

Holocene changes in the animal production niche: Land use trends on the African continent

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Despite the importance of animal production, or pastoralism, on the African continent during the Holocene, its distribution in space and time is not accurately accounted for due to gaps in archaeological coverage and difficulties in the interpretation of dynamic land uses from archaeological and paleoecological assemblages. A suite of techniques from spatial ecology can help to address this problem and provide insight into the nature of anthropogenic land use change, i.e. disentangling exogenous and endogenous drivers. More specifically, these methods have enormous untapped potential for identifying the ecological underpinnings of land use systems, or the niche, and for investigating and quantifying temporal dynamics. In our recent paper, we applied methods from niche dynamics in order to estimate continental-scale shifts in land use for animal production on the African continent, using faunal remains. It is widely accepted that African pastoralism spread generally from north to south over several millennia, however, spatial distribution is not well defined, and very little is known about changes in the underlying land use: for example, whether expansion was driven by endogenous drivers, climatic amelioration, or both. Our methods help to address these types of questions, not solely because they are equipped to deal with incomplete spatial coverage, but also because they are designed to explicitly consider temporal niche changes, which are common features of human land use. Given the dynamic and expansive nature of pastoralism, future research will need to consider the ecological underpinnings of land use in order to make robust and spatially accurate reconstructions.

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