

MUSEUM OF NEW MEXICO

OFFICE OF ARCHAEOLOGICAL STUDIES

THE STATE ROAD 12 ARCHAEOLOGICAL PROJECT: RESULTS OF TESTING AT TEN SITES AND DATA RECOVERY PLAN FOR FOUR SITES NEAR RESERVE, NEW MEXICO

by
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Submitted by
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ARCHAEOLOGY NOTES 118

ADMINISTRATIVE SUMMARY

In August of 1992, the Office of Archaeological Studies (OAS), Museum of New Mexico, tested and evaluated ten locations along State Road 12 west of Reserve. The work was done at the request of the New Mexico State Highway and Transportation Department (NMSHTD). Two of the locations were found not to be sites, and four sites are recommended for no further work. Four sites--LA 39968, LA 39969, LA 39972, and LA 43766--are within the proposed highway project and are recommended for further investigation. All sites and locations but one are on the Gila National Forest. LA 39972 is on NMSHTD and private lands. This report describes the testing at the ten locations and presents a data recovery plan for the four sites.

MNM Project 41.538 (Luna Y North)
NMSHTD Project 88-134, District 6, Catron County Maintenance Project
Gila/Apache National Forest Special Use Permit

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INTRODUCTION

by Regge N. Wiseman

In early 1992, the New Mexico State Highway and Transportation Department requested that the Office of Archaeological Studies, Museum of New Mexico, test and evaluate ten archaeological sites located along State Road 12 west of Reserve, Catron County, New Mexico (Fig. 1). The field work was conducted in August of 1992 by R. N. Wiseman. All sites and locations but one, LA 39972, are on the Gila National Forest. LA 39972 is private and the highway right-of-way was acquired from private sources. The results are:

1. Portions of six sites -- LA 39968, LA 39969, LA 39972, LA 39974, LA 39982, and LA 43766 --lying within the project area, possess the potential for producing further information important to the prehistory of the region;
2. Portions of LA 39970 and LA 39971 lying within the project area lack the potential for producing further important information;
3. Two locations, LA 39977 and LA 69064, were determined not to be cultural resources.

On December 10, 1992, a field consultation was held with NMSHTD and U.S. Forest Service staff to discuss the highway project needs with respect to the six sites having further research potential. As a result of these discussions, LA 39974 and LA 39982 will be fenced and avoided during highway construction. The remaining four sites cannot be avoided.

This document is divided into two sections, (1) the results of the testing phase, and (2) a data recovery plan for four sites: LA 39968, LA 39969, LA 39972, and LA 43766.

Physical Environment

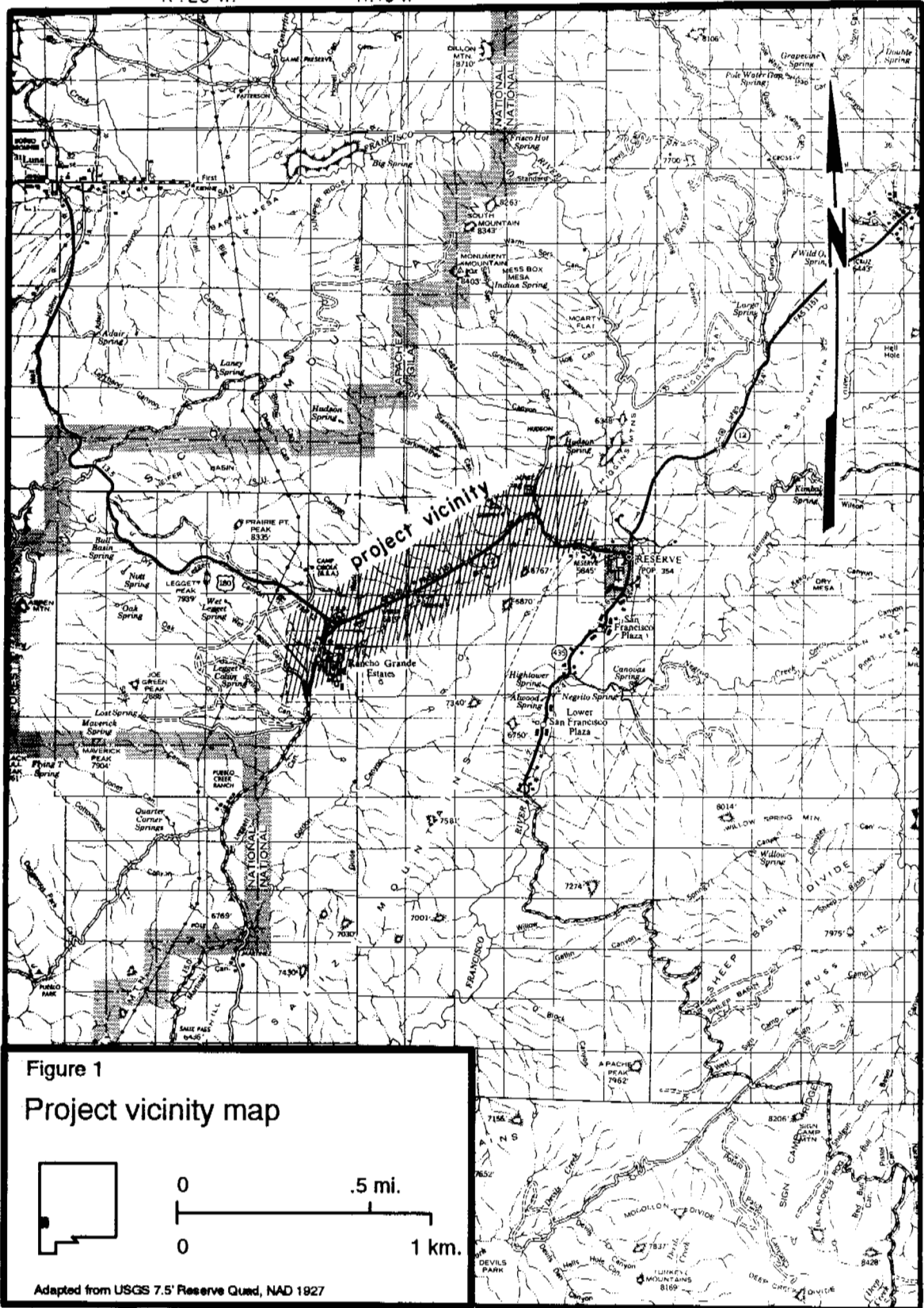
The climate of the Reserve area is characterized by warm summers and cool winters. Modern recorded temperatures range from a January average of 1 degree Centigrade to a July average of 24 degrees Centigrade. Modern recorded precipitation is slightly summer dominant with an annual average of 350 to 380 mm and a growing season (May-September) average of 193 mm (Gabin and Lesperance 1977). The average frost-free period is 120 to 140 days (Tuan et al. 1973:87).

Because the project area is situated well within the mountains and these areas are notorious for high variability from valley to valley, depending on a number of factors, it is instructive to compare the modern recorded temperatures and precipitation with nearby areas. Three areas--Aragon, Luna, and Glenwood--were chosen on the basis of proximity, direction from Reserve, high prehistoric population, and length of weather records. All three stations are in the San Francisco River system.

The temperature/precipitation curve for Aragon, located 30 km northeast of Reserve, is most like that at Reserve (Fig. 2). The major differences are that Aragon is drier during the

R. 20 W.

R. 19 W



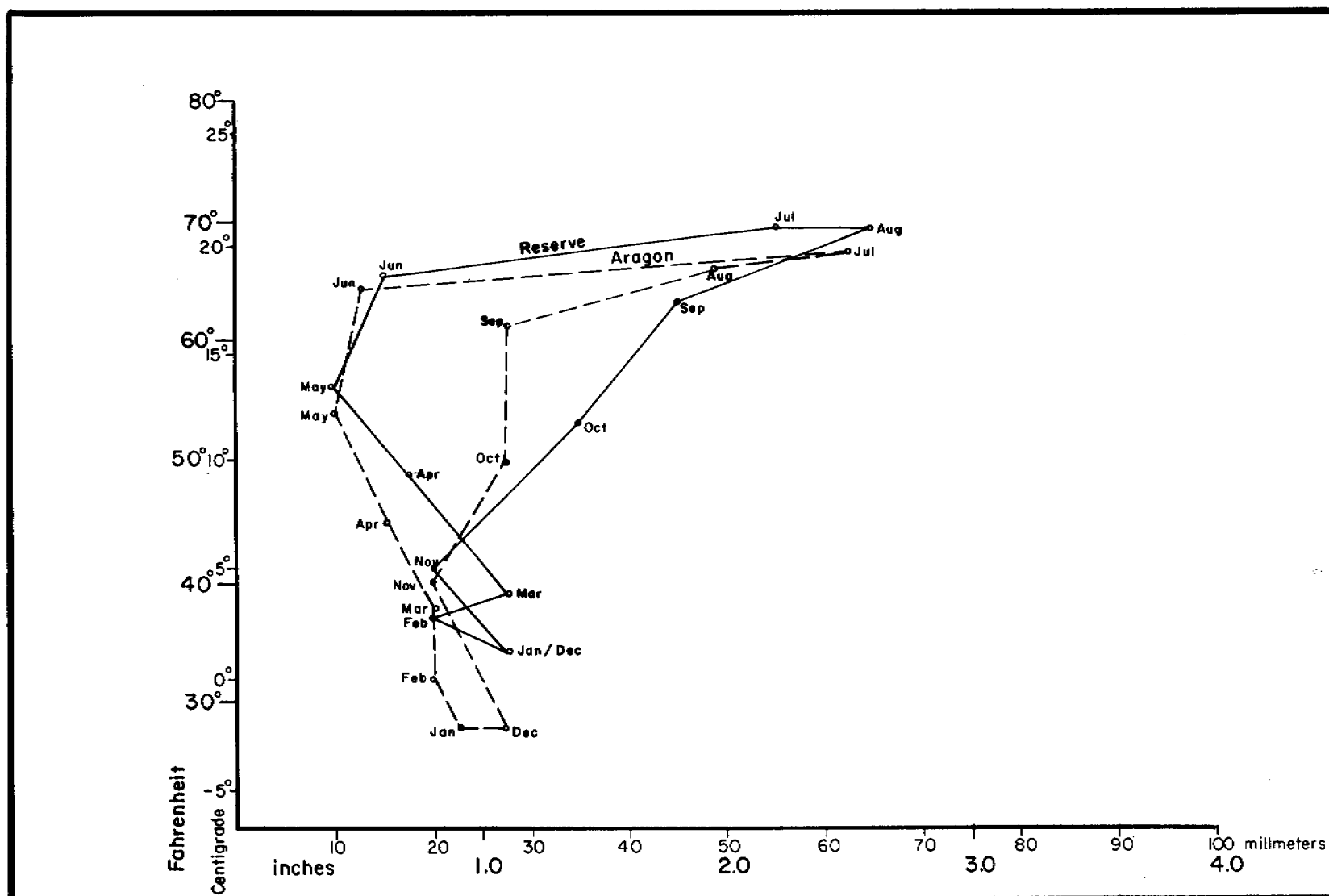


Figure 2. Comparison of temperature/precipitation curves for Reserve and Aragon.

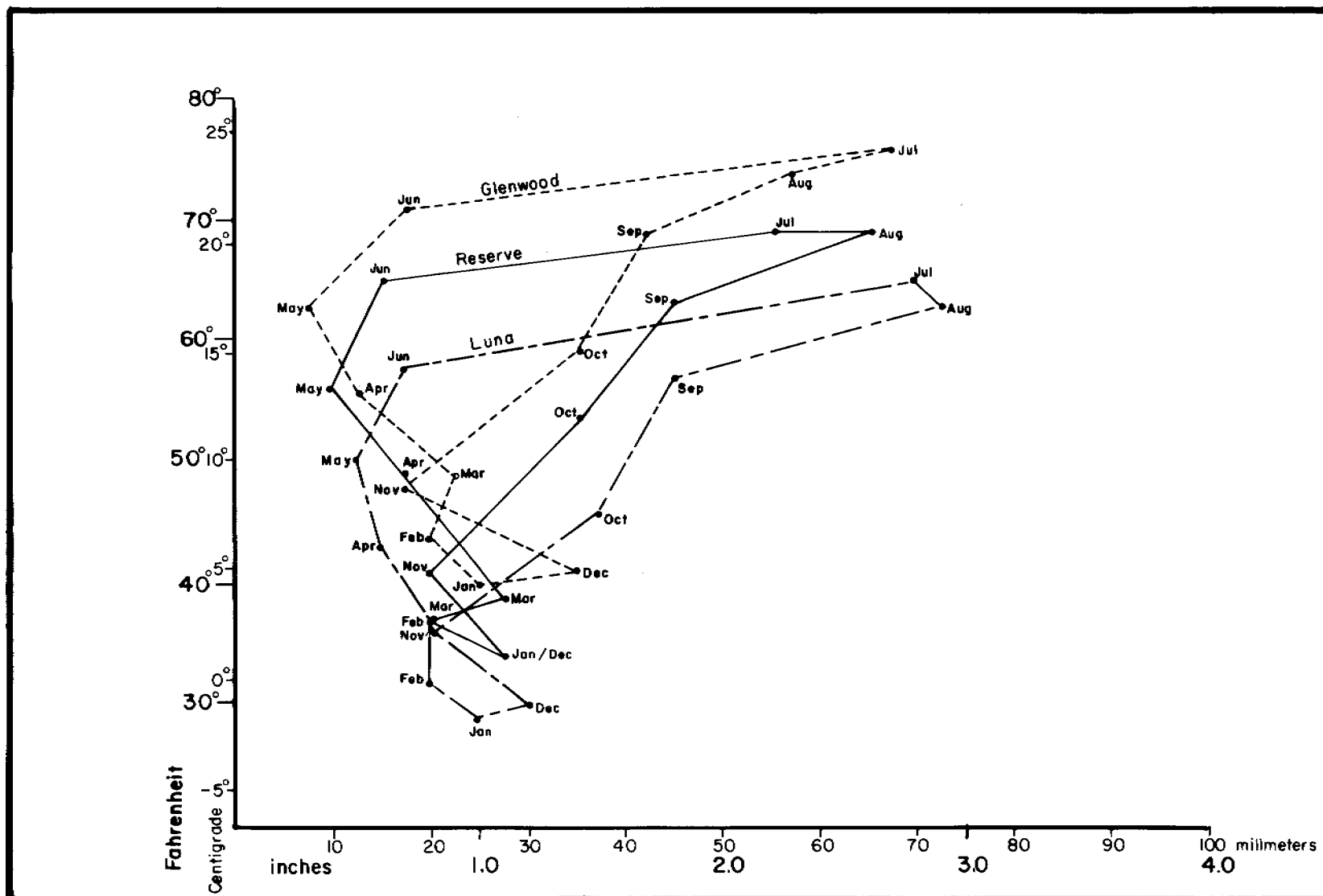


Figure 3. Comparison of temperature/precipitation curves for Glenwood, Reserve, and Luna.

growing season (May-September), and winter temperatures are lower. The curve for Luna, located 25 km northwest of Reserve, is also like that at Reserve (Fig. 3) but differs in that Luna is both wetter and cooler during the growing season and colder during the winter. The curve for Glenwood, located 45 km south of Reserve, differs from Reserve in that Glenwood is generally warmer year-round. Interestingly, the yearly average precipitation for Reserve and Glenwood are nearly the same and are closer than any of the other stations. Yearly average annual precipitation at the four stations is: Aragon, 320 mm; Glenwood, 365 mm; Reserve, 370 mm; and Luna, 390 mm.

Topographically, the project sites lie on the dissected first terrace along the northwest side of the SU Canyon. The SU Canyon is an intermittent stream that empties into Starkweather Canyon just above its confluence with the Tularosa River. The Tularosa River is a major tributary of the San Francisco-Gila-Colorado River system. The SU Canyon lies between two long, parallel mountain ranges, the San Francisco Mountains to the northwest and the Saliz Mountains to the southeast. Elevations in the project area range between 1,975 m at the southwest end and 1,850 m at the northeast end of the canyon (U.S. Geological Survey 1965).

The surface geology of the SU Canyon bottom is Quaternary alluvium. That of the gravel terraces on which the sites are located is Gila Conglomerate. Outcrops in the San Francisco and Saliz ranges include andesite, basaltic andesite, welded and crystal rhyolite tuffs and breccias, and volcanic boulder beds and coarse clastic rocks, all of the Datil Formation (Dane and Bachman 1965).

Two major soil associations are represented in the area--the San Mateo-Shanta and the Campico-Tampico-Mirabal. San Mateo-Shanta soils are primarily deep alluvial soils of the major valley bottoms. Campico-Tampico-Mirabal soils are shallower soils of the terraces and rolling topography between the main valley bottom and the bases of the mountains (Maker et al. 1972).

The project area lies within the ecotone of the juniper-piñon woodland of the lower elevations and the pine-Douglas fir forest of the mountains. Dominant plant species in the vicinity of the sites include piñon pine, juniper, ponderosa pine, and various grasses (Kuchler 1965). Today, the primary vegetation pattern is parkland, with open grassy areas in the valley bottoms and on gentle slopes on terrace tops, interspersed among ribbons and stands of trees. The riparian community along the main canyon supports cottonwood, willow, and box elder.

Animals that would have been important to the prehistoric peoples of the Reserve region include black bear, elk, mule deer, white-tailed deer, collared peccary, jackrabbit, and cottontail (Findley et al. 1975).

Cultural Setting

The following section has been taken in its entirety from Oakes (1989). A minor modification--placing the Paleoindian, Archaic, and Mogollon culture sequences in Table 1--has been made to facilitate reference.

Table 1. Paleoindian, Archaic, and Mogollon Sequences Followed in This Report

Culture, Phase, and Authority	Dates
<i>Paleoindian Period</i> (see text for citations)	9500 - 6000 B. C.
Cochise Archaic Period (Irwin-Williams 1979)	9000 B.C. - A.D. 200
Stages: Sulphur Springs (gap) Chiricahua San Pedro	9000 - 6000 B.C. 6000 - 3500 B.C. 3500 - 1000 B.C. 1000 B.C. - A.D. 200
Reserve-Mogollon Period (Berman 1979)	150 B.C. - A.D. 1350
Phases: Pine Lawn Georgetown San Francisco Three Circle Reserve Tularosa	150 B.C. - A.D. 500 A.D. 500 - 700 A.D. 700 - 900 A.D. 900 - 1000 A.D. 1000 - 1100 A.D. 1100 - 1350

Paleoindian Period (9500-6000 B.C.)

Paleoindian sites are characterized by a hunting economy that focused on late Pleistocene faunal species. Because of changing environmental conditions, faunal populations gradually changed also, causing a shift in Paleoindian subsistence resources. This change has been noted as early as 8000 B.C., when Paleoindian peoples used a broad variety of floral and faunal species (Chapman 1980:11-12).

No Paleoindian sites have been located within the project area. Sites have been located on the Plains of San Agustín, 45 km to the east (Hurt and McKnight 1949; Bussey and Beckett 1974). Two other late Paleoindian sites have been recorded near Quemado (Honea and Benham 1963; Eck 1982). Paleoindian collections have been made by ranchers in the area. These include Clovis points (9500-9000 B.C.) and Cody-complex points (7000-6000 B.C.).

Finding Paleoindian sites in montane areas, such as the project area, is rare. Some sites, however, have been found in the Sangre de Cristo Mountains to the northeast and at high elevations in Colorado. Most such sites are located in deflated sand dunes at the edges of playas. Isolated diagnostic projectile points are also found in this setting.

Archaic Period (6000 B.C.-A.D. 200)

Archaic populations were mobile hunters and gatherers who used a broad variety of wild resources on a seasonal basis. Sites are characterized by distinct projectile point styles, increasing use of ground stone, and the presence of fire-cracked rock (Kayser 1988:3-4). During the Late

Archaic period, there is evidence for the use of cultigens from plant remains and the increased use of ground stone.

Archaic sites occur in a variety of elevational and topographic zones: deflated blowouts, above edges of former lake terraces, along arroyo banks and streams, near springs, and in the high mountains of Gila National Forest (Berman 1979:18, 21). Recorded sites include rock shelters, caves, lithic artifact scatters, and one pithouse site. Occupied caves include Tularosa Cave (Martin et al. 1952), O Block Cave (Martin et al. 1954), and Bat Cave (Dick 1965). The open pithouse site is Wet Leggett, adjacent to the project area and recorded by Martin and Rinaldo (1950b).

Beckett (1973) thought that cave sites were used for winter occupation, while lower-elevation dune sites were used from spring through fall. Heller (1976:56), however, found some young faunal specimens at Tularosa Cave, suggesting a possible late summer or early fall occupation. Other researchers have disputed Beckett (1973), arguing that winter sites were occupied at the lower elevations, while summer sites were located in the mountains (Davis 1963; Hunter-Anderson 1986).

Two Archaic cultural traditions are known in the general region: Cochise and Oshara. The two traditions are distinguished basically by projectile point style and geographic distribution. The Cochise is considered to be the basis for the later Mogollon culture in southwest New Mexico, while the Oshara tradition is associated with the Anasazi in northern New Mexico. Boundaries between the two are vague. The Oshara sites date from 5500 B.C. to A.D. 600 based on six separate stages devised by Irwin-Williams (1973). No sites of this type have been found in the study area.

The Cochise tradition was originally considered a manifestation of the Desert culture as found in southeastern Arizona (Sayles and Antevs 1941). It has long been thought to include three stages: Sulphur Springs (7500-3500 B.C.), Chiricahua (3500-1500 B.C.) and San Pedro (1500-ca. 200 B.C.). Irwin-Williams (1979) has broadened these dates and left a major gap between the Sulphur Springs and Chiricahua phases. Her chronology is Sulphur Springs (9000-6000 B.C.), Chiricahua (3500-1000 B.C.), and San Pedro (1000 B.C.-A.D. 200). Sayles (1983) fills the gap with the Cazador phase (7000-6000 B.C.). The Cazador phase, however, may only be valid for Arizona. No sites dating to the early Sulphur Springs phase have been found in New Mexico. Hogan (1985:9) suggests that Archaic populations did not occupy the mountains of the study area until late in the Chiricahua phase, about 3500 B.C.

Several sites of the Cochise tradition have been dated through radiocarbon analysis. A date of 2556 ± 680 B.C. has been obtained for Wet Leggett Arroyo site (Martin et al. 1949); 3981 ± 310 B.C. for the Chiricahua component at Bat Cave (Dick 1965:105); and 273 ± 200 B.C. for corn from the San Pedro phase at Tularosa Cave (Martin et al. 1952:500). These dates are uncorrected.

As a result of his investigations at Bat Cave, Dick (1965) suggested that maize was present in this area as early as 3500 B.C., in the early Chiricahua phase. Later research has questioned the association of the early date with the maize (Berry 1982; Minnis 1985; Wills 1988). Maize does not appear again in the archaeological record in the study area until ca. 1250 B.C. at Tularosa Cave (Martin et al. 1952).

The Archaic period ends with the introduction of pottery into the subsistence system. No explanation for the adoption of this significant material is usually offered (Hunter-Anderson 1986), although the use of ceramics corresponds with storage and later soaking and boiling of horticultural products for winter use as populations became less mobile.

Mogollon Period (ca. A.D. 200-1350)

The Mogollon culture developed out of the Archaic Cochise tradition in southwestern New Mexico and southeastern Arizona. The transition between the two is generally marked only by the appearance of brown ware pottery. In the Mogollon period, we see the use of pithouse dwellings with a gradual shift to masonry above-ground structures, ceremonial units, and an increasing use of cultigens. Reasons given for these adaptations vary from increasing population pressure to restricted mobility to environmental stress.

The use of various taxonomic designations to describe cultural development in the Mogollon area is somewhat confusing. We shall follow the lead of Berman (1979), who expands the original taxonomic system that Haury (1936) devised specifically for the Pine Lawn Valley. Phase classifications are Pine Lawn (ca. 150 B.C.-A.D. 500), Georgetown (A.D. 500-A.D. 700), San Francisco (A.D. 700-A.D. 900), Three Circle (A.D. 900-A.D. 1000), Reserve (A.D. 1000-A.D. 1100), and Tularosa (A.D. 1100-A.D. 1350). We understand that there may be problems in assigning sites to rigid phases or time frames, and these difficulties will be examined as we pursue further study in the area. Some researchers classify sites as Pithouse phase or Pueblo phase, with a break after the Three Circle phase at approximately A.D. 1000. LeBlanc (1976) therefore considers Pithouse sites as Early (Pine Lawn-Georgetown) or Late (San Francisco-Three Circle). Sites of all Mogollon phases have been recorded within the Gila/Apache National Forest.

Early Mogollon sites of the Pine Lawn and Georgetown phases that have been excavated either within or near the project area include Luna Junction (Peckham 1963), Mogollon Village (Haury 1936), Pine Lawn Camp Pithouse (Rinaldo n.d.), Promontory (Martin et al. 1949), Starkweather Ruin (Nesbitt 1938), the SU site (Martin 1943; Martin and Rinaldo 1947), Three Pines Pueblo (Martin and Rinaldo 1950a), and Turkey Foot Ridge (Martin et al. 1949; Martin and Rinaldo 1950a). The SU site, which lies about 200 m east of the project area, is currently being reexamined by W. H. Wills and the University of New Mexico field school program.

Pithouses during this time indicate both year-round and seasonal use (Lightfoot and Jewett 1986). An attempt to explain these variations in terms of mobility patterns is provided by Hunter-Anderson (1986).

Most early Mogollon sites tend to be in elevated areas such as mesa tops, knolls, ridges, and hilltops. Berman (1979:30) argues that these areas may not necessarily have been selected as defensive locations, but rather for accessibility to water or arable land, protection from flooding, presence of good drainage, or a commanding view of the area. By the San Francisco and Three Circle phases, there is a general shift in site locations to more accessible ridges or terraces, and closer to floodplain areas. Berman (1979) suggests that this may indicate increasing dependence on agriculture. Sites of the San Francisco and Three Circle phases that have been examined within or near the project area include Hillside Pueblo (Peckham 1958), Oak Springs Pueblo (Martin et al. 1949), the Sawmill site (Bluhm 1957), South Leggett Pueblo (Martin and

Rinaldo 1950b), Starkweather Ruin (Nesbitt 1938), the Switchback site (Peckham 1957), Three Pines Pueblo (Martin and Rinaldo 1950b), Wet Leggett Pueblo (Martin and Rinaldo 1950b), and Y Canyon Cave (Martin et al. 1954).

Most researchers state that pithouse sites are randomly laid out with a lack of formal planning (Bullard 1962; Berman 1979; Kayser 1988). Lightfoot and Jewett (1986), however, believe they have isolated a pattern described loosely as circular house clusters around a central ceremonial or social unit. Early pithouses tend to be round (a few are bean-shaped), with a variety of post-support patterns. By the San Francisco phase, houses are generally more square. Entryways range from long and narrow to short and wide and are often stepped; however, there is no consistent doorway alignment. The size of the pithouses varies from site to site. The largest structures (about 30 sq m) occur during the Pine Lawn phase and decrease in size thereafter. Early ceremonial units are frequently larger pithouse types. Extramural hearths, storage pits, and burials are frequently found on pithouse sites.

Mogollon ceramics make their first appearance during the Pine Lawn phase, and their presence on these sites is usually sparse. Initial pottery consists of a plain brown ware called Alma Plain with an Alma Rough variant, followed soon after by San Francisco Red. Smudged wares are prevalent by the San Francisco phase along with Three Circle Red-on-white. By the late Three Circle phase, Reserve Black-on-white begins to appear (Berman 1979).

Subsistence adaptations during these Mogollon pithouse phases include the procurement of wild game and plants and raising maize, kidney beans, squash, and various gourds.

By the Reserve phase (ca. A.D. 1000) pithouse dwellings give way to above-ground units. Sites of the Reserve phase that have been excavated within or near the project area are Hillside Pueblo (Peckham 1958), Oak Springs Pueblo (Martin et al. 1949), the Sawmill site (Bluhm 1957), South Leggett Pueblo (Martin and Rinaldo 1950b), Starkweather Ruin (Nesbitt 1938), Switchback site (Peckham 1957), Three Pines Pueblo (Martin and Rinaldo 1950b), Wet Leggett Pueblo (Martin et al. 1950), and Y Canyon Cave (Martin et al. 1954).

During the Reserve phase, site density was at a peak. Sites also extended further into previously unoccupied areas and at generally lower elevations. Sites were found on benches or terraces above drainages and on low mesas, hills, and valley floors.

In this phase, we see the appearance of above-ground masonry habitation sites. These usually consist of an L-shaped series of contiguous rooms. Units of three rooms or less are generally considered fieldhouses, while permanent residences may contain up to 30 rooms. Jacal structures are present but seem to be uncommon.

Black-on-white ceramics become common during this time. These include Reserve Black-on-white, Tularosa Black-on-white, and Mimbres Classic. Mogollon black-on-white ceramics have been seen as an imitation of Anasazi practices, although recent research suggests that such pottery developed locally (Minnis 1981).

The latest Mogollon period sites in this part of southwest New Mexico are assigned to the Tularosa phase. Sites of this time frame that have been excavated within or near the project area are Higgins Flat Pueblo (Martin et al. 1956), Hough's Site 69 (Wendorf et al. 1963),

Starkweather Ruin (Nesbitt 1938), and the WS Ranch site (Neely 1978).

Sites of this period are larger than those of preceding phases; however, there are fewer of them, suggesting a consolidation of smaller villages into centralized communities. Site locations apparently do not vary from those of the Reserve phase. Sites range from one or two rooms to multistoried structures of over 100 rooms. Sites generally consist of 20 to 25 masonry rooms. The ceramic assemblage includes Tularosa Black-on-white, Tularosa White-on-red, and St. Johns Polychrome (a late manifestation). What is considered the primarily agricultural population of this period also exploited wild resources.

A gradual abandonment of the Mogollon area began around A.D. 1300. Rice (1975) believes the first abandonments occurred along minor drainages, in narrow valleys, and at the higher elevations above 2,100 m (7,000 ft). The Pine Lawn Valley, with the exception of Starkweather Ruin, was actually abandoned earlier, by the close of the Reserve phase. The San Francisco River area near Luna contains sites dating up to the early Tularosa phase. After ca. A.D. 1350, the Gila National Forest seems to have been completely abandoned until the arrival of the Apaches. Local Mogollon peoples may have migrated north to the Zuni area (Bullard 1962:9; Hogan 1985:11).

Apache and Spanish Periods (ca. 1600-1880)

This section is derived primarily from Wozniak (1985). By the end of the sixteenth century and throughout the seventeenth century, the pueblos of Zuni and Acoma, to the north of the project area, were frequently raided by Apaches from the mountains in the Mogollon area (Scholes 1942). The exact location of Apache strongholds is unknown. Spanish records suggest there were four Apache groups centered south of Zuni (Schroeder 1974). One of these, the Chilinos, occupied the area in and around the San Francisco Mountains. Apaches remained in the area throughout the first half of the eighteenth century.

In 1747, a Spanish expedition reached the Zuni area by way of the San Francisco and Gila rivers (Thomas 1932). The expedition, under Bernardo de Miera, reported Apache rancherías in the San Francisco Valley. By the 1780s, Apaches and Navajos had become allies and made joint raids in Arizona and northern Mexico. In 1788, a Mexican punitive expedition headed north from Sonora, Mexico, and reported the presence of Apaches in the San Francisco Mountains (Thomas 1932). Another incursion from Sonora to Zuni in 1795 traversed the San Francisco and Gila rivers and again noted the presence of Apaches in these mountains.

There are no further accounts of Apaches in this area until the late 1850s. The Apaches seemed to have focused much of their attention south on Chihuahua and Sonora. However, in 1857 Apaches raided farmsteads near Zuni and returned to the San Francisco River area (Schroeder 1974).

Navajo refugees were reported living south of Zuni by 1859. In 1860, a U.S. military campaign drove Navajos into the San Francisco and Mogollon mountains. Navajos remained in the general area until the establishment of the Navajo Reservation in 1868. This left the region open to the Apaches. In 1869, a treaty with the U.S. government supposedly confined the Indians to an area south of the Gallo Mountains. Between 1872 and 1874, various Apache

groups were sent to a reservation along Tularosa Creek (Fraser 1965). But in 1874, Fort Tularosa, built to protect government officials against attack in 1872, was abandoned because the Apaches were moved to Ojo Caliente, Arizona. Through the remainder of the 1870s, Apache outbreaks continued. The defeat of Geronimo in 1885 ended Apache dominance of the Mogollon region.

Historical Period (1874-Present)

Once the Apache were removed to a reservation in Arizona in 1874, the Mogollon area became attractive to settlers from other regions. In that year, several families from Socorro settled at the Lower San Francisco Plaza, south of present-day Reserve. They were soon joined by soldiers and their families from Fort Tularosa, who settled at Upper San Francisco Plaza. By the 1880s, settlement of the region was spurred by the construction of railroad lines throughout New Mexico and the resulting higher prices for sheep and cattle. In fact, there was a cattle and land boom in the general area around Quemado, culminating in the formation of large land and cattle companies. Severe winters and long droughts led to economic decline in the late 1880s and early 1890s. Smaller ranching and herding holdings developed after the decline and are the primary economic force in the area today.

Previous Archaeological Investigations in the Region

A plethora of large and small academic research and CRM (cultural resource management) projects have been undertaken in Catron County since the turn of the century. Hundreds of sites have been found and recorded and several dozen from all time periods (except Paleoindian) have been tested or excavated. Several synthetic reports are relevant to the region, including Wheat (1955), Bullard (1962), Berman (1979), and Stuart and Gauthier (1981).

Archaeological work began with the investigations of Walter Hough in the upper Gila and Salt river drainages (1907, 1914). His work in the region culminated with the publication of his excavations at Luna Pithouse Village (1920).

A decade or so later, Emil W. Haury of Gila Pueblo conducted surveys and excavations in the Reserve and Silver City areas. This work resulted in Haury's formulation of the concept of the Mogollon Culture (1936), the validity of which was debated for years. About the same time, Paul Nesbitt of Beloit College excavated Starkweather Ruin at Reserve (1938).

The most substantive work was conducted by Paul S. Martin and his colleagues from the Field Museum of Natural History of Chicago. Starting in the late 1930s and continuing well into the 1950s, this team excavated numerous prepottery, pithouse, pueblo, cave, and open sites in west-central New Mexico and just across the line in Arizona (Martin 1943; Martin and Rinaldo 1940, 1947, 1950a, 1950b; Martin et al. 1949, 1952, 1954, 1956, 1957, 1961; Bluhm 1957, 1960; Rinaldo 1959, 1964; Rinaldo and Bluhm 1956). Their work provides one of the best documented sequences anywhere in the Southwest.

Starting in the late 1940s, the Peabody Museum of Harvard University initiated a long-term program of survey and excavation in the Quemado area (Brew and Danson 1948; Danson 1957; Smith 1950; McGimsey 1951). The work focused on preceramic and pottery period sites (Bullard 1962; Danson 1957; Dick 1965; McGimsey 1980; Smith 1973).

Starting in the 1950s, the New Mexico State Highway and Transportation Department and Museum of New Mexico began the nation's first highway salvage archaeology program with several projects along N. M. Highway 12 and a side road along the Tularosa River between Reserve and Aragon (Peckham 1957, 1958; Peckham et al. 1956; Schroeder 1954; Schroeder and Wendorf 1954). About this time work was also undertaken in sites along U. S. Highway 180 south and west of Reserve (Peckham 1963; Wendorf et al. 1963). The sites excavated on these projects date to the Pithouse and Pueblo periods.

This was followed in the late 1960s and 1970s with work along N. M. Highway 32 between Apache Creek and Quemado (Allen 1969; Kayser 1972a, 1972b, 1973, 1976; Kayser and Dart 1977). Numerous pithouse, pueblo, and water distribution/diversion sites were investigated during these projects. Improvements to U. S. Forest Service Road 93 at nearby Gallita Springs resulted in the excavation of several pottery period sites (Kayser et al. 1975).

The resumption of highway building activities in the late 1980s and early 1990s saw the excavation of several sites along U. S. Highway 180 between Saliz Canyon and Luna (Oakes 1989, 1990, 1991). Sites dating from the Middle Archaic through the Historic periods were investigated.

Investigations concerned primarily with Paleoindian and Archaic have centered for the most part on the Plains of San Agustín in east-central Catron County (Bussey and Beckett 1974; Beckett 1980; Hurt and McKnight 1949). Some of the previously mentioned projects have also studied important early sites (Dick 1965; Martin et al. 1949, 1952).

TESTING AND EVALUATION PROGRAM

by Regge N. Wiseman

From August 10 through August 28, 1992, a three-person team from the Office of Archaeological Studies, Museum of New Mexico, tested ten cultural resource locations along State Road 12 between Reserve and the Luna Y, Catron County (Fig. 21, Appendix 2, removed from copies for general circulation). Because the sites lie partly or wholly within areas of proposed improvements to S.R. 12, they had to be evaluated for project planning purposes. The proposed highway project will be confined to the existing right-of-way. The field work was supervised by R. N. Wiseman of the OAS staff.

The archaeological testing and evaluation project was performed under special use permit from the Gila National Forest and Archaeological Excavation Permit SE-83 from the Historic Preservation Division, Office of Cultural Affairs, State of New Mexico.

In a few cases, the testing activities differed somewhat from those outlined in the permits. Increased familiarity with the sites during the testing period altered our perception of the data needs, and hence, of the specific data-gathering techniques employed at specific sites. These are described in the following section. The field procedures used were the same at all sites except as noted.

Locating, Marking, and Collecting Surface Artifacts

1. On most sites, the three-person team walked transects parallel to the right-of-way, closely observing the ground, and placing a pinflag next to each artifact found; in vegetated areas, the stems of the grass and herbaceous growth were moved aside to look for artifacts. The entire area of the site within the right-of-way was searched in this manner.
2. At two of the pueblo sites (LA 39968 and 39969), transects of 1-by-1-m squares were selected to illustrate the densest concentrations of artifacts. Pine-needle duff was a major problem and resulted in the inclusion of a number of transect squares in which no ground surface could be observed.
3. The surface of one site (LA 39974) was covered entirely with pine-needle duff, requiring the team to push the duff aside in rows to permit observation of the surface. This was done by foot to avoid scraping the dirt and thereby pushing artifacts aside as well.
4. Both projectile points found on site surfaces were collected; diagnostic pottery sherds were noted as to type but were *not* collected (but see under Test Pits).

Site Grid

1. Datum: a 2-ft length of ½-inch iron rebar was driven into the ground to a depth of 20 inches to serve as datum; the rebar was usually placed close to the base of a fence post to allow for easy relocation and protection from accidental dislodgment. All datums were left in the field at the end of the testing and evaluation period.
2. Primary Baseline: the existing highway right-of-way fence was used as the primary baseline; in all cases the fences were relatively new wire tightly strung on metal posts. Since NM Highway 12 throughout the project area is oriented north-south or some degree of northeast-southwest, the arbitrary convention of grid north, rather than the use of magnetic or true north, was used. The northeast corner of each 2-by-2-m square designates the grid.
3. Perpendicular Baselines: these were established by using 50-m tapes to triangulate the lines at right angles to the main baseline (fence); as many lines as necessary were established to circumvent trees and bushes. Chaining pins were placed at 2-m intervals along the baselines. Strict accuracy was maintained in the establishment of the perpendicular baselines and the placement of the chaining pins.

Division of the Grid for Artifact Inventory and Auger Test Placement

1. For Counting Artifacts: division of the grid into 2-by-2-m squares was accomplished by stretching two 50-m tapes at 2-m intervals between the perpendicular baselines; individual squares were demarcated by placing 3-m tapes at 2-m intervals across the 50-m tapes; pinflagged artifacts could then be counted by square;
2. For Auger Test Placement: a 50-m tape was stretched between the perpendicular baselines, and test locations were placed adjacent to the selected meter marks. Most auger locations were within 30 cm of the meter marks, but in some cases, shallow obstructions led to a successful test being as far as 50 or 60 cm from the meter mark.

Auger Tests

A 3-inch, hand-operated bucket auger was used for all auger tests. All fill was screened through ¼-inch wire mesh into a large plastic bucket. Frequent measurements were taken to establish the depths from which artifacts were recovered. All artifacts recovered during augering were collected. Notes were kept on the nature, changes, and cultural content of the soil and stratigraphy encountered in each sleeve of each test. All auger tests were backfilled.

Test Pits

1. Method: test pits were excavated by troweling, and all fill was screened through ¼-inch wire mesh. Arbitrary topographic levels (levels that conform to the contour of the surface of each square) of varying thickness (5, 10, or 15 cm) were excavated according to the individual situation. All test pits were backfilled.
2. Treatment and Evaluation of Rocks: all large and medium size rocks were left in place during the excavation of a given level and evaluated for their potential as in situ wall stones. Those with potential were left in place throughout the excavation for a final assessment once the excavation of the pit was completed. Small rocks were removed after the assessment of each level in order to facilitate continuation of the excavation.
3. Artifacts: all artifacts from the surface and levels of each test square were collected and bagged by provenience.

Mapping

Stringent accuracy in the measurement of distances, triangulation of perpendicular baselines, and placement of the chaining pins permitted mapping from the grid.

SITE DESCRIPTIONS

by R. N. Wiseman

LA 39968, Spurgeon Draw Site - Gila National Forest

Site Description

Three small *cimiento* room blocks surround a large pit structure depression in a site with a core area of 144 sq m and an overall site area of 3,990 sq m (70 by 57 m) (Fig. 4). *Cimiento* refers to walls with cobble bases and upper portions of mud-daubed poles or similar flimsy construction. Archaeologically, *cimiento* structures are denoted by cobble-outlined rooms with little or no mounding inside. Two of the room blocks, most of the pit structure depression, and at least 100 sq m of core area trash lie within the existing right-of-way.

Testing Activities

Surface Artifact Inventory: (a) all artifacts were pinflagged and counted within three transects of 1-by-1-m squares placed both east and west of the structures; the surface artifact density was calculated. **Note:** A number of the inventory squares were covered with pine-needle duff that obscured the ground surface and precluded the location and inventory of surface artifacts; these squares have been omitted from the artifact density calculations. (b) The temporally significant sherds were recorded.

Auger Tests: five lines of auger tests (at 2- and 3-m intervals) were excavated both north and south of the structures (total of 33 holes) to determine the depth and nature of the trash. The fifth line of tests on the northeast side of the site examined a possible structure depression.

Results

Surface Artifact Inventory: (a) the inventory squares southwest of the structures average 17.69 artifacts per sq m, and those northeast of the structures average 3.29 artifacts per sq m (Fig. 4). Although the northeast side of the site has more surface cover in the form of pine-needle duff, the surface artifact density is clearly lower than that southwest of the structures; (b) the majority of the sherds are from utility types, including Alma Plain, Reserve Corrugated, and Tularosa Patterned Corrugated(?); the painted sherds include Reserve and/or Tularosa Black-on-white, and St. Johns Black-on-red or Polychrome.

Auger Tests: (a) with two exceptions, the artifacts recovered by the auger tests came from within 30 cm of the ground surface, indicating that the trash deposits within the right-of-way are shallow (Fig. 4); the two exceptions (a core and a large potsherd from a depth of 45 to 65 cm) came from two auger tests that also had subtle stratigraphic anomalies, suggesting the presence of a buried feature located at grid point 48N/4W; (b) on the southwest side, the deposit of surface and subsurface artifacts is well concentrated and evidently does not extend beyond the 0N (zero-north) line. On the northeast side, the trash is thinly spread and its density tapers off so gradually that

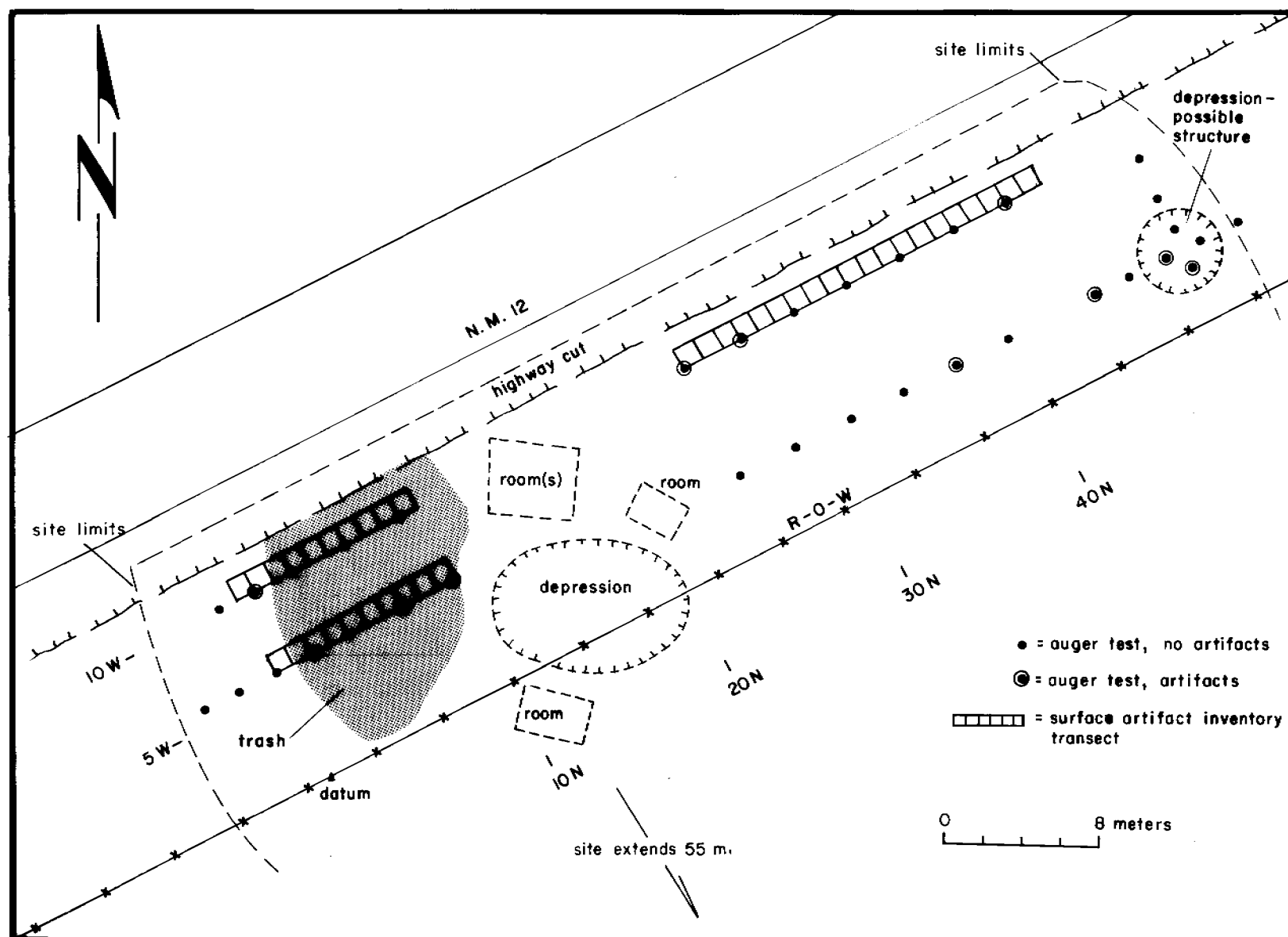


Figure 4. LA 39968 surface artifact inventory and auger tests.

definition of the site boundary in this direction is impossible.

Evaluation

The small pueblo, pithouse/kiva depression, and trash areas are in good condition and are relatively undisturbed in their current state. It seems likely from the positions of the various features relative to the existing highway and roadcut that part of the site was removed several decades ago. Thus, the pueblo and trash areas are adjacent to the roadcut, and any off-highway movement of vehicles or removal of earth at this location will involve the site.

LA 39969, Haury's Site (Reserve 5:15 [GP]) - Gila National Forest

Site Description

This site was recorded in 1980 as one small pueblo and three one-room structures with a core area of 500 sq m and an overall site area of 4,270 sq m (76 by 55 m) (Fig. 5). The small pueblo has an estimated three to four rooms. Wall alignments can be seen on the surface of the small pueblo. The three "rooms" are rock outcrops on a steep, rocky slope south of the small pueblo; they are natural, not cultural, and were not tested. The small pueblo lies entirely within the existing right-of-way. The refuse area lying east and southeast of the pueblo lies partly inside the right-of-way. Two highway drainages from the roadcut immediately south of the site have cut 1-m-deep arroyos that pass on either side of the room block and cut into the refuse area within the right-of-way and east of the fence.

This site was first recorded by Emil W. Haury of Gila Pueblo in 1931. The Gila Pueblo site identification tag was found on the pueblo. The site form and surface sherd collection are housed at the Arizona State Museum, University of Arizona, Tucson. A copy of the site form is now on file at ARMS, Laboratory of Anthropology, Museum of New Mexico.

Testing Activities

Surface Artifact Inventory: (a) all artifacts pinflagged; all artifacts counted within one transect of 1-m squares, and the surface artifact density was calculated; (b) temporally significant sherds were recorded both inside and outside the right-of-way. **Note:** Several inventory squares were covered with pine-needle duff that obscured the ground surface and precluded the location and inventory of surface artifacts; these squares have been omitted from the artifact density calculations.

Subsurface Testing (precluded): we examined the long arroyo cut stretching northeast of the pueblo and found numerous sherds and lithic artifacts eroding from its sides. Since this arroyo is nearly 50-m long, we believe that it provides for adequate assessment of the subsurface deposits, and *no* auger tests or test pits were excavated.

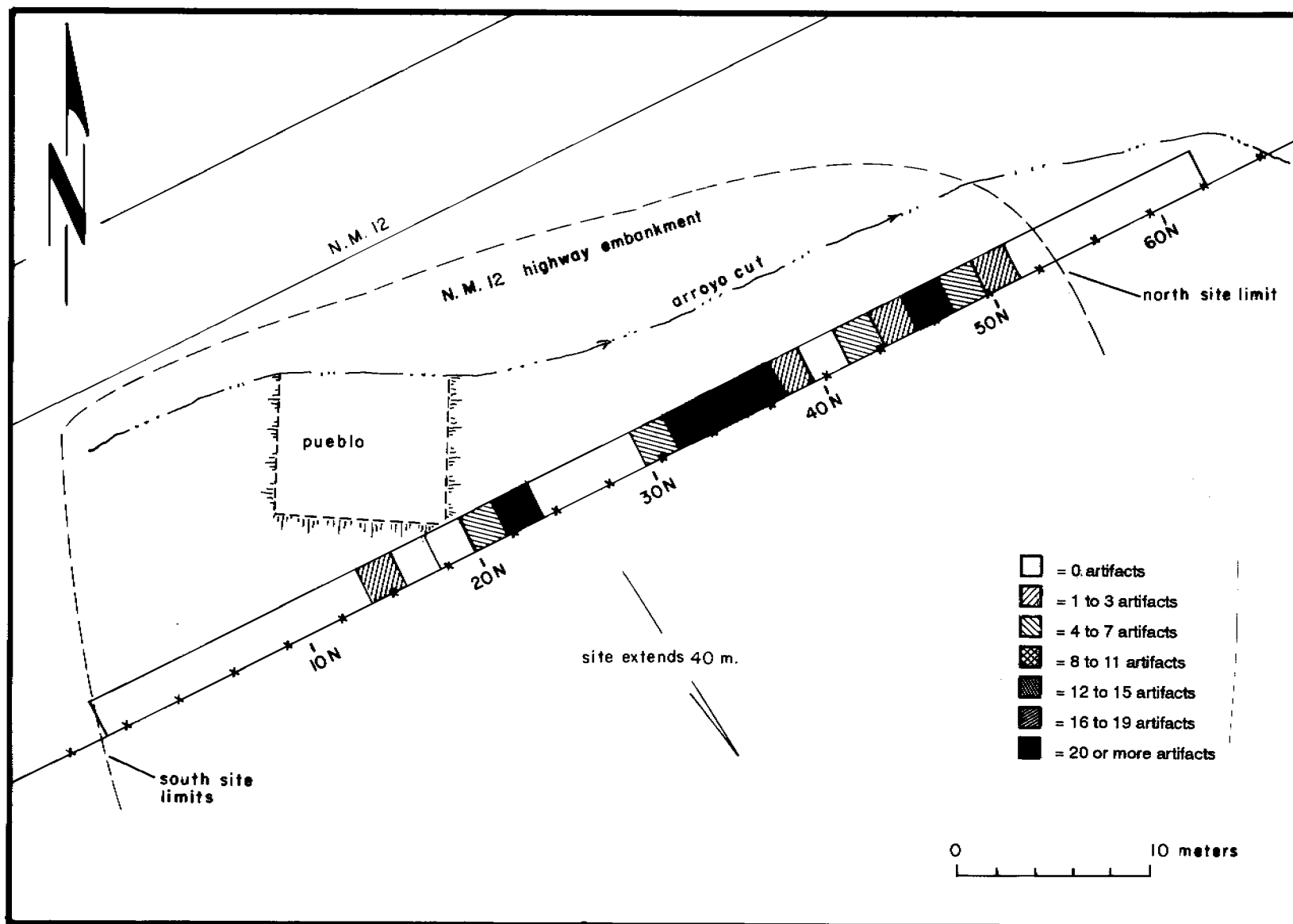


Figure 5. LA 39969 artifact density.

Results

Surface Artifact Inventory: (a) the surface inventory squares average 10.64 artifacts per sq m (Fig. 5); (b) the majority of the potsherds are from utility types, including Alma Plain and Tularosa Patterned Corrugated; the painted sherds include Reserve and/or Tularosa Black-on-white.

Subsurface Testing (precluded): (a) the arroyo cut northeast of the pueblo (Fig. 5) revealed sherds and lithic artifacts eroding out at least as far north as 40N; the maximum thickness of the prehistoric trash along the arroyo is about 30 cm; (b) because of the Gila Pueblo site survey tag, the rock alignment that indicates the rock mound is a small pueblo, and the arroyo cut through that part of the trash midden lying within the right-of-way, it was not necessary to make subsurface tests at this site.

Evaluation

The small pueblo is in good condition and is relatively undisturbed in its current state. The trash area both inside and outside the right-of-way is actively being cut by the two highway drainages that skirt either side of the pueblo. Severe erosion of the pueblo by the north drainage will probably begin at some time in the near future. Water erosion damage to the trash areas continues with each storm. Also, the pueblo and trash areas are adjacent to the highway, and any off-highway movement of vehicles or removal of earth at this location will involve the site.

The 1980 site survey recorded three isolated rooms on the steep hill slope south of the pueblo. The only rock concentrations found on this slope during the current project are natural constituents of the gravel terrace on which they occur, not cultural features.

LA 39970 - Gila National Forest

Site Description

Four small room blocks and a large depression in a site with a core area of 7,500 sq m and an overall area of 39,375 sq m (225 by 175 m) (Fig. 6). The room blocks and the depression are *outside* the highway right-of-way. Pottery and lithic artifacts are thinly scattered over a distance of 50 m *within* the right-of-way; occasional sherds and lithic artifacts are found further north, but these are inconsequential.

Testing Activities

Surface Artifact Inventory: (a) all artifacts pinflagged and counted in 2-by-2-m squares; the surface artifact density was calculated; two artifact concentrations were defined and documented; (b) diagnostic artifacts were noted.

Figure 6. LA 39970 artifact density.

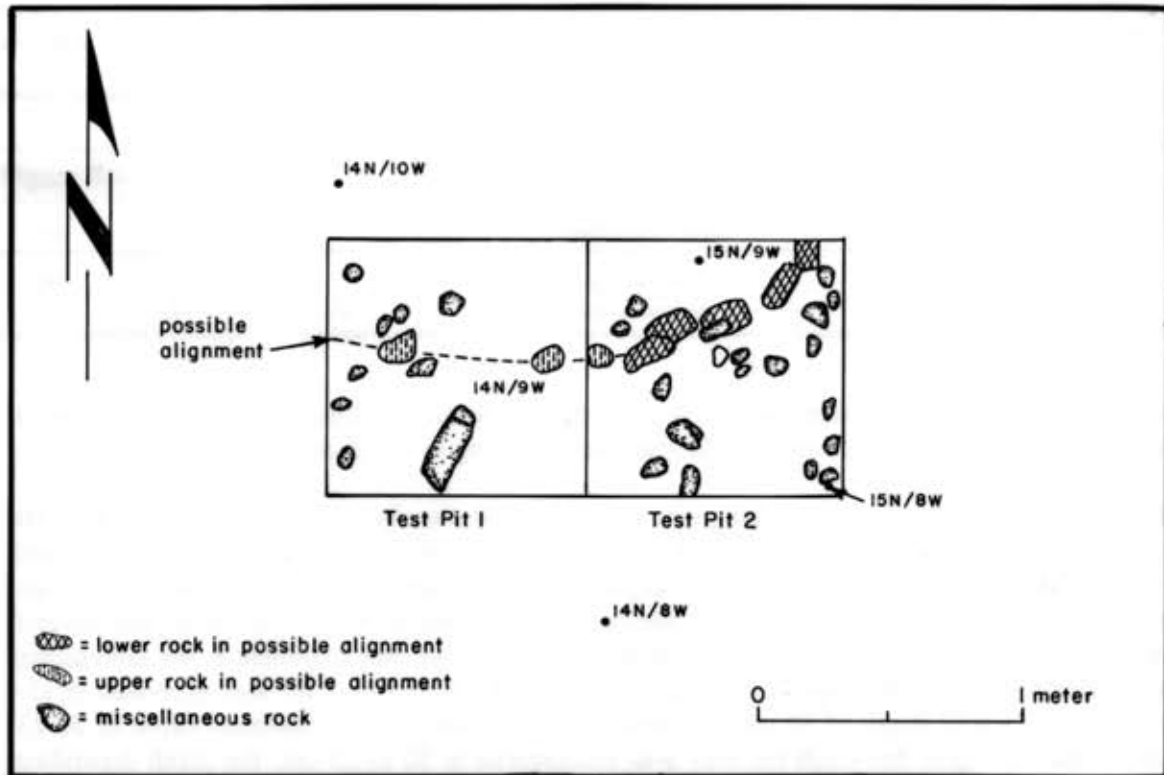


Figure 7. LA 39970 Test Pits 1 and 2, plan view.

Auger Tests: 40 auger holes were excavated at 2- and 3-m intervals within and between the artifact concentrations; most reached depths of 15 to 20 cm before being stopped by rocks, and a few reached 40 cm. Culturally sterile brownish red clay began between 20 and 30 cm below ground surface.

Test Pits: (a) Test Pits 1 and 2. Close examination of the site surface on a high point revealed several rocks that comprised two possible alignments in the area bounded by lines 8N and 16N and by lines 8W and 12W (the highway cut). Accordingly, Test Pits 1 and 2 (both 1-by-1 m) were excavated along one of the possible alignments to determine whether structures are actually present (Fig. 7); (b) Test Pit 3. The surface artifact concentration and downward shifts in stratigraphy in the auger tests at the north end of the inventory area suggested the presence of subsurface features; Test Pit 3 (0.5 by 1 m) was excavated at 40N/4W to explore this possibility (Fig. 6).

Results

Surface Artifact Inventory: (a) surface inventory revealed two concentrations of artifacts (Fig. 6, Table 2); (b) diagnostic artifacts include Alma Plain and San Francisco Red sherds;

Auger Tests: (a) auger tests recovered a total of six sherds and lithic artifacts from five tests out of a total of 40 tests (Fig. 6); all came from within 18 or 20 cm of the ground surface; no charcoal flecks were noted in any of the tests; (b) downward shifts in the strata at the north end

Table 2. LA 39970, Surface Artifact Densities by Provenience

Artifacts per sq m	Provenience	Artifacts in Provenience	Sq m in Provenience
0.24	total inventory	134	552
0.44	south concentration	42	96
0.77	north concentration	49	64
0.11	inventory area outside concentrations	43	392

of the site suggested the presence of one or more cultural features (pithouse, extramural pits, etc.) near the northern concentration of surface artifacts, leading to the excavation of Test Pit 3.

Test Pits: (a) Test Pits 1 and 2 (contiguous 1-by-1-m pits) were excavated to a total depth of 10 cm in 5-cm levels, and exposed the rocks noted on the surface in the vicinity of 14N/9W and 15N/9W (Fig. 7). Rather than a straight alignment as expected, a partly discontinuous arcuate arrangement was uncovered; no floor, use-surface, or features were discovered, but several sherds, lithic artifacts, and a metate fragment were recovered; the alignment is not convincing as a structure, though the exposure is limited; (b) Test Pit 3 (0.5 by 1 m) was excavated in 15-cm levels to a total depth of 30 cm; artifacts were recovered from a maximum depth of 20-23 cm; culturally sterile brownish red clay was encountered at 20 to 25 cm, the depth depending upon degree of root and rodent disturbance. Root and rodent disturbances apparently account for the downward shift in stratigraphy noted in the auger tests. No evidence for a cultural feature (pithouse, extramural pit, hearth, etc.) was found.

Evaluation

The surface artifact inventory defined two slight concentrations of sherds and lithic artifacts within a larger area containing a very thin scatter of similar artifacts. The auger tests and Test Pit 3 revealed a common stratigraphy across the site that generally lacks subsurface artifacts and no indication of cultural features (pithouses, extramural pits, hearths, etc.), substantive trash deposits, or cultural charcoal or other organics.

Test Pits 1 and 2 exposed several large rocks that possibly belonged to a surface structure. Although a short, vague, arcuate arrangement of rocks was exposed beneath the ground surface, the "alignment" cannot be considered unequivocal evidence for a structure.

We conclude that the portion of LA 39970 lying within the highway right-of-way contains no subsurface cultural remains or deposits and is indeed peripheral to the central site area lying outside the right-of-way. Furthermore, the artifacts on the ground surface are few in number and unlikely to yield important information beyond that already gathered.

LA 39971 - Gila National Forest

Site Description

Six possible room blocks comprise a site with a core area of 10,000 sq m and an overall area of 30,000 sq m (300 by 100 m) (Fig. 8). Only the western periphery of the artifact scatter lies within the right-of-way.

Testing Activities

Surface Artifact Inventory: (a) all artifacts pinflagged and counted in 2-by-2-m squares; artifact density calculated; (b) searched for diagnostic artifacts.

Auger Tests: one line of six auger tests was excavated at 3-m intervals; all tests were discontinued at depths ranging between 20 and 30 cm after penetrating into the brown-red clay, which is culturally sterile.

Results

Surface Artifact Inventory: (a) 29 lithic artifacts and plain brown sherds were found within the inventory area of 300 sq m, yielding an average of 0.10 artifacts per sq m (Fig. 8); 21 of the artifacts were between 40N and 60N, for an average of 0.21 artifacts per sq m; (b) no diagnostic artifacts were found within the right-of-way.

Auger Tests: six auger tests were excavated in the surface artifact concentration at the north end of the site (Fig. 8); no artifacts, cultural features, or other cultural manifestations were noted in any of the tests.

Evaluation

The surface artifacts are thinly spread and contain no diagnostic items by which to date the site. The auger tests revealed no subsurface cultural manifestations within the right-of-way. Clearly, that part of LA 39971 lying within the highway right-of-way is the extreme periphery of the site and does not appear likely to contain important information about the prehistory of the area.

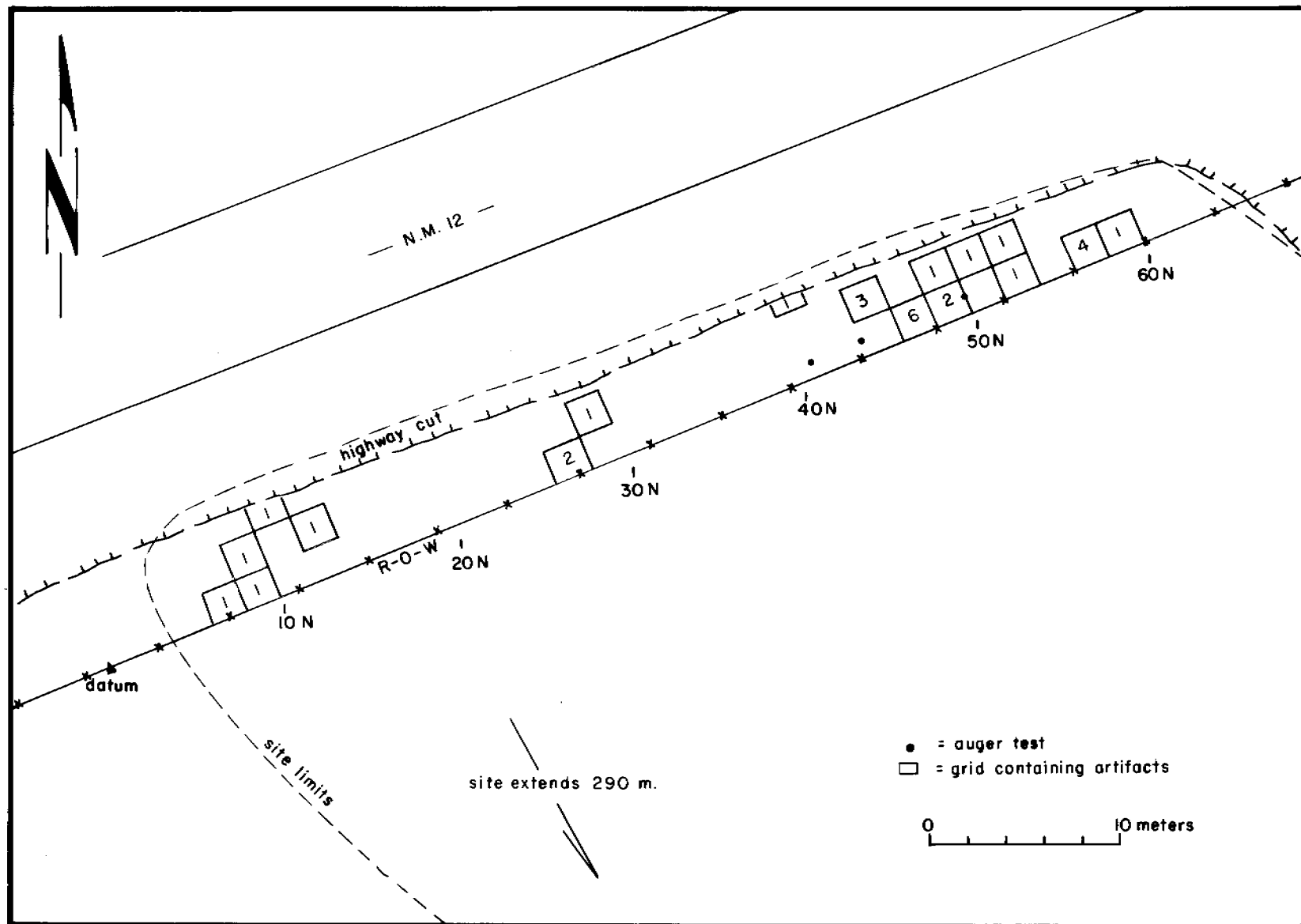


Figure 8. LA 39971 artifact density.

LA 39972, SU Tank Site - Private
and highway right-of-way acquired from private sources

Site Description

This site of three small pueblos and isolated rooms has a core area of 1,700 sq m and an overall area of 19,000 sq m (190 by 100 m). None of the identifiable structures are within the highway right-of-way. One particularly dense concentration of trash (sherds and lithic artifacts) and a generally thin scattering of sherds and lithic artifacts covering a combined distance of 150 m are within the right-of-way. A possible pithouse is located at the north edge of the trash concentration.

Testing Activities

Surface Artifact Inventory: (a) all artifacts pinflagged and counted in 2-by-2-m squares; the surface artifact density was calculated; artifact concentrations were defined and documented; (b) diagnostic artifacts were collected.

Auger Tests: eight lines of auger tests were excavated (total of 67 tests) at 3- and 4-m intervals.

Results

Surface Artifact Inventory: (a) surface inventory revealed one major and three minor concentrations of artifacts in a light background scatter of artifacts (Fig. 9). The primary concentration, located between lines 10N and 26N and between lines 0W (right-of-way fence) and 10W (highway cut), is situated on and around a slight rise. The artifact densities are listed in Table 3; (b) diagnostic artifacts include Alma Plain and San Francisco pottery sherds; a Garylike projectile point (Fig. 10) was found on the surface of Square 21N/7W; (c) a distinct drop in the depth of the sterile soil was noted in the cutbank face below the north edge of the low rise and major artifact concentration (Fig. 11); this anomaly is 3-m wide and nearly 1-m deep. Although this location was not specifically tested, it is very likely that the anomaly is a pithouse or extramural pit.

Table 3. LA 39972, Surface Artifact Densities by Provenience

Artifacts per sq m	Provenience	Artifacts in Provenience	Sq m in Provenience
0.69	total inventory	480	700
2.69	major concentration	291	108
0.32	inventory area outside major concentration	189	592

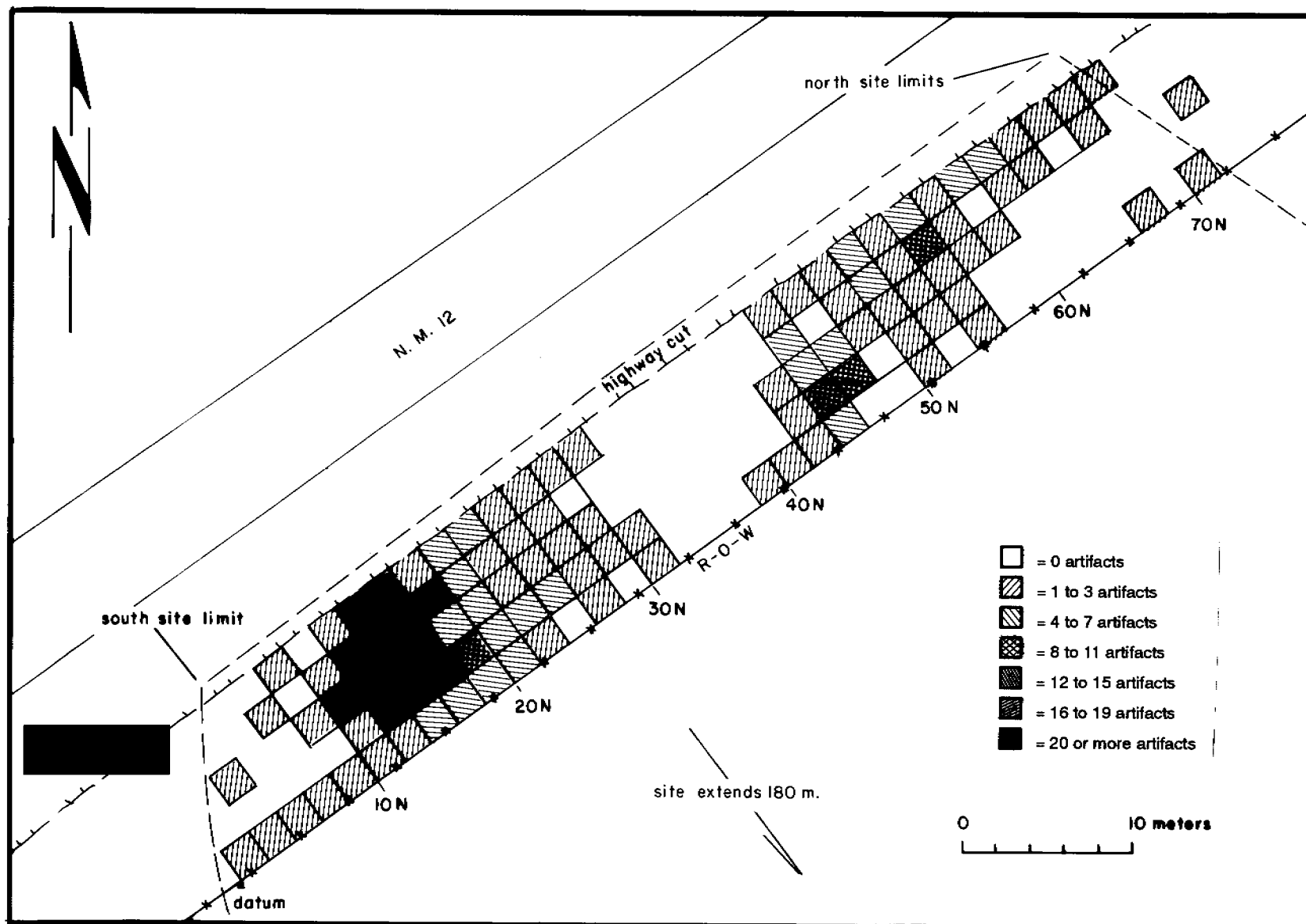


Figure 9. LA 39972 artifact density.

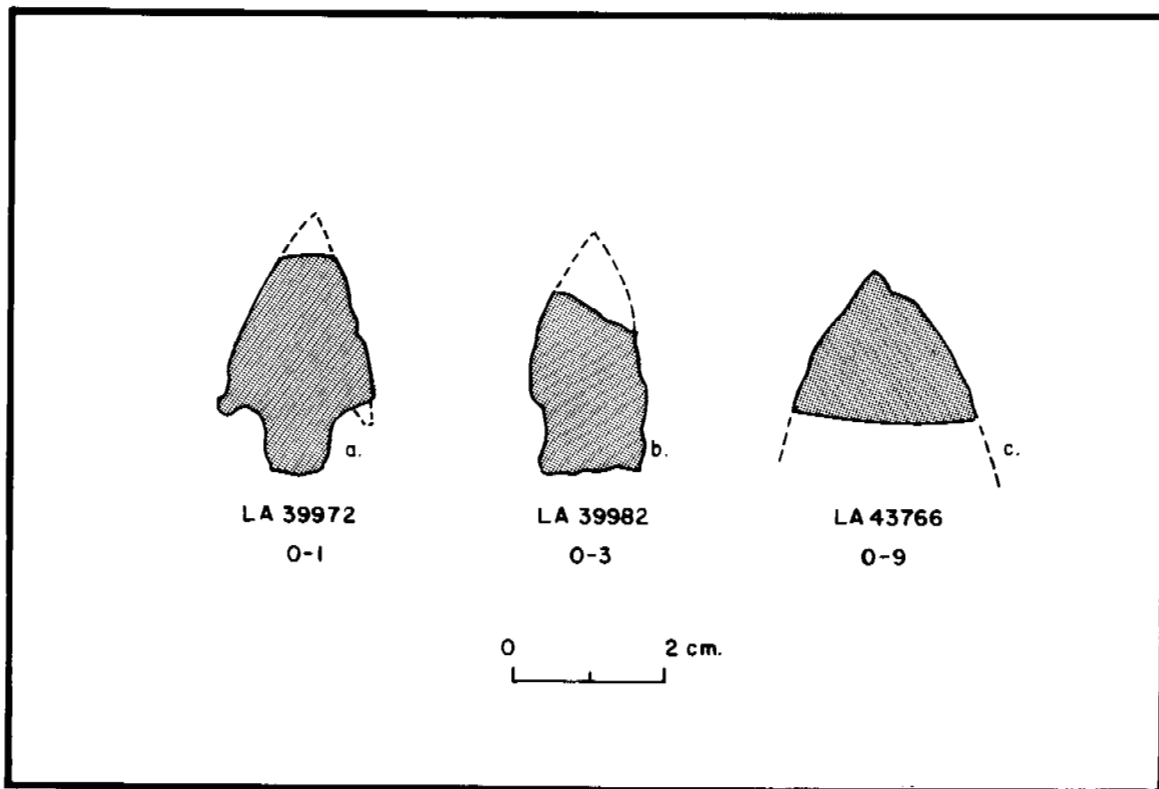


Figure 10. Lithic artifacts; (a) projectile point from LA 39972, (b) projectile point from LA 39982, (c) biface fragment from LA 43766.

Auger Tests: (a) the stratigraphy revealed by the augering has two components, a gray-brown gravelly silty clay-loam and gray-brown clay-loam (surface to about 40 cm below surface), and a culturally sterile brown-red clay (about 40 to 100+ cm below surface); artifacts were recovered primarily from the gray-brown stratum, especially the uppermost 30 cm; (b) 21 sherds and lithic artifacts were recovered from 12 tests (Fig. 11); all but one sherd and one lithic artifact came from within 30 cm of the ground surface, the exceptions being from 30 to 45 cm deep. Significantly, all but three of the artifact-producing tests were in or adjacent to the low rise and the major surface artifact concentration.

Evaluation

The low rise, with its concentration of surface artifacts, artifact-producing auger tests, and probable subsurface feature exposed in the highway cutbank, is a location worthy of further investigation. It has the potential for producing information important to the prehistory of the area. The remainder of the site area lying within the highway right-of-way (between lines 30N and 60N) appears to have no such potential.

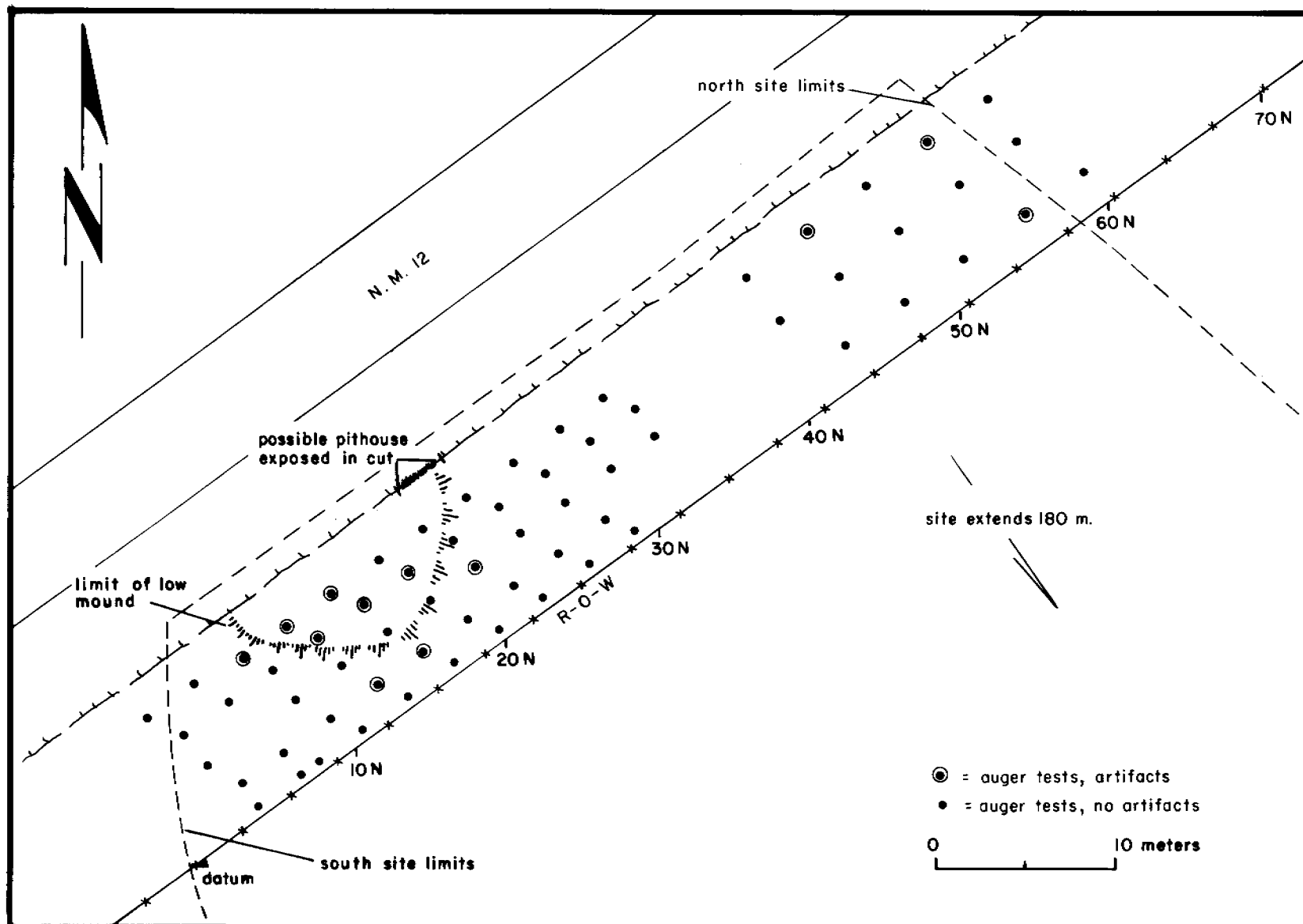


Figure 11. LA 39972 auger tests.

Site Description

This site has six small *cimiento* room blocks, a core area of 1,080 sq m and an overall area of 14,000 sq m (200 by 20 m) (Fig. 12). Only the southwest end of the site, including part of one room block, lies within the project area. The site surface within the right-of-way is totally covered with pine needle duff.

The north and west sides of the site are bounded by an abandoned irrigation ditch. The ditch currently appears as a curved linear depression that averages 2 m wide and 35 cm deep. The soil removed during the digging of the ditch was banked along the downhill (north) side. The size of the ditch, plus the fact that it is only partly filled, indicates a historic affiliation, probably about the turn of the century. The ditch continues eastward into the Gila National Forest. Immediately west of the site, it is truncated by the highway. West of the highway it can be traced westward for an unknown distance. A consultation with Mr. Lionel Maestas of the Interstate Stream Commission, State Engineer's Office, determined that no record of this ditch exists, nor are any historic ditches recorded for the upper SU Canyon.

Testing Activities

Surface Artifact Inventory: (a) the pine-needle duff was pushed aside into long rows to expose the ground surface to look for artifacts; a total of 55 sq m was exposed and the artifacts were counted (Fig. 12); (b) searched for diagnostic artifacts.

Auger Testing: 12 auger tests were excavated, all but one of which went 20 to 40 cm before being stopped by rocks; no brown-red clay, signifying culturally sterile deposits at other project sites, was encountered in the auger tests.

Test Pit: one 1-by-1-m test pit was excavated within the rock pile/possible room block projecting into the right-of-way. The test pit was placed to expose the corner of the structure as well as some of the interior and exterior space. Excavation proceeded in 5, then 10-cm levels, exposing all rocks, assessing them for possible alignments, and photographing them. All fill was screened through 1/4-inch wire mesh.

Results

Surface Artifact Inventory: (a) a single white chalcedony flake was found on the surface after the duff-clearing was completed; (b) no diagnostic artifacts were found.

Auger Tests: no cultural materials or subsurface cultural deposits and features were found in any of the auger tests (Fig. 12).

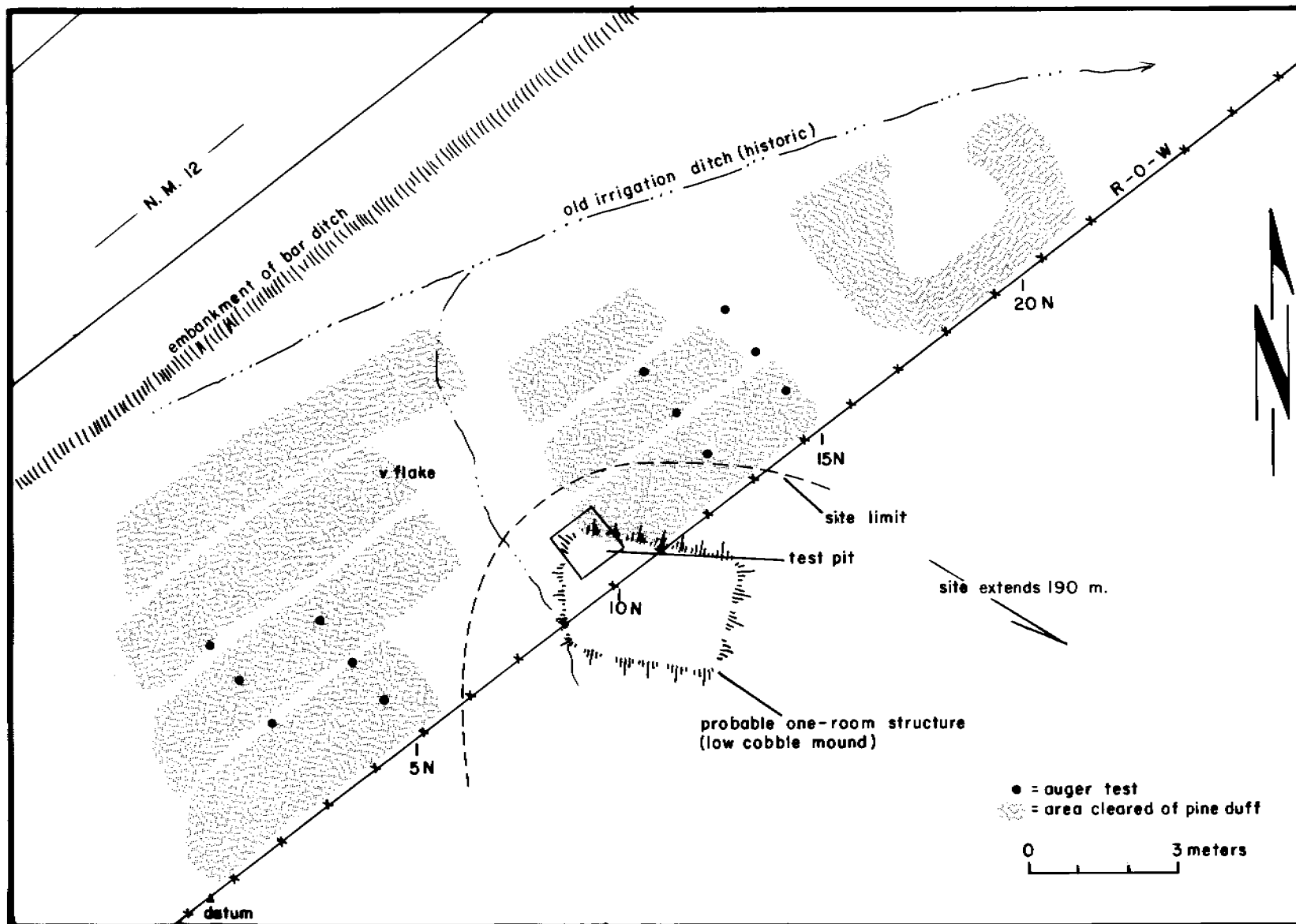


Figure 12. LA 39974 site map and auger tests.

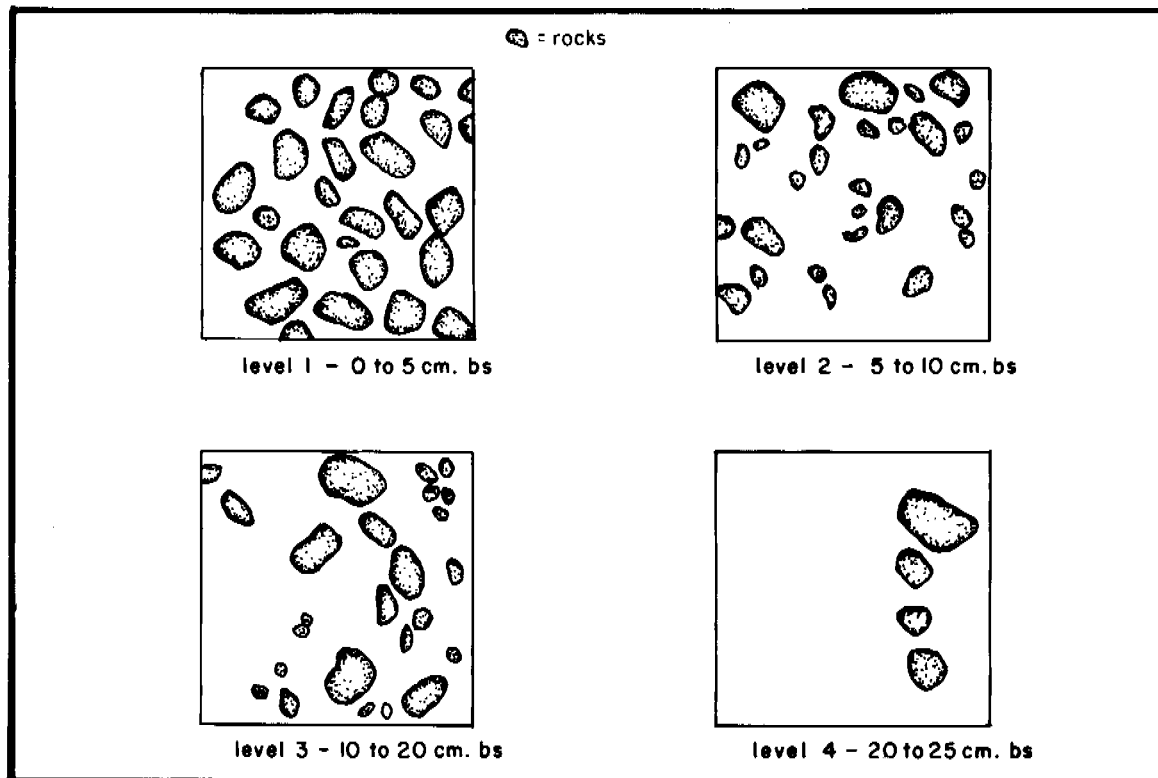


Figure 13. LA 39974 Test Pit 1.

Test Pit: (a) Level 1 (0-5 cm) produced three flakes and contained large rocks and cobbles evenly distributed across the square (Fig. 13a); (b) Level 2 (5-10 cm) produced six sherds and a core and was composed of smaller rocks and cobbles that were fewer in number and less evenly distributed, with a tendency to concentrate in the east half of the square (Fig. 13b); (c) Level 3 (10-20 cm) produced six sherds and was composed of still fewer rocks and cobbles, greatly varied in size and concentrated in the east half of the square (Fig. 13c); (d) Level 4 (20-25 cm) lacked artifacts but had four large rocks arranged in an arcuate "alignment" that was embedded in culturally sterile soil (Fig. 13d). The alignment is not convincing as a cultural feature since there is no evidence that other rocks continue beyond either end.

Evaluation

The virtual absence of surface artifacts within the highway right-of-way is perplexing, though, this fact does not conclusively demonstrate that this is not a site. The fact that a definite wall was not exposed by the test pit is also troublesome, particularly because the rock mound is quite distinct in spite of the pine-needle duff cover. Because of the comparatively large number of sherds and lithic artifacts recovered by the test pit, however, the rock mound has the potential of containing information important to local prehistory. We could find no evidence that the rest of this site within the right-of-way, as defined by the original site surveyors, has that potential.

Site Description

This pithouse and cobble-alignment site has a core area of 3,500 sq m and an overall area of 8,400 m (120 by 70 m) (Fig. 14). Although the entire site, as defined during the 1980 survey, lies within the existing right-of-way, we proposed testing only a 20-m-wide strip paralleling the highway for a distance of 80 m. According to the survey, a possible room or room block and two possible pithouses lie within this area; all other possible structures and remains lie outside this zone to the northwest.

Careful examination of the site surface during the testing program revealed that most of the 20-m strip was at one time covered by stockpiles of crushed gravel and hotmix; furthermore, the possible room block and depressions noted by the survey archaeologists could not be verified by the OAS team.

Testing Activities

Surface Artifact Inventory: (a) all artifacts pinflagged within the 20-by-80 m area next to the highway; (b) searched for diagnostic artifacts.

Auger Tests: excavated three lines of auger tests (total of 23) at 1- and 2-m intervals (Fig. 14). The lines were placed in the areas indicated on the site survey forms as having a room block and two possible structure depressions. The surface of the ground in the vicinity of the supposed depressions undulates slightly (as it does over the entire "site" area) but the low spots are irregular in size and shape; the lines of auger tests were placed to cross these low areas and to include the adjacent "high" ground.

Results

Surface Artifact Inventory: (a) only two artifacts, one flake and one core, were found within the 20-m strip. The layer of crushed gravel, including small pieces of chert, accounts for the artifacts reported by the survey archaeologists. No artifacts were noted in the rock alignments to the west; (b) no diagnostic artifacts were found.

Auger Tests: (a) 14 of the auger tests were stopped by rocks between 20 and 40 cm below the surface, but others went as deep as 60 cm, where they terminated in decomposed bedrock. The soil in all cases was loamy, and decomposed rock steadily increased with depth; (b) no cultural items, materials, features, or deposits were found in any of the auger tests.

Evaluation

Only two artifacts were found at this location, and the auger tests failed to find evidence for subsurface features and deposits. Judging by the vegetation, it is highly likely that the location

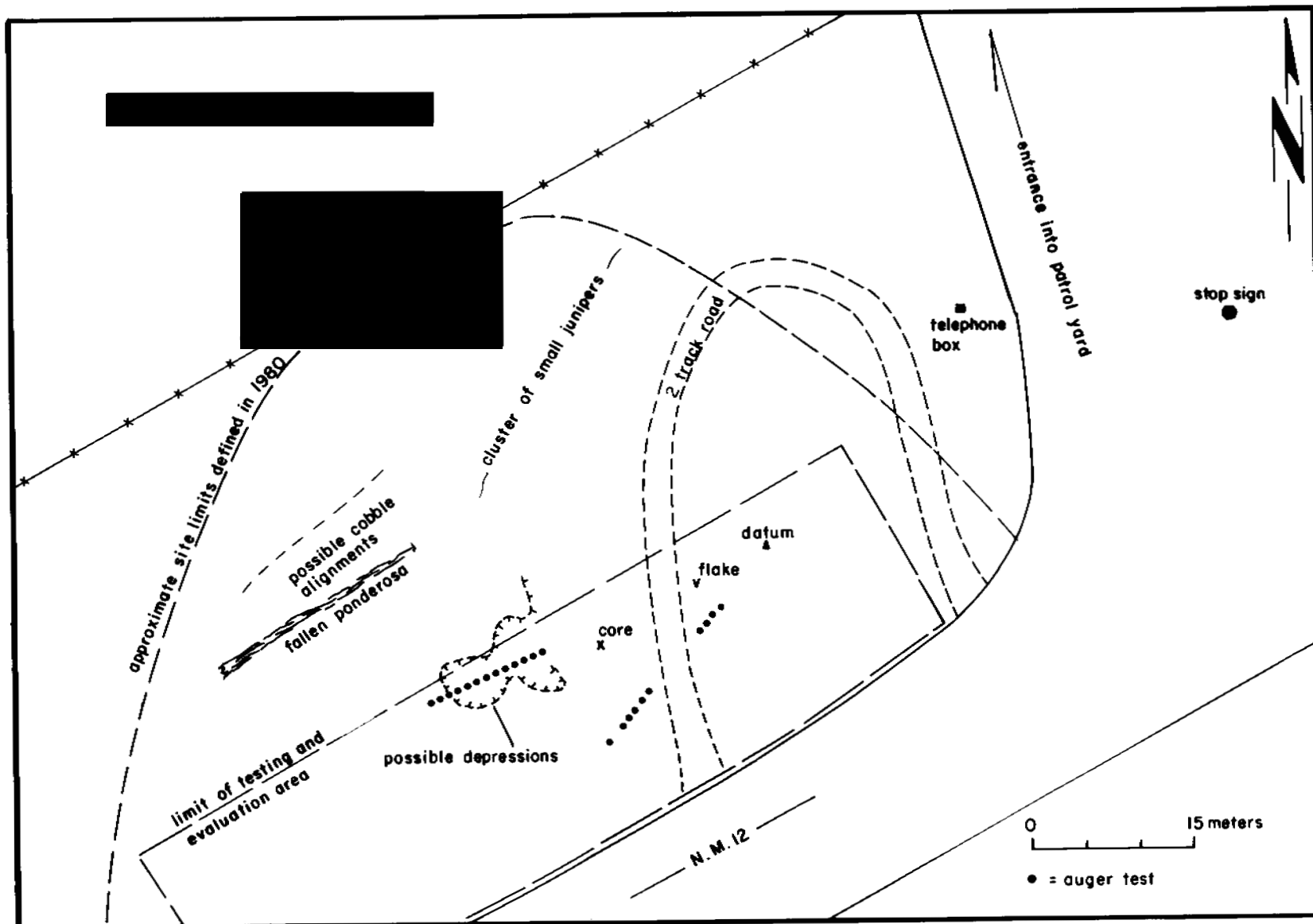


Figure 14. LA 39977 site map.

was used for stockpiling construction materials in the past. We therefore conclude that the location is not a cultural resource.

LA 39982 - Gila National Forest

Site Description

This lithic and sherd scatter has a core area of 1,500 sq m and an overall area of 8,881 sq m (107 by 83 m) (Fig. 15). The core area lies entirely outside the right-of-way, and only a thin scatter of surface artifacts lies within the right-of-way.

Testing Activities

Artifact Inventory: (a) all artifacts in 2-by-2-m squares were pinflagged and counted; surface artifact density was calculated; artifact concentrations were defined and documented; (b) searched for diagnostic artifacts.

Auger Tests: excavated three lines of auger tests (total of 27 tests) at 3-m intervals.

Results

Artifact Inventory: (a) surface inventory revealed one major and three minor concentrations of artifacts (Fig. 15, Table 4). The major concentration is located between 18S on the south, 2S on the north, 0W (right-of-way fence) on the east and 8W on the west; (b) no diagnostic artifacts were found; a heavily reworked basalt Archaic point (Fig. 10) was collected from surface of Square 18S/12W, but its condition prevents identification to type. We believe the site area within the existing right-of-way has the potential to yield additional information important to our knowledge of local prehistory.

Auger Testing: (a) all but 5 of 27 auger tests (Fig. 16) arbitrarily stopped between 49 and 58 cm below ground surface because testing was well within culturally sterile reddish brown clay and

Table 4. LA 39982, Surface Artifact Densities by Provenience

Artifacts per sq m	Provenience	Artifacts in Provenience	Sq m in Provenience
0.51	total inventory	295	580
2.81	major concentration	202	72
0.18	inventory area outside major concentration	93	508

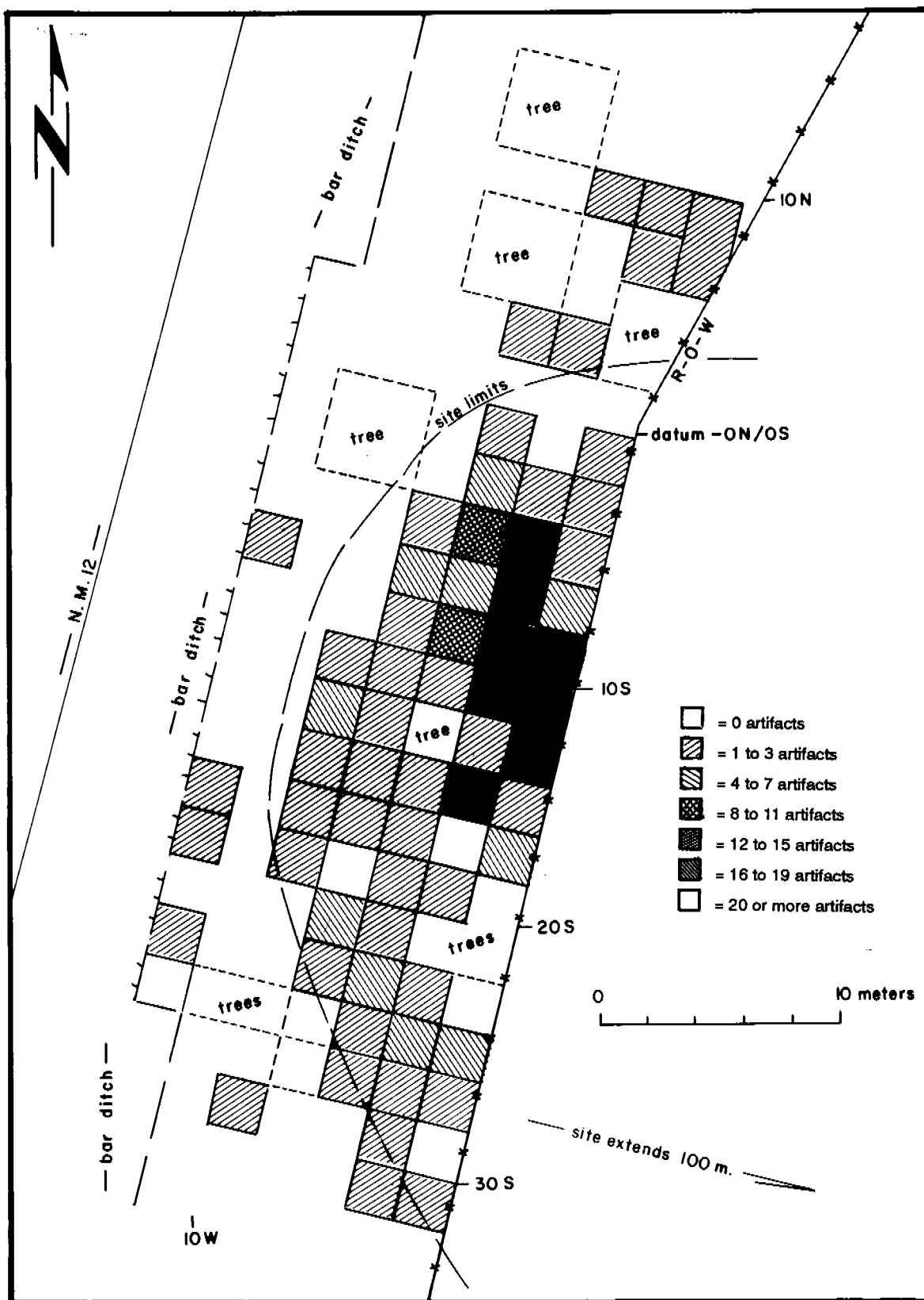


Figure 15. LA 39982 artifact density.

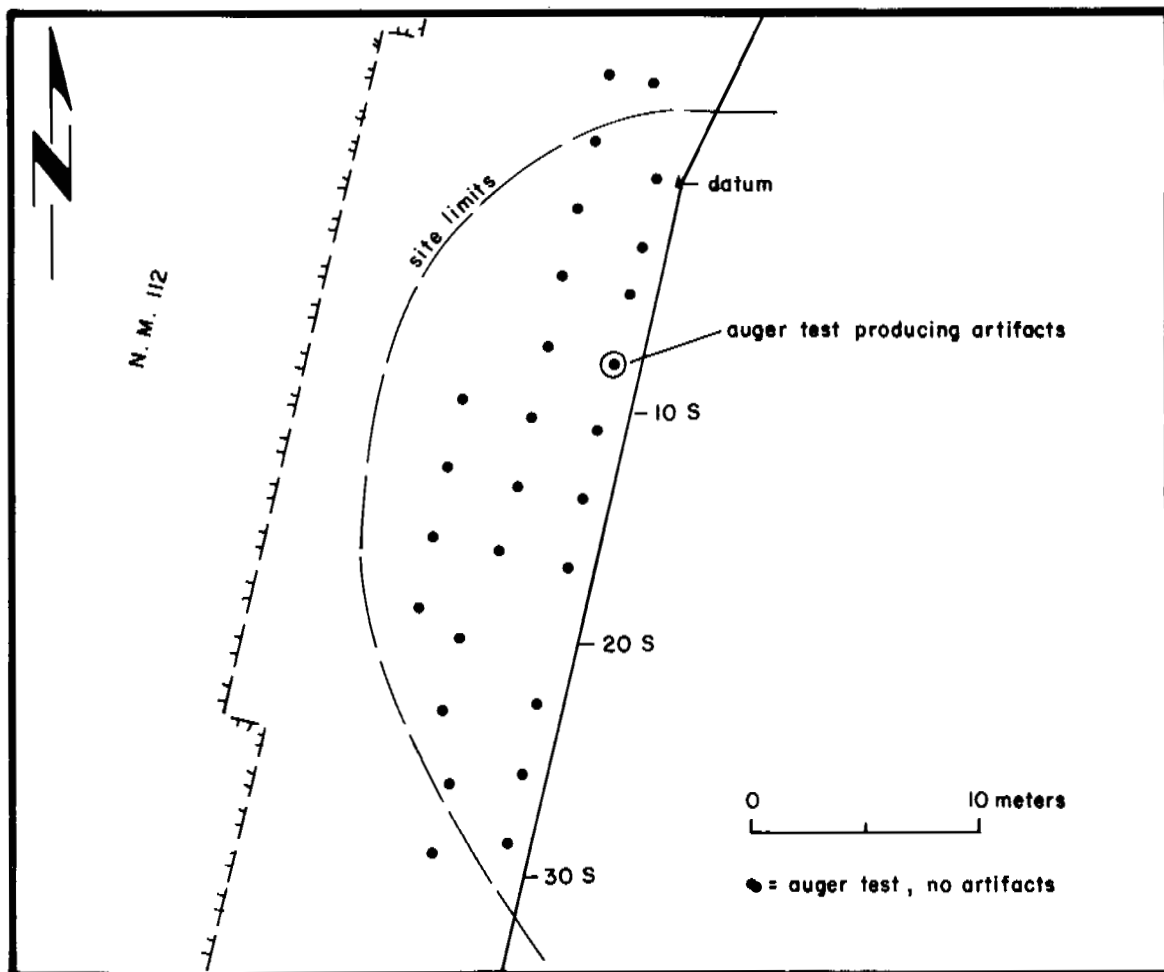


Figure 16. LA 39982 auger tests.

silty clay. Three exceptions (4N/2W, 4N/4W, 23S/1W) struck rocks at 9, 15, and 44 cm; (b) only 2 of 27 auger tests encountered cultural or potentially cultural materials. Two flakes were recovered, both from 25 to 35 cm below surface in test 8S/1W. A few small flecks of charcoal or other organic material were noted between 30 and 49 cm deep in test 0N/1W, but because they are in the reddish brown clay and are not associated with clearly cultural materials, they are probably from natural burns rather than cultural depositions. No other cultural items, materials, features, or deposits were found in the other 25 auger tests.

Evaluation

The natural soil stratigraphy and the virtual absence of artifacts and other cultural or potentially cultural materials, features, and deposits below the surface demonstrate that the part of LA 39982 within the highway right-of-way is mainly surficial. Furthermore, only one concentration of remains is present and that lies next to the right-of-way fence where it clearly continues beyond the fence onto the national forest.

One of the more notable aspects of this site is the high ratio of black basalt flakes to other material types (cherts and chalcedonies). Though we did not quantify it in the field, our subjective impression is that about half of the lithic artifacts are basalt, compared to 10 percent

or less in all other sites except LA 43766. This fact, plus the basalt Archaic point, suggest that the site is Archaic.

LA 43766, Old Peralta Site - Gila National Forest

Site Description

This site has two slight depressions, a core area of 50 sq m, and an overall area of 1,250 sq m (50 by 25 m) (Fig. 17). The western periphery of the site lies within the right-of-way.

While inventorying the surface artifacts during the testing phase, a small concentration of large rocks was noticed within the right-of-way at the north end of the site. The configuration is roughly rectangular, suggesting a one-room fieldhouse. A large ant hill covers much of the possible feature, however.

Testing Activities

Surface Artifact Inventory: (a) artifacts were pinflagged and counted in 2-by-2-m squares; the surface artifact density was calculated; artifact concentrations were defined and documented (Fig. 17); (b) searched for diagnostic artifacts.

Auger Tests: three lines of auger tests (total of 39 tests) were excavated at 2-m intervals (Fig. 18).

Results

Surface Artifact Inventory: (a) the surface inventory revealed one concentration of artifacts in a light background scatter of artifacts (Table 5). The major concentration is located between lines 2N and 16N and between lines 0W (right-of-way fence) and 6W (edge of highway embankment); (b) the temporally diagnostic artifacts include three plain brown sherds, one each in squares 4N/4W, 4N/6W, and 6N/4W. A large percentage of black basalt flakes was noted, though the actual number was not quantified (but see below under "Auger Tests" and "Evaluation").

Table 5. LA 43766, Surface Artifact Densities by Provenience

Artifacts per sq m	Provenience	Artifacts in Provenience	Sq m in Provenience
0.52	total inventory	128	248
1.43	major concentration	103	72
0.14	inventory area outside major concentration	25	176

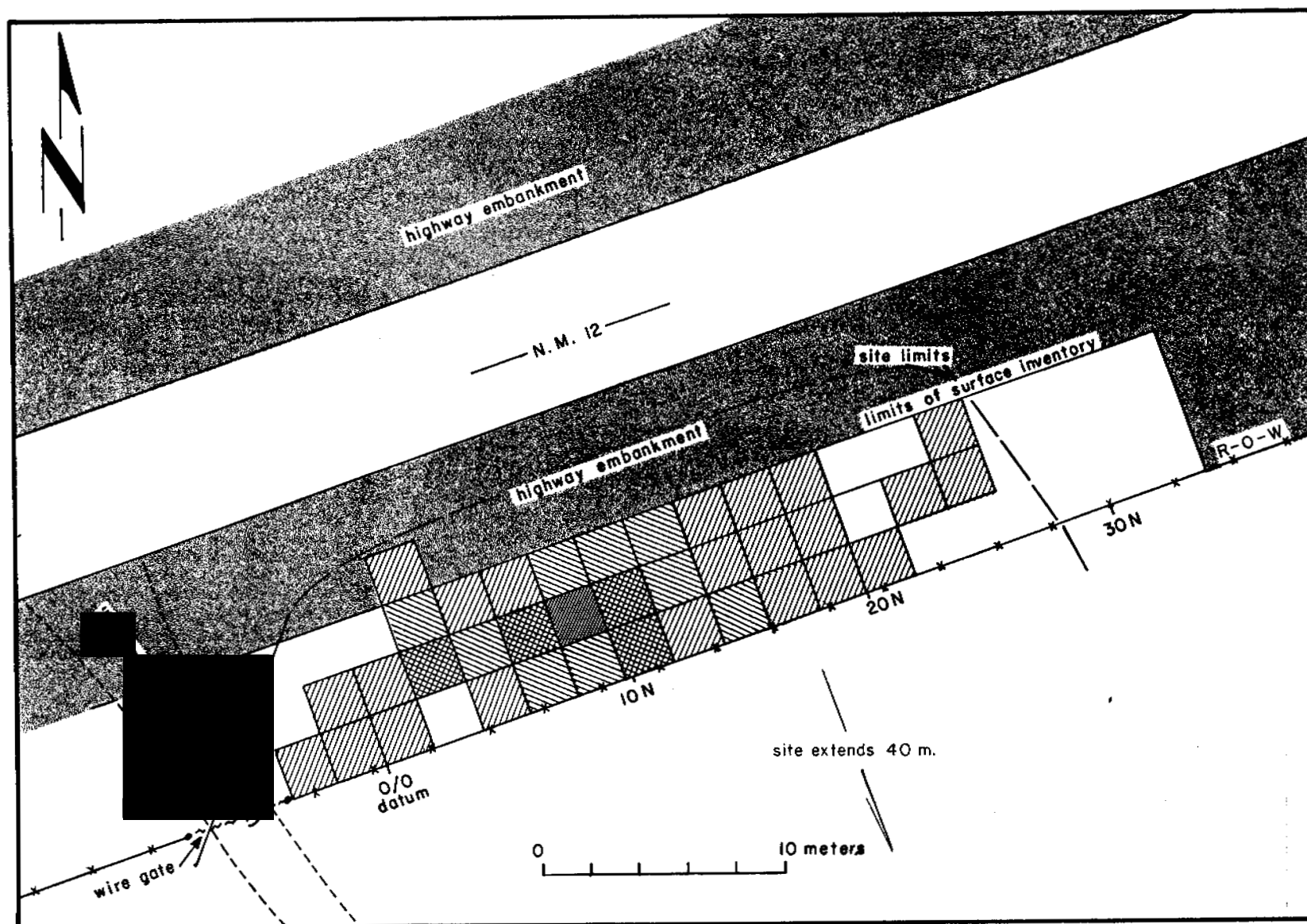


Figure 17. LA 43766 artifact density.

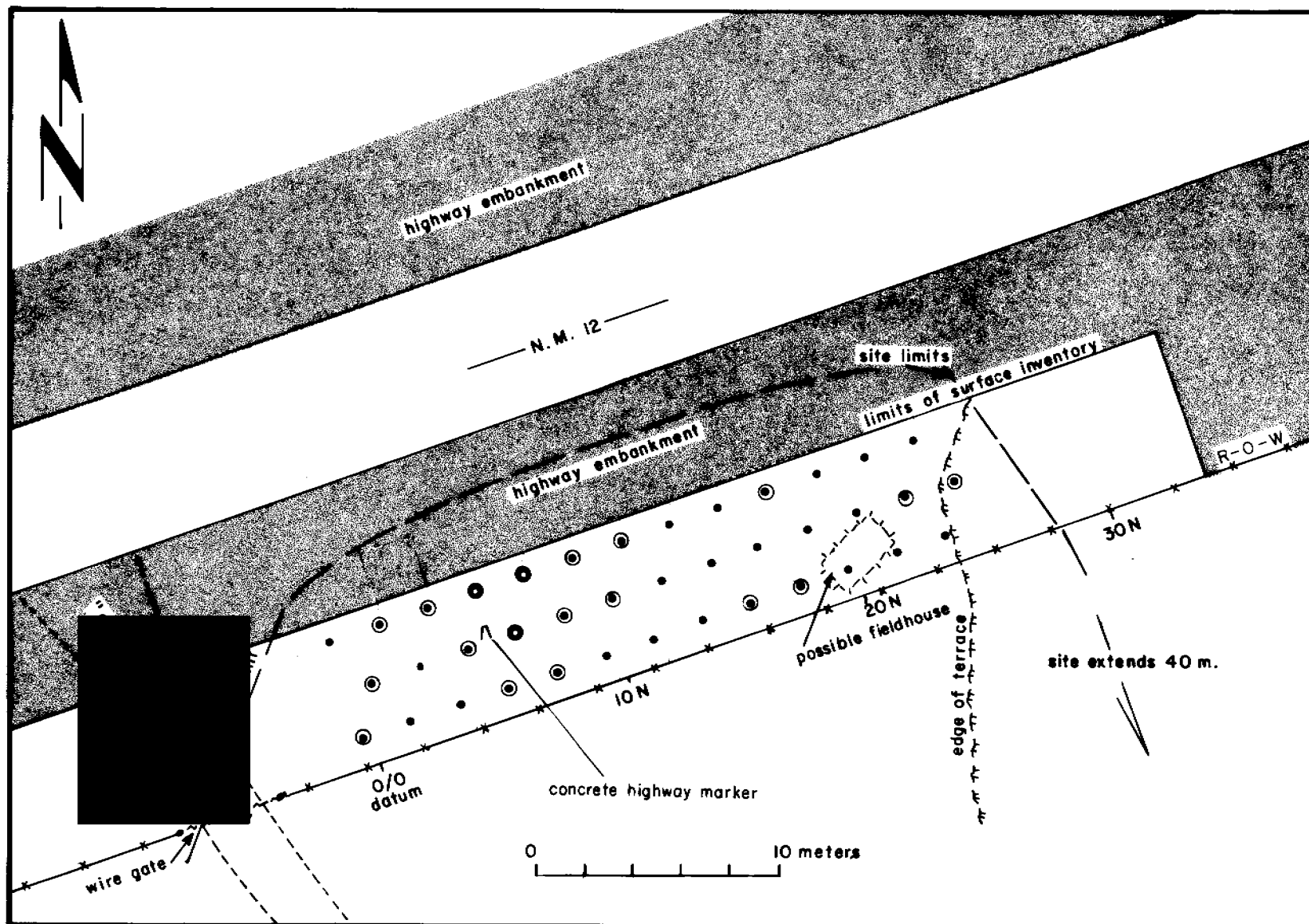


Figure 18. LA 43766 auger tests.

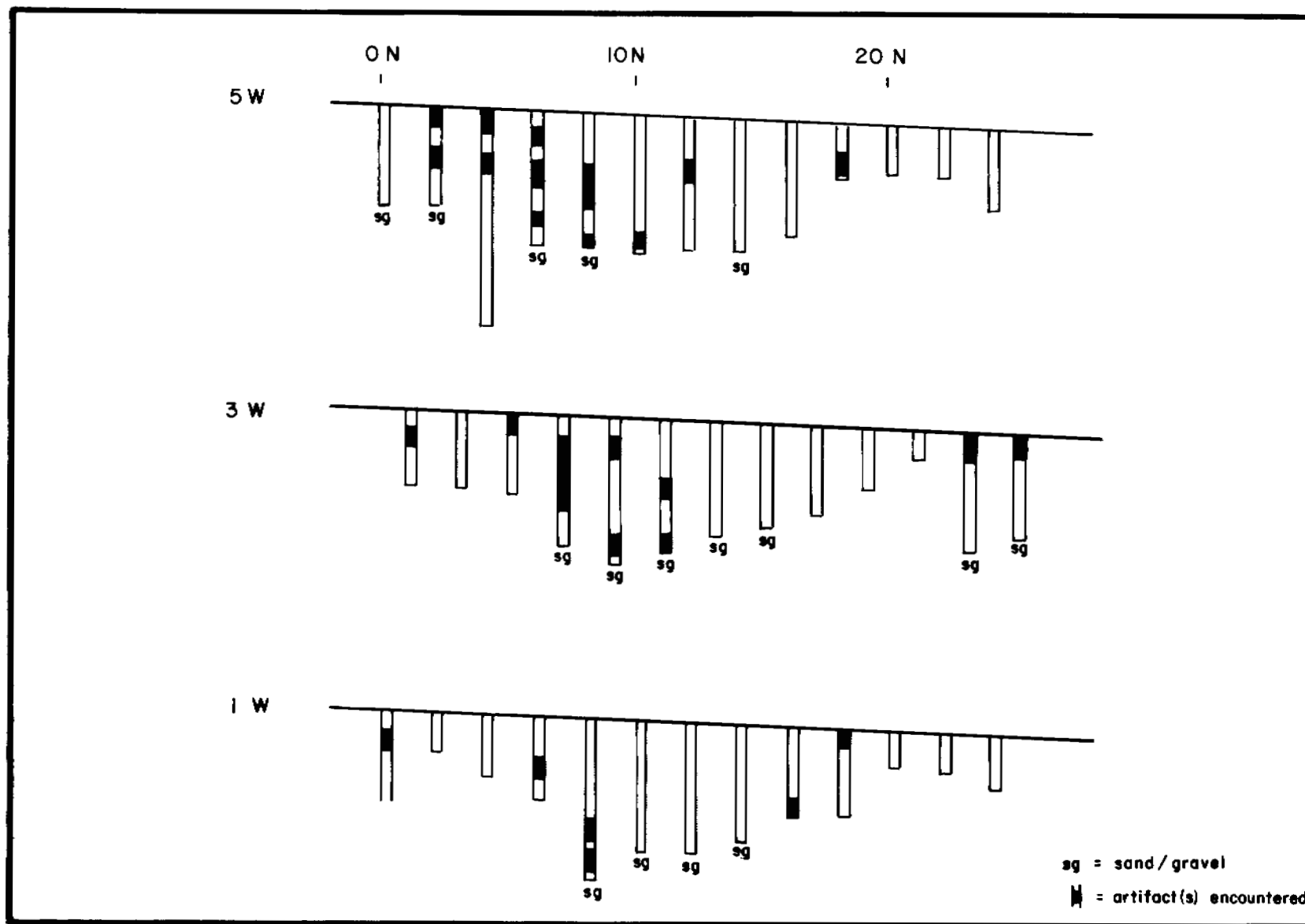


Figure 19. LA 43766 auger test results.

Auger Tests: (a) The final auger depths for each line display a similar vertical-horizontal pattern (Fig. 19), being shallow on each end and deep in the center. Since the site is on alluvium, and the auger lines are perpendicular to the axis of the valley, the dip in auger depths almost certainly represents an old, filled-in channel; the distribution of sand and gravel confirms this interpretation; (b.) Forty-eight artifacts were recovered from 19 of 39 auger tests; these include one sherd, one chert biface fragment (Fig. 10), one basalt biface tip fragment, and 45 flakes (including ten biface-thinning flakes and one biface-notching flake). The majority of items came from auger tests between 2N and 12N and between 1 cm and 50 cm in depth. The vertical distribution (Fig. 19) is more complex in that it generally gets deeper from south to north, probably reflecting deposition down the bank of the old channel mentioned above. There may also be two or three occupations discernable in the vertical distribution of the lithic artifacts in tests 2N, 4N, 6N, and 8N of line 5W.

Evaluation

Remnants of as many as four separate occupations, three in stratified context, may lie within the highway right-of-way at LA 43766:

1. Archaic Period. One and possibly two components are in the southern half of the tested area, discovered by augering and represented by a high percentage of basalt artifacts and some chert and chalcedony items as well. The locus of occupation is probably immediately south of tested area and/or to the southwest (under the highway). Cultural debris has been thrown northward down the bank of a former channel.

2. Mogollon Period. A small surface and slightly subsurface concentration of sherds and lithic artifacts (mostly chert but some basalt) overlays the Archaic occupation to the south and west of the tested area. A possible one-room fieldhouse at the north end of the tested area is Mogollon; no pottery was observed, but several lithic artifacts are on and just below the surface.

How these manifestations related to the pithouse depressions reported by the 1980 archaeological survey team is unclear at this time. A brief search for these depressions 10+ m east of the right-of-way fence failed to relocate them.

LA 69064 - Gila National Forest

Site Description

This location was recorded on survey as a small lithic artifact scatter measuring 14-by-16 m and lying entirely within the existing right-of-way (Fig. 20).

Testing Activities

The three-member OAS team spent a combined total of 1.5 person-hours carefully searching the surface of this location. Not one artifact was found in spite of the fact that the original survey

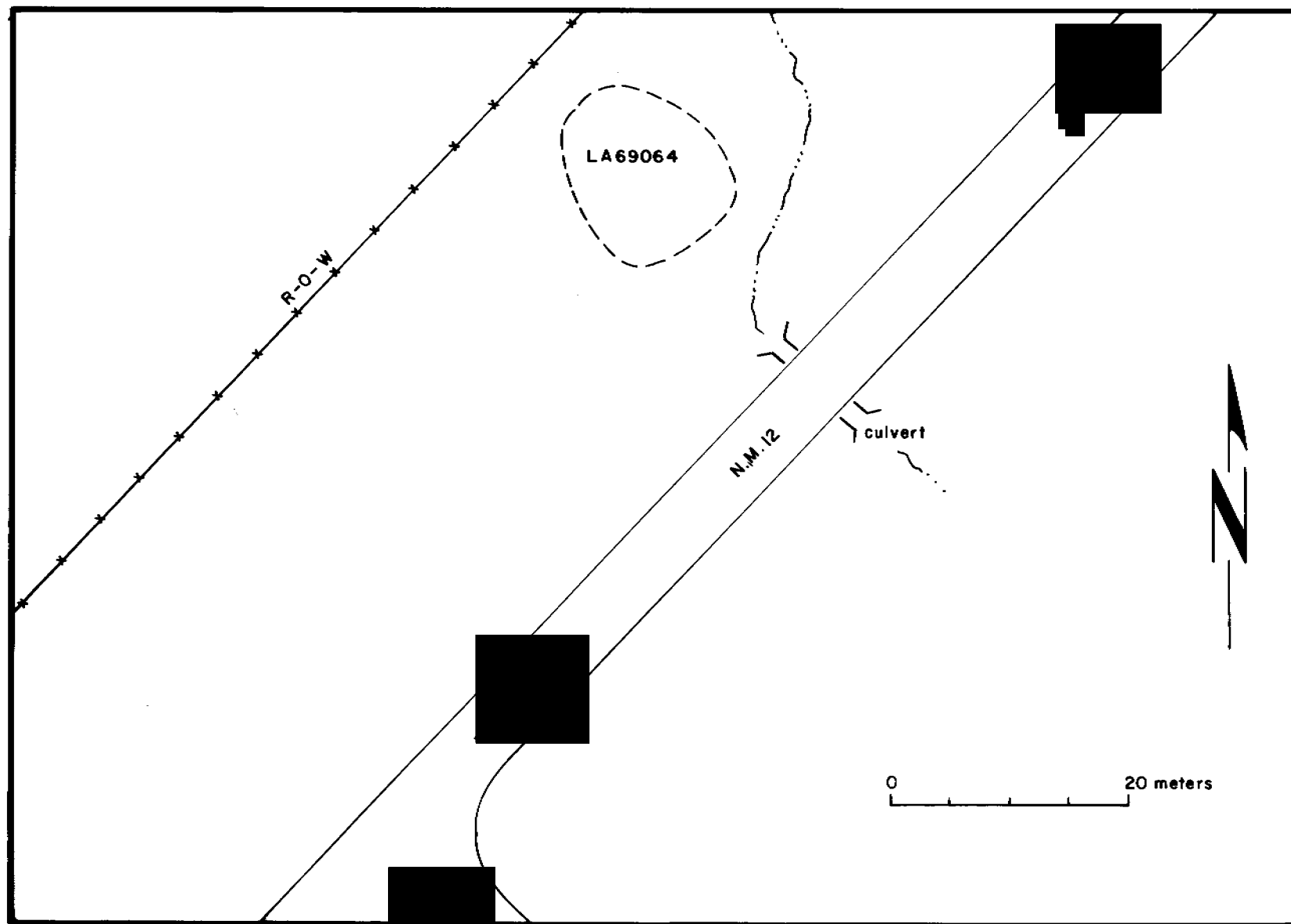


Figure 20. LA 69064 site map.

recorded and described nine lithic items. The OAS team did locate a number of crushed gravel fragments of chert that vaguely resembled the described items. Because no surface artifacts or other cultural manifestations could be found, subsurface testing was not done.

Evaluation

No artifacts or other evidence of cultural activity could be found at this location. We conclude that the location is *not* a cultural resource.

RECOMMENDATIONS

by Regge N. Wiseman

In light of the foregoing descriptions and discussions and the field consultation with representatives from the NMSHTD and the U. S. Forest Service, we recommend the following actions for each site (Table 6).

Table 6. Recommendations for the Project Sites

Site	Recommended Actions	Comments
LA 39968	DATA RECOVERY	Excavate all of the site within the right-of-way
LA 39969	DATA RECOVERY	Excavate all of the site within the right-of-way
LA 39970	No further treatment	Tests indicate that the data potential of that part of the site within the right-of-way has been exhausted
LA 39971	No further treatment	Tests indicate that the data potential of that part of the site within the right-of-way has been exhausted
LA 39972	DATA RECOVERY	Excavate all of that part of site within the right-of-way
LA 39974	FENCE prior to construction	Place temporary fence 15 ft out from right-of-way fence
LA 39977	No further treatment	Tests indicate this location is <i>not</i> a site
LA 39982	FENCE prior to construction	Place temporary fence 35 ft out from right-of-way fence
LA 43766	DATA RECOVERY	Excavate all of that part of site within right-of-way
LA 69064	No further treatment	Tests indicate this location is <i>not</i> a site

A field consultation among the staffs of the U.S.D.A. Forest Service, NMSHTD, and OAS in early December of 1992 determined that four sites along NM 12 should receive further treatment prior to the commencement of highway improvements. The sites are LA 39968 and 39969 (late Reserve/early Tularosa phase pueblos), LA 39972 (Pithouse period village), and LA 43766 (possible Archaic site).

DATA RECOVERY PLAN FOR
LA 39968, LA 39969, LA 39972, AND LA 43766

by Yvonne R. Oakes

Theoretical Orientation

The four sites within the proposed project area range in time from the Late Archaic (ca. 1500 B.C. to A.D. 200) through pithouse occupations to Pueblo sites dating to approximately A.D. 1350. Because of the continuum in site types and periods, we believe that the sites have the ability to answer important archaeological questions regarding mobility strategies in the Mogollon Highlands as influenced by the adoption of an increasing reliance on agriculture.

The research design may be set forth in a single premise: In the Mogollon Highlands, if there is a continuum from full mobility in the Archaic period to becoming highly sedentary by the Pueblo period linked to increasing independence on agriculture, then that shift should be evident in the archaeological record. In other words, we propose a general model that suggests a positive relationship between dependence on cultigens and decreasing residential mobility. The logic of this argument is that as cultigen dependency increases, the bulk of harvested food increases, cultigens are stored, and, because storage entails investment in facilities and the reuse of sites, residential mobility declines. However, this is a traditional model for looking at change in site structure through time. We do not believe our model is as simple as it sounds, nor do we believe this is the way events happened. The model merely provides us with a premise from which we can test mobility strategies in the Mogollon Highlands.

We are broadly classifying project sites as Archaic (N=1), Pithouse (N=1), or Pueblo (N=2) as a basis for comparison. These sites are within the following broad temporal categories:

Cochise Culture:

Late Archaic(?)	1000 B.C. to A.D. 200
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Mogollon Culture:

Pithouse	A.D. 200 to A.D. 1000
Pueblo	A.D. 1000 to 1350

Each of these groups is posited to exhibit varying degrees of mobility and sedentism as part of its subsistence strategy. The research design presents specific expectations for each category of site. Basically, we want to know what conditions lead from mobility to sedentism among prehistoric populations in the Mogollon Highlands. Did mobility decrease before or after the introduction of cultigens? How mobile were Archaic populations? How sedentary were Pueblo groups? How are Archaic sites structured as opposed to Pithouse and Pueblo sites? Are the terms *hunter-gatherers* and *pithouse dwellers* valid distinctions or could they define the same population? Do resources used inform on mobility patterns? Do site artifact assemblages inform

on length of occupation?

The research design will focus on two aspects of Mogollon adaptations to examine variability in mobility patterns. We have chosen to study variations in site structure and subsistence activities among these prehistoric groups. Most arguments for or against mobility strategies revolve around the degree to which populations practiced agriculture. Our research will focus on this current dichotomy as it applies to all prehistoric groups in the study area.

Current Theory

The Mogollon Highlands area near Reserve, Luna, and Pine Lawn Valley, and near the San Agustín Plains have long been thought to represent the homeland for the adoption of agriculture in the Southwest. The dating of charcoal lenses, supposedly associated with maize, at Bat Cave to approximately 6000 to 5600 B.P. (Dick 1965) revolutionized existing concepts about the adoption of agriculture. Because no other southwestern sites yielded such an early date at that time (Tularosa Cave, at 2400 B.P., was the next oldest), Haury (1962) proposed that agriculture was first introduced to the Southwest from Mesoamerica via a mountain route at about 6000 B.P. He believed agriculture was limited to the Mogollon Highland area because of a favorable climatic regimen. He then assumed, on the basis of available C-14 dates, that the practice of agriculture did not spread to the rest of the Southwest until over 2,000 years later. Archaic hunter-gatherers were thought to have eventually adopted cultigens in response to environmental stress, ceased their continuous wanderings in search of subsistence goods, settled down by streams and arable land, implemented the use of pottery, and eventually became sedentary, building pithouses and then surface rooms and practicing full-scale agriculture.

Recently, this view has changed, primarily because of new investigations carried out by the University of Michigan at Bat Cave (Wills 1988a). Their work has produced revised dates for cultigens (maize and squash) at Bat Cave from 3100 to 2000 B.P., consistent with other sites in the area such as Tularosa Cave. We no longer must postulate a 2,000 year developmental period before the spread of agriculture to other areas. In fact, Wills (1988a:148-149) thinks agriculture probably originated in the Rio Grande Valley or southern Arizona and notes that by 3000 B.P. it is documented in the Jemez Mountains, San Juan Basin, southern New Mexico, and the Tucson Basin. (However, Hunter-Anderson [1986:106] believes that the Mogollon Highlands may have felt the pressure of a high human population and thus opted for domestication of cultigens, implying that it was an indigenous process.) Wills (1988a) would argue that the adoption of agriculture is not an inevitable effect of population pressure although he agrees that variations in population size would probably create an unevenness in environmental productivity. The presence of cultigens on Archaic sites has only been documented for cave sites near the San Agustín Plains beginning during the Middle Archaic period. No use of cultigens has yet been documented for the few Archaic sites recorded near the project area.

Growth in Archaic populations in the Mogollon Highlands may have occurred because of the widespread availability and diversity of subsistence resources. Resources known to be present in the uplands include deer, elk, rabbit, antelope, mountain sheep, small game, berries, piñon nuts, available water, lithic raw material, chenopods, and grasses (Wills 1988a; Fish et al. 1990). However, resources are subject to, among other factors, variability in timing and amount

of available moisture, season of availability, degree of utilization by humans, presence of disease, mobility of resource, and low yield. Today, Archaic populations are characterized as loose knit with changing group size, being fully mobile, moving freely from resource to resource, using primarily wild plant foods as availability warranted.

Thus, we have a traditional picture of Archaic hunters and gatherers moving freely over the landscape prior to the utilization of agriculture. In recent years, debate has focused on the nature of Archaic mobility patterns in the Mogollon Highlands. Most recent models of Archaic settlement patterns postulate an annual round with winters spent in the highlands and summers in the lowlands, because of temporal and spatial variations in the abundance of resources (Hunter-Anderson 1986:49). Evidence of this pattern has not yet been found archaeologically. Winter residences in the mountains are expected to be small with location dependent on the availability of game (Hunter-Anderson 1986). Wills (1988a:93) believes populations did not winter in the mountains, but in the lowlands to the south where resources such as agave, sotol, mesquite, and cacti were plentiful. He maintains that high elevation sites such as Bat Cave and Tularosa Cave imply a spring occupation (Wills 1988b:477).

Obviously, the archaeological record is necessary for testing the various models of Archaic mobility patterns. Spielmann (1990) suggests we look more carefully at resources and their patterns of availability and seasonality of distribution in the environment.

We do know that between 3100 and 2000 B.P., maize and squash had made their appearance at several cave sites in the Mogollon Highlands. At some point, therefore, Archaic peoples incorporated cultigens into their subsistence systems. Traditionally, the introduction of cultigens has perhaps simplistically implied an end to mobility, the beginning use of ceramic vessels, and a shift to permanent residences. Researchers debate the causes for agricultural adoption, which vary from human population stress on available resources (Cordell and Gumerman 1989; Hunter-Anderson 1986) to a strategy for enhancing resource availability (Irwin-Williams 1973; Ford 1981; Cordell 1984; Minnis 1985). Actually, Wills (1988a:5) sees the two models as noncompeting. Increasing populations lead to the employment of agriculture as a security measure, enhancing subsistence strategies already in place. He thinks the environment of the highlands would not have yielded enough surplus winter consumption, making the practice of agriculture a necessary rather than optional choice (Wills 1988a:146).

The cultivation of plants in the Mogollon Highlands requires planting of crops in the spring and harvesting in the fall. Repeated return to fields during the growing season is also necessary. Thus, Wills (1990:324) points out that the conception of agriculture as a casual or simple adaptation is incorrect. The practice of agriculture places potential limitations on mobility patterns. Mountain cultivation may indicate a conscious decision to stay in the uplands and utilize the resources there from spring through fall. Wills (1988b:477), however, cautions that spring use of mountains may have already been part of the Archaic seasonal round.

The use of storage facilities on early agricultural sites would allow populations to maintain mobile lifestyles between highland and uplands (Wills 1988a:477), but as noted by Hunter-Anderson (1986), it may also have permitted them to reduce movement. As Wills (1988b:461) notes, this issue is unresolved because no early sites have yet yielded storage facilities.

The presence of residential architecture or ceramics have also not been documented in the Mogollon Highlands until after the adoption of agriculture. Thus, Wills (1988a:479) believes agriculture is not a necessary prerequisite for sedentism. We tend to think that a dependable resource, such as cultigens, is a prerequisite for sedentism, but if in the highlands, agriculture was initiated as a supplement in the highlands, not a substitute (Johnson 1989:372) to foraging strategies, then sedentism is not tied to the development of agriculture. Archaeologically, we must not equate the practice of agriculture with sedentism (Wills 1988b:479, 482). The very quality, quantity, and diversity in resources that permit hunter-gatherer mobility, as pointed out by Fish et al. (1990:77-78), may also encourage sedentism.

A recent argument ties increasing sedentism to increasing population density (Sarah Schlanger, personal communication, 1990). People may be forced to reduce their residential mobility because permanent residence near producing fields is necessary for crop maintenance and because there may be increasing populations in the area that would tend to occupy prime land left unattended by part-time horticulturalists.

In the Mogollon Highlands, it is generally believed that maize agriculture did not play a significant role in the subsistence economy of Late Archaic populations (Gilman 1987). However, current thinking views foraging with associated mobility or sedentism as part of continuously changing subsistence strategies practiced throughout much of the prehistoric occupation of the highlands (M. Nelson 1990). As needs vary, site use may shift on a seasonal basis, site populations vary periodically, and structures change. In the words of Ben Nelson (1990:157), "...we expect diversity rather than unity..., see no adaptive change as necessarily directional or permanent, and expect that different trajectories may have occurred, even simultaneously, in the same subregion."

Research Expectations

Site Structure

Mobility and sedentary adaptations should be reflected in site structure. Analysis will examine structural and temporal diversity between sites on the project and compare them to other excavated sites in the immediate region such as the SU site, Turkey Foot Ridge, Starkweather Ruin, the Wet Leggett Arroyo site, and Promontory Peak.

Full mobility is traditionally thought to be characteristic of hunter-gatherers or Archaic populations. If this premise is true, site structure at LA 43766 should primarily reflect short-term occupation of the Archaic site. Expectations for fully mobile adaptations include expedient investment of labor in dwellings, hearths, and storage facilities, if present. Also, artifact assemblages should be consistent with short-term occupation data. Domestication of cultigens is not probable, although possible. If Archaic peoples maintained a seasonal round between highlands and lowlands, only seasonal resources of either winter or summer acquisition should show up in the archaeological record. Schlanger (1990) has developed a testable model for predicting length of site occupation from comparisons of types and ratios of artifacts deposited on sites that may be useful for this study.

Expedient lithic reduction is generally associated with sedentary populations and curation with mobile societies. However, J. Moore (n.d.) cautions that there can be many factors that allow these two strategies to be used by either group. Generally, the use of large, generalized bifaces during the Archaic period is usually thought to represent a curated lithic reduction strategy, while expedient tool production is characteristic of later, more sedentary groups. The differences between these two strategies are explained in detail in J. Moore (n.d.). These differences in technological modes can be monitored and quantified for all project sites.

The diverse features and facilities on the Archaic sites suggest differing site functions. The presence of hearths, dwellings, and storage facilities on some documented Archaic sites (O'Laughlin 1983) and not on others informs us that a variety of activities were pursued.

J. Moore (1989:18) has presented three basic site types for hunter-gatherer systems based on work by Binford (1980) and Fuller (1989). He postulates that sites should consist of either residential or base camps, field camps for collection, and resource extraction locales (i.e., quarries). The residential base camp occupied by foraging groups will exhibit a broad range of maintenance, production, and food processing activities. There should be a low investment in habitation units and storage. Structures, if present, should be ephemeral and indicate short-term use. Residential camps occupied by collectors would exhibit the same wide range of activities but with a higher construction investment, indicating a longer, perhaps seasonal, occupation. Field camps are temporary locales used for specialized activities, with no storage (except perhaps caching), and ephemeral structures, if any. Resource extractive locales are not believed to be represented in the project sites.

J. Moore (1989:21) notes that it is difficult to distinguish short-term residential camps of foragers from field camps of collectors. In addition to examining site structure, he believes that lithic artifact assemblages will vary with the type of site and that general-purpose biface manufacture in general reflects mobility in a group. He suggests using a model such as Kelly's (1988), which examines variation in biface production between the several site types. In Kelly's model: (1) Biface manufacturing flakes are common at base camps and rare at field camps. (2) Utilized flakes are common at field camps as opposed to base camps. (3) Residential base camps exhibit a wide range of activities.

Because the Archaic site on the project (LA 43776) contains lithic artifacts, this model will be used to provide a basis for defining site activities and site types.

The presence or absence of storage facilities on Archaic sites is dependent on the type of site and the activities pursued. Storage is a viable choice when mobility is restricted. Storage facilities may be either temporary, located near gathering sites, or more permanently located near long-term residences (Hunter-Anderson 1986:35). J. Moore (1989:26) believes foraging base camps would have no storage because resources are for expedient use. However, base camps for collecting groups could have storage facilities. Field camps may have limited storage. If his propositions are correct, then we may expect some Archaic sites to possess storage units and others not.

Length of site occupation may be determined from an examination of site structure and from artifact analyses such as recommended by Schlanger (1990) and J. Moore (1989). A seasonal occupation might be evidenced by depth of dwellings, presence of interior hearths,

storage facilities, labor investment in structures, and types of resources recovered from sites.

Pithouse populations in the Mogollon Highlands range in age from A.D. 200 to A.D. 1000. They are typically characterized as sedentary, with a labor investment in dwellings, hearths, and storage facilities. Occupation lengths are thought to vary from seasonal to annual or longer. If pithouse sites do represent mobile populations, then use should reflect seasonality or short-term occupation by groups employing collecting strategies.

Site structure on pithouse sites range from single pit units to villages of pithouses with intramural and extramural hearths, storage pits, and outside work areas. To look at the problem of mobility among pithouse dwellers, we must, for example, look at site layout and labor investment for the pithouse site on the project (LA 39972). We must ask if the floors and walls have prepared surfaces. Are there numerous ancillary features within the structures? Is there a plan to site layouts? Are hearths formally constructed, or do they exhibit expediency in preparation? Are hearths both inside and outside of structures? Are storage facilities both inside and outside of structures? Are there specific work areas?

Seasonal or repeated use of pithouses may be evidenced by reconstruction within structures, ample storage facilities, layering of floor levels, and overlapping features.

The number of storage pits on a site relative to dwellings is an indicator of the quantity of goods being stored. The nature of stored resources and the form in which they are stored may indicate whether immediate or future use is intended. Storage facilities outside of pithouse structures are thought to indicate seasonal use.

Length of occupation can be determined by the same factors used to examine Archaic sites, for example, Schlanger's artifact deposition model (1990), labor-investment comparisons, and degree of storage dependency.

Dependence on cultigens is traditionally assumed for pithouse sites. However, this is an assumption that has persisted throughout archaeological literature and may or may not be correct. Hard (1990) has developed a simple but apparently effective theory to assist in the quantification of degree of agricultural dependence. He uses a mean mano length index to show that through time, manos increase in length and grinding surface, which he believes suggests a greater dependence on cultigens. Hard's methods can be applied to the mano assemblages from all project sites for verification of his theory.

Pueblo sites of post A.D. 1000 in the Mogollon Highlands are represented by supposedly permanent structures, storage facilities, middens, and dispersed fieldhouses, such as LA 39968 and LA 39969. The shift from storage pits to above-ground storage rooms may be indicative of the shift to greater agricultural dependency (Hunter-Anderson 1986:49). It is thought that mobility was greatly constrained for these populations because of the substantial labor investment and strong dependence on agriculture.

In opposition to hunter-gatherer sites, pueblo residences produced expedient lithic flake tools. Bifaces such as projectile points and knives were prepared for specific purposes rather than general use. Therefore, fieldhouses and camps will possess mostly expediently used artifacts and few bifaces (J. Moore 1989:24).

Schlanger's (1990) model can again be applied to compare Pueblo ratio of artifact deposition with those of Archaic and Pithouse populations.

Subsistence Adaptations

The study of subsistence adaptations will focus on the types of resources used by each group of site occupants, whether the resources were expediently prepared, and whether storage was a part of subsistence systems. The various subsistence strategies such as foraging, collecting, and farming will be examined in relationship to their effects on mobility. Seasonality of resource availability will be calculated and potential seasonal rounds proposed, following a model by Hofman (1984). At this point, archaeologists do not have the data to confirm seasonal rounds between highlands or lowlands or in highland areas only. Sourcing of specific resources such as lithic raw material, ceramic clays, and trade wares is necessary to provide information on the mobility of people and goods through the cultural systems.

We will also study the balance between utilized floral and faunal resources as a key to determining seasonal mobility strategies.

The presence of domesticated cultigens on sites, particularly maize and squash, will be evaluated in terms of their relative presence in the food assemblages. Variations in ceramic vessel form, ground stone assemblages, and lithic tool use will also aid in the determination of subsistence practices for each site.

If Archaic populations were fully mobile, then subsistence activities at LA 43766 should represent only the range of resources available or easily transported in the immediate environment. However, if they employed a collecting strategy, a wider range of resources could be expected in site assemblages. Fully mobile people would tend to prepare items for immediate consumption or use, while those less mobile might be expected to cache or store resources. All Archaic people should hunt; however, to what extent is unknown.

Dependence on cultigens is not expected, but is possible at LA 43766. Hearths and storage pits will be carefully excavated to ensure that potential cultigens are recovered. The presence of storage pits suggest repeated or seasonal use of a site. Storage pits and the presence of cultigens could be indicative of constrained mobility, at least to some degree.

Ground stone implements may retain some of the materials that were ground and suggest whether immediate or future use was intended. Hearths are another source for recovering food items.

If Pithouse peoples at LA 39972 are limited in their mobility, then subsistence activities would have been more labor intensive, indicating planning for future use. Resource items may include those brought in from longer distances as well as those locally available.

Drying of food items indicates preparation for future use. Dried foods may be present in storage pits and ceramic vessels. The shift to preparation of dried food may have encouraged the use of pottery for boiling food prior to processing and preservation (Hard 1990). It is possible that the number of cooking vessels will increase as the use of dried food increases. A

comparison of ratios of cooking vessel sherds with other artifacts in site assemblages may indicate such an increase.

Certain food items, such as maize and squash, require intensive scheduled monitoring, harvesting, and processing before being consumed or stored. If pithouse site assemblages indicate a stronger dependence on other floral and faunal resources than on maize and squash, then we may assume that site dwellers were not to the point of being constrained by agricultural pursuits. Whether crops were necessary subsistence items, however, must be ascertained from comparison with other food resources.

The Pueblo sites, LA 39968 and LA 39969 (A.D. 1000 to A.D. 1350), in the project area are thought to be small pueblo units or fieldhouses. The size of these small structures suggests a temporary occupation with limited activities. Other larger, primary residences, such as Starkweather Ruin, occur nearby in the region. The value of small pueblo sites lies in their emphasis on a limited range of activities that are amenable to archaeological discovery.

Fieldhouses tend to correlate with aggregated local populations, are thought to be used seasonally, and are generally near producing fields. They may or may not contain storage facilities. Trash deposits should be surficial or very shallow. B. Moore (1978:10) has developed several expectations for fieldhouses. These include: (1) Fieldhouses should be independent units with no more than one to three contiguous rooms. (2) No kivas or ritual features should be present. (3) Nearby agricultural fields should be within unrestricted view of fieldhouses. (4) Period of use can range from daily to seasonal to continuous throughout the farming season. (5) The range of activities should be limited.

Wilcox (1978) distinguishes farmsteads from fieldhouses and notes that farmsteads are year-round family residences that can have more than three rooms. Other structures could be nearby. Arable land should be present but not necessarily within view of the site. Trash middens should be present and represent a wide variety of activities.

B. Moore (1978:31) comments that it may be very difficult to distinguish fieldhouses from farmsteads. He notes that cold-season architecture, interior hearths, and ritual features should be lacking in fieldhouses. Year-round farmsteads should have substantial architecture with interior hearths for cooking and heating.

If LA 39968 and LA 39969 are fieldhouses, chipped stone material should be used for the upkeep of farming implements and for the hunting of game. The lithic reduction technology should be expedient with no formal tool production. J. Moore (1989:32) states that ground stone should not be present; however, I believe that the processing and grinding of food items for ease of transport back to primary residences is a viable option for fieldhouse users. J. Moore (1989) also expects faunal remains to be present only in extensive trash deposits. However, I believe that horticulturalists will focus on the taking of game near their fields (the garden-hunting hypothesis developed by Linares [1976]). In fact, Speth and Scott (1989) believe that large game were often hunted in this farming environment, rather than small game, as proposed by Linares. This trend to large mammal hunting seems to increase as dependency on cultigens goes up. Comparison of large versus small mammal remains on project sites can examine this hypothesis for the Mogollon Highlands.

If LA 39968 and LA 39969 are year-round farmsteads, the lithic artifact assemblage should indicate a wide variety of activities with formal tools made for specific uses. Ground stone tools should also be present. More faunal remains should be present on farmsteads.

The analysis of floral and faunal resources from both fieldhouses and farmsteads should help determine if these sites were used seasonally or year-round or if there are quantifiable differences between fieldhouses and farmsteads in terms of mobility or dependence on maize. Determination of length of occupation should be confirmed by previously mentioned methods.

We have assumed agricultural dependency for Pueblo-period sites. By excavating small units such as fieldhouses, farmsteads, and work areas, we may be able to assess the degree of agricultural dependence in the subsistence economy of these people as opposed to other floral and faunal resources.

In conclusion, we are proposing to use the four sites recommended for data recovery as a data base for examining current research questions about occupation of the Mogollon Highlands. Deeply stratified cave sites of the Archaic period and large pithouse and pueblo villages have been excavated in this area. However, there is a lack of smaller, early, open-air and later pithouse and fieldhouse sites to balance the skewing of the existing data base. We believe the project sites have the integrity and the variety to provide such a balance.

Some questions may prove to be easily answered through the implementation of the research design. Were Late Archaic populations present in the Mogollon Highlands? Do their sites evidence storage facilities? Do site remains indicate a seasonal taking of resources as proposed by Wills (1980)? What resources were used by the various groups in the area? At what time period do cultigens appear on the sites and in what proportions to other resources? Does increasing mano length correspond with greater dependency on agriculture on these sites? Does Schlanger's (1990) artifact ratio model work? Were ceramics being traded into sites or were they locally made? From how far away were lithic raw materials actually obtained?

Answers to the proposed research questions may be obtained through the compilation of appropriate data sets. Artifacts will be subject to traditional analyses and those proposed in this report. To address the question of residential mobility, lithic artifact analysis will include a detailed study of biface manufacture and discard, following Kelly's (1988) model. We will also look at the amount of lithic manufacture versus the amount of lithic maintenance, the investment in storage facilities and domestic architecture, length of site occupation, and amount of reuse or reconstruction.

Sourcing of resources--floral, faunal, lithic raw material, and ceramic--is important for understanding the mobility patterns of each prehistoric group. Floral and faunal resources are especially useful for information on foods consumed and season of use. To examine the dependency on cultigens, we have developed several lines of evidence to measure that dependency: amount of cooking vessels present, percent of surface on manos, amount and kind of storage facilities, and relative amount of faunal resources.

When necessary, specialists will be employed to undertake these studies. Additionally, we will take palynological, phytolith, and macrobotanical samples from available pits, structures, hearths, floors, and cultural fill.

Placing structures and sites in an accurate temporal framework is critical for useful comparisons between site units and sites. Presently, we have only a few temporally diagnostic sherds to indicate the time of occupation on some sites. We will obtain absolute dates from C-14, dendrochronological, archaeomagnetic, and obsidian hydration samples whenever possible.

Data will be compared to the other larger, excavated prehistoric sites in the Mogollon Highlands to broaden the subsistence data base for the region. Through the examination of mobility patterns from the Archaic through the Pueblo periods, our knowledge regarding the diversity in subsistence adaptations by these groups within the Mogollon area should be expanded significantly.

Site-Specific Research

LA 39972

LA 39972 is an extensive Late Pithouse (ca. A.D. 900-1000) site with at least one structure inside the proposed right-of-way and extending well beyond. The frequency of ceramics and lithic artifacts on the site surface is high.

The pit units should provide valuable site structure data in terms of evidence of long-range planning, seasonality of use, evidence of reuse or additional construction, and ratio of storage units to dwellings.

Subsistence strategies should be discernable from the numerous artifact types present. In addition to the actual subsistence items present at the site, tool use will be evaluated and the information used to determine the ratio of floral and faunal use. Storage facilities and interiors of cooking vessels should also yield food remains. The number and layout of storage facilities is important for assessing long-term planning and mobility strategies. Ground stone should be amenable to testing Hard's (1990) model of agricultural dependency.

The artifact assemblage can test Schlanger's model (1990) of long-term use and propositions by J. Moore (1989) that biface production on such sites should be highly specialized.

The site may be the same age as another Late Pithouse site in the area. Data from these sites can be compared in terms of variations in subsistence adaptations, long-term planning, and site function.

LA 43766

The site is probably a Late Archaic (ca. 1500 B.c.-A.D. 200) campsite. Numerous artifacts are present on the site surface. The site provides an excellent opportunity to examine a site of this time frame in the Mogollon Highlands. Most of the other known sites lie on the southeast slopes of the San Francisco Mountains, a distance of about 16 km.

The chipped stone material will provide data for the comparative study of biface manufacture and maintenance by Archaic populations, following Kelly's (1988) model. Tool function, as related to hunting, foraging, or collecting strategies, can be addressed with this assemblage. Schlanger's test (1990) for site longevity can also be examined with this artifact assemblage. Subsistence items, such as floral and faunal remains, could be recovered from the pits on the site. These should provide important information on resource use, seasonality of acquisition, and the question of whether or not long-range planning took place.

LA 39968

This site dates to the Late Pueblo occupation (late Reserve to early Tularosa phase) of the Mogollon Highlands, A.D. 1100-1300. It consists of a cobble-walled room block of five to six rooms. Preservation of the site appears to be excellent.

Site structure for such late sites in the Mogollon Highlands is not well known. LA 39968 provides the opportunity to examine site layout, relationship of pits and the pithouse/kiva to above-ground dwelling units, and use of various facilities. Artifact analysis, following Schlanger's (1990) and Kelly's (1988) models, will be used to document site function and assist in the determination of relative dependence on cultigens. Mano and cooking vessel analyses will also be used for this determination. An approximation of the seasonality of use is important for this late site and will enable us to compare lengths of site use through time in the project area.

LA 39969

This site dates to the Pueblo occupation (late Reserve to early Tularosa phase) of the Mogollon Highlands, A.D. 1100-1200. It consists of three to four cobble-based rooms. Preservation of the site appears to be excellent.

Site structure for such late sites in the Mogollon Highlands is not well known. LA 39969 provides the opportunity to examine site layout, relationship of pits and the pithouse/kiva to above-ground dwelling units, and use of various facilities. Artifact analysis, following Schlanger's (1990) and Kelly's (1988) models, will be used to document site function and assist in the determination of relative dependence on cultigens. Mano and cooking vessel analyses will also be used for this determination. An approximation of the seasonality of use is important for this late site and will enable us to compare lengths of site use through time in the project area.

Field and Analysis Methods

Expectations for the type of features and cultural materials at the project sites and how they will answer the proposed research questions are detailed under "Research Expectations." Basically, the following standard field and analysis techniques will be used to extrapolate the specific structural and temporal data required by the research design. These include an accurate chronometric ordering of sites through various dating mechanisms such as radiocarbon analysis, archaeomagnetic sampling, obsidian hydration, and dendrochronology. Determination of time

frames for each site is also important for dating the use of cultigens and other resources by site occupants. The data recovery plan also commits us to examine site structure in detail in terms of expedient versus reuse or long-term use. We plan on collecting sufficient macrobotanical and palynological samples to assess subsistence adaptations. These will be taken from floors and walls and fill of structural units on each site. The chronometric data will be taken from burned structural material, hearths, and pit fill, if possible. Ceramic artifacts will also be used to augment the dating of sites and to assess site function. For determining the functional differences between Archaic, Pithouse, and Pueblo sites, we will test the various proposed artifact analysis models put forth in the research design. Variations in artifact assemblages are important to our study and recovery of statistically valid artifact samples are critical. In addition, the collection of adequate floral and faunal remains is vital to our understanding of the various subsistence adaptations that may be present on our sites. These samples will be collected whenever possible, for example, pit fill, hearths, floor surfaces, ground stone surfaces, and trash areas.

Field Methods

A primary datum will first be established for each of the four sites on the project, from which at least two baselines will be run. From these, a 1-by-1-m grid system will be imposed over each site. Surface collections and initial excavation units will be made within the grid system. Hand tools such as trowels, shovels, picks, brushes, and dental picks will be used for the excavation of cultural material and features. Mechanical equipment will be used, if necessary, to strip disturbed or sterile overburden from portions of sites.

Excavation units will consist of 1-by-1-m grids placed initially within known cultural features. They will be dug in 10-cm arbitrary levels unless natural or cultural stratigraphic breaks are evident. If natural breaks are defined, excavations will continue in levels determined by the depth of the strata. The excavation units will be expanded out from the exploratory grids to determine the nature and extent of any cultural deposits and features that are encountered. Surface stripping will be used to ensure that all subsurface features will be found.

Soil recovered from excavation procedures will be screened through ¼-inch mesh hardware cloth, and all artifacts will be bagged by level. However, artifacts recovered from floors or other use surfaces will be mapped in place and bagged separately. Pollen and flotation samples will be collected from all cultural strata, including middens, floors, or other use surfaces. In addition, an off-site pollen control sample will be collected for comparison with other site samples. Flotation samples will be taken from each cultural stratum and feature encountered. If available, charcoal, archaeomagnetic, and tree-ring samples will be collected to determine the dates of the sites.

Soil augers will be used to investigate areas of the sites where cultural features are not visible. Any artifacts collected in this manner will be bagged by depth and saved for later analysis. Subsurface cultural deposits encountered in any auger tests will be further examined through grid excavations or trenched by a backhoe to determine their extent.

We will attempt to locate all site features through the above methods. Features that have the potential to answer the questions posed by the data recovery plan will be completely excavated. Other features will be sampled to determine their data potential. Individual field

forms will be filled out for each level excavated, detailing depth of level, type and amount of artifacts recovered, and soil type and color based on the Munsell scale.

All stratigraphic levels and feature profiles will be drawn along with plan views of each feature. Features will be photographed before and after excavation. The site, including all cultural features, locations of excavation units, and topographic changes will be mapped with a transit and stadia rod.

Should human remains be discovered during the data recovery program, standard archaeological excavation techniques will be employed. These include the definition of the burial locale, the use of small hand tools to expose skeletal materials, mapping and photographing the skeleton and any associated grave goods, and retrieval of soil for pollen and coprolite analysis.

The field treatment of any human remains and other sensitive cultural discoveries will be based on the Museum of New Mexico Rule 11, "Policy on Collection, Display, and Repatriation of Culturally Sensitive Materials," adopted January 17, 1991. If human remains or other sensitive materials are uncovered, appropriate law enforcement agencies and the appropriate Native American groups will be notified. No person will be allowed to handle or photograph the remains except as part of scientific data recovery efforts. Photographs of sensitive materials will not be released to the media or general public.

If human remains (including any associated burial goods) are recovered, their disposition will be based on consultations carried out in accordance with federal regulations through the Forest Service. No disposition of the remains will be completed until the wishes of the nearest Indian Community, Zuni, are known. Unless an alternative disposition is established through the consultation process, the remains will be submitted to the Museum of New Mexico Archeological Repository for physical storage at the Department of Anthropology, University of New Mexico. Remaining artifacts will be submitted to the Archeological Repository for physical storage.

Laboratory Analysis

Laboratory analyses will be conducted the staff of the Office of Archaeological Studies and specialized professional consultants. When brought in from the field, artifacts will first be washed, sorted, and catalogued. Any remains that do not appear to be stable will be treated in consultation with the Museum's conservation department.

Ceramic Artifacts. To assign dates, function, and cultural affinity to the ceramic artifacts, a detailed analysis of morphological attributes will be undertaken. Artifacts will be identified by existing type name, vessel and rim form, vessel diameter, paste texture and color, temper material, surface color and finish, slip, design style, thickness, presumed function, and presence of attributes such as burning, smudging, mending, or reworking. A binocular microscope will be used to facilitate the analysis. A sample of sherds of each type will be submitted for petrographic analysis and for x-ray refraction analysis to determine the origin of the sherds. Clay sources for pottery production will be sought during the field excavations and matched with sherd samples in the laboratory.

Lithic Artifacts. Lithic artifacts will be analyzed for material type and texture, artifact type, breakage type, use, and presence of thermal treatment. Attributes to be monitored with formal and informal tools include edge angle and shape, type of modification and/or wear. A binocular microscope will be used to identify retouch and wear patterns. Debitage will be examined for evidence of reduction strategy, reduction stage, platform type, percentage of dorsal cortex, platform lipping, artifact portion, direction of dorsal scarring, and size. These studies should allow an evaluation of reduction technology, tool production and use, and raw material procurement strategies. A specialized analysis will involve the study of biface manufacture and use in order to test Kelly's (1988) model for differential biface use between hunter-gatherers and sedentary farmers.

Comparison of lithic artifact data with other sites on the project and in the nearby region may assist in the identification of specific manufacturing techniques and use patterns that may inform on varying subsistence strategies of the different cultural groups in the project area.

Faunal Remains. The faunal analysis will focus on the identification of species, age, and bone elements to assist in determining species used as food resources and portions used by each prehistoric population. Season of death for faunal remains will be determined for young species, if possible. Butchering and processing methods will be examined. We will also investigate the use of faunal materials as tools. Information from the faunal analysis will be used to aid in the determination of season of occupation on sites, hunting patterns and dependency, and subsistence strategies pursued.

Floral Remains. Floral remains will be identified by specific species when possible and compared with plant data from other sites to determine floral resources used by the various groups. It will also be used to help determine the season of use and subsistence strategy employed at each site. Plant types will identify whether domestication of cultigens was practiced.

Human Remains. The main goal of the skeletal analysis, if any, will be a nondestructive study of remains to add to the data base on prehistoric populations from the Mogollon area. The analysis will include standard metric studies, aging and sexing of the remains, and documentation of pathologies, particularly those related to food stress. If bone tissue samples are present, these will be submitted for carbon isotope studies to determine the relative proportion of maize in the diet of site populations.

Analysis Results

The final data recovery and analysis report will be published in the Museum of New Mexico's Office of Archaeological Studies *Archaeology Notes*. The report will present the results of the excavations, analysis, and interpretation of the data. It will include photographs, site and feature maps, and data summaries. Field notes and maps, analytic data sheets, and photographs will be deposited with the Archeological Records Management System of the State Historic Preservation Division, located at the Laboratory of Anthropology in Santa Fe.

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APPENDIX 1. TREATMENT OF HUMAN REMAINS

1991 FEB -5 AM 11:14

Office of Cultural Affairs
Museum Division
(Museum of New Mexico)
P.O. Box 2087, 113 Lincoln Ave.
Santa Fe, New Mexico 87504

Rule No. 11 POLICY ON COLLECTION, DISPLAY Adopted: 01/17/91
AND REPATRIATION OF CULTURALLY
SENSITIVE MATERIALS

I. INTRODUCTION

The policy of the Museum of New Mexico is to collect, care for, and interpret materials in a manner that respects the diversity of human cultures and religions.

Culturally sensitive materials include material culture as well as the broader ethical issues which surround their use, care, and interpretation by the Museum. The Museum's responsibility and obligation are to recognize and respond to ethical concerns.

II. DEFINITIONS;

- A. "Culturally sensitive materials" are objects or materials whose treatment or use is a matter of profound concern to living peoples; they may include, but are not limited to:
1. "Human remains and their associated funerary objects" shall mean objects that, as a part of the death rite or ceremony of a culture, are reasonably believed to have been placed with individual human remains either at the time of death or later;
 2. "Sacred objects" shall mean specific items which are needed by traditional religious leaders for the practice of an ongoing religion by present-day adherents;
 3. Photographs, art works, and other depictions of human remains or religious objects, and sacred or religious events; and

- 4. Museum records, including notes, books, drawings, and photographic and other images relating to such culturally sensitive materials, objects, and remains.
- B. "Concerned party" is a museum-recognized representative of a tribe, community, or an organization linked to culturally sensitive materials by ties of culture, descent, and/or geography. In the case of a federally recognized indian tribe, the representative shall be tribally-authorized.
- C. "Repatriation" is the return of culturally sensitive materials to concerned parties. Repatriation is a collaborative process that empowers people and removes the stigma of cultural paternalism which hinders museums in their attempts to interpret people and cultures with respect, dignity, and accuracy. Repatriation is a partnership created through dialogue based upon cooperation and mutual trust between the Museum and the concerned party.
- D. The Museum of New Mexico's Committee on Sensitive Materials is the committee, appointed by the Director of the Museum of New Mexico, that shall serve as the Museum of New Mexico's advisory body on issues relating to the care and treatment of sensitive materials.

III. IDENTIFICATION OF CONCERNED PARTIES

- A. The Museum shall initiate action to identify potentially concerned parties who may have an interest in culturally sensitive material in the museum's collections.
- B. The Museum encourages concerned parties to identify themselves and shall seek out those individuals or groups whom the Museum believes to be concerned parties.

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- C. The Museum's sensitive materials committee shall review all disputed individual claims of concerned-party status in consultation with the tribe, community, or organization which the individual(s) claims to represent. The Museum's sensitive materials committee shall assist, when necessary, in designating concerned parties who have an interest in culturally sensitive materials contained in the collections of the Museum of New Mexico.
- D. The Museum shall provide an inventory of pertinent culturally sensitive materials to recognized concerned parties.
- E. The Museum shall work with concerned parties to determine the appropriate use, care and procedures for culturally sensitive materials which best balance the needs of all parties involved.

IV. IDENTIFICATION AND TREATMENT OF CULTURALLY SENSITIVE MATERIALS

- A. Within five years of the date of adoption of this policy, each Museum unit shall survey to the extent possible (in consultation with concerned parties, if appropriate) its collections to determine items or material which may be culturally sensitive materials. The Museum unit shall submit to the Director of the Museum of New Mexico an inventory of all potentially culturally sensitive materials. The inventory shall include to the extent possible the object's name, date and type of accession, catalogue number, and cultural identification. Within six months of submission of its inventory to the Director of the Museum of New Mexico, each Museum unit shall then develop and submit, a plan to establish a dialogue with concerned parties to determine appropriate treatment of culturally sensitive items or materials held by the unit.

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- B. As part of its treatment plans for culturally sensitive materials, the Museum reserves the right to restrict access to, or use of, those materials to the general public. The Museum staff shall allow identified concerned parties access to culturally sensitive materials.
- C. Conservation treatment shall not be performed on identified culturally sensitive materials without consulting concerned parties.
- D. The Museum shall not place human remains on exhibition. The Museum may continue to retain culturally sensitive materials. If culturally sensitive materials, other than human remains, are exhibited, then a good-faith effort to obtain the advice and counsel of the proper concerned party shall be made.
- E. All human skeletal remains held by the Museum shall be treated as human remains and are de facto sensitive materials. The Museum shall discourage the further collection of human remains; however, it will accept human remains as part of its mandated responsibilities as the State Archaeological Repository. At its own initiation or at the request of a concerned party, the Museum may accept human remains to retrieve them from the private sector and furthermore, may accept human remains with the explicit purpose of returning them to a concerned party.

IV. REPATRIATION OF CULTURALLY SENSITIVE MATERIALS

- A. On a case-by-case basis, the Museum shall seek guidance from recognized, concerned parties regarding the identification, proper care, and possible disposition of culturally sensitive materials.

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- B. Negotiations concerning culturally sensitive materials shall be conducted with professional discretion. Collaboration and openness with concerned parties are the goals of these dialogues, not publicity. If concerned parties desire publicity, then it will be carried out in collaboration with them.
- C. The Museum shall have the final responsibility of making a determination of culturally sensitive materials subject to the appeal process as outlined under section VII A.
- D. The Museum of New Mexico accepts repatriation as one of several appropriate actions for culturally sensitive materials only if such a course of action results from consultation with designated concerned parties as described in Section III of this policy.
- E. The Museum may accept or hold culturally sensitive materials for inclusion in its permanent collections.
- F. The Museum may temporarily accept culturally sensitive materials to assist efforts to repatriate them to the proper concerned party.
- G. To initiate repatriation of culturally sensitive materials, the Museum of New Mexico's current deaccession policy shall be followed. The curator working with the concerned party shall complete all preparations for deaccession through the Museum Collections Committee and Director before negotiations begin.
- H. Repatriation negotiations may also result in, but are not limited to, the retention of objects with no restrictions on use, care, and/or exhibition; the retention of objects with restrictions on use, care and/or exhibition; the lending of objects either permanently or temporarily for use to a community; and the holding in trust of culturally sensitive materials for the concerned party.

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- I. When repatriation of culturally sensitive materials occurs, the Museum reserves the right to retain associated museum records but shall consider each request for such records on an individual basis.

VI. ONGOING RECOVERY OR ACCEPTANCE OF ARCHAEOLOGICAL MATERIALS

- A. In providing sponsored archaeological research or repository functions, the Museum shall work with agencies that regulate the inventory, scientific study, collection, curation, and/or disposition of archaeological materials to ensure, to the extent possible under the law, that these mandated functions are provided in a manner that respects the religious and cultural beliefs of concerned parties.
- B. When entering into agreements for the acceptance of, or continued care for, archaeological repository collections, the Museum may issue such stipulations as are necessary to ensure that the collection, treatment, and disposition of the collections include adequate consultation with concerned parties and are otherwise consistent with this Policy.
- C. In addition to the mandated treatment of research sites and remains and in those actions where treatment is not mandated, defined, or regulated by laws, regulations, or permit stipulations, the Museum shall use the following independent guidelines in recovering or accepting archaeological materials:
 1. Prior to undertaking any archaeological studies at sites with an apparent relationship to concerned parties, the Museum shall ensure that proper consultation with the concerned parties has taken place.

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2. When so requested by concerned parties, the Museum shall include an observer, chosen by the concerned party, in the crew of an archaeological study.
3. The Museum shall not remove human remains and their associated funerary objects or materials from their original context nor conduct any destructive studies on such remains, objects, and materials, except as part of procedures determined to be appropriate through consultation with concerned parties, if any.
4. The Museum reserves the right to restrict general public viewing of in situ human remains and associated funerary objects or items of a sacred nature and further shall not allow the public to take or prepare images or records of such objects, materials, or items, except as part of procedures determined to be appropriate through consultation with concerned parties. Photographic and other images of human remains shall be created and used for scientific records only.
5. The Museum reserves the absolute right to limit or deny access to archaeological remains being excavated, analyzed, or curated if access to these remains would violate religious practices.

APPENDIX 3. CURRICULUM VITAE

VITA

YVONNE ROYE OAKES

HOME ADDRESS: Route 10, Box 88B, Santa Fe, New Mexico 87501
Telephone: (505) 471-7980

OFFICE: Office of Archaeological Studies
Museum of New Mexico
Santa Fe, New Mexico 87504-2087
Telephone: (505) 827-8953

EDUCATION: B.S. in Health and Physical Education (1958)
West Chester State University, West Chester, Pa.

M.A. in Anthropology (1981)
University of New Mexico, Albuquerque, NM.

ARCHAEOLOGICAL EXPERIENCE:

- 1988- Assistant Director, Office of Archaeological Studies, Museum of New Mexico. Serve as Acting Director in absence of Director. Perform managerial duties as assigned by Director. Serve as Principal Investigator for all projects in southern half of New Mexico. Responsible for evaluation of assigned project supervisors. Serve as project director for survey, testing, and data recovery programs including writing of research designs and budgets, supervision of field personnel, interpretation of analyzed data, and preparation of final reports.
- 1987 Acting Director, Research Section, Laboratory of Anthropology, Museum of New Mexico in absence of Director. Administer contract (\$1 million a year) and research program. Responsible for preparation of annual budgets, supervision of project directors, and maintain support staff. Serve as Principal Investigator for Research Section projects. Hire new personnel. Oversee report production.
- 1979 Lithic Analyst, part-time. Analyzed lithic artifacts for Dr. John Campbell, University of New Mexico. Submitted six reports.
- 1977 Project Supervisor, Research Section, Laboratory of Anthropology, Museum of New Mexico. Devise and conduct data recovery programs through writing of research designs, preparation of budgets, field excavations, supervision of analyses, interpretation of data and submission of final reports.

1975 Crew member, Research Section, Laboratory of Anthropology, Museum of New Mexico. Served on field crews and analysis teams. Responsible for various chapters in reports.

PROFESSIONAL MEMBERSHIPS:

Arizona Archaeological Society
Historical Society of New Mexico
New Mexico Archaeological Council
Society for American Archaeology
Society for Historical Archaeology

PROFESSIONAL JOURNALS:

American Antiquity
Historical Archaeology
New Mexico Historical Review
Pottery Southwest
The Kiva

GRANTS AND HONORS:

- 1992 Museum of New Mexico Committee on Excellence. Award to present paper on Luna excavations at Mogollon Conference, Las Cruces.
- 1990 Elected Treasurer, New Mexico Archaeological Council.
- 1989 Museum of New Mexico Committee on Excellence. Award for travel to Historic Mining Conference, Death Valley, CA.
- 1989 Committee on Research and Publication, Research Section. Award to prepare talk on Carthage coal fields at Historical Society of New Mexico conference, Socorro, New Mexico.
- 1988 New Mexico Endowment for the Humanities. Award for analysis of Glorieta Burial material and preparation of Museum exhibit.

PROFESSIONAL PAPERS:

- 1992 Archaeological Excavations in the Mogollon Highlands. Mogollon Conference, Las Cruces.
- 1992 Preliminary Results of Excavations in the Mogollon Highlands. Pecos Conference, Pecos.
- 1992 Archaeology of the Mogollon Highlands. Arizona Archaeological Society, Springerville.
- 1990 Excavation of 18 Sites in the Mogollon Highlands. Mogollon Conference, Las Cruces.

- 1989 Historic Mining Community of Carthage. Historical Society of New Mexico, Socorro.
- 1989 The Battle of Glorieta. Los Alamos Historical Society, Los Alamos.
- 1989 The Glorieta Burials. Albuquerque Archaeological Society, Albuquerque.
- 1987 Excavation of an Hispanic Homestead near Roswell. Jornada Mogollon Conference, Tularosa.
- 1985 Spanish-American Homestead Patterns in Eastern New Mexico. Conference on The Homestead Phenomenon in Archaeological and Historical Perspective, Los Alamos.
- 1981 It's All Women's Work. Jornada Mogollon Conference, Portales.
- 1980 Delineation of Site Function through Artifact Analysis. Sixteenth Annual Meeting of the Southwestern Federation Symposium of Archaeological Societies.

PROFESSIONAL INTERESTS:

Hispanic settlement patterns in Southwest
 Late Territorial period sites in New Mexico
 Mogollon subsistence adaptations
 Environmental adaptations of prehistoric peoples
 Early Navajo settlement in Southwest

PUBLICATIONS:

- in press Archaeological Survey of Reserve Area Arroyos and Proposed Weigh Station, Gila National Forest, Catron County, New Mexico. Archaeology Notes 66, Museum of New Mexico, Santa Fe.
- 1992 The Glorieta Project: Excavations at Eight Prehistoric Sites between Glorieta and Pecos, New Mexico. Archaeology Notes 45, Museum of New Mexico, Santa Fe.
- 1991 Archaeological Survey of a Proposed Weigh Station, Waste Areas and Excess Materials Disposal Areas, and CMEs and TCPs near U.S. 180, Catron County, New Mexico. Archaeology Notes 50, Museum of New Mexico, Santa Fe.
- 1991 Testing Results and Data Recovery Plan for Sites in the San Francisco Mountains, Catron County, New Mexico. Archaeology Notes 20, Museum of New Mexico, Santa Fe.

- 1990 Testing Results and Data Recovery Plan for Sites in the Mogollon Highlands, Catron County, New Mexico. Archaeology Notes 3, Museum of New Mexico, Santa Fe.
- 1990 Archaeological Survey of the Mogollon Highlands along US 180, Catron County, New Mexico. Laboratory of Anthropology Notes 500, Museum of New Mexico, Santa Fe.
- 1989 Archaeological Survey of the Riley Mine, Socorro County, New Mexico. Laboratory of Anthropology Notes 484, Museum of New Mexico, Santa Fe.
- 1989 The Wilson Homestead: An Early Twentieth Century Site on the Canadian River, Quay County, New Mexico. Laboratory of Anthropology Notes, Museum of New Mexico, Santa Fe.
- 1988 An Archaeological Survey near Nogal, New Mexico for Twin Mountain Rock Company. Laboratory of Anthropology Notes 445, Museum of New Mexico, Santa Fe.
- 1988 The Civil War Engagement at Glorieta, New Mexico. Grant proposal, New Mexico Endowment for the Humanities.
- 1987 Archaeological Survey of Mine Lands at Carthage, Socorro County, New Mexico. Laboratory of Anthropology Notes 412, Museum of New Mexico, Santa Fe, New Mexico.
- 1987 Archaeological Survey of Mine Lands at Mentmore, New Mexico for the Abandoned Mine Land Bureau. Laboratory of Anthropology Notes 404, Museum of New Mexico, Santa Fe.
- 1987 Archaeological Survey of Mine Lands, Raton Coal Field for the Abandoned Mine Land Bureau. Laboratory of Anthropology Notes 386, Museum of New Mexico, Santa Fe.
- 1987 Archaeological Survey of Mine Lands at La Ventana, Sandoval County, New Mexico for Abandoned Mine Land Bureau. Laboratory of Anthropology Notes 382, Museum of New Mexico, Santa Fe.
- 1986 The Fite Ranch Project: The Excavation of Two Pueblo Sites along San Pedro Wash, Socorro County, New Mexico. Laboratory of Anthropology Notes 432, Museum of New Mexico, Santa Fe.
- 1986 Archaeological Survey of Skull Shaft Mine, Santa

Fe County, New Mexico, for Abandoned Mine Land Bureau. Laboratory of Anthropology Notes 383, Museum of New Mexico, Santa Fe.

- 1986 Archaeological Survey of Mine Lands at Tortugas Mountain, Dona Ana County, New Mexico, for Abandoned Mine Land Bureau. Laboratory of Anthropology Notes 381, Museum of New Mexico, Santa Fe.
- 1986 Archaeological Survey of Mine Land at Organ, Dona Ana County, New Mexico, for Abandoned Mine Land Bureau. Laboratory of Anthropology Notes 380, Museum of New Mexico, Santa Fe.
- 1986 Archaeological Testing of Three Historic Sites at Lincoln State Monument, Lincoln County, New Mexico. Laboratory of Anthropology Notes 357, Museum of New Mexico, Santa Fe.
- 1986 Navajo and Basketmaker III-Pueblo I Occupations of Two Sites near Quemado, Catron County. Laboratory of Anthropology Notes 355, Museum of New Mexico, Santa Fe.
- 1986 Testing of Two Small Lithic Sites along U.S. 285, Chaves County, New Mexico. Laboratory of Anthropology Notes 351, Museum of New Mexico, Santa Fe.
- 1985 An Assessment of Gathering Sites near Hackberry Lake, Eddy County, New Mexico. Laboratory of Anthropology Notes 415, Museum of New Mexico, Santa Fe.
- 1985 Clearance Survey along SR 44 between Lybrook and the Santa Fe National Forest, for Contel of the West. Laboratory of Anthropology Notes 369, Museum of New Mexico, Santa Fe.
- 1985 The Sims Mesa Project. Laboratory of Anthropology Notes 329, Museum of New Mexico, Santa Fe.
- 1985 It's All Women's Work. In Views of the Jornada Mogollon: Proceedings of the Second Jornada Mogollon Conference (Editor, Colleen M. Beck). Eastern New Mexico University Contributions in Anthropology, 12. Portales.
- 1984 Testing Proposal for Glorieta Battlefield and Pigeon's Ranch, Glorieta, New Mexico. Laboratory of Anthropology Notes 370, Museum of New Mexico, Santa Fe.

- 1984 An Archaeological Survey near Cuba, New Mexico for Contel of the West. Laboratory of Anthropology Notes 366, Museum of New Mexico, Santa Fe.
- 1984 Archaeological Assessment of the El Rito-Ojo Caliente Transmission Line for Contel of the West. Laboratory of Anthropology Notes 340, Museum of New Mexico, Santa Fe. .
- 1984 Results of Testing Program for Eleven Sites along U.S. 380 near Carthage, New Mexico. Laboratory of Anthropology Notes 328, Museum of New Mexico, Santa Fe.
- 1983 Colfax, New Mexico: A Study of Land Use Patterns on the Maxwell Land Grant. Laboratory of Anthropology Notes 313, Museum of New Mexico, Santa Fe.
- 1983 The Ontiberos Site: A Hispanic Homestead near Roswell, New Mexico. Laboratory of Anthropology Notes 311, Museum of New Mexico, Santa Fe.
- 1982 Prehistoric Gathering Sites near Hackberry Lake, Eddy County, New Mexico. Laboratory of Anthropology Notes 305, Museum of New Mexico, Santa Fe.
- 1982 Testing Results and Proposed Research Design for Colfax, New Mexico. Laboratory of Anthropology Notes 304, Museum of New Mexico, Santa Fe.
- 1981 An Archaeological Survey near Dilia, New Mexico. Laboratory of Anthropology Notes 279, Museum of New Mexico, Santa Fe.
- 1981 Prehistoric Subsistence Adaptations on White Sands Missile Range. Laboratory of Anthropology Notes 277, Museum of New Mexico, Santa Fe.
- 1979 The Cross L Ranch Site: A Study of Plains Adaptations. Laboratory of Anthropology Notes 164, Museum of New Mexico, Santa Fe.
- 1979 Excavations at Deadman's Curve, Tijeras Canyon, Bernalillo County, New Mexico. Laboratory of Anthropology Notes 137, Museum of New Mexico, Santa Fe.
- 1979 A Cultural Resource Survey and Recommendation Proposal, New Mexico State Highway Department Project FLH-12(19). Toadlena Turnoff- Little Water, San Juan County, New Mexico. Laboratory of Anthropology Notes 136, Museum of New Mexico,

Santa Fe.

- 1978 A Cultural Resource Investigation of Proposed Water System Improvements, Village of Los Lunas, Valencia County, New Mexico. Laboratory of Anthropology Notes 252, Museum of New Mexico, Santa Fe.
- 1978 An Archaeological Clearance Investigation of Two Proposed Borrow Pits on Zia Indian Reservation. Laboratory of Anthropology Notes 176, Museum of New Mexico, Santa Fe.
- 1977 Cultural Resource Clearance Investigation of Proposed Drill Locations, Zuni Mountains, Cibola National Forest, Valencia County, New Mexico, for Continental Oil Company. Laboratory of Anthropology Notes 250, Museum of New Mexico, Santa Fe.
- 1976 A Cultural Resource Investigation of a One-half Section Tract Northeast of Arch Mesa, Southwestern Sandoval County, New Mexico, for Kerr-McGee Corporation. Laboratory of Anthropology Notes 418, Museum of New Mexico, Santa Fe.
- 1976 Archaeological Clearance Investigation for the Ralph E. Vail Consulting Engineer Company, Sile, New Mexico. Laboratory of Anthropology Notes 359, Museum of New Mexico, Santa Fe.
- 1976 A Cultural Resource Investigation of the Nageezi Area, San Juan County, New Mexico, for the Salt River Project. Laboratory of Anthropology Notes 202, Museum of New Mexico, Santa Fe.
- 1976 An Archaeological Clearance Investigation for the Exxon Company, Rio Arriba County, New Mexico. Laboratory of Anthropology Notes 126, Museum of New Mexico, Santa Fe.