

Paleontological reconnaissance at Napenagila South: a new potentially early Miocene primate site in West Turkana, Turkana Basin, Kenya

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The proposed project concerns field research at a newly discovered primate fossil site – Napenagila South – in the Turkana Basin, Kenya. The lead scientists on this project are SBU Anthropology Department tenure-track assistant professor, Gabrielle A. Russo, and associate director of the Turkana Basin Institute (TBI) and research assistant professor, Isaiah O. Nengo. The site was an unexpected discovery at the end of the 2018 field season when primate teeth and an abundance of mammalian fauna were recovered from a previously unexplored area. The fauna and preliminary geological observations suggest Napenagila South dates to a time period known as the early Miocene (~23-16 million years ago).

The Miocene is a period of primate evolution critical to understanding the roots and diversification of the clade that includes ourselves and our close ape relatives. Though many primate taxa are known from this time period, their evolutionary relationships (among themselves and to apes of a more modern aspect) and paleobiology are not well understood. As preliminary observations of the teeth recovered at Napenagila South suggest they might belong to an extinct ape, there is high probability that the site will yield additional important discoveries that will bolster the fossil evidence needed to work toward resolution regarding these issues. However, to establish Napenagila South as a new potentially early Miocene fossil site, we must return to Kenya to undertake systematic paleontological and geological data collection and analysis.

Therefore, the overarching goal of this project is to elucidate the evolutionary relationships and paleobiology of primates during the early Miocene by adding geological and paleontological data from this newly discovered site in the Turkana Basin. We request funding from the OVPR Seed Grant to support two seasons of fieldwork at Napenagila South and subsequent lab analyses in order to 1) determine the extent of the sediments and conduct a detailed assessment of the site's geological context, 2) obtain additional geological samples to more precisely constrain the site's dates, and 3) continue collection and conduct analyses of primate and other mammalian remains, including the teeth previously collected. Our vision is to synthesize findings at Napenagila South, along with findings from our work at other fossil sites in the Turkana Basin, into a research strategy that leads to the formation of a large, collaborative project. Results from team-based research at our field sites will continue to promote Stony Brook University as an international center of excellence in both research and training in the area of paleontology, particularly with respect to primate and human evolution.