Dear Editors,

Please find our manuscript entitled **"Land use gradients drive spatial variation in Lassa fever host communities in the Eastern Province of Sierra Leone."** submitted for consideration in the *Journal of Animal Ecology*. This study explores the effects of land use and interspecies interactions on rodent community composition in a Lassa fever-endemic region of Sierra Leone, with implications for understanding the ecological drivers of Lassa fever outbreak risk.

Our research adopts a novel approach, combining systematic rodent sampling with hierarchical occupancy modelling to account for imperfect detection. Key findings include:

1. The lower occurrence of *Mastomys natalensis* in agricultural and forested landscapes, which contributes to our understanding of previously observed LASV prevalence heterogeneity across land use gradients.
2. Evidence of interactions between *M. natalensis* and the invasive species’ *Mus musculus* and *Rattus rattus*. This suggests that *M. musculus* may play a role in displacing more competent LASV hosts in urban settings, potentially mitigating Lassa fever outbreak risk.

These findings provide new insights into the spatial and ecological dynamics of zoonotic disease risk, offering a framework for improving LASV risk models and guiding surveillance strategies in rapidly urbanising regions of West Africa.

This study is highly relevant to the scope of the *Journal of Animal Ecology*, addressing how species interactions and anthropogenic land use influence community structure and ecological processes. It advances our understanding of disease ecology, particularly the role of biodiversity and interspecies dynamics in endemic zoonoses outbreak risk, and provides evidence that can inform One Health approaches to mitigating zoonotic risks.

All authors have approved the manuscript and declare no conflicts of interest. We confirm that the manuscript adheres to the journal's data archiving policies, and all associated data have been made available.

Thank you for considering our submission. We look forward to the possibility of sharing this work with the readers of *Journal of Animal Ecology*.

Sincerely,