

OVERVIEW OF ARCHAEOLOGY AT EDWARDS AFB, CALIFORNIA, 1984 TO 1989

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ABSTRACT

This paper is a brief overview of the CRM program, highlights of research accomplished since 1984, and the cultural resources at Edwards AFB. There are now over 450 prehistoric sites, 500 historic sites, and 400 Paleontological sites recorded. Paleontological survey revealed Tertiary cherts and a widespread Pleistocene fossil record. There are a substantial variety of periods, functions, and probably different cultures represented in the prehistoric record. Turn of the century homesteads, mines, and other sites, including the Pancho Barnes ranch complex, proliferate in the south and central portions of the base. The postwar era saw Edwards become the Nation's foremost flight test center where many aerospace firsts were made generating new "historic" sites. Edwards AFB has "the right stuff" for practically every research interest. The cultural resource management environment at Edwards AFB offers many unique challenges and opportunities.

INTRODUCTION

Edwards Air Force Base (Air Force Flight Test Center or AFFTC) encompasses 301,000 acres in the Antelope Valley and is located about 100 miles north of Los Angeles. The base lies in the western Mojave Desert and straddles the boundaries of Kern, Los Angeles, and San Bernardino counties. The most distinctive characteristic of the base is that it contains 2 large dry lakebeds (Figure 1). Rogers Dry Lakebed is the largest and is about 5 miles wide and 12 miles long. The main flightline is adjacent to Rogers Dry Lakebed and it is here that the space shuttle lands and most flight test activities are centered. Rosamond Dry Lakebed is a smaller lakebed and is about 5 miles in diameter. Both lakebeds have very hard level clay surfaces that are ideal for aircraft landings and are the main reason why Edwards AFB has become the country's primary flight test center.

The environmental setting on base is similar to general patterns throughout the western Mojave desert. Lowland areas tend to be alkaline and support saltbush plant communities. Playas are entirely devoid of vegetation. Joshua tree woodlands occur in both lowland and highland settings where sandy soils occur. Mesquite forests occur in the south central portion of the base. Highland areas that are drier with poorly developed soils tend to have creosote scrub plant communities.

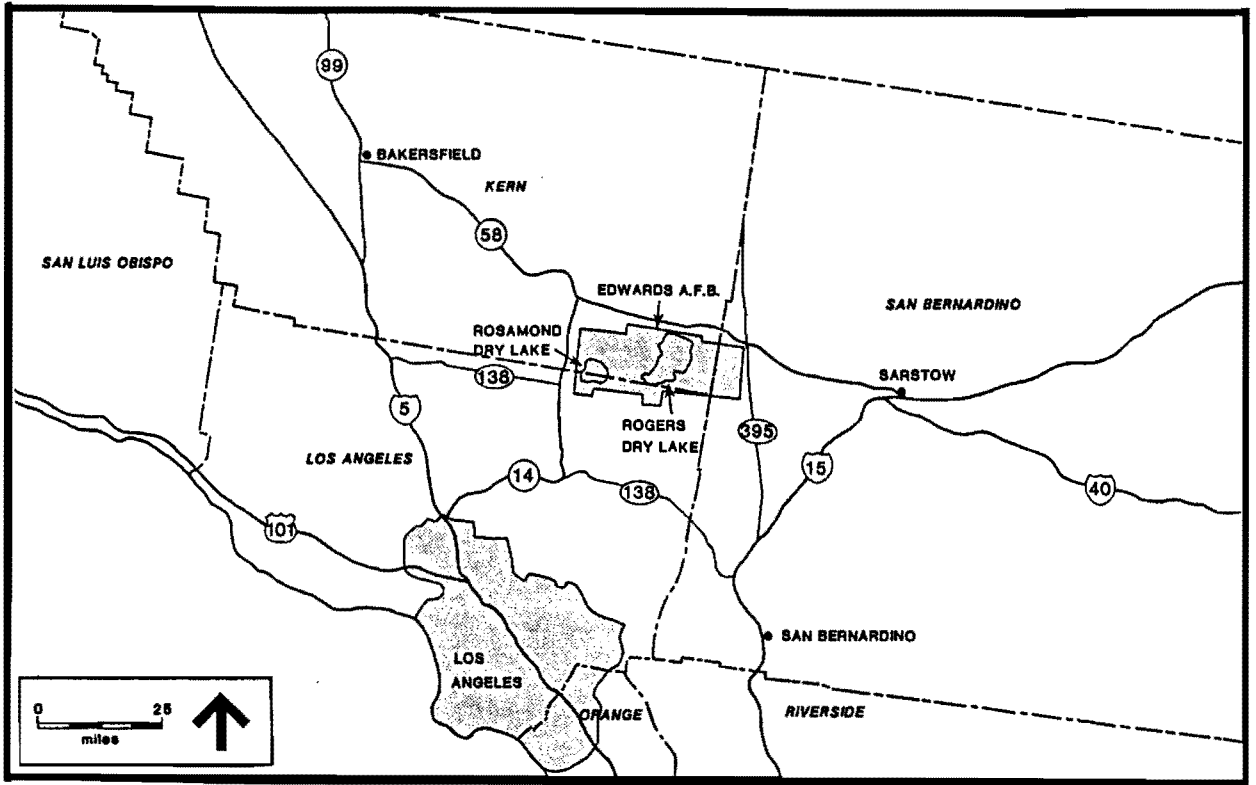


Figure 1. Edwards AFB Vicinity

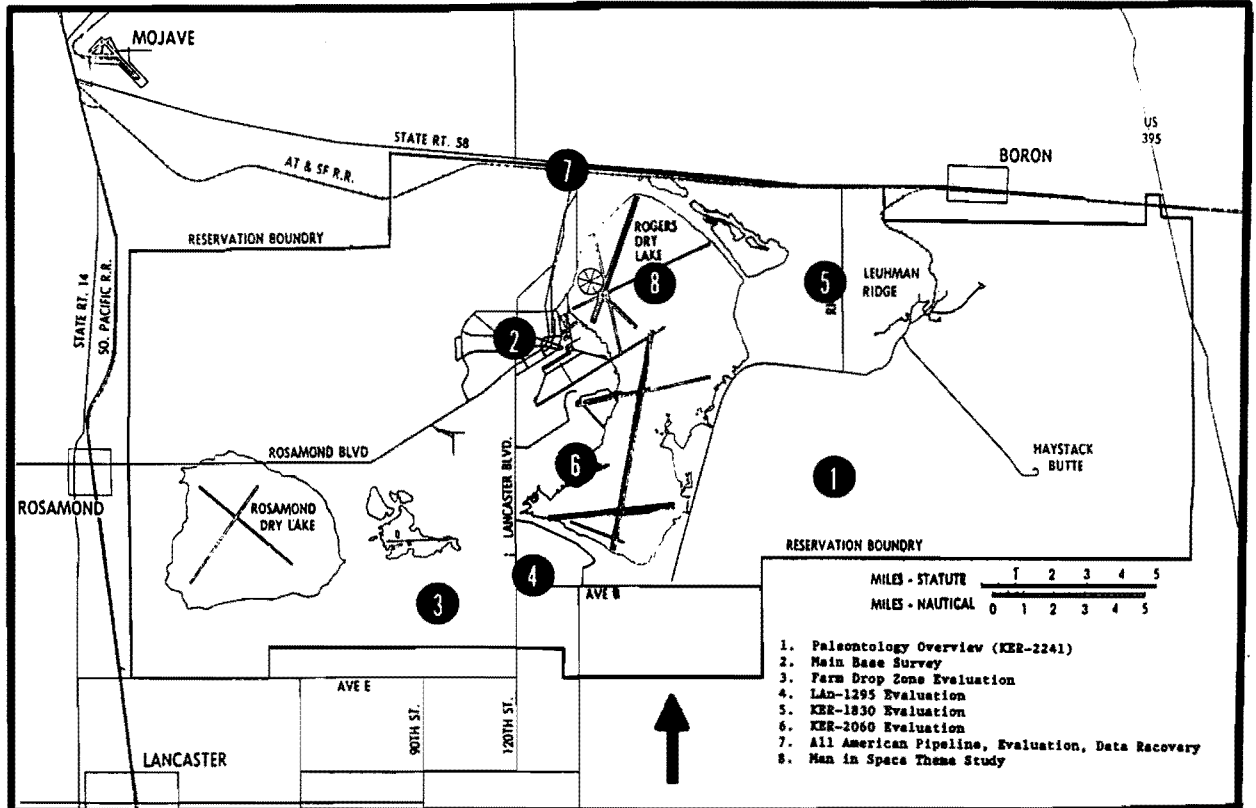


Figure 2. General Project Locations, Edwards AFB

There are often very distinctive breaks between vegetation communities that reflect changes in soil chemistry and the availability of groundwater. At Edwards AFB elevation differences are not dramatic. The lakebeds lie at about 2275' AMSL and the highest peaks are about 3350' AMSL. There is no pinyon/juniper plant community on base. The plant communities seen today have probably persisted since the beginning of the Holocene, however, density and distribution have probably varied to some degree.

Before the artificial lowering of the water table in the early 20th century, surface water was relatively abundant on base. Flowing springs, artesian wells, and marshes were reported by early settlers. There are several extinct springs on base that have dense prehistoric deposits. There are also abundant temporary sources of water on base. The major lakebeds often retain water after long-lasting major storms. In addition, there is an extensive area around and between the lakebeds and in other poorly drained low-lying areas that have literally hundreds of small claypan ephemeral ponds scattered among low stable dunes. These small claypan ponds also retain water for considerable periods of time.

When full, these ponds encourage the growth of desert fairy shrimp. Birdlife is drawn by the shrimp and water, and so are other game animals. Stable dunes, when kept moist by adjacent water, encourage plant growth and diversity including seed bearing grasses. When wet, the pan and dune zone is really quite rich in plant and animal life, which in turn, drew people to the area. It is no accident that the most extensive sites, the highest site densities, and the greatest number of sites occur in the pan and dune zone.

The pan and dune zone may have represented a special and very important resource to prehistoric people. In dry periods this zone may have been critically important. To imagine why this may have been the case consider patterns of rainfall in the western Mojave Desert. Here, of course, rainfall is rare, sporadic, and often very localized both during winter and summer storms. A single cloudburst may saturate several square miles in one area yet leave the surrounding region dry. This rainwater cannot be exploited for day-to-day use unless it is retained. The small claypan ponds, which cover many square miles of the base, offer the opportunity to catch and retain water from these cloudbursts. These ponds can be seen as potential buckets. The odds are that given any rain in the area at all, at least some of the buckets would be filled. Exploitation could then focus on those areas where it had rained and the buckets were filled. The pan and dune zone would have been important for its ability to catch and retain local and concentrated rainwater. The presence of all of the potential rainwater receptacles and the shifting and capricious nature of desert rainfall may have combined as a major factor in the shifting occupation and use pattern and help explain why site density is so great in this zone.

PROGRAM HISTORY

The first documented archaeological work on base began in 1972 when the Antelope Valley Archaeological Society recorded a series of sites and undertook some surface collections. In late 1976 Mark Sutton was hired for a one year term as the first base archaeologist. He initiated the first substantial efforts to build a compliance program for the base and demonstrated that the base did indeed contain many significant resources needing active management. After his one year term expired there was no in-house cultural resource management expertise until 1982. However, various projects were carried out under contract including preparation of an overview and management plan by Greenwood and Associates (Greenwood and McIntyre 1980, 1981). The overview project involved undertaking a sample survey of the entire base using 1/8 x 1 mile transects and resulted in the recording of 47 sites and a series of isolates. An aerial survey was also done resulting in the recording of an additional 176 potential historic sites. In combination with Sutton's earlier efforts, this project raised AFFTC awareness of compliance requirements and responsibilities.

In 1982 a 3 month temporary term position was filled by Paul Langenwalter, and in 1983, 2 temporary, 1 year positions were filled by Donna Little and Dana Howe. This period again saw project-specific, compliance-oriented work being done including a survey and test excavation of a four square mile area known as East Range (Howe and Little 1983, Clerico and Elston 1984). At the end of 1983, the temporary positions lapsed and the base was again left without in-house expertise. In mid-1984 Richard Norwood was hired as base archaeologist for a 3 year term. The position evolved into a permanent one in 1986. Since 1984, there has been an ongoing cultural resource management program. In the first 2 years of the program seasonal temporary positions were obtained for program support. In the last 2 years personnel support has been provided by Computer Science Corporation with 2 full time positions (Terry Wessel and Mike Perry) and part time temporary positions as needed.

The program at Edwards AFB is directed primarily towards helping the base move towards and achieve compliance with federal laws and the newly issued Air Force Regulation AFR 126-7. For the most part, activities are centered around providing project-specific surveys. However, surveys have been undertaken in anticipation of future development. Survey efforts beyond project-specific needs continue to be done when possible. For the last year, attention has been focused on visiting and recording potential historic sites first identified during the 1980 flyover and as a result of later research with old topographic maps. All of the known prehistoric sites are institutionally recorded and about one third of the presently known potential historic sites are institutionally recorded. About 15% of the total base lands have been examined. Table 1 provides a list of the types of sites recorded at Edwards AFB.

TABLE 1
RESOURCES AT EDWARDS AFB

RESOURCE CLASS	TYPE	COUNT
Paleontological	Vertebrate	391
	Invertebrate	3
	Plant	21
	Neotoma midden	9
	Creosote ring	<u>1</u>
		425
Prehistoric	Village/base camp	4
	Temporary camp	206
	Rock shelter	3
	Milling station	36
	Flake scatter	154
	Quarry	3
	Cremation locus	1
	Rock feature	1
	Pictograph	1
	Hearth concentration	33
	Burned bone (animal) scatter	<u>4</u>
	447	
Historic	Trash dump	115
	Townsite	1
	Homesite	296
	Agricultural feature (well, etc.)	56
	Livestock feature (corral, etc.)	9
	Mining camp/mine	6
	Mine shaft/pit/prospect	43
	Railroad/railroad related	6
	Military (abandoned)	29
	Military (in use)	10
	Other	<u>3</u>
		574
All Classes	Total	1446

Temporal variation in the prehistoric record appears extensive and complex. As yet good hard data permitting accurate temporal placement of sites on base is not available. Few sites have been assigned dates, and many of the dates that have been assigned are very tentative. Temporal data is limited to a few radiocarbon and obsidian hydration dates, and less than 200 diagnostic artifacts such as projectile points and beads. A best guess is that the base was occupied or exploited to some extent more or less continuously during the last 6000 years. At least one specimen of every major projectile point series has been found and noted, with the exception of fluted points. Ceramics are particularly rare and have been found at less than a dozen sites. A large portion of Native American occupation appears to date to later periods, however, not so late as to have generated a substantial ethnographic record.

As far as historic sites are concerned, no sites have been documented as dating earlier than the 1880s. The earliest documented historic site is the town of Muroc (once known as Yucca), which evolved from a stop on the 1883 rail line. There are many homesites of later periods with many dating to the turn of the century and some persisting until taken over by the military in the 1950s.

Sites relating to military history and aerospace development date from 1933 to the present. Military use of what is now Edwards AFB began when flyers from March Field used Rogers Dry Lakebed for landing and bombing practice. General Hap Arnold established the original camp on the east-central shoreline of the lake (KER-2031). During the WWII period the base shifted to the west-central shoreline and became Muroc Army Airfield (now known as south base, KER-706). Additional lands were acquired to encompass most of the lake and surrounding area.

Following the war, the south base facilities deteriorated and were mostly dismantled. The flightline area was moved to its present location 2 miles to the north and in 1955 was rededicated and named after Capt. Glen W. Edwards, who was killed in 1948 during testing of the YB-49 "Flying Wing". During the late 1940s and early 50s, the base grew to its present size and, as a consequence, displaced the small town of Muroc (KER-695), a railroad (KER-560), and a scattered community of homesteaders, miners, and other assorted establishments including the infamous Happy Bottom Riding Club owned by Pancho Barnes (KER-531).

The base is the place to be as far as emerging new aerospace technologies are concerned. There are many legends (including Chuck Yeager and Pancho Barnes) associated with the base that have been popularized in books, movies, and TV shows. The base appears on TV often not only for space shuttle landings but also in commercials where a lakebed is used as a dramatic backdrop to focus attention on some new product. The base has had a long and illustrious history which continues to be made today.

Since 1984 there have been several major projects that have especially contributed to knowledge of the resources on base. Provided below are brief descriptions of these projects. Figure 2 depicts the general location of these projects.

PALEONTOLOGY OVERVIEW AND MANAGEMENT PLAN

In 1987-1988, San Bernardino County Museum was contracted to perform a paleontological overview and management plan (Reynolds 1988). Efforts involved in its preparation included comprehensive study of existing literature and geological maps, identification of specimens found during earlier archaeological work, and field examination of over 5000 acres. Survey transects were selected judgmentally. As a result, approximately 200 new paleontological localities were found, 595 specimens were recovered, and extensive areas of paleontologically sensitive soils were identified. Many of the localities consist of isolated bone or teeth fragments; some contain several taxa of vertebrate fossils (Reynolds 1988:78).

Fossils of Tertiary (probably Miocene) and Pleistocene age occur. Tertiary specimens occur in freshwater limestone and cherty limestone and consist primarily of plant remains (root casts, palm root, silicified wood, palm fronds, and possible bird tracks). Pleistocene vertebrate fossils are weathering from 2 sources. According to Reynolds (1988:82) more than half of the localities are in alluvial sediments and paleosols deposited above elevation 2350', the sill level of late Pleistocene Lake Thompson. The other significant source of Pleistocene fossils are the sediments of Lake Thompson below this elevation.

The identifiable taxa are consistent with those which would be anticipated from the Irvingtonian and RanchoLabrean land mammal ages (Reynolds 1988:83). The most commonly identified Pleistocene large mammals are camelid, including the large extinct camel Camelops sp. and medium-sized artiodactyls which might represent llamas, and bovids. Extinct horses are the next most abundant large mammal. Antilocapra and small artiodactyls are present, as are mammoth and mastodon, the latter very rare in Mojave Desert deposits. The most abundant small mammals are lagomorphs including Lepus sp. and, less commonly, Sylvilagus sp. Rodents, reptiles, gastropods and root casts also occur (Reynolds 1988:80).

Of particular interest to archaeologists is the discovery of a fossil human tooth. This surface find was made in association with several flakes and fragments of camel and mastodon (KER-2241). The tooth specimen, a molar, is permineralized in the same manner as associated animal teeth fragments. While the find is not conclusive evidence of early man, its presence is suggestive that further efforts in searching for such evidence could prove fruitful.

MAIN BASE SURVEY

Most of the new development on base is occurring within an approximately 22 square mile area known as Main Base. This area contains the flightline, contractor row, the housing area, portions of the NASA facilities, headquarters, and South Base (the original WWII flightline area). In order to aid in managing resources within this area a project was created to accomplish several goals (Hector et al. 1988a). The primary goal was to synthesize previous work, provide tentative site evaluations, update site records, and perform on foot survey for an additional 3000 acres where future development is anticipated.

As a result of this study, 21 new cultural resources were recorded and 32 previously recorded sites were revisited and the site records updated. A total of 93 cultural resources are now known within the study area. Of these, 12 prehistoric sites could be considered potentially eligible to the National Register of Historic Places as part of a prehistoric district. Two National Register districts could be created to embrace 2 basic historic themes: early settlement/homestead/boomtown development and military aviation/aerospace development/man in space.

The study area contains the remains of the town of Muroc, originally established as a railroad stop in the 1880s and taken over by the military post-WWII expansion. The town was a nucleus for a widely scattered community of homesteads in prewar years. During the war it was a focal point for servicing Muroc Army Airfield. Its "suburb" Kerosene Flat once housed WWII pilots and their dependants. WWII and the period immediately following saw the base expand and become the nation's, if not the world's, foremost flight test center. The achievements of these years are well known, including Chuck Yeager breaking the sound barrier in 1947, to Space Shuttle Columbia's landing in 1981.

This study has established a foundation for future efforts to further document, formally evaluate, and ultimately nominate resources relating to these themes to the National Register.

FARM DROP ZONE EVALUATION

The study, performed by RECON (Hector et al. 1988b), was focused on the identification of sites within a 1500 acre survey area and evaluation of a number of previously recorded sites in the vicinity of a practice drop zone. As a result of the survey 1 prehistoric site and 18 historic sites were recorded. Previously recorded sites LAn-1296, LAn-1240, and LAn-1158 were evaluated for National Register of Historic Places eligibility. LAn-1296 is a "composite" site composed of previously recorded sites LAn-771, LAn-828, portions of LAn-769, and additional loci found during surveys in 1980, 1984, and 1985. LAn-1296 is one of the largest, most complex sites on base and has the highest apparent artifact density of any sites identified so far. The site is discussed in several sources including Sutton (1988).

The evaluation phase of the project focused on consideration of 3 hypotheses concerning the type of occupation represented. One proposition was that the site complex represents a permanent village in the Desert Village adaptation; a second, that it represents relatively small scale temporary camping over an extended time period; and a third, that the site represents short term, "non-exploitive" passing through activities. Evidence gathered during the evaluation effort tends to support the second proposition.

Fieldwork for the project entailed surface collection of 69 10 x 10 meter collection units and 1 x 1 meter square test units. These were proportionally allotted among the various sites and site loci. Diagnostic artifacts outside grids were also collected. The following sample was obtained: 6298 flakes/debitage, 58 assorted flaked lithic tools, 15 projectile points, 158 groundstone tools, 6 fragments of unworked shell, 52 beads/ornaments, and 911.6 grams of bone. Analysis also included study of a collection recovered by the Antelope Valley Archaeological Society in the early 1970s.

The analysis of flakes from all sites and loci reflect that the majority relate to tool finishing and maintenance activities. At LAN-1158 chert was the preferred material, however, at some loci of LAN-1296 chert was in the minority and a variability in material preference was observed. Analysis of flaked lithic tools show a variety of potential manufacture and use modes with the crushing related attributes being rare.

A variety of projectile point types were identified, however, the majority indicate occupation after 3400 BP and types associated with later periods are most frequent. Types identified include "Pinto" like, Humboldt, Elko corner-notched, Rose Spring corner-notched, Rose Spring contracting stem, Cottonwood Triangular and Desert Side-notched. Bead analysis is consistent with projectile point analysis in terms of dating.

Forty-two sourced obsidian specimens (almost all Coso) reveal hydration measurements between 1.9 and 10.5 microns. Measurements above 6.5 microns are few, suggesting relatively early but sporadic use of the area. There are 2 clusters of measurements between 2.5 and 5.9 microns, suggesting long term use of the area at a higher level of intensity. A gap between 4 and 4.4 microns may represent a use hiatus, but other explanations are possible (Hector et al. 1988b:51).

The results of the faunal analysis were interesting in that most of the remains identified are desert cottontail or black-tailed jackrabbit. No fish or bird remains were identified. Over 70% of the bone is burned indicating a roasting cooking method. The hunting aspect of the economy probably focused primarily on rabbit drives (Hector et al. 1988b:53).

No human bone was found or noted during this investigation. A cremation is reported during 1970's work in the area.

Following completion of this project, plans for more intensive expanded use of the drop zone were dropped. The majority of this site remains intact and in good condition. Further work would be productive in addressing many questions relating to the prehistory of the Antelope Valley.

LAN-1295 EVALUATION

Evaluation was undertaken at this site in response to emplacement of a water line. LAN-1295 is like many other sites in the southern portion of the base. It is situated in a claypan/stable dune environment with associated mesquite and Joshua trees. Site boundaries encompass a wide area, but within these concentrations of appreciable density are rare and relatively small. The site is an apparent temporary camp with no midden development or substantial subsurface deposit. Materials are generally concentrated on the margins of claypans and dune bases. LAN-1295 is unusual in that cremated human remains occur.

The evaluation was undertaken by LSA Associates, Inc. of Irvine, CA. (Rosenthal et al. 1988) and involved surface collection of 2 10 x 10 units, point by point collection of diagnostics, and excavation of 7 1 x 1 meter square test units. Extensive phosphate testing was done in order to identify variation relatable to occupation/use areas. Focus of research was on explication of the flaked lithic assemblage.

Seven hundred ninety-eight (798) items were recovered and most are flakes or debitage. A large portion of these are identified as utilized. Seventeen flaked lithic tools, 1 Cottonwood Triangular projectile point, and 1 metate were recovered. Obsidian is represented by only 1 small unsourceable flake with an 11 micron hydration reading. No faunal remains associated with the prehistoric occupation were found.

The 3 x 16 meter cremation locus contains numerous bone fragments and 2 bone concentrations. This area was studied in-situ and left in-situ. Identifiable bone is rare and includes the proximal end of an ulna, the digital end of the radius, and shaft fragments of a radius, ulna and fibula. Numerous cranial fragments were noted. No teeth were recorded and there are no apparent funerary offerings. Determination of age and sex of the individual(s) could not be made. It is possible that 2 individuals are represented.

The flaked lithic assemblage was felt to represent a specialized activity using a simple expediently produced tool kit with few formally produced tools. The limited evidence suggests a late prehistoric occupation. Phosphate testing was inconclusive in terms of delimiting use areas. Lack of subsurface deposits suggests relatively short term visitation/occupation. As a result of finding little variability in the assemblage, relatively little site integrity, and no apparent subsurface deposits, the site was found not potentially eligible to the National Register of Historic Places. However, treatment/preservation of the cremation locus is recommended.

KER-1830 EVALUATION

The reopening of a borrow pit operation brought about the need to evaluate KER-1830, located in the east central portion of the base west of Leuhman Ridge. The project was undertaken by Computer Science Corporation with Air Force support (Barabas 1987). The site is situated at the margin of a low range of hills and a drainage basin. A variety of vegetation communities are found on or near the site including Joshua Tree woodland, creosote scrub and shadscale scrub. A fault passes through the site, and there was probably once a spring or seep present. The site is relatively large and extends over an area of approximately 1 square kilometer and has 13 loci. Site features include: intact thermally affected rock concentrations, and a substantial paleontological component.

The field program involved point by point surface collection (including obsidian) of diagnostics and excavation of 11 shovel test pits. Nine 1 x 1 meter square test units (4 excavated as a block) were completed. One 10 x 10 meter square surface collection unit was completed at locus 3.

The site was found to have subsurface materials to some appreciable depth (70 cm), but no midden as defined in the traditional sense. One thousand two hundred thirty-two (1232) items were recovered from the site. One hundred thirty-three (133) are paleontological, 1099 are archaeological, including 831 flaked lithic tools (64 finished), 14 groundstone tools, 253 bone fragments, 2 carbonized wood, 2 fire affected rocks, and a Tivella sp. shell disk bead.

Among the 64 finished tools are 16 projectile points, 46 scrapers, a knife, and a perforator. The projectile point assemblage is particularly interesting and includes 7 classifiable specimens: Pinto sloping shoulder, Lake Mojave/Silver Lake, Silver Lake Rectangular Stem (or Gatecliff Contracting Stem), Pinto/expanding stem, and Elko Corner notched. The point assemblage varies in various subtle ways and appears unlike classic specimens. The point data suggest site occupation between 6000 BP and 1200 BP.

Fifty obsidian specimens were submitted for sourcing and hydration studies. Thirty-nine were sourced to specific areas within the Coso Range (34 to West Sugarloaf, 5 to Sugarloaf). Ten were given general provenience within the Coso source and one could not be sourced. Forty-five specimens were successfully measured for hydration. Measurements range between 4.5 to 19.5 microns. Eliminating the highest and lowest reading, the range is 7.8 to 17.1 microns. Generally, then, it is apparent that the site represents an earlier occupation than that evidenced at the Farm Drop Zone.

Faunal remains are fragmentary and represent primarily small mammals. Rabbit, reptile, bird, and large mammal are present. A large portion of these may be natural soil constituents or palentological. Few specimens are burned (Barabas 1987).

KER-2060 EVALUATION

This site was an inadvertent discovery uncovered as a result of a construction project. The site, better considered as a site remnant, had been severely impacted as a result of 1940s era building of a sewage evaporation pond complex and its 1985 expansion. The site was identified by workers due to the presence of human bones. When identified, work at the find was stopped and portions of the site remained intact. The burial is in an excellent state of preservation; however, it lacks most of the skull and all of the teeth, which make identification of ethnic affinity difficult. An Air Force pathologist (Riessen 1987) found the evidence inconclusive but suggested possible European affiliation. The skeleton was that of a male, approximately 5'7" tall, and about 30 years old. There were 3 items of Native American origin found near the skeleton: 2 straight based Cottonwood series projectile points, and a bone awl. Both Native American and historic artifacts were found at the site. Native American items included flakes, 2 cores, a spire-lopped olivella shell bead, fragments of abalone shell, a mano, a possible schist metate fragment, and thermally affected rocks. Cremated human bone and faunal remains are also present. Historic items included a variety of glass and metal household containers and debris, a stove leg, composition roofing and drywall, and cartridge casings and slugs of various calibers. Palentological materials (teeth fragments) were also noted. A report discussing the find and its content is in progress (Norwood n.d.).

ALL AMERICAN PIPELINE SURVEY, EVALUATION, DATA RECOVERY

In 1985-86 the Center for Archaeological Studies, University of California, Santa Barbara, under contract with New Mexico State University, performed survey, evaluation, and in some cases, data recovery for sites along the All American Pipeline Right of Way (Larson and Bronson 1985). The route passes along the southern margin of State Route 58 and transects a large portion of the northern base boundary. Thirteen on-base sites were involved in this effort, including KER-322, 323, 1181/H,

KER-2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, and 2 unrecorded historic sites (EAFB 612 & 613). The final report on this work is currently in progress.

Excavations carried out at one of the sites, KER-2091 (13-1), were particularly productive:

The excavation sample at site 13-1 included 6 backhoe trenches (25-40 m long), and 16 unit excavations (15 2x2 m and 1 1x2 m units). Eleven of the units were placed in a block excavation to maximize the recovery of the significant data. Two 2x2 m units were placed just west of the block, and the remaining 3 2x2 m units were scattered around the remaining portions of the site to determine if additional subsurface deposits might be present. The 6 trenches excavated revealed no additional subsurface cultural deposits (Bergin 1986).

A definite cultural horizon, disturbed by rodent turbation, was discovered 55-65 cm beneath the ground surface. A few formal tools, including an obsidian uniface, and obsidian (1) and other debitage were found in association with 4 hearth features and other disturbed fire-affected rock features (Bergin 1986).

The recovery of a faunal assemblage in a datable context is of extraordinary significance. The use of metavolcanic and quartz at the site may indicate an Early Times or Early Times - Middle Times Transition (2500 B.C. - A.D. 300) chronological association, and faunal data (for the development and testing of subsistence theory) is generally lacking in desert sites. A bone awl was recovered from the excavation, and groundstone items were also recovered at depth (Bergin 1986).

The excavation of KER-2091 taught a valuable lesson: that sites on base with rather mundane surface manifestations could have substantial well developed subsurface deposits. When ultimately completed, the final report should provide valuable data on occupation of the northern portion of the base.

MAN IN SPACE THEME STUDY

This study was a nationwide National Park Service effort to comply with P.L. 96-344 which mandated identification and evaluation of sites relating to the theme Man in Space and to nominate the most outstanding examples as National Historic Landmarks (Butowsky 1984). As a result of this study, Rogers Dry Lake was successfully nominated in 1985. This study was important for a number of reasons, one being that it firmly established that relatively young resources and sites of relatively recent notoriety can be recognized as important historically. Also reflected in the study is how sites/facilities are under regular and continuing attention and modification to accommodate new programs and new technology. The findings of the study have important implications for cultural resource managers.

FUTURE DIRECTIONS

Over 25 projects have been designed and are awaiting funding. Some of these are focused on increasing survey coverage for areas of the base that are less well known and/or where future impacts are anticipated. Additional paleontological surveys are also planned. Other projects are aimed at evaluation of known sites and potential National Register of Historic Places districts. Particular efforts are being made to understand the historic resources on base. An in-progress study involving tracing the locations of abandoned wells is aiding in the dating of homesteads and in locating new historic sites. A request for funding to obtain oral histories of the early days, both non-military and military, has been made. Management oriented projects have also been planned, including production of a video, a training course for base decision-makers, and implimentation of active preservation and protection measures for some sites and areas.

One of the higher priorities is to update the cultural resource management plan by 1990 so it can include new perspectives, finds, and understandings gained over the last 10 years and also to more clearly identify the considerable data gaps that persist. The updated management plan will be designed to standardize policies and approaches in management of base resources.

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