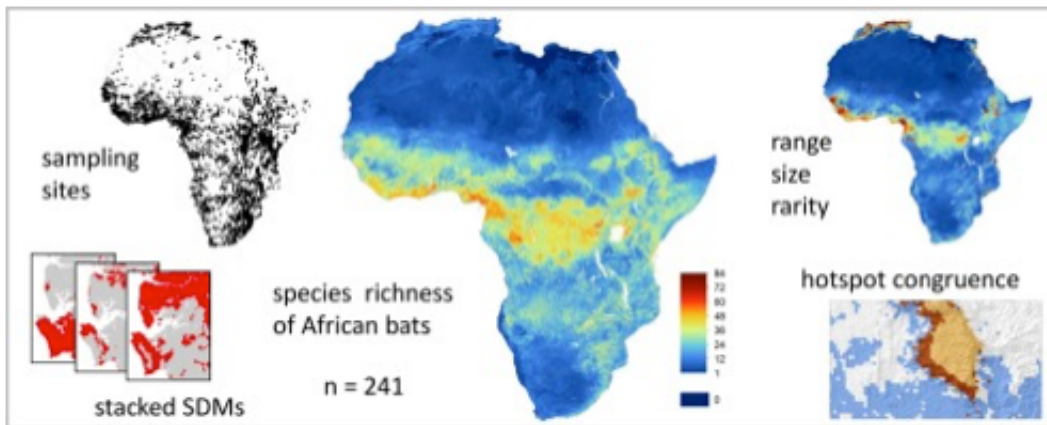


Unique high-resolution map on bat diversity in Africa

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Map on species richness of African bats

Researchers of the ITC Faculty of Geo-Information Science and Earth Observation of the University of Twente have developed a unique map of all 250 African bat species on a high-resolution scale (1 km²). There are very few examples of biodiversity richness based on quantitative data at a continental scale, especially for challenging guilds like bats. The findings of the research are presented in the January edition of the scientific journal *Ecological Modelling*.

The researchers have created state-of-the-art species distribution models (SDMs) for a large taxonomic group and demonstrated that by stacking these, a plausible model of fine-grained continental species diversity and

endemism patterns can be obtained despite often scarce and biased occurrence data (the so-called 'Wallacean shortfall'). Very few such studies have hitherto been published that cover a large and complete taxonomic group with fine resolution at continental extent.

Bats in Africa

Bats are the second-most species-rich mammal group numbering more than 1270 species globally. Knowledge of their geographic distributions and diversity patterns however is very limited – possibly the poorest among mammals – mainly due to their nocturnal and volant life history, and challenging fieldwork conditions in the tropics where most bat species occur.

The research findings suggests that African [bat species](#) richness generally increases towards the equator, varies substantially within the equatorial zone of elevated richness, often showing a positive association with high topo diversity at relatively low elevations, and accommodates surprisingly steep gradients over a few kilometers, especially near rivers in savanna biomes.

Centers of endemism (hotspots of summed range size rarity) are mostly found in or near areas characterized by substantial elevational ranges – on tropical mountains often at higher elevations than hotspots of species richness. Spatial congruence between richness and rarity hotspots is relatively low although this depends on the definition of both rare [species](#) and hotspot size.

Further deployment of the approach

The approach in general, and the presented model in particular, should prove valuable for a range of applications because the maps of African

bat diversity and endemism presented constitute one of the few published datasets featuring high spatial resolution, large geographic extent, and broad taxonomic scope.

Owing to these properties, and in combination with the underlying individual SDMs, the model may help optimize protected area networks, support survey planning, and feed into biodiversity monitoring schemes. The generated data also lend themselves to a range of macro ecological analyses, including tests of hypotheses across spatial grains finer than the common limit of 1° as well as studies distinguishing taxonomic subsets and functional groups.

More information: K. Matthias B. Herkt et al. A high-resolution model of bat diversity and endemism for continental Africa, *Ecological Modelling* (2016). [DOI: 10.1016/j.ecolmodel.2015.09.009](https://doi.org/10.1016/j.ecolmodel.2015.09.009)

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