NMCRIS# 31068

NAVAJO AND BASKETMAKER III - PUEBLO I OCCUPATIONS OF TWO SITES NEAR QUEMADO, CATRON COUNTY

State Permit No. 85-027

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LABORATORY OF ANTHROPOLOGY NOTE NO. 355

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ADMINISTRATIVE SUMMARY

In 1985, the Research Section, Laboratory of Anthropology, carried out archaeological testing of two [redacted] sites for the New Mexico State Highway Department. [redacted] sites, LA 8063 and LA 51922, are located along [redacted] and 12 km west of Quemado in Catron County. [redacted] will be added to the highway right-of-way, and this construction activity will adversely affect the sites.

LA 8063 was first recorded by Alexander and Benham in 1963 as part of a highway cultural inventory project along US 60. The site was recorded as a preceramic chipping area of unknown cultural association.

The field crew collected remains within the proposed highway right-of-way by means of point proveniences and through excavation of four test trenches. One trench contained a hearth, consisting of a cut juniper stump in which a fire had been built. Within the charcoal-filled hearth were found 4 burned rocks, 4 Navajo sherds, and 58 bone fragments probably representing 1 sheep or goat, 1 prairie dog and several unidentified species. Lithic material and 12 more Navajo sherds were also present in the vicinity. The hearth also yielded an uncorrected radiocarbon date of A.D. 1560±90. From the ceramic data and the radiocarbon date it appears that the hearth was a temporary Navajo campsite.

The site extends out of the right-of-way and covers an area 180 by 130 square meters. Other areas of the site contain Anasazi sherds of the Pueblo II and Pueblo III periods. Chipped stone associated with these ceramics is generally of different raw materials than that near the hearth. No cultural features were observed on the remainder of the site, although subsurface hearths may exist.

Site function is difficult to assess based on the limited nature of the observed remains--a single hearth and a scattering of chipped stone and sherds over an extensive area. Most likely, various groups used the ridge as a temporary camping area.

LA 51922 was originally disturbed by the construction of US 60 and has since been subjected to continued impact from regular highway maintenance. Only the north and south edges of the site remain. Original extent of the site is 112 by 80 square meters. Chipped stone and sherd distribution (four pieces of Lino Gray) was sparse over the site. One buried hearth was located; however, a retrieved C-14 sample proved to be contaminated. The site

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appears to be a single component, limited activity area. Because artifacts are sparse in the remaining portion of the site, LA 51922 most likely represents a temporary camp.

The identification of a Navajo hearth at LA 8063 is significant because it places Navajo peoples in the region in the late sixteenth to mid-seventeenth centuries. The association of Navajo utility ware with the dated hearth also extends the known time frame for Navajo pottery.

The investigations just described exhaust the information potential of those site areas lying within the right-of-way of US 60. The author therefore recommends cultural resources clearance for the proposed shoulder addition.

Submitted in fullfillment of Memorandum of Agreement DO-2006 between the New Mexico State Highway Department and the Research Section, Anthropology Bureau, Museum of New Mexico.

MNM Project No. 410371, NMSHD Project F-017-1(8).

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INTRODUCTION

From November 18 to November 27, 1985, the Research Section of the Laboratory of Anthropology, Museum of New Mexico, conducted an archaeological testing program on two sites lying partly within the highway right-of-way of US 60 near Quemado in Catron County (Figs. 1 and 2). The testing program took place at the request of William L. Taylor, Environmental Program Manager of the New Mexico State Highway Department. The State Highway Department proposes to add a shoulder to US 60 within the current right-of-way (NMSHD Project F-017-1(8)). Earlier, New Mexico State Highway Department archaeologists located two sites within this corridor (Nelson 1985).

LA 8063 is 3.2 km west of Quemado within the SE1/4, NE1/4 of Sec. 5, T 1N, R 16W in UTM Zone 12, 727000E 3802400N, on private land. LA 51922 is 12 km west of Quemado within the NE1/4, NW1/4 of Sec. 22, T 1N, R 17W in UTM Zone 12, 720100E, 3797950N, on land administered by the Bureau of Land Management, Socorro District Office. Both locations appear on the USGS 7.5' Armstrong Canyon quadrangle.

The purpose of the testing program was to assess the extent and significance of the sites, inventory all observed cultural resources, and evaluate the potential effects of highway construction on those resources.

Principal investigator for the project was David A. Phillips, Jr., Director of the Research Section. Yvonne R. Oakes served as project supervisor, assisted by Dorothy A. Zamora. Zamora carried out the lithic artifact analysis and Ann Noble analyzed the faunal remains. Stewart L. Peckham of the Laboratory of Anthropology and David Brugge of the National Park Service examined several of the sherds. Ann Noble completed the drafting and Robin Farwell edited the manuscript.

The testing program took place under State Permit 85-027, which expired on December 31, 1985. In addition, the Section notified Mr. Charles Carroll of the Bureau of Land Management, Socorro District Office, of the project prior before beginning testing.

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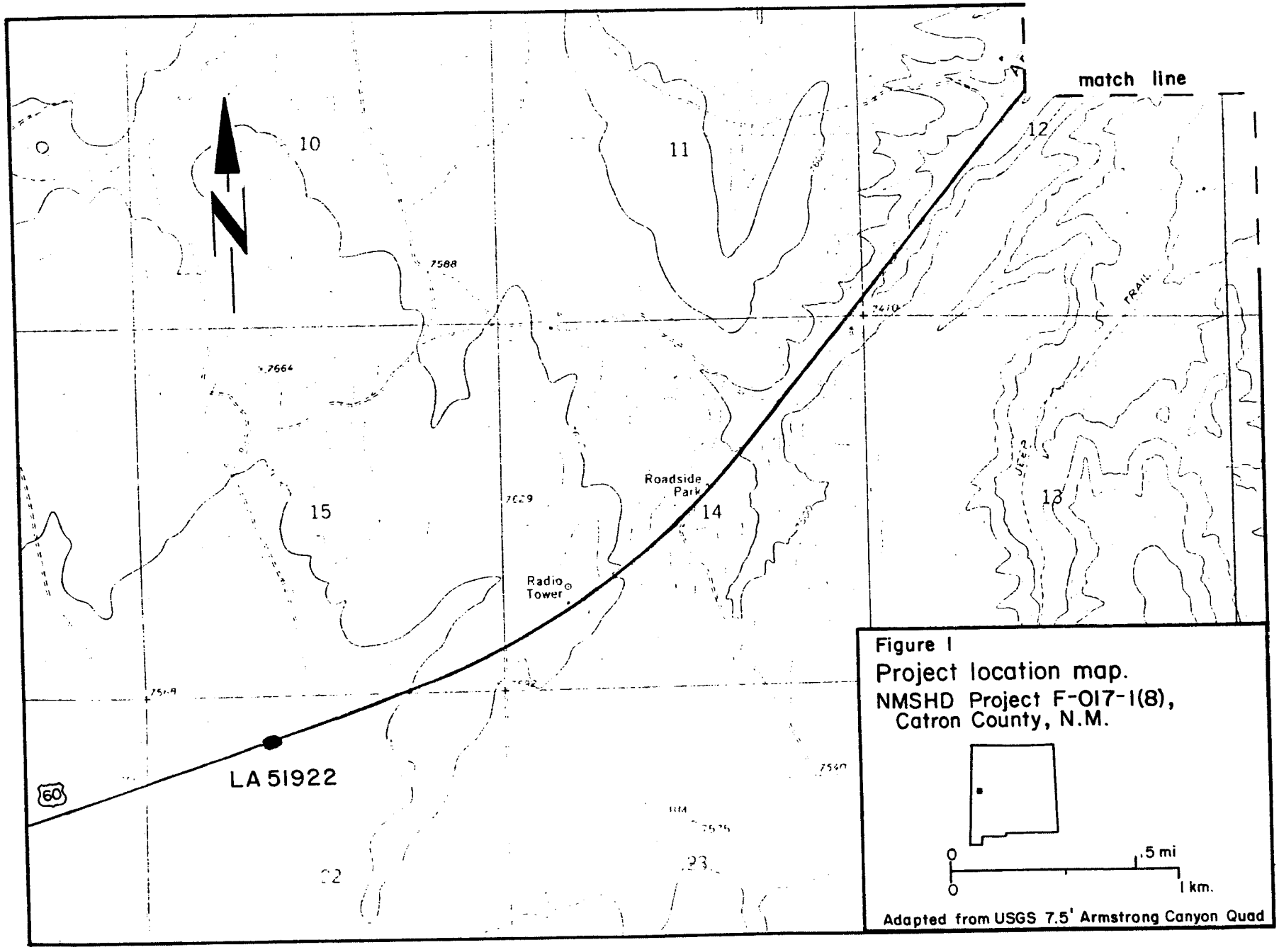

Figure 1
Project location map.
NMSHD Project F-017-1(8), Catron County, N.M.

Adapted from USGS 7.5' Armstrong Canyon Quad

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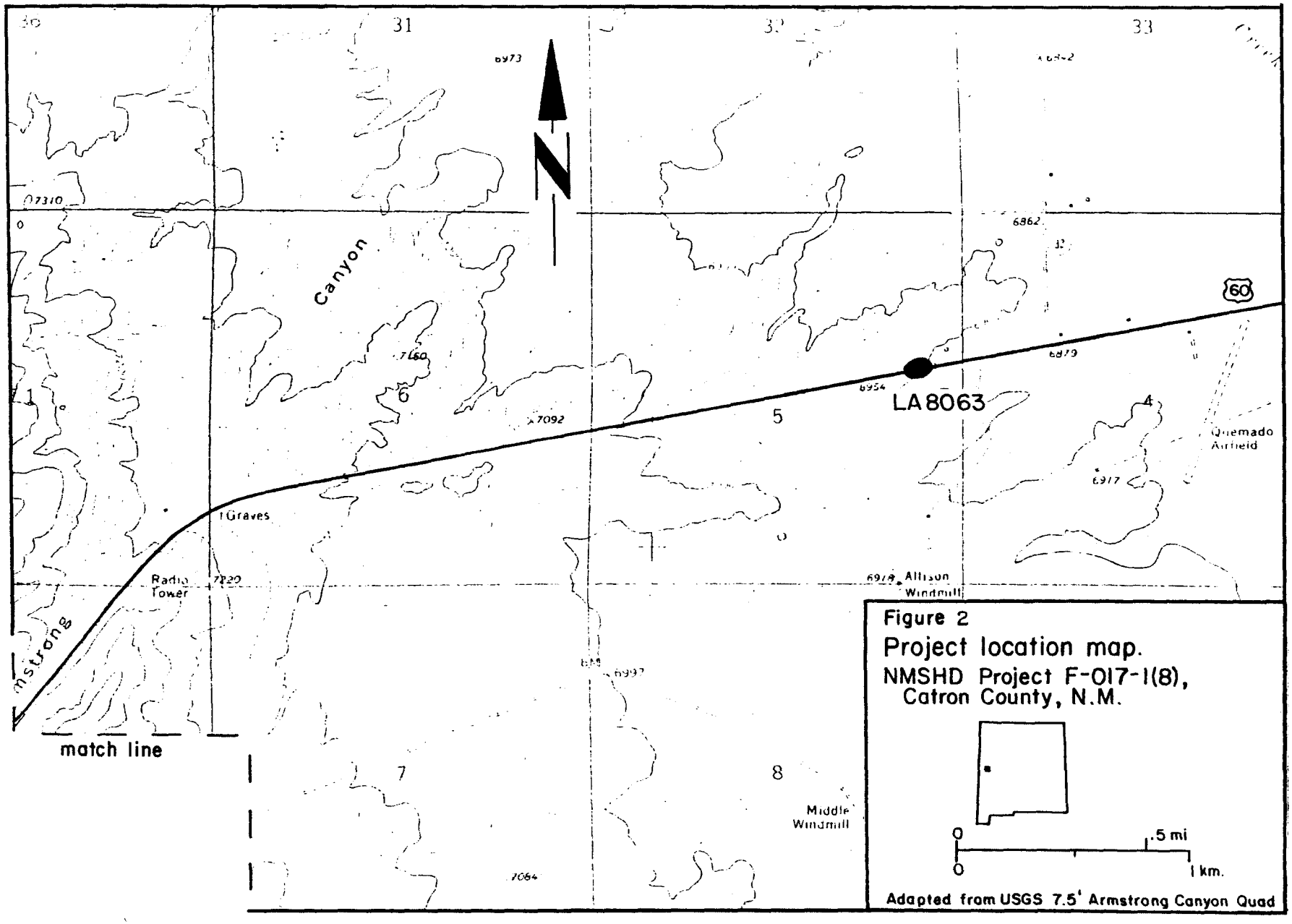

Figure 2
Project location map.
NMSHD Project F-017-1(8), Catron County, N.M.

Adapted from USGS 7.5' Armstrong Canyon Quad

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ENVIRONMENT

Physiography and Geology

The project area lies at the junction of the southern sector of the Colorado Plateau physiographic province (within the Datil Section--Fenneman 1931:317) with the Basin and Range province (Mexican Highlands Section). Generally, the Colorado Plateau is over 5000 ft (1524 m) high and consists of a series of plateaus and canyons. The present topography of the study area is a result of erosion, which has formed pediments, escarpments, benches, and canyons interspersed with level plains and narrow valleys. The formations are mainly volcanic in origin and many of the mesas are lava-capped. Tejana Mesa, 7 km to the north, is capped by a substantial lava flow (Eck 1982). Sedimentary rocks also outcrop in many parts of the local area.

The formation of the Colorado Plateau is the result of a broad regional uplift during the Tertiary period. Since that time extensive erosion has continued and removed most of the post-Cretaceous deposits on the plateau. In addition to the uplifting there was extensive warping of the earth's crust which also contributed to the formation of the plateau. Three major periods of volcanic eruptions produced the basalt flows present today. The valley floors have acquired deposits through aggradation during relatively wet periods, but lose them through degradation in dry periods (Eck 1982).

The project area is located within the Mogollon Slope, a subunit of the Datil Section. It is an area of individual mountain ranges flanked by alluvial fans that are dissected by intermittent streams and depositional slopes and valleys (Fitzsimmons 1959:114-115). Sedimentary rocks are present throughout the area.

Most of the lithic raw materials used by prehistoric populations in the region can be found within the Mogollon Slope. Obsidian can be found at Red Hill, 25 km west of the project area. Within the Datil formation, basalt (ranging from vesicular to dense and fine-grained) is exposed. The formation also contains tuffs, rhyolites, sandstone, and conglomerates. Nonvolcanic sediments north of the area contain arkosic sandstone, mudstones, and conglomerates. In the conglomerates are pebbles and cobbles of quartz, jasper, quartzite, granite, and limestone. The sediments consist of sandstone, siltstone, mudstone, and small amounts of conglomerates and graywacke. The rhyolite of the Datil formation is found

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mostly in the Gallinas and Datil Mountains (Willard 1959:92-97).

LA 8063 is on the first ridge west of the Largo Valley near Quemado, at an elevation of 6920 ft (2109 m). Largo Creek flows 2.4 km to the east and higher upland ridges rise to the west. An intermittent drainage is present immediately south of the site and drains into Largo Creek. Seven kilometers north lies Tejana Mesa, while 11 km northeast is the prominent Mariana Mesa. Mountain peaks of the Gallo and Mangas are visible about 20 km south and southeast. The Continental Divide is 38 km east.

LA 51922, at an elevation of 7580 ft (2310 m), is in an upland environment surrounded by mesas and low peaks interpersed with low, broad alluvial valleys and floodplains. A shallow intermittent drainage flows immediately west of the site, which is located on top of a low knoll in the middle of a broad floodplain.

Climate

The climate of the project area is temperate, characterized by Tuan et al. (1973) as semiarid; however, Maker et al. (1972:7) state that recent records indicate an arid regime. They use short-term records, which indicate a mean annual precipitation of 10.9 inches (276.8 mm) at Quemado during a 37-year period, to support their statement. Eck (1982) uses long-term records of 136 years to arrive at an annual precipitation of 13.8 to 14 inches (ca. 350 mm) at Quemado, which favors a semiarid climatic interpretation.

Most precipitation occurs in the summer and results from thunderstorm activity. Winter is generally dry. The humidity of the area is usually less than 40 percent. Mean maximum temperature for Quemado is 66 degrees F (18.8 degrees C) and the mean minimum is 29 degrees (1.6 degrees C). The area has a growing season of 109 frost-free days (Maker et al. 1972). Permanent sources of water are uncommon.

The local climate is most compatible with grazing, which is the principal land use at present. Irrigation is necessary in most localities in order to pursue modern agriculture. Eck (1982) states that prehistoric populations of the region probably practiced dry farming, which would have been feasible given the environmental setting.

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Soils

LA 8063 is on soils belonging to the Rockland-Hagerman-Penistaja association (Maker et al. 1972:11). It lies at the easternmost exposure of this association with topography changing from gentle to steep slopes and undulating ridges. The soils have formed mostly on old lava flows, and surfaces are characteristically covered with stones and cobbles (Maker et al. 1974:88) with outcrops of basalt. The moderately deep soils on the slopes are also forming in alluvial and eolian sediments and support a fair to good cover of vegetation. Site soils consist of a thin surface of fine sandy loam formed over subsoils of sandy clay loam. The potential for irrigating these soils is extremely limited (Maker et al. 1972:12).

LA 51922 is on soils in the Cerrillos-Penistaja-Clovis association, which consists of gently sloping to rolling and hilly landscapes. The soils have formed principally in alluvial sediments on floodplains along intermittent drainages (Maker et al. 1974:91). A lime zone is commonly found 38 to 100 cm below the surface. Maker et al. (1972:10) state that soils are moderately productive and support moderate to good stands of native vegetation with considerable potential for irrigating.

Vegetation and Fauna

The flora consists of Upper Sonoran life zone vegetation (Bailey 1913). In the uplands, juniper (*Juniperus monosperma*) is dominant, followed by pinyon (*Pinus edulis*) and occasional oak (*Quercus* sp.) at elevations above 6600 ft (2011 m). Areas below this level support numerous grassland and shrub communities. These include Western wheatgrass (*Agropyron smithii*), chamisa (*Chrysothamnus nauseous*), shadscale (*Atriplex* sp.), Blue grama (*Bouteloua gracilis*), Desert saltgrass (*Distichlis stricta*), snakeweed (*Gutierrezia* sp.), vine mesquite (*Panicum obtusum*), and alkali sacaton (*Sporobolus airoides*). The vegetal resources, including those obtained from the above plants, are only seasonally available.

Fauna known to occur in the area include: cottontail (*Sylvilagus auduboni*), black-tailed jackrabbit (*Lepus californicus*), ground squirrel (*Spermophilus tridecemlineatus*), prairie dog (*Cynomys gunnisoni*), kangaroo rat (*Dipodomys ordii*), pinyon deer mouse

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(Peromyscustruei), coyote (Canis latrans), wolf (Canis lupus), grey fox (Urocyon cinereoargenteus), bobcat (Lynx rufus), mule deer (Odocoileus hemionus). pronghorn antelope (Antilocapra americana), golden eagle (Aquila chrysaetos), red-tailed hawk (Buteo jamaicensis), turkey vulture (Cathartes aura), crow (Corvus brachyrynchos), and various lizards, snakes, and insects (Findley et al. 1975). Hunting may have been an important subsistence strategy for prehistoric populations because of the likelihood of a plentiful distribution of deer in upland areas and antelope in the grasslands (Hogan 1985:35).

Paleoenvironment

Paleoenvironmental data have been principally obtained from pollen cores from sediments in the Plains of San Agustin to the east and from geological examination of the ancient shorelines of Lake San Agustin. Macroenvironmental remains from Bat Cave have also supplied some paleoenvironmental data. The existence of a moist, cool climate from 27,000 to 13,000 B.P. has been demonstrated but not well understood (Berman 1979:9). Beginning in approximately 10,000 B.P. a warming trend occurred. Berman (1979:21) stresses that, even though detailed paleoenvironmental reconstructions have been provided for the area, much more research needs to be conducted.

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ARCHAEOLOGICAL OVERVIEW

Two cultural resource overviews have been prepared for the west-central New Mexico region (Berman 1979, Tainter and Gillio 1980). In addition, the archaeology of the area is reviewed by Stuart and Gauthier (1981). General research questions for the region are outlined by Berman (1979), who proposes testing of the generally accepted settlement models of the region in terms of aggregation and abandonment. Stuart and Gauthier (1981:174) suggest studies to determine the exact cultural and economic boundaries of the Socorro region.

Early archaeological investigations include surveys and excavations that have established the settlement sequences in the region. Surveys include those by Danson (1957), Honea and Benham (1963), Wilson (1972), Eck (1982), and Hogan (1983, 1985). Most recent work has consisted of clearance surveys. Excavations have uncovered late Archaic sites (Hannaford 1985) and pithouses and small to large Pueblo villages (Bullard 1962; Kayser 1973; McGimsey 1980). The Bureau of Land Management, Socorro District, has also completed an extensive survey of lands within the Bureau of Land Management Quemado Planning Unit. No data are available at this time.

Site density in an area immediately west of the project sites is 113 sites in a 393 square kilometer area (Hannaford 1985:6). Of these sites, 18.3 percent are Archaic, 37.4 percent are Pueblo, 0.7 percent are Mollogon, 4.9 percent are historic and 38.7 percent are unknown.

Paleoindian sites (9500-6000 B.C.) are present but not common in the Quemado region. The most well known of these is the Paleoindian component of the Ake Site located on the Plains of San Agustin (Beckett 1980). Also found in the Plains are Midland and Cody Complex points. Honea and Benham (1963) recorded several possible Paleoindian sites west of Quemado, but these may represent early Archaic adaptions. The Paleoindian representations in the Quemado region are isolated finds which seem to substantiate a subsistence economy dependent primarily on big-game hunting. Hogan (1985:39) notes the appreciable alluvial deposition in the valley floors which could be covering potential Paleoindian sites.

Archaic sites (6500 B.C.-A.D. 600) are fairly common in the region and represent two major cultural traditions that overlap in the Quemado region. The Cochise tradition is a southern Archaic tradition, while the Oshara is a

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northern one, each with distinctive tool assemblages. The Cochise tradition extends from 8500 B.P. to 2000 B.P. and has three stages: Sulphur Springs, Chiracahua, and San Pedro. The Oshara tradition, lasting from 7500 B.P. to A.D. 600, includes six stages: Jay, Bajada, San Jose, Armijo, En Medio and Trujillo (Irwin Williams 1973). Projectile point assemblages are characteristically smaller than in the preceding Paleoindian period. The points are triangular, with well-defined stems and notches, and usually serrated (Eck 1982).

Well known sites with Archaic components include the Ake Site (Beckett 1980), Bat Cave (Dick 1965) and Tularosa Cave (Martin et al. 1952). During the Archaic period, the subsistence economy focused on smaller animals with an increasing reliance on gathered food resources. Hogan (1985) sees the Archaic in western New Mexico as adopting a foraging strategy carried out by residential mobility. Most sites are single episode, short-term occupations that suggest hunting activities.

Along with the continuation of Archaic adaptations from ca. A.D. 1 to A.D. 900, there was a period of significant change in subsistence and settlement patterns. Berman (1979) calls it the Formative period and it encompasses the Basketmaker II, Basketmaker III, and Pueblo I periods. During this time, the use of pottery developed, pithouses and surface structures appeared, and cultigens were used. Early Basketmaker pithouses sit on remote ridges, hills, and the tops of high mesas, while later Basketmaker pithouses are on less remote ridges and slopes. There are several large Basketmaker III villages on the mesas near Quemado (Hogan 1985:10). Pueblo I period pithouses and structures lie next to drainages on adjacent terraces. Danson (1957) recorded 31 Pueblo I sites on Mariana Mesa. These sites have pottery and architecture characteristic of both Anasazi and Mollogon cultures. Most believe Anasazi culture dominates (Hogan 1985), but view the region as a cultural frontier. Haury (1936) was one of the first to define the Mogollon culture, a definition that Martin et al. (1952) later expanded.

During the Pueblo II period (A.D. 900-1100) there is a notable increase in the number and size of sites, with expansion occuring in previously unoccupied areas. There was dense Pueblo II settlement in the immediate vicinity of Quemado at Mariana Mesa (138 sites, Danson 1957), Tejana Mesa, and along Largo Creek (Danson 1957; Bullard 1962). Pueblo sites generally range in size from 1 to 12 rooms with some larger ones containing kivas. However, the Cox Ranch Pueblo (LA 13681), near Red Hill, contains about 300 rooms.

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In the Pueblo III period (A.D. 1100-1175), early sites were generally in the same locations as previous Pueblo II sites. By the late Pueblo III period, the average size of pueblos was 20 rooms (Hogan 1985:11). The Pueblo IV period extended from A.D. 1175 to Spanish contact in the 1500s. Remaining sites in the Quemado area were large and were most common in higher elevations. Most Pueblo groups abandoned the Quemado region and the population aggregated into larger sites to the east near the Continental Divide (Bullard 1962). Total abandonment of the Quemado area occurred by the 1400s. However, pueblos at Zuni and Acoma, to the north and northeast, continued to flourish.

The first Spanish contact with local populations occurred at Zuni Pueblo in 1539. Several Apache and Navajo groups occupied the surrounding region at that time, and Apaches dominated the area as far north as Zuni and Acoma until the 1860s. Navajos were in the Zuni Salt Lake area and near Mount Taylor, Acoma and Laguna. After the mid-1800s, both Apaches and Navajos were present only periodically in the project area. In 1872, the U.S. Army established Fort Tularosa, 64 km south of Quemado, to control the persistent Apache raiding. By 1874 the Army had moved the Apaches to Ojo Caliente, Arizona, and the first Euro-Americans began filtering into the area (Lyon 1972). Settlement of the Quemado area occurred in the early 1880s.

The first settlers were mostly sheep ranchers, but cattle grazing gradually became predominant. Cattle ranches were large, and provided the region with economic stability. However, drought and falling cattle prices in 1885 caused the collapse of the ranching business in the Quemado area. Many ranches were abandoned and population decreased.

Homesteaders began settling the Quemado area in about 1900. After another depression between 1918 and 1924, new homesteaders tended to be subsistence farmers rather than cattlemen, raising corn and pinto beans. Because of the severity of the winters, the small farmers gradually switched to ranching, and today small cattle ranches populate the area (Wozniak 1985:19-28).

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FIELD AND LABORATORY METHODS

The primary purpose for testing the two archaeological sites near Quemado was to evaluate their extent and significance and to determine present and potential impact to the sites. At both sites, the crew determined the limits of cultural features and cultural material by flagging the extent of such evidence. They then selected only those portions of the sites lying directly within the highway right-of-way for testing. The crew dug 2 by 1 m test trenches to evaluate surface artifact concentrations, potential cultural features, soil stratigraphy and probable site limits. Each trench was excavated with hand tools until a sterile substrate was reached. Auger tests were then made within each trench to test for any further cultural material. All soil was passed through one-quarter inch mesh screen. Backfilling of test trenches completed the testing procedures.

Each surface artifact within the right-of-way was intially flagged. A 4 by 4 sq m grid was then laid over each site using the existing right-of-way fences as east-west baselines. Artifacts at LA 8063 were collected by grid, while artifacts at LA 51922 were collected by exact provenience using a transit and stadia rod. Plotting of artifacts at LA 51922 on the 4 by 4 sq m grid then allowed comparisons in artifact patterning.

Site plan maps were made with a stadia rod and transit. Archaeologists located all test trenches on these maps and photographed site environs and cultural features. One hearth at each site yielded radiocarbon samples. The hearth at LA 8063 also produced a macrobotanical sample.

All collected artifacts were analyzed at the Research Section, Laboratory of Anthropology. The Laboratory of Anthropology Archaeological Respository Collections retains all cultural material.

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SITE DESCRIPTIONS

LA 8063

LA 8063 covers an area 180 by 130 m, 45 percent of which lies within the highway right-of-way (Fig. 3). In 1963 Alexander and Benham recorded this site as a multicomponent, preceramic site of unknown age (see ARM files). It consists of widely scattered lithic materials and several sherd areas.

Testing results

Four test trenches, each 2 by 1 m, were placed within the highway right-of-way near areas of concentrated artifact scatters and in the locus of a few charcoal fragments. Only Test Trench 1 produced subsurface cultural material. Artifacts recovered from Trenches 2 and 3 were found only in the upper 2 cm of stripped soil. Table 1 shows the results of the testing program.

The area of Test Trench 1 was selected for excavation because of the presence of two very small pieces of burned bone and a few flecks of charcoal on the surface. Two cut juniper tree stumps (one burned) were adjacent to the bones and so the crew included them in the test unit. After the top 2 cm of loose soil had been removed, a light charcoal stain became apparent. This stain centered on the burned stump at the east end of the trench (Fig. 4). At first, the crew thought that the charcoal had resulted from natural burning of the stump.

Table 1. Test trench data, LA 8063

Trench	Excavated Depth	Features	Artifacts	Artifact Depth	Auger Depth
1	26 cm	Hearth	4 burned rocks 58 bones 5 sherds	23 cm	48 cm
2	10 cm	-	1 lithic 1 sherd	2 cm	66 cm
3	18 cm	-	2 lithics	2 cm	30 cm
4	15 cm	-	-	-	73 cm

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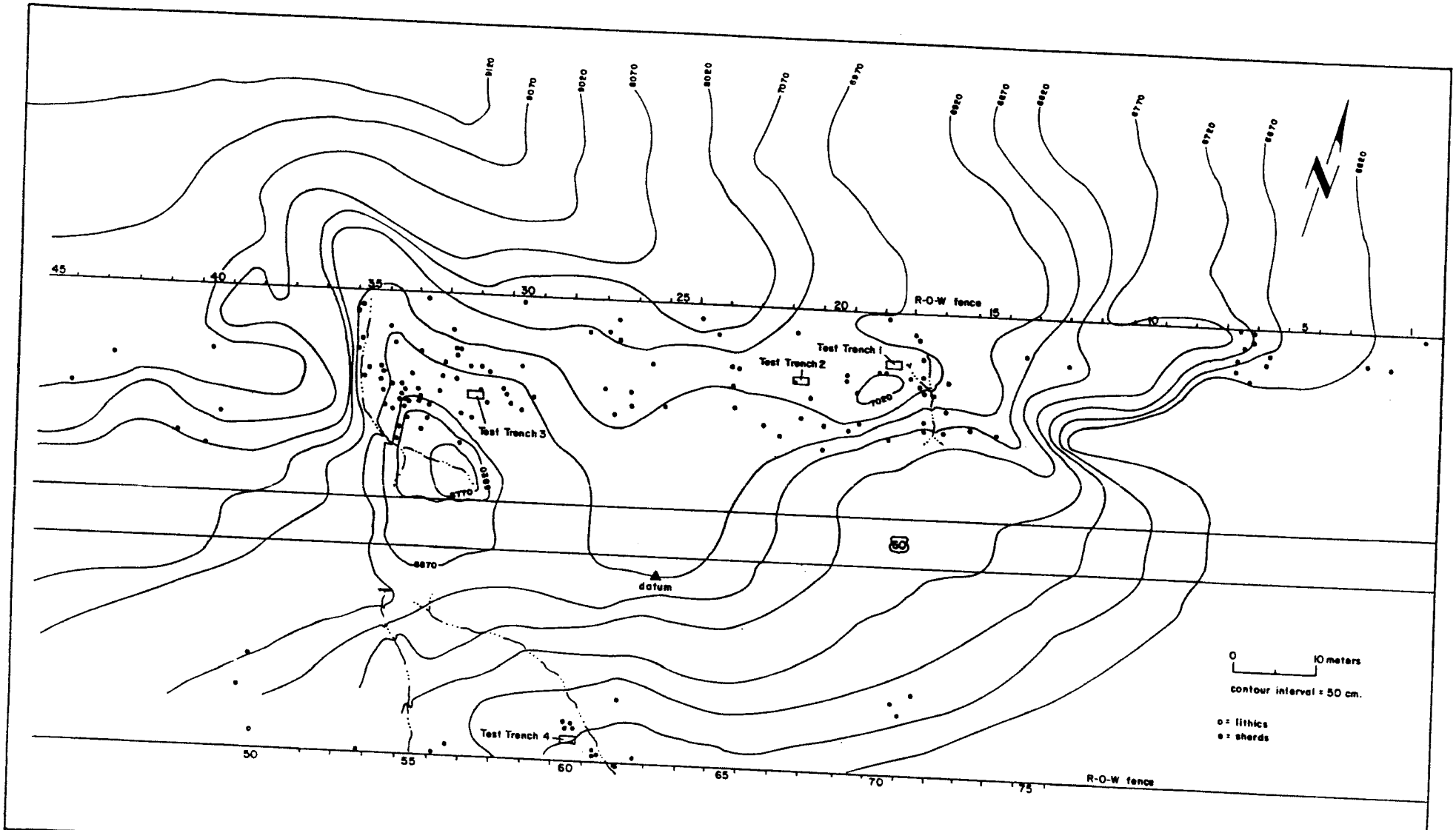

Figure 3. LA 8063 site map.

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Figure 4. Bottom of excavated Navajo hearth, LA 8063. Arrow is 30 cm. long.

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However, at 14 cm below the surface, the charcoal stain became more strongly concentrated around this tree stump. (Slight burning was also present on the west stump at this depth). At a depth of 17 cm, the burn area was very dark and was located against the west side of the stump. Burned Navajo sherds and faunal remains occurred at this level. At 23 cm, four burned rocks were found; the rocks were aligned north-south along the west edge of the charcoal stain. A radiocarbon and a flotation sample were taken.

At this point, the feature was clearly identified as a hearth, which measured 45 by 30 cm across and 8 cm deep. More burned bones and sherds were found within the hearth and immediately to the north and northwest of it on an associated use surface. The crew therefore extended the trench 25 cm to the north in the area of the hearth. At 26 cm below surface, the bottom of the hearth was reached, underlain by the remainder of the tree stump. All charcoal staining had spread west from the hearth, indicating an east wind at the time of burning.

Charcoal from the hearth yielded an uncorrected date of 390±90 years: or A.D. 1560 (Beta #15279). Using a calibration table which adjusts radiocarbon dates to dendrochronological dates (Klein et al. 1982) a 95 percent confidence interval of A.D. 1385 to 1655 is obtained. Because of the presence of Spanish-introduced sheep or goat remains in the hearth, the actual date should lie in the upper end of the radiocarbon range, in the late sixteenth to mid-seventeenth centuries.

There were four sooted Navajo sherds in the hearth, at depths of 17 to 23 cm. One unidentified utility ware sherd was also present in the hearth. On the surface of the site, within a 16 m radius of the hearth, were scattered 12 more Navajo sherds and 3 sherds of unidentified utility wares similar to the one found in the hearth (Fig. 3). One Red Mesa Black-on-white sherd was also recovered from the surface of this same area.

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Table 2. Faunal remains from the hearth at LA 8063

Level	Depth	#	Part	Species	# Burned
surface	2 cm	1	rib fragment	1 mammal	1
		4	unidentified	1 mammal 3 unknown	4
3	20 cm	1	rib fragment	med-size mammal	1
4	23 cm	6	unidentified		
		1	innominate	sheep/goat	
		1	left mandible	sheep/goat	
		14	long bone frag.	med-large mammal	3
		8	unidentified	unident. mammal	8
		10	rib fragments	med-large mammal	10
		1	shaft rib	med-large mammal	
		1	metatarsal shaft	sheep/goat	
		1	left tibia	med-mammal	1
		1	left mandible	rodent	
		2	unidentified	med-mammal	
5	26 cm	2	rib fragments	med-mammal	
		1	tooth root	med-mammal	
		1	unidentified	med-large mammal	1
		2	unidentified	unknown	2
		1	left femur	prairie dog	1
Total		59			38

Faunal remains were present in the hearth, and on a compacted surface around the hearth at a depth of 23 cm below present ground surface (Table 2). All of the unburned bones (21 pieces) were within 60 cm of the hearth, 23 to 26 cm deep, on or above a use surface. These include most of the identified sheep or goat elements. Most likely, the burned medium-large mammal elements are also sheep or goat remains. However, because many of the fragments were so small, the minimum count of individual animals includes only one sheep or goat. The fifth molar on the left mandible of this sheep or goat had just erupted, indicating an age of about 9 months (Ruttle and Sachse 1971:1). The animal therefore was a lamb or kid. Early Navajos did not attempt to time the breeding of their sheep; therefore, lambs might be born any time through the year (Brugge 1981:74). The burned prairie dog femur suggests that this animal also served as food.

One unidentified medium mammal bone (the distal end and part of the shaft of a left tibia) was not typed as to

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species, but is closest in size and appearance to that of a large dog. One unburned left innominate of the sheep or goat specimen exhibits a row of tooth marks, which might also indicate the presence of a dog.

The left mandible of the sheep or goat had been crushed just below the fifth molar with a blunt object. Several other large bones appear to have been shattered; however, no evidence for marrow extraction was noted.

The Navajo sherds and the radiocarbon date clearly establish the hearth as Navajo, possibly the result of a single-use, short-term occupation of the site. The fact that the hearth is nestled in the base of a tree stump which has been cut with an axe is rather unusual. We are not aware of any references to the use of tree stumps as hearths in the literature on the Navajo. However, Charles Carroll (personal communication, January 6, 1986) states that Navajo sheepherders in the Ramah area (near Zuni) are known to start fires in tree stumps in cold weather.

LA 51922

LA 51922 consists of a scatter of chipped stone and one sherd concentration, located on both sides of US 60 (Fig. 5). The site covers an area 112 by 80 m. However, 25 percent of the site was destroyed by original construction of the highway, which cut through the site center, and another 60 percent was extensively disturbed by recent highway work. Two hearth remnants were exposed as a consequence of this activity.

Four Lino Gray sherds from a single jar were recovered at one spot, indicating that the site was used in the Basketmaker III period. The remaining cultural material consisted of scattered chipped stone. No architectural features were found, although it is possible they once existed.

Testing Results

Seven 2 by 1 m test trenches were excavated within the highway right-of-way. Selection of test areas was based on the presence of artifact concentrations, charcoal stains, and possible pithouse depressions. Only Trenches 3 and 5 produced evidence of cultural features (i.e., hearths). Mechanical disturbance on the site had nearly eliminated all other remains.

NN029010

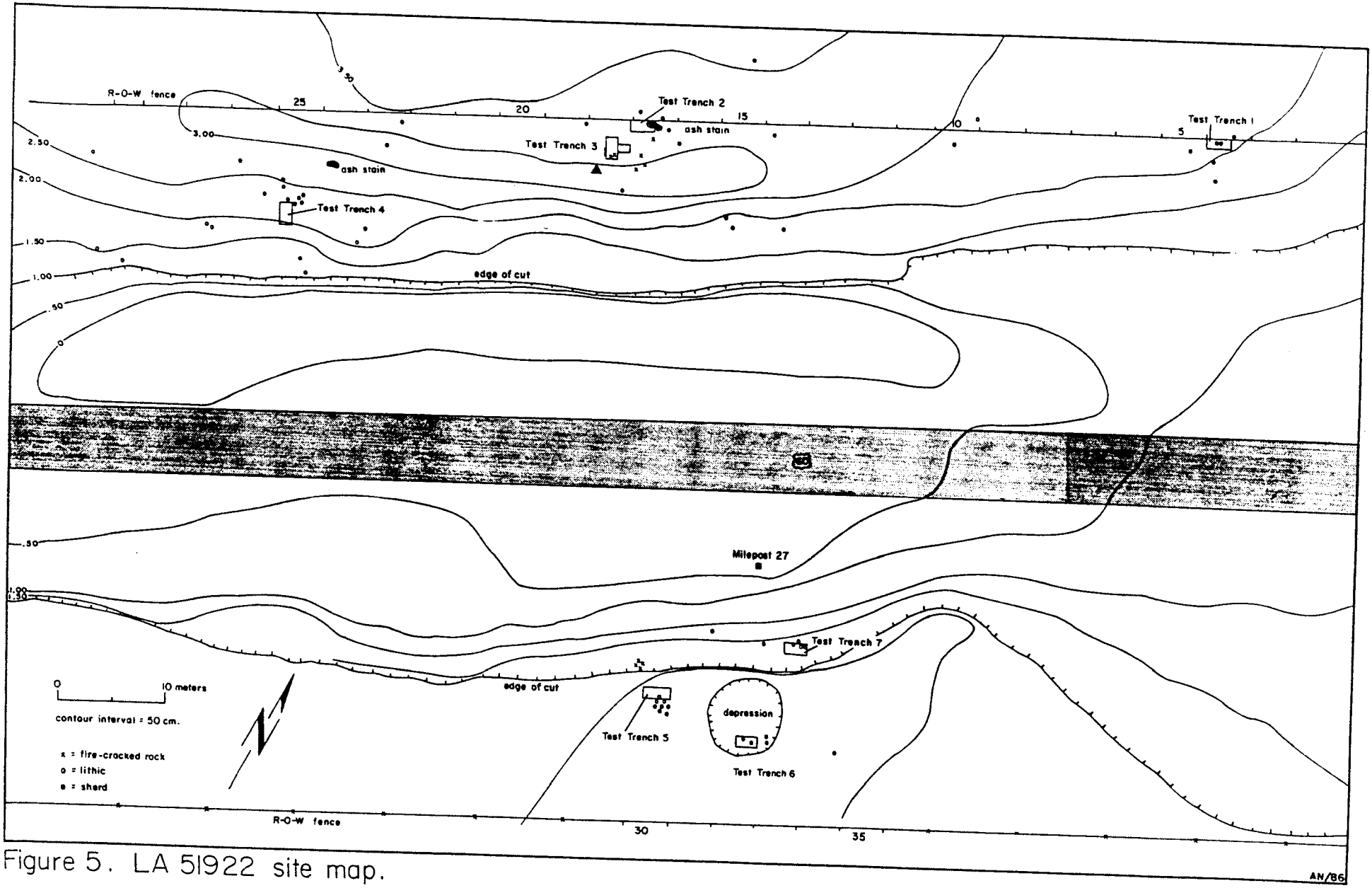

Figure 5. LA 51922 site map.

NN029011

Removal of the loose, eolian soils on the site revealed a consistent dark brown loam stratum that continued to the sterile caliche substrate, located between 0.60 and 1.00 m below surface. On the south side of the right-of-way, underlying the dark loam, was a sandy stratum ranging between 20 and 30 cm deep which extended down to the caliche. Table 3 presents the details of the test trenching on the site.

Table 3. Test trench data, LA 51922

Trench	Excavated Depth	Features	Artifacts	Material Depth	Auger Depth
1	20 cm	-	-	-	1.45 m
2	23 cm	Burned stain	-	-	1.60 m
3	10 cm	2 hearths	9 FCR*	7 cm	-
4	24 cm	-	-	-	1.26 m
5	18 cm	Poss. hearth	1 FCR*	5 cm	1.06 m
6	17 cm	-	1 flake	2 cm	1.29 m
7	17 cm	-	-	-	0.97 m

*FCR=Fire cracked rock

The burn stain in Test Trench 2 extended to 5 cm below the surface but was amorphous. Test Trench 3 revealed the bottoms of two hearths 50 cm apart and 7 cm deep. The crew had observed small pieces of fire-cracked limestone rock on the surface, and testing revealed several pieces of fire-cracked rock marking the bottom of each hearth. Hearth 1 measured 55 by 50 cm, but had no definable edges; these may have been eradicated by previous blading of the site. A radiocarbon sample was taken from this hearth. However, the resulting date of 3070 $\pm$ 130 years: 1120 B.C. (Beta #15278) is clearly inconsistent with the site assemblage. Hearth 2 extended in an ill-defined arc 90 by 35 cm with similar fire-cracked rock within the burned area. No artifacts were present in or around either hearth.

Test Trench 5 was placed in an area of scattered flakes and fire-cracked rock on the south side of the site. After the crew stripped the top 3 cm of soil, a charcoal stain became visible. It measured 47 by 48 cm and was 3 cm deep. One piece of fire-cracked rock was found on the surface of the site in the immediate vicinity. The stain likely represented an eroded hearth. Not enough charcoal was present for a radiocarbon sample.

Test Trench 6 was placed in a 6 m wide depression in which a pinyon tree was growing. The crew thought the

NN029012

area might contain a pithouse (cf. Nelson 1985); however, no subsurface feature was found.

Other trenches that produced no subsurface material included: Test Trench 1, located in the only sherd area of the site; Test Trench 4, on the west edge of the site in a stone flake concentration, and Test Trench 7, on the south side. In addition, one charcoal stain near Test Trench 4 was investigated and found to have no depth.

The four Lino Gray sherds date from A.D. 675 to 850 (Hunter-Anderson 1978:31). The lack of substantial cultural material and the presence of several probable hearth areas suggest the site was temporarily occupied by Basketmaker III peoples.

NN029013

ARTIFACT DATA

Few artifacts were recovered from the right-of-way at the two sites. Therefore, any conclusions about technology and function must be fairly general.

Chipped Stone

The purpose of the lithic analysis was to examine chipped stone attributes and interpret them in terms of possible site function. Attributes monitored include material and artifact types, cortex placement and percentage, type of retouch, platform type and wear analysis (after Vierra 1985).

LA 8063

At LA 8063, 64 chipped stone artifacts were recovered from within the right-of-way. The material and artifact types are given in Table 4.

All of the raw materials listed in Table 4 occur near LA 8063, either exposed in the Datil or Baca formations or in the nonvolcanic and volcanic sediments in the surrounding valleys (Willard 1959). Rhyolite accounts for more than half of the lithic material used.

Flakes and angular debris constitute the majority of the chipped stone. Angular debris was divided into pieces weighing less or more than 40 gm. Small angular debris can occur during any stage of core reduction; larger angular debris generally indicates preferential selection of larger pieces for possible use. At LA 8063, small angular debris outnumbers large debris by a ratio of 2.3:1. Twelve out of thirteen small pieces of angular debris have some cortex present, indicating that initial reduction of the cores probably occurred on the site.

Almost all of the flakes were core flakes, with 77.5 percent having some type of cortex present. However, only one flake exhibits both platform and dorsal cortex, which indicates initial stages of core reduction. Most of the flakes (25) have platform cortex only; five have dorsal cortex only, and nine have no cortex, suggesting secondary rather than primary core reduction.

NN029014

Table 4. Lithic material by artifact types, LA 8063.

Material	Whole Flakes		Partial Flakes		Small Angular Debris		Large Angular Debris		Retouch Flakes		Cobble Uniface		Cores		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Rhyolite	21	55.2	-	-	3	23.0	3	60.0	1	25.0	-	-	2	100.0	30	46.9
Chert	5	13.1	1	50.0	2	15.3	2	40.0	-	-	-	-			10	15.6
Chalcedony	3	7.8	-	-	5	38.4	-	-	2	75.0	-	-			10	15.6
Siltstone	7	18.4	1	50.0	1	7.6	-	-	-	-	-	-			9	14.1
Quartzite	2	5.2	-	-	-	-	-	-	-	-	1	100.0			3	4.7
Agate	-	-	-	-	1	7.6	-	-	-	-	-	-			1	1.5
Ves. Basalt	-	-	-	-	1	7.6	-	-	-	-	-	-			1	1.5
Total	38		2		13		5		3		1		2		64	99.9%

NN029015

Platform preparation on the cortical flakes includes 55 percent faceted, 37.5 percent cortical, 2.5 percent bidirectional retouch, and 5 percent missing platforms. Faceted and cortical platforms indicate core reduction strategies. The one bidirectional retouch platform is a remnant of a bifacially retouched flake. There were no tertiary or biface thinning flakes recovered from the site. Therefore, 97.5 percent of the flake assemblage represents secondary core reduction, while only 2.5 percent indicates primary reduction.

Both rhyolite cores have flakes removed from multiple platforms. This technique indicates an expedient core reduction strategy. In contrast, at Fence Lake, Elyea (1985:62) found a higher frequency of prepared platforms on single-use sites than on either residential or seasonal sites, suggesting a higher percentage of efficiently used material on such sites.

Only four possible tools were recovered from the site. These include a single quartzite cobble uniface, one retouched piece of chalcedony angular debris, one chalcedony flake, and one retouched rhyolite flake. The piece of chalcedony angular debris is unidirectionally retouched on a convex edge on the dorsal surface. The edge angle is 65 degrees but no use damage is visible. Steep-angled edges of this type are associated with scraping activities (Gould et al. 1971:149). One retouched chalcedony core flake has a prepared faceted platform and exhibits unidirectional retouch on the dorsal surface. The edge outline is convex and the retouched edge angle is 20 degrees. This degree of angle usually indicates a cutting or sawing tool. However, no wear was visible on the possible tool. The other retouched rhyolite core flake has a collapsed platform and exhibits bidirectional retouch on an edge that is both convex and concave. The edge angle is 65 degrees, indicative of scraping activity; however, the bidirectional retouch suggests other possible activities.

The few cores on the site, the high frequency of secondary reduction flakes, and the low angular debris to flake ratio indicate secondary core reduction was a primary site activity. Lithic material probably was transported to the site in a partially reduced state. The lack of a formal tool assemblage and the low frequency of debris suggest that any tools produced were probably curated (one flake with a bidirectionally retouched platform was recovered) and that the site was occupied for only a short time. The high frequency of cortex present on the flakes, the multifaceted core, and the lack of formalized tools indicates an expedient tool manufacturing technology.

NN029016

The separation of probable Navajo lithic material from other materials on the site was a primary goal of the lithic analysis. In reference to Figure 3, only those chipped stone artifacts found in the vicinity of the Navajo hearth--that is, no farther from the hearth than the Navajo sherds (Grids 17 to 21 W)--were considered possible Navajo items. This includes only 5 out of 64 artifacts: 3 unutilized flakes, 1 retouched flake, and 1 piece of angular debris. Table 5 presents the attributes of these items.

Table 5. Attributes of possible Navajo lithic material

Artifact	Material	Retouch	Platform	L*	W*	Th*	Wt*
Flake	Chalcedony	Yes	Faceted	23	15	6	2.3
Flake	Quartzite	-	Cortical	58	28	14	22.8
Flake	Rhyolite	-	Faceted	51	47	16	40.3
Flake	Rhyolite	-	Faceted	35	38	15	17.4
Angular Debris	Chalecdony	-	-	38	20	11	9.2

* Material in mm and grams

We did not compare the possible Navajo lithic artifacts with the remainder of the lithic assemblage, because of the very small number of Navajo artifacts. Generally, the cortical flakes (especially those of rhyolite) associated with the hearth are slightly shorter, wider, and thicker than those in the remaining site material. Large rhyolite flakes extend for about 70 m beyond the hearth to the west and may well be Navajo related.

Kluckhohn et al. (1971:176-178) and James (1976:66) have suggested a Navajo preference for larger flakes. Elyea (1985:62-66) used differences in flake size to distingush Pueblo from "unknown" lithic scatters at Fence Lake, to the north of the project sites. The thicker, temporally unclassified flakes at Fence Lake also have more prepared platforms than the Pueblo flakes. Three of four possible Navajo flakes at LA 8063 have prepared platforms and are thicker than those in the remaining site assemblage.

Elyea (1985:66) suggests several origins for the "unknown" flake scatters at Fence Lake: that they are eroded Archaic sites; or that they are the result of some specialized function; or that they indicate use of the area by Athabaskans. She also states that Navajo flakes from the Blanco-Largo area of nothwestern New Mexico are thick, cortical flakes. Thus, the possible Navajo chipped

NN029017

stone component of LA 8063 is consistent with our scanty knowledge of Navajo lithic technology.

LA 51922

Testing procedures at LA 51922 produced 42 chipped stone artifacts. These are divided by material and artifact types in Table 6.

The raw materials found on the site are all locally available with the exception of obsidian; however, obsidian is present in the vicinty of Red Hill, 25 km to the west. Chalcedonies and cherts are the most prevalent material types, composing 47.6 percent of the total.

The ratio of flakes to angular debris is 4:1; unutilized core flakes are the largest artifact category on the site (42.8 percent). Of the 18 cortical flakes, almost half exhibit no cortex--suggesting secondary core reduction (Vierra 1985). Secondary core reduction is also indicated by flakes with platform cortex only or dorsal cortex only (49.9 percent), while primary reduction is indicated by 2 flakes with both platform and dorsal cortex (11.1 percent).

There are 8 pieces of angular debris in the assemblage. One large piece of rhyolite angular debris may have been purposefully produced for later tool use. All but 1 of the pieces of angular debris have some cortex present.

Platform types on the cortical flakes are divided into faceted (47.4 percent), cortical (31.6 percent), and missing platforms (21.0 percent). Faceted platforms are prepared while cortical platforms are not; both, however, are indicative of core reduction processes.

Three cortical flakes have been retouched, 2 on more than one edge. The basalt flake has bidirectional retouch on a straight edge with a 60 degree edge angle. Another edge, with a 60 degree edge angle, is convex with unidirectional ventral retouch. A pink chert flake has bidirectional retouch on a straight edge with a 40 degree edge angle. Wear occurs in the form of bidirectional rounding. The third flake is black chert with unidirectional dorsal retouch on one edge. The edge is convex with a 20 degree edge angle. Another concave edge has bidirectional retouch and an edge angle of 30 degrees.

There are therefore 5 potential tool edges on the 3 cortical flakes, 1 of which also exhibits wear. Two of the 3 flakes probably represent expedient tool use for cutting, based on their low edge angles of 20, 30, and 40

NN029018

Table 6. Lithic material by artifact types, LA 51922

Material	Flakes		Small Angular Debris		Large Angular Debris		Retouched Flakes		Thinning Flakes		Biface Thinning Flake		Biface		Core/ Hammer-stone		Ground stone		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	
Rhyolite	1	5.5	1	14.3	1	100.0	-	-	-	-	-	-	-	-	-	-	-	-	3	[illegible]
Chert	2	11.1	3	42.8	-	-	2	66.7	-	-	1	50.0	-	-	-	-	-	-	8	19
Chalcedony	7	39.8	1	14.3	-	-	-	-	3	37.5	1	50.0	-	-	-	-	-	-	12	28
Siltstone	1	5.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	[illegible]
Quartzite	5	27.8	-	-	-	-	-	-	-	-	-	-	-	-	1	100.0	1	100.0	7	1[illegible]
Agate	-	-	1	14.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
Basalt	2	11.1	1	14.3	-	-	1	33.3	1	12.5	-	-	-	-	-	-	-	-	5	1
Obsidian	-	-	-	-	-	-	-	-	4	50.0	-	-	1	100.0	-	-	-	-	5	1
Total	18		7		1		3		8		2		1		1		1		42	

NN029019

degrees. Scraping activities may be indicated for the basalt flake because of the steep edge angle of 60 degrees, although its 2 edge outlines vary in shape.

Eight thinning flakes indicate resharpening or retouching of tool edges. Two biface reduction flakes and 1 unused obsidian biface confirm the presence of biface tools at the site.

Battering on 1 quartzite core indicates use as a hammerstone. It is multifacted with flakes removed from several cortical platforms. A single fragment of quartzite exhibits use as a grinding stone. It is convex in cross-section and possibly may be a mano. Nelson (1985) observed one other piece of ground stone on the initial survey of the south side of the site, but the testing crew could not relocate it.

The limited lithic assemblage suggests that a number of activities (i.e. cutting, scraping and grinding) occurred at the site; however, the low frequency of items indicates a short-term occupation.

Ceramics

The purpose of the ceramic analysis was to identify the sherds and to date the sites. Ceramic analysis involved the monitoring of the following attributes: vessel type, wall thickness, surface color, paste, temper type, surface treatment, and rim form. The analyst used a binocular microscope to examine paste and temper.

LA 8063

Twenty-nine sherds were recovered by the testing program and sorted into standard ceramic typologies (Table 7). All of the sherds were from jars.

Several cultural periods are represented by the ceramic collection. Very few sherds of corrugated gray ware and plain brown ware were present, so these sherds were not assigned to specific types.

Red Mesa Black-on-white is a Cibola White ware found in the upper Little Colorado River drainage, in the Zuni area, east to the Continental Divide and north to I-40 (Danson 1957:21). It is the earliest black-on-white pottery found in the area, dating from A.D. 850 to the early 1200s (Hunter-Anderson 1978:32; Stuart and Farwell 1983:153). It is the predominate ceramic type at the

NN029020

Williams Ranch Site, 11 km south of Quemado, where it is associated with a tree-ring cutting date of A.D. 1015 (Tuggle and Reid 1982). Red Mesa Black-on-white is also prevalent on Cebolleta Mesa to the northeast where it is associated with tree-ring cutting dates of A.D. 1031 and 1034 (Bannister et al. 1970). Hunter-Anderson (1978:32) puts an early A.D. 900s, or early Pueblo II, date on Red Mesa Black-on-white in the Zuni Yellowhouse area, while Stuart and Gauthier (1981:137) state that the ware seems to be present in Catron County about A.D. 940. No other decorated wares were seen on the site; therefore, Hunter-Anderson's (1978) earlier date in the Pueblo I-early Pueblo II period seems reasonable.

Table 7. Ceramic frequencies for LA 8063.

Types	#	%	Temper	Comments
Red Mesa B/w	2	6.9	Sand, sherd	Smooth exteriors
Gray ware	7	24.1		
PII/PIII	(2)		Sand, sherd	Corrugated
PIII	(1)		Sherd	Indented
Unidentified	(4)		Sand, sherd	Wiped interiors
Brown wares	4	13.8		
	(2)		Coarse sand quartzite	Smooth exteriors
	(2)		Sherd	Smooth exteriors
Navajo	12		Sherd, sand, quartzite	Wiped exteriors
Navajo-assoc.	4		Sand, sand and quartzite, sherd and sand	Smooth interiors

The 7 gray ware sherds are badly eroded; 4 are corrugated, 3 are not. Traces of neck-banding can be seen on 2 of the corrugated pieces. Corrugation and neck-banding appear to place the gray ware in the Pueblo II or Pueblo III periods.

The 4 brown ware sherds are generally well polished with temper of coarse sand and quartz in 2 sherds and sherd temper in the other two. Fowler (1985:101) found the same temper constituents in sherds from the Fence Lake survey (Hogan 1985). He called the pottery Plain Brown ware. The sherds are light brown to reddish brown and could be Alma Plain, which dates from A.D. 300 to 951 (Breternitz 1966:68). There is no indication that the brown ware sherds are associated with any of the other ceramics from the site.

NN029021

Twelve sherds were recovered from around and within the Navajo hearth, which dated to the late sixteenth or early seventeenth century. The sherds are a light to medium gray-brown in surface color, with a black or brown core. Rims are slightly outcurving (see Brugge 1963). The temper consists of crushed sherds, some sand, and occasional quartzite. The exteriors have been wiped with corn cobs, or corn husks. One sherd interior has also been wiped. All other interiors are smooth. Wall thickness ranges from 4 to 7 mm with a mean of 5.4 mm.

The sherds have been tentatively identified as Quemado Utility, a variety of Navajo Gray found in the Quemado area (Brugge 1982:291-292). Navajo Gray developed gradually out of Dinetah Utility, appearing along with Pinyon Gray around 1800, and is found mostly in eastern Navajo country. It is distinguished from Dinetah Utility by its sherd temper, thicker walls, neck fillets, more squared rims, impressed lips, and use of corn cob or shredded juniper bark to smooth the interior. Brugge (1982:291-292) states that the shift from sand to sherd temper may have occurred as early as 1750. The Navajo Land Claim archives (Docket 229, Exhibit 557) indicate that the Navajo probably learned to use sherd temper from Pueblo peoples, but before 1800 they restricted this temper to painted pottery.

The Navajo sherds at LA 8063, however, do not have fillet or square rims and are not from eastern Navajo territory. A variant of Navajo Gray has been named Quemado Utility (Navajo Land Claim, Docket 229), because it is centered in a 30 by 18 square mile area around Quemado, including Mariana Mesa, Escondido Mountain, and Slaughter Mesa. It is generally light gray and wiped on the exterior, and occasionally on the interior, with shredded bark. The temper is mostly sand, quartzite and occasional basalt flecks. The ware is dated prior to 1800, probably because of the lack of sherd temper and its association with about 20 sites which seem to predate 1800. The Navajo Land Claim archives (Docket 229) add that the pottery may have been made by Salinero Apache, but no verification for this statement is given. Although Quemado Utility is locally dominate, the sherds from LA 8063 have sherd temper and so do not fit the type description.

Another Navajo pottery type is Navajo Transitional Utility which resembles Dinetah Utility. It dates prior to the beginning of the nineteenth century, possibly between 1750 and 1800, and differs from Dinetah Utility and Quemado Utility by its sherd temper. The pottery also lacks fillet rims (Brugge 1981:87). Navajo sherds found at LA 8063 seem to best fit the type description for the Navajo Transitional wares, but Navajo Transitional pottery

NN029022

has been dated only as far back as 1750. Its predecessor, Dinetah Utility, orginally thought to occur between ca. 1500 and 1700 (Hester 1962:62-63), has been more recently assigned a date of between 1700 and 1800 (Brugge 1986:14). Absolute dates that correspond to identified Dinetah Utility sherds are lacking, however, leading many researchers to question the whole concept of a Dinetah Phase (Wilcox 1981:218; Simmons 1983:159). Navajo pottery that has been accurately cross-dated to pre-1750, such as that found at LA 8063, may help to fill this void.

The use of sherd temper in Navajo wares is thought to have been introduced with the use of Navajo Transitional wares about 1750 (Brugge 1981:87). But sherd temper seems to occur at a much earlier date, at least in west-central New Mexico. The date for such wares may need to be assigned a beginning date closer to A.D. 1600.

Four other sherds were also recovered from within or around the Navajo hearth but do not seem to be Quemado Gray. They are similar to the Quemado Gray sherds but are slightly thinner-walled (mean, 5.2 mm) and are not wiped. The interiors are polished while the exteriors are rough. Temper consists mostly of sand and quartzite with occasional crushed sherd. The paste is hard and homogenous. The sherds are generally similar to other known Navajo types, but do not match specific descriptions. Too few are present on the site to suggest a new Navajo variant.

LA 51922

Four sherds were recovered from LA 51922. They were all within 50 cm of one another, and all are body sherds from the same Lino Gray jar. Lino Gray is found at Basketmaker III sites in the area (Danson 1957:68) and has been assigned a date of A.D. 675 to 850 (Hunter-Anderson 1978:31).

NN029023

INTERPRETATION OF FINDINGS

The significance of archaeological sites is not limited by the magnitude of the archaeological remains, but by their potential to produce information. Both sites are small, but have produced data which expand our current understanding of cultural processes in west-central New Mexico.

LA 51922 appears to be a temporary campsite of the Basketmaker III period based on the Lino Gray sherds. The production of biface flakes on the site suggests that hunting activities were carried out on or near the site. The site sits on a low ridge overlooking a broad alluvial plain and an intermittent drainage.

LA 51922 has added to our knowledge of Anasazi use of the region. Pithouses of the Basketmaker III period have been excavated on several of the mesas to the north and west (Bullard 1962; Danson 1957; McGimsey 1980). Later Pueblo I-Pueblo II structures are also well documented in the surrounding area. LA 51922 provides new information about Anasazi practices, including site locations, use of chipped stone and pottery, and site patterning.

LA 8063 is a multicomponent site with occupation occurring probably during the late Pueblo I-early Pueblo II period (A.D. 800-1000) and again in the late 1500s or early 1600s. The ridges forming the site overlook the broad Largo Valley to the east and may have provided a convenient temporary stop for both Anasazi and Navajo peoples. However, site activities could have included hunting, gathering (i.e., pinyon nuts), or sheepherding. The lack of bifacial tools or flakes suggests hunting was not as viable an option as the other two possibilities.

LA 8063 reflects two cultures: Anasazi and Mogollon. The site is typical of many in the region with brown wares, gray wares, and white wares occuring together. It is not clear, though, whether the sherds were deposited during a single or multiple occupations.

Current discussions about the area center on the question of Mogollon versus Anasazi site derivations. Tainter (1980:63-66) takes issue with earlier investigators (Ruppe 1953; Dittert 1959) who believe that the presence of Mogollon brown wares is indicative of Mogollon populations. Tainter, states that a varied ceramic assemblage might instead be suggestive of expanding trade networks, which he relates to fluctuations in the Chacoan interaction sphere. He backs up his argument with burial data which indicate morphological

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continuity between A.D. 750 and 1250. Tainter's propositions may or may not be correct; we need more data in order to define population dynamics, trading spheres, and ceramic sources within the region.

The Mogollon-Anasazi overlap has been noted in many other contact areas in New Mexico--the northern Jornada del Muerto (Oakes 1986), the Sierra Blanca region (Kelly 1984), and the Gran Quivira area (Hayes et al. 1981). The development of methods to unambiguously sort any observed variations and translate them into economic or cultural precepts should be a high priority.

One much-needed area of study concerns the dual ceramic traditions found on many of the sites. Specifically, are the brown wares made from the same clay and temper sources as the gray wares? Petrographic analysis is therefore needed, through which temper and paste variations can be identified and sources isolated.

LA 8063 is significant because of the presence of a Navajo hearth with associated sherds and a late sixteenth or early seventeenth century radiocarbon date. The use of a cut tree stump as a hearth is unusual in the archaeological record, although it may prove not to be unique if burned tree stumps on Navajo lands were examined more carefully than is generally the case.

The uncorrected radiocarbon date of A.D. 1560±90 suggests that Navajo populations were in the Quemado area at this time. The dating of Navajo sites has only recently been undertaken in depth in the region (Stokes and Smiley 1966), and the Navajo entry into New Mexico is poorly documented archaeologically. The earliest available dates place Navajos in the state at about the same time as the Spanish entradas. Oakes (1985:13) notes that the chronological determination of early (pre-1700) Navajo sites is one of the most critical concerns in Navajo archaeology. Yet there has been relatively little research on the issue. The following brief synopsis of Navajo activity in west-central New Mexico provides a contextual framework for the hearth at LA 8063.

First mention of "Apache de Nabajos" in New Mexico is found in the accounts of the Antonio de Espejo expedition of 1582-1583 (Hammond and Rey 1929). Benavides, in the late 1620s (Hodge et al. 1945), describes Navajo occupation in west-central New Mexico as bounded on the south by the Gila Apaches near the Gila River and the Mogollon Mountains. More recent Navajo Land Claim archives (Docket 229) describe the limits of Navajo land as extending from 9 km south of Quemado at the Apache National Forest boundary, west to Flagstaff, Arizona, east to the vicinity of the Rio Grande, and north into southern

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Colorado. By the time of the Pueblo revolt in 1680, Navajos were apparently already in the Acoma, Zuni, and Cebolleta areas (Reeve 1958:213). This is in contradiction to the general belief that Navajos were not present in west-central New Mexico until after the Pueblo Revolt (Schroeder 1963:7).

Mention of Navajos in the region is not made again until the 1720s through the 1750s, at which time they were prevalent at Chacra Mesa, Mount Taylor area, Cebolleta Mesa, Acoma, Laguna, and Zuni (Reeve 1960:200; Schroeder 1963:8; Brugge 1986:1).

Through the 1760s, relations with Navajos were apparently peaceful (Reeve 1960:205), but Navajo raiding on Spanish and Indian settlements near Acoma and Laguna is recorded in 1774 and continued sporadically through 1782. Movement of Navajo populations south from Zuni and the Acoma-Laguna area was confirmed by the beginning of the 1800s, particularly in the Mogollon and San Mateo mountains and in the Datil area (Schroeder 1963:11-12). Navajo Land Claim archives (Docket 229:54) reproduce an 1847 map indicating that the Navajo territory extended into the mountains west of Socorro, with hunting grounds reaching south to the headwaters of the Gila River.

Wozniak (1985:15), in examining Navajo use of the Fence Lake area just north of Quemado, states that in the 1850s the area saw increased Navajo use because of military excursions against Navajos by the American army. Navajos were not in the Quemado area itself, however, because Apaches were nearby in the Gallo Mountains (Schroeder 1974, McNitt 1964).

By 1860 Navajos had moved into the Quemado area as U.S. military campaigns pushed them south of Zuni toward the Mogollon and San Francisco mountains (Wozniak 1985:15). During this time there were continuous reports of raiding by Navajos from this region and also from the Datil Mountains (Schroeder 1974). Apparently there was a large enough Navajo population to inhibit Apache use of the region south of Zuni and north of the Mogollon Mountains (Wozniak 1985:16). Their high numbers in this area may have been the result of attempts to escape confinement at Bosque Redondo. Navajos remain in west-central New Mexico, principally at the Ramah and Alamo Reservations.

Apaches occupied west-central New Mexico at the same time as the Navajo, but were focused more in the area south of Quemado in the Mogollon, San Francisco, and Gila mountains. Early Spanish accounts also place them in the Acoma-Zuni area in the late 1500s. According to Spanish records (Scholes 1942), reports of raiding in this area

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were common throughout the entire sixteenth century. In the early 1800s Spanish excursions observed Apache rancherias in the San Francisco Valley and the Gallo Mountains just south of Quemado; however, no Apaches were seen between the Gallo Mountains and Zuni (Thomas 1932). Apache raiding apparently was minimal up to the mid-1800s; thereafter reports of raiding at Acoma and Zuni were common (Schroeder 1974).

Espinosa (1940) lists four groups of Apaches occupying the region south of Zuni Pueblo by the 1700s. These include the Gilenos, Salineros, Chilinos, and Colorados. Coyotero Apaches are noted for the region after the mid-1800s. After the Navajo confinement at Bosque Redondo in 1868, Wozniak (1956:16) believes that the territory was available for Apache use again, although he believes they had shifted residence further south and only used the Quemado-Fence Lake area for hunting and gathering forays.

Apache raiding was eventually halted by a treaty which limited them to the area south of the Gallo Mountains in 1869, and by the establishment of Fort Tularosa at Aragon in 1872. In 1874 the fort was abandonded and the Apaches moved to Ojo Caliente, Arizona. However, apparently some Apaches remained at large in the Gallo and Mogollon mountains and they were able to slow down Anglo-American settlement of the Quemado area. Not until 1885, when Geronimo was defeated in the Mogollon Mountains, was the region considered safe from Apache attacks by Anglos.

Alliances between Navajos and Apaches were fairly common throughout the eighteenth century. This often included joint raiding from New Mexico into Arizona and Mexico as well as in the Laguna-Zuni areas (Thomas 1932). In the 1700s the Spanish government, fearful of joint attacks, attempted to pit Navajos against Apaches in order to lessen the threat. In 1775, Governor Anza ordered Navajos to accompany him on a punitive foray against the Apaches in the Datil Mountains (McNitt 1972). These Spanish expeditions lasted through 1795 when Zuniga reported seeing Apaches in the Mogollon Mountains (Schroeder 1974).

Navajo and Apache relations were touch and go throughout the 1800s. Navajos were reportedly living among the Apaches in 1806, but at war in 1813 through 1816. Then in 1838, a Navajo-Gila Apache alliance against the Spanish was in effect, followed by the resumption of hostilities in 1852 when Navajos from the Mount Taylor area joined American troops against Apaches (Schroeder 1963:12).

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Remains of Navajo sites in the general Quemado area are mostly found on Mariana Mesa (8 km northeast of Quemado), at Escondido Mountain (14.5 km southeast) and at Slaughter Mesa to the northwest. Many of the sites, recorded through the Navajo Land Claim survey, have been tree-ring dated (Stokes and Smiley 1966). Sites in the Carrizo Wash district, principally at Mariana Mesa, have a mean tree-ring date, derived from 47 samples, of 1586± 128.2. However, only one of these dates is a cutting date at 1535. To the south at Escondido Mountain, the mean tree-ring date for 26 samples is 1782±102.4. The one cutting date from this area is 1833.

If the cutting date of 1535 at Mariana Mesa is accurate, Navajo occupation of west-central New Mexico can be placed at the approximate time of the Spanish entradas. But this date is one of the earliest known for the entire state of New Mexico. We might ask if these could possibly be earlier Athabaskan sites, such as Apachean.

The presence of Apaches in the mountainous country immediately to the south of Quemado at generally the same time periods as the Navajos is significant when assigning sites to either Apache or Navajo. At present, researchers have not been able to satisfactorily identify Apache sites. The retrieval of early tree-ring dates associated with specific site layouts or cultural features could help to delineate the two.

The presence of what is believed to be Navajo pottery currently is used by investigators to identify Navajo sites. However, we cannot unequivocally identify Apache pottery or even determine if there was such an item (see Gifford 1980:163 for a possible exception to this statement). Schroeder (1963:16) believes that Western Apaches, specifically the Coyoteros, did use pottery but did not obtain it until after contact with the Navajos, probably post-1860. This would make all pottery in west-central New Mexico of this type prior to 1860 of Navajo origin. These views have not been subjected to vigorous testing, however. Petrographic analysis of possible Navajo sherds must be undertaken to identify source areas and temper variations. Sherds must be firmly tied in to dated sites and variations in architectural styles, and site layouts need to be identified.

We believe that LA 8063 does represent Navajo use of the site, primarily because of what are thought to be Navajo sherds and the presence of sheep or goat remains in the hearth. However, based on our limited knowledge of what constitutes Navajo pottery, Apache use of the site must be considered.

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CLEARANCE RECOMMENDATIONS

New Mexico State Highway Department construction activity along US 60 in Catron County (Project F-017-1(8)) will disturb two sites, LA 8063 and LA 51922, located within the highway right-of-way. However, the testing program conducted by the Research Section, Laboratory of Anthropology, has collected all surface artifacts from within the right-of-way, tested for subsurface features, dated the sites through radiocarbon analysis, and documented all findings. We believe, therefore, that the two sites to be affected by construction activities have been adequately examined and recorded, mitigating the effects of any construction work within the right-of-way. No further archaeological investigations are recommended.

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