



Discussion

Increasing geographic diversity in the international conservation literature: A stalled process?



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ABSTRACT

Tropical countries are important to conservation because of the threats to the high levels of biodiversity there, but research on conservation science in these mostly developing countries has traditionally been written by foreigners. This disconnect could have serious implications for the practice of conservation, as local scientists can be more effective than foreigners in interacting with practitioners or pushing forward conservation action themselves. These scientists' careers are strengthened by participation in the international literature, and their knowledge about conservation's success in their country provides necessary feedback to the theoretical literature. We assess the past and current status of geographic diversity in the international conservation literature, over 30 years and in comparison to other fields, as well as present acceptance rate data from prominent journals, broken down by the country of corresponding authorship. While the proportion of articles in all fields contributed by low and medium income countries increases over time, the percentage of conservation articles contributed by corresponding authors from low income countries is actually declining. Manuscripts by authors from low income countries were less than half as likely to be published as those from high income countries. We present a list of specific policies that journals can implement to reverse these trends, such as having regional editors, providing editing assistance, waiving fees, and seeking locally focused studies from which globally relevant strategies and lessons can be drawn. We also stress that long-term the problem can best be addressed by funding educational institutions that develop young researchers in the tropics.

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1. Introduction

A central problem for conservation biology is that tropical countries not only hold the most biodiversity in the world (Willig et al., 2003) but also face the greatest threats to biodiversity, primarily in terms of habitat loss, driven by population density and agricultural expansion (Myers et al., 2000; Laurance et al., 2014). Tropical countries have historically been less developed (Sachs, 2001) and remain so even today (Fig. 1A, note the difference in percentage of high income, OECD countries, and low income countries, between tropical and temperate countries), and

thus have less resources to study how to conserve biodiversity or mitigate its loss. Hence, the international conservation literature has been, and continues to be, dominated by developed, temperate countries (Fazey et al., 2005; Lawler et al., 2006; Griffiths and Dos Santos, 2012; Habel et al., 2014; Meijaard et al., 2015; Velasco et al., 2015).

The field of conservation science has been justly criticised as not sufficiently relevant to the biodiversity crisis (Habel et al., 2013). The problems are multiple, including not asking the necessary questions (Whitten et al., 2001; Meijaard and Sheil, 2007), not interacting enough with the practitioners (Knight et al., 2008; Laurance et al., 2012), or not encouraging scientists to act on their recommendations themselves (Arlettaz et al., 2010). Yet part of this gap between research and practice could be due to the geographic disconnect between where conservation action is needed and who is conducting the research. Conservation outcomes are largely influenced by socioeconomic and political

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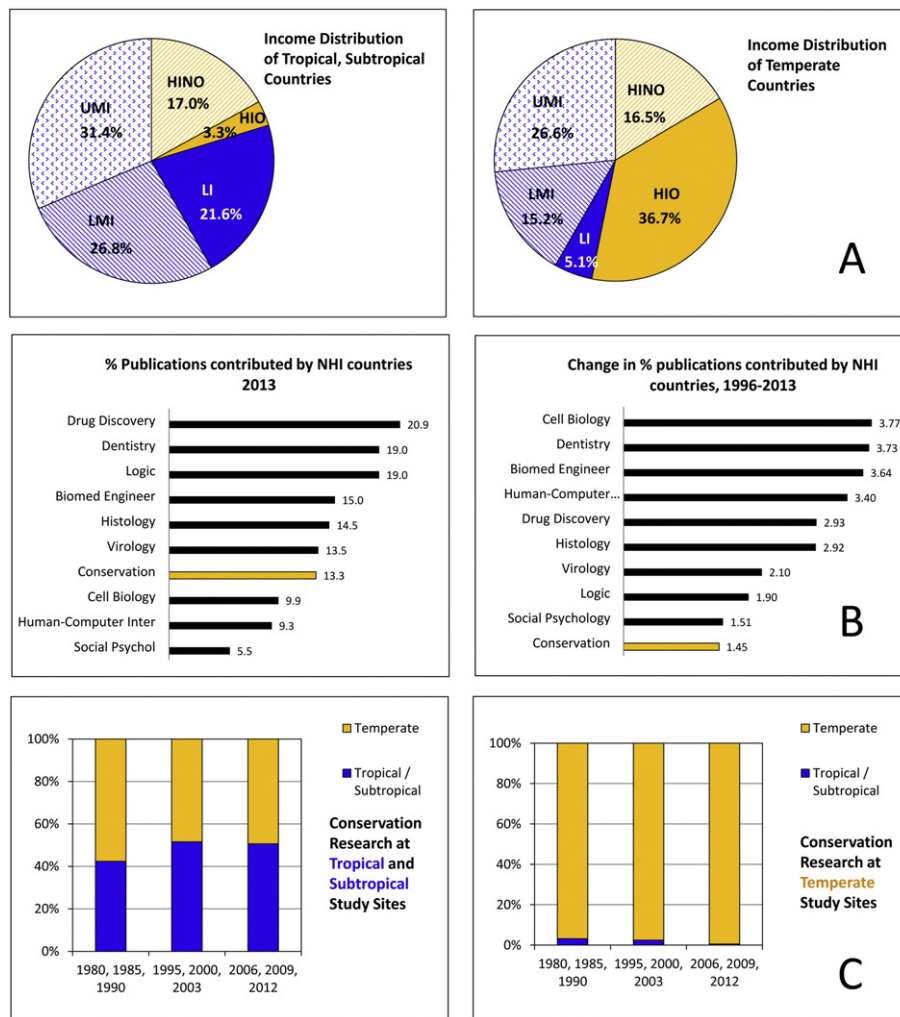


Fig. 1. The economic developmental status of tropical and subtropical countries relative to temperate countries (A; data and classifications from the World Bank), the relative contribution of non-high income (NHI) countries in the conservation field to the international literature relative to other fields (B; data from SCImago), and the proportion of research conducted in subtropical and tropical countries that was conducted by researchers from such countries (C; data from the literature review). Income categories: HIO = high income, OECD (Organisation for Economic Co-operation and Development) country; HINO = high income, non-OECD country; UMI = upper middle income; LMI = lower middle income; LI = low income. In the SCImago analysis, we divided countries' publications for a year by their population, so that large countries, and country-specific policies, would not dominate the patterns.

considerations (Barrett et al., 2001; Dietz et al., 2003). Thus, recommendations made by foreigners may not hold as much weight as those by people native to a country or region. Further, local conservation scientists share the language and culture of the people they live among or the conservation practitioners they work with, and hence may be more effective in changing attitudes and actions towards conservation (Waylen et al., 2010). It is also necessary for researchers from tropical countries to develop their own academic careers to the point where they can secure a seat at the table in a policy debate. To do so, success in the international literature is increasingly required throughout the world (Salager-Meyer, 2008; Franzoni et al., 2011; van Dijk et al., 2014), although we note that regional or local language literature has a significant role to play in directing conservation action. A lack of openness of the field towards voices from developing countries is not just a loss for those countries, but a loss for readers in high income countries, who get a misleading view of what the most important issues are for conservation globally.

A recent call for “inclusive conservation” (Tallis and Lubchenco, 2014), makes it an opportune time to assess geographic diversity (Wardle, 2014), as well as representation of both genders. Here we provide data on the past and present levels of geographic diversity in the international conservation literature, as well as put forth solutions that address the problem. Regarding the data, we emphasise three

components that give a comprehensive picture of the literature's diversity: a comparison of conservation to other fields; an analysis over a long time series; and data on acceptance rates broken down by the country of corresponding authorship. The comparative, long-term data are needed because much has changed since the blossoming of conservation biology in the early 1980s (e.g., Soulé, 1985). The economic balance between developed and developing countries has been substantially altered (Spence, 2011), and the publication industry has been revolutionised with new open-access journals that have changed how knowledge is accessed, including that about conservation (Cronin et al., 2014; Gossa et al., 2014). Previous studies that focus on the geographic diversity of authorship in the conservation literature have, however, looked at a static time period (Fazey et al., 2005) or time periods ten years apart (Velasco et al., 2015), without comparison to fields other than conservation. Finally, data on acceptance rates are critical to understand the obstacles that authors from tropical and developing countries need to overcome to publish in the international literature (Primack et al., 2009).

We investigate these questions through (Section 4) an analysis of publication patterns in SCImago (www.scimagojr.com), comparing conservation to nine randomly selected other fields between 1996 and 2013, (Section 5) a literature review of conservation publications over a longer time series (1980 to 2012), and (Section 6) an analysis of

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