

Improving peer review on many fronts

There is a range of approaches to improving peer review, and at this journal we encourage many of them.

The importance of peer review and the imperfections of current peer-review systems are a perennial topic of discussion. Many different modifications to the traditional model have been advocated and tried, across journals and across fields, and the landscape of peer review has changed substantially for the better over the past 20 years or so. A recent [preprint](#) and accompanying [blog post](#) make a helpful contribution by summarizing many of the different ideas, and classifying them into four different schools of thought that have both complementarities and tensions.

The four schools proposed by the authors are ‘quality and reproducibility’, ‘democracy and transparency’, ‘equity and inclusion’, and ‘efficiency and incentives’. Below, we describe the four schools and discuss how their approaches relate to the [peer-review policies](#) of *Nature Ecology & Evolution* and other *Nature* Portfolio journals.

The quality and reproducibility school includes a range of approaches that are aimed at making peer review more rigorous, and thus improving the reliability of the published record itself. This starts with choosing peer reviewers with the right expertise, and making editorial decisions that specifically take into account the different expertise of the reviewers — especially in the case of any disagreements. Reviewers can be assisted in scrutinizing a manuscript through the use of checklists, both those filled in by authors (such as our own [reporting summary](#)) to ensure all relevant information is available for assessment and those used by reviewers themselves to help to structure their approach, such as one that we encourage [our reviewers](#) to use. This school is also keen to improve the detection of image manipulation and plagiarism, checks for both of which are carried out in-house at *Nature* journals and therefore are not, strictly speaking, part of the peer-review process. Further improvements to peer-review rigour come from specific reviewing of custom code, and use of registered reports to assess study design in advance. [Both of these](#) are currently being used by other *Nature* journals, and rollout at *Nature Ecology & Evolution* is under consideration.

The democracy and transparency school encompasses moves towards greater openness in peer review. This includes publication of reviewer reports and editorial decisions and also of reviewer identities, both of which are available as [options on this journal](#). This school also encourages the [use of preprints](#), which the *Nature* journals have embraced. However, the school also tends to favour soundness-only peer review, in which the importance of articles is decided by the community after publication — not compatible with the highly selective model of the *Nature* titles. Other forms of post-publication assessment are important parts of our process, such as discussion in our [Matters Arising](#) section as well as [Corrections](#) or even [Retractions](#).

The equity and inclusion school seeks to improve diversity and representation in the peer-review process and to remove biases. This goal has to start with editors making a substantial commitment to including a diverse and representative range of people in the review process. We take this seriously across the [Nature Portfolio](#), and editors at this journal spend considerable time on the constant journey of improving reviewer diversity. To make further progress, editors must have data on diversity amongst authors and reviewers: the cross-publisher Joint Commitment for Action on Inclusion and Diversity in Publishing (of which Springer Nature is a member) has taken an important step by developing a schema for diversity, equity and inclusion [data collection](#). One approach for countering bias has been double-blind peer review, which is available as an option at this journal — yet is far from being a panacea. On the one hand, when blinding is optional it may not counter much bias if underrepresented groups are more likely to opt in. On the other hand, compulsory blinding could be problematic in subject areas in which fieldwork and nonmodel organisms are frequently used, making it difficult to genuinely hide the identities of authors from reviewers. In the specific case of gender bias, there is still debate over the extent to which the system is indeed biased: [some authors](#) have found evidence for bias in ecology and evolution journals, whereas [others](#) have not observed it when looking at a much larger dataset

across disciplines. That said, it is not necessary to fully understand and document bias before actions are taken to counter it.

Finally, the efficiency and incentives school focuses on the increasing strain on the peer-review system as the number of articles and journals increases, and therefore looks at ways to make it smoother for authors and reviewers alike. Providing one small incentive by [recognizing the efforts](#) of peer reviewers is a first step, either by acknowledging them in the published article if they opt in or by encouraging them to use external recognition websites. Considerably more controversial is the suggestion that peer reviewers should be paid, which is not currently the industry norm. Paid peer review has many practical and ethical problems and is [hotly debated](#). To reduce the duplication of reviewer effort and speed up the process for authors, this school also advocates for the portability of peer review. Within publishers, this is increasingly the norm: reports and the identities of reviewers are transferred from a journal that is rejecting the manuscript to one that will hopefully be able to publish it. This [service](#) is widely used at the *Nature* journals. *Nature Ecology & Evolution* is also happy to transfer reviewer reports to other publishers when requested, so long as consent from reviewers can be obtained.

The authors of the blog post note that although the four schools of thought can be seen largely as complementary, just with different emphases, there are points on which they disagree. For example, moves to make the system faster might compromise its rigour, and moves to make it more open might hinder efforts to reduce bias and also limit the degree of critical scrutiny that reviewers are prepared to provide. For this reason, the authors encourage further experimentation and the persistence of a diverse landscape of peer-review approaches, and we agree. It is important that we continue to innovate and improve, and we should not attempt to impose a one-size-fits-all approach across disciplines and journals. □

Published online: 10 May 2022
<https://doi.org/10.1038/s41559-022-01770-7>