April 12, 2021

Dear Dr Berenbaum,

Editor-in-Chief: Proceedings of the National Academy of Sciences

Please consider the attached article titled ‘Modelling a primate technological niche, authored by Dr. Jonathan S. Reeves, Dr. Tomos Proffitt, and Dr. Lydia V. Luncz for publication in *The Proceedings of the National Academy of Sciences.*

We confirm that this manuscript constitutes original research and has not been published elsewhere nor is it under consideration by another journal.

Our study uses agent-based modelling to investigate the mechanisms through which short distance tool transport observed in chimpanzees produce landscape scale patterns of tool distribution. Chimpanzee stone tools have been recorded, in some instances, kilometers from where they naturally occur. However, the movement of tools over such distances has never been observed. To date, few studies have attempted to link observed behaviors to the landscape scale pattern as these two processes operate on different timescales. We illustrate how the repeated re-use and transport can move tools over large distances, modifying the landscape and in turn enhancing the technological niche for future generations. The complimentary material record produced by this model also provide broader insights into how this behavior translates into an archaeological signature.

Furthermore, these results also have bearing on hominin evolution as it implies that early hominins may have had the capacity to unintentionally modify their environments prior to the advent of curated tool transport. Finally, the model also have implications for how we interpret material culture, as the archaeological signature of this record is largely dependent on the density of resources in the broader landscape.

We believe that *PNAS* is the correct place to publish this research as it focuses on a current and developing discussion on the mechanisms that facilitate tool-use in both living primates and hominins.

We suggest the following reviewers as suitable to assess our study because of their expertise on stone tool transport, primate stone tool use and modeling.

Prof. William McGrew (University of St. Andrews; [wcm2@st-andrews.ac.uk](mailto:wcm2@st-andrews.ac.uk))

Prof. Kevin Laland (University of St. Andrews; [knl1@st-andrews.ac.uk](mailto:knl1@st-andrews.ac.uk))

Prof. Alison Brooks (The George Washington University; [abrooks@email.gwu.edu](mailto:abrooks@email.gwu.edu))

Prof. Steven Kuhn (University of Arizona; [skuhn@email.arizona.edu](mailto:skuhn@email.arizona.edu))

Please contact me if you have any questions, and I look forward to hearing from you.

Sincerely,



Dr. Jonathan Reeves­­