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POLICY PERSPECTIVE

Beyond Advocacy: Making Space for Conservation Scientists in Public Debate

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Biodiversity; implementation science; knowledge brokerage; objectivity; policy; scientific communication; values.

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Abstract

The topic of advocacy by scientists has been debated for decades, yet there is little agreement about whether scientists can or should be advocates. The fear of crossing a line into advocacy continues to hold many scientists back from contributing to public discourse, impoverishing public debate about important issues. We believe that progress in this debate is limited by a misconception about the relationship between scientific integrity and objectivity. We begin by unpacking this relationship and debunking three common misconceptions about advocacy by scientists: namely, that advocacy is harmful to scientific credibility, beyond the scope of science, and incompatible with science, which is value-free. We propose new ways of thinking about responsible advocacy by conservation scientists, drawing on practices from the health sciences, where researchers and professional bodies are empowered to act as health advocates. In so doing, we hope to open further space for conservation scientists to actively and legitimately engage in public debate about conservation issues.

Introduction

Conservation is a matter of public interest but public debate about conservation is dominated by vested interest groups—business and industry on the one hand, and nongovernmental organizations (NGOs) and lobby groups on the other. Conservation scientists often self-select out, fearful of transgressing from scientific communication to advocacy, and thereby tarnishing their scientific credibility. This is not the case for scientists who work in other areas of public interest. In health care, for example, medical researchers are much more likely to engage in public debate, empowered by the recognition of advocacy as core disciplinary skill (Chapman, 2001). We believe the reasons conservation scientists choose not to engage are in large part based on misconceptions about the relationship between scientific integrity and objectivity. We unpack this relationship, debunk common misconceptions, and offer new ways of thinking about

responsible advocacy that we hope will free conservation scientists to more actively engage in public debate.

Debates about advocacy by scientists inevitably make distinctions between advocacy and knowledge brokerage or scientific communication. This distinction is commonly made on the basis of objectivity; brokerage is portrayed as honest and neutral (Pielke Jr 2007), whereas advocacy is painted as value-based and deceptive (Gitzen 2007). We argue that these dichotomous categories rely on an oversimplified concept of scientific objectivity and emphasize only extreme actions, ignoring what is in fact a wide spectrum of valid and valuable modes of public engagement (see Lach et al. 2003, for example). A similar distinction between *evaluating* and *stipulating* policy has also been suggested (Scott & Rachlow 2011). We believe this distinction, like that between brokerage and advocacy, rests on the same problematic definition of objectivity. Although we agree with the proposal—central to both Pielke Jr (2007) and Scott & Rachlow

(2011)—that widening, rather than narrowing the scope of policy options is important work for scientists, we argue that this is not incompatible with expressing an explicit, transparent position about particular policies. There are many ways in which scientists can engage in policy, including working directly with decision-makers, community education, media communication, and giving testimony at public hearings. Advocacy—defined here as support for, or objection to, a particular position, proposal, policy, or decision—is a part of that mix of engagement activities. It goes beyond what would traditionally be considered brokerage to the extent that it removes the burden on scientific facts to speak for themselves, but it should not be taboo for scientists because it can be done with integrity, in a responsible, transparent, evidence-based way.

We believe the fear of crossing an illusory line into advocacy holds many scientists back from contributing to public discourse. In the face of an extinction crisis, the standard of debate about conservation is impoverished when scientists with relevant knowledge remain silent outside the pages of their academic journals. Our goal is to remove existing obstacles by debunking common objections to advocacy by scientists, and to help create legitimate space for scientists in public debate beyond the brokerage-advocacy dichotomy.

Common objections to advocacy

Common arguments against advocacy by scientists are (1) advocacy damages one's scientific credibility, (2) advocacy is beyond the scope of science, and (3) scientists should strive to be value-free. Existing guidelines for scientists who wish to advocate do little to alleviate scientists' fears. In fact, they may exacerbate anxiety by setting impossible standards and perpetuating false dichotomies (e.g., advocacy is about values; science is not).

Objection 1: Advocacy damages your scientific credibility

Despite this oft-made claim, there is little evidence that engaging in advocacy damages scientific credibility in the academic sphere (Blockstein 2002). Conservation includes many examples of eminent scientist-advocates such as E.O. Wilson, Jane Goodall, and Jane Lubchenco. The main risk to scientific credibility comes from poorly substantiated advocacy (Lach *et al.* 2003). Indeed, when surveyed, conservation biologists supported transparent, evidence-based policy advocacy in scientific papers (Scott *et al.* 2007). In a recent survey of scientists, 87% believed that scientists should "take an active role in public policy debates about science and technology" (Pew Research Centre 2015: p. 7).

Advocacy is also unlikely to damage a scientist's reputation in the public sphere, where effective communication, familiarity, and trust—not perceived objectivity—are most important for building and maintaining credibility (Scott *et al.* 2007; Schaefer & Beier 2013).

In some cases, advocacy might bring career benefits. Academic position descriptions increasingly request details of outreach and extension work, including community education and media communication. Similarly, many funding schemes now ask for demonstrated impact beyond academic publication.

The consequences of speaking out will differ for different scientists (e.g., NGO and academic scientists may be more free to advocate than government scientists). But advocacy might also benefit scientists outside academia and NGOs. For example, U.S. presidents have traditionally chosen outspoken scientists as senior advisors (Schaefer & Beier 2013).

Objection 2: Advocacy is outside the scope of science

Another common objection is that it is the role of NGOs to advocate for conservation. There are two problems with this. First, NGOs are less focused on conservation issues than they have been in the past, with the environmental space effectively filled by climate change concerns (Novacek 2008). Second, despite some notable exceptions, when NGOs address conservation issues, they tend to target charismatic species, rather than a scientifically defensible set of priorities.

Even if these two conditions were to change, it would not necessarily constitute a good argument for keeping scientists out of public debate. Indeed, many argue that there is an ethical imperative for conservation scientists to speak out on issues related to their research, especially given that past conservation success is directly linked to advocacy by scientists (Noss 2007; Schaefer & Beier 2013).

Objection 3: Scientists should strive to be value-free; advocacy is incompatible with this

This objection really gets to the heart of the matter (the two above rest on its shoulders). Values in science are often viewed with suspicion, seen as undermining objectivity and delegitimizing scientific authority (Douglas 2007). This is true in certain situations; for instance, if medical research is influenced by pharmaceutical company pressure. But values have a role and place in science. Values relating to knowledge acquisition (epistemic values), such as accuracy, honesty, and testability, underpin the development of scientific theory and methods, whereas ethical values such as regard for human and animal

welfare shape research agendas and govern scientific practice.

Other (nonepistemic) values underlie scientific judgments too. For instance, when the consequences of making an error are high, the standard of evidence required to draw a conclusion is generally set higher. Here, there is an unavoidable trade-off to be made between two types of errors: false positives (detecting an effect that is not there) and false negatives (failing to detect an effect that is there). The trade-off between these two error rates is a value judgment—it depends on personal beliefs about the costs of each error. Two scientists may draw different conclusions, depending on the standard of evidence they choose.

Every statistical method involves some kind of trade-off—if not between false positives and false negatives, then perhaps between parsimony and fit. Even conventional thresholds, such as $P < 0.05$ or $\Delta AIC > 2$, do not avoid value judgments; they carry with them pre-made trade-offs about what's important and how important it is.

Some value judgments (e.g., what is a tolerable level of extinction risk?) can and should be disentangled from judgments that are more factual in nature (e.g., the probability of extinction). But even judgments deemed “more factual” are not necessarily value-free, and no amount of self-checking or personal reflection can make them so.

Individual scientists may be biased by their values and backgrounds but fortunately, the limits of “personal objectivity” can be counterbalanced by a diverse scientific community that fosters a collective objectivity (Longino 1990). Diversity ensures a single value system does not dominate and allows exploration of areas outside the prevailing paradigm. For example, before the 1970s, the prevailing view among primatologists was that males dominated primate social structures. When female primatologists entered the field, their different research focus and methods led to more research on female primates, and uncovered new evidence that overturned previously held beliefs about dominance hierarchies (see Haraway 1989). Together, different perspectives painted a more accurate picture of a complex phenomenon. It is the collective that maintains objectivity, not the individual. This should come as a relief to most scientists—it is not simply the quality of your own self-reflection that defends scientific knowledge!

Advocating responsibly, not inadvertently

Advice for responsible advocacy by scientists inevitably includes an instruction to separate science from values (Goodwin 2012; Schaefer & Beier 2013). It is this self-checking step that is seen as the one that makes the

subsequent activity “responsible.” If we accept that this is often impossible and indeed, self-deceiving, then we need a new way of thinking about what we consider responsible action and approaches for avoiding inadvertent advocacy.

Inadvertent advocacy occurs when a scientist presents personal preference as scientific judgment (Wilhere 2012). Sometimes this occurs by accident, when a scientist fails to recognize that there are values embedded in their methodological choices or interpretations; other times, it involves a deliberate dressing up of values as facts (“advocacy by stealth”: Pielke Jr 2007).

At an individual level, scientists can avoid inadvertent advocacy by being more transparent in scientific practice. As a discipline, conservation science can develop a systematic and coordinated approach to research translation and implementation. Both suggestions rest on explicit acknowledgement that values are present in every step of scientific practice. We do not mean to imply that this is trivial: it is a cultural shift. However, there are precedents for these practices in other disciplines, which we discuss below.

Transparency through disclosure

Qualitative researchers have established guidelines for the disclosure of relevant personal values and beliefs. In the social sciences, this involves revealing one's relationship to the participants being studied, including potentially hidden power relationships that may affect data collection and/or final results. It also includes disclosing prior beliefs. For example, a public health researcher interviewing teenagers about recreational drug use might disclose their personal experience with drug use, and their prior beliefs about the phenomenon; e.g., that media coverage has exaggerated the prevalence of drugs in the community. Because one's personal history and prior beliefs may influence the questions asked and the answers received (e.g., whether the teenagers speak to the interviewer honestly), they are important to any reader's interpretation of the research. This kind of openness may have the added benefit of increasing public faith in science (Pittinsky 2015).

Disclosure of one's (relevant) personal history is complicated in the context of multi-authored papers in ecology and may not be necessary to the same extent. But some degree of personal reflection will help avoid the advocacy by stealth discussed by Pielke and others (Pielke Jr 2007; Wilhere 2012). As a starting point, ecologists may ask:

- (1) What is the research culture in my lab (e.g., dominant methodologies and analysis techniques) and how has this affected me?

- (2) Who is funding my research, and how has their value system influenced me?
- (3) What are my own personal values (e.g., I value grasslands) and prior beliefs (e.g., grasslands are threatened) and how do they influence my methodological choices and interpretations?

Research translation and implementation

In the early 1990s, the Cochrane Collaboration was formed with the intention of producing systematic reviews to aid evidence-based decision-making and policy in medicine (Chalmers 1993). This formal synthesis of existing evidence was an attempt to bridge the research-practice divide. Although an important step, it was not enough. The facts—even when systematically accumulated—do not speak for themselves. Failures to translate research into practice and policy exposed patients to unnecessary risks and sometimes harm caused by their medical treatment (Grimshaw *et al.* 2012).

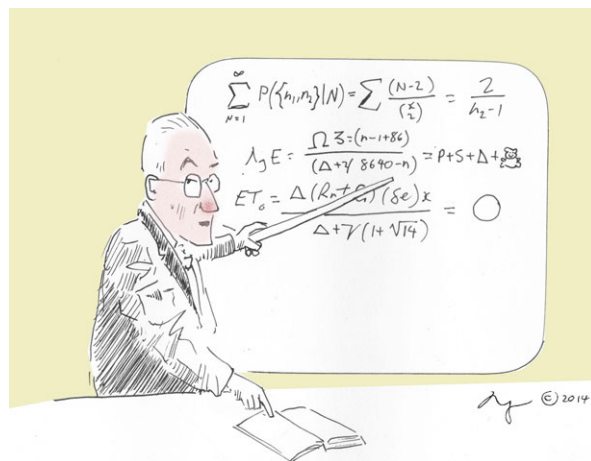
New disciplines of research translation and implementation science now work to rectify this in medicine, by ensuring research *does* impact policy and practice. In other words, researchers are providing an evidence-base for effective advocacy. These activities are not considered “outside the scope of science” or “exaggerated activism”; they are a legitimate scientific extension of medical research.

The role of professional bodies in advocacy

Professional bodies may play an important role here. They can model responsible advocacy, or provide formal support for scientists and institutions, who—in certain political climates—may fear repercussions from advocating.

There are strong precedents for professional bodies acting as advocates. The American Medical Association has long advocated for public health policies, including campaigns for the introduction of seatbelts and support for anti-smoking policies (see <http://www.ama-assn.org/ama/pub/about-ama/our-history/ama-history-timeline.page?>). The American Psychological Association has been similarly active, advocating for policies about the mental health needs of children, older adults, and people of color (see <http://www.apa.org/about/gr/advocacy/index.aspx>).

Recently, the Ecological Society of Australia established *Hot Topics*, an online resource that synthesizes scientific research relevant to environmental policy development (see <http://www.ecolsoc.org.au/groups/hot-topics>). This resource is specifically designed to contribute to public debate.



“So obviously, the facts speak for themselves...”

Image: James Kenyon

Conclusion

We don't suggest that ‘anything goes’ when it comes to advocacy. Nor that speaking out will be easy or problem-free. Gray areas abound. However, we believe that advocacy by scientists can broaden and deepen public discourse about conservation issues. We borrow from precedents in other disciplines to present a model of responsible advocacy by scientists. First, encouraging scientists to disclose their personal values and improving incentives for transparency *within* conservation science may help break down some of the artificial dichotomies that separate science and advocacy. Second, acknowledging the importance of knowledge translation and developing a coordinated, systematic approach to science implementation could help guide responsible advocacy by scientists. Finally, professional societies could provide valuable institutional support for scientist-advocates.

An important goal of our paper was to disassociate advocacy from ‘extremism’ and reclaim space for scientists to engage in informed public debate in a way that does not deny their value-systems. We approached this by deconstructing three common arguments against advocacy by scientists, which rest heavily on false distinctions between science and values. If you have been holding back for any one of these reasons, we hope we have eased your concerns and encouraged you to join the public conversation.

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