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Writing the future of biogeography

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1 Editorial

2 Writing the future of biogeography

3

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

24

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

26 For the first 300 years of scientific publishing (roughly 1650–1950), the choice of which journal to submit
 27 to was easy. There were only a handful of relevant journals—for example, even by the late-1950s, an
 28 American limnological ecologist might have chosen between, say, a regional institutional bulletin (e.g.,
 29 est. ~1890–1900), *Ecology* (est. 1920), *Limnology and Oceanography* (est. 1956) or, if it was an especially
 30 novel observation with broad appeal, *Science* (est. 1880)—and all these journals were created by and
 31 published for a scientific institution or society (e.g., of a state¹, the Ecological Society of America,
 32 American Society of Limnology and Oceanography, and the American Association for the Advancement
 33 of Science). The publication often would have been paid for by members' society subscription fees
 34 (~US\$20–60)² with charges only for corrections after typesetting, extra pages, and additional offprints;
 35 libraries could subscribe annually to single titles at an elevated 'institutional' price (e.g., US\$110 circa

21 e.g., Proceedings of the Iowa Academy of Sciences (est. 1889); Wisconsin Geological and Natural
 3 History Survey Bulletin (est. 1898).

36early 1990s)³. The journals made no profit. The review process was similar to now (albeit slow, involving
 37snail mail submission of three paper copies of the manuscript) with a decision reached in 6-9 months.
 38Other than a part time administrative assistant, the only people to touch the manuscripts were
 39academics until the paper was accepted, when it was published by the society's publishing arm or sent
 40to a small in-country publishing company focused on serving academics (and often run by former
 41academics) such as Allen Press or Blackwell Publishing. Accept rates were high. Editorial rejections
 42without review were rare.

43

44But in the last 60 years, a number of factors have driven a vast change in publishing. Some of these
 45factors include the following.

- 46 ● *Exponential growth of the research complex.* The end of World War II renewed societal
 47 appreciation of the benefits of science and initiated the creation of national funding for
 48 research, the establishment of many new universities, and a rapid expansion of university
 49 education. Academic promotion and the standing of institutions increasingly focused on research
 50 productivity, including the quality and quantity of grants and published research. One result has
 51 been the exponential growth of the number of papers published each year—which has a
 52 doubling time of ~15–25 years (Larsen and von Ins 2010, Bornman and Mutz 2015)⁴—and the
 53 number of journals: currently, several million scholarly papers are published each year in well
 54 over 10,000 journals (Carpenter et al. 2014; Johnson et al. 2018).
- 55 ● *Entry of privately held corporations into academic publishing.* In the 1960s privately held, for-
 56 profit companies began entering academic publishing from other publishing fields (Edwards and
 57 Shulenburg 2003). Initially they took over the mundane management of publication details
 58 from the societies and as the firms gained experience, they began to found their own journals as
 59 well, including three biogeography journals (*Journal of Biogeography* in 1974, *Global Ecology*
 60 *and Biogeography* in 1991, and *Diversity and Distributions* in 1993 [as *Biodiversity Letters*]).
- 61 ● *Development of electronic publishing technologies.* By the 1990s publishing began a complete
 62 overhaul to an entirely electronic based business model. While by no means trivial or free,
 63 publication online had many advantages for publishers. The costs and time associated with
 64 handling and mailing hard copies were eradicated. Editorial assistance, copyediting, and
 65 typesetting could now be outsourced anywhere in the world, providing the cheapest labor. And
 66 the work of typesetting could also be pushed back onto the authors, who have to submit
 67 electronic copies of their text and figures. This all meant that publishing could happen faster and
 68 cheaper, but it also led to requirements for large up-front investments and economies of scale.

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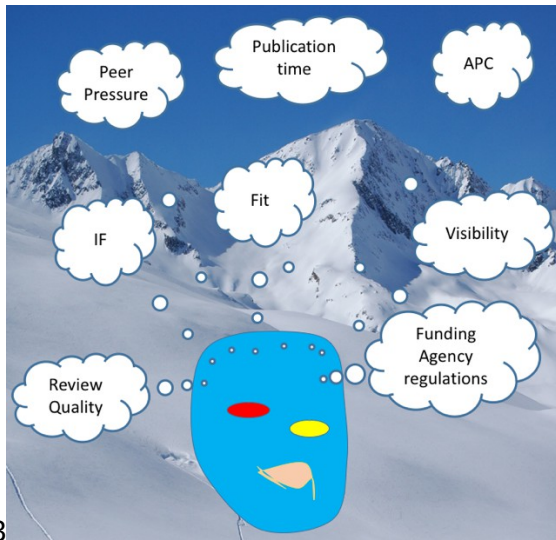
62 Per Backmatter of *Evolution* 43, 1575–1580 (45 in 1989); *Forest Science* 41,z6-z8 (1995); *Journal of*
 7Applied Ecology 34, 271–274 (1997); equivalent to US\$33–100 in Oct 2018
 8(https://www.bls.gov/data/inflation_calculator.htm)

93 Per Backmatter of *Evolution* 43, 1575–1580 (45 in 1989); *Forest Science* 41,z6-z8 (1995); equivalent to
 10US\$183 in Oct 2018 (https://www.bls.gov/data/inflation_calculator.htm)

114 The doubling time for journals increased in the mid-1900s (Larson and von Ins 2010) and again in the
 12early 2000s (Johnson et al. 2018 cf. Ware & Mabe 2012), periods of notable commercial and OA activity.
 13Citation doubling rate is ~9 years (Bornman & Mutz 2015).

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

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79 These three factors fed back on each other. More capacity to publish (Johnson et al. 2018: p.5) more
 80 cheaply led to more entry of private companies. Concentration of journals in large bundles managed by
 81 large private companies led to economies of scale that enabled increased technological solutions to
 82 problems eventually leading to the creation of oligopolies. The exponential growth of papers made it
 83 harder to find good papers, which ironically strengthened the importance of journal “brands” even in the
 84 face of improved search engines. Over the past two decades, five main outcomes resulted from these
 85 positive feedback loops.

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- 87
- 88 ● *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.
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 - 93 ● *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
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- 100 (e.g., Trends in Ecology and Evolution) were acquired by Cell and then by Elsevier. Only a few of
101 the largest and richest societies (e.g., ACS, AAAS) and the largest university presses (e.g.,
102 Cambridge, Chicago, Oxford) have resisted this concentration.
- 103 ● *Rising profits.* Because we have to read the articles in our field, it creates the potential for
104 inelastic demand, and the for-profit publishers have taken advantage of this, driving up the
105 overall costs of academic journals. For example, from 1986 to 2001 the cost of inflation in the US
106 raised the price of a basket of consumer goods by 64%, but the cost of journals increased by
107 215% (Edwards and Shulenburger 2003). While ‘bundling’ has meant the average price per
108 journal decreased over the last decade, little benefit has been seen by institutions because
109 publishers force libraries to buy all the journals in the bundle, irrespective of whether the
110 institution’s researchers want them all. In addition there were many more journals to buy,
111 resulting in intense pressure on library budgets. The amount libraries spend on journals
112 continues to increase well above the rate of inflation, and the profits of the big three publishers
113 hover around 30-40% (Beverungen et al. 2012; Van Noorden 2013), much greater than the profit
114 margins of many companies in large technological sectors like pharmaceuticals (e.g., Hoffman-La
115 Roche, GlaxoSmithKline, and Eli Lilly; DeAngelis 2016) or software (e.g., Apple, Google,
116 Microsoft; Buranyi 2017).
 - 117 ● *The quantification of assessment of academic quality (impact factors).* In the publish or perish
118 world, the average faculty member often lacks time to thoroughly evaluate the work of others.
119 Yet the integrity of universities’ procedures for advancement, tenure, and promotion depend on
120 adequate peer review. This has led to increased use of shortcuts and the desire to quantify what
121 is inherently qualitative and subjective: the quality of scientific work a researcher produces. The
122 metrics commonly used are the number of publications, citations, and the impact factor (IF) of
123 the journals in which the researcher published. While IFs have some limited validity as
124 assessment of journal quality, their relationship with the quality of any one paper is limited at
125 best: the impact factor of a journal is almost entirely driven by the top 10% cited papers in the
126 journal, and even in a journal like *Science* the bottom 20% will have at most a handful of
127 citations. Yet being judged by the IF of the journals we publish is an increasing and problematic
128 reality for all scientists.
 - 129 ● *The rise of predatory publishing.* The large profit margins available in modern scientific
130 publishing, and the need for scientists to publish, led to the emergence of predatory journals in
131 the late 2000s (Laine and Winker 2017). Predatory publishers produce one, or oftentimes many,
132 journals that charge fees for publication but provide few if any of the editorial and review
133 services normally provided by reputable journals. Low standards have been demonstrated
134 multiple times by submission and publication of faux manuscripts (Bohannon 2013) but
135 nonetheless such journals have established a presence and make it more difficult to find,
136 evaluate, and communicate legitimate research.

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140 **Box 1. Categories of Open Access.**

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

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

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

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

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

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152 **What will the future look like?**

153 These trends, which continue unabated today, have led to turmoil within academia and have even drawn
154 outside public attention⁵. There is a sense that current trends cannot continue indefinitely, though
155 nobody—neither academics deeply involved in publishing (such as editors-in-chief) nor the big
156 publishing companies—knows exactly where publishing is headed. We currently seem to be in a period
157 of trial-and-error where funding organizations, societies, publishers and authors are all trying
158 alternatives with no guarantee of the long-term viability of those efforts.

159

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

- 162 ● *Open Access (OA)*. OA publishing encompasses a broad suite of activities that share substantial
163 momentum (Box 1). A common feature of all OA is that, once published, the material is available
164 to anybody for free from the publisher's website; often, the intellectual property license also
165 allows free sharing of copies. It is important to note that across all OA models, there are still
166 costs to publish, called Article Processing Charges (APCs), which vary from a few hundred to over
167 five thousand dollars. APCs are one of the main challenges to uptake of OA as authors struggle to
168 find funds and it has the danger of creating a "rich get richer" model favoring those with grants
169 (who can get more publications and more grants) while disenfranchising others; though this is a
170 concern in all countries, the situation for poorer institutions and countries is particularly
171 worrisome. Some of the move to OA has been driven by government funding agencies. An initial
172 round of requirements by medical agencies led many publishers to adopt delayed OA. A newer
173 push by almost a dozen national funding agencies in Europe (including UK, France, Netherlands)
174 has mandated that all research they fund be published in Gold OA (no hybrid nor delayed OA)
175 journals by 2020 in an initiative known as "Plan S" (Enserink 2018). Some North American
176 institutions are following suite⁶, as is China tentatively (Schiermeier 2018).
- 177 ● *Ethics*. Given the strong motivation for academics to publish, there is a growing concern that
178 ethical standards of authors may be declining. There is no evidence that the frequency of

205 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>

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

179 extreme ethical violations like made up data have increased, but certainly practices like a rapidly
 180 increasing number of co-authors could be attributed to pressure to publish along with other
 181 worthy explanations like increasing collaboration. In 1997, publishers established the Council of
 182 Publishing Ethics (COPE)⁷ whose guidelines are now adopted by major publishers covering
 183 thousands of journals. External watchdogs like Retraction Watch also have targeted this potential
 184 problem.

- 185 ● *Academics founding journals.* There are a growing number of cases of academics responding to
 186 the current state of the publishing ecosystem by founding new journals and retaining control of
 187 them. This has a certain sense of coming full circle, as most of the big journals today were
 188 originally founded by a handful of academics and then given homes in societies. But it is a key
 189 way of taking back power to ensure that academics are served by the journals. While not a trivial
 190 undertaking—it requires creating proper legal incorporation, creating a manuscript tracking
 191 system, contracting with copy editors and typesetters, and ensuring archiving of the publications
 192 that will last into perpetuity—a number of university presses and companies founded by
 193 academics are emerging to serve this need. These publications are not free, and various payer
 194 models are used, but the APCs are usually quite modest. These efforts largely succeed on the
 195 back of dedicated academics who devote considerable time to the jobs normally handled by
 196 publishers. Two of the best known examples in ecology are *Evolutionary Ecology Research* and in
 197 our field *Frontiers of Biogeography*.
- 198 ● *Line extensions.* Extending a brand into multiple products to capture market share is a common
 199 strategy in business. Adding journals to address the emergence of new fields has been standard
 200 practice for decades (e.g., the branching of *Global Ecology and Biogeography* and *Diversity and*
 201 *Distributions* from the *Journal of Biogeography*), but many publishers have recently adopted this
 202 tactic with new vigor. The 50 *Nature* extensions (including *Nature Communications*, *Nature*
 203 *Climate Change*, *Nature Ecology and Evolution*) and *Science Reports* are the best known
 204 examples in ecology, evolution and environmental sciences. Another example is Wiley's *Ecology*
 205 *and Evolution* to which all of the premium biogeography journals can refer (or “cascade”)
 206 manuscripts. One benefit of extensions is that it allows a suite of journals to hedge their bets to
 207 future changes in both traditional and OA publishing. It also allows the capture of articles by
 208 referrals from the premium journal into the extension journal (so called referral cascades), for
 209 which the primary purpose appears to be to capture market share.

210

211 Although it is tempting and common thinking to assume the “good” versions of all of these changes tend
 212 to be combined together in journals, the truth is that these various approaches are often decoupled.

213 Academics founding journals may be for-profit or not-for-profit. These journals also may be OA or
 214 subscriber models. Line extensions happen in for-profit (*Nature*), society (*Science*), academic take-back,
 215 and OA (PLOS), journals.

216

217 This diversity of formats is what makes navigating the publishing landscape so hard. There is no simple
 218 one-dimensional axis of good versus bad journals. Nor is there a strategy that is guaranteed to be

257 <https://publicationethics.org/>

219successful and mainstream into the future. A new model may emerge in a year or two, a decade or two,
 220or the publishing landscape may settle into the current or a new stable state more quickly. But until that
 221time comes, what is an author, associate editor, or editor-in-chief to do? How do we navigate this
 222landscape?

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226**Table 1.** How to target your paper for a journal, generate time (e.g., for better work-life balance) by
 227avoiding multiple resubmissions, and improve the publishing landscape at the same time.

Consideration	Recommended action	Anticipated effect	Additional thoughts
Money concerns			
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)
Reaching target audience			
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!
Review and decision process			
If resubmitting after	Choose a journal	Faster publication,	Increasingly publishers are offering

rejection	that will fast-track, i.e. consider your prior reviews, your responses, and a revised manuscript	reduced reviewer burden	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
<i>Responsibility to the community</i>			
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	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

	the best paper you can		identify you for future opportunities
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231 **What we want you to know and recommend you do**

232 ***Editors are on your side***

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

239

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

247

248 ***What can you do?***

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

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259 Our main request of you as authors is to think about where you submit as a multi-dimensional question.
260 We know that the career advice is that you should look at the impact factors released by Clarivate ISI
261 every June and submit to the highest journal on that list you can get into. But it is worth thinking through
262 the perverse incentives such a system creates. It rewards outcomes that have a significant component of
263 luck; it encourages choice of research field based on what journal it will get into rather than what
264 advances the field; it disperses biogeographical research across countless journals, making it harder to

265 find and diluting readership; it leads to wasting authors', reviewers', and editors' time by consistently
 266 aiming too high. In short, it undermines much of what we value as members of a scientific community.
 267

268 We are not suggesting that impact factor should be ignored. We all have scientific careers ourselves and
 269 know IF matters, though its importance is simultaneously outsized (Carpenter et al. 2014) and
 270 overrated⁸. Rather, we are emphasizing that IF should be recognized as just one of many factors, all of
 271 which are worth considering (Fig. 1; Table 1).

272

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

- 275 ● *Money concerns.* If the work was funded by a grant agency, does the agency have requirements
 276 on what type of journal you can publish in? Conversely, if you want to publish in an OA journal, is
 277 there a grant that will cover the costs? Or does your department, library, or other institutional
 278 unit have funds to cover APCs? What size APC could you afford, and are the affordable journals
 279 somewhere you want to publish? If you do not have access to (sufficient) funds, can you request
 280 a complete or partial waiver? Or would a reader-pays journal serve you better?
- 281 ● *Reaching target readers (fit).* Each journal has a specific scientific scope (usually spelled out
 282 clearly in the first couple paragraphs of the information for authors). How closely do the journal
 283 and your paper match? This is known as fit. Consider this thought experiment. Would you
 284 publish in a journal completely outside of your field with a very high impact journal, higher than
 285 almost all journals in ecology and biogeography if it was guaranteed to be accepted regardless of
 286 topic? Almost certainly not! It is worth reflecting on why. It mostly comes down to the fact that
 287 the people who you want to read your paper are much less likely to find it and read it. We all
 288 publish because we want others working in our field to know what we found out and be
 289 influenced by it. This adds to our own scientific reputation. Some people who you want to read it
 290 would find your paper using Google Scholar and other search engines, but not enough. It would
 291 be ill advised to cut your audience so much just for IF. This is the essence of fit: you will reach
 292 target readers. What you think you are getting with impact factor might really be better achieved
 293 by focusing on fit. This reasoning applies to the choice to publish in a biogeography journal
 294 instead of a general ecology journal or a general science journal. The long term impact of the
 295 paper on the field and your career is often better predicted by fit than by impact factor. This is
 296 especially true when people are chasing small differences of impact factor (Stern 2012). It is only
 297 when IF differences of ~5 come into play that we think it is reasonable to pursue impact as one
 298 of several primary determinants.
- 299 ● *Review and decision process.* This probably matters most to early career researchers, but it
 300 matters to us all. What do you want from the review process? Who will give that to you? There is
 301 a great deal of variability in the reputation of journals for how much value they add and how fast
 302 they are in the review process. Is the journal going to get expert reviewers who understand what
 303 you are trying to do? Will the review be respectful, constructive and helpful (even if, especially if,
 304 it is a rejection). Or will you receive a gate-keeping review that says little more than "not good

348 [http://ecr2star.org/blog/2014/5/13/a-guide-to-research-metrics-and-their-importance-for-young-](http://ecr2star.org/blog/2014/5/13/a-guide-to-research-metrics-and-their-importance-for-young-researchers)
 35 [researchers](http://ecr2star.org/blog/2014/5/13/a-guide-to-research-metrics-and-their-importance-for-young-researchers)

305 enough for our journal". Is copy editing and typesetting outsourced and more likely to add than
 306 fix errors, or will the production process improve your paper? It is important to note that any
 307 one manuscript review process can go many ways, but it is our experience that on average and
 308 over the long run, differences among journals are substantial and real. To return briefly to the
 309 thought experiment above: would the review process at a high-impact journal outside your field
 310 be likely to help improve your paper? Probably not, because their editorial and review realm are
 311 unlikely to know either the basics or the nuances of your field. A disciplinary journal may provide
 312 much more return on your investment: better reviews, better editing, a more readable and
 313 citable paper.

314 ● *Responsibility to the community.* We started this section by pointing out that ultimately authors
 315 have the power to determine the direction of publishing. How much obligation do you have to
 316 use that power to pursue ethical choices and improve the state of publishing for the benefit of
 317 the community and future scientists? How does this weigh against financial limits, impact factor,
 318 fit, and career stage? Ultimately you are the only one who can answer that. We are definitely not
 319 here to tell you to sacrifice your career for the greater good. But this responsibility to the
 320 community is something you may be able to weigh more heavily as your career advances. And
 321 we do know that group selection can deliver improved individual fitness to members of the
 322 group (Wilson 1975), and that group-selection works best in closely knit communities.
 323 Biogeography might be such a community where ethical journal publishing choices can benefit
 324 the group with feedbacks to benefit the individual ... especially when the fit in biogeography
 325 journals is also likely to be high!
 326

327 Conclusion

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

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

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	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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