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Review paper

Being relevant: Practical guidance for early career researchers interested in solving conservation problems

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ABSTRACT

In a human-altered world where biodiversity is in decline and conservation problems abound, there is a dire need to ensure that the next generation of conservation scientists have the knowledge, skills, and training to address these problems. So called "early career researchers" (ECRs) in conservation science have many challenges before them and it is clear that the status quo must change to bridge the knowledge–action divide. Here we identify thirteen practical strategies that ECRs can employ to become more relevant. In this context, "relevance" refers to the ability to contribute to solving conservation problems through engagement with practitioners, policy makers, and stakeholders. Conservation and career strategies outlined in this article include the following: thinking 'big picture' during conservation projects; embracing various forms of knowledge; maintaining positive relationships with locals familiar with the conservation issue; accepting failure as a viable (and potentially valuable) outcome; daring to be creative; embracing citizen science; incorporating interdisciplinarity; promoting and practicing pro-environmental behaviours; understanding financial aspects of conservation; forming collaboration from the onset of a project; accepting the limits of technology; ongoing and effective networking; and finally, maintaining a positive outlook by focusing on and sharing conservation success stories. These strategies move beyond the generic and highlight the importance of continuing to have an open mind throughout the entire conservation process, from establishing one's self as an asset to embracing collaboration and interdisciplinary work, and striving to push for professional and personal connections that strengthen personal career objectives.

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1. Introduction

Conservation biology emerged as a novel multi-disciplinary field of enquiry in the 1980's (see Wilcox and Soulé, 1980) to confront the crisis of global biodiversity loss (Soulé, 1986). Through time, the term "conservation science" has been adopted to better reflect the notion that biology is only one part of the conservation puzzle (Balmford and Cowling, 2006), with human behaviour and socio-economic aspects being equally if not more important than biology to solving conservation problems (Schultz, 2011; Kareiva and Marvier, 2012). Today, many researchers around the globe self-identify as engaged in conservation science research; however, there is growing recognition that using conservation science to frame research alone (e.g., Salafsky et al., 2002) fails to adequately ensure that practitioners are provided with the information they need to make informed decisions and to act accordingly (Sutherland, 2009). Indeed, many knowledge gaps still remain for specific taxa, ecosystems, and problems (Lawler et al., 2006), but even when knowledge is in hand, challenges remain with bridging the knowledge–action divide (Clark, 1993; Cook et al., 2013).

Over the last decade there has been increased emphasis on providing conservation practitioners with the information they need to act (Clark et al., 2002) and actually solve conservation problems (Gibbons et al., 2011). For example, scientists and practitioners (including managers and policy makers) have been working collaboratively to identify research priorities that, if addressed, would lead to meaningful changes in practice and policy (e.g., Braunisch et al., 2012; Pullin et al., 2013). Similarly, there is recognition that publishing one's work in peer reviewed journals is insufficient for engendering the public support needed to make meaningful changes in human behaviour that underlie conservation problems (Arlettaz et al., 2010). To be relevant conservation scientists today need to do more than conduct research on self-identified topics of interest and publish their work in peer-reviewed outlets.

The next generation of conservation scientists are desperate to step forward and make meaningful strides in solving the pressing conservation problems that we have failed to address to date (reviewed in Young, 2000 and Balmford and Cowling, 2006) or that are emerging in the face of novel threats (Sutherland and Woodroof, 2009; Rands et al., 2010). So called "early career researchers" (ECRs) have many challenges before them and it is clear that the status quo must change. Here we identify practical strategies that ECRs can adopt to become more relevant. Strategies and concepts presented are derived from a variety of outlets, including personal experience as ECRs (all but one of the authors), review of salient literature, and sage advice received from mentors. In this context, "relevance" refers to the ability to contribute to solving conservation problems through engagement with practitioners, policy makers, and stakeholders. We challenge the status quo for ECR professionals in conservation science entering the work force (as per Noss, 1997). Our intention is not to be prescriptive but rather get the community to think about what might work in their particular context. We can and must do better to train the next generation of ECRs, recognizing that much of this training will occur outside of the traditional classroom. It is our collective hope that the ideas presented here will offer ECRs a framework for enhancing their relevance in the field of conservation science, and lead to rapid and meaningful advances in conservation policy and action that attempts to reverse the biodiversity crisis we face today.

2. Strategies for being relevant in conservation

We do not presume that the strategies listed here cover all possible means of increasing relevance. Nonetheless, we submit that we have identified those that are of high priority. We also acknowledge that there is some level of overlap in strategies as one might expect in a multi-disciplinary, mission-oriented topic such as conservation.

2.1. Take off the blinders

Conservation science inherently crosses disciplines and scales. The ability to view each aspect of a conservation project and how it fits within the 'big picture' is necessary to ensure the goals remain relevant within the current research and