

THEMATIC EVALUATION OF
HISTORIC PERIOD ARCHAEOLOGICAL SITES
AT EDWARDS AIR FORCE BASE:
A SYSTEMATIC APPROACH

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ABSTRACT

Recent archaeological studies at Edwards Air Force Base in the Mojave Desert provided an opportunity to evaluate many historic cultural resources. The evaluation was done at several different levels, ranging from extensive investigations to assess National Register eligibility to minor field checks of recent historic trash dumps. Using a systematic approach, it was possible to organize this large amount of information and reach an evaluation statement about each historic site. This approach includes identification of important themes and specific data needs.

PROJECT BACKGROUND

During 1988, RECON archaeologists conducted 2 cultural resource projects within the boundaries of Edwards Air Force Base (Hector, Gross, Bull, et al. 1988; Hector, Gross, Van Wormer, et al. 1988). One of the projects, in an area called the Farm Drop Zone, consisted of a survey of 1,500 acres and subsequent testing of 3 prehistoric and 1 historic site for National Register eligibility. Eighteen additional historic sites were recorded within the Farm Drop Zone.

The other project, in the Main Base area, consisted of a survey of 3,000 acres; 53 historic and prehistoric sites were recorded as a result of this survey. In addition, the 53 sites recorded during the Main Base survey and 40 previously recorded sites (for a total of 93 sites) were subjected to a preliminary evaluation for National Register eligibility. Fifty-one of these sites were historic sites.

Seventy historic sites were considered as part of the study. The historic sites were recorded and mapped during the field surveys. In most cases, surface collections were accomplished. If no collections were made, field observations of artifacts and features were noted. In addition, existing information derived from earlier field studies and documentation available on base were used to augment the RECON evaluations.

The objectives of the Farm Drop Zone and Main Base projects were twofold: (1) it was necessary to provide specific information about certain resources so that the Base Archaeologist could prioritize preservation efforts and (2) an evaluation framework and base level of information were needed by the Base Archaeologist for future planning.

EVALUATION FRAMEWORK

Introduction

The National Register criteria, as cited in 36 CFR 60.4, had to be considered when the framework was constructed. Any of the sites or districts may be eligible under any of the 4 criteria, although the historic sites are more likely than the prehistoric sites to be eligible under the first 3 criteria. The National Register criteria are as follows:

1. The site is associated with events that have made a significant contribution to the broad patterns of our history; or
2. The site is associated with the lives of persons significant in our past; or
3. The site embodies the distinctive characteristics of a type, period, or method of construction; or represents the work of a master; or possesses high artistic values; or represents a significant and distinguishable entity whose components may lack individual distinction; or
4. The site has yielded, or may be likely to yield, information important in prehistory or history.

The evaluative framework developed for the project provided a basis for assessing both the potential of a site for yielding significant archaeological information (criteria for evaluation of eligibility for inclusion in the National Register of Historic Places) and how important the sites are to an understanding of the history of an area. The cultural history of the region containing the project area was reviewed to provide a context for the kinds of information that may be available in project area sites. In addition, the integrity of the site was taken into account; records were kept of disturbance and subsequent modifications at each site.

This paper provides thematic categories for the evaluation of the historic resources located within the Main Base and Farm Drop Zone project areas. It is anticipated that researchers in other parts of the Mojave Desert will be able to adapt and modify these themes to relate to other resources.

In addition to providing National Register evaluations, another goal of the project was to provide Edwards Air Force Base with a planning tool. By placing specific resources within the themes proposed in this paper, it will be possible for the Base Archaeologist to recommend additional studies at specific sites and assess the potential of the site to address the research themes. The approach was divided into 2 parts, representing the

different chronological periods present within the project area: prehistory and history. The prehistoric framework will not be discussed in this paper. The historic framework was generated by the author, Stephen Van Wormer, and William Manley.

The Historic Sites

A summary of the history of the base area can be found in Manley (1989). Briefly, major activity during the historic period did not occur until the late 1800s, with the advent of the railroad. The tracks were constructed across Rogers Dry Lake and brought permanent settlement into the area by the early 1900s. The early homestead development was accompanied by real estate and mining speculation and eventually by an interest on the part of the U.S. military in testing aircraft in the area during the 1930s. The small town of Muroc was overtaken by the U.S. military for occupation by personnel and their families; by the early 1950s, all civilian settlement was moved from the base area.

As is the case with prehistoric sites, both site-specific and regional questions can be asked about historic resources. However, for historic sites, more specific data needs were identified, since more information is available for the historic period. When the RECON investigations began, there was already one major theme important to Edwards Air Force Base: the Man in Space theme. In addition to the Man in Space theme, additional themes related to the history of the area were identified during preliminary literature review and research: Early Settlement/Homestead and Boomtown Development. Each of these will be described below.

Early Settlement/Homestead

This theme relates to initial exploration of the area, establishment of transportation systems through the area, and sporadic, scattered settlement of the Main Base area by homesteaders. The establishment of homesteads is represented in the project area by isolated residences; most of these are in poor condition. Evidence for these sites generally consists of scatters of historic artifacts and limited structural remains. Although some of the homesteads may date before the establishment of Muroc, many are contemporary with the town and represent a continuation of ranching activities subsequent to the community-oriented development of the area.

Most of the data relating to this theme will be obtainable through archival sources and oral histories. However, field studies such as test excavations and mapping of features can provide information on the early settlement and homesteading activities of the area. The following questions relate to this theme.

1. How self-sufficient were the homesteaders?

Related to an assessment of the self-reliance of the original settlers is an identification of the functions of the

homesteads. Assignment of function, through analysis of features and artifacts, could permit identification of the activities that occurred at the sites. It is likely that most of the homesteads represent ranching activities; however, many other types of activities are also possible.

Data Needs:

Archival: Tax records, newspaper articles, and other archival sources could be used to assess the availability of goods to the occupants of the homesteads. Commercial enterprises operated out of the homesteads could also be identified from records.

Oral History: Interviews with individuals who lived in the area during the homestead years are extremely valuable sources for this topic. Because the survivors of this era are now well into their eighties, an oral history program oriented to interviewing ex-homesteaders should be undertaken immediately.

Archaeological: Data from mapping and test excavations, such as observations of structures and foundations, would be used to create feature maps. Artifacts from these features would be analyzed to determine the date of the features and function. Architectural analysis of the types and placements of buildings, fields, ornamental vegetation, barns and maintenance yards, irrigation systems, and other features that would be evidence for entrepreneurial enterprises would be important. Site feature analysis, including analyses of outbuildings, barns, wells, and other features, has been useful in the assessment of changes in site function (Frederick 1974; Schlereth 1980a, 1980b).

Increased self-sufficiency can be assessed archaeologically through the identification of reused items, hand-made items, and a general decrease in discards in dump strata. The decrease in discards would be evidence for a reluctance to throw out items because of minor defects not related to the successful functioning of the object. For example, cups with chips and cracks would not be discarded. Increased home repair of items such as machinery parts, equipment, and implements might also be noted.

The homesteaders practiced gardening and raised stock animals. To survive periods of economic hardship, homesteaders may also have sought mining-related employment in nearby areas such as Boron. Mercantile ventures, such as bootlegging, may have been begun or expanded. The expansion into other profitable endeavors was an attempt to raise more cash during slow economic periods. Archival evidence would include tax records, deeds, leases, mortgages, court records, maps, and business records. Oral sources could elaborate on material and archival evidence and provide the invaluable component of personal experience to the understandings of these activities. Archaeological data would include the recovery of machine and implement parts that could be identified and dated.

2. How did the regional transportation network develop, and how did this relate to the settlement of the area?

Data Needs:

Archival: Research on the development of roads, railways, and water systems within the region can provide much information on the early settlement within the project area. For example, the construction of the railroad through Rogers Lake provided access to many of the goods and services of more populated areas. The use of desert areas as transport corridors is an important aspect to the development of this part of the country.

Oral History: An oral history program could include specific questions on the railroad and the role of Rogers Lake in early transportation.

Boomtown Development

A boomtown was a settlement quickly established as a result of the discovery and exploitation of a resource or industry. The company town was a particular type of boomtown. The company town was a planned industrial settlement. All company towns contain certain elements, including (1) proximity to the resource exploited (sometimes mining towns were built over the mines); (2) wide, straight streets; (3) standardized worker housing and facilities; and (4) an imposed behavioral or moral standard (Allen 1966; Hudson 1979). Non-company boomtowns were more typical frontier towns, containing "randomly placed settlements" and a wide variety of commercial enterprises (Rogge and Myers 1987).

Muroc, the main historic townsite located within the project area, became a type of company town. Muroc began as an attempt to attract settlers into the area through land sales; amenities such as wells, a store, and a post office were established by the founders of the town. Basic worker housing and other facilities were added to the community as workers and families settled around the industrial mining of the area and later around the military installation. The development of Muroc as a company town is further discussed by Manley (1989); material remains present at the site have been mapped and recorded. Emergency military housing was built near Rogers Lake. Additional facilities were added and modifications made as the area was increasingly used for military activities. The townsite provides an example of the rapid development of a settlement and associated economic activities prior to the restricted use of the area by the military. The contribution of the Muroc townsite to the development of the base, by providing housing and limited facilities, relates to the Man in Space theme as well as the Boomtown theme.

The following research questions relating to the development of the boomtown can be addressed with data from this resource.

1. How self-sufficient were the company town occupants?
Did the function of the town change over time due to changes in the economy?

It would be expected that company town inhabitants would be highly dependent on outside sources of food and other goods. However, if the town was developing beyond the limits of a company settlement, independent ventures may have taken place. Economic changes and changes in site function over time could also cause changes in self-sufficiency.

Data Needs:

Archival: Tax records, newspaper articles, and other archival sources could be used to assess the availability of goods to the occupants of Muroc. Commercial enterprises within the townsite could also be identified from records.

Oral History: Interviews with ex-residents of Muroc, employees in local mining activities, and military personnel assigned there would be essential to understanding the interactions of these groups, as well as changes in the function of the town.

Archaeological: The archaeological data needs for this topic are the same as those required to assess homestead self-sufficiency, as discussed under the Early Settlement/Homestead section above.

2. How did the technology of industry change from the early capitalist venture period (c. 1900) to the abandonment of Muroc in the early 1950s?

Because of the continuous occupation of the town, it should be possible to examine the changes in industry within the area; the existence of a railroad through the area would have provided access to the latest in technological advances.

Data Needs:

The late nineteenth/early twentieth century period is characterized by a revolution in technology used on American farms and in American mercantile businesses. During the late nineteenth century, hand equipment was replaced by horse- and steam-powered tools and implements. These in turn were eventually replaced by gasoline-powered machines between 1900 and 1920 (Hurt 1982).

Archival: Adoption of technologies could be detected through the assessment of tax records, probate inventories, wills, court cases, and business records. The impact of technology on site inhabitants should be reflected in increased agricultural and business production as demonstrated by tax records, newspaper articles and ads, local histories, business and court records, and federal agricultural census manuscript returns.

Oral History: Interviews with ex-residents of Muroc, residents of surrounding communities such as Rosamond, and military personnel assigned to the Muroc facility would be essential. An oral history research program could be designed to include questions related to technological changes during this period.

Archaeological: Excavations in barnyards and equipment maintenance yards could result in recovery of machinery and equipment parts which can be dated and identified to function. In addition, if adoption of new technology resulted in economic changes, these could be reflected in archaeological data.

3. How did the residential area and support facilities change over time? How were these changes related to changes in the standard of living at Muroc?

This question relates to the ethnic and social composition of the town. Many towns such as Muroc had large contingents of immigrants. A study by Hantman and McKenna (1985) of O'Rourke's Camp, an early twentieth century construction camp north of Phoenix, Arizona, indicated that there was little contact between the ethnic groups living at the site. Italian stonemasons employed to build Roosevelt Dam, for example, retained trade contacts and consumption patterns oriented to urban centers. In fact, patterns from the remote, isolated camp were very similar to those from Phoenix (Hantman and McKenna 1985:142).

The degree of acculturation of an ethnic group into the larger community can be studied through an examination of the remains at Muroc. The social history and ethnicity of the town can be examined by comparing individual and group behaviors.

Data Needs:

Archival: Important evidence of acculturation would be found as ties with American culture through kinship and inter-marriage, social relations, business, and employment. Types of archival resources to be consulted would include diaries, memoirs, court records, business records, tax records, federal and state census records, church records, newspapers, and local histories.

Oral History: Interviews with ex-residents of Muroc, residents of surrounding communities, and military personnel assigned there would be essential. An oral history research program could be designed to incorporate specific questions related to ethnic groups in the area and patterns of acculturation.

Archaeological: Acculturation would be evident as changes in traditional dietary patterns and food preparation, personal preferences of site inhabitants, and the adoption of the latest technologies and architectural styles.

a) Building Materials and Architectural Data. Structural changes during site remodeling could reflect adoption of Anglo-American architectural styles and technologies. These would be manifested in such architectural features as addition of a second story, interior fireplaces, interior kitchens, raised brick or fieldstone foundations, addition of wooden floors, and shingled versus tiled roofs.

b) Material Culture. Archaeological materials, such as faunal remains, could reflect dietary preferences. Patterns on animal bone, representing butchering practices, can be related to ceramic vessel types to indicate ethnic dietary patterns (Otto 1977, 1980; Schultz and Gust 1983a, 1983b). Previous research has revealed that ceramic assemblages from deposits representing traditional Californio lifeways were characterized by high frequencies of soup plates, bowls, and other vessel types used in the preparation of liquid-based meals such as the traditional soups, stews, caldos, and bean-and-rice dishes eaten by Mexican Californians prior to American conquest. Preparation of these foods also leaves typical bone residues consisting of fragmented and smashed, as well as cleaver-cut, bones, with few large cuts of meat represented in the collection (Felton and Schultz 1983:91; Greenwood, Frierman, and Foster 1983:60-64; Van Wormer 1983:68-75). Greenwood, Frierman, and Foster (1983:60-64) have shown that the manufacture of casuelas, ollas, and other deep ceramic vessels used in the preparation of liquid-based meals by Mexican families continued well into the American period. It should be noted that many of the vessels included in the assemblages referred to above were American or European in manufacture, but a quantitative analysis of the type and function was indicative of a continuation of Mexican cultural heritage.

Quantitative analysis of bottled product consumption patterns has also proven useful in identifying ethnic and personal preferences of site inhabitants (Van Wormer 1983, 1985a, 1985b).

4. What impact did the development of Muroc have on the region, particularly Edwards Air Force Base and the Antelope Valley?

Access to water, transportation, and goods is an important component to the study of settlement in the American West. Emphasis has been placed on the initial frontier settlement of this area. The commercial development following the boom of the 1880s has not been extensively examined. The period between the boom and bust of the 1930s is important to an understanding of the beginnings of industrial development.

Data Needs:

Archival: Research should provide information on contacts between the communities of Antelope Valley. Information, such as the discussion in the above paragraphs, will provide good indications of the associations between Muroc and the other areas. Trade sources for goods identified in the dumps present

at the sites (an archaeological data need) could be identified and would allow routes of trade to be reconstructed.

Oral History: Interviews with ex-residents of Muroc, residents of surrounding communities, and military personnel assigned there would be essential. An oral history research program could include questions on associations between Muroc and other communities and the impacts Muroc had on the region.

Archaeological: Identification of the location of manufacture for goods should assist the reconstruction of the sources for material culture items used in Muroc. For example, it should be possible to trace the sources to an urban center by combining archaeological and archival research.

As with the other areas, test excavations are necessary to evaluate the potential of the Muroc townsite to address the research questions. This would include mapping and identification of features and collection of surface and subsurface artifacts.

Despite the general absence of standing structures, archaeological investigations could provide data to reconstruct activities within the district. Foundations, walls, and some buildings are intact. Wooden beams, floors, and other structural parts are often near or within associated foundations. Maps, published descriptions, and archival photographs of the area exist. Interviews with former residents would be invaluable. Further investigations through collection of associated items of material culture would supply information about the inhabitants of Muroc. Preservation of artifacts normally not saved is excellent, and the town dump, probably located as usual on the outskirts of the settlement, could provide an index of population constituency and consumption patterns.

Within the Muroc and Main Base area, there is a continuum of occupation and activity from the early part of the twentieth century through the 1940s. The later use of the area has to some extent altered the earlier era, but individual buildings and features shown on earlier maps are still in existence.

Man in Space

This theme was established in 1980 by an act of Congress, when Public Law 96-344 was enacted. This law has as its purpose:
. . . to identify the possible locations, components, and features of a new unit of the national park system commemorative to this theme, with special emphasis to be placed on the internationally historic event of the first human contact with the surface of the moon.

Congress also requested that methods for protecting such sites be investigated and that the features associated with the theme be protected and available for interpretation to the public. Recognizing that Edwards, and most other facilities

containing components of this theme, is not open to the public, features and locations relating to the theme should be identified and protected.

Prepared by the National Park Service, the Man in Space National Historic Landmark theme study (Butowsky 1986) lists many of the components of the theme; included is Rogers Dry Lake because of the experimental flights in the 1940s, continuing into the present with the landing of the space shuttle *Columbia* in 1981. The difficulty in assessing the components of the Man in Space theme is that all of Edwards Air Force Base, if interpreted broadly, could contribute to this theme. However, it is obviously impractical to recommend preservation and study of all structures and features on the base; some of these difficulties are under study by the National Park Service (Butowsky 1987). Locations specific to Edwards Air Force Base can be evaluated through the following research questions.

1. How does the feature or site contribute to an understanding of the development of the Man in Space theme?

Data Needs:

Archival: Research on base and in other archives is needed to identify specific areas or locations where landmark events occurred. This can be accomplished on a site-by-site basis, where each building, as necessary, is evaluated as to its role in the space program.

Oral History: Interviews with employees and military personnel assigned there during this period would provide essential information about developments in aerospace technology.

Archaeological: In the case of features or nonarchitectural sites, collection of field data can yield information on site function and chronology. Knowledge about the technological advances characteristic of the space program will be necessary.

2. Does the feature or site contain physical characteristics that relate specifically to the space program?

Data Needs:

Archival: Research into the function of the feature or site will be necessary to identify its contribution to the space program. Recordation through the HABS or HAER systems will provide documentation of the site.

Oral History: Interviews with past and present employees of NASA and Air Force personnel would be essential to understanding this topic.

Archaeological: In the case of sites where important events took place and there is no structure or feature remaining, field mapping and artifact collection can represent the site. Since many components of the theme may have already been disassembled or destroyed through continuous use of the base

facilities, this may be the only way to record and recover important information on the theme.

DISCUSSION

For purposes of future cultural resource management, a preliminary evaluation of the historic sites recorded within the Edwards AFB Main Base and Farm Drop Zone areas was accomplished. Surface collections were conducted at many of the historic sites. Cultural materials collected were analyzed to establish site chronology and function.

Not all of the historic sites within the Main Base area were part of the RECON field study; however, these sites were included to provide management information. The evaluation accomplished for those sites not inspected by RECON was based on site record information and field evaluations by Richard Norwood, Base Archaeologist.

The historic sites ranged from tin can and refuse scatters to the town of Muroc and from isolated military campsites to the X-15 staging area. Most of these sites, whether highly likely to be eligible for the National Register or not, can provide valuable cultural data related to the cultural history of the Main Base area.

Although it is possible to make preliminary assumptions regarding the significance of the cultural resources, it will be necessary to test the majority of the sites to make the final determination regarding site significance and eligibility for the National Register. Only 1 historic site, located within the Farm Drop Zone project area, was tested through subsurface excavations to determine site integrity and eligibility for inclusion in the National Register. The rest of the sites were evaluated through analysis of surface collected materials or documentation.

Five categories of significance were identified; sites were placed within these categories based on the ability of the resource to contribute to the themes discussed in this paper.

National Register District

This recommendation was applied to sites which are potentially eligible for the National Register as components of historic districts:

1. Homestead sites closely associated with the Muroc community. The sites in this category are EAFB-2/Ker-695 (Muroc), EAFB-110/Ker-2340H (homestead), EAFB-292/Ker-707 (homestead), and 4 early trash deposits, EAFB-923/Ker-2348H, EAFB-924/Ker-2349H, EAFB-930/XHR-930, and EAFB-940/XHR-940.
2. Sites associated with the early accomplishments in military aviation, aerospace achievements, and the Man in Space theme. Sites in this category are EAFB-593/

Ker-202 (X-1 loading pit), EAFB-826/XHR-826 (General's Quarters), EAFB-827/XHR-827 (X-15 test site), EAFB-828/XHR-828 (Test Pilot School), EAFB-829/XHR-829 (former Base Headquarters), EAFB-831/XHR-831 (NASA Dryden facility), EAFB-833/XHR-833 (Weight and Balance Hangar), and EAFB-834/XHR-834 (XP-59A aircraft). Rogers Lake, EAFB-810/Ker-810, is presently included on the National Register of Historic Places.

May Be Eligible

Historic sites in the Main Base area which were given this classification have strong potential for yielding information about homesteading or early military activities, but are disturbed or otherwise compromised. Six sites in the Main Base area given this designation are homesteads, 6 are trash deposits, and 1 is a military training site.

In the Farm Drop Zone, there are 4 historic sites in this category representative of early twentieth century occupation in the area. The sites are considered rare because they are relatively intact, possess aspects which are not present at other sites, and represent elements of themes important to the western Mojave Desert region.

Could Be Eligible As Part of a District

The historic sites in the Main Base area given this classification may contain significant information if evaluated as part of a historic district. The sites included in this category are EAFB-1/Ker-560 (the abandoned AT&SF railroad), EAFB-820/Ker-2343H (irrigation system and locust grove), EAFB-109/Ker-2339H (the abandoned base hospital), EAFB-291/Ker-706 (Muroc Army Air Field), EAFB-939/Ker-2356H (rock cross), and 7 trash deposits.

In the Farm Drop Zone, 5 historic sites fall into this category. The historic sites are dumps or scatters of artifacts that may contain significant information if evaluated as part of a historic district.

Limited Site, Probably Not Eligible

Three Main Base historic sites are in this category. These sites are small scatters of historic refuse; they are 30 to 60 years old.

Within the Farm Drop Zone, 8 historic sites were included in this category. These sites are small scatters of historic refuse; they are between 30 and 60 years old. Although these sites are probably not eligible for inclusion in the National Register, the collection of additional data may revise this conclusion.

Not Significant

Seven Main Base historic sites are in this category. Three are structures no longer present; 4 are trash deposits of no research potential.

In the Farm Drop Zone, there is 1 historic site within this category. This site was tested for eligibility during the RECON project. The historic site, XHR-72, was tested through backhoe trench excavation to determine whether any subsurface features or deposits were present. The site was found to contain only recent military features; any remains from the old homestead mapped in the area had been destroyed.

CONCLUSIONS

In summary, additional research will be necessary at most of the sites within the project area to assess their importance and eligibility for inclusion in the National Register. Application of the thematic approach and evaluation of the sites through the use of the research questions presented above will provide a standardized approach to cultural resource management within the project area. It should be noted that individual sites and features must be considered within the context of a district or area; thus, an isolated site may not be important unless consideration of the entire system of sites or features is made. This comment is particularly relevant to sites relating to the Early Settlement/Homestead theme and the Man in Space theme.

One other note can be made regarding these studies. Living persons, many of whom are still residing in the Mojave area, can provide critical data on the themes discussed in this paper. Oral interviews, collection of memorabilia, and documentation of personal histories are needed to complete the resource assessments for Edwards Air Force Base. This data need is time critical; the loss of these sources of information is irreversible. Consultation with living sources should be made a vital part of any historic study.

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