

## 1 Taking steps towards diversifying priority setting research in 2 conservation science: reflections on de Gracia (2021)

3 There is growing awareness across many branches of science of the need to decolonize research  
4 practices and curricula (Aikenhead, 2006; Radcliffe, 2017), and the fields of ecology and  
5 conservation are no exception (Baker *et al.*, 2019). However, while conservation scientists and  
6 practitioners from the Global North are gradually waking up to the fact that local knowledge and  
7 agency – including that of indigenous people – are essential for social justice and to achieving  
8 conservation outcomes, the road to decolonizing conservation science remains a long one (Baker  
9 *et al.*, 2019). As a discipline, conservation has a long colonial history and remains heavily  
10 dominated by institutions in the Global North when it comes to publications, funding and research  
11 networks (Maas *et al.*, 2021).

12 In a letter drawing attention to the need to decolonize conservation science, de Gracia (2021)  
13 focuses on how exercises that aim to set global conservation priorities are heavily biased in their  
14 representation towards researchers from the Global North. This despite the fact that many of  
15 today's most pressing conservation challenges are faced by countries and people in the Global  
16 South. To make this point, de Gracia identifies Jucker *et al.* (2018) as an example of research  
17 that perpetuates the power dynamics and priorities of researchers in the Global North. We thank  
18 de Gracia for voicing this issue and for giving us the opportunity to contribute to this important  
19 conversation. We strongly encourage others to read de Gracia (2021) and related perspectives,  
20 which provide much needed context on why we should strive for better representation in  
21 conservation science. Here we take this opportunity to reflect on some of the limitations of our  
22 own work, while also clarifying a few points made by de Gracia (2021) in reference to Jucker *et al.*  
23 *et al.* (2018) and priority setting research more broadly.

### 24 **Broadening participation in priority setting research**

25 de Gracia's (2021) central message is that certain groups – particularly those from the Global  
26 South and those outside traditional academic circles – rarely get a seat at the table when  
27 conservation priorities are set. We entirely agree. This disparity is captured clearly in a recent  
28 meta-analysis by Dey *et al.* (2020), who report that only around a third of priority setting exercises  
29 in ecology and conservation involve resource users, and almost none engage with indigenous  
30 organizations (although most do include participants from governmental and non-governmental  
31 organizations outside academia). It is easy to see why de Gracia chooses Jucker *et al.* (2018) as  
32 a specific example of this broader issue. This project was led by a group of conservation scientists

33 largely based at a single institution, the University of Cambridge, which in many ways epitomizes  
34 the power imbalance between different regions of the globe. Lack of broad institutional and  
35 societal representation is certainly a valid criticism of our work, and a limitation which we ourselves  
36 drew attention to in our paper. However, de Gracia's letter does overlook three important aspects  
37 of Jucker *et al.* (2018): (i) our goal was not to set new conservation priorities, but to develop a  
38 method to re-evaluate existing ones; (ii) the approach we developed actively sought to increase  
39 representation (albeit imperfectly); and (iii) despite our shared institutional affiliation, as authors  
40 we actually represented a diverse group of early career researchers (ECRs).

41 First, Jucker *et al.* (2018) was not a conventional priority setting exercise, as the paper did not aim  
42 to identify any new priority research areas. Instead, what motivated our work actually echoes  
43 several of de Gracia's general criticisms of current priority setting exercises. Recent years have  
44 seen priority setting research become increasingly popular in the environmental sciences (Dey *et*  
45 *al.*, 2020), with at least 35 such papers being published in the decade between 2006–16 (see Fig  
46 S12 in Jucker *et al.* 2018). However, continuously identifying new areas of priority research might  
47 not necessarily be the best way to advance conservation, particularly if no attempt is made to  
48 determine how the broader conservation community judges their relative importance. We therefore  
49 set out to develop a framework to revisit existing priority questions and identify key knowledge gaps  
50 that remained. We used the 100 questions posed in Sutherland *et al.* (2009) as our case study, as  
51 it was one of the first exercises of its kind explicitly focused on conservation. Using these as a  
52 reference, we asked two basic questions: (i) how much effort had gone into addressing each of the  
53 100 questions over the past decade? and (ii) are these topics still perceived as highly relevant to  
54 achieving global conservation goals? We did this using a two-pronged approach: a literature review  
55 to estimate effort and an online survey to assess relevance (the latter of which is the focus of de  
56 Gracia's letter). We acknowledge that by choosing these specific 100 questions as our reference,  
57 we implicitly legitimize them, even if in our paper we were careful to highlight lack of broad  
58 representation as a major limitation of Sutherland *et al.* (2009). However, it is important to keep in  
59 mind that at its heart ours was a methodological exercise – a first attempt to develop a framework  
60 for re-evaluating existing priority topics across any field of research.

61 Second, by using an online survey to assess relevance, our approach aimed to address de  
62 Gracia's major criticism of priority setting exercises: lack of representation. Our survey reached  
63 222 conservation scientists and practitioners, five times as many as those who originally  
64 contributed to Sutherland *et al.* (2009). This included respondents from the Global South (South  
65 America, Africa and Asia, excluding Japan), which, despite being a minority (17%), generally

66 tended to assign relevance scores that were broadly consistent with those of respondents from  
67 Europe, North America and Australia (Pearson's correlation coefficient = 0.47,  $P = 0.002$  for  
68 questions with at least 5 respondents from both groups). This is not to say that our approach was  
69 perfect, nor that it went far enough in addressing the issue of representation. Beyond the obvious  
70 geographic biases in the survey which de Gracia (2021) focuses on, there are also less visible  
71 ones linked to age, gender, ethnicity, disability, socio-economic status and education which could  
72 have affected our results. These are important limitations of our work which we documented and  
73 discussed in our original paper. However, while acknowledging these limitations, our approach  
74 did at least take a first step towards broadening participations in priority setting exercises.

75 Third, while the authors of Jucker *et al.* (2018) were all based at the University of Cambridge and  
76 its Conservation Research Institute (UCCRI), we did not reflect the typical make-up of a priority  
77 setting group. For one, at the time this project was undertaken, all 45 authors were ECRs (PhDs,  
78 Postdocs or Research Fellows), not established experts in our respective fields. For practical  
79 purposes (including funding constraints) we needed to restrict participants to those based in  
80 Cambridge, hence the strong institutional bias. We were nonetheless conscious that the  
81 composition of the team was critical, as it strongly influences how collaborative and  
82 interdisciplinary research is perceived, theorized and implemented (Aijazi *et al.*, 2021). To  
83 encourage inclusivity and participation, diverse voices from academia and NGOs were consulted  
84 during the design phase of the project. This included ECRs from across disciplines in the natural  
85 and social sciences – Geography, Land Economy, Law, Plant Sciences and Zoology – who  
86 participated in this planning process. Collaboration in the project emerged from an open call to  
87 ECRs, irrespective of ethnicity, race, gender, or area of expertise. Of the 45 authors,  $\frac{2}{3}$  were  
88 women, and while certainly not a majority, several were from the Global South, including one of  
89 the two project leads. There are of course many factors beyond age, gender and ethnicity which  
90 determine who participates in priority setting research, and we cannot (and did not) claim to  
91 represent everyone with a stake in the conservation of the world's biodiversity. But we did make  
92 a concerted effort to broaden this group.

### 93 **The future of priority setting research in conservation**

94 Reflecting on the need to broaden participation when prioritizing conservation objectives, de Gracia  
95 (2021) ultimately comes to the conclusion that "*until this work is seriously undertaken, articles such*  
96 *as Jucker et al. are harmful and inappropriate*". A deeper debate is needed about how we tackle  
97 the issue of representation in conservation, and whether we should accept to make incremental  
98 progress while acknowledging limitations (as was the spirit of Jucker *et al.* 2018) or if a more radical

99 shift in practices needs to occur first. What we certainly agree with is that we can and should do  
100 more to narrow the representation gap. Thinking practically, one thing we can do is set clear  
101 authorship guidelines that ensure people from diverse backgrounds are given the opportunity to  
102 participate in and lead priority setting research. This is similar to the model that the  
103 Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)  
104 follows when nominating contributing authors (although this too has been criticized for not going far  
105 enough; Báldi & Palotás, 2021). Language is another important barrier to participation which we  
106 can take concrete steps to remove (Amano *et al.*, 2016), although it is by no means the only one.  
107 For instance, subsequent work led by authors who contributed to Jucker *et al.* (2018) looked to  
108 canvass a broader group of people by translating their questionnaire into five languages (Rose *et*  
109 *al.*, 2018). Finally, it is important that we think of diversity and representation holistically. de Gracia  
110 (2021) puts a strong emphasis on the Global North-South divide. But diversity and inclusion are  
111 much more complex than just geography. Opportunities to contribute to decision making vary  
112 dramatically not just between the Global North and South, but also within them, due to factors such  
113 as age, gender, ethnicity, religion, access to education, disability and socio-economic status. In  
114 striving for greater geographic representation, we must not lose sight of this fact.

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