

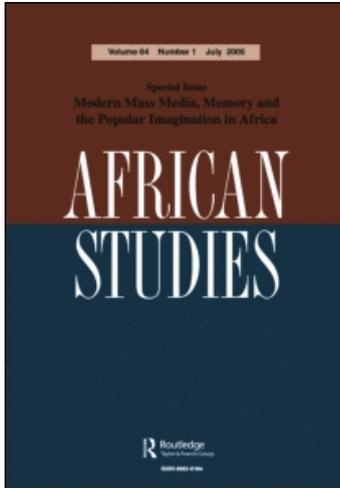
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### A View from the East: An Interdisciplinary 'Historical Ecology' Approach to a Contemporary Agricultural Landscape in Northwest Kenya

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# A View from the East: An Interdisciplinary 'Historical Ecology' Approach to a Contemporary Agricultural Landscape in Northwest Kenya

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*This article draws on the author's own research into an agricultural landscape in Pokot, north-west Kenya, to suggest new directions for interdisciplinary historical and archaeological research in southern Africa. In particular the author identifies a landscape-based historical ecology approach as potentially useful and demonstrates its application with reference to the Pokot study.*

**Key words:** historical ecology, eastern Africa, landscape, archaeology, Pokot

The 500 Year Initiative (FYI) appears, in part, to be an attempt to breach a significant divide that has grown between the study of history and archaeology in southern Africa (Behrens and Swanepoel 2008; Bonner et al. 2008). As an archaeologist based in eastern Africa, this divide is initially a little perplexing because for many decades there has been a thriving, if small, community of eastern African researchers who have consistently aimed to bridge any such divide by concerning themselves with studies of the last 500 to 1,000 years and making use of a wide range of archaeological, oral historical and palaeoenvironmental data. This interdisciplinary long *durée* approach to recent history is particularly apparent in the work of archaeologists such as John Sutton who focused on the development of later Iron Age farming and herding communities in Kenya and Tanzania (1973, 1978, 1984, 1985, 1986, 1987, 1993a, 1993b, 1998, 2000, 2004); Robert Soper who has looked at Marakwet agriculture in Kenya and at the vast Nyanga agricultural complex in Eastern Zimbabwe (1983, 1996, 2000, 2002), in much work conducted in the interlacaustrine region (Connah 1996; Reid 2003; Reid and Robertshaw 1987; Robertshaw 1994; Sutton 1990, 1993c), the southern Sudan (Mack and Robertshaw 1982) and more recently in the work of Paul Lane and others on communities and environments in Laikipia, central Kenya and Kondoa central Tanzania (Causey and Lane 2005; Lane et al. 2001, In press; Taylor et al. 2005). Moreover, a wide range of historians, anthropologists and geographers have conducted research with a similar approach

(if not methodology) (Anderson 1988, 1989, 2002; Lamphear 1976; Spear 1997; Spear and Waller 1993; Spencer 1998; Johnson and Anderson 1988).

Much of this eastern African research has avoided a descent into preoccupations with ethnicity and the origins of certain archaeological sites and traditions often focusing instead on the technical development and operation of particular human ecosystems, most notably, political-economies, intensive agriculture, specialised herding and more recently complex ecological dynamics. These studies have also tended to baulk common trends derived from the implicitly neo-evolutionist archaeology of the 1970s and 1980s by focusing not on the 'major transitions' in human pre-history (as specified by western thought), such as the origins of farming, the origins of metal working, and the development of urbanism and processes of state formation (Stahl 1999, 2005). But rather on the development of later communities who, while not the 'first' to achieve some perceived milestone, could none the less be confidently linked to modern-day peoples in a more direct historical manner, thus producing a long-term record of continuity and change that may have some resonance in the present.

A great deal of this work has been associated with the British Institute in eastern Africa (BIEA) and its journal *Azania* which has, since its first edition in 1964, encouraged the integrated publication of precolonial history and later Iron Age archaeology. The major threads of this research trend are encapsulated in a number of significant, if not well known, volumes, such as the special edition of *Azania* (1989) on intensive farming systems and its logical development into the collection of papers *Islands of Intensive Agriculture in Eastern Africa* (2004) edited by Matts Widgren and John Sutton and in volumes such as *Being Maasai* (Spear and Waller 1993), and *The Ecology of Survival* (Johnson and Anderson 1988), each of which involve contributions from a range of disciplinary backgrounds and take a long-term approach to the development of eastern African communities, economies and environments. Though diverse, I believe that in these various research threads we can see the crystallisation of a quite different approach to recent pre-history than has often been employed elsewhere in Africa.

### **Landscapes and 'Historical Ecology'**

Although rarely explicitly stated, a common theme of much of this eastern African research has been a focus on broad landscapes within which various socio-economic systems operate. Indeed, a number of studies from a wide range of disciplinary backgrounds can be singled out for having a particularly 'rooted' landscape approach. For example, the Late Iron Age agricultural communities of Engaruka in Northern Tanzania (Robertshaw 1986; Sutton 1998, 2000, 2004; Stump 2003, 2006a, 2006b) and Nyanga in Eastern Zimbabwe (Soper 1996, 2000) have been studied as 'agricultural landscapes' within which a range of landscape features have been analysed in order to understand complex agronomies. Lane's work in Laikipia, central Kenya (Causey and Lane 2005; Lane In press;

Taylor et al. 2005) and Kondoa central Tanzania (Lane et al. 2001) takes an expansive, landscape based approach to reconstructing past human environment relations, particularly changes in settlement, soils and vegetation. Similarly, Anderson's (1988, 1989, 2002) historical work on Baringo implicitly conceives of the Baringo basin as a meaningful landscape that has undergone various changes in terms of land-use practices since the nineteenth century, including a particular focus on colonial land-use policies. This focus is quite different from common archaeological concerns with site types, assemblages/traditions, the transition from one of these to another, and their corresponding ethnic associations. In its historical and anthropological forms, while maintaining an 'ethnolinguistic' base, this research has tended to emphasise ethnic and economic fluidity among non-centrally organised people (Anderson 2002; Davies 2009a, In prep; Lamphear 1976; Spear 1993, 1997; Spencer 1998; Waller 1988), in contrast to the more static ethnic-group oral-histories reconstructed for more centrally organised polities elsewhere. Moreover, I believe that within this body of research we can see the coalescence of a relatively unique eastern African perspective that over the last few years and among a small group of researchers has begun to align itself with the emerging interdisciplinary perspective known as 'historical ecology' (Balée 1998a; Balée and Erickson 2006; Crumley 1994a; Davies 2009a; Stump 2006a).<sup>2</sup>

Historical ecology might be best thought of as a variety of critical perspectives that aim to link both humanistic and positivistic approaches to human environments while avoiding many of the problematic assumptions inherent within similar paradigms such as behavioural ecology and cultural ecology (Balée 1998b:1–11, 1998c:13–29). At the core of historical ecology is a focus on 'landscape' as a unit of space whose history in terms of changing human and biophysical characteristics may be charted through the application of a wide variety of methods including historical enquiry, archaeology, palaeoecology, and ethnography. In a very practical sense, a focus on landscapes requires that one defines the unit of space under study and the internal and external influences upon that space, including the peoples who live or pass through it (the common subjects of culture-historical archaeology and oral history) and the environmental changes (vegetation, soils, climate etc) that occur within it. A focus on landscape also leads us away from establishing abstract temporal boundaries in the way we work (i.e. between Stone Age and Iron Age archaeology) and avoids the complexities of defining historical from pre-historic enquiry (Behrens and Swanepoel 2008). Naturally, the shift of focus from time to space as the unit of analysis does force us to define somewhat abstract spatial boundaries; however, there are very useful practical benefits to this in terms of delimiting the scale of the research to be undertaken.<sup>3</sup> Moreover, a historical ecology approach forces us to specify the scales at which various forces operate and ensures that diverse data sets, often collected independently, overlap in their spatial as well as temporal coverage.

Historical ecology also explicitly aims to avoid a number of *a priori* assumptions concerning the relationship between humans and their environment, viewing the two as ‘co-evolved’ and having reciprocal and often unpredictable impacts upon one another that can only be understood at a variety of spatial and temporal scales. Humans are viewed not merely as ‘adapting’ to their environment; rather they are seen also as major instigators of environmental change/modification, what might be termed a ‘keystone’ species (Balée 1998c). However, a number of historical ecologists also point out that human modifications of the environment are far from degrading and do not always (or even often) result in a decrease in biodiversity and a concomitant reduction in systemic resilience (Balée 1998c, 2006). The historical ecology approach to human societies is also broadly speaking ‘post-structuralist’ with the implicit assumption that human actors work within a community-wide and historically constituted framework of received wisdom and yet are inherently innovative and influenced by both short-term and long-term goals which are neither inherently sustainable nor inherently destructive (Davies 2009a; Vayda 1983; Vayda et al. 2004). As Balée (1998c) points out, humans are never ‘in sync’ with their environment, nor out of sync with it – rather they are an integral part of that environment which is a non-linear complex adaptive system with unpredictable emergent properties and the product of a deep history (Redman and Kinzig 2003; Redman 2005).

Crumley (1994b) outlines five processes that historical ecologists might focus upon and these serve as a good example of the ‘unifying’ interdisciplinary analysis promoted by historical ecology. These are:

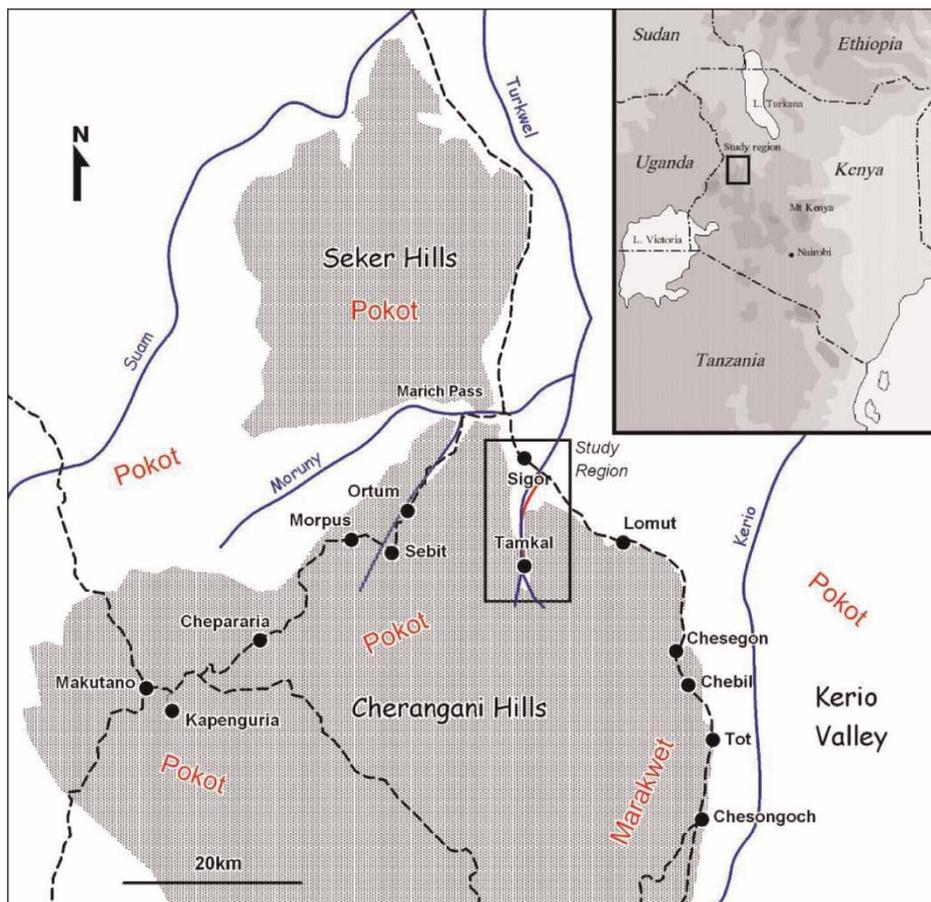
1. *Human impacts* – humanly induced ecological change/modification (particularly through technological, i.e. agronomic practices).
2. *Global impacts* – global climatic patterns (short/long-term fluctuations) and their local ecological consequences.
3. *Effective responses* – effective short/long-term responses to these ecological changes (1 and 2) (or the lack of) and their reciprocal ‘human impact’ (drawing on 1).  
*And stemming from 1–3*
4. *Anticipated change* – the nature of future ecological changes and their consequences (drawing on historical trends 1, 2 and 3).
5. *Potential responses* – responses drawn from historical experiences (scientific or local) (drawing on 3). (Adapted from Crumley 1994b:8)

Historical ecology focuses on specific questions concerning the long-term relationship between humans and their environment irrespective discipline or methodology. It is my contention therefore that that a ‘historical ecology’ approach to (pre)history is one which may be usefully adopted to facilitate the integration of diverse data sets, arranged around a set of non-disciplinary specific questions that unite various researchers from diverse disciplines. It provides a framework of questions and a lexicon (built around the concept of landscape)

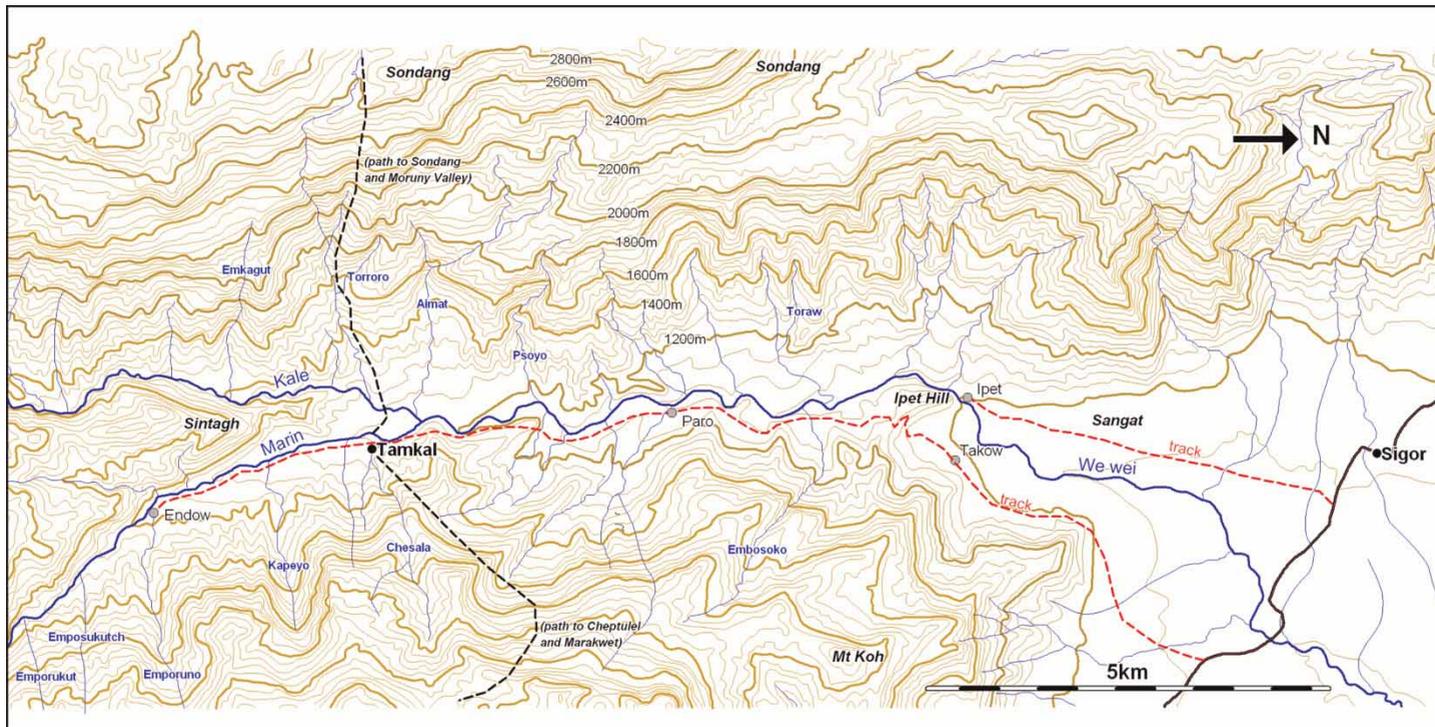
through which we must interrogate the past, but it does not specify how we should answer those questions, leaving researchers free to explore a wide variety of methodological approaches. Building on the body of eastern African literature described above, in the second half of this article I will try to illustrate the Historical Ecology approach with an example of my own work from Pokot, north-west Kenya.

### Irrigation Channels, Settlement Patterns and Oral Histories in the Northern Cherangani Hills, Kenya

My own research (Davies 2006, 2008, 2009a, 2009b), has focused on a single valley in the Cherangani Hills, north-west Kenya (Figures 1 and 2), and has utilised archaeological survey and test excavation, alongside very specific oral



**Figure 1.** The northern Cherangani Hills, Kenya. Showing the location of the study region given in Figure 2



**Figure 2.** The study region, Wei Wei Valley, northern Cherangani Hills, Kenya

histories to establish a chronology of settlement and land-use spanning the last 300 years. This detailed chronology was then related to wider archaeological and oral historical data, and to regional palaeoecological data in an attempt to understand the factors affecting agricultural production up to the present. In particular, the close correlation between oral historical data and archaeology was achieved because the oral data could be directly linked to specific features of the landscape (irrigation channels and homesteads) and with a good chronological control (circumcision-sets) that could then be tested against archaeologically derived radiometric dates. Overall this 'landscape history' is a variation on the direct historical approach, beginning with present economic and settlement conditions and working backwards in time with the aim of charting changes in land-use, settlement, economy, technology and environment. By studying a single landscape in great detail the aim is to avoid making stretched historical analogies between places and peoples widely separated in time and space – rather the aim is to chart closely related changes through time within a single (or at least relatively constrained) space (Davies 2009a).

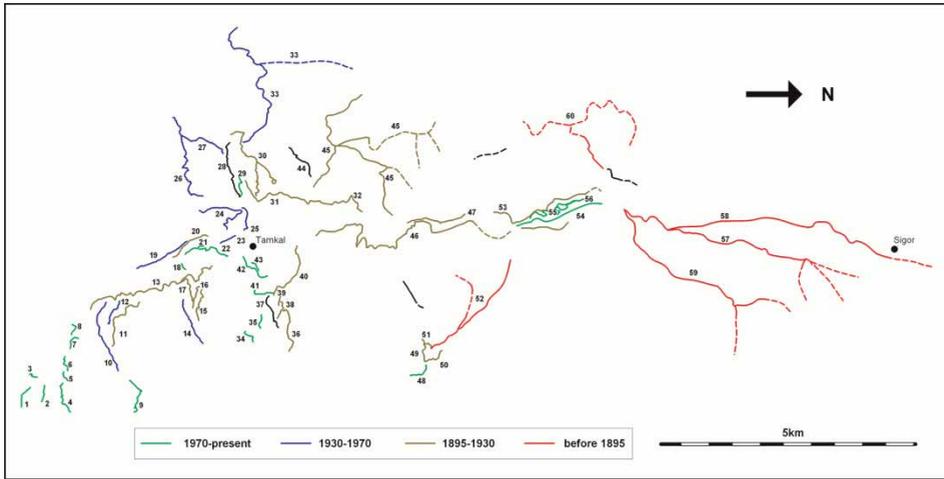
Initial investigations focused on irrigation channels, both in current use and abandoned, and involved their spatial mapping and dating based on oral testimonies. Fortunately, the agricultural Pokot<sup>4</sup> who live in the Cherangani Hills, possess a cyclical circumcision-set system comprising eight named sets approximately twelve to thirteen years in duration (Table 1). This system can therefore be used to construct a highly accurate relative chronology of events and with certain caveats a reasonable absolute chronology. This chronological system is particularly useful for dating the irrigation channels that abound in the region as these, being major constructions, are generally associated with specific named sets. Archaeological surveys located and mapped some seventy current and abandoned irrigation channels within a valley only sixteen by five kilometres in extent, and data concerning the age-set of construction was collected from over forty informants. This allowed for the establishment of a relatively clear chronology of construction beginning in the north of the valley and moving southwards and up-slope into the hills (Figure 3; Davies 2008).

Most notably the first large irrigation channels in the north of the region (now abandoned) are said to have been constructed prior to the instigation of the last circumcision-set cycle, before 120 years ago. Though the construction of irrigation furrows has been relatively continuous since this time we can approximately identify a second phase of construction beginning with the Murkütwo age-set in the late nineteenth century and spreading rapidly through the valley, followed by a third phase beginning with the Sowo age-set in the late 1930s. This third phase was characterised by the introduction of maize and the extension of farming to higher altitudes, while a more recent phase continued this process from the 1970s onwards. This chronology was then tested by OSL and TL dates on two of the abandoned channels both of which produced consistent dates of around 150 to 200 years before 2008 (c. AD 1800-1850) (Davies 2008, 2009a).

**Table 1.** Chronology of Pokot circumcision-sets

Author	Beech (1911:6)	Peristiany (1951:296)	Bollig (1990:80) 25 years approx	Moore (1996:60 [1986])	Davies (2009a)
Length of set	15 years	10 years		14–16 years	12–13 years
Order and dates of sets	Jumo		Sowō		
	Sowa		Chumwō		
	Karongoro		Koronkoro		
	Kip-koimet		Kipkoimet		
	Kablelach		Kaplelach (c. 1815)		
	Merkutwa		Merkutwō (c. 1840)		Merkutwo (1873–85)
	Nyongu	Nyonge (1896– 1906)	Nyongi (c. 1865)	Nyongi (1870)	Nyonki (1886–98)
	Maina (c. 1911)	Maina (1906–16)	Maina (c. 1890)	Maina (1885)	Maina (1899–1911)
		Chuma (1916–26)	Chumwō (1916–20)	Chumo (1900)	Chumwo (1912–24)
		Sowe (1926- 36)	–	Sawe (1916)	Sowo (1925–37)
			Koronkoro (1956–59)		
		Kerongoro (1936– )		Korongoro (1930)	Koronkoro (1938–50) Kapanga
			–		
			Kaplelach (1988)	Kaberur (1946) Kipkoimet	Kapkoymot (1951–63)
				Kaplelach (1961)	
					Kaplelach (1964–77)
				Kimnygeu (1975) Murkütwo	
					Murkütwo (1978–95)

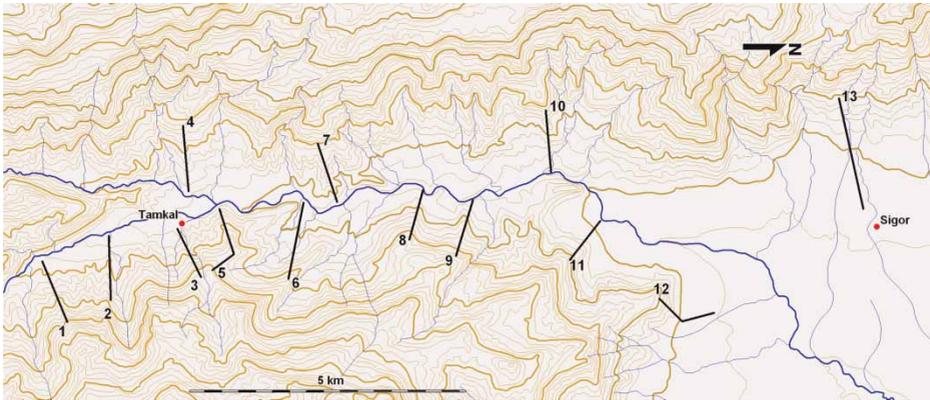
In order to test this oral chronology further and to better understand its correlates in relation to population sizes and densities, a large survey of both past and existing settlement patterns was conducted. Thirteen hill-spurs spaced equidistant along the valley were selected for intensive foot survey which resulted in the



**Figure 3.** Spatial chronology of Pokot irrigation channels

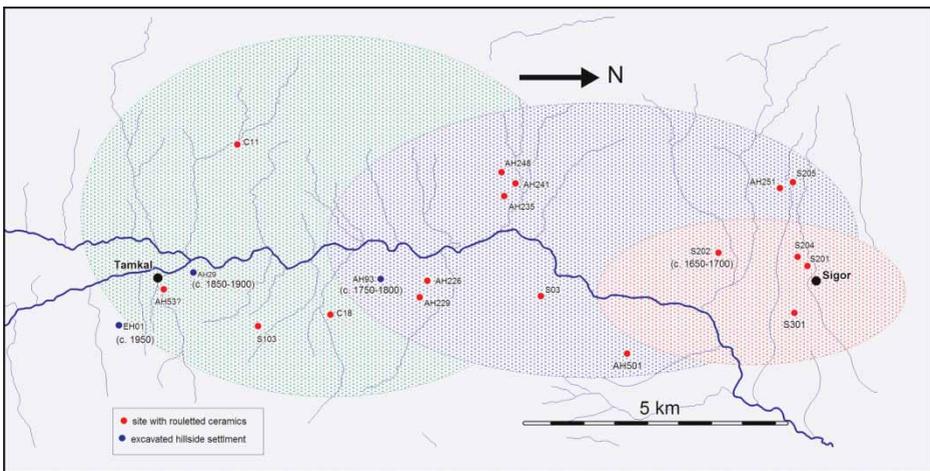
location of some 267 abandoned house platforms, alongside some 253 modern-day houses (Figure 4). Modern and abandoned houses were then analysed in terms of their changing ratio across the transects, and also placed into a relative chronology based on changing surface features, such as grindstones, hearthstones, house kerb stones, recent walls, house type and surface ceramics. A number of clear and mutually reinforcing trends were identified including a significant change in the ratio of abandoned to modern houses as one moves southward along the valley. In general, the most northerly transects were almost devoid of modern housing while the most southerly transects lacked any but very recently abandoned houses. Similar trends were clear in the distribution of house types, with modern rectangular houses predominating in the south and old mud-and-post houses with associated kerbstones, predominant in abandoned areas to the north. Rouletted ceramics, which predate modern Pokot wares, were also found exclusively on the northern-most transects.

These data argue strongly for an abandonment of settlement in the region surrounding the oldest (including abandoned) irrigation channels and a predominance of currently occupied habitation sites in the regions surrounding the more recent furrows. These data further suggested depopulation of the north of the valley and a shift of population southwards and up into the hills. This chronology was then further tested through the excavation of five abandoned homesteads spread approximately equidistant north to south along the valley (Figure 5). The most southerly of these was clearly very modern and no more than fifty years old. The remains of wattle posts were still visible, the ceramics recent, and oral testimonies argued strongly that the region was first settled by the grandfathers of the present generation c. 1930–1950. A second homestead somewhat north of the first produced a preliminary thermoluminescence date of c. AD 1858 to 1908, while a third site further north produced a preferred radiocarbon date of c. AD 1731 to



**Figure 4.** Location of settlement survey transects

1809 ( $188 \pm 23$  bp).<sup>5</sup> The most northerly site was quite different to the common Pokot hillside homestead layout being situated in the valley bottom and characterised by very large quantities of pre-modern/proto-Pokot roulette ceramics and large bovid fauna. A radiocarbon date here gave a preferred age of 1630 to 1680 ( $240 \pm 24$  bp)<sup>6</sup> and appears to represent the first settlement of a large-scale cattle-keeping society in the region and probably just pre-dates the first irrigation channels and the shift to more intensive forms of agriculture.<sup>7</sup> This suggestion also fits very well with oral chronologies collected during the present study, which argue for initial large-scale settlement of the valley before two circumcision-set cycles ago and therefore before AD 1750 to 1800 (Beech 1911). This



**Figure 5.** Chronology of Pokot settlement and land use based on a combination of oral histories concerning the chronology of irrigation channel construction (see Figure 3) alongside absolute dates from habitation sites (given in brackets) and abandoned irrigation channels, as well as the distribution of radiometrically dated ceramics (red dots, i.e. all of the dots bar AH29, AH93 and EH01)

was followed by the establishment of large-scale intensive agriculture by around AD 1800 to 1850 (Davies 2009) a date that also fits very well with the oral histories of the pastoral Pokot who are said to have begun an expansion north, east and westwards from this region at around the same time (Bollig 1990).

The settlement survey coupled with these good chronological controls, further allowed for a diachronic assessment of changing population densities through time and strongly suggests that while population has shifted through time and space, actual population densities have remained relatively constant. This conclusion is drawn out of the fact that across all transects the number of absolute (abandoned and lived) homesteads per area remains constant despite a progressive trend in the ratio of abandoned to modern homesteads. Overall, the archaeological data correlate well with the oral chronologies and demonstrate an initial agropastoral settlement in the mouth of the valley around 350 years ago, followed by an expansion and intensification of farming up into the hills over the following period. Over the same period the earliest inhabited regions were gradually abandoned in favour of newly settled regions but with overall population densities remaining relatively constant.

### **Outcomes of the Pokot Study**

The chronology of Pokot land use, derived from a combination of archaeological and oral-historical techniques, shows that Pokot farmers both intensify and expand the area of land under cultivation simultaneously without an overall increase in population densities and this raises a variety of questions about the process of agricultural intensification (Boserup 1965; Brookfield 1984, 1986; Börjeson 2005; Davies 2009a, 2009b). To understand this process in more detail, focus was shifted towards a deeper investigation of present-day Pokot land use practices, particularly issues of land-tenure and the mapping of kinship-based territorial boundaries. Although too detailed to fully discuss here, I have argued elsewhere (Davies 2009a, 2009b) that this chronology of land use demonstrates that at least two processes, ‘expansion’ and ‘intensification’, are concurrent within Pokot agriculture and that this can best be explained as the result of a combination of ecological factors such as soil erosion and climatic fluctuation, allied to highly significant social factors such as patterns of exchange, kinship and inheritance. In particular, patterns of Pokot land use in the present seem very similar to those of the last 250 years and result not only from basic ecological concerns, but also very strongly from the tensions inherent within the traditional system of land tenure and the basic choices (to stay put and ‘intensify’ or ‘move’ location and ‘extensify’) which are faced by most Pokot farmers. This offers a somewhat different interpretation of the process of agricultural intensification to the common ‘population pressure’ approach derived from Boserup (1965). Rather than focusing on absolute population pressures, it emphasises localised population pressures created by a system of land tenure as a primary factor in both the intensification and expansion of Pokot agriculture. Moreover, viewed in this light, the data suggest that Pokot

agriculture is only 'sustainable' in so far as it is able to move across the landscape through time, and that the same may be true for many other African farming communities (Davies 2009a, 2009b).

## **Comparative Discussion and Conclusions**

I believe that by focusing on a well-defined landscape as the unit of analysis the integration of archaeological and oral historical, not to mention ethnographic and palaeoecological data, can be made much more explicit with good results. In a landscape-based historical ecology approach, location acts as a uniting factor between widely varying sources of evidence. It acts as a focal point to which can be applied the various methodological tools in a 'tool box' designed to understand the African past. Although such an approach need not be the only one, approaches based on alternative units of study such as distinct time periods (i.e. LSA, IA), ethnolinguistic groups, or material culture traditions seem to offer less opportunity for interdisciplinary/inter-methodological integration. Ethnolinguistic groups and material traditions do not directly correlate, while the boundaries between time periods based on technological frameworks and between historical and pre-historic archaeology are difficult to define and are often meaningless in terms of continuity and change among African peoples.

In addition, I would suggest that focus on a well-defined area forces archaeological and oral historical researchers to identify specific points of intersection between their data. Oral historians may be able to work harder to identify specific sites or landscape features and to develop key chronological markers such as major droughts/famines, wars, lineage histories or age-sets that relate directly to the timescales of associated archaeological material. Archaeologists, on the other hand may need to focus on detailed analyses of areas/regions more directly related to oral histories, rather than on areas with known archaeological potential. They must also be more explicit about the gaps in their data (i.e. archaeological sites and sites mentioned in oral histories cannot be explicitly correlated if archaeological survey is highly partial), they need to place more emphasis on dating numerous sites/features so that detailed chronological patterns can be adequately identified and they need to refine absolute dating methods to make them more effective (OSL and TL dating seems to have significant potential over oral historic timescales).

Research in Pokot produced good results because archaeological features such as irrigation channels and settlement sites could be well assigned to oral histories ordered on the basis of a well-established circumcision-set system. However, such ascriptions would have held little weight without corresponding absolute dates from a wide number of archaeological sites. The oral historical data pointed the way forward but was meaningfully supported and quantified by the archaeological data. The conclusions drawn relied not on any one line of evidence but on the intersection of multiple approaches and their mutual reinforcement.

Such interdisciplinary approaches have a growing popularity in eastern Africa and an alignment with the theoretical and methodological base of Historical Ecology may prove particularly fruitful. However, at a more fundamental level, the gradual search for such perspectives may have been born out of a necessity generated by the fact that eastern African societies can rarely be made to fit the basic neo-evolutionary frameworks that have pervaded archaeology since the 1970s (David and Sterner 1999; Stahl 1999, 2005). Perhaps because large archaeological sites with clear 'monumental' remains are fewer and further between in eastern Africa, archaeologists have been less drawn to focus upon them. Instead of large kingly capitals many eastern African archaeologists have been forced to focus on small hamlets, lacking clear socio-economic differentiation, and widely distributed across the landscape. Perhaps because states and chiefdoms have been fewer and less hierarchically arranged in eastern African, oral historians have had to search for alternative narratives to those of king and state. Instead of king-lists, wars and battles, many oral-historians and anthropologists have focused on small-scale movements and migrations between different economic practices, environmental zones and fluid ethnic identities.

If allowed to speculate, I would suggest that part of the problem now affecting the recent prehistory of southern Africa may be a reliance on historical and archaeological frameworks developed within an implicitly neo-evolutionary trajectory that prioritises large sites, hierarchies, chiefdoms and states, and their associated material or cultural histories, so that when alternative social forms with less hegemonic material signatures are found in the archaeological record, and corresponding divergent oral narratives are encountered, it becomes difficult to know how to deal with them. The agricultural landscape of the Mpumalanga escarpment might represent one such phenomenon, where an understanding of the nature and dynamics of this landscape have been hampered because the basic conceptual framework required to understand such an extensive, but clearly intensive and well organised agricultural society has yet to be developed precisely because this landscape is difficult to pin-down in both the oral histories and within those broader archaeological material traditions that are well known. For example, there has been much emphasis on 'who' made the Mpumalanga/Bokoni ruins (Delius and Schoeman 2008; Maggs 2008), perhaps because it is implicitly assumed that such an identification will then allow (somewhat circularly) for their general characterisation. However, because such ascriptions have been difficult to ascertain, the ruins have, until recently, been somewhat under researched (Maggs 2008). This is a problem which has not only hampered the oral historians, but has also led archaeologists to focus more on 'ethnic markers' in the archaeological record, rather than upon the operation of the Mpumalanga settlements themselves and then work forwards from there to a consideration of 'who' actually made them. In eastern Africa, such reasoning has always been problematic because well-known ethnographic studies of ethnic and economic fluidity combined with a lack of hierarchical organisation and monumental architecture have made ethnic ascriptions rightly difficult to apply to the past (Karega-Munene 1996).

Following from these observations it appears that while archaeologists and oral historians have been concerned with reconstructing the African past, there has been little consensus over what constitutes an acceptable or preferable past and what the purpose of that reconstructed past actually is. Should the African past emphasise the history of specific ethnolinguistic groups, or the fluid interactions between different groups? Is it about broad-scale changes in identity, economy or technology or about reciprocal human-environment interactions? Or are our reconstructions of the African past about informing present-day social, economic and environmental circumstances? Naturally, the African past is all of these, but as suggested above, research conducted with one aim will not necessarily be readily compatible with research conducted with an alternate aim; for example oral histories of ethnolinguistic migration should not simply be assumed as either the causal factor behind or response to environment change in palaeoecological studies when the scale and impact of those migrations cannot be explicitly stated either orally or archaeologically. In the same way that ceramic traditions do not translate directly into ethnolinguistic groups, oral traditions do not translate directly into population figures and quantitative landscape transformations.

As I have already suggested, research teams need to be explicitly coordinated towards common goals and different research methodologies need to be seen, not as separate disciplines, but rather as tools in a tool box designed to study the African past. However, this requires a standardisation in the units of analysis that unites diverse researchers and a new framework within which diverse research methodologies may be geared towards a common goal. The FYI appears to be searching for such a framework and I would argue that a landscape-based historical ecology approach is one possibility. Although it may not be the only solution, it is one that seems to be beginning to produce results in eastern Africa.

## Notes

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2. Also see Lane <http://www.hecal.eu/> retrieved 9 January 2010.
3. In very simplistic terms, given that archaeological traditions may extend indefinitely in space it can be problematic if one aims to sample that entire spatial extent. By restricting the area to be covered one changes the focus from spatial variability to temporal variability, but gains a much more manageable unit within which to work. For very practical reasons of time and cost this might be preferred to conducting very extensive surveys, over large areas.
4. The agricultural Pokot are related to, but also somewhat distinct from their neighbours the pastoral Pokot, though there are regular exchanges of goods and people between the two (Davies 2009a; Peristiany 1951).

5. All radiocarbon dates cited were calibrated using OxCal v4.0.5 (Bronk Ramsey 2007) and the northern hemisphere IntCal04 atmospheric curve (Reimer et al. 2004). The preferred range for this date is derived from intercept ranges to  $2\sigma$  of 1658–1686 (20%), 1731–1809 (55%), and 1927–1954 (20%). The 1731–1809 range is preferred on the basis that the 1658–1686 range seems too early given the dating of other sites in the region, while the 1927–1954 range overlaps with historical sources.
6. This date is preferred on the basis of intercept ranges to  $2\sigma$  of 1630–1680 (60%) and 1760–1800 (30%) and based on overlapping dates with other sites in the region.
7. For a fuller discussion of the calibration of these radiocarbon dates see Davies (2009a), further discussion will also be presented in a forthcoming article.

## References

- Anderson, D.M. 1988. 'Cultivating Pastoralists: Ecology and Economy Among the II Chamus of Baringo', in D.H. Johnson and M. Anderson (eds), *The Ecology of Survival: Case Studies from Northeast African History*. London: Lester Crook Academic Publishing, pp. 241–60.
- Anderson, D.M. 1989. 'Agriculture and Irrigation Technology at Lake Baringo'. *Azania* 24:85–98.
- Anderson, D.M. 2002. *Eroding the Commons: The Politics of Ecology in Baringo, Kenya 1890s–1963*. Oxford: James Currey.
- Balée, W. (ed). 1998a. *Advances in Historical Ecology*. New York: Columbia University Press.
- Balée, W. 1998b. 'Introduction', in Balée (eds), *Advances in Historical Ecology*.
- Balée, W. 1998c. 'Premises and Postulates', in Balée (eds), *Advances in Historical Ecology*.
- Balée, W. 2006. 'The Research Program of Historical Ecology'. *Annual Review of Anthropology* 35:75–98.
- Balée, W. and Erickson, C.L. 2006. 'Time, Complexity and Historical Ecology', in W. Balée and C.L. Erickson (eds), *Time and Complexity in Historical Ecology: Studies in the Neotropical Lowlands*. New York: Columbia University Press, pp. 1–17.
- Beech, M.W.H. 1911. *The Suk: Their Language and Folklore*. Oxford: Oxford University Press.
- Behrens, J. and Swanepoel, N. 2008. 'Historical Archaeologies of Southern Africa: Precedents and Prospects', in Swanepoel et al. (eds), *Five Hundred Years Rediscovered*, pp. 23–40.
- Bollig, M. 1990. 'An Outline of Pre-Colonial Pokot History'. *Afrikanistische Arbeitspapiere* 23:73–91.
- Bonner, P., Esterhuysen, A., Schoeman, M.H., Swanepoel, N. and Wright, J.B. 2008. 'Introduction', in Swanepoel et al. (eds), *Five Hundred Years Rediscovered*, pp. 1–22.

Börjeson, L. 2005. *A History Under Siege: Intensive Agriculture in the Mbulu Highlands, Tanzania, 19th Century to the Present*. Stockholm: Department of Human Geography, Stockholm University.

Boserup, E. 1965. *The Conditions of Agricultural Growth*. London: Allen and Unwin.

Brookfield, H.C. 1984. 'Intensification Revisited'. *Pacific Viewpoint* 25:15–44.

Brookfield, H.C. 1986. 'Intensification Intensified'. *Archaeology in Oceania* 31:177–80.

Causey, M. and Lane, P.J. 2005. 'GIS and Landscape Archaeology: Delineating the Possible Long-Term Environmental Effects of Pastoralism on the Laikipia Plateau'. *Nyame Akuma* 64:24–32.

Connah, G. 1996. 'Kibiro: The Salt of Bunyoro, Past and Present'. London: British Institute in Eastern Africa.

Crumley, C.L. (ed). 1994a. *Historical Ecology: Cultural Knowledge and Changing Landscapes*. Santa Fe: School of American Research Press.

Crumley, C.L. 1994b. 'Historical Ecology: A Multidimensional Ecological Orientation', in Crumley (eds), *Historical Ecology*, pp. 1–16.

Davies, M.I.J. 2006. 'The Archaeology of the Cherangani Hills, Northwest Kenya'. *Nyame Akuma* 66:16–24.

Davies, M.I.J. 2008. 'The Irrigation System of the Pokot, Northwest Kenya'. *Azania* 43:50–76.

Davies, M.I.J. 2009a. 'An Applied Archaeological and Anthropological Study of Intensive Agriculture in the Northern Cherangani Hills, Kenya'. Unpublished DPhil thesis, Oxford.

Davies, M.I.J. 2009b. 'Wittfogel's Dilemma: Heterarchy and Ethnographic Approaches to Irrigation Management in Eastern Africa and Mesopotamia'. *World Archaeology* 41:16–35.

Davies, M.I.J. In preparation. 'Economic Specialisation, Resource Variability, and the Origins of Intensive Agriculture in Eastern Africa'. Unpublished manuscript.

David, N. and Sterner, J. 1999. 'Wonderful Society: The Burgess Shale Creatures, Mandara Polities, and the Nature of Prehistory', in S.K. McIntosh (eds), *Beyond Chiefdoms: Pathways to Complexity in Africa*. Cambridge: Cambridge University Press, pp. 97–109.

Delius, P. and Schoeman, M.H. 2008. 'Revisiting Bokoni: Populating the Stone Ruins of the Mpumalanga Escarpment', in Swanepoel et al. (eds), *Five Hundred Years Rediscovered*, pp. 135–68.

Johnson, D.H. and Anderson, M. (eds). 1988. *The Ecology of Survival: Case Studies from Northeast African History*. London: Lester Crook Academic Publishing.

Karega-Munene. 1996. 'The East African Neolithic: An Alternative View'. *African Archaeological Review* 13:247–55.

- Lamphear, J. 1976. *The Traditional History of the Jie of Uganda*. Oxford: Clarendon Press.
- Lane, P.J., Mapunda, B.B. and Eriksson, M. 2001. 'Soil Erosion, Iron Smelting and Human Settlement in the Haubi Basin, North-Central Tanzania'. *Antiquity* 75:803–4.
- Lane, P.J. In press. 'An Outline of the Later Holocene Archaeology and Pre-Colonial History of the Ewaso Basin, Kenya', in N. Georgiadis, J. Moss, A. King and D. Malleret-King (eds), *Conserving Wildlife in African Landscapes: Kenya's Ewaso Ecosystem*. Washington: Smithsonian Institution Scholarly Press.
- Mack, J. and Robertshaw, P. 1982. *Culture History in the Southern Sudan: Archaeology, Linguistics, ethnohistory*. Nairobi: British Institute in Eastern Africa.
- Maggs, T. 2008. 'The Mpumalanga Escarpment Settlements: Some Answers, Many Questions', in Swanepoel et al. (eds), *Five Hundred Years Rediscovered*, pp. 169–83.
- Moore, H. 1996 [1986]. *Space, Text and Gender: An Anthropological Study of the Marakwet of Kenya* (2nd edition). Cambridge: Cambridge University Press.
- Peristiany, J.G. 1951. 'The Age-Set System of the Pastoral Pokot'. *Africa* 21: 188–06, 279–302.
- Redman, C.L. 2005. 'Resilience Theory in Archaeology'. *American Anthropologist* 107:70–7.
- Redman, C.L. and Kinzig, A.P. 2003. 'Resilience of Past Landscapes: Resilience Theory, Society and the Longue Durée'. *Conservation Ecology* 7.
- Reid, A. 2003. 'Recent Research on the Archaeology of Buganda', in P. Mitchell, A. Haour and J. Hobart (eds), *Researching Africa's Past: New Contributions from British Archaeologists*. Oxford: Oxford University School of Archaeology, pp. 110–17.
- Reid, A. and Robertshaw, P. 1987. 'A New look at Ankole Capital Sites'. *Azania* 22:83–8.
- Robertshaw, P. 1986. 'Engaruka Revisited: Excavations of 1982'. *Azania* 21:1–26.
- Robertshaw, P. 1994. 'Archaeological Survey, Ceramics Analysis, and State Formation in Western Uganda'. *African Archaeological Review* 12:105–31.
- Soper, R.C. 1983. 'A Survey of the Irrigation System of the Marakwet', in B.E. Kipkorir, R.C. Soper and J.W. Ssenyonga (eds), *Kerio Valley: Past, Present and Future*. Nairobi: Institute of African Studies, University of Nairobi, pp. 75–95.
- Soper, R.C. 1996. 'The Nyanga Terrace Complex of Eastern Zimbabwe: New Investigations'. *Azania* 31:1–36.
- Soper, R.C. 2000. 'The Agricultural Landscape of the Nyanga Area, Zimbabwe', in G. Barker and D. Gilbertson (eds), *The Archaeology of Drylands: Living at the Margin*. London: Routledge, pp. 201–19.
- Soper, R.C. 2002. *Nyanga: Ancient Fields, Settlements and Agricultural History in Zimbabwe*. London: British Institute in Eastern Africa.

Spear, T. 1993. 'Being "Maasai", but not "people of cattle": Arusha Agricultural Maasai in the Nineteenth Century', in Spear and Waller (eds), *Being Maasai*, pp. 120–36.

Spear, T. 1997. *Mountain Farmers: Moral Economies of Land and Agricultural Development in Arusha and Meru*. Oxford: James Currey.

Spear, T. and Waller, R. (eds). 1993. *Being Maasai: Ethnicity and Identity in East Africa*. London: James Currey.

Spencer, P. 1998. *The Pastoral Continuum: The Marginalisation of Tradition in East Africa*. Oxford: Clarendon.

Stahl, A.B. 1999. 'Perceiving Variability in Time and Space: The Evolutionary Mapping of African Societies', in S.K. McIntosh, *Beyond Chiefdoms: Pathways to Complexity in Africa*. Cambridge: Cambridge University Press, pp. 39–55.

Stahl, A.B. 2005. *African Archaeology: A Critical Introduction*. Oxford: Blackwell.

Sutton, J.E.G. 1973. *The Archaeology of the Western Highlands of Kenya*. Nairobi: British Institute in Eastern Africa.

Sutton, J.E.G. 1978. 'Engaruka and its Waters'. *Azania* 13:37–70.

Sutton, J.E.G. 1984. 'Irrigation and Soil Conservation in African Agricultural History (with a Reconsideration of the Inyanga Terracing and Engaruka Irrigation Works)'. *Journal of African History* 25:25–41.

Sutton, J.E.G. 1985. 'Irrigation and Terracing in Africa: Intensification, Specialisation or Overspecialisation?', in I.S. Farrington (eds), *Prehistoric Intensive Agriculture in the Tropics*. Oxford: British Archaeological Reports, pp. 737–63.

Sutton, J.E.G. 1986. 'The Irrigation and Manuring of the Engaruka Field System'. *Azania* 21:27–51.

Sutton, J.E.G. 1987. 'Hyrax Hill and the Sirikwa: New Excavations on Site II'. *Azania* 22:1–36.

Sutton, J.E.G. (ed). 1989. 'History of African Agricultural Technology and Field Systems'. *Azania* 24.

Sutton, J.E.G. 1990. 'A Thousand Years of East Africa'. Nairobi: British Institute in Eastern Africa.

Sutton, J.E.G. 1993a. 'Becoming Maasailand', in T. Spear and R. Waller (eds), *Being Maasai: Ethnicity and Identity in East Africa*. London: James Currey, pp. 38–60.

Sutton, J.E.G. 1993b. 'Deloraine and the Iron Age of the Central Rift'. *Azania* 28:103–25.

Sutton, J.E.G. 1993c. 'The Antecedents of the Interlacaustine Kingdoms'. *Journal of African History* 34:33–64.

Sutton, J.E.G. 1998. 'Engaruka: An Irrigation Agricultural Community in Northern Tanzania before the Maasai'. *Azania* 33:1–38.

- Sutton, J.E.G. 2000. 'Engaruka: Farming by Irrigation in Maasai and c. A.D. 1400–1700', in G. Barker and D. Gilbertson (eds), *The Archaeology of Drylands: Living at the Margin*, London: Routledge, pp. 201–19.
- Sutton, J.E.G. 2004. 'Engaruka: The Success and Abandonment of an Integrated Irrigation System in an Arid Part of the Rift Valley, c.15<sup>th</sup> to 17<sup>th</sup> Centuries'. Widgren and Sutton (eds), *Islands of Intensive Agriculture in Eastern Africa*, pp. 114–32.
- Stump, D. 2003. 'The Soils of Engaruka: Preliminary Soil Exhaustion Tests on a Pre-Colonial Agricultural Landscape in Tanzania', in P. Mitchell, A. Haour and J. Hobart (eds), *Researching Africa's Past: New Contributions from British Archaeologists*. Oxford: Oxford University School of Archaeology, pp. 101–9.
- Stump, D. 2006a. 'Towards an Applied Archaeology of East African Intensive Agriculture'. PhD thesis, University College London.
- Stump, D. 2006b. 'The Development and Expansion of the Field and Irrigation Systems at Engaruka, Tanzania'. *Azania* 41:69–94.
- Swanepoel, N., Esterhuysen, A. and Bonner, P. (eds). 2008. *Five Hundred Years Rediscovered: Southern African Precedents and Prospects*. Johannesburg: Wits University Press.
- Taylor, D., Lane, P., Muiruri, V., Ruttledge, A., Gaj McKeever, R., Nolan, T., Kenny, P. and Goodhue, R. 2005. 'Holocene Vegetation Dynamics on Laikipia Plateau, Kenya'. *The Holocene* 15:839–48.
- Vayda, A. 1983. 'Progressive Contextualisation: Methods for Research in Human Ecology'. *Human Ecology* 11:265–81.
- Vayda, A., Walters, B. and Setyawati, I. 2004. 'Doing and Knowing: Questions about Studies of Local Knowledge', in A. Bicker, P. Sillitoe and J. Pottier (eds), *Investigating Local Knowledge: New Directions, New Approaches*. London: Ashgate, pp. 35–58.
- Waller, R. 1988. 'Emutai: Crisis and Response in Maasailand 1883–1902', in D.H. Johnson and M. Anderson (eds), *The Ecology of Survival: Case Studies from Northeast African History*. London: Lester Crook Academic Publishing, pp. 73–112.
- Widgren, M. and Sutton, J.E.G. (eds). 2004. *Islands of Intensive Agriculture in Eastern Africa*. Oxford: James Currey.