EXCAVATION AT LA 130874: A LATE ARCHAIC SPECIAL ACTIVITY SITE

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MUSEUM OF NEW MEXICO
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submitted by
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ADMINISTRATIVE SUMMARY

Between April 30 and May 17, 2001, the Office of Archaeological Studies, Museum of New Mexico, conducted a data recovery program at LA 130874 in Rio Arriba County, New Mexico. The data recovery program was conducted at the request of the New Mexico State Highway and Transportation Department (NMSHTD) to recover important archaeological information from cultural deposits within an area of planned improvements to U.S. 84. The data recovery program followed the procedures in the previously approved Data Recovery Plan for LA 130874 (AR-NM-03-02-01), along U.S. 84, near Cebolla, Rio Arriba County, New Mexico (Hannaford 2001).

LA 130874 is a small special activity site associated with hunting activities and dating to the late Archaic. The small artifact assemblage consisted of 28 chipped stone artifacts confined largely to a 10-by-10-m area. Biface reduction using nonlocal Jemez Mountain obsidian was the primary site activity. Tools were restricted to two obsidian projectile point fragments. An En Medio style projectile point base suggests a 800 B.C. to A.D. 400 occupation. Site function centered around hunting activities and the manufacture/maintenance of projectile points. Two previously recorded features were found to be of recent origin and unrelated to the prehistoric occupation. Feature 1 was a 15-by-12-m scatter of charcoal preserved largely east of the right-of-way. The charcoal was identified as Pinus cf. ponderosa and returned a conventional radiocarbon age of 110 ± 80 B.P. (Beta sample 162540). The charcoal scatter appears to have originated from the recent felling of a dead lightning-struck ponderosa pine tree. Feature 2 was an oblong 1-by-0.60-m concentration of cobbles post-dating the original blading of the highway shoulder. The cobble concentration is most likely associated with recent roadside activities. The small surficial artifact assemblage combined with the culturally sterile soil and apparent absence of features evidences a brief occupation by one or two hunters maintaining hunting equipment. This may have occurred as hunters concealed in the wooded terrace margin watched for game along the nearby grass-covered and watered Cebolla River bottom.

The data recovery program determined that the site area overlapping the proposed right-of-way is not likely to yield important information beyond that already documented. No further archaeological investigations within the construction zone are recommended.

MNM Project 41.688 Cebolla
NMSHTD Project No. TP-084-7(31)240 CN 3244
Archaeological Excavation Permit SE-169

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INTRODUCTION

At the request of Ms. Judith A. James, Environmental Program Manager, New Mexico State Highway and Transportation Department, a data recovery program was conducted on the portion of LA 130874 within the proposed construction zone of improvements to U.S. 84 near Cebolla, Rio Arriba County, New Mexico (NMSHTD Project No. TP-084-7[31]240, CN 3244, District 5; Fig.1). LA 130874 is located along the east right-of-way of U.S. 84 between centerline stations 24+600 and 24+700 on the highway plans. Exact site location information is contained in Appendix 1 (removed from copies in general circulation). The investigated portion of the site is on highway right-of-way land obtained from private sources (Fig. 2). The site area on private land and Carson National Forest land east of the proposed right-of-way was not investigated other than surface examination of the Feature 1 area. Fieldwork took place between April 30 and May 17, 2001, conducted by Charles A. Hannaford and assisted by C. Dean Wilson. A total of 26 person-days were expended during the three-week field phase. Tim Maxwell was principal investigator. Maps were drafted by Rob Turner and the report was edited by Robin Gould.

The data recovery program followed the procedures included in the previously approved Data Recovery Plan for LA 130874 (AR-NM–03-02-01-601), along U.S. 84 near Cebolla, Rio Arriba County, New Mexico (Hannaford 2001). The data recovery program was conducted under State of New Mexico Archaeological Excavation Permit SE-169.

Before the fieldwork, the National Register of Historic Places and the State Register of Cultural Properties were consulted. No properties listed on, nominated to, or approved for submission to either inventory are located within the proposed project boundaries.

This report complies with the provisions of the Historic Preservation Act of 1966 as amended.

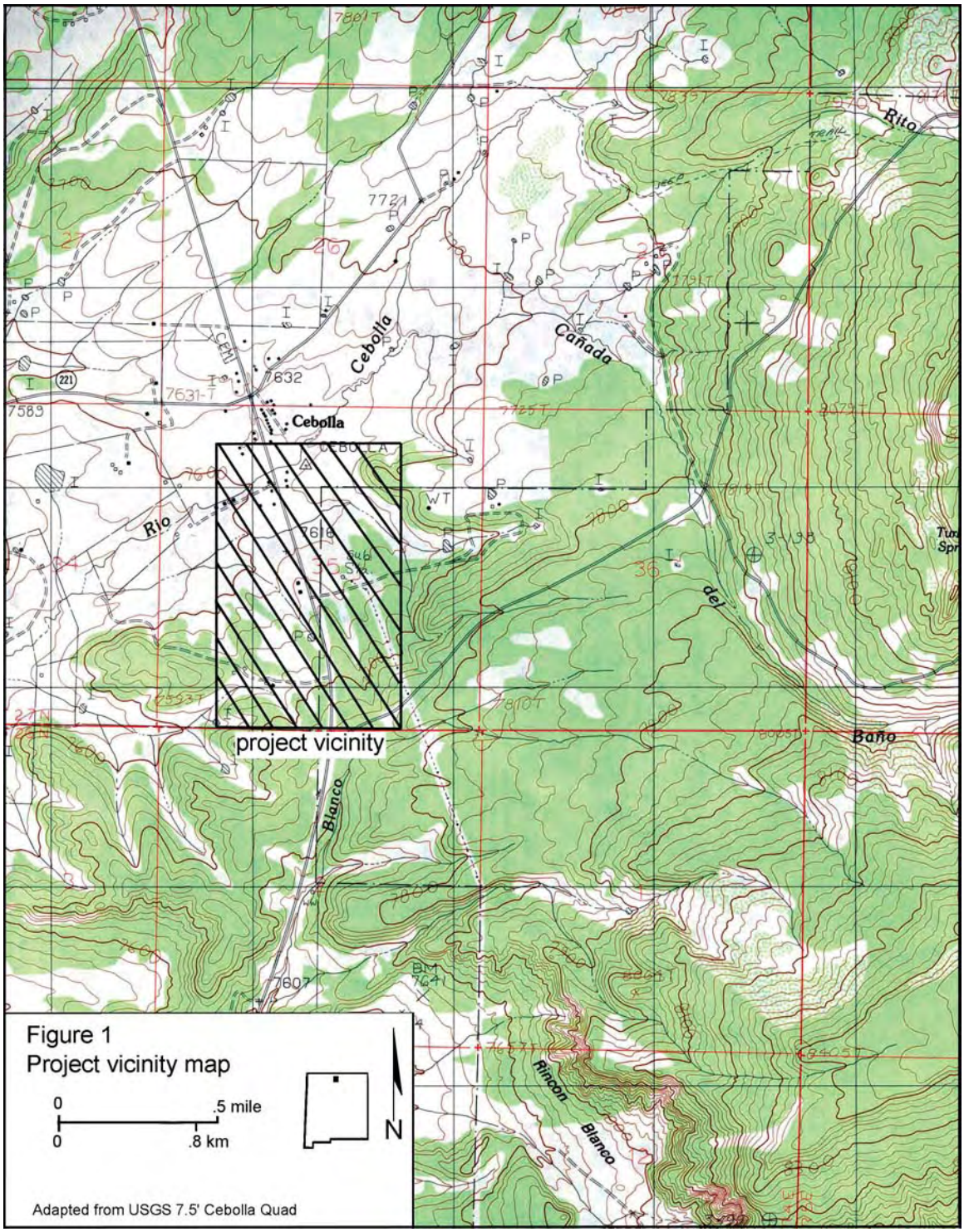

Figure 1
Project vicinity map

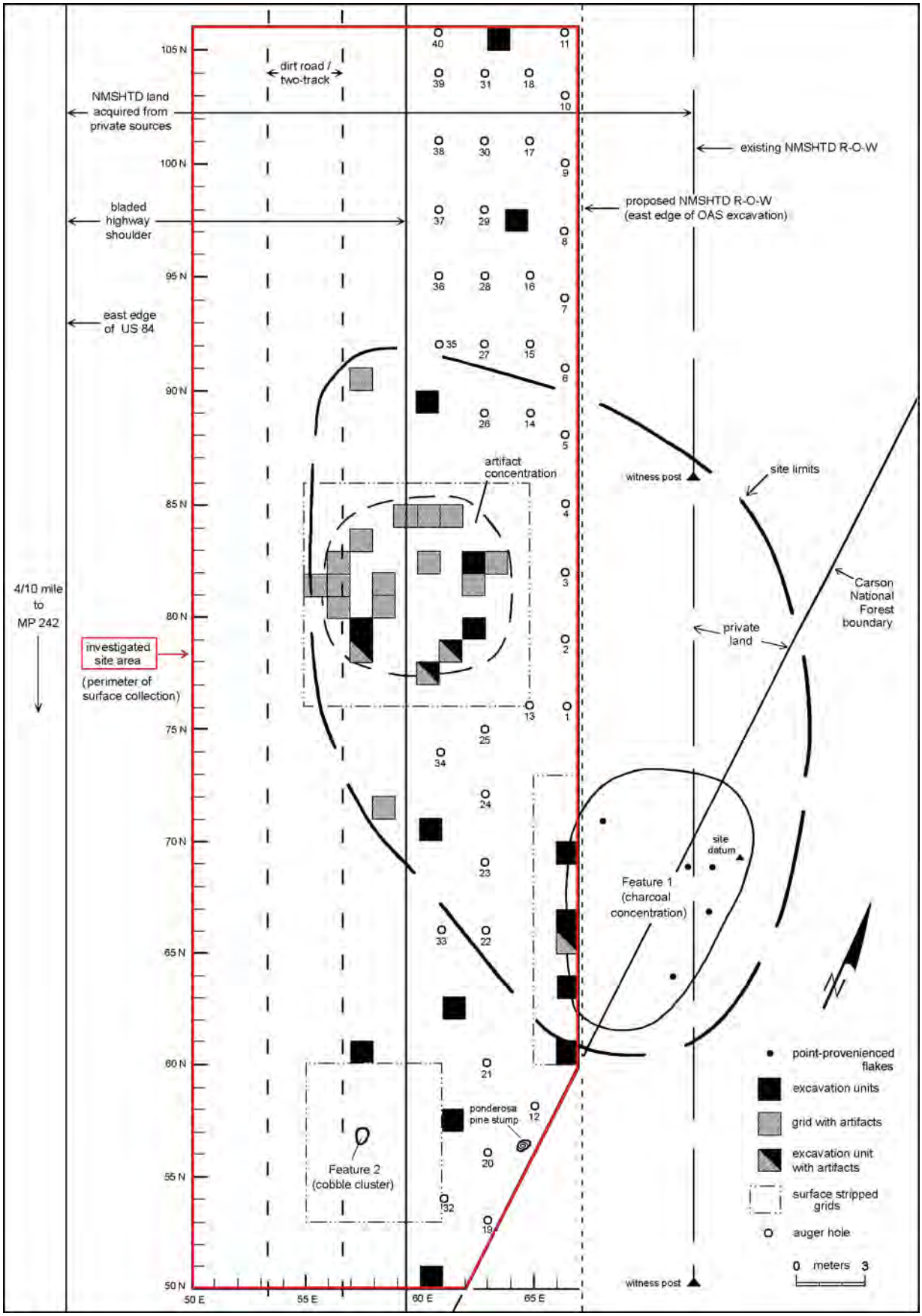

Figure 2. LA 130874 site map.

ENVIRONMENT

Detailed discussions pertaining to the environmental context of the project area can be found in a number of sources (Doney 1968; Maker et al. 1973; New Mexico Interstate Stream Commission and New Mexico State Engineer Office 1975; Shomaker 1979; Jenkins 1983; Resource Technology, Inc. 1993; Ellis 1988). The reader is referred to these references for detailed overviews of the environmental setting. This environmental summary is abstracted from these sources.

The project area is situated in the Chama Basin, an irregular structural depression bordered by mountainous structural uplifts. The Chama Basin lies between the steep eastern rim of the San Juan Basin to the west and the Southern Rocky Mountain Province to the east. The north-trending Canjilon escarpment dominates the eastern horizon at an average elevation of 3,200 m (10,500 ft). Several volcanic cones including Old Smokey and Red Hill lie along the Canjilon escarpment. Local topography ranges from the nearly level Cebolla valley bottom, to steep-sided valleys, mesas, and ridges fronting the Canjilon escarpment. Elevation in the project area varies from nearly 3,353 m (11,000 ft) at Canjilon Peak about 7 miles east of the project area, to 2,317 m (7,600 ft) in the nearby Rio Cebolla floodplain. Site elevation is 2,335 m (7,660 ft). Water sources include ephemeral streams draining the high eastern mountains, springs, and several mountain lakes. The site overlooks the broad grass-covered Rio Cebolla floodplain to the north and west.

Mancos Shale is the most widespread geologic unit in the area. Topographically, it forms the regional rounded hills and stream valleys. The Mancos Shale consists of both shale and limestone beds. The Rio Cebolla cuts into the Carlile Shale Member, an olive-gray to dark gray shale, which is exposed over much of the surface. The valley of the Rio Cebolla is rimmed by terrace deposits of late Tertiary or Quaternary age. Quartzite and basalt cobbles can be found in the terrace deposits. Six volcanic cones and lava flows are located along and in front of the Canjilon escarpment. These Quaternary age lava flows are the source of local basalts. Cracks and caves in a lava flow at Turkey Springs about 2 miles east of the site were used for shelter by Gallina phase (A.D. 1050-1300) hunters.

The soil map of Rio Arriba County places the project area in the Las Lucas-Litle-Persayo soil association (Maker et al. 1973:31-32, 34). The soils form in materials weathered from gray and olive-colored shale. The soils are located on gently to strongly sloping and rolling uplands. Las Lucas soils occupy gently sloping and undulating alluvial fan and valley side slopes. They have a surface layer of pale brown calcareous loam or light clay loam. Subsoil consists of brown calcareous silty clay loam to the underlying shale, which commonly occurs at depths between 40 to 60 inches. Litle soils occur on gently sloping and undulating uplands. These soils have a thin surface layer of light calcareous silty clay loam and a subsoil of light yellowish brown clay or silty clay. The depth to shale varies from 20 to 40 inches. Persayo soils form on gently to strongly sloping ridges and knolls. They have a thin surface layer of silt loam and a subsurface layer of yellowish brown silty clay loam with weathered shale fragments. Underlying shale occurs at a depth of less than 20 inches.

The Upper Sonoran, Transition, and Alpine Life Zones are concentrated within about a 6-mile geographic zone by the mountainous relief east of the project area. A wide range of potential floral and faunal resources were readily available to the site inhabitants. A partial list of floral and faunal resources from these life zones is provided by Ellis (1988:53-57). The site is located at the margin of the Upper Sonoran and

Transition Life Zones. The project area is covered by a dense growth of piñon and juniper woodland with patches of ponderosa pine and scrub oak. Ponderosa pine becomes more prevalent immediately east of the site. The area west of the site opens up into the grass-covered Rio Cebolla valley bottom.

The average precipitation for Rio Arriba County ranges from less than 10 inches in the lower elevations, to about 15 inches at elevations of 7,000 ft, and to more than 25 inches in the high mountains. Precipitation tends to increase about 4 inches for each 1,000 ft in elevation. Chama (7,820 ft elevation) has a short growing season of 109 days with the average last spring frost occurring on June 7 and the average first fall frost occurring on September 24. Tierra Amarilla (7,766 ft) has a slightly longer growing season of 112 days. Low temperatures and short growing seasons limit the number of crops that can be grown successfully in the project area. However, the presence of apparent grid gardens at the nearby site of Turkey Springs suggest that Gallina phase (A.D. 1050-1300) farmers experimented with agriculture at elevations of over 8,000 ft.

ARCHAEOLOGICAL BACKGROUND

Ellis (1988), Kramer (1999), and Loebig and Goar (2000) provide comprehensive archaeological overviews of the region. The following background section concentrates on local prehistoric land use and settlement, providing a context for the LA 130874 occupation.

The author used the New Mexico Cultural Resources Information System (NMCRIS) in a records search of the Cebolla and Las Nutrias 7.5' quadrangles surrounding the project area (Table 1). This allowed a means of viewing the regional archaeological context. The Cebolla quadrangle is characterized by a survey coverage of about 7,223 acres. The 43 projects recorded 120 sites represented by 137 cultural components. In contrast, the Las Nutrias quadrangle west of the project area has survey coverage of only 141 acres. The five projects recorded only one small unknown chipped stone scatter.

The majority of the sites are east of the project area and were recorded during timber sale projects for the Carson National Forest. Surveys ranged in size from 0.27 acres to 1,800 acres and the three larger surveys together encompassed 3,027 acres. These three larger

TABLE 1. RECORDED SITE COMPONENTS ON THE CEBOLLA AND LAS NUTRIAS 7.5' QUADRANGLES

CULTURE AND PERIOD	CEBOLLA QUAD	LAS NUTRIAS QUAD	TOTAL	
			NUMBER	PERCENT
ARCHAIC				
Unknown 5500 B.C.-A.D. 900	20		20	14.5
Unknown 3000 B.C.-1800 B.C.	2		2	1.4
Unknown 1800 B.C.-A.D. 900	6		6	4.3
TOTAL	28		28	20.3
ANASAZI				
Unknown A.D. 1-500	5		5	3.6
Unknown A.D. 1-1600	10		10	7.2
Unknown A.D. 500-900	1		1	.7
Multiple Residence A.D. 1050-1275	4		4	2.9
Simple Features A.D. 1100-1300	1		1	.7
Artifact Scatter A.D. 900-1300	1		1	.7
TOTAL	22		22	15.9
HISTORIC				
Pueblo Unknown 1539-1993	1		1	.7
Pueblo Unknown 1846-1912	1		1	.7
Hispanic Unknown 1539-1993	7		7	5.1
Hispanic Unknown 1846-1912	1		1	.7
Hispanic Unknown 1912-1945	5		5	3.6
Hispanic Artifact Scatter 1880-1920	1		1	.7
Navajo Isolated Occurrence 1692-1868	1		1	.7
Anglo/Euroamerican 1945-1993	2		2	1.4
Unknown 1846-1912	1		1	.7
Unknown Industrial 1550-1988	1		1	.7
TOTAL	21		21	15.2
UNKNOWN				
Unknown Artifact scatter 9500 B.C.-A.D. 1993	10	1	11	8.0
Unknown 9500 B.C.-A.D. 1993	56		56	40.6
TOTAL	66		67	48.6
GRAND TOTAL	137	1	138	100.0

surveys recorded the majority of the sites and provide relevant site evaluations and recommendations (Lawrence 1985, 1987, 1988). Few of the sites have been tested or excavated. Chipped stone artifact scatters with unknown cultural and temporal affiliation account for just under 50 percent of the recorded site components (n=67). Another 28 temporal components were assigned Archaic affiliation, but 20 of these have only general Archaic associations. Even fewer artifact scatters have ceramics suggesting Anasazi occupations. Again, most of the sites with ceramics have only general Anasazi temporal associations. In a few rare cases, ceramics indicate Historic period Puebloan and Navajo use of the area.

The surrounding archaeological context is characterized by a rather long-term pattern of special activity sites appearing as small chipped stone scatters. The common chipped stone scatters seem to embody special activity sites and temporary camps centered around moderately high-altitude hunting activities. Projectile points are rather common and the presence of diagnostic artifacts portrays a long-term, but similar trend of regional hunting activities.

Contrasting with the numerous small chipped stone special activity sites are the multiple residence sites at Turkey Springs, Dulce Springs, and Red Hill (Stuart and Gauthier 1981:93-94; Ellis 1988). These sites are from 2 to 6 miles east of the project area and are on the State Register of Cultural Properties. The sites represent major Gallina phase (A.D. 1050-1275) occupations. Site elements include pithouse depressions, surface rooms, storage rooms, the use of caves as shelters, roasting pits, game traps, and several garden plots. The sites range in elevation from 8,000 ft to 10,000 ft and are interpreted as Gallina phase hunting camps. These camps signify a hunting aspect of the Gallina settlement system contrasting with the agricultural-based villages in the lower Llaves District. However, the presence of garden plots suggest that the Gallina people were also experimenting with agriculture at these higher elevation sites. Florence Ellis (1988) conducted excavations at the sites and her work is the primary source for comparative excavation material versus survey data. At a distance of about 2 miles, LA 130874 can be considered within the procurement radius of the impressive Turkey Springs complex.

EXCAVATION RESULTS

LA 130874 (AR-03–02-01-601) was originally recorded as a small chipped stone artifact scatter of unknown cultural and temporal affiliation. Eighteen pieces of chipped stone debitage were piece-plotted within a 67-by 33-m area. Two features were recorded on the site. Feature 1 was a 4.5-m-diameter charcoal stain thought to represent a hearth pit. Feature 2 was a 1-m-diameter concentration of cobbles of unknown function.

The site is at an elevation of 2,335 m (7,660 ft) on a gentle north facing slope overlooking the Cebolla Valley. Local vegetation is characterized by a dense woodland consisting of piñon, juniper, gambel oak, and small numbers of ponderosa pine (Fig. 3). The site is located at the transitional elevation zone between the pinyon and ponderosa pine woodland.

Condition

Several mechanical processes have transformed the interpretive integrity of the site. The original construction of U.S. 84 removed and mixed cultural materials east of the 59E grid line. A broad 14-m-wide shoulder extending from the east edge of U.S. 84 east to the 59E grid line had been bladed into the sterile geologic substrata (Fig. 4). The mechanical blading removed all of the dense woodland vegetation along the shoulder leaving open land sparsely covered with mixed grasses. Additionally, a small two-track road runs along the shoulder between the 53E and 57E grid lines. Repeated shoulder maintenance and traffic along the two-track road have transformed the interpretive integrity of over half (9-m-wide strip) of the investigated site area. Ten of the 28 recorded

Figure 3. Heavy woodland vegetation covering site.

Figure 4. Bladed highway shoulder.

artifacts were found in this area of the site. These artifacts are in a very mixed context, but they suggest that the original site area may have extended west into the present locality of U.S. 84.

About a 30-m-wide swath had been bladed through the woodland east of the highway right-of-way witness posts. A two-track road runs through the center of the bladed swath and a subsurface telephone line parallels the east edge. Although this area was outside the scope of investigation, these mechanical activities have altered the integrity of the eastern edge of the site.

The site area is near a pull-off associated with a Carson National Forest sign. The pull-off and the two two-track roads surrounding the site make the area readily accessible to the public. The area is a convenient stopping spot on the south edge of Cebolla and modern trash dating from the 1950s to the present is scattered across the site.

Finally, the site has been subjected to wood cutting. A 70-cm-diameter ponderosa pine stump is just south of the Feature 1 charcoal concentration. A 1-m segment of the burned tip of the tree was noted just north of Feature 1. This seems to have been a felled ponderosa pine that had burned, probably from a lightning strike. The burned tree is most likely the source of the charcoal comprising Feature 1.

Field Methods

The excavation program followed field methods outlined in the data recovery plan (Hannaford 2001). All excavation was by hand, using standard archaeological hand tools. All fill was screened through 1/4-inch mesh. The excavation program focused on confirming the potential of the site to yield important information, and to recover, through excavation, the significant information from the site prior to construction.

Surface Collection

Archaeological investigations began with the collection of surface artifacts. Systematic surface collection was carried out by establishing a

1-by-1-m grid system over the site (Fig. 2). The grid system was projected from the two witness posts marking the edge of the existing NMSHTD right-of-way. The grid system was aligned with the highway right-of-way and does not designate magnetic or true north. Grids are provenienced from the southwest corner. The 67E grid line served as the east edge of the proposed NMSHTD right-of-way. The original TRC survey phase datum was retained as site datum and site location marker.

The grid system measured 56-by-17 m with an area of 952 sq m. The southeast corner of the collection area overlaps Carson National Forest land (Fig. 2). The surface of about 25 grids overlapping the forest land in this corner were examined to avoid partial grids caused by the diagonal boundary and to provide a well-defined rectangular bounded collection area. No artifacts or evidence of cultural materials were observed on the small Carson National Forest corner.

The site area between the 50E and 59E grid lines was characterized by an open highway shoulder and two-track road. The area had been bladed during the original highway construction and vegetation was sparse mixed grasses. Surface visibility was excellent, although the area was not considered intact. The site area between the 59E and 67E grid lines was intact and heavily wooded. Duff covered the surface and visibility was poor. An average of 5 cm of pine needle duff and moss was removed from grid surfaces with trowels to facilitate ground visibility.

About a 35-by-10-m strip outside of the grid system in the vicinity of Feature 1 was additionally inspected by archaeologists walking shoulder-to-shoulder transects. This area was east of the right-of-way between the 50N to 85N grid lines This procedure allowed the perimeter definition of Feature 1 and the establishment of the eastern and southern site limits. Five chipped stone artifacts in this locality were point-provenienced and described, but not collected. The combined grid surface collection and transects east of the right-of-way should furnish excellent definition of Feature 1, the entire site limits, and nearly a 100 percent surface coverage of the entire site area. The 28 recorded chipped stone artifacts are considered representative of both the range of artifact types and frequencies comprising the small chipped stone artifact scatter.

The surface of 952 individual grids was intensively inspected during the surface collection. Artifacts were recovered from the surface of 17 (less than 2 percent) of the grids (Table 2). Artifact frequencies ranged from no material in the bulk of the grids (n=935) to a high of two artifacts. Only two grids contained two artifacts. The artifact assemblage consisted entirely of chipped stone artifacts. The majority (n=21) of the artifacts were concentrated within a 10-by-10-m area between the 76N to 86N and the 55E to 65E grid lines. Almost half (n=10) of the chipped stone artifacts comprising the concentration were recovered from the bladed site area and the two-track road. These artifacts are in a very mixed context, but they suggest that the original site area extended westward and was truncated by U.S. 84. The site area east of the 59E grid line represents the remaining intact eastern extremity of the original site.

The surface investigation established the presence of a low-density chipped stone artifact scatter. The majority of the artifacts were separated from the two features recorded during the survey phase. No additional cultural features other than the small artifact concentration were observed. Site limits were originally established at 67-by-33 m, but can be decreased to 32-by-21 m based on the extent of the surface artifact distribution and the elimination of Feature 2 as an associated feature (Fig. 2). The reduced site limits eliminates the southern site area that originally overlapped Carson National Forest land.

Excavation Units

Subsurface investigations began with the excavation of 15 1-by-1-m excavation units (Fig. 2). The data recovery plan specified the excavation of at least 6 excavation units, but 15 excavation units were dug across the site to more accurately define the nature and extent of subsurface

TABLE 2. ARTIFACT PROVENIENCES

GRID	SURFACE	SURFACE STRIP	TOTAL
65N/66E		1	1
66N/66E	1		1
71N/58E	1		1
77N/60E		1	1
78N/57E	1		1
79N/57E	1		1
79N/61E	1		1
80N/56E		1	1
80N/58E	1		1
81N/55E	1		1
81N/56E	1		1
81N/58E		1	1
81N/62E	1		1
82N/56E	2		2
82N/60E	1		1
82N/63E	2		2
83N/57E	1		1
84N/59E	1		1
84N/60E	1		1
84N/61E	1		1
90N/57E	1		1
TOTAL	19	4	23

TABLE 3. 1-BY-1-M EXCAVATION UNITS

Provenience	Number of 10 cm levels	Depth below surface to sterile Mancos Shale	Artifact Content
79N/57E	4	0 cm (Grid placed on bladed highway shoulder)	0
82N/62E	4	40 cm	0
97N/64E	2	20 cm	0
105N/63E	3	30 cm	0
89N/59E	5	50 cm	0
79N/62E	3	30 cm	0
69N/66E	2	20 cm	0
66N/66E	2	15 cm	0
63N/66E	2	20 cm	0
60N/66E	2	20 cm	0
57N/61E	3	30 cm	0
62N/61E	3	30 cm	0
70N/60E	1	10 cm	0
50N/60E	2	20 cm	0
60N/57E	2	0 cm (Grid placed on bladed highway shoulder)	0

cultural material (Table 3). Excavation units were positioned to determine the nature of subsurface fill near Features 1 and 2, in the area of the small chipped stone concentration found during the surface collection, and around the site extremities to discern site limits. The excavation units were excavated in arbitrary 10-cm levels until culturally sterile soil was reached. The culturally sterile level was a massive layer of Mancos Shale bedded clay. The sterile Mancos Shale geologic substrata was consistently encountered across the site at an average depth of about 20 cm below the surface. The sterile layer was exposed on the surface west of the 59E grid line and ranged to a maximum depth of 50 cm below the surface (Tables 3 and 4). Excavation units 79N/57E and 60N/57E were located in the bladed site area in the vicinity of Feature 2 and the small chipped stone concentration. These units were positioned on sterile Mancos Shale exposed by shoulder blading, but were dug into the geologic strata to confirm the sterile nature of the layer. The remaining 13 units were located on the intact site area east of the 59E line. The excavation units exhibited similar soil profiles characterized by an initial shallow surface layer covering sterile Mancos Shale (see stratigraphy below). No artifacts, charcoal, charcoal staining, or other evidence of cultural disturbance was encountered by the various excavation units. The subsurface investigations show that the site is characterized by a surficial artifact scatter.

TABLE 4. AUGER TESTS

Provenience	Number	Depth below surface to sterile Mancos shale	Artifact content
76N/67E	1	20 cm	0
79N/67E	2	20 cm	0
82N/67E	3	25 cm	0
85N/67E	4	25 cm	0
88N/67E	5	30 cm	0
91N/67E	6	25 cm	0
94N/67E	7	30 cm	0
97N/67E	8	20 cm	0
100N/67E	9	40 cm	0
103N/67E	10	35 cm	0
106N/67E	11	40 cm	0
58N/65E	12	15 cm	0
76N/65E	13	25 cm	0
89N/65E	14	25 cm	0
92N/65E	15	20 cm	0
95N/65E	16	20 cm	0
101N/65E	17	25 cm	0
104N/65E	18	30 cm	0
53N/63E	19	30 cm	0
56N/63E	20	30 cm	0
60N/63E	21	20 cm	0
66N/63E	22	20 cm	0
69N/63E	23	20 cm	0
72N/63E	24	20 cm	0
75N/63E	25	20 cm	0
89N/63E	26	30 cm	0
92N/63E	27	40 cm	0
95N/63E	28	30 cm	0
98N/63E	29	20 cm	0
101N/63E	30	30 cm	0
104N/63E	31	35 cm	0

AUGER TESTS

Subsurface investigations continued with the systematic placement of 40 auger tests (Fig. 2). Auger tests were located at 6-m intervals in a series of staggered transects spaced 3 m apart. Only the intact portion of the site between the 59E and 67E grid lines was investigated. The 40 auger tests encountered the same shallow soil profile exposed in the excavation units (Table 4). No subsurface artifacts or cultural deposits was discovered. The auger tests support the findings of the excavation units that cultural material is confined to the surface.

STRATIGRAPHY

Subsurface excavations consisting of fifteen 1-by-1-m excavation units and 40 auger tests determined that cultural material is confined essentially to the surface. The various excavation units and auger tests defined a similar pattern of soil stratigraphy across the site. A thin surface layer ranges from 10 to 50 cm, but averages about 20 cm thick. The layer consists of loose, organically laden brown silty loam. The layer is relatively free of gravel and cobble content. River cobbles are concentrated intermittently along the terrace, but no cobbles were found in the immediate site area. The layer is essentially free of cultural material suggesting that the occupation was brief and not intensive. The prehistoric ground surface or occupation surface was probably equivalent to the modern surface.

The shallow surface layer is followed by an abrupt contact with a massive layer of Mancos Shale bedded clay. The thick yellow-brown clay characterizing the sterile Mancos Shale geologic substrata underlies the entire site. Excavation unit 79N/57E was dug 40 cm into the bedded clay, but the thickness of the Mancos Shale substrata was not determined.

SURFACE STRIPPING

The data recovery plan specified that grids around the previously recorded features would be surface stripped to aid in defining the nature

and extent of the features and other possible cultural elements in the immediate vicinity. This methodology was also applied to the area of the small artifact concentration discovered during the surface collection (Fig. 2). The 1-by-1-m excavation units and auger tests demonstrated that the removal of an arbitrary 10-cm surface strip would be more than sufficient for discovering cultural material across the site. A 10-by-10-m area (100 grids) was surface stripped around the artifact concentration. A 13-by-2-m area (22 grids) was surface stripped in the project area adjacent to Feature 1. A 7-by-5-m area (35 grids) was surface stripped around Feature 2. Only four chipped stone artifacts were recovered during the surface stripping (Table 2). Three artifacts were from the area of the small artifact concentration and one was from the project area adjacent Feature 1. No additional cultural elements were discovered, and no subsurface charcoal or cultural staining was encountered.

Features

Two features were recorded during the original cultural resource survey. Both features were found to be of recent origin and not associated with the chipped stone scatter.

Feature 1

Feature 1 was originally described as a 4.5-m-diameter heavy charcoal and ash stain (Loebig and Goar 2000:29). A small concentration of chipped stone accompanied the feature. The data recovery program found that the feature is more precisely characterized as an oblong 15-by-12-m scatter of primarily fingernail-sized charcoal fragments (Fig. 2). The proposed feature is located mainly east of the right-of-way and only six grids along the 67E line containing a few small charcoal flecks (Fig. 5). Four excavation units adjacent to the right-of-way revealed no subsurface cultural material and verified that the charcoal flecks are confined to the surface. The surface stripping of 22 grids revealed no subsurface charcoal, ash, or cultural staining. A single piece of chert angular debris was recovered from Grid 65N/66E. The excavation units and surface stripping verify that the charcoal scatter does not extend into the

Figure 5. Overview of Feature 1 area.

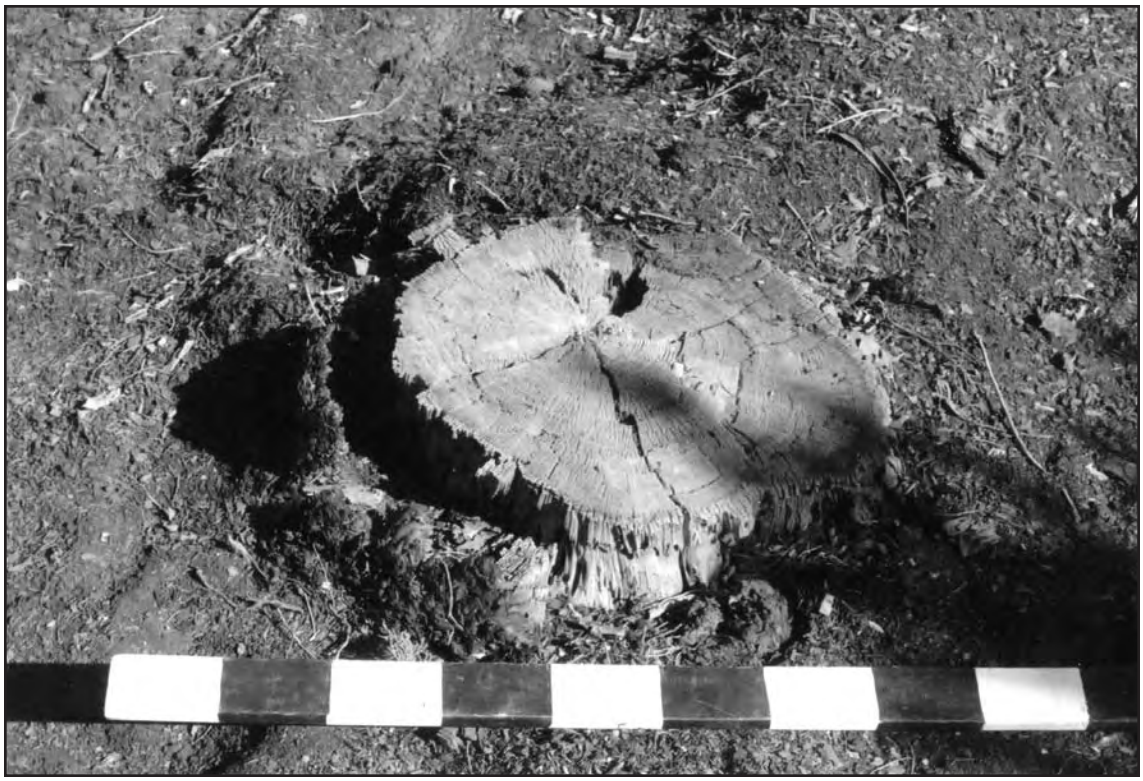

Figure 6. Ponderosa pine stump near Feature 1.

project area and that the larger portion of the proposed feature is preserved east of the right-of-way.

Upon close examination the feature was considered to be recent in origin because of the size of the charcoal and the absence of charcoal-staining originating from years of freeze-thaw reduction of the charcoal. A close examination of the entire 15-by-12-m feature surface revealed no evidence of ash or soil oxidation. The feature is composed entirely of charcoal ranging from fingernail-sized fragments to larger, 10-by-5-cm pieces of partially burned wood. The imprecise and irregular feature boundaries are defined solely on the presence or absence of charcoal. Office of Archaeological Studies ethnobotanists identified a sample of charcoal as Pinus cf. ponderosa. A large saw-cut ponderosa pine stump is located about 4 m south of the charcoal concentration (Figs. 2 and 6). The burned tip of a ponderosa pine is about 20 m north of the charcoal scatter. The charcoal scatter appears to have originated from the recent felling of a dead, lightning-struck ponderosa pine tree.

Two charcoal fragments (4.5 g) were collected from the surface of Grid 64N/68E and submitted as a radiocarbon sample. The charcoal was identified as Pinus cf. ponderosa and returned a conventional radiocarbon age of 110 ± 80 B.P. (Beta sample 162540). A 2-sigma calibration (95 percent probability) resulted in cal A.D. 1650 to beyond 1960. The nearby 70-cm-diameter tree stump is the remains of an estimated 100-year-old tree. The radiocarbon age intercepts with the calibration curve at 1880 and 1920 corresponding with the estimated age of the stump and the nondegraded integrity of the charcoal. The charcoal scatter is of recent origin and not associated with the prehistoric chipped stone scatter. The seven chipped stone artifacts in the area are considered diffuse scatter from the main chipped stone concentration to the northwest.

Feature 2

Feature 2 was originally described as a probable feature consisting of a 1-m-diameter concentration of cobbles (Loebig and Goar 2000:29). The cobble concentration was located adjacent to a two-track road in the bladed

Figure 7. Feature 2 excavated.

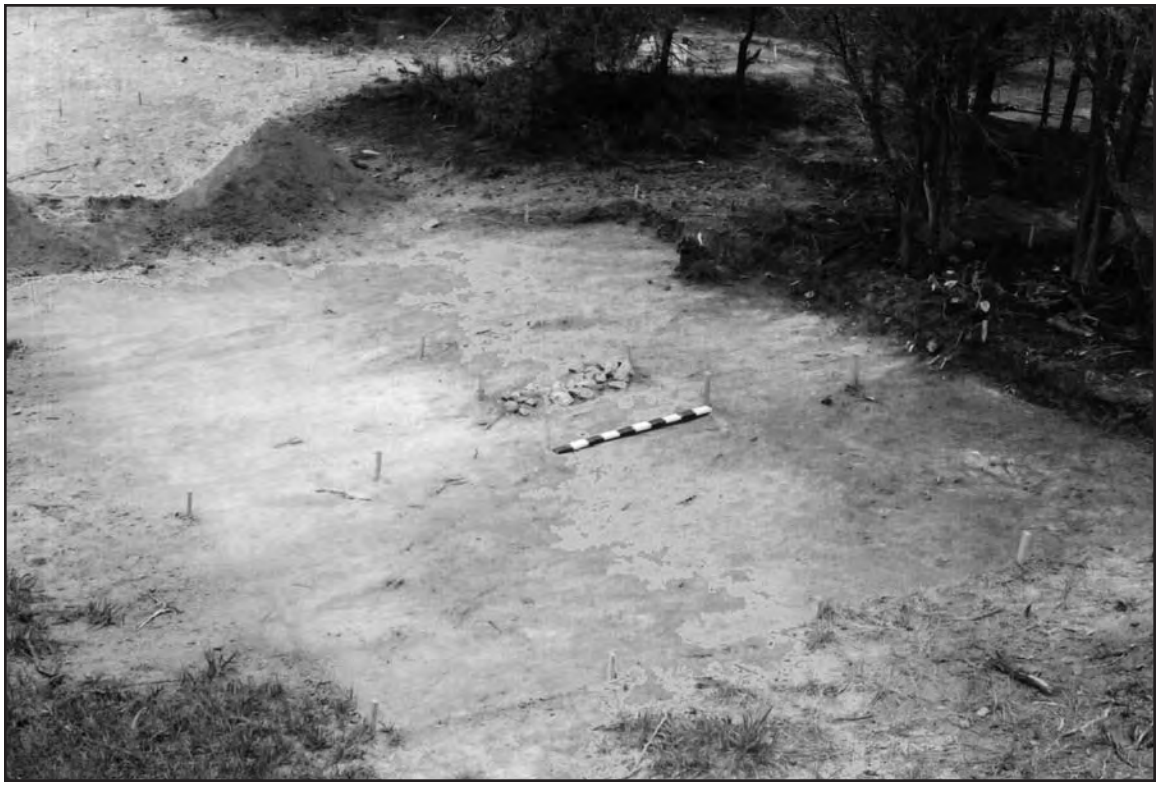

Figure 8. Surface stripping around Feature 2.

portion of the site (Fig. 2). Excavation showed that the concentration was composed of 30 quartzite cobbles clustered in an oblong 1-by-0.60-m area (Fig. 7). The cobbles each measured about 10-by-5 cm. The cobbles rested on the sterile Mancos Shale substrata, and the 4 cm of fill from around the cobbles was also Mancos Shale. No artifacts were recovered from the fill. The absence of charcoal, ash, and oxidation indicates that the cobble concentration is not a thermal feature. No artifacts were found on the surface in the immediate site area. In addition, the surface stripping of 35 grids around the feature showed no evidence of subsurface artifacts, charcoal, or cultural stain (Fig. 8). Three excavation units located nearby in the intact site area east of the feature showed no subsurface cultural material. The proposed feature is considered of recent origin post-dating the original blading of the highway shoulder. The cobble concentration is most likely associated with recent roadside activities. The feature was omitted from the reduced site area defined by the chipped stone artifact distribution.

Chipped Stone Concentration

A small chipped stone concentration was delineated during the surface collection (Fig. 2). The majority (n=21) of the artifacts recorded on the site were concentrated within a 10-by-10-m area removed from the two features identified during the original site recording. Almost half (n=10) of the chipped stone artifacts comprising the concentration were recovered from the bladed site area and the two-track road. These artifacts are considered of very mixed context, but they suggest that the original site area extended westward and was truncated by U.S. 84. The area east of the 59E grid line represents the remaining intact portion of the concentration. A projectile point base was found on the surface of Grid 81N/62E in the intact area.

Three excavation units dug within the chipped stone concentration encountered no subsurface cultural material. The surface stripping of 100 grids recovered only three chipped stone artifacts including a projectile point tip in Grid 77N/60E. The two other artifacts consisted of a piece of chalcedony angular debris and a Polvadera obsidian biface flake. No charcoal or cultural staining was encountered by the surface stripping. The chipped stone concentration is a discrete spatial component central to the activities characterizing the site occupation.

MATERIAL CULTURE

The data recovery program recovered 23 chipped stone artifacts from the site. An additional five flakes were recorded east of the right-of-way, but were not collected. These five chipped stone artifacts consisted of three Polvadera obsidian core (n=2) and biface flakes, a piece of chert angular debris, and a chert core flake. The five flakes closely resemble the assemblage collected from the project area. They have been combined with the collected assemblage for this discussion (Table 5).

CHIPPED STONE ARTIFACTS

The 28 recorded chipped stone artifacts are considered representative of both the range of artifact types and frequencies comprising the chipped stone artifact scatter. No other artifact

TABLE 5. CHIPPED STONE ARTIFACT ATTRIBUTES AND MATERIAL TYPES

	Material Type					
Artifact Type	Quartzitic Sandstone	Chalcedony	Chert	Polvadera Obsidian	Jemez Obsidian	Total
Core Flake			3	5		8
Biface Flake	1			14		15
Angular Debris		2	1			3
Projectile Point				1	1	2
Cortex						
Absent	1	1	4	17	1	24
10%				2		2
50%		1		1		2
Platform Type						
Absent			3	10		13
Single			1	1		2
Retouch	1			9		10
Length						
0-10 mm				8		8
11-20 mm		1	3	6	1	11
21-30 mm		1		6		7
31-40 mm			1			1
41-50 mm	1					1
Dorsal Scars						
1-2			1	5		6
3-4			1	11		12
5	1			3		4
TOTAL	1	2	4	20	1	28

categories were observed on the site. This assemblage was analyzed in accordance with the OAS Standard Lithic Artifact Analysis: Attributes and Variable Coding List (Office of Archaeological Studies Staff 1994).

Materials

The chipped stone assemblage has five material types (Table 5). Polvadera obsidian is the most common material type at 71 percent (n=20) of the assemblage. The four other material types were recovered in much lower frequencies. Intrusive materials from the Jemez Mountains in the form of Polvadera obsidian and Jemez obsidian make up 75 percent (n=21) of the assemblage. Pedernal chert is noticeably absent from the assemblage considering the close proximity to the source. The small frequencies of quartzite, chalcedony, and chert are nondescript materials that are potentially available locally.

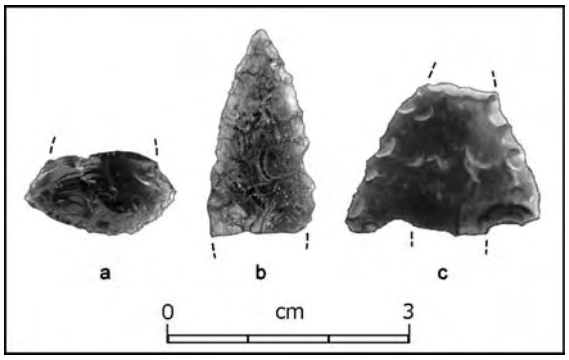

Figure 9. Projectile points; (a) corner-notched En Medio style base, (b) undiagnostic projectile point tip, (c) medial section of corner-notched En Medio style point (not collected).

Artifact Morphology

The chipped stone assemblage is dominated by biface flakes followed by a lower frequency of simple core flakes. The biface flakes are typically small with retouched platforms, an absence of cortex, and multiple dorsal flake scars. Biface production was obviously a major site activity and the presence of two broken projectile points suggests that this activity was directed toward projectile point manufacture/ maintenance. No other formal tools were found. None of the biface and core flake debitage characterizing the assemblage exhibited retouch or wear, indicating informal tool use.

The core flakes are small secondary flakes with single platforms and an absence of cortex. The absence of cores and the minimal presence of angular debris indicates that materials were initially processed at an off-site locality. Chalcedony is represented by both angular debris and higher cortex percentages reinforcing a nearby source for the material.

The convex base of a corner-notched En Medio style projectile point was found within the artifact concentration on the surface of Grid 81N/62E (Fig. 9a). The projectile point was manufactured from Jemez obsidian. The convex base fragment has a width of 23 mm and a thickness of 11 mm, but no other complete dimensions could be obtained from the fragment.. The projectile point fragment weighs 1.4 g.

An undiagnostic projectile point tip was found within the artifact concentration during the surface stripping of Grid 77N/60E (Fig. 9b). This projectile point fragment was manufactured from Polvadera obsidian. The tip fragment is 30 mm long, 15 mm wide, and 5 mm thick. The fragment weighs 2.5 g.

The medial section of a corner-notched En Medio style projectile point was found on the surface about 100 m east of the site (Fig. 9c). The isolated surface find was not collected. The projectile point fragment was manufactured from Polvadera obsidian. The medial fragment is 20 mm long, 25 mm wide at the tangs, and 10 mm thick. The projectile point may be associated with the site as no other cultural material was noted in a 100 m radius around the site. However, the projectile point fragment was not tabulated with the chipped stone assemblage from the site.

Distribution

The largest portion (75 percent, n=21) of the artifacts were associated with the 10-by-10-m artifact concentration at the north end of the site (Fig. 2). The chipped stone concentration

included both projectile point fragments along with examples of all the various artifact and material types. Nearly half (n=10) of the artifacts composing the concentration were recovered from the bladed site area and the two-track road. These artifacts are considered of very mixed context, but suggest that the original site area extended westward.

A smaller scatter of eight artifacts was recorded in the area of Feature 1 about 10 m southeast of the artifact concentration. The artifacts are dispersed over a 15-by-12-m area and are most likely diffuse scatter associated with the denser site area to the northwest.

Summary

The small chipped stone assemblage is characterized by biface reduction probably directed toward the manufacture or maintenance of projectile points. The presence of three projectile points indicates that the site functioned as a special activity site associated with hunting activities and tool maintenance. The small amount of chipped stone debitage points to a very brief occupation. The presence of Polvadera and Jemez obsidian shows that the site inhabitants had access to nonlocal materials originating in the Jemez Mountains. Two En Medio style corner-notched projectile point fragments suggests a cultural affiliation with the late Archaic (800 B.C. to A.D. 400).

RESEARCH QUESTIONS

The portion of LA 130874 within the proposed project area of planned improvements to U.S. 84 was determined to have the potential to yield important archaeological information and was considered eligible for inclusion on the National Register of Historic Places on the basis of criterion d. The determination of the site data potential was based on site information documented during the initial site recording (Loebig and Goar 2000:29-30). The data recovery plan focused on confirming the potential of the site to yield important information, and to recover, through excavation, the significant information from the site prior to construction. The archaeological investigation is concerned with the contribution that a small, special activity site can make to understanding regional settlement and subsistence dynamics. Two basic questions were addressed to understand the place of LA 130874 in the regional settlement pattern: cultural affiliation and site function.

Cultural Affiliation

The initial research problem outlined in the data recovery plan focused on cultural affiliation. What was the cultural affiliation of the people who utilized the site? Is the site associated with aceramic, or Archaic period groups, or could the site be a special procurement site associated with the Gallina phase occupation of Turkey Springs? Are the features contemporaneous, or is the site represented by two temporal components?

The archaeological investigations determined that both of the previously recorded features were of recent affiliation and unrelated to the prehistoric chipped stone scatter. Charcoal from Feature 1 produced a conventional radiocarbon age of 110 ± 80 B.P. (Beta sample 162540). The charcoal scatter comprising the surficial feature is most likely associated with the recent felling of a lightning-struck ponderosa pine tree. The small cobble concentration characterizing Feature 2 is considered of recent origin post-dating the original blading of the highway shoulder. The proposed feature was situated on sterile Mancos Shale substrata and was most likely associated with recent roadside activities. The two proposed features are unrelated and neither feature has bearing on the prehistoric occupation

The data recovery program found that site elements were limited to a low-density chipped stone scatter. Site limits were reduced to correspond with the spatial distribution of the artifacts. Artifacts were confined to the surface and the shallow subsurface soil profile contained no oxidation or charcoal for archeomagnetic or radiocarbon dating. The small chipped stone assemblage embodied the only evidence for dating the site. Diagnostic artifacts were limited to a single corner-notched style projectile point base. The En Medio style corner-notched point suggests a cultural affiliation with the late Archaic (800 B.C. to A.D. 400). Another similar corner-notched point 100 m west of the site may support the late Archaic cultural affiliation. The small artifact assemblage suggests a brief single component occupation. The absence of pottery and other temporally sensitive artifacts shows that the site was not related with later Gallina phase activities associated with the nearby site of Turkey Springs.

Site Function

The second research question focused on site function. How did the site function, and what is the relationship between function and cultural affiliation? Is the site connected to hunting activities, or the procurement of some other resource such as plant foods? Is there evidence of seasonal site use?

Site function is limited to information derived from the small chipped stone assemblage, since both previously recorded features were found to be unrelated to the prehistoric

occupation. The majority of the artifacts are concentrated in a small 10-by-10-m area, which may be viewed as a discrete chipping station. Nearly half of the artifacts were recovered from the bladed shoulder area, suggesting that the original concentration extended westward into the original construction zone of U.S. 84. However, recovered artifact frequencies are small and no staining or other evidence of disturbed features was noted along the bladed shoulder. Likewise, no surface or subsurface charcoal or cultural staining was noted in the intact portion of the artifact concentration east of the 59E grid line. The intact portion of the site suggests that the small chipped stone artifact scatter was not associated with features, specifically thermal features. The absence of thermal features shows that fire for light, heat, and resource processing was not employed. This suggests that the short occupation was not an overnight stay and most likely occurred in the warmer summer months when fire for heat was not necessary.

The small artifact assemblage embodied a restricted range of activities. Tools were limited to two projectile point fragments. The projectile points demonstrate that the site was connected with hunting activities. In turn, most of the chipped stone assemblage consists of biface flakes most likely generated during the manufacture/maintenance of projectile points. The absence of other artifact types including ground stone suggests that other resources were not procured from the site and that the occupants were most likely not a mixed-gender group. The small artifact assemblage combined with the culturally sterile soil and apparent absence of features evidences a brief occupation by one or two hunters maintaining hunting equipment. This may have occurred as hunters concealed in the wooded terrace margin watched for game along the nearby grass-covered and watered Cebolla River bottom.

Discussion

The data recovery program determined that LA 130874 is a small special activity site associated with hunting activities and dating to the late Archaic. The En Medio style projectile point fragments suggests a 800 B.C. to A.D. 400 occupation. Answering these basic questions of function and cultural affiliation helps to understand the place of LA 130874 in the regional settlement pattern.

Regional settlement is characterized by a rather long-term pattern of special activity sites in the form of chipped stone scatters. These common chipped stone scatters seem to embody both special activity sites and temporary camps centered around moderately high-altitude hunting activities. The 1,800-acre Blanco Timber Sale located immediately east of the project area is one of the larger regional surveys (Lawrence 1985). The survey recorded 76 sites and 146 isolated occurrences. Lithic artifact scatters were the most commonly recorded prehistoric site type. Most of the sites with projectile points were assigned as Unspecified Archaic temporal components; however, the greatest number of projectile points are medium-sized, corner-notched varieties that are commonly associated with the late Archaic and early Basketmaker periods (Lawrence 1985). The survey shows that late Archaic sites contemporary with LA 130874 are common in the surrounding landscape. Contemporary sites are represented by a pattern of two site types. The majority of the sites are similar small special activity sites with projectile points, but lacking features. The second site type is characterized by a fewer number of much larger chipped stone scatters consisting of thousands of artifacts. These site are much more complex with hearths, fire-cracked rock, ground stone, and a wider range of chipped stone tool types. The sites may be characterized as camp sites, or base camps evidencing longer and more intense occupations probably by mixed-gender groups.

Seventeen sites with 24 temporal components were recorded within 1 mile of the project area (Table 6). These sites are located in essentially the same woodland environment as LA 130874, but at slightly higher elevations. In general, sites in the immediate area are concentrated on ridges overlooking ephemeral streams including Cañada del Baño and Arroyo Blanco.

TABLE 6. PREVIOUSLY RECORDED SITES WITHIN 1 MILE OF LA 13087

LA No.	Period/Components	Site Type	Topography/Elevation	Size	Artifacts/Features
LA 53896	Late Archaic (1800 B.C. to A.D. 900)	Lithic Scatter	Hill slope 7750 ft	35 x 34 m	1 to 10 lithics including four point fragments
	Anglo/Euro-American (1945 to 1993)	Historic Trash			
LA 53897	Unknown (9500 B.C. to 1993)	Lithic Scatter	Ridge 7745 ft	67 x 40 m	26 to 50 lithics, two ground stone artifacts, one possible hearth
LA 53898	Unknown (9500 B.C. to 1993)	Lithic Scatter	Ridge 7705 ft	77 x 20 m	11 to 25 lithics including one point fragment
	Hispanic Unknown (1912-1945)	Historic Trash			
LA 53899	Unknown (9500 B.C. to 1993)	Lithic Scatter	Ridge 7745 ft	35 x 37 m	11 to 25 lithics
LA 53900	Unknown (9500 B.C. to 1993)	Lithic Scatter	Hill Slope 7740 ft	40 x 28 m	1 to 10 lithics
LA 53901	Unknown (9500 B.C. to 1993)	Lithic Scatter	Hill Slope 7440 ft	20 x 15 m	101 to 400 lithics and one indet. ground stone
LA 53902	Unspecified Archaic (5500 B.C. to A.D. 900)	Lithic Scatter	Hill Slope 7740 ft	46 x 90 m	1 to 10 lithics including two point fragments
	Anglo/Euroamerican (1945-1993)	Historic Trash			
LA 53903	Unknown (9500 B.C. to 1993)	Lithic Scatter	Mesa/Butte 7805 ft	68 x 58 m	26 to 50 lithics
LA 53904	Unknown (9500 B.C. to 1993)	Lithic Scatter	Hill Slope 7760 ft	64 x 61 m	11 to 25 lithics including one point fragment
LA 53905	Unknown (9500 B.C. to 1993)	Lithic Scatter	Ridge 7810 ft	33 x 34 m	11 to 25 lithics including one point fragment, two possible hearths
LA 53906	Unknown (9500 B.C. to 1993)	Lithic Scatter	Mesa/Butte 7815 ft	30 x 28 m	26 to 50 lithics including one point fragment
LA 53907	Unspecified Archaic (5500 B.C. to A.D. 900)	Lithic Scatter	Ridge 7825 ft	46 x 32 m	51 to 100 lithics including one point fragment
LA 53908	Unspecified Archaic (5500 B.C. to A.D. 900)	Lithic Scatter	Mesa/Butte 7830 ft	60 x 47 m	11 to 25 lithics including two point fragments
LA 53909	Unknown (9500 B.C. to 1993)	Lithic Scatter	Ridge 7845 ft	35 x 34 m	26 to 50 lithics
LA 53910	Unknown (9500 B.C. to 1993)	Lithic Scatter	Ridge 7835 ft	3000 sq m	
LA 53911	Unspecified Archaic (5500 B.C. to A.D. 900)	Lithic Scatter	Mesa/Butte 7860 ft	90 x 225 m	Several thousand lithics including two point fragments, fire-cracked rock noted
	Pueblo unknown (1846-1912)	Historic ceramics			
	Unknown (1846-1912)	Historic Trash			
LA 53912	Unspecified Archaic (5500 B.C. to A.D. 900)	Lithic Scatter	Mesa/Butte 7865 ft	15 x 14 m	1 to 10 lithics including two point fragments
	Basketmaker II (A.D. 1 to A.D. 500)	Lithic Scatter			
LA 53913	Unknown (9500 B.C. to A.D. 900)	Lithic Scatter	Mesa/Butte 7785 ft	46 x 22 m	11 to 25 lithics

LA 130874 is typical of the 17 sites located within a mile of the project area. Artifact density is low, but comparable with the majority of the sites that tend to have less than 20 artifacts. Material types from the Jemez Mountains, including Jemez obsidian, Polvadera obsidian, and Pedernal chert, tend to dominate the lithic artifact assemblages. Secondary and tertiary reduction flakes are common suggesting that tool manufacture and maintenance was a common activity. Ten of the 17 sites have projectile points suggesting a functional association with hunting activities and corner-notched projectile points are common. Only two sites have features in the form of probable hearths. Two sites have ground stone artifacts suggesting plant processing activities. The nearest site, LA 53907, is located about 0.5 km southeast of the project area. This is a somewhat larger lithic artifact scatter, from 50 to 100 artifacts, but with two similar obsidian corner-notched projectile points. LA 53911 is one of the larger regional "base camps" located less than 1 mile southeast of the project area. The site consists of several thousand flakes, hearths, fire-cracked rock, ground stone, and one corner-notched projectile point. The site was a significant late Archaic cultural manifestation embodying a wide range of activities. The complex site was contemporary with LA 130874 and was possibly the base from which the hunting activities characterizing the small special activity site originated.

Noticeably absent from the regional settlement pattern are sites with architecture suggesting year-round occupation. The rather severe local climate and heavy snow fall probably limited occupation to warm weather seasonal use. For instance, at the time of the project, 24 inches of snow covered the site on March 1 during a rather moderate winter. The late Archaic inhabitants most likely wintered at lower elevations with more hospitable climates. The Abiquiu Reservoir area about 20 miles south of LA 130874 is a likely candidate for the winter occupation (Lord 1987:10-1 to 10-64). LA 25358, the most intensive En Medio phase occupation within the Abiquiu Reservoir, is located in the piñon-juniper woodland at an elevation of 6,200 ft (1,890 m), over 1,400 ft (427 m) lower than LA 130874. The habitation site included at least five pit structures and may be the earliest semipermanent occupation in the area. Associated features included hearths, storage pits, and fire-cracked rock dumps. LA 47940, another habitation, evidenced at least one pit structure accompanied by hearths and numerous storage pits.

The En Medio phase occupation of the reservoir area was substantial with nine sites firmly dated to the phase and an additional 10 sites tentatively assigned to the phase (Lord 1987:10-59). Jemez obsidian was the dominant lithic material utilized by the En Medio phase population. Lithic reduction reflected both core and biface reduction strategies. The high frequencies of Jemez and Polvadera obsidian found in the Cebolla region indicate resource territories extending south to the Jemez Mountains. This may reflect the extension of the late Archaic settlement pattern to include semipermanent winter habitation sites in the Abiquiu Reservoir area, and the close proximity of the lithic sources from these sites. In summary, LA 130874 can be viewed as a component of a roughly three-tiered settlement pattern. LA 130874 functioned as a simple special activity site centered around hunting activities. In turn, the site occupants most likely originated from one of several larger regional base camps represented by a wider range of activities and resource procurement, but still centered primarily around the seasonal procurement of game. Finally, regional sites were abandoned in the winter months for more hospitable sites in the lower elevations such as Abiquiu Reservoir. The settlement pattern is similar to that employed by the later Gallina culture. The Gallina people had agricultural-based villages in the lower Llaves District with seasonal hunting camps such as Turkey Springs in the higher elevation project area. Turkey Springs served as a base camp from which smaller special activity tasks originated for the exploitation of regional resources, especially plentiful game.

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