

# DESERTIFICATION AND PASTORALISM: A HISTORICAL REVIEW OF PASTORAL NOMADISM IN THE NEGEV REGION

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## Summary

It is a common conception that desertification and the destruction of previously fertile and productive lands are often the result of pastoral nomad activities, in particular through overgrazing by goat and sheep herds. This idea stems primarily from recent observation of Bedouin activities in the Near East and North Africa, often motivated by economic and ideological agendas.

A critical analysis of the long-term history of the Negev over the past 8000 years, using archaeology as the primary tool of historical reconstruction, provides good perspectives to examine the relationships between pastoral nomadism and desertification. Episodes of desertification of one form or another can be seen at the end of the *Chalcolithic* period, in the middle of the Early Bronze Age, during the Iron Age, and at the end of Classical times. Detailed comparison of this sequence with periods of pastoral nomadic activity, most especially in the Early and Intermediate Bronze Ages and the Classical era, show no evidence for causal links between pastoral nomadism and desertification. Moreover, they clearly suggest that declines in pastoral nomadic presence in the desert are related primarily to changes in the sedentary infrastructures with which the nomadic

systems interacted. In this light, desertification can be seen as a factor independent of and adversely affecting pastoral nomadic adaptations.

## **1. Introduction**

In the traditional conception of the relationship between the Bedouin lifestyle and the desert, Bedouins have been characterized as both the sons and the fathers of the desert. Overgrazing by herds of the infamous black goat was hereby seen as a common and possibly primary cause of desertification. Although there can be little doubt that overgrazing may result in erosion and desertification, and that in the recent past Bedouin groups have engaged in such landscape destabilizing activities, historical analysis demonstrates that desertification goes far beyond overgrazing, and that there is little correlation between long term nomadic presence in peripheral areas and processes of desertification.

Briefly stated, in a historical context, it is impossible to discern a causal relationship between desertification and pastoral nomadic presence in the Negev. In fact, attributing desertification to the Bedouin society has a clear political overtone, and should be discarded as a default explanation for the deterioration and abandonment of agricultural systems.

## **2. Pastoral Nomadism**

From an ethnographic and historical viewpoint, pastoral nomadic societies are generally defined in apposition to sedentary agricultural societies. Though the political and economic variations in these societies are tremendous, they share an economic and ideological emphasis on the management of herd animals and some degree of seasonal mobility, being a direct result of the need to look for pastures and water sources for the herds. In these societies, agriculture is either of a lesser importance or only practiced for opportunistic reasons. Moreover, pastoral nomads usually occupy peripheral territories of only marginal value to farmers. Significantly, transhumant agro-pastoralism, in which shepherds migrate with herds away from their sedentary village bases, is generally not considered to be pastoral nomadism. This adaptation is nevertheless clearly a part of the general spectrum of behaviors from sedentary farming to mobile pastoralism.

Attempts to analyze pastoral nomadism as a general cultural phenomenon have shown that this activity is closely associated with segmented lineages—a hierarchical form of clan-based social organization—and with specific geographic patterns of seasonal migration, in clear contrast to what is observed with sedentary societies. Pastoral nomadic societies all share a basic flexibility of adaptation, which is most likely the result of an unstable and variable climate and environment, and of the risks inherent to animal husbandry as a primary objective of subsistence in those marginal environments.

Over the course of a lifetime, individual nomads may shift subsistence strategies significantly and adapt to sedentary farming, either a result of the accumulation of wealth or the loss of herds and poverty. Migration patterns may be altered due to short- and medium-term shifts in rainfall and vegetation patterns. Clearly, group and subgroup

affiliations may change according to the needs and opportunities of the moment. Over the longer term, shifts in tribal territories, changing political balances, and fluctuating markets may significantly affect group economic strategies, often blurring the lines between sedentary farming villages and settled pastoral tribes.

### 3. Land Use Change and Desertification in the Negev

#### 3.1. Physical Setting of the Negev

Although essentially a transition between the deserts of the Sinai Peninsula and northern Arabia, the specific physical geographic and geopolitical circumstances of the Negev constitute a well-defined subunit within the Saharo-Arabian arid zone. From a geographical viewpoint, the region is a triangle defined by the Arava Valley (Wadi Araba) in the east, the Beersheva Basin in the north, and a line stretching from the Mediterranean Sea around Gaza to the Gulf of Aqaba (Eilat) in the south (see Figure 1).

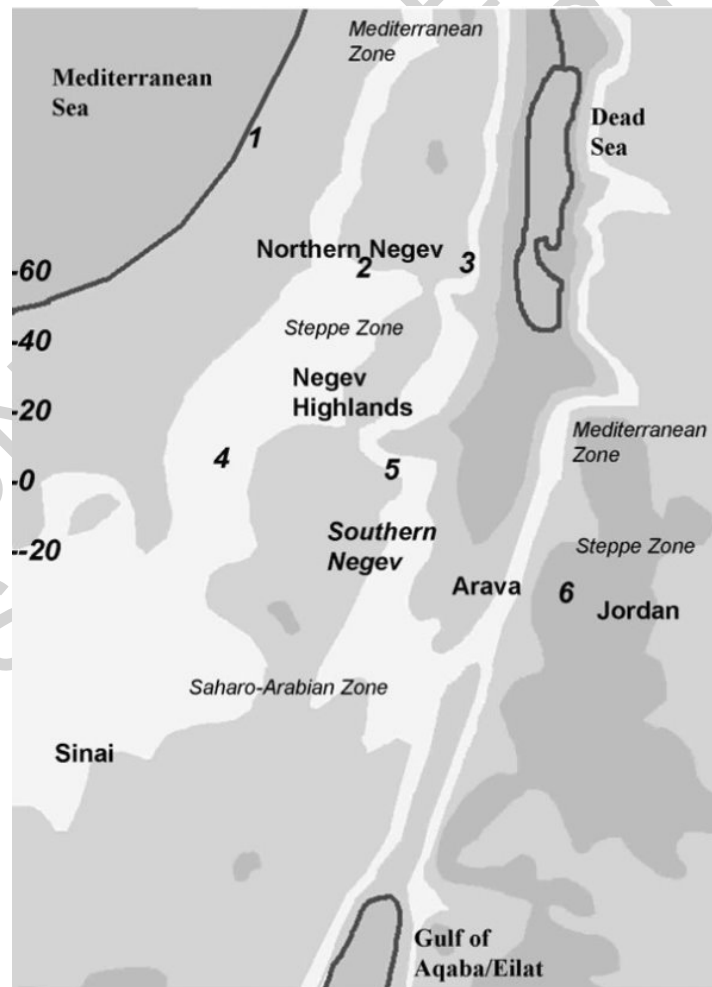


Figure 1. Location map of sites discussed in the text. 1. Gaza, 2. Beersheva, 3. Arad, 4. Kadesh Barnea/Ein el Qudeirat, 5. Avdat 6. Petra. (Latitudinal Israel Grid marks on left margin, for comparison to Figure 2)

The region, covering an area of 12 000 sq. km., forms the transition between the semi-arid edge of dry farming viability in the north and the hyper-arid region around the Red Sea in the south. It is comprised of four separate sub-regions: the northern Negev, the central Negev (also referred to as the Negev Highlands), the southern Negev, and Arava valley. Each of them shows distinctive landscapes, soils, geology, climate, and cultural adaptations.

Without entering into the details of each region, vegetation grades from an *Irano-Turanian* steppe in the northern Negev (mean precipitation approximately 200 mm/ year in the Beersheva area), to a degraded steppe in the Negev Highlands (average rainfall between 150 and 75 mm/year), degenerating to a sparse *Saharo-Arabian* vegetation in southern Negev (average rainfall 25-50 mm per year). The Arava is marked by a hyper-arid climate with pockets of tropical *Sudano-Deccan* vegetation fed by run-off from the highlands and springs along the Syrian-African Rift.

During the Early and Middle Holocene, the region experienced significant climatic fluctuations, with isohyets shifting as much as 50 km southwards, and then retreating northwards again. By late Holocene times the amplitude of these fluctuations declined significantly and by 2000 BC the desert environments typical of today's Negev seem to have been in place, with only minor fluctuations in more recent periods.

In the context of the shifting desert boundaries described above, a clear distinction must be made between desert and desertification. If deserts are basically defined on a physical geographical basis as arid environmental systems, desertification is usually viewed as the process of deterioration of previously productive (read agricultural) land to unproductive land. That is, whereas deserts are usually defined in physical geographical terms, desertification is a dynamic economic process, and one which may or may not be tied to accompanying physical processes. This distinction is crucial since it suggests that a range of political and economic factors, beyond direct landscape deterioration, may also play a role in desertification.

These factors are crucial in marginal lands where agricultural practices may require greater investment and a more complex infrastructure than in well-watered regions. External economic or political perturbations may undermine the basic viability of settlements in a desert periphery, with no connection whatsoever to environmental degradation, either climatically induced or a result of human over-exploitation.

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## Biographical Sketch

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