Handbook of Landscape Archaeology

Bruno David, Julian Thomas

Desert Landscapes in Archaeology: A Case Study from the Negev

Publication details

Steven A. Rosen
Published online on: 15 Dec 2008

How to cite :- Steven A. Rosen. 15 Dec 2008, Desert Landscapes in Archaeology: A Case Study from the Negev from: Handbook of Landscape Archaeology Routledge
Accessed on: 20 Jul 2023

PLEASE SCROLL DOWN FOR DOCUMENT

Full terms and conditions of use: https://www.routledgehandbooks.com/legal-notices/terms

This Document PDF may be used for research, teaching and private study purposes. Any substantial or systematic reproductions, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The publisher shall not be liable for an loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.
Harsh and extreme environments by definition, deserts pose special challenges to the humans living in and passing through them. In ancient times, they constituted barriers and borders, often delineating the edges of states and culture areas and offering refuge and isolation both to marginal persons and to societies on the periphery of larger polities. Although deserts are defined environmentally, sedentary societies have reified desert peoples, on the one hand exalting the exotic, autonomous, and romantic in deserts and their societies, and on the other, fearing and reviling them for their perceived barbarity. Deserts have served as the mythological crucible for all three monotheistic religions, and the inhabitants of the deserts have been the noble savages of historical writing since early times. The challenge of a landscape archaeology of deserts is in finding a balance between the reductionism of human ecology in an extreme environment (cf. Layton and Ucko 1999) and the mythological cultural perceptions imposed by Western society (Bender 1993) on desert societies, to understand desert cultural landscapes without reducing them to mechanistic adaptations. Although aridity is the primary defining characteristic, classifications of deserts have emphasized different parameters, usually drawn from physical geography or climatology. Thus, various indices, such as those devised by Köppen, Thornthwaite, Meigs and others (see summaries in Bruins and Berliner 1998; Evenari, Shanan, and Tadmor 1982: 29–31; Spellman 2000) based on relative measures of rainfall, evaporation, and temperature, have been used both to define aridity thresholds and to categorize different types of deserts (for example, hyperarid, arid, semiarid, subhumid). Depending on the specific parameters, the total dry lands constitute up to 33% of the world’s land surface (e.g., Bruins and Berliner 1998), making the study of human exploitation of deserts an important endeavor both for understanding the past and planning for the future.

Two primary factors determine desert formation. The desert belts of the subtropics, including the Saharo-Arabian deserts, those of Asia, the American Southwest, and southern Africa, and Australia, are the result of global atmospheric pressure systems, leaving the subtropic landmasses beneath long-term low pressure systems and reducing precipitation. Rainshadow deserts, such as those of the west coast of Chile and the Jordan Rift system, result from atmospheric pressure differentials caused by local or
regional topography (e.g., Amiran and Wilson 1973; Hills 1966; Spellman 2000). The basic landforms themselves are, more often than not, relicts of earlier environmental systems (e.g., Cook, Warren, and Goudie 1993).

In addition to these physical environmental approaches, desertification (the transformation of previously nondesert zones into deserts), has also focused on ecological and social factors, especially various forms of overexploitation of peripheral lands, affecting basic ecological balances and resulting in dynamic instabilities and environmental deterioration. Since such effects are rarely reflected in the indices described above, measures of ecological diversity, biomass, and economic productivity are usually employed to define and measure desertification (e.g., Blaikie and Brookfield 1987; Glantz 1994; Thomas and Middleton 1994; and references in all).

For archaeologists, a good working definition, based on social and economic attributes directly tied to climate and geography, is the nonpracticability of dry farming, that is, farming without irrigation systems. The standard threshold for wheat dry farming is the 250 mm isohyet (rainfall line) (Grigg 1974: 262), and somewhat lower for barley, defining subsistence levels of agriculture without irrigation.

The goal of this chapter is the presentation of a case study from the Negev, exploring some of the issues specific to landscape archaeology in the desert. Emphasis is placed on the difference between indigenous desert settlement, the adaptation to the desert, and what might be termed intrusive settlement, where the basic settlement system derives from some other cultural and environmental system.

**The Protohistoric Negev as a Case Study in Desert Landscape Archaeology**

**Environmental Background**

The Negev can be defined geographically (e.g., Danin 1983; Evenari, Shanan, and Tadmor 1982: 29-76; Orni and Efrat 1980: 15-34) both as the linkage between the Arabian Desert in the east and the Sinai and Saharan Deserts in the west, and as the transition from the Mediterranean and steppe zones in the north to the Saharo-Arabian true desert zone in the south (Figure 40.1). It comprises an elongate isosceles triangle with its apex in the base in the north running from the southeast corner of the Mediterranean Sea to roughly the middle of the Dead Sea. Its eastern edge is defined by the deep Syro-African Rift (Wadi Araba, the Arava Valley), extending from the Dead Sea to the Red Sea; the western edge is defined geographically by the transition from the highlands of the Central Negev to the plains of Central Sinai. A clear climatic gradient can be traced from north to south, reflected in yearly average rainfall which declines from ca. 200 mm/year in Beersheva in the northern Negev, to ca. 100 mm/year in the central Negev, and to ca. 25 mm/year in the Eilat region, a linear distance of only about 200 km. Similarly, phytogeographic zones shift from the Mediterranean zone, in the hills just north of Beersheva, to the steppic Irano-Turanian zone characteristic of the central Negev, and to the Saharo-Arabian zone in the southern Negev. Enclaves of tropical Sudano-Deccanian vegetation are found in the Rift valley, relicts surviving in microenvironments around natural springs. Local topography and distance from the Mediterranean also affect rainfall and vegetation patterns. Notably, virtually all rainfall originates in Mediterranean climatic systems and rains fall exclusively in the winter months; Indian Ocean summer monsoons rarely penetrate as far north as the Negev.

These physical aspects of the desert are crucial for understanding both long-term trends in human settlement, and for comprehending the specifics of each settlement system. Settlement in the Negev can be seen as a shifting mosaic, adapting to varying trends in social, technological, and environmental factors.

**Basic Themes in Landscape Archaeology in the Negev**

Two general patterns of landscape-cultural relations can be defined in the Negev, and perhaps for deserts in general. The first comprises the set of local or indigenous adaptations, seemingly more integrated and perhaps more consonant with local conditions, and the second, those imported from other areas, in the case of the Negev, especially the Mediterranean zone, and imposed on the desert landscape. In defining these ends of the landscape-culture continuum, one risks crude simplification in application to any specific cultural complex; however, as a starting point such an approach can provide critical insights into the nature and development of cultural landscapes in the desert.

Indigenous cultural landscapes in the Negev
Figure 40.1 Map of Negev and surrounding areas with phytogeographic zonation and culture areas.
1. Habitation sites are relatively small, tending to the extensive rather than intensive and reflecting the small size and the mobility of the human populations;

2. Sites and settlement systems are specifically adapted to local conditions, both in terms of raw materials and general construction and layout. Indigenous landscapes reflect corporate organization of space, with less evidence for private ownership. Mythological landscapes (cf. Bradley 2000: 13) integrate the natural environment with the constructed one;

3. Settlement and culture systems show long-term continuities, reflected in architecture, site placement, and material culture. This continuity is not to be confused with stasis (cf. David 2002: 1–9) but rather to be seen as process (cf. Hirsch 1995).

In contrast, imported landscapes tend to show contrasting patterns:

1. Sites are often (but not always) of a larger scale, reflecting greater economic input from outside the desert, capable of supporting larger and denser populations, usually sedentary;

2. Sites and landscapes reflect cultural perceptions deriving from other regions, for example, in exotic architectural types, road grids, and symbol systems. Adaptations to local conditions are secondary in terms of the conception of the features. Corporate ownership is not a standard feature of these landscapes;

3. Settlement systems tend to be episodic, depending on the long-term commitment of the donor society, rather than on the internal viability of the desert population.

Again, it is important to stress that particular societies will reflect these trends to greater or lesser degrees, depending on their specific historical circumstances. Chronologically, the younger the period or culture, the greater the impact of the external world on the desert systems, with the consequent blurring of the distinctiveness of these patterns over time.

**Culture and Landscape in the Proto-Historic Periods**

The archaeological record of the Negev extends both chopping tools scatters and surface hand axe concentrations in various locales. *In situ* sites from later periods of the Palaeolithic (Middle, Upper, and Epi-) are common, reflecting early hunter-gatherer societies. Although the first hints of desert-sown contrasts can be traced between desert and Mediterranean zone Natufian settlements, distinctive desert adaptations appear most obviously in the Pre-Pottery Neolithic B (PPNB), well evident in the opposition between village agricultural societies in the north and the continued dominance of hunting gathering in the desert.

The Timnian culture complex (e.g., Kozloff 1972/3, 1981; Ronen 1970; Rothenberg 1979; Rothenberg and Glass 1992) dominates the central and southern Negev and Sinai, and southern Jordan in the period following the final collapse of the Pre-Pottery Neolithic B system ca. 6,900 cal B.C. It emerges roughly a millennium later in the evolution of a set of traits deriving especially from the adoption of domestic sheep and goat in the 7th millennium cal B.C. and includes pen-and-attached-room architecture, fields of tumuli and *nawamis* (cylindrical corbel arched burial structures), open air shrines and shrine complexes, and a specific material culture assemblage characterized especially by small arrowheads, transverse arrowheads, tabular scrapers and knives, simple blade technologies, a dominant *ad hoc* tools industry, and globular hолемou jar cooking vessels (Table 40.1: e.g., Henry 1992, 1995: 353–73; Rosen 2002). Although material culture evolves and transforms, and settlement distributions expand and contract over the course of the next three millennia, a general Timnian continuum can be traced through the end of the 3rd millennium cal B.C.

Archaeologically, the Timnian landscape can be divided roughly into three parts: (1) tribal space; (2) domestic space; and (3) ritual space. Tribal space comprises the general division of the desert landscape into tribal territories, presumably a form of corporate ownership or control, marked by the construction of fields of tumuli and *nawamis* (Figure 40.2; cf. Bar-Yosef et al. 1983; Haiman 1993; Rosen and Rosen 2003). To judge roughly by the general distribution of such sites, territories would have covered hundreds of square kilometers. The apparent formalization of tribal territoriality contrasts with the absence of any such markers in the preceding desert Pre-Pottery Neolithic B, notably a hunter-gatherer society. The construction of these mortuary monuments (and the often associated shrine complexes), in some cases achieving megalithic
and social organization higher than in preceding periods in the deep desert (cf. European megalithic systems [e.g., Kinnes 1982; Renfrew 1984]). Thus, the creation of landscapes of territoriality can be best attributed to the adoption of domestic herd animals and the ramifications of this basic shift in subsistence (cf. Ingold 1980). The porosity of the tribal landscape is reflected in the movement of material culture between different regions and the assumed seasonal movements of herds across tribal areas.

Domestic space is characterized by a new architectural type, the pen-and-attached-room complex or compound (Figure 40.3). Although room construction, consisting of shallow pits, stone foundations or lining, and organic superstructures, is similar to that of the preceding PPNB, the enclosures to which the rooms are attached are a new feature and have usually been interpreted as animal pens (e.g., Haiman 1992; Kozloff 1981; Rosen 2003), although their functions are probably multifaceted. Conceptually, the contrast between the PPNB clusters of pit in the succeeding Timnian suggests basic contrasts in the use of space. Speculating, the new spatial pattern perhaps reflects the centrality of the herds in Timnian society, either ideologically, or perhaps simply from the perspective of protection of the animals. Furthermore, the actual construction of functional distinctions and specific architectural areas also suggests increasing organizational complexity. The incorporation of tumuli, not necessarily mortuary in function in these contexts, into Timnian domestic architecture (Haiman 1992, 1993), at least in the later stages of the complex, adds to the contrast with preceding periods, again suggesting changes in conceptions of domestic space perhaps tied to evolving social norms and technologies (cf. Kent 1984).

Ritual space is reflected archaeologically in the construction of mortuary and shrine complexes. Fields of mortuary structures have already been mentioned above in defining tribal landscapes, but they require more elaboration as ritual space. *Nawamis* are apparently family tombs clustered

<table>
<thead>
<tr>
<th>Absolute Chronology</th>
<th>Culture</th>
<th>Material Culture</th>
<th>Features</th>
<th>Northern culture-chronology</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>terminal</td>
<td>(incised)</td>
<td>large cluster architecture</td>
<td>EBIV/MBI III</td>
</tr>
<tr>
<td>3000</td>
<td>late</td>
<td>(lunate)</td>
<td></td>
<td>II Early Bronze Age</td>
</tr>
<tr>
<td>4000</td>
<td>Timnian</td>
<td></td>
<td></td>
<td>I</td>
</tr>
<tr>
<td>5000</td>
<td>middle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6000</td>
<td>Early Pottery Neolithic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7000</td>
<td>Tuwailan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8000</td>
<td>PPNC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9000</td>
<td>PPNB</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
in central Sinai and dating to the early-middle 4th millennium cal b.c., and perhaps somewhat earlier. Entrances align with the setting sun, reflecting ideological aspects, while measurement of the specific azimuths of the openings indicate seasonal modalities of use (Bar-Yosef et al. 1983). The tumulus and shrine field at Ramat Saharonim, in the central Negev (Porat et al. 2006; Rosen and Rosen 2003; Rosen et al. 2007) dates to the late 6th and early 5th millennia cal b.c., somewhat earlier than the *nawamis* fields, but shows a similar clustered aspect, as do other tumulus fields in the Negev surveyed by Haiman (1993) and dated to the Early Bronze Age, the late 4th and early 3rd millennium cal b.c. All these mortuary fields project in the landscape, built on plateaus, cliffs, or ridges, and visible from a distance. Within the fields themselves, no (contemporary) domestic sites or even artifacts are found, suggesting activity distinctions, although the *nawamis* contain grave goods which are indeed domestic. Haiman (1993) has noted a geographical association between occupation sites and some tumulus fields, suggesting group are clear. The presence of tumuli in some Early Bronze Age occupation sites suggests either a different function, or different symbolic meaning in these particular contexts. Notably, analyses of the material contents of small rooms attached to tumuli within habitation sites indicate functional distinctions (Rosen 1997: 124–25).

Like the mortuary systems, and occasionally directly linked to them (e.g., Rosen and Rosen 2003), the shrine systems reflect a cultural landscape in marked contrast to the domestic sphere (Figure 40.4). Shrines appear in the desert in the second half of the 6th millennium cal b.c. (Avner 1998; Avner, Carmi, and Segal, 1994; Porat et al. 2006). They seem to continue in use for hundreds of years, and the construction of later cultic structures in association with them (Rosen et al. 2007; cf. Avner 1984, 1998 for cult continuities) implies long-term retention of cult status for many of the sites. The total absence of domestic assemblages from the cult complexes confirms the conceptual polarity vis-à-vis domestic structures, reflecting major differences in activities carried out in the different spheres. In particular, the episodic
Chapter 40: Desert Landscapes in Archaeology: A Case Study from the Negev

(B)

(C)
Figure 40.3 (A) Pen and room architecture from the Camel site (drawing by Helena Sokolskaya); (B) photograph after excavation with tumulus locus 49 in foreground, room locus 41 in center, and enclosure loci 31 and 34 on either side (S. Rosen); (C) site plan (drawing by Patrice Kaminsky).
implements, probably removed from the site after use, contrast with the intensive and longer term occupation of domestic sites with domestic discard patterns and accumulation of waste. Furthermore, the shrines are clearly and deliberately constructed to integrate and coordinate with both features in the landscape, and with astronomical phenomena (Figure 40.5). Many of the shrines from this period are generally aligned with the setting sun of the summer solstice (Rosen and Rosen 2003; Rosen et al. 2007; per contra Avner 2002), or in some cases with cardinal directions (Avner 1984). No less important, specific landscape alignments are also integrated into the construction of the shrines. The directionality and placement of Shrine 3 at Ramat Saharonim, directly facing an extinct black volcano, with the view set up between two low hills and the summer solstice setting sun offset just to the south, constructed landscapes obviously reflect complex cosmologies well integrated into local landscapes and features.

Contemporary imported landscapes exhibit important contrasts with those of the Timnian complex. The Ghassulian culture complex overlaps with only part of the Timnian chronologically but provides a good comparative perspective for viewing the different types of desert cultural landscapes. The expansion of this culture complex in the Chalcolithic period (ca. 4400–4000 cal B.C.) into the Beersheva Basin in the northern Negev is not merely the result of a climatic amelioration that permitted the expansion; it also reflects the expansion of a Mediterranean conception of landscape and settlement into the steppe zone. These villages, consisting of above-ground rectilinear stone architecture and subterranean rooms and galleries, were founded on primary stream terraces and
Landscape zonation in the Ghassulian takes a different form from that of the Timnian. Levy (1986, 1995) has suggested that the northern Negev landscape was one of hierarchically organized central villages with satellite sites, which he interprets as reflecting a chiefdom level of social organization. Thus, he envisages a patchwork of territories of a significantly lesser spatial order than that of the Timnian. Even rejecting Levy’s reconstructions (e.g., Gilead 1988, 1993), the sedentary landscape of the Ghassulian village system differed from that of the Timnian, especially in the permanence of the occupation sites and all that this implies. Beyond this basic contrast, a pastoral hinterland can also be defined for the Beersheva-Ghassulian horizon, most especially seen in the small encampments 20 km south of Beersheva in the Nahal Sekher area (e.g., Gilead and Goren 1986; Goren and Gilead 1988). Thus, where the indigenous Timnian landscape at its largest scale seems to be divided tribally into large regions, the Ghassulian shows both a and agricultural interior, and political or social distinctions between villages.

On a smaller scale, habitation sites are located exclusively along major drainages (Levy 1983), and floodwater farming seems to have been practiced primarily on wadi floodplains and low terraces (Rosen 1987; Rosen and Weiner 1994). Thus, within the agricultural interior, space can be divided into domestic building space, agricultural fields, and the interfluves, on which grazing and other activities probably occurred. In particular, the presence of a Chalcolithic cemetery at Mezad Aluf (Levy and Alon 1985), on the bluff across the wadi from the large village at Shiqmim, attaches mortuary ritual directly to central places, in contrast to at least some of the tumulus and nawamis fields, removed significantly from their habitation sites. In fact, the large-scale spatial distinction between cult and domestic as present in the Timnian is present only in the temple at Ein Gedi (Ussishkin 1980), in the Judean Desert, for the Ghassulian, and cult space for the most part seems to be incorporated into the settlements, as at Gilat (Alon and Levy 1989).
At this smallest scale of domestic landscape, or perhaps better, village landscape, the broad room architecture of Ghassulian villages is a clear import from earlier Late Neolithic architectures of the Mediterranean zone. The underground rooms and galleries at virtually all the primary village sites have been interpreted in various ways. Without entering the debate on their function(s), their integration into the village space indicates either that domestic functions such as storage (e.g., Gilead 1988), habitation (e.g., Perrot 1955), and sanctuary (Levy 1995: 240) were part and parcel of the village landscape, or that ritual and mortuary functions were also integrated into that landscape. Either way, the village landscape seems to reflect a broader range of more disparate functions than the domestic landscape of the Timnian, clearly a result of the fundamental differences between sedentary village and mobile pastoral lifeways.

Finally, the Ghassulian in the northern Negev is ultimately a settlement episode, with virtually no descendents in the vicinity. In the first centuries of the 4th millennium cal b.c., the village (Gilead 1994), and region is not resettled until the end of the millennium, well into the Early Bronze Age. In this context, it is worth noting that the Timnian complex extends through the Early Bronze Age and that Mediterranean Early Bronze Age urban societies expanded into the deep desert zone (e.g., Beit-Arieh 1986), even more so than the Ghassulian. Without detailing this expansion, this society, too, created its own cultural landscapes in the desert, one consisting of both a desert urban center at Arad (e.g., Amiran 1978; Amiran, Ilan, and Sebbane 1997; Finkelstein 1995), and far-flung trade outposts (Amiran, Ilan, and Sebbane 1973). Like the Ghassulian, it was short-lived.

**Conclusions**

In the succeeding millennia, with the development of sophisticated technologies of water management and the rise of states and empires, incursions into the desert increased both in number and amplitude. The hill fortresses and farming hamlets that dot the Iron Age landscape in the

---

**Figure 40.5** The solstice setting sun opposite Ramat Saharonim Shrine 4. Note the low hills on either side of the view with cliff walls of the Ramon Crater in the far background. Early Timnian (S. Rosen).
short-lived episode superimposed on the desert landscape. Similarly, the rise of desert urbanism, in the middle of the 1st millennium A.D., was based both on the expansion of the Roman Empire into the desert and the development of special irrigation technologies enabling the adoption of Mediterranean agricultural complexes into desert farming systems (e.g., Shershefsky 1991). These incursions into the desert recreated urban and village landscapes derived from the Mediterranean zone, especially evident not only in domestic architecture, such as the Iron Age pillared building or the Greek/Roman villa, but also in the imposition of a conceptually different order on the environment. Thus, the Roman/Byzantine classification of Shivta (Subeita) as a village, but Halutza (Elusa) as a city, derives from a Mediterranean perception of urban political hierarchy, with little relation to the actuality of desert settlement.

However, indigenous landscapes complement these imported landscapes in the form of tribal territories, local settlement systems, indigenous architectural forms, and the likely scheduling of seasonal movement through the settled zone. And with the economic dependence of pastoral nomadic societies on their settled cousins, these indigenous pastoral landscapes, too, collapsed with the decline in imperial fortunes.

Modern times show similar cultural landscape contrasts in the desert, the marked difference between modern government-sponsored Israeli settlements and the camps and villages of the Bedouin being a prime example. These contrasts and disputes reflect fundamental differences in the conception of ownership, struggles over control of resources, and general ethnic tensions, and all are reflected in perceptions of landscape.

Acknowledgments

I am grateful to Hagit Nol for her help organizing and reviewing the research for this paper. Isaac Gilead, Benajmin Saidel, and Yuval Yekutieli made comments on early drafts. Both Isaac Gilead and Benjamin Saidel graciously allowed me use of some of the illustrative materials. David Ilan discussed aspects of Chalcolithic mortuary behavior with me.

References


Cohen, R. 1980. The Iron Age fortresses in the central Negev. Bulletin of the American Schools of
Chapter 40: Desert Landscapes in Archaeology: A Case Study from the Negev


