



Short communication

Monitoring for conservation in African tropical national parks: An agenda towards policy-relevant science



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ABSTRACT

Monitoring as an instrument to quantify human and wildlife activities has been increasingly recognized as fundamental towards efficient biodiversity conservation strategies. Promoting the need to direct management based on scientific guidance, monitoring reflects the rise of evidence-based conservation approaches. Nonetheless, in tropical national parks, monitoring programs can fail to address conservation issues and divert scarce resources away from management priorities. In this manuscript, drawing on the literature and recent empirical observations in seven tropical national parks, I argue that the implementation of monitoring must go beyond the rational model of transfer from science to policy and focus on the processes of co-construction between knowledge and action. An increase in social engineering is needed among partners, services and hierarchical levels of parks to ensure a coherent strategy of knowledge production and its use for decision. I provide concrete recommendations as levers of action towards monitoring efficiency and policy-relevant conservation science.

1. Introduction

Tropical national parks have been widely recognized as fundamental strategic areas for the protection of major biodiversity hotspots and critically endangered species (Beaudrot et al., 2016; Saout et al., 2013). Such areas, however, often face many different threats, political instability, and their effectiveness in protecting nature might be questioned (Miteva et al., 2012; Tranquilli et al., 2014). As an instrument to quantify human and wildlife activities, monitoring is fundamental for natural resources management (Margoluis and Salafsky, 1998; Stem et al., 2005). It attempts to provide scientific guidance towards reliable action, management efficiency and increasing conservation outputs. Hence, monitoring can be considered as a tool for evidence-based conservation (Pullin and Knight, 2001).

However, it has been widely reported that, in developing countries, monitoring efforts are often ineffective in addressing conservation issues (Burton, 2012; Danielsen et al., 2005a; Gardner et al., 2008; Lund, 2013). Rather, monitoring can divert managers from conservation priorities (Sheil, 2001) and exacerbate bureaucracy (Lindenmayer and Likens, 2010a). Although monitoring represents a major investment in “knowing in order to conserve”, it often fails to integrate the information produced into decision-making (Danielsen et al., 2003) and appears to be “data rich but information poor” (Ward et al., 1986). Therefore, instead of increasing performance and cost-effectiveness of

conservation strategies, monitoring can divert scarce resources (Nichols and Williams, 2006; Sheil, 2001).

Monitoring raises issues related to the interaction between knowledge production and decision-making in environmental policies. How can parks managers and their partners build a policy-relevant conservation science? During the last decade, in order to improve monitoring efficiency, scholars have proposed frameworks and typologies focusing predominantly on long-term ecological measures (e.g. Green et al., 2005; Lindenmayer and Likens, 2010b). However, the relationships between knowledge and action, scientific rigor and political value, as well as the social dimension of expertise have been poorly considered (but see literature on participatory and locally-based monitoring Danielsen et al., 2005b, 2010).

Monitoring combines both the need to preserve a scientific authority and the willingness to provide efficient management (Desrosières and Naish, 2002; Lascoumes and Le Galès, 2005; Rottenburg et al., 2015). Therefore, the implementation of monitoring programs relates to contexts where science and policy are difficult to distinguish. In order to frame this “policy-driven science”, scholars have proposed different concepts such as regulatory (Jasanoff, 2009), post-normal (Funtowicz and Ravetz, 1993) or contextualized (Gibbons, 2000) sciences. They argue that the quality of expertise is highly related to the stakeholders' capacity to deal with complexity and uncertainty and stress the need to consider the production of scientific facts as

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