David Simons  
Centre for Emerging, Endemic and Exotic Diseases  
The Royal Veterinary College, London, UK

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Dear Dr’s Kamhawi and Brindley,

We wish to submit our research article “Rodent trapping studies as an overlooked information source for understanding endemic and novel zoonotic spillover.” for consideration at PLOS NTD.

This is our original work and has not been published elsewhere, nor is it currently under consideration for publication elsewhere.

Emerging, and endemic zoonotic diseases are predicted to have increased public health impacts in West Africa. Significant research effort has been expended on understanding the changing risk of disease emergence, in the context of pandemic preparedness. This is typically based on large, consolidated datasets of host spatial distributions and host-pathogen associations. However, current knowledge on host distributions and host-pathogen associations suffers from multiple sources of bias. We designed this study to understand whether rodent trapping can help to counteract some of these biases and to quantify the potential benefit of incorporating data from these studies.

In this manuscript, we have synthesised publicly available information on the distribution of small mammals that are potential hosts of zoonotic pathogens across West Africa to understand current sampling biases. We compare this novel dataset to other curated biodiversity datasets and show how rodent trapping studies, despite these sampling biases, can contribute additional information to understand the distribution of rodent hosts of zoonotic pathogens. We found that trapping effort within these studies are biased towards areas with high human population densities and are geographically clustered. This finding can help researchers working on zoonotic disease emergence and pandemic preparedness to identify regions that are currently poorly sampled for rodent populations and where estimates of risk would carry high uncertainty.

To directly relate these findings to previous research on rodent host-pathogen associations we further compared evidence of zoonotic infections in the rodent trapping studies with a comprehensive dataset on host-pathogen associations. We find that several host-pathogen associations reported in the scientific literature are missing from available datasets. This finding is important and highlights that consolidated datasets will be missing some information on host-pathogen associations. This will have subsequent downstream implications when modelling the spatial risk of zoonosis based on known hosts spatial distributions.

Together these findings are significant because they provide a measure of incompleteness of previously available data that are used to understand the risk of endemic and emerging zoonoses in West Africa. However, the processes that underlie these findings are likely widespread.

We believe that this manuscript is within the scope for publication by PLOS NTD and will be of interest to your readership. Endemic, and emerging zoonotic diseases, including several NTDs, have significant morbidity and mortality impacts across West Africa. This research focuses on the rodent hosts of these pathogens and will be of importance in the application of “One Health” principles in reducing the burden of these diseases. Further, the synthesised dataset we have produced has been formatted and made available in a structure that will support re-use by other researchers to help answer a range of questions on the spatial distribution of hosts and zoonotic pathogens across the region and provide a template for similar efforts in other geographic regions.

We have no conflicts of interest to disclose.

Thank you for your consideration of this manuscript.

Sincerely,

David Simons