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Editorial

Striking underrepresentation of biodiversity-rich regions among editors of conservation journals

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ABSTRACT

Biodiversity conservation is hampered by mismatches between conservation capacity and needs for research, funding, policy, and management. Here we show that a profound geographical mismatch also exists among editors of 20 leading conservation science journals. Collectively, these journals had few or sometimes no editors from many of the most biodiverse countries. This geographic bias likely influences what papers and topics are published and highlighted, and hinders global conservation goals. Compared with other biases, it is relatively easy to address this mismatch through journal policies and practices to recruit editors from under-represented countries, perhaps helping to reduce other mismatches too. Recruiting more editors from biodiversity-rich countries could improve conservation science by (1) adding diversity of expertise and perspectives to editorial boards and (2) creating capacity and empowering conservation leaders in countries where effective conservation is most needed.

1. Introduction

Tackling the human-caused biodiversity crisis (Johnson et al., 2017) is one of the greatest challenges of our time (Steffen et al., 2015). Biodiversity and threats to it are both geographically unevenly distributed (Myers et al., 2000). Regions richer in biodiversity tend to have greater conservation needs but often lack the resources and human capacity to conduct effective conservation.

Inequality and biases are prevalent in science (e.g. Sugimoto et al., 2013; Mori et al., 2015; Stephan et al., 2017). Conservation science is no exception and it suffers from important geographic disconnects between conservation needs and resources. Tropical ecosystems, for example, host much of the world's biodiversity but are poorly understood and represented in global databases compared with less diverse temperate systems (e.g. Lenoir and Svenning, 2015; Feeley et al., 2017). Conservation research is lacking where it is most needed (e.g. Deikumah et al., 2014; Wilson et al., 2016; Mammides et al., 2016), and studies from high-priority regions (i.e., areas particularly rich in biodiversity and endemism) are less frequently published in readily accessible open access journals (Wilson et al., 2016). Further, much if not most conservation science in certain priority regions is not conducted by local researchers (Stocks et al., 2008), and experts from many biodiversity-rich countries are poorly represented in global conservation forums such as the International Union for Conservation of Nature (IUCN) and the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES; Wilson et al., 2016). The same geographical biases exist in the conservation science publishing system; for example, most reviewers for *Biological Conservation*, a leading journal in biodiversity conservation, are based in a handful of English-speaking Western countries (Primack et al., 2016).

These geographical biases are unfortunate. As a normative field, conservation science and its application are inextricably intertwined with culture—e.g., conservation values, cultural history, economy, and many other traits that can vary dramatically from country to country (McClanahan and Rankin, 2016). So geographical biases in databases, research, the publishing system, and other aspects of the scientific community could limit or omit key perspectives and approaches from the conservation literature, and in turn contribute to misinformed conservation policies and misallocated funding (Karlsson et al., 2007; Waldron et al., 2013; McClanahan and Rankin, 2016). Foreign-based expertise is unlikely to effectively compensate for the lack of local capacity to conduct high quality conservation science as well as to translate this science into conservation policy and practice. Understanding and reducing bias in conservation science, and the conservation publication system in particular, is therefore important.

Our aim is to investigate geographical biases within the leadership of the conservation science publishing system—specifically, journal editors. Journal editors serve as gatekeepers and leaders in the scientific process. They decide what science gets published and whose research is highlighted, and they influence decisions on what science gets funded. Geographic bias in editors could contribute to biases in these other critical areas of the scientific process, and could influence research and policy (Karlsson et al., 2007). Our assumption here is that the existence of marked geographical biases might have negative impacts on conservation science by (1) excluding relevant diversity from editorial boards and (2) hindering the development of world-class conservation in biodiversity-rich regions.

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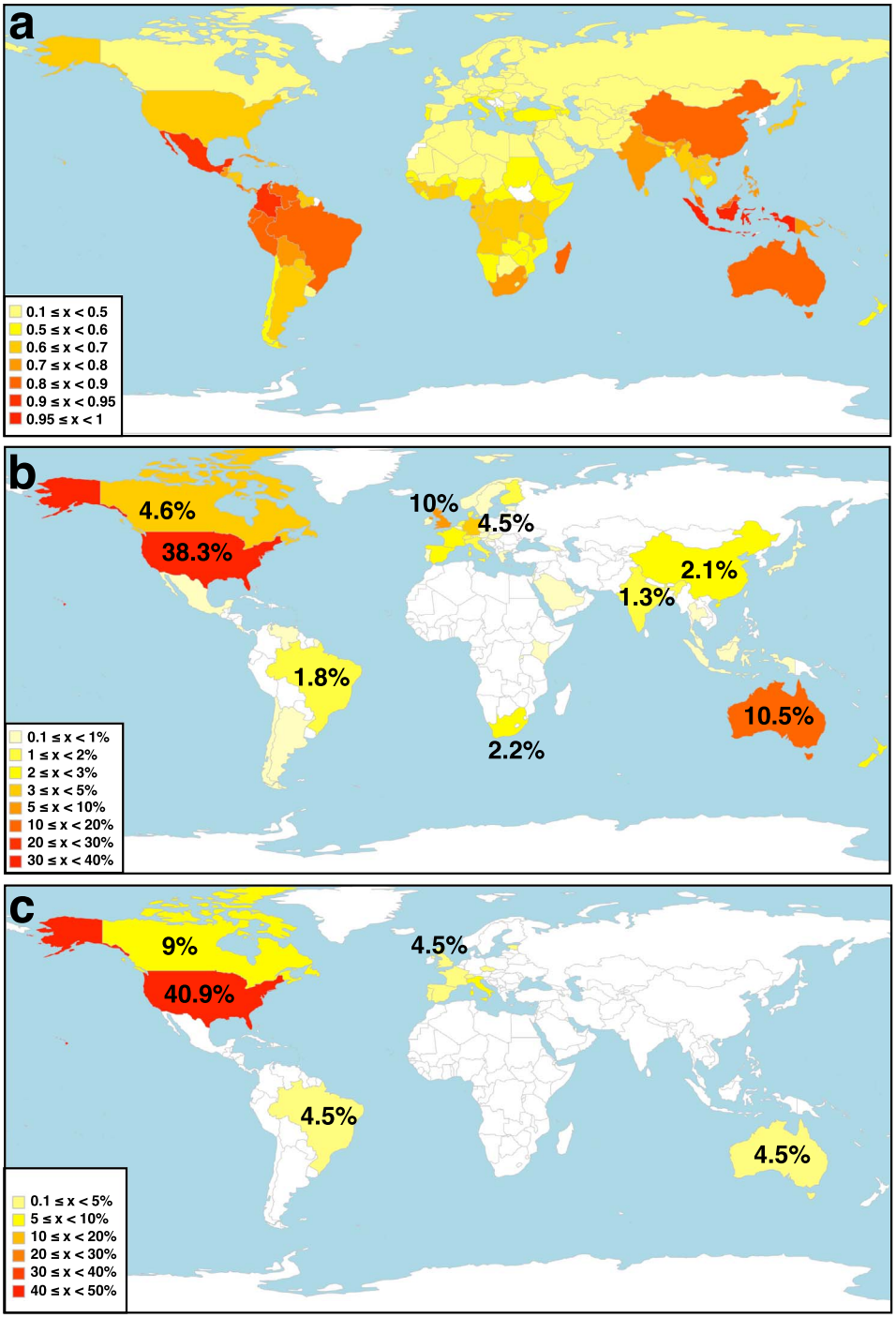

Fig. 1. Geographic distribution of (a) National Biodiversity Index (NBI) with 1 being the highest and 0 being the lowest and the percent of (b) editors and (c) editors-in-chief in 20 top conservation science journals.

2. Methods

We used Google Scholar Metrics (https://scholar.google.com/intl/en/scholar/metrics.html) to identify the top 20 journals in the field of 'biodiversity and conservation biology'. For each of these journals, we retrieved the complete list of their editorial board members as of April 2017, including information on each editor's role on the board (editor-in-chief or equivalent, subject editor, or member at large of the editorial board) and country of affiliation as indicated in the journal's website. We then used the Convention on Biological Diversity's National Biodiversity Index (NBI) as an indicator of national biodiversity values. NBI is based on estimates of countries' richness and endemism in four terrestrial vertebrate classes and vascular plants, and includes an adjustment for country size. NBI values range from 1 (maximum) to 0 (minimum). NBI values are not available for countries with land areas less than 5000 km^2 or for overseas territories and dependencies. For details see https://www.cbd.int/gbo1/annex.shtml.

We show geographical patterns by mapping the distributions of editors and NBI values by country. We used Pearson correlation to analyze relationships between national NBI values and the number of editors in leading conservation journals.

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3. Results

Our dataset included a total of 1210 editorial positions (1144 different editors) in 20 journals (Table S1) in biodiversity and conservation biology. Journals had an average of 60.5 ± 20.2 SD editors on their boards. The editors were affiliated with a total of 49 different countries (Fig. 1 and Table S2). The countries with the highest number of editors were the United States (38.3% of all the editors in the database), Australia (10.5%), and UK (10.0%). Editors affiliated with institutions in Africa, Asia, and Central and South America (including Mexico) accounted for just 12.7% of the total (Fig. 1). There was no correlation between the number of editors and the NBI for a country ($r = 0.05$, $t = 0.65$, df = 159, $P = 0.5$). Most of the countries with the highest NBI values had surprisingly few editors representing them at top conservation journals. For example, Indonesia (NBI = 1, the highest value in the scale) had only one editor, and Colombia (NBI = 0.94), Ecuador (0.87), Peru (0.84), Madagascar (0.81), Philippines (0.79), Papua New Guinea (0.78), and most of tropical Asia had not a single editor at these journals (Fig. 1 and Table S1). Similarly, China, India, Mexico, and Brazil are all large, biodiverse and populous countries with very few editors at top conservation journals. The United States, Canada and European countries, especially the United Kingdom and Germany, are strongly over-represented on editorial boards relative to their NBI values (e.g. the United Kingdom has a very low NBI value—0.32, ranking 39th among 45 countries with NBI represented on editorial boards—but ranks 3rd in number of editors; Table S1). Australia and South Africa rank highly in both NBI and number of editors (Fig. 1). Editors-in-chief were based in many different countries (12 countries for 22 editors-in-chief; one journal had no editor-in-chief and another journal had four; Fig. 1 and Table S1) but were highly biased towards Western countries: 50% were based in the United States and Canada, 41% in Europe, and only one in Brazil and Australia, respectively (Table S2). There was also no correlation between a country's NBI and the number of editors-in-chief affiliated there ($r = 0.03$, $t = 0.34$, df = 159, $P = 0.7$; Fig. 1).

4. Discussion

We found a striking geographic mismatch between conservation needs and expertise. Most of the world's biodiversity and biodiversity needs occur in tropical countries; however, leadership of the conservation science publishing system is highly concentrated in North America, Europe, and Australia. Editors from the Global South account for a small proportion of those in conservation journals. These patterns are unsurprising; they correspond to geographic patterns in peer-reviewers (Primack et al., 2016), conservation research, researchers, and representation in expert forums (e.g. Wilson et al., 2016), among other indicators.

Unlike most other geographic biases within the scientific community, however, correcting bias in the geographic representativeness of editors could be relatively easy, and could help reduce biases elsewhere in conservation science. Conservation journals can quickly adopt policies and practices to recruit editors (and reviewers) from biodiversity-rich countries, for example by creating ‘regional editor’ positions (Mammides et al., 2016). They could train and empower relatively senior and already established scientists in high-NBI countries. It is perplexing why some countries—such as India, China, Brazil and Mexico, which have strong universities and research organizations—are not better represented on editorial boards in conservation. Recruiting new editors from other countries with fewer conservation scientists and less resourcing might be more challenging in the short term. Concerns about the impacts of adding less-experienced editors could be addressed through mentoring and training programs.

Similar diversity issues have been tackled in other spheres comparable to the editorial boards of scientific journals. Many corporate boards, for example, have rapidly changed their composition to become more diverse and inclusive, often aiming to improve their gender and cultural balance (Catalyst, 2014). Although the effects of this inclusion are difficult to measure, there seem to be positive impacts on social and ethical aspects of firm behavior (e.g. Kirsch, in press).

For conservation science, increasing geographic inclusion of journal editors would add diversity of ideas and expertise, which can be of great value. It could lead to a better representation of cultural perspectives and approaches through decisions related to selecting publications for submission, encouraging authors to submit to a particular journal, highlighting research, or commissioning special issues on particular topics. Additionally, creating and recruiting for leadership opportunities for scientists from poorly represented, high NBI countries could have positive local conservation impacts by empowering local conservation scientists, incentivizing and facilitating more scientists in these countries to pursue conservation research.

Of course, there are many other obstacles to building scientific capacity in underrepresented, high-NBI countries, including funding, infrastructure, and culture (McClanahan and Rankin, 2016). However, increasing geographical representation of journal editors is a relatively quick and cost-effective step the community can take in what is often a slow and expensive process (Latta and Faaborg, 2009; Heitor et al., 2014).

We therefore suggest conservation journals consider revising their policies and ensure the representation of biodiversity-rich countries in their editorial boards. We believe this action will lead to better conservation science capacity in these countries, will encourage well qualified and recognized local conservation experts and leaders (Waylen et al., 2010), and will benefit the conservation science and its application more generally.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at http://dx.doi.org/10.1016/j.biocon.2017.07.028.

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Ahimsa Campos-Arceiz*
School of Environmental and Geographical Sciences, University of Nottingham Malaysia Campus, Jalan Broga, Semenyih 43500, Selangor, Malaysia
Mindset, Interdisciplinary Centre for Environmental Studies, University of Nottingham Malaysia Campus, Jalan Broga, Semenyih 43500, Selangor, Malaysia
E-mail address: ahimsa@camposarceiz.com

Richard B. Primack
Biology Department, Boston University, 5 Cummington Mall, Boston, MA 02215, USA

Abraham J. Miller-Rushing
US National Park Service, Acadia National Park, Schoodic Education and Research Center, Bar Harbor, ME, USA

Martine Maron
The University of Queensland, School of Earth and Environmental Sciences and Centre for Biodiversity and Conservation Science, Brisbane, Queensland, 4072, Australia

* Corresponding author at: School of Environmental and Geographical Sciences, University of Nottingham Malaysia Campus, Jalan Broga, Semenyih 43500, Selangor, Malaysia.