



Editorial: Developments in biogeography

40 YEARS OF GROWTH

This issue marks the onset of the fifth decade of the *Journal of Biogeography*. The first issue was published in March 1974 under the editorship of David Watts, with John Flenley and Daniel Simberloff acting as associate editors. The journal was then a slim, sub-A4-sized publication appearing in four issues a year and including an eclectic mix of papers from study systems around the globe and featuring various short notes as well as a staple and valued diet of book reviews. It is interesting to reflect on the developments in the subject across the 40-year span that has elapsed since that first issue, as recorded in what has become a leading forum for biogeographical research and thinking. Equally interesting, to me at least, are the accompanying transitions in the nature of scientific papers and of ‘publications’ themselves and how they are communicated, disseminated and curated.

The growth of a journal reflects various supply and demand constraints as well as changing editorial policy, and should not be assumed to reflect subject growth in a simple fashion. Nonetheless, it is worth recording the increase in the number of articles published in the journal (Fig. 1) and noting that under Philip Stott’s editorship (from mid-1987 to mid-2004) the journal not only switched to the larger A4 format (1989) but also launched two sister publications as part of the same subscription (Stott, 2004). These journals, *Global Ecology and Biogeography* (launched in 1991 as *Global Ecology and Biogeography Letters*) and *Diversity and Distributions* (launched in 1993 as *Biodiversity Letters*) are both now recognized as leading journals in the field. Overall, these developments represent a huge increase in volume and I believe do reflect a substantial

growth in biogeographical research globally over this period.

The recent pause in the upward trend in the number of papers published in the *Journal of Biogeography* (Fig. 1) belies an underlying increase in content through the introduction about 10 years ago of online Supporting Information. The volume of this supplementary content has steadily increased, and currently over 80% of articles (and nearly all standard research papers) include online appendices. Browsing articles from the earlier years of the journal it is relatively commonplace to find data sets published within the article, whereas currently such material (which can be voluminous), along with GenBank numbers and voucher specimen data, is far more likely to be found in the online Supporting Information or in other data repositories. Supporting Information is readily available to all users of the journal but the content is not searchable via the web, nor is it cross-referenced in the same way as the main body of the paper. The growth of this content and the difficulties experienced by authors in keeping papers to within our guidelines on article length reflects the increasing size and complexity of both data sets and analyses in biogeography.

CHANGES AND CHALLENGES

When I read the *Journal of Biogeography* as an undergraduate student in the late 1970s I did so using the printed copy of each issue available in the Brynmor Jones Library at the University of Hull. Sometime after the final issue of a journal was delivered, the set of issues for the year (sometimes two years) would temporarily disappear to have the soft covers removed and to be rebound in stiff covers with the volume contents and index lists inserted at the back. Finding papers meant regularly browsing your favoured journals or using indexing journals such as *Current Contents* to find gems you may have missed or might need to order by ‘inter-library

loans’. This was the way throughout the 20th century. The internet and developments in electronic publishing have now more or less swept this *modus operandi* away and we face a future where journals such as this one no longer appear in a hard copy form but can be read instead via a bewildering array of electronic platforms. The technical changes have come thick and fast throughout the last 20 years, challenging the publication model in diverse ways beyond the bare fact of the transition from paper to screen.

One challenge concerns the fairness and efficiency of the peer review process, for which a variety of alternative models have been developed across the scholarly publishing world that are arguably competing with one another for business. Another challenge is the battle between open access and pay-to-view models. Similarly, debates rage over data publication, with some journals moving to strong positions of insisting upon data publication and others taking softer stances. I will comment briefly on these issues from the perspective of this journal.

First, the *Journal of Biogeography* is currently operating a single-blind peer review model within which we strive to avoid the use of conflicted reviewers. Most decisions are based on three reviewer reports and the assessment of a subject editor, overseen by a chief editor. This model means that the identities of the authors are apparent to the reviewers and editors but the reviewers act anonymously (unless they choose not to). Some have argued that the single-blind review model is likely to be biased, for example, against female authors. However, when we have scrutinized the statistics we have found no difference in success rates between male and female first authors (Whittaker, 2008). We have not attempted to analyse success rates for junior versus senior authors, in which differences in success rates have also been hypothesized to occur, but readers who care to examine the biosketches of published articles will see

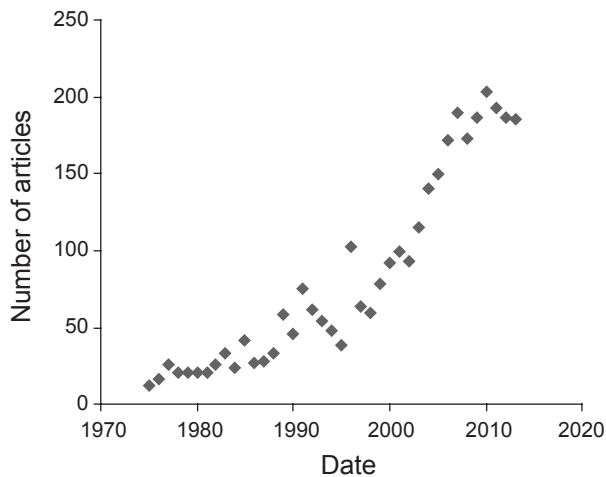


Figure 1 The number of articles appearing in each volume of the *Journal of Biogeography* from the first volume in 1974 to 2012, inclusive. The outlier in 1995 reflects a process of catching up on cumulative production delays and the inclusion of an exceptionally large, double-issue special issue. Data sourced from JSTOR (<http://www.jstor.org/>), Web of Knowledge (<http://apps.webofknowledge.com/>) and Scopus (<http://www.scopus.com/>), September 2013. NB: The values obtained in such searches may vary depending on the treatment of book reviews, editorials, short notices, errata, etc., so the tallies given here should be taken as approximations.

that a high proportion of *Journal of Biogeography* papers are led by or include early career authors in the author team. This is consistent with our editorial policy that each paper should be evaluated on its merits. Equally important is that the journal remains open to diverse schools of thought, philosophies and methodologies, a tradition established and encouraged by each of my predecessors (David Watts, John Flenley and Philip Stott) (Stott, 2004).

Second, the *Journal of Biogeography* operates both open access and pay-to-view models of publication and the choice of which route is followed is taken by the authors after acceptance of their article. Although there is currently an active debate in progress in the academic and political arenas concerning the merits and demerits of these two systems of publication, this debate in my view has largely underplayed the role of academic journals and neglects to ask the question, what are they for? Journals, if they are doing their job properly, are not in my view passive systems but should provide significant added value to the scholarly community. They do so, first, by harnessing the good will of the academic community (on which we depend) in a process of constructive and scholarly review; second, in editing and production stages, by preparing and checking manuscripts to ensure that they are internally consistent, rigorously constructed, clear and explicit enough to allow

replication by other authors; and third, by ensuring that they are published effectively through well-maintained, future-proofed platforms and disseminated so that the work of the authors reaches the readership that is most likely to find the work relevant. The *Journal of Biogeography* has excellent reach across the world and is, for example, currently available to 5116 institutions in the developing world via philanthropic initiatives.

Third, the *Journal of Biogeography* has adopted a pragmatic stance of supporting data publication where it is appropriate, where it conforms with accepted norms (e.g. deposition of GenBank numbers), but of not insisting on immediate data publication where there are good reasons not to do so (e.g. locations of sensitive archaeological or collecting sites, prior data ownership agreements, etc.). Recognizing the value of data publication for the scientific community at large, we now encourage authors to include a Data Accessibility statement at the end of their article, giving explicit information about how to obtain the data in cases where the data are not included in the article.

DEVELOPMENTS IN BIOGEOGRAPHY

Biogeography has changed greatly in the last 40 years, even if some debates and topic areas published in the journal today were

evident in the first few years of the journal (Fig. 2). Consistently featured topics include themes within island biogeography, distributional modelling, biogeographical regions, and Quaternary/Pleistocene environmental and biogeographical change, which have remained staples of the *Journal of Biogeography* throughout the last four decades. However, over time, there has been a shift from studies of landscape scale and from descriptive accounts of vegetation history on short or intermediate time-scales, towards regional and global-scale studies and analyses of *processes* of change (Fig. 2). Topics have increasingly covered deeper time-scales delving back into the Tertiary (if I may still use the term), and have focused on genetic data and analyses of evolutionary development of lineages through time and space. Dispersal has remained a core feature of many papers in the journal throughout the last three decades, outpacing its frequent companion, vicariance, especially within the last 10 years. The emergence of phylogeography as a technique and research programme has also been evident within the last decade, and now provides a more commonly used approach to unravelling Quaternary-scale events than the palaeoecological techniques that held pre-eminence through the first three decades (Fig. 2).

Of course, broad umbrella terms can swamp such analyses and so it is important to emphasize that topics such as migration, extinction, speciation, diversification, diversity gradients, conservation, macroecology, island ecology, body size changes, range shifts, the study of tree lines and the use of null models have featured and continue to feature in the journal (even if some are absent or unreadable in the analysis depicted in Fig. 2). It should also be noted that the shifts in subject matter within the *Journal of Biogeography* need to be read within the context of the development of a strong focus on macroecology within the sister journal *Global Ecology and Biogeography* from 1999 onwards (Whittaker, 1999) and the development of a focus on invasion biology and more recently on conservation biogeography within the second sister journal *Diversity and Distributions* (Richardson, 2005). One final point of note is that the *Journal of Biogeography* was, from the off, always an international journal in scope, as evident in the prominent positions of Australia, Africa, Europe and South America as study subjects in Fig. 2a. Today, the journal features papers from all parts of the

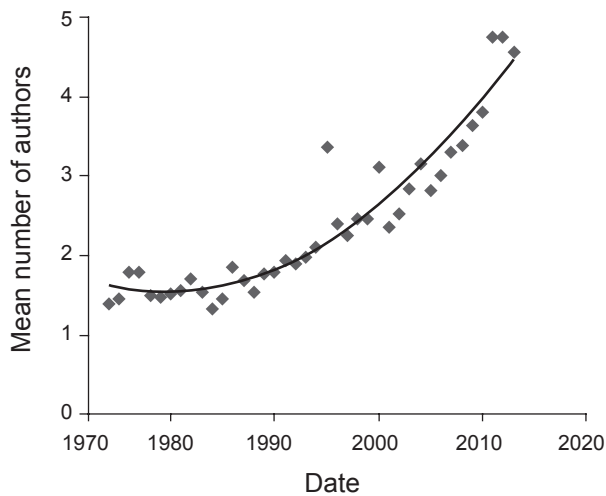


Figure 3 Mean number of authors per paper published in each volume of the *Journal of Biogeography*, from 1974 to 2012, inclusive. Each data point represents one complete volume. The outlier in 1995 was due to the inclusion of a large double-issue special feature on Global Change and Terrestrial Ecosystems, which included many papers by large author teams, as was already typical of research in that subject area. The trend line, fitted for fun, is a second-order polynomial. NB: The data have not been cleaned rigorously and may contain some noise resulting from changing treatments of editorials, corrections, etc., across the different databases. Sources: as Fig. 1.

aeroplanes, etc. are built in parts in different countries and then the manufactured parts are assembled together. In manufacturing this works because the blueprint has been specified in advance, and all component parts are manufactured precisely to the specification, quality control checks are carried out, and the end product is tested rigorously to satisfy industry norms and safety requirements. However, in biogeographical research we do not know in advance what we are going to find (at least most of us don't), every study system presents anomalies, and no two analyses are precisely alike (at least in my experience). This presents us with significant challenges that we need to focus on in training the next generation of biogeographers. We therefore need to instil into our working group culture the protocols and practices necessary at every step to ensure that the products that leave our desks are 'fit to fly'. In its essence I see this as a matter of all co-authors developing a sense of shared ownership of and responsibility for the manuscript as a whole prior to submission of each draft to the selected journal.

As the techniques involved are becoming ever more sophisticated and deeper training is necessary to fully master them, I suspect I am not alone in feeling that I do not always understand every aspect of the analyses I am involved in as a co-author, let alone as a reviewer or reader.

Hence, biogeographical research today places considerable and increasing demands on the peer review and editorial process in overseeing the quality control that is core to the role of academic journals as arbiters of what gets published in the recognized peer review literature. It also places considerable demands on author teams if they are to ensure that their final published articles are both rigorous and clearly communicated.

And, as the pace of publication expands, the challenges involved in keeping up with the literature are at least as demanding as they were back in the days of the abstracting journals and the inter-library loan. Now the problem for many university academics (I realize by no means all) is not so much whether we can obtain the publication in the first place, as deciding which publications to devote time to reading and understanding. As there seems to be ever greater pressure to publish within national research assessment and appointment systems, I think the role of established academic journals and of academic societies remain crucial to our endeavours, both in setting and maintaining the standards of good practice and in dissemination of published work.

The *Journal of Biogeography* is not, of course, a society journal, being wholly owned by the publisher, but the journal does have a long-standing commitment to

the service of the subject, a principle established from the outset by Robert ('Bob') Campbell, who in 1974 launched the journal for Blackwell Science. Moreover, the journal has been able to offer some support to the development of the International Biogeography Society (IBS) over the last decade, providing sponsorship for the biennial meetings and to the society's lifetime achievement award, the Alfred Russel Wallace award. That this society is thriving and growing is good news for the subject of biogeography. We are thus delighted to feature the paper by James H. Brown in this issue of the journal. His article (Brown, 2014) is the written version of his Wallace award address to the 2013 IBS meeting in Miami, Florida, and as with previous Wallace award papers (Briggs, 2005; Avise, 2009; Ricklefs, 2011) it certainly tackles a big theme within biogeography (Field & Svenning, 2014). Accompanying his paper, in this, the first issue of the fifth decade of the *Journal of Biogeography*, we have selected a particularly strong set of papers, including several syntheses, which together demonstrate the breadth and vitality of biogeography today. I hope you will enjoy reading them.

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