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Writing the future of biogeography

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## Writing the future of biogeography

Scientific publishing has seen many changes in its ~350 years of existence. Nonetheless, the changes currently underway may be among the most radical. The five major biogeography journals (*Diversity and Distributions*, *Ecography*, *Frontiers of Biogeography*, *Global Ecology and Biogeography*, and *Journal of Biogeography*) are indicative of the major undercurrents in publishing today: two are society owned, three are owned by a private publisher; two are open access, three are reader-pays; four are published by a for-profit publisher, one is not; three are double-blind review, two are the traditional single blind. Despite these differences, we serve as editors-in-chief for these journals for one common reason: to make sure there is a healthy publishing ecosystem available to communicate biogeographical research. With that goal in mind, here, we provide a brief potted history of scientific publishing to contextualize the modern publishing environment. We consider what current trends may mean for the future of scientific publishing. And we highlight a suite of factors that we recommend be considered when choosing a venue in which to publish your research. We particularly wish to emphasize one point: while editors-in-chief may guide journals, and editors and reviewers shape the science that is published, all journals depend ultimately on the manuscripts that authors choose to submit. For this reason, authors have great power over the future of the publishing landscape. To ensure a healthy landscape, we feel it is critical that all authors—but especially we senior and mid-career authors—are educated about today's complex world of publication and make informed choices about where to submit, which signals to publishers the criteria that our community values. Authors' choices now have potential to shape a sustainable publishing environment that better serves current and future generations of biogeographers.

### How we got here: a potted history of scientific publishing

For the first 300 years of scientific publishing (roughly 1650–1950), the choice of which journal to submit to was easy. There were only a handful of relevant journals—for example, even by the late-1950s, an American limnological ecologist might have chosen

between, say, a regional institutional bulletin (e.g., *Proceedings of the Iowa Academy of Sciences*, est. 1889), *Ecology* (est. 1920), *Limnology and Oceanography* (est. 1956) or, if it was an especially novel observation with broad appeal, *Science* (est. 1880)—and all these journals were created by and published for a scientific institution or society (e.g., of a state<sup>1</sup>, the Ecological Society of America, American Society of Limnology and Oceanography, and the American Association for the Advancement of Science). The publication often would have been paid for by members' society subscription fees (~US\$20–60)<sup>2</sup> with charges only for corrections after typesetting, articles above a prescribed length, and additional offprints; libraries could subscribe annually to single titles at an elevated 'institutional' price (e.g., US\$110 circa early 1990s)<sup>3</sup>. The journals made no profit. The review process was similar to now (albeit slow, involving snail mail submission of three paper copies of the manuscript) with a decision reached in 6–9 months. Other than a part time administrative assistant, the only people to touch the manuscripts were academics until the paper was accepted, when it was published by the society's publishing arm or sent to a small in-country publishing company focused on serving academics (and often run by former academics) such as Allen Press or Blackwell Publishing. Accept rates were high. Editorial rejections without review were rare.

But in the last 60 years, a number of factors have driven a vast change in publishing. Some of these factors include the following.

- *Exponential growth of the research complex.* The end of World War II renewed societal appreciation of the benefits of science and initiated the creation of national funding for research, the establishment of many new universities, and a rapid expansion of university education. Academic promotion and the standing of institutions increasingly focused on research productivity, including the quality and quantity of grants and published research. One result has been the exponential growth of the number of papers published each year—which has a doubling time of ~15–25 years (Larsen and von Ins 2010, Bornman and Mutz 2015)<sup>4</sup>—and the number of journals: currently, several million scholarly papers are published each year in

1 e.g., Wisconsin Geological and Natural History Survey Bulletin (est. 1898).

2 Per Backmatter of *Evolution* 43, 1575–1580 (1989); *Forest Science* 41, z6-z8 (1995); *Journal of Applied Ecology* 34, 271–274 (1997); equivalent to US\$33–100 in Oct 2018 ([https://www.bls.gov/data/inflation\\_calculator.htm](https://www.bls.gov/data/inflation_calculator.htm))

3 Per Backmatter of *Evolution* 43, 1575–1580 (1989); *Forest Science* 41, z6-z8 (1995); equivalent to US\$183 in Oct 2018 ([https://www.bls.gov/data/inflation\\_calculator.htm](https://www.bls.gov/data/inflation_calculator.htm))

4 The doubling time for number of journals increased in the mid-1900s (Larsen and von Ins 2010) and again in the early 2000s (Johnson et al. 2018 cf. Ware & Mabe 2012), periods of notable commercial and OA activity. Citation doubling rate is ~9 years (Bornman & Mutz 2015).

well over 10,000 journals (Carpenter et al. 2014, Johnson et al. 2018).

- *Entry of privately held corporations into academic publishing.* In the 1960s privately held, for-profit companies began entering academic publishing from other publishing fields (Edwards and Shulenburger 2003). Initially they took over the mundane management of publication details from the societies and as the firms gained experience, they began to found their own journals as well, including three biogeography journals (*Journal of Biogeography* in 1974, *Global Ecology and Biogeography* in 1991, and *Diversity and Distributions* in 1993 [as *Biodiversity Letters*]).
- *Development of electronic publishing technologies.* By the 1990s publishing began a complete overhaul to an entirely electronic based business model. While by no means trivial or free, publication online had many advantages for publishers. The costs and time associated with handling and mailing hard copies were eradicated. Editorial assistance, copyediting, and typesetting could now be outsourced anywhere in the world, providing the cheapest labor. And the work of typesetting could also be pushed back onto the authors, who have to submit electronic copies of their text and figures. This all meant that publishing could happen faster and cheaper, but it also led to requirements for large up-front investments and economies of scale.



**Figure 1.** Some of the key factors influencing author choice of publication venue in the modern publishing environment. APC = Article Processing Charge; IF = Impact Factor. See also Table 1.

These three factors fed back on each other. More capacity to publish (Johnson et al. 2018: p.5) more cheaply led to more entry of private companies. Concentration of journals in large bundles managed by large private companies led to economies of scale that enabled increased technological solutions to problems eventually leading to the creation of oligopolies.

The exponential growth of papers made it harder to find good papers, which ironically strengthened the importance of journal “brands” even in the face of improved search engines. Over the past two decades, five main outcomes resulted from these positive feedback loops.

- *The decline of society-published journals.* As the technological economies of scale accelerated, individual societies became less willing or able to compete and publish their own journals. In the past decade or so, large ecological societies (British Ecological Society, Nordic Society Oikos, and Ecological Society of America) and evolutionary societies (e.g. Society for the Study of Evolution, the Society of Systematic Biologists) have all abandoned self-publishing, or publishing with smaller academically oriented firms like Allen Press, to partner with a large for-profit publisher.
- *The consolidation of academic publishing firms.* Not only was there a large switch to publishing by or with for-profit firms, but the for-profit firms began a series of acquisitions and mergers leading to the creation of an oligopoly. Today 50% of all publications and 70% of natural science and medical publications are published by only five big publishers: the American Chemical Society (ACS), Elsevier, Springer, Taylor and Francis, and Wiley (Larivière et al. 2015). Only the first of these is a scientific society; the other four are for-profit publishers. This trend of concentration continues: Nature publishing was bought out by Springer; the Trends journals (e.g., Trends in Ecology and Evolution) were acquired by Cell and then by Elsevier. Only a few of the largest and richest societies (e.g., ACS, AAAS) and the largest university presses (e.g., Cambridge, Chicago, Oxford) have resisted this concentration.
- *Rising profits.* Because we have to read the articles in our field, it creates the potential for inelastic demand, and the for-profit publishers have taken advantage of this, driving up the overall costs of academic journals. For example, from 1986 to 2001 the cost of inflation in the US raised the price of a basket of consumer goods by 64%, but the cost of journals increased by 215% (Edwards and Shulenburger 2003). While ‘bundling’ has meant the average price per journal decreased over the last decade, little benefit has been seen by institutions because publishers force libraries to buy all the journals in the bundle, irrespective of whether the institution’s researchers want them all. In addition there were many more journals to buy, resulting in intense pressure on library budgets. The amount libraries spend on journals continues to increase well above the rate of inflation, and the profits of the big three publishers hover around 30-40% (Beverungen et al. 2012, Van Noorden 2013), much greater

than the profit margins of many companies in large technological sectors like pharmaceuticals (e.g., Hoffman-La Roche, GlaxoSmithKline, and Eli Lilly; DeAngelis 2016) or software (e.g., Apple, Google, Microsoft; Buranyi 2017).

- *The quantification of assessment of academic quality (impact factors)*. In the publish or perish world, the average faculty member often lacks time to thoroughly evaluate the work of others. Yet the integrity of universities' procedures for advancement, tenure, and promotion depend on adequate peer review. This has led to increased use of shortcuts and the desire to quantify what is inherently qualitative and subjective: the quality of scientific work a researcher produces. The metrics commonly used are the number of publications, citations, and the impact factor (IF) of the journals in which the researcher published. While IFs have some limited validity as assessment of journal quality, their relationship with the quality of any one paper is spurious at best: the impact factor of a journal is almost entirely driven by the top 10% of cited papers in the journal, and even in a journal like *Science* the bottom 20% will have at most a handful of citations. Yet being judged by the IF of the journals we publish is an increasing and problematic reality for all scientists.
- *The rise of predatory publishing*. The large profit margins available in modern scientific publishing, and the need for scientists to publish, led to the emergence of predatory journals in the late 2000s (Laine and Winker 2017). Predatory publishers produce one, or oftentimes many, journals that charge fees for publication but provide few if any of the editorial and review services normally provided by reputable journals. Low standards have been demonstrated multiple times by submission and publication of faux manuscripts (Bohannon 2013) but nonetheless such journals have established a presence and make it more difficult to find, evaluate, and communicate legitimate research.

#### Box 1. Categories of Open Access (OA).

*Delayed OA*: Papers are behind a paywall for a set period, usually 6-18 months, and then available OA.

*Gold OA*: Every paper in the journal is OA - i.e. the whole journal is OA).

*Green OA*: The author can share the file on their website, although the publisher's website has a paywall.

*Hybrid OA*: Overall the journal runs on a subscription model, but authors can pay a premium charge to make their paper available as OA.

*Platinum OA*: Neither the author nor the reader pays for access, implying the publisher or a donor pays for the costs.

#### What will the future look like?

These trends, which continue unabated today, have led to turmoil within academia and have even drawn outside public attention<sup>5</sup>. There is a sense that current trends cannot continue indefinitely, though nobody—neither academics deeply involved in publishing (such as editors-in-chief) nor the big publishing companies—knows exactly where publishing is headed. We currently seem to be in a period of trial-and-error where funding organizations, societies, publishers and authors are all trying alternatives with no guarantee of the long-term viability of those efforts.

At least four major movements that we can identify have taken root in the past decade, and we believe they will continue to shape publishing, although we do not know how.

- *Open Access (OA)*. OA publishing encompasses a broad suite of activities that share substantial momentum (Box 1). A common feature of all OA is that, once published, the material is available to anybody for free from the publisher's website; often, the intellectual property license also allows free sharing of copies. It is important to note that across all OA models, there are still costs to publish, called Article Processing Charges (APCs), which vary from a few hundred

<sup>5</sup> e.g., <https://www.theguardian.com/science/2017/jun/27/profitable-business-scientific-publishing-bad-for-science>, <https://www.latimes.com/business/hiltzik/la-fi-hiltzik-uc-elsevier-20181207-story.html>

to over five thousand dollars. APCs are one of the main challenges to uptake of OA as authors struggle to find funds and it has the danger of creating a “rich get richer” model favoring those with grants (who can get more publications and more grants) while disenfranchising others; though this is a concern in all countries, the situation for poorer institutions and countries is particularly worrisome. Some of the move to OA has been driven by government funding agencies. An initial round of requirements by medical agencies led many publishers to adopt delayed OA. A newer push by almost a dozen national funding agencies in Europe (including UK, France, Netherlands) has mandated that all research they fund be published in Gold OA (no hybrid nor delayed OA) journals by 2020 in an initiative known as “Plan S” (Enserink 2018). Some North American institutions are following suite<sup>6</sup>, as is China tentatively (Schiermeier 2018).

- *Ethics.* Given the strong motivation for academics to publish, there is a growing concern that ethical standards of authors may be declining. There is no evidence that the frequency of extreme ethical violations like made up data have increased, but certainly practices like a rapidly increasing number of co-authors could be attributed to pressure to publish along with other worthy explanations like increasing collaboration. In 1997, publishers established the Council of Publishing Ethics (COPE)<sup>7</sup> whose guidelines are now adopted by major publishers covering thousands of journals. External watchdogs like Retraction Watch also have targeted this potential problem.
- *Academics founding journals.* There are a growing number of cases of academics responding to the current state of the publishing ecosystem by founding new journals and retaining control of them. This has a certain sense of coming full circle, as most of the big journals today were originally founded by a handful of academics and then given homes in societies. But it is a key way of taking back power to ensure that academics are served by the journals. While not a trivial undertaking—it requires creating proper legal incorporation, creating a manuscript tracking system, contracting with copy editors and typesetters, and ensuring archiving of the publications that will last into perpetuity—a number of university presses and companies founded by academics are emerging to serve this need. These publications are not free, and various payer models are used, but the APCs are usually quite modest. These efforts largely succeed on the back of dedicated academics who devote considerable time to the jobs normally handled by publishers. Two of the best known examples in ecology are *Evolutionary Ecology Research* and in our field *Frontiers of Biogeography*.
- *Line extensions.* Extending a brand into multiple products to capture market share is a common strategy in business. Adding journals to address the emergence of new fields has been standard practice for decades (e.g., the branching of *Global Ecology and Biogeography* and *Diversity and Distributions* from the *Journal of Biogeography*), but many publishers have recently adopted this tactic with new vigor. The 50 *Nature* extensions (including *Nature Communications*, *Nature Climate Change*, *Nature Ecology and Evolution*) and *Science Reports* are the best known examples in ecology, evolution and environmental sciences. Another example is Wiley’s *Ecology and Evolution* to which all of the premium biogeography journals can refer (or “cascade”) manuscripts. One benefit of extensions is that it allows a suite of journals to hedge their bets to future changes in both traditional and OA publishing. It also allows the capture of articles by referrals from the premium journal into the extension journal (so called referral cascades), for which the primary purpose appears to be to capture market share. Although it is tempting and common thinking to assume the “good” versions of all of these changes tend to be combined together in journals, the truth is that these various approaches are often decoupled. Academics founding journals may be for-profit or not-for-profit. These journals also may be OA or subscriber models. Line extensions happen in for-profit (*Nature*), society (*Science*), academic take-back, and OA (PLOS) journals. This diversity of formats is what makes navigating the publishing landscape so hard. There is no simple one-dimensional axis of good versus bad journals. Nor is there a strategy that is guaranteed to be successful and mainstream into the future. A new model may emerge in a year or two, a decade or two, or the publishing landscape may settle into the current or a new stable state more quickly. But until that time comes, what is an author, associate editor, or editor-in-chief to do? How do we navigate this landscape?

<sup>6</sup> <https://www.latimes.com/business/hiltzik/la-fi-hiltzik-uc-elsevier-20181207-story.html>

<sup>7</sup> <https://publicationethics.org/>

**Table 1.** How to target your paper for a journal, generate time (e.g., for better work-life balance) by avoiding multiple resubmissions, and improve the publishing landscape at the same time.

Consideration	Recommended action	Anticipated effect	Additional thoughts
<b>Money concerns</b>			
Cost, or Article Processing Charges (APCs)	If the price is too high, ask for a waiver, or choose to publish elsewhere	Keep costs from rising; perhaps drive down costs	Cheap OA trades-off quality unless subsidized. Break-even for OA may be less than US\$1000 per article for a disciplinary journal, though estimates vary greatly (Van Noorden 2013)
<b>Reaching target audience</b>			
Impact Factor	Largely ignore it	Save time by submitting to journals with which your manuscript is a good fit	Peers recognize quality when we read it
Impact of paper	Learn to judge the quality of your work; aim for the best multi/disciplinary journal that is a good fit	Save (your and others') time by getting published first time round	Caveat: According to Paul Silvia, you should always have a second choice journal that is also a good fit for your paper. Getting rejected happens to all of us.
Fit	Prioritize journals in your field that publish solid research and are regularly read by colleagues	Your paper is read by the widest possible most relevant audience	While disciplinary journals will suite the majority of your work, if you have a truly hot paper, go for a high profile general science journal!
<b>Review and decision process</b>			
If resubmitting after rejection	Choose a journal that will fast-track, i.e. consider your prior reviews, your responses, and a revised manuscript	Faster publication, reduced reviewer burden	Increasingly publishers are offering to cascade papers to other journals. Rather aim for fit than the convenience of a cascade
Quality of review	Choose a disciplinary journal, or respected multi-disciplinary venue	Your manuscript will be edited and reviewed by peers who are recognized experts in the field	Good papers will be noticed by reviewers and editors in your field, who will begin to identify you for future opportunities
Review model	Submit only to journals with rigorous peer review	Single- and double-blind review are used in biogeography journals	Double blind is supposed to avoid implicit bias favoring senior scientists. Think twice about journals that have only technical review.
Publication time	Choose journals that allow adequate time for peer review; avoid those with very short or very long review times	You will receive meaningful peer review that can help improve the adoption of your work	Journals often provide statistics about average time to decision. Pressure from publishers to decrease decision time increases burden on volunteer peer reviewers
<b>Responsibility to the community</b>			
Publication type	Occasionally send a good study to a journal whose values you share	Promotes a healthy publishing ecosystem	All authors should do this, but senior and mid-career authors arguably have greater freedom and impact
Equity	Invest your time supporting responsible journals as an author, editor, reviewer	Improve inclusivity and opportunity for typically underrepresented groups; expand horizons	Concern about biased editorial boards (Fox et al. 2016) and reviews (mainly in the author community) may merit structural changes (e.g., in review models) though data are lacking for many questions
Quality of preparation	Don't view review as part of your revision process ("testing the water"). Prepare the best paper you can	You will be given credit, and the review process will more often be more positive	You reduce reviewer burden. Reviewers and editors notice and appreciate well-prepared manuscripts, and they will begin to identify you for future opportunities

## What we want you to know and recommend you do

### *Editors are on your side*

The first thing we want you to know is that editors are in their roles out of a passion to see great science published. Almost all are volunteers; they are not employees of journals, and even those receiving stipends have editorial freedom. Editors are members of the scientific community and have goals closely aligned with those of authors. It is important that authors recognize editorial boards as being on the community's side and acting in their best interest (Dawson et al. 2014). At this time of uncertainty and turmoil it is important that we produce a consensus voice.

Nowhere is this better illustrated than the recent events at *Diversity and Distributions*, a publisher-owned journal, following announcement of a change to an author-pays OA model. Editors considered the APC fees unacceptably high and the waiver policy insufficient to guarantee equal opportunities among authors of different provenances. While a stop-gap solution for APCs was found, the publisher's subsequent reluctance to publish an editorial that was critical of their decision revealed a widening gap in the motivations of publishers and authors leading to mass resignation of editors, including the Editor-in-Chief.

### *What can you do?*

What is your role as an author in shaping the publishing landscape? As for the past 350 years, one thing will not change in the foreseeable future: the primary commodity on which journals depend—the science that is published—will be conducted and written by you and people like you. Editorial teams can only work with the manuscripts that are submitted. Readers must go where the best and most relevant science in their field is published. For this reason, authors have the most power over the future of the publishing landscape. The question is: will the community of authors follow, or will the community of authors lead, change in the publishing environment? In either case, where authors choose to publish will signal to publishers where the market and profits exist. As such, we hope that you choose to lead, and shape a sustainable publishing environment to suit you and future generations of biogeographers.

Our main request of you as authors is to think about where you submit as a multi-dimensional question. We know that the career advice is that you should look at the impact factors released by Clarivate ISI every June and submit to the highest journal on that list you can get into. But it is worth thinking through the perverse incentives such a system creates. It rewards outcomes that have a significant component of luck; it encourages choice of research field based on what journal it will get into rather than what advances the field; it disperses biogeographical research across countless journals, making it harder to find and diluting readership; it leads to wasting authors', reviewers', and editors' time by consistently aiming too high. In short,

it undermines much of what we value as members of a scientific community.

We are not suggesting that impact factor should be ignored completely. We all have scientific careers ourselves and know IF matters, though its importance is simultaneously outsized (Carpenter et al. 2014) and overrated<sup>8</sup>. Rather, we are emphasizing that IF should be recognized as just one of many factors, all of which are worth considering (Fig. 1; Table 1).

Very broadly there are at least four groups of factors that we suggest merit consideration alongside impact factor. We put these into practice in our own choices of where to publish. They are:

- *Money concerns.* If the work was funded by a grant agency, does the agency have requirements on what type of journal you can publish in? Conversely, if you want to publish in an OA journal, is there a grant that will cover the costs? Or does your department, library, or other institutional unit have funds to cover APCs? What size APC could you afford, and are the affordable journals somewhere you want to publish? If you do not have access to (sufficient) funds, can you request a complete or partial waiver? Or would a reader-pays journal serve you better?
- *Reaching target readers (fit).* Each journal has a specific scientific scope (usually spelled out clearly in the first couple paragraphs of the information for authors). How closely do the journal and your paper match? This is known as fit. Consider this thought experiment. Would you publish in a journal completely outside of your field with a very high impact journal, higher than almost all journals in ecology and biogeography if it was guaranteed to be accepted regardless of topic? Almost certainly not! It is worth reflecting on why. It mostly comes down to the fact that the people who you want to read your paper are much less likely to find it and read it. We all publish because we want others working in our field to know what we found out and be influenced by it. This adds to our own scientific reputation. Some people who you want to read it would find your paper using Google Scholar and other search engines, but not enough. It would be ill advised to cut your audience so much just for IF. This is the essence of fit: you will reach target readers. What you think you are getting with impact factor might really be better achieved by focusing on fit. This reasoning applies to the choice to publish in a biogeography journal instead of a general ecology journal or a general science journal. The long term impact of the paper on the field and your career is often better predicted by fit than by impact factor. This is especially true when people are chasing small differences of impact factor (Stern 2012). It is only when IF differences of ~5 come into play that we think it is reasonable to pursue impact as one of several primary determinants.
- *Review and decision process.* This probably matters most to early career researchers, but it matters to us all. What do you want from the review process?

<sup>8</sup> <http://ecr2star.org/blog/2014/5/13/a-guide-to-research-metrics-and-their-importance-for-young-researchers>

Who will give that to you? There is a great deal of variability in the reputation of journals for how much value they add and how fast they are in the review process. Is the journal going to get expert reviewers who understand what you are trying to do? Will the review be respectful, constructive and helpful (even if, especially if, it is a rejection). Or will you receive a gate-keeping review that says little more than “not good enough for our journal”. Is copy editing and typesetting outsourced and more likely to add than fix errors, or will the production process improve your paper? It is important to note that any one manuscript review process can go many ways, but it is our experience that on average and over the long run, differences among journals are substantial and real. To return briefly to the thought experiment above: would the review process at a high-impact journal outside your field be likely to help improve your paper? Probably not, because their editorial and review team are unlikely to know either the basics or the nuances of your field. A disciplinary journal may provide much more return on your investment: better reviews, better editing, a more readable and citable paper.

- *Responsibility to the community.* We started this section by pointing out that ultimately authors have the power to determine the direction of publishing. How much obligation do you have to use that power to pursue ethical choices and improve the state of publishing for the benefit of the community and future scientists? How does this weigh against financial limits, impact factor, fit, and career stage? Ultimately you are the only one

who can answer that. We are definitely not here to tell you to sacrifice your career for the greater good. But this responsibility to the community is something you may be able to weigh more heavily as your career advances. And we do know that group selection can deliver improved individual fitness to members of the group (Wilson 1975), and that group-selection works best in closely knit communities. Biogeography might be such a community where ethical journal publishing choices can benefit the group with feedbacks to benefit the individual ... especially when the fit in biogeography journals is also likely to be high!

## Conclusion

Publishing is a rapidly changing and unpredictable landscape today. But as scientists who write-up our research as journal articles, it is important to remember that we have considerable influence over general publishing trends. We believe that individual and group fitness are more closely aligned than one might think at first. If you have concerns or questions, communicate with editorial boards and editors-in-chief as we navigate the journals through these turbulent times. Most of all, we hope you will own the power you have as authors—particularly senior and mid-career authors—and think about where you publish in a multi-dimensional fashion, recognizing the importance of fit. If you do, you might find that submitting your paper to one of the five core biogeography journals (Box 2) is the right choice for you while also helping foster a healthy publishing ecosystem.

**Box 2. Summary of attributes of the journals edited by the authors.**

	Diversity & Distributions	Ecography	Frontiers of Biogeography	Global Ecology & Biogeography	Journal of Biogeography
Owner	Company (Wiley)	Society (Nordic)	Society (IBS)	Company (Wiley)	Company (Wiley)
Publisher	Wiley	Wiley	eScholarship	Wiley	Wiley
Who pays	Author (OA)	Reader (Subscriber)	Author (OA)	Reader (subscriber)	Reader (Subscriber)
Type of OA	Gold	Hybrid	Gold	Hybrid	Hybrid
APC (for OA)	\$2200 (20% discount to IBS members)	\$2000	\$300 (50% discount to IBS members)	\$3650	\$4200
APC Waiver Policy	Anybody who cannot pay; automatic to certain countries	N/A	Anyone who has difficulty or inability to pay	N/A	N/A
Double blind review	Yes	Yes	No	Yes	No
Scope	Conservation biogeography	Spatial ecology	biogeography	macroecology	biogeography

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