Madrid, January 15, 2024

Dear Editors,
Editors-in-Chief, *Global Ecology and Biogeography*

We would be grateful if you would consider the accompanying manuscript entitled "**Geographic patterns of living tetrapod diversity reveal the signature of global diversification dynamics**", for publication as a Research Article in *Global Ecology and Biogeography*.

In recent years, advances in quantitative comparative methods and an increasing availability of large-scale datasets have bolstered our knowledge of global patterns of vertebrate biodiversity. However, our understanding of the evolutionary processes generating the uneven geographic distribution of biodiversity in modern ecosystems is still incipient.

In this study, we evaluate the links between diversification dynamics, environmental factors, and geographic patterns of species richness in the four main groups of living terrestrial vertebrates (amphibians, squamates, birds, and mammals)—which encompass more than 36,000 living species and span the last 350 million years of vertebrate evolution. Specifically, our approach integrates species richness and phylogenetic relatedness across geographic areas for more than 75% of extant tetrapod species to evaluate the generative evolutionary processes shaping modern day patterns of terrestrial vertebrate diversity. This study is the first of its kind in quantitatively comparing these patterns across major tetrapod clades.

Our results reveal common geographic regions with higher or lower phylogenetic diversity than expected across all tetrapod groups (in Africa and South America, respectively), as well as a widespread effect of recent speciation rates but a negligible effect of clade age. Furthermore, environmental variables differentially affect endotherm and ectotherm lineages. Our study contributes a completely novel global perspective of the generative processes of tetrapod biodiversity which could potentially guide the application of conservation measures and stimulate future studies focused on specific clades.

Our methodology, results and conceptual perspectives are relevant for macroecologists and evolutionary biologists working in the origination and preservation of current biodiversity, as evidenced by the interest generated from the submitted preprint of this article. The phylogenetic dimension of biodiversity also bears implications for conservation prioritisation and strategy, since preserving evolutionary history, and not only hotspots of species richness, has become a priority in the face of the challenges imposed by ongoing loss of biodiversity. In summary, we believe our work is a perfect fit for *Global Ecology and Biogeography*.

All authors have agreed to the content of the manuscript and its conclusions, and the paper is not under consideration elsewhere (please note that it has been recently posted in the preprint server *bioRxiv*: https://doi.org/10.1101/2023.11.03.565445).

Yours sincerely,

Héctor Tejero-Cicuéndez
"Juan de la Cierva" postdoctoral researcher
Department of Biodiversity, Ecology and Evolution
Complutense University of Madrid (UCM)
C/ José Antonio Novais 12
28040 Madrid
hetejero@ucm.es