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Engaging end-users to inform the development of the global standard for the identification of key biodiversity areas

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ABSTRACT

We report results from an end-user engagement process, convened by the International Union for Conservation of Nature (IUCN), which informed the development of the Global Standard for the Identification of Key Biodiversity Areas. Key Biodiversity Areas are sites contributing significantly to the global persistence of biodiversity. We used a mixed methods approach involving interviews and an online questionnaire with end-users to determine their needs and concerns in relation to the Key Biodiversity Area approach. We found a remarkable level of convergence in end-user opinion on 12 important topics. Four topics resulted in a divergence in end-user opinion requiring further dialogue and consideration, including: (i) the value of a global standard compared to various national approaches; (ii) the prioritisation of Key Biodiversity Areas over other areas; (iii) whether Key Biodiversity Area data should be made freely available; and (iv) whether or not development activities should be permitted in Key Biodiversity Areas. Our results informed the development of the Global Standard for the Identification of Key Biodiversity Areas and a new governance structure, the Key Biodiversity Area Consultative Forum, which provides a mechanism for ongoing dialogue with end-users. We conclude by sharing five good practice recommendations for future end-user engagement processes.

1. Introduction

The development of strategies to understand and address global environmental challenges, including biodiversity loss, requires the production, transfer, exchange, and use of knowledge between scientists, policy makers, practitioners, and the wider public (Fazey et al., 2013; Graham et al., 2006; Jolibert and Wesselink, 2012). Engagement with end-users to understand their needs is an important component of global knowledge production processes as it provides insight into how, and even whether, the resultant knowledge may be used and by whom.

The demand for applied and impactful research and decision support tools is increasing (Matthies et al., 2007; Reed et al., 2014; Shove and Rip, 2000). The growing expectation, and at the same time challenge, for knowledge producers is to develop user-inspired and user-meaningful knowledge collaboratively (Raymond et al., 2010). In response to this, end-users are increasingly being engaged in knowledge production processes, resulting in changes in the way that knowledge producers, end-users, and other stakeholders interact (Contandriopoulos et al., 2010). End-user engagement processes have been used in various disciplines, sectors, and geographies; however, empirical analyses of global scale end-user engagement processes, specifically those related to global transdisciplinary knowledge production, remain relatively scarce (Garard and Kowarsch, 2017; Hulme, 2010; Montana, 2017; Shove and Rip, 2000; Turnhout et al., 2016).

Biodiversity conservation is often referred to as a transdisciplinary field because it incorporates a plurality of perspectives and motivations (Mace, 2014; Wilson, 1999) to inform decision-making in policy and practice (Hadorn et al., 2006; Pruitt and Waddell, 2005; Tress et al.,

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2005). The International Union for Conservation of Nature (IUCN) is a global environmental network with a transdisciplinary governance structure and a membership that consists of members from government, civil society, indigenous communities, business, and academia (Holdgate, 1999). IUCN is known for co-developing biodiversity and conservation knowledge products by bringing together stakeholders with diverse perspectives and motivations (Brooks et al., 2015; Stuart et al., 2017). The development and maintenance of these knowledge products requires considerable resources, as documented in Juffe-Bignoli et al., (2016).

A Global Standard for the Identification of Key Biodiversity Areas (hereafter referred to as the KBA Standard) (IUCN, 2016), and the World Database of Key Biodiversity Areas, are examples of a standard and a decision support tool drawn from the knowledge of experts, end-users, and additional stakeholders. KBAs are defined as "*sites contributing significantly to the global persistence of biodiversity*" (IUCN, 2016: 9). The World Database of Key Biodiversity Areas[1] hosts data on KBAs of global and regional significance (BirdLife, 2018). The KBA Standard provides the methodology (definitions, criteria, thresholds, and delineation procedures) to identify KBAs (IUCN, 2016). The KBA Standard builds upon over 30 years of experience in identifying areas of importance for the different taxonomic, ecological, and thematic subsets of biodiversity and aims to provide a methodology to consolidate and harmonise these existing approaches (Bennun et al., 2007; Eken et al., 2004; Foster et al., 2012; IUCN, 2016; Knight et al., 2007; Langhammer et al., 2007). Table 1 provides an overview of the approaches that the KBA Standard aims to consolidate and harmonise.

It is difficult to trace the exact time at which, and processes through which, the KBA concept gained wider international recognition; however, the first indication of a growing awareness and diffusion of the concept appears to be a side event during the Convention on Biological Diversity (CBD) Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA9) in 2003 that was hosted by BirdLife International, Conservation International, and Plantlife International. There were also KBA concept workshops held during the IUCN World Parks Congress (WPC) in 2003 and a KBA criteria development workshop, supported by the MacArthur Foundation in 2004 (Eken et al., 2004). Eken et al. (2004) present an early iteration of the KBA criteria, which were based upon the concepts of irreplaceability and vulnerability[2], and they also proposed provisional KBA thresholds.

During the 2004 World Conservation Congress (WCC) the IUCN membership negotiated Resolution 3.013 on the uses of the IUCN Red List of Threatened Species and requested that the Species Survival Commission (SCC) work in partnership with IUCN members to:

> *"…**convene a worldwide consultative process to agree a methodology to enable countries to identify Key Biodiversity Areas,** drawing on data from the IUCN Red List of Threatened Species and other datasets, building on existing approaches and paying particular attention to the need to: (i) enlarge the number of taxonomic groups used for site-based priority-setting approaches; (ii) have quantitative, transparent and objective criteria to identify Key Biodiversity Areas; and (iii) report on progress towards achieving this objective at the 4th IUCN World Conservation Congress."*
>
> IUCN (2005: 16 – emphasis added)

This WCC Resolution 3.013 marked the beginning of the global stakeholder engagement process that informed the development of the KBA Standard.

Langhammer et al. (2007) then expanded upon the initial criteria and thresholds developed by Eken et al. (2004), provided additional guidelines on the identification and delineation of KBAs and presented an extensive review of KBA related literature and applications.

In 2007 there was a debate in the KBA literature wherein Knight et al. (2007) critiqued the KBA approach, identified five limitations, and suggested three practical modifications and Bennun et al. (2007) provided responses to these recommendations to clarify the KBA approach. Of particular relevance to this research is the recommendation from Knight et al. (2007) that the KBA Standard should not be developed and implemented in a top-down way and should instead aim to engage stakeholders using a bottom-up approach. At the time of this exchange there was no internationally recognised standardised approach for identifying KBAs, as the KBA Standard was still in its inception phase; however, this debate, and others that have taken place throughout the development of the KBA Standard, provided important input that informed the global stakeholder engagement process and the evolution of the KBA approach.

The IUCN, under the leadership of its Species Survival Commission (SSC) and the World Commission on Protected Areas (WCPA), convened a multi-year (2004–2016) global stakeholder engagement process to inform the development of the KBA Standard. This process included four main activities: (i) technical workshops with subject experts; (ii) regional stakeholder engagement events; (iii) two rounds of online consultation on drafts of the KBA Standard; and (iv) end-user interviews and an online end-user questionnaire. Here, we examine the outcomes of the fourth of these, the end-user engagement component of the global stakeholder engagement process.

The different ways and contexts in which knowledge related to KBAs might be used were considered during the first technical KBA workshop (IUCN, 2012) and the outcomes of this workshop acted as a driver for the design and implementation of the end-user engagement process. For this research, we defined end-users as those who will use KBA data to inform their decision-making processes (IUCN, 2012). Here, we explore end-users' needs and concerns using a mixed methods approach to understand how the end-user engagement process informed the development of the KBA Standard. We conclude by sharing five good practice recommendations for future end-user engagement processes.

2. Research design and methods

This transdisciplinary research was problem-oriented and reached across different disciplines, concepts, and methods to inform practice (Klein, 2004; Robinson, 2008). We used semi-structured interviews complemented by a quantitative questionnaire for the following reasons: (i) the qualitative data were used to determine the most important topics and the quantitative questionnaire data were used to quantify perspectives on these topics; (ii) the combined qualitative and quantitative data enhanced the comprehensiveness and validity of the findings; and (iii) the qualitative data provided detailed contextual understanding and the quantitative data provided broader generalisable findings (Brannen, 2005; Bryman, 2008; Johnson and Onwuegbuzie, 2004). The purpose of our combined use of end-user interviews and the online questionnaire engaging end-users was to seek, document, and consider end-users' needs and concerns to inform the development of the KBA Standard. We did not aim to reach consensus on any specific topics.

2.1. Qualitative interviews

We conducted semi-structured end-user interviews and focus groups between 2012–2014 with representatives from intergovernmental agencies, private sector, national and regional government agencies, and civil society. A typology of end-user groups to target for the interviews was developed through deliberation during the first technical

[1] http://www.keybiodiversityareas.org

[2] Margules and Pressey (2000) provided a pivotal review of global conservation planning strategies and suggest a conceptual framework for the measure of biodiversity irreplaceability and vulnerability. The spatial rarity of biodiversity features can be measured as irreplaceability and the degree of threat can be measured as vulnerability.