

Catarrhine distribution throughout the Early Miocene Kisingiri Sequence on Rusinga Island, Kenya

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Early Miocene deposits on Rusinga Island, Kenya, have produced almost 16,000 mammalian fossils, including more than 1800 specimens of at least six species of catarrhine primate. The catarrhines represented within these deposits include *Ekembo heseloni* and *Ekembo nyanzae*, two early apes critical for understanding the Early Miocene hominoid radiation. *Dendropithecus macinnesi* and *Nyanzapithecus vancouveringorum* are also found there, as are two other small-bodied catarrhines, one typically referred to *Limnopithecus legetet* and the other unnamed. To better understand patterns of catarrhine distribution within the context of their faunal communities, we analysed mammalian community structure at the main collecting localities on Rusinga. Our results show that most of the catarrhines are known only from the highly fossiliferous Hiwigi Fm, but that *Ekembo* and *Dendropithecus* are represented at nearly all large collecting areas, spanning all three mammal-preserving geological formations (from oldest to youngest): the Kihera Fm, Hiwigi Fm, and Kulu Fm. The relative abundances of *Ekembo* and *Dendropithecus* relative to all mammals differ at fossil localities on Rusinga in interesting and likely ecologically informative ways. Within the Hiwigi Formation localities, the relative abundance of *Ekembo* is highest at R105-R106-R107 whereas the highest relative abundance of *Dendropithecus* is found at the younger R3 locality. This variation reflects our results for some other mammalian taxa. For example, the relative abundance of the chalicothere *Winamia* and the anthracothere *Rusingameryx* are much higher at R105-R106-R107 than at R3, whereas the relative abundance of the rodents *Diamantomys* and *Paraphiomys* are much higher in the R3 assemblage than in the R105-R106-R107 assemblage. Proboscideans and rhinocerotids make up approximately the same proportion of each assemblage. These results are interesting considering paleoenvironmental work at these localities that reconstructed R105-R106-R107 sites as a riparian forest contrasting with the R3 paleoenvironments interpreted as a sub-humid to humid, closed-canopy forests. Thus, this study suggests that catarrhine primates, like other mammals, may be useful paleoenvironmental indicators, not as much in their presence/absence, but in their relative proportions regarding the broader mammal community.

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