

## **Summary of Pastoralism and Pastoral Landscapes**

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### *Introduction*

The most important thing one needs to know in order to understand the complexity of pastoral landscapes, is that they are not the result of one monolithic type of pastoral land-use, but are palimpsests of a myriad of different pastoral strategies that can be localized or dispersed, intensified or moderate, seasonal or year-round, and that can be masked or enhanced by the effects of land-use from people engaged in other subsistence strategies. Also, for those interested in ancient pastoral landscapes, there is the added problem that one of the main deleterious effects of pastoralism is degradation of the natural vegetative cover, which in turn leads to increased erosion and deposition that, in effect, “erases” the signatures of pastoralism from the landscape. Therefore, much of what we know about land-use in traditional pastoralism comes from ethnographic, ethnoarchaeological, and historic sources. Additionally, detailed studies of pastoral production from the schools of agronomy and rangeland ecology have added scientific validity to some of the types of things other researchers had been noting in their studies of indigenous pastoral subsistence. What we know about ancient pastoral land-use has been, for the most part, inferred from archaeological and paleoenvironmental proxies.

### *Types of Pastoralism*

One can think of pastoralism as single subsistence strategy that encompasses a range of variation. Much like the Binfordian forager–collector continuum for hunter-gatherers, we might think of a nomadic–sedentary continuum for pastoralists. On one end would be fully sedentary people engaged in a mainly agricultural subsistence but who also keep some sorts of domestic herd animals. We would call them “agro-pastoralists”. They may occasionally take these animals out to pasture, but mainly provide food for them from part of their crop. People who have fairly permanent dwellings for part of the year but who move to a pasture with their herds in another part of the year, fall in the middle of the continuum, and practice what we would call “transhumance”. They may practice small scale horticulture around their more permanent dwellings, and also may leave a portion of their population at these dwellings while the rest move with the herds, but they rely a great deal on pastoral production for their subsistence. On the other end of the continuum are what we call “nomadic pastoralists”. These people are fully mobile and move year round with their herds. Pastoral subsistence is by far the largest component of their diet, but they also may rely on agricultural goods obtained from more sedentary people through barter, trade, or raiding as well as wild foods hunted or gathered while they are moving with their flocks.

### *Pastoral Signatures on the Landscape*

The footprint of pastoral land-use will vary as the type of pastoralism being practiced shifts along the nomadic–sedentary continuum. Of course the most obvious

change will be in the shape of the footprint from a highly localized, intensely affected pastoral catchment, to a highly dispersed and less intensely exploited zone. Interestingly, however, because nomadic pastoralism is thought of as a response to living in a marginal environment, even though its footprint may be more dispersed and less intense in general than would be an agro-pastoralist's footprint, the effect on vegetation and landscape degradation may actually be *more* intense. This is precisely because nomadic pastoralism is intensification of land-use in extremely sensitive marginal environments that have low thresholds and long rejuvenation times. More sedentary forms of pastoralism are generally practiced in more productive environments which are better able to recuperate from intense grazing. Therefore somewhat paradoxically, it is likely that effects of overgrazing will be felt first and hardest in the places with the fewest people. As stated above, overgrazing is directly linked to increased erosion and deposition which act to remove many of the traces of pastoralism that we could see archaeologically. This cycle makes it very difficult to find evidence for the extent and intensity of ancient nomadic pastoralism in just the same areas in which we want to study the effects of modern pastoralists on environmental degradation.

The most durable physical evidence for nomadic pastoralists in the Near East are circles of stones that once anchored brush corrals in conjunction with other stone outlined features that are the remains of temporary dwellings. The soil inside the circles has been found to have a unique chemical signature, especially greatly elevated phosphate and nitrogen levels, due to the large amounts of dung and urine that gets concentrated in them. For the same reasons, there are also high amounts of pollen and phytoliths in these

soils. Beyond these circular stone enclosures, one may also find evidence in rock art and graffiti left by ancient nomads, as well as cemeteries and shrines in very dispersed locations. In general, however, it is very difficult to build a picture of how intensely a given area was utilized by nomadic pastoralists at a given time in the past from archaeological data alone

On the other end of the continuum, it is easier to find evidence for intensity of pastoralism at more sedentary sites in the Near East. This has mainly been done through the analysis of faunal assemblages from major sites. The faunal record from ‘Ayn Ghazal has been especially amenable to this type of analysis. We can see trends in herd size, herd composition, and changes in the ratio between wild and domestic animal remains that indicate that people at ‘Ayn Ghazal and other early Neolithic sites were intensifying their reliance on domestic flocks and pastoral production through time. At ‘Ayn Ghazal this pastoral intensification combined with other types land-use intensification and the localized environmental degradation that resulted may have been the reason why the site was basically abandoned at the end of the Neolithic period.

#### *Dynamics of Pastoral Land-use in the Near East*

A very important consideration in assessing the impacts of pastoral land-use is accounting for the dynamic nature of pastoralism. This dynamic is multifaceted in that a changes recorded in the landscape can be due to a pastoral group shifting along the nomad—sedentary continuum in response to environmental, social, or political pressure, or they can be due to encroachment or receding of agricultural subsistence into or away

from more marginal areas and pushing or pulling pastoralists from that area, or they can be due to natural changes in the climate and/or environment that alter the way in which a given level of pastoral intensity affects the landscape. Part of the reason that pastoralism has been practiced for so long, and why it has been especially successful in more marginal environments, is its malleable and resilient nature. Managing herds is very different than managing farm plots. Because herds are mobile, and herd animals are fairly long lived (compared to annual crops), it is easier to hedge risk in pastoral production than in agriculture. In dry years when there is little pasture, herds can be kept small and mobile, and intensified use of secondary food products (from milk or blood) can help glean much more calories from the environment than would have been otherwise available. In wet years with plentiful pasture, herd size can be allowed to increase, and meat harvested from the flocks can play a more important part in the diet. Pastoralists can also change the composition of their flocks, especially by varying the ratio of goats to sheep. Goats are better at browsing and can therefore exploit more plant resources than sheep, which are mainly grazers. However, sheep are preferred both for their meat and milk, but also for their wool. In addition, pack animals, such as donkeys and camels can also support increased pastoral production because they can be used to transport water for flocks into areas of pasture far from permanent water and allowing more prolonged use of these remote resource patches. These pack animals can also help to extend the range of pastoral wanderings in general, and camel especially can become so important as to become a main herd animal in their own right.

## *Conclusion*

In general, the issue of pastoral impacts on the environment is at once very simple and totally unclear. One would be quite correct to state that pastoral land-use can have serious harmful impacts on the landscape, but this is not always the case. Some very sensitive marginal environments have supported sustained pastoral exploitation for very long periods of time. Poor policy and management decisions emplaced on pastoral peoples by modern states is acting to upset many of the traditional systems of pastoral land-tenure and careful territorial buffering that have been used for centuries as ways of reducing the impacts of intensive pastoralism in these areas. It is therefore more important than ever to find evidence of ancient pastoralists and the effects of different types of pastoral land-use on the ancient landscapes. This evidence can help corroborate the kinds of things we are learning from modern traditional pastoralists, and help us learn to mitigate the kinds of degradation we are noticing in marginal rangelands today.