Using Archaeology for ‘Future Proofing’ East African Landscapes
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Eastern Africa is a mosaic of diverse landscapes and habitats, each of which is associated with an array of different values and perceptions by different users and observers. These categories of value can range from various ‘natural’ indexes, through different assessments of agro-pastoral potential to ideas concerning the cultural and/or historical significance of these landscapes to different constituencies. Until recently, however, most policies directed toward their management and protection have been driven by a restricted set of ‘environmental narratives’. Underlying these was the assumption that pre-colonial indigenous agriculture, pastoralism and hunting were wasteful practices that had led, over time, to environmental degradation (e.g. Stump, in press). Additionally, surviving areas of high biodiversity and/or dense concentrations of wildlife were believed to represent the remnants of ‘pristine’ environments barely touched by human activities and from which humans had to be excluded if their long-term survival was to be ensured. In contrast, more recent research has highlighted the complex and contextually specific interplay between natural and anthropogenic forces in the shaping of landscapes, and the values attributed to them by different interest groups and communities (e.g. Beinart & McGregor 2003; Shetler 2007). In turn, these developments have encouraged a shift in management strategies toward protected areas, with new emphasis being placed on the importance of community-based conservation, pro-poor tourism and the significance of indigenous knowledge systems (e.g. Adams & Mulligan 2003).

Fundamental though such shifts in thinking have been, many questions still remain, especially how the landscape aesthetics of local populations and the cultural and historical values they attach to such places diverge from those that continue to be imposed by national governments and international conservation bodies. Moreover, while it is undeniable that human impacts on the environment have intensified over the last few centuries, as have the effects of global climate change, it is often difficult to assess claims about the current ‘health’ of a particular ecosystem, its relative ‘resilience’, evidence for ‘degradation’ or, more generally, its ‘quality’, since the relevant observational data on which such statements are based are either lacking, insufficiently detailed, or of insufficient time depth to allow accurate assessment (e.g. Lane 2009). Specifically, because different landscape processes operate at variable temporal scales, in some cases over hundreds or even thousands of years, observations over comparatively short periods (c. <50 years) rarely capture the full suite of landscape responses over the course of a particular ecological cycle that encompasses periods of abundance and contraction. In other words, without some knowledge of the interplay of natural and anthropogenic processes further back in time it is difficult to judge whether observations made in the recent past reflect actual evidence, say, for environmental damage arising from human activities, or simply capture the point in a longer ecological cycle when conditions deteriorate prior to a period of recovery.

Archaeology and other cognate fields including palaeoecology and environmental history, have considerable potential to fill these knowledge gaps, and so can make important contributions not just to current debates on how societies respond to climate change, but also to planning for more sustainable systems of future land use and environmental conservation. In some cases, such data on the long-term historical ecology of a landscape can assist with the restoration of particular habitats. For the last six years, and funded initially by a Marie Curie Excellence Grant from the European Union, the Historical Ecologies of East African Landscapes (HEEAL) project at the University of York has been attempting to do just that by combining archaeological, geoarchaeological, bioarchaeological and historical data with ecological models (Lane 2010). The overall temporal focus has been on the last two thousand years, investigated through a series of more temporally constrained studies on: the introduction, expansion and intensification of agriculture in the Pare Mountains of Northern Tanzania from c. 2000 BP; the transformation of pastoralist economies in north-central Kenya during the second millennium AD; and, the expansion of caravan trade between the coast and interior from the mid-nineteenth century associated with escalating global demand for elephant ivory (Coutu 2011) and changing regional dynamics of slavery and slave trading.

While the full results of these different studies have yet to be published, they have greatly informed understanding of
the longer term historical ecologies of these different landscapes, and both individually and collectively challenge some long-held assumptions about the environmental ‘impacts’ of East Africa’s pre-colonial societies and whether it is at all meaningful to try to disaggregate ‘anthropogenic’ processes from ‘natural’ ones when studying environmental change. For example, it has long been thought that the Pare Mountains in Tanzania (which are renowned in conservation circles for the high levels of species endemism found there), were densely forested until the last few centuries. A lack of pollen studies coupled with inferences drawn by the first European observers in the late nineteenth century that they were witnessing large scale deforestation as a result of expanding agriculture, pastoralism and iron smelting are the origins of this assumption. Nonetheless, most conservation initiatives here have been designed on the basis of this model of Pare’s ecological history. Research by the HEEAL team challenges this view. Specifically, a combination of geoarchaeological research on the chemical and physical composition, coarse constituents and accumulation rates of colluvial sediments, archaeological finds and recent pollen studies (by the York Institute for Tropical Ecosystems) indicates that the forest was opened up almost two thousand years ago, initiating soil erosion. By c. AD 1000 comprised a mosaic of forest, scrub, grassland and cultivated areas. Around five hundred years ago agricultural practices began to be intensified, resulting in the construction of stone terraces and a complex of irrigation furrows and small dams (despite the fact that rain-fed agriculture is perfectly viable without the need for irrigation).

While an expanding trade network and political reorganisation, for which there is extensive oral historical evidence, may have triggered demand for agricultural surplus, another possible explanation for the construction of field terraces may have been to act as sediment traps and so combat the loss of soil nutrients through erosion. Whatever the exact cause (and investigating this, and also the ecological consequences of the intensification of iron smelting around the same date are now the focus of the latest research), the evidence suggests that deforestation began much earlier and was a long drawn out process. While this certainly had unintended negative environmental consequences (such as soil erosion), the land was managed in such a way as to allow for population and economic growth. Moreover, far from being residual pockets of the ‘natural’ climax vegetation the remaining forest areas (many of which are designated as sacred spaces by the Pare) have long been utilised by human populations – which would suggest that ensuring their future conservation (and all the non-plant species they support) should begin by asking not ‘how have humans damaged these habitats?’, but instead ‘how has a human presence shaped these habitats so that they still retain high biodiversity after thousands of years of use?’ As the work of the HEEAL project suggests, landscape archaeologists and historical ecologists are critical to answering such questions and their research results can play an important part in planning future, sustainable land use and conservation practices – not just in East Africa but globally.

References

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