BIOGEOGRAPHY

Impacts on zooregions*Ecol. Lett.* **22**, 1297–1305 (2019)

Credit: Xuan Che / Getty

Human activities such as farming and urbanization affect landscapes and biodiversity. Areas of the Earth defined by characteristic species groups are called zooregions. These biologically based geographies are considered robust to human influence given their size and the long histories of speciation, extinction and colonization that shape them.

Rubén Bernardo-Madrid, of the Estación Biológica de Doñana-CSIC, and colleagues used a network-based classification system to define zooregions. The authors used actual and hypothetical scenarios combining native, introduced and extinct species, and focused on vertebrates, using range maps from the International Union for Conservation of Nature (IUCN) and from BirdLife International. They found that human-mediated introductions and

extinctions of species are indeed altering these broad groupings. For example, introductions are increasing the similarity of African and Eurasian mammal zooregions, and a combination of introductions and extinctions of threatened species are making amphibian zooregions representing the Old and New Worlds undetectable. These findings suggest that changes and re-shuffling of vertebrate species caused by human activities are doing more than reducing biodiversity and affecting ecosystems; they are literally changing the map of life on Earth and impacting ongoing efforts to conserve it.

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