

Science for Environment Policy

Biodiversity databases: language and location help explain biases

Richer countries have more resources for gathering biodiversity information, creating a biased view of the world's species and their distribution. However, a new study argues that there are other reasons why some countries are underrepresented in global biodiversity databases, with low numbers of English speakers, large distances from the database host and low security acting as key barriers to data collection.

Biodiversity is closely monitored in some areas of the world, such as Europe and North America, but not in others, such as in the tropics. This means we have limited information for many regions and an unclear view of global biodiversity.

The researchers investigated the impact of four potential barriers to biodiversity monitoring: wealth, the proportion of English speakers, security and geographical distance from organisations hosting global biodiversity databases. Previous studies have tended to focus on wealth alone, and the researchers argue that a better understanding of a wider range of factors is crucial to gaining a clearer picture of the world's biodiversity.

They studied biodiversity data from four databases: the Global Biodiversity Information Facility (GBIF), Global Population Dynamics Database (GPDD), MoveBank and the European Union for Bird Ringing Databank (EBD). The GBIF and GPDD cover a wide range of species, whereas Movebank focuses on animal movements and the EBD on birds.

For each database, most records were concentrated in northern and western Europe, and North America. The GBIF, which hosts millions of records, covered most regions of the world to some extent, but the majority were European and North American records. The EBD contains millions of records for Europe, particularly in the UK, the Netherlands, Hungary, Belgium and Denmark. The GPDD and MoveBank host a few thousand records each, with patchier coverage, but also concentrated in Europe and North America.

The researchers found that the impact of each of the four barriers alone explained up to 12-20% of the variation in coverage. When correlations with other barriers were considered, each barrier explained up to 24-45% of the variation. In general, there were more records for wealthier countries, which have higher numbers of English speakers, higher security levels, and which were close to the organisation hosting the database.

Wealth, or the absence of it, may pose the biggest barrier to the collection of biodiversity data, since it determines the budget for science and education. However, in this study, wealth cannot explain 80% of the variation in coverage, according to the researchers.

Low levels of English speakers may hinder scientific surveys and reduce opportunities to contribute to global databases, they suggest. Countries with low security may divert their money from science to the military and political instability. Finally, lack of face-to-face communication may impede information exchange with countries located far from the hosts of the biodiversity databases.

The researchers suggest that funds for biodiversity research in developing countries should be shared between countries with high and low proportions of English speakers, and that greater efforts should be directed at countries further away from organisations that manage global biodiversity databases.



6 June 2013

Issue 331

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Source: Amano T. and Sutherland W.J. (2013). Four barriers to the global understanding of biodiversity conservation: wealth, language, geographical location and security. *Proceedings of the Royal Society B*. 280: 20122649.

DOI:0.1098/rspb.2012.2649.

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To cite this article/service: "[Science for Environment Policy](#)": European Commission DG Environment News Alert Service, edited by SCU, The University of the West of England, Bristol.