

COMMENTARY

Urban bird ecologists cite more publications from the Global North; why?

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Publications are an essential component of the scientific process. They are not only venues for reporting the results of scientific studies, together with views and values of scientists, but also comprise the pieces that structure modern scientific knowledge that has led to great discoveries and technical applications (Allen et al. 2009; Gilyarevskii 2014). As eloquently and metaphorically put by Sir Isaac Newton, intellectual progress is given by adding to the understanding gained by the work of those that have gone before. The modern way in which we acknowledge ‘standing on the shoulders of giants’ is by citing their previous work in future publications. Thus, those sources that have influenced our thinking and research are often cited in our publications, ranging from the framework, methods and technical procedures, to discussing findings (Zhang et al. 2013).

Although the citation practice seems to be a straightforward one, it has been long known that citation biases are common across scientific publishing (Callahan et al. 2002; Perneger 2010). Biases have been frequently highlighted, often focused on the gender gap, nationality, and statistical significance of results, with females, developing countries, and non-significant

results being less cited than their counterparts (Grange 1999; Jannot et al. 2013; Østby et al. 2013). The decision of citing a publication can be influenced by a plethora of non-scientific criteria with authors applying the so-called ‘citation machinery’ to gain the attention of editors, referees, and/or colleagues, as well as citing targeted documents that support their results (Vinkler 1987; Bornmann and Daniel 2008). Also related to the latter, the journal impact factor, mainly focused on the Journal Citation Reports (JCR) (Clarivate Analytics 2020), has also been found to be an important driver in the decision to citing a document. Citing high impact journal publications often increases the citation of those journals with prestige or high impact factor due to the broadness of the venue, the dynamics of the discipline, and/or the number of researchers focused on the specific topic (Grange 1999; Callahan et al. 2002).

The nationality citation bias has been particularly addressed as a geographic one. According to a review of more than 35 000 citations over a 7-year period, countries with more research resources, thus higher academic productivity, were more cited (e.g. USA; Pasterkamp et al. 2007). In agreement with the latter,

Meneghini et al. (2008) identified a pattern from publications in high impact factor journals, in which publications of Latin American authors (i.e. Argentinian, Brazilian, Chilean, Mexican) were less cited when contrasted to those from developed countries (i.e. North Americans, English, French, Japanese, German). However, the specific causes behind these biases are multifactorial and complex to untangle. One interesting novelty to the topic is the increasing collaborations among international authors, which appears to be positively associated with higher citation rates (Confraria et al. 2017).

Given the recent rise in urban ecology publications from the Global South, we wondered if such a geographic bias in the citations to publications on the topic performed in the Global North (e.g. USA, Canada, Europe, Japan, Australia, New Zealand) and Global South (e.g. Latin America, Africa, Pacific Islands, Asia) existed. We took a thoroughly curated dataset of primary publications focused on urban bird community patterns and responses from across the world, which is being used for a literature review (Rega-Brodsky and MacGregor-Fors in prep). Briefly, we performed a search in the Web of Science using the following advanced Boolean operator string: TS=(("urban" NOT disturbance* OR city OR cities OR town) AND (bird OR avian) AND (communit* OR assemblage* OR biodiversity OR "species richness" OR richness OR diversity OR composition)). From the total of 2596 retrieved publications, we thoroughly screened out publications that were not focused on urban bird community/assemblage approaches coming from original primary peer-reviewed documents. This screening yielded a set of 407 publications, for which we searched for the total number of citations in the Web of Science. We found citations from other sources such as Google Scholar to be tightly correlated with those of the Web of Science ($r = 0.96$, $P < 0.001$); thus, we only focused on the later in our assessment. All publication citations were standardized by the number of years since their publication to avoid temporal biases. For this reason, we removed 20 publications identified for 2020 and only included publications from up to 2019. Our final dataset for this commentary included 387 publications from 142 scientific journals. We considered studies to be Global North or South based on the urban settings they were performed in, not considering author nationality.

There are two important pieces of information that are fundamental to the interpretation of our assessment. First, the

majority of studies in our dataset were performed in the Global North (60%; Fig. 1). Secondly, the JCR impact factor (Clarivate Analytics 2020) of studies from the Global North was not different to that of studies from the Global South, with the exception of the last decade, where studies from the Global North had a higher JCR impact factor (Global North: $3.184 \pm \text{SD } 1.85$; Global South: $2.42 \pm \text{SD } 1.75$; Fig. 2). In this sense, it is evident that there is not an important gap in the JCR impact factor of the assessed publications to explain our results. Albeit we recognize that the JCR impact factor has been heavily criticized as a metric of publication quality (Tort et al. 2012; Casadevall and Fang 2014), it is one of the few recognized altmetrics that can be used as a proxy of journal quality when assessing large datasets.

Our results show that when considering the entire dataset, the corrected number of citations to publications from the Global North ($3.11 \pm \text{SE } 0.21$) was significantly higher than citations to the publications from the Global South ($2.13 \pm \text{SE } 0.14$; $t = 3.52$, $df = 380$, $P < 0.001$). When we assessed changes across the decades, we only had comparable data for three time periods: 1991–2000, 2001–2010 and 2011–2019. On average, differences between citations of publications from the Global North were 44% higher than those from the Global South (1991–2000 = 54% higher, 2001–2010 = 38% higher, 2011–2019 = 41% higher; Fig. 3). When assessing the 50 most cited papers by year

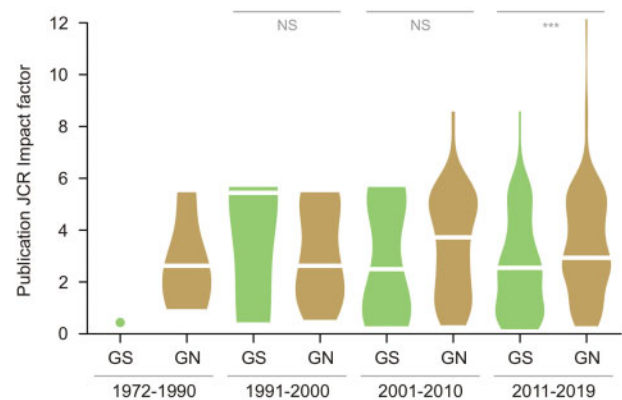


Figure 2. Clarivate's Journal Citation Reports (JCR) impact factor temporal trend in the Global North (GN, Brown) and South (GS, Green).

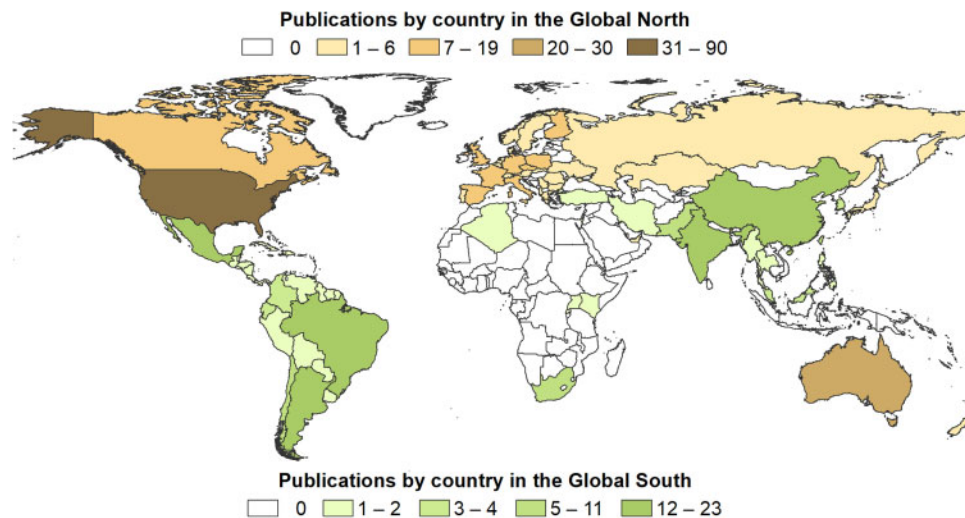


Figure 1. Geographic distribution of urban bird community publications by country from the Global North (e.g. USA, Canada, Europe, Japan, Australia, New Zealand) and Global South (e.g. Latin America, Africa, Pacific Islands, Asia).

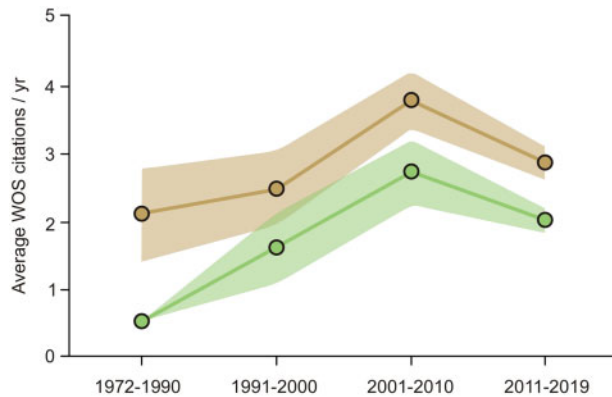


Figure 3. Temporal patterns of Web of Science (WOS) citations by year for urban bird community publications from the Global North (brown) and Global South (green). Shaded areas represent SE.

in our dataset (all of which have been cited ≥ 5.85 times per year), we found that 40 (80%) of them were from the Global North. Notably, the average number of citations per year for the most cited publications did not differ between those performed in the Global North ($8.72 \pm \text{SE } 0.48$) and South ($7.98 \pm \text{SE } 0.43$; $t = 1.09$, $df = 31$, $P = 0.28$). Altogether, our results show that not only publications from the Global South have been regularly less cited in the urban bird community literature, but they also only comprise 20% of the most cited papers.

Although it is basically impossible to untangle the root of such a consistent pattern of studies from the Global North being more cited than those from the Global South, there are some thoughts worth having in mind. Many of the researchers from the Global North have been publishing on the topic for decades now, many of which have gained individual prestige and involvement in large renowned networks, all of which are reasons why colleagues could tend to follow their work closer than some rising researchers from the Global South. Although older publications tend to get more citations because of the time they take to be known and considered by colleagues, we did not find correlations between the standardized citations by year and their year of publication (Global North: $r = 0.02$, $P = 0.67$; Global South: $r = -0.04$, $P = 0.62$). It is also true that, as Marzluff (2017) stated in his recent review, studies from the Global South still tend to be more general in their approach, while a growing proportion of studies from the Global North are seeking to untangle many of the mechanisms behind the identified patterns. Two additional important things to consider are: (1) that although less often nowadays, research from the Global South sometimes gets published in languages other than English, but titles and abstracts are indexed in English and (2) that research funding and resources are highly limited across the Global South, commonly impeding colleagues to cover fees for open access, which could decrease the probability of their studies being acquired by colleagues and eventually cited (McCabe and Snyder 2014).

Regardless of the reason behind the bias that we recorded across time, we encourage our fellow colleagues to broaden their borders in searching for and following research from across the globe. By doing so, we could get closer to building an integral framework, which in turn could lead us to increase our understanding of how urbanization and birds relate. Almost a decade ago, Ortega-Álvarez and MacGregor-Fors (2011) underlined the existence of important differences in the composition of main feeding guilds in different regions from across the

Global South (e.g. insectivores in Latin America), which are still overlooked in the literature seeking generalizations and identifying particularities. Actually, a recent review on bird species richness and composition patterns in urban Latin America highlighted several differing patterns when contrasting those reported for the region and those from the Global North (MacGregor-Fors and García-Arroyo 2017). Also, given that some urban ecology concepts differ regionally across the globe (e.g. 'rural'; MacGregor-Fors and Vázquez 2020), it has been complicated to contrast urban-rural gradient studies from the Global North and South. Thus, we encourage colleagues to use standard or measurable concepts that allow further comparisons, avoiding heavy jargon or regionalisms.

Obviously, citations in a publication should only occur when needed, with the quality of studies and their scope being determinants for their use; however, we can always increase the scope and source of the publications we read and often include in our reference managers, which are ultimately the ones that are going to comprise our citable universe. Inevitably, in the process of consolidating urban ecology as a discipline, we need to develop generalizations and identify particularities across the globe, which will only be possible if we consider evidence provided from all regions of the world, avoiding all possible sources of bias, including the geographic one.

DATA AVAILABILITY

All data generated or analyzed in this study is available upon request to the corresponding author.

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Conflict of interest

The authors declare that they have no competing interests.

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