Introduction

- Significant behavioral and anatomical changes occurred within the hominin lineages between ~2-1.4 Ma
- The regression of Lake Lorenyang approximately 1.8 Ma potentially caused a restructuring of the ecosystems and mammalian communities in the Turkana Basin

Study Areas

- Materials & Methods
  - NISP faunal abundance data (n= 6,117) of Bovidae (n = 3,977), Suidae (n = 1,628), and Equidae (n = 512) were compiled for the Koobi Fora\(^1\), Nachukui\(^4\), and Shungura\(^2\) Fm. between ~2-1.4 Ma
  - Faunal abundance numbers were converted to percentages to create graphs (i.e. percent of Alcelaphini based on total Bovidae)
  - 3-way Chi-Square tests were used on raw counts to test the amount of significant difference between each Family level grouping at each region at each time period
  - Post-hoc Chi-Square tests were used to determine which groupings were driving the significance

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Hypothesis:
- The Shungura Fm. to the north provided a buffer to mesically-adapted taxa while the lake levels decreased and ecosystem restructuring occurred
- Expectation: Observe an increase in mesically-adapted taxa in the Shungura Fm. and an increase in arid-adapted taxa in the Koobi Fora and Nachukui Fm. during ~1.87-1.56 Ma

Results

- Our results indicate that the Shungura formation could have acted as a buffer zone for mesically-adapted fauna during periods of fluctuating lake size and aridity
  - We see a dramatic increase in mesic-adapted taxa (Reduncini) in the Shungura Fm. during maximum lake recession (~1.87-1.56 Ma) while the Koobi Fora and Nachukui Fm. display an increase of arid-adapted taxa (Alcelaphini)
  - Mixed habitat *Kolpochoerus* and arid-adapted *Metridiochoerus* further support this conclusion

- We expect an increase in mesically-adapted taxa at max. lake recession

Conclusion

- Our results indicate that the Shungura formation could have acted as a buffer zone for mesically-adapted taxa during periods of fluctuating lake size and aridity
  - We see a dramatic increase in mesic-adapted fauna (Reduncini) in the Shungura Fm. during maximum lake recession (~1.87-1.56 Ma) while the Koobi Fora and Nachukui Fm. display an increase of arid-adapted taxa (Alcelaphini)
  - Mixed habitat *Kolpochoerus* and arid-adapted *Metridiochoerus* further support this conclusion
  - *Kolpochoerus* are most abundant in the Shungura Fm. starting at ~1.87 Ma onward while *Metridiochoerus* dominated the Koobi Fora and Nachukui Fm.

References:
1. Patterson et al., 2017 Ecosystem evolution and hominin paleoecology at East Turkana, northern Kenya between 2.0 and 1.4 Ma. PPI
2. Adapted from Leen et al. 2011
4. Turkana Public Database
5. Shungura American Database

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