Ecosystem Services xxx (2017) xxx–xxx

Contents lists available at ScienceDirect

Ecosystem Services

journal homepage: www.elsevier.com/locate/ecoser

Expanding the protected area network in Namibia: An institutional analysis

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ARTICLE INFO

Article history:
Received 20 December 2016
Received in revised form 5 August 2017
Accepted 14 August 2017
Available online xxxx

Keywords:
Conservation landscape
Land use
Ecosystem services
Governance
Policy

ABSTRACT

Protected areas remain vital to global conservation efforts. To simultaneously improve biodiversity conservation and promote human well-being, protected areas cannot be considered separate from their surrounding landscapes. As such, protected areas and adjacent landscapes are increasingly being viewed as integrated. Planning for such multifunctional landscapes requires an understanding of the institutional context, since institutions serve as an interface between the social and ecological components of a system. Here, we assessed the institutional aspects (i.e. norms or rules-in-use) of including various land use practices around Etosha National Park in Namibia into an integrated conservation landscape. The present landscape provides several ecological benefits, including provisioning ecosystem services (pasturage and water) and cultural ecosystem services (hunting and tourism). Data on stakeholder perspectives and resource governance were obtained from semi-structured interviews conducted with park management, landowners, farmers and communal residents. We identified six distinct resource governance systems, each variably focused on ecosystem services and each guided by different institutions that shape stakeholder behavior. A broad repertoire of norms and shared strategies were found to be practiced in isolation from each other and constrained by land tenure. Expanding the protected area network requires integration of the different governance approaches and a landscape approach to management.

1. Introduction

Biodiversity is under increasing pressure due to growing human populations, climate change and unprecedented economic, social and political shifts; such that approximately 60% of the world's ecosystems are considered as degraded (MA, 2005). These pressures are a result of the interactions between anthropogenic and ecological processes that alter the delivery of ecosystem services (Haines-Young and Potschin, 2010; Sandifer et al., 2015). Ecosystem services, or the benefits people derive from nature, are continuously being threatened by the degradation and transformation of natural habitats (Vitousek et al., 1997; MA, 2003, 2005; Reed et al., 2015). Although protected areas have typically been viewed as vital in conserving biodiversity and curbing this destruction, the importance of incorporating areas adjacent to national parks and reserves is increasingly being acknowledged (Bengtsson et al., 2003; Chape et al., 2005). In southern Africa, multifunctional landscapes try to integrate protected areas with commercial and communal rangelands, thereby combining conservation, production and landscape use (Hannah et al., 2002; Harrington et al., 2010; O'Farrell and Anderson, 2010; Zeller et al., 2017). This inevitably depends on the inclusion of a broad range of stakeholders, including landowners, park rangers, commercial and communal farmers; who collectively manage ecosystems and who share the benefits, as well as the costs, of living in an integrated landscape (Ervin et al., 2010).

In Namibia, an expansion of the current protected area network, through the formal incorporation of national parks and adjacent rangelands, is aimed at not only improving ecosystem service provision but also to improving human well-being and land reform (Ashley and Barnes, 1996; Barnard et al., 1998; Jones, 2004). To do so justly and sustainably, an expanded protected area network will have to grapple with the complex ecological, political and economic factors that drive land use change, as well as the role protected areas play in providing benefits to resident communities and the possible costs involved therein (Maciejewski and Cumming, 2015; Cumming et al., 2015). Such an integrated

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http://dx.doi.org/10.1016/j.ecoser.2017.08.008
2212-0416/

approach to protected area governance also requires an understanding of the institutional context, since institutions, i.e. the rights, rules and relationships regulating resource use; serve as an interface between the social and ecological components of systems (Bromley, 1992; Schlager and Ostrom, 1992). It is at this interface that institutions create incentives for social behavior, for example by deterring exploitation, free-riding, destruction or negligence (North, 1990; Ostrom, 1990; Ostrom et al., 1999; Rudd, 2004). By enabling or constraining activities, institutions generate observable patterns of behavior (Scott, 2014) which in turn actualize policy outcomes (Polski and Ostrom, 1999). Thus in order to evaluate, design or reform policy, there is a need to systematically analyze existing institutional arrangements.

Land use changes have occurred in Namibian rangelands that involve landowners converting from cattle farming to wildlife management (Göttert and Zeller, 2008; Barnes and Jones, 2009). This is attributable to legislation passed in the 1960s that afforded private landowners ownership over wildlife species such as oryx (*Oryx gazella*), springbok (*Antidorcas marsupialis*), greater kudu (*Tragelaphus strepsiceros*), African buffalo (*Syncerus caffer*) and warthog (*Phacochoerus africanus*) (Long and Jones, 2004). The devolution of rights over wildlife to the landowner led to new hunting enterprises, changing perspectives on the value of having wildlife species on private properties (Barnard, 1998). Policies implemented in the 1990s afforded similar rights to communities, with the formation of communal conservancies (NACSO, 2014). As legally registered areas with a constituted management body collectively run by communities, communal conservancies provide resident communities with resource use rights and access to benefits from tourism and hunting, rights previously afforded only to private landowners (Weaver and Peterson, 2008).

Changing land use policy has generally favored pro-conservation practices such as the maintenance of biodiversity in game reserves and the protection of charismatic species and scenic landscapes on game farms and conservancies (Barnes and Jones, 2009). Many landowners and resident communities have gradually moved away from livestock production toward the consumptive use of wildlife, through hunting and game meat production, and the non-consumptive use of natural resources (i.e. ecotourism) involving mostly photographic safaris and educational tours (Boudreaux, 2010). Due to biophysical and socio-economic conditions (i.e. aridity, unpredictable rainfall and sparse human populations), the opportunity costs of alternative land uses, such as agriculture, are minimal (Roe et al., 2009). Institutional structures have also enabled cooperation between the private sector and communal conservancies, since the latter are now recognized legal entities, further encouraging partnerships surrounding land use practices dependent on the natural resource base.

To safeguard natural resources, efforts are being made by the state to formalize the expansion of the protected area system by integrating pro-conservation land use practices and protected areas into conservation landscapes (Brown et al., 2005; Zimmermann et al., 2014). We argue that to formulate appropriate policies, it is important to assess the institutional challenges of bringing different land uses together in an integrated conservation landscape. To provide insight into natural resource management, we use the ecosystem services approach (Wallace, 2007; Fisher et al., 2009; Wesselink et al., 2011) since it recognizes the complex interactions occurring across integrated landscapes (Turner and Daily, 2008; Fisher et al., 2009). The aim of this paper is to examine the institutional arrangements currently at play in the Namibian protected area landscape, particularly surrounding the Etosha National Park (ENP). Institutional arrangements, including property rights, policy reforms and land use practices, have led to integrated landscapes that encourage joint biodiversity conservation and human development. We thus examine the ENP and surrounding farms and conservancies, applying the Institutional Analysis and Development (IAD) framework (Ostrom, 2005) to identify the institutional attributes that have contributed to the current governance structures. We focus the discussion around ecosystem services, asking how biophysical, social-ecological and governance attributes have interacted to facilitate the current integrated landscape.

1.1. Collective governance of ecosystem services

The present landscape, comprising ENP and surrounding rangelands, provides several ecological benefits to park management, visitors, landowners and resident communities. The most important provisioning ecosystem services are pasturage (i.e. grazing) and water, while desert-adapted mega-fauna supports cultural ecosystem services, such as hunting and tourism (Lindsey et al., 2013). The former includes grasslands to sustain both livestock and wildlife while ground and surface water, supplied through intricate aquifers and fluvial systems, provide water to people, livestock and wildlife (Hipondoka et al., 2013). The biodiversity present in the region, particularly the abundance of free-roaming mammals and endemic bird species, supports consumptive and non-consumptive tourism enterprises and is a major driving force behind the conversion from cattle production to pro-conservation practices. To collectively manage this increasingly integrated landscape, the types of ecosystem services appropriated need to be considered (MA, 2003; de Groot, 2006; de Groot et al., 2010). The institutions and decision-making context for which the ecosystem services are being considered needs to be assessed (Fisher et al., 2009), since the values attributed to ecosystem services drive land use decision-making (Ban et al., 2013; Guerry et al., 2015; Ruckelshaus et al., 2015) and influences landscape planning (Reed et al., 2009; Wegner and Pascual, 2011). Although a great deal of the literature is dedicated to the role of communities in social-ecological systems (Berkes et al., 2003), little is known about the involvement of local institutions in decision-making and conservation planning pertaining to landscape management (Pimbert and Pretty, 1997; Andrade and Rhodes, 2012).

Applying the ecosystem services approach to a consideration of conservation landscapes facilitates a more critical focus on natural resource governance and stakeholder participation by directing attention to the human-nature interaction (Wesselink et al., 2011). Ecosystem services are construed in various decision-making processes embedded in institutions, from day-to-day operational choices, to collective decisions to constitutional resolutions (Ostrom, 2005). Ecosystem services differ in terms of whether there are governance systems in place to regulate their use and whether access to the ecosystem service can be determined (Primmer and Furman, 2012). Furthermore, ecosystem services dependent on larger landscapes to function are governed by land use planning while particular ecosystem services are at times governed by specific policy instruments (Primmer and Furman, 2012). Identifying the institutions at play in any particular context allows for an understanding of what has produced the current management system and provides an indication of which institutions will condition future recommendations (Primmer et al., 2015).

1.2. The Institutional Analysis and Development (IAD) framework

The Institutional Analysis and Development (IAD) framework serves as a multidisciplinary tool used to frame policy research on common pool resources, i.e. resources jointly managed and/or used by a group rather than by an individual (Ostrom, 1990, 2005; Ostrom and Cox, 2010; Ostrom et al., 1994). The IAD framework serves the purpose of our research in that it can be applied to the analysis of public and privately owned resources that depend

Please cite this article in press as: Mannetti, L.M., et al. Expanding the protected area network in Namibia: An institutional analysis. Ecosystem Services (2017), http://dx.doi.org/10.1016/j.ecoser.2017.08.008