

BEHAVIOR PATTERNING: DUMPING IN THE DESERT

Kyle Guerrero and Susan L. Bupp
Tetra Tech, Inc.
348 W. Hospitality Lane, Suite 300
San Bernardino, California 92408

ABSTRACT

On Edwards Air Force Base, California, numerous historic refuse deposits have been recorded. For the most part, these deposits exist along trails, roads, and within the confines of historic homesteads. Twenty-nine refuse deposits in the Piute Ponds area and twenty-six refuse deposits in the Buckhorn Springs area were examined. Dumping episodes were identified through surface artifacts indicating function, gender, date of manufacture, ethnicity, and status. Based on archival maps and aerial photographs, proximity to historic features was addressed.

Introduction

Refuse is something produced in great quantities. Historically, when an item was no longer useful it had to be discarded. In an urban setting, this meant having a central refuse disposal area like a landfill. For the more rural habitations, such as homesteads, the disposal of items was accomplished by either accumulation and redeposition, or just accumulation in some type of pit. Whatever the choice, it was often motivated by the need to have the refuse away from the primary living and working area. Many times the refuse would be transported and dumped near a road out in the "middle of nowhere," or deposited at the outermost boundary of one's property. This paper will attempt to provide information for discerning between those two dumping behavior patterns within two surveyed areas of Edwards Air Force Base (AFB), Buckhorn Springs and Piute Ponds.

Study Areas and General Environmental Setting

The Buckhorn Springs area is located east of Buckhorn Dry Lake in the south-central portion of the base (Figure 1). The Buckhorn Springs area is characterized by the presence of small playas and sand dunes in an area of relatively flat topography. Active springs, peat sinkholes indicating the presence of past active springs, and an apparent fault line also occur in the area.

Elevation ranges between approximately 2,200 and 2,300 feet above mean sea level. The dominant plant community is halophytic phase saltbush scrub which occurs on relatively shallow saline soils around playas and in claypan and dune complex areas. Remnants of mesquite woodlands occur along washes trending north-south in the eastern portion of the area. In 1993, 1,400 acres were inventoried in the Buckhorn Springs area under Section 110 of the National Historic Preservation Act. Thirty-six prehistoric loci associated with site CA-KER-1922, 33 historic sites (7 homesteads and 26 refuse concentrations), and 1 possible military site were recorded (Tetra Tech, Inc. 1994a).

The Piute Ponds area is located in the southwestern corner of the base, south of Rosamond Dry Lake (Figure 1). The Piute Ponds area is characterized by the presence of artificial ponds, scattered wetlands, sand dunes and claypan playas. Elevation ranges between approximately 2,270 and 2,300 feet above mean sea level. Amargosa Creek is located at the extreme southwestern edge of the Piute Ponds area and the original drainage has been channelized into the ponds. The dominant plant community is halophytic phase saltbush scrub which occurs on relatively shallow saline soils around playas and in claypan and dune complex areas (Tetra Tech, Inc. 1994b).

In 1994 and 1996, 3,000 acres were inventoried in the Piute Ponds area under

Section 110 of the National Historic Preservation Act. Sixty-five prehistoric, historic, multicomponent and military sites were newly recorded (35 prehistoric and 30 historic sites).

Research Issues

Historic refuse concentrations can present difficulties in determining their chronology and association. These sites represent intentionally deposited debris but it is typically unknown what activities led to their deposition and at what time. These deposits may represent primary dumping during an on-site activity, secondary dumping where the debris was accumulated at a residential site for eventual disposal, or incidental dumping such as along roadsides. Historic dumps may represent a series of discrete dumping episodes over time. This potential complexity of refuse deposition can present problems when attempting to identify activities resulting in the deposition of the dump or date these isolated dumps from their temporally diagnostic artifacts.

Primary dumps represent refuse deposited during limited activities away from the residential site. Artifact types would indicate the actual activities associated with the deposition of the dump, and dates obtained from temporally diagnostic artifacts on these sites would represent the actual use of the site.

Secondary dumping occurs when refuse is accumulated at a residential site and later transported to the isolated dump location. These secondary dumps typically reflect a diverse set of activities undertaken at the residential site and may represent deposition after the time range identified by the temporally diagnostic artifacts.

Incidental dumping occurs when debris is casually discarded, rather than accumulated for disposal. This type of dumping usually occurs along roads and consists of relatively few artifacts such as isolated cans or bottles that are not associated with a particular activity. Temporally diagnostic artifacts on incidental dumps are more likely to reflect the actual date of deposition.

A model of behavioral and cultural variability for secondary refuse concentrations has been

proposed by Wilson (1994). Characteristics of the archaeological deposits, cultural activities contributing to discard behavior, and the characteristics of the household unit associated with the discard behavior were defined. Basic characteristics of these types of deposits include frequency, density, diversity, location, artifact value, artifact mode of use, reuse potential, and hazardousness (Wilson 1994:43). Cultural activities which affect these deposits include procurement, manufacture, preparation, maintenance, use, storage, and reuse. Variables that constrain cultural activities and discard patterns include wealth, social status, household size, household composition, population density, ethnicity, technology, and external factors (Wilson 1994:43).

Although the ability of historic refuse concentrations to address issues related to functional association and chronology may be limited, these types of sites can address a variety of research issues. These issues include household composition, economic status, ethnicity, and consumption patterns. In addition, the presence of locally and non-locally produced items in the refuse dumps can provide information on the source and distribution of goods (Wessel 1989). Research questions that can be addressed by refuse deposits include:

- Does the deposit represent primary, secondary, or incidental dumping?
- Does the archival information indicate an occupation on the land consistent with the dates provided by the refuse deposit?
- Does the refuse deposit reflect the ethnicity of the depositor?
- Does the refuse deposit reflect the economic status of the depositor?
- Does the refuse deposit reflect the household composition (i.e., gender, age, etc.) of the depositor(s)?
- Does the refuse deposit indicate a reliance on certain types of food goods (i.e., canned or prepared food vs. fresh food)?
- Does the refuse deposit indicate a

reliance on locally or non-locally produced goods?

Data needs to address these questions include dates of manufacture from temporally diagnostic artifacts; artifacts reflecting ethnicity such as newspapers, pins, heirlooms, and types of food containers; luxury items such as jewelry, perfume bottles or cosmetic jars, ceramics (especially fine or gilded china), retail items, and toys; gender-related artifacts such as combs and brushes, perfume bottles or cosmetic jars, belt buckles, and shoes; age-related artifacts such as toys, bottles, clothing, or shoes; amount and type of food container-type artifacts; artifacts indicating location of manufacture; and archival information indicating names and dates of ownership of the land as well as gender, occupation, and ethnicity of landowners.

Assemblage Analyses

Analysis was conducted on the 26 historic refuse concentrations from Buckhorn Springs and 29 historic refuse concentrations from Piute Ponds. Surface artifacts recorded during inventory were categorized by general type and function following the procedures developed by Panelli (1984). At the present time, analysis of the temporally diagnostic artifacts associated with these refuse concentrations has not been conducted.

Eight functional categories were defined and include household, architecture, agriculture/ranching, fuel, transportation, personal, communication, and faunal materials. Household subcategories consist of culinary, furnishings and other. Culinary artifacts include tableware such as cups, plates, bowls and utensils; food preparation items such as pots and pans; and food containers. The Architecture subcategories consist of hardware (i.e., nails, hinges, etc.) and materials such as milled wood or concrete. The Agriculture/Ranching subcategories include fencing (e.g., various types of wire), livestock and farming related items. The Personal subcategories consist of clothing/grooming, indulgences (i.e., alcohol and tobacco), firearms, recreation which includes children's toys, and medicinal items.

Refuse concentrations in both the Buckhorn Springs and Piute Ponds areas were similar in content. Based on the percentage of sites containing different functional categories, both study areas had a similar percentage of sites containing artifacts from the following categories: household, architecture, transportation, communication and faunal materials. A higher percentage of the Buckhorn Springs sites contained agriculture/ranching items. Higher percentages of the Piute Ponds sites contained fuel-related items and personal artifacts.

Culinary artifacts were the constant element on all 26 Buckhorn Springs sites and on 28 of the 29 Piute Ponds sites. Food containers occurred on all of the Buckhorn Springs sites and on 96 percent of the Piute Ponds sites. A higher percentage of Buckhorn Springs sites contained tableware or serving artifacts; however, a higher percentage of the Piute Ponds sites included food preparation artifacts.

Sixty-two percent of the Buckhorn Springs sites contained personal items and 86 percent of the Piute Ponds sites contained these artifacts (Table 3). A higher percentage of the Buckhorn Springs sites contained clothing/grooming and firearms. A higher percentage of the Piute Ponds sites contained indulgences and medicinal items.

Cultural Variables/Constraints

Historical settlement of the Buckhorn Springs region at Edwards AFB, encompassing Sections 27, 28, 29, 32, 33, and 34 Township 9 North, Range 7 West, began in the late nineteenth century. All the even-numbered sections were part of the public domain. Citizens could acquire parcels of this land by staking a claim and improving the land to federal standards as homesteads, desert land entries, or timber cultures. The first claims were made in the mid-1880s. Thirty claims were attempted within the sections while only 13 of them were successfully patented. The successful claims consisted of nine 160-acre claims, one 120-acre claim, and three 80-acre claims. Within these sections there were 80 acres that were never claimed. Of the original eighteen parcels, 4 were divided into smaller lots by the mid-1950s. At the time of sale

to the government there were a total of 34 parcels. Four parcels were still owned by the original owners or their heirs at the time of the government purchase. The odd-numbered sections were selected as railroad land in 1893 by the Southern Pacific Railroad which received the patent for that land in 1903. The railroad retained ownership of all the land except for the west half of one section until the mid-1950s.

Historical settlement of the Piute Ponds region at Edwards AFB, encompassing Sections 10-13 and 22-24 of Township 8 North, Range 12 West, began in the late nineteenth century. All the even-numbered sections were part of the public domain. Citizens could acquire parcels of this land by staking a claim and improving the land to federal standards as homesteads, desert land entries, or timber cultures. The first claims were made in the mid-1880s. These consisted primarily of timber cultures. Despite the natural water supply in the area, no claimants in the Piute Ponds area were able to sustain the requisite 40 acres of trees for 10 years. In several cases, these claimants finally acquired the land by commuting their claim to cash and buying the land. Homesteads and desert land entries in the area were scarce until 1905. From this year onward, numerous attempts were made to prove up these types of claims. The average homestead and desert land entry encompassed a quarter of a section (160 acres). Of the 20 patented claims in the Piute Ponds area, all but 2 were patented by 1920. Fourteen of the claims were filed as homesteads; the remaining 6 as desert land entries. By the time the United States government purchased these lands to expand Edwards AFB in the 1950s, only 4 properties remained with the original claimant or his/her estate. Of the properties that were sold by their original owners, several were divided into smaller lots, most over 40 acres.

To examine discard locations, the horizontal distance from the center of each refuse concentration to the center of the nearest homestead and to the nearest road was measured. Those measurements included roads that were both historic and modern. In some cases only remnants of historic roads were apparent.

The majority of the Piute Ponds sites are located within 10 meters of a road. The majority of Buckhorn sites appear to be between 11 and 200 feet away from roads. In comparing the distance to homesteads it appears that Buckhorn Springs contained more refuse concentrations closer to the homesteads than Piute Ponds did (Figure 2). The origin of these refuse deposits is not always apparent. The placement of these deposits seems to indicate that they were transported to their final location through secondary deposition. This behavior can be viewed in two different ways. First, it is possible that the refuse was collected in an urban setting, such as Lancaster, and transported out to the "desert" for dumping. In which case the refuse may reflect numerous households rather than one distinctive group. A second viewpoint is that the refuse was generated by a single homesite, and was then collected after some duration, and transported to its secondary location. The relation of these refuse deposits to historic homesteads may also offer insight into dumping behavior patterns.

In order to correlate the location of primary and secondary dumps in relation to historic homesteads it is important to first obtain the original extent/boundaries of the historic homestead. Homestead boundaries were often 40, 160, or even 640 acres of one or more sections. Assuming that the refuse deposition would have occurred by a certain homesteader at the time the homestead was in its primary use, one would expect the refuse locations to be off of the property or in some remote location away from the primary homesite as well as away from any agricultural or ranching venture.

Conclusions

The obtaining of dumping behavior patterns requires far more study than this paper provides. It is clear that the refuse concentration contains objects that are temporally and functionally diagnostic. It is unclear, however, whether one can obtain a clear chronology of the site's deposition pattern. This paper has provided valuable data that may be interpreted numerous ways to explain what may be termed inexplicable.

The distance between refuse

concentrations and roads contains information regarding the establishment of dumping behavior patterns (Figure 2). The refuse concentrations that are adjacent to roads are most assuredly isolated deposits. The dumping behavior exhibited by this shows the innate human need to have waste out of sight and thereby out of mind. This behavior still exists today and can be seen in almost every empty parcel of land as one leaves the urban setting.

The distance that these same sites are located from each homestead suggests that perhaps the refuse can be viewed as a part of the homestead. The great distance does not negate the possibility that the refuse originated from a homestead. Rather, by combining the archival and the archaeological information, it may be possible to tie the artifacts from the seemingly isolated refuse deposit to refuse generated by occupants of a homestead.

Refuse concentrations are a resource that must be managed (Wessel 1989). One must view the deposit as both an isolated occurrence and as a part of a homestead dumping episode. The information that is contained in an isolated refuse deposit can often tell you little about those who deposited the refuse. Where the importance of an isolated refuse deposit is noted is when it is looked at as a group dumping episode or in its relation to a homestead. If an area has numerous dumping episodes, as evidenced by many loci, one can assume that either the area was used by one person/family for many years, or that different people at different times deposited refuse at this location. This information is usually not considered to be crucial due to absence of any context.

The task of associating a refuse deposit with a homestead becomes very difficult. If extensive archival background is completed and an evaluation of a homestead is made, then it may be possible to identify a refuse concentration as being a secondary deposition by a certain homestead. This can be done through the analyses of the artifacts both above and below the surface, as well as by correlating the information with the archival data.

Notes

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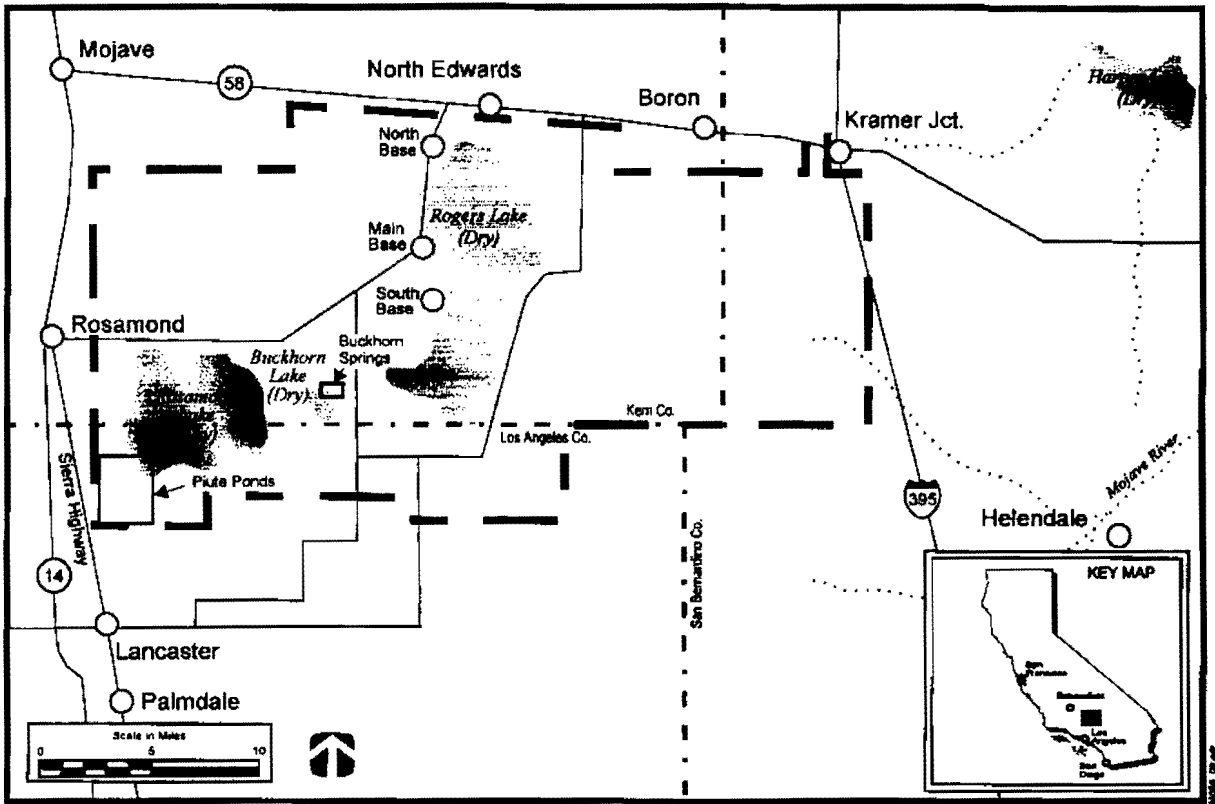


Figure 1 Location of Piute Ponds and Buckhorn Springs Study Areas, Edwards Air Force Base, California

Figure 2

Location of Refuse Concentrations in Relation to Homesteads and Roads

