Persistent and Ephemeral Places in the Early Epipaleolithic in the Wadi al-Hasa Region of the Western Highlands of Jordan

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Abstract

Early Epipaleolithic groups in the Levant often are described as highly mobile. Although there are some exceptions (e.g., Kharaneh IV and Ohalo II), most sites are aerially small and said to represent short-term camps. In this paper, we use information from the Early Epipaleolithic occupations at KPS-75, Yutil al-Hasa, Tor Sageer, and Tor at-Tareeq in the Wadi al-Hasa region of Jordan to examine their nature as persistent places in the landscape, which yield cumulative palimpsests that often time-average the activities and events that occurred at these locales. We argue that aerially small sites do not necessarily constitute short-term occupations because sites that might indicate high mobility as part of the spatial palimpsest of the landscape would have been quite ephemeral and often are not recorded by traditional surveys which focus on identifying highly visible sites rather than on systematically recording nonsite locales.

Keywords: Early Epipaleolithic, Levant, Nebekian, mobility, settlement, persistent places

1. Introduction

Assessing the type of settlement mobility engaged in by prehistoric hunter-gatherer-forager groups across the landscape is a common theme in archaeological research. In very general terms, it is built in part on group size known from extant hunter-gatherer-foragers and ethnohistorically known peoples, as well as their documented patterns of locale and landscape use (Binford, 2001; Kelly, 2013). It is also conditioned by the aerial size of archaeological sites recorded and/or excavated, the cultural materials recovered from those contexts, the spatial

arrangement of features or materials within sites (where discernible or available), and reconstruction of the paleoclimate and habitat.

In the eastern (inland) Levant, the Pleistocene Last Glacial Maximum (LGM) was one of those periods during which overall colder and drier climate resulted in the shrinkage of optimal habitats such as the Mediterranean forest and open parklands, which even under optimal conditions was less widespread than in the western Levant (west of the Jordan Rift Valley). Under these aerially increased conditions of presumably marginal LGM Levantine habitats, one idea has been that many Early Epipaleolithic hunter-gatherer-forager groups had few options other than to frequently move from place to place and to disperse across the landscape in relatively small groups, as documented in part by small site sizes (e.g., Goring-Morris, 1995: 167; Maher et al., 2012: 72). These strategies, among others (e.g., social networks; see Richter et al., 2011), are thought to have helped mitigate the concerns of adequately obtaining the food resources necessary for group survival.

1.1. Theoretical Background

The concepts of residential (circulating) - logistical (radiating) (Binford, 1980; Marks and Freidel, 1977; Mortensen, 1972), which constitute the two point ends of a spectrum of settlement organization, have been widely used by researchers to examine prehistoric hunter-gatherer-forager mobility. Binford (1980), among others, noted that hunter-gatherer-forager settlement did not sort out into strictly residential or strictly logistical systems (see also Chatters, 1987). Rather, hunter-gatherer-foragers employed a complex set of mobility strategies that varied seasonally, yearly, or over decades, based on group needs, but also on aspects of the landscape (e.g., patches of resources, seasonally available resources, etc.) and the impact of climate on those resources (e.g., Dewar and McBride, 1992; Kelly, 1983). This greater complexity aspect was taken up by Henry (1987, 1995) for the Levant, who described hunter-gatherer-forager mobility as transhumant, with settlements likely to be more logistical during wintering in lowlands and more residential while summering in the highlands of southern Jordan. Site size, density of artifacts, and artifact typological variability/richness factored into Henry's analyses. Clark (1992) assessed this transhumance model, as well as the circulating-radiating model, for the Wadi al-Hasa region, using site distributions and characteristics, concluding that settlement models developed using

data from one region did not necessarily easily transfer to other regions. This supports the observation that hunter-gatherer-forager settlement systems are complexly variable.

One attribute often used as partial documentation of degree of mobility is site size. Overall site size, however, is partially conditioned by several factors. One of these is whether the site is a rockshelter as rockshelters can be small and thus limit the number of people who can fit within their confines. Presumably, this means that group size is small. On the other hand, in open-air contexts (and large rockshelters), there is much more available space and thus potential for larger groups. This might also apply to open spaces in front of small rockshelters. The larger size of sites in these scenarios, though, reflects the aerial extent of cultural materials both on the surface and in sub-surface deposits. This aerial extent might be due to the presence of a larger group, but just as equally might reflect repeated visits by small groups who use slightly different spaces across a site during each visit. It even may reflect taphonomic processes that have redistributed cultural materials horizontally so that site size is now larger than the space(s) used by a prehistoric group.

Site size, however, should not be taken as necessarily accurate in the assessment of mobility. This is because higher mobility can mean a quite brief visit, so that such a site would be archaeologically ephemeral. It would contain few artifacts or other materials simply because the visit was so short as to leave little evidence. Recognizing and recovering this ephemeral evidence is generally not a strong suit in archaeology because of how traditional archaeological survey, based on recognizing dense concentrations of artifacts as sites, is accomplished (but see Dunnell and Dancey, 1983; Potts, 1994; Anschuetz et al., 2001; Olszewski et al., 2010). This aspect of mobile groups thus goes largely unrecognized and means that longer term occupations at traditionally defined sites are instead interpreted as potentially reflecting higher mobility. Moreover, the non-recognition of truly ephemeral sites may also be an important consideration given that many of them may be the “task/activity” camps which would constitute one of the elements in a logistical settlement pattern, which itself is often interpreted as reflecting lower levels of mobility. The majority of the sites that are studied, then, are actually persistent places in the landscape that become records of long-term use of a locale (e.g., Schlanger, 1992). A site thus could document long-term repeated and highly similar uses of place or it could document long-term repeated and disparate uses. Using a variable such as site size to speak definitively about group size or group mobility can thus be difficult.

Importantly, however, any assessment of mobility in the archaeological record must take into account not only cultural (behavioral) and natural taphonomic processes involved in the record's formation, but also the nature of archaeological deposits. As described elsewhere (e.g., Bailey, 1983, 2007, 2008; Lucas, 2012; Stern, 1994; Wandsnider, 1992, 2008), the majority of such deposits in the archaeological record are various types of palimpsests or, in some cases, time-averaged accumulations. The palimpsest types of most relevance to this paper are those described by Bailey (2007) as cumulative (often time-averaged) palimpsests and their variant, spatial palimpsests (discussed in Section 3 below). Cumulative palimpsests at sites have the potential to result in homogenizing individual events ("visits"), many of which can no longer be teased apart from each other (e.g., Bailey, 2007; Stern, 1994), while in spatial palimpsests, activities across the landscape can be "lost" for various reasons (Bailey, 2007), as noted above for ephemeral sites. This is the situation for the Early Epipaleolithic sites in the Wadi al-Hasa region, which are discussed below.

2. Regional Setting and Sites

As has been known for some decades, the eastern Levant during the Pleistocene contained a number of wetland settings, e.g., in the Palmyra Basin, the Damascus Basin, the Azraq Basin, the Jafr Basin, and the Wadi al-Hasa region (Huckriede and Wiesemann, 1968; Kaiser et al., 1973; Sakaguchi, 1978; Garrard et al., 1988; Schuldenrein and Clark, 2001). These locales would have mitigated the harsher conditions of the LGM. As one of the areas with Pleistocene wet conditions (see Ramsey and Rosen, this volume), the Wadi al-Hasa would have been an attractive node for animals and people, as well as supporting a greater diversity of plant communities than in the surrounding more arid landscape.

The topography of the Wadi al-Hasa region includes an eastern basin area (through which the modern Desert Highway traverses) which has relatively flat terrain and gently rolling hills. The basin also contains deep paludal sediments which were downcut and eroded during the earlier Holocene (Schuldenrein, 1998; Schuldenrein and Clark, 2001; Moumani et al., 2003; Winer 2010). These paludal sediments have been variously interpreted as representing a Pleistocene shallow lake, marshlands, or an in-stream wetlands regime. The main Wadi al-Hasa channel flows west-northwest from this eastern basin. Approximately 4 km downstream from the basin, the topography steepens considerably and the channel area narrows. This type of

topography characterizes much of the remaining drainage, as well as tributary drainages, until the Wadi al-Hasa reaches the Jordan Rift Valley just south of the current extent of the Dead Sea. To the north of the Wadi al-Hasa drainage is the uplifted Kerak Plateau. In the vicinity of the Wadi al-Hasa, the Kerak Plateau has a relatively flat aspect, with some relief in the form of rolling hills created by small outcrops of Bahiya Coquina bedrock. To the south-southwest of the Wadi al-Hasa, the topography also is gently rolling and additional Pleistocene wetlands are in the vicinity of the modern village of Jurf ad-Darawish (Moumani, 1997; Moumani et al., 2003).

Archaeological surveys of the Wadi al-Hasa and regions immediately north and south yielded in around 1,000 Pleistocene sites, although those attributable to the Epipaleolithic number just a handful (ca 30 sites), of which only 6 are definitively Early or Middle Epipaleolithic (Clark et al., 1992; 1994; MacDonald, 1988; Neeley, 2004; Schurmans, 2001). Four excavated sites are discussed here—Tor Sageer, Yutil al-Hasa, Tor at-Tareeq, and KPS-75 (Figure 1).

2.1. Tor Sageer

Situated in a tributary wadi to the Wadi al-Hasa, some 5 km downstream (as the bird flies) from the eastern Hasa basin, Tor Sageer is a small rockshelter (5 x 4 m) about 17 m above the modern wadi floor. It has suffered erosion of deposits in front of the shelter due to post-Pleistocene down cutting of the wadi channel (Figure 2). At the time of occupation, it is likely that Tor Sageer was at or just slightly above the channel floor, and there would have been additional space available in front of the shelter. While aerially quite small, it contains about 85 cm of deposits, with the uppermost layer (Stratum I) referable to the Nebekian Early Epipaleolithic (al-Nahar and Olszewski, this volume; Olszewski, in press). A radiocarbon date from the top of Stratum II indicates that the Nebekian occupation in Stratum I postdates the interval from 24,600-24,150 cal BP.

The faunal assemblage from the combined strata includes gazelle, aurochs, equids, wild goat, fox, felid, tortoise, hare, and bird (Munro et al., this volume). Preliminary pollen analysis of Stratum I indicates riparian elements within an otherwise steppic context. This is supported by the phytolith analysis, which yielded abundant grass husk phytoliths and other components (Ramsey and Rosen, this volume). No ground stone artifacts or marine shell beads were recovered.

2.2. *Yutil al-Hasa Areas C/F*

The site of Yutil al-Hasa also is a rockshelter context. It is in the main Wadi al-Hasa drainage, about 4 km downstream from the eastern Hasa Basin, just beyond the point where the channel narrows and the topography becomes much steeper. Much of the surface is covered with enormous boulders which have aided in the retention of site deposits, although hindering large horizontal exposure of site deposits. There were several occupational periods at Yutil al-Hasa, with the Nebekian Early Epipaleolithic situated primarily in Areas C and F (the southwestern portion of the lower rockshelter, roughly 15 m long x 6 m wide) (Clark et al., 1988; Olszewski et al., 1994; Olszewski and al-Nahar, 2011). Excavations in these areas of the site yielded around a meter of Nebekian deposits (al-Nahar and Olszewski, this volume). Today, Yutil al-Hasa is about 10 m above the wadi floor, and was most probably at or just above the channel during the Pleistocene (see Figure 2). Deposits that would have been in the open area in front of the rockshelter have been eroded away by wadi downcutting. Recent radiocarbon dates from Areas C and F indicate that the Nebekian occupations are between 25,300 to 22,400 cal BP.

The faunal assemblage is similar to that from Tor Sageer, with gazelle, aurochs, equid, wild goat, and tortoise, along with rare birds and hare (Munro et al., this volume). Preliminary analysis in the 1990s of samples from Area C yielded grass phytoliths, along with those of woody plants or shrubs; a discussion of the phytoliths is provided in Ramsey and Rosen (this volume). The Early Epipaleolithic occupations at Yutil al-Hasa yielded a small number of fossil shark teeth, which were collected and brought to the site. No marine shell beads or portable ground stone items were recovered. However, in the bedrock ledge above the site are dozens of cupmarks and bedrock mortars. Although they cannot be definitively linked to a particular site occupation period (Late Upper Paleolithic, Early Epipaleolithic, and Late Epipaleolithic), their presence, along with grass phytoliths, might suggest some degree of plant food processing in the Early Epipaleolithic.

2.3. *Tor at-Tareeq*

Tor at-Tareeq is an open-air site on a hillside in close proximity to the Pleistocene marshes/lake in the eastern Hasa basin (see Figure 2). As such, it is situated in the gentle, rolling topography of the drainage system, rather than the steeper and narrower downstream portions.

Several excavation seasons resulted in the identification of both Early and Middle Epipaleolithic deposits, which are present in subsurface deposits of approximately 15 x 15 m (Clark et al., 1988; Neeley et al., 2000; Olszewski et al., 2000; Olszewski and al-Nahar 2014). The Early Epipaleolithic can be divided into a Nebekian and a later (possibly Qalkhan) occupation (al-Nahar and Olszewski, this volume) and was found in Areas A, B, and C (lower). The Early Epipaleolithic is aerially more extensive than the Middle Epipaleolithic (which is not further discussed here). Although the thickness of the Early Epipaleolithic deposits varies from site area to site area, it is minimally 50 cm thick. Several radiocarbon dates place the Nebekian Early Epipaleolithic occupations in the interval from 21,800 to 18,300 cal BP.

As with many of the sites in the Hasa region, Tor at-Tareeq has a fauna assemblage characterized by gazelle, equid, aurochs, and tortoise, along with some birds and hare (Munro et al., this volume). Pollen analyses in the 1990s indicated a shift during the Early Epipaleolithic at the site from drier, open steppic conditions to a wetter setting with various riparian elements. Seven informal hearths were located in the Nebekian Early Epipaleolithic deposits, as well as a few ground stone implements (pestle/handstone fragments); there are some cupmarks in the bedrock ledge above the site, perhaps indicating plant food processing during this period of occupation. A fossil shark tooth was recovered, as well as several marine shell beads (*Dentalium*, *Strombus*, *Conus*, *Nerita*, *Columbella*, and *Arcularia*). A few small lumps of yellow ochre also were present.

2.4 KPS-75

The rockshelter at KPS-75 is on the Kerak Plateau which forms the northern edge of the Wadi al-Hasa drainage system (al-Nahar et al., 2009). The site is 16 km north-northwest of Tor at-Tareeq and is situated in what was likely an open parkland setting during the Pleistocene. A seasonal playa/lake was present ca 1 km south of KPS-75. The rockshelter itself is quite small (3 x 2 m), but has a larger area in front of it (see Figure 2). Overall, the site dimensions including the rockshelter interior are ca 10 x 10 m. Three Early Epipaleolithic occupations were identified on the basis of lithic assemblage attributes; the stratigraphically lowest is Nebekian, the middle deposits likely Qalkhan, and the uppermost either Qalkhan or an undetermined Early Epipaleolithic (al-Nahar and Olszewski, this volume). Deposits in the open area in front of the rockshelter extend to at least 1 m in depth, while those inside the rockshelter are at least 70 cm

thick (the upper deposits inside the rockshelter were removed sometime prior to 1997). No radiocarbon dates are currently available for the site occupations, although, based on the lithic assemblages, the lower and middle deposits likely are contemporary with the lower (Nebekian) and upper (possible Qalkhan) Early Epipaleolithic occupations at Tor at-Tareeq, while the uppermost KPS-75 occupation postdates these.

Gazelle is the most abundant species in the faunal assemblage, followed by equid, aurochs, and wild goat (Munro et al., this volume). Smaller species are tortoises, hare, and birds. Despite the density of cultural materials at KPS-75, no exotic materials such as marine shells or ochre were recovered. Pollen and phytolith samples did not yield results. In the bedrock above the site, there are a few bedrock mortars. Given that the site appears to have been occupied only during the Early Epipaleolithic, these bedrock features may indicate some plant food processing activities.

2.5. Summary

The four Hasa region excavated Early Epipaleolithic sites yielded seven occupation horizons. The earliest appear to be those at Yutil al-Hasa Areas C/F and Tor Sageer. Tor at-Tareeq is somewhat later, and the lower and middle occupation horizons at KPS-75 are possibly contemporary with the lower and upper (not dated) Early Epipaleolithic deposits at Tor at-Tareeq. This would make the upper occupation horizon at KPS-75 even later, but still within the overall framework of the Early Epipaleolithic due to its narrow forms of nongeometric microliths and the presence of some Qalkhan points. Overall, the radiocarbon dated occupations span the interval from 25,300 to 18,300 cal BP, but some site occupations would postdate this range by an unknown interval of time.

Sites range in size from 20 m² (Tor Sageer) to 225 m² (Tor at-Tareeq) and occupations are variable in terms of materials other than lithics and fauna. Several sites (Yutil al-Hasa, Tor at-Tareeq, and KPS-75) have nearby bedrock cupmarks and bedrock mortars, which are suggestive of plant food processing, although linking these features to particular site occupations is not possible. Only Tor at-Tareeq yielded hearths. Finally, all of the sites are in contexts not far from wetlands.

3. Persistent and Ephemeral Places

The density of materials that have accumulated at locales over time partially define a site, with higher densities more likely to be called sites. These deposits of cultural (lithics, fauna, hearths, etc.) and natural materials (i.e., sediments, roof fall, etc.) are palimpsests, which superimpose any number of activities and events that occurred at the locale (Lucas 2005), sometimes over a deflated surface, other times in buried contexts. Moreover, the resolution of the archaeological record diminishes to greater or lesser degrees as one goes farther back in time and as one works with scales of observation beyond single artifacts (the idea of time perspectivism: Bailey, 2006, 2007). For the Hasa region sites used here, the scale of observation is the layer, which is defined by its natural features (sediment texture, inclusions, sediment color, sediment type, etc.). The lithic assemblage and other cultural materials in each layer can be attributed to one of the Early Epipaleolithic traditions (Nebekian, Qalkhan, etc.), but just as importantly, these layers are recognized as cumulative palimpsests. As defined by Bailey (2007: 204), a cumulative palimpsest “is one in which the successive episodes of deposition, or layers of activity, remain superimposed one upon the other without loss of evidence, but are so re-worked and mixed together that it is difficult or impossible to separate them out into their original constituents.” They are thus time-averaged in the sense used by Stern (1994), and these cumulative palimpsests, which are highly visible, are likely to be persistent places in the landscape.

3.1. Persistent Places

The concept of persistent places is intellectually linked to several complementary ideas, such as central place and the built landscape, because the notion of persistence implies some combination of reuse of place and of duration. In many contexts, it is relatively easy to recognize sites as persistent places because they incorporate a large degree of both duration and reuse due to the construction of permanent dwellings (e.g., Schlanger 1992). For many prehistoric hunter-gatherer-forager groups, on the other hand, construction of dwellings, if any, is far more ephemeral, as is the identification of multiple season duration of use (but see Maher et al., this volume). However, natural features of the landscape such as rockshelters could be conceptualized of as “naturally built constructions” because they provide attributes analogous to permanent dwellings such as protection from the elements (wind, rain, snow), shade from the sun, or alternatively a degree of insolation. The Hasa region rockshelters at Tor Sageer, Yutil al-Hasa, and KPS-75 represent these types of persistent places.

Prehistoric open-air sites without evidence for structures, on the other hand, present some challenges for the classic notion of persistent places as lack of dwellings often presumes limited use. However, those locales with dense artifacts (surface) or density of artifacts/depth of deposits (excavation) may fit more easily into the notion of central place, which itself has an assumption of reuse and of duration (Winterhalder and Smith, 2000). Arguments for persistent places have been made for open-air contexts, for example, in the Australian desert landscape (e.g., Holdaway and Wandsnider 2006). Within the Hasa region, Tor at-Tareeq and likely the open area in front of the rockshelter at KPS-75 fit into this aspect of persistent places, although whether they served as traditional central places (i.e., longer duration home bases from which task groups went out and returned) is not certain (see Discussion; see also al-Nahar and Olszewski, this volume).

3.1.1. Wadi al-Hasa Region Archaeological Data

If a persistent place is defined by repeated use of a locale (regardless of individual episode duration of use), then any spot in the landscape that has greater densities of cultural materials, whether on a surface or from excavated deposits, can be seen as a persistent place. Here, the notion of persistence is simply that there is some attractive set of attributes that draws human groups to that specific locale over and over again. These may include the presence of shelter (natural formations), proximity to particular resources (fresh water, stone raw materials, plant foods [fruits, nuts, wild cereals, underground storage organs, greens]), easy access to animals that are targeted for consumption, and even attributes such as good lines of sight across the landscape. Because these locales are visited and revisited countless times, there is an accumulation of materials at these spots that result in their identification (by archaeologists) as sites and which represent some portion of the activities that were undertaken at these places. The density of materials therefore has been a commonly used proxy of intensity of use (Barton and Riel-Salvatore, 2014). Other proxies for examining activities within cumulative palimpsests have focused on distribution patterns around hearths at sites, hearth placements at sites, determining rates of sediment accumulation and thus the approximate length of time over which artifacts in deposits accumulated, construction of features and their refurbishment, and vertical clustering of artifacts within deposits (e.g., Bailey and Galanidou 2009; Bamforth et al., 2005; Chatters, 1987; Wandsnider, 1992, 2008).

In examining the occupations at the four Wadi al-Hasa region sites, the density of lithic artifacts at each can be compared to assess possible intensity of use during the Early Epipaleolithic. Table 1 shows that there are interesting contrasts. One of these is that two of the occupations (int. lower and ext. middle) at KPS-75 yield the highest densities of lithics for all the sites. The interior lower KPS-75 (Nebekian) is within the rockshelter and may reflect at least two possibilities. On the one hand, interior spaces of rockshelters are spatially constrained and thus deposition of lithic artifacts may be more concentrated compared to the larger aerial space in open contexts, where activities can be spread out to a greater degree. Alternatively, denser materials within rockshelters may indicate more frequent use of these interior spaces compared to exterior areas (for example, the contrast in the exterior and interior spaces of the lower occupation at KPS-75). However, it also is possible that interior spaces at rockshelters might reflect colder month occupations and exterior spaces those of warmer months. Such a scenario might incorporate variation in the duration of a site visit (e.g., possibly longer visits during colder months) and/or different ranges of activities carried out during each season with those characterizing the interior rockshelter spaces being ones that generated discard of greater amounts of lithics (e.g., see Barton and Riel-Salvatore, 2014). The exterior middle (Qalkhan) occupation at KPS-75, on the other hand, is an open-air context, and the high density of lithics suggests quite intensive use of this locale during this period of the Early Epipaleolithic.

A second noteworthy contrast in lithic densities can be seen in the relatively low lithic densities found in the rockshelter contexts at Yutil al-Hasa and Tor Sageer, and in the exterior lower (Nebekian) occupation at KPS-75 (see Table 1). The much smaller numbers of lithic artifacts at these sites/contexts suggests that their long-term use and reuse was quite different from the other occupation contexts at KPS-75 and Tor at-Tareeq. One explanation may be that these low lithic density signatures reflect a very limited set of activities, that is, perhaps they were repeatedly used as task camps of some sort. On the other hand, these sites as persistent places during these occupations may simply not have been often used, or in the case of the interior and exterior lower KPS-75 occupations (Nebekian), the exterior space may have been used in a limited fashion while most activities occurred within the rockshelter itself. Given that the composition of the lithic assemblages of the low density occupations are similar to those of the high density occupations, infrequent use may be the most parsimonious explanation (see al-

Nahar and Olszewski, this volume, for a more detailed discussion of the aspect of mobility as measured by artifact densities, compositions, and ratios).

The use of density of artifacts in layers at sites, however, is a relatively coarse measure. Chatters (1987), for example, uses hearth discreteness, tool assemblage diversity, and sizes of fire-crack rock, among other measures, to consider activities and patterning over time, while Bamforth et al. (2005) and Bailey and Galanidou (2009) examine the distribution of hearths over time, their reuse (or not), and the vertical clustering of artifacts in particular places within caves. Bailey and Galanidou (2009) also calculate rates of sediment accumulation (which impacts artifact density) for the different layers, although this requires a substantial set of radiocarbon dates for each layer at each site.

For the Hasa region sites, many of these more refined measures of examining long term patterning at persistent places with their cumulative palimpsests is not possible with the data at hand. Only Tor at-Tareeq, for example, yielded hearths, so that this is the only site in which their distribution and/or the artifacts associated with them (or not) can be examined (see below). Obtaining organic materials for radiocarbon dating is notoriously difficult at most Levantine sites, and this was the case also for the Hasa region sites. Thus, while there are some dates for the Early Epipaleolithic layers at Yutil at-Hasa and Tor at-Tareeq, these dates are by no means numerous (2 from Area C, 1 from Area F at Yutil al-Hasa; 1 from Area A, 3 from Area B, 2 from Area C at Tor at-Tareeq) nor are all layers dated (e.g., the upper occupation at Tor at-Tareeq has no dates). Determining rates of sediment accumulation is thus not feasible. Moreover, preliminary examination of the distribution of point-provenienced artifacts (>25 mm) within layers at the sites does not indicate any particular vertical distributional patterning. That is, artifacts are scattered more or less continuously throughout each of the layers. Perhaps the closest measure of lithic spatial patterning for the Hasa sites is the observation that endscrapers tend to be somewhat more frequent in open-air spaces, while burins are somewhat more frequent with rockshelter spaces (see al-Nahar and Olszewski, this volume). This is, however, also a relatively coarse measure for activity distributions.

The hearths from Tor at-Tareeq are all within the lower deposits attributed to the Nebekian occupation of the site. A total of eight hearths were recorded during three different excavation seasons by two different excavation projects (Clark et al., 1987; Neeley et al., 1997; Olszewski and al-Nahar, 2014), but they likely represent only six individual hearths (Table 2).

All are very informal in construction, usually being just a pit with some fire-cracked rock (Figure 3). Hearth sizes are variable (see Table 2), with the deepest being 20 cm, and the largest being 90 cm in diameter (but with a depth of only 5 cm). For the most part, they appear to represent short-term individual events of use rather than reuse over time that results in the eventual extension of the spatial dimensions of each hearth (e.g., Chatters, 1987: 346), although this might have been the case for the 90 cm hearth in Step C.

Other potential long-term patterning that could be used to examine use of space and/or activities is the spatial distribution of the hearths (e.g., Bailey and Galanidou, 2009; Bamforth et al., 2005). Several different excavations occurred at Tor at-Tareeq between 1984 and 2012 (Clark et al., 1987; Neeley et al., 1997, 2000; Olszewski and al-Nahar, 2014; Olszewski et al., 2000)(Figure 4). The 1984 excavations were a long North-South trench divided into several steps, each 1 m wide by 5 m long (Clark et al., 1987). Step A was the farthest uphill; followed by Step B, and then Step C (the site did not extend below this on the hillside). The 1992 excavations opened two 2 m x 2 m blocks (Neeley et al., 1997, 2000). Unit B was situated just east of Step B and Unit C was placed just west of Step C. The 2012 excavations opened up ten 1 m x 1m units (4 to the west of Step A and 6 to the east of Step A; Olszewski and al-Nahar, 2014). The North-South distance between hearths is about 11.5 m, and the maximum East-West distance is 3 m. The Area A and B hearths, however, are situated relatively close to each other, and the two Area C hearths are located near each other. There is also the matter of the vertical distribution of the hearths, with those from Area C being as much as 50 cm or more below those from Areas A and B at the site, suggesting that the Area C hearths represent site occupations most likely temporally removed from those in Areas A and B, despite the overall similarity in dates.

The spatial placements of the hearths at Tor at-Tareeq, then, clearly indicate that each hearth is a discrete feature. They may have been placed to avoid earlier, still visible hearths from previous occupations (e.g., as discussed in Bailey and Galanidou, 2009). As there is no discernible midden area(s), it is not possible to assess whether discrete hearth placement also was influenced by avoiding midden areas (e.g., as in Bamforth et al., 2005). The overall patterning of the hearth distribution currently suggests independent, relatively short-term episodes of site use.

Because persistent places represent repeated use of place over time that results in time-averaged, cumulative palimpsests (Bailey, 2007; Lucas, 2012; Stern, 1994), their signatures are

frequently those of long-term trends rather than discrete occupations/activities (e.g., Barton and Riel-Salvatore, 2014). As such, they may include both longer-duration and ephemeral visits.

3.2. Ephemeral Places

The notion of ephemeral implies just the briefest of stays, whether a few hours or a few days. Such occupations are unlikely to generate large amounts of cultural materials because the range of activities over brief durations is most probably limited. Tasks, for example, might include one of the following: killing and butchering an animal, gathering a particular plant food, re-gearing some tools while passing the time, cooking a meal, reducing a core for blanks, and simply spending the night. In most of the archaeological record, then, truly ephemeral sites will not be visible due to issues of methodology, visibility, and scale. That is, ephemeral sites are part of spatial palimpsests (as are persistent places), activities distributed across landscapes, but usually with low resolution and/or the loss of materials due to natural taphonomic processes, which, in turn, affects their visibility (Bailey 2007: 205).

As noted above, traditional site survey methodology often does not record light scatters of artifacts as sites. Nor do such surveys usually provide 100% coverage of regions, so that many sites (dense or light) are not part of the resulting database. Even if light scatters are noted, their visibility with respect to attribution to specific chronological periods is not possible when so-called diagnostic elements are lacking. Thus, ephemeral sites with nondiagnostic flakes, blades, cores, and even some types of tools that are common to many different time periods (e.g., notch/denticulates, retouched pieces, and even endscrapers) may be a record of either high mobility or of logistical camps, but cannot be used to establish the settlement patterns of particular time periods. They are thus invisible in practical terms, meaning that descriptions of most archaeological settlement systems are incomplete (e.g., what Dewar and McBride [1992] call “remnant settlement patterns”). Such incompleteness could result in a misleading impression of the sites that are recorded (the dense spots in the landscape) because it places the burden of judging mobility and group size on locales that were usually much more than ephemeral places.

3.2.1. Wadi al-Hasa Region Archaeological Data

While ephemeral sites might generally be invisible over much of the landscape, there may be some opportunities to discover inklings of them in the time-averaged deposits at

persistent places. In these cases, it is necessary to have so-called temporally diagnostic artifacts, which can partially pinpoint brief use of place. In the context of the Early Epipaleolithic sites in the Wadi al-Hasa region, it is not possible to unravel ephemeral visits of Early Epipaleolithic groups to these sites, but the principle can be seen in the very small quantities of diagnostics from the Middle and Late Epipaleolithic, as well as the Pre-Pottery Neolithic/Yarmoukian, at the Hasa region sites.

Table 3 gives an overview of likely ephemeral visits by these later period groups. One of the reasons why it is possible to give some credence to this perspective is that the overall lithic assemblage characteristics for these later period groups are not found in the time-averaged deposits of the occupations in which these diagnostics appear. Thus, for example, Late Epipaleolithic (Early Natufian) lithic assemblages in the Hasa region are characterized by the use of primarily chalcedonous/glossy grey stone raw material which is highly distinctive (Olszewski and al-Nahar, 2006; Olszewski and Schurmans, 2007). The Helwan lunates at Tor at-Tareeq and KPS-75 are made of this material but there are no other artifacts in this material at these two sites. Similarly, the Pre-Pottery Neolithic period is characterized by naviform blade cores and blades produced from these cores. While Pre-Pottery Neolithic types of arrowheads are found at KPS-75 and Tor at-Tareeq, the assemblages from these sites do not yield naviform technology, other types of Neolithic tools such as sickle blades, or other types of Pre-Pottery Neolithic lithics.

4. Discussion

The persistent places recorded at Tor Sageer, Yutil al-Hasa, Tor at-Tareeq, and KPS-75 during the Early Epipaleolithic period in the Hasa region are present in part because of the Pleistocene wetlands that characterized many areas of the eastern Levant. Wetlands, generally speaking, are attractive because of the wide diversity of resources contained within and nearby them, a factor that has influenced hunter-gatherer-forager settlement patterns world-wide, as well as throughout time (Nicholas 1998). However, wetlands is a term that itself incorporates a diversity of contexts ranging from lakes and ponds to marshes and swamps to estuaries. Each of these has its own set of available resources and a great potential to result in differing settlement strategies on the part of hunter-gatherer-forager groups. In the case of the Hasa region, earlier interpretations suggested that the eastern Hasa basin may have been a shallow lake at some times

and marshlands at other times (Schuldenrein and Clark, 2001; Moumani et al., 2003), with downstream areas as ponds and marshes, while the Kerak Plateau in the vicinity of KPS-75 had a playa. However, recent geological research in the Hasa region indicates that the wetlands within the drainage system were in-stream wetlands rather than lakes, ponds, or marshes (Winer 2010).

In order to ascertain the productivity potential of the Hasa region wetlands, it is necessary to understand what their main constituents were, for example, as reported in Ramsey and Rosen (this volume), sites such as Yutil al-Hasa and Tor Sageer demonstrate an emphasis on riparian resources (dicots) which were supplemented by use of sedges and reeds. Sedges have edible parts, as well as parts that can be used in weaving (baskets, mats) or for making shafts onto which microliths could be hafted to create arrows and cutting tools (Nicholas 1998). Beyond this, one might expect a substantial year-round animal biomass (of non-migratory species) due to the presence of freshwater in an otherwise xeric landscape. Such water sources also would attract birds. An increased presence of mammalian fauna at these well-watered spots possibly could result in faunal light-use patterns often interpreted as indicating higher levels of mobility (see Munro et al., this volume).

As attractive as wetlands may have been, however, one cannot assume that hunter-gatherer-forager use of them was geared toward settlement patterns that more closely resembled logistical rather than residential systems. This is because of at least three potentially difficult aspects of the archaeological record, which result in remnant settlement patterns (Dewar and McBride, 1992) rather than “complete” settlement patterning. First, as noted above, most ephemeral sites (at least some of which may be potentially task-related), as part of the spatial palimpsest across the landscape, are missing due to recognition and/or recording issues. Second, despite large-scale surveys to record prehistoric sites in regions such as the Hasa area, most of these do not have the aerial coverage of the landscape likely travelled over and used by prehistoric groups (see Byrd et al., this volume), so that the larger landscape picture also is incomplete. Finally, at the persistent places, it is the time-averaged uses of place that are most frequently recorded, not individual events (but see discussion of the Tor at-Tareeq hearths above).

Palimpsest deposits at the Hasa region sites therefore mean that it is only in the most general sense that concepts such as “site type” or “site function” can be attributed to specific occupation deposits/layers (al-Nahar and Olszewski, this volume; but see Maher et al., this

volume; Macdonald et al., this volume). What these concepts yield for the purposes of interpretive value are the accumulated and combined behaviors that accrued over many generations of human lives; they are geological scale time-averaged behaviors (Stern, 1994; Lucas, 2012). It thus could be that at some points in time during the long Early Epipaleolithic framework, one or more of these four Hasa region sites served as a logistical basecamp with task-camps at ephemeral sites in the landscape. At other points in time, in the time-averaged deposits, one or more of these sites could have been a task camp or locale for an ephemeral visit. Attempting to apply the notion of higher (residential) or lower (logistical) levels of mobility to such deposits thus faces a currently largely unresolvable conundrum. The aerial size of the site, for example, possibly might suggest overall group size, although this is problematic in the context of time-averaging. Moreover, given that duration of each visit cannot be determined, there is no reason not to expect that group size also might have varied from visit to visit, perhaps in substantial ways. How often (every season? some seasons? yearly? once a decade?) the persistent places in the Hasa region were visited is also a matter of uncertainty because absolute dates provide overall temporal frameworks and thus only archaeological contemporaneity of deposits and of sites. And, while aerial size of site should not be a guide for determining level of mobility, to a certain degree, neither should the composition of its lithic assemblage(s).

Lithic assemblage(s) are, at their most fundamental, a record of discard behavior at a site (e.g., Wandsnider, 1996; Holdaway et al., 2004). They also represent artifacts that were imported into places and reflect the absence of unknown numbers of items that were exported to other locales in the landscape (e.g., Turq et al., 2013). Most importantly, discard does not necessarily equate with the types of activities that occurred at the site within those time-averaged deposits because such discards can come about in the absence of the use of those pieces at a site. They could have been used elsewhere, carried to a new locale with the intention to be used, but then, for a variety of reasons, discarded prior to that use. Discard at locales, however, does serve a significant role, and that is to create (intentionally or unintentionally) a place in the landscape that is a source for stone. These can be in the traditional sense of “provisioning” places (e.g., Kuhn 1992) or more generically as locales in which older pieces can be picked up and repurposed (see articles in *Quaternary International* 361: The Origins of Recycling: A Paleolithic Perspective (2015)), although such older pieces need not be from different chronological periods.

The lithic signatures of each of the seven time-averaged deposits from the four Hasa region sites are thus expected to document variability in some specifics of the assemblages (see al-Nahar and Olszewski, this volume, for details) because they each reflect a combination of diverse individual events/activities at those locales (Binford, 1978; Holdaway and Wandsnider, 2006), quite probably mixing both short- and longer-term visits to these persistent places, as well as the effects of varying levels of artifact import and export. These assemblages thus document the history of the persistent place and show long-term trends, as is seen in the comparisons of lithic densities for the various site occupations (see Table 1) or the pattern of endscraper (open spaces) and burin (interior spaces) frequencies (see above; also al-Nahar and Olszewski, this volume). The contrasting history of use, for example, of the Yutil al-Hasa Area C and Tor Sageer rockshelters compared to the interior lower KPS-75 rockshelter occupation is one case in point. Similarly, the spatial distribution of the hearths at Tor at-Tareeq during the Nebekian occupation appears to document discrete, probably short-term events that are not superimposed on each other (see above). Such time-averaged deposits therefore have the great advantage of providing a diachronic perspective on site and landscape use at scales that are beyond the perception of the people who created that portion of the archaeological record (Stern, 2008: 368).

5. Conclusion

Sites such as Tor Sageer, Yutil al-Hasa, Tor at-Tareeq, and KPS-75 represent favored locales (persistent places) in the LGM eastern Levantine landscape. Each of these places was repeatedly visited, but the durations of each visit mostly cannot be determined because the contexts of the sites are time-averaged deposits which potentially even out differences between visits in both length of stay and diversity of activities. The archaeological names given to these deposits based on attributes often documented in their lithic assemblages are therefore, in every sense of the word, heuristic devices because they reflect accrued behaviors over generations of time rather than a sort of “paleoethnography.” Terms such as Nebekian and Qalkhan, which are applied to some of these Early Epipaleolithic eastern Levantine deposits, reflect long-term trends in manufacturing and use of some forms of microlithic tools, as well as macrolithic tools, and the removal of blanks (bladelets, blades, flakes) during core shaping and core use. However, the definitions of these assemblages generally show a lack of consistency from region to region in the frequencies of specific retouched tools, their attributes, and the technologies that formed part

of their assemblages, for example, the Qalkhan in the Hasa region does not match up with the Qalkhan from the Azraq region (Byrd and Garrard, 2013 vs. al-Nahar and Olszewski, this volume). This is to be expected because the history of use at each persistent place will differ just as the history of use of each geographic region will differ (Holdaway and Wandsnider, 2006), especially when other variables such as the particular type of wetlands and their potential biodiversity and biomass productivity are factored in.

Although time-averaging results in fewer opportunities to examine specific instances of residential or logistical mobility, and points in-between along this spectrum, it does allow for a long-term understanding of the concept of mobility across geographic space. In this sense, then, the Early Epipaleolithic archaeology of the Hasa region documents extremely light use of some locales, e.g., Yutil al-Hasa and Tor Sageer, and likely Tor at-Tareeq (based on hearth distribution and characteristics), which is suggestive of either limited focus activities that were consistently undertaken in these rockshelters and open-air site or many ephemeral visits to them during the Nebekian portion of the temporal framework. On the other hand, the greater lithic density profile for the interior rockshelter space (also Nebekian) at KPS-75 likely suggests that, in some cases, interior rockshelter spaces, with their concentrated cultural materials, reflect intensity of use (and might also indicate longer duration of use), and perhaps smaller group size more so than do many open-air spaces where activities were not as aerially constrained and more people potentially could be accommodated.

Finally, while it is certainly true that the Hasa region Early Epipaleolithic sites are small in aerial size, they do not necessarily represent examples of high levels of mobility akin to residential systems. Instead, viewed against the LGM xeric landscape that typified much of the eastern Levant, sites such as Tor Sageer, Yutil al-Hasa Areas C/F, Tor at-Tareeq, and KPS-75 were persistent places due in large part to the presence of wetlands resources. It may be that the number of people in this landscape was rarely large, especially in the sense of individuals who associated together on a regular, nearly daily basis, but one does not need to be a large group in order to participate in lengthier stays in favorable habitats. Their light use of faunal resources (see Munro et al., this volume) thus may merely reflect the number of visits to the Hasa region rather than level of mobility or even group size.

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Figure Captions:

Figure 1. Map showing location of the Wadi al-Hasa region sites.

Figure 2. The four Wadi al-Hasa region sites: A) Tor Sageer; B) Yutil al-Hasa; C) KPS-75; and D) Tor at-Tareeq.

Figure 3. The Feature 2 hearth from the 2012 excavations at Tor at-Tareeq.

Figure 4. Excavation units at Tor at-Tareeq (dimensions are discussed in the text). Squares excavated in 2000 did not yield Early Epipaleolithic hearths. Ovals show the location of the hearths found in 1984, 1992, and 2012. Boundaries of the 1984 and 1992 excavations are approximate due to slumping.

Figure 1

Figure 2

Figure 3

Figure 4

Table 1. Lithic Artifact Density at Hasa Region Sites.

Site Occupation	Density of Lithics*	Context
KPS-75 ext. upper	2792/m ³	open air in front of rockshelter
KPS-75 ext. middle	5085/m ³	open air in front of rockshelter
KPS-75 ext. lower	960/m ³	open air in front of rockshelter
KPS-75 int. lower	4560/m ³	rockshelter interior
Tor at-Tareeq upper	2818/m ³	open-air
Tor at-Tareeq lower	2755/m ³	open-air
Yutil al-Hasa	1160/m ³	rockshelter interior
Tor Sageer	1482/m ³	rockshelter interior

*lithics used for density calculations exclude shatter, small flakes, and small bladelets, which often are combined into the category of debris or chips and chunks;

densities are calculated using one representative 1 x 1 m unit for each site occupation (Tor Sageer: C4; Yutil al-Hasa: C2010-1; Tor at-Tareeq: L97; KPS-75: K7

[exterior lower and exterior upper]; KPS-75: L11 [exterior middle]; KPS-75: N4 [interior]).

Table 2. Hearth Features at Early Epipaleolithic Tor at-Tareeq*.

Hearth Location	Dimensions (L x W x D)	Age (cal BP); 95%	Comment
2012 Area A (west of trench): Fea 2	50 x 42 x 20 cm (complete)	no dates	feature completely excavated
2012 Area A (east of trench): Fea 3	50 x 20 x 13 cm (complete)	no dates	feature completely excavated
2012 Area A (east of trench, SW corner): Fea 4	? x 15 x 7 cm (partial)	no dates	same hearth as 1984 Step B Fea 3 and 1992 Unit B feature
1984 Step B (NW corner): Fea 3	30 x 20 x 12 cm (partial)	19,487 - 18,332 UA-4392	same hearth as 1992 Unit B feature and 2012 Area A Fea 4
1992 Unit B (NW corner)	10 x 40 x ? cm (partial)	20,811 - 19,491 Beta-57900	same hearth as 1984 Step B Fea 3 and 2012 Area A Fea 4
1984 Step B (NE corner): Fea 2	60 x 55 x 25 cm (partial)	20,266 - 18,271 UA-4394	extends into western wall of trench
1984 Step C (SE corner): Fea 4	50 x 30 x 14 cm (partial)	21,193 - 19,468 UA-4393	extends into eastern wall of trench
1984 Step C (eastern edge): Fea 5	90 x 50 x 5 cm (partial)	20,962 - 19,067 UA-4390	extends into eastern wall of trench

*Data from Neeley et al. (2000: 268-270) for 1984 and 1992 features; from Olszewski and al-Nahar (2014) for 2012 features. Dates calibrated using IntCal13, v4.2.4. Numbering of hearths overlaps due to different excavation seasons.

Table 3. Identifying Ephemeral Uses of Place.

Ephemeral Visit	Diagnostic Artifacts	Known Hasa Region Site Occupation
to KPS-75 during the Middle Epipaleolithic	6 wide lunates/trapezes	Area C upper deposits at Tor at-Tareeq
to Tor at-Tareeq during the Late Epipaleolithic	3 Helwan lunates	Tabaqa and Yutil al-Hasa Area D
to KPS-75 during the Late Epipaleolithic	9 Helwan lunates	Tabaqa and Yutil al-Hasa Area D
to Tor at-Tareeq during the Pre-Pottery Neolithic	5 Neolithic arrowheads	Khirbet al-Hammam, el-Hemmeh, and Abu Hudhud
to KPS-75 during the Pre-Pottery Neolithic	1 Neolithic arrowhead	Khirbet al-Hammam, el-Hemmeh, and Abu Hudhud