

# A PRELIMINARY REPORT ON THE BEDOUIN ETHNOARCHAEOLOGICAL SURVEY PROJECT IN SOUTHERN JORDAN

by

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## Introduction

In the archaeological literature of the southern Levant, ethnoarchaeological investigations of Bedouin encampments tend to focus on the identification and layout of tent camps and provide varying degrees of detail (compare, for example, Eldar *et al.* 1992:210, 211, Fig. 3, with Banning and Köhler-Rollefson 1992). Much of this research has been conducted in the vicinity of Petra, and these projects often employ local inhabitants to provide additional insights on the layout and activities carried out at Bedouin campsites (e.g., Banning and Köhler-Rollefson 1986:157; Banning and Köhler-Rollefson 1992; Simms 1988).<sup>1</sup>

While these studies have provided important information, the Bedouin Ethnoarchaeological Survey Project (BESP) sought to build upon and add to this body of data by using a different methodological approach. Specifically, the project is directly influenced by Roger Cribb's (1991) ethnoarchaeological fieldwork in Anatolia. Cribb's research is presented on two levels. The first focuses on the physical size of and components found at nomadic encampments; for example, the horizontal extent of stratigraphic deposits within these sites is documented (e.g., Cribb 1991:190, Fig. 10.3). Second, Cribb not only provides detailed plans of specific tents, but also plots the location of individual artifacts found inside and outside these structures (e.g., Cribb 1991:122, Fig. 7.4). With the exception of

an article by Banning and Köhler-Rollefson (1992), few archaeologists working in the Near East have presented as much ethnoarchaeological data as Cribb has done.

The BESP was conducted from 12 April, 1998 to 10 May 1998, principally funded by grants from the United States Information Agency/American Center of Oriental Research and the American School of Prehistoric Research at Harvard University.<sup>2</sup>

## Methodology

The purpose of the BESP is to generate data on Bedouin habitation sites in order to provide detailed information for building and testing hypotheses concerning arid zone pastoralists in prehistoric and historical periods. The project sought to collect data to address the following five issues:

First, to determine if changes in elevation and environment affect the size and spatial organization of Bedouin campsites; second, to identify activity areas and patterns in the deposition of artifacts at these encampments; third, to draw plans of selected sites and to plot the location of the surface finds; fourth, to collect soil samples for geoarchaeological and spherulite analyses (Brochier *et al.* 1992; Saidel 1996; Canti 1997) and fifth, to locate and identify Bedouin encampments from the Ottoman period.

The basic survey universe, or transect, was 0.5 km wide by 1.5 km long. Transects were positioned in four different environmental and elevational zones in southern Jor-

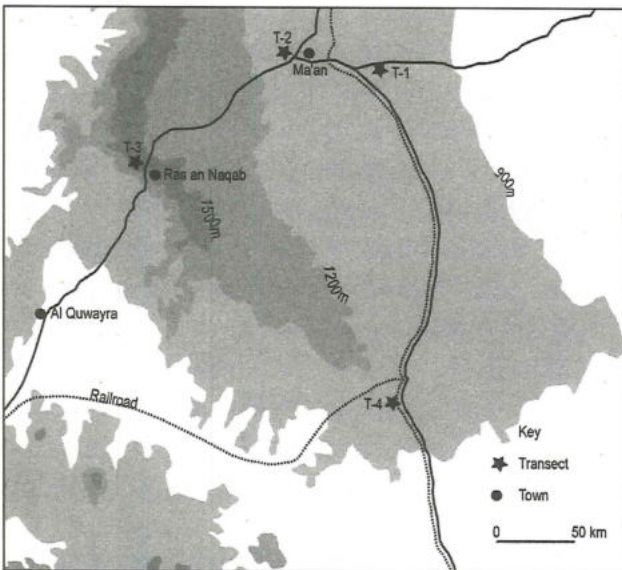
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1. For documentation on the sedentarization of Bedouin in Syria from an ethnoarchaeological perspective, see Aurenche 1984.  
2. The project was directed by Benjamin Adam Saidel (Department of Anthropology, Harvard Uni-

versity), and the professional staff included Jon Nicholson (Ph.D. Candidate, University of Edinburgh), Sami M. Al-Nawalfleh (Wādī Mūsā), and Tristan Barako (Ph.D. Candidate, Harvard University).

dan to determine whether the layout and construction of Bedouin tents varies with changes in environment and elevation (Fig. 1) and to examine the contemporary settlement pattern for Bedouin tent camps within each transect. Transect 1 is located 20 km east of Ma'ān, in Wādī Uqeiqa; transect 2 is 10 km west of Ma'ān, between Wādī Abū al- 'Idhām and Wādī al Juth-tha; transect 3 is on Jabal ath-Thughra, northwest of Rās an-Naqb and transect 4 is at the al-Maḥaṭṭa Baṭn al-Ghūl station on the abandoned Ḥajj railroad. The fieldwork in transect 4 is incomplete, because it was stopped when we were informed by the police that the area was outside the scope of our survey permit (No. 6/98).

The boundaries of each transect were established through the combined use of topographical maps (Series K737) and a GPS unit (Magellan Pioneer). The axis of transects 1 and 2 is in a north-south direction, whereas the topography in transect 3 dictated an east-west axis. All transects were walked by a survey crew of three members with a distance of 25 to 30 m between them depending upon the topography. The success of this methodology is demonstrated in the frequency of hearths recorded in tran-

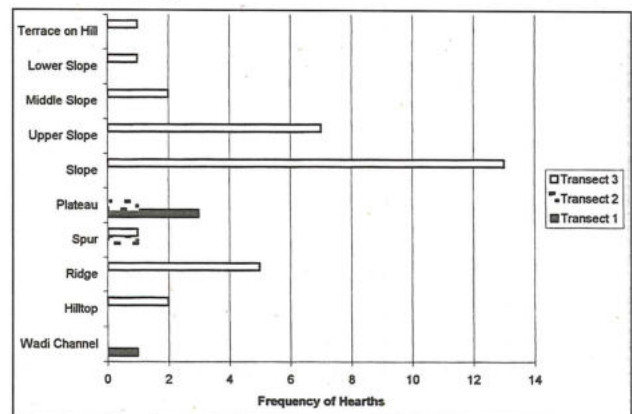


1. A simplified map of southern Jordan illustrating the approximate location of transects 1-4 (T1-T4). Those portions of this map that are not shaded are less than 900 m in elevation.

sects 1-3 (Table 1). The location of each site was recorded in UTM coordinates with the Magellan Pioneer GPS unit. These coordinates can be used to revisit any of the sites over time to measure the impact of site formation processes. For the purposes of this survey, a site is defined as any evidence of recent human activity, whether an isolated hearth or a tent camp. The sites were described using the JADIS coding system (Palumbo 1994). A drawback of the JADIS system is that it is principally designed for large-scale archaeological sites, and given the nature of the BESP some modifications were made to this system. Category 21 in the JADIS system refers to a "nomadic camp," which is too broad and ill-defined a term for this project. Thus, category 21 is used to refer sites that contain evidence of both tents and animal pens, and another category, 100, was added to the JADIS system to refer to isolated hearths not associated with architectural remains. These modifications allow for a more detailed analysis of the data collected by the BESP.

As a rule, a sketch map was made of all tent camps, and every site recorded was photographed. Unusual sites, such as sites 12-15, located outside the boundaries of transect 1 were recorded because of the quality of the data present at these abandoned tent camps. A major objective of the project was to document the archaeological evidence for activities conducted inside and outside Bed-

**Table 1.** The frequency of hearths found in transects 1-4.



ouin tents and therefore, scale drawings (1:200) were made of a number of tent camps to illustrate the distribution of artifacts. The artifact key contained 66 types of artifacts found at various encampments. All the sediments present at sites containing hearths and/or tents, and the sediments inside and outside the tents were identified using the Munsell (1994) soil color charts. Documenting the color of the sediments found at the sites provides a means of conveying this data to other scholars, and a baseline for documenting the changes in sediment color over time.

The identification of tent camps from the Ottoman period is based on three criteria: First, the presence of gunflints used in flintlock muskets (Kuijt and Russell 1993; Simms and Russell 1997);<sup>3</sup> second, the finds of ceramics referred to as "Gaza Ware" (e.g. Rosen and Goodfriend 1993; Toombs 1985)<sup>4</sup> and third, the presence of clay tobacco pipes (Baram 1996).

**The Fieldwork**

The BESP recorded a total of 88 sites. The number and types of archaeological sites found in each of the three transects is presented in Table 2. Although transect 3 contains the largest number of sites, most of them are isolated hearths.

Different settlement patterns were identified in each survey universe. In transect 1 (including sites 12-14), Bedouin tent camps tend to be located on the desert pavement next to shallow wadi channels. In contrast, hearths and some scatters of metal artifacts are generally found in the wadi channels.

In this portion of Wādī Uqeiqa, there is no significant difference in elevation between the desert pavement and the wadi channels. In transect 2, Bedouin tent camps are located in a variety of locations (Table 3). The majority of tent camps are located in three topographical settings—the plateau, wadi terraces, and slopes. A factor influencing the settlement pattern in transect 2 is that most of the plateau between Wādī Abū al-‘Idhām and Wādī al-Juth-tha was previously cultivated. The plow furrows on the plateau are in a southwest to northeast direction, and Jon Nicholson identified tobacco plants growing in some parts of the fields, but most of this system appeared to be fallow or abandoned. It is possible that the tent camps are located on the eastern edge of the plateau as a result of this agricultural activity. Most of those encampments have an unobstructed view of the town of Ma‘ān to the east.

Surveying in transect 3 was difficult be-

**Table 2.** The types and frequencies of sites recorded by the BESP.

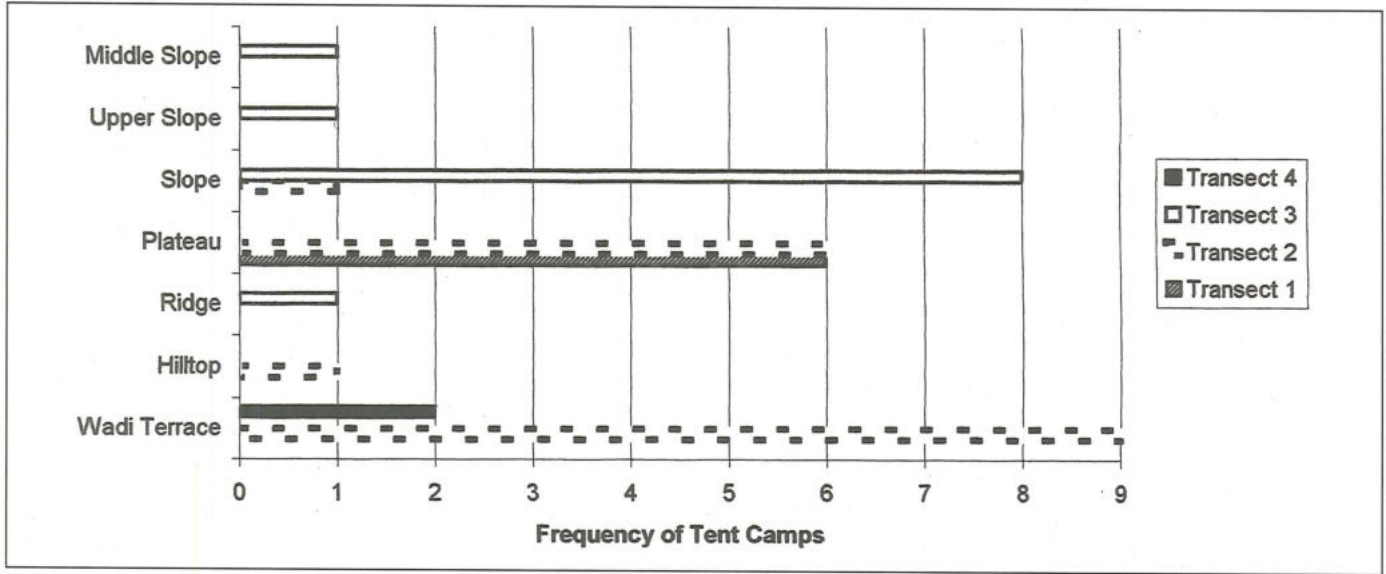
<i>Jadis Code</i>	<i>1</i>	<i>21</i>	<i>22</i>	<i>25</i>	<i>62</i>	<i>67</i>	<i>100</i>	<i>A1</i>	
<b>Site Types</b>	<b>Artifact Scatters</b>	<b>Nomadic Camps</b>	<b>Cave Shelter</b>	<b>Isolated Structure</b>	<b>Animal Pen</b>	<b>Stone Enclosure</b>	<b>Hearth</b>	<b>Rockart/Petroglyph</b>	<b>Total Sites in each Transect</b>
Transect 1	2	6					6	1	15
Transect 2	1	17		1	1		2	1	23
Transect 3		11	2		2	1	32		48
Transect 4		2							2
								<b>Total Number of Sites</b>	<b>88</b>

3. For an analysis of the prolonged use of antiquated firearms by the Bedouin, and the archaeological implications of this phenomenon in the southern Levant, see Saidel 2000.

4. Although coarse ware has been found in historic contexts at Tur Imdai, it remains to be determined

whether these ceramics are chronologically diagnostic (Simms and Russell 1997:466-468). Specifically, the date of the ceramics found at Tur Imdai is determined by the radiocarbon dates from the stratigraphic sequence inside the rockshelter (Simms and Russell 1997:467).

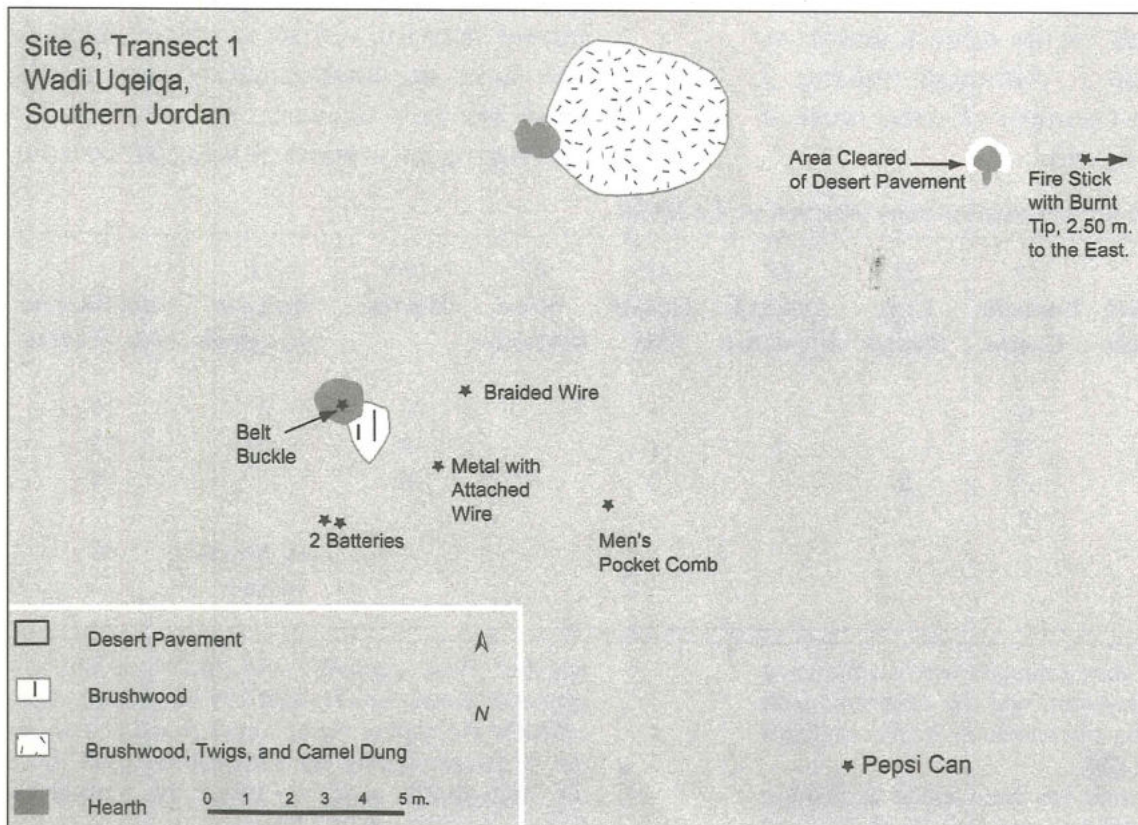
**Table 3.** The topographical setting of Bedouin tents as recorded by the BESP.



cause many parts of the area were under cultivation. Therefore, agricultural fields were treated as obstacles and these areas were excluded from the survey. Given the broken terrain in the area of Jabal ath-Thughra, it is not surprising that the tents are located on the slopes and ridge (Table 3). The tents are often positioned in sheltered locations, and many have a good view to the south towards the area of al-Quwayra (series K737:

3049 I). One individual we encountered in this transect told us that the inhabitants of the area spend the winter in the hamlet of Thurga, which is located to the south, below the escarpment.

In addition to tent camps, various other types of sites were recorded. For example, ephemeral signs of human occupation were recorded at site 6 in transect 1, defined by a series of hearths and artifacts, with no signs of



2. The plan of site 6 in transect 1.

the presence of tents (Fig. 2). Also in this transect, we located a series of drawings in the desert pavement. Representations of vehicles, objects, symbols, and script were illustrated by removing pebbles and small stones (Fig. 3). The two rockshelters located in transect 3 appear to have been used recently.

While one of the objectives of the project was to document Bedouin tent camps from the Ottoman period, only one site, site 37, has an occupation that can be attributed to this period. Only one sherd of Gaza ware was found at site 37, and the extant remains seem to be from a more recent occupation. Sherds that may be from the Early Bronze Age were also found at this site. Pursuant with the aim and scope of the project, however, these artifacts were not collected.

### Archaeological Implications

Variations in the nature of the terrain af-

fect the archaeological signatures of recently abandoned tent camps. For instance, the terrain in transect 1 is composed of desert pavement, with the majority of the stones of a fist size or smaller. As a result, in order to secure the edges of their tents, the Bedouin (at sites 12-14) excavated pits which were approximately 1m in diameter, within which they placed tent pegs. In turn, the back dirt from these pits was poured into plastic sandbags placed along the edges of the tent (Fig. 4). The edges of the tents at sites 12-14 were identified by a line of pits and the earthen fill of sandbags that often hardens into sun dried blocks, retaining the shape and texture of the sandbags. Most of the plastic sandbags had deteriorated. In fact, the survey crew frequently found plastic sandbags entangled in bushes in the wadi channel, however, in the initial stages of fieldwork the function of these sandbags



3. A drawing of a truck in the desert pavement adjacent to transect 1. This illustration measures approximately 1.40 m in length and 1.00 m in width.



4. Site 12, view to the north. The edges of this tent are demarcated by a line of pits and the earthen fill of sandbags that have hardened into sun dried blocks. Of the three hearths in this tent, two are basin hearths (2-3), and one is a rectangular hearth (1) placed on the surface of the ground. In portions of this tent the pebbles were pulled aside to demarcate the interior space of this tent.

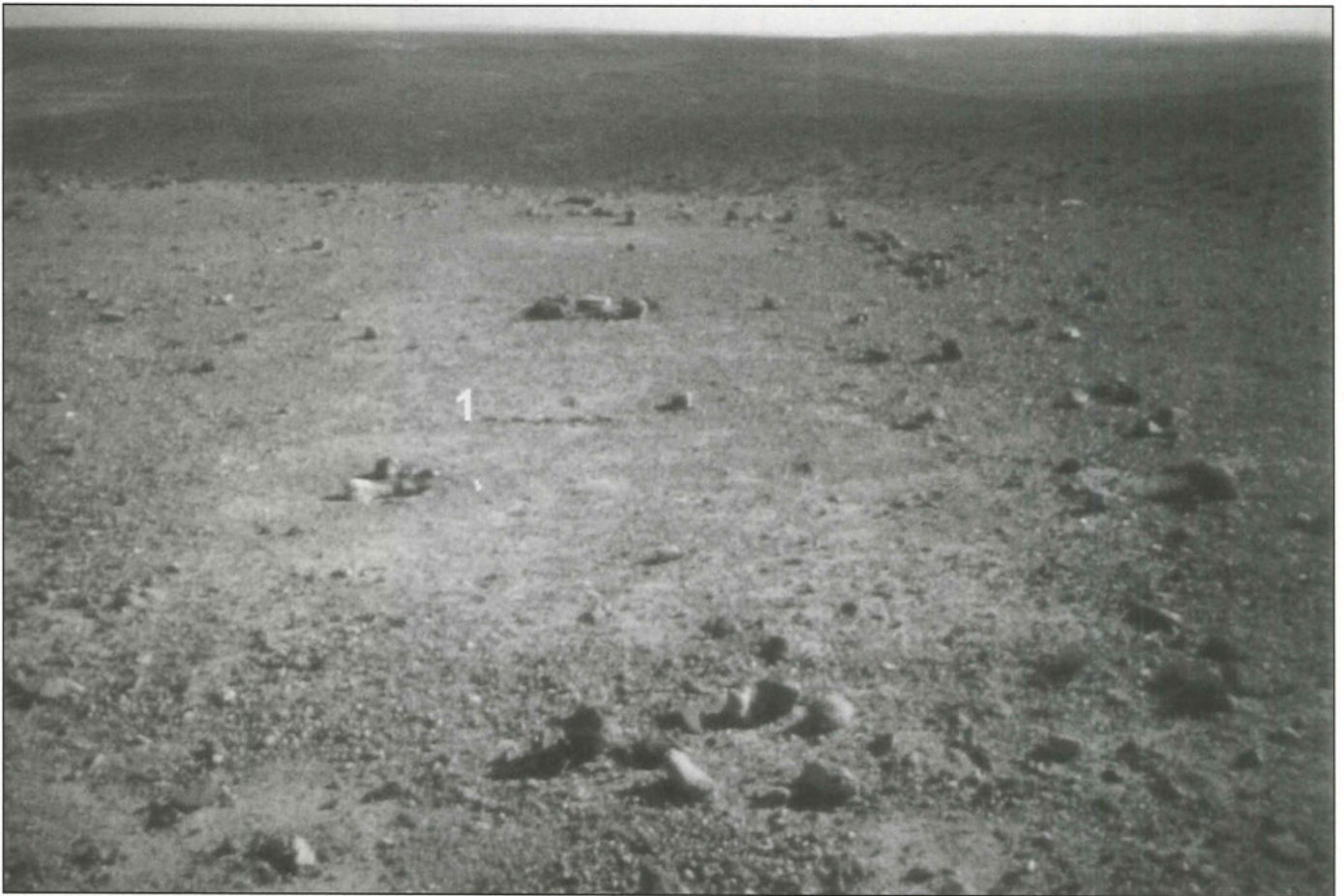
was unknown. The presence of tents at sites 12-14 was also indicated by the drainage channel that runs along the back of these structures.

In transects 2 and 3, abandoned tent camps were often identified by the evidence of two construction methods, which are not mutually exclusive. The first method uses large stones, and in some instances, concrete blocks to hold down the edges of the tent (Fig. 5). In the second technique, large and small stones are pulled from the area inside the tent towards the edges, thus forming a small mounded outline of a rectilinear tent (Fig. 6). The drainage channels at many tent camps also served as an aid in identifying the plan of some of these structures. In transect 4, one tent, site 39, was identified by the concentration of metal pins inside an ephemeral line of stones that formed a right angle (Fig. 7). These pins originally may have been used to secure the rails to the ties of the Hajj railroad, which is located approximately 70 m to the north of the site.

Some of the identified sites can provide

insights on the impact of site formation processes, both anthropogenic and natural. In many arid zone encampments in the Negev and Sinai, there is an absence of vertical and/or horizontal stratigraphy (e.g. Rosen 1993:443), which makes it difficult to establish occupational history. The difficulty in identifying multiple occupations at a site is demonstrated at site 35 in transect 2, where evidence of multiple occupations is provided by different alignments of the drainage channels and of the fragmentary outlines of tents (Fig. 8). In the absence of vertical and horizontal stratigraphy at this site, it is also difficult to establish contemporaneity between the various tent locations.

The archaeological signatures of tent camps in highland areas suitable for agriculture is problematic. For example, site 49 in transect 3 contains the remains of a tent and associated animal pens, which are now in a field under cultivation. The animal pen and the areas to the north and east of this tent were plowed and although the tent was



5. View to the south of site 34. The western edge of this tent is demarcated by a line of stones and by a low mound of pebbles.

not disturbed, cereals were grown on, and in effect demarcated, its northern edge. The artifacts found in the animal pen and in the areas outside the tent were distributed along the axis of the furrows.

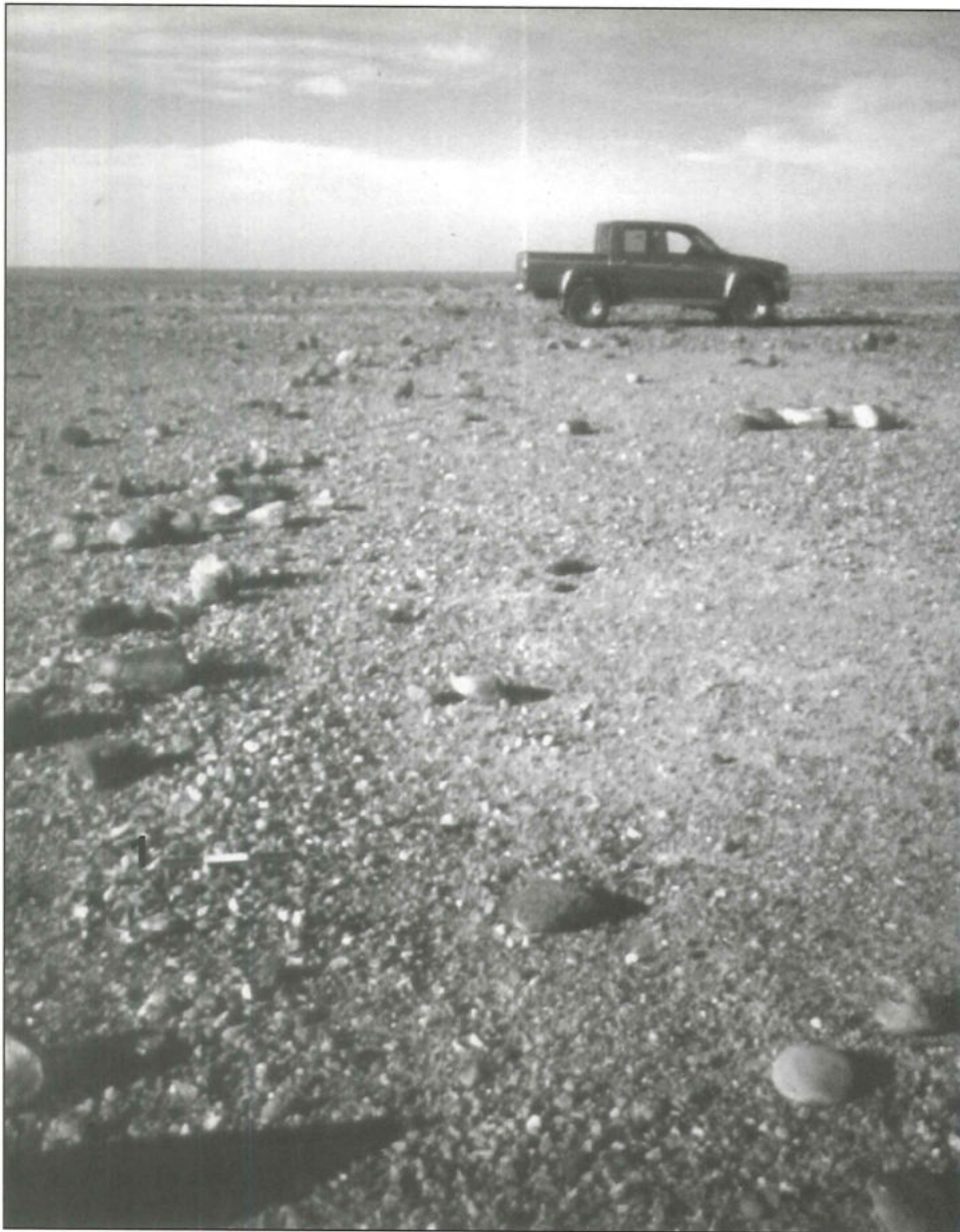
### Hearths

In the course of the project, various types of hearths were observed. The most prolific examples are “basin” and “surface” hearths. The former are circular in shape and cut into the sediments. The latter are defined as hearths placed directly on top of the ground, that is, no dirt was scooped out of the ground nor were any apparent modifications made to the ground surface in preparation for building the fire (Fig. 9).

“Basin” hearths were frequently found inside tents, and at a few isolated sites (e.g.,

site 6) that lack evidence of architectural remains. This type of hearth is often present at sites within and adjacent to transect 1, whereas “surface” hearths are present in all three transects. The location and type of surface hearths in transects 1-3 raises questions concerning their function. In transect 3, most of the surface hearths have stone andirons, which are not found in transects 1 and 2. According to a number of informants, the presence of stone andirons is an indication that tea was brewed at these locations (Fig. 9), whereas sites lacking stone andirons may suggest that these hearths were used for warmth.<sup>5</sup> The distances between *in situ* stone andirons were measured for each site. The finds of stone andirons were also important for identifying sites where the ash had been washed away and/or

5. My thanks to Mr Sami M. Al-Nawafleh and Ms. Sally Shyrock for this information.



6. Site 34, view to the north.

the burnt soil bleached as a result of erosion from wind and rain. For example, at some sites three burnt stones were found positioned in a triangular arrangement with the distance between them varying from 7 to 10 cm. The position and distance between these stones suggest the presence of a hearth, although, the soil was not discolored and ashes were absent.

### Specialist Studies

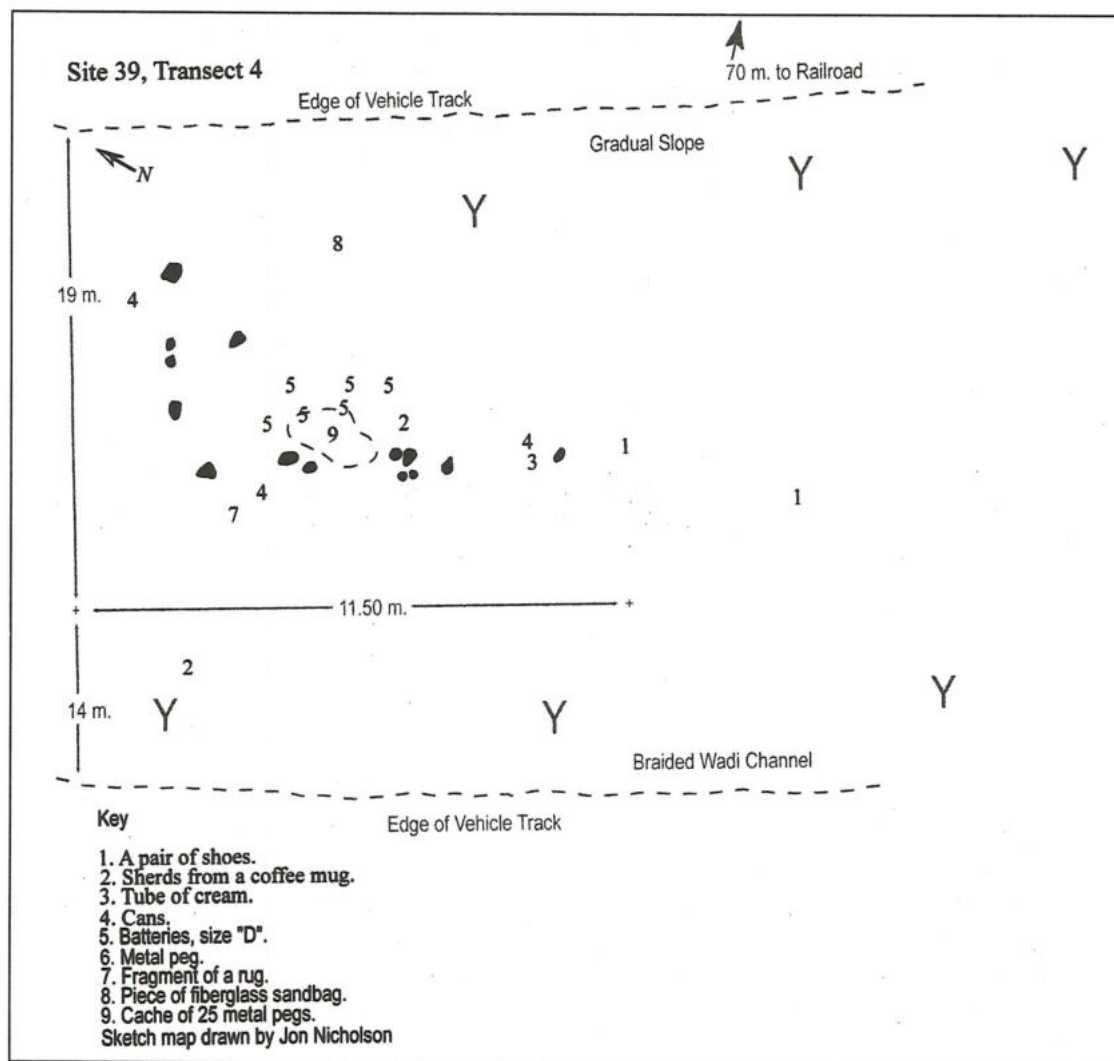
In the course of the survey, sediments and sheep/goat mandibles were collected for spe-

cialist studies. A limited number of sheep/goat mandibles collected from tent camps that appeared to have been recently occupied were initially slated for cementum increment analysis in order to determine the season and/or seasons during which the site was occupied (e.g. Lieberman 1994; Lieberman 1995; Lieberman and Meadow 1992). Recent research by Aaron Stuz has demonstrated that there are substantial methodological problems with this procedure.<sup>6</sup> As a result, the samples will not be subjected to this analysis until the methodological impedi-

6. Personal communication from Mr Aaron Stuz, Ph.D. candidate, Department of Anthropology,

University of Michigan at Ann Arbor.





7. Plan of site 39 in transect 4.

ments are addressed.

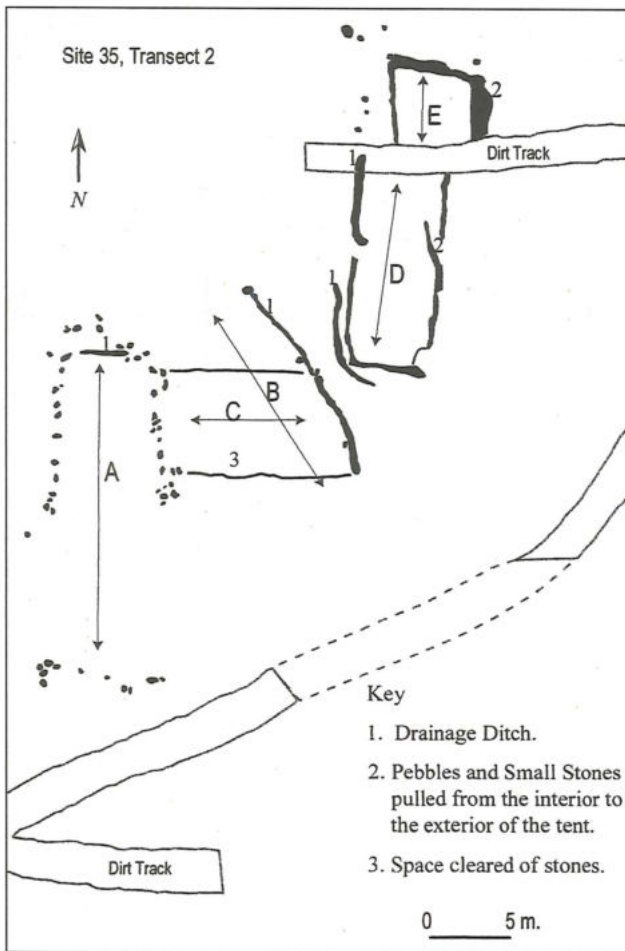
Brian Pittman is currently conducting a micromorphological analysis of the 19 sediment samples from sites 14, 48, 50, and 52.<sup>7</sup> These samples were collected to study the micromorphology of the sediments found inside and outside Bedouin tents. Each sample is 10 cm in diameter and in depth. Thin sections will be taken from each sample to determine whether there are diagnostic signatures in the composition and structure of the sediments from different parts of Bedouin tent camps. To date, this procedure has been carried out only at one tent camp located in Beer Sheva, Israel (see Goldberg in Goldberg and Whitbread 1993). The samples collected by the Bedouin Ethnoarchaeological Survey Project will broad-

en this line of research. Jon Nicholson is analyzing sediments for phytoliths.

### Conclusion

The data collected by the BESP demonstrates that variation in topography and elevation affect the archaeological signatures of Bedouin tent camps. Although the availability of large stones and items such as concrete blocks and sandbags affect the visibility of Bedouin tent camps, these encampments were identified in all four transects. Pedestrian surveys are essential for locating and identifying tent camps and other ephemeral occupations in these transects. From a theoretical perspective, agricultural activity in transect 3 could destroy or degrade the archaeological remains of

7. Brian Pittman is a graduate student in the Department of Archaeology at the University of Cambridge.



8. A simplified plan of site 35 illustrating the alignments of various abandoned tents (A-E). The arrows indicate the direction of the long axis of these structures. Tent A was identified by a drainage ditch and by stones placed along the edges of this structure. A drainage ditch demarcates the long axis of tent B. In contrast, tent C is identified by a large space cleared of stones and pebbles. Drainage ditches and small stones and pebbles outline the shape of tents D and E. Although both tents are cut by a dirt track it was not possible to determine which structure was constructed first.



9. Photograph of a surface hearth, site 77.

tent encampments and associated animal pens. As a result, these habitations could be reduced to concentrations or scatters of artifacts located in and along the edges of agricultural fields.

Although the data is preliminary, the variation in the nature of the hearths in transects 1 through 3 may be functional, and hypothetically, may or may not have social implications. For example, are surface hearths an evidence of the movements of shepherds, while basin hearths indicate the presence of nuclear or extended families? In conclusion, the BESP generated substantive information on the nature of abandoned tent camps in southern Jordan. Further analysis of the data collected by this project will be forthcoming.

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