill slope.

Features

One rockshelter was recorded at the site (Feature 1). It is located about 58 m and 254 degrees from the site datum (Figure 4.224). The shelter faces to the south and overlooks the

Taylor Arroyo floodplain. This 10.5 x 1.7 m shelter has two burned bone fragments on its floor (a pinflag probe reveals 25 cm of deposition here). No other artifacts were present, but these may be covered by thick vegetation immediately in front of the overhang. A potential prehistoric wing-wall is present along its eastern edge. This wall was definitely modified in historic times to create a windbreak for livestock. This shelter may have been attached to the other sheep pen remnants at one time, but erosion has caused several areas of the wall to collapse. The sheep pen remnants are scattered across the hill slope at the same elevation as the shelter and incorporate several large sandstone boulders into the constriction.

Lithic Artifacts

The lithic assemblage is rather small and artifacts were encountered randomly across the site's surface in no apparent concentration. A total of 14 pieces of chipped-stone debitage were recorded: seven quartzite, three basalt, two argillite, one chert, and one amethyst glass. These are further classified as shatter (6), simple flakes (5), and complex flakes (3). Twelve of the fourteen items are large and dorsal cortex is visible on nine items. The small sample seems to be from a single component and represents hard hammer percussion of locally available material. The glass shard has been flaked, though there is no evidence for use wear. It may very well be associated with the historic component of the site.

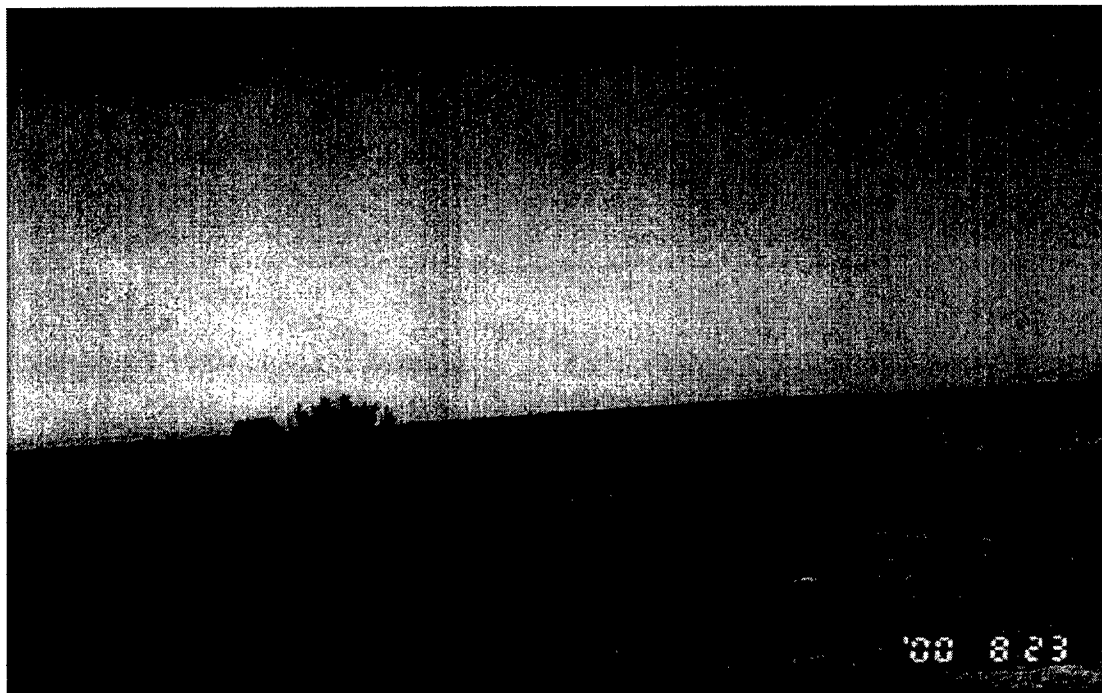


Figure 4.222: Site overview photograph (PCMS 00-15: 19), 5LA9319.

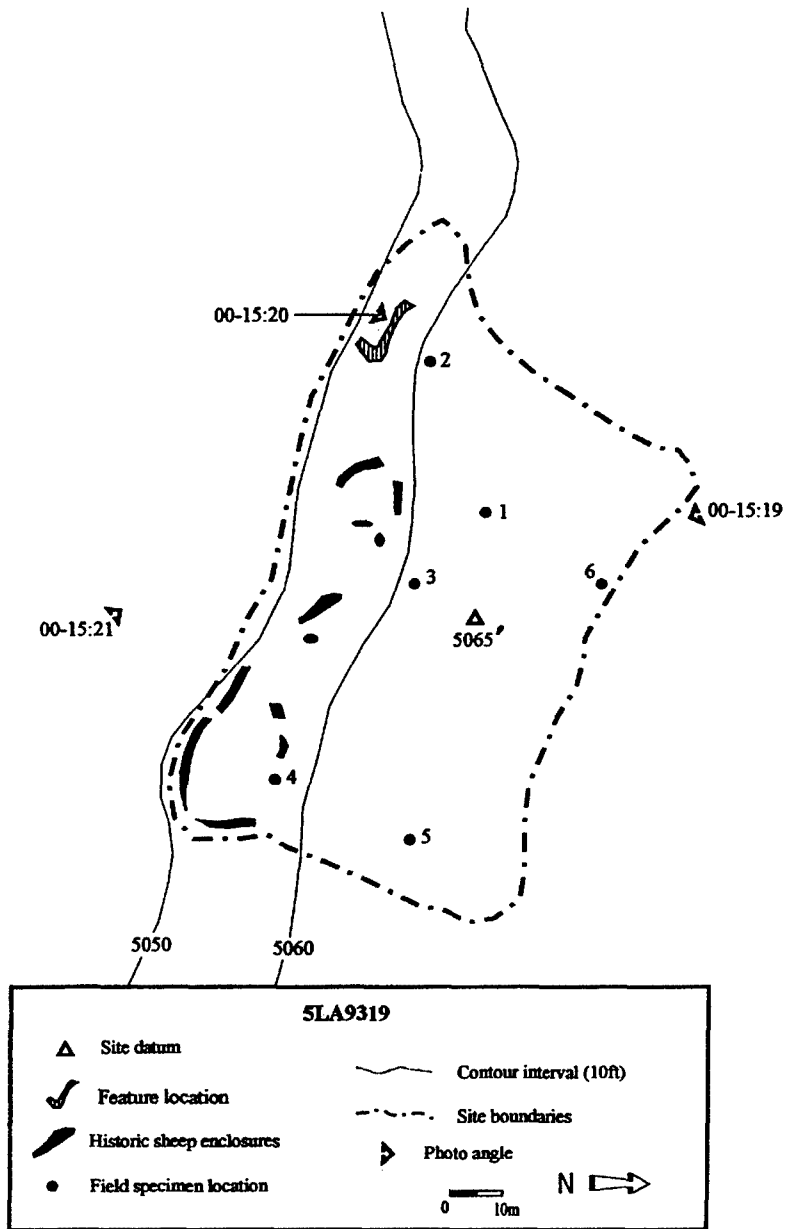


Figure 4.223: Site map, 5LA9319.

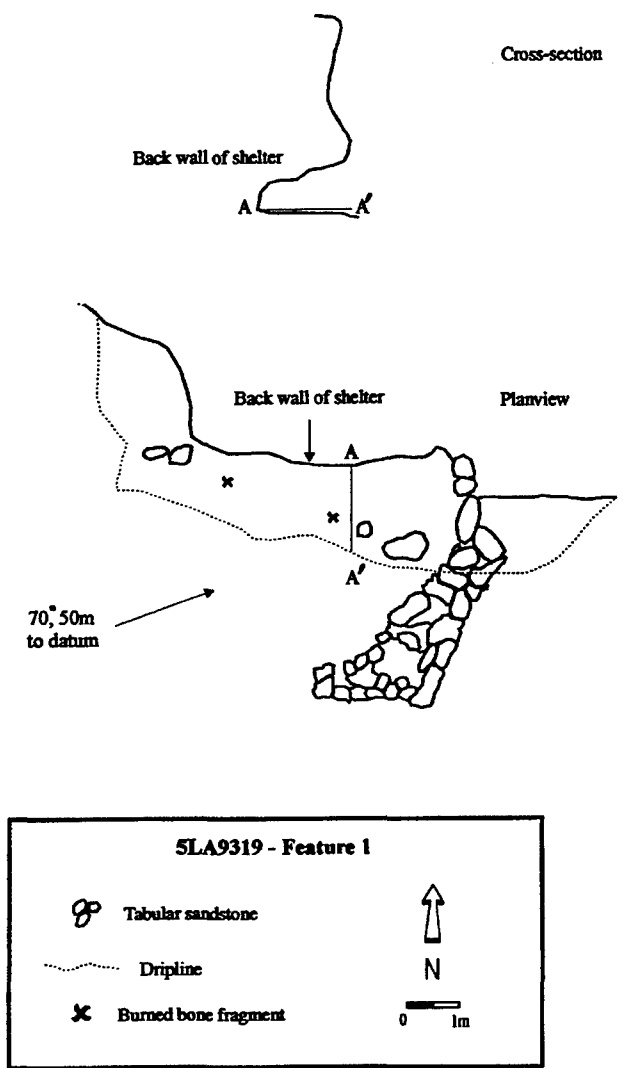


Figure 4.224: Planview and cross-section maps for Feature 1, 5LA9319.

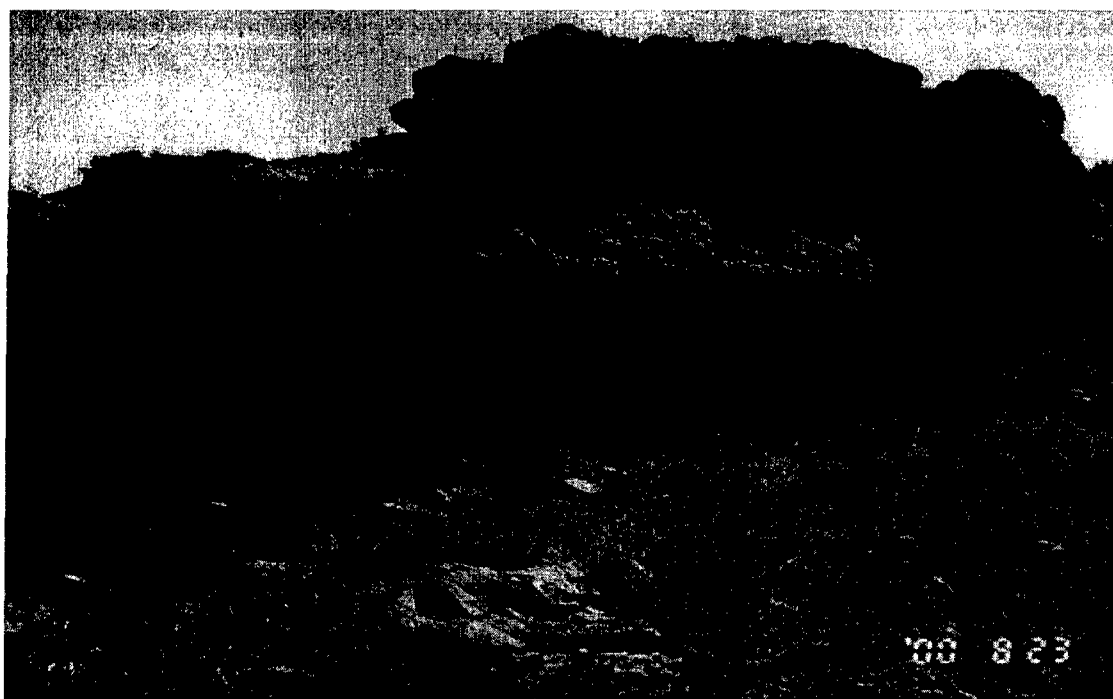


Figure 4.225: Photograph (PCMS 00-15:20) of Feature 1, rockshelter, 5LA9319.

Like many of the sites encountered in this part of the PCMS, no diagnostic artifacts were found. The remaining lithic tool assemblage consists of five artifacts. Of these, there are two bifaces (basalt and quartzite), a quartzite uniface tool, a sandstone mano fragment, and a sandstone metate fragment. The basalt biface (FS 3) is highly patinated and was broken early in the manufacturing process. The quartzite biface (FS 6) is also large and unfinished, and broken early in manufacture. One unifacially flaked tool (FS 5) found at the eastern edge of the site has a steep left lateral edge with light use wear.

Interpretation and Summary

5LA9319 is a lithic scatter and rockshelter site with the remains of several historic sheep pens across its surface. The site exhibits rather shallow soil deposition; however, Feature 1 has approximately 25 cm and a stone enclosing wall near its opening. The presence of burned bone inside the shelter suggests there may be a buried thermal feature. If so, then testing in this area may yield datable carbon or pollen, macrobotanical, and faunal remains useful for understanding subsistence patterns. Given this good archaeological potential, we judge the site eligible for nomination to the NRHP under Criterion D.

The rockshelter is not in imminent danger from military maneuvers as it is protected by the cliff. As such, the site should receive no further consideration at this time.

5LA9331

This site contains a dense lithic scatter, a large thermal feature (Feature 1), and a panel of tool grooves (Feature 2). 5LA9331 is located just above the north canyon rim of a major side drainage in the Welsh Canyon system. Welsh Canyon proper is 800 m north of the site. Topographic features include a large sandstone cliff at the northern site boundary, a gentle south facing slope, and a small arroyo at the eastern edge of the site. A two-track road crosses the site along its southern boundary; however, its impact is minimal as this portion of the base sees little military activity.

Juniper, cholla, prickly pear, sagebrush, skunkbrush, wheatgrass, bee balm, sunflowers, currant, and grama grass grow at the surface of the site and the vegetation can best be described as a transitional grassland/woodland plant community. The main body of the site contains deep soil, though at the southern fringe weathered bedrock outcrops here. Sandy silt best characterizes the soil and in the area of Feature 1, depths of at least 50 cm were observed.

Features

The field crew encountered two features; both are at the base of the sandstone cliff. Feature 1 is a large thermal feature and Feature 2 is a panel of tool grooves. Feature 1 appears to be one large event, though it is possible that several small thermal features have been smeared together to give the appearance of one large feature. Numerous artifacts were found eroding out of Feature 1, including: burned bone, 41 pieces of debitage (mostly fine-grained quartzite), stone tools consisting of one non-bipolar core (FS 1), a retouched/utilized flake (FS 8), and an unfinished biface (FS 6). A Late Prehistoric projectile point of chert was also found in the feature. Three slab metate fragments (FS 2, 9, and 10), a "pestle-like" piece of sandstone (FS 13), and one sandstone "jar cover" (FS 11) were also recovered. Feature 2 is a series of tool grooves incised at the base of the sandstone cliff and on the north edge of the thermal feature. One groove is 45 cm above the modern ground surface. Eleven other grooves range from 5 to 10 cm above the modern ground surface. Depth for these grooves varies from 1-3 cm and length ranges from 3-7 cm.

Lithic Artifacts

The debitage consisted of 146 items. Seventy-one of these were complex flakes, 61 were simple flakes, and 14 were angular pieces of shatter. Most of the debitage assemblage is quartzite (73% fine-grained and 10% coarse-grained), with 7% orthoquartzite, 4% each of argillite and chert, and chalcedony, silicified wood, and siltstone accounting for 1% each. Size-wise, the debitage had 122 large specimens and 24 small ones. Eighty-nine specimens are non-cortical, and 57 exhibited cortex. Heat treatment was not observed in the debitage, so the thermal feature does not appear to have been used for that purpose. The site debitage assemblage is the result of hard hammer reduction of local materials to produce early-stage bifaces and flakes, most of which appear to have been retained for expedient use elsewhere.

The tool assemblage consists of twelve items: three metate fragments, two mano fragments, two cores, a biface, a projectile point, a utilized flake, a pestle, and a jar cover. Table 4.88 outlines material and tool data. Nearly all of these were found at the surface of Feature 1 in a loose semicircular arrangement. Only the cores (FS 1 and 4) were found away from the main body of this feature. A single elongated chert flake fragment (FS 8), displaying heavy wear on its left lateral edge, was found in this cluster. An argillite biface (FS 6) that was broken in manufacture, and then used for cutting was found here too. A final chipped stone tool (FS 7) is a small chert preform. Using Anderson's (1989) codes, it has been classified as a P49 (AD 800 to AD 1750).

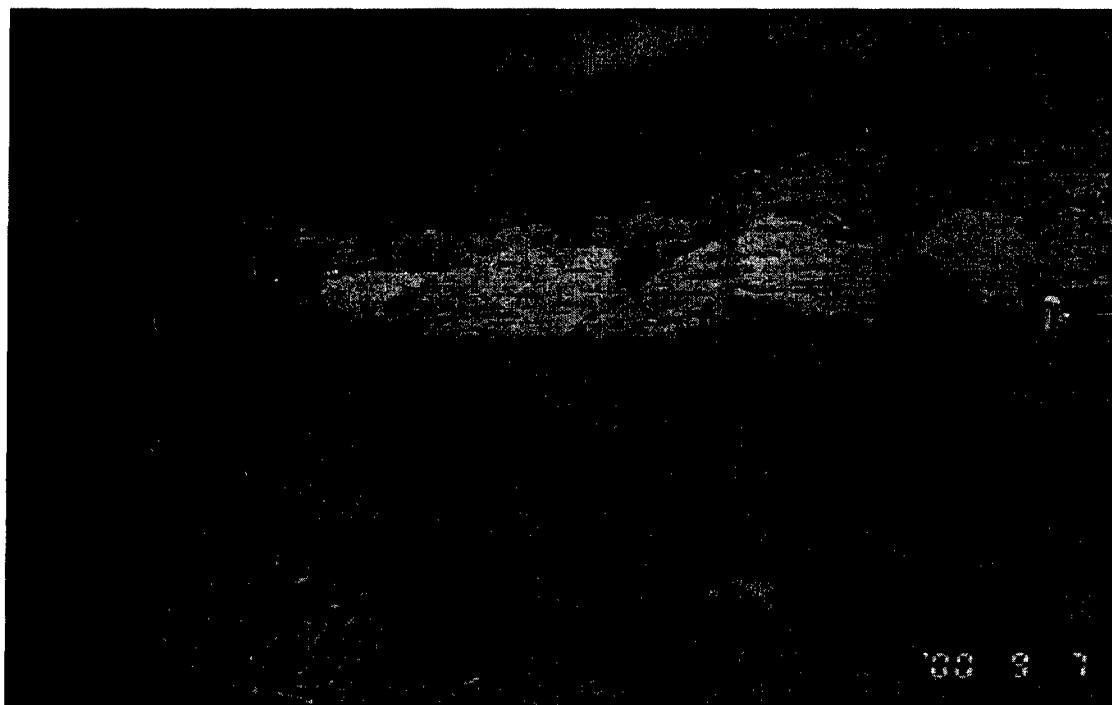


Figure 4.226: Site overview photograph from the curve in the two-track road, 5LA9331.

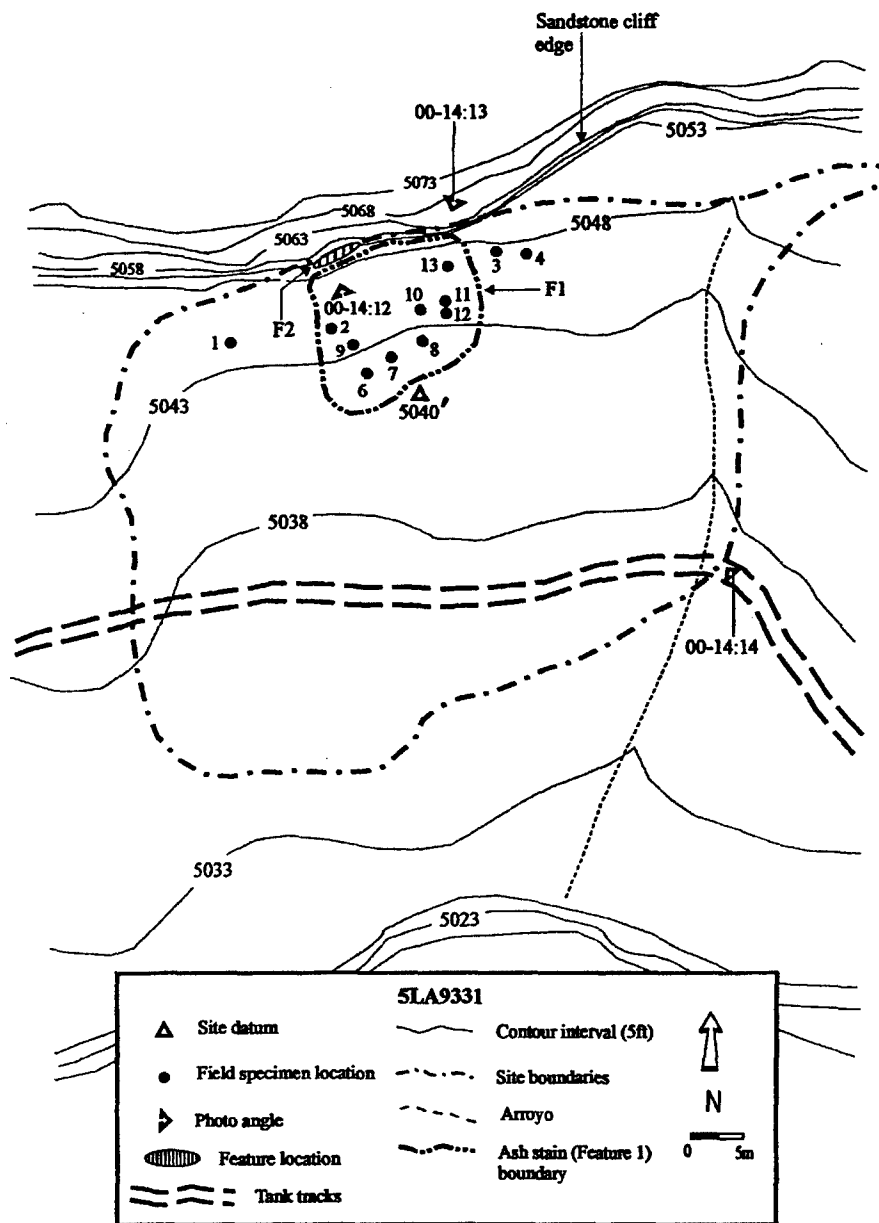


Figure 4.227: Site map, 5LA9331.

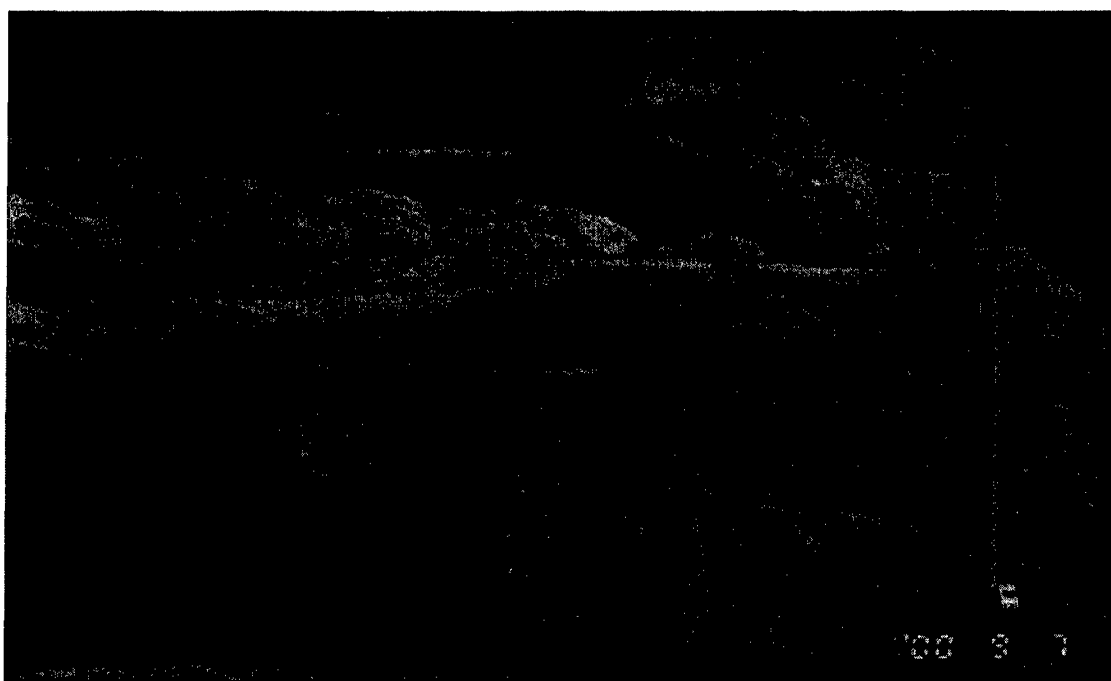


Figure 4.228: Photograph of Feature 2, tool grooves, 5LA9331.

The remaining items are classified as miscellaneous items or ground stone. All of the ground-stone tools are sandstone and broken. These are three slab metate fragments (FS 2, 9, and 10) and two, one-hand mano fragments (FS 3 and 5). A long and thin tabular piece of sandstone was classified as a pestle. It measures 9 x 1.5 x 1.5 cm and has grinding on both of its ends. Another artifact, previously unknown for the PCMS, is a jar cover. This flaked disk of sandstone measures 5.5 cm in diameter and was evidently used to cover the opening of some kind of ceramic container.

Table 4.87: Summary Description of Chipped-Stone Debitage for 5LA9331.

	Argillite	Chalced.	Chert	C. Quartzite	F. Quartzite	Ortho.	Sil.	Wood	Siltstone	Total
Total	6	1	6	15	106	10	1	1	1	146
Large	6	0	5	15	87	7	1	1	1	122
Small	0	1	1	0	19	3	0	0	0	24
Cortical	4	0	0	1	49	3	0	0	0	57
Noncortical	2	1	6	14	57	7	1	1	1	89
Complex	2	0	2	10	49	7	0	1	1	71
Shatter	0	0	1	2	10	1	0	0	0	14
Simple	4	1	3	3	47	2	1	0	0	61

Table 4.88: Stone Tool Type by Material Group for 5LA9331.

Material	Type							Total	
	Biface	Core	Projectile	Misc.	Flake	Tool	Mano		Metate
Argillite	1	0	0	0	0	0	0	0	1
Chert	0	0	1	0	1	0	0	0	2
Coarse-grained Quartzite	0	1	0	0	0	0	0	0	1
Sandstone	0	0	0	2	0	2	3	0	7
Orthoquartzite	0	1	0	0	0	0	0	0	1
Total	1	2	1	2	1	2	3	0	12

Ceramic Artifacts

A single ceramic sherd was encountered along the eastern extent of Feature 1. This is mica bearing clay with grit temper from a coiled and check stamped vessel of indeterminate form. It is also described an Appendix IV of this report.

Interpretation and Summary

This site contains intact cultural deposits (especially in Feature 1), therefore, it is a good candidate for additional research and is eligible for the National Register of Historic Places. The high number of ground-stone tools and lack of scraping and cutting tools indicate the inhabitants of this site were engaged in some seasonal gathering activity. This is supported in part by the presence of the large roasting feature, which could yield subsistence information through excavation. There are many piñon trees in the area and a large stand of scrub oak was found to the north and east of the site. As such, these may be the vegetal items processed in the roasting pit, but this cannot be determined without testing the feature.

The site, and in particular Feature 1, are being actively eroded by sheetwash. The roasting pit needs to be excavated before all data are lost. With a two-track road at its southern boundary, the site could receive some military impact; however, there is none visible at this time. Our management recommendation is to avoid the site and Feature 1 requires data recovery.

5LA9333

Site 5LA9333 is a large, fairly dispersed scatter of lithic materials, ceramics, and shell (Figures 4.229, 4.230) containing a large thermal feature. It is located on top of a large, east to west trending ridge, which, in turn, is bordered on the north by Welsh Canyon proper and on the south by a large Welsh Canyon tributary canyon. This site overlooks 5LA9331 (65 m south), another site with a large roasting pit feature. Overall, the site terrain is flat with a slight slope (1°) from west to east. The lack of gradient here has allowed the surface soil to remain intact and the silty soil has at least 60 cm of depth. The eastern half of the site is sparsely covered with artifacts, while the west half is densely covered. There were two main concentrations of cultural debris, one south of the datum and the other where ash from Feature 1 covers the ground.

The plant community is characterized as woodland with an overstory of juniper. Plant types noted at the surface include various grama grasses, yucca, prickly pear, snakeweed, sunflower, currant, and piñon pine. A dense stand of scrub oak was noted 200 m northwest and prehistorically there might have been some in the area of the site.

Feature

Feature 1 is defined as a large (26 x 17 m) irregularly shaped thermal feature that surrounds the site datum. It was found at the crest of the ridge near the central portion of the site. This large ash stain could be one of two things. It could be one large roasting pit or it could be a series of small hearths that, at the surface, have melded together. A badger burrow shows at least 60 cm of ashy, fire-cracked fill extending from the modern ground surface down to sandstone bedrock. Numerous artifacts were found in Feature 1 including, debitage, chipped-stone tools, and a large piece of shell (FS 27).

Lithic Artifacts

The surface artifact assemblage consists of 197 pieces of debitage, 152 pieces from general surface context and 45 from the surface of Feature 1. Table 4.89 presents a summary of the chipped stone debitage recorded at the site. The debitage is 78% fine-grained quartzite, 9% chert, 7% coarse-grained quartzite, 5% argillite, and 1% basalt. All of these materials can be found inside the PCMS in cobble or nodule form, or outcropping in beds at the surface. The quartzite and chert materials can be obtained in the canyons below. The debitage is 55% complex flakes, 35% simple flakes, and 10% shatter.

Only 31% of the debitage pieces show some degree of dorsal cortex and this is surprising given the fact that most of the debitage materials can be found within 400 m of the site. Of the total, 28% are large cortical items and 3% are small cortical items. Nine pieces of chert show a red color change from heat exposure. The low number of cortical items, coupled with the lack of biface-thinning flakes indicates that early stage lithic reduction was employed to produce most of the debitage items. The presence of a few small noncortical flakes (7% of the total assemblage) shows a little emphasis on the production of late-stage bifaces. The abundance of large complex flakes (48%) indicates that significant early-stage biface reduction was performed. Most of the materials appear to have been quarried locally and were reduced to large bifaces on the site. Either the smaller biface-thinning flakes have been transported from the surface by erosion, or this activity was performed at another locale. Prepared cores were likely produced here with the intention of producing usable flakes sometime down the road. Though some heat treatment is evident, most of the materials seem to have high conchoidal fracture properties, thus making heat alteration unnecessary.

Twenty-two tools representing six tool classes were recorded in the chipped tool assemblage. These are six flake tools, five bifaces, four non-bipolar cores, four projectile points, two scrapers, and a drill. The cores are quartzite (3) and chert (1). Of the bifaces, there are two

blanks, two unfinished bifaces, and a nearly finished biface. The nearly finished biface (FS 24) is fine-grained quartzite and was used as a knife. The unfinished bifaces were broken late in the manufacturing process, and the unfinished chert bifaces (FS 2 and 14) were broken early.

Five of the utilized flakes are complete and one is broken (FS 25). Edge wear analysis reveals that all were used as expedient scraping tools. Field Specimen 18 is made of non-local Flattop chalcedony and this piece is highly patinated. All other utilized flakes are made of locally available materials. Both of the end/side scrapers are broken. One (FS 13) is made of unspecified chert and the other (FS 16) is Alibates Dolomite. The bit is missing from the Alibates drill (FS 1).

Four projectile points were recovered from the surface of this site; all are temporally diagnostic. The first chert point (FS 3) is similar to Anderson's (1989) type P79. Though it is larger than most recorded for this class, its morphologic features are distinct to the type. A P79 point has associated dates between AD 1000 and AD 1750. A second projectile point fragment (FS 10) is chert and designated a P49 (AD 800 to AD 1750). A third chert point (FS 12) is a P85 with a date range of AD 1000 to AD 1750. The remaining point is a large preform (P3) made of Alibates dolomite. Based on these four artifacts, the site had one distinct occupation sometime in the Late Prehistoric stage (AD 100 to AD 1725). Perhaps, the large preform could date to the end of the Paleoindian stage but its fragmented condition makes positive identification tenuous.

The ground-stone artifact classes include a mano fragment, and four slab metate fragments. All are made of sandstone and were found in a loose grouping south of the thermal feature. The edge of a broken shaft straightener (FS 9) was found at the southern site boundary. A piece of burned bone (FS 27) was found at the west edge of Feature 1.

Table 4.89: Summary Description of Chipped-Stone Debitage for 5LA9333.

	Argillite	Chert	C. Quartzite	F. Quartzite	Hornfels/Basalt	Total
Total	10	18	13	154	2	197
Large	5	9	13	139	2	168
Small	5	9	0	15	0	29
Cortical	3	0	4	52	2	61
Noncortical	7	18	9	102	0	136
Complex	7	14	9	79	0	109
Shatter	1	0	1	18	0	20
Simple	2	4	3	57	2	68

Table 4.90: Summary Description of Chipped-Stone Debitage from Feature 1, 5LA9333.

	Argillite	Chert	C. Quartzite	F. Quartzite	Hornfels/Basalt	Total
Total	4	5	4	30	2	45
Large	2	2	4	30	2	40
Small	2	3	0	0	0	5
Cortical	2	0	2	12	2	18
Noncortical	2	5	2	18	0	27
Complex	3	2	4	16	0	25
Shatter	1	0	0	2	0	3
Simple	0	3	0	12	2	17

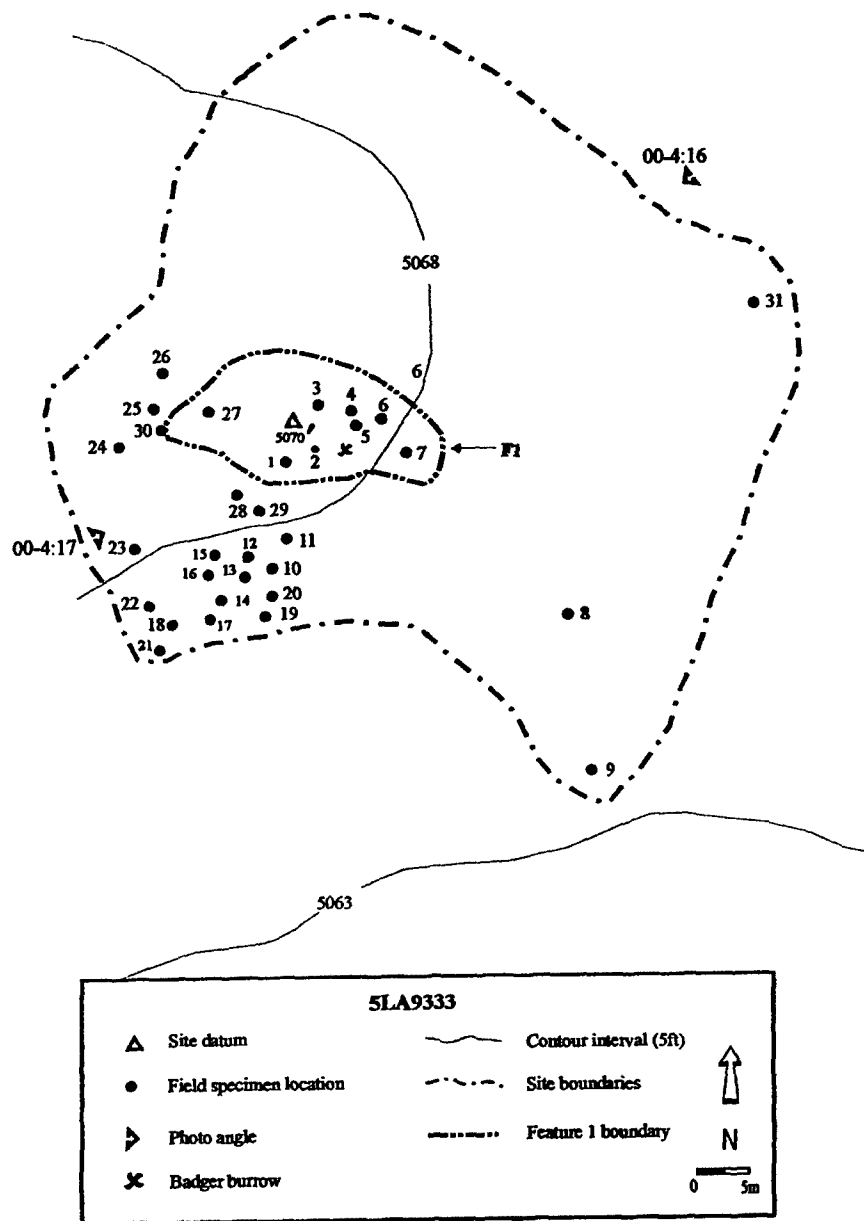


Figure 4.229: Site map, 5LA9333.



Figure 4.230: Site overview photograph (PCMS 00-14: 16), 5LA9333.

Table 4.91: Stone Tool Type by Material Group for 5LA9333.

Material	Type								Total
	Biface	Core	Projectile	Scraper	Drill	Flake Tool	Mano	Metate	
Argillite	1	0	0	0	1	0	0	0	2
Alibates	0	0	1	0	0	0	0	0	1
Flattop Chalcedony	0	0	0	0	0	1	0	0	1
Chert	2	1	3	1	0	0	0	0	7
Coarse-grained Quartzite	0	1	0	0	0	0	0	0	1
Fine-grained Quartzite	1	2	0	0	0	2	0	0	5
Sandstone	0	0	0	0	0	0	1	4	5
Hornfels/Basalt	0	0	0	0	0	1	0	0	1
Orthoquartzite	1	0	0	0	0	1	0	0	2
Siltstone	0	0	0	0	0	1	0	0	1
Silicified Wood	0	0	0	1	0	0	0	0	1
Total	5	4	4	2	1	6	1	4	27

Ceramic Artifacts

Three pieces of ceramic (FS 15 and FS 19) were encountered in the artifact cluster south of the datum. These sherds are described further in the analysis in Appendix IV. They are made from mica bearing clay with grit temper and represent one vessel with a smoothed lower body and a simple stamped upper body. The original form is believed to be a conoidal bottomed vessel with high round shoulders and a constricted mouth.

Interpretation and Summary

The site exhibits soil deposits of up to 60 cm and a thermal feature that may have substantial intact buried deposits; therefore, it is recommended as eligible for the NRHP. The ground- and chipped-stone tools indicate the primary site activities were raw material reduction, early-stage biface manufacture, and food processing. The hearth suggests cooking and possible habitation. Nonlocal materials (including Alibates dolomite and Black Forest silicified wood), projectile point fragments, and considerable ground stone are useful for addressing the research domains of chronology, subsistence, or trade and exchange. Overall artifact density is high, and there is a clearly defined tool and ceramic concentration south of the datum. This area of the site would also be a good candidate for testing.

The site is not in imminent danger from military maneuvers but there is some erosion and this could potentially destroy the valuable information contained in Feature 1 and the soils of the tool concentration area. Our management recommendation is to avoid and test the site.

5LA9337

This site has a series of rockshelters and an associated lithic scatter, and extends from a grassy plain down a series of terraces to the head of a side canyon of Red Rock Canyon (Figure 4.231). The site datum has an elevation at datum of 1527 m (5010 ft). The canyon edge creates an environment that supports more woody shrubs and trees than the surrounding prairie. The area contains juniper, grama grasses, poison oak, cholla, prickly pear, currant, sagebrush, mountain mahogany, and skunkbrush sumac. Though sandstone outcrops over most of the site's surface, there are pockets with average to poor sediment deposition (5-20 cm). The sediment has been impacted by periodic sheetwash erosion and wind deflation, and is generally clay silt with some intermixed sand grains. Certain areas of the site, such as the rockshelters, exhibit excellent deposition of >30 cm, with the possibility of buried, intact cultural deposits. The artifact assemblage was fairly dispersed, with areas of concentration on the terraces and the slope below one of the rockshelters (Feature 3).

Features

A total of four features were identified. Feature 1 is a large rockshelter located below the exposed sandstone bedrock at the head of an unnamed side canyon (Figure 4.233). Its

dimensions are 26 x 24 m, and its height is 3.8 m. The majority of the floor is covered by collapsed roof fall, and eroding bedrock shale. Soil deposition appears to be deep in this area, and cultural deposits may exist under this overburden.

At the east end of this shelter is an intact habitation area or partitioned workspace, (Feature 2) which is situated approximately 1 meter above the rest of the shelter floor. There is an extensive boulder field in front of the eastern portion of the shelter, and this, coupled with Feature 1's wide overhang, provides good cover from the elements for Feature 2. Feature 2 has not been impacted by roof fall or bedrock erosion. There is an intact retaining wall along the southeastern margin of the feature, constructed of horizontally laid tabular and non-tabular sandstone blocks and cobbles. This wall is preserved up to eight courses high in some places, and averages 50 cm in height. The wall has obviously helped preserve soil deposition in this area of the rockshelter. On the western margin of Feature 2 there are two large sandstone slabs and a whole metate, all of which bear evidence of heat treatment. These are eroding down to the modern ground surface of the rest of the rockshelter. An intact thermal feature/possible hearth is being exposed under these pieces, and the metate (FS 15) is completely pedestaled 30 cm above the surrounding floor. Sheet wash erosion is scouring this area of the shelter and the metate is in danger of collapsing (Figure 4.234).

Feature 3 is a sandstone bedrock alcove that has been utilized as a rockshelter (Figure 4.235). It is relatively small, 4.2 x 2.6 m, with a height of 85 cm. It has excellent deposition as evidenced in the sidewalls of a large rodent burrow recently dug in the center of the shelter. The burrow exposes a >40 cm profile of soil deposition within the shelter, and several flakes were noted in the backfill of this burrow. There is also a high concentration of lithics, fire-cracked rock, ground stone, and dark ashy soil eroding down the slope in front of Feature 3. A small channel from water erosion is currently eroding into the burrow, further threatening the surface integrity of the feature.

Feature 4 is a sandstone bedrock overhang with a wing wall along its western edge (Figure 4.236). The wing wall may have originally been several courses high, but has collapsed through time and exposure to the elements. It is subject to occasional channel erosion from the slope above; hence, soil deposition is rather poor (2-10 cm). Feature 4 may contain intact, buried cultural deposits, but due to erosion its extent cannot be assessed by surface observation. A test unit here could determine the extent of the subsurface deposits.

Lithic Artifacts

5LA9337 contained a wide variety of artifact and material types. The type and count of the artifacts included a 149 item sample of the debitage, 42 non-bipolar cores, 13 bifaces, ten pieces of ground stone, six flake tools, two projectile points, a side scraper, and a hammerstone.

In the debitage, six material types were noted on this large site (Table 4.92). Of the total debitage, 56% was coarse-grained quartzite, 25% fine-grained quartzite, 8% chert, 5% argillite, 3% hornfels/basalt, and 2% was orthoquartzite. These materials are 8% cryptocrystalline, 32% microcrystalline, and 59% macrocrystalline materials with some degree of conchoidal fracture

properties. All materials are locally available within the boundaries of the PCMS; quartzites and cherts outcrop in the canyon below and were transported less than 100 m from their source areas.

All stages of core and cobble reduction are represented in the assemblage. Debitage classes include simple flakes (47%), complex flakes (42%), shatter (11%), and biface-thinning flakes (<1%). Overall, 51% of the assemblage is noncortical, while 49% shows some dorsal cortex. These percentages are further broken down as 50% large noncortical items, 48% large cortical items, 1% small noncortical items, and 1% small cortical flakes. Based on the low percentage (<1%) of small complex flakes and biface-thinning flakes (<1%), there appears to be little emphasis on making finished uniface and biface tools on site. At least portions of the debitage are related to early-stage biface manufacture and the high number of broken bifaces recorded at the surface supports this assumption. The shatter specimens and most of the large cortical flakes were being produced as a by-product of quartzite, hornfels/basalt, and chert core reduction. These material types are all represented in the core assemblage. Based on the rather large percentage of large cortical items in the quartzite, and hornfels/basalt materials, it is inferred that these items were being transported to the site in tabular, chunk, or nodule form.

The site yielded a total of two projectile points (Figures 6.7 and 6.9). Both seem to point to a single occupation for the site somewhere between the Middle and Late Archaic periods. One argillite projectile point fragment (FS 13) is classified as a P24 and dates to the Middle and Late Archaic periods (3000 BC to 200 BC). The second point (FS 72) is broken and also made of argillite. In appearance, it is similar to Anderson's P19 type, which has associated dates of between 2000 BC and AD 1000 (Middle Archaic to Developmental periods).

The remaining stone tools (Figure 4.93) consist of 73 artifacts-- 42 non-bipolar cores, 13 bifaces, seven manos, three metates, six flake tools, a scraping tool, and a hammerstone. Because the cores and hammerstone were analyzed in the field, only the material type is recorded. Material types for these are coarse-grained quartzite (21), fine-grained quartzite (11), chert (7), argillite (2), basalt (1), and quartz (1).

Of the bifaces, seven of the thirteen specimens are broken. Most are fine-grained quartzite (7), with fewer coarse-grained quartzite (2), chert (2), basalt (1), and argillite (1) bifaces. Nine are further classified as unfinished, with four nearly finished specimens. All were broken sometime in the manufacturing process, and discarded on site. There is only one biface of note. Field Specimen 24 is argillite and highly patinated, suggesting a relatively early age.

The flake tools are classified as four utilized flakes and two unifaces; all are fine-grained quartzite. Observed edge angles indicate that all were used as expedient scraping tools. The remaining chipped tool (FS 69) is a side scraper of fine-grained quartzite.

Many of the ground-stone tools were encountered in the vicinity of Feature 3. There are six one-hand mano fragments, two slab metate fragments, a complete one-hand mano, and a complete slab metate. All are sandstone and eight items are burned. Based on the presence of ground stone, vegetal processing was an important activity on site.

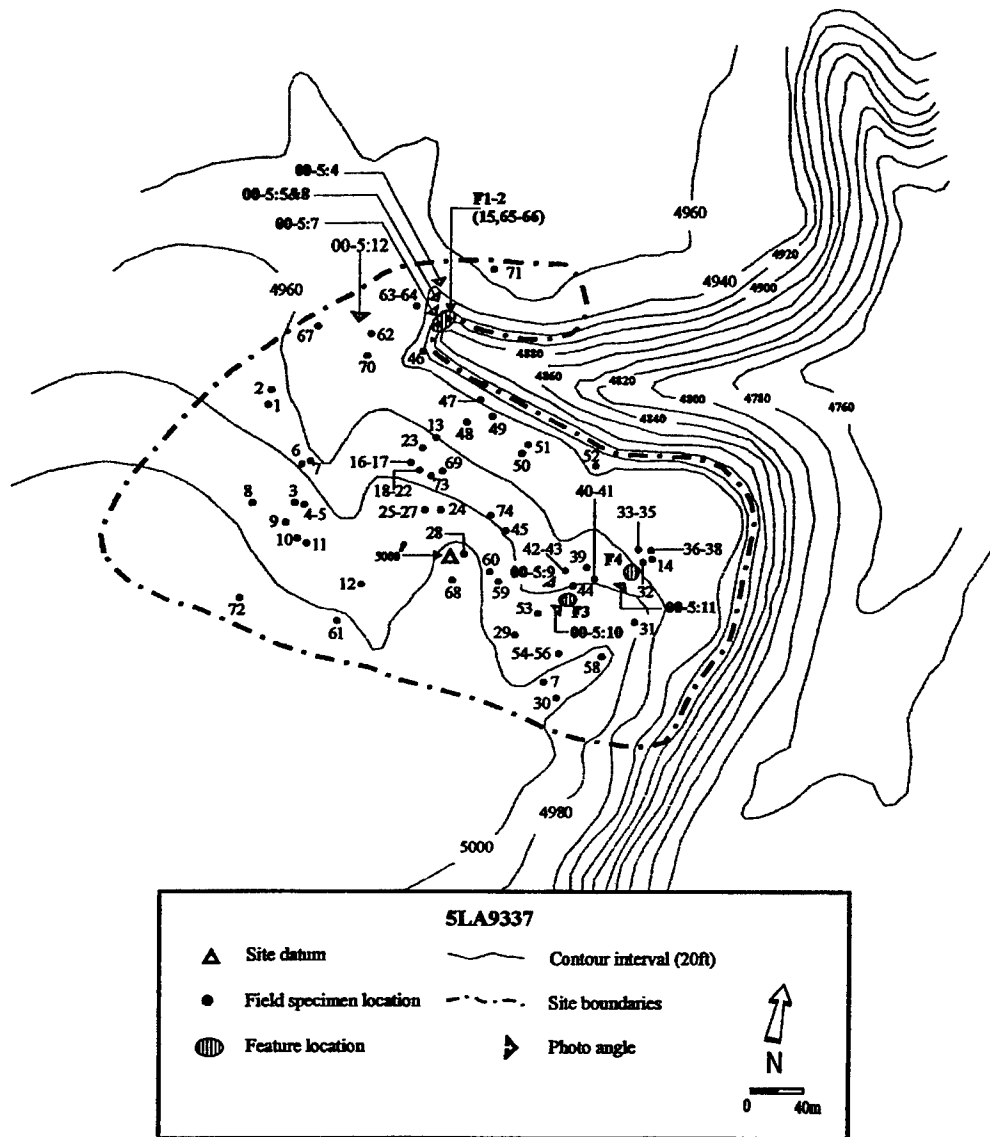


Figure 4.231: Site map, 5LA9337.



Figure 4.232: Site overview photograph (PCMS 00-5:12), 5LA9337.

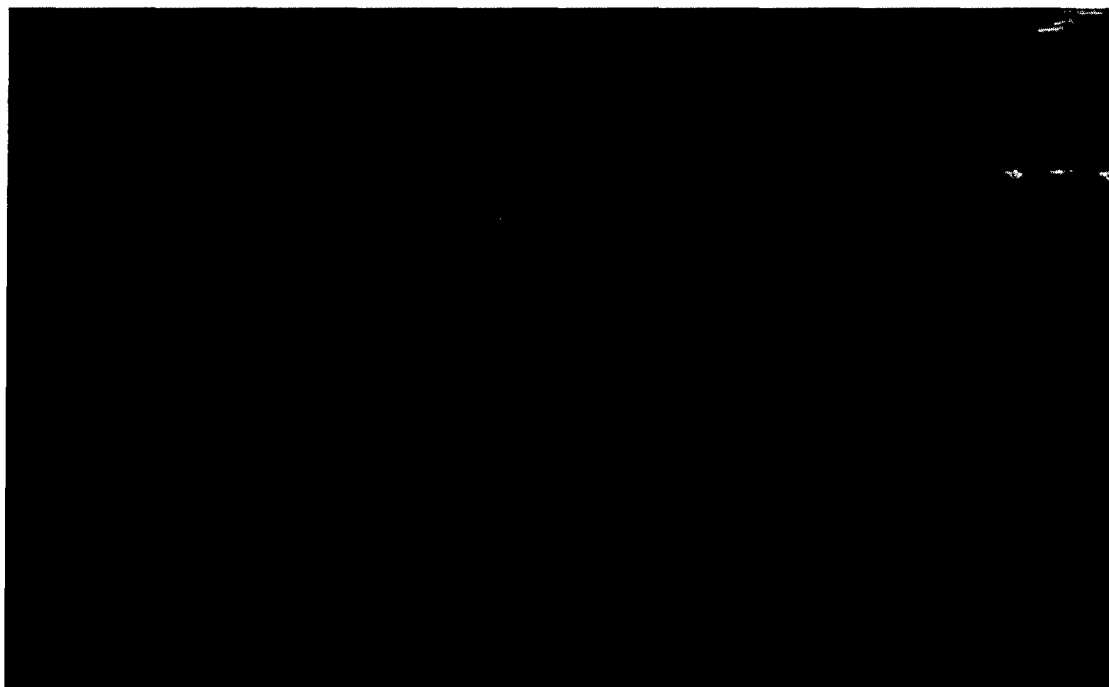


Figure 4.233: Photograph (PCMS 00-5:4) showing floor assemblage from Feature 1, 5LA9337.

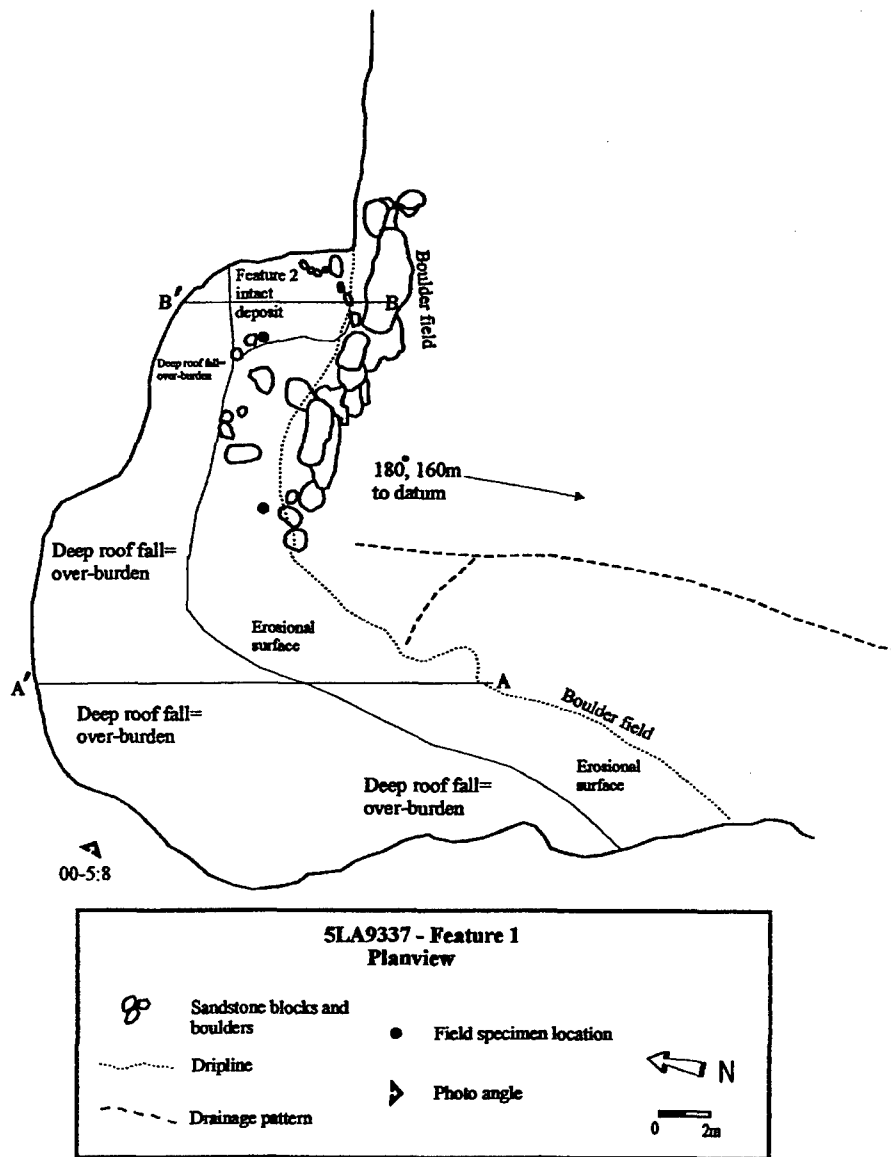


Figure 4.234: Planview map of Features 1 and 2, 5LA9337.

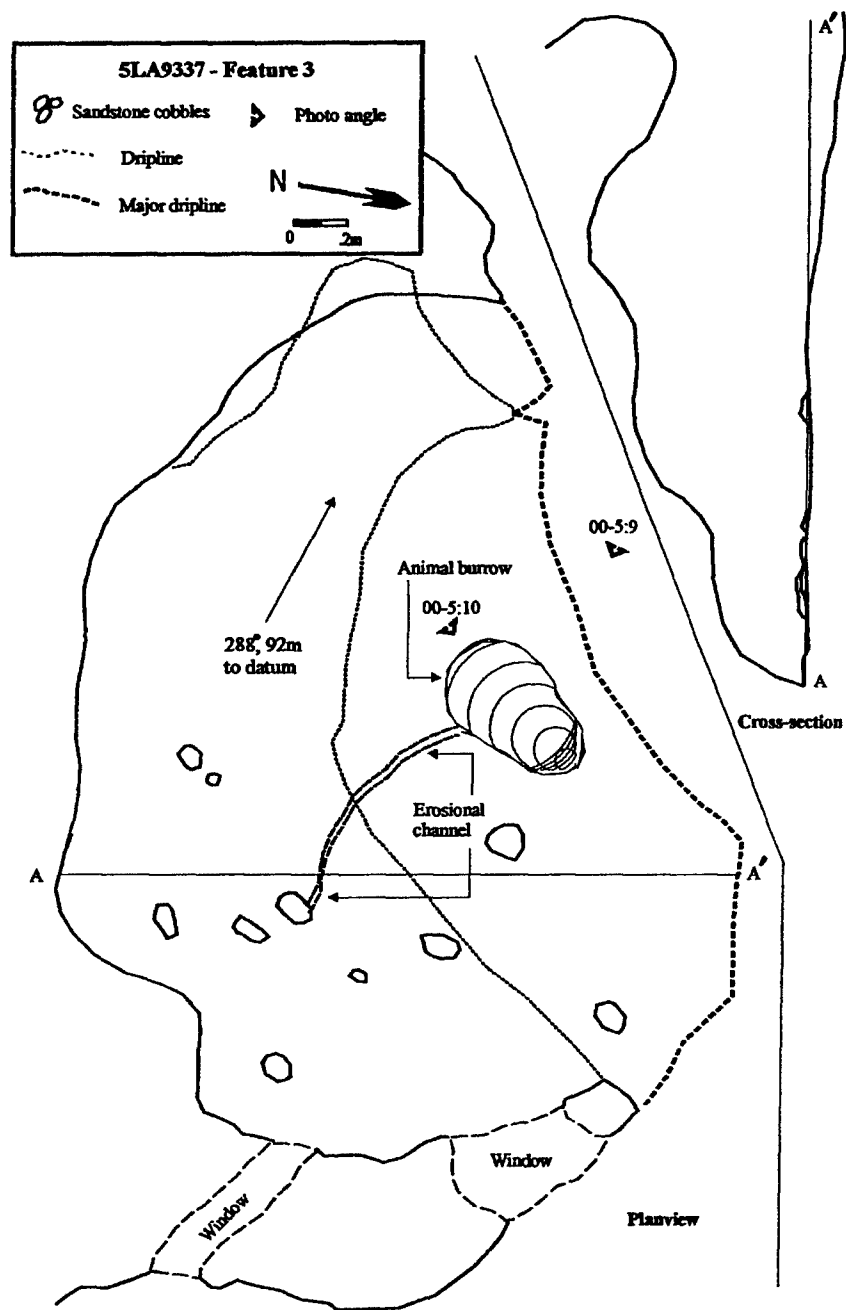


Figure 4.235: Planview and cross section maps of Feature 3, 5LA9337.

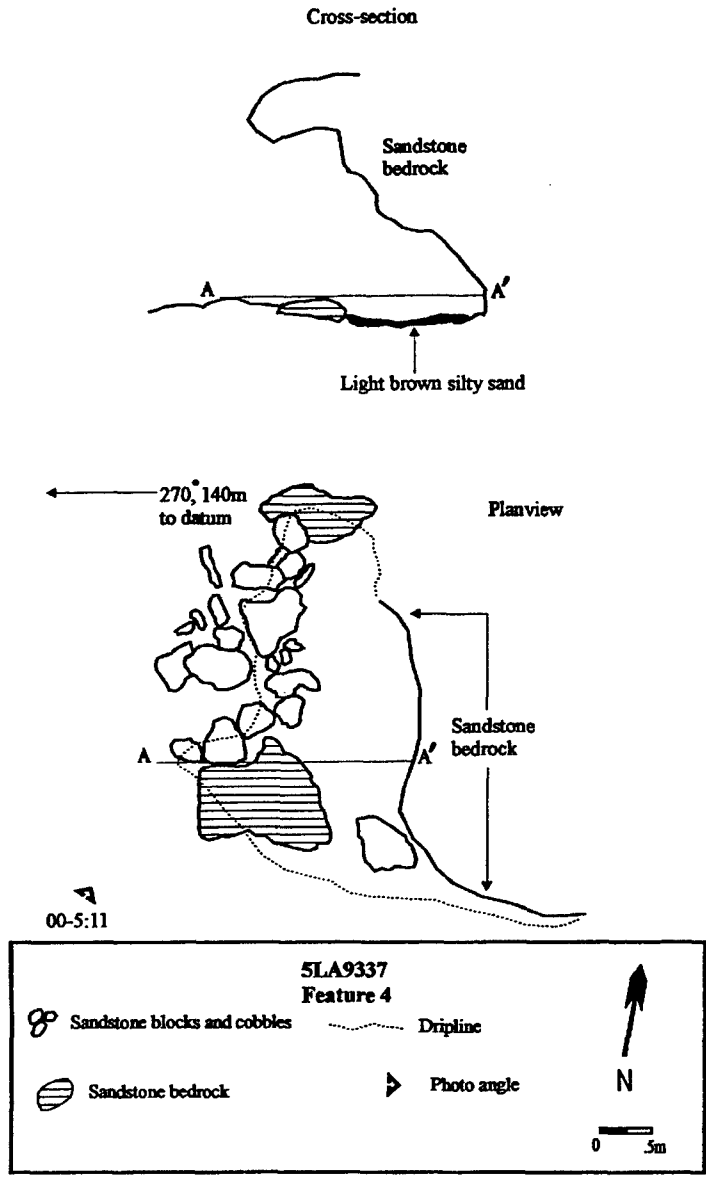


Figure 4.236: Planview and cross-section map for Feature 4, a rockshelter, 5LA9337.

Table 4.92: Summary Description of Chipped-Stone Debitage for 5LA9337.

	Argillite	Chert	C. Quartzite	F. Quartzite	Hornfels/Basalt	Orthoquartzite	Total
Total	7	12	86	37	4	3	149
Large	7	12	84	36	4	3	146
Small	0	0	2	1	0	0	3
Cortical	4	6	44	14	2	3	73
Noncortical	3	6	42	23	2	0	76
Complex	3	7	28	23	0	1	62
Shatter	0	2	11	2	1	0	16
Biface-thinning	0	1	0	0	0	0	1
Simple	4	2	47	12	3	2	70

Table 4.93: Stone Tool Type by Material Group for 5LA9337.

Material	Type								Total
	Biface	Core	Projectile	Scraper	Hmrstn.	Flake Tool	Mano	Metate	
Argillite	1	2	2	0	0	0	0	0	5
Chert	2	7	0	0	0	0	0	0	9
Coarse-grained Quartzite	2	21	0	0	0	0	0	0	23
Fine-grained Quartzite	7	10	0	1	1	6	0	0	25
Sandstone	0	0	0	0	0	0	7	3	10
Hornfels/Basalt	1	1	0	0	0	0	0	0	2
Quartz	0	1	0	0	0	0	0	0	1
Total	13	42	2	1	1	6	7	3	75

Interpretation and Summary

The multiple rockshelters, intact architectural units, large lithic and tool assemblages, and prime location near Red Rock Canyon all indicate that the 5LA9337 was utilized as a long term habitation site, and tool manufacturing and vegetal processing area. This site was most likely reoccupied several times throughout prehistory (though only an Archaic occupation is shown through temporal data). With the intact buried deposits that must be on site, a multitude of data regarding settlement and subsistence patterns could be recovered.

Based on this, 5LA9337 is eligible for the National Register and our management recommendation is avoid and test. A further management note: due to immediate threat from wind and water erosion, and burrowing animals, Features 2 and 3 should receive high priority for excavation before further data is lost. Features 1 and 4 should be tested to determine the depth of buried cultural deposits. In addition, the site should be monitored every five years to gauge further impact from erosion, and any possible future impact from U.S. Army maneuvers. 5LA9337 should also be technically mapped before any further erosion takes place.

5LA9344

This site consists of a single rockshelter, a rectangular stone alignment, two thermal features and a lithic scatter. It is situated in the middle of a finger shaped landform that juts out

into Red Rock Canyon. It is bordered on the east and west by large tributary canyons that connect to the Red Rock system. The site boundary extends from a hill at its northern end, down the ridge line, and to the bottom of the eastern tributary canyon where the rockshelter (Feature 1) is located. There is a spring in this canyon and that could have attracted game animals to the area, as well as providing year-round water to the inhabitants (Figures 4.237, 4.238).

Large juniper, piñon trees and skunkbrush are the dominant vegetation. A few soapweed plants and prickly pear grown near the western margin, and several species of grama grass are found throughout the area. The surface soil is light brown sandy silt and varies in depth. Sandstone bedrock is exposed in several locations along the canyon edge, there is some deposition throughout the central site area, and there is over 40 cm of depth in Feature 1.

Features

A total of six features were located during recording. Feature 1 is a rockshelter (measuring 5 x 2.1 x 1.5 m) located in the eastern tributary canyon approximately 135 m and 85 degrees from the site datum (Figure 4.239). Several pieces of fire-cracked rock and one flake were the only cultural material noted within the shelter; however, there is a thick layer of soot on the roof. There is adequate soil deposition (>20 cm) that could contain intact cultural deposits, and besides a packrat midden in the back of the shelter, it is otherwise undisturbed. This feature should be tested to determine the depth of intact subsurface cultural deposits.

Feature 2 is a rectangular alignment of spaced and single coursed, sandstone blocks and cobbles set partially against an outcropping of sandstone bedrock. It measures approximately 7.2 x 3.5 m. There is another alignment of sandstone blocks that roughly bisects this feature, giving this structure the appearance of having two separate rooms. Whether this is the original construction design or a result of post-habitation collapse and deterioration is unknown. The soil is highly deflated in and around the feature due to wind and water erosion. Some pockets of soil remain, with artifacts being exposed both in and around structure. It is unlikely that significant cultural deposits remain in this feature due to the above-mentioned erosion.

Features 3 and 4 are bedrock metates, each with a single grinding surface. The lightly used milling surface on Feature 3 was designated FS 2 and measures 20 x 17 cm. The milling slick on Feature 4 was designated FS 32 and measures 60 x 60 cm. It exhibits moderate usage.

Feature 5 is a large (9 x 8 m) ashy soil stain with fire-cracked rock and lithic debitage dispersed throughout it. There is a small drainage approximately 3 m to the north and signs of alluvial erosion are present.

Feature 6 is a thermal feature (1.7 x 1.5 m) comprised of ashy soil and burned bone located near the western boundary of site (figure 4.240). This feature shows characteristics of a roasting pit, with a great deal of burned bone (all small fragments) eroding out. Wind and water erosion have heavily impacted the feature, leaving only 5-10 cm of deposition.

Lithic Artifacts

The lithic artifact assemblage was widely dispersed, with a few areas of concentration. One of the densest concentrations was located in and around Features 2 and 5. The artifact assemblage consisted of debitage, multiple cores, utilized flakes, and bifaces. Ground stone was also present, as represented by three one-hand manos, two bedrock metates, and two slab metates.

A 150 piece sample of the debitage was taken from the surface of the site, and a 50 piece sample was taken from Feature 2 and the area around it. Of the combined sample, most is fine-grained quartzite (62%). Chert (16%), coarse-grained quartzite (11%), argillite (4%), basalt (4%), orthoquartzite (3%), and baked clay (<1%) materials were also seen. Half of the assemblage is comprised of complex flakes with fewer simple flakes (41%), shatter specimens (7%), and biface-thinning flakes (2%) noted. A majority of the debitage on site was large, noncortical complex flakes (61%), suggesting later-stage core reduction and early-stage biface/tool manufacture were the primary activities on site. The presence of small complex flakes (5% of the total assemblage) along with four biface thinning flakes would indicate that later-stage tool manufacture and retouching were infrequent site activities. The high number of finished and unfinished biface tools and retouched flakes on-site (17 total) supports this.

There are 29 flaked-lithic tools, which fall into the following classes: biface (11), core (11), projectile point (2), chopper (2), scraping tool (2), and uniface (1). The chipped-stone tools are made of most of the same material types as the debitage (Table 4.95). Most tools are quartzite (coarse-grained, 1; and fine-grained, 15) and chert (5). Three of the tools are basalt, two are argillite, two are orthoquartzite, and one is silicified wood. These materials are 79% microcrystalline and 17% cryptocrystalline, and 4% microcrystalline. The proportion of macrocrystalline materials with conchoidal fracture properties is higher in the debitage assemblage than in the tool assemblage. This shows that microcrystalline and cryptocrystalline materials were preferred for tool manufacture.

Two diagnostic projectile points were encountered during surface collection. The first point (FS 9) resembles Anderson's (1989) Type P83, which has a temporal range of between AD 750 and AD 1650. The other point (FS 33) is a P79, with a date range of AD 1000 to AD 1750. Based on these artifacts, it seems likely that the site had a Late Prehistoric occupation (AD 100 to AD 1725).

The cores were analyzed in the field and not collected. Thus, only material type data was recorded. Seven of these are fine-grained quartzite, and there are single specimens of chert, coarse-grained quartzite, basalt, and orthoquartzite.

Of the bifaces, two are fine-grained quartzite, two are chert, and those remaining are argillite, basalt, orthoquartzite, and silicified wood. All were broken or discarded in manufacture because of breakage or step fracture problems. Two of these were used. One, FS 30, is made of silicified wood and has a distinct cutting edge. The other, FS 16, is fine-quartzite and has one scraping edge.

The remaining five tools are two choppers (both large and made of fine-grained quartzite, a complete chert side scraper, a broken quartzite end/side scraper, and a complete uniface scraping tool made of basalt.

Excluding the bedrock metates, five other pieces of ground stone were recorded. These are two one-hand mano fragments, a complete one-hand mano; and two broken slab metate fragments. All are sandstone.

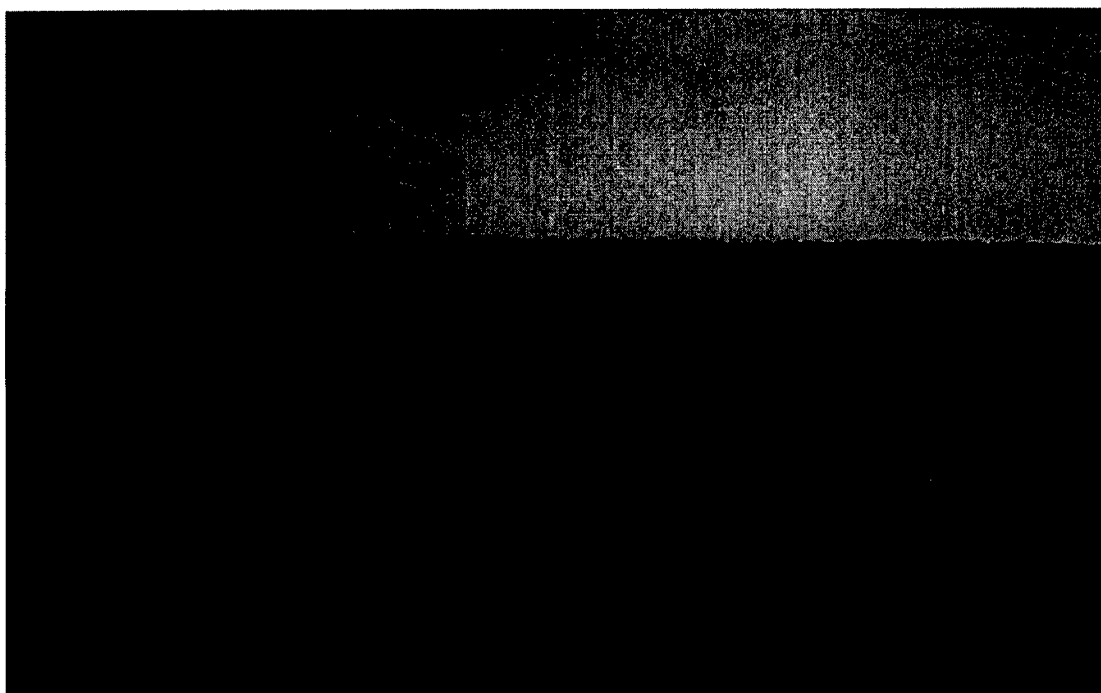


Figure 4.237: Site overview photograph (PCMS 00-5:21), 5LA9344.

Table 4.94: Summary Description of Chipped-Stone Debitage for 5LA9344.

	Argillite	Chert	C. Quartzite	F. Quartzite	Hornfels/Basalt	Kaolinite	Orthoquartzite	Total
Total	8	32	21	124	7	1	6	199
Large	7	24	20	100	6	1	6	164
Small	1	8	1	24	1	0	0	35
Cortical	2	2	3	36	3	0	2	48
Noncortical	6	30	18	88	4	1	4	151
Complex	5	19	8	60	1	1	5	99
Shatter	1	6	0	7	0	0	0	14
Biface-thinning	0	4	0	0	0	0	0	4
Simple	2	3	13	57	6	0	1	82

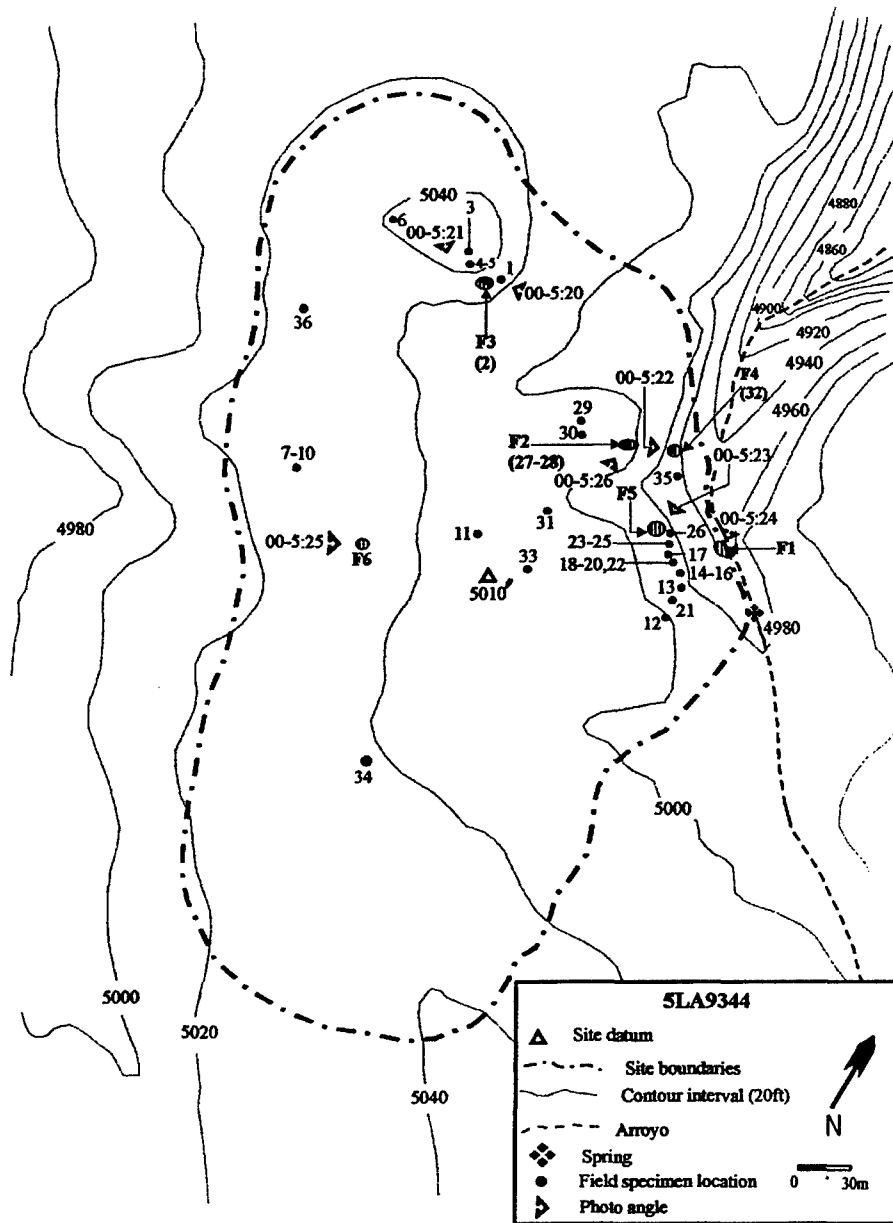


Figure 4.238: Site map, 5LA9344.

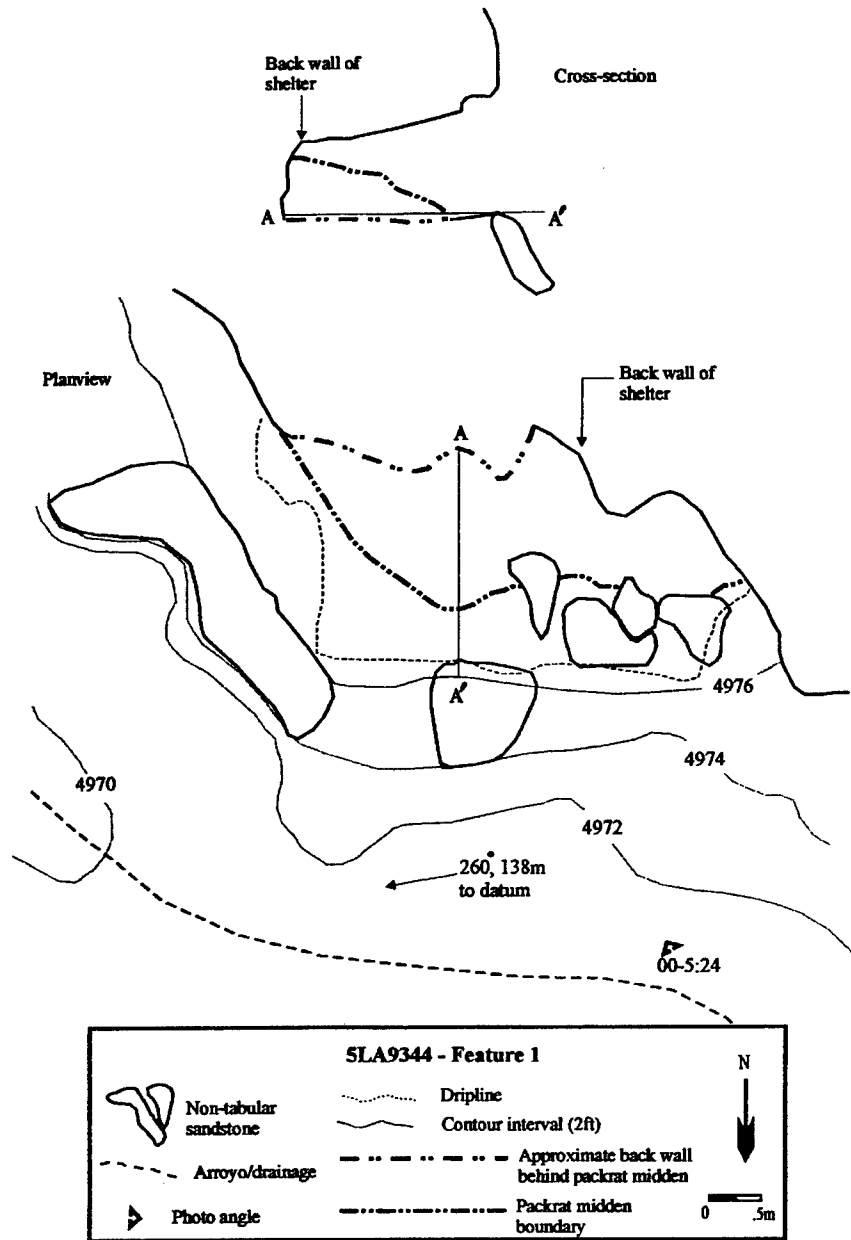


Figure 4.239: Planview and cross-section maps, Feature 1, a rockshelter, 5LA9344.



Figure 4.240: Photograph (PCMS 00-5:25) of Feature 6, a thermal feature, 5LA9344.

Table 4.95: Stone Tool Type by Material Group for 5LA9344.

Material	Type								Total
	Biface	Core	Projectile	Chopper	Scraper	Flake Tool	Mano	Metate	
Argillite	2	0	0	0	0	0	0	0	2
Chalcedony	0	0	0	0	0	0	0	0	0
Chert	2	1	1	0	1	0	0	0	5
Coarse-grained Quartzite	0	1	0	0	0	0	0	0	1
Fine-grained Quartzite	4	7	1	2	1	0	0	0	15
Sandstone	0	0	0	0	0	0	3	4	7
Hornfels/Basalt	1	1	0	0	0	1	0	0	3
Orthoquartzite	1	1	0	0	0	0	0	0	2
Silicified Wood	1	0	0	0	0	0	0	0	1
Total	11	11	2	2	2	1	3	4	36

Interpretation and Summary

Due to the presence of a large and varied lithic assemblage, habitation features, food processing features (the bedrock metates and numerous other ground stone) and a spring, this site was likely used as a long-term habitation area with multiple occupations. A similar site exists to the east (5LA9370) and the spring at the bottom of the drainage serves as the boundary for both sites. These two sites are in close proximity but are recorded separately for management

reasons. 5LA9344 displays strong evidence that buried intact cultural deposits exist. This data could add greatly to the understanding of subsistence, chronology, environment, and settlement of the PCMS during prehistory. This site is recommended as eligible for the National Register of Historic Places.

The management recommendation is avoid and test for cultural deposits before erosion has a chance to damage the site's integrity.

5LA9349

The site is a rockshelter with associated lithic tools and scatter (Figure 4.241). The site is located below a small sandstone outcrop on the northern rim of Red Rock Canyon 3.9 kilometers southeast of Red Rock Ranch. Artifacts extend down to the southwest, and northeast across the terraces above the rockshelter. This site resides in the juniper/black grama (Shaw et al., 1989:28) plant community of the PCMS. Juniper, yucca, prickly pear, yarrow, skunkbrush, black grama and sideoats grama grasses were found growing on this 0.36-acre site. Soil deposition ranges from exposed bedrock, especially in the drainage, to around 30 cm. At least 15 cm of deposition is noted in the rockshelter (Feature 1).

Features

Feature 1 is rockshelter that faces southeast (Figure 4.242, 4.244). The shelter measures approximately 6.4 x 2.3 m and has a floor-to-ceiling height of 4 m (measured from a centrally located point on the shelter floor). There is a single course sandstone wall just outside the dripline. Rodent activity near this wall has brought ashy soil to the surface that likely represents a buried thermal feature.

Feature 2 is a bedrock metate 30 m at 55 degrees from datum. The milling slick is designated as FS 1. Feature 3 is a bedrock metate 33 m and 60 degrees from datum. Its milling slick is designated as FS 2.

Lithic Artifacts

Flakes were noted throughout the site and a 151-flake sample was recorded (Table 4.96). There are 71 complex flakes, 58 simple flakes and 22 pieces of shatter. Materials used are 84% quartzite, 12% chert, 3% orthoquartzite and 1% siltstone. Cortex is present on 44% of the flakes and 98% are classified as large. Thirteen items (all of chert) show distinct heat treatment. This site appears to be a primary core and raw material reduction area.

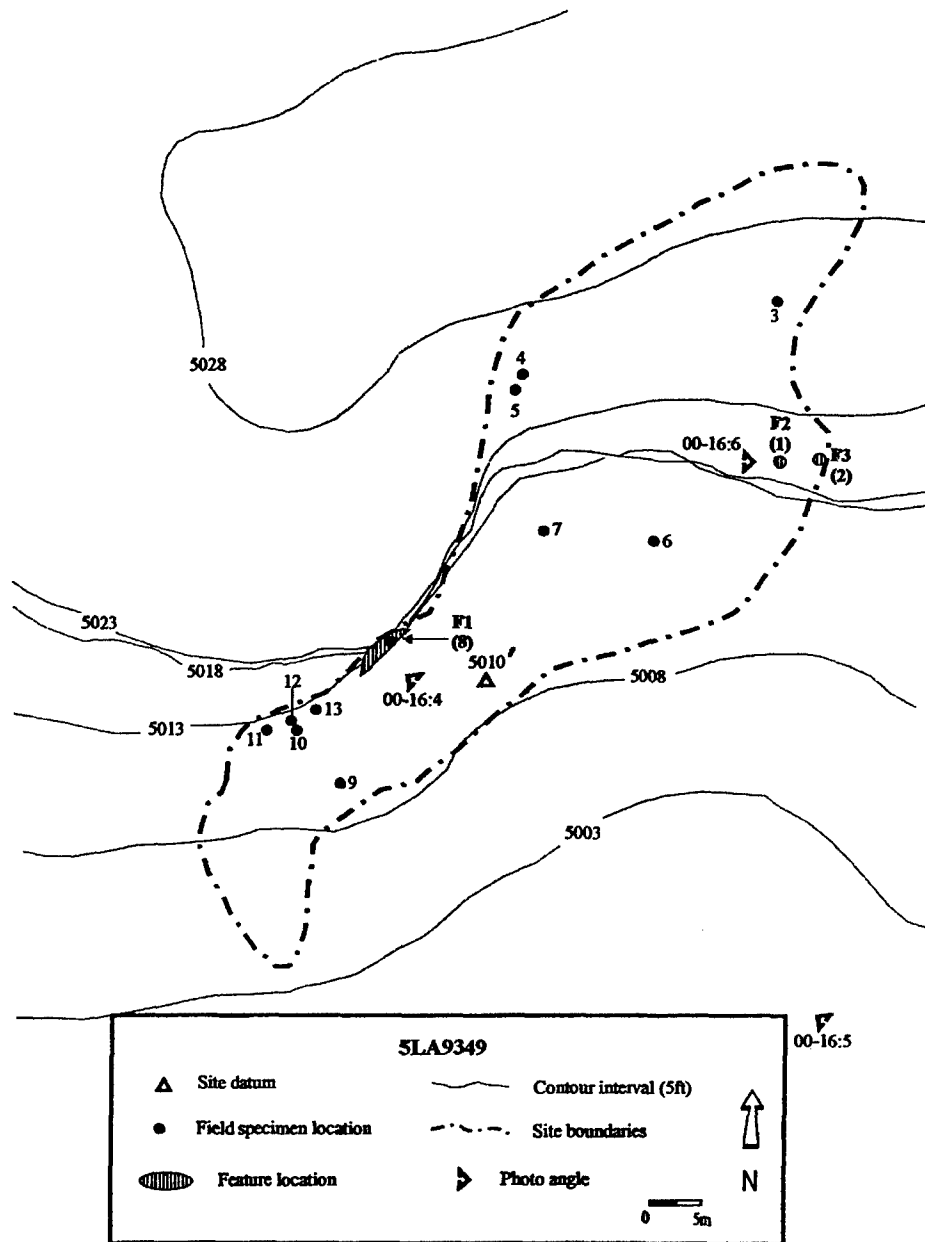


Figure 4.241: Site map, 5LA9349.

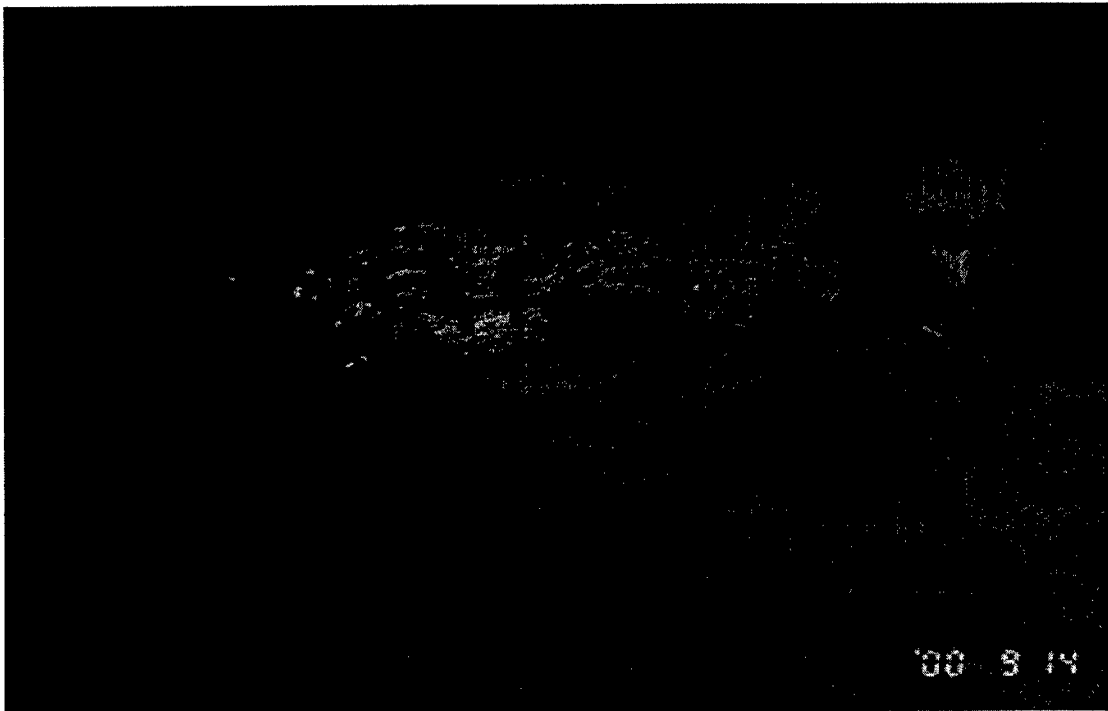


Figure 4.242: Site overview photo (PCMS 00-16:5) for site 5LA9349.

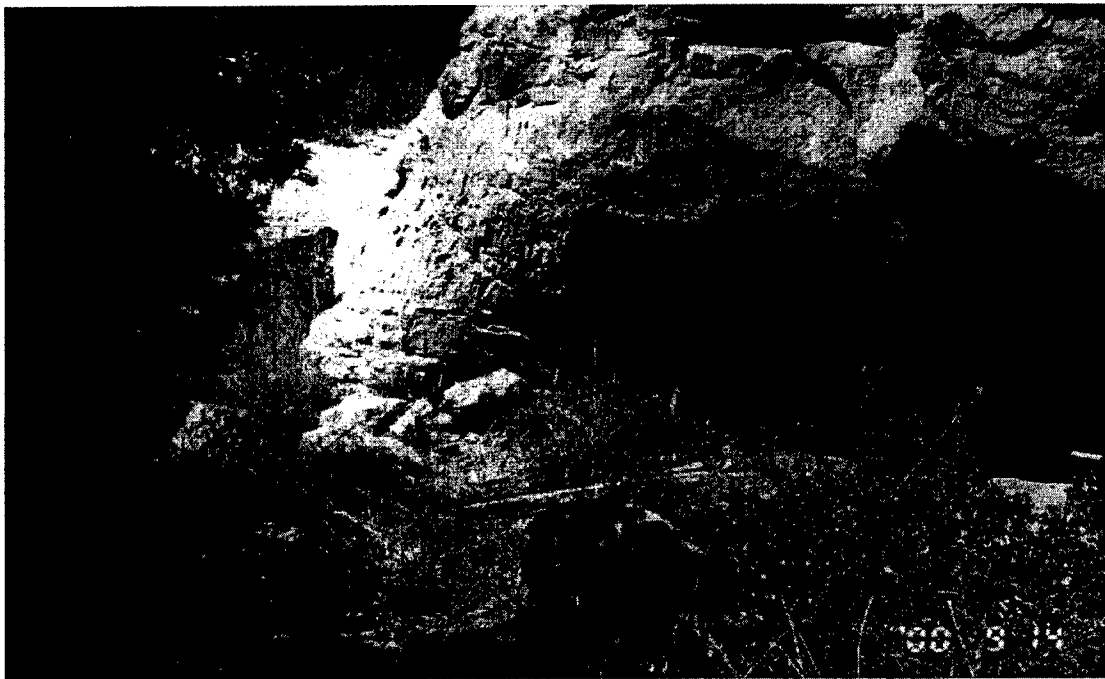


Figure 4.243: Feature 1, rockshelter with roof support boulders, 5LA9349.

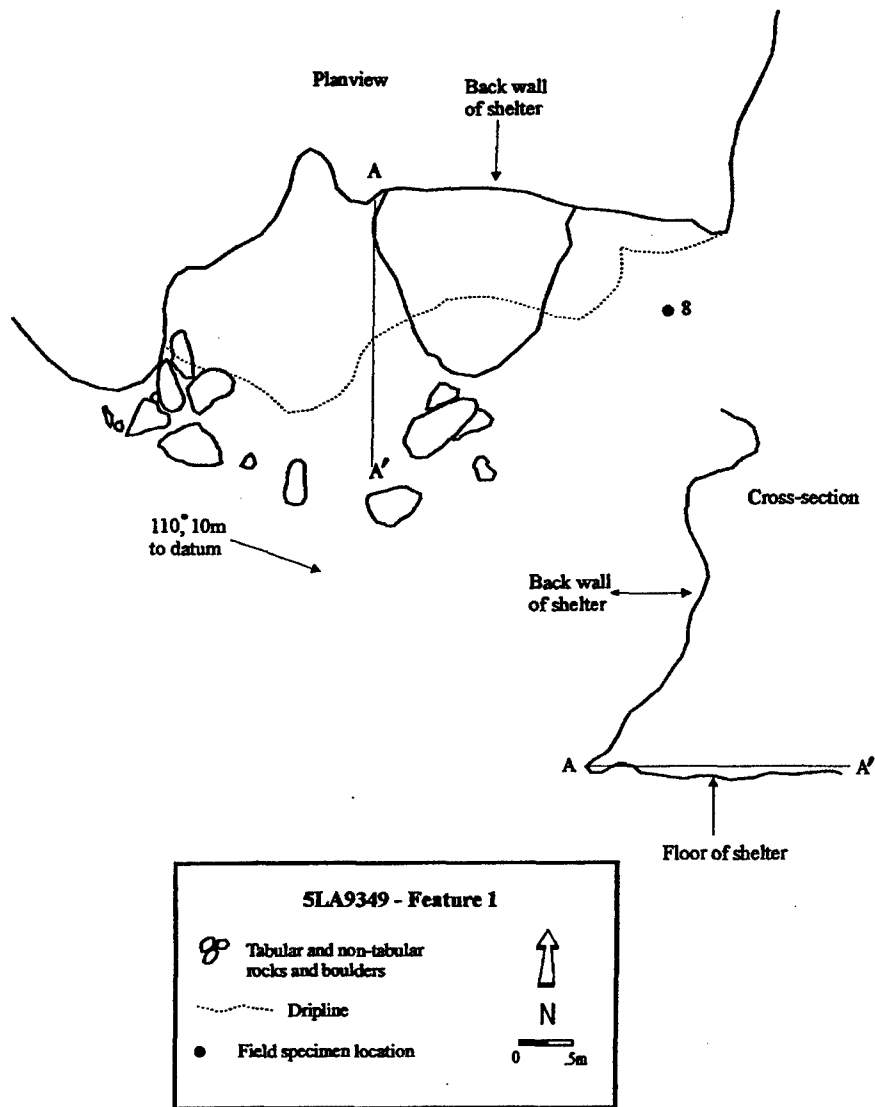


Figure 4.244: Planview and cross-section maps of Feature 1, a rockshelter, 5LA9349.

The chipped stone tool assemblage consists of a spokeshave, two projectile points and three non-bipolar cores. The spokeshave (FS 7) is made of fine-grained quartzite. It measures 54 mm by 67 mm by 11 mm and has two deep concave working edges. Cores (FS 5,10 and 13) are fine-grained quartzite.

One of the two temporally diagnostic (FS 8), a large argillite Archaic point, was found just outside Feature 1. It has been typed as P26 (1000 BC to AD 500) using Anderson's (1989:142) system. The other point (FS 9), a Late Prehistoric point, was classified P52 (AD 800 to AD 1350).

Ground-stone tools, other than the bedrock metate, include a complete one-hand mano (FS 3), two one-hand mano fragments (FS 6 and 12) and two slab metate fragments (FS 4 and 11). All ground stone material is sandstone.

Table 4.96: Summary Description of Chipped-Stone Debitage for 5LA9349.

	Chert	C. Quartzite	F. Quartzite	Orthoquartzite	Siltstone	Total
Total	18	2	125	5	1	151
Large	16	2	125	4	1	148
Small	2	0	0	1	0	3
Cortical	7	1	59	0	0	67
Noncortical	11	1	66	5	1	84
Complex	9	1	57	4	0	71
Shatter	5	0	17	0	0	22
Simple	4	1	51	1	1	58

Interpretation and Summary

5LA9349 is a lithic scatter and rockshelter site. Areas exhibit soil deposition of 30+ cm and may contain intact buried cultural deposits. Feature 1 appears to have sediment deposits up to 15+ cm. Test excavations have a good chance for locating data such as pollen, faunal, and macrobotanical remains useful for reconstructing subsistence and paleoenvironment. As such, the site is eligible for the National Register under Criterion D. Temporally diagnostic projectile points suggest occupation during at least two different time periods: 1000 BC to AD 500 and AD 800 to AD 1350.

The site management recommendation is avoid and test. We suggest that the site be revisited for more detailed mapping and additional surface collection. Areas where there is a potential for uncovering intact subsurface cultural deposits should be tested.

5LA9362

The site is a historic homestead/sheepherder's cabin, a very small historic trash scatter and a sparse, prehistoric lithic scatter (Figures 4.245, 4.246). No thermal features were noted. It

is located on a broad ridge that extends southward into Red Rock Canyon east of Red Rock Ranch. The site and its components extend over an area of approximately 1.9-acres. There is little topographic relief across the site area. This site is in the juniper/black grama (Shaw et al., 1989:28) plant community of the PCMS. Juniper, cholla, bunch grasses, and prickly pear were seen growing on the site surface. Soil deposition is 25 cm or greater over the entire site area.

Features

The historic component of the site is dominated by a small (16 X 19 ft), rectangular sandstone structure (Feature 1) 5 m at 38 degrees from datum (Figures 4.247, 4.248). Three to seven courses of rock remain of the original walls, with two to three being typical. No window glass or roofing material was found on site. The associated trash is comprised of a white enamelware teapot lid, one generic sanitary can (internal friction seal) and one solder-dot top tin can. Most of the trash is located to the east of the structure with a very sparse scatter of materials to the north. The structure is tentatively dated to the pre-1920s based, in part, on the presence of one solder-dot top tin can. Both 5LA6105 and 5LA9362 are located on land patented by Samuel Eudy in 1922.

Lithic Artifacts

Debitage consists of 59 simple flakes, 26 complex flakes, 5 pieces of shatter and 1 biface thinning flake. Of materials used, 71% are fine-grained quartzite, 16% coarse-grained quartzite, 9% chert, 2% orthoquartzite and 1% basalt (Table 4.98). More than half (56%) of the flakes were classified as large, but only 27% had cortex present. The debitage analysis suggests a predominance of quartzite core reduction.

The chipped stone tool assemblage consists of three cores, two bifaces and a utilized flake. One biface (FS 8) is made of chert and exhibits use wear. This biface was heat-treated and is broken. The other biface (FS 11) is fine-grained quartzite with use wear present. The utilized flake (FS 4) is coarse-grained quartzite with an edge angle >45 degrees and light use wear. Cores (FS 5,10 and 13) are all non-bipolar and all are fine-grained quartzite.

One temporally diagnostic projectile chert point preform (FS 19, Type P49) and an argillite projectile point mid-section (FS 3) were recovered. Anderson (1989) suggests a date range for P49 of AD 800 to AD 1750. The fragmented nature of FS 3 does not allow diagnostic typing.

Three pieces of ground stone were found (FS 6,7 and 9). All are slab metate fragments and made of sandstone.

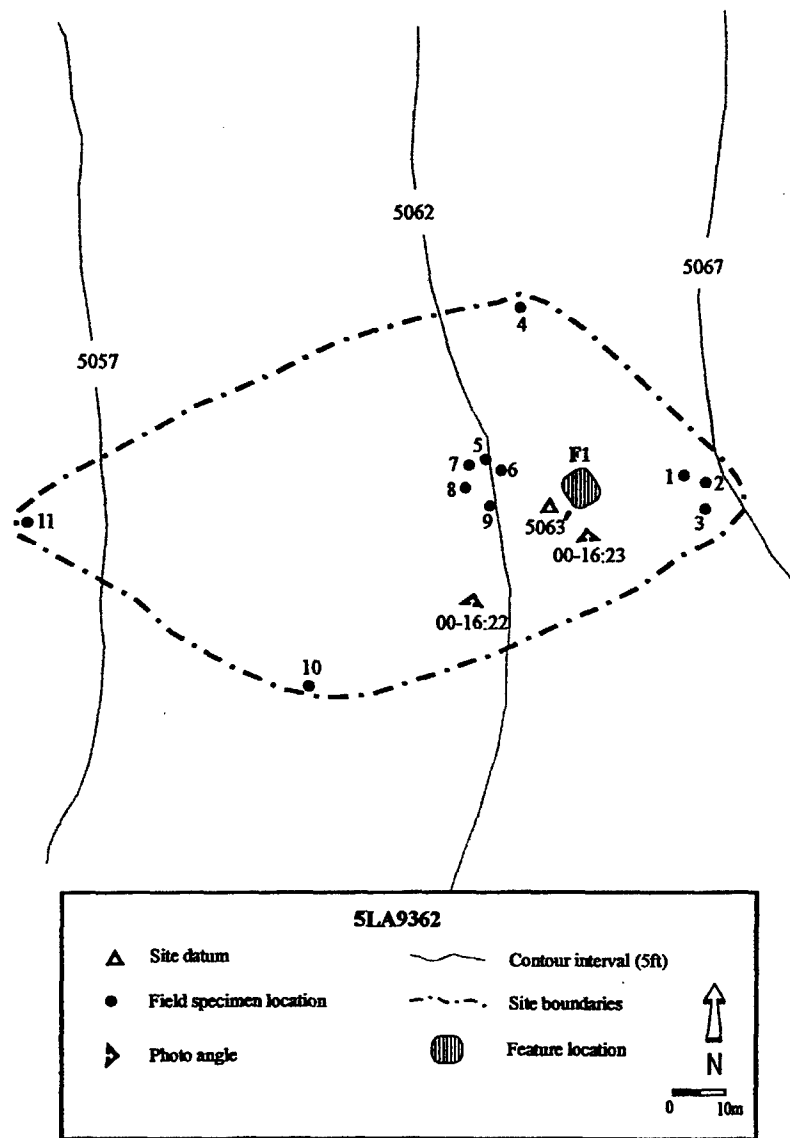


Figure 4.245: Site map, 5LA9362.

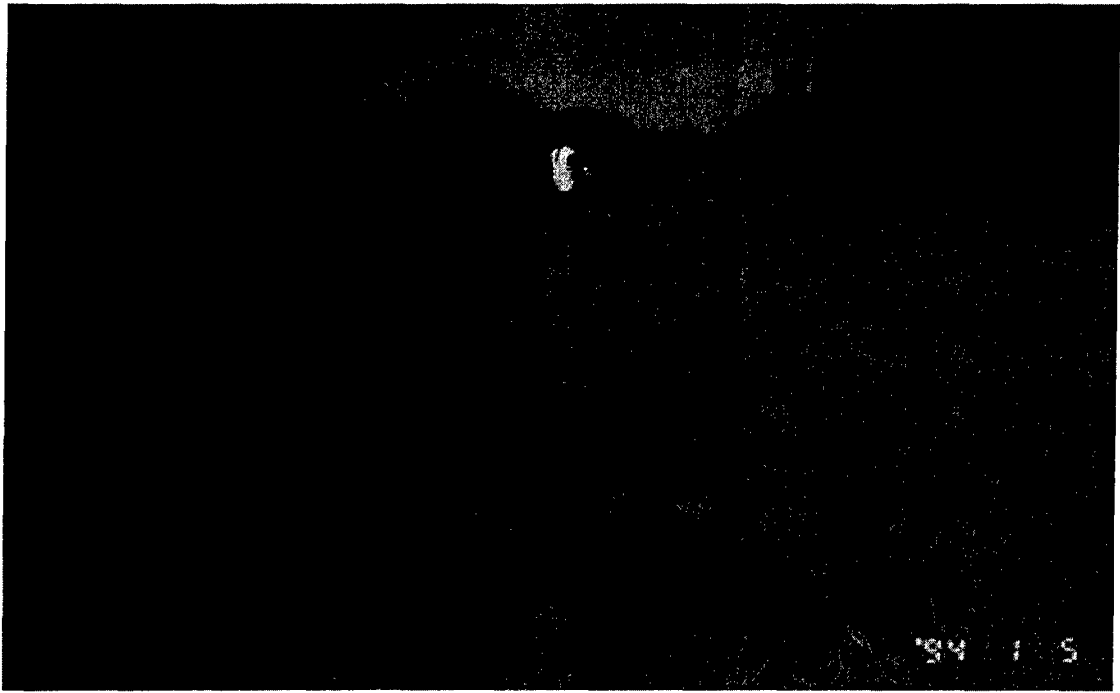


Figure 4.246: Site overview photograph (PCMS 00-16:22) with Feature 1 in background, 5LA9362.

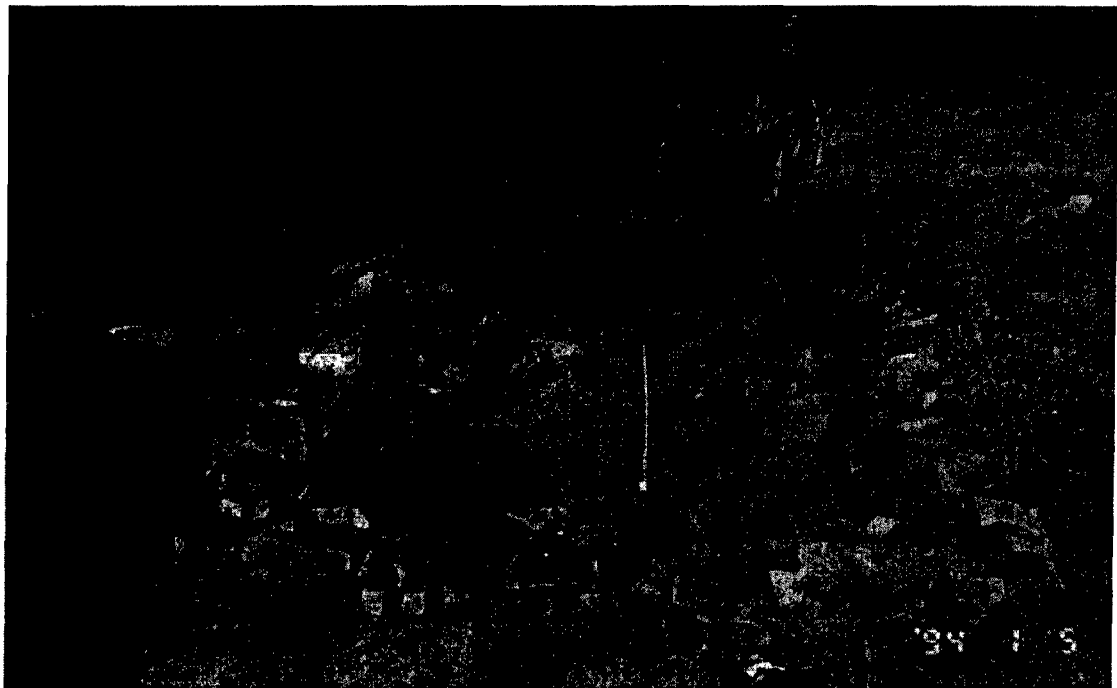


Figure 4.247: Photograph (PCMS 00-16:23) of Feature 1, 5LA9362.

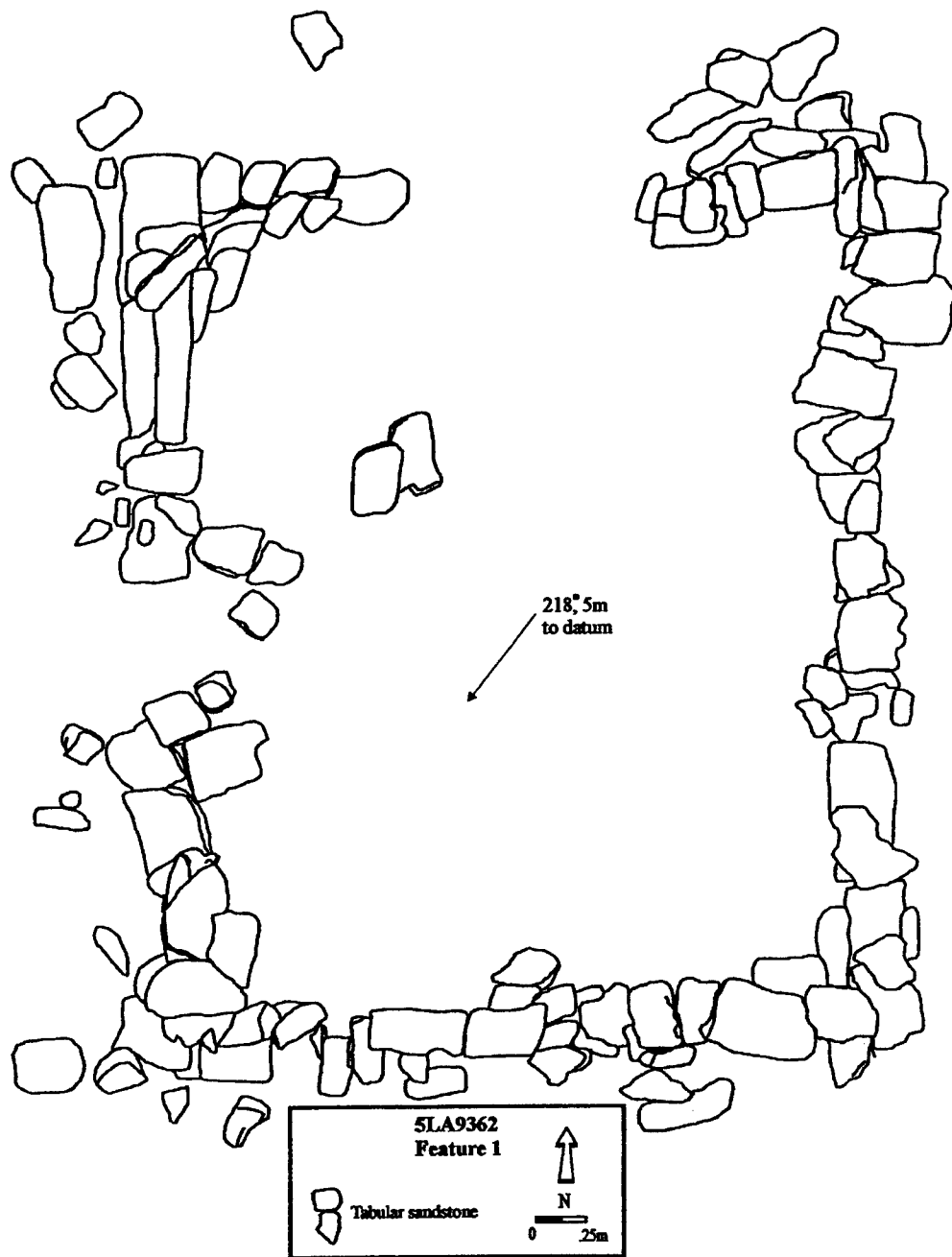


Figure 4.248: Planview of Feature 1, 5LA9362.

Table 4.98: Summary Description of Chipped-Stone Debitage for 5LA9362.

	Chert	C. Quartzite	F. Quartzite	Hornfels/Basalt	Orthoquartzite	Total
Total	8	15	65	1	2	91
Large	2	13	34	1	1	51
Small	6	2	31	0	1	40
Cortical	2	3	19	1	0	25
Noncortical	6	12	46	0	2	66
Complex	3	2	21	0	0	26
Shatter	1	0	4	0	0	5
Biface-thinning	0	0	1	0	0	1
Simple	4	13	39	1	2	59

Interpretation and Summary

Though this site has archaeological potential it is primarily significant based on its relationship to 5LA6105 and its distinct method of construction. On this basis, we judge the site to be eligible for the National Register and it needs to be preserved and protected from adverse impacts. Protection efforts should include fencing the site for its protection as its location on top of the flat ridge between Red Rocks and Welsh will allow easy vehicle access.

5LA9365

This site contains two rockshelters, a large thermal feature, a bedrock metate and a moderate lithic scatter (Figures 4.249, 4.250). It was located along caprock on a small east/west trending ridge in the upper drainage basin of a northern, large side canyon of Red Rock Canyon. The rockshelters face south and southeast. Chipped-stone debitage and tools are located on the terrace to the south of the rockshelters. The thermal feature is directly east and in front of the shelters. The site occupies approximately 2.14 acres and is in the juniper woodland vegetative community typical of the PCMS. Yucca, grama grasses, shunkbrush, cholla, juniper and needle and thread grass were seen growing on the site. The soil depth ranges from 0 cm at exposed bedrock to 35 cm and the base of rock outcroppings.

Features

The first rockshelter (Feature 1) is 12 m at 0 degrees from datum. (Figure 4.252). It is an overhang shelter with a remaining wing wall. It measures 4.2 m in length by 2.2 m in depth by 1.6 m high. This feature contains a packrat midden, but almost no soil deposition (< 10 cm). The wing wall is deflated. Some sooting is present of the ceiling.

A second rockshelter (Feature 2) is located 15 m at 45 degrees from datum (Figure 4.251). Its dimensions are 4m long by 4 m deep by 3.3 m high. Debitage was found within this feature and there is a dense scatter outside the shelter. Remnants of a wing wall were recorded in

this rockshelter, too. Soil depth in this feature ranges to 35 cm, with potential for buried deposits. Soot was noted on the ceiling of this shelter as well.

Feature 3 is a large (12m x 15m) area of thermally altered soil. It contains a large amount of ash, small fire-cracked sandstone, ground stone, chipped stone tools, and debitage (Figure 4.100). A bone was also noted in the fill. A large animal burrow gives evidence of at least 30 cm of soil deposition in this feature. It is unknown whether this is a large roasting pit or several hearths that have intermixed at the surface. The datum is centered in this feature.

The bedrock metate (Feature 4) is a large, rectangular sandstone block with a 28 cm by 25 cm milling surface. The milling surface is designated FS 5.

Lithic Artifacts

Table 4.99 presents a summary of the chipped-stone debitage recorded at the site. Two hundred and twenty one specimens were recorded. Of the total debitage, 65% is coarse-grained quartzite, 24% is fine-grained quartzite and 11% is chert. All materials are locally available. There are 47% simple flakes, 38% complex flakes, 13% shatter and 2% biface-thinning flakes. Of these flakes, 53% were cortical and 76% were classified as large. Based on the debitage, raw material reduction was one of the activities at this site. Biface manufacture also occurred in small amounts.

The chipped stone tool assemblage consists of three bifaces, ten non-bipolar cores and a uniface. The chert biface (FS 12) is broken, unfinished and unused. The second biface (FS 18) is fine-grained quartzite, nearly finished in manufacture and exhibits heavy use wear on both edges (cutting activity). A third biface (FS 19) is orthoquartzite, broken, unfinished and unused. A unifacial tool (FS 17) is made of fine-grained quartzite, has edge angles > 45 degrees and shows light use wear on one face. There are 9 coarse-grained quartzite cores and 1 fine-grained quartzite.

Two small (<50%) one-hand mano fragments, two large (>50%) slab metate fragments, and the bedrock metate were recorded as the ground-stone assemblage. All of the artifacts are sandstone. The manos (FS 13 and 15) were recovered from Feature 3. The metate fragments (FS 6 and 9) were randomly distributed across the site.

Table 4.99: Summary Description of Chipped-Stone Debitage for 5LA9365.

	Chert	C. Quartzite	F. Quartzite	Total
Total	25	142	54	221
Large	11	124	34	169
Small	14	18	20	52
Cortical	8	86	22	116
Noncortical	17	56	32	105
Complex	16	56	12	84
Shatter	2	14	12	28
Biface-thinning	3	0	2	5
Simple	4	72	28	104

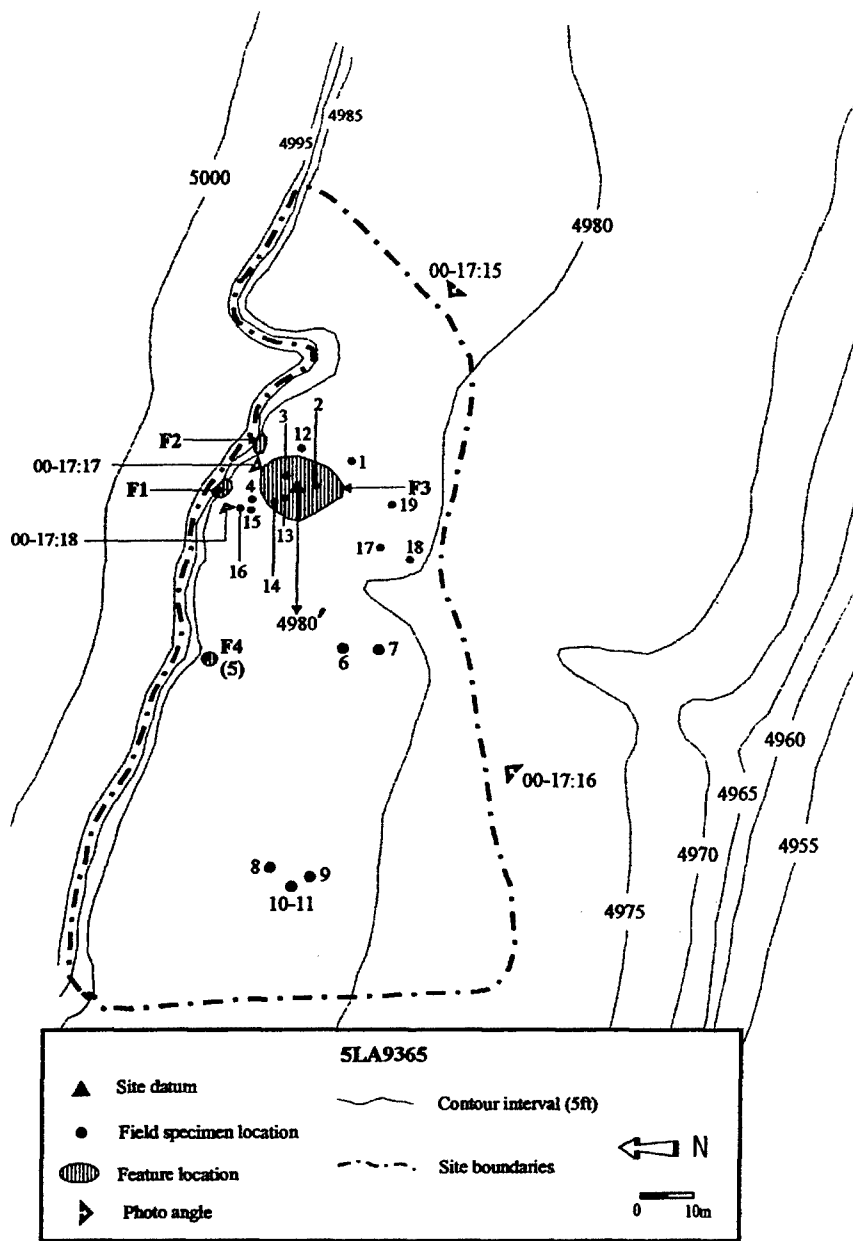


Figure 4.249: Site map, 5LA9365.



Figure 4.250: Site overview photograph (PCMS 00-17:15) with Features 1 and 2 in background, 5LA9365.



Figure 4.251: Photograph (PCMS 00-17:18) of Feature 2, a rockshelter, 5LA9365.

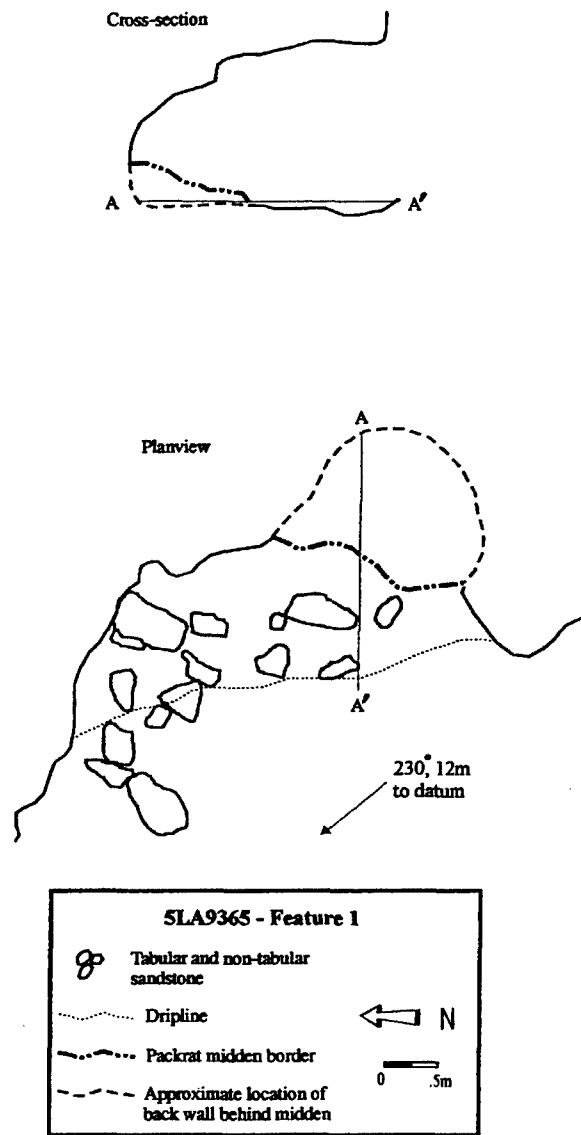


Figure 4.252: Planview and cross-section maps of Feature 1, rockshelter, 5LA9365.

Table 4.100: Summary Description of Chipped-Stone Debitage from Feature 3, 5LA9365.

	Chert	C. Quartzite	F. Quartzite	Total
Total	6	18	6	30
Large	4	16	4	24
Small	2	2	2	6
Cortical	2	8	2	12
Noncortical	4	10	4	18
Complex	3	8	0	11
Shatter	1	3	1	5
Biface-thinning	1	0	1	2
Simple	1	7	4	12

Interpretation and Summary

We recommend that this site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). The rockshelters may be useful for addressing questions concerning settlement patterns. Soil depths to 35 cm suggest there is good potential for the presence of buried deposits in Feature 2 and 3. The presence of ground stone and the large thermal feature indicates the likelihood that pollen, faunal, and macrobotanical remains useful in reconstructing subsistence and paleoenvironment could be recovered through the excavation of test units.

The site is not in imminent danger from military maneuvers or erosion. We suggest that the site be revisited every five years. If the rockshelters (Features 1 and 2) or the thermal area (Feature 3) show evidence of erosion the site should be excavated.

5LA9370

This site is a large lithic and artifact scatter with four habitation structures (Figure 4.253). It is situated on a ridge that extends north into Red Rock Canyon proper, and is bordered on the west by a small side drainage canyon and on the east by a major side canyon of Red Rock Canyon. The terrain slopes to the northwest and there are many sandstone outcroppings forming small terraces in the northern half of the site. The elevation at the datum is 1532 m (5025 ft).

The vegetal community is mixed juniper woodland and grassland. Cholla, yucca, prickly pear, mountain mahogany, skunkbrush, and grama grasses were the most common plant species observed. There are also piñon pines present. 5LA9370 has an unnamed spring at its west edge, which would have provided water for the human residents, and attracted various game species to the area for exploitation. The spring would also provide a habitat for utilized riparian plants, such as cattails and rushes.

Soil depths vary across the site with large areas of exposed bedrock at the canyon edge. The south and west boundaries exhibit as much as 20 cm of soil. There are secondary pockets of soil below the bedrock terraces, and these may be covering prehistoric occupation surfaces.

Features

A total of four features were encountered: Feature 1 is a rock shelter and Features 2 through 4 are circular stone alignments. Feature 1 (7.2 x 2.7 x 2.4 m) is located 40 m north of the spring. It possesses >20 cm of fill, and has good potential for testing. It also contained a utilized flake and a cached mano. Although this shelter is in the drainage, it appears to be protected from flash flooding. There is a packrat midden in the northeast corner of the shelter, but is otherwise undisturbed.

Feature 2 is a circular stone structure that has about 10 cm of deposition. However, numerous flakes were observed in and around it, and it would be testable. It was constructed of a single course of upright sandstone slabs, but these have collapsed inward. The area measures roughly 5 m in diameter. This feature is subject to sheetwash erosion and should be tested before all data is lost. It is most similar to Kalasz's (1989: 103) Class V, contiguous rock walls, isolated unit (Category 17). Dates of 930 ± 225 BP and 630 ± 50 BP were assigned to this class.

Features 3 and 4 are both spaced stone structures. Feature 3 is on the upper terrace shelf near the canyon. It measures 5.5 x 5 m and is constructed of a single course of unmodified sandstone blocks. This feature is at the base of a low rise, and is subject to heavy water erosion. Very little deposition remains and the chance of encountering buried cultural deposits is slim.

Feature 4 is set in an area containing several large sandstone boulders and measures 5.8 x 4.7 m. It is a single course on unmodified sandstone blocks and appears to rectangularly shaped in planview. At least one of the wall blocks and many of the smaller rocks in the area exhibit spalling from heat exposure. Wind and water erosion are slowly destroying this feature and the southwest section is no longer present. There is only 10 cm of soil deposition, but an intact occupation surface may still remain below the modern ground surface. Features 3 and 4 are free standing, fully enclosed, isolated units with spaced rock walls (Kalasz 1989:109). Dates associated with this type of structure are AD 1350 and AD 780. The setting and construction elements of these two structures are curious. Neither looks like a classic "Apishapa phase" structure, nor do they look like tipi rings. Feature 3 may have been very similar in style to Feature 2 at one time, but some of its wall stones have been robbed for use elsewhere.

In addition to these features, there is an area that appears to have been a midden or roasting pit. It is near the artifact concentration (see site map), however it is too deflated to be called a feature as it has eroded to the modern ground surface.

Lithic Artifacts

5LA9370 dates to the Late Prehistoric stage based on structure type and this is loosely supported by the single diagnostic projectile point that was recorded from the site's surface (FS 52). It is chert, and is classified as a P83 (Anderson 1989). This type of point has a wide temporal range (AD 750 and AD 1650) and may not be contemporaneous with any of the structures. An analysis of the debitage, stone tools and ground stone by type and material follows (Tables 4.101 and 4.102). Material types for the artifact assemblage on 5LA9370 consisted of argillite, basalt, chert, baked clay, siltstone, silicified wood, sandstone, and fine- and coarse-grained quartzite, and orthoquartzite.

A 151 piece sample of debitage was analyzed at random from across the surface of the site. Coarse-grained quartzite was the primary material encountered (34%), with chert a close second (33%). A large number (33%) of the flakes were large, non-cortical and complex, suggesting secondary core reduction or early-stage biface manufacture was the dominant reduction strategy on site. Some small, simple and complex, non-cortical flakes were also noted. Based on this and the high number of biface tools on site, it is likely that later-stage biface manufacture also occurred here. As evidenced by the large number of cores and utilized flakes in the assemblage, flakes were produced here for expedient use and cores were likely being prepared for transportation to a different area.

There were 36 flaked-lithic tools, which fall into the following classes: biface (15), core (11), projectile point (1), and utilized flake (9). The chipped-stone tools were made of most of the same material types as the debitage (Table 4.102). Most tools were quartzite (coarse-grained - 3, and fine-grained - 14) and chert (12). Four of the tools were argillite, two were orthoquartzite, and one was silicified wood.

The cores were analyzed in the field and not collected. Thus, only material data was recorded. Three of these were fine-grained quartzite, three were coarse-grained quartzite, three were chert, and there were single items of silicified wood and orthoquartzite.

Of the bifaces, nine are fine-grained quartzite, three are argillite, two are chert, and one is orthoquartzite. Eight are broken and seven are complete; twelve were classified as unfinished and three are nearly finished bifaces. Only four show evidence for use. Field Specimens 42, 47, and 49 have at least one utilized cutting edge and FS 43 has a distinct scraping edge.

The remaining tools are utilized flakes. These are chert (6), fine-grained quartzite (2), and argillite (1). Six are broken and three were complete. Based on edge angle measurements, eight were used for scraping and one is a flake knife. The argillite flake tool (FS 13) is highly patinated suggesting that the site may have had a much earlier component than that shown by the surface structures and projectile point.

The ground-stone tool assemblage contains eleven items-- five complete one-hand manos, five slab metate fragments, and one broken mano. There was also a complete slab metate.

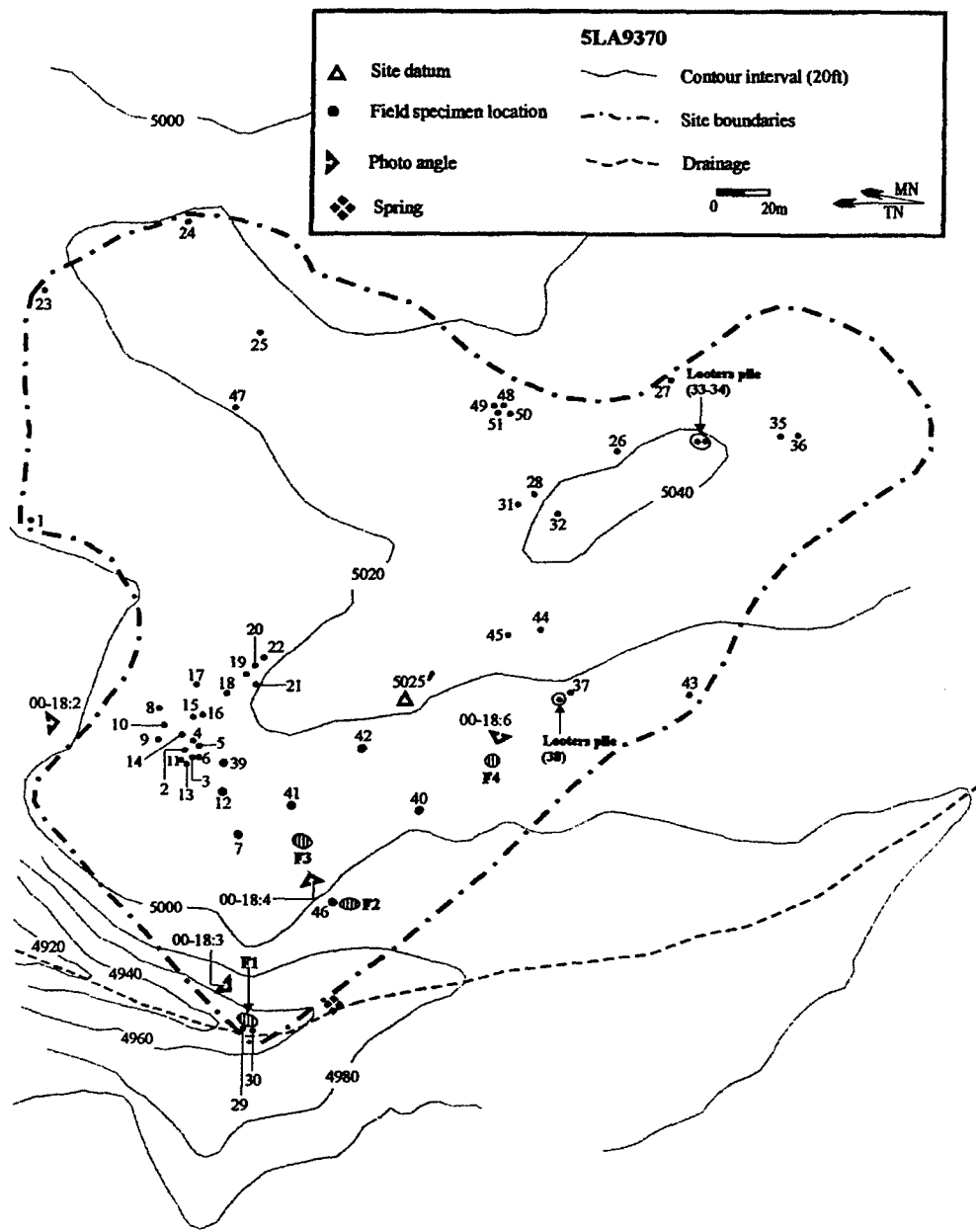


Figure 4.253: Site map, 5LA9370.

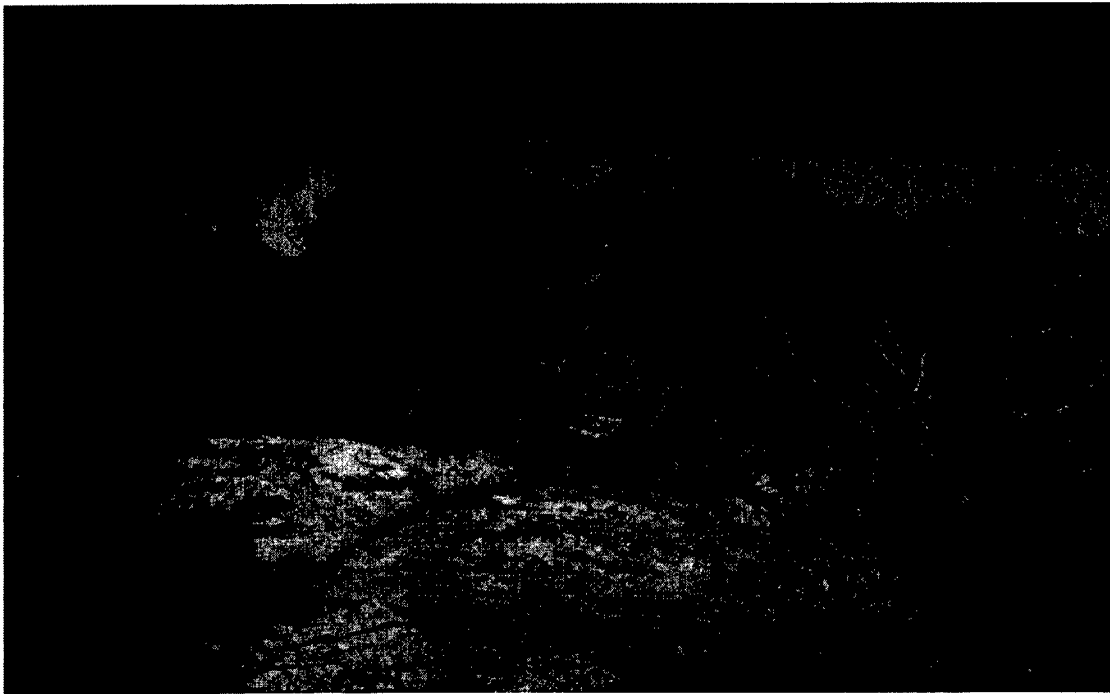


Figure 4.254: Site overview photograph (PCMS 00-18:2), 5LA9370.



Figure 4.255: Photograph (PCMS 00-18:3) of Feature 1, rockshelter, 5LA9370.

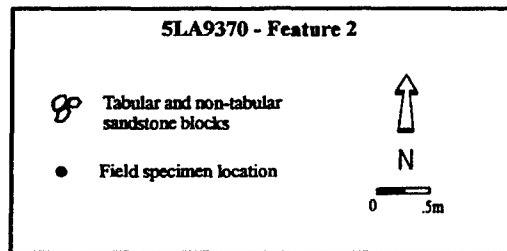
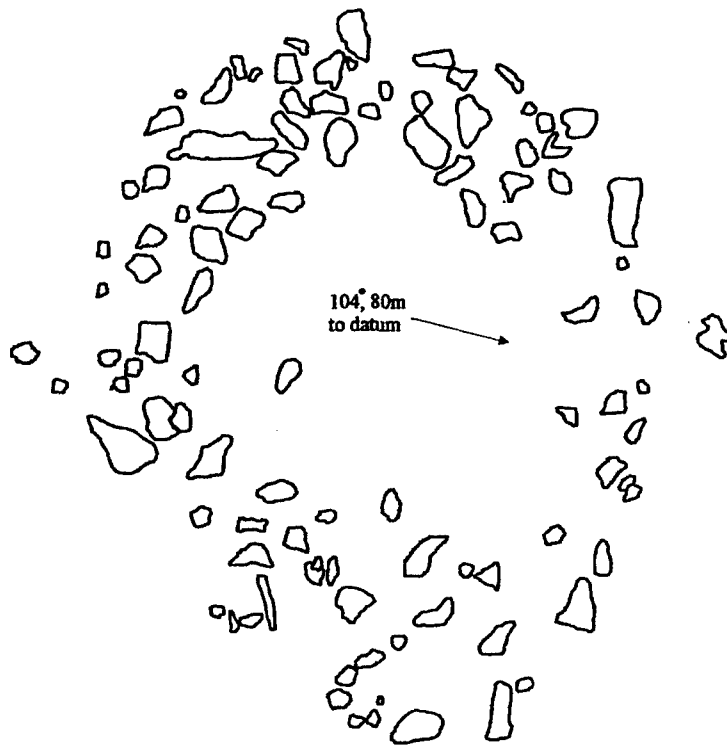


Figure 4.256: Planview map of Feature 2, 5LA9370.

There is a concentration of tools on the upper terrace of the site and above the spring. It is 83 m northeast of the site datum and contains both chipped- and ground-stone tools in an area measuring roughly 60 x 30 m. There are also several debitage items mixed with these tools. Five pieces of the ground-stone (FS 8, 10, 18, 22, and 12), three bifaces (FS 7, 11, and 20), and nearly all of the utilized flakes (FS 2, 5, 6, 9, 13, 15, and 21) were encountered here. This is the area of the site where the deflated midden/roasting pit was encountered and it seems that artifacts from this concentration were used to process whatever was being roasted here. Though little of the thermal feature remains, test excavations here could produce data to help determine what food items were being processed at 5LA9370.

Table 4.101: Summary Description of Chipped-Stone Debitage for 5LA9370.

	Argillite	Chert	C. Quartzite	F. Quartzite	Hornfels/Basalt	Kaolinite	Ortho.	Siltstone	Total
Total	4	50	52	28	9	2	2	4	151
Large	4	45	52	25	9	1	2	4	142
Small	0	5	0	3	0	1	0	0	9
Cortical	2	8	16	12	1	2	0	2	43
Noncortical	2	42	36	16	8	0	2	2	108
Complex	1	26	20	15	4	0	2	1	69
Shatter	0	4	5	0	0	0	0	0	9
Biface-Thinning	0	1	0	0	0	0	0	0	1
Simple	3	19	27	13	5	2	0	3	72

Table 4.102: Stone Tool Type by Material Group for 5LA9370.

Material	Type						Total
	Biface	Core	Projectile	Flake	Tool	Mano	
Argillite	3	0	0	1	0	0	4
Chert	2	3	1	6	0	0	12
Coarse-grained Quartzite	0	3	0	0	2	0	5
Fine-grained Quartzite	9	3	0	2	0	0	14
Sandstone	0	0	0	0	4	5	9
Orthoquartzite	1	1	0	0	0	0	2
Silicified Wood	0	1	0	0	0	0	1
Total	15	11	1	9	6	5	47

Interpretation and Summary

The site contains a spring, a large and varied lithic assemblage, habitation structures, and a deflated thermal feature. 5LA9370 is a lithic procurement location (quartzite and chert can be found in the canyon at the western edge of the site) and was likely a long-term habitation site that was occupied multiple times throughout prehistory. The structures and projectile point suggest one or more occupations in the Late Prehistoric stage, and a highly patinated utilized flake suggests an even older occupation. Data recovered from test excavations in the area of the

deflated midden/roasting pit, and from Features 1, 2 and 4 could add greatly to the understanding of subsistence, chronology, environment, and settlement of the PCMS during prehistory. This potential makes the site eligible for the National Register of Historic Places. When this site was recorded several looters piles were noted. The lack of diagnostics and finished artifacts in the assemblage might be attributed to this activity.

Our management recommendation is to avoid and test 5LA9370. Feature 1 should be tested to determine depth of cultural deposits and Features 2 through 4 should be tested before natural erosion erases all evidence for prehistoric occupation. The area of the midden and artifact concentration should be tested to determine if there is any subsurface integrity.

5LA9371

Site 5LA9371 is a habitation site with two structures (Features 1 and 2), a fire-cracked rock concentration (Feature 3), and a dense lithic area (Feature 4) (Figures 4.257, 4.260). This site is on an open, grassy finger ridge that juts out into Red Rock Canyon. This ridge is flanked on both the east and west by smaller tributary canyons of Red Rock proper. Overall the ridge is flat, however there is a low knoll on its north side. This site may be associated with 5LA9372 (a structure site with an extensive lithic scatter) located 120 m to the southeast. There is a good view into Red Rock Canyon and the side canyons from the site area. From the knoll, one can view the rims of several branches of the Red Rocks system. The site's location seems to suggest placement here for communications reasons as it has line of sight views to other structure sites in the area. This location may also be defensive in nature as the canyon walls here are too steep for pedestrian traffic. The site datum was placed near the upper level of the knoll at approximately 1,535 m (5,035 ft) asl. The Feature 3 lithic concentration is about 4 m below the datum.

The site is located in a juniper woodland plant community along the top of the ridge. Plants include sagebrush, blue grama, soapweed, sand dropseed, and prickly pear. The soils were formed by erosion and at the top of the ridge, rotten pieces of sandstone bedrock are exposed. The only soil deposition on site occurs with the structures.

Features

Feature 1 is a small, irregularly shaped structure located on top on the knoll (Figure 4.258, 4.261). It was constructed of non-tabular sandstone blocks that were stacked in and around several large sandstone boulders, and seems to have been circular in planview. Erosion has taken a heavy toll on this feature and the construction technique cannot be determined. In other words, we cannot determine whether the wall blocks were stacked horizontally or were placed in upright orientation. There is some soil deposition in this feature (5 to 10 cm) and testing here might help to determine its exact function. At this stage, it cannot be determined whether this structure was used simply for habitation or was some kind of defensive or communication location. It measures 7.3 x 6.5 m, but its height of wall is unknown. This structure is so deflated that it can't be placed into any of Kalasz's (1989) architectural categories. Located within 12 m of a cliff (Kalasz 1989:91), it can be called a cliff edge placement, however.

Feature 2 is a very well preserved circular slab structure (Figure 4.259, 4.262). It was found along the southern edge of the knoll on the flat modern ground surface. This structure measures roughly 7 m in diameter and was constructed of both tabular and non-tabular sandstone blocks. Some of these still remain upright. Several areas of the wall have collapsed inward and have capped the soils (greater than 20 cm). Test units here could expose a prehistoric ground surface, and possibly thermal features and time diagnostic artifacts. According to Kalasz (1989:102), this type of structure is a contiguous rock wall, isolated unit. A date range of AD 270 to AD 1360 has been assigned to structures of this class.

Feature 3 is an extremely dense concentration of chipped-stone tools, flakes, and "exotics", like burned and worked bone, clear quartz crystals, small bead-like white quartz pebbles, cube-like worked baked clay pieces, pipe fragments, and chunks of burned obsidian. Non-local cherts and quartzites were also found here. All of the 133 collected filed specimens came from this area (10.5 x 10 m). Feature 3 has been deflated to the modern ground surface, and most of the artifacts were found right on top of bedrock. There are some areas where there is deposition, but this is very shallow (< 5 cm). Artifacts recorded from this feature will be discussed below. There are no architectural remains here, however, based on the very high incidence of burning on the artifacts, there could have been a brush or wood structure that burned to the ground.

Feature 4 is a deflated hearth on a low outcrop of bedrock sandstone (Figure 4.263). No soils remain, and only a 2 x 1.5 m pile of fire-cracked sandstone was observed.

Lithic Artifacts

A total of 174 pieces of lithic debitage were recorded from the site (Table 4.103). Of these, 141 items were from Feature 3, one is from Feature 2, and 32 items were encountered from general site context. Most items were quartzite (47%) and chert (32%). Also encountered, but found in smaller amounts were orthoquartzite (9%), quartz (7%), and obsidian. There are several exotic materials here but only the obsidian could be identified as to source. It is from the Cerro del Medio source of the Valles' Caldera of New Mexico (Appendix I).

Of the general surface debitage, eight were coarse-grained quartzite, eight were quartz, seven were obsidian, six were fine-grained quartzite, two were chert, and one was orthoquartzite. These were classified as shatter (47%), simple flakes (28%), and complex flakes (25%). Most of these were large in size (25, 78%); however, only four (12%) items had dorsal cortex.

In the Feature 3 assemblage, 38% was chert, 29% was fine-grained quartzite, 18% was coarse-grained quartzite, 11% orthoquartzite, 3% quartz, and 2% was obsidian. A breakdown of the classifications include 70 complex flakes, 38 simple flakes, 31 pieces of shatter, a single biface-thinning flake, and a core-rejuvenation flake. Like the general surface assemblage, most items were large (123, 87%) and noncortical (118, 84%) (Table 4.104).

Freehand percussion was the most frequent technique in generating the debitage. Most, but not all, of the materials found at 5LA9371 could be easily obtained in both Red Rock Canyon and the two large side canyons. Based on the lack of cortex, these materials were initially reduced at the outcrop and then carried to the site as noncortical cobbles, cores, or flake blanks. Once here these materials were used to produce usable flakes or were thinned to produce early-stage bifaces. There was only one biface-thinning flake encountered and there were only eight small complex flakes, so late-stage bifaces and/or finished tools were not manufactured here.

The flaked tool assemblage consisted of 82 artifacts (Table 4.105). Of these, 37 were bifaces, 17 were scrapers, 12 were projectile points, 11 were flake tools, three were cores, and there were two drills. The majority were chert (44%), and fine-grained quartzite (35%), with fewer items of orthoquartzite (10%), obsidian (9%), coarse-grained quartzite (1%), and silicified wood (1%). Of the cores, two of these were obsidian, and one was coarse-grained quartzite. This low number is interesting because the debitage assemblage indicates large amounts of core reduction occurred using locally available material. It seems that cores were used to produce flakes on site, but then these cores were transported off site to be used elsewhere. Both of the obsidian cores were exhausted, and demonstrate that the inhabitants of this site curated cores and transported them for long distances.

Of the bifaces, 21 were fine-grained quartzite, 10 were chert, 5 were orthoquartzite, and one was obsidian. Not counting the obsidian, all other materials can be found in the canyons below the site. Thirty-five are broken and two are complete. Among the broken pieces, 20 were broken during manufacture and 13 shattered because of heat exposure. Twenty-two bifaces were unfinished, fourteen were nearly finished, and one was a finished biface. Only nine of the bifaces exhibited use wear; eight had at least one cutting edge and one exhibited a distinct scraping edge. Three items have thick patination suggesting significant age.

Six temporally diagnostic projectile points were recovered from the surface of this site. Of these, five are very similar in size and morphology and were assigned to Anderson's (1989:142) P26 type. Anderson suggests this style began around 1000 BC and continued until AD 500. The other point was classified as a P19. Anderson (1989:134) suggests an age range of 2000 BC to AD 1000 for this type. Based on these artifacts, the site had at least one occupation between the Middle Archaic and Developmental periods. Because there are several highly patinated artifacts from the surface, we suggest that an early date might apply to some part of the assemblage. Of note, all of the projectile points were found in the Feature 3 concentration and were not found in direct association with the structures.

The scraper assemblage contains eight end/side scrapers, six side scrapers, and three end scrapers. The vast majority of these are unspecified chert (13) with isolated items of fine-grained quartzite, orthoquartzite, silicified wood, and Ralston Creek chert. Ralston Creek chert outcrops in thin beds in the sidewalls of Red Rock Canyon. The most accessible outcrop, however, is 3 km to the northwest. Fifteen of the scrapers are broken and two are complete. All were recovered at the surface in Feature 3.

A variety of materials were noted in the flake tool assemblage-- six specimens were chert, three were obsidian, one was fine-grained quartzite, and one was orthoquartzite. Nine of these are broken. When the edge angle was analyzed it was determined that ten items were used for scraping and one for cutting.

The remaining two chipped-stone tools are a drill, and a perforator. Both were found in Feature 3.

Several unusual items were encountered in the Feature 3 assemblage: pieces of calcined bone, quartz crystals, pipe fragments, small quartz pebbles, a pendant fragment of obsidian, a claystone jewelry blank, and what appears to be a bone bead. There were also several "cube-shaped" pieces of baked clay and these ranged in size from 0.5 to 2 cm. Representative samples of the baked clay pieces and the white river pebbles were collected for future analysis, but of yet, additional analysis has not been done. These items may represent jewelry items, or gaming pieces. Of great interest was the recovery of the pipe fragments. These seem to be made of locally available baked clay. There are several areas on the north side of Red Rock Canyon and the south side of Welsh canyon where this material outcrops. We have seen worked pieces of this material before on sites of the PCMS but could not determine their function. 5LA9371 shows that it was quarried for the manufacture of pipes/cloud blowers and some jewelry items. These pipe fragments (FS 6, 8, 12, 15, 63, 81, 89, 114, and 127) were recovered from several areas of Feature 3, and may represent more than one pipe. In addition, four pieces of worked bone were encountered (FS 5, 57, 99, and 118). Fourteen specimens of burned, calcium carbonate covered bone were also found.

The small quartz pebbles are milky quartz. Fourteen of these were collected, though there are many more scattered at the surface of Feature 3. All are small (1 or 2 cm in diameter) and have microscopic ring fractures across their surfaces. The function for these is unknown; however, we suspect that they were used as part of a rattle, or may have been used to clean pipes or cloud blowers.

Table 4.103: Summary Description of Chipped-Stone Debitage for 5LA9371.

	Chert	C. Quartzite	F. Quartzite	Obsidian	Orthoquartzite	Quartz	Total
Total	55	34	47	10	16	12	174
Large	46	33	46	6	13	5	149
Small	9	1	1	4	3	7	25
Cortical	8	9	9	0	1	1	28
Noncortical	47	25	38	10	15	11	146
Complex	30	10	24	1	12	2	79
Shatter	10	10	7	6	3	10	46
Core-Rejuvenation	1	0	0	0	0	0	1
Biface-thinning	0	0	0	1	0	0	1
Simple	14	14	16	2	1	0	47

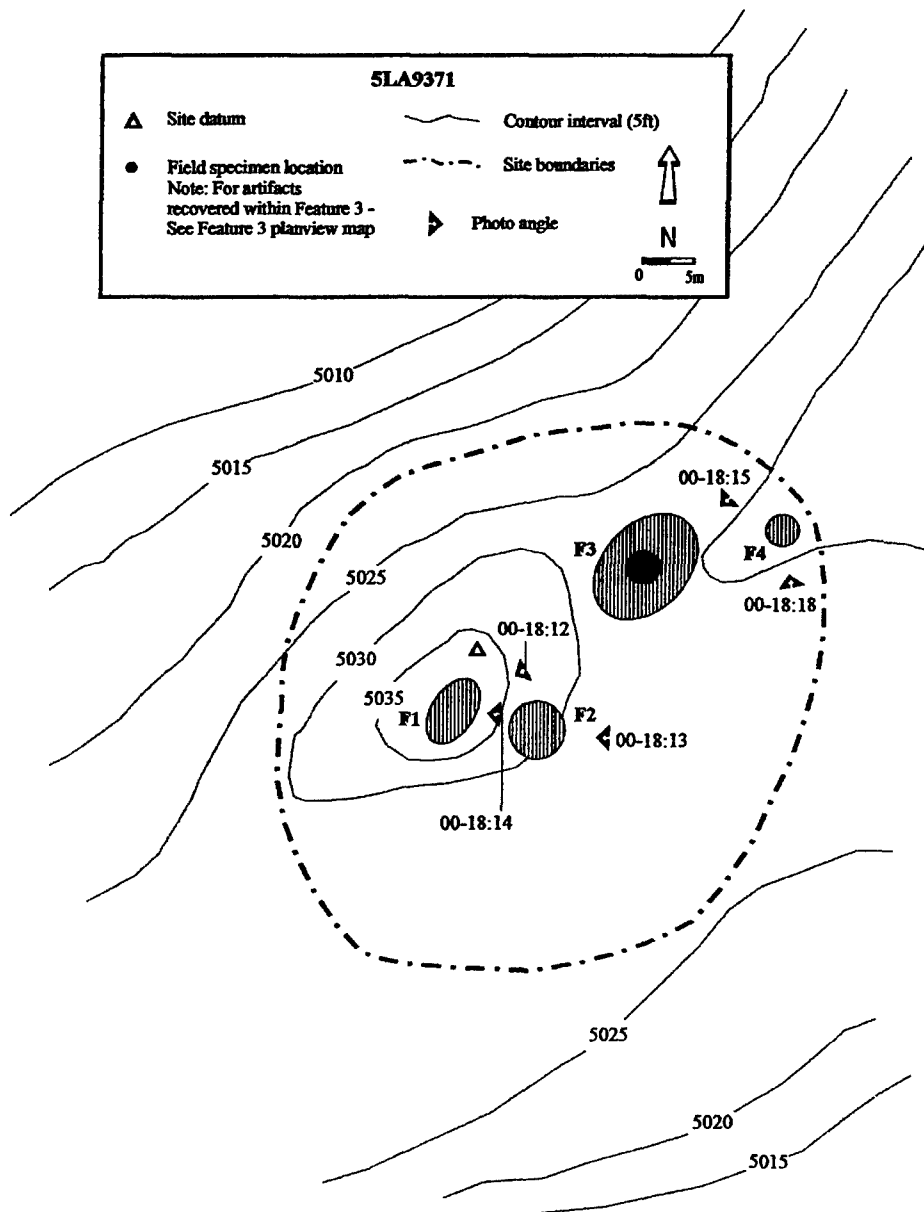


Figure 4.257: Site map, 5LA9371.

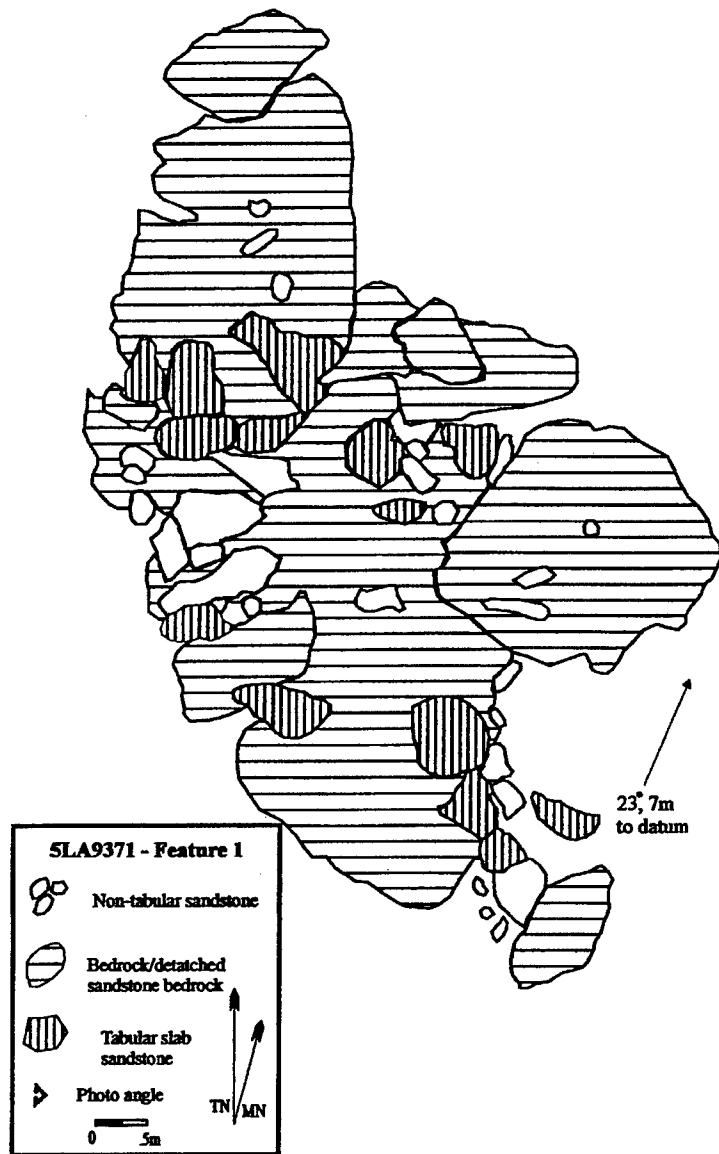


Figure 4.258: Planview map of Feature 1, contiguous wall structure, 5LA9371.

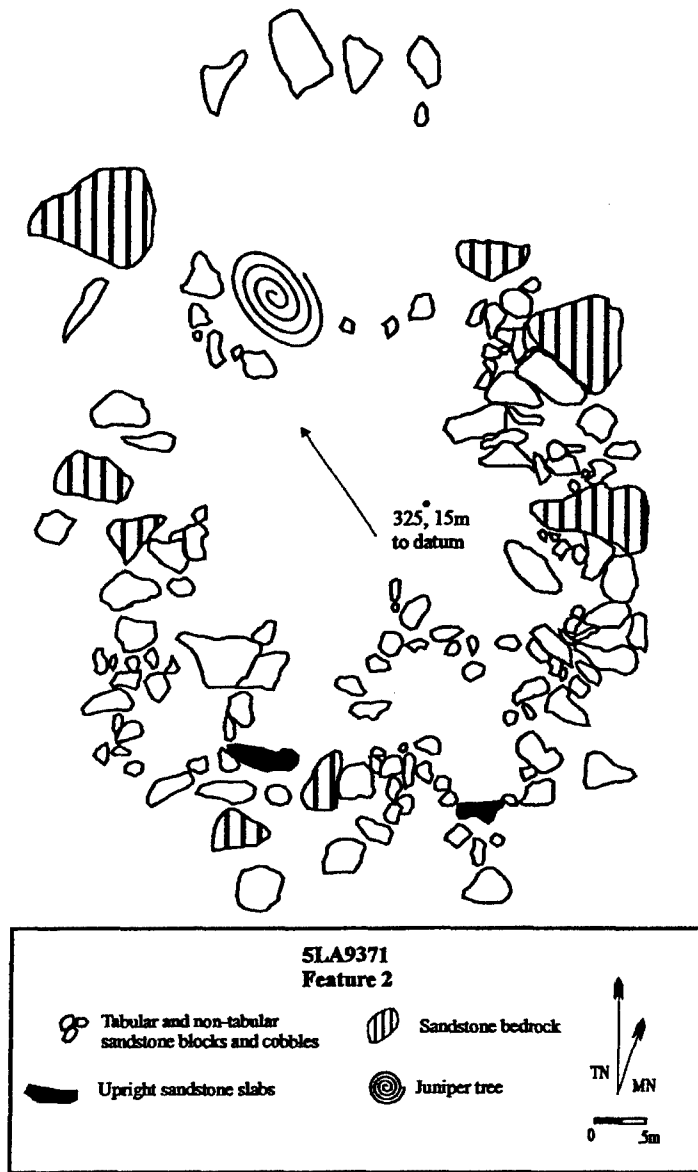


Figure 4.259: Planview map of Feature 2, contiguous wall structure, 5LA9371.

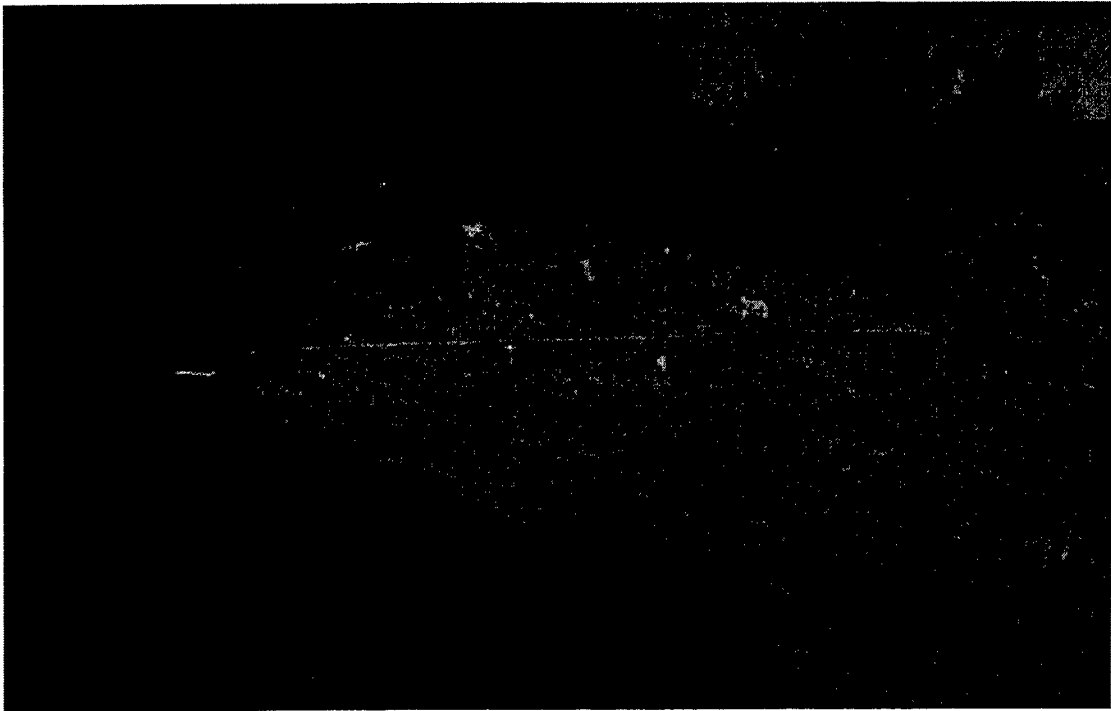


Figure 4.260: Site overview photograph (PCMS 00-18:15) with Feature 3 in foreground.



Figure 4.261: Photograph (PCMS 00-18:12) of Feature 1, a stone structure, 5LA9371.



Figure 4.262: Photograph (PCMS 00-18:13) of Feature 2, a circular stone structure, 5LA9371.



Figure 4.263: Photograph (PCMS 00-18:18) of Feature 4, fire-cracked rock concentration, 5LA9371.

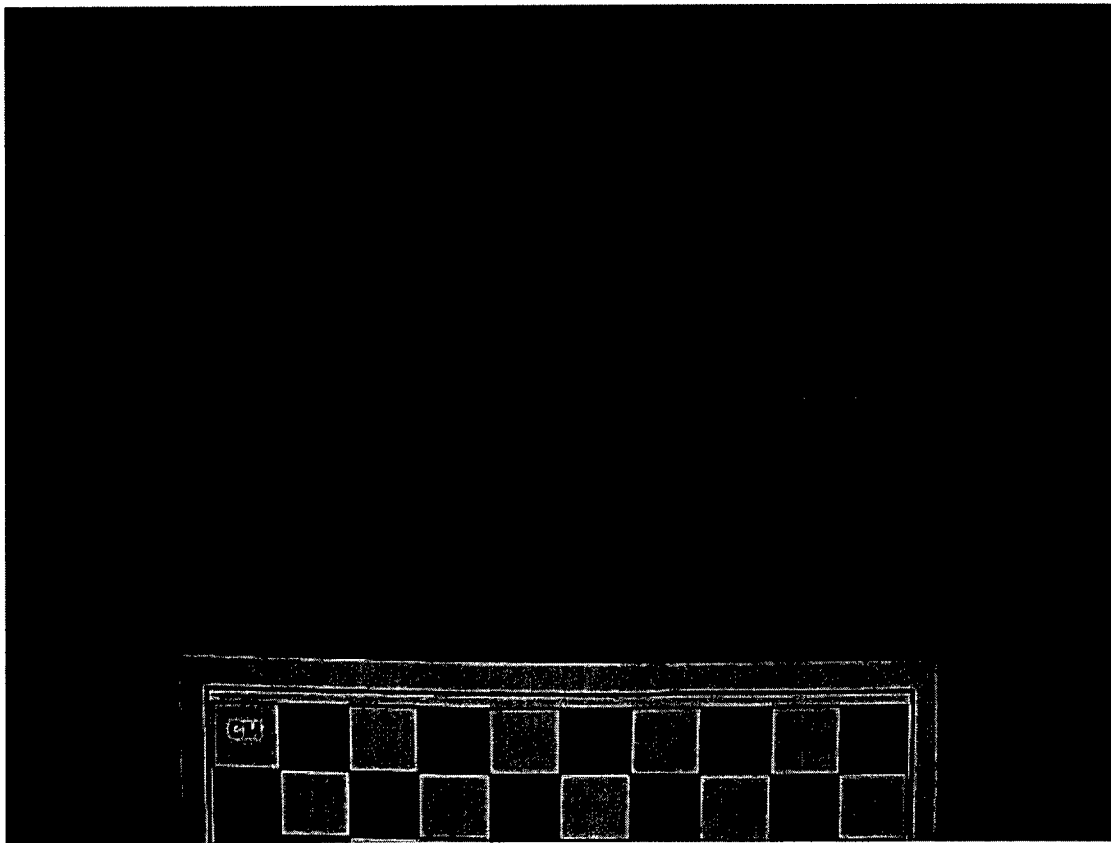


Figure 4.264: Pipe fragments from 5LA9371. Field specimens: (a) FS 8, (b) FS 12, (c) FS 81, (d) FS 79a, (e) FS 79b.

Table 4.104: Summary Description of Chipped-Stone Debitage from Feature 3, 5LA9371.

	ChertC.	QuartziteF.	Quartzite	Obsidian	Orthoquartzite	Quartz	Total
Total	53	25	41	3	15	4	141
Large	44	24	40	1	12	2	123
Small	9	1	1	2	3	2	18
Cortical	8	6	8	0	1	0	23
Noncortical	45	19	33	3	14	4	118
Complex	28	8	21	0	11	2	70
Shatter	10	9	7	0	3	2	31
Core-Rejuvenation	1	0	0	0	0	0	1
Biface-thinning	0	0	0	1	0	0	1
Simple	14	8	13	2	1	0	38

Table 4.105: Stone Tool Type by Material Group for 5LA9371.

Material	Type						Total
	Biface	Core	Drill	Projectile	Scraper	Flake Tool	
Chert	10	0	1	5	14	6	36
Coarse-grained Quartzite	0	1	0	0	0	0	1
Fine-grained Quartzite	21	0	0	6	1	1	29
Obsidian	1	2	1	0	0	3	7
Orthoquartzite	5	0	0	1	1	1	8
Silicified Wood	0	0	0	0	1	0	1
Total	37	3	2	12	17	11	82

Interpretation and Summary

5LA9371 is quite different from the nearby sites 5LA9372 and 5LA9373, in size, implied function, and artifact assemblages. The surrounding sites are mainly lithic reduction/tool manufacture sites with little or no sign of habitation and few formalized tools. Given this, and 5LA9371's unique artifact assemblage, there is a strong possibility that this site functioned as a ceremonial, defensive, or communication site, sometime between the Middle Archaic to Developmental periods. This site appears to be multicomponent. Feature 2 has a size and style of architecture that places it in either the Developmental or Diversification periods of the Late Prehistoric stage. The projectile points and the presence of patinated tools suggest an Archaic occupation. Though it is speculation, we think that Features 1, 3, and 4 relate to the early occupation and Feature 2 to the later occupation. Because of the outstanding artifact assemblage, and the presence of features with intact deposition, there is high probability of intact subsurface cultural material. Recovery of this material would enhance our understanding of the chronology, ideology, subsistence and settlement patterns, and paleoenvironment of the Middle to Developmental periods in this area. We therefore strongly recommend that 5LA9371 be nominated as eligible for the National Register of Historic Places.

The occupants of this site appear to have been fairly mobile or had an extensive trade network, as suggested by the presence of obsidians from the Cerro del Medio source of New Mexico and cherts of unknown origin (these are obviously non-local but the exact source is unknown). There were also no ground-stone tools encountered at the site. Many habitation sites in the PCMS have large and varied ground-stone assemblages, but 5LA9371 does not. This also suggests that the site served a special function and was not used for long-term habitation.

The unusual and rich artifact assemblage on 5LA9371 justifies fencing it for protection from any type of maneuvers: mechanized, wheeled, or pedestrian. The site should also be technically mapped to help judge the impact of any future erosion. Features 1 and 2 should be tested to determine the extent of buried cultural deposits. If these are found, there is a good chance that additional faunal material, datable carbon, other diagnostic artifacts will be collected.

5LA9372

This site is a large lithic scatter and structure site located at the head of a large finger ridge that juts out into the southern side of Red Rock Canyon (Figure 4.265). The 42-acre site is on the ridge top, but also extends south and east up a gently sloping hill. The structure at the site is found near its northern boundary and at the head of a large feeder canyon. Chipped-stone debitage and stone tools are located across the majority of the site's surface. The site datum was placed near the structure at approximately 1,543 m (5,061 ft) asl with the lowest portions of the site situated on the finger ridge at an elevation of approximately 1,524 m (5,000 ft) asl.

The entire surface of the site is covered by juniper woodland. There are a few grassy patches here and there, but outcropping layers of sandstone usually cause these. Juniper, black grama, sideoats grama, currant, mountain mahogany, ricegrass, yucca, prickly pear, scrub oak, piñon trees, and feathergrass were seen growing on the site. Surface soils are relatively thin (5 to 20 cm), especially near the canyon edges and on the ridge top. There is slightly more deposition along the eastern site boundary and on the sandstone terraces that cross the site. The structure (Feature 1) has at least 10 cm of soil deposition.

Feature

Feature 1 is a sandstone slab, circular structure located near the top of a sandstone terrace. Though this structure is clearly distinguishable among the scattering of sandstone boulders seen across the surface of the site, wind and water erosion have nearly destroyed it. It was constructed of tabular sandstone slabs in a semi-circular arrangement measuring 3.5 x 3m (Figure 4.266, 4.267). The southwest half of this feature is gone and the missing wall blocks seem to have been scavenged either historically or prehistorically. There are scattered pieces of fire-cracked rocks mixed in with the wall fall and these may be the remnant of an interior hearth. There is some soil deposition here though we suspect that some of the prehistoric ground surface has been eroded away. This feature should be a very high priority for testing because erosion will completely destroy it in the next few years. If this structure were intact, it would be classified as a contiguous wall, rock abutment, fully enclosed, isolated unit. Kalasz (1989:103) indicates that similar stone structures from Carrizo Ranch have associated radiocarbon dates of 930 ± 225 BP and 630 ± 50 BP. If these dates can be reliably used to cross-date Feature 1, then we can infer one occupation of the site sometime near the transition of the Developmental and Diversification periods of the Late Prehistoric stage.

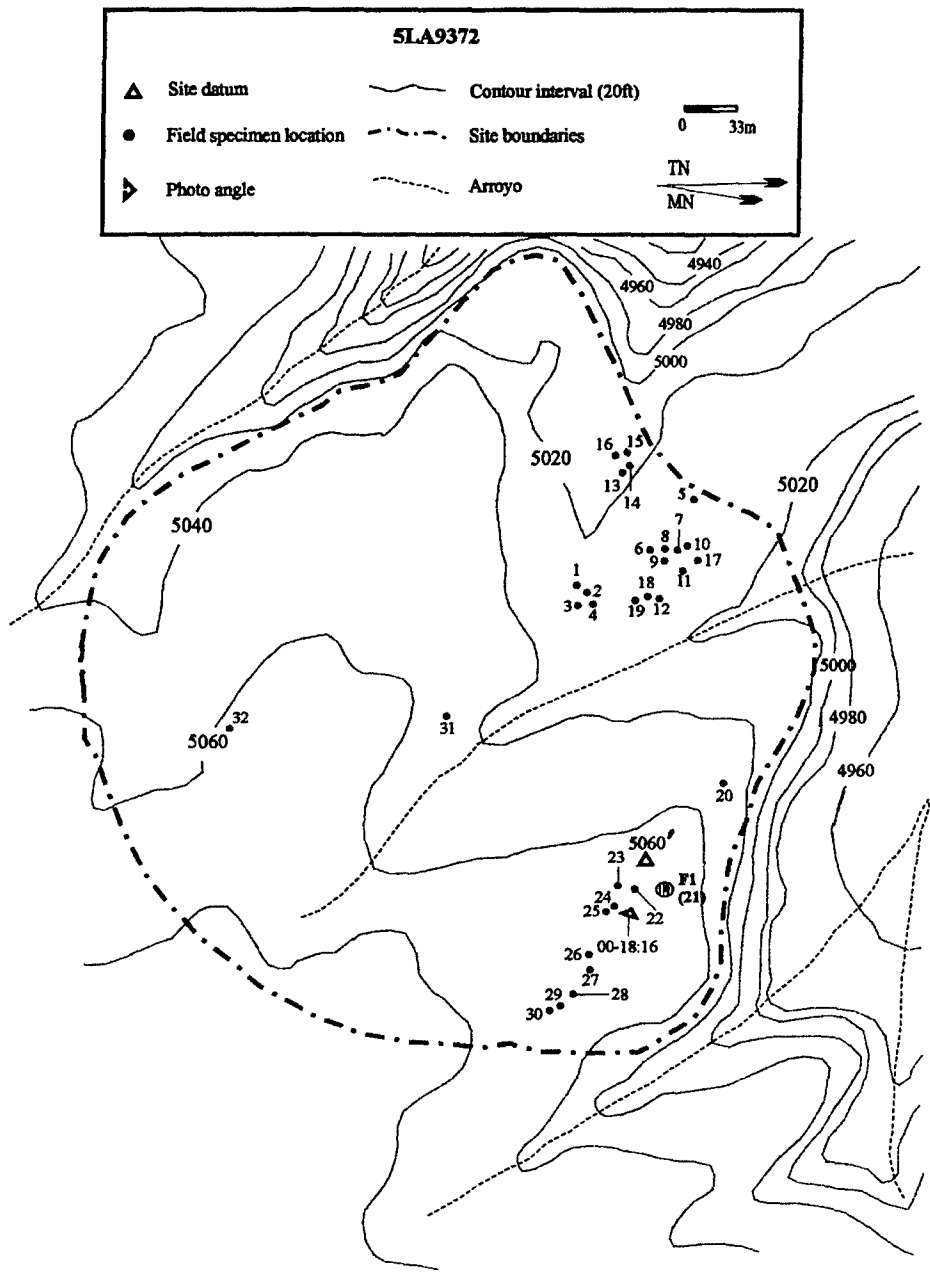


Figure 4.265: Site map, 5LA9372.

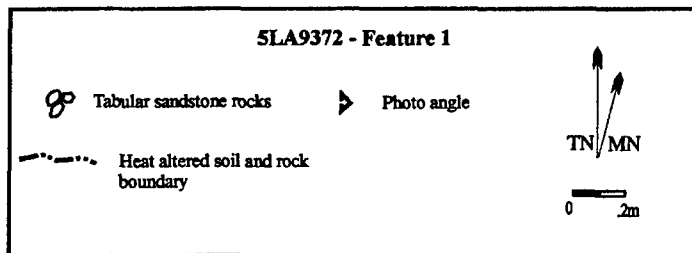
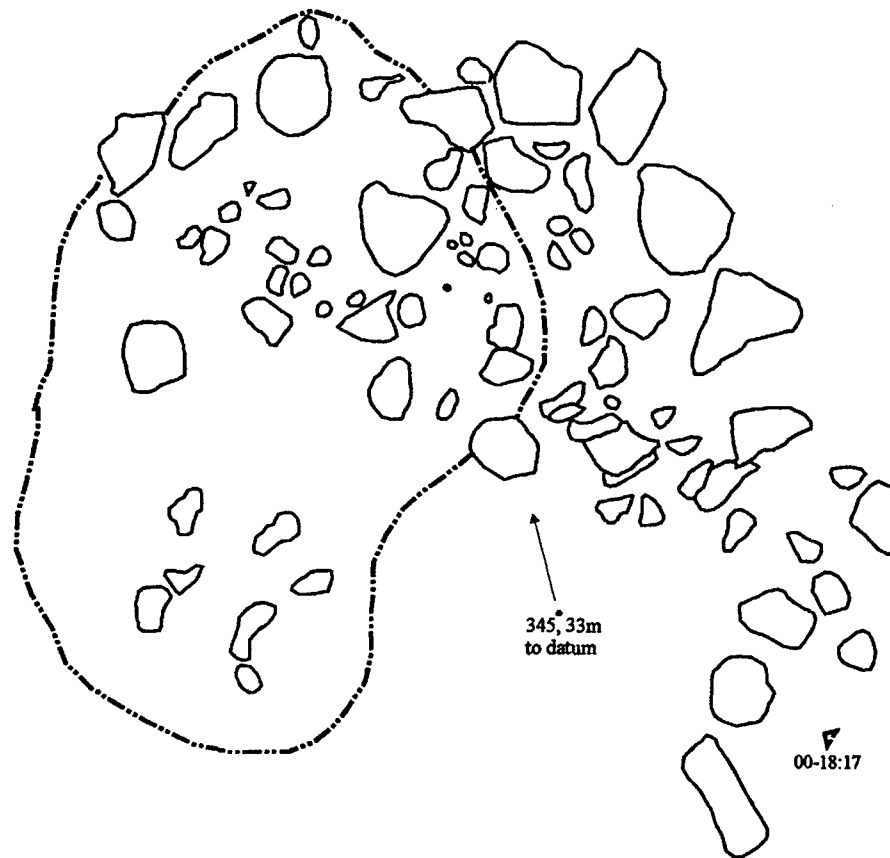


Figure 4.266: Feature 1 planview map, 5LA9372.

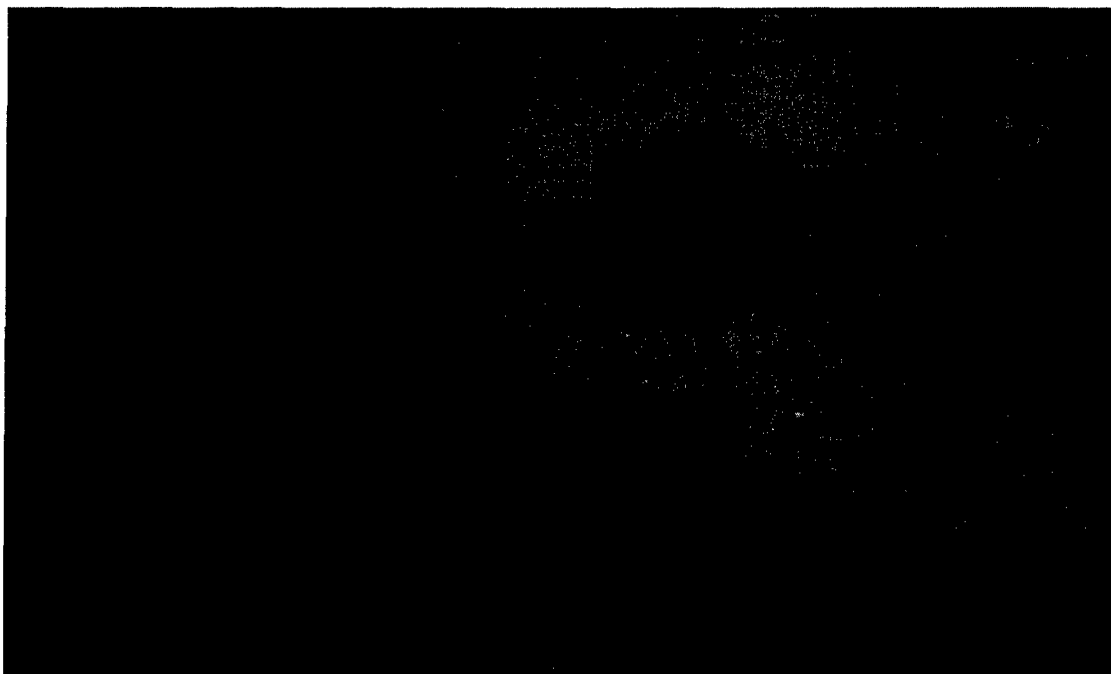


Figure 4.267: Site overview photo (PCMS 00-18:16) with datum center frame, 5LA9372.

Lithic Artifacts

One hundred fifty-one pieces of chipped-stone debitage were sampled randomly from across the surface of the site. These artifacts consist of 85 complex flakes, 61 simple flakes, four pieces of shatter, and a single biface-thinning flake. None of the debitage specimens were recovered from directly within Feature 1.

Table 4.106 presents the data on debitage type by material type. The majority (73%) of the debitage is fine-grained quartzite. The remaining 27% is coarse-grained quartzite, chert, basalt, obsidian, orthoquartzite, and silicified wood. All of the quartzite items (141) were large in size. The majority (52%) of the quartzite debitage is noncortical and there is no evidence for late-stage biface manufacture in the assemblage. This site is very near the quartzite source (less than 100 m) in the canyon. Raw material seems to have been brought to the site in cortical or noncortical chunks, then was reduced to cores, early-stage bifaces, or large flake blanks for transport. Visual examination and comparison with known specimens reveals that the obsidian flake is from the Cerro del Medio source in New Mexico, and the lack of cortex indicates it was not transported to the site in nodule form. There is one highly patinated basalt flake suggesting an older occupation for 5LA9372.

Unfortunately, no temporally diagnostic materials, such as projectile points or ceramics, were recovered from the surface. There are two distinct tool clusters on 5LA9372. The first contains both chipped and ground tools and is located at the end of the finger ridge at the northwest edge of the site. Most of the cores (FS 1, 12, 14, 17, and 19) were found here as well

as three of the manos (FS 5, 15, and 16). Most of the bifaces were found in the second cluster. It begins approximately 15 m southeast of Feature 1 and extends to the eastern site boundary.

The recorded chipped-stone tools include eight bifaces, seven cores, six flake tools, five scrapers, five one-hand manos, and a spokeshave. All of the cores and five of the bifaces are quartzite. Other bifaces were made of chert and orthoquartzite. Five of the bifaces are complete and three are broken; five were classified as unfinished and three are nearly finished; three were broken during manufacture, three were discarded due to reduction error, and one shattered during heat exposure. The last specimen (FS 31) is a blank that may have been inadvertently left at the site. Another biface (FS 25) shows light use wear on its left lateral edge and is classified as a knife.

The utilized flakes are quartzite (4), Ralston Creek chert (1), and an unknown type of chert (1). These are five complete and one broken tool; all were utilized on at least one steep edge (expedient scrapers). Of the scrapers, three are end/side scrapers, one is an end scraper, and one is a side scraper. These were made of fine grained quartzite (2), Brushy Basin chert (1), argillite (1), and Black Forest silicified wood (1, FS 4). A spokeshave (FS 20) made of fine-grained quartzite was found along the drainage at the northern edge of the site.

Table 4.106: Summary Description of Chipped-Stone Debitage for 5LA9372.

	Chert	C. Quartzite	F. Quartzite	Hornfels/Basalt	Obsidian	Ortho. Sil.	Wooc	Total
Total	6	31	110	1	1	1	1	151
Large	6	31	110	1	1	1	1	151
Small	0	0	0	0	0	0	0	0
Cortical	1	16	52	0	0	0	1	70
Noncortical	5	15	58	1	1	1	0	81
Complex	4	13	67	1	0	0	0	85
Shatter	1	1	0	0	0	1	1	4
Biface-Thinning	1	0	0	0	0	0	0	1
Simple	0	17	43	0	1	0	0	61

Table 4.107: Stone Tool Type by Material Group for 5LA9372.

Material	Type						Total
	Biface	Core	Spokeshave	Scraper	Flake Tool	Mano	
Argillite	1	0	0	1	0	0	2
Chalcedony	0	0	0	0	0	0	0
Chert	1	0	0	1	2	0	4
Coarse-grained Quartzite	2	2	0	0	0	0	4
Fine-grained Quartzite	3	5	1	2	4	0	15
Sandstone	0	0	0	0	0	5	5
Hornfels/Basalt	0	0	0	0	0	0	0
Orthoquartzite	1	0	0	0	0	0	1
Silicified Wood	0	0	0	1	0	0	1
Total	8	7	1	5	6	5	32

Interpretation and Summary

We recommend that the site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). Although there is little deposition on the ridge top and near the canyon edges, some is present along the eastern edge of the site and in Feature 1. The tool analysis suggests that fairly discrete activity areas exist and testing in these areas could aid in understanding the site function. The potential for buried thermal features in or around the structure and the presence of ground stone also indicates the likelihood that pollen, faunal, and macrobotanical remains useful in reconstructing subsistence patterns and paleoenvironment could be recovered through excavation. The Black Forest silicified wood scraper (source approximately 155 km north) and Cerro del Medio obsidian may yield data useful in addressing issues of trade and exchange.

Our management recommendation for the site is data recovery. The entire site exhibits water erosion damage and Feature 1 has been impacted to the point that it is in danger of being destroyed. We suggest that this structure be excavated before all data is lost. The two tool concentration areas have a good potential for subsurface cultural deposits and should be tested to determine their presence or absence.

5LA9433

The site is a sparse lithic scatter with the remains of three structures (Figure 4.268, 4.269). It occupies the north side of Lockwood Canyon approximately 4 km west of its confluence with the Purgatoire River. The terrain is generally flat with a small erosional cut at the center. A ridge is found near the northwest edge of the site and an unnamed arroyo passes along the eastern boundary. The site has been heavily impacted by erosion and sandstone bedrock outcrops along the arroyo, at the canyon rim, and along the ridge near the datum. This erosion has left only 10 cm of alluvial and aeolian deposition. Juniper, cholla, needle and thread grass, yucca, grama grasses, and prickly pear cactus were found growing on this 3.1-acre site.

Features

Three isolated circular slab structures were recorded along the canyon edge at the southern edge of the site. In the Kalasz system (1989:91), Features 1 and 2 would be considered contiguous wall, rock abutment, fully enclosed, isolated units as well as cliff edge placements. These have associated radiocarbon dates of 930 ± 225 BP and 630 ± 50 BP. Feature 3 is completely deflated but appears to have been a contiguous wall, free-standing, fully enclosed, isolated unit (Category 15). Radiocarbon dates of 850 ± 60 BP and 920 ± 80 BP are given for this category. If these dates can be reliably used to cross-date the structures, then we can infer a site occupation at the end of the Developmental period (AD 100 to 1050) or sometime during the Diversification Period (AD 1050 to 1450).

Feature 1 (Figure 4.270, 4.271) is a structure built into and encompassing four large sandstone boulders. At this time, a rough circular planview remains; and it is unknown whether the tabular sandstone slabs that make up the wall were once upright, or were stacked horizontally. In places along the north wall they seem stacked. It measures 7 x 6.6 m and from the modern ground surface to the top of the largest boulder in the feature it is 53 cm. There is soil depth inside the feature (at least 20 cm) and a prehistoric ground surface and buried features could be encountered through test excavation. No artifacts were recovered in this feature, although many were encountered outside its walls (including FS 4 and 5). There is one large block in the center of the feature that has wire wrapped around it. It appears to have been some kind of fence weight, but there is no evidence for a fence anywhere on site. This feature seems to have been historically dismantled or even excavated.

Feature 2 is a deflated stone structure that sits right on the cliff edge (Figure 4.272). It is so close to the edge that some of the sandstone blocks that made up its walls seem to have fallen over the side. Its position along the cliff rim gives the impression that it is some kind of watchtower. There is good visibility to the east, south, and west, down Lockwood Canyon from here. One can also follow the south side of Lockwood Canyon for over 2 km in either direction from this location. It measures 4.7 x 4.2 m and abuts a large sandstone boulder on its north side. From the ground surface, to the top of the boulder is 1.3 m. A single metate fragment (FS 3) was found in the northeast corner of this structure, but it contains no soil and most of the wall construction blocks are sitting on exposed sandstone bedrock.

Feature 3 measures 4.2 m in diameter and is completely deflated (Figure 4.273). Unmodified sandstone blocks lie in a circular orientation and there is no soil deposition among them. Many pieces of debitage were found in and around this structure, as well as a core (FS 7) and a metate fragment (FS 6). Two "looters piles" were found just outside of the structure walls.

Lithic Artifacts

One hundred fifty debitage specimens from the surface of 5LA9433 were analyzed. Debitage categories present in the assemblage include 68 simple flakes, 61 complex flakes, 17 pieces of angular shatter, two bipolar flakes, and two biface-thinning flakes. Table 4.108 presents chipped stone debitage type by material. Six material types were noted on this large site. Of the total debitage, 78% is quartzite, 16% is chert, 3% is basalt, 3% is orthoquartzite, and <1% is conglomerate. These materials are 62% microcrystalline, 37% cryptocrystalline, and 1% macrocrystalline materials with some degree of conchoidal fracture properties. Other than the basalt items, all materials can be obtained in Lockwood Canyon below. The basalt source is at the southwestern edge of the PCMS approximately 23 km southwest from 5LA9433.

All stages of core and cobble reduction are represented in the assemblage. Overall, 73% of the assemblage is noncortical, while 27% shows some dorsal cortex; 81% are large items and 19% are the small size grade. These percentages are further broken down as 56% large noncortical flakes, 25% large cortical flakes, 17% small noncortical flakes, and 2% small cortical flakes. Based on the low percentage (6% of the total debitage assemblage) of small complex flakes and only two identifiable biface-thinning flakes, there appears to be little emphasis on

making finished uniface and biface tools on site. A large portion of the debitage is related to early-stage biface manufacture, core manufacture, or the production of flake blanks for transport. The shatter specimens and most of the large cortical flakes were being produced as a by-product of quartzite and orthoquartzite raw material reduction. This is supported by the core assemblage (see below).

The site yielded only nine tools-- three sandstone metate fragments, two quartzite cores, two chert bifaces, a chert end/side scraper, and a utilized flake of Ralston Creek chert. Because there were numerous looters piles, this low count and lack of finished or patterned tools is not surprising. A single piece of bone (FS 5) was recovered at the southeast edge of Feature 1. Its fragmented nature makes identification impossible.

Table 4.108: Summary Description of Chipped-Stone Debitage for 5LA9433.

	Chert	C. Quartzite	Conglomerate	F. Quartzite	Hornfels/Basalt	Ortho.	Total
Total	24	32	1	85	4	4	150
Large	19	26	1	70	3	3	122
Small	5	6	0	15	1	1	28
Cortical	3	10	0	27	1	0	41
Noncortical	21	22	1	58	3	4	109
Complex	16	13	0	30	1	1	61
Shatter	2	4	0	10	0	1	17
Bipolar	0	0	0	2	0	0	2
Biface-thinning	1	0	0	1	0	0	2
Simple	5	15	1	42	3	2	68

Table 4.109: Stone Tool Type by Material Group for 5LA9433.

Material	Type					Total
	Biface	Core	Scraper	Flake Tool	Metate	
Ralston Creek Chert	0	0	0	1	0	1
Chert	2	0	1	0	0	3
Fine-grained Quartzite	0	2	0	0	0	2
Sandstone	0	0	0	0	3	3
Total	2	2	1	1	3	9

Interpretation and Summary

This site is a large lithic scatter with a high density of artifacts and at least three structures. Feature 1 is in the best condition and has at least 20 cm of deposition. Because there is good potential for encountering intact subsurface cultural deposits in or around this feature, data may be forthcoming regarding chronology, settlement and subsistence, or paleoenvironment. Accordingly, the site is judged eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). The site deserves some protection so our management recommendation is sign and avoid. Erosion is not of major concern and the site has little potential for military impact as training areas are used now.

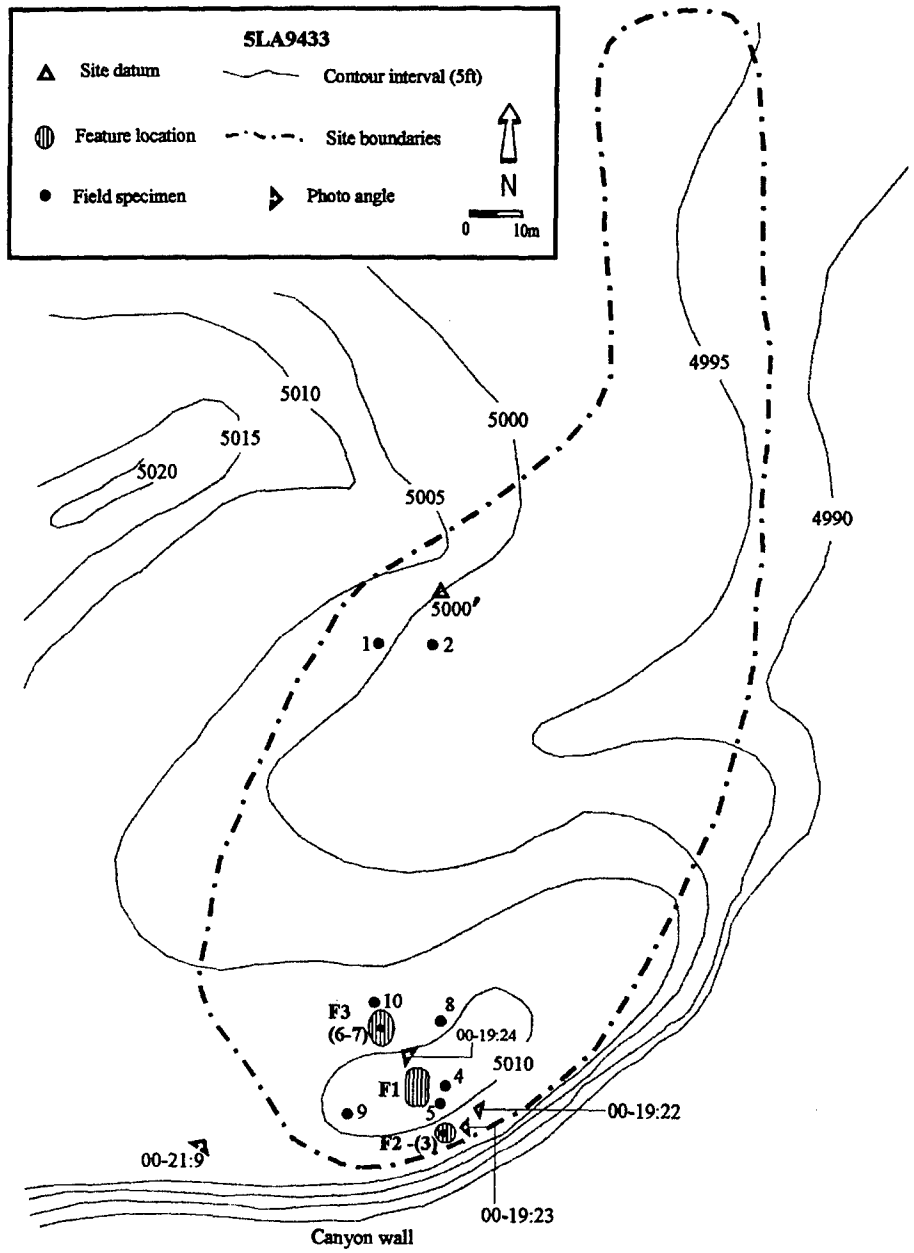


Figure 4.268: Site map, 5LA9433.



Figure 4.269: Site overview photograph (PCMS 00-21:9), 5LA9433.



Figure 4.270: Photograph (PCMS 00-19:22) of Feature 1, a circular stone structure, 5LA9433.

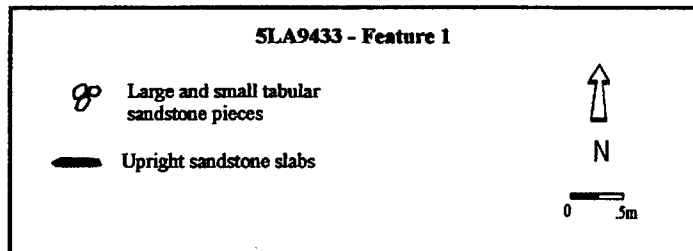


Figure 4.271: Planview map of Feature 1, 5LA9433.

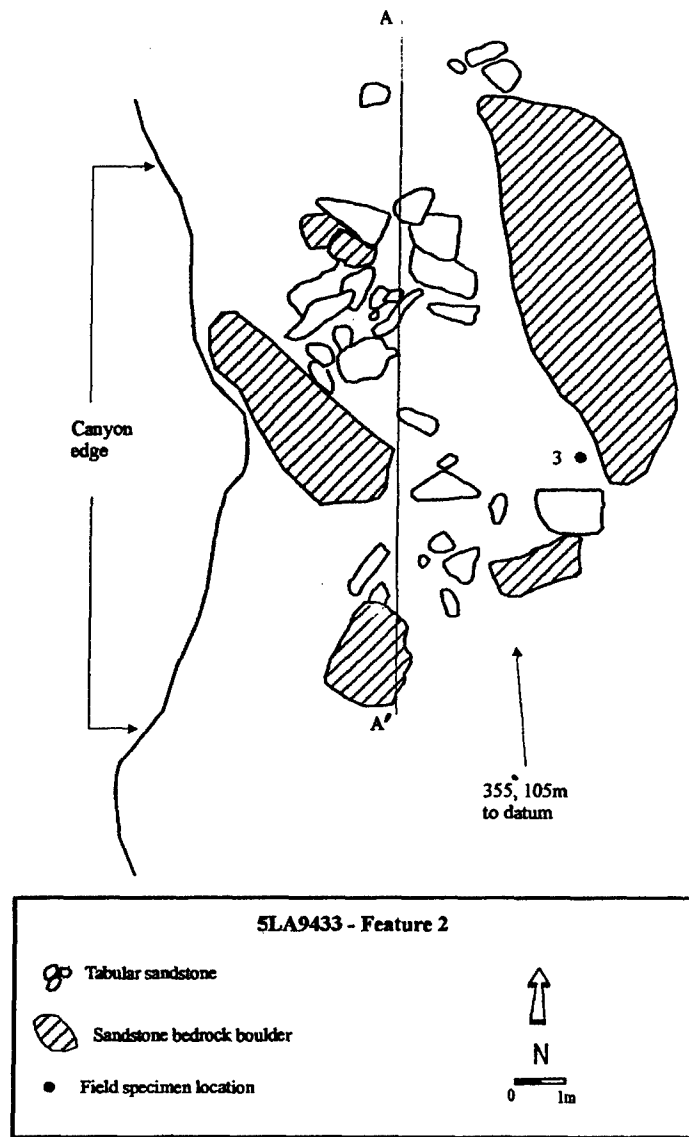


Figure 4.272: Feature 2 planview map, 5LA9433.

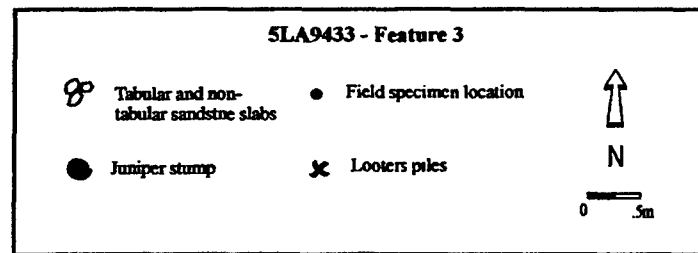
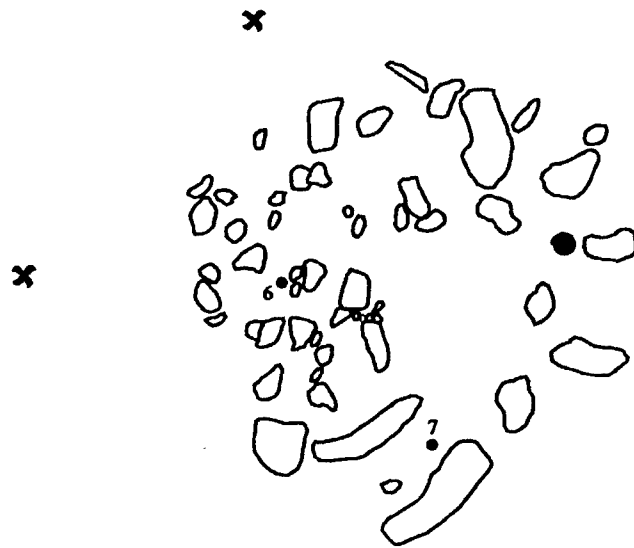


Figure 4.273: Planview map of Feature 3, 5LA9433.

5LA9446

The site is a moderate- to high-density lithic scatter and thermal feature situated north of Lockwood Canyon. Sites 5LA9433 and 5LA9445 are nearby. This 17-acre site is 60 m away from the canyon edge on a relatively flat ridge. A minor drainage cuts its west edge and a low hill is found at its northern boundary (Figures 4.274, 4.275). The site is located in a woodland plant community. Juniper, yucca, sideoats grama, cholla, prickly pear, feathergrass, and skunkbrush were seen growing at the surface. Soils depths vary throughout the site, but overall, the deposition is poor. The maximum depth is 15 cm in the central portion of the site with thinner deposits at the southern and northern ends. Gravels and chunks of sandstone bedrock are present in the surface soil, and this is best characterized as sandy silt and a cryptogammic crust.

Features

Feature 1 is a concentration of thermally altered rocks measuring approximately 1 m in diameter, and it is eroding out of the hill slope 111m southwest of the datum (Figure 4.276).

This feature is partially deflated, but still contains fire-cracked rock and some light ash staining.

Lithic Artifacts

One hundred fifty pieces of debitage were recorded randomly from across the site surface (Table 4.111), and were classified as 91 simple flakes, 51 complex flakes, and 8 pieces of shatter. These were 81% quartz (62% fine-grained and 19% coarse-grained), 7% orthoquartzite, 5% basalt, 5% chert, 1% argillite, and 1% baked clay. All of the material types are locally available within the boundaries of the PCMS. Overall, 52% of the assemblage has cortex. Most pieces (97%) were assigned to the large size grade, with fewer (3%) small items. The percentage of large cortical flakes (52%) is high in relation to most sites in the project area. This information coupled with the lack of biface-thinning flakes, and low percentage of small complex flakes (2%) indicates that early- to late-stage biface reduction was not responsible for generating the debitage. The debitage assemblage can be linked to the reduction or preparation of cores and flake blanks. Of note, two of the basalt items are highly patinated and no artifacts were recovered from in or around Feature 1.

A single temporally diagnostic projectile point (FS 1) was recovered near the western edge of the site (Figure 6.13). This large point of fine-grained quartzite is similar to Anderson's (1989) Type P35. This style dates from the Late Archaic period to the Diversification period (1000 BC to AD 1200).

The remaining chipped-stone tools consist of cores (three quartzite, one orthoquartzite), a fine-grained quartzite biface fragment, a quartzite uniface tool, and a utilized flake also made from quartzite.

Seven manos and one metate comprise the ground-stone tool assemblage. Five of the manos are whole; there are also two broken manos and an internal slab metate fragment. All of the manos are sandstone; six are oval in planview, and one is circular in outline. Though striation pattern is often difficult to determine in the field, four specimens had transverse striations, one specimen was determined to have longitudinal striations, and in one, the striation pattern was impossible to determine. Circular striations are also visible on the metate fragment.

Table 4.110: Summary Description of Chipped-Stone Debitage for 5LA9446.

	Argillite	Chert	C. Quartzite	F. Quartzite	Hornfels/Basalt	Kaolinite	Ortho.	Total
Total	2	7	29	93	8	1	10	150
Large	2	7	29	90	6	1	10	145
Small	0	0	0	3	2	0	0	5
Cortical	0	6	16	50	2	1	3	78
Noncortical	2	1	13	43	6	0	7	72
Complex	1	3	6	31	3	1	6	51
Shatter	0	0	0	7	1	0	0	8
Simple	1	4	23	55	4	0	4	91

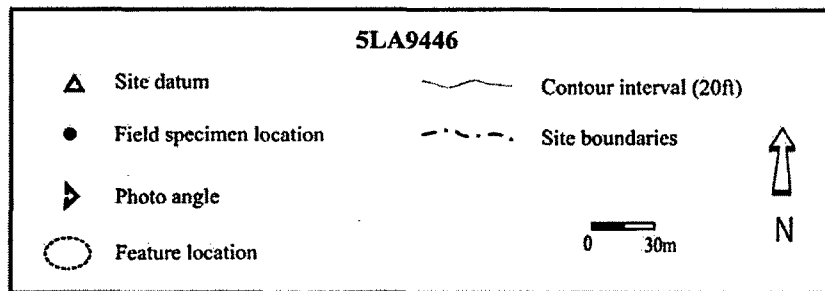
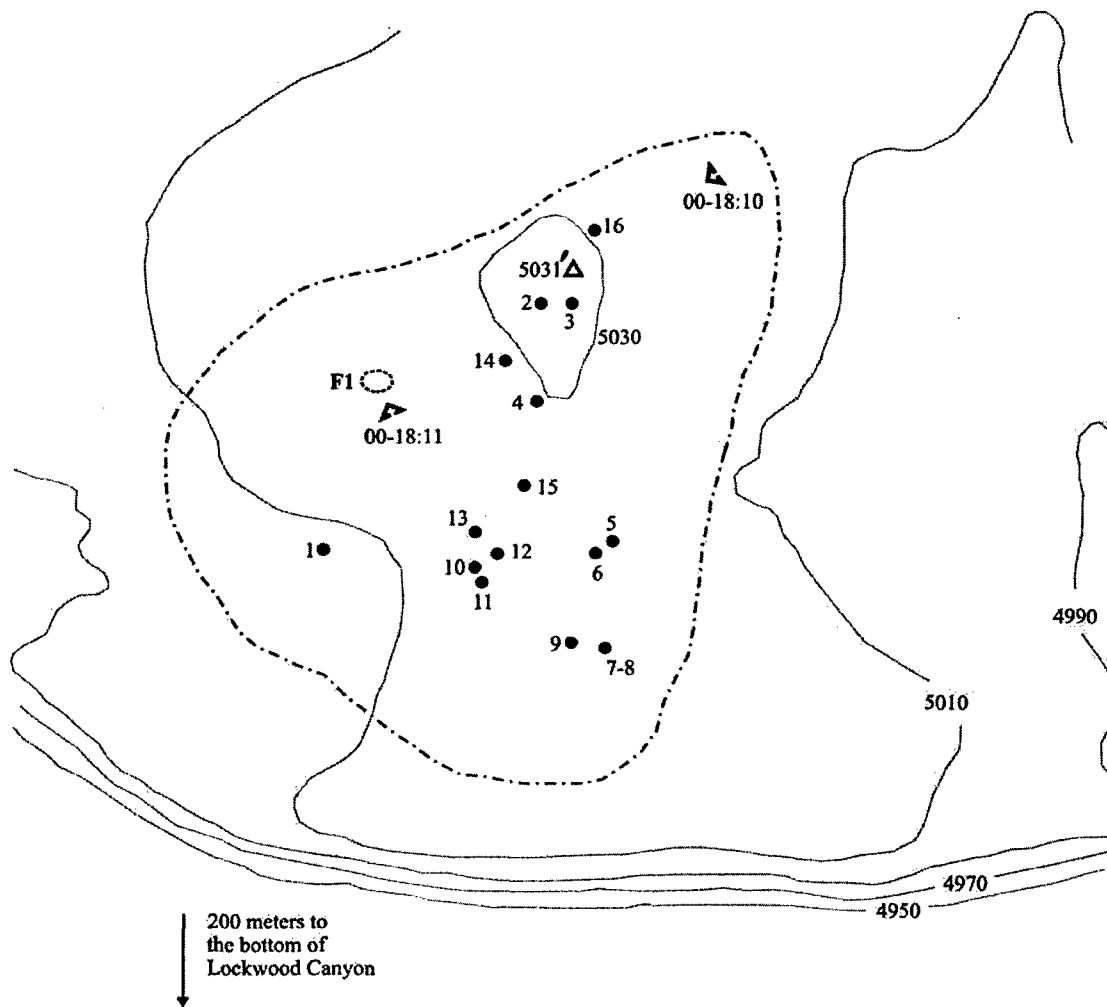


Figure 4.274: Site map, 5LA9446.



Figure 4.275: Site overview photograph (PCMS 00-18:10), 5LA9446.

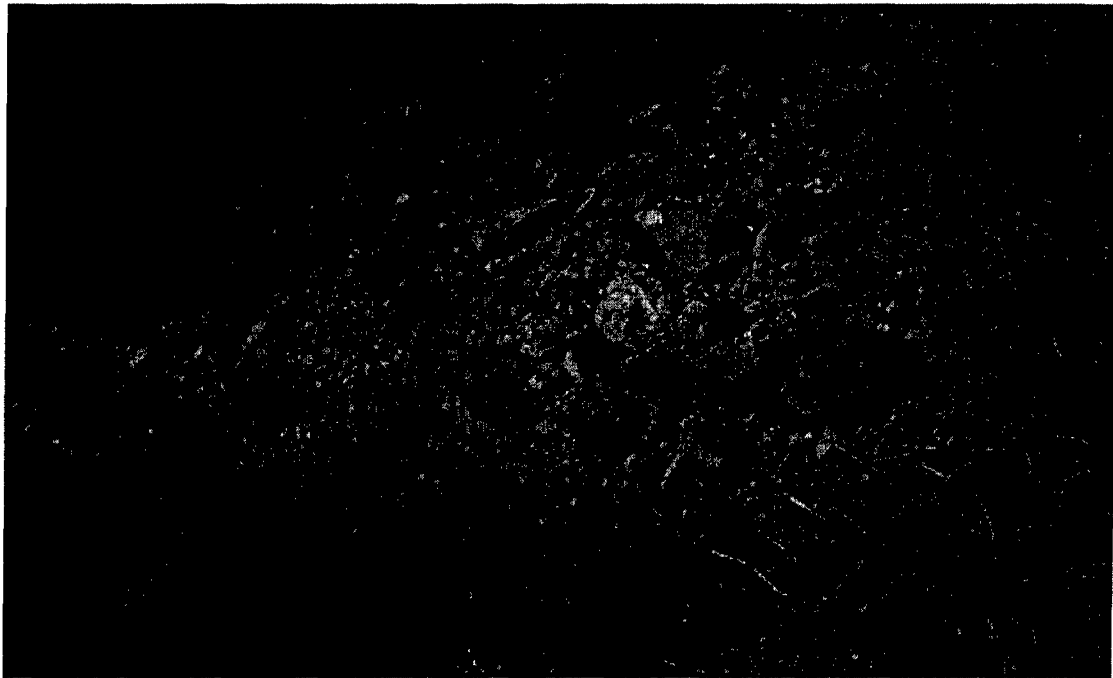


Figure 4.276: Photograph (PCMS 00-18:11) of Feature 1, a hearth, 5LA9446.

Table 4.111: Stone Tool Type by Material Group for 5LA9446.

Material	Type						Total
	Biface	Core	Projectile	Flake Tool	Mano	Metate	
Coarse-grained Quartzite	0	1	0	0	0	0	1
Fine-grained Quartzite	1	2	1	2	0	0	6
Sandstone	0	0	0	0	7	1	8
Orthoquartzite	0	1	0	0	0	0	1
Silicified Wood	0	0	0	0	0	0	0
Total	1	4	1	2	7	1	16

Interpretation and Summary

This site has a temporally diagnostic projectile point and one relatively intact thermal feature. This is a large (345 x 270 m) procurement site with early-stage lithic reduction, vegetal preparation, cooking, and expedient and formal tool usage activities occurring. The age of the point, 1000 BC to AD 1200 suggests it was in use sometime between the late end of the Archaic Stage and the early part of the Diversification period of the Late Prehistoric stage. The site has poor deposition. The thermal feature is deflated; however, there is still enough intact soil to recover datable carbon, and faunal and macrobotanical remains.

We recommend that the site be nominated to the NRHP and that a data recovery project be implemented for Feature 1 before it is completely destroyed by erosion.

5LA9448

This site is located along the top of a small hill and is bordered on the west end by a large side canyon that drains north into Red Rock Canyon (Figures 4.277, 4.280). It is also bordered on the north and south by smaller drainages that flow west into the unnamed side canyon. It is a large site (covering 4.9 acres) and has a high density of artifacts around some of the features (Features 1, 3, and 6) and on top of the hill to the north and northeast of the datum. The site datum was placed at 1526 m (5,005 ft) asl. Juniper woodland is the vegetative community dominating both the site and surrounding area. Plant species noted at the surface include soapweed, juniper, cholla, prickly pear, piñon, grama grasses, New Mexico feathergrass, mountain mahogany, and skunkbrush. The site is located on an eroded landform; the top of the hill is deflated and colluvial deposition is seen on its flanks. Soil depths of up to 50 cm were noted on the hill slopes. A total of 88 artifacts were recorded at the surface, including a 150-piece debitage sample, 34 flaked tools, ten pieces of ground-stone, two ceramic sherds, and a piece of burned bone.

Features

A total of seven features were observed and recorded. These are three circular stone structures, three fire features, and what appears to be an historic stone cairn.

Feature 1 (Figure 4.278) is located approximately 60 m and 208 degrees from the site datum. It is a circular stone structure (5 x 4 m) that has collapsed on itself, and may have intact fill with a minimum depth of 20 cm. Several courses of wall remain and these were constructed of both tabular and non-tabular blocks and cobbles of sandstone. No binding agent or mortar was seen in the walls. Numerous flakes were found in association with this structure, as well as four bifaces, three slab metate fragments, a drill, a utilized flake, and a one-hand mano fragment. Two ceramic sherds were found just outside this feature and to the south.

The second feature is a hearth (100 x 80 cm) located within Feature 1. Feature 2 consists of a small round area of dark soil and fire-cracked rock that is surrounded by upright and collapsed sandstone blocks. It has at least 20 cm of deposition and this state of preservation makes the feature a good candidate for testing. Field Specimen 20, a sandstone slab metate fragment, was found here.

Feature 3 (Figure 4.279) is a circular stone structure (7 x 6.5 m in diameter) located at the southeast corner of the site (45 m and 103 degrees for the datum). Debitage was found eroding out of this feature, which appears to contain over 30 cm of fill. It was constructed of tabular and non-tabular sandstone blocks that could have been stacked, but have collapsed over time. Colluvial deposits washing down from a nearby slope have also covered it. Some ashy soil was noted at the surface, so it is possible that this structure contains a hearth and preserved floor features.

The last structure (Feature 4) is a D-shaped stone circle (5 x 4.5 m in diameter) made of a single course of non-tabular sandstone blocks. There is little deposition here and no tools ordebitage were found within its walls. Somedebitage was recorded in the vicinity.

Feature 5 is an area of nearly black, ashy soil measuring 3 x 2 meters. It is in a protected location and has been covered by colluvial wash. Some ash has been brought to the surface by animal burrowing; this feature's apparently intact form covers a large area and could ultimately be a midden or roasting pit. Observed depth here is minimally 50 cm and the heavy animal activity threatens the integrity of this feature. It is in close proximity to Feature 3 (24 m southwest).

Feature 6 is a large (3.5 x 3 m) fire-cracked rock and ash concentration 48 m and 185 degrees from the site datum. Ashy soil emanates from this feature suggesting cultural depth (at least 20 cm). Numerous pieces ofdebitage and a one-hand mano fragment (FS 29) were found here.

The last feature (Feature 7) appears to be an historic cairn. It was constructed of stacked tabular and non-tabular sandstone blocks. None of the blocks have any lichen growth on them, suggesting that they have not been in this position for very long.

Lithic Artifacts

Table 4.112 presents a summary of the chipped-stone debitage recorded at the site. One hundred fifty specimens were recorded and of these, 107 items were general surface collection, 30 items came from Feature 1, and 13 items are from the area of Feature 3. Five material types were noted. Of the total debitage, the overwhelming majority is fine-grained quartzite (51%) and coarse-grained quartzite (41%). The remaining 8% of the materials are chert (5%), orthoquartzite (2%), and basalt (1%). All of the materials are locally available.

The debitage consisted of 76 complex flakes, 66 simple flakes, six pieces of shatter, and two biface-thinning flakes. The assemblage mainly consists of large noncortical debitage (59%). Cortex was present on 30 (20%) of the complex flakes, 22 (15%) of the simple flakes, and two (1%) of the shatter specimens. Overall, 93% of the debitage was classified as large, and 7% is small. With cortex present on 34% of the large flakes and 2% of the small flakes, it appears that the site functioned chiefly as a raw material reduction and early-stage biface manufacture location, with most of the material types brought to the site without dorsal cortex. The presence of several utilized or retouched flakes on site, coupled with the emphasis on core reduction, suggests that some kind of expedient flake tool technology might have been in use. The low percentage (2%) of small noncortical flakes and low number of biface-thinning flakes shows that very little late-stage biface reduction or resharpening occurred.

The Feature 1 assemblage is 15 simple flakes, 14 complex flakes, and 1 biface-thinning flake. Recorded materials include fine-grained quartzite (50%), coarse-grained quartzite (47%), and chert (3%). Like the overall assemblage, exploitation of locally available materials is evident. In this concentration, 50% were large noncortical items, 37% were small cortical items, 13% were small noncortical items, and there were no small cortical items. These debitage types indicate secondary raw material reduction took place in and around Feature 1.

All debitage from Feature 3 is quartzite (62% coarse-grained and 38% fine-grained) and falls into the large size grade. Cortex is present on 31% of the assemblage.

Seven projectile points were recovered from the site surface and only one is not diagnostic according to Anderson's (1989) classification. Two of these (FS 3 and 27) appear to be large preforms (Type P4, Figure 6.4) and were discarded prior to final trimming. Two small broken preforms (FS 8 and 16) conform to Anderson's P49 type, which has associated dates between AD 800 and AD 1750. The fifth point (FS 17) is a large chert point with only its tip missing. This finished tool is very similar to Type P43 and generally dates between 3000 BC and 500 BC. The last point (FS 28) is small, made out of chert, and is missing its tip. Based on basal characteristics, this point appears to be Type P62 and dates between AD 500 and AD 1400. Two occupations are therefore inferred for the site, one in the Late Archaic period and another falling in the Late Prehistoric stage.

The remainder of the chipped-stone tool assemblage (Table 4.113) consists of 27 artifacts, of which 10 are unfinished bifaces, 10 are utilized/retouched flakes, 4 are non-bipolar

cores, a graving tool, a drill, and a chopping tool. All of the cores are quartzite with three being fine-grained and one coarse-grained. Material types noted for the bifaces are fine-grained quartzite (6) and chert (4). Of the bifaces, five specimens are broken and five are complete. These have been further classified as eight unfinished and two nearly finished bifaces. Only two of these specimens exhibit use wear. One broken chert biface (FS 10) had a lightly used scraping edge along one lateral margin. A complete fine-grained quartzite biface (FS 43) shows light cutting wear on its acute left lateral edge. All of the bifaces were broken relatively early in manufacture.

Within the retouched and utilized flake category, four specimens are broken and six are complete. These are made of fine-grained quartzite (5), chert (3), and argillite (2). Six display a single, unidirectionally retouched edge with an angle of greater than 45 degrees and three have two lateral edges that show a use angle greater than 45 degrees. The remaining flake tool shows wear on one less than 45 degree lateral edge.

Both the drill and the graver are chert. The drill (FS 31) was rotated in clockwise fashion and has heavy wear on both lateral (>45 degree) edges. The perforator is a small spur on a flake that shows light use wear on the right lateral edge.

Eight slab metate fragments and two one-hand mano fragments represent the ground-stone assemblage. All are made of sandstone.

Table 4.112: Summary Description of Chipped-Stone Debitage for 5LA9448.

	Chert	C. Quartzite	F. Quartzite	Hornfels/Basalt	Orthoquartzite	Total
Total	8	61	76	2	3	150
Large	6	59	70	2	3	140
Small	2	2	6	0	0	10
Cortical	4	21	27	1	1	54
Noncortical	4	40	49	1	2	96
Complex	4	25	44	1	2	76
Shatter	1	4	1	0	0	6
Biface-Thinning	1	1	0	0	0	2
Simple	2	31	31	1	1	66

Table 4.113: Stone Tool Type by Material Group for 5LA9448.

Material	Type							Total	
	Biface	Core	Projectile	Chopping Tool	Drill/Perf.	Flake Tool	Mano		Metate
Argillite	0	0	0	0	0	2	0	0	2
Chert	4	0	7	0	2	3	0	0	16
Coarse-Grained Quartzite	0	1	0	1	0	0	0	0	2
Fine-Grained Quartzite	6	3	0	0	0	5	0	0	14
Sandstone	0	0	0	0	0	0	2	8	10
Total	10	4	7	1	2	10	2	8	44

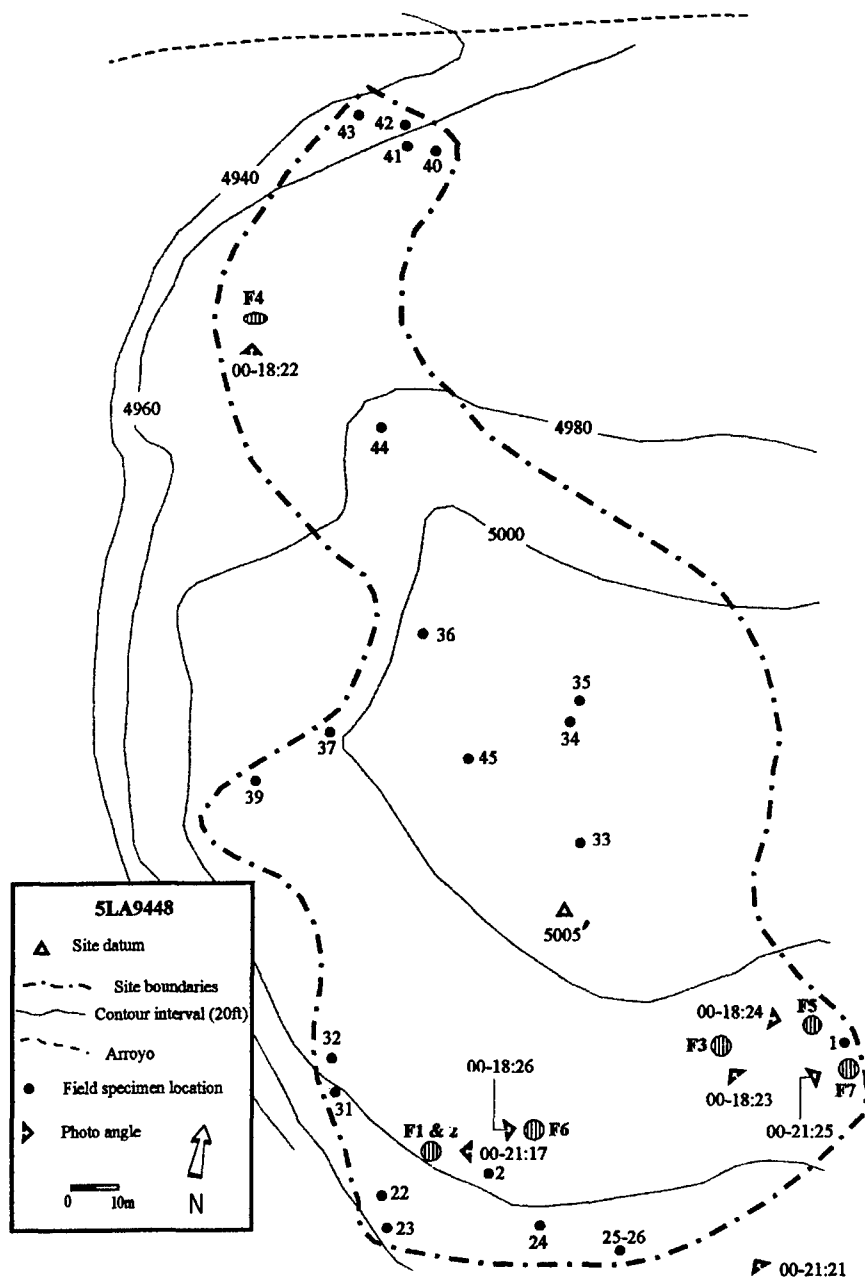


Figure 4.277: Site map, 5LA9448.

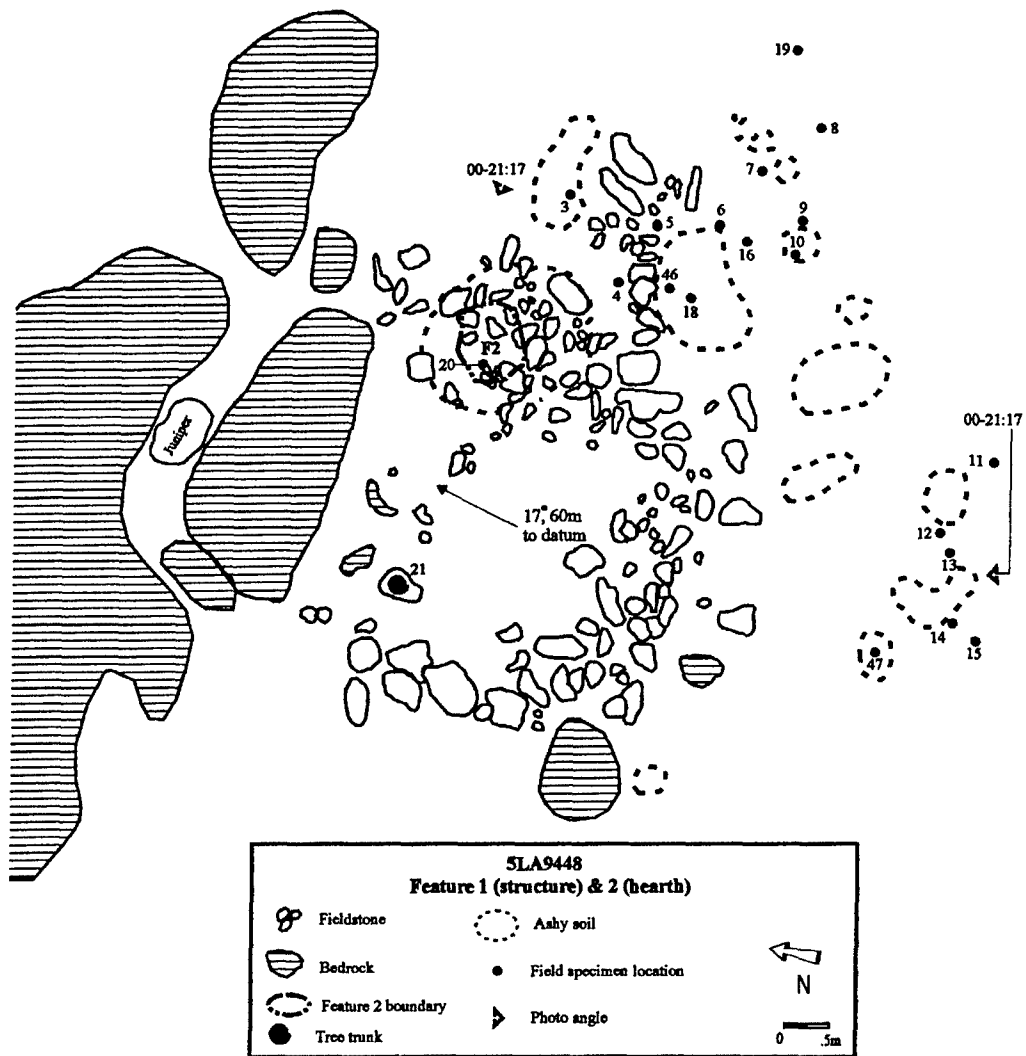


Figure 4.278: Planview maps for Features 1 and 2, 5LA9448.

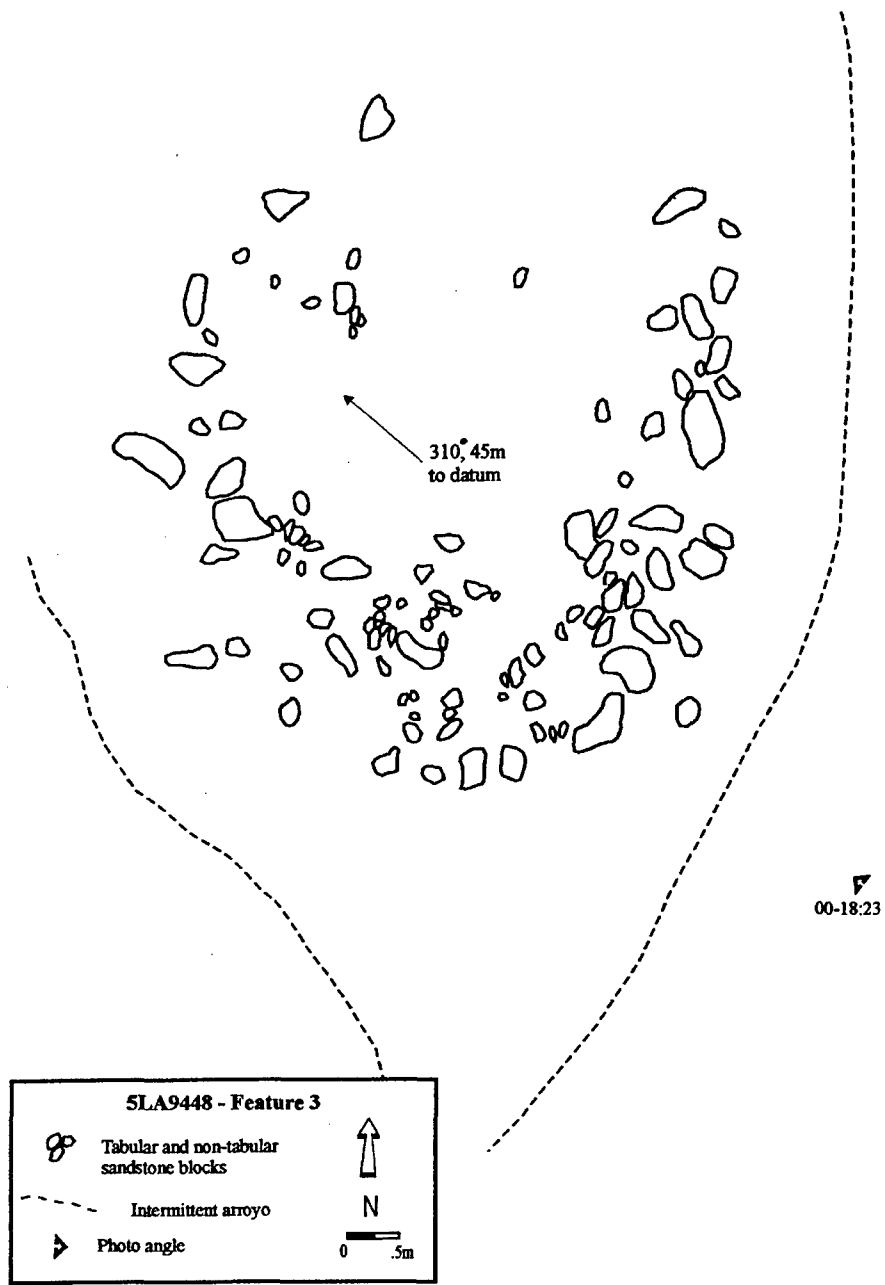


Figure 4.279: Feature 3 planview map, 5LA9448.

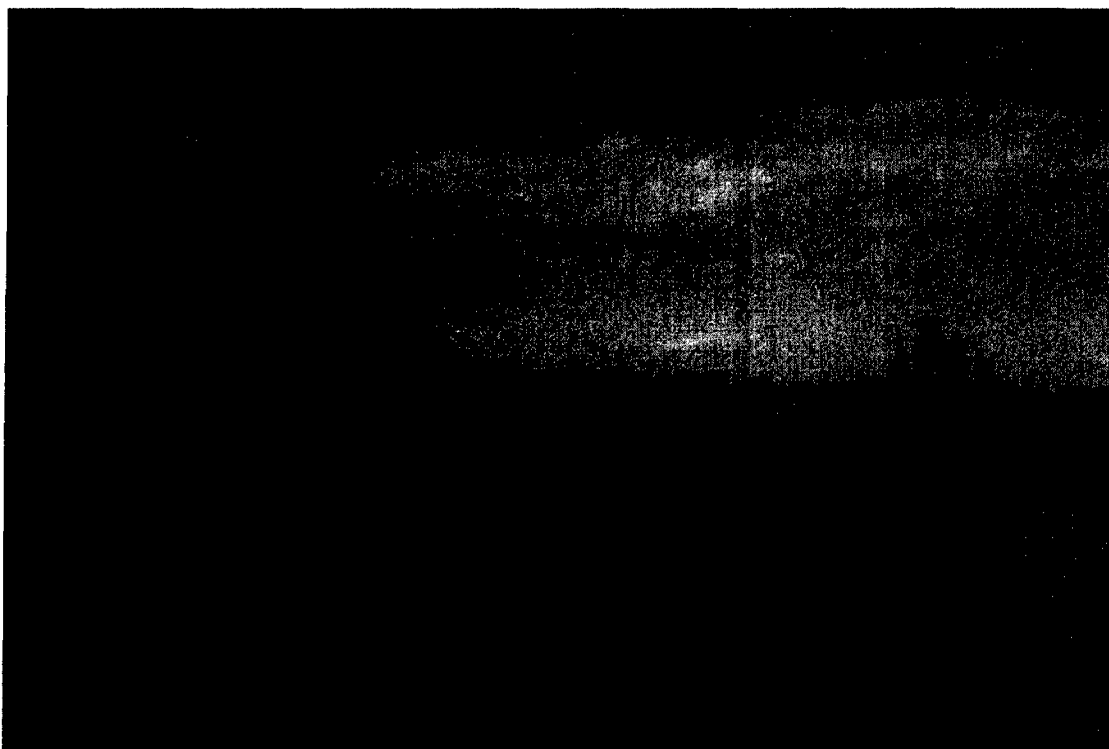


Figure 4.280: Photograph (PCMS 00-21:21) of site 5LA9448.

Ceramic Artifacts

Two ceramic sherds were located near Feature 1. These fragments were not diagnostic according to Krause (Appendix IV, this volume).

Interpretation and Summary

It is recommended that the site be nominated to the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). The site is a multicomponent lithic scatter with habitation structures, activity areas, thermal features, and a large and varied lithic tool assemblage. It was likely a long-term habitation/village site that, in part, may be buried by alluvial sediments. If this is true, intact subsurface cultural deposits, diagnostic artifacts, additional thermal features and structures could be located. The site exhibits sediment deposits of up to 50 cm, and four of the prehistoric features have at least 20 cm. The ground- and chipped-stone tools indicate that activities were primary and secondary raw material reduction, early-stage biface manufacture, and food processing. The thermal features and ceramics suggest cooking and storage, and support habitation. The presence of projectile points, bone, structures, ground-stone artifacts, and ceramics are data useful for

addressing the research domains of chronology, subsistence, trade and exchange, and possibly paleoenvironment. Cultural materials recovered through testing could fill in gaps regarding the research domains of subsistence, settlement, paleoenvironment, and chronology for Early Archaic and Late Prehistoric sites in the region.

Our management recommendation is to avoid and test this site. The integrity of Feature 5 is being compromised by animal impact and should be tested. Test excavations in Features 1-3, and 5 and 6 could provide valuable carbon for dating circular structures in the PCMS and southern Colorado.

5LA9474

This is a large lithic scatter and structure site located on a low ridge near the head of a tributary drainage that feeds Red Rock Canyon (720 m south). The tributary forms a canyon 120 m south of the site, and there is a spring with year-round water 100 meters northwest of the datum. The 2.2-acre site extends from a low outcropping of sandstone at the east site boundary to a flat terrace at its western edge (Figure 4.281). The site datum was placed on the highest portion of the site, and near the structures at an elevation of 1,531 m (5,022 ft) asl. Another site with a similar structure (5LA6105) is located across the drainage 60 m to the northwest.

The site is located in the juniper woodland plant community. Juniper and piñon trees dominate the overstory; black and sideoats grama, cholla, and wheatgrass were also observed on the surface. Sediments on this site are relatively thin, especially along the ridge top where exposed bedrock is common. Both of the structures show at least 20 cm of substrate depth and the area of the site with the thermal feature has a minimum of 30 cm of depth.

Features

Two sandstone slab structures (Features 1 and 2) and a thermal feature (Feature 3) were recorded at the site. Using Kalasz's (1989:108) typology, Features 1 and 2 are Class V contiguous rock wall, isolated, rock abutment units. These architectural features are associated with dates from approximately AD 270 to AD 1360.

Feature 1 (Figure 4.283, 4.285) is a deflated circular structure that measures approximately 5.7 x 3.8 m. It is 8 m southeast of the datum and was built into a sandstone ledge that forms its east wall. It appears to have been built with upright sandstone slabs; however, only four of these remain in upright position and the rest have fallen over and have eroded downhill. A pinflag probe reveals 30 cm of soil depth to bedrock and there is a probability that its prehistoric occupation surface remains intact. No artifacts were found outside Feature 1 as water erosion washed the surface soil away, leaving only exposed bedrock.

Feature 2 is 4.5 m east of the datum and was constructed from medium-sized sandstone blocks placed into the gaps between large sandstone boulders (Figure 4.286). It is circular in outline and measures 4.3 x 3.6 m. Some of the construction blocks exhibit thermal exposure, but

no thermal features were encountered in or around the structure. Deposition here is about 5 cm, but there are pockets of up to 20 cm. No chipped- or ground-stone tools were encountered here.

Feature 3 was found at the western edge of the site, approximately 55 m west of the site datum. It is a large ash stain and concentration of fire-cracked rock that measures roughly 5.1 x 3 m. Another pin flag probe shows 20 cm of fill here.

Lithic Artifacts

One hundred fifty-one pieces of chipped stone were recorded from the site (Table 4.114). Of the total, 61% is fine-grained quartzite, 27% is chert, 7% is coarse-grained quartzite, 3% is argillite, and 1% is orthoquartzite. The assemblage mainly consists of large, cortical debitage (33%) and large, noncortical debitage (32%). Cortex is present on 40 (27%) of the simple flakes, 14 (9%) of the complex flakes, and 5 (3%) of the shatter specimens. Overall, 65% of the debitage was classified as large, and 35% is small. With cortex present on 15% of the small flakes and 48% of the large flakes, it appears that the site functioned chiefly for core and flake blank production, and early-stage biface manufacture. The presence of utilized flakes on site, coupled with the emphasis on core reduction, suggests that some kind of expedient flake tool technology might have been in use. The low percentage (13% of the total assemblage) of small, complex flakes and lack of biface-thinning flakes shows that very little late-stage biface reduction or resharpening occurred.

The tool assemblage contains four pieces of ground-stone and nine chipped stone tools. All of the ground-stone tools are sandstone and include two one-hand mano fragments (FS 8 and 11), a slab metate fragment (FS 9), and a bedrock metate (FS 16, Feature 4). Of the chipped tools, three are chert utilized flakes, three are cores (two quartzite and one argillite), two are projectile point fragments, and one is a chert drill fragment.

Only one temporally diagnostic projectile point was recovered from the surface of this site (Figure 6.16) and it was not found in direct association with any of the features. It (FS 13) is made of argillite and is similar to Anderson's (1989) type P59. This type has associated dates that range from AD 500 and AD 1200. Another point fragment was recovered on the terrace below the features. It (FS 3) is made of Alibates dolomite and seems to have an area of parallel oblique flaking; however, is too fragmented for temporal or type assessment.

A unique class of artifact was also encountered at 5LA9474. Three baked clay pipe fragments that were found together at the base of the ridge approximately 12 m northwest of the datum. All are body pieces that broke in such a way that the internal pipe chambers are clearly visible (Figure 4.284).

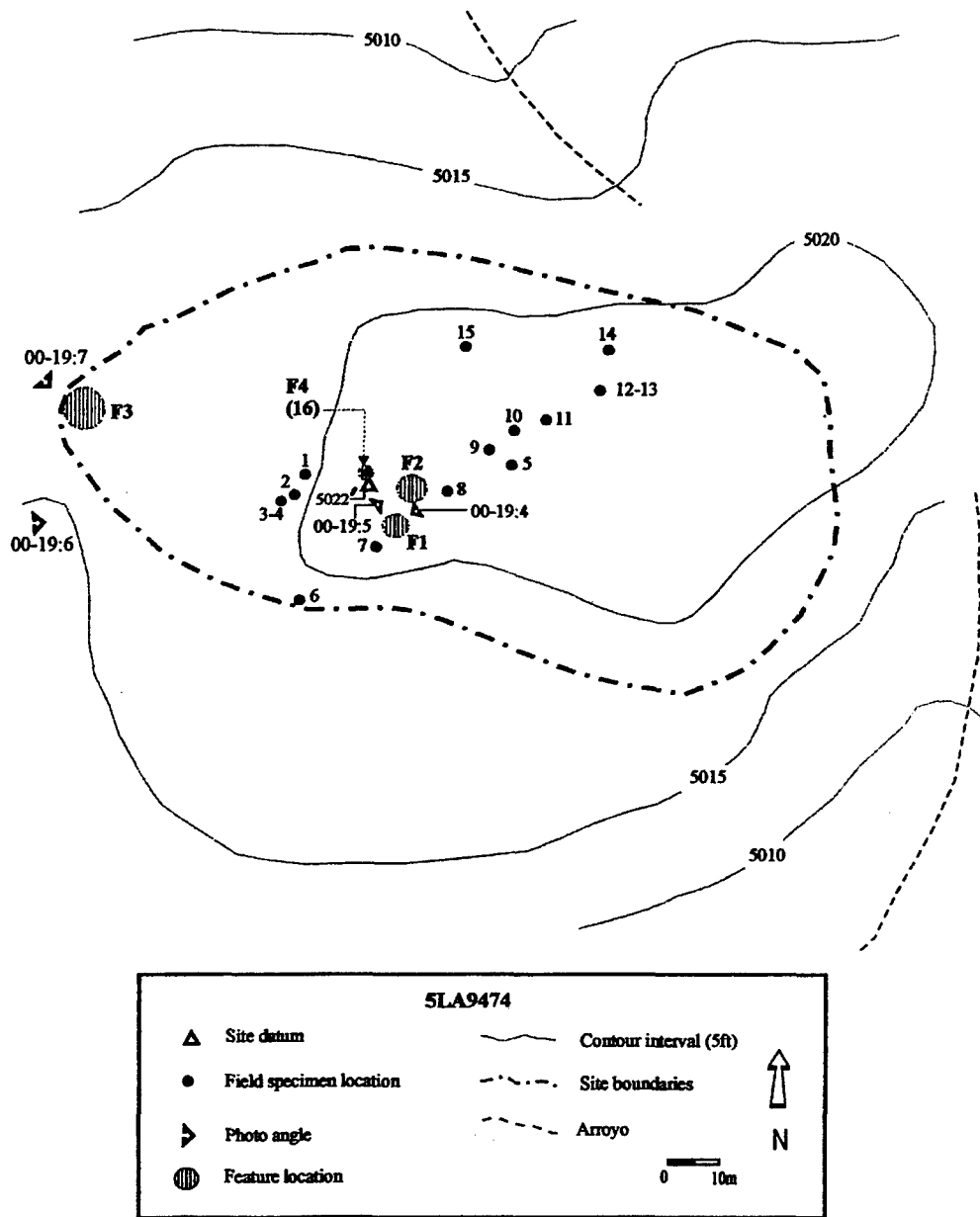


Figure 4.281: Site map, 5LA9474.



Figure 4.282: Site overview photograph (PCMS 00-19:6), 5LA9474.

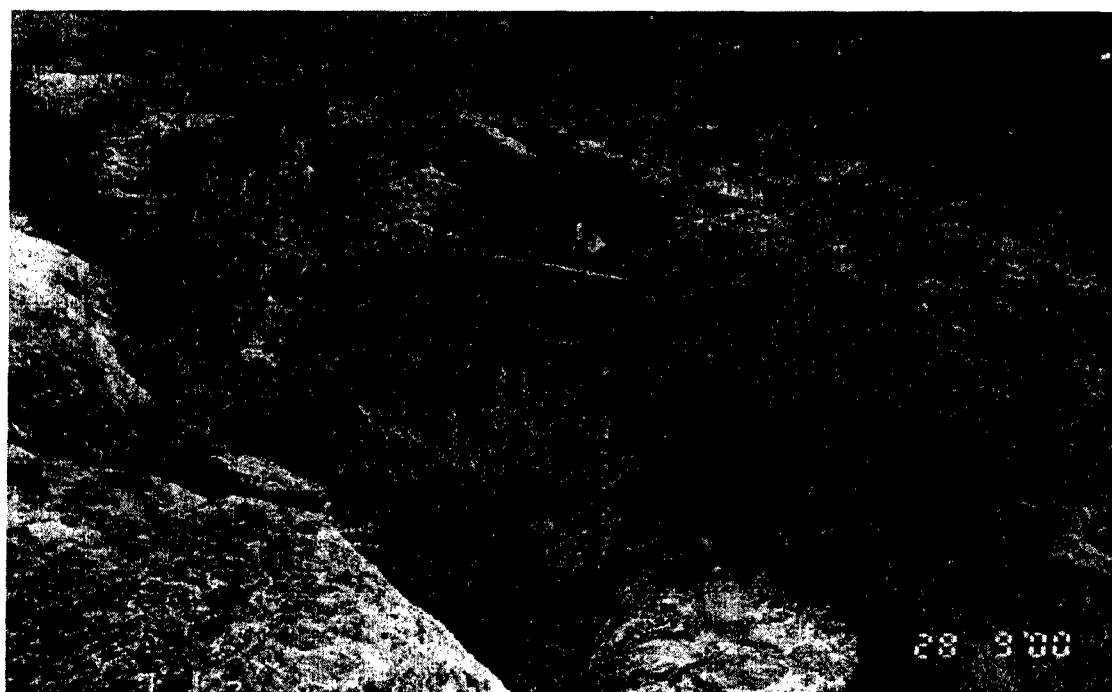


Figure 4.283: Photograph (PCMS 00-19:4) of Feature 1, structure with upright slabs, 5LA9474.

Table 4.114: Summary Description of Chipped-Stone Debitage for 5LA9474.

	Argillite	Chert	C. Quartzite	F. Quartzite	Orthoquartzite	Total
Total	5	41	11	93	1	151
Large	3	20	9	66	0	98
Small	2	21	2	27	1	53
Cortical	0	10	5	44	0	59
Noncortical	5	31	6	49	1	92
Complex	2	14	3	32	0	51
Shatter	3	11	1	4	0	19
Simple	0	16	7	57	1	81

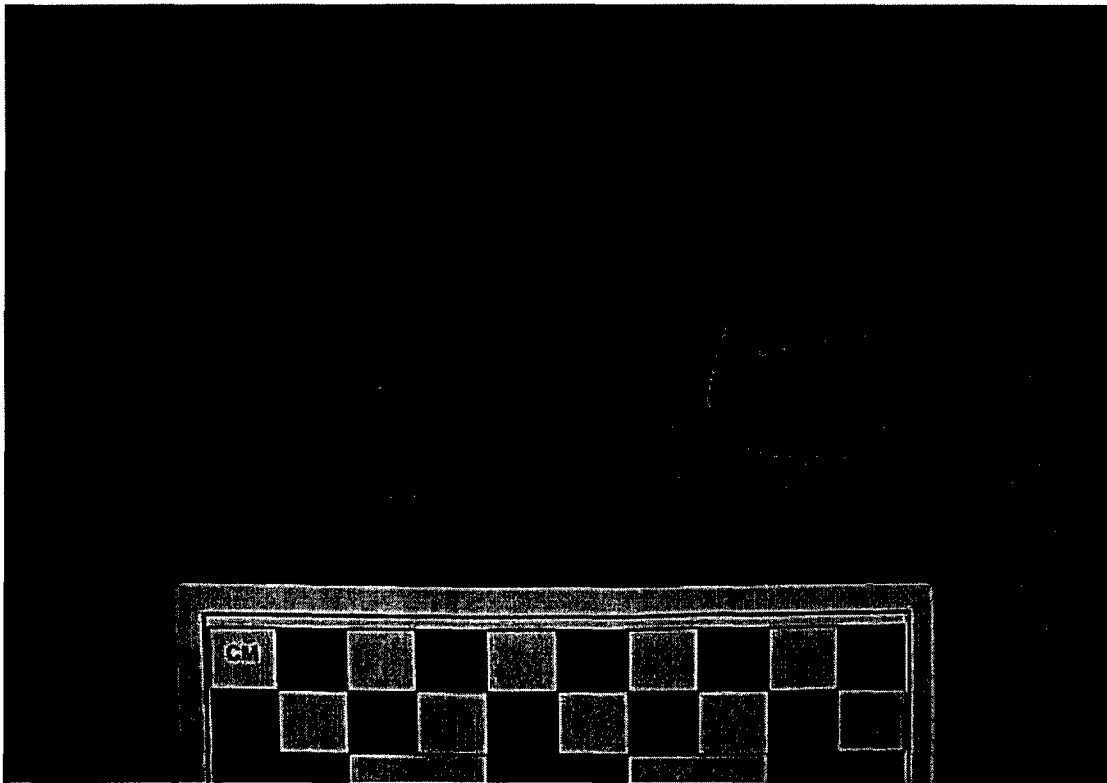


Figure 4.284: Pipe fragments found at the surface of 5LA9474.

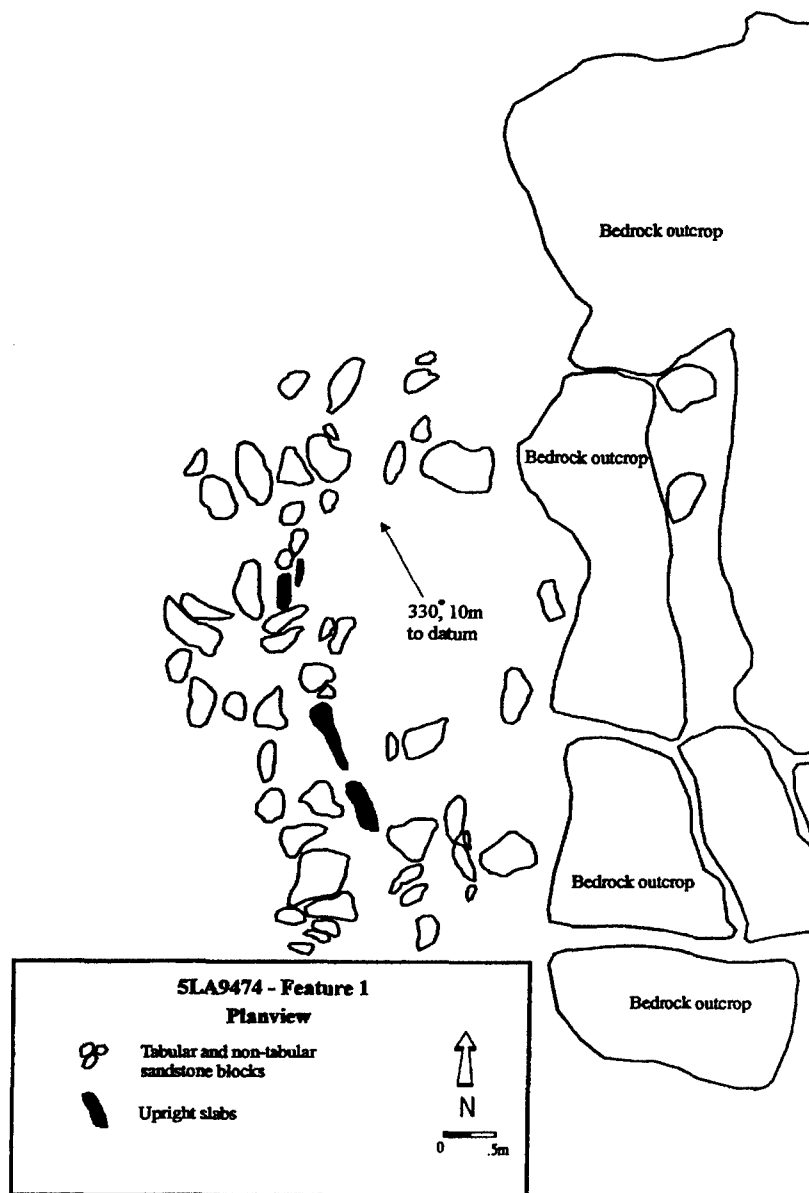


Figure 4.285: Planview map of Feature 1, 5LA9474.

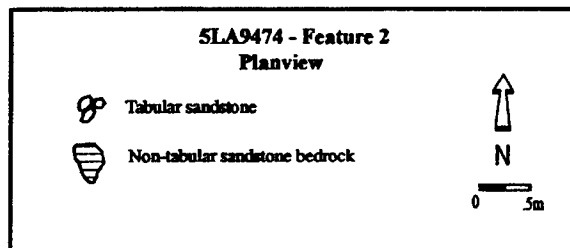
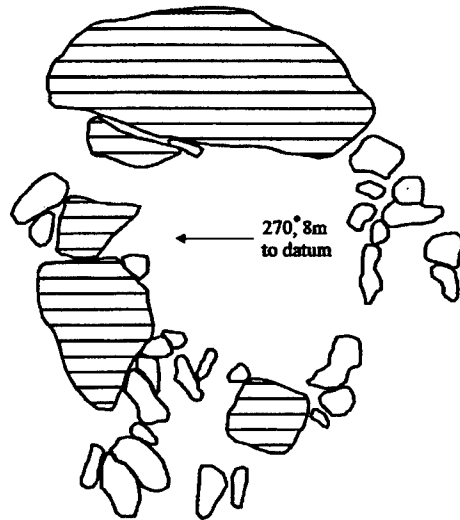


Figure 4.286: Planview map of Feature 2, a structure, 5LA9474.

Table 4.115: Stone Tool Type by Material Group for 5LA9474.

Material	Type						Total
	Drill	Core	Projectile	Flake Tool	Mano	Metate	
Argillite	0	1	1	0	0	0	2
Alibates	0	0	1	0	0	0	1
Chert	1	0	0	3	0	0	4
Coarse-grained Quartzite	0	1	0	0	0	0	1
Fine-grained Quartzite	0	1	0	0	0	0	1
Sandstone	0	0	0	0	2	2	4
Total	1	3	2	3	2	2	13

Interpretation and Summary

We recommend that this site be determined eligible for the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). This is a dense lithic scatter with a well-preserved thermal feature, and two circular slab structures. Feature 1 is in particularly good condition and has at least 30 cm of deposition. There is a good potential for encountering intact subsurface cultural deposits inside this feature. Feature 3 has a high probability of yielding charcoal or carbon useful for dating and chronological purposes. A diagnostic projectile point was recovered in addition to ground stone and a bedrock metate. These artifacts indicate that further work at the site could yield information relevant to understanding regional chronology, subsistence, settlement patterns, and paleoenvironment.

Our management recommendation is avoid and test. We suggest the site be revisited for detailed mapping and a thorough surface collection. Features 1 through 3 should be excavated not only for the potential data recovery but because they are being impacted by erosion.

5LA9476

The site is a moderate lithic scatter and thermal feature (Feature 1) situated on the north side of Red Rock Canyon in an area containing several large drainages (Figures 4.287, 4.288). Sites 5LA9365, 5LA9475, and 5LA9477 are nearby. Site 5LA9476 is on the crest of a wide east to west trending ridge that slopes gently to the north. This 1.1-acre site has sandstone bedrock exposed over most of the surface, and large bare patches of ground are visible. Soil pockets are <15 cm deep and juniper woodland is the vegetation community type. Juniper, tree cholla, prickly pear, yucca, blue grama, and skunkbrush sumac were observed.

Features

Feature 1 is a concentration of very dark earth and thermally altered rocks eroding out of the surface (8 m and 150 degrees from datum) (Figure 4.289). It measures 3.5 x 2.5 m and a pinflag probe reveals 15 cm in depth. This feature is slightly deflated though it is in good condition overall. Its positioning at the crest of the ridge and the lack of vegetative cover in the

area are leading to erosion, and this erosion threatens the deposits within the feature. Three pieces of ground-stone (FS 2, 3, and 4) and several debitage items were found just outside the staining. A few other areas on site show very light staining and may be buried thermal features starting to expose at the surface.

Lithic Artifacts

One hundred fifty-one pieces of debitage were recorded randomly from across the surface of the site (Table 4.116). This sample contained 78 complex flakes, 64 simple flakes, and 9 pieces of shatter. These were 69% fine-grained quartzite, 13% chert, 9% argillite, 5% coarse-grained quartzite, 3% orthoquartzite, <%, hornfels/basalt, and <% siltstone. All the material types are locally available, and at the parent source outcrop in bed, or nodule, form. Overall, 41% of the assemblage has cortex. Most items were assigned to the large size grade (73%), with fewer (27%) recorded as small. The percentage of large noncortical flakes (39%) is higher than the percentage for large cortical flakes (34%), small noncortical flakes (20%), and small cortical flakes (7%). This information, coupled with the presence of cores and close proximity to outcropping sandstone beds in Red Rock Canyon, indicates that early-stage raw material reduction was responsible for generating most of the debitage. Small complex flakes (15%) and the presence of three preform tools suggests that biface manufacture was another significant site activity. Eight chert debitage items show a red color change suggesting heat treatment.

The tools (Table 4.117) consist of four cores, three preforms, three manos, two metates, and a projectile point. The fine-grained quartzite preform (FS 2) is more of a Late Prehistoric knife with wear on both lateral edges. The basalt specimen (FS 2) was discarded because it could not be further thinned. One temporally diagnostic projectile point was recovered from the surface of this site (Figure 6.13). This large orthoquartzite point (FS 11) is missing both of its barbs and tangs and is most similar to Anderson's (1989) Type P37. The estimated date for this style of point falls into the Developmental period of the Late Prehistoric Stage (AD 850 to AD 1100). One of the preforms (FS 7) shows partial finishing and would have been another large point. A corner break during manufacture led to the discard of this item.

Three manos and two metates comprise the ground-stone tool assemblage. All are sandstone and three items have been burned. One of the manos is broken and two were whole, while both metates are internal fragments from larger tools.

Table 4.116: Summary Description of Chipped-Stone Debitage for 5LA9476.

	Argillite	Chert	C. Quartzite	F. Quartzite	Hornfels/Basalt	Orthoquartzite	Siltstone	Total
Total	14	19	7	104	1	5	1	151
Large	10	9	7	80	1	2	1	110
Small	4	10	0	24	0	3	0	41
Cortical	6	3	1	52	0	0	0	62
Noncortical	8	16	6	52	1	5	1	89
Complex	6	9	4	53	-1	5	1	79
Shatter	0	3	0	6	0	0	0	9
Simple	8	7	3	45	0	1	0	64

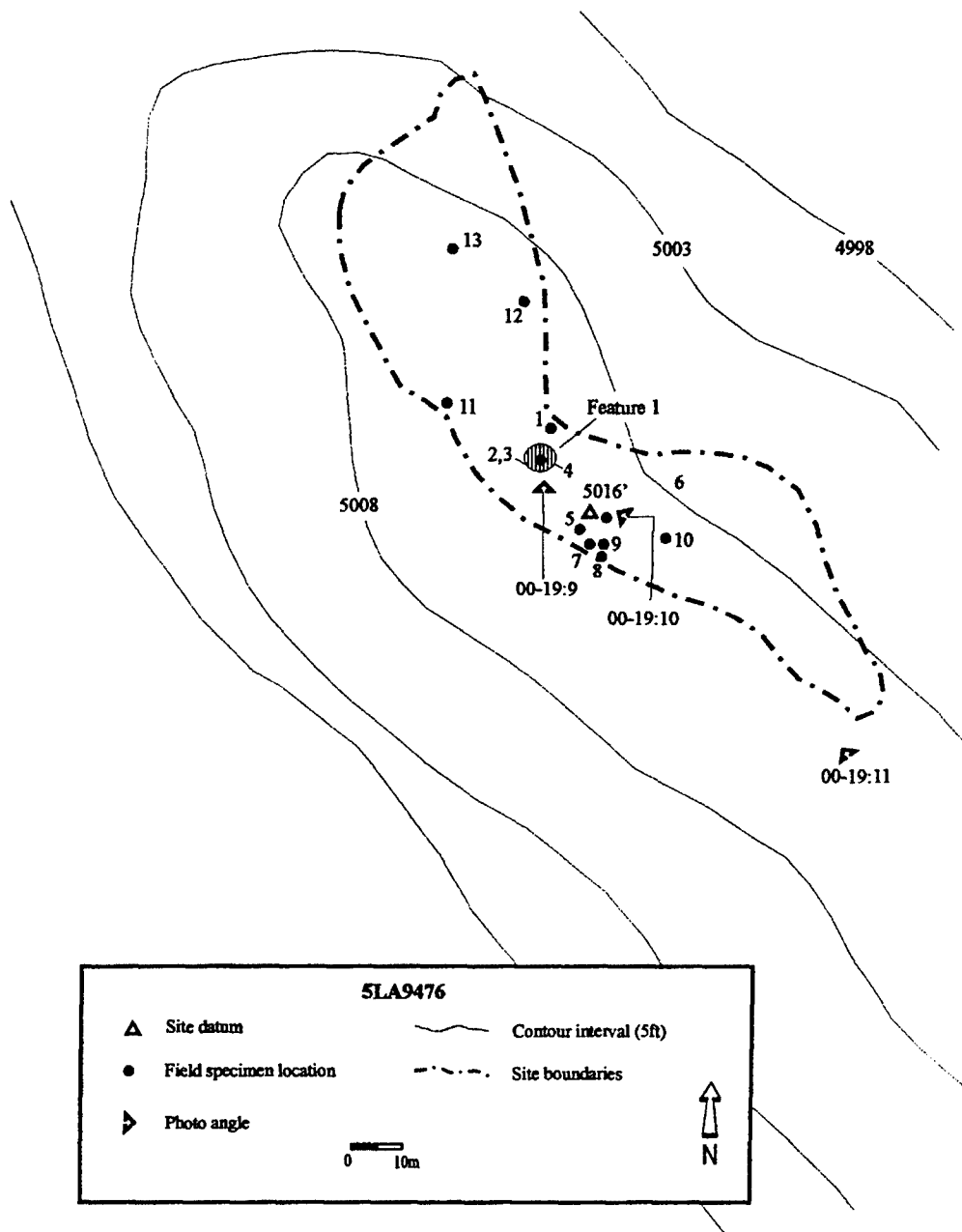


Figure 4.287: Site map, 5LA9476.

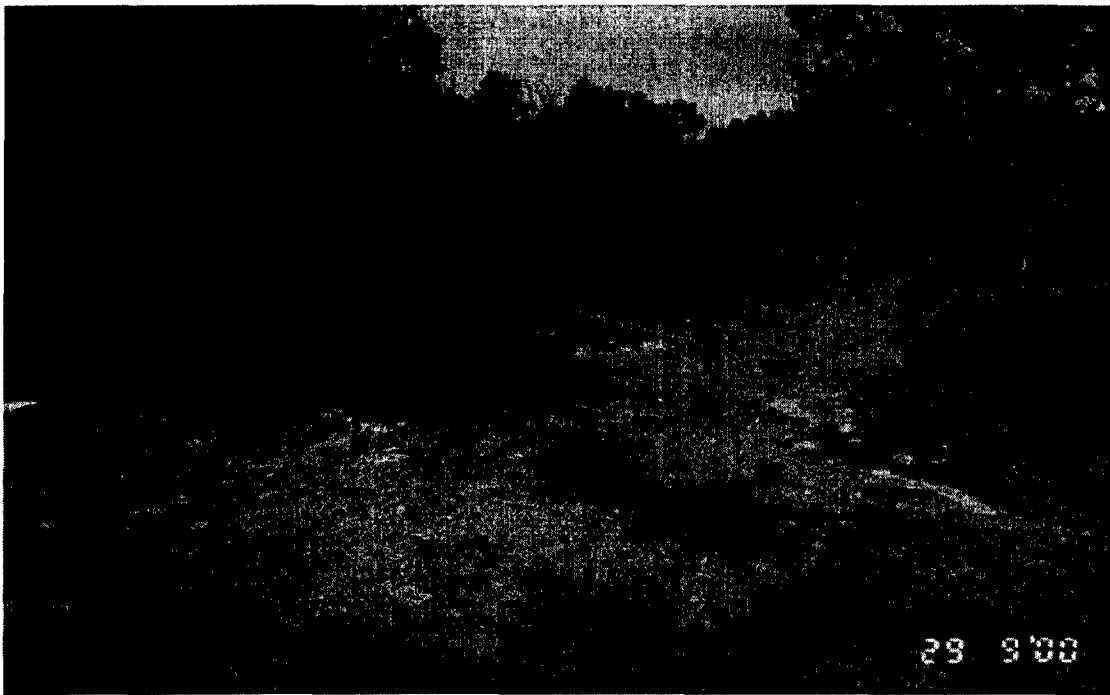


Figure 4.288: Site overview photograph (PCMS 00-19:9) of site 5LA9476.



Figure 4.289: Photograph (PCMS 00-19: 9) of Feature 1, a hearth at 5LA9476.

Table 4.117: Stone Tool Type by Material Group for 5LA9476.

Material	Type					Total
	Preform	Core	Projectile	Mano	Metate	
Chert	0	1	0	0	0	1
Fine-grained Quartzite	1	3	0	0	0	4
Sandstone	0	0	0	3	2	5
Hornfels/Basalt	1	0	0	0	0	4
Orthoquartzite	1	0	1	0	0	2
Total	3	4	1	3	2	16

Interpretation and Summary

Site 5LA9476 is a lithic scatter and thermal feature. Sediments within the feature are 15 cm deep and may contain intact buried cultural deposits; however, erosion threatens this feature. Other areas of the site exhibit light ashy staining. Test excavations in these areas have a good chance for locating data such as pollen, faunal, and macrobotanical remains useful for reconstructing subsistence and paleoenvironment. The temporally diagnostic projectile point suggests at least one occupation during the Developmental period of the Late Prehistoric stage (AD 850 – AD 1100). We recommend that the site be considered for nomination to the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). We also recommend that a data recovery plan be implemented before all data is lost from Feature 1.

5LA9478

This is a large lithic scatter and rockshelter site located in the upper drainage basin of a large feeder canyon in the Red Rock Canyon system (Figure 4.290). The .28-acre site sits at the southern base of a north to south trending ridge that was formed by outcropping sandstone bedrock. The site extends from the base of the ridge and downslope to an intermittent drainage. Artifacts were encountered across the slope with most in front of the shelters. The datum is at an elevation of 1,517 m (4,978 ft) asl. The entire site is difficult to reach by vehicle and is not in danger from military training at this time.

Vegetation in the vicinity of the site is dominated by juniper and black grama. Skunkbrush, sideoats grama, cholla, and yucca were observed in smaller amounts. Soil deposits varied across the site but for the most part, they are shallow (<10 cm). Some of the features show much greater depth however.

Features

Feature 1 was a rockshelter and is the northernmost of the shelters (Figure 4.292). It contains one main chamber that measures 6.6 x 3.2 m and has a floor to roof height of 2.5 m.

Most of the feature floor is exposed sandstone bedrock but there are pockets of soil of up to 10 cm. One pocket contains fire-cracked rock and ashy sediment but this is likely fill from erosion and the context is poor. Along the drip line and at the central portion of the mouth of the shelter, a large sandstone boulder forms a wall and extends up from the modern ground surface to the drip line. Desert varnish covers the roof of this shelter but there is no evidence of soot.

Feature 2 represents another shelter. It is smaller than Feature 1, measuring approximately 5 x 2 m. A bedrock metate (Feature 4) made on a large roof-fall block was found on its floor. Deposition in the shelter ranges from 10 to 20 cm with rodent burrowing causing movement and erosion of fill. Sooting and thermal damage are present on the roof (1.5 m above the modern ground surface), however, there are no remains of thermal features on the floor. Test units here could locate one or more hearths.

Feature 3 designates a nearly circular arrangement of unmodified tabular sandstone blocks. It measures roughly 6.9 x 5.5 m and is filled with a thick deposit of ash, fire-cracked rock, and lithic artifact fragments. This feature needs to be tested. Its location on the hill slope (> 4 degree slope) makes it vulnerable to sheetwash erosion. Testing could also determine its original form. We suspect this is a habitation structure dating to sometime during the Apishapa phase of the Late Prehistoric stage, however from the surface remains, it could also be some kind of slab-lined roasting feature.

Feature 5 is a small overhang located at the southern edge of the sandstone caprock. It measures 5.2 x 2.9 m and has a floor to roof height of 2 m. The modern ground surface shows three large roof fall blocks and these appear to be covering at least 70 cm of soil deposition. There is another large are of ash staining in front of the shelter and below the roof fall blocks (Feature 6). It measures 5.6 x 2.7 m and is currently smearing downhill. A pinflag probe reveals at least 25 cm of intact fill. Burned debitage was recovered at the surface of this eroded hearth, however, no tools were found.

Lithic Artifacts

Table 4.118 presents a summary of the 151 chipped-stone debitage that was recorded at the site. Six material types were noted. Of the total debitage, the overwhelming majority is quartzite (67% fine-and 9% coarse-grained). The other 24% of the materials are orthoquartzite (13%), chert (7%), basalt (3%), and argillite (1%). All materials are locally available and can be found in both Red Rock Canyon and the feeder canyon less than 600 m away from the site.

The debitage consisted of 71 simple flakes, 69 complex flakes, and 10 pieces of shatter. The assemblage mainly consists of large noncortical debitage (43%) and large cortical debitage (37%). Cortex was present on 12 (8%) of the complex flakes, 43 (29%) of the simple flakes, and 6 (4%) of the shatter specimens. Overall, 81% of the debitage was classified as large, and 19% is small. With cortex present on 3% of the small flakes and 37% of the large flakes, it appears that the site functioned chiefly as a raw material reduction and early-stage biface manufacture location, with most of the material types collected in nodule or cobble form. The presence of several utilized or retouched flakes on site, coupled with the emphasis on core reduction,

suggests that some kind of expedient flake tool technology might have been in use. The low percentage (16%) of small noncortical flakes and lack of biface-thinning flakes shows that very little late-stage biface reduction or resharpening occurred.

The chipped-stone tool assemblage consists of 19 artifacts, of which 5 are projectile points, seven are cores, three are biface, two are utilized flakes, one is the bit of a drill, and one is an end/side scraper fragment (Table 4.119). Material types noted for the cores are orthoquartzite (3), chert (2), baked clay, and fine-grained quartzite (1). Of the bifaces, the two quartzite items were broken during manufacture and the orthoquartzite biface was discarded because it could not be further thinned. Both utilized flakes are broken and were used as expedient scraping tools. One is fine-grained quartzite and the other is Alibates dolomite from the Texas panhandle.

Five projectile points were recovered from the surface of this site; all are temporally diagnostic. The first two points were found very close together at the surface near Feature 3. The first chert point (FS 16) is more of a preform and is similar to Anderson's (1989) type P49. This type of artifact is associated with dates that range between AD 800 and AD 1750. The other point (FS 17) from Feature 3 is made of chert, was classified as a P83, and dates from AD 750 to AD 1650. Two other points were found near each other south of the datum. Field Specimen 36 is nearly complete and made of fine-grained quartzite. It is a P52, and has a date range of AD 800 to AD 1350. Field specimen 37 was found on the hill slope 3 m south of FS 36. It is a large obsidian point fragment (Type P10- Figure 6.5) and has an age estimate of 5500 BC to 3000 BC. The last point (FS 31) is orthoquartzite, a P48, and was used sometime between AD 500 and AD 1400. Based on the points, two distinct occupations are suggested. One of these is Early Archaic and the other was sometime in the Late Prehistoric stage. Actually, it seems very likely that there is more than one Late Prehistoric occupation here, and this could likely be determined through test excavation.

The inventory of ground-stone tools, excluding the bedrock metate (Feature 4), includes nine slab metate fragments and eight mano fragments. Several of these tools display evidence of heavy use and secondary burning.

Table 4.118: Summary Description of Chipped-Stone Debitage for 5LA9478.

	Argillite	Chert	C. Quartzite	F. Quartzite	Hornfels/Basalt	Orthoquartzite	Total
Total	1	11	14	100	4	20	150
Large	1	9	12	81	3	15	121
Small	0	2	2	19	1	5	29
Cortical	1	4	7	46	1	2	61
Noncortical	0	7	7	54	3	18	89
Complex	0	9	7	41	2	10	69
Shatter	0	0	0	9	0	1	10
Simple	1	2	7	50	2	9	71

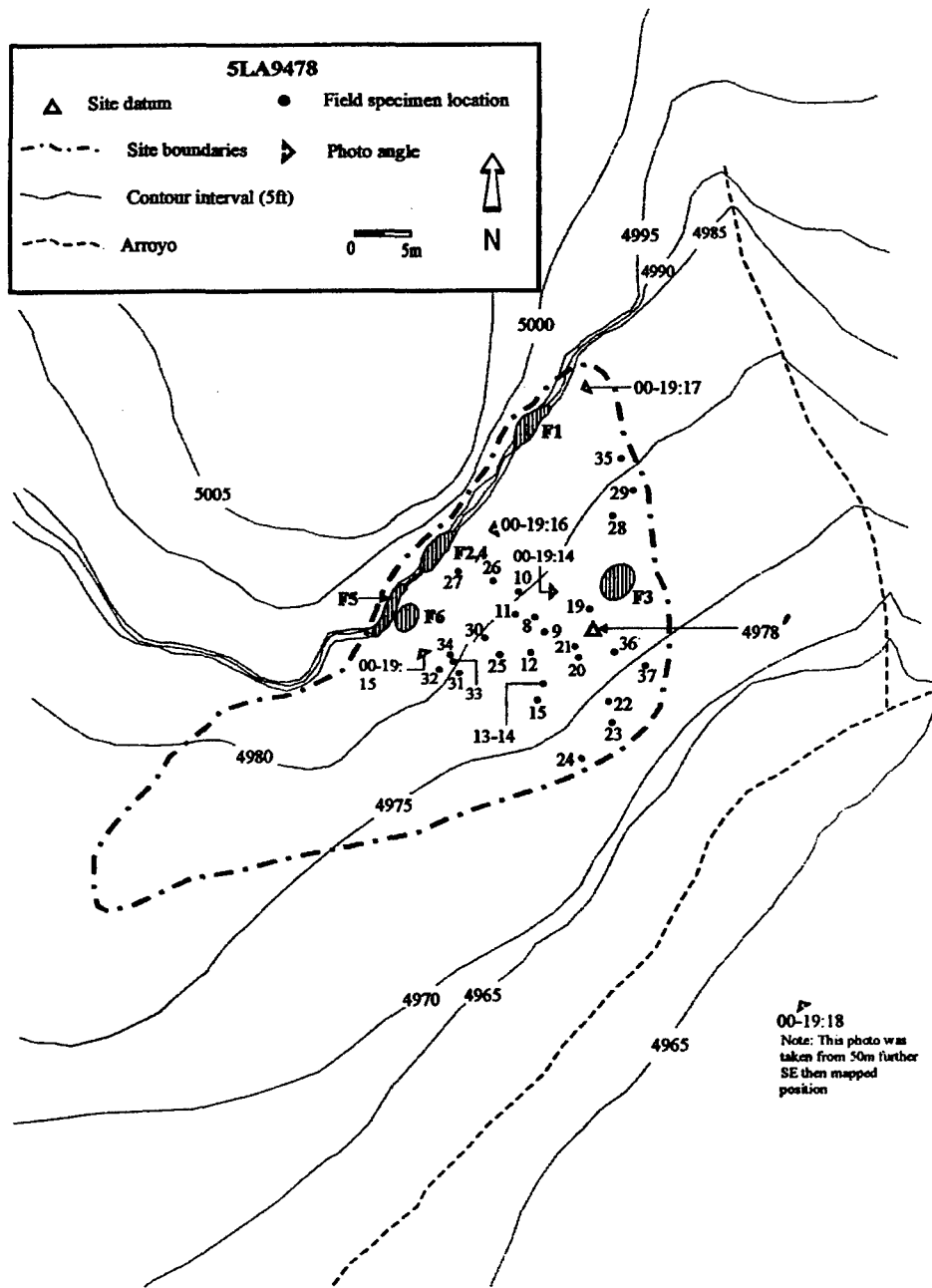


Figure 4.290: Site map, 5LA9478.



Figure 4.291: Site overview photograph (PCMS 00-19:18) of 5LA9478.



Figure 4.292: Photograph (PCMS 00-19:17) of Feature 1, a rockshelter, 5LA9478.

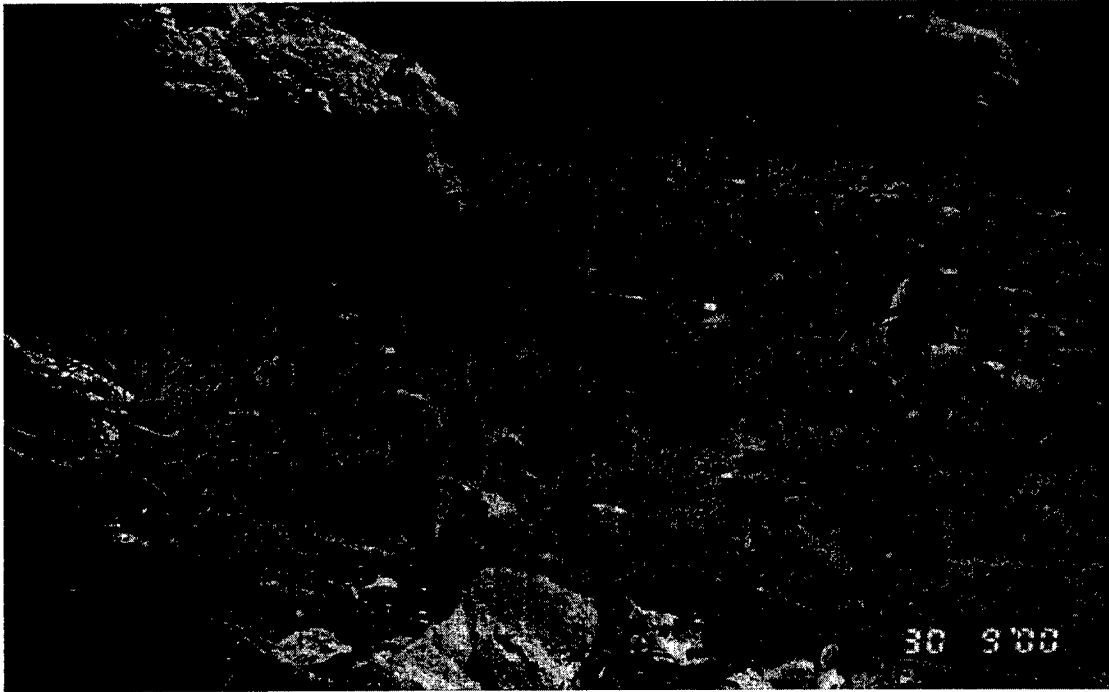


Figure 4.293: Photograph (PCMS 00-19:14) of Feature 3, a structure with thermal feature, 5LA9478.

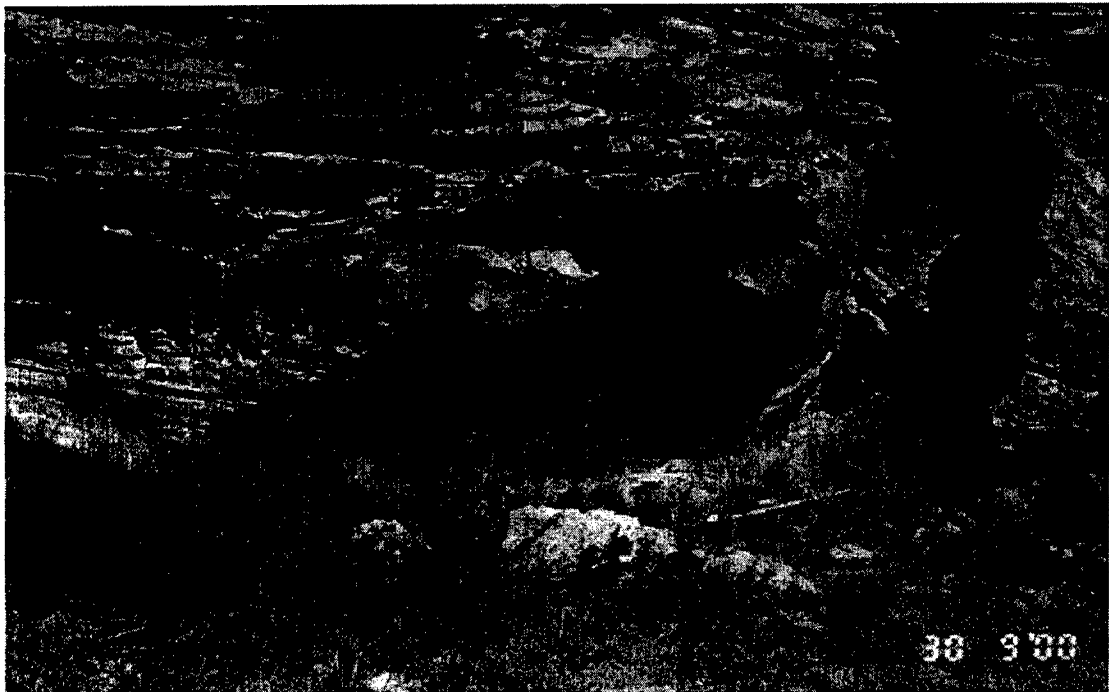


Figure 4.294: Photograph (PCMS 00-19:15) of Feature 5, a rockshelter, 5LA9478.

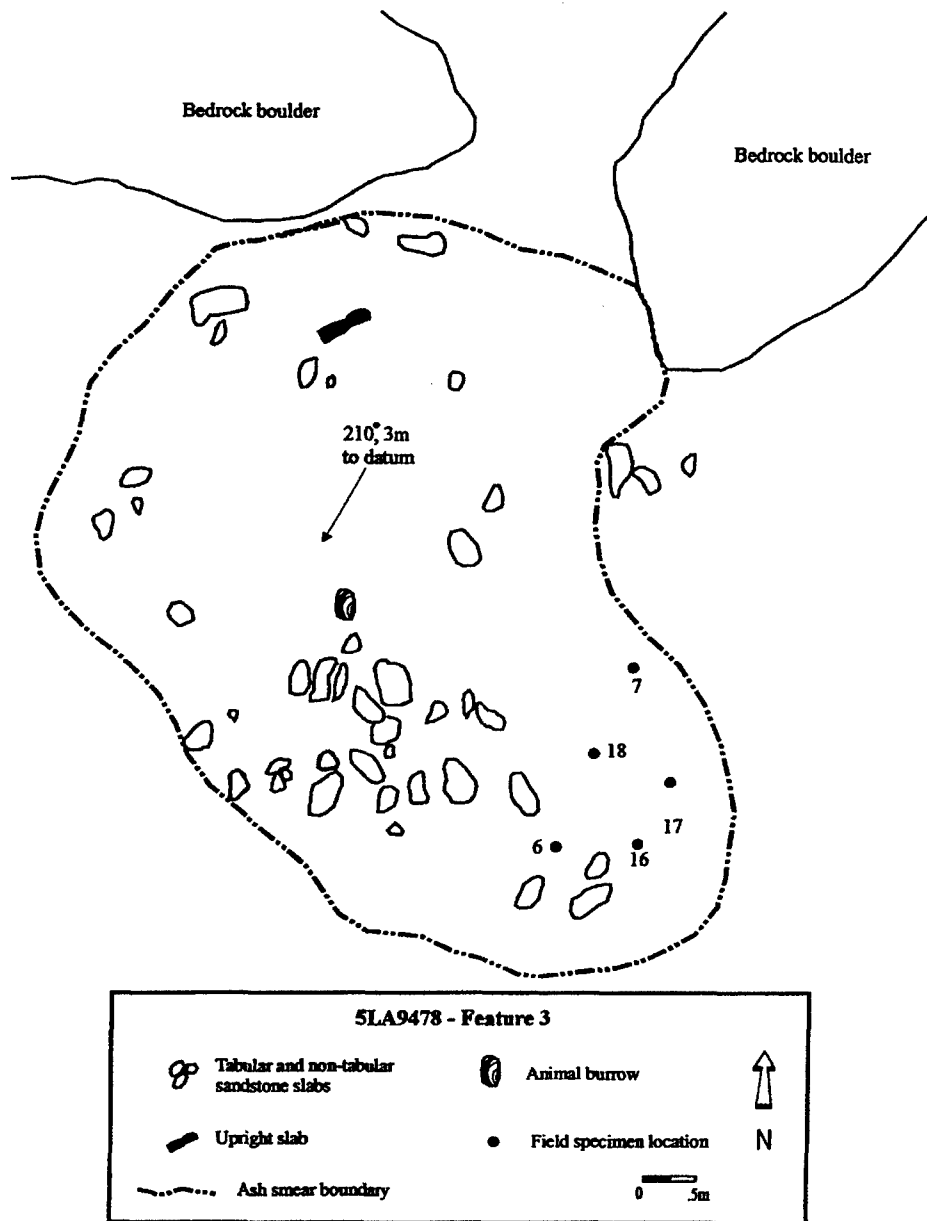


Figure 4.295: Planview, Feature 3, 5LA9478.

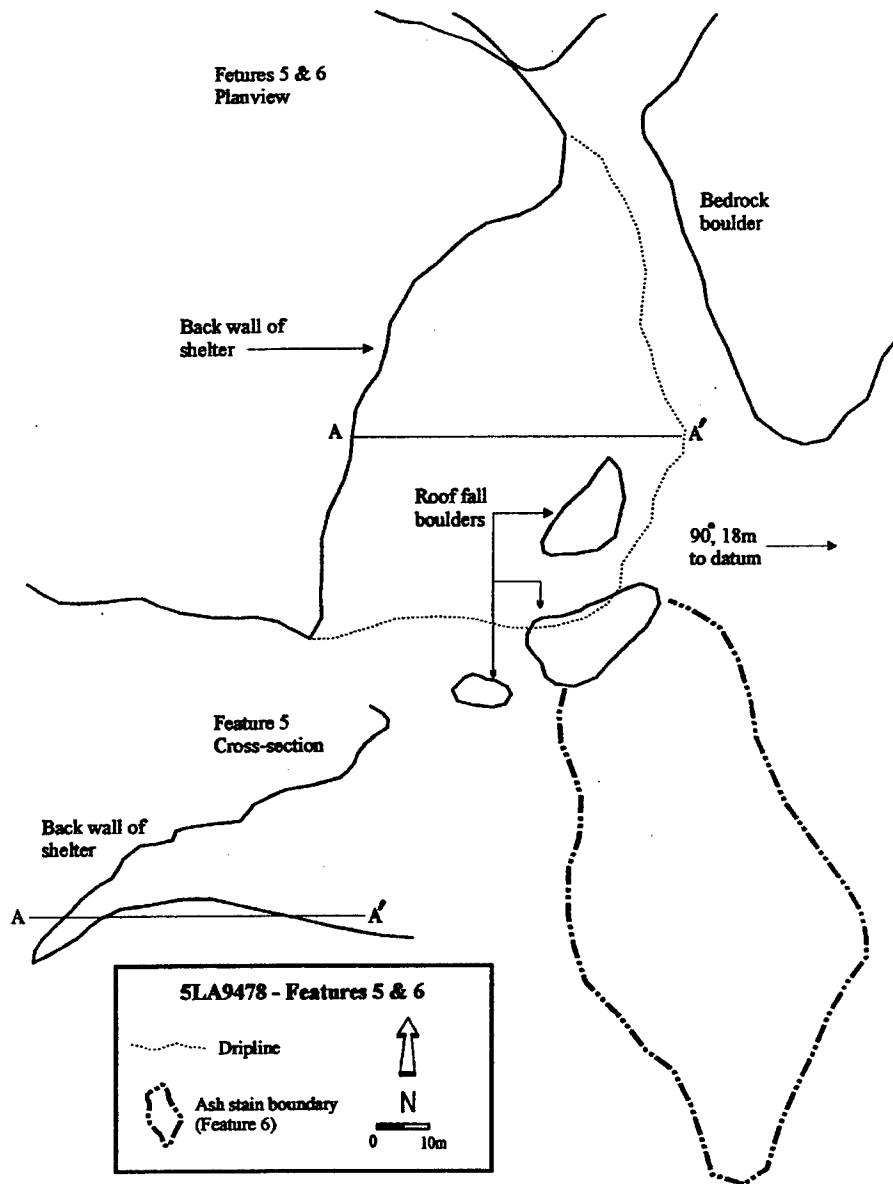


Figure 4.296: Planview maps for Features 5 and 6, and cross-section for Feature 5, 5LA9478.

Table 4.119: Stone Tool Type by Material Group for 5LA9478.

Material	Type								Total
	Biface	Core	Projectile	Drill	Scraper	Flake Tool	Mano	Metate	
Argillite	0	0	0	0	1	0	0	0	1
Baked claystone	0	1	0	0	0	0	0	0	1
Chert	0	2	2	1	0	0	0	0	5
Coarse-grained Quartzite	1	0	0	0	0	1	1	0	3
Fine-grained Quartzite	1	1	1	0	0	0	0	0	3
Obsidian	0	0	1	0	0	0	0	0	1
Sandstone	0	0	0	0	0	0	7	10	17
Alibates Dolomite	0	0	0	0	0	1	0	0	1
Orthoquartzite	1	3	1	0	0	0	0	0	5
Silicified Wood	0	0	0	0	0	0	0	0	0
Total	3	7	5	1	1	2	8	10	37

Interpretation and Summary

We recommend that this site be considered for nomination to the National Register on the grounds that it is likely to yield information important to our understanding of prehistory (Criterion D). Site 5LA9478 is a multicomponent lithic scatter with a high artifact density, thermal features, and rockshelters. In both Features 3 and 6 there is a high probability for recovering charcoal or carbon, each useful for dating and chronological purposes. These may also contain pollen, macrobotanical, and faunal remains, which combined with the presence of ground stone, indicates a possibility of recovering information for the reconstruction of subsistence practices and paleoenvironment. The presence of obsidian and Alibates dolomite suggest the possibility for addressing issues of trade and exchange.

The site is in a steep canyon and is not in danger from military activities, thus, our management recommendation for 5LA9478 is avoid and test. Both thermal features have great recovery potential but will eventually be destroyed by erosion.