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Money and motives: an organizational ecology perspective on private land conservation

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ABSTRACT

Analyses of institutions (rules, laws, traditions) and their relevance for conservation are increasingly common in conservation contexts. By contrast, the organizations that operate within the framework provided by institutions are less researched. We applied ideas from organizational ecology to understanding the economic strategies of private land conservation areas (PLCAs), and their sustainability. The biophysical and socioeconomic characteristics of 72 commercially-operated PLCAs in the Eastern and Western Cape Provinces of South Africa were used, via principal components and cluster analyses, to identify alternative business models. We found four distinct business models with different financial productivity and owner objectives. The most profitable models were (1) large ecotourism areas with many charismatic (megaherbivore/predator) and other (antelope) game species, expensive accommodation, and guided activities; and (2) small ecotourism areas with many charismatic game species, fewer other game species, short travel time from the nearest airport, guided activities and day visitors. The less profitable models were (3) hunting reserves, with 54% of owners seeking to generate profits but not doing so, creating a mismatch between financial objectives and financial returns; and (4) PLCAs with few game species and cheap accommodation/activities, which were similarly unprofitable although an absence of financial objectives limited mismatches to just 5%. Biophysical and socioeconomic incompatibilities between different business models make it difficult for PLCAs to change their business model if objectives are not met. Initial (and rational) choices of how to manage a natural resource can thus constrain future management options and the organization's ability to persist in a dynamic environment.

1. Introduction

Many conservation actions have come under criticism for being insufficient or ineffective, often as a result of limitations incurred by either the institutions (rules, laws, traditions) that regulate how conservation actions can be achieved or the organizations (governmental departments, businesses, societies, non-profit groups) that undertake them. Analyses of *institutions* and their relevance for conservation are increasingly common in conservation contexts [e.g. (Barrett et al., 2001)], and recognition of the importance of institutions for conservation success is widespread in both social–ecological systems analysis and conservation science [e.g. (Anderies et al., 2004; Ostrom, 1990)]. Somewhat less attention has been paid to the role of *organizations*.

The scientific community has called for an assessment of the capacity of conservation organizations to adapt to changing conditions, and an identification of the drivers of persistence in this diverse global network (Armsworth et al., 2015; Larson et al., 2014). For example, the international network of protected areas is one of the conservation community's most important means of safeguarding biodiversity, yet underfunding and competing priorities may jeopardize the ability of government organizations to effectively manage existing protected areas (Bruner et al., 2004). These challenges are not institutional, since legal frameworks and enforcement measures for the protection of nature exist; they are primarily organizational.

Given the importance of organizations for conservation, it seems strange that the existing body of theory relating to organizations has been largely ignored by conservation scientists. Of particular relevance is the field of organizational ecology, which has emerged from the application of ecological perspectives to the business environment. Organizational ecology seeks to explain how environmental (social, economic, political) conditions affect the relative abundance and diversity of organizations, and to understand the changing composition of organizations over time (Baum, 1999; Hannan and Freeman, 1977). In understanding the relative abundance and diversity of organizations, it is hypothesized that organizations become segregated into distinct clusters sharing a common "identity" when there are incompatibilities between organizational characteristics that restrict the combinations of characteristics that can emerge and persist [e.g. technological incompatibilities and transaction costs in manufacturing, construction, farming, and commercial industries; (Hannan and Freeman, 1986; Ruef, 2000)].

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In considering changes in the composition of organizations over time, organizations may have difficulty adapting their identities efficiently to meet the demands of an uncertain, changing environment. Effective adaptation can be limited by high sunk (unrecoverable) costs and legal and economic barriers of exit and entry [which impede organizations leaving or entering an industry; (Hannan and Freeman, 1977)]. Organizational ecologists have argued that organizational survival is dependent on a high degree of reliability in the provision of services/activities, and accountability in management actions (Hannan and Freeman, 1984; Hannan et al., 2004). The theory of structural inertia states that (a) organizations are often unable to adapt at an appropriate rate to emerging changes in their environment; and (b) frequent adaptation to constantly changing conditions can be maladaptive if it undermines the organization's reliability and accountability (Hannan et al., 2004; Stieglitz et al., 2015). Organizations with identities that are "matched" with current conditions will persist, while "mismatched" organizations that incur limitations in their ability to adapt appropriately will ultimately disappear (Hannan and Freeman, 1977).

Ideas from organizational ecology have significant potential for understanding the likely persistence and effectiveness of conservation organizations. In this paper we apply an organizational approach to the topic of private land conservation, which is increasingly important in global conservation efforts (Langholz and Lassoie, 2001; Stolton et al., 2014). A private land conservation area (PLCA) refers to an area that is managed for biodiversity conservation; protected with or without formal government recognition; and owned or otherwise secured by individuals, communities, corporations or nongovernment organizations (Cousins et al., 2008; Pasquini et al., 2010). A significant conservation concern is whether PLCAs will be able to effectively conserve biodiversity over suitably long time frames. This question reflects a core theme of organizational ecology: how do environmental conditions affect the relative abundance and diversity of organizations, and the ability of individual organizations to persist over time? Here we define persistence as the continued maintenance of a natural (untransformed) landcover, with at least current levels of biodiversity. Environmental conditions in this context include biophysical and socioeconomic conditions (e.g. climate and the tourism market, respectively).

Assessing the likely persistence of a PLCA requires cognizance of the motives, besides biodiversity conservation, behind its establishment and maintenance. An international assessment of PLCAs found motives to vary widely, including philanthropy, quality of life, business, and acquiring governmental financial incentives (Stolton et al., 2014). Many PLCAs have developed fund-generating activities such as ecotourism and hunting (Langholz and Lassoie, 2001; Stolton et al., 2014). The motive underlying these activities is sometimes to offset PLCA costs, with other PLCAs stating profit generation to be an important objective in-and-of-itself (Langholz et al., 2000; Pasquini et al., 2010). Understanding the ability of such PLCAs to achieve their objectives therefore requires an assessment of the efficacy of PLCAs in generating profits.

In Latin America and sub-Saharan Africa in the 1990s, 59% of surveyed PLCAs were profitable (Langholz, 1996). Financial models suggest that ecotourism has the potential to generate a greater return on investment than hunting in some southern African countries, while both activities fare poorly in others (Absa Group Ecomonic Research, 2003; Barnes and de Jager, 1996; Barnes, 2001). Consumptive uses of wildlife, such as meat sales and hunting, have nonetheless become important industries in southern Africa (Bond et al., 2004; Novelli et al., 2006).

Within the ecotourism industry, forest reserves in eastern Africa attracted fewer visitors than savanna game parks (Bayliss et al., 2014). Megaherbivores and large carnivores were the most popular species for international visitors to South Africa, though local visitors were more interested in smaller, rarer species and scenery (Lindsey et al., 2007). "High-end, low-volume" (high price per visitor, low number of visitors) ecotourism on private land has become a significant industry within southern Africa, targeting international tourists from high income countries (Bond et al., 2004; Magole and Magole, 2011). South Africa also supports a strong domestic tourism market, with demand for "low-end" (affordable) ecotourism opportunities (Bond et al., 2004). Visitor numbers to PLCAs are therefore not a function of ecological attributes alone, but also other biophysical as well as socioeconomic characteristics of the PLCA, including affordability, accessibility, and available facilities (Bayliss et al., 2014; De Vos et al., 2016). The availability of educational experiences such as guided tours can further influence the quality of visitor experience (Kerley et al., 2003).

Assessing the profitability of a PLCA therefore requires consideration of the adopted business model, as defined by available features and activities, both biophysical and socioeconomic. Organizational ecology defines an organization's identity according to its structural features and patterns of activity (Hannan and Freeman, 1977); a PLCA's business model can be considered analogous to its identity. In organizational ecology, biophysical and socioeconomic incompatibilities between different organizational characteristics are interpreted as driving segregating processes that create distinct clusters, or business models, with different identities. Such incompatibilities are likely to be evident on PLCAs between certain combinations of biophysical and socioeconomic characteristics. For example, PLCAs that rely on large carnivore species to attract tourists are unlikely to support large-scale hunting operations because of unsustainable stresses on the game population and potentially negative feedback from non-hunting guests. PLCAs that offer a high-end, low-volume safari experience may not concurrently cater for high quantities of day visitors that would detract from this exclusivity. Similarly, PLCAs that are far from airports and cities are unlikely to attract high volumes of day visitors.

In this paper we focus on two questions relating to the organizational ecology of PLCAs. First, do distinct PLCA business models exist, and why? For the reasons outlined above, we anticipate that biophysical and socioeconomic segregating processes will exist in the PLCA industry and that distinct clusters of PLCAs will be characterized by business models that reflect these incompatibilities. Second, if PLCA business models are indeed discontinuous, what proportion of PLCAs adopting different business models matches current environmental conditions? For those PLCAs for which profit is an important objective, a match between business model and current conditions is demonstrated by a match between financial objectives and profitability. Organizational ecology suggests that PLCAs should incur structural inertia as a result of segregating processes and barriers of exit and entry. This prediction would be supported if we were to observe PLCAs with financial returns that do not match financial objectives, reflecting an inability to adapt effectively to current conditions. Observed mismatches must be interpreted with some caution because of the role of temporal variation; knowledge of thresholds in how long owners would be willing to finance losses is important for assessing the likely long-term persistence of mismatched PLCAs, as many PLCA land owners report additional income sources (Langholz, 1996; Langholz et al., 2000; Pasquini et al., 2010) that may buffer mismatches. We test our predictions using PLCAs in the Western and Eastern Cape Provinces of South Africa that generate revenue from visitors, and relate our findings to conservation organizations and natural resource management more generally.

2. Methods

2.1. Study region

The Western Cape Province is 130,000 km^2 in extent and is characterized by the Fynbos, Nama-Karoo, Succulent Karoo and Thicket biomes. The Eastern Cape Province is 169,000 km^2 in extent and is characterized by the Fynbos, Grassland, Nama-Karoo, Savanna, Succulent Karoo and Thicket biomes.