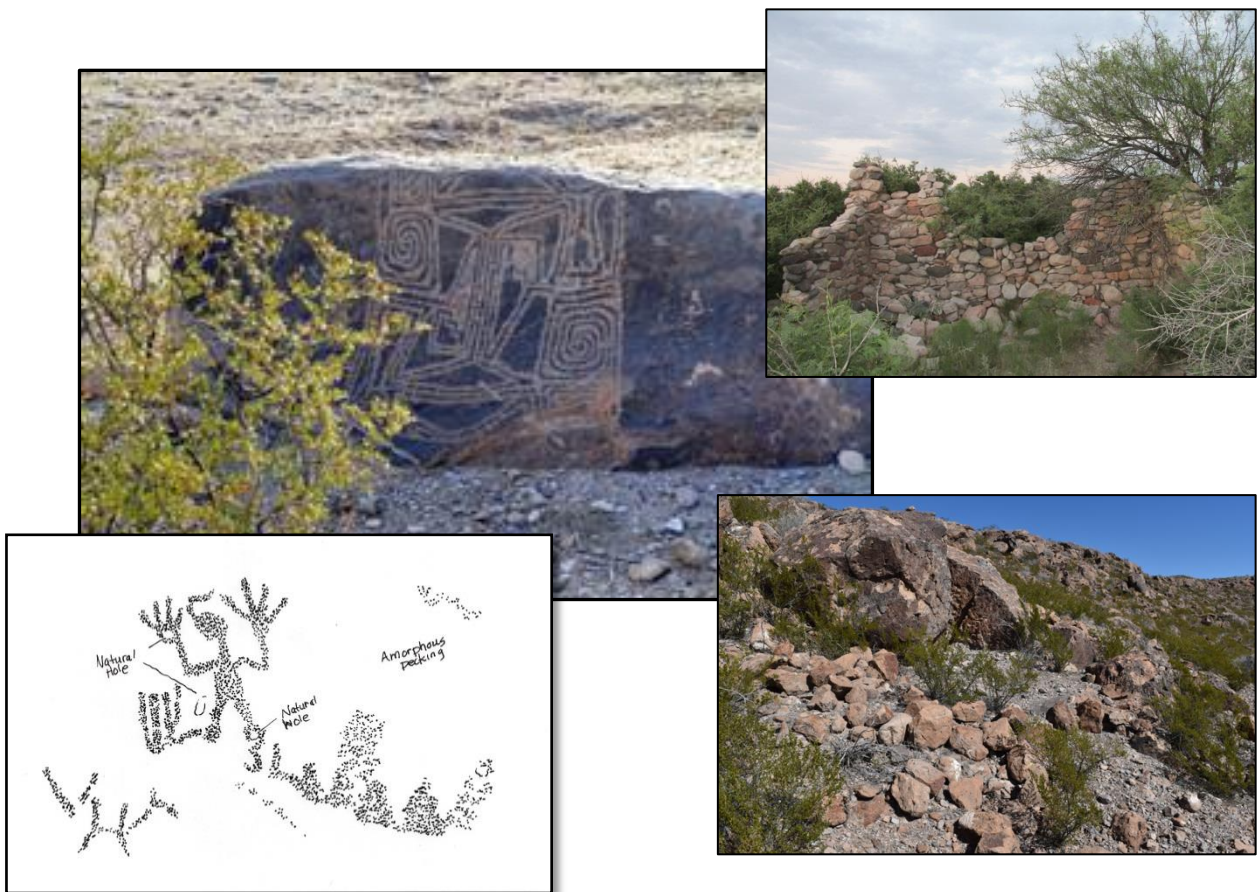


Cultural Resources Overview

Desert Peaks Complex of the
Organ Mountains – Desert Peaks National Monument
Doña Ana County, New Mexico

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Public Version

This version of the Cultural Resources overview is intended for public distribution. Sensitive information on site locations, including maps and geographic coordinates, has been removed in accordance with State and Federal antiquities regulations.

Executive Summary

Since the passage of the National Historic Preservation Act (NHPA) in 1966, at least 50 cultural resource surveys or reviews have been conducted within the boundaries of the Desert Peaks Complex. These surveys were conducted under Sections 106 and 110 of the NHPA. More recently, local avocational archaeologists and supporters of the Organ Monument-Desert Peaks National Monument have recorded several significant rock art sites along Broad and Valles canyons.

A review of site records on file at the New Mexico Historic Preservation Division and consultations with regional archaeologists compiled information on over 160 prehistoric and historic archaeological sites in the Desert Peaks Complex. Hundreds of additional sites have yet to be discovered and recorded throughout the complex. The known sites represent over 13,000 years of prehistory and history, from the first New World hunters who gazed at the nighttime stars to modern astronomers who studied the same stars while peering through telescopes on Magdalena Peak.

Prehistoric sites in the complex include ancient hunting and gathering sites, earth oven pits where agave and yucca were baked for food and fermented mescal, pithouse and pueblo villages occupied by early farmers of the Southwest, quarry sites where materials for stone tools were obtained, and caves and shrines used for rituals and ceremonies. Twenty-eight rock art sites are known and many more have yet to be discovered or documented. Each rock site contains an irreplaceable record of symbolic expressions of past beliefs.

The Robledo Mountains and Sierra de las Uvas of the Desert Peaks Complex played an important role during the War of Apacheria or Apache Conflict (1865-1890). Apache Conflict sites include a hideout reportedly used by Geronimo and a US Army heliograph communication station on Lookout Peak. European Historic sites include rock cairns marking the boundary of the Gadsden Purchase, a segment of the Butterfield-Overland Mail Trail and the Mason Ranch stage stop, and several historic ranch settlements dating to the Territorial and Statehood periods. A shallow cave along the eastern flanks of the Robledo Mountains once served as a hideout for William Bonney (Billy the Kid) and the names of Bonney and his cohorts are inscribed near the cave. In the modern era, Depression Era Civilian Conservation Corps dams were built along Box Canyon and several targets were constructed and used for aerial bombing practice during World War II. The Blue Mesa Observatory was constructed on Magdalena Peak in 1967 but was demolished in the mid-1990s.

The prehistoric and historic archaeological record of the Desert Peaks Complex merits full protection under Federal antiquities laws, and the designation of the Organ Mountains-Desert Peaks National Monument will help manage and preserve these significant and irreplaceable cultural resources.

I. Introduction and Background

The Organ Mountains – Desert Peaks National Monument was established through a Presidential Executive Order on May 21, 2016 on the statutory authority of Section 2 of the Antiquities Act of 1906. The monument consists of four areas (Figure 1): Organ Mountains, Potrillo Mountains Area, Doña Ana Mountains Area, and the Desert Peaks Complex.

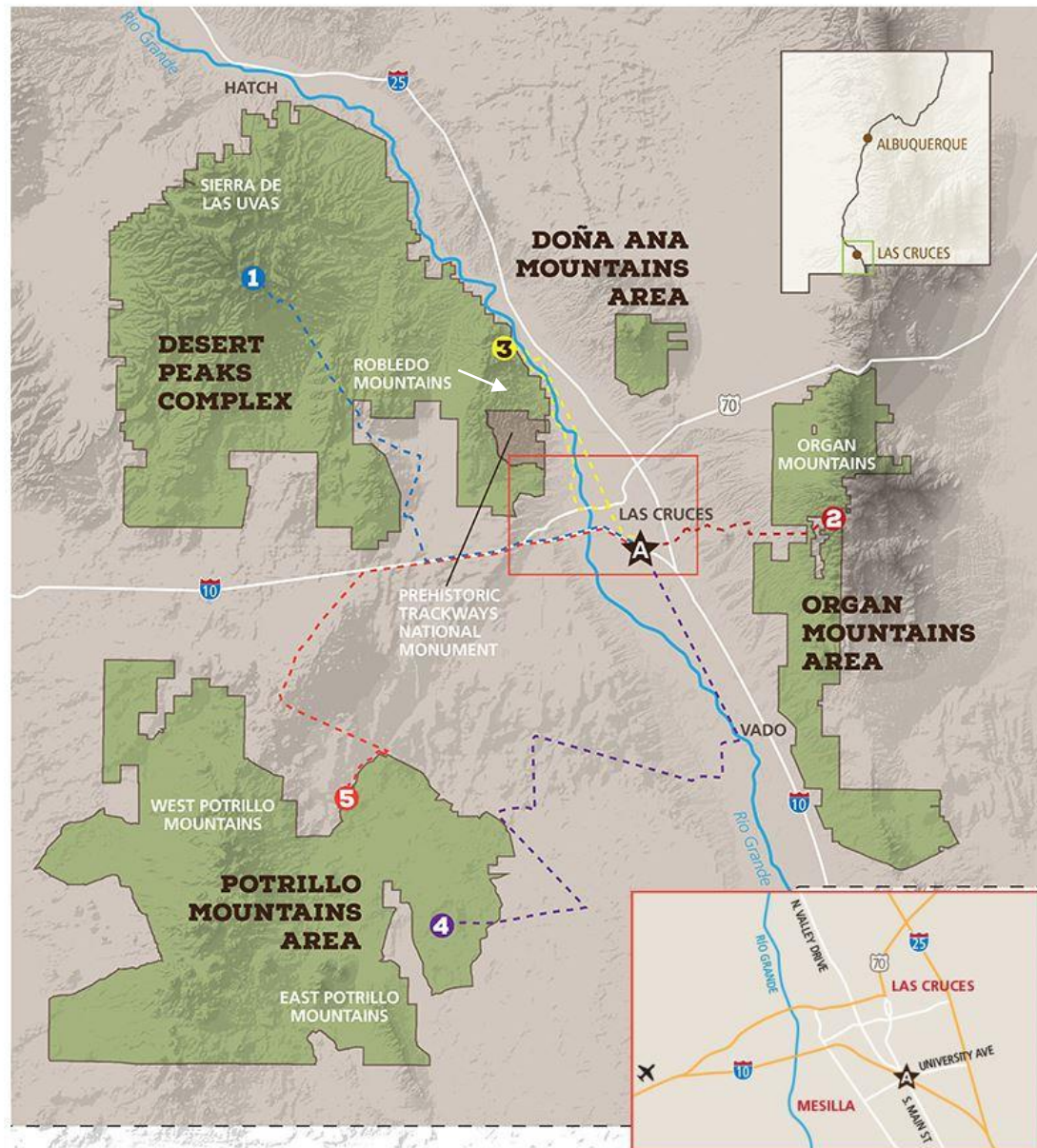


Figure 1. Organ Mountains-Desert Peaks National Monument.

This report provides a Cultural Resources overview of the Desert Peaks Complex. The Desert Peaks Complex is located in central Doña Ana County, to the northwest of Las Cruces and west of the Rio Grande Valley. The eastern part of the complex consists of the Robledo Mountains and Prehistoric Trackways National Monument and the northwestern and western portion consists of the Sierra de Las Uvas and alluvial plans leading southwards to the Mesilla Bolson.

The Robledo Mountains are an uplifted north-south trending fault block along the Rio Grande rift. The highest elevations are found on the crest of Robledo Mountain at 5,876 feet and surrounding areas are characterized by rugged, steep canyons and southward dipping ridges and hills. Geologically, the rocks of the mountains consist mainly of Paleozoic sedimentary and Cenozoic igneous rocks. The sedimentary rocks are primarily limestone, dolomite, shale, and siltstone. The igneous rocks include a few basalt cinder cones and plugs in the southern part of the Robledo Mountains and a Tertiary intrusive rhyolite sill in the northern part.

The Sierra da Las Uvas Mountains were formed through a domed uplift fault of Cretaceous and Tertiary age and are composed of tilted beds of volcanic rock that generally have gentle western slopes and cliffs on the east side. The mountains have been deeply modified and shaped by erosion and consist of rolling hills, mesas, and canyons. Magdalena Peak is the highest point of the range at 6,625 feet. Igneous rocks in the volcanic formations of the range include tuffs and basaltic andesite. Limestone strata are also present. The Sierra de Las Uvas forms the divide separating the Mimbres drainage basin from the southern Palomas and Mesilla basins, or bolsons.

Average annual precipitation in the area is slightly less than 9 inches, however, there are wide variations in annual rainfall as is typical semi-arid climates. The two mountain ranges and surrounding terrain are part of the Chihuahuan Desert. Vegetation in the Desert Peaks Complex consists of typical and signature species as creosotebush (*Larrea tridentata*), mesquite (*Prosopis* spp.), broom snakeweed (*Gutierrezia sarothrae*, formerly *Xanthocephalum sarothrae*), and Mormon tea (*Ephedra* sp.). Vegetation on alluvial fans and plains consists of several desert grasses and shrubs, including black grama, bush muhly, fluffgrass, and tobosa grass. Cacti and succulents such as lechuguilla (*Agave lechuguilla*), soap-tree yucca (*Yucca elata*), and sotol (*Dasylirion wheeleri*) are found on slopes and upland settings. Juniper (*Juniperus* sp.) are found on the higher elevations of mountains and canyons.

Background of the Cultural Resources Overview

Cultural resource surveys, and the knowledge of prehistoric and historic cultural resources gained from such surveys, tend to be concentrated where land-disturbing activities take place. In south-central New Mexico this includes military reservations with active training and weapons development programs (Fort Bliss Military Reservation, White Sands Missile Range, and Holloman Air Force Base), urban centers such as El Paso and Las Cruces, and communication and commercial corridors leading to and from such locations. The Robledo Mountains and Sierra de las Uvas are located outside such active development corridors and therefore have been the subject of relatively few archaeological surveys compared to adjacent areas of south-central New Mexico. However, modern urban developments are encroaching on the Desert Peaks Complex. Over the past two decades, agricultural fields have appeared a few miles to the north of the Sierra de Las Uvas and suburban developments of Las Cruces have appeared around the margins of the Picacho Peak at the southeastern corner of the complex.

While archaeological surveys are fewer in number than adjacent parts of Doña Ana County, it would be erroneous to assume that little is known of the prehistory and history of the Desert Peaks Complex. The region has been the subject of archaeological investigation since the early 1940s through the Peabody Institution investigations at Chavez Cave (Cosgrove 1947). The Robledo site, a 16 room pueblo, was excavated by Tom O’Laughlin and avocational archaeologists in the 1970s, but unfortunately no report has been published on the work. In 1972, Polly Schaafsma photographed and recorded rock art within the Sierra de las Uvas as part of her study of Southwestern and New Mexican rock art and Thomas Todsén published a review of rock art sites in 1990. J.R. Gomolak (1988) documented the historic Mason Ranch along the Butterfield Trail which led the preparation of a National Register of Historic Places nomination by the New Mexico Historic Preservation Division in 1994. Todsén Cave and the North Mesa site were excavated during the late 1980s through early 1990s as part of Richard MacNeish’s Chihuahua Archaic Project (MacNeish 1993). Joe Ben Sanders (1992) documented one of William Bonney’s (Billy the Kid) hideouts along a shallow cave on the eastern flanks of the Robledo Mountains.

Since the passage of the National Historic Preservation Act (NHPA) in 1966, at least 50 cultural resource surveys or reviews have been conducted within the boundaries of the Desert Peaks Complex under Sections 106 and 110 of the NHPA (see Appendix A for listing of New Mexico Cultural Resources Inventory System projects). More recently, Margaret Berrier and local avocational archaeologists and supporters of the Organ Monument-Desert Peaks National Monument have intensively recorded several of the significant rock art sites along Broad and Valles canyons (Berrier 2015, 2016, 2017, n.d.). Jack and David Soules have research and recorded World War II aerial bombing targets (see Proctor et al. 2013).

The current review was conducted at the request of the Wilderness Society and Bureau of Land Management. Tim Graves conducted the site file and archival searches of the New Mexico Cultural Resources Inventory System and Archaeological Records Management System. Margaret Berrier compiled her extensive field and photographic archive on rock art sites within the monument. Mark Sechrist conducted two reconnaissance surveys of major archaeological sites and of high-probability landforms to provide a more thorough idea of the number and nature of previously recorded and unrecorded archaeological sites. Tom Alex provided additional information on archaeological sites in Broad Canyon. Myles Miller compiled this information and produced the discussions of non-rock art sites. Lawrence Loendorf reviewed the rock art sites and managed the project through Sacred Sites Research, Inc.

II. Culture History of South-central New Mexico

South-central New Mexico is located within the Jornada Mogollon culture region as defined in the 1940s (Wheat 1955). The prehistory of the Jornada Mogollon region encompasses several cultural periods and phases (Table 1). The following discussion of the prehistoric culture history of the region is adapted and modified from comprehensive overviews by Miller (2005, 2017a) and Miller and Kenmotsu (2004). A recent analysis of 3,800 radiocarbon dates, combined with a review of the past two decades of archaeological work on Middle and Late Archaic period occupations across Fort Bliss and the greater Jornada region, has substantially revised our understanding of the settlement, subsistence, and social trends of the 5,000-year-long Archaic time interval (Miller 2017a). A revised phase sequence has been developed that includes two Middle Archaic Period phases (Tularosa and Keystone) and three Late Archaic phases (Fresnal, Arenal, and Hueco) with revised beginning and end dates. Formative Period phases were revised in a similar manner based on a review of 1400 radiocarbon dates (Miller 2005). Pre-contact through historic period accounts are available in Miller (2001), Seymour (2002), and Peterson and Brown (1994). The rock art and prehistoric use of Hueco Tanks spans most of the temporal periods listed in Table 1.

Table 1. Prehistoric and historic cultural sequence of the Jornada region

Cultural Period/Phase	Time Interval	Reference
Pre-Clovis	ca. 50,000 - 11,000 B.C.	MacNeish and Libby 2003
Paleoindian	ca. 11,000 - 6000 B.C.	Amick 1994a; Miller and Kenmotsu 2004
Clovis	ca. 11,000 - 9000 B.C.	
Folsom	9000 - 8200 B.C.	
Plano/Cody	8200 - 6000 B.C.	
Early Archaic	6000 - 4000 B.C.	Miller 2017a
Middle Archaic	4000 - 1400 B.C.	Miller 2017a
Tularosa	4000 - 2500 B.C.	
Keystone	2500 - 1400 B.C.	
Late Archaic	1400 B.C.- A.D. 500	Miller 2017a
Fresnal	1400 - 750 B.C.	
Arenal	750 - 300 B.C.	
Hueco	300 B.C. - A.D. 500	
Formative	A.D. 500 - 1450	Miller 2005; Miller and Kenmotsu 2004
Mesilla	A.D. 500 - 1000	
Early Doña Ana	A.D. 1000 - 1150	
Late Doña Ana	A.D. 1150 - 1300	
El Paso	A.D. 1300 - 1450	Miller and Graves 2009, 2012
Precontact	A.D. 1450-1580	Beckett and Corbett 1992; Seymour 2002
Protohistoric	A.D. 1580-1659	Miller 2001; Seymour 2002
Historic	A.D. 1659-present	Peterson and Brown 1994

Pre-Clovis Tradition (~50,000 to 11,000 B.C.)

The existence of pre-Clovis occupations in North America, or a "Pre-Projectile Point Horizon" as it is occasionally referred to, has been the subject of considerable debate since Alex Krieger (1953, 1962, and 1964) first suggested that pre-Clovis lithic traditions (40,000 to 15,000 B.C.) existed in Texas and elsewhere throughout the United States.

Claims of pre-Clovis manifestations in the Jornada Mogollon region were resurrected in the 1990s and generated a substantial amount of controversy (Chrisman et al. 1996; MacNeish 1993; MacNeish and Libby 2003; MacNeish and Marino 1993). MacNeish and Libby (2003) claim that a pre-Clovis occupation exists based on excavations at Pendejo Cave, a deeply stratified rockshelter located on McGregor Range east of Orogrande, New Mexico. Zones C1 through O exhibited a well-stratified sequence of radiocarbon dates ranging between 12,000 and ~50,000 years in age. These strata contained large quantities of Pleistocene faunal material, well-preserved plant remains, and other ecofacts that were purportedly in association with hearths, stone artifacts, modified animal bones, human skin impressions, and human hair.

Claims of pre-Clovis occupations are based primarily on the presence of a small quantity of crudely manufactured stone artifacts, a very small number of bones with fractures or marks that could be suggestive of human modification, hearth features constructed of stones differing petrologically and chemically from the limestone rock formations composing the natural setting of the cave, and the presence of hair and skin imprints claimed to be of human origin.

An independent evaluation of the site conducted in 1995 by Fort Bliss archaeologists and Tom Stafford of the University of Colorado resulted in a revised interpretation of the stratigraphic sequence. In addition, 15 accelerator mass spectrometer (AMS) radiocarbon dates were obtained from rodent pellets collected from well-documented columns in two exposed profiles in the shelter. The results of this study have not been reported, but preliminary analyses suggest that the stratigraphic sequence and assumed integrity of the layered deposits may require substantial reconsideration (see Miller and Kenmotsu 2004). Extensive packrat middens are present throughout the shelter, and preliminary results of the radiocarbon dating suggest that the degree of disturbance in the deposits is greater than previously assumed. If proven that valid cultural occupations exist in the lower strata, such findings would contribute to a reevaluation of pre-Clovis cultures in North America. The series of independent studies conducted so far, however, do not support the argument for a Pleistocene human presence in the region.

Paleoindian Period (11,000 to 6000 B.C.)

The earliest conclusively documented evidence of prehistoric human occupation in the Jornada region occurs during the Paleoindian period. Paleoindian adaptations have been viewed as a tradition of small, highly mobile bands with a subsistence economy centered on hunting large game animals such as mammoth and bison (Judge 1973). The period is subdivided into three sequential traditions marked by functional and stylistic differences in tool kits that are thought to reflect changing hunting and settlement adaptations: the Clovis and Folsom complexes of the early Paleoindian period and the Plano/Cody complex of the late Paleoindian period.

Recognition of Paleoindian sites in the Jornada region has been principally accomplished through cross dating distinctive lanceolate projectile point forms with those found at chronometrically dated habitation and kill sites in adjacent regions of the Great Plains. Paleoindian culture is represented primarily by isolated finds of projectile points and by a small number of open-air sites located within the Tularosa Basin and Hueco and Mesilla bolsons. Substantial numbers of Paleoindian artifacts have been documented across the Jornada region; however, the number pales in comparison with the number of sites from later time periods. Several sites have been investigated, but few have been fully reported.

At the present time, no absolute chronometric dates have been obtained from contexts or features in secure association with Paleoindian materials in the Jornada. The only radiocarbon dates falling within this period were obtained from deposits of charred material deeply buried in floodplain alluvium of the Rio Grande Valley north of Las Cruces, New Mexico. The samples were collected during geomorphic studies of Quaternary surfaces in the valley (Gile et al. 1981), and the deposits from which the samples were obtained were not described. Additional early dates have been obtained from Fresno Shelter, Burnett Cave, and Hermit Cave in the Sacramento-Guadalupe mountain chain; although in each case, the association of the date and any human occupation or material culture remains inconclusive (Miller and Kenmotsu 2004).

The environment during this time is characteristic of the Late Pleistocene-Holocene transition: moist woodlands and continual stream flow in mountains and other high elevation settings, and standing lakes and marshes throughout the interior basins. Evidence from packrat middens suggests juniper-oak woodlands along with grassland savannahs in the basins during the early part of the period. Increasingly drier conditions prevailed until 6000 B.C., when woodlands were displaced by Chihuahuan, desert scrub communities and large game animals became extinct (Van Devender 1990).

Clovis Complex: Knowledge of Clovis occupation in the Jornada Mogollon region has been obtained almost entirely through rare, isolated finds of the distinctive, fluted lanceolate projectile points characteristic of the period. However, few Clovis points and even fewer Clovis sites have been documented (Meltzer and Bever 1995). Two habitation sites of this period have been reported from the Jornada Mogollon region. Beckett (1983) notes the presence of Clovis tools mixed with later Paleoindian materials at a site in Rhodes Canyon in New Mexico's southern Tularosa Basin. Weber and Agogino (1968) reported a substantial Clovis occupation at Mockingbird Gap in the northern Tularosa Basin.

The excavators noted the presence of several suspected living surfaces; approximately one hundred whole and partial Clovis points were recovered during the investigations, as well as a substantive quantity of small mammoth bone fragments. Otherwise, very few artifacts or occupations attributable to this period have been recorded during the course of numerous professional archaeological surveys on Fort Bliss and many other areas of the region; it appears that Clovis manifestations are exceptionally rare within the Jornada Mogollon region. The nature of Clovis settlement types, hunting and subsistence adaptations, mobility patterns, or technological organization in the Jornada remain almost entirely unknown.

Folsom Complex: Folsom manifestations in the Jornada region are much better known than their Clovis predecessors. Numerous Folsom points and occupation sites have been recorded during

archaeological surveys. Although they have been found in many topographic zones, including mountains, alluvial fans, and plateaus, most Folsom materials have been documented near playa basins, major and minor drainages, and the margins of the Rio Grande Valley, which may indicate an adaptation of hunting game animals near water sources. Several excavations of Folsom components have been undertaken during the past decade, including at a site in Fillmore Pass on Fort Bliss (Stiger n.d.), Boles Wells in the Tularosa Basin (Mauldin and O'Leary 1994), and Padre Canyon sites 41HZ504 and 41HZ505 in the Hueco Bolson southeast of El Paso (Mauldin and Leach 1997). The nature of Folsom tool forms, subsistence adaptations, and mobility patterns in the region have also been the subject of serious investigation (Amick 1994a, 1995, 1996).

Due to the absence of stratigraphically ordered deposits, most Folsom components are mixed with later occupations, making inferences concerning Folsom technological adaptations tentative. Most analyses have focused on tool forms and debitage attributes characteristic of the period. Lithic assemblages typically contain very high proportions of high-quality, fine-grained materials including chert, chalcedony, and obsidian. Raw materials such as nonlocal obsidians, Chuska chert, Edwards Plateau chert, and Alibates chert (Amick 1994b; Miller and Kenmotsu 2004), obtained from sources up to 450 km away, have been identified in Folsom assemblages from the Tularosa Basin and Hueco Bolson. The presence of these materials suggests either long-term population movements or trade with other groups.

Through the analysis of tool forms and detailed studies of raw material types, important insights into regional mobility patterns of Paleoindian groups and functional aspects of their settlements are beginning to emerge. The common presence of nonlocal raw materials among discarded tool assemblages suggests that the tools had been manufactured elsewhere and transported to the sites in final form. Likewise, debitage collections often consist of predominantly local materials, indicating that the inhabitants were manufacturing tools, or 'gearing up' for the next round of group movement and hunting forays. Based upon the distribution of distant and local raw material sources, assemblage content, and the relative scarcity, but large size, of Folsom components in the Jornada region, Amick (1994a, 1996) has argued that Folsom sites in the region were residential or 'home base' localities oriented toward hunting game animals other than bison. This pattern differs from the Southern Plains, where sites were more logistically organized and oriented towards the hunting of bison. Unfortunately, the nature of any contemporaneous, supplemental foraging activities of Folsom hunters within the Jornada region is not well understood.

Late Paleoindian to Plano and Cody Complexes: A variety of tool traditions have been recognized for the late Paleoindian period and are collectively referred to as the Plano and Cody complexes (Wheat 1972). Meserve, Golondrina, Angostura, Eden, and Scottsbluff type projectile points characterize the period. Isolated Plano/Cody projectile points and tools are common in the Hueco Bolson and Tularosa Basin (Miller and Kenmotsu 2004). Plano/Cody components are found in many topographic zones, including mountains, alluvial fans, and plateaus, but most finds have been documented near playa basins, major and minor drainages, and the margins of the Rio Grande Valley, which may also indicate an adaptation of hunting game animals near water sources.

Environmental changes that occurred during the Early Holocene brought about several changes in human adaptation at the close of the Paleoindian period. The persistent drying trend continued, with a resultant demise of large game mammals, expansion of plant communities adapted to drier conditions, and constriction of perennial water sources. These changes undoubtedly contributed to large-scale changes in subsistence strategies, requiring a diversification of the Paleoindian subsistence base, with a greater focus on exploitation of plant foods. Such changes, and accompanying shifts in settlement and technology, mark the onset of the Archaic period at circa 6000 B.C.

Early Archaic Period (6000 to 4000 B.C.)

The Early Archaic is one of the least understood time periods of the Jornada prehistoric sequence. Early Archaic occupations have been defined primarily based on projectile point styles and a few insubstantial deposits or features. The overall number of projectile points found does not greatly outnumber those of the preceding Paleoindian period. Few firmly dated Early Archaic contexts have been identified in the Jornada and have primarily involved deeply buried features or rockshelter deposits. However, these deposits have yielded little data concerning subsistence, settlement, and technology (Miller and Kenmotsu 2004).

Projectile technology emphasizes a change from the lanceolate forms of the preceding Paleoindian period to stemmed forms such as Jay, Bajada, and Uvalde. Along with the adoption of these stemmed projectile point forms came a noticeable change in the use of coarser-grained raw materials for the manufacture of projectiles. Additional technological changes include the utilization of rock or caliche for heating elements in thermal features and the use of groundstone.

The factors causing such changes are still unknown, although they may be related to changes in prey selection and hunting practices, restricted home ranges that caused an increase in local raw material use, reduced emphasis on tool maintenance and an increase in tool reliability, or a combination of these factors. Though speculative, the settlement and subsistence of the Early Archaic can be characterized by an absence of structures, use of larger burned-rock features on the alluvial fans and other hearth features in all environmental zones, use of artifacts, and changes in projectile point technology and raw material utilization. These data suggest an adaptation of seasonally mobile, small band, hunter-gatherers (Miller and Kenmotsu 2004).

Middle Archaic Period (4000 to 1400 B.C.)

The Middle Archaic period includes two phases, Tularosa and Keystone. Fundamental subsistence, settlement, and technological adaptations established in the Early Archaic tend to be maintained through the first half of the Middle Archaic during the Tularosa phase.

Tularosa phase (4000–2500 B.C.): The first half of the Middle Archaic, designated as the Tularosa phase, is essentially a continuation of Early Archaic lifeways with the addition of new projectile point designs, including the appearance of San Jose-Pinto cluster projectile points. Otherwise, the fundamental subsistence, settlement, and technological adaptations established in the Early Archaic were maintained through the first millennium of the Middle Archaic. The rarity of radiocarbon dated contexts and diffuse nature of settlement across the landscape indicates that the Jornada region was inhabited lightly and intermittently during this interval. These observations mirror similar conclusions for the Middle Holocene period in adjacent

regions, suggesting that populations declined in the lowland deserts during this period of harsh environmental conditions.

Keystone phase (2500–1400 B.C.): Coinciding with the end of the Altithermal and the beginning of more favorable climatic conditions, 4500 cal. BP represents a watershed period in the Archaic prehistory of the Jornada region. There is a pronounced increase in the number of sites and features across all landforms, a factor reflected by a marked increase in radiocarbon age estimates. Village settlements with groups of three or more domestic structures appeared during this period, as exemplified by the discovery in the late 1970s of pithouses at Keystone Dam Site 33, located along the lowermost terrace of the Rio Grande Valley in northwest El Paso, Texas. In tandem with these first village settlements, the earliest evidence of maize horticulture appears, although the strength of the evidence is subject to debate. Pit features are one of the more distinctive facilities of Keystone phase settlements. These pits include several variants, the function of which remains unclear, although it appears that the pits served as both storage and baking facilities.

Village settlements were only one component of a broader seasonal settlement system that included camps, communal plant baking facilities, and ritual features. The Keystone phase witnessed the introduction, development, and spread of several technologies. Plant baking pits became formalized constructions with standardized components of baking pit, soil borrow pit, and burned rock discard midden. Contracting stem projectile points are a hallmark of the Keystone phase and are mostly found at sites dating between 4500 and 3000 cal. BP.

Evidence of group aggregation and communal feasting is found among the burned rock middens of the mountain foothills. The first visual expressions of cosmology in the form of rock art and mobiliary art, perhaps accompanied by placemaking, occurred during this pivotal interval of the Jornada Archaic.

Late Archaic Period (1400 B.C. to A.D. 500)

The Late Archaic period includes three phases, Fresnal, Arenal, and Hueco. The Late Archaic is both a time of continuity and change from the preceding Middle Archaic Keystone phase, and several technological innovations and changes in settlement adaptations characteristic of the period presage developments during the Formative period.

Fresnal Phase (1400–750 B.C.): The Late Archaic Fresnal phase was a period of incipient agriculture but is otherwise poorly known. Chronologically, the Fresnal phase is contemporaneous with the revised dating of the San Pedro phase in southern Arizona (Mabry 1998; Gregory 2001), and as the San Pedro phase brackets the expansion of agricultural settlements and introduction of notched projectile point forms in the Sonoran Desert, so does the Fresnal phase mark similar changes in the Chihuahuan Desert of southern New Mexico and west Texas.

The presence of early agriculture has been firmly established by the series of radiocarbon dates on maize from Fresnal, Tornillo, and High Rolls shelters (Carmichael 1982; Lentz 2006; Tagg 1996; Upham et al. 1987). All of the dated maize is from dry caves and shelters in the mountains, and it is unknown whether maize agriculture first occurred in the favorable environments of the mountains or whether the apparent absence at lowland settlements is due to poor preservation of

macrobotanical and pollen remains. Despite the evidence for early agriculture, the Fresnal phase cannot be considered an agricultural or even a predominantly horticultural period, but rather was a period of a broad-spectrum subsistence economy that included plant baking, wild plant foods, and hunting. Faunal assemblages from Fresnal phase deposits in High Rolls shelter (Akins 2006) and combined Fresnal and Hueco deposits in Fresnal shelter (Wimberley and Eidenbach 1981) show a heavy emphasis on artiodactyl hunting with extensive processing occurring in and around the shelters. In contrast, faunal collections from rockshelters situated at lower elevations in the Organ and Hueco mountains consist of predominantly leporid and small mammal remains (Dawson 1993; Harris 1995).

The rate of site formation increases over the preceding Middle Archaic, settlements expand throughout several environmental zones, and seasonal variations in settlement types are apparent, particularly between the desert basins and higher elevation settings in the foothills and uplands of surrounding mountains. The distribution of plant baking pits expands throughout new niches, including lower elevation alluvial fans and canyons. In the lowland basins, numerous settlements consisting of clusters of huts and hearths date to this period, but settlements are often mixed with earlier and later components, and the nature of settlement and technology are poorly known. Projectile technology is marked by the introduction of side-notched varieties generally classified under the San Pedro Cluster, including small and large varieties.

Arenal Phase (750–300 B.C.): The Arenal Phase is a distinctive interval in the middle of the Late Archaic sequence during which several major features and settlement types essentially disappear from the radiocarbon record for a period of four centuries (Miller 2017a). An analysis of over 2,000 radiocarbon dates from the Archaic era identifies a clear decline in, and in some instances the near abandonment of, the use of certain features, technologies, subsistence practices, and, it is assumed, various landforms. The interval coincides with a flat region of the radiocarbon calibration curve, but the drastic decline in dates for certain features, subsistence practices, and site types cannot be attributed solely to calibration curve effects.

The Arenal phase was a 450-year-long hiatus in the radiocarbon record of plant baking pits and storage pits. The radiocarbon record also reveals a particularly steep decline in the use of rockshelters. Moreover, in contrast to the preceding Fresnal and subsequent Hueco phases of the Late Archaic sequence, the Arenal phase was distinctly non-agricultural. Only two of 84 Archaic period dates associated with maize fall within this interval, and one has a 200-year standard error that yields a calibrated 2-sigma age range spanning portions of all three Late Archaic intervals. The rarity of subsurface storage pits compared to the preceding and following phases is further evidence of this apparent hiatus in farming practices throughout the region. The reason for the decline of plant baking pits is unclear, since the technology and practice of earth oven baking existed from the Early Archaic period and has persisted through modern times.

Environmental conditions may have played a role in the profound settlement changes of the Arenal phase. Evidence from cave speleothem, pollen sequences, and fire-related alluvial chronologies (Frechette and Meyer 2009; Jimenez-Moreno et al. 2008; Polyak and Asmerom 2001) suggest that wetter climatic conditions prevailed during this period. Settlements are often situated near playas in a pattern reminiscent of the Middle Archaic period.

The Arenal phase is clearly an anomalous interval in the Late Archaic sequence. The phase has only recently been identified and accordingly there has been little targeted research on sites and material culture of the period. Aside from the general patterns observed in the radiocarbon record and a small sample of hut structures and settlements, the period is poorly known.

It is important to note that the absence of certain features, technologies, and subsistence practices does not mean that the Jornada region was abandoned during the Arenal phase. In relation to the subsistence trends described in the preceding historic context, several lines of evidence show that there was a shift, or reversion, to a more residually mobile settlement organization similar to that of the Middle Archaic. In light of the environmental data suggesting a wetter interval and the archaeological data indicating that populations of the Arenal Phase reverted to more mobile hunter-gatherer adaptations, it is possible that the territorial domains of Arenal Phase groups included large areas of the deserts and uplands of New Mexico and Chihuahua.

Hueco Phase (300 B.C.–A.D. 500): The Hueco Phase follows the Arenal Phase and is the final or terminal phase of the Archaic Period sequence. As defined by Miller (2017a) in space and time, the Hueco phase delineates a period of increasing incorporation of maize into the diet, an expansion and intensification of settlement throughout both mountain highlands and desert basins, and population growth prior to the introduction of ceramic technology and the bow and arrow. There is a marked increase in dated contexts of this period, including a significant rise in the numbers of dated house structures, pits, and dates on corn remains. The first intensively occupied village settlements appear during this period and village settlements exhibit a greater formality of site structure and community organization that reflect the presence of increasingly formal social arrangements.

The Hueco phase is considered analogous to the Early Agricultural period of southern Arizona. While evidence for small-scale horticulture and maize consumption was observed among settlements of the earlier Fresnal phase, it is during the Hueco phase that agriculture was consistently integrated into regional subsistence practices. Settlements are situated along the fertile valleys of the mountain uplands and typically have dozens of large storage and refuse pits and the first formal storage facilities in the form of bell-shaped pits appear at this time. These features frequently have exceptionally high macrobotanical and pollen recovery rates for maize (Campbell and Railey 2008; Wiseman 1996). Hunting continued to provide a substantial contribution to the diet, but data from rockshelters hint that the Hueco phase was the beginning of a long and continual decline of artiodactyl populations in the highlands (Akins 2004). Also notable is that basal-notched projectile forms appear during the Hueco phase (Miller 2017b). How this manner of hafting reflects changing hunting and mobility practices remains unknown.

Domestic structures at lowland Hueco phase settlements become slightly more formal and have greater numbers of interior postholes, hearths, and storage pits. Equally significant is that these village settlements exhibit a greater formality of site structure and community organization that reflect the presence of increasingly formal social arrangements. The first villages with formal arrangements of houses and shared extramural areas appear during the Hueco phase. LA 91759 on Fort Bliss provides an example of a Hueco phase village settlement (Graves et al. 2014). The excavated portion of the site revealed a compact cluster of four to six pithouses (two unexcavated rectangular stains may be pits). A few small hearths and pits are present around the houses, but the majority of features are situated in a communal activity area to the east of the house cluster.

The spatial arrangement of the houses and extramural features reflects an occupation by a larger, more complex social group than typical Late Archaic sites.

Formative Period (A.D. 500 to 1450)

The Formative period encompasses several important transitions in settlement adaptations. These include a relatively rapid succession of changes in architectural form, settlement structure, subsistence, and technology, including a trend of decreasing mobility coupled with increasing agricultural dependence and specialization that culminated in puebloan occupations between A.D. 1300 and 1450.

These developments have almost universally been perceived in terms of increasing agricultural dependence. However, evidence from the Jornada region also suggests that prehistoric populations may have become more agriculturally specialized between A.D. 1300 and 1450.

The Formative period sequence has recently been revised (Miller 2005) and now includes four subperiods: the Mesilla phase (A.D. 200/400 to 1000), the Early Doña Ana phase (A.D. 1000 to 1150), the Late Doña Ana phase (A.D. 1150 to 1300), and the El Paso phase (A.D. 1300 to 1450). In the following discussion, normative characteristics of each phase are presented first, followed by a more detailed review of specific adaptive trends that occurred throughout the Formative period. It should be noted that in many instances adaptive trends crosscut phase boundaries and that the phase system often masks such variability in the archaeological record.

Mesilla Phase (A.D. 500–1000): The Mesilla phase is characterized by the appearance of the El Paso brownware ceramic tradition with Alma Plain as a rare intrusive ware. Other intrusive ceramics (predominantly Mimbres whitewares and other Mogollon wares) appeared in the region after A.D. 600, but were not common. Painted pottery (El Paso Bichrome) also made its first appearance late in this phase. Pithouses were constructed during this period (Lehmer 1948) but were generally similar to the huts of the Archaic period (Hard 1983a). Structures become increasingly formal after A.D. 600. Sites generally are larger and more numerous and contain more artifacts than sites from the earlier Archaic period.

Whalen (1977, 1978, and 1994) uses survey data for the region to propose a site typology based on size, number of features, and the presence of ceramics, chipped stone, and groundstone. Though the characteristics change through time, Whalen (1994) suggests that artifact variety and site size distinguish residential sites from camps. Mesilla phase sites for all environmental zones show a slight association between sites and playas in the central basin. Because all types of sites are found in all zones, Whalen (1994) believes that the subsistence practices of the Mesilla phase were based primarily on hunting and foraging, supplemented by agriculture, and that occupation of the bolson was residential in nature.

Other archaeologists see the Mesilla phase as a continuation of the subsistence and settlement practices of the Late Archaic (Carmichael 1986; Hard 1983b; O'Laughlin 1979, 1980). Carmichael's (1986) work in the area differs in some respects from Whalen's (1994), especially in defining the role of the Hueco Bolson in cultural development. Carmichael (1986) believes that the basins of the region could not have been the whole area utilized by prehistoric groups. These basin areas were nonresidential in nature rather than being used by sedentary peoples. Residential sites were probably located outside of the basins, most likely near the Rio Grande,

and were defined as sites containing trash middens. Hard (1983b) proposes a settlement-subsistence model in which differences in environment influence choices for seasonal rounds and activities. Hard (1983b) believes that winter and spring sites were located on the mountain alluvial fans, while the central basin was used for foraging. The summer and fall seasons saw the central basin used for temporary residences.

More recent work by Mauldin et al. (1998) suggests that Mesilla phase peoples may be characterized as residential foragers. The central basin and alluvial fans are thought to have been components in a residential foraging strategy in which groups lived throughout the region as hunter-gatherers. After A.D. 600, feature-related activities in the central basin drastically decreased. Mauldin et al. (1998) believe that this may indicate a shift in the settlement and subsistence practices of prehistoric groups to a less intensive, logistical use of the central basin.

In summary, Carmichael (1986), Hard (1983b), and Whalen (1994) characterize the Mesilla phase population as increasing over the previous Archaic period, utilizing all environmental zones, and showing trends toward sedentism. Pottery was introduced, and may have been important for cooking and storage of wild plant resources as well as cultigens. Groundstone inventories indicate increasing use during this phase. Settlement is thought to have been seasonal, with huts utilized as summer abodes and deeper pithouses used as winter residences. Subsistence was based on generalized hunting (rabbits and small game) and the foraging of wild plant resources. Early in this phase, agriculture may have been more opportunistic, with increasing reliance coming later in order to offset environmental variability that increased the risk of not having enough food to survive the winter (Wills 1988).

Early and Late Doña Ana Phases (A.D. 1000–1150 and 1150–1300): The Doña Ana phase was originally defined by Lehmer (1948) and was further characterized by Carmichael (1986). As defined by Lehmer (1948), Doña Ana phase sites are characterized by the presence of El Paso Bichrome and El Paso Polychrome pottery associated with adobe surface construction. Debate continues about the ability to distinguish Doña Ana phase occupations within the archaeological record (see Carmichael 1986; Hard et al. 1994; Mauldin 1993; Mauldin et al. 1998; Miller 1989, 1990). Early Doña Ana phase occupations have been described at the Gobernadora, Ojasen, and North Hills sites (Miller 1989, 1990; Shafer et al. 1999). These sites have informal pithouses and burned-rock activity areas. Scarborough (1986) excavated a late Doña Ana phase pithouse village. Data from this site indicate the use of deep, square-shaped formal pithouses and the utilization of discrete trash middens, suggesting a more sedentary existence than earlier time periods. Cultigens such as corn, squash, and beans were recovered, as well as large amounts of rabbit bone.

One other site from this period has been excavated in the region (Kegley 1982). The site contained evidence of formal pit structures with plastered hearths, as well as evidence for changing social organization defined by the presence of a very large pit structure, believed to be a communal house. Research by Whalen (1977, 1978, 1981) indicates that this period (which he defined as the Transitional Pueblo period) is characterized by increasing population levels and a shift of settlement areas to runoff zones located on lower alluvial fans of the Franklin, Hueco, and Organ mountains.

Overall, the changes that occurred during the Doña Ana phase include the introduction of polychrome pottery, rapid population increase, artifact changes that include larger manos and metates, decreased projectile point sizes with larger forms still in use, and changes in intrusive ceramic types from Mimbres to Chupadero and Chihuahuan wares. The increasingly formal pit structures eventually led to the later pueblo architecture of the El Paso phase. Another crucial change that occurred during this time was the shift from a general use of all areas within the region to concentrated use of specific environmental zones. These areas included the Rio Grande and the distal alluvial fans of local mountain ranges (transition zone) that are notable for their abundance of water and arable land for growing cultigens.

El Paso Phase (A.D. 1300-1450): The final and most intensive prehistoric use of the region occurred during the El Paso phase (also referred to as the Pueblo period). This phase is characterized by an increase in the number of small and large residential sites, increased artifact densities, and a clustered settlement pattern (Carmichael 1986; Whalen 1977, 1978), as well as the introduction of small triangular projectile point forms.

Several excavated El Paso phase sites provide data on subsistence and settlement (Miller and Graves 2009, 2012). Varied settlement patterns and different structure types are suggested by data from Hot Well Pueblo, a 100-plus room village located near the eastern edge of the Hueco Bolson (Bentley 1993; Brook 1970; Lowry 2005); La Cabraña, a small pueblo located near the Rio Grande (Bradley 1983); Firecracker Pueblo (O'Laughlin 2001), located on the alluvial fans of the Franklin Mountains; and other pueblos throughout the region (Brook 1980; Gerald 1988; Lehmer 1948). In addition, individual surface room structures are a common feature of El Paso phase settlements (Batcho et al. 1985; Browning et al. 1992; Dering et al. 2001).

Hueco Bolson survey data indicate important changes that occurred during the El Paso phase. Whalen (1977, 1978, 1980), who documented a cluster of large sites along the alluvial fans of the Franklin and Hueco mountains, suggests that a shift in settlement patterns from earlier phases may indicate increased use of the lower alluvial fans for farming activities. Carmichael (1986) documented similar areas in the northern Hueco Bolson that he suggests were established during the Doña Ana phase. He argues that the sites are part of a larger regional exchange network related to Casas Grandes in Mexico (Carmichael 1986).

Subsistence at these sites was based primarily on agriculture. Secondary villages, which were located on both mountain slopes and in the central basin near playas, were associated with late summer residential occupations based on hunting and foraging. Small sites (e.g., campsites and limited activity sites) were not included in this or other models of settlement and subsistence for the region. The debate over the role of agriculture and its importance to subsistence for this period is unresolved, as is the degree of sedentism.

Thus, the El Paso phase is characterized by peak population levels, diverse artifact assemblages, use of pit structures, individual surface rooms, aboveground pueblos, and dependence on agriculture, but not to the exclusion of hunting and foraging. Residential permanency at sites during wet years and seasonal movement during periods of dryness or lean years is postulated. Alternatively, a seasonal sedentary lifestyle alternating between the desert floor, alluvial fan, and riverine habitation may have been the norm.

Post-Pueblo Period (A.D. 1450 to 1581)

While the Jornada Mogollon ceased to exist as a cultural entity sometime around A.D. 1450, it is unlikely that the region was totally depopulated (Miller 2001). Several researchers have suggested that a major shift in subsistence strategy has resulted in the general lack of recognizable evidence in the archaeological record after A.D. 1400 to 1450 (Beckett and Corbett 1992). The Protohistoric period has been used as a general temporal assignment for cultural remains dated between approximately A.D. 1400 and 1800. To refine temporal definition of archaeological remains post-dating A.D. 1450, the term Precontact period is used in this text.

The Precontact period is herein defined as the relatively brief (approximately 130 years) span between what appears to be abandonment of the El Paso phase pueblo settlement system and the first documented encounter between Native Americans and Spanish explorers. Several cultural groups may have used the area during the Precontact period. According to Beckett and Corbett (1992), the Chinarra, Concho, Jano, Jocomé, Manso, Suma, Piro, and Tarahumara tribes may have occupied the region. Unfortunately, archaeological evidence delineating these groups has not been found or recognized.

Protohistoric Period (A.D. 1581 to 1659)

This period is not well defined for the Jornada Mogollon region, although recent research suggests that sites of this period can be identified (Miller 2001; Seymour 2002). Though poorly defined in the literature, the Protohistoric period represents the temporal span between the first European/Native American contact and the Historic, or settlement period. Many of the aboriginal groups inhabiting the region during the Precontact period may also have been present during the Protohistoric period. However, contact between Native Americans and Europeans undoubtedly wrought changes to aboriginal lifestyles. Not only did the introduction of new materials such as metals revolutionize subsistence activities, but also a defensive (and offensive) posture was initiated among some Native American groups. This posture often resulted in a changed campsite preference that, along with changes in material culture, is potentially visible in the archaeological record.

Without the discovery of metal arrow points or worked glass, Protohistoric components are very difficult to identify. Radiocarbon dating of Protohistoric period sites is often unreliable and inconclusive. While it is well known that the Sacramento and San Andres mountains, and for that matter all of the Tularosa Basin region, were once part of the Mescalero Apache homeland, recognizable evidence of their presence remains elusive.

The Mescalero Apache represent the only documented aboriginal Protohistoric inhabitants of the Tularosa Basin region. Apache occupation of the basin persisted into the Historic period; their control of the local area thwarted settlement until around 1860. Hence, within the confines of the Tularosa Basin, the Protohistoric period may technically extend into the mid-1800s. Since the regional Protohistoric-Historic period division complicates discussion of Apache use of the basin, portions of the following review may overlap that of the Historic period.

First documented by Spanish explorers, and more recently confirmed archaeologically (Sale and Laumbach 1989), the Apache once roamed freely throughout the region. Sometime around A.D.

1500, these nomads infiltrated and took control of the Tularosa Basin. Their hostility and tactics in warfare successfully discouraged Spanish colonization.

Judging from reports of military campaigns against the Apache, Indian trails were once an easily recognized feature on the Tularosa Basin landscape. Locations frequented in the San Andres Mountains, including San Nicolas Spring, Salinas Peak, and Hembrillo Canyon, would presumably be linked to Sierra Blanca, Fresnal Canyon, and Dog Canyon to the east by well-worn Apache footpaths. These frequented areas would have also provided access into the current project area and beyond (e.g., the Guadalupe Mountains).

In the San Andres Mountains of New Mexico, several features have been radiocarbon dated to this period (Sale 1991). Hembrillo Canyon forms a natural pass through the San Andres Mountains north of Lake Lucero, linking the Tularosa Basin to the Jornada del Muerto and Rio Grande Valley. As a favored campsite of the Mescalero Apache, the canyon has provided much of the evidence of Apache activity near the project area. Apache pictographs suspected to relate an 1880 encounter between Victorio's band and U.S. military forces have been documented in Hembrillo Canyon (Sale and Laumbach 1989), and several firing positions associated with that battle have been recently recorded.

Regionally, the Protohistoric period terminates in 1659 with permanent establishment of Spanish missions in the El Paso area by Fray Garcia (Peterson and Brown 1994). The Tularosa Basin, however, constitutes an exception within the overall regional chronology. Due primarily to the Apache threat, permanent settlement did not occur in the basin until the early to middle 1800s. With the signing of the Treaty of Guadalupe Hidalgo in 1848, and the subsequent establishment of military forts for protection, the local area gradually became safe for settlement by Euro-Americans.

Historic Period (A.D. 1659 to present)

The date used for the onset of the Historic period is based on developments within the El Paso and Rio Grande valley areas. By 1659, Fray Garcia had established the first missions in El Paso and the Pueblo Revolt of 1680 resulted in the establishment of the Ysleta and Socorro missions and San Elizario presidio (Peterson and Brown 1994).

The Mesilla basin and Rio Grande Valley were part of the first Spanish explorations, and the Robledo Mountains were named after Pedro Robledo, a member of the Oñate Expedition who died nearby during the expedition to colonize the Rio Grande Valley. The first Spanish campaigns against the Apache are documented during the years of 1771, 1775, and 1776 in the Tularosa Basin (Sale 1997), and the War for Apacheria continued through the following century, finally abating with the death of Victorio in 1880 and surrender of Geronimo in 1886. With the Gadsden Purchase of 1853, the Robledo Mountains, Sierra de las Uvas, and surrounding regions were brought under the jurisdiction of the United States government.

Historic Period occupation of the Desert Peaks Complex includes the Butterfield-Overland Trail, several ranch settlements, Civilian Conservation Corps works projects, and World War II aerial bombing targets.

III. Cultural Resources Overview

Laws and Regulations

Archaeological investigations in the Desert Peaks Complex include cultural resource inventory surveys conducted under Federal and State laws and regulations and various academic, institutional, and avocational investigations conducted under laws and regulations of the State of New Mexico.

Federal

- Antiquities Act of 1906 (16 U.S.C. 431-433). Federal legislation forming the statutory basis for the designation of the Organ Mountains-Desert Peaks National Monument.
- Archaeological Resources Protection Act of 1979 (16 U.S.C. 470aa-470mm; Public Law 96-95 and amendments)
- National Historic Preservation Act of 1966 (Public Law 89-665; 16 U.S.C. 470 et seq., as amended), specifically Section 106 and Section 110 of the Act
- 36 CFR 800, the implementing regulations for NHPA developed by the Advisory Council on Historic Preservation
- National Register of Historic Places and implementing regulations set forth under 36 CFR 60
- Native American Graves Protection and Repatriation Act (Public Law 101-601; 25 U.S.C. 3001-3013)
- National Environmental Policy Act (42 U.S.C. 4321 et seq.)

State of New Mexico

- New Mexico Cultural Properties Act of 1969 (as amended)
- The Prehistoric and Historic Sites Preservation Act of 1989
- Cultural Properties Protection Act of 1993 (Sections 18-6A-1 through 18-6A-6, NMSA 1978), which includes protection of human burials

Site File Records Searches

Information on archaeological investigations and sites was obtained from file searches and discussions with avocational and professional archaeologists. File searches were conducted using the Archaeological Records Management System (ARMS) and New Mexico Cultural Resources Inventory System (NMCRIS) and site files at the Bureau of Land Management, Las Cruces District office. Additionally, Margaret Berrier furnished draft site files on recent investigations of rock art sites within the complex.

New Mexico Cultural Resources Inventory System Review

Tim Graves conducted a review of the NMCRIS archive and identified 54 NMCRIS project numbers for 133 of the archaeological sites. Twelve sites have no NMCRIS record.

Archaeological Records Management System (ARMS) Site File Review

Tim Graves conducted ARMS and NMCRIS records searches for prehistoric and historic archaeological sites recorded within the Desert Peaks Complex. The ARMS site file search identified 118 prehistoric sites, 12 historic sites, 12 sites with both prehistoric and historic

components, and 3 sites of uncertain temporal affinity within the boundaries of the complex. Due to time constraints, individual LA site forms were not examined.

Bureau of Land Management, Las Cruces District Site File Review

Margaret Berrier examined site files at BLM and from recent rock art investigations.

Field Reconnaissance

Mark Sechrist conducted a reconnaissance survey of several known sites and of high-probability areas in the vicinity of Broad and Valley Canyons on July 2 and 3. His observations are incorporated into discussions of several sites in discussions below.

Results of Site File Searches and Review of Archaeological Sites

A total of 145 archaeological sites have been recorded within the Desert Peaks Complex. The total includes prehistoric sites dating from circa 11,000 BC to AD 1450 and historic sites dating from AD 1580 through the World War II era.

The 145 sites are distributed across much of the 395 square mile area of the Desert Peak Complex (Figure 2) and have been recorded in all of the major topographic settings (Figure 3), including ridges, hills, mountains, as well as along canyons and arroyo drainages, caves, and cliff faces in the mountainous regions of the complex. Many sites have been recorded across the broad alluvial fans and drainages leading from the mountains.

Figure 2. Map of all 145 site locations in the Desert Peaks Complex.

Map removed to protect sensitive site locations

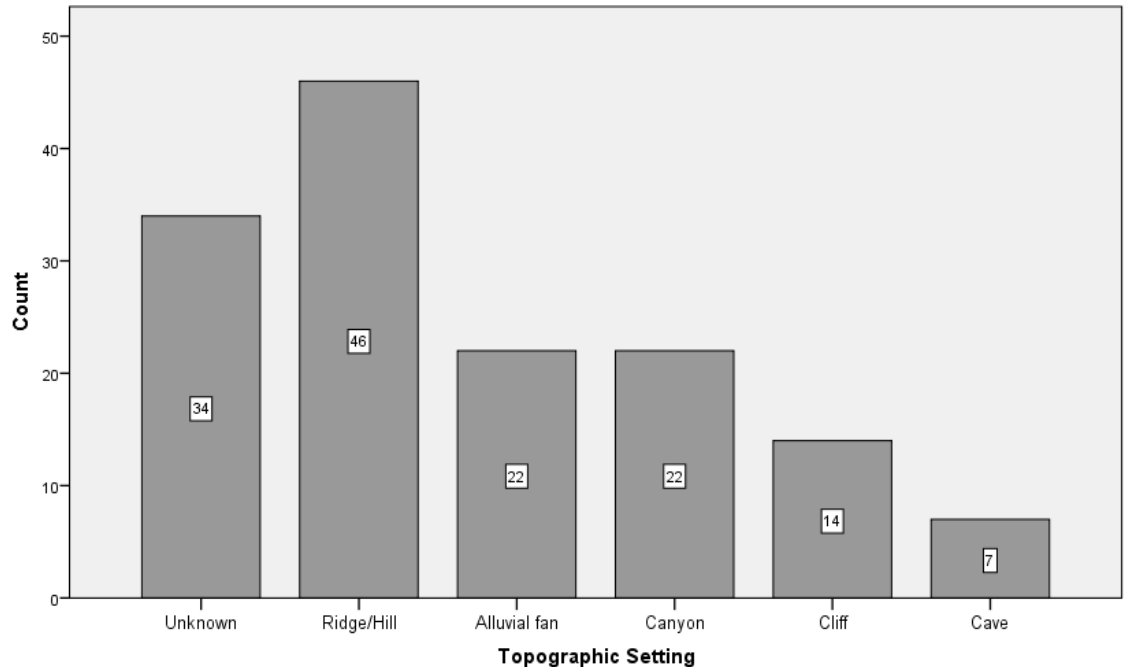


Figure 3. Topographic settings of 145 archaeological sites in the Desert Peaks Complex. The Ridge/Hill group of sites includes one located in a mountain setting.

Temporal Components

A total of 157 general temporal periods (including three “Unknown”) has been identified among the 145 sites (Figure 4). Twelve sites have both Prehistoric and Historic components and are thus classified as “Multicomponent” (note that each component is counted and thus the reason why there are more temporal components [n=157] than sites ([n=145])). Prehistoric and Historic components are widely distributed across the complex (Figure 5), although several Historic sites are concentrated in the southwestern part of the complex. The prehistoric and historic components of these sites are discussed under the respective time periods below.

Sixty-eight, or 43% of the components, are classified as Prehistoric Unknown (66 single component and 2 multiple component). Sites assigned to this group have artifacts, features, or rock art styles typical of the Prehistoric Era. However, artifacts such as projectile points and ceramics with stylistic forms that have known periods of manufacture and use are absent at most of these sites, and accordingly it is difficult to assign a time period based on survey-level observations. Given the uncertainties of dating such sites, it should be noted that some could be Historic Period Native American camps, hunting locations, or stone procurement areas.

Twelve sites are identified as single component Historic Period occupations and there are twelve multicomponent sites for a total of 24 Historic Period components (15% of the total). Possible Protohistoric sites (A.D. 1580-1659) have been subsumed within this period, but such sites are rare and difficult to identify with certainty based on survey-level observations.

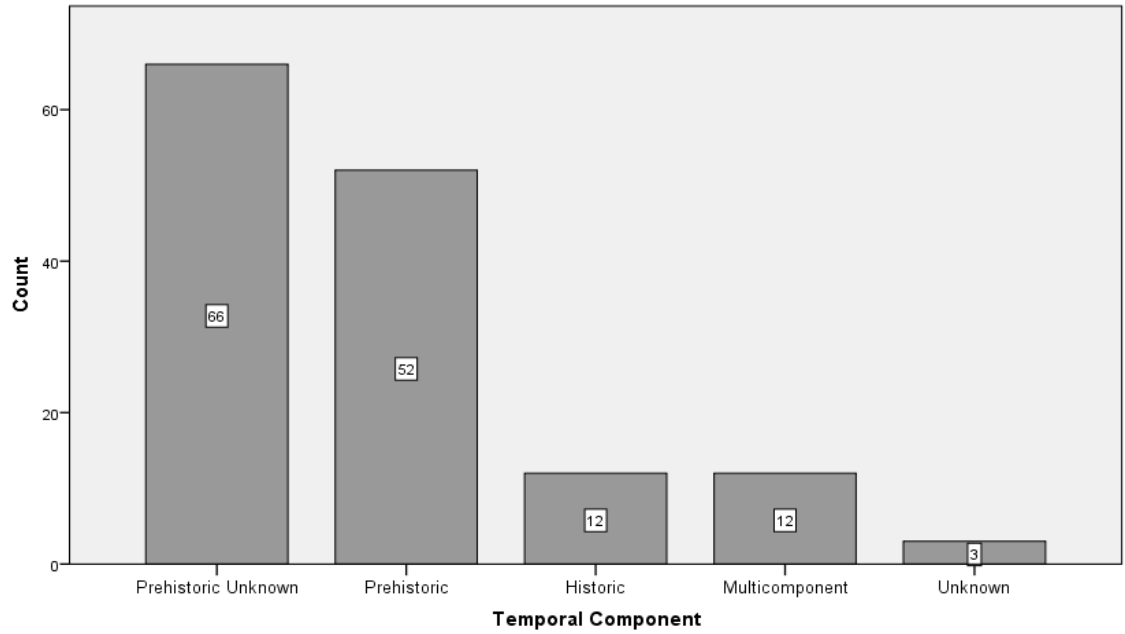


Figure 4. Temporal components identified among the 145 archaeological sites in the Desert Peaks Complex.

Figure 5. Plot of temporal components identified among the 145 archaeological sites in the Desert Peaks Complex.

Map removed to protect sensitive site locations

Among the Historic Period components, the breakdown of specific time periods includes 10 sites dating to the Territorial Period (1846-1912), one of which is a rock art site with graffiti (Bonney hideout). Three sites are assigned to the Statehood to WWII period (1912-1945) and five sites are assigned as Historic Unknown components. Six multicomponent rock art sites have panels with elements representing typical Apache styles and are assigned to a Territorial/Native American class.

In addition, Todsen Cave (LA 5531) had a late Native American occupation and historic trash. It should also be mentioned that several WWII era aerial targets and rock cairns marking the boundary of the Gadsden Purchase have been identified across the Desert Peaks Complex, but these sites have not been formally recorded and are not listed in the NMCRIS or ARMS archives. A Civilian Conservation Corps dam (LA 186038) is present across Box Canyon near Picacho Peak. A 22 mile-long segment of the Butterfield-Overland Trail traverses the southern half the complex. It does not appear to have a formal Laboratory of Anthropology number but is listed in the New Mexico State Register of Cultural Properties (SR 173).

Three sites have unknown occupations that could be prehistoric or historic. One site has no information other than site number and location. Two of the unknown sites consist of rock features, including a rock alignment and rock cairn. Both have small quantities of chipped stone artifacts in the vicinity, but it cannot be determined if the artifacts are associated with the rock structures. They could be prehistoric shrines, house foundations, animal pens, burial or boundary marker cairns, or several other possible site types.

Sixty-two, or 39% of the components, are classified as Prehistoric (52 single component and 10 multiple component). These sites have stylistically diagnostic artifacts, house structures, or rock art and can be assigned to more refined periods and phases within the broad Prehistoric era (Figure 6). As illustrated in this figure, occupations ranging from Clovis (circa 11,000 B.C. to 9000 B.C.) to the Formative or Ceramic Period (AD 200/500-1450) have been documented.

All prehistoric time periods are represented by at least one site – Paleoindian, Early Archaic, Middle Archaic, Late Archaic, Early Formative/Pithouse, and Late Formative/Pueblo. The majority of the sites have been assigned to a general Formative or Archaic class. Additional survey work would assist in assigning many of these sites to more specific time intervals.

Site Types

The 145 sites have been assigned to general site classes based on the descriptive information on artifacts, architecture, and rock art styles available in the ARMS records and rock art reports and updated site files provided by Margaret Berrier (Figure 7). Locations of the various types are plotted in Figure 8, where the concentration of rock art sites along Broad and Valles canyons can be seen.

Unknown Site and Unknown Rock Alignment: Three sites are classified as Unknown. Site LA 31009 has no information on content in the ARMS records (although an examination of the site form may reveal some information). Two sites have rock features of unknown age and function. Site LA 70316 is rock cairn on a hill. It is possible that this is one of a series of historic cairns constructed in the early 1850s to mark the boundary of what later became the Gadsden Purchase. Site LA 98713 is described as a rock alignment. Is located on a ridge above a possible prehistoric

pueblo settlement (LA 98714) and may be a ritual feature associated with that site, but could also be a modern construction such as a hunting blind.

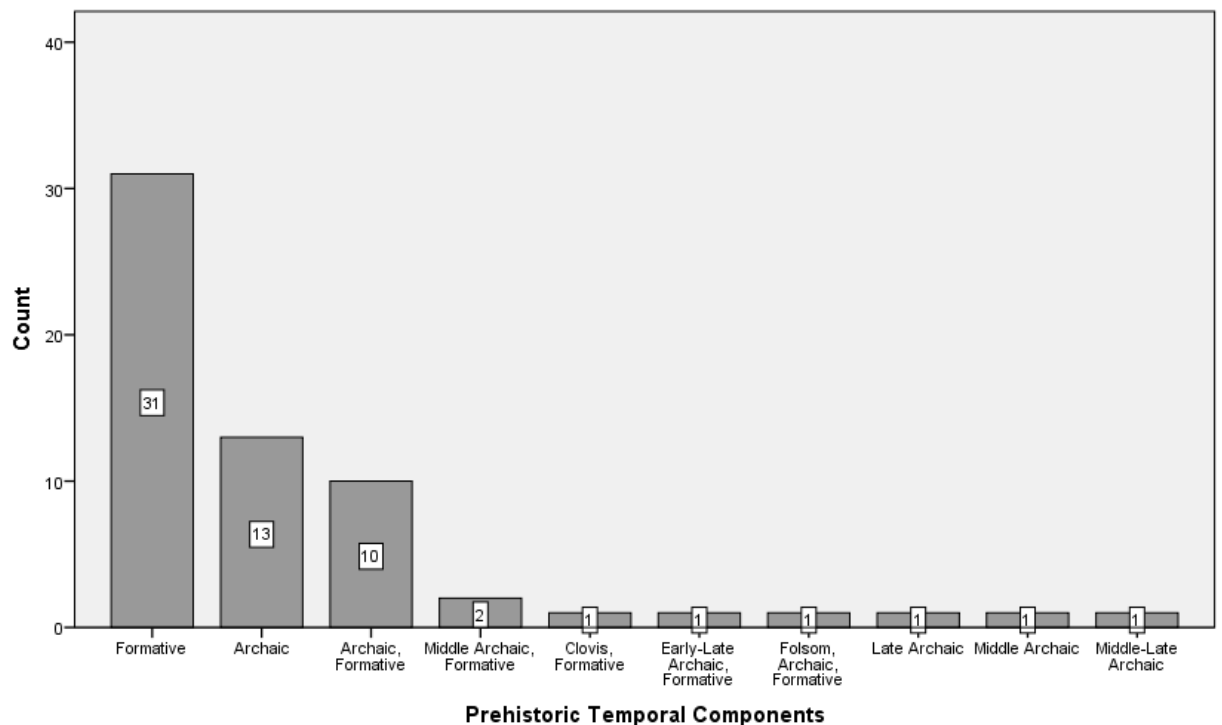


Figure 6. Specific temporal components identified among the 62 prehistoric components sites with chronological information.

Prehistoric Unknown: Twenty-two sites are assigned to the Prehistoric era but otherwise have no descriptive information on features, artifacts, or other attributes that are needed in order to determine a site type. Some of the sites appear to have been recorded recently and have not yet been fully reported to ARMS (e.g., Copperstone and D’Elia 2017).

Prehistoric Artifact Scatters and Variants: This class of site is by far the most common (n=70), accounting for just under half of the 145 sites. A wide variety of site types is subsumed within the class, and it is certain that more thorough field investigations of these sites would reveal the presence of camps, habitation sites, plant processing features, and other forms of prehistoric settlement.

Artifact scatters represent a wide range of time periods, ranging from Archaic to Late Formative. One scatter is recorded in association with a Clovis projectile point and could be a Paleoindian occupation. Temporal assignments are mostly based on the presence of diagnostic artifacts, and many of the scatters lack such artifacts and are described as Prehistoric Unknown in terms of time. Several have relatively high numbers of ceramics and may be habitation sites. Some of the artifact scatters cover a large area and subsume other site types, such as historic trash dumps. Bedrock mortars were recorded at one artifact scatter. The majority of artifact scatters have no associated features, at least on the surface.

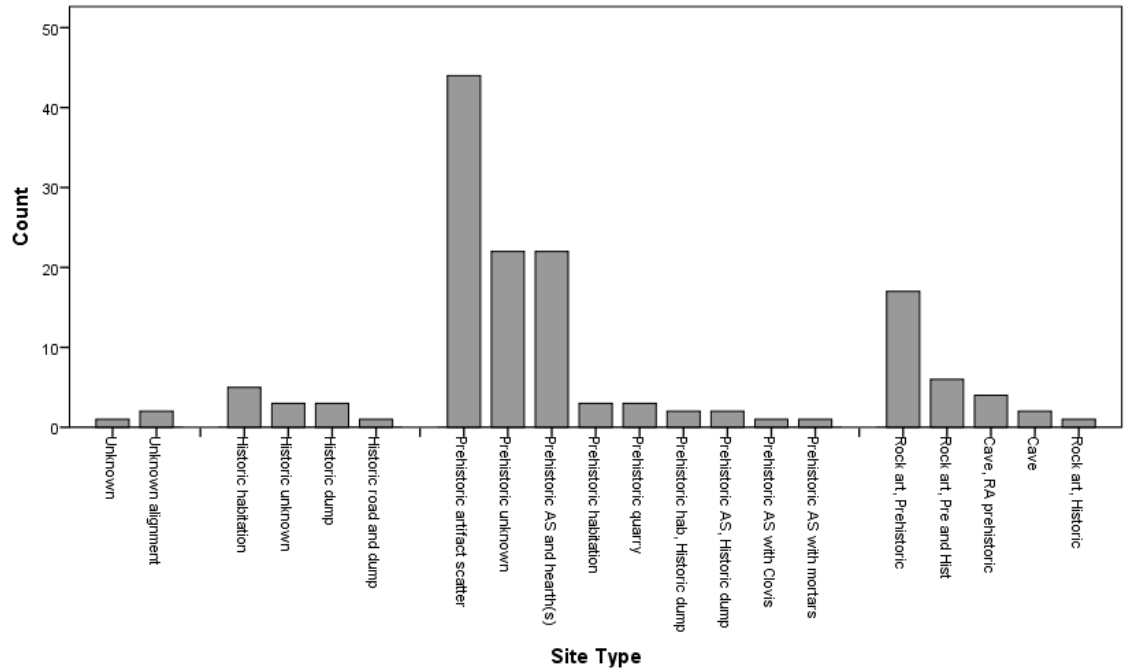


Figure 7. Site types identified among the 145 archaeological sites in the Desert Peaks Complex.

Figure 8. Plot of site types identified among the 145 archaeological sites in the Desert Peaks Complex.

Map removed to protect sensitive site locations

Based on surface survey, twenty-two artifact scatters are associated with hearth features that suggest longer and more intensive occupations. The site record for LA 98810 notes the presence of what are described as “hearth rings.” These are likely burned rock ring middens associated with central plant baking pits. Burned rock middens are a very common feature in mountain and alluvial fan settings, and it is likely that many of the fire-cracked rock features described during surface survey are plant baking pits.

Prehistoric Quarry: Three sites are listed as prehistoric quarries for stone tool materials. Technically, a quarry describes a procurement location where stone material was intentionally excavated (quarried) and processed for transport to settlements. Many sites identified as quarries are actually lithic procurement sites where exposed and eroding stone material such as chert or quartzite was gathered from exposed surfaces of the geologic deposits and transported to sites for further reduction into tools. The available information is insufficient to determine whether the three quarry sites are formal quarries or lithic procurement sites. In either case, these sites are another example of the range of human exploitation of, and adaptation to, the past environments of the Desert Peaks Complex.

Two sites, LA 43956 and LA 45411, are located along ridges at the southwestern margins of the Sierra de Las Uvas. LA 67853 is within Box Canyon along flanks of Picacho Peak, a well-known source of a distinctive, very fine-grained variant of rhyolite known as Box Canyon rhyolite (occasionally misidentified as Box Canyon chert). Box Canyon rhyolite is found at prehistoric sites across the Mesilla Bolson, and it is possible that LA 67853 was actually a quarry site, but closer investigation is needed to confirm this.

Prehistoric Habitation Sites: Along with caves and rock art sites, habitation sites are among the most significant and sensitive site types in the complex. Prehistoric habitation sites can include Archaic Period camps with hut structures, early Formative Period pithouse villages, and Late Formative Period pueblos. Only three prehistoric sites are recorded as having some form of architecture and thus representing a habitation site.

Site LA 98714 is described as a single room block (likely an El Paso phase pueblo) located on alluvial bajada terrace of the eastern slopes of the Robledo Mountains and directly above the Rio Grande Valley, a prominent location for pueblos and other agriculturally-based settlements.

Site LA 98621 is described as a single room block near a small rockshelter located at the head of a drainage in the western ridges of the Robledo Mountains. This is a somewhat unusual location for pueblo settlement but it is possible a spring was located nearby. The site was visited by Mark Sechrist who reported that no site could be found at the reported UTM coordinates. The site may have been misplotted or could be a different type of smaller camp site located somewhere around the reported UTM plot.

Site LA 5529 is a stratified open-air Archaic camp site with hut structures, occupation surfaces, and midden deposits along an arroyo cut. Known as the North Mesa site, it was partially excavated by Richard MacNeish (1993) as part of the Chihuahua Archaic Projects. This site was visited by Mark Sechrist who reported that buried deposits, occupation surfaces, and charcoal-stained soils extend for a distance of approximately 80 meters along the arroyo channel (Figure 9). The site appears to be buried and undisturbed by looters and retains significant scientific research potential.



Figure 9. View of dense artifact scatter and charcoal-stained soils at the North Mesa site (LA 5529).

It should also be noted that Robledo Pueblo (LA 73055) is located along the eastern alluvial fan pediment of the Robledo Mountains similar to LA 98714 described above. Robledo is a 17 room pueblo with burned rooms (Brook 1975; O’Laughlin 1985). It is located on private land approximately 80 meters east of the eastern boundary of the Desert Peaks Complex.

The low number of prehistoric habitation sites documented in the Desert Peaks Complex is unrealistic, and it is very likely that several of the Prehistoric artifact scatters are actually habitation sites with buried architectural features. A more intensive survey can resolve some of the issues based on the presence of trash middens, dense artifact concentrations with multiple artifact types, and subtle evidence of architecture. In many cases, however, subsurface testing will be required to identify the presence of buried houses.

Prehistoric Caves/Rockshelters: The class of caves and rockshelters is one of the most significant and scientifically important sites. Six caves or rockshelters have been recorded. Excavations in Chavez cave (LA 5520; Cosgrove 1947) provided one of the early insights into Jornada Mogollon material culture, and O’Laughlin’s later excavations identified Dark Zone ritual areas within the cave, including a stone effigy of a goggle-eye figure (O’Laughlin 2003). Rock art is also present in Chavez Cave.

Along with the North Mesa site mentioned above, Todsen cave (LA 5531) was thoroughly excavated during Richard MacNeish’s Chihuahua Archaic Project (MacNeish 1993). Several

stratified cultural layers were excavated, each containing rich deposits of artifacts, animal bone, and perishable items.

Site LA 13223 is described as a 5 by 15 m cave with soot-blackened ceiling located along the northeastern flank of Robledo Mountains. Chipped stone artifacts were observed on the surface of the cave floor.

The other three sites are described as rockshelters. Little additional information is available on their size or artifact content aside from statements that pictographs are present on the interior walls. Sites LA 72687 and 72689 are located along a ridge on the southern fault line of the Robledo Mountains. LA 72688 is a small shelter across from Todsens Cave in Spring Canyon.

Human Burials: An important management and preservation aspect of caves is that they often contain human burials. Human burials were found during excavations of Chavez Cave (Cosgrove 1947) and Todsens Cave (MacNeish 1993), the latter containing one of the most elaborate Archaic period burials in the Jornada region. Chavez and Todsens caves were extensively excavated and it is unknown if any prehistoric or historic strata remain intact. If intact strata are present, the possibility of additional burials should be considered during the development of management and preservation policies for the monument. Human burials are also common at habitation sites, and should also be considered.

Rock Art Sites: Rock art sites are among the most visually prominent archaeological sites in the Desert Peaks Complex. Twenty-eight rock art sites have been recorded. Several known rock art sites have yet to be formally recorded and it is likely that many more have yet to be discovered. Rock art sites are present in most topographic settings where rock outcrops are present across the complex, but there is a particularly dense and significant concentration of rock art along Broad Canyon and Valles Canyon.

Twenty-eight sites with rock art are listed in the ARMS files. This includes 4 caves or rockshelters with pictographs, 17 sites with prehistoric rock art, 6 sites with both prehistoric and historic (Apache) rock art, and 1 site with the name of a famous historic figure inscribed on the rock. Several of the sites in Apache Flat and Broad Canyon have been recorded by Margaret Berrier and avocational archaeologists.

Apache Rock Art: The Apache rock art is especially significant, partly because archaeologists are able to identify motifs that validate the artists as Apache, and partly because there are living descendants of the Apache in the region. The Mescalero Apache Reservation where Chiricahua and Lipan Apache also live is located near Ruidoso, New Mexico, to the north of the OM-DP NM. The Apache on the Mescalero Reservation consider the OM-DP NM region as part of their traditional homeland and they consider the rock art sites to be traditional cultural properties or sacred sites.

The Apache are Athapaskan-speaking groups who with the Navajo became a major force in Organ Mountain Desert Peaks region at about A.D. 1500. They lived in many different local groups or “rancheria” as they were identified by the Spanish. After Mexico’s independence from Spain, these local groups were recognized as tribes, a practice that was followed by the United States government in the mid-1800s. The Apache tribes in the Organ Mountain Desert Peaks Monument were the Mescalero, Chiricahua, and groups now named White Mountain Apache.

The Lipan and Kiowa Apache had territories to the east and undoubtedly spent time in the Organ Mountains.

Some Apaches grew corn and beans but they relied extensively on wild plants and they hunted for deer and bison where they could obtain them. From the earliest encounters in the 1600s, the Spanish described the Apache as warriors who used large, sinew-backed “Turkish” bows, flint tipped arrows, and leather shields so large that they covered a man’s body. Horned headdresses are also described as part of the Athapaskan war regalia.

A hide painting, known as Segesser I (Figure 10), has examples of Apache warriors with their large body shields. The painting was sent from Mexico by the Jesuit missionary Philip Segesser von Brunegg to his family in Switzerland in 1761, where it remained, with another painting, until acquired by the State of New Mexico in 1988.



Figure 10. A portion of the Segesser I hide painting. The Apache warriors, standing behind large shields, are defending a fortified or walled village. The attacking mounted warriors are on armored horses that were commonly used by the Spanish. The battle shown in the painting is thought to have taken place somewhere in the OM-DP NM or an area nearby.

The Segesser I painting, created between 1720 and 1729 represents one of the punitive expeditions undertaken by the Spanish in retaliation for Apache raids on settlements in New Mexico (Figure). It shows mounted Spanish military with Indian allies attacking an Apache village. Researchers think the Indian allies with the Spanish are Opata, Tlaxcalan, or another

group of Uto-aztecan speakers in Sonora who accompanied the Spanish on these expeditions. . The Apache tipi village is situated next to a defensive rock breastwork protecting the women and children. The Apache defenders have large hide shields that cover their bodies while others shoot arrows at the attacking forces. The battle is thought to have taken place somewhere in the OM-DP NM area.

The Segesser I painting is used by archaeologists to identify Apache rock art figures where the shield covers the body of the figure (Figure 11). These shield-bearing warriors are common to many other groups across the Intermountain West, and especially well-represented among the Rio Grande Pueblo groups to the north of the OM-DP NM. With multiple groups making the image it can be difficult to differentiate one from another. In general, however, Apache shield warriors are made in the open style, with circular shields covering the bodies, that is can be recognized as their style.



Figure 11. Apache shield warriors from a site to the east of the OM-DP NM. Note the x-shaped bodies that show through the shields. The large quadrant like figure is probably a stand-alone shield. (Image copied from a power point presentation by LeRoy Unglaub).

The shields also exhibit designs that identify their bearers as Apache or in other examples an hourglass-shaped body shows through the shield to emphasize its owner as an Apache. These

shield warrior figures tend to be found to the east of the OM-DP NM in the greatest numbers where perhaps they represent the Lipan or Kiowa Apache more than the Chiricahua or Mescalero.

The rock art human figures or anthropomorphs (as archaeologists refer to them) that are associated with the Apache in the OM-DP NM are dominated by a human body with an hour-glass design or sometimes referred to as a narrow-waist figure (Figure 12). These can be shown in an abstract form as an x-body. The more complete figures almost appear as though they are wearing skirts, but the traditional dress for an Apache male was a long shirt or tunic that hung over the hips when belted at the waist. A woman's dress was the same design except it was longer, but would still appear as an hour-glass shape when cinched with a belt at the waist. The figures may have bows or a shield in a hand. Bows will usually have a wavy back to show they are sinew-backed or the Turkish bows identified by the Spanish.



Figure 12. Apache anthropomorphs that have hourglass-shaped or x-shaped bodies. The figures wear the common horned headdresses, an indicator of their Apache authorship. (Image from Margaret Berrier)

While the hourglass-shaped figures are the most common, some anthropomorphs have rectangular body shapes with straight sides. These examples like hourglass ones are executed in outline form. Some have interior designs but it is more common for them to have simple open interiors. The figures are invariably wearing horned head gear. Some of these are elaborate with curved horns and others are simple straight horns protruding upward out each side of the head. The intent, though, is to show horns on the head which is an identifying attribute for Apache rock art figures.

Another specialized Apache rock art figure represents Gan dancers or Apache crown dancers that wore candelabra-style headdresses, often with three prongs (Figure 13). Frequently these Gan dancers will hold rattles or wands in their hands. These figures are very distinctive motifs and clear indicators of an Apache presence in the area.

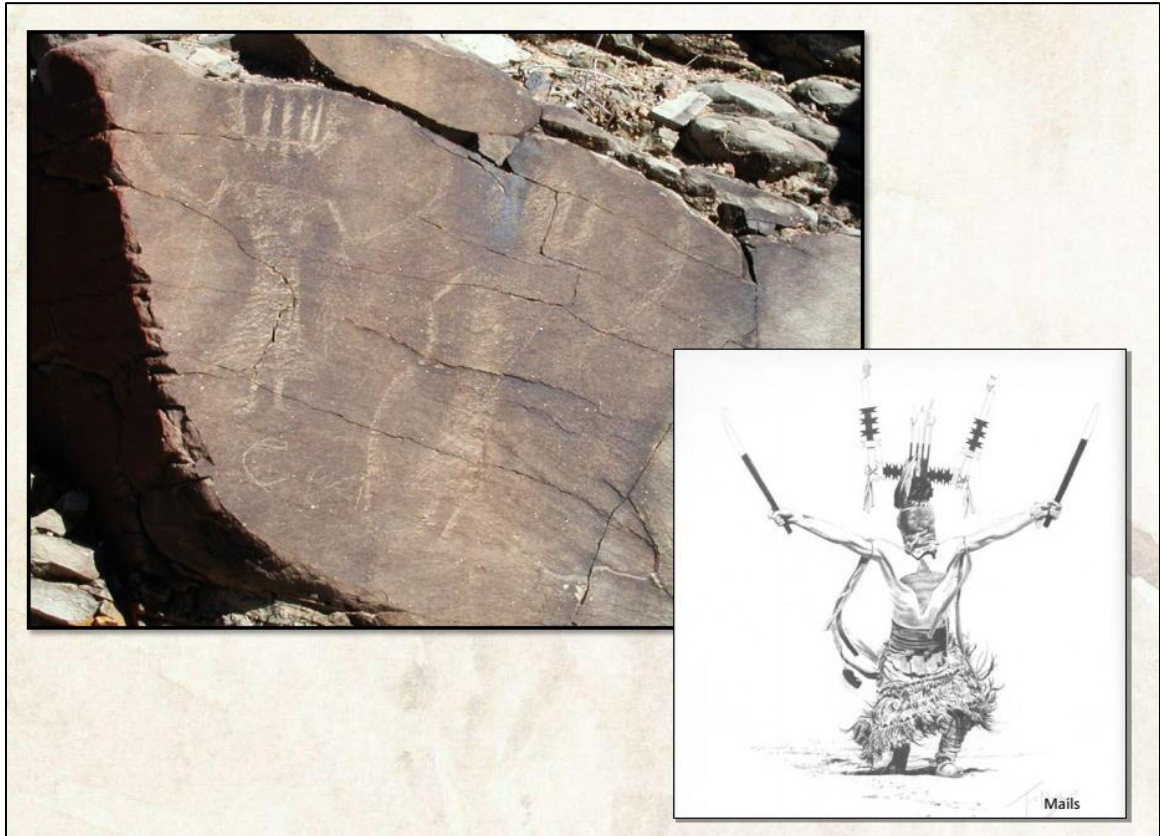


Figure 13. Gan dancers or Apache crown dancers. The figures are a distinctive rock art motif that is found at sites in the OM-DP NM. Note the candelabra-like headgear worn by the dancers. They invariably hold wands or rattles in their hands. (Image copied from a power point presentation by LeRoy Unglaub).

Animals found in Apache rock art include bison in regions where they once lived and quadrupedal figures with branching antlers that are apparent representations of deer. Other quadrupeds are do not contain sufficient details to determine a species but some likely represent pronghorns or bighorn sheep. Curiously, images of turtles are common at Apache rock art sites.

There are examples of horses (and perhaps mules) and riders which represent the Apache. In some of these examples the riders have the characteristic x-shaped bodies so they are readily identified as Apache (Figure 14). The identity of other figures is less certain as they might represent the Comanche, Kiowa or other southern Plains tribes that ventured into the OM-DP NM.

Finally there is an abstract component with Apache rock art that is poorly understood. Often painted rather than in petroglyph form, the figures are geometric designs that include diamond patterns with rows of connected dots and zigzag lines. These figures are often done in two and

three colors. In some cases they appear to represent duplicates of older images that are already painted at a site. In other cases, though, they are stand-alone where the entire site is abstract forms that were made by the Apache.



Figure 14. Example of a horse and an associated figure.

Apache Conflict Sites: The Robledo Mountains and Sierra de las Uvas played an important role during the War of Apacheria or Apache Conflict (1865-1890). In 1879, an Apache band raided a wagon train from Juarez, Mexico traveling the Butterfield Trail, three miles east of what later was christened as Massacre Peak at the southeastern edge of the Sierra de las Uvas). All teamsters and family members were killed. The massacre location was found by relic hunters and destroyed (Humphries 1939), and no record of the site exists in ARMS.

In addition to the Butterfield-Overland Trail, two sites within the Desert Peaks Complex are associated with the Apache Conflict. One is a cave referred to as Geronimo's Cave. According to legend, while pursued by U.S. Cavalry, Geronimo and several of band members entered a cave in the Robledo Mountains. While the soldiers waited outside the entrance for his return, it was later reported that Geronimo and his band were seen in a nearby valley.

Hikers, Geocachers, and avocational historians have visited one or more caves in the Robledo Mountains that are thought to be "Geronimo's Cave" but no second exit has been found, nor has any material culture associated with Apaches been observed.

It is uncertain if any of the cave sites listed in ARMS is the same cave. LA 13223 is the only cave recorded along the Robledo Mountain escarpment that might be the same as the “Geronimo’s Cave” reported by Geocachers and explorers.

A confirmed site associated with the Apache Conflict is the Rincon heliograph station located on the crest of Lookout Peak at the northern edge of the Robledo Mountains. Site LA 38622, a historic “habitation” site with metal support posts and concrete foundations was recorded at this location by the El Paso Archaeological Society in 1975. It is likely that these features are the remains of the U.S. Army heliograph station that operated in 1886 and 1890. The site has been compromised by the modern construction of communications towers.

Historic Habitation and Ranching Sites: Four historic ranches are listed in the ARMS files. Proctor and others (2013) plot a total of 16 sites described as “Historic Ranch House Ruin.” These may be listed in deed records, but they have not been recorded archaeologically and registered with ARMS.

Site LA 26993 is the Mason Ranch site, also known as the Mason Stage Stop, Mason Stage Station, Fort Mason, and Slocum’s Ranch. It is one of the larger historic ranch settlements and was located along the Butterfield-Overland Mail route. The other three sites, LA 35305, LA 60795, and LA 82957, are described as having remnants of houses and/or outbuildings. Several stone and adobe structures were observed at LA 60795 during the reconnaissance survey (Figure 15). As noted above, the Rincon heliograph station (LA 38622) is listed as a historic habitation site based on the presence of architectural remains.

Another form of Historic habitation site is Native American habitation sites, or *rancherias*, and such sites should be considered for the design of future surveys and overviews. Given the historic record of Apache use of the area and the record of Apache rock art, it is certain that Apache *rancheria* settlements are present within the complex. Four stone circles possibly representing the foundations of Apache wikiup structures were reported on the terrace above rock art panels at the Apache Flats rock art site (LA 43952; Coffelt and Baker 1983). Subsequent inspection of these features by Margaret Berrier and others confirms that a form of rock-ring structure or perhaps circular shrine is present at Apache Flats (Berrier 2016, 2017). Mark Sechrist noted circular ring alignments in the vicinity of Faulkner Canyon during his reconnaissance survey (Figure 16).

Historic Trail Sites: A 22 mile-long segment of the Butterfield-Overland Mail Trail (1857-1861) traverses the southern margin of the Desert Peaks Complex. Impressions of the trail can be seen on aerial photographs, and grooves left by thousands of wagons are worn into the bedrock of some locations. The Mason Ranch or Stage Station was associated with the use of the trail. A segment of the trail was designated as LA 151591 during a private research survey conducted in 2006 (Sechrist 2006).

Gadsden Purchase Sites: The original boundary survey for New Mexico and the Gadsden Purchase crosses the southern quarter of the complex, roughly parallel to the route of the Butterfield-Overland Mail Trail. Three rock cairns marking the boundary are illustrated in Proctor et al. (2013). Site LA 70316 is a rock cairn on a hill that appears to be located near the boundary line. Otherwise, no systematic survey of cairns or other features associated with the Gadsden parcel has been undertaken.



Figure 15. Stone and adobe ranch building at LA 60795



Figure 16. Possible circular rock alignment above Faulkner Canyon.

Civilian Conservation Corps (CCC) Features: Legare (2016) reports a survey and evaluation of a CCC dam in Box Canyon at the southeastern corner of the monument. The dam (LA 186038) was constructed between 1937 and 1939. Although the dam suffers from vandalism and neglect, it was recommended as eligible for inclusion in the NRHP under Criteria a, c, and d (Legare 2016:11).

Modern Military Sites: Among the more unusual historic sites in the complex are the World War II aerial bombing targets constructed in 1942. Five targets were constructed within the Desert Peaks Complex and are still visible as concentric circles on the landscape. None of the targets have been documented archaeologically but they have been part of a study conducted by Jack and David Soules (see Proctor et al. 2013), local avocational historians and supporters of the Organ Mountains-Desert Peaks National Monument. Similar targets in southeastern New Mexico have been recorded as historic archaeological sites.

Modern Observatory Site: The final and most recent archaeological or historic site of interest is the Blue Mesa Observatory, also known as the Magdalena Peak Station for the International Planetary Patrol Program. The observatory was constructed in 1967 on the flat crest of Magdalena Peak, the highest elevation landform in the Desert Peaks Complex. Ironically, the most recent of all the sites reviewed in this discussion is the one site that no longer exists. The observatory was closed in 1993 (New Mexico State University 1993) and the 30 acre parcel was conveyed to the Federal Aviation Administration who razed the observatory and replaced it with a border-monitoring radar installation. As of 2017, the site would have been 50 years old and thus would have qualified for inclusion on the National Register of Historic Places. However, the facility was destroyed and does not meet the requirement of integrity as stipulated by 36 CFR 60.

Unrecorded Sites and Sites not Listed on ARMS

The current ARMS and NMCRIS records provide an incomplete listing of archaeological sites within the Desert Peaks Complex. An LA site number may be obtained for a certain project or survey, but unless the project is formally registered on NMCRIS and an LA site form is submitted to ARMS, there will be no record of that site. At the present time we have found nine sites that have LA numbers but are not listed on ARMS and additional unrecorded sites were noted during the reconnaissance survey conducted by Mark Sechrist.

Sample Survey for Ecological Study

Sechrist (2006) conducted several sample transect surveys of the alluvial plain along the drainages leading from the southern Sierra de Las Uvas. The survey was conducted at the request of an ecologist affiliated with the Jornada Experimental Range and was intended to study if the genesis of a transitional ecotone between desert grassland and shrubland environments was related to past human use of the area, and was not performed under Section 106 of the NHPA. Sechrist recorded eight sites (Table 2).

Among the most significant of the unlisted sites are the pithouse village and the segments of the Butterfield-Overland Mail Trail. In addition to the pithouse village documented during the ecological sample survey, another major village was recorded by Mark Sechrist and archaeologists affiliated with the Las Cruces District of the BLM. LA 173885 is a small Mimbres culture village settlement on the eastern margin of the Sierra de Las Uvas. The site was

extensively disturbed by mechanical excavators (backhoes with front-end loaders or small bulldozers). At least 24 damage areas (Figure 17) consisting of cuts, trenches, and scrapes made with a bulldozer or backhoe blade and hand-excavated looter pits were documented in 2012 by the BLM and Mark Sechrist (n.d.). Evidence of intact architecture, including a segment of a roof construction beam, was observed in the trenches and hand excavations.

Table 2. Sites recorded during Jornada Experimental Station survey (Sechrist 2006)

LA Number	Site Type	Temporal Period
151584	Artifact scatter w/ hearth (possible burned rock midden)	Late Formative
151585	Historic dump	Historic/Territorial Period
151586	Artifact Scatter	Prehistoric unknown
151587	Artifact scatter w/ hearths	Prehistoric unknown
151588	Historic dump	Historic/Territorial Period
151589	Pithouse village	Early Formative
151590	Historic trail, Picacho route of Butterfield-Overland Trail	Historic/Territorial Period
151591	Historic trail, Mesilla route of Butterfield-Overland Trail	Historic/Territorial Period

Unrecorded Site Observed during Reconnaissance Survey

As part of the reconnaissance survey, one location northwest of rock art site LA 72683 on the terrace above Broad Canyon was examined. This location is in the vicinity of an area anecdotally described as the “corn field” in the Todsens (1990) rock art report. Apparently it was a well-known location of artifacts, ceramics, and other evidence of prehistoric and possibly Apache occupation. The reconnaissance of this location identified a 250 meter-long scatter of flaked stone artifacts, groundstone artifacts, and several concentrations of fire-cracked rock that probably represent plant baking pits and associated burned rock discards (Figure 18). Obsidian, projectile points, and fine-grained cherts or rhyolites (perhaps from the Box Canyon source) are present. In contrast to Todsens’s description of this location, no ceramic sherds were noted. However, several artifact “collector piles” were noted and it is possible that ceramics were removed by artifact collectors. Some areas of clustered cobbles were noted but it could not be confirmed if house structures were present. The significance of this site is that it demonstrates that intensive occupations are present along Broad Canyon that may be associated with the rock art sites.

Other Unrecorded Sites

Additional unrecorded sites include several possible ranch settlements, boundary cairns, and the five World War II aerial targets. Margaret Berrier notes that several rock art sites are known throughout the Sierra de las Uvas that have yet to be professionally recorded or listed on ARMS.



Figure 17. Views of Mimbres pithouse village (LA 173885) showing extensive damage from illicit mechanical looting: top panel, overview of the site showing features and artifacts marked by pinflags and disturbed mounds of dirt in the background; bottom panel, trenches cut through pithouses by mechanical excavators. Note the probable architectural cobbles scattered around the disturbed area.



Figure 18. Unrecorded site above LA 72683 along Broad Canyon: left panel, metate and mano on site surface; right panel, burned rock midden.

IV. Signature Archaeological and Historical Properties of the Desert Peaks Complex

The site records review has compiled information on over 160 prehistoric and historic archaeological sites in the Desert Peaks Complex and hundreds of additional sites have yet to be discovered and recorded throughout the complex. The sites represent over 11,000 years of prehistory and history, from the first New World hunters who gazed at the nighttime stars to modern astronomers who studied the same stars while peering through telescopes on Magdalena Peak.

The following discussion focuses on a subset of the sites: those sites that have signature attributes or represent major episodes of prehistoric and historic settlement of the area. These include sites that:

- clearly merit nomination to the National Register of Historic Places,
- are outstanding examples of architecture, material culture, technology, or historical events,
- are visually striking and appealing and have a high degree of public interest,
- are of potential religious or traditional significance to Native American tribes,
- and have specific management and preservation issues that should be taken into account.

Brief Overview of the OM-DP NM Rock Art

The oldest petroglyphs in the OM-DP NM are abstract figures that were made by pecking and abrading their forms made during the Archaic Period. These petroglyphs are generally thought to be among the oldest in North America (Benson et al 2013; Sundstrom 2004; Keyser and Klassen 2001; Loendorf 2008). The antiquity of these abstract petroglyphs has been established by excavating sites in New Mexico where the petroglyphs, on flat sandstone surfaces, are covered by soil deposits that can be dated (Abel 1993; Loendorf 2008). Radiocarbon dates indicate the petroglyphs are at least 5000 years old and perhaps older in some locations. Importantly these sites on flat surfaces, with petroglyphs facing skyward, are most common in Texas and New Mexico. Several are found in the region surrounding the OM-DP NM and almost certainly they will be discovered on the Monument to the west of the Rio Grande River.

Archaic-age pictographs or paintings on rocks in the OM-DP NM area also exhibit abstract figures. Using Plasma Oxidation, an established dating method, abstract zigzag designs at the Ruby Canyon in southeastern New Mexico (Figure 19) was dated at 3140±60 years B.P., calibrated to 1540-1230 cal B.C. (Loendorf et al. 2016). As with the petroglyphs, there is evidence that the painted figures may also date to older time periods but there is little doubt that the oldest art is circles and circular forms associated with rectilinear forms that include triangles and zigzags (Figure 20).

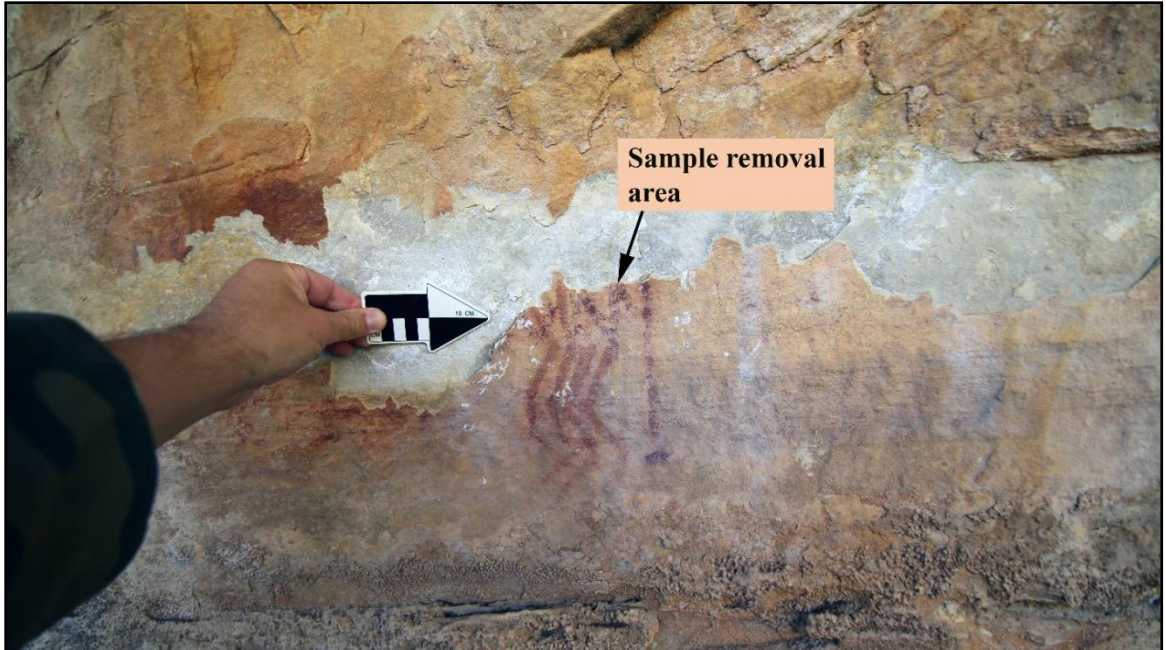


Figure 19 . Red painted zigzag pattern at the Ruby Canyon site with a radiocarbon age of 1540-1230 B.C.

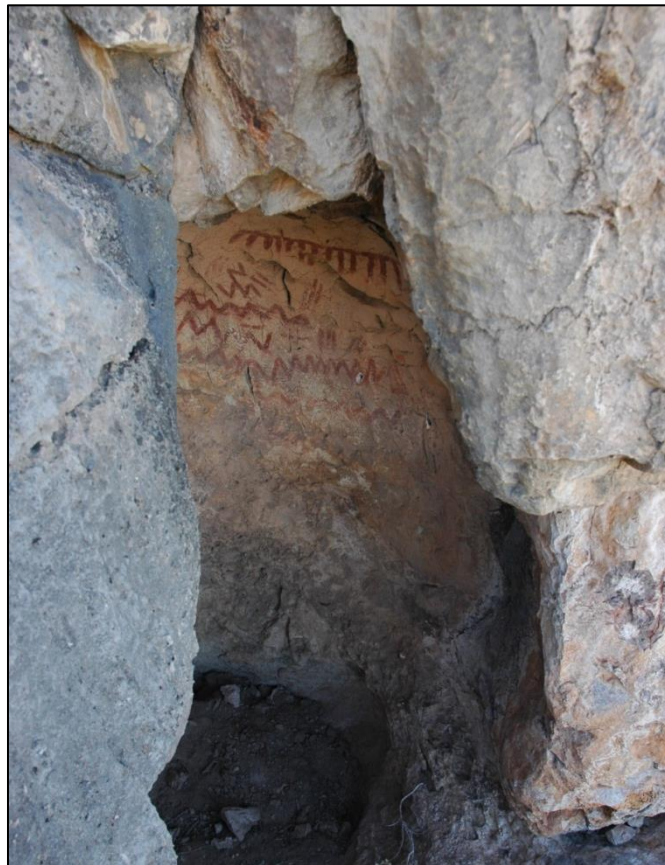


Figure 20. Archaic-age abstract rock paintings protected in an alcove. These fresh looking paintings can be deceptively older than they appear. .

Plasma Oxidation dating has also been used to establish the age of another Archaic-age rock art tradition is the Chihuahuan Polychrome Abstract (CPA) style (Schaafsma 1992, 1997). These colorful abstract paintings are dominated by abstract motifs in red, yellow, white, purple, green, and black paint. Schaafsma noted that there were a few stick figure anthropomorphs and simple animals mixed in with the abstract motifs. She writes that the abstract elements:

...consist of single zigzags, double zigzags, barbed zigzags, circle chains, diamond chains, grids, lines of inverted triangles, sets of dots, and rakes. The rake is among the oldest of the elements. There are also outlined crosses. Outstanding is a tall set of zigzags and parallel lines in red protected by the overhang but outside of the inner recess [Schaafsma 1997:5].

A CPA style painting at the Doña Ana site (Figure 21) north of Las Cruces and just outside the OM-DP NM boundaries was radiocarbon dated at 1975 ± 95 B.P. or corrected 65 B.C. to A.D. 145 (Loendorf and Rowe 2016; Steelman et al. 2013a), a date that falls within the terminal Late Archaic Hueco phase the region. Chihuahuan Polychrome rock art differs from earlier painted abstract form sin that it contains multi-colored figures, and the forms are arranged into patterns where multiple zigzag forms are found in parallel groups, or sets of triangles are connected to one another in colorful designs.

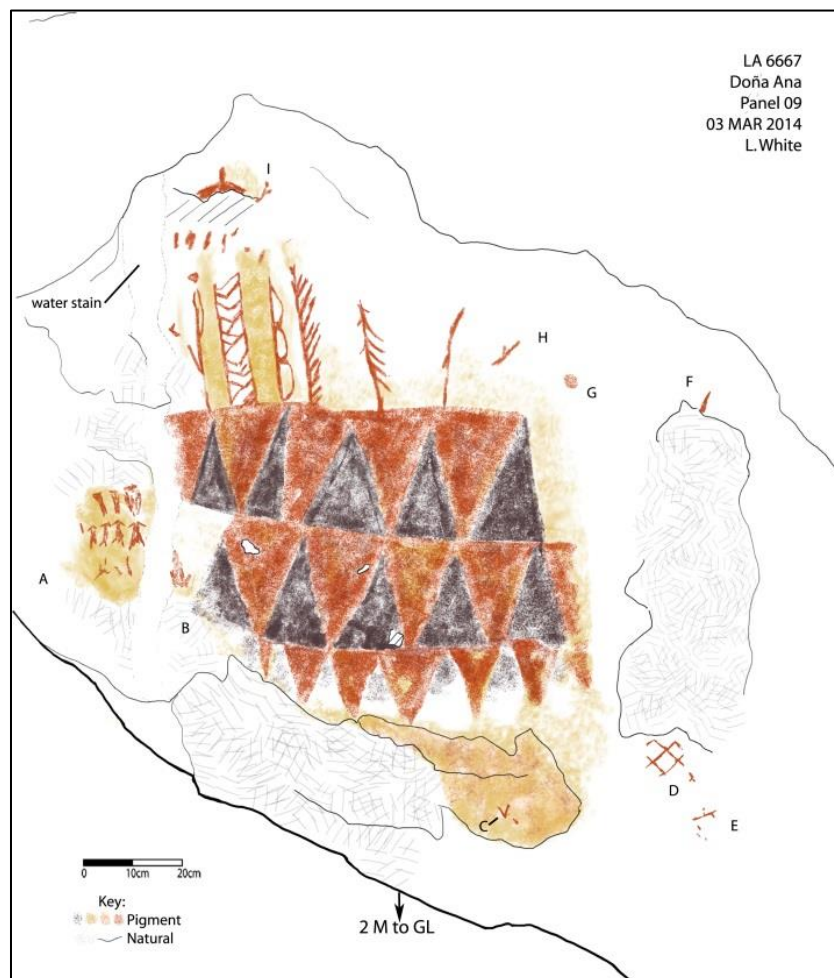


Figure 21. Chihuahuan Polychrome paintings that are dated to *circa* 2000 years before present.

The Dona Ana site also contains a small anthropomorph in a style that Schaafsma (1980:187) names the Mogollon Red. Mogollon Red contains small human figures associated with a variety of animal forms. Although not well studied, the sites also exhibit large numbers of abstract figures. Sites in the Gila Cliff Dwellings National Monument where some sites tend to blend together with Chihuahuan Polychrome designs in much the same manner as the example at the Dona Ana site. Other sites like the one near Chloride, New Mexico to the north of the OM-DP NM seem to be a combination of Jornada Mogollon rock art and Mimbres Mogollon painted types. These same combinations of types and styles are found at sites in the region to the west of the Rio Grande River in the OM-DP NM. Mogollon Red rock paintings appear to mostly date to the Late, late Archaic or early in the Formative Period (Schaafsma 1980), but as yet none has been directly dated with the Plasma Oxidation method.

Representational rock art with images of anthropomorphs, quadrupeds, and birds is well-represented in the OM-DP NM through the Formative Period. Many of the images are also found on Mimbres ceramic bowls which is a strong indicator of their age and affiliation (Creel 1989). The Jornada Mogollon region contains some of the best known petroglyphs in North America.

From early in the Formative Period, Jornada Mogollon rock art appears to be related to ceremonies associated with rain-making. Sites with lightning-like forms, rain lines and cloud terraces are found across the Jornada region including the OM-DP NM (Miller et al. 2012a; Loendorf et al. 2013a; Loendorf et al. 2013b; Kenmotsu et al. 2012; Schaafsma 1980). There are also what appear be early representations of horned serpents (Stowe et al. 2010). These rain-making related images appear to emphasize a tiered universe that includes a sky world, terrestrial world and underworld.

Later in time, rock art related to rain-making and concepts of emergence tend to dominate Formative Period with cloud terraces, horned serpents, masks or katsina faces (Figure 22), and goggle-eyed figures (Figure 23) as important imagery (Schaafsma and Taube 2007). Themes of emergence and ancestral links to mountains and caves are sometimes expressed symbolically in Jornada images (Miller 2014, 2017b). Birds become messengers to the clouds and flowers the product of the rains.

Protohistoric and historic rock art is dominated by Apache figures that were discussed in an earlier section. It is also possible that other southern Plains tribes like the Comanche and Kiowa left rock art in the region. O'odham groups from southern Arizona were also likely in the area and may have left rock images.



Figure 22. Example of a katsina face pictograph.



Figure 23. Jornada Mogollon style rock art in the Desert Peaks Complex. Left panel, katsina figure with horned headdress; right panel, google-eye figure associated with rain.

Caves

Cave sites and the archaeological deposits within provide a wealth of information on prehistoric and historic foodways and perishable technologies, and the stratified deposits provide unparalleled insights into changing patterns of human adaptation through the millennia. They often contain important paleoenvironmental and paleoclimatic records preserved in the animal bone, insect remains, plant and pollen remains, and even the banded layers of calcium carbonate forming the stalagmites and stalactites within.

Caves also served as important religious sites. Among prehispanic and historic societies of the American Southwest, caves and mountains had symbolic meanings relating to underworld, ancestors, spirits, water, lightning, clouds, and rain. Mountains and caves are related to origin myths central to ideologies of past and present societies across the American Southwest, and contemporary pueblo groups regard themselves as relationally constituted by such ideational landscapes surrounding them.

Excavations at Chavez Cave (LA 5520) and Todsen Cave (LA 5531) contributed to our understanding of past lifeways and beliefs. Cosgrove (1947) describes a wide variety of perishable material culture from Chavez Cave. A hafted Pendejo-style projectile point from Chavez Cave was radiocarbon dated by Darrell Creel to A.D. 120-330 (Figure 24, right panel), the terminal centuries of the long Archaic sequence (Creel et al. 2014). Relationships between caves and beliefs are exemplified by the discovery of a painted goggle-eye effigy in the Dark Zone of Chavez Cave (Figure 24, left panel) during later excavations by Tom O’Laughlin (2003). These important studies within the Desert Peaks Complex have helped establish that the habitation and ritual use of caves had considerable time depth in the Jornada region of south-central New Mexico.

Ritual Sites, Traditional Cultural Properties, and Sacred Landscapes

The rock art and cave sites discussed above are examples of several sites that may also be considered sites of religious and cultural significance (also known as Traditional Cultural Properties). Additional sites, features, and localities that may be considered as having religious and cultural significance may include shrines, cairns, artifact caches, human burials, plant communities of ritual importance, and certain mountains or visually prominent peaks or landforms.

Woven together, this constellation of sites and places constitute the broader sacred landscapes of prehistoric and historic Native American groups (Figure 25). Archaeologists and ethnographers may be able to identify locations of religious and cultural significance through comparative research with past and present cultures in the American Southwest, Mexican Northwest, and Mesoamerica. In most cases, however, consultation with Native American tribes is required in order to identify sacred places and sacred landscapes.



Figure 24. Left panel, stone goggle-eye effigy from Dark Zone of Chavez Cave (O’Laughlin 2003; courtesy of Archaeological Society of New Mexico); right panel, hafted Pendejo style dart point from Chavez Cave excavated by Cosgrove in the 1930s and radiocarbon dated by Darrell Creel to AD 120-330 (courtesy of Texas Beyond History, Texas Archeological Research Laboratory).



Figure 25. A rock art panel (LA 181620) as viewed within a broader landscape perspective.

Prehistoric Villages

Pithouse villages and pueblo roomblocks are known to have been inhabited in the Robledo Mountains and Sierra de las Uvas. Interestingly, the Sierra de las Uvas seems to have demarcated a boundary or transition between Mimbres Mogollon and Jornada Mogollon cultures during the Early Formative Period (A.D. 200/500 – 1150), and the presence of Mimbres village settlements in this area provides a major opportunity to study the edges and boundaries of Mimbres culture (Figure 26).



Figure 26. Mimbres Black-on-white sherd found on the surface of LA 151589 (from Sechrist 2006).

Robledo Pueblo lies slightly outside the eastern boundary of the Desert Peaks Complex, but nevertheless its presence demonstrates that during the subsequent Late Formative El Paso Phase (A.D. 1300-1450) the flanks of the Robledo Mountains were part of the Jornada Mogollon culture region. It is likely that additional pueblo settlements exist along the alluvial fans of the Desert Peaks Complex. Unfortunately, a site map and other information for Robledo Pueblo have not been published. Madera Quemada pueblo on Fort Bliss Military Reservation offers a suitable example of what a typical 10-20 room Jornada Mogollon pueblo looks like (Figure 27). Madera Quemada is located 70 kilometers to the east along the flanks of the Organ Mountains (a few miles to the east of the boundary of the Organ Mountains section of monument).

Prehistoric villages offer the most productive context for studying the transition to agricultural societies and how such societies thrived in the semi-arid environment of south-central New

Mexico. Unfortunately, such sites are rich in material culture, such as pottery vessels, prized by looters and collectors, and therefore merit dedicated preservation and management policies. As noted earlier, one of the Mimbres villages in the Sierra de las Uvas was heavily damaged by looters using mechanical excavation equipment in the search for Mimbres pottery vessels.

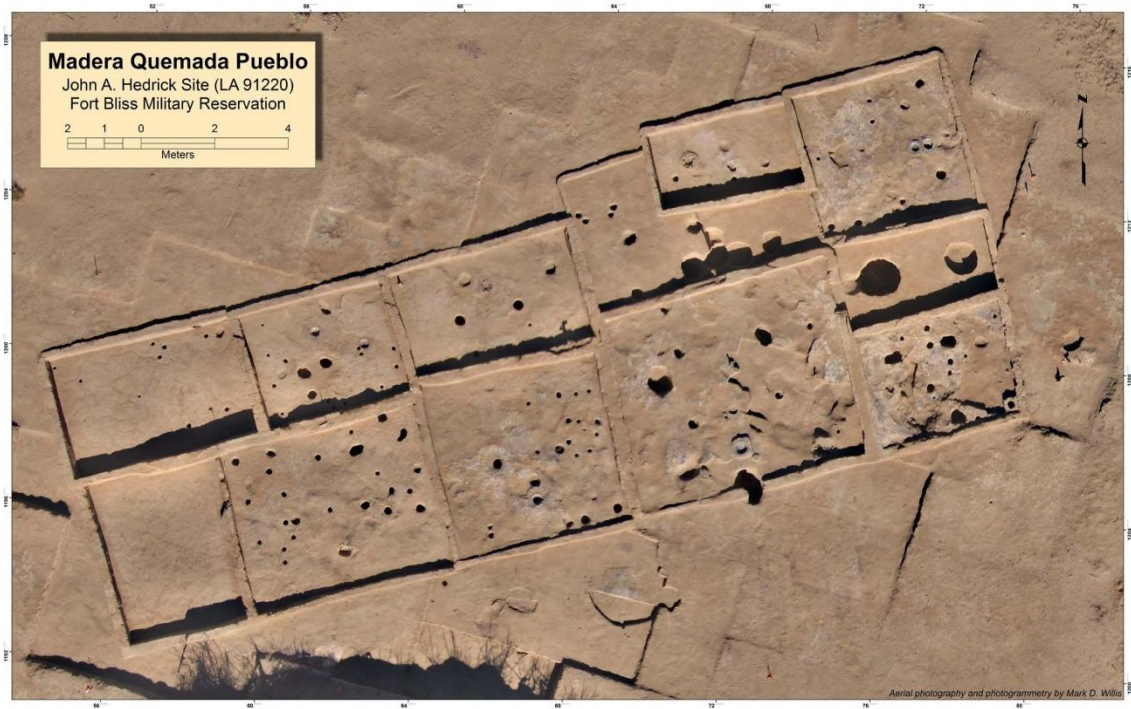


Figure 27. Aerial view of the excavated roomblock at Madera Quemada pueblo (LA 91220, Miller and Graves 2009). Aerial photography by Mark Willis.

Apache Rock Art and Settlements and Sites of the Apache Conflict

Recent documentation of rock art sites in the Sierra de las Uvas, and specifically in the vicinity of Broad Canyon and Valles Canyon (Berrier 2015, 2016, 2017, n.d.; McNew 1997) has identified numerous panels and elements that appear to be Apache in origin. Additional work is needed to confirm this, but at the present time the Sierra de las Uvas appears to have extensive concentrations of Apache rock art in southern New Mexico.

In addition to rock art, several rock ring features have been recorded in the vicinity (Figure 28). These features appear to be cleared floor areas and surrounding rock anchors of wikiup structures. The combination of rock art and habitation areas indicates that the Sierra de las Uvas may provide unparalleled insights into Apache settlement and belief. The presence of the so-called Geronimo's cave in the Robledo Mountains adds another dimension (although the site remains to be unconfirmed archeologically or historically).



Figure 28. Circular rock alignments at Apache Flats rock art site (Berrier 2016; photographs courtesy of Margaret Berrier).

A noteworthy example of the Apache Conflict in south-central New Mexico is the US Army heliograph station established on Lookout Peak in 1886 or 1890. The heliograph was a system of “talking mirrors” established by General Nelson Miles during the Geronimo campaign of May,

1886 and abandoned in October after Geronimo's surrender in Arizona. A second, more extensive trial system was constructed and tested in 1890. The heliograph consisted of adjustable mirrors mounted on tripods on mountain peaks and were operated by crews consisting of a signals expert, privates, and sergeant. A total of 51 such stations were built from the White Mountains of Arizona to the Capitan Mountains of New Mexico (Figure 29). The station on Lookout Peak was designated the Rincon Station (No. 42) after the small farming community in the Rio Grande Valley below.

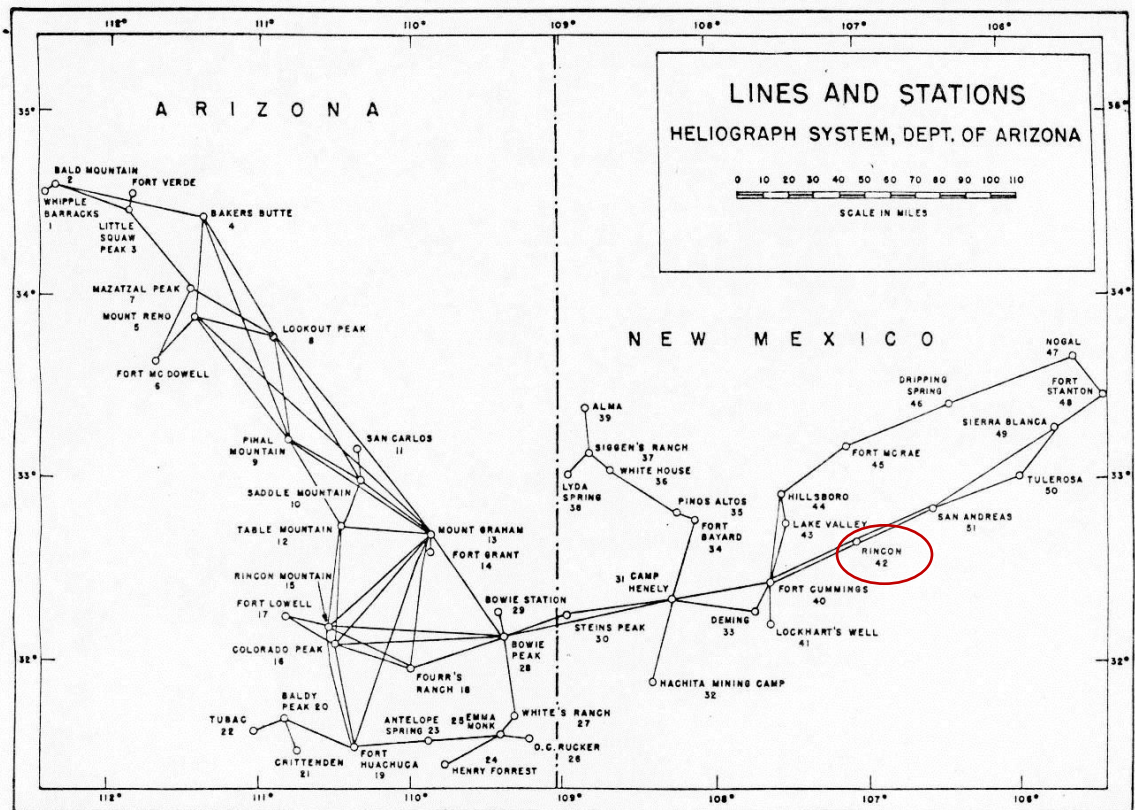


Figure 29. Heliograph stations in 1886 and 1890. Rincon (No. 42) is the station located on Lookout Peak in the Robledo Mountains.

The archaeological site on Lookout Peak is designated LA 38622 and was first recorded in 1975 by avocational archaeologist Mike Bilbo of the El Paso Archaeological Society. The EPAS site record describes the presence of double rows of foundation stones with burned wood slats, instrumentation mounts consisting of heavy gage steel tubes placed in rock and mortar bases, and a couple rock piles and alignments. Applied lip bottle fragments were noted around the area as were two Sharps carbine cartridges.

The location was examined by Mark Sechrist during the reconnaissance survey. The rock and mortar-anchored instrument mounts are still present, as are some disturbed lines of rocks (Figure 30). To the south of the mounts is a low-density artifact scatter of bottle glass of various colors. Otherwise, some of the features at the site and its overall integrity have been compromised by the modern construction of communications towers.



Figure 30. Current views of LA 38622, the US Army heliograph station on Lookout Mountain: Top panel, view of iron support tube for heliograph installation (note modern communication towers and solar panels within the site); bottom panel, second heliograph support tube and concrete pillar. Photographs courtesy of Mark Sechrist.

Trails, Ranches, and Outlaws of the American Southwest

Several sites in the Desert Peaks Complex reflect both the broad historical processes of the American Southwest as well as particular events or individuals associated with those events. Rock cairns marking the boundary of the Gadsden Purchase are present across the southern part of the complex, with one site (LA 70316) possibly representing such a boundary marker. The Butterfield-Overland Mail Trail traverses the same southern portion of the complex, with at least one major station identified at the Mason Ranch site (LA 26993). Grooves worn into limestone bedrock by the passing of thousands of wagons and coaches can be seen at some location (Figure 31).



Figure 31. Grooves in limestone bedrock worn by wagon wheels along the Butterfield-Overland Mail Trail (photograph courtesy of LeRoy Ungluab).

Historic ranch settlements are present throughout the Desert Peaks Complex (Figure 32). The ranches probably date from the Territorial Period through World War II and perhaps later. Archaeological and archival studies of the architecture, artifacts, and people who lived at the ranches can provide insights into how ranchers adapted to changing economic, environmental,

and social conditions of the late 1800s and early through mid-1900s, including political and economic conflicts. William Bonney, known as Billy the Kid, was a participant in the Lincoln County War of 1878 and one of his hideouts has been identified in the Robledo Mountains.



Figure 32. Stone and mortar ranch building at LA 60795.

WWII Aerial Targets

And finally, several prominent landscape features in the Desert Peaks Complex reflect one of the roles south-central New Mexico played in the global conflict of the Second World War. Twenty-four aerial bombing targets were constructed across southern New Mexico in 1942. The targets measured 1000 feet in diameter and consist of four concentric rings cleared or dug into the desert surface. Five of the targets are located within the Desert Peaks Complex, but have yet to be documented archaeologically. An example of one of the targets is shown in Figure 33.

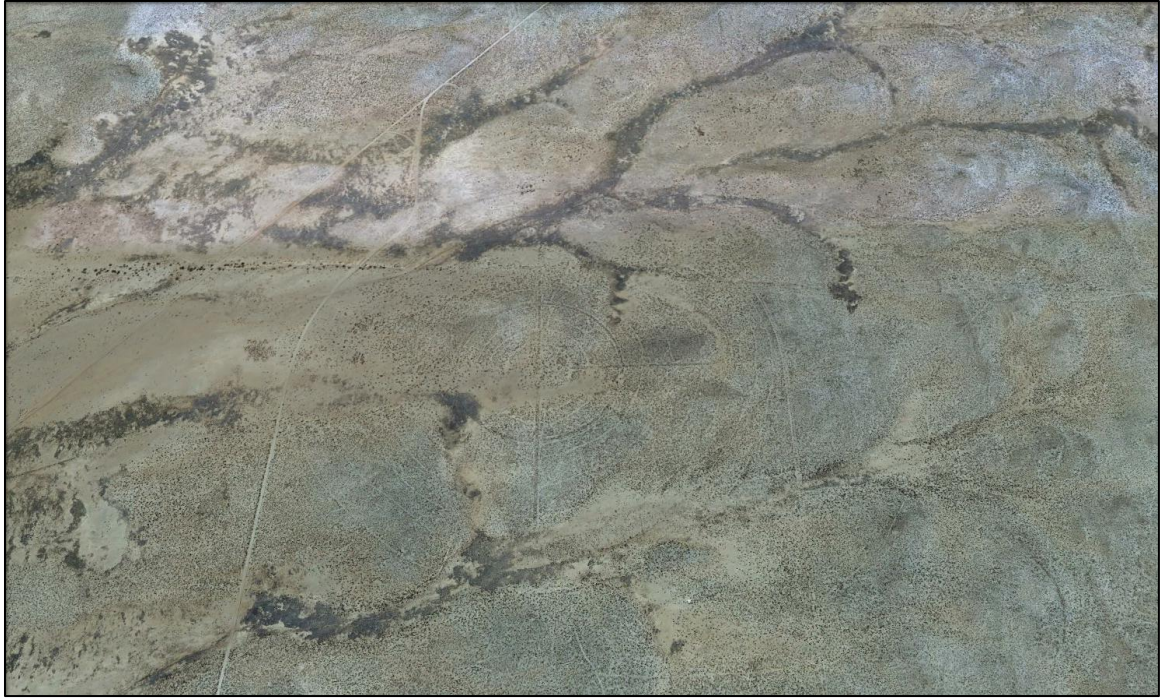


Figure 33. World War II aerial target located on alluvial plain south of Sierra de las Uvas.

V. Recommendations

Based on the review of cultural resources a series of ten recommendations is offered for consideration. It is evident from the review that number, location, and variety of cultural resources is poorly known and that only a small fraction of the sites and variability of sites in the Desert Peaks Complex has been documented. In addition, many significant sites are susceptible to vandalism, illicit artifact collecting, and looting, as exemplified by the extensive damage to a Mimbres pithouse village (LA 173885) in the Sierra de las Uvas. Rock art sites are also considered Traditional Cultural Properties (TCP) by most Southwestern Native American tribes and Tribal Historic Preservation Officers.

The following series of recommendations is based on these and other observations. The ten recommendations are part of a long-term program of inventory, evaluation, nomination, management and protection, and public presentation of the cultural resources within the Desert Peaks Complex.

1. Revisit Previously Recorded Sites to Clarify Site Types

Previously recorded sites should be revisited for more thorough recording and evaluation. If the existing record of 145+ sites is too prohibitive in terms of time and cost, a sample of the most promising of the sites should be evaluated. There is a strong likelihood that additional Formative Period village sites are present within the monument, as well as short-term habitation sites occupied by Archaic hunter-gathers or Historic Apache groups. In light of the fact that a Mimbres pithouse village remained unknown to the professional archaeological community until it was looted sometime between 2006 and 2010, it is very likely that additional villages and other site types are present in the complex.

2. Evaluate the National Register of Historic Places Eligibility of Sites

Few sites within the Desert Peaks Complex have been evaluated for eligibility for inclusion on the National Register of Historic Places (NRHP) under the guidelines set forth in CFR 60.4 (Figure 34). One site, the Mason Ranch (also referred to as a “fort”) had a formal NRHP nomination prepared in 1994, but apparently the nomination was not submitted to or accepted by the Keeper of the NRHP because the property is not listed on the NRHP. Some sites were documented by avocational archaeologists such as Herbert Yeo or more recently by rock art researchers. Since these sites were not recorded during Section 106 or Section 110 regulations, there was no formal requirement for NRHP recommendations. Many sites were documented during Section 106 and 110 inventory projects during the 1970s and 1980s when Federal agencies did not routinely require NRHP evaluations during survey-level site documentation.

Nearly 80% of the archaeological sites in the Desert Peaks Complex have not been evaluated for NRHP eligibility. Notably, as the OM-DP NM was created under the auspices of the Antiquities Act of 1906 – and under the premise of protecting significant archaeological resources - it is incumbent upon managers and supervisors of the monument to thoroughly document and evaluate the cultural resources within the monument.

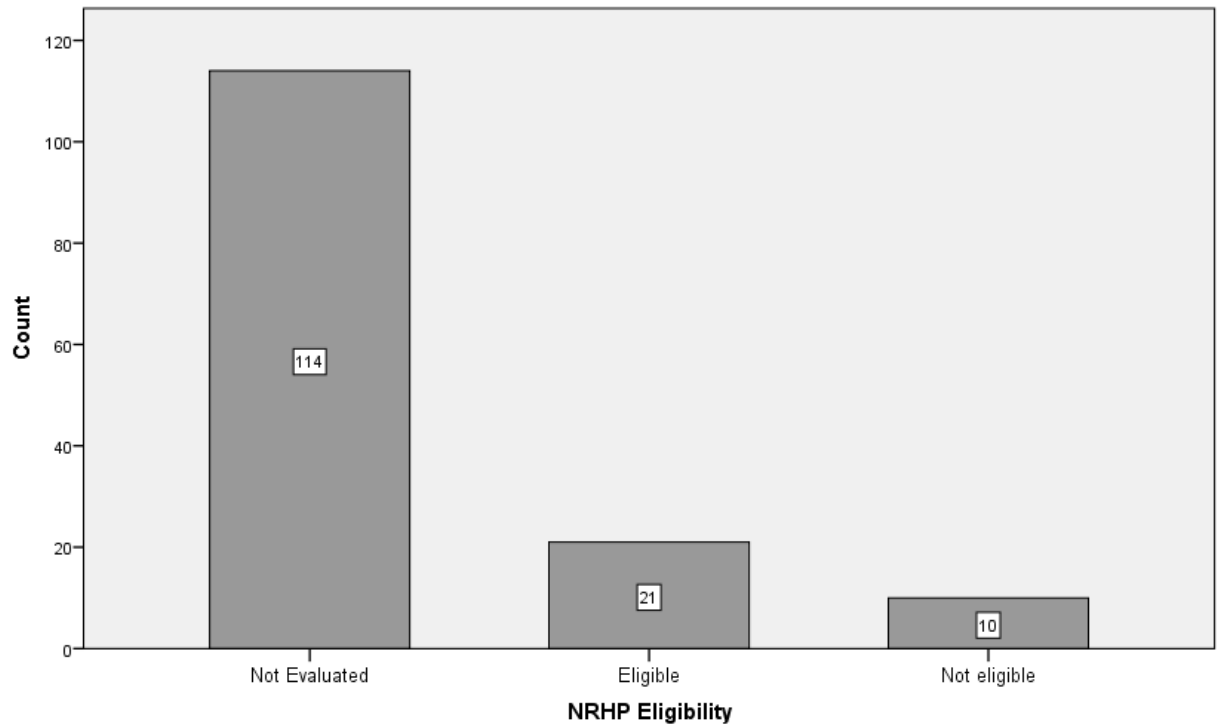


Figure 34. NRHP eligibility evaluations for the 145 archaeological sites in the Desert Peaks Complex

3. Systematic Surveys of Major Site Concentrations and High-Probability Areas

Systematic pedestrian archaeological surveys should be conducted to document the number and range of sites in high-probability areas. Reconnaissance surveys conducted by Mark Sechrist and Tom Alex along Broad Canyon identified a particularly dense group of sites on terraces above the canyon and rock art localities along the canyon walls. Habitation sites, stone procurement areas, and possible agricultural features are present.

In addition to being archaeologically significant, the cultural resources along the canyons are also archaeologically sensitive. Roads provide easy access to the rock art panels and sites on the terraces above. Archaeological inventory and evaluation of the canyons and other high probability/high sensitivity areas will assist in the development of management procedures to protect the prehistoric and historic resources of the complex.

4. Evaluate the Status of Cultural Deposits in Caves

The interior and exterior deposits of Chavez Cave and Todsens Cave should be evaluated to determine how much of the original deposits remain intact and their current state. Much of the interior deposits of the caves was excavated during investigations of the 1930s (Cosgrove and the Peabody Institution), 1960s (Tom O’Laughlin and UTEP), and 1980s (MacNeish and the Chihuahua Archaic Project). While the excavation projects removed substantial portions of the interior deposits and stratigraphy, it is possible that some areas remain intact both within the caves and around the exterior talus slopes. A more thorough understanding of the current state of

the caves and their deposits will assist in the development of appropriate monitoring and management procedures.

Other caves and shelters within the complex should also be visited and evaluated. Small trowel probes or test units may help determine the depth and integrity of the deposits for future research and for management practices.

5. Document and Protect Rock Art

Systematic surveys have just begun, but it is already evident that the Sierra de las Uvas and Robledo Mountains have an outstanding record of prehistoric and historic rock art. Unfortunately, while rock is among the most visually striking and appealing of the cultural resources in the Desert Peaks Complex, the combination of visibility and accessibility makes it particularly susceptible to vandalism. Several prominent rock art panels have already been vandalized (Figure 35).

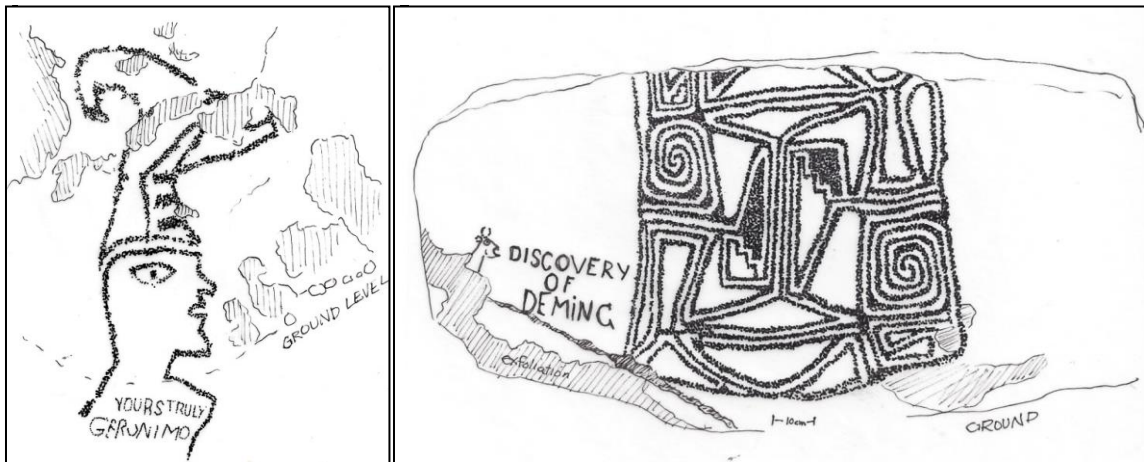


Figure 35. Examples of vandalized rock art panels at Apache Flats (from Berrier 2016).

A comprehensive survey of rock art sites will accomplish several goals. In addition to providing a complete inventory of sites, panels, and current condition/damage assessments, complete documentation will provide a body of images and information of wide interest the public and academic researchers. Sites located in proximity to roads and pathways can be monitored, and protective signage can be established.

6. Identify and Evaluate Historic Ranches

At the present time only four historic ranch settlements are listed in the ARMS files. Proctor and others (2013) plot a total of 16 sites described as “Historic Ranch House Ruin.” A deed and archival search is recommended to identify ranch locations and historic names associated with the ranches, followed by archaeological and architectural surveys to document this period of history in south-central New Mexico.

7. Identify and Evaluate Miscellaneous Sites

A variety of unconventional sites exist in the Desert Peaks Complex. Possible boundary cairns, World War II aerial targets, prehistoric quarries, and segments of historic trails have been documented and additional sites are likely to be discovered. These unusual sites merit protection

along with the better-known rock art and habitation sites, and only through archaeological and archival documentation and mapping can they be evaluated and properly managed. It is recommended that these unconventional sites be formally recorded, assigned LA numbers, and listed on ARMS.

8. Establish a Site Monitoring Program

The damage to Mimbres village of LA 173885 caused by uncontrolled and illicit mechanical excavation by pothunters is a prime example of why a National Monument established under the Antiquities Act of 1906 is needed to protect archaeological sites and other cultural resources. Moreover, it is an example of the need for site inventory and monitoring procedures. Consultations between the Bureau of Land Management, the OM-DP NM, the New Mexico State Historic Preservation Office (Office of Cultural Affairs), the New Mexico State Land Office, and other interested Federal and State agencies, along with the energetic participation of local supporters and avocational enthusiasts, can help develop monitoring procedures.

9. Initiate Consultations with Native American Tribes

As part of the Cultural Resources management practice, and as required under Federal Regulations, consultations with Native American Tribal Historic Preservation Officers (THPOs) and other tribal representative should be initiated. A list of Federally-recognized tribes in New Mexico, Arizona, Texas, and Oklahoma with possible interests in the OM-DP NM can be found at the following link:

<http://www.ncsl.org/research/state-tribal-institute/list-of-federal-and-state-recognized-tribes.aspx>

10. Consider the Nomination of an NRHP District Including Broad and Valles Canyons

Upon completion of systematic archaeological survey of Broad and Valles canyons and the identification and evaluation of rock art, habitation, quarry, and other sites along the canyons and terraces, it is recommended that the region be formally nominated as a National Register of Historic Places District. Such a designation will add further protection to the sites, as well as increasing their visibility among the public and government officials.

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Miller, Myles R., Lawrence L. Loendorf, and Leonard Kemp

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- 1980 *The Keystone Dam Site and Other Archaic and Formative Sites in Northwest El Paso, Texas*. El Paso Centennial Museum Publications in Anthropology No. 7, The University of Texas at El Paso.
- 1985 Intrasite and Intersite Variability in Architecture. *The Artifact* 23(3): 19-40.
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- 2003 A Possible Dark Area Shrine in Chavez Cave, Dona Ana County, New Mexico. In *Climbing the Rocks: Papers in Honor of Helen and Jay Crotty*, edited by R. Wiseman, T.C. O'Laughlin, and C.T. Snow, pp. 137-146. Archaeological Society of New Mexico, Santa Fe.

Peterson, J. A., and D. O. Brown, editors

- 1994 *El Valle Bajo: The Culture History of the Lower Rio Grande Valley of El Paso*, Vol. 2, Lower Valley History. Archaeological Research, Inc., El Paso, and Hicks and Company, Austin.

Polyak, Victor J. and Yemane Asmerom

- 2001 Late Holocene Climate and Culture Changes in the Southwestern United States. *Science* 294(148):148-151.

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- 1991 Apaches in the San Andres. In *Jornada Mogollon Archaeology: Collected Papers from the Fifth and Sixth Jornada Mogollon Conferences*, edited by M. Duran and P. Beckett, pp. 53–68. COAS Publishing and Research, and Human Systems Research, Las Cruces, New Mexico.
- 1997 *A Sea of Sand: The White Sands Dune Field Cultural Resources Survey, Holloman Air Force Base, New Mexico*. HAFB Report No. 1996-002. Report of Investigations No. 114EP. Geo-Marine, Inc., El Paso, Texas.

Sale, Mark, and Karl Laumbach

- 1989 *Reconnaissance in the Upper Jornada del Muerto and Hembrillo Canyon and Other Special Projects, White Sands Missile Range, New Mexico*. Report No. 8721. Human Systems Research, Tularosa, New Mexico.

Sanders, Joe Ben

- 1992 *Forgotten Hideouts of Billy the Kid*. Joe Ben Sanders, self-published.

Scarborough, Vernon L.

- 1986 Meyers Pithouse Village: A Preliminary Assessment. In *Mogollon Variability*, edited by C. Benson and S. Upham, pp. 271–284. The University Museum Occasional Papers No. 15. New Mexico State University, Las Cruces.

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- 1997 Rock Art Sites in Chihuahua, Mexico. *Archaeology Notes* 171:1-116. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
- 2009 The Cave in the Kiva. *American Antiquity* 74:664-690.

Sechrist, Mark

- 2006 *Archaeological Survey along a Grassland-Shrubland Ecotone on the Corralitos Ranch, Doña Ana County, New Mexico*. Report prepared for the USDA Jornada Experimental Range, New Mexico.

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Seymour, Deni J.

- 2002 *Conquest and Concealment: After the El Paso Phase on Fort Bliss. An Archaeological Study of the Manso, Suma, and Early Apache*. Historic and Natural Resources Report No. 01-06, Conservation Division, Directorate of Environment, Fort Bliss, Texas.

Shafer, Harry J., John E. Dockall, and Robbie L. Brewington

- 1999 *Archaeology of the Ojasen (41EP289) and Gobernadora (41EP321) Sites, El Paso County, Texas*. Reports of Investigations No. 2, Center for Ecological Anthropology, Texas A&M University, College Station and Archeology Studies Program Report No. 13, Environmental Affairs Division, Texas Department of Transportation, Austin.

Stiger, Mark

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Tagg, Martyn D.

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- 1990 *Late Quaternary Vegetation and Climate of the Chihuahuan Desert, United States and Mexico*. University of Arizona Press, Tucson.

Weber, R. H., and G. A. Agogino

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Whalen, Michael E.

- 1977 *Settlement Patterns in the Eastern Hueco Bolson*. El Paso Centennial Museum Publications in Anthropology No. 4. The University of Texas at El Paso.
- 1978 *Settlement Patterns in the Western Hueco Bolson*. El Paso Centennial Museum Publications in Anthropology No. 6. The University of Texas at El Paso.
- 1980 *Special Studies in the Archaeology of the Hueco Bolson*. Cultural and Natural Resources Report, U.S. Army, Fort Bliss Environmental Office, DFAE, Number 2. Anthropological Paper No. 9, El Paso Centennial Museum, University of Texas at El Paso.
- 1981 Cultural-Ecological Aspects of the Pithouse-to-Pueblo Transition in a Portion of the Southwest. *American Antiquity* 46:75-92.
- 1994 *Turquoise Ridge and Late Prehistoric Residential Mobility in the Desert Mogollon Region*. University of Utah Anthropological Papers No. 118.

Wheat, Joe Ben

- 1955 *Mogollon Culture Prior to A.D. 1000*. Memoir No. 82, American Anthropological Association, Washington, D.C.
- 1972 *The Olsen-Chubbuck Site. A Paleo-Indian Bison Kill*. River Basin Surveys Papers 4, Bulletin 154. Bureau of American Ethnology, Smithsonian Institution, Washington D.C.

Will, Wirt

- 1988 *Early Prehistoric Agriculture in the American Southwest*. School of American Research Press, Santa Fe.

Wimberly, Mark L. and Peter L. Eidenbach

- 1981 Preliminary Analysis of Faunal Remains from Fresnal Shelter, New Mexico: Evidence of Differential Butchering Practices During the Archaic Period. In *Archaeological Essays in Honor of Mark Wimberly*, edited by M.S. Foster, pp. 21–40. *The Artifact* 19(3 and 4), El Paso Archaeological Society, El Paso, Texas.

Wiseman, Regge N.

- 1996 *The Land in Between: Archaic and Formative Occupations along the Upper Rio Hondo of Southeastern New Mexico*. Archaeology Notes 125, Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Appendices

Appendix A: NMCRIS Activity Records 1976 – 2017

Appendix B: Bibliography for ARMS Site Records

Appendix C: Site data file

Appendix A: NMCRIS Activity Records 1976 – 2017 (sorted by activity number)

NMCRIS Activity 32 – (0.01 Acre 11 Discovered Sites)

Kayser, David W.

1976 *An Archaeological Clearance Investigation of Five Soil Conservation Dam Locations in Dona Ana and Sierra Counties, New Mexico.* Lab of Anthropology Notes 123, NM Office of Cultural Affairs MNM-Laboratory of Anthropology.

NMCRIS Activity 115 – (Acres not listed – 174 new sites and 1 previous sites)

Hilley, John

1981 *407 Miles of Archaeological Transect Sampling in the Basins of Southern New Mexico.* Cultural Resource Management Division Report 475 (2 Volumes). Cultural Resource Management Division, New Mexico State University, Las Cruces.

NMCRIS Activity 309 – (3236 acres – Site number not entered)

Duran, Meliha S.

1982 *Patterns of Prehistoric Land Use in Doña Ana County, New Mexico. The Results of an Archaeological Survey of 267 Miles for Seismic Testing.* Cultural Resources Management Division, Department of Sociology and Anthropology, New Mexico State University, Las Cruces. Report No. 471.

NMCRIS Activity 371 – (1369.9 acres – 16 new sites)

Kirkpatrick, David T.

1982 *8 Seismic Testing Transects for Petty-Ray Geophysical.* Cultural Resources Management Division, Department of Sociology and Anthropology, New Mexico State University, Las Cruces. Report No. 498.

NMCRIS Activity 662 – (392.63 acres – 45 new sites and 1 previous site updated)

Hilley, John P., Glenda G. Hilley, Carol J. Hiley and Bill Bloch

1982 *An Archaeological Clearance Survey of Eleven Seismic Testing Transects in Hidalgo, Grant, Luna and Dona Ana Counties.* Cultural Resources Management Division, Department of Sociology and Anthropology, New Mexico State University, Las Cruces. Report No. 502.

NMCRIS Activity 892 – (205.97 acres – 4 previous sites updated)

Coffelt, Theresa and Larry Baker

1983 *Archaeological Clearance Report for Grant Geophysical Line C-3 (presented in 6 segments; Line C-3 Access Roads 1, 2, and 3.* ACA Report F83-302. Agency for Conservation Archaeology Eastern New Mexico University, Portales.

NMCRIS Activity 893 – (149.96 acres – 3 new sites)

Leftwich, Keith and Mike Proper

1983 *Archaeological Clearance Report for Grant Geophysical Line B-3 (presented in 4 segments.* ACA Report F83-288. Agency for Conservation Archaeology Eastern New Mexico University, Portales.

NMCRIS Activity 904 – (341.5 acres – 2 new sites)

Baker, Larry and Theresa Coffelt

1983 *Archaeological Clearance Report for Grant Geophysical Line K-2 (presented in 7 segments).* ACA Report F83-281. Agency for Conservation Archaeology Eastern New Mexico University, Portales.

NMCRIS Activity 913 – (91.6 acres – 2 new sites)

Leftwich, Keith and Theresa Coffelt

- 1983 *Archaeological Clearance Report for Grant Geophysical Line A-2 (presented in 4 segments)*. ACA Report F83-308. Agency for Conservation Archaeology Eastern New Mexico University, Portales.

NMCRIS Activity 9879 – (167.76 acres – 6 sites)

Coffelt, Theresa and Keith Leftwich

- 1983 *Archaeological Clearance Report for Grant Geophysical Line D-3 (30-029-0025) (presented in 9 segments)*. ACA Report F83-402. Agency for Conservation Archaeology Eastern New Mexico University, Portales.

NMCRIS Activity 9904 – (142.33 acres – 1 site)

Leftwich, Keith and Mike Proper

- 1983 *Archaeological Clearance Report for Grant Geophysical Line II-4 (presented in 3 segments)*. ACA Report F83-386. Agency for Conservation Archaeology Eastern New Mexico University, Portales.

NMCRIS Activity 9906 – (143.73 acres – # sites not listed)

Leftwich, Keith and Mike Proper

- 1983 *Archaeological Clearance Report for Grant Geophysical Line L-4*. ACA Report F83-388. Agency for Conservation Archaeology Eastern New Mexico University, Portales.

NMCRIS Activity 10003 – (44.04 acres – 1 new site)

Proper Mike and Keith Leftwich

- 1983 *Archaeological Clearance Report for Grant Geophysical Line A-3*. ACA Report F83-366. Agency for Conservation Archaeology Eastern New Mexico University, Portales.

NMCRIS Activity 11003 – (87.27 acres – 8 sites)

Hill, David

- 1985 *An Archaeological Clearance Survey in the Vicinity of Mason Draw in Dona Ana County, New Mexico*. Cultural Resource Management Division Report 626. Cultural Resource Management Division, New Mexico State University, Las Cruces.

NMCRIS Activity 11651 – (Acres not listed – 13 new sites, 1 previous site updated)

Bussey, S.D. et al.

- 1976 *Two Powerline R/WS for Astronomy Department*. Cultural Resource Management Division Report 29. Cultural Resource Management Division, New Mexico State University, Las Cruces.

NMCRIS Activity 13328 – (8.26 acres – 1 site)

Beckett, P.H.

- 1983 *Amendment to Mason Draw Fed # 1 for Exxon Co*. U.S. Bureau of Land Management Las Cruces District Report 8308A. Bureau of Land Management Las Cruces District

NMCRIS Activity 18512 – (5.17 acres – 2 sites)

Mallouf, M.G..

- 1987 *Kimball Electric Fence Line for Las Cruces BLM-Lordsburg RA*. U.S. Bureau of Land Management Las Cruces District Report 030-97-060. Bureau of Land Management Las Cruces District

NMCRIS Activity 21094 – (34 acres – 1 site)

Clifton, Don

1988 *An Archaeological Survey of a Proposed Broadcasting Facility and Associated Access Road on Picacho Mountain, Dona Ana County, New Mexico.* HSR Report 8809, Human Systems Research, Tularosa, New Mexico.

NMCRIS Activity 23349 – (2 acres – 1 site)

Higgins, Howard C.

1988 *The Deming 13 Class III Cultural Resource Survey.* U.S. Air Force Holloman Air Force Base Report 4 SCS CRS-1987-013. U.S. Air Force Holloman Air Force Base.

NMCRIS Activity 23723 – (0 acres – site # not entered)

Schaafsma, Polly, with photography by Karl Kernberger and Curtis Schaafsma

1972 *Rock Art in New Mexico.* New Mexico Office of Cultural Affairs, Historic Preservation Division, Santa Fe.

NMCRIS Activity 24220 – (61.59 acres – 3 sites discovered)

Farmer, T. Reid

1984 *A Cultural Resource Survey for the Western States Microwave Tower System in Southern New Mexico Dona Ana, Luna, and Hidalgo Counties.* New Mexico Office of Cultural Affairs Historic Preservation Division Report R-2604. New Mexico Office Of Cultural Affairs Historic Preservation Division.

NMCRIS Activity 25824 – (1 Acre – 1 site)

Gomolak, A.R.

1988 *Reconnaissance at "Fort Mason".* Report ARG-SA-005. New Mexico State Land Office.

NMCRIS Activity 30848 – (no data entered)

Hill, David

1985 *Archaeological Monitoring of the AT&T Fiber Optics Line Near Mason Draw, Dona Ana County, New Mexico.* Cultural Resource Management Division Report 632. Cultural Resource Management Division, New Mexico State University, Las Cruces.

NMCRIS Activity 32516 – (no acreage site # not listed)

Duran, Meliha S. and Elizabeth Ayer

1990 *The Herbert Yeo Collection Project: Cataloging and Storing Yeo Archaeological Collection, Museum of New Mexico, Santa Fe.* Human Systems Report 8935, Human Systems Research, Tularosa, New Mexico.

NMCRIS Activity 35218 (1 Acre – 1 new site)

Mallouf, Michael G.

1990 *An Archaeological Survey of the Proposed Las Uvas Pipeline near Hatch, New Mexico.* U.S. Bureau of Land Management Las Cruces District – Mimbres Resource Area Report No. 030-90-055. Bureau of Land Management Las Cruces District – Mimbres Resource Area.

NMCRIS Activity 35221 (7 Acres – 1 new site and 1 previous site updated)

Mallouf, Michael G.

1990 *An Archaeological Survey of the Proposed Tajanio Pinto Fenceline and Well near Hatch, New Mexico.* U.S. Bureau of Land Management Las Cruces District – Mimbres Resource

Area Report No. 030-90-087. Bureau of Land Management Las Cruces District –
Mimbres Resource Area.

NMCRIS Activity 37880 – (19.6 acres – 2 sites)

Stuart, Elizabeth K.

1992 *An Archaeological Clearance Survey of Five Proposed Spoil Dirt Areas on 19.6 Acres of BLM Land in Northwest Doña Ana County, New Mexico.* Batcho & Kauffman Associates, Cultural Resource Report Number 152, Las Cruces, New Mexico.

NMCRIS Activity 41297 – (0 acres – site # not listed)

Tomlinson, P.

1992 *Monitor Construction Fencing Well Fed 28-8-19 #2 Blanco Canyon, New Mexico for Maralex.* Moore Anthropology Research Report Number 92-072. Moore Anthropology Research.

NMCRIS Activity 42131 – (Acres and sites not listed)

Nietfeld, P.L.

1992 *Inventory & Summary of BLM Collections at Museum of New Mexico (Laboratory of Anthropology).* New Mexico Office of Cultural Affairs, Museum of New Mexico-Laboratory of Anthropology Report 04/01/92. New Mexico Office of Cultural Affairs, Museum of New Mexico-Laboratory of Anthropology.

NMCRIS Activity 42132 – (Acres and sites not listed)

Mayo, Jill, et al.

1992 *Inventory & Summary of BLM Collections at Museum of New Mexico SULC.* Lab Of Anthropology Report 08/01/92. New Mexico Office of Cultural Affairs, Museum of New Mexico-Laboratory of Anthropology.

NMCRIS Activity 42853 – (64.2 acres – 7 new sites)

Johnson, Michael

1993 *10.6 Miles of Range Pipeline for SCS.* U.S. Natural Resource Conservation Service New Mexico State Office Report No. 1993-004. U.S. Natural Resource Conservation Service New Mexico State Office.

NMCRIS Activity 45418 – (No report - Nomination of Fort Mason)

New Mexico Office of Cultural Affairs Historic Preservation Division

1994 *Mason Ranch National Register nomination.* New Mexico Office of Cultural Affairs Historic Preservation Division

NMCRIS Activity 45620 – (Acres not listed – 175 listed as visited)

MacNeish, Richard S. (Editor)

1993 *Preliminary Investigations of the Archaic in the Region of Las Cruces, New Mexico.* Andover Foundation for Archaeological Research.

MacNeish, R.S.

1993 *Preliminary Investigations of the Archaic in the Region of Las Cruces, New Mexico.* Historic and Natural Resources Report No. 9, Cultural Resource Management Program, Directorate of the Environment, United States Army Air Defense Artillery Center Fort Bliss, Texas.

NMCRIS Activity 45993 – (Acres not listed – 95 sites discovered not registered, 3 sites discovered and 10 sites updated)

Cosgrove, C. Burton

- 1947 Caves of the Upper Gila and Hueco Areas in New Mexico and Texas. In *Papers of the Peabody Museum of American Archaeology and Ethnology*, Harvard University Vol. XXIV - No.2

NMCRIS Activity 48308 – (6.5 acres – 1 site)

Drapeau, A. Jude

- 1992 *An Archaeological Clearance Survey for the Proposed Marijuana Tank Enclosure T. 22S R. 3W Section 11, Dona Ana County, New Mexico*. U.S. Bureau of Land Management Las Cruces District Report 030-95-21. U.S. Bureau of Land Management Las Cruces District.

NMCRIS Activity 50252 – (no data)

Sanders, Joe Ben

- 1992 *Forgotten Hideouts of Billy the Kid*. Joe Ben Sanders.

NMCRIS Activity 58739 – (231.4 acres – 10 new sites and 8 previous sites updated)

Michalik, Laura

- 1997 *Cultural Resources Class III Inventory and Significance Evaluation of 38.18 miles of an Existing 115kV Transmission Line from Hatch to Las Cruces of El Paso Electric Company, Dona Ana County, New Mexico*. Archaeological Services by Laura Michalik Report Number 1001. Archaeological Services by Laura Michalik, Las Cruces, New Mexico.

NMCRIS Activity 61134 (Acres not listed – sites not listed)

Miller M.R. III

- 1996 *The Chronometric and Relative Chronology Project; Section I: Background of the Chronometric and Relative Chronology Project; Section II: Radiocarbon Dating; Section III; Obsidian Hydration Dating; Section IV; Other Chronometric Methods; Section V; Appendices*. Archaeological Technical Report No. 5 Department of Sociology and Anthropology. University of Texas at El Paso.

NMCRIS Activity 70033 – (1808 acres – 22 new sites and 2 previous sites updated)

Ackerly, Neil W. and Renee M. Ericson

- 2000 *An 1808 Acre Archaeological Survey of State of New Mexico Lands Near Las Cruces, New Mexico*. Dos Rios Consultants.

NMCRIS Activity 70667 – (site # not listed)

Todsen, Thomas A.

- 1990 *Thomas A. Todsen Site Records of Rock Art Research in Southwest and South Central New Mexico Counties of Luna, Hidalgo, Sierra, Otero, Grant, Lincoln and Dona Ana* [Supplied title – no report for Academic Research].

NMCRIS Activity 86962 – (132 Acres – 1 new site and 3 previous sites)

Russell, William

- 2004 *An Archaeological Survey of 53.5 (132 Acres) For the Proposed Procurement of Rock, Sand and Gravel by Highland Enterprises, Inc. Dona Ana County, New Mexico*. Human Systems Report 2003-45, Human Systems Research, Tularosa, New Mexico.

NMCRIS Activity 94282 – (2.48 acres – 1 previous site updated)

Oakes, Yvonne and Dorothy A. Zamora

2005 *A Cultural Resource Survey on Los Corralitos Ranch, Dona Ana County, New Mexico.* Archaeology Notes 368, Office of Archaeological Studies, Museum of New Mexico/Department of Cultural Affairs.

NMCRIS Activity 125058 – (Acres not listed , no report, 5 previous sites updated)

Berrier, Margaret K.

n.d. Site updates of Rock Art Sites on BLM Land by the Dona Ana Archaeological Society. Academic/Research – no report.

NMCRIS Activity 128218 – (1000 acres – 13 new sites and 4 previous sites updated – no report)

University of Oklahoma Department of Anthropology

2013 No report, Archaeological Survey/Inventory, collections/non-field study. University of Oklahoma Department of Anthropology

NMCRIS Activity 132498 – (Acres not listed , no report, 2 previous sites updated)

Berrier, Margaret K..

2015 Upper Silva Canyon, Dona Ana County, New Mexico Rock Art Recording. Dona Ana Archaeological Society.

NMCRIS Activity 132826 – (0 acres – # of sites not specified)

McNew, Judith Ann

n.d. Rock Art Studies in Broad and Valles Canyons, Southern Dona Ana County, New Mexico. No report Academic/Research.

NMCRIS Activity 134854 – (36.19 acres – 7 new sites)

Cater, John D.

2016 *A Cultural Resource Inventory of the Proposed NRCS Water Line Project Near Massacre Peak, Dona Ana County, New Mexico.* Aztec Archaeological Report Number AAC-2015-014-NM. Aztec Archaeological Consultants, Aztec, New Mexico.

NMCRIS Activity 135211 – (265.74 acres – 15 new site and 1 previous sites updated)

Cater, John D.

2016 *A Cultural Resource Inventory of Portions of the Corralitos Ranch in Dona Ana County, New Mexico.* Aztec Archaeological Report Number AAC-015-020-NM. Aztec Archaeological Consultants, Aztec, New Mexico.

NMCRIS Activity 136468 – (2.52 acres – 1 new site and 1 previous site updated)

Legare, David

2016 *Cultural Resources Survey for Repair of Box Canyon Dam in the Organ Mountains – Desert Peaks National Monument Dona Ana County, New Mexico.* U.S. Bureau of Land Management Las Cruces Field Office (Report not listed), U.S. Bureau of Land Management Las Cruces District.

NMCRIS Activity 136824 – (1308 acres – site # not listed)

Copperstone, Chance and Ashley D’Elia

2017 *Section 110 Cultural Resources Inventory for the Organ Mountains-Desert Peaks National Monument for Bureau of Land Management, Las Cruces Field Office, Dona*

Ana County, New Mexico. Tierra Right of Way Services Report 2016-095. Tierra Right of Way Services Tucson, Arizona.

NMCRIS Activity 133270 – (0 acres – 3 new sites and 1 previous site updated)

Berrier, Margaret

n.d. No report. Apache Flats, Dona Ana County Rock Art. Dona Ana Archaeological Society.

NMCRIS entries for State Register of Cultural Properties associated with the Butterfield-Overland Trail and Mason Ranch

S.R. No. 173

Property Name Butterfield Overland Mail Route			
S.R. Category NULL (on import)		LA	HCPI
N.R. No.			
S.R. Status Listed		N.R. Status	NHL Status
Date 4/24/1970		Date	Date
Resource Counts		Contributing	Non-Contributing
Associated District		Assoc. District Name	Assoc. District S.R. No. 0
County(ies) Multiple			
Public Address			
Address 1 (non-public)			
Address 2 (non-public)			
City Multiple		ZIP Code	
Not For Publication <input type="checkbox"/>			
Notes GIS based on route depiction on USGS maps. Eastern portion not on maps, and is based on connecting k...			
In GIS <input checked="" type="checkbox"/>		GIS QC Complete <input checked="" type="checkbox"/>	

S.R. No. 1562

Property Name Mason Ranch Site (LA 26993)			
S.R. Category	NULL (on import)	LA	26993 HCPI N.R. No.
Status	S.R. Status Listed	N.R. Status	NHL Status
	Date 7/30/1993	Date	Date
Resource Counts	Contributing	Non-Contributing	
Associated District	Assoc. District Name	Assoc. District S.R. No. 0	
County(ies) Dona Ana			
Public Address			
Address 1 (non-public)			
Address 2 (non-public)			
City Las Cruces ZIP Code			
Not For Publication <input checked="" type="checkbox"/>			
Notes			
In GIS	<input type="checkbox"/>	GIS QC Complete	<input type="checkbox"/>
Created 2/13/2011 NMCRIS IMPORT Edited 11/14/2014 Scott Geister			

Appendix B: Bibliography for ARMS Site Records

Desert Peaks Complex, including Robledo Mountains and Sierra de Las Uvas

Ackerly, Neil W. and Renee M. Ericson

- 2000 *An 1808 Acre Archaeological Survey of State of New Mexico Lands Near Las Cruces, New Mexico*. Dos Rios Consultants, Inc. Silver City, New Mexico.

Baker, Larry and Theresa Coffelt

- 1983 *Archaeological Clearance Report for Grant Geophysical Line K-2 (presented in 7 segments)*. ACA Report F83-281. Agency for Conservation Archaeology Eastern New Mexico University, Portales.

Beckett, P.H.

- 1983 *Amendment to Mason Draw Fed # 1 for Exxon Co.* U.S. Bureau of Land Management Las Cruces District Report 8308A. Bureau of Land Management Las Cruces District

Berrier, Margaret K.

- 2015 Upper Silva Canyon, Doña Ana County, New Mexico Rock Art Recording. Doña Ana Archaeological Society.
- 2016 Apache Flats Area, Doña Ana County, New Mexico. Doña Ana Archaeological Society.
- n.d. Sites updates of Rock Art Sites on BLM Land by the Doña Ana Archaeological Society. Academic/Research – no report.

Bussey, S.D. et al.

- 1976 *Two Powerline R/WS for Astronomy Department*. Cultural Resource Management Division Report 29. Cultural Resource Management Division, New Mexico State University, Las Cruces.

Cater, John D.

- 2016a *A Cultural Resource Inventory of the Proposed NRCS Water Line Project Near Massacre Peak, Doña Ana County, New Mexico*. Aztec Archaeological Report Number AAC-2015-014-NM. Aztec Archaeological Consultants, Aztec, New Mexico.

Cater, John D.

- 2016b *A Cultural Resource Inventory of Portions of the Corralitos Ranch in Doña Ana County, New Mexico*. Aztec Archaeological Report Number AAC-015-020-NM. Aztec Archaeological Consultants, Aztec, New Mexico.

Clifton, Don

- 1988 *An Archaeological Survey of a Proposed Broadcasting Facility and Associated Access Road on Picacho Mountain, Doña Ana County, New Mexico*. HSR Report 8809, Human Systems Research, Tularosa, New Mexico.

Coffelt, Theresa and Larry Baker

- 1983 *Archaeological Clearance Report for Grant Geophysical Line C-3 (presented in 6 segments; Line C-3 Access Roads 1, 2, and 3)*. ACA Report F83-302. Agency for Conservation Archaeology Eastern New Mexico University, Portales.

Coffelt, Theresa and Keith Leftwich

- 1983 *Archaeological Clearance Report for Grant Geophysical Line D-3 (30-029-0025) (presented in 9 segments)*. ACA Report F83-402. Agency for Conservation Archaeology Eastern New Mexico University, Portales.

Copperstone, Chance and Ashley D'Elia

- 2017 *Section 110 Cultural Resources Inventory for the Organ Mountains-Desert Peaks National Monument for Bureau of Land Management, Las Cruces Field Office, Doña Ana County, New Mexico*. Tierra Right of Way Services Report 2016-095. Tierra Right of Way Services Tucson, Arizona.

Cosgrove, C.B.

- 1947 *Caves of the Upper Gila and Hueco Areas in New Mexico and Texas*. In *Papers of the Peabody Museum of American Archaeology and Ethnology*, Harvard University Vol. XXIV - No.2

Drapeau, A. Jude

- 1992 *An Archaeological Clearance Survey for the Proposed Marijuana Tank Enclosure T. 22S R. 3W Section 11, Doña Ana County, New Mexico*. U.S. Bureau of Land Management Las Cruces District Report 030-95-21. U.S. Bureau of Land Management Las Cruces District.

Duran, Meliha S.

- 1982 *Patterns of Prehistoric Land Use in Doña Ana County, New Mexico. The Results of an Archaeological Survey of 267 Miles for Seismic Testing*. Cultural Resources Management Division, Department of Sociology and Anthropology, New Mexico State University, Las Cruces. Report No. 471.

Duran, Meliha S. and Elizabeth Ayer

- 1990 *The Herbert Yeo Collection Project: Cataloging and Storing Yeo Archaeological Collection, Museum of New Mexico, Santa Fe*. Human Systems Report 8935, Human Systems Research, Tularosa, New Mexico.

Farmer T. Reid

- 1984 *A Cultural Resource Survey for the Western States Microwave Tower System in Southern New Mexico Doña Ana, Luna, and Hidalgo Counties*. New Mexico Office of Cultural Affairs Historic Preservation Division Report R-2604. New Mexico Office of Cultural Affairs Historic Preservation Division.

Gomolak, A.R.

- 1988 *Reconnaissance at "Fort Mason"*. Report ARG-SA-005. New Mexico State Land Office.

Higgins, Howard C.

- 1988 *The Deming 13 Class III Cultural Resource Survey*. U.S. Air Force Holloman Air Force Base Report 4 SCS CRS-1987-013. U.S. Air Force Holloman Air Force Base.

Hill, David

- 1985a *An Archaeological Clearance Survey in the Vicinity of Mason Draw in Doña Ana County, New Mexico*. Cultural Resource Management Division Report 626. Cultural Resource Management Division, New Mexico State University, Las Cruces.
- 1985b *Archaeological Monitoring of the AT&T Fiber Optics Line Near Mason Draw, Doña Ana County, New Mexico*. Cultural Resource Management Division Report 632. Cultural Resource Management Division, New Mexico State University, Las Cruces.

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Appendix C: Site data file

Appendix removed to protect sensitive site locations