Creation of an island: the extinction of animals on Zanzibar

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Researchers at the University of York have been part of the first comprehensive study of how Zanzibar was formed, charting the extinction of various animals from the island.

In a collaborative project between environmental scientists and archaeologists, a team charted the history of sea level change by examining mangrove sediments, and conducting analysis on animal remains found in Kuumbi Cave – an important archaeological site.

Focusing on evidence from three distinct time periods - the end of the last Ice Age, the stage when Zanzibar became an island 11,000 years ago, and the time of being an island – researchers found that numerous large mammals had disappeared by the latter stage.

Analysing over 6000 bone specimens, it was found that large fauna such as zebra, buffalo, waterbuck and gazelle were present in the time of island formation. However, after sea levels had risen and the island had been inhabited by coastal cultures, they disappeared. Other small fauna, such as porcupines and hares, were also no longer present.

Insights into sea level changes, combined with archaeological data on the history of the island's fauna through excavation, has never been done before in charting Zanzibar's history. This unique interdisciplinary approach provides a new, accurate account of the island's prehistory and defaunation.

Dr Robert Marchant, Reader in the University's Environment Department, said: "An understanding of the long-term history of faunal change allows us to identify patterns in the interplay of natural and anthropogenic factors that have shaped Zanzibar's ecosystems today.

"Such long-term insights are crucial in helping with current conservation efforts, laying a foundation for future research on impacts of island formation, climate change and human occupation on animals and their habitats."

Dr Paramita Punwong, former PhD student at the University of York and now Lecturer in the Faculty of Environment and Resource Studies at Mahidol University, Thailand, said: "These findings are an important contribution to understanding the long-term consequences of defaunation on a land-bridge island for human and animal communities. Such a broad perspective on island formation is immensely helpful for the conservation of island biodiversity today."

More information: Mary E. Prendergast et al. Continental Island Formation and the Archaeology of Defaunation on Zanzibar, Eastern Africa, *PLOS ONE* (2016). DOI: 10.1371/journal.pone.0149565

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