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Adventure racing enables access to cultural ecosystem services at multiple scales

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ABSTRACT

Protected areas are increasingly being viewed and acknowledged within broader social-ecological landscapes as providing a range of ecosystem services, which offer an important connection between nature and society. We explore non-mechanised adventure racing as a form of nature-based tourism, how this activity enables access to a suite of cultural ecosystem services, and its facilitation by a network of relatively open-access protected landscapes. An international adventure race, set within the Garden Route, South Africa, was used as a case study. The physical setting (appreciating nature's beauty and experiencing the environment in a different way) played the most important role as a motivating factor for participation within adventure racing. Mountainous scenery, rugged coastlines and encounters with iconic species along with the challenge, physical exertion and social bonding also contributed strongly towards the overall experience. Social media and live tracking provided an opportunity for broad exposure and a virtual experience of cultural ecosystem services at a range of spatial scales. In this manuscript we contribute to profiling adventure tourism within a cultural ecosystem service framework, and highlight some implications for protected area management.

1. Introduction

In an era widely considered as the Anthropocene, an epoch in which human actions have global influence (Folke and Gunderson, 2012) on the earth's geology and ecosystems, there has been a shift from rural to urban living with over half the world's population living within urban areas (Bratman et al., 2015). Associated with this urbanisation, there is concern over reduced outdoor recreation amongst adults and children (Mitten et al., 2016) and concerns around a disconnect between people and their natural environments (Maller et al., 2005; Balmford et al., 2009; Cumming et al., 2015) potentially impacting human well-being both physically and mentally (see Maller et al., 2005 and Bratman et al., 2012 and Zylstra et al., 2014 for reviews). Paradoxically there is an increasing understanding and acceptance that *in a globalised society there are no ecosystems without people and no people that do not depend on ecosystem functioning in some way* (Folke et al., 2011). Ecosystems and social systems are interdependent and inextricably linked within one social-ecological system (Folke et al., 2010; Cumming et al., 2015).

Ecosystem services (ES), defined as the products and services derived from nature that bring benefits to humans (MEA, 2005), are increasingly being considered in policy development (Dudley et al., 2011), land-use decisions (de Groot et al., 2010; Goldstein et al., 2012) and in conservation planning (Menzel and Teng, 2010; van Riper et al., 2012). Ecosystem services and human well-being rely on the underlying natural capital which support ecosystem processes and functions (Alexander et al., 2016). Degradation of natural areas impairs ecosystem functioning, interrupts the flow of benefits and ultimately impacts human well-being and societal resilience (Alexander et al., 2016).

Protected areas (PAs) remain a key planning strategy for conserving biodiversity (Palomo et al., 2014; Watson et al., 2014; Cumming, 2016) and may arguably provide the largest single source of secure ES (Dudley et al., 2011). Although explicit acknowledgement of the benefits and values provided by PAs could lead to stronger societal support (MEA, 2005) and enhance conservation efforts (Haslett et al., 2010), the use of this approach in conservation strategies is rare (Thompson et al., 2011) and, in particular cultural ecosystem services (CES) are poorly quantified and integrated in management plans or policy development (de Groot et al., 2005; Daniel et al., 2012).

Cultural ecosystem services are defined as "the nonmaterial benefits people obtain from ecosystems through spiritual enrich-

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ment, cognitive development, reflection, recreation and aesthetic experiences" (MEA, 2005) and "ecosystems' contribution to the non-material benefits that arise from human-ecosystem relationships"(Chan et al., 2012). Haines-Young and Potschin (2013), distinguished between 11 classes of CES:"Experiential use of plants, animals and land-/seascapes; Physical use of land-/seascapes; Scientific; Educational; Heritage, cultural; Entertainment; Aesthetic; Symbolic; Sacred and/or religious; Existence; and Bequest". Although the benefits of CES are often more subtle, intangible (Milcu et al., 2013) and subjective (van Jaarsveld et al., 2005), they are greatly valued by diverse stakeholders (Milcu et al., 2013) and can present some of the most compelling reasons for conserving ecosystems (Chan et al., 2012; Daniel et al., 2012).

The ability to engage or form a connection with the natural environment through meaningful nature experiences (Zylstra et al., 2014) is often a pre-requisite for appreciation of a CES. Furthermore, being a social-ecological construct, a cultural service may only occur if there is a demand for it (Biggs et al., 2014). Nature-based tourism, predominantly based within PAs (Ewert et al., 2006; Perera et al., 2015), forms an essential component in PA management (IUCN, 2012) and provides an important connection opportunity between PAs and society allowing humans to tap into the physical, emotional and mental benefits provided by other complimentary CES (Milcu et al., 2013; Maciejewski et al., 2015). Historically, the motivations and activities of visitors within PAs were generally orientated towards more passive forms of recreation like rest, relaxation and solitude but more active forms of recreation are currently being sought (Burgin and Hardiman, 2012; Newsome et al., 2012; Saayman and Viljoen, 2016). Adventure tourism, encompassing non-mechanised adventure racing (Newsome and Lacroix, 2011), is a rapidly expanding segment of nature-based tourism (Rogerson, 2007) and may in part be due to the search for emotions and sensations different to 'normal life' (Carnicelli-Filho et al., 2010). The current research literature related to adventure recreation addresses a number of themes, notably the reasons why people engage in adventure activities (Ewert, 1985; Pomfret, 2006; Carnicelli-Filho et al., 2010), and concerns around potential impacts of extreme sports and adventure racing on the environment (Burgin and Hardiman, 2012; Newsome et al., 2012; Newsome, 2014) or potential conflict with other user groups (Newsome and Lacroix, 2011).

Calls for increased dialogue, policy development and debate around the appropriateness of adventure sports within PAs (e.g. Newsome and Lacroix, 2011; Burgin and Hardiman, 2012; Newsome, 2014) have arisen due to concern around potential ecological impacts (Newsome and Lacroix, 2011; Newsome, 2014) and conflicts with different user groups (Newsome and Lacroix, 2011; Perera et al., 2015). Taking an ES approach acknowledges that humans depend on and benefit from PAs and provides an opportunity to elucidate which benefits obtained from ES can help enhance conservation efforts, ultimately attracting widespread societal support (Maciejewski et al., 2015; Palomo et al., 2014).

In this paper we build on the existing literature by framing adventure racing within a CES context. We postulate that the activity of adventure racing, traversing a network of protected landscapes, enables teams of adventure racers to experience multiple CES. We assessed the role that nature plays as a motivating factor for undertaking adventure racing, as a consideration when choosing an event, and its contribution to the experiences gained during the event. Based on the insights gained through our research, we reflect on the implications of enabling adventure tourism for protected area management.

2. Methods

2.1. Overview of study area and study event

The Garden Route is an area on the southern Cape coastline extending between Mossel Bay in the Western Cape Province and Storms River in the Eastern Cape Province, South Africa. The resident population in the area is in the region of 400,833 people (Stats, 2011) with the majority living within the three main urban centres of George, Knysna and Plettenberg Bay. With a number of natural and cultural attractions the area is well known as a tourist destination within South Africa and is rated as high on the 'must-see' list for South Africa by the Lonely Planet travel guide (Lonely Planet, 2016). The natural beauty, range of topography (from beaches and coastal cliffs through to the Outeniqua Mountains), diversity of vegetation (fynbos to indigenous forest) and numerous outdoor activities available are all factors drawing tourists to the area (Lonely Planet). Key natural attractions include iconic coastal and mountain landscapes, fauna and flora such as whales, sharks, birds, Afrotemperate forest and fynbos vegetation. The area contains a matrix of land use types including transformed areas such as urban, agricultural, commercial forestry as well as natural areas. The Garden Route National Park managed by South African National Parks (SANParks), covering 157 000hais the largest formal PA within the study area and is distinctive in terms of its fragmented nature in the landscape. It is an open access park, spans both rural and urban areas and transcends political/administrative boundaries with the management plan describing it as a complex of protected areas managed as a single entity (SANParks, 2012). Other conservation areas are represented by the Outeniqua, Goukamma and Keurbooms nature reserves as well as the Brenton Blue Butterfly Special nature reserve managed by CapeNature; three marine protected areas (managed by CapeNature and SANParks) and a number of private reserves and conservancies.

This research was conducted during an international adventure race within the Garden Route – Expedition Africa (http://kinetic-events.co.za/AdventuresRaces/ExpeditionAfrica/tabid/15885/Default.aspx). Adventure racing has been loosely described as "a non-stop, self-sufficient, multi-day, multidiscipline, mixed gender endurance competition that takes place in the wilderness over a designated but unmarked course" (Kay and Laberge, 2002). Originating in New Zealand (Kay and Laberge, 2002) it now has a global following through the Adventure World Series with a team ranking system (based on World Series results) and culminates in an Annual World Adventure Racing Championship (ARWS, 2016).

Expedition Africa 2016 covered 544 km, comprised numerous stages over a variety of terrain and traversed a range of protected area types with 32% of the race occurring within some form of protected area (Fig. 1B). The race was a non-stop event requiring orienteering skills and included the disciplines of cycling, trekking, paddling, abseiling and canyoning (Fig. 1A). A total of 50 teams comprising four members and a further four teams comprising two members each took part.

2.2. Data collection

Both quantitative and qualitative research techniques were used in a mixed methods approach to obtain complementary information. A mixed methods approach was taken to provide balancing strengths to both quantitative and qualitative sources of information (Johnson and Onwuegbuzie, 2004) and in recognition of the interrelated nature of ES between the ecological and social domains (Milcu et al., 2013). Data, as obtained through complementary methods described below, were collected within two weeks after participants completed Expedition Africa.

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