Future of Publishing

What makes a topic “relevant” to journal editors?

Sara Palacio and Adrián Escudero

Sara Palacio (s.palacio@ipe.csic.es), Department of Biodiversity and Restoration, Instituto Pirenaico de Ecología (IPE-CSIC), 22700 Jaca, Huesca, Spain

Adrián Escudero (adrian.escudero@urjc.es), Biodiversity and Conservation Group, (E.S.C.E.T.), Universidad Rey Juan Carlos, 28933 Móstoles, Madrid, Spain

Suitability of a paper for a specific journal is often based on an evanescent concept: the *relevance* of the topic covered to managing editors. Pressure for publishing has never been so high. An academic's future position, funding, and prestige all depend on the quantity of papers published, their quality (or that of the journal in which they are published) and the number of citations they receive. Similarly, scientific journals face increasing pressure to boost their impact factor and climb up the journal rank of their respective categories. Most journals (particularly those with the highest impact factors) receive an overwhelming number of manuscripts that exceeds their capacity for peer-review. Consequently, editors often base a decision to accept or reject a manuscript on the interest of papers for the readers of their journal. The first decision that editors face is whether to send a paper for peer review. Editorial rejections prior to peer review reduce the burden on the already saturated community of reviewers and may save time for authors who can readily submit their paper to a different journal (Cooke and Lapointe 2012). However, they also increase the rejection rate per author. Indeed, editorial rejections are an important source of frustration for authors, who have to spend tedious time in reformatting their papers without any reward in terms of feedback, because these rejections are normally poorly justified and based on very general statements. Leaving aside issues on the fit of papers to the journal scope and aims (which should be clearly explained in the journal web site, (Cooke and Lapointe 2012)), editorial decisions are mostly based on this ethereal idea of the perceived *relevance* of the topic covered by deciding editors. Hidden by anonymity (in pre peer-review rejections, the name of the subject editor is frequently not revealed) and justified by a baseless “lack of space”

in the journal (when most journals are online and available space has become almost infinite (Aarssen 2012, Wardle 2012)), editors are empowered to reject papers, openly disregarding the scientific quality of the contribution in favour of an alleged *lack of interest* or the consideration that the manuscript is of relevance only for a *narrow* community. But editors, by their very nature, must be generalists, even in specialized journals. This means they are frequently not familiar with the field of the paper they are evaluating. Consequently, a decision based on the relevance of the paper to their audience may not be straightforward, particularly without the expert views of peers. Should this type of decision be left in the hands of just one person? We argue here that assessments from a sole individual, frequently not familiar with the field of the paper, may be thematically and/or geographically biased, and therefore, lead to erroneous conclusions, preventing the advance of knowledge.

Ideally, a relevant paper would be one that has the capacity to move the field forward. However, the evaluation of the significance of a contribution is ultimately biased by the background of the editor and his/her field of expertise. This situation is particularly dramatic when environmental problems affecting a significant percentage of the world population—but less pertinent to those in high-income countries—may be overlooked by the scientific community, partly because scientists from low-income countries (and with them their scientific and social demands) are under-represented within journal editorial boards. Only four journals of the top 10 in ecology include editors from low or middle-income countries (as defined by the World Bank designation of Gross National Income per capita: <http://data.worldbank.org>), where they represent

between 1 and 11% of the editorial board. In the case of plant sciences, the number of journals within the top 10 that include editors from low- or middle-income countries goes down to two, and these only account for 1 or 6% of their respective editorial boards. This underrepresentation may have important consequences. We illustrate some of them by taking the case of studies on the ecology of special substrates like gypsum as an example.

Throughout our experience (and that of our colleagues) working on the ecology of special substrates, we have frequently received rejections in top journals without peer review on the basis of the low relevance of the topic covered. Special substrates include, among others, serpentine, saline, calcicolous and gypsum soils. Although termed *special*, some of these soils are widespread throughout the Earth, and impact a significant percentage of the world population, conditioning the whole biota, and posing serious limitations to agricultural land development. Such is the case of gypsum soils. Gypsum outcrops extend throughout the world, being particularly widespread in low-income countries of Africa (where they affect ca. 40% of the total surface of the continent), and Western and Central Asia (affecting over 75% and 25% of the total surface, respectively) (Escudero et al. 2014). Countries like Somalia, Ethiopia, Libya, Egypt, Algeria, Niger, Namibia, Mali, Mauritania, Syria, Iraq or Oman show huge percentages of their total surface affected by gypsum soils (Escudero et al. 2014). Consequently, gypsum is all but *special* from an African or Asian perspective. Gypsum has also been extensively found in Mars (Langevin et al. 2005), where it constitutes a key water-holding substrate (Herrero et al. 2009) and a targeted environment for the search of life (Dong et al. 2007). These figures show how the understanding of life on gypsum ecosystems is of high interest to a really broad audience. Unfortunately, the extent of gypsum soils in Europe and North America is low (only 0.3% and 0.1% of the total gypsum in the world, respectively). This is likely why studies dealing with this type of soils are frequently perceived as *of low relevance* by European or North American editors, and papers on gypsum ecology are found “not relevant” by the editors of top journals in ecology and evolution. Indeed, a rapid search in Web of Science indicates that only four papers related to gypsum environments have ever been published in the top 10 journals of ecology and plant sciences categories. Surprisingly, this scenario is different for serpentine soils: the search renders 70 papers, many published in the last 10 years, even though serpentine soils have a much reduced extent than gypsum (Kazakou et al. 2008). The reason may be that serpentine soils are present in several countries of Europe and North America, where they can host a high proportion of the local diversity. It seems therefore, that

what editors judge as *relevant* is frequently what they have close, or what is *familiar* to them—a serious mistake that scientific journals with a broad scope should avoid. Note our aim with this example is not to complain about the success of studies on serpentine (we are utterly happy about these outcomes by our “serpentinologist” colleagues), or claim the relevance of our small portion of study, but to show how the expertise of deciding editors may be geographically and/or thematically biased, and how such bias can lead to pressing environmental problems affecting only low-income countries being disregarded by the scientific community. We are convinced other ecologists working on different fields may have experienced similar situations and encourage them to post their comments, making use of one of the many beauties of the journal, *Ideas in Ecology and Evolution* (IEE).

It could also be argued that the interest of a paper can be measured by the number of scientists interested in the topic covered (Pyke 2014). This perverse logic makes sense under the current “citation fever”, in which papers targeting a broad audience of scientists are favoured because they will potentially yield an increasing number of citations to the journal, hence raising its impact factor. Consequently, the consideration of a paper as suitable for publication would depend, not only on the relative contribution to the advancement of knowledge, but mainly on the potential number of citations it could yield. Going back to our example, papers on gypsum ecology may hence be considered of minor relevance because not many papers (particularly in top journals) are published each year on this topic. This would also explain why more papers on serpentine than gypsum are published in top journals: serpentine ecology hosts a vast community of scientists, including a scientific society with more than 300 members. It should further be noted that the assessment of the relevance of a paper in terms of its potential number of citations leads to negative feedback, where the low number of papers produced in a field hampers the publication of related papers, hence leading to even fewer papers being published. In addition to unfair, this is a very dangerous approach that goes against the advancement of knowledge because it favours “hot” topics while leaving no path for less-developed fields of science. Notably, the underdevelopment of some fields may not be related to a lack of general interest (as argued above with the gypsum case), but to the fact that, unfortunately in some instances, research is not a priority for most of the low-income countries where certain environmental issues prevail. At this point it could be argued that the perceived lack of relevance of certain topics may merely be an expression of the differences between low and high-income regions and, consequently, an argument that makes the gap between them even larger.

How could we move forward? Clearly, editorial decisions based on the potential citation yield of manuscripts should be avoided. What is relevant for the reduced number of readers from low-income countries may be critical for the survival of a vast fraction of the humankind. This is particularly true for journals supported by societies or trusts pursuing the advance of scientific knowledge and not just economic profit (like most publishing companies). Furthermore, editors should avoid leaving topics out of the system simply because they are vaguely perceived as irrelevant by a sole individual. Judgments sustained by the views of different individuals with broad backgrounds and expertise, and diverse geographical origins have higher chances to reach sound decisions. Therefore, journals with a broad scope and seeking impact should include scientists from different disciplines and regions of the world in their editorial teams to share initial decisions on the relevance of manuscripts. Only then will top journals be truly open and broad in scope, welcoming significant contributions on less-developed fields of research, even when they do not seem relevant from a European or North American perspective.

Referees

Steven J. Cooke – steven_cooke@carleton.ca
Carleton University

Neal Haddaway – n.haddaway@bangor.ac.uk
Bangor University

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