

Enhancing reporting standards

Updated editorial policies and reporting initiatives aim to improve transparency and reproducibility for published papers.

Research publications disseminate knowledge in the hope that the reported information will be built on. Yet, more than 70% of the 1,500 respondents surveyed by *Nature* in 2016 have failed to reproduce someone else's experiment¹, more than 50% have failed to reproduce one of their own experiments, and 90% of respondents are concerned about reproducibility. Many of the factors that could boost reproducibility, such as better teaching and mentoring, are out of our control as Editors. However, journals can set strong policies, provide community resources, and support external initiatives. Indeed, journals enforcing standards received 69% endorsement as a potential solution on the *Nature* survey.

Many of the reporting requirements and editorial policies introduced at *Nature* journals over recent years to promote greater transparency and reproducibility of published results will be familiar to our authors and readers. For instance, since 2016 *Nature Climate Change* and the other *Nature* journals have been requiring authors to provide information on how the data supporting the findings in the paper may be accessed². On 1 February 2018 we introduced an editorial policy checklist to help authors ensure that they are complying with these policies at an earlier stage in the peer-review process. This coincides with the new competing interests policy across *Nature* journals — while we previously required authors to disclose financial competing interests, this policy has been extended³ to include non-financial interests, such as personal and professional relationships with organizations and individuals, including membership of governmental, non-governmental, advocacy or lobbying organizations (see the editorial in *Nature*⁴).

In the coming months, we will also be introducing reporting summary documents to which authors will be expected to add details and justification for methodological and analytical aspects of their submitted papers. These reporting documents were developed by in-house Editors across *Nature* journals, with input from the relevant research communities. These reporting summaries will be made available during the review process and will be published online alongside the paper. This will allow referees



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and readers to easily locate crucial details of data collection and analysis so they can better interpret results, identify limitations, and ultimately replicate and build on the reported findings.

A similar reporting document⁵ has been in place at our sister life-science journals since 2013. At *Nature Climate Change* we will be relying on new reporting summary documents that better capture the needs of our research communities, broadly defined as behavioural and social sciences, and ecology, evolution and environment. Of course, we recognize that within the broad research areas these reporting documents encompass there is no single way to conduct an empirical study, and multidisciplinary and interdisciplinary studies by definition draw on many research traditions. Thus, these reporting summary documents are not exhaustive, nor is the intention to enforce a specific set of standards. Rather, they aspire to capture and increase the transparency of key elements of how studies were designed, conducted, and analysed. For instance, the sampling considerations are necessarily very different for a quantitative psychology experiment conducted in the lab, qualitative analysis of semi-structured expert interviews, a vegetation survey, and a mesocosm experiment. However, in all cases authors should be able to provide justification

for the sample used, whether they are university students, key stakeholders, or single species versus community manipulations, and provide a full report of how sample size was selected, whether based on convenience, availability of suitable subjects, or statistical methods. It is our hope that describing study elements in a standardized way across the broad range of methodologies and types of data presented in our pages will foster greater appreciation and understanding of research approaches in our interdisciplinary readership.

These reporting documents should reflect the needs of the communities they serve, and so will continue to evolve based on author, referee, and reader feedback. Ensuring systematic attention to reporting and transparency is only a small step towards solving the issues of reproducibility. We hope that we have your support in this effort. □

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References

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2. *Reporting Requirements* (*Nature*, accessed 12 February 2018); <http://go.nature.com/2tdbbs1>
3. *Competing Interests* (*Nature*, accessed 12 February 2018); <http://go.nature.com/2DDG12Z>
4. *Nature* **554**, 6 (2018).
5. *Nature* **496**, 398 (2013).