A SMALL-SCALE RECONNAISSANCE IN QĀ' AL-JINZ

by

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Introduction

A limited field reconnaissance was undertaken along the southern portion of Qā' al-Jinz during the summer of 1999. The aim of the project was to identify prehistoric sites in the region and relate this material to existing models of Paleolithic settlement. The results of the fieldwork indicate a pattern of ephemeral land use in this region. Based on the few recorded sites and the small area surveyed, potential implications for current settlement models are discussed.

The Study Area

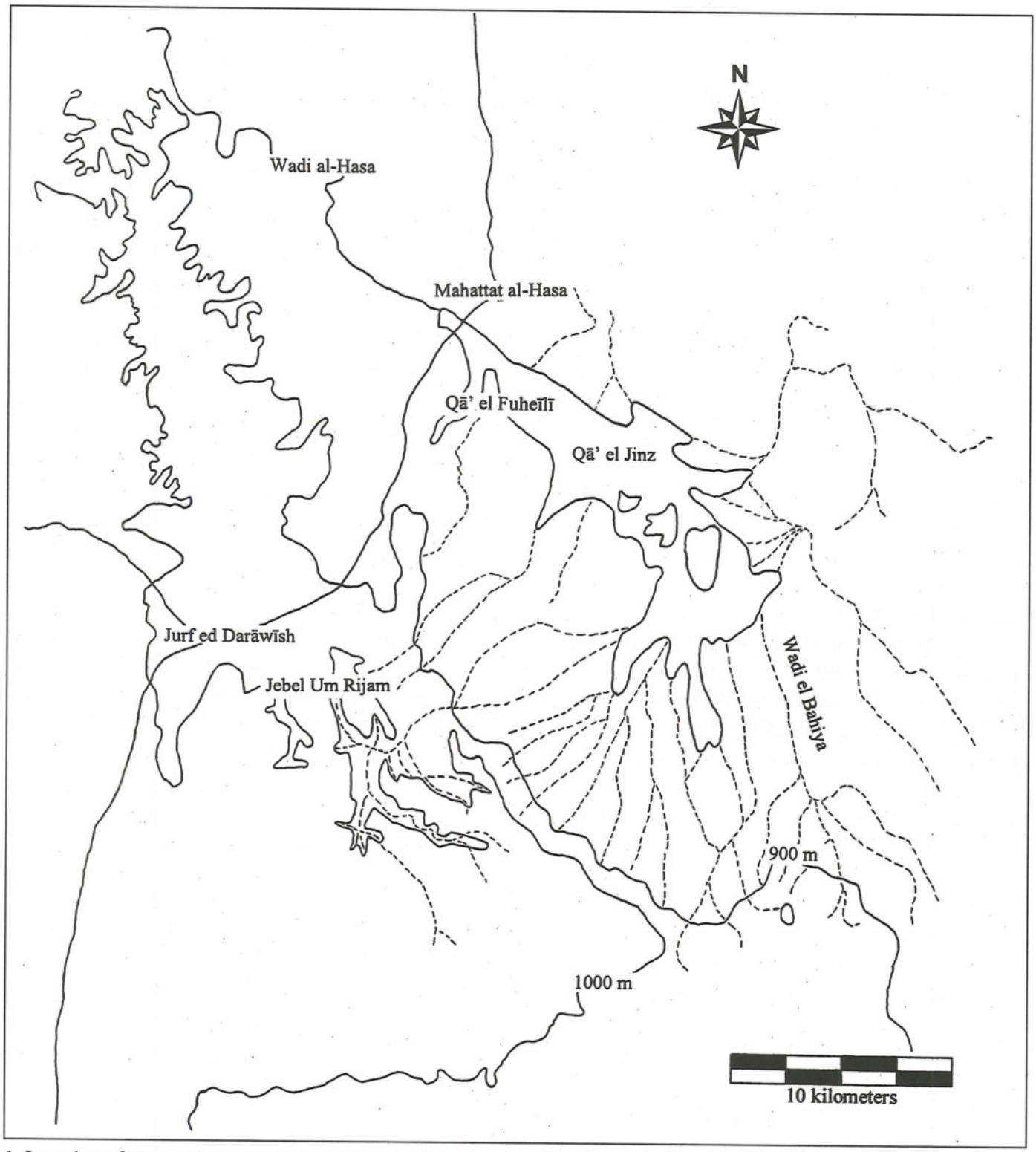
Located east of the Desert Highway, the project area included portions of Qā' al-Jinz, Qā' al-Fuḥeili, associated playa shorelines, and the surrounding flint pavement (Fig. 1). Moving from west to east, the project area extends from near the modern Desert Highway just south of Maḥaṭṭat al-Ḥasa to Wādī al-Bahiya. The northern boundary of the project area was defined by the agricultural activity on the north side of Qā' al-Jinz whereas the *hamada* desert northeast of Jabal Umm Rijām constituted the southern boundary. The region is characterized by very low relief with small hills and ridges interspersed between the wadis and mudflats. Elevations ranged from 815 m in the north to 910 m in the south. All of the wadis drain north into the area of Qā' al Jinz. Modern disturbance in the area is quite pronounced and expanding, as evident by the extensive phosphate mining operation currently bisecting the east and west halves of Qā' al-Jinz. Not only does this disturbance consist of expansive pit mining and piles of tailings, but it also includes several maintained gravel roads used by trucks to transport phosphate materials from the pits.

Rainfall in the region is sparse, roughly 100 mm annually, and largely occurs during the winter between the months of January and March. Localized communities of *Artemis* scrub vegetation are confined to the wadi bottoms and mudflats. The local geology is characterized by Pleistocene fluviatile and lacustrine gravels of varying thickness deposited by ephemeral streams (Khalil Moh'd 1986). These deposits are overlain in some areas by Holocene alluvial fans and mudflats that are comprised of clay and fine-grained calcareous materials. The mudflats are found in low-relief areas and represent accumulations of sediment in low energy depositional events (Khalil Moh'd 1986). The low velocity of the Holocene deposition is attested to by the lack of downcutting observed in the local wadi systems. This can be contrasted with the more active erosional history found in Wādī al-Ḥasa to the west.

Previous Research in the Region

Although the project area has not been the subject of previous archaeological investigation, there has been a substantial amount of work done to the west in Wādī al-Ḥasa. This research is summarized to provide a context for the present investigation.

Research in Wādī al-Ḥasa was initiated in 1979 with Burton MacDonald's (1981; 1982; 1983) south bank survey that resulted in the recording of more than 1000 archaeological sites representing the Lower Paleolithic through the Ottoman periods. Paleolithic research in the region began in 1984 as part of the Wādī al-Ḥasa Paleolithic Project (Clark *et al.* 1988). Several sites were tested revealing occupations dating



1. Location of reconnaissance area in west-central Jordan. Modified from the Karak 1:250,000 map.

from the Middle Paleolithic to the Epipaleolithic (Coinman 1993; Lindly and Clark 1987; Olszewski *et al.* 1990). Excavations were continued in 1992-93 and a systematic survey of the north bank of Wādī al-Ḥasa was initiated to complement the database from the south bank (Clark *et al.* 1992; 1994; Neeley *et al.* 1998; Olszewski *et al.* 1994). Most recently, Coinman and Olszewski have started a program of excavation at Upper Paleolithic and Epipaleolithic sites in the eastern Wādī al-Ḥasa (Coinman and

Olszewski 1997; Olszewski *et al.* 1998). As a consequence of 15 years of Paleolithic research in the region around Pleistocene Lake al-Ḥasa, a model of settlement has been proposed in which access and proximity to the lakeshore and associated resources are paramount to successful strategies of adaptation (Olszewski and Coinman 1998). It is in the context of understanding lakeshore adaptations that the present reconnaissance was undertaken.

Project Goals

The primary focus of this reconnaissance was to identify Epipaleolithic sites, dating from ca. 19000-10,500 BP, in the region east of the Pleistocene Lake al-Ḥasa. Previous survey and excavation west of the project area indicated that Epipaleolithic settlement was largely constrained to the shores and tributaries of the lake (Clark *et al.* 1988; Olszewski *et al.* 1994). Although the lake environment was certainly an attraction for settlement and plays a major role in regional settlement models, other nearby environmental zones (steppe/desert) have not been systematically investigated. Toward this end, the area east of the al-Ḥasa basin was selected for study because it represents a drier, less lush environment as well as a possible corridor for the movement of Paleolithic foragers between the al-Ḥasa basin and the larger al-Jafr basin to the southeast. As a result, this research has the potential to enhance our understanding of Paleolithic land use strategies along the inland lake basins of west-central Jordan.

In addition to discovering and recording Epipaleolithic archaeological sites, the project was also concerned with evaluating the applicability of potential settlement models derived from the al-Ḥasa basin. Regionally-based settlement models seem to be the most appropriate way to address this issue as the environmental constraints within the Levant are highly variable over time and space. Those settlement models that have received the most attention in the context of Levantine Paleolithic adaptations are those proposed by Marks and Freidel (1977) for the Negev Highlands and Henry (1987; 1989; 1994) for the Rās an-Naqab region of southern Jordan.

In their model, Marks and Freidel (1977) propose that changes in settlement strategies should be closely associated with long-term climatic changes. For the early and middle Epipaleolithic, this model suggests that foragers practiced a circulating strategy of land use in which extractive sites are expected to be small with low archaeological visibility. Associated base camps, which vary in occupation duration, are not expected to be formally structured in terms of their use of space. This model can be contrasted with the use of a radiating strategy of settlement during more favorable climatic intervals (e.g., late Epipaleolithic) in which base camps are logistically organized and may be more visible due to extended occupations and the accumulation of midden deposits. Extractive sites are expected to be more numerous, although still potentially invisible archaeologically, because of the limited range of activities occurring there.

Henry's (1987; 1989; 1994) model of forager land use is based upon the seasonal movement of foragers between upland and lowland settings. For the early Epipaleolithic, Henry suggests that larger winter camps will be found in lowland settings whereas the smaller summer camps are situated in upland regions. The model incorporates aspects of the radiating/ circulating model in that a radiating pattern of settlement would be expected for the large winter, lowland sites and a circulating pattern of settlement for the upland sites. A somewhat different pattern is suggested for the late Epipaleolithic as large camps are situated in upland settings.

These models are similar in their focus on settlement in the context of patterns of radiating and circulating mobility. Where they differ is in terms of the mechanism for mo-

bility. In the case of Marks and Freidel, mobility and settlement changes are tied to long-term climatic changes, whereas Henry's model posits that the dominant factor is seasonal resource availability between upland and lowland settings.

Although these models are derived from regional databases, their fit to other areas, especially the inland, lake basin regions of central Jordan has been less than satisfactory. In recent years, a number of researchers (Clark 1992; Olszewski *et al.* 1994; Olszewski and Coinman 1998) have suggested that forager adaptations within the inland lake basin setting of Wādī al-Ḥasa do not correspond to either of the models. Instead, they suggest that mobility was tethered to the lake setting, with residential sites occupied for longer periods of time. Similar patterns of reduced residential mobility are found at the early Epipaleolithic sites of Ohalo II and Ein Gev along the Sea of Galilee (Nadel and Hershkovitz 1991).

Among these characterizations of settlement strategies in the eastern al-Ḥasa, the most explicit and testable for the Epipaleolithic is that proposed by Olszewski and Coinman (1998). Using a tripartite division of the Epipaleolithic into an early, middle, and late phase, they characterize settlement in response to the local availability of lake and marsh resources. These resources fluctuate over time in concert with the environmentally driven changes in the levels of the lake. For the early phase, settlement is characterized by high levels of residential mobility and the seasonal use of the lake. These lake resources are supplemented by the use of an expanded resource catchment during other seasons. The middle phase is viewed as one in which mobility levels are reduced, resulting in a more logistically organized pattern of settlement along the lake. This pattern is augmented by the presence of smaller, seasonal residential camps away from the lake. Finally, the late phase represents a shift in the role of lake resources from that of a primary resource to one that supplements other sorts of resources. Thus, archaeological sites along the lake in this period are few and largely ephemeral.

Working from the proposed model of Olszewski and Coinman (1998), several potential land use scenarios for the eastern Wādī al-Ḥasa were evaluated by this research. These scenarios rely upon the al-Ḥasa basin as a primary resource area with the peripheral areas to the east serving as secondary resource ranges. Like the previous models, these expectations also entail aspects of both circulating and radiating strategies. However, unlike the Olszewski and Coinman model, fine-grained temporal resolution is not evaluated. Instead, this project focused on the identification of very general patterns of settlement across broad time periods. In the first scenario, small, task-specific camps should be located in this marginal region with relatively long-lived base camps found along the shore of Lake al-Ḥasa. This emphasis on the lake is similar to the pattern of Middle Epipaleolithic settlement proposed by Olszewski and Coinman (1998:192). The second scenario proposes that base camps along the lake were shorter-term and more seasonal in occupation with logistical sites along the lake and in the steppe/desert. Smaller, short-term residential camps should also be found in the steppe/desert region. The third scenario suggests a circulating strategy in which short-term residential camps are found along the lake and in the steppe/desert region to the east. In this instance, the lake does not serve as the central focus for resource procurement in the settlement system. Smaller, limited activity sites should be found in both areas as well.

Field Methodology

Given the constraints of time and funding, a purposive survey was deemed most suitable to gain a basic understanding of the occupational history of the eastern al-Ḥasa

periphery. Instead of systematically sampling the area, survey areas were selected according to their perceived potential to contain sites. Factors involved in the selection included the presence of shoreline qā' deposits as well as local topographical features such as ridges and hills that provided panoramic vistas. Access to many potential survey locations was hindered by the extensive phosphate mining operation that bisects the qā' along a north-south axis. Since the field crew was primarily limited to the author and a Department of Antiquities representative, the area that could be covered in any given transect was relatively small. Transects were defined by the linear distance between the vehicle and some particular topographical feature. In addition to these purposive transects based on the local topography, several transects were selected that corresponded to an elevation of ca. 820 m asl. This elevation has been roughly correlated to the high stands of Pleistocene Lake Hasa identified to the west of the highway (Schuldenrein and Clark 1994). It was hoped that if the lake extended to the east, similar patterns of occupation should also be evident.

Due to the relatively low relief of the local topography, a hand-held global positioning system (GPS) was used to determine the location of transects and archaeological sites. This proved to be a highly useful technology, as it allowed accurate locational information to be recorded from the outset of the project. Defining archaeological sites in this setting can be somewhat problematic, as the criteria for site designation is often implicit rather than explicit. Further exacerbating the problem is that many of the areas contain low densities of material from a variety of time periods and contexts. In order to obtain site definitions that had some meaning within the context of the project, sites were defined on the basis of two criteria. First, the artifact density had to exceed 10 artifacts within a circumscribed three-meter radius. Second, the material within the radius had to exhibit some degree of homogeneity with regard to the raw material used and the degree of patination. When archaeological materials were encountered in densities sufficiently large to call sites, information pertaining to temporal period, local setting, potential function, and artifact densities was recorded in the field.

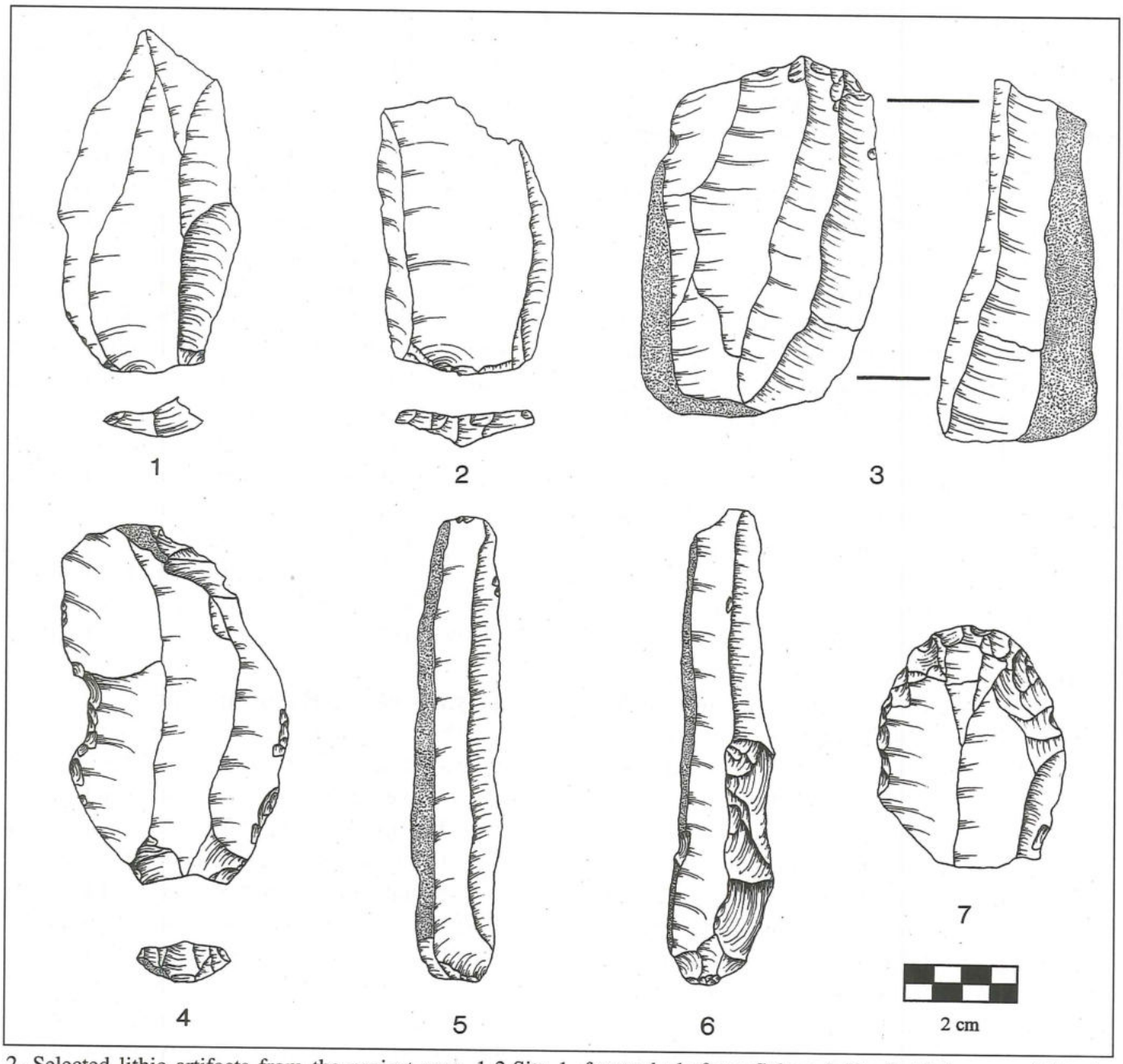
Results of the Reconnaissance

The reconnaissance resulted in the identification and recording of six sites. All of these have been tentatively identified as Paleolithic in age, and with the exception of Site 1, any sort of fine-grained chronological determination was not possible (Table 1). Site 1 was assigned to the Middle Paleolithic based on observed faceting and flake morphology (Fig. 2). It is of some note that none of the sites identified corresponded to the ceramic periods and only one isolated ceramic was found over the course of the fieldwork. All of the sites are low-to-

Table 1. Sites recorded during the reconnaissance.

Site No.	Site Type	Time Period	UTM East	UTM North	Grid Zone	Artifact Density[1]
1	Lithic Scatter	Middle Paleolithic	787015	3410054	36R	37
2	Lithic Scatter	Paleolithic	786928	3409737	36R	23[2]
3	Lithic Scatter	Paleolithic	213684	3409224	37R	12
4	Lithic Scatter	Paleolithic	214143	3409235	37R	30
5	Lithic Scatter	Paleolithic	213284	3410360	37R	10
6	Lithic Scatter	Paleolithic	213801	3410700	37R	18

[1]Densities were calculated by using a circle with a radius of 3 m
[2]The density was calculated using a radius of 2.5 m



2. Selected lithic artifacts from the project area. 1-2:Site 1, facetted platform flakes; 3:Site 3, blade core; 4:Site 3, notched flake; 5:Site 3, blade; 6:Site 4, core trimming element; 7:Site 6, broken endscraper.

moderate density surface scatters suggestive of short-term camps or limited activity occupations. Less certain is the potential for subsurface deposits. However, in light of the current active, wind-deflated landsurface, it is suggested that the likelihood of stratified deposits is very low. In addition to these six sites, 23 survey transects were carried out. Archaeological remains in the form of isolated lithic elements were encountered in very low densities on most of the survey transects. Temporally, these appear to represent the Lower through Upper Paleolithic periods. None of these densities was sufficiently high to warrant a site designation, as defined above, but they do point to a limited, perhaps transitory, use of the area.

How then do these sites relate to the stated goals of the project? With regard to the first project goal, none of the sites provide any indication of an Epipaleolithic occupation in this region. This is somewhat surprising given the number of recorded Epi-

paleolithic sites in the area west of the highway. Not only are sites of this period absent, but for the few sites that were identified, artifact densities are less than those found along the shores of Pleistocene lakes near Maḥaṭṭat al-Ḥasa and Jurf ad-Darāwīsh. For example, a Middle Paleolithic artifact scatter along the shore of the Pleistocene Jurf-Burma Lake south of Jurf ad-Darāwīsh yielded an artifact density of 115 artifacts within a one-meter radius. In contrast, the highest surface density of material in the current project area occurred at Site 1 with just 37 artifacts recorded within a three-meter radius.

The second goal of the project is concerned with the larger issue of settlement in the region. It is apparent from the lack of Epipaleolithic sites, that exploitation of the region by Epipaleolithic peoples was sporadic at best. This may be a function of a limited range of available resources relative to the resource base in the area of Lake al-Ḥasa. Paleoenvironmental reconstructions of Lake al-Ḥasa indicate an oscillating lake/marsh environment that became less productive toward the end of the Pleistocene (Schuldenrein and Clark 1994). Settlement reconstructions in the area also emphasize the variable productivity of this particular environment (Olszewski and Coinman 1998).

In terms of the potential settlement models outlined in the project goals, what sort of pattern is suggested here? The present data may be interpreted in several ways. First, the absence of Epipaleolithic sites can be viewed in absolute terms. The lack of sites indicates the non-use of the region. This sort of interpretation tends to reinforce a view of land use that is closely tied to the more reliable resources of the Pleistocene lake. A second, less dogmatic view of the lack of Epipaleolithic sites suggests that the environment around the qā' was exploited in a very limited and ephemeral fashion, especially when compared with the more intensive land use history of the eastern al-Ḥasa lake basin. This latter view tends to support a scenario of settlement in which base camps were tethered to the lake basin with small, logistically organized extractive camps found along the periphery of these optimal lake environments. The archaeological visibility of these small site types may be very low, especially if they are not reused over time. The second and third models both propose the presence of residential base camps along the qā' shoreline or surrounding terrain, a pattern that was not observed in the context of this project.

Based on these observations, the exploitation of the qā' and surrounding areas appears to be minimal during the late Pleistocene and certainly did not result in the repeated use of locations like those observed along the lake at sites such as Ṭor aṭ-Ṭarīq and Yutil al-Ḥasa (Neeley *et al.* 1998; Olszewski 1997). Olszewski and Coinman (1998) suggest that the peripheral areas of the lake basin most likely to be occupied on a seasonal basis would be those of the surrounding hills and uplands. This pattern has some empirical support in the form of Epipaleolithic sites found during the Wādī al-Ḥasa surveys (MacDonald 1988).

To date, sites have only been identified in the western portion of the project area at an elevation of ca. 820 m. All of these are clustered on the eastern edge of Qā' al-Fuḥeili. This elevation corresponds roughly to the maximum extent of Pleistocene Lake al-Ḥasa and suggests its continuance, in some form, to the east. However, there are no marl deposits associated with the lakeshore like those found west of the highway. Their absence seems to offer additional support for a pattern of Paleolithic settlement and land use that was closely tied to the lake basin while peripheral areas were used in a limited or sporadic fashion.

As a caveat, the near absence of sites along the qā' may be a result of depositional activities in which the qā' sediments have

slowly covered the archaeological remains. Given the fluctuating nature of the size of the qā' due to annual precipitation levels, it is not surprising to find archaeological materials at some distance from what is perceived to be a shoreline. Although qā' deposits may be built up during seasons of greater precipitation, the amount of sediment being washed into this environment seems to be minimal. Based on observations from the south end of the qā' basin, all of the feeder wadis are very shallow and show no evidence of down cutting. This suggests a very low energy environment in which little sediment is being transported into the basin. Furthermore, the exposed surface of the sparsely vegetated qā' is subject to the constant effects of surface deflation by the wind. This might hamper the long-term deposition of thick qā' deposits. In light of the seasonal nature of the qā', it is possible that it was an unreliable resource base relative to the lake/marsh environment to the west. If this were the case, then resource procurement in this region would be expected to be very limited and not regularly patterned.

In evaluating these settlement models, the reconnaissance only focused on the low-lying elevations that constituted the ancient shorelines and ridges along the qā' deposits. Higher elevation locations like Jabal Umm Rijām to the south and areas to the east and southeast were not formally investigated. Jabal Umm Rijām is an interesting case as the geological formation was a likely source of chert/flint. A small survey collection from a site on the western flank analyzed by the author indicates the use of the area during the Middle Paleolithic (MacDonald *et al.* 2000). One might expect additional procurement locations or base camps to be associated with resources in these areas. However, continued refinement of the models of land use for al-Ḥasa lake basin and surrounding environs can only be achieved through further survey and exploration of these areas.

Conclusions

The project which consisted of a small-scale reconnaissance along Qā' al-Jinz aimed at better understanding land use strategies during the late Pleistocene. The results suggest a far less intensive use of the region compared to the eastern Wādī al-Ḥasa. This is particularly the case for the Epipaleolithic. The available evidence points to a sporadic, short-term land use from the Lower Paleolithic through the Upper Paleolithic and possibly the Epipaleolithic. Assuming the intensity of occupation is linked to resources, it is suggested that resource availability was less abundant and regular than that found to the west. One important factor of repeated settlement along an increasingly alkaline lakeshore would be the presence of springs. Fossil remnants of springs, which served as loci of repeated settlement along Lake al-Ḥasa, were absent from the qā' deposits. The implication of this project is that the environment of the qā' and surrounding environs were not attractive for intensive, long-term settlement during the Paleolithic. Furthermore, while settlement in the project area was sporadic for the Paleolithic, this pattern of non-use was accelerated during the Holocene as ceramic period sites were completely absent.

Clearly, the models of settlement for the inland lake basins in the Levant need to be evaluated on a case-by-case basis. Models derived from one region are rarely generalizable to other regions, though they may serve as a useful starting point. Toward this end, I have tried to clarify some of the potential ways in which late Pleistocene foragers may have utilized the landscape. The models proposed are simplifications of the more fine-grained models proposed by Olszewski and Coinman (1998). The results, while suggestive, need greater refinement before they can be widely extrapolated to the larger

region.

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