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Discussion

Protected area asset stewardship

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ABSTRACT

Protected areas (PAs) are the main strategy to conserve natural values and reduce biodiversity loss. However, with increasing global food requirements, using land for protecting landscapes and species is becoming increasingly difficult to justify. Here, we argue that framing PAs as spatial assets provides an ideal platform for generating investment and increasing their political/cultural resilience. Specifically, we define and characterize PAs in terms of their biophysical, human, infrastructure, institutional and cultural assets, making explicit the forms of value they create and for whom, and identifying types of investment needed to generate value in the medium and long term. These assets can be protected, managed and/or invested in to generate (monetizable and non-monetizable) forms of value. They can also be at risk from a variety of factors. Building on contemporary conservation policy, our asset framework provides an innovative approach to the development and management of PAs in the 21st Century.

1. Introduction

The creation of protected areas (PAs) for conserving attributes of nature over the long term was one of the defining features of the 20th century (Jepson et al., 2011). Adopted as a policy strategy by virtually every country, PAs increased from a handful at the start of the 20th Century to more than 162,000 legally designated (statutory) national PAs covering 28.4 million km^{2}by 2013 (Watson et al., 2014). PAs in their various forms have influenced societies across the globe and are the cornerstone of efforts to sustain the Earth's biodiversity and ecosystems. Despite their key role in biodiversity conservation, PAs are under increasing pressure to justify their existence in the face of competition with other land uses, especially agriculture (Geldmann et al., 2014; Laurance and Balmford, 2013; Smith et al., 2010). This is because, depending on size and location, PAs can indirectly influence regional economies through land opportunity costs and/or the cost of mitigating the effects of linear infrastructure development (Symes et al., 2015). In a 21st century of expanding human populations, struggling economies, increasing resource extraction, and expanding infrastructure, there is a significant risk that PAs will be seen by politicians as being 'in the way' of human development (Watson et al., 2014) or even 'green' land grabs (Fairhead et al., 2012).

That PAs may be losing traction as a policy ideal is supported by observations that some governments have back-tracked on international commitments, sometimes to the extent of ignoring their own policies and legislation (e.g. Swenson et al., 2011). Budgets for PA management are also being cut, even in rich countries with strong PA traditions such as Australia, the US, Canada and the UK (Watson et al., 2014). The phenomenon of PADDD (Protected Area Downgrading, Downsizing and Degazettement) is widespread and increasing in certain parts of the world (Bernard et al., 2014; Mascia et al., 2014; Pack et al., 2016; Symes et al., 2015).

In short, PAs are increasingly vulnerable to social and political pressures. In the light of these challenges, a key question for conservation policy and management is: how to increase the resilience of PAs in the changing and increasingly volatile socio-economic landscapes of the 21st century?

Framing an issue for policy inevitably foregrounds particular worldviews, problems and solutions. Such framings and the scale of their adoption affects which interests gain influence and which professions and partnerships become involved in implementation. During the late 1980s biodiversity conservation became the dominant framing

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for PAs in policy dialogue, privileging conservation biology perspectives. However, difficulties in substantiating a biodiversity-value-beneficiary narrative may have contributed to perceptions in some circles that biodiversity conservation is an end in itself, thereby narrowing the opportunities for alignment between PA development and wider policy. Subsequently, the ecosystem services policy frame and the metaphor of nature as a fixed stock of capital that can sustain a supply of ecosystem services (Daily, 1997) has more closely aligned conservation with economic development policy. Such a framing highlights the strongly utilitarian idea of '*nature for people and the economy*' (Norgaard, 2010, Mace, 2014), providing a more explicit economic justification for PAs as ecosystem service providers. However, because the relationships between politics, policy and society are dynamic, such 'narrowings' of the purpose of PAs may ultimately undermine their long-term socio-ecological resilience.

Before the advent of framings based on biodiversity and ecosystem services, PA policy had gained high-level political support on at least three occasions. The first time was during the colonial era when the 'wise-use' agenda gained prominence. This agenda was based on the idea that natural resources should be used for the greatest good in the long term, and resulted in the establishment of forest, game and watershed reserves by European colonial administrations and the US. During the interwar period a new conservation agenda began to take root, based on the value that "human conquest of nature carries with it a moral responsibility to ensure the survival of threatened life-forms" (Jepson and Whittaker, 2002). This was explicitly codified in the 1933 London Convention on African Wildlife and led to the widespread establishment of wildlife sanctuaries and national parks (Hingston, 1931). PA policy attained high-level attention a third time when, in 1963, US President Johnson included nature-development as one of three pillars of his 'great society'. His policy combined values relating to amenity and the preservation of nature monuments, foregrounding the role of national and state parks to beautify nations and as sites of outdoor recreation for an increasingly affluent population with an increasing amount of leisure time (Whitaker, 1976, Jepson, 2017).

Wise-use, wildlife and nature development framings were firmly rooted in the foundational social movements of conservation (Jepson and Canney, 2003). They generated multiple forms of value for nature, people, society and economy and are still meaningful today. In this article we argue that the socio-ecological resilience of contemporary PAs can be strengthened by more effectively utilizing the full range of motivations and rationales for PA establishment.

In support of our argument we present a protected area asset framework as a heuristic tool for re-stating the case for PAs in a way that is meaningful for citizens, politicians, investors and entrepreneurs. We frame PAs as a spatial asset class (= a distinct class of real estate), making explicit the forms of value they create and for whom, and the types of investment needed to generate value in the medium and long term. Our framework facilitates the identification of where value is located, and which PA assets are underperforming, degrading and/or at risk. Our framework is consistent with Mace's (2014) view that conservation policy is starting to move away from a strong utilitarian perspective (and back) to a more nuanced 'people and nature' view that recognizes the importance of cultural institutions for developing resilience within the society-nature relationship. We hope the framework will support the design and development of a new generation of PA assessment metrics, decision support tools, planning processes and financing mechanisms. Further, we hope the language of assets and value will help conservationists communicate the value of PAs across different domains of society and policy, extending the range of professions and other groups who feel they have a stake in the future of PAs.

2. Framing protected areas as nature-based assets

2.1. Framework positioning

Our framework adopts a systems perspective and is rooted in conservation pragmatism: we believe that non-human forms of life have intrinsic value and a right to continued ecological existence. However, since the cognitive revolution 70,000 years ago we humans have lived a in a dual reality: the objective reality of rivers, mountains and animals and the inter-subjective (or imagined) realties of money, gods, WWF, the Antarctic and so forth. These inter-subjective realities characterise human consciousness: they enable large scale collective action and have become ever more powerful over time giving rise to 'imagined orders' such as nations, empires and capitalism (see Harari, 2014, 2016). Nature (biological) conservation is an 'imagined order' that blends values, emotion, rational science and collective action (e.g. PAs) in a coherent policy regime. To have influence, this imagined order must interact productively with multiple other imagined orders and not simply seek to align with the most dominant (e.g. neoliberal economics).

Concepts of asset and value intertwine with multiple inter-subjective realities, creating opportunities for positive alignments between the desire to protect, manage and restore bio-physical entities and the imaged orders that characterise, structure and shape societies. In short, we posit that if PAs are framed as assets that generate value within the inter-subjective realties that govern collective action there is a greater likelihood that investment will flow into conserving the biophysical assets they protect.

2.2. 'Assets' in the context of PA policy

The term 'asset' is widely used in economics and finance and in everyday language. In economics it generally refers to property, funds or other resources that are owned by an entity and which can be transferred (Parkin, 2005). In finance and investment, assets are things (such as securities, land and buildings) that can be contractually purchased to generate income. In popular culture, an asset is generally understood as a useful or valuable attribute of a person or group ("her quick reflexes were an *asset* for the team") (Simpson and Weiner, 1989). In economics and finance, assets generate financial (monetary) value; in wider society assets are understood as generating value in terms of action possibilities (affordances) that may be non-monetizable.

Taking the above into account, we define nature-related assets as entities, attributes and relationships (see Table 1) that can be protected, managed and/or invested in to generate forms of value that can be captured by both humans and non-humans and the wider socio-ecological systems within which they live. For example, a PA investment to reintroduce a species will benefit the species concerned and the wider ecosystem (by restoring trophic cascades and associated ecological dynamics). Associated investments (e.g. in media expositions, research/visitor infrastructure) will also enable groups in society such as citizens, tourism enterprises, scientists, local communities and tourists to capture value from this investment.

Real estate is a category of asset that combines land and all the things (natural or human-made) permanently attached to it. Real estate has a fixed and physical form and generates value over the long term in relation to its governance, economic and cultural context. For example, a city park is a public asset generating quality-of-life value for citizens. Likewise, farmland is a private asset generating income for the landowner, and common lands are community assets generating value for those with use rights. It follows that PAs can be grouped into categories based on their biophysical character and value-generating purpose/beneficiaries. For example: a mountain forest managed as a watershed reserve for a local municipality, a waterbird colony managed as a wildlife sanctuary to maintain bird populations in the wider landscape, and a scenic cove managed as state park for outdoor recreation. Such