



**ECOMETRICS AND HUMAN EVOLUTION IN EAST AFRICA:
UNGULATE DENTAL MORPHOLOGIES AS A TOOL FOR PALEOCLIMATE
RECONSTRUCTION**

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Abstract:

Extensive literature exists concerning the potential role of climate change in driving hominin evolution. However, there is insufficient climate data from relevant paleontological and archaeological sites that documents our evolutionary history to provide concrete answers on such changes. Therefore, new methods of paleoclimate reconstruction are essential in filling in the gaps concerning these questions. This project applies a new paleoclimate reconstruction method in order to construct the climate context of hominin evolution over the past seven million years in East Africa. This method is based on the relationships between dental morphologies of African ungulates and climate (Zliobate et. al., 2016). This study identifies and analyses the relationship between both modern and extinct ungulate communities and their environments, and then uses those relationships to generate a reliable paleoclimate reconstruction. This method is applied regionally with the hopes of expanding it to answer questions concerning the paleoclimate reconstruction of the African continent as a whole, as well as extend to a hyper focus on South Africa and its immense bio-diverse history. Ultimately this study shows that the correlation with past precipitation levels in a region and crown height (hypsodonty) of an ungulate do strongly correlate with another, making crown height a reliable marker for an area's past environment in East Africa.